# HOLEMAKING TOOLS

GESAC

# About GESAC

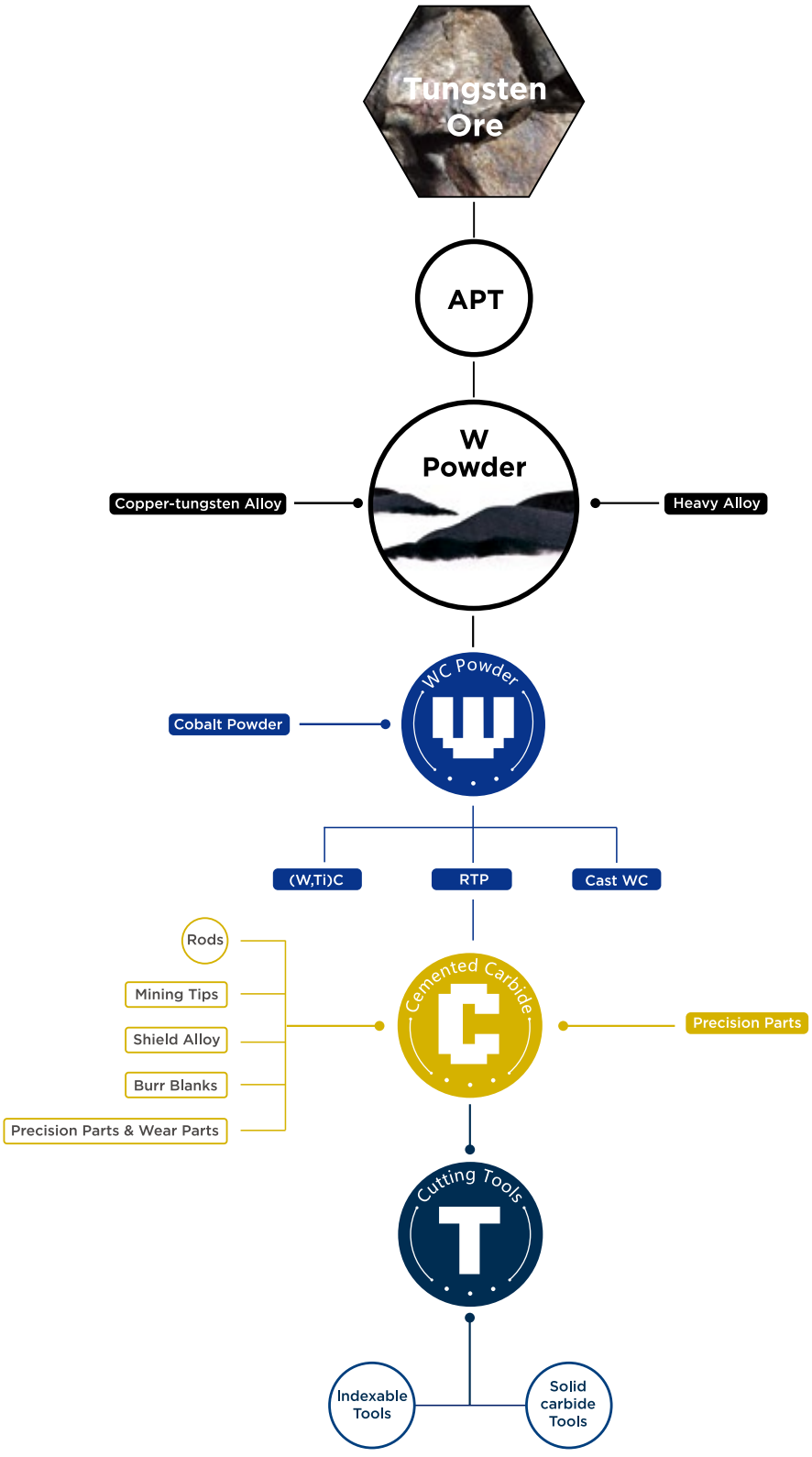
Xiamen Golden Egret Special Alloy Co., Ltd. (GESAC), founded in 1989, is a Sino-foreign joint venture with national high-tech, affiliated with XTC, which is one of six major rare earth groups in China. GESAC is committed to research & development, production and professional solutions providing of high-quality tungsten powder materials, cemented carbide, precision cutting tools and other tungsten products. Up to now, GESAC has become world-famous manufacturer and supplier of tungsten powder, cemented carbide and precision cutting tools products.

With the Integrated Product Development of complete tungsten industry chain, as well as a pragmatic and innovative management concept, GESAC has always maintained a strong momentum of development, providing the cost effective tungsten powder products and services for global users, offering the excellent products and perfect solutions for solving high hardness, high temperature resistance and wear resistance topics. Our brand "Golden Egret" has become one of the leading brand in the market, enjoying famous reputation in more than 40 countries and regions.

GESAC owns three production bases, three overseas sales branches and one R&D center. We undertook and completed several development programs independently, including the “National Science and Technology Support Programs”, the “National Torch Program Projects”, and the “National Key Projects” and so on. GESAC was awarded as "Key Enterprise for Strategic Emerging Industry ", “Innovative Enterprise" and "Enterprise with Advanced Technology ".

# Product Chain

GESAC has a complete tungsten product chain from tungsten ore to tungsten powder, cemented carbide products and cutting tools.



GESAC

# Contents

A

# SOLID CARBIDE DRILLS

# Content of Drills Series

| Drills Series | Description and profile | | Point Angle | Shank Type | Coating | Drilling Depth | Coolant Type / form | Tool Type | Dimension Range | Hole accuracy class | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D918S | 3D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 3D | | D918S-A3N NEW | D3～D20 | IT9-10 | P017 | P069 |
| | 3D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 3D | | D918S-A3C NEW | D3～D20 | IT9-10 | P018 | P069 |
| | 5D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 5D | | D918S-A5N NEW | D3～D20 | IT9-10 | P019 | P069 |
| | 5D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 5D | | D918S-A5C NEW | D3～D20 | IT9-10 | P020 | P069 |
| D968S | 3D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 3D | | D968S-A3N NEW | D3～D20 | IT9-10 | P021 | P071 |
| | 3D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 3D | | D968S-A3C NEW | D3～D20 | IT9-10 | P022 | P071 |
| | 5D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 5D | | D968S-A5N NEW | D3～D20 | IT9-10 | P023 | P071 |
| | 5D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 5D | | D968S-A5C NEW | D3～D20 | IT9-10 | P024 | P071 |
| D101 | 90° NC Centre Drill |  | 90° | SHANK DIN 6535HA | TiAlN | | | D101-AMN | D5～D20 | | P063 | P077 |
| D102 | 120° NC Centre Drill |  | 120° | SHANK DIN 6535HA | TiAlN | | | D102-ANN | D5～D20 | | P064 | P077 |
| D103 | 145° NC Centre Drill |  | 145° | SHANK DIN 6535HA | TiAlN | | | D103-APN | D5～D20 | | P065 | P077 |
| D918 | 3D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | TiAlN | 3D | | D918-A3N | D3～D20 | IT9-10 | P047 | P079 |
| | 3D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | TiAlN | 3D | | D918-A3C | D5～D16 | IT9-10 | P049 | P079 |
| | 5D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | TiAlN | 5D | | D918-A5N | D3～D20 | IT9-10 | P051 | P079 |
| | 5D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | TiAlN | 5D | | D918-A5C | D5～D16 | IT9-10 | P054 | P079 |
| D938 | 3D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 3D | | D938-A3N | D3-D20 | IT9-10 | P026 | P073 |
| | 3D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 3D | | D938-A3C | D3-D20 | IT9-10 | P029 | P073 |
| | 5D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 5D | | D938-A5N | D3-D20 | IT9-10 | P033 | P073 |

◎ Most Suitable ○ Suitable

| | 工件材料 | | | | | | | | | | | | | |
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| | 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 | 5 | 1 2 3 | 4 | 1 2 | 3 |
| | Carbon Steels,Alloy Steels | Alloy Steels, Tool Steels | PH and Ferrite/ Martensitic Stainless | Stainless Steel | Cast Iron, Ductile Cast Iron | High Alloy Cast Iron | Wrought Aluminium Alloys, Cast Aluminium Alloys | Cast Aluminium Alloys | Copper Alloys | Composite Material | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steels | Hardened Steels |
| | <35HRC | 35-48HRC | | | <35HRC | 35-45HRC | Si<12% | Si>12% | <200HB | | <450HB | <400HB | 45-55HRC | 55-60HRC |
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# Content of Drills Series

| Drills Series | Description and profile | | Point Angle | Shank Type | Coating | Drilling Depth | Coolant Type / form | Tool Type | Dimension Range | Hole accuracy class | Dimension Page | Cutting Parameters Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D938 | 5D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 5D | 4 | D938-A5C | D3-D20 | IT9-10 | P037 | P073 |
| | 8D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlTiN nano | 8D | 4 | D938-A8C NEW | D3-D16 | IT9-10 | P041 | P075 |
| | 12 DInner Cooling,Twist Drill |  | 135° | SHANK DIN 6535HA | AlTiN nano | 12D | 4 | D938-A12C NEW | D3-D12 | IT9-10 | P044 | P075 |
| | 15 DInner Cooling,Twist Drill |  | 135° | SHANK DIN 6535HA | AlTiN nano | 15D | 4 | D938-A15C NEW | D3-D12 | IT9-10 | P045 | P075 |
| D928 | 3D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 3D | 2 | D928-A3N | D3～D20 | IT9-10 | P056 | P081 |
| | 3D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 3D | 4 | D928-A3C | D5～D20 | IT9-10 | P057 | P081 |
| | 5D External Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 5D | 2 | D928-A5N | D3～D20 | IT9-10 | P058 | P081 |
| | 5D Inner Cooling,Twist Drill |  | 140° | SHANK DIN 6535HA | AlCrN/ TiSiN | 5D | 4 | D928-A5C | D5～D20 | IT9-10 | P059 | P081 |
| D998 | 3D External Cooling,Twist Drill |  | 140° | SHANK h6 | AlTiN nano | 3D | 2 | D998-Y3N | D4～D16 | IT9-10 | P060 | P083 |
| D713 | 5D External Cooling Straight Flute Drills for Cast Iron |  | 130° | SHANK DIN 6535HA | TiAlN | 5D | 3 | D713-A5N | D4～D20 | IT8-9 | P061 | P084 |
| | 5D Inner Cooling Straight Flute Drills for Cast Iron |  | 130° | SHANK DIN 6535HA | TiAlN | 5D | 4 | D713-A5C | D4～D20 | IT8-9 | P062 | P084 |
| D612 | Triple-angle Drills |  | 118° | SHANK | U-DIA | 3D | 1 | D612-Y3N | D2.49-D7.94 | | P066 | P085 |
| D973 | 5D External Cooling,Twist Drill |  | 120° | SHANK | AlCrN/ TiSiN | 5D | 2 | D973-Y5N | D2.5-D8.0 | | P067 | P085 |
| D573 | 3Flute external Coolant core drills |  | | SHANK | AlCrN/ TiSiN | 3D | 3 | D573-Y3N | D4-D9.3 | | P068 | P085 |
| R733-C | Left Hand Helix Reamer |  | | SHANK | AlCrN/ TiSiN | | 6 | R733-C | D3.26-D12.7 | | P141 | P144 |
| R733-CM | Left Hand Helix Reamer |  | | SHANK | AlCrN/ TiSiN | | 6 | R733-CM | D3.26-D12.7 | | P142 | P144 |

◎ Most Suitable ○ Suitable

| | 工件材料 | | | | | | | | | | | | | |
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| | P | | | M | K | | N | | | | S | | H | |
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| | Carbon Steels,Alloy Steels | Alloy Steels, Tool Steels | PH and Ferrite/ Martensitic Stainless | Stainless Steel | Cast Iron, Ductile Cast Iron | High Alloy Cast Iron | Wrought Aluminium Alloys, Cast Aluminium Alloys | Cast Aluminium Alloys | Copper Alloys | Composite Material | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steels | Hardened Steels |
| | <35HRC | 35-48HRC | | | <35HRC | 35-45HRC | Si<12% | Si>12% | <200HB | | <450HB | <400HB | 45-55HRC | 55-60HRC |
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# Content of Drills Series

| Drills Series | Description and profile | | Shank Type | Shank Type | Drilling depth | Tool Type | Dimension Range | Hole accuracy class | Dimension Page | Cutting Parameters Page | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GSD Spade Drills | MCMG Spade insert |  | | GM3225 | | GSD | D13-D36 | IT9-10 | P089 | P94 | |
| | GSD The Lateral Fixation Type Flange Shank and Helical Flute Holder |  |  | | 3D-12D | | | | P090 | | |
| | GSD-S The Lateral Fixation Type Flange Shank and straight Flute Holder |  | | | 1D-26D | | | | P091 | | |
| | GSD-FMT Morse taper shank and Helical Flute Holder |  |  | | 2D-12D | | | | P092 | | |
| GHD Indexable Drills | QPMG Drilling insert |  | | GA4230 GS4130 | | GHD | D14-D51 | IT12-13 | P115 | P117 | |
| | GHD Drilling holder |  |  | | 2D-5D | | | | P101 | | |
| SPMG /WCMT Drilling insert | SPMG Drilling insert |  | | GA4230 GS4130 | | SPMG | | IT12-13 | P116 | | |
| | WCMT Drilling insert |  | | GA4230 | | WCMT | | IT12-13 | P116 | | |
| GD600 Screw Locking deep drill | GD600 DeepHole Indexable Drills |  | | GA4230 GM3225 | MAX 100D | BTA ejector drilling head | D38-D107 | | P096 | P098 | |
| GD602B Brazed deep drill | GD602B DeepHole Indexable Drills |  | | | MAX 100D | GD602B | D15.6-D36.2 | IT9 | P099 | P100 | |
| RB/LRB Rough Boring Tool | RB Rough Boring Tool |  | | | MAX 7D | RB | D20-D170 | IT8-9 | P121 | P143 | |
| | LRB Rough Boring Tool with big |  | | | MAX 4D | LRB | D148-D1260 | IT8-9 | P126 | | |
| FB/LFB Finish Boring Tool | FB Finish Boring Tool Accuracy of adjustment0.01mm |  | | | MAX 7D | FB | D20-D203 | IT7-8 | P127 | | |
| | LFB Finish Boring Tool with big diameter Accuracy of adjustment0.01mm |  | | | MAX 4D | LFB | D148-D1475 | IT7-8 | P129 | | |
| SFB Micro-Finish Boring Tool | Accuracy of adjustment0.002mm |  | | | MAX 7D | SFB | D29-D150 | IT7-8 | P130 | | |
| GBJ/GBH Micro-Finish Boring Tool | Accuracy of adjustment0.001mm |  | | | | GBJ | D6-D50 | IT7-8 | P132 | | |
| | Accuracy of adjustment0.01mm |  | | | | GBH | D8-D280 | IT7-8 | P133 | | |

◎ Most Suitable ○ Suitable

| | 工件材料 | | | | | | | | | | | | |
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| | Carbon Steels,Alloy Steels | Alloy Steels, Tool Steels | PH and Ferrite/ Martensitic Stainless | Stainless Steel | Cast Iron, Ductile Cast Iron | High Alloy Cast Iron | Wrought Aluminium Alloys, Cast Aluminium Alloys | Cast Aluminium Alloys | Copper Alloys | Composite Material | Heat Resistant Super Alloys | Titanium Alloys | Hardened Steels | Hardened Steels |
| | <35HRC | 35-48HRC | | | <35HRC | 35-45HRC | Si<12% | Si>12% | <200HB | | <450HB | <400HB | 45-55HRC | 55-60HRC |
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# Solid Carbide Drills Identification System

**D938 –**

①

| Workpiece Material | ①Drills Series | |
|---|---|---|
| Steel,Cast Iron,Non-steel Material | D101 | Straight Shank 90°NC Centre Drills |
| | D102 | Straight Shank 120°NC Centre Drills |
| | D103 | Straight Shank 145°NC Centre Drills |
| Steel | D918 | Twist Drills for General Purpose |
| | D938 | Twist Drills for Steel |
| Stainless Steel | D968S | Twist Drills for Stainless Steel |
| Cast Iron | D928 | Twist Drills for Cast Iron |
| Hardened Steel | D998 | Twist Drills for Hardened Steel |
| Cast Iron | D713 | Straight Flute Drills for Cast Iron |
| Composite Mmaterial | D612 | Triple-angle Drills for Composite Mmaterial |
| | R733-C | Reamer forComposite Mmaterial |
| Composite and Metal | D973 | Twist Drills for Composite and Metal |
| | D573 | Core Drills for Composite and Metal |
| | R733-CM | Reamer for Composite and Metal |

| A | 5 | C – | 1200 |
|---|---|---|---|
| ② | ③ | ④ | ⑤ |

| ②ShankType | |
|---|---|
| A | DIN6535HA |
| E | DIN6535HE |
| B | DIN6535HB |
| Y | Continuous Parallel Shank |
| M | Mose Shank |

| ③Drilling Depth | |
|---|---|
| 3 | Drilling Depth≤3D |
| 5 | Drilling Depth≤5D |
| 8 | Drilling Depth≤8D |
| A | Drilling Depth≤10D |
| M | 90°Point Angle |
| N | 120°Point Angle |
| P | 145°Point Angle |

| ④Coolant Type | |
|---|---|
| C | Internal Coolant |
| N | External Coolant |

| ⑤Drill Diameter | |
|---|---|
| 0325 | Dia：Φ3.25 |
| 0600 | Dia：Φ6.00 |
| 1200 | Dia：Φ12.00 |

# Series Introduce

## D918 Twist Drills for General Purpose

- Suitable for drilling steel, stainless steel, cast iron, non-ferrous material.
- Stub chisel, excellent self-center capability.
- curve point, smaller cutting resistance.
- Lip chamfer, higher feed rate, higher efficiency.

## D938 Twist Drills for Steel

- Suitable for drilling of Steel（≤ 48HRC）, Cast Iron.
- Unique cutting edge preparation to add strength to the cutting edge, and improve the drilling stability.
- New AlTiN-nano coating, superior wear resistance, longer tool life.
- Straight cutting edge, improves tool strength.

## D928 Twist Drills for Cast Iron

- Suitable for drilling cast iron of automobile industry and other industries.
- Wave formed cutting lips provides lowered machining torque.
- Four margin design, improves hole wall quality and accuracy.
- Increased Drills point strength through optimized chisel edge.

## D968S High PerformanceTwist Drills for Stainless Steel

- Suitable for high efficient drilling of stainless steel, carbon steel, alloy steel, heat-resistant alloys and titanium alloys and other materials.
- Unique bottom edge design with stronger chip breaking capacity and larger chip holding space.
- New substrate coating—superior toughness and wear resistance.
- Large groove design, with good chip evacuation performance.

# Series Introduce

## D998Twist Drills for Hardened Steel

- Suitable for drilling hardened steel.
- Large core thickness, small helix angle, high rigidity and strength.
- X-shaped drills tip, excellent self-center capability.
- Radius drills point, excellent hole wall quality.

## D713Straight Flute Drills for Cast Iron

- Straight flute design, suitable for drilling cast iron.
- Four margin design, improve hole wall quality and accuracy.
- X-shaped drills tip, excellent self-center capability.

## D101/D102/D103 NC Centre Drills

- Suitable for drilling the center hole and chamfer.
- Suitable for drilling steel, cast iron, aluminum alloys, copper alloy.

## D973Twist Drills for Composite and Metal

- Suitable for carbon fiber / glass fiber reinforced plastic and metal laminated board material manual holel .
- Suitable for aviation aluminum, titanium alloy, stainless steel metal materialsl .
- Double edge and self centering design increases process stabilityl .
- Hole tolerance:+/-0.025mm（+/-0.001 "）.
- Unique tip design reduces export burrsl .
- Recommended with the use of drilling sleeve.

# Series Introduce

## D573 Core Drills for Composite and Metal

- Suitable for manual reaming of CFRP / GFRP and metal laminates
- Suitable for aviation aluminum, titanium alloy, stainless steel metal materials
- Three-blade structure and drill tip design to increase processing stability
- Recommended with the use of drilling sleeve
- Hole tolerance:+/-0.025mm（+/-0.001 "）

## D612Triple-angle Drill for Composite Material

- Suitable for all kinds of carbon fiber / glass fiber reinforced plastic manual drillingl
- The tool slot is designed for unidirectional and braided belt type CFRP
- The unique tip design ensures smooth and smooth drilling
- Cutting edge sharp can be processed out of excellent export / import quality
- Hole tolerance：+/-0.025mm（+/-0.001 "）

## R733-CM Reamer for Composite and Metal

- Suitable for high precision manual reaming of CFRP / GFRP and metal laminates
- Suitable for hole geometric accuracy and processing roughness demanding reaming
- Double ladder design can effectively increase the scope of application
- Hole tolerance: +/- 0.010mm

## R733-C Reamer for Composite Material

- Suitable for all kinds of carbon fiber / glass fiber reinforced plastic high precision manual hinge processing
- Suitable for hole geometric accuracy and processing roughness demanding reaming
- Double ladder design can effectively increase the scope of application
- Hole tolerance:±0.010mm

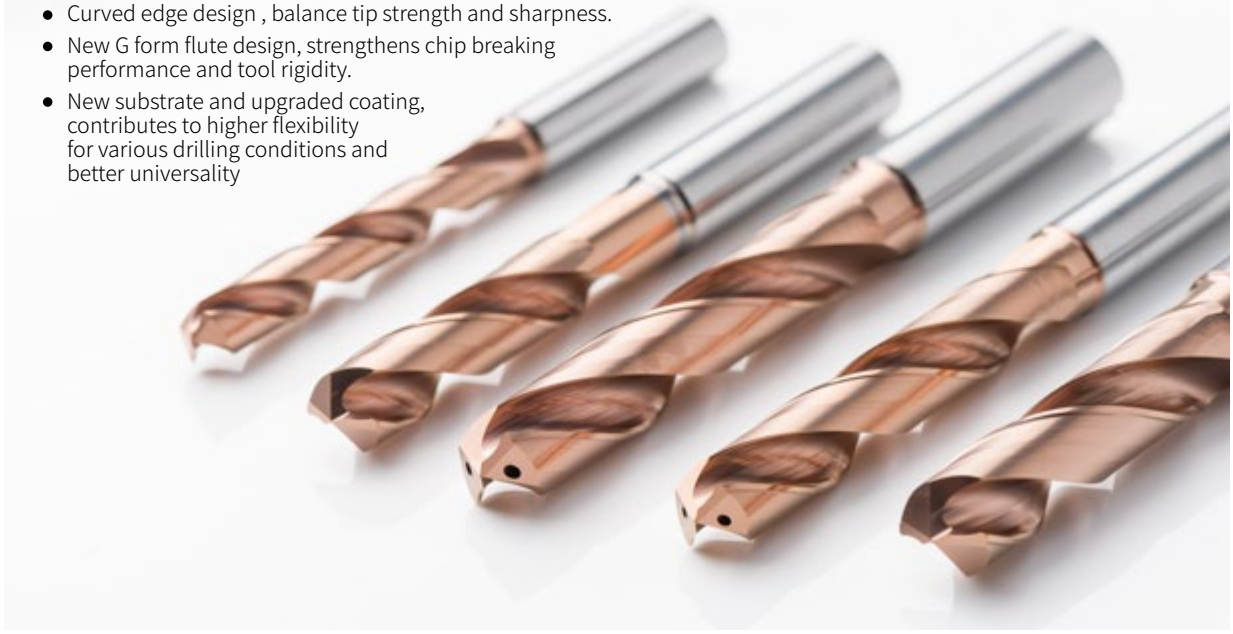
# New Products

## D938 Series
## 12D-15D Deep-hole Inner Cooling Twist Drill

- Suitable for efficient drilling of Steel, Cast Iron and Stainless steel
- New substrate material, toughness and wear resistance of perfect balance
- Using AlTiN-nano coating and unique post-processing of coating
- Optimize the groove profile and design of drill point, With super self-centering Performance,chip breaking performance and good chip evacuation performance

## D918S
## High Performance Twist Drills for Steel

- Suitable for drilling mild Steel, Interrupted cutting, defective cooling condition and other severe working condietions.
- Curved edge design , balance tip strength and sharpness.
- New G form flute design, strengthens chip breaking performance and tool rigidity.
- New substrate and upgraded coating, contributes to higher flexibility for various drilling conditions and better universality



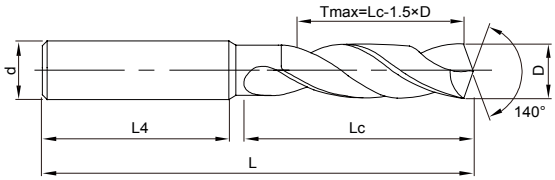
# Application Summary of Solid Carbide Drills

<table>
<tr><th rowspan="2">ISO</th><th rowspan="2">GESAC Material Group</th><th colspan="5">Internal Coolant Drilling</th><th colspan="3">External Coolant Drilling</th></tr>
<tr><th>3*D</th><th>5*D</th><th>8*D</th><th>12*D</th><th>15*D</th><th>Chamfer/ centre hole</th><th>3*D</th><th>5*D</th></tr>
<tr><td rowspan="3">P</td><td>Carbon Steels, Alloy Steels (<35HRC)</td><td colspan="2" rowspan="3">D918<br>D938<br>D918S NEW</td><td rowspan="3">D938</td><td rowspan="3">NEW<br>D938</td><td rowspan="3">NEW<br>D938</td><td rowspan="10">D101<br>D102<br>D103</td><td colspan="2" rowspan="3">D918<br>D938<br>D918S</td></tr>
<tr><td>Alloy Steels (35-48HRC)</td></tr>
<tr><td>PH and Ferrite/Martensitic Stainless (<35HRC)</td></tr>
<tr><td>M</td><td>Stainless Steel</td><td colspan="2">D968S NEW</td><td>Developing</td><td>Developing</td><td></td><td colspan="2">D968S</td></tr>
<tr><td rowspan="2">K</td><td>Cast Iron, Ductile Cast Iron (<32HRC)</td><td colspan="2" rowspan="2">D928<br>D713</td><td rowspan="2">Developing</td><td rowspan="2">Developing</td><td rowspan="2"></td><td colspan="2" rowspan="2">D928<br>D713</td></tr>
<tr><td>High Alloy Cast Cast Iron (35-45HRC)</td></tr>
<tr><td rowspan="4">N</td><td>Wrought Aluminium Alloys, Cast Aluminium Alloys</td><td></td><td></td><td rowspan="2">Developing</td><td rowspan="2">Developing</td><td rowspan="2"></td><td colspan="2"></td></tr>
<tr><td>Cast Aluminium Alloys (Si>12%)</td><td colspan="2">D713</td><td colspan="2">D713</td></tr>
<tr><td>Copper Alloys (<200HB)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Composite</td><td></td><td></td><td></td><td></td><td></td><td>D612</td><td></td></tr>
<tr><td rowspan="2">S</td><td>Heat Resistant Super Alloys (<450HB)</td><td colspan="2">D968S</td><td></td><td></td><td></td><td colspan="2">D968S</td></tr>
<tr><td>Titanium Alloys (<400HB)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">H</td><td>Hardened Steels (45-60HRC)</td><td></td><td></td><td></td><td></td><td></td><td>D998</td><td></td></tr>
<tr><td>Hardened Steels (60-65HRC)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

# D918S-A3N NEW

## High Performance 3D External Cooling Twist Drills For Steel

SHANK DIN 6535HA | AlCrN/TiSiN | 3D




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A3N-0300 | 3.00 | 20 | 36 | 62 | 6 | ● |
| D918S-A3N-0330 | 3.30 | 20 | 36 | 62 | 6 | ● |
| D918S-A3N-0400 | 4.00 | 24 | 36 | 66 | 6 | ● |
| D918S-A3N-0420 | 4.20 | 24 | 36 | 66 | 6 | ● |
| D918S-A3N-0500 | 5.00 | 28 | 36 | 66 | 6 | ● |
| D918S-A3N-0600 | 6.00 | 28 | 36 | 66 | 6 | ● |
| D918S-A3N-0680 | 6.80 | 34 | 36 | 79 | 8 | ● |
| D918S-A3N-0700 | 7.00 | 34 | 36 | 79 | 8 | ● |
| D918S-A3N-0800 | 8.00 | 41 | 36 | 79 | 8 | ● |
| D918S-A3N-0850 | 8.50 | 47 | 40 | 89 | 10 | ● |
| D918S-A3N-0900 | 9.00 | 47 | 40 | 89 | 10 | ● |
| D918S-A3N-1000 | 10.00 | 47 | 40 | 89 | 10 | ● |
| D918S-A3N-1030 | 10.30 | 55 | 45 | 102 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A3N-1050 | 10.50 | 55 | 45 | 102 | 12 | ● |
| D918S-A3N-1100 | 11.00 | 55 | 45 | 102 | 12 | ● |
| D918S-A3N-1200 | 12.00 | 55 | 45 | 102 | 12 | ● |
| D918S-A3N-1250 | 12.50 | 60 | 45 | 107 | 14 | ○ |
| D918S-A3N-1300 | 13.00 | 60 | 45 | 107 | 14 | ● |
| D918S-A3N-1400 | 14.00 | 60 | 45 | 107 | 14 | ● |
| D918S-A3N-1450 | 14.50 | 65 | 48 | 115 | 16 | ● |
| D918S-A3N-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D918S-A3N-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |
| D918S-A3N-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D918S-A3N-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D918S-A3N-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D918S-A3N-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

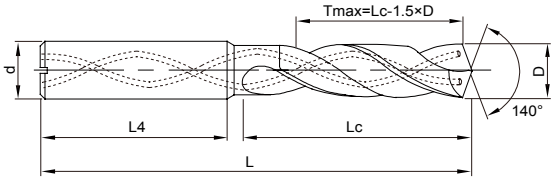
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P069

# D918S-A3C NEW

## High Performance 3D Inner Cooling Twist Drills For Steel


Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A3C-0300 | 3.00 | 20 | 36 | 62 | 6 | ○ |
| D918S-A3C-0330 | 3.30 | 20 | 36 | 62 | 6 | ○ |
| D918S-A3C-0400 | 4.00 | 24 | 36 | 66 | 6 | ○ |
| D918S-A3C-0420 | 4.20 | 24 | 36 | 66 | 6 | ○ |
| D918S-A3C-0500 | 5.00 | 28 | 36 | 66 | 6 | ○ |
| D918S-A3C-0600 | 6.00 | 28 | 36 | 66 | 6 | ○ |
| D918S-A3C-0680 | 6.80 | 34 | 36 | 79 | 8 | ○ |
| D918S-A3C-0700 | 7.00 | 34 | 36 | 79 | 8 | ○ |
| D918S-A3C-0800 | 8.00 | 41 | 36 | 79 | 8 | ○ |
| D918S-A3C-0850 | 8.50 | 47 | 40 | 89 | 10 | ○ |
| D918S-A3C-0900 | 9.00 | 47 | 40 | 89 | 10 | ○ |
| D918S-A3C-1000 | 10.00 | 47 | 40 | 89 | 10 | ○ |
| D918S-A3C-1030 | 10.30 | 55 | 45 | 102 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A3C-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D918S-A3C-1100 | 11.00 | 55 | 45 | 102 | 12 | ○ |
| D918S-A3C-1200 | 12.00 | 55 | 45 | 102 | 12 | ○ |
| D918S-A3C-1250 | 12.50 | 60 | 45 | 107 | 14 | ○ |
| D918S-A3C-1300 | 13.00 | 60 | 45 | 107 | 14 | ○ |
| D918S-A3C-1400 | 14.00 | 60 | 45 | 107 | 14 | ○ |
| D918S-A3C-1450 | 14.50 | 65 | 48 | 115 | 16 | ○ |
| D918S-A3C-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D918S-A3C-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |
| D918S-A3C-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D918S-A3C-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D918S-A3C-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D918S-A3C-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard Customization from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

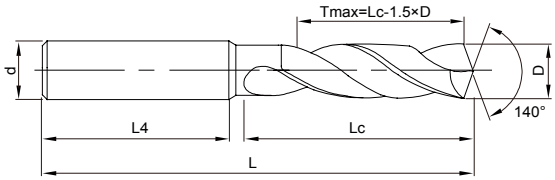
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P069

# D918S-A5N NEW

High Performance 5D External Cooling Twist Drills For Steel

SHANK DIN 6535HA | AlCrN/TiSiN | 5D




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A5N-0300 | 3.00 | 28 | 36 | 66 | 6 | ● |
| D918S-A5N-0350 | 3.50 | 28 | 36 | 66 | 6 | ● |
| D918S-A5N-0400 | 4.00 | 36 | 36 | 74 | 6 | ● |
| D918S-A5N-0420 | 4.20 | 36 | 36 | 74 | 6 | ○ |
| D918S-A5N-0500 | 5.00 | 44 | 36 | 82 | 6 | ● |
| D918S-A5N-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D918S-A5N-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D918S-A5N-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D918S-A5N-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D918S-A5N-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D918S-A5N-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D918S-A5N-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D918S-A5N-1030 | 10.30 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A5N-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D918S-A5N-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D918S-A5N-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D918S-A5N-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |
| D918S-A5N-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D918S-A5N-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D918S-A5N-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D918S-A5N-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D918S-A5N-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D918S-A5N-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D918S-A5N-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D918S-A5N-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D918S-A5N-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard Customization from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

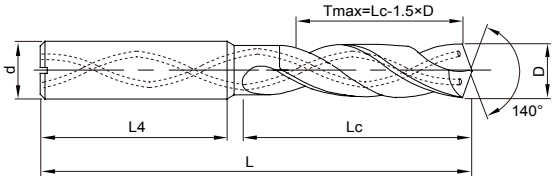
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P069

# D918S-A5C NEW

SHANK DIN 6535HA | AlCrN/TiSiN | 5D

High Performance 5D Inner Cooling Twist Drills For Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A5C-0300 | 3.00 | 28 | 36 | 66 | 6 | ● |
| D918S-A5C-0330 | 3.30 | 28 | 36 | 66 | 6 | ○ |
| D918S-A5C-0400 | 4.00 | 36 | 36 | 74 | 6 | ● |
| D918S-A5C-0450 | 4.50 | 36 | 36 | 74 | 6 | ● |
| D918S-A5C-0500 | 5.00 | 44 | 36 | 82 | 6 | ● |
| D918S-A5C-0550 | 5.50 | 44 | 36 | 82 | 6 | ● |
| D918S-A5C-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D918S-A5C-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D918S-A5C-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D918S-A5C-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D918S-A5C-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D918S-A5C-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D918S-A5C-1030 | 10.30 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918S-A5C-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D918S-A5C-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D918S-A5C-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D918S-A5C-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |
| D918S-A5C-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D918S-A5C-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D918S-A5C-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D918S-A5C-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D918S-A5C-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D918S-A5C-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D918S-A5C-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D918S-A5C-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D918S-A5C-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard Customization from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

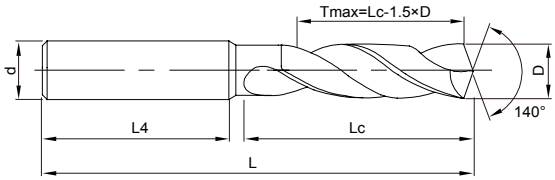
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P069

# D968S-A3N NEW

High Performance 3D External Cooling Twist Drills for Stainless Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A3N-0100 | 1.00 | 7 | 30 | 45 | 4 | ● |
| D968S-A3N-0200 | 2.00 | 13 | 36 | 55 | 4 | ● |
| D968S-A3N-0300 | 3.00 | 20 | 36 | 62 | 6 | ● |
| D968S-A3N-0330 | 3.30 | 20 | 36 | 62 | 6 | ● |
| D968S-A3N-0400 | 4.00 | 24 | 36 | 66 | 6 | ● |
| D968S-A3N-0420 | 4.20 | 24 | 36 | 66 | 6 | ● |
| D968S-A3N-0500 | 5.00 | 28 | 36 | 66 | 6 | ● |
| D968S-A3N-0600 | 6.00 | 28 | 36 | 66 | 6 | ● |
| D968S-A3N-0680 | 6.80 | 34 | 36 | 79 | 8 | ● |
| D968S-A3N-0700 | 7.00 | 34 | 36 | 79 | 8 | ● |
| D968S-A3N-0800 | 8.00 | 41 | 36 | 79 | 8 | ● |
| D968S-A3N-0850 | 8.50 | 47 | 40 | 89 | 10 | ● |
| D968S-A3N-0900 | 9.00 | 47 | 40 | 89 | 10 | ● |
| D968S-A3N-1000 | 10.00 | 47 | 40 | 89 | 10 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A3N-1030 | 10.30 | 55 | 45 | 102 | 12 | ○ |
| D968S-A3N-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D968S-A3N-1100 | 11.00 | 55 | 45 | 102 | 12 | ● |
| D968S-A3N-1200 | 12.00 | 55 | 45 | 102 | 12 | ● |
| D968S-A3N-1250 | 12.50 | 60 | 45 | 107 | 14 | ● |
| D968S-A3N-1300 | 13.00 | 60 | 45 | 107 | 14 | ○ |
| D968S-A3N-1400 | 14.00 | 60 | 45 | 107 | 14 | ● |
| D968S-A3N-1450 | 14.50 | 65 | 48 | 115 | 16 | ○ |
| D968S-A3N-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D968S-A3N-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |
| D968S-A3N-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D968S-A3N-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D968S-A3N-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D968S-A3N-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard Customization from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

| Workpiece Material | | | |
|---|---|---|---|
| P | M | S | |
| 1 2 3 4 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Stainless Steel | Heat Resistant Super Alloys (<45HB) | Titanium Alloys (<400HB) |
| ○ | ◎ | ○ | ○ |

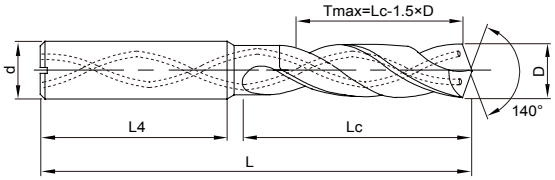
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P071

# D968S-A3C NEW

SHANK DIN 6535HA | AlTiN nano | 3D

## High Performance 3D Inner Cooling Twist Drills for Stainless Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A3C-0300 | 3.00 | 20 | 36 | 62 | 6 | ○ |
| D968S-A3C-0330 | 3.30 | 20 | 36 | 62 | 6 | ○ |
| D968S-A3C-0400 | 4.00 | 24 | 36 | 66 | 6 | ○ |
| D968S-A3C-0420 | 4.20 | 24 | 36 | 66 | 6 | ○ |
| D968S-A3C-0500 | 5.00 | 28 | 36 | 66 | 6 | ○ |
| D968S-A3C-0600 | 6.00 | 28 | 36 | 66 | 6 | ○ |
| D968S-A3C-0680 | 6.80 | 34 | 36 | 79 | 8 | ○ |
| D968S-A3C-0700 | 7.00 | 34 | 36 | 79 | 8 | ○ |
| D968S-A3C-0800 | 8.00 | 41 | 36 | 79 | 8 | ○ |
| D968S-A3C-0850 | 8.50 | 47 | 40 | 89 | 10 | ○ |
| D968S-A3C-0900 | 9.00 | 47 | 40 | 89 | 10 | ○ |
| D968S-A3C-1000 | 10.00 | 47 | 40 | 89 | 10 | ○ |
| D968S-A3C-1030 | 10.30 | 55 | 45 | 102 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A3C-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D968S-A3C-1100 | 11.00 | 55 | 45 | 102 | 12 | ○ |
| D968S-A3C-1200 | 12.00 | 55 | 45 | 102 | 12 | ○ |
| D968S-A3C-1250 | 12.50 | 60 | 45 | 107 | 14 | ○ |
| D968S-A3C-1300 | 13.00 | 60 | 45 | 107 | 14 | ○ |
| D968S-A3C-1400 | 14.00 | 60 | 45 | 107 | 14 | ○ |
| D968S-A3C-1450 | 14.50 | 65 | 48 | 115 | 16 | ○ |
| D968S-A3C-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D968S-A3C-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |
| D968S-A3C-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D968S-A3C-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D968S-A3C-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D968S-A3C-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

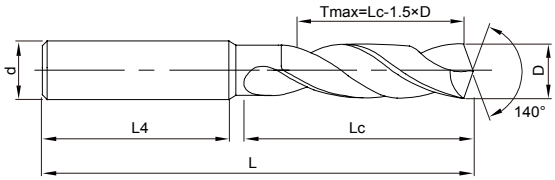
| Workpiece Material | | | |
|---|---|---|---|
| P | M | S | |
| 1 2 3 4 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Stainless Steel | Heat Resistant Super Alloys (<45HB) | Titanium Alloys (<400HB) |
| ○ | ◎ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P071

# D968S-A5N NEW

High Performance 5D External Cooling Twist Drills for Stainless Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A5N-0300 | 3.00 | 28 | 36 | 66 | 6 | ○ |
| D968S-A5N-0330 | 3.30 | 28 | 36 | 66 | 6 | ○ |
| D968S-A5N-0400 | 4.00 | 36 | 36 | 74 | 6 | ○ |
| D968S-A5N-0420 | 4.20 | 36 | 36 | 74 | 6 | ○ |
| D968S-A5N-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D968S-A5N-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D968S-A5N-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D968S-A5N-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D968S-A5N-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D968S-A5N-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D968S-A5N-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D968S-A5N-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D968S-A5N-1030 | 10.30 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A5N-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D968S-A5N-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D968S-A5N-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D968S-A5N-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |
| D968S-A5N-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D968S-A5N-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D968S-A5N-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D968S-A5N-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D968S-A5N-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D968S-A5N-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D968S-A5N-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D968S-A5N-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D968S-A5N-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

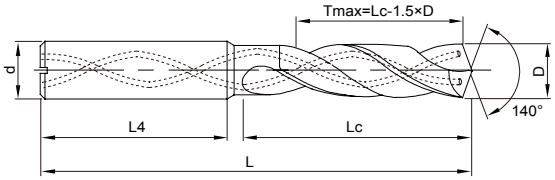
| Workpiece Material | | | |
|---|---|---|---|
| P | M | S | |
| 1 2 3 4 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Stainless Steel | Heat Resistant Super Alloys (<45HB) | Titanium Alloys (<400HB) |
| ○ | ◎ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P071

# D968S-A5C NEW

## High Performance 5D Inner Cooling Twist Drills for Stainless Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A5C-0300 | 3.00 | 28 | 36 | 66 | 6 | ○ |
| D968S-A5C-0330 | 3.30 | 28 | 36 | 66 | 6 | ○ |
| D968S-A5C-0400 | 4.00 | 36 | 36 | 74 | 6 | ○ |
| D968S-A5C-0420 | 4.20 | 36 | 36 | 74 | 6 | ○ |
| D968S-A5C-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D968S-A5C-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D968S-A5C-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D968S-A5C-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D968S-A5C-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D968S-A5C-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D968S-A5C-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D968S-A5C-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D968S-A5C-1030 | 10.30 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D968S-A5C-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D968S-A5C-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D968S-A5C-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D968S-A5C-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |
| D968S-A5C-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D968S-A5C-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D968S-A5C-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D968S-A5C-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D968S-A5C-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D968S-A5C-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D968S-A5C-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D968S-A5C-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D968S-A5C-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

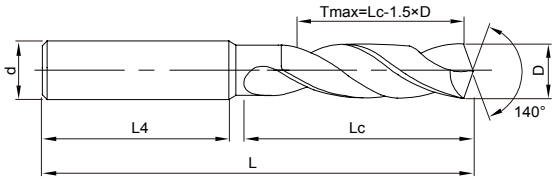
| Workpiece Material | | | |
|---|---|---|---|
| P | M | S | |
| 1 2 3 4 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Stainless Steel | Heat Resistant Super Alloys (<45HB) | Titanium Alloys (<400HB) |
| ○ | ◎ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P071

# D938-A3N

3D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-0300 | 3.00 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0310 | 3.10 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0320 | 3.20 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0330 | 3.30 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0340 | 3.40 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0350 | 3.50 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0360 | 3.60 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0370 | 3.70 | 20 | 36 | 62 | 6 | ● |
| D938-A3N-0380 | 3.80 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0390 | 3.90 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0400 | 4.00 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0410 | 4.10 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0420 | 4.20 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0430 | 4.30 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0440 | 4.40 | 24 | 36 | 66 | 6 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-0450 | 4.50 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0460 | 4.60 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0470 | 4.70 | 24 | 36 | 66 | 6 | ● |
| D938-A3N-0480 | 4.80 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0490 | 4.90 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0500 | 5.00 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0510 | 5.10 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0520 | 5.20 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0530 | 5.30 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0540 | 5.40 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0550 | 5.50 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0560 | 5.60 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0570 | 5.70 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0580 | 5.80 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0590 | 5.90 | 28 | 36 | 66 | 6 | ● |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

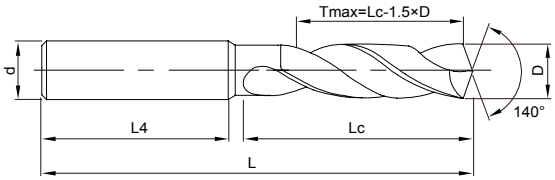
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3N

3D External Cooling Twist Drills for Steel


Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-0600 | 6.00 | 28 | 36 | 66 | 6 | ● |
| D938-A3N-0610 | 6.10 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0620 | 6.20 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0630 | 6.30 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0640 | 6.40 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0650 | 6.50 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0660 | 6.60 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0670 | 6.70 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0680 | 6.80 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0690 | 6.90 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0700 | 7.00 | 34 | 36 | 79 | 8 | ● |
| D938-A3N-0710 | 7.10 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0720 | 7.20 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0730 | 7.30 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0740 | 7.40 | 41 | 36 | 79 | 8 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-0750 | 7.50 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0760 | 7.60 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0770 | 7.70 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0780 | 7.80 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0790 | 7.90 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0800 | 8.00 | 41 | 36 | 79 | 8 | ● |
| D938-A3N-0810 | 8.10 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0820 | 8.20 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0830 | 8.30 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0840 | 8.40 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0850 | 8.50 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0860 | 8.60 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0870 | 8.70 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0880 | 8.80 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0890 | 8.90 | 47 | 40 | 89 | 10 | ● |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

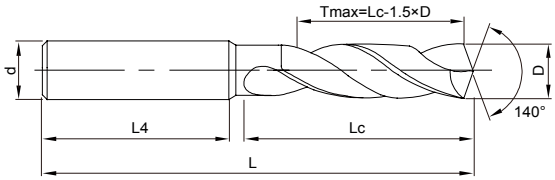
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3N

3D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-0900 | 9.00 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0910 | 9.10 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0920 | 9.20 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0925 | 9.25 | 47 | 40 | 89 | 10 | ○ |
| D938-A3N-0930 | 9.30 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0940 | 9.40 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0950 | 9.50 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0960 | 9.60 | 47 | 40 | 89 | 10 | ○ |
| D938-A3N-0970 | 9.70 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0980 | 9.80 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-0990 | 9.90 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-1000 | 10.00 | 47 | 40 | 89 | 10 | ● |
| D938-A3N-1010 | 10.10 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1020 | 10.20 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1030 | 10.30 | 55 | 45 | 102 | 12 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-1040 | 10.40 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1050 | 10.50 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1060 | 10.60 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1070 | 10.70 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1080 | 10.80 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1090 | 10.90 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1100 | 11.00 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1110 | 11.10 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1120 | 11.20 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1130 | 11.30 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1140 | 11.40 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1150 | 11.50 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1160 | 11.60 | 55 | 45 | 102 | 12 | ○ |
| D938-A3N-1170 | 11.70 | 55 | 45 | 102 | 12 | ○ |
| D938-A3N-1180 | 11.80 | 55 | 45 | 102 | 12 | ● |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

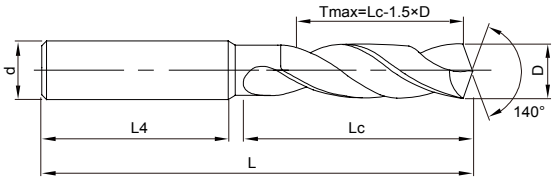
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3N

3D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-1190 | 11.90 | 55 | 45 | 102 | 12 | ○ |
| D938-A3N-1200 | 12.00 | 55 | 45 | 102 | 12 | ● |
| D938-A3N-1250 | 12.50 | 60 | 45 | 107 | 14 | ● |
| D938-A3N-1280 | 12.80 | 60 | 45 | 107 | 14 | ● |
| D938-A3N-1300 | 13.00 | 60 | 45 | 107 | 14 | ● |
| D938-A3N-1350 | 13.50 | 60 | 45 | 107 | 14 | ● |
| D938-A3N-1380 | 13.80 | 60 | 45 | 107 | 14 | ● |
| D938-A3N-1400 | 14.00 | 60 | 45 | 107 | 14 | ● |
| D938-A3N-1450 | 14.50 | 65 | 48 | 115 | 16 | ● |
| D938-A3N-1480 | 14.80 | 65 | 48 | 115 | 16 | ○ |
| D938-A3N-1500 | 15.00 | 65 | 48 | 115 | 16 | ● |
| D938-A3N-1550 | 15.50 | 65 | 48 | 115 | 16 | ● |
| D938-A3N-1580 | 15.80 | 65 | 48 | 115 | 16 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3N-1600 | 16.00 | 65 | 48 | 115 | 16 | ● |
| D938-A3N-1650 | 16.50 | 73 | 48 | 123 | 18 | ● |
| D938-A3N-1680 | 16.80 | 73 | 48 | 123 | 18 | ● |
| D938-A3N-1700 | 17.00 | 73 | 48 | 123 | 18 | ● |
| D938-A3N-1750 | 17.50 | 73 | 48 | 123 | 18 | ● |
| D938-A3N-1780 | 17.80 | 73 | 48 | 123 | 18 | ● |
| D938-A3N-1800 | 18.00 | 73 | 48 | 123 | 18 | ● |
| D938-A3N-1850 | 18.50 | 79 | 50 | 131 | 20 | ● |
| D938-A3N-1880 | 18.80 | 79 | 50 | 131 | 20 | ○ |
| D938-A3N-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D938-A3N-1950 | 19.50 | 79 | 50 | 131 | 20 | ● |
| D938-A3N-1980 | 19.80 | 79 | 50 | 131 | 20 | ● |
| D938-A3N-2000 | 20.00 | 79 | 50 | 131 | 20 | ● |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

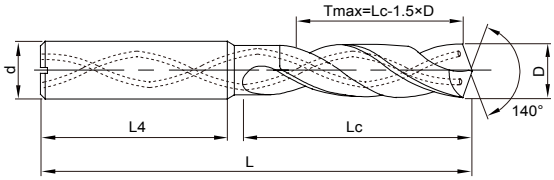
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3C

3D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-0300 | 3.00 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0310 | 3.10 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0320 | 3.20 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0330 | 3.30 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0340 | 3.40 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0350 | 3.50 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0360 | 3.60 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0370 | 3.70 | 20 | 36 | 62 | 6 | ● |
| D938-A3C-0380 | 3.80 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0390 | 3.90 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0400 | 4.00 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0410 | 4.10 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0420 | 4.20 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0430 | 4.30 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0440 | 4.40 | 24 | 36 | 66 | 6 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-0450 | 4.50 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0460 | 4.60 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0470 | 4.70 | 24 | 36 | 66 | 6 | ● |
| D938-A3C-0480 | 4.80 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0490 | 4.90 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0500 | 5.00 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0510 | 5.10 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0520 | 5.20 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0530 | 5.30 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0540 | 5.40 | 28 | 36 | 66 | 6 | ○ |
| D938-A3C-0550 | 5.50 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0560 | 5.60 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0570 | 5.70 | 28 | 36 | 66 | 6 | ○ |
| D938-A3C-0580 | 5.80 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0590 | 5.90 | 28 | 36 | 66 | 6 | ● |

Note：Accept non-standard custom from D2to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

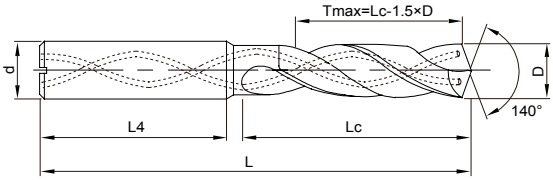
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3C

3D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-0600 | 6.00 | 28 | 36 | 66 | 6 | ● |
| D938-A3C-0610 | 6.10 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0620 | 6.20 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0630 | 6.30 | 34 | 36 | 79 | 8 | ○ |
| D938-A3C-0640 | 6.40 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0650 | 6.50 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0660 | 6.60 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0670 | 6.70 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0680 | 6.80 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0690 | 6.90 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0700 | 7.00 | 34 | 36 | 79 | 8 | ● |
| D938-A3C-0710 | 7.10 | 41 | 36 | 79 | 8 | ○ |
| D938-A3C-0720 | 7.20 | 41 | 36 | 79 | 8 | ● |
| D938-A3C-0730 | 7.30 | 41 | 36 | 79 | 8 | ● |
| D938-A3C-0740 | 7.40 | 41 | 36 | 79 | 8 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-0750 | 7.50 | 41 | 36 | 79 | 8 | ● |
| D938-A3C-0760 | 7.60 | 41 | 36 | 79 | 8 | ○ |
| D938-A3C-0770 | 7.70 | 41 | 36 | 79 | 8 | ○ |
| D938-A3C-0780 | 7.80 | 41 | 36 | 79 | 8 | ○ |
| D938-A3C-0790 | 7.90 | 41 | 36 | 79 | 8 | ○ |
| D938-A3C-0800 | 8.00 | 41 | 36 | 79 | 8 | ● |
| D938-A3C-0810 | 8.10 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0820 | 8.20 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0830 | 8.30 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0840 | 8.40 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0850 | 8.50 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0860 | 8.60 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0870 | 8.70 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0880 | 8.80 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0890 | 8.90 | 47 | 40 | 89 | 10 | ● |

Note：Accept non-standard custom from D2to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

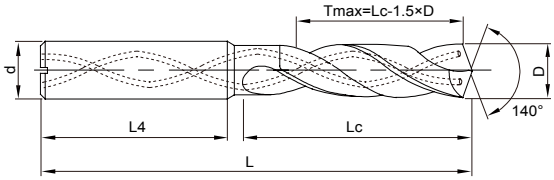
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3C

3D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-0900 | 9.00 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0910 | 9.10 | 47 | 40 | 89 | 10 | ○ |
| D938-A3C-0920 | 9.20 | 47 | 40 | 89 | 10 | ○ |
| D938-A3C-0930 | 9.30 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0940 | 9.40 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0950 | 9.50 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0960 | 9.60 | 47 | 40 | 89 | 10 | ○ |
| D938-A3C-0970 | 9.70 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0980 | 9.80 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-0990 | 9.90 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-1000 | 10.00 | 47 | 40 | 89 | 10 | ● |
| D938-A3C-1010 | 10.10 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1020 | 10.20 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1030 | 10.30 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1040 | 10.40 | 55 | 45 | 102 | 12 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-1050 | 10.50 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1060 | 10.60 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1070 | 10.70 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1080 | 10.80 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1090 | 10.90 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1100 | 11.00 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1110 | 11.10 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1120 | 11.20 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1130 | 11.30 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1140 | 11.40 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1150 | 11.50 | 55 | 45 | 102 | 12 | ○ |
| D938-A3C-1160 | 11.60 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1170 | 11.70 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1180 | 11.80 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1190 | 11.90 | 55 | 45 | 102 | 12 | ● |

Note：Accept non-standard custom from D2to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

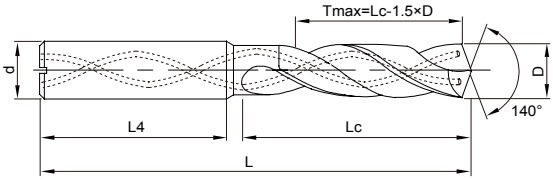
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A3C

3D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-1200 | 12.00 | 55 | 45 | 102 | 12 | ● |
| D938-A3C-1250 | 12.50 | 60 | 45 | 107 | 14 | ● |
| D938-A3C-1280 | 12.80 | 60 | 45 | 107 | 14 | ● |
| D938-A3C-1300 | 13.00 | 60 | 45 | 107 | 14 | ● |
| D938-A3C-1350 | 13.50 | 60 | 45 | 107 | 14 | ● |
| D938-A3C-1380 | 13.80 | 60 | 45 | 107 | 14 | ○ |
| D938-A3C-1400 | 14.00 | 60 | 45 | 107 | 14 | ● |
| D938-A3C-1450 | 14.50 | 65 | 48 | 115 | 16 | ● |
| D938-A3C-1480 | 14.80 | 65 | 48 | 115 | 16 | ● |
| D938-A3C-1500 | 15.00 | 65 | 48 | 115 | 16 | ● |
| D938-A3C-1550 | 15.50 | 65 | 48 | 115 | 16 | ○ |
| D938-A3C-1580 | 15.80 | 65 | 48 | 115 | 16 | ○ |
| D938-A3C-1600 | 16.00 | 65 | 48 | 115 | 16 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A3C-1650 | 16.50 | 73 | 48 | 123 | 18 | ● |
| D938-A3C-1680 | 16.80 | 73 | 48 | 123 | 18 | ○ |
| D938-A3C-1700 | 17.00 | 73 | 48 | 123 | 18 | ● |
| D938-A3C-1750 | 17.50 | 73 | 48 | 123 | 18 | ● |
| D938-A3C-1780 | 17.80 | 73 | 48 | 123 | 18 | ○ |
| D938-A3C-1800 | 18.00 | 73 | 48 | 123 | 18 | ● |
| D938-A3C-1850 | 18.50 | 79 | 50 | 131 | 20 | ● |
| D938-A3C-1880 | 18.80 | 79 | 50 | 131 | 20 | ○ |
| D938-A3C-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D938-A3C-1950 | 19.50 | 79 | 50 | 131 | 20 | ● |
| D938-A3C-1980 | 19.80 | 79 | 50 | 131 | 20 | ○ |
| D938-A3C-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard custom from D2to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

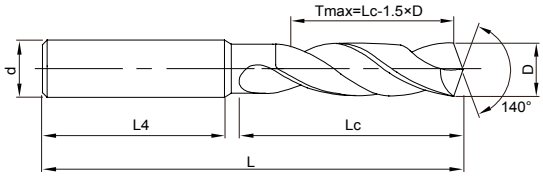
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5N

5D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-0300 | 3.00 | 28 | 36 | 66 | 6 | ● |
| D938-A5N-0310 | 3.10 | 28 | 36 | 66 | 6 | ○ |
| D938-A5N-0320 | 3.20 | 28 | 36 | 66 | 6 | ● |
| D938-A5N-0330 | 3.30 | 28 | 36 | 66 | 6 | ● |
| D938-A5N-0340 | 3.40 | 28 | 36 | 66 | 6 | ○ |
| D938-A5N-0350 | 3.50 | 28 | 36 | 66 | 6 | ● |
| D938-A5N-0360 | 3.60 | 28 | 36 | 66 | 6 | ● |
| D938-A5N-0370 | 3.70 | 28 | 36 | 66 | 6 | ○ |
| D938-A5N-0380 | 3.80 | 36 | 36 | 74 | 6 | ● |
| D938-A5N-0390 | 3.90 | 36 | 36 | 74 | 6 | ○ |
| D938-A5N-0400 | 4.00 | 36 | 36 | 74 | 6 | ● |
| D938-A5N-0410 | 4.10 | 36 | 36 | 74 | 6 | ○ |
| D938-A5N-0420 | 4.20 | 36 | 36 | 74 | 6 | ● |
| D938-A5N-0430 | 4.30 | 36 | 36 | 74 | 6 | ● |
| D938-A5N-0440 | 4.40 | 36 | 36 | 74 | 6 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-0450 | 4.5 | 36 | 36 | 74 | 6 | ● |
| D938-A5N-0460 | 4.6 | 36 | 36 | 74 | 6 | ○ |
| D938-A5N-0465 | 4.65 | 36 | 36 | 74 | 6 | ○ |
| D938-A5N-0470 | 4.7 | 36 | 36 | 74 | 6 | ○ |
| D938-A5N-0480 | 4.8 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0490 | 4.9 | 44 | 36 | 82 | 6 | ○ |
| D938-A5N-0500 | 5.0 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0510 | 5.1 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0520 | 5.2 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0530 | 5.3 | 44 | 36 | 82 | 6 | ○ |
| D938-A5N-0540 | 5.4 | 44 | 36 | 82 | 6 | ○ |
| D938-A5N-0550 | 5.5 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0555 | 5.55 | 44 | 36 | 82 | 6 | ○ |
| D938-A5N-0560 | 5.6 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0570 | 5.7 | 44 | 36 | 82 | 6 | ○ |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

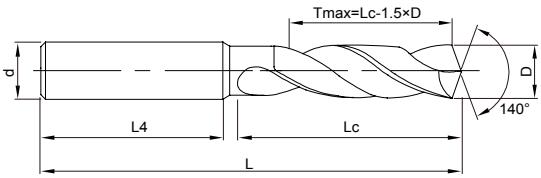
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5N

5D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-0580 | 5.8 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0590 | 5.9 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0600 | 6.0 | 44 | 36 | 82 | 6 | ● |
| D938-A5N-0610 | 6.1 | 53 | 36 | 91 | 8 | ○ |
| D938-A5N-0620 | 6.2 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0630 | 6.3 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0640 | 6.4 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0650 | 6.5 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0660 | 6.6 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0670 | 6.7 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0680 | 6.8 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0690 | 6.9 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0700 | 7.0 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0710 | 7.1 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0720 | 7.2 | 53 | 36 | 91 | 8 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-0730 | 7.3 | 53 | 36 | 91 | 8 | ○ |
| D938-A5N-0740 | 7.4 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0750 | 7.5 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0760 | 7.6 | 53 | 36 | 91 | 8 | ○ |
| D938-A5N-0770 | 7.7 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0780 | 7.8 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0790 | 7.9 | 53 | 36 | 91 | 8 | ○ |
| D938-A5N-0800 | 8.0 | 53 | 36 | 91 | 8 | ● |
| D938-A5N-0810 | 8.1 | 61 | 40 | 103 | 10 | ○ |
| D938-A5N-0820 | 8.2 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0830 | 8.3 | 61 | 40 | 103 | 10 | ○ |
| D938-A5N-0840 | 8.4 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0850 | 8.5 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0860 | 8.6 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0870 | 8.7 | 61 | 40 | 103 | 10 | ● |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

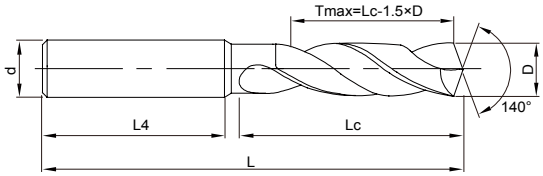
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5N

5D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-0880 | 8.8 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0890 | 8.9 | 61 | 40 | 103 | 10 | ○ |
| D938-A5N-0900 | 9.0 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0910 | 9.1 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0920 | 9.2 | 61 | 40 | 103 | 10 | ○ |
| D938-A5N-0930 | 9.3 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0940 | 9.4 | 61 | 40 | 103 | 10 | ○ |
| D938-A5N-0950 | 9.5 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0960 | 9.6 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0970 | 9.7 | 61 | 40 | 103 | 10 | ○ |
| D938-A5N-0980 | 9.8 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-0990 | 9.9 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-1000 | 10.0 | 61 | 40 | 103 | 10 | ● |
| D938-A5N-1010 | 10.1 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1020 | 10.2 | 71 | 45 | 118 | 12 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1030 | 10.3 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1040 | 10.4 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1050 | 10.5 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1060 | 10.6 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1070 | 10.7 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1080 | 10.8 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1090 | 10.9 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1100 | 11.0 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1110 | 11.1 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1120 | 11.2 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1130 | 11.3 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1140 | 11.4 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1150 | 11.5 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1160 | 11.6 | 71 | 45 | 118 | 12 | ● |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

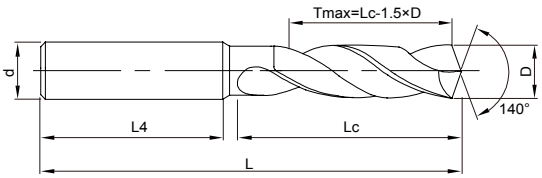
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5N

5D External Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-1170 | 11.7 | 71 | 45 | 118 | 12 | ○ |
| D938-A5N-1180 | 11.8 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1190 | 11.9 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1200 | 12.0 | 71 | 45 | 118 | 12 | ● |
| D938-A5N-1220 | 12.2 | 77 | 45 | 124 | 14 | ○ |
| D938-A5N-1230 | 12.3 | 77 | 45 | 124 | 14 | ● |
| D938-A5N-1240 | 12.4 | 77 | 45 | 124 | 14 | ○ |
| D938-A5N-1250 | 12.5 | 77 | 45 | 124 | 14 | ● |
| D938-A5N-1280 | 12.8 | 77 | 45 | 124 | 14 | ○ |
| D938-A5N-1300 | 13.0 | 77 | 45 | 124 | 14 | ● |
| D938-A5N-1350 | 13.5 | 77 | 45 | 124 | 14 | ○ |
| D938-A5N-1380 | 13.8 | 77 | 45 | 124 | 14 | ○ |
| D938-A5N-1400 | 14.0 | 77 | 45 | 124 | 14 | ● |
| D938-A5N-1430 | 14.3 | 83 | 48 | 133 | 16 | ● |
| D938-A5N-1450 | 14.5 | 83 | 48 | 133 | 16 | ● |
| D938-A5N-1460 | 14.6 | 83 | 48 | 133 | 16 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5N-1480 | 14.8 | 83 | 48 | 133 | 16 | ○ |
| D938-A5N-1500 | 15.0 | 83 | 48 | 133 | 16 | ○ |
| D938-A5N-1550 | 15.5 | 83 | 48 | 133 | 16 | ○ |
| D938-A5N-1580 | 15.8 | 83 | 48 | 133 | 16 | ○ |
| D938-A5N-1600 | 16.0 | 83 | 48 | 133 | 16 | ● |
| D938-A5N-1650 | 16.5 | 93 | 48 | 143 | 18 | ○ |
| D938-A5N-1660 | 16.6 | 93 | 48 | 143 | 18 | ● |
| D938-A5N-1680 | 16.8 | 93 | 48 | 143 | 18 | ○ |
| D938-A5N-1700 | 17.0 | 93 | 48 | 143 | 18 | ● |
| D938-A5N-1750 | 17.5 | 93 | 48 | 143 | 18 | ● |
| D938-A5N-1780 | 17.8 | 93 | 48 | 143 | 18 | ○ |
| D938-A5N-1800 | 18.0 | 93 | 48 | 143 | 18 | ○ |
| D938-A5N-1850 | 18.5 | 101 | 50 | 153 | 20 | ○ |
| D938-A5N-1900 | 19.0 | 101 | 50 | 153 | 20 | ○ |
| D938-A5N-1950 | 19.5 | 101 | 50 | 153 | 20 | ○ |
| D938-A5N-2000 | 20.0 | 101 | 50 | 153 | 20 | |

Note：Accept non-standard custom from D1 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

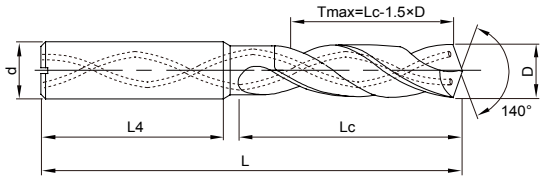
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5C

5D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-0300 | 3.00 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0310 | 3.10 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0320 | 3.20 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0330 | 3.30 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0340 | 3.40 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0350 | 3.50 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0360 | 3.60 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0370 | 3.70 | 28 | 36 | 66 | 6 | ● |
| D938-A5C-0380 | 3.80 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0390 | 3.90 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0400 | 4.00 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0410 | 4.10 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0420 | 4.20 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0430 | 4.30 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0440 | 4.40 | 36 | 36 | 74 | 6 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-0450 | 4.50 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0460 | 4.60 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0465 | 4.65 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0470 | 4.70 | 36 | 36 | 74 | 6 | ● |
| D938-A5C-0480 | 4.80 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0490 | 4.90 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0500 | 5.00 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0510 | 5.10 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0520 | 5.20 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0530 | 5.30 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0540 | 5.40 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0550 | 5.50 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0555 | 5.55 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0560 | 5.60 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0570 | 5.70 | 44 | 36 | 82 | 6 | ● |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

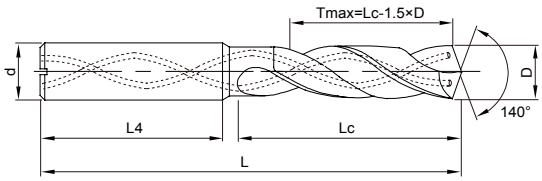
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5C

5D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-0580 | 5.80 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0590 | 5.90 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0600 | 6.00 | 44 | 36 | 82 | 6 | ● |
| D938-A5C-0610 | 6.10 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0620 | 6.20 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0630 | 6.30 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0640 | 6.40 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0650 | 6.50 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0660 | 6.60 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0670 | 6.70 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0680 | 6.80 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0690 | 6.90 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0700 | 7.00 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0710 | 7.10 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0720 | 7.20 | 53 | 36 | 91 | 8 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-0730 | 7.30 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0740 | 7.40 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0745 | 7.45 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0750 | 7.50 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0760 | 7.60 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0770 | 7.70 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0780 | 7.80 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0790 | 7.90 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0800 | 8.00 | 53 | 36 | 91 | 8 | ● |
| D938-A5C-0810 | 8.10 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0820 | 8.20 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0830 | 8.30 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0840 | 8.40 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0850 | 8.50 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0860 | 8.60 | 61 | 40 | 103 | 10 | ● |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

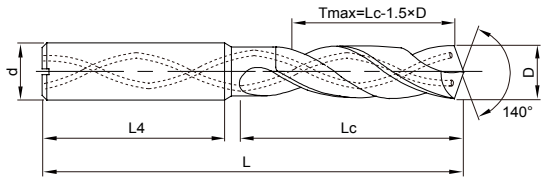
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5C

5D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-0870 | 8.70 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0880 | 8.80 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0890 | 8.90 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0900 | 9.00 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0910 | 9.10 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0920 | 9.20 | 61 | 40 | 103 | 10 | ○ |
| D938-A5C-0930 | 9.30 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0935 | 9.35 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0940 | 9.40 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0950 | 9.50 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0960 | 9.60 | 61 | 40 | 103 | 10 | ○ |
| D938-A5C-0970 | 9.70 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0980 | 9.80 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-0990 | 9.90 | 61 | 40 | 103 | 10 | ● |
| D938-A5C-1000 | 10.00 | 61 | 40 | 103 | 10 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-1010 | 10.10 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1020 | 10.20 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1030 | 10.30 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1040 | 10.40 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1050 | 10.50 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1060 | 10.60 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1070 | 10.70 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1080 | 10.80 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1090 | 10.90 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1100 | 11.00 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1110 | 11.10 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1120 | 11.20 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1130 | 11.30 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1140 | 11.40 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1150 | 11.50 | 71 | 45 | 118 | 12 | ● |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

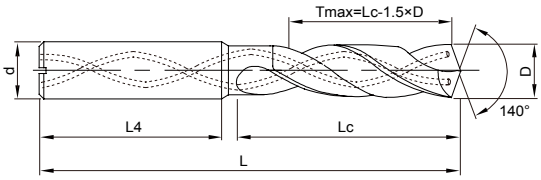
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P073

# D938-A5C

5D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-1160 | 11.60 | 71 | 45 | 118 | 12 | ○ |
| D938-A5C-1170 | 11.70 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1180 | 11.80 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1190 | 11.90 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1200 | 12.00 | 71 | 45 | 118 | 12 | ● |
| D938-A5C-1250 | 12.50 | 77 | 45 | 124 | 14 | ● |
| D938-A5C-1280 | 12.80 | 77 | 45 | 124 | 14 | ○ |
| D938-A5C-1300 | 13.00 | 77 | 45 | 124 | 14 | ● |
| D938-A5C-1350 | 13.50 | 77 | 45 | 124 | 14 | ● |
| D938-A5C-1380 | 13.80 | 77 | 45 | 124 | 14 | ● |
| D938-A5C-1400 | 14.00 | 77 | 45 | 124 | 14 | ● |
| D938-A5C-1450 | 14.50 | 83 | 48 | 133 | 16 | ● |
| D938-A5C-1480 | 14.80 | 83 | 48 | 133 | 16 | ● |
| D938-A5C-1500 | 15.00 | 83 | 48 | 133 | 16 | ● |
| D938-A5C-1510 | 15.10 | 83 | 48 | 133 | 16 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A5C-1550 | 15.50 | 83 | 48 | 133 | 16 | ● |
| D938-A5C-1580 | 15.80 | 83 | 48 | 133 | 16 | ● |
| D938-A5C-1600 | 16.00 | 83 | 48 | 133 | 16 | ● |
| D938-A5C-1650 | 16.50 | 93 | 48 | 143 | 18 | ● |
| D938-A5C-1680 | 16.80 | 93 | 48 | 143 | 18 | ○ |
| D938-A5C-1700 | 17.00 | 93 | 48 | 143 | 18 | ● |
| D938-A5C-1750 | 17.50 | 93 | 48 | 143 | 18 | ● |
| D938-A5C-1780 | 17.80 | 93 | 48 | 143 | 18 | ○ |
| D938-A5C-1800 | 18.00 | 93 | 48 | 143 | 18 | ● |
| D938-A5C-1850 | 18.50 | 101 | 50 | 153 | 20 | ● |
| D938-A5C-1880 | 18.80 | 101 | 50 | 153 | 20 | ○ |
| D938-A5C-1900 | 19.00 | 101 | 50 | 153 | 20 | ● |
| D938-A5C-1950 | 19.50 | 101 | 50 | 153 | 20 | ● |
| D938-A5C-1980 | 19.80 | 101 | 50 | 153 | 20 | ● |
| D938-A5C-2000 | 20.00 | 101 | 50 | 153 | 20 | ● |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

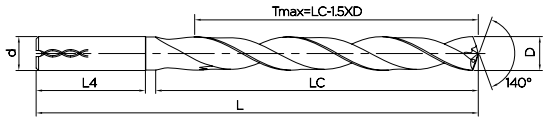
| Workpiece Material | | | | |
|---|---|---|---|---|
| P | | | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P373

# D938-A8C

8D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A8C-0300 | 3.00 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0310 | 3.10 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0320 | 3.20 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0330 | 3.30 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0340 | 3.40 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0350 | 3.50 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0360 | 3.60 | 34 | 36 | 72 | 6 | ● |
| D938-A8C-0370 | 3.70 | 34 | 36 | 72 | 6 | ○ |
| D938-A8C-0380 | 3.80 | 43 | 36 | 81 | 6 | ○ |
| D938-A8C-0390 | 3.90 | 43 | 36 | 81 | 6 | ● |
| D938-A8C-0400 | 4.00 | 43 | 36 | 81 | 6 | ● |
| D938-A8C-0410 | 4.10 | 43 | 36 | 81 | 6 | ● |
| D938-A8C-0420 | 4.20 | 43 | 36 | 81 | 6 | ● |
| D938-A8C-0430 | 4.30 | 43 | 36 | 81 | 6 | ○ |
| D938-A8C-0440 | 4.40 | 43 | 36 | 81 | 6 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A8C-0450 | 4.50 | 43 | 36 | 81 | 6 | ● |
| D938-A8C-0460 | 4.60 | 43 | 36 | 81 | 6 | ○ |
| D938-A8C-0470 | 4.70 | 43 | 36 | 81 | 6 | ○ |
| D938-A8C-0480 | 4.80 | 57 | 36 | 95 | 6 | ○ |
| D938-A8C-0490 | 4.90 | 57 | 36 | 95 | 6 | ○ |
| D938-A8C-0500 | 5.00 | 57 | 36 | 95 | 6 | ● |
| D938-A8C-0510 | 5.10 | 57 | 36 | 95 | 6 | ● |
| D938-A8C-0520 | 5.20 | 57 | 36 | 95 | 6 | ● |
| D938-A8C-0530 | 5.30 | 57 | 36 | 95 | 6 | ○ |
| D938-A8C-0540 | 5.40 | 57 | 36 | 95 | 6 | ○ |
| D938-A8C-0550 | 5.50 | 57 | 36 | 95 | 6 | ● |
| D938-A8C-0560 | 5.60 | 57 | 36 | 95 | 6 | ○ |
| D938-A8C-0570 | 5.70 | 57 | 36 | 95 | 6 | ○ |
| D938-A8C-0580 | 5.80 | 57 | 36 | 95 | 6 | ● |
| D938-A8C-0590 | 5.90 | 57 | 36 | 95 | 6 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

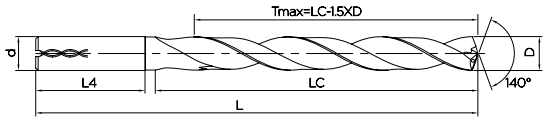
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P075

# D938-A8C

8D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A8C-0600 | 6.00 | 57 | 36 | 95 | 6 | ● |
| D938-A8C-0610 | 6.10 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0620 | 6.20 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0630 | 6.30 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0640 | 6.40 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0650 | 6.50 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0660 | 6.60 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0670 | 6.70 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0680 | 6.80 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0690 | 6.90 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0700 | 7.00 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0710 | 7.10 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0720 | 7.20 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0730 | 7.30 | 76 | 36 | 114 | 8 | ○ |

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A8C-0740 | 7.40 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0750 | 7.50 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0760 | 7.60 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0770 | 7.70 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0780 | 7.80 | 76 | 36 | 114 | 8 | ○ |
| D938-A8C-0790 | 7.90 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0800 | 8.00 | 76 | 36 | 114 | 8 | ● |
| D938-A8C-0810 | 8.10 | 95 | 40 | 142 | 10 | ○ |
| D938-A8C-0820 | 8.20 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-0830 | 8.30 | 95 | 40 | 142 | 10 | ○ |
| D938-A8C-0840 | 8.40 | 95 | 40 | 142 | 10 | ○ |
| D938-A8C-0850 | 8.50 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-0860 | 8.60 | 95 | 40 | 142 | 10 | ○ |
| D938-A8C-0870 | 8.70 | 95 | 40 | 142 | 10 | ● |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

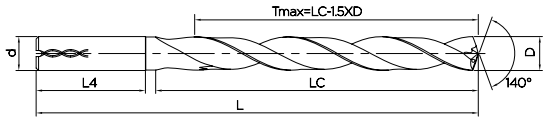
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P075

# D938-A8C

8D Inner Cooling Twist Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A8C-0880 | 8.80 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-0890 | 8.90 | 95 | 40 | 142 | 10 | ○ |
| D938-A8C-0900 | 9.00 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-0930 | 9.30 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-0950 | 9.50 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-0980 | 9.80 | 95 | 40 | 142 | 10 | ○ |
| D938-A8C-1000 | 10.00 | 95 | 40 | 142 | 10 | ● |
| D938-A8C-1020 | 10.20 | 114 | 45 | 162 | 12 | ● |
| D938-A8C-1030 | 10.30 | 114 | 45 | 162 | 12 | ○ |
| D938-A8C-1050 | 10.50 | 114 | 45 | 162 | 12 | ● |
| D938-A8C-1080 | 10.80 | 114 | 45 | 162 | 12 | ● |
| D938-A8C-1100 | 11.00 | 114 | 45 | 162 | 12 | ● |
| D938-A8C-1120 | 11.20 | 114 | 45 | 162 | 12 | ● |
| D938-A8C-1150 | 11.50 | 114 | 45 | 162 | 12 | ○ |
| D938-A8C-1180 | 11.80 | 114 | 45 | 162 | 12 | ● |

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A8C-1200 | 12.00 | 114 | 45 | 162 | 12 | ● |
| D938-A8C-1220 | 12.20 | 133 | 45 | 182 | 14 | ○ |
| D938-A8C-1250 | 12.50 | 133 | 45 | 182 | 14 | ● |
| D938-A8C-1280 | 12.80 | 133 | 45 | 182 | 14 | ○ |
| D938-A8C-1300 | 13.00 | 133 | 45 | 182 | 14 | ● |
| D938-A8C-1350 | 13.50 | 133 | 45 | 182 | 14 | ● |
| D938-A8C-1380 | 13.80 | 133 | 45 | 182 | 14 | ● |
| D938-A8C-1400 | 14.00 | 133 | 45 | 182 | 14 | ● |
| D938-A8C-1420 | 14.20 | 152 | 48 | 203 | 16 | ○ |
| D938-A8C-1450 | 14.50 | 152 | 48 | 203 | 16 | ○ |
| D938-A8C-1480 | 14.80 | 152 | 48 | 203 | 16 | ● |
| D938-A8C-1500 | 15.00 | 152 | 48 | 203 | 16 | ● |
| D938-A8C-1550 | 15.50 | 152 | 48 | 203 | 16 | ● |
| D938-A8C-1580 | 15.80 | 152 | 48 | 203 | 16 | ● |
| D938-A8C-1600 | 16.00 | 152 | 48 | 203 | 16 | ● |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

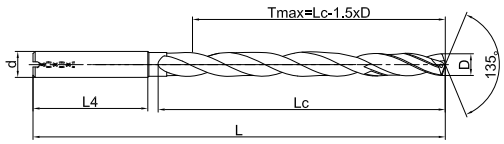
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1234 | 5 | 67 | 123 | 12 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P075

# D938-A12C NEW

12D Twist deep Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(h7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A12C-0300 | 3 | 54 | 36 | 92 | 6 | ○ |
| D938-A12C-0330 | 3.3 | 54 | 36 | 92 | 6 | ○ |
| D938-A12C-0350 | 3.5 | 54 | 36 | 92 | 6 | ● |
| D938-A12C-0400 | 4 | 64 | 36 | 102 | 6 | ○ |
| D938-A12C-0460 | 4.6 | 64 | 36 | 102 | 6 | ● |
| D938-A12C-0470 | 4.7 | 64 | 36 | 102 | 6 | ● |
| D938-A12C-0450 | 4.8 | 83 | 36 | 121 | 6 | ○ |
| D938-A12C-0500 | 5 | 83 | 36 | 121 | 6 | ● |
| D938-A12C-0550 | 5.5 | 83 | 36 | 121 | 6 | ● |
| D938-A12C-0560 | 5.6 | 83 | 36 | 121 | 6 | ○ |
| D938-A12C-0600 | 6 | 83 | 36 | 121 | 6 | ○ |
| D938-A12C-0610 | 6.1 | 110 | 36 | 148 | 8 | ○ |
| D938-A12C-0630 | 6.3 | 110 | 36 | 148 | 8 | ○ |
| D938-A12C-0650 | 6.5 | 110 | 36 | 148 | 8 | ○ |
| D938-A12C-0680 | 6.8 | 110 | 36 | 148 | 8 | ○ |

| Ordering Code | D(h7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A12C-0700 | 7 | 110 | 36 | 148 | 8 | ○ |
| D938-A12C-0800 | 8 | 110 | 36 | 148 | 8 | ● |
| D938-A12C-0850 | 8.5 | 138 | 40 | 180 | 10 | ○ |
| D938-A12C-0900 | 9 | 138 | 40 | 180 | 10 | ○ |
| D938-A12C-0980 | 9.8 | 138 | 40 | 180 | 10 | ○ |
| D938-A12C-1000 | 10 | 138 | 40 | 180 | 10 | ○ |
| D938-A12C-1050 | 10.5 | 158 | 45 | 206 | 12 | ○ |
| D938-A12C-1100 | 11 | 158 | 45 | 206 | 12 | ○ |
| D938-A12C-1200 | 12 | 158 | 45 | 206 | 12 | ● |
| D938-A12C-1250 | 12.5 | 182 | 45 | 230 | 14 | ○ |
| D938-A12C-1300 | 13 | 182 | 45 | 230 | 14 | ○ |
| D938-A12C-1400 | 14 | 182 | 45 | 230 | 14 | ○ |
| D938-A12C-1450 | 14.5 | 208 | 48 | 230 | 16 | ○ |
| D938-A12C-1500 | 15 | 208 | 48 | 230 | 16 | ○ |
| D938-A12C-1600 | 16 | 208 | 48 | 230 | 16 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(h7) | d(h6) |
|---|---|---|
| >3—6 | 0.000/-0.012 | 0.000/-0.008 |
| >6—10 | 0.000/-0.015 | 0.000/-0.009 |
| >10—18 | 0.000/-0.018 | 0.000/-0.011 |
| >18—20 | 0.000/-0.021 | 0.000/-0.013 |

Unit(mm)

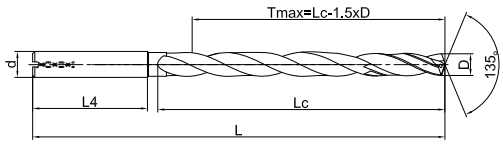
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P075

# D938-A15C NEW

15D Twist deep Drills for Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(h7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A15C-0300 | 3 | 55 | 36 | 95 | 6 | ○ |
| D938-A15C-0330 | 3.3 | 67 | 36 | 106 | 6 | ○ |
| D938-A15C-0350 | 3.5 | 76 | 36 | 116 | 6 | ○ |
| D938-A15C-0380 | 3.8 | 76 | 36 | 116 | 6 | ○ |
| D938-A15C-0400 | 4 | 76 | 36 | 116 | 6 | ○ |
| D938-A15C-0420 | 4.2 | 93 | 36 | 133 | 6 | ○ |
| D938-A15C-0450 | 4.5 | 93 | 36 | 133 | 6 | ○ |
| D938-A15C-0450 | 4.8 | 93 | 36 | 133 | 6 | ○ |
| D938-A15C-0500 | 5 | 93 | 36 | 133 | 6 | ○ |
| D938-A15C-0550 | 5.5 | 110 | 36 | 150 | 6 | ○ |
| D938-A15C-0560 | 5.6 | 110 | 36 | 150 | 6 | ○ |
| D938-A15C-0600 | 6 | 110 | 36 | 150 | 6 | ○ |
| D938-A15C-0610 | 6.1 | 127 | 36 | 167 | 8 | ○ |
| D938-A15C-0630 | 6.3 | 127 | 36 | 167 | 8 | ○ |

| Ordering Code | D(h7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D938-A15C-0650 | 6.5 | 127 | 36 | 167 | 8 | ○ |
| D938-A15C-0680 | 6.8 | 127 | 36 | 167 | 8 | ○ |
| D938-A15C-0700 | 7 | 127 | 36 | 167 | 8 | ○ |
| D938-A15C-0800 | 8 | 143 | 36 | 183 | 8 | ● |
| D938-A15C-0850 | 8.5 | 160 | 40 | 204 | 10 | ○ |
| D938-A15C-0900 | 9 | 160 | 40 | 204 | 10 | ● |
| D938-A15C-0980 | 9.8 | 177 | 40 | 221 | 10 | ○ |
| D938-A15C-1000 | 10 | 177 | 40 | 221 | 10 | ○ |
| D938-A15C-1050 | 10.5 | 198 | 45 | 247 | 12 | ○ |
| D938-A15C-1100 | 11 | 198 | 45 | 247 | 12 | ○ |
| D938-A15C-1200 | 12 | 214 | 45 | 263 | 12 | ○ |
| D938-A15C-1250 | 12.5 | 248 | 45 | 297 | 14 | ○ |
| D938-A15C-1300 | 13 | 248 | 45 | 297 | 14 | ○ |
| D938-A15C-1400 | 14 | 248 | 45 | 297 | 14 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(h7) | d(h6) |
|---|---|---|
| >3—6 | 0.000/-0.012 | 0.000/-0.008 |
| >6—10 | 0.000/-0.015 | 0.000/-0.009 |
| >10—18 | 0.000/-0.018 | 0.000/-0.011 |
| >18—20 | 0.000/-0.021 | 0.000/-0.013 |

Unit(mm)

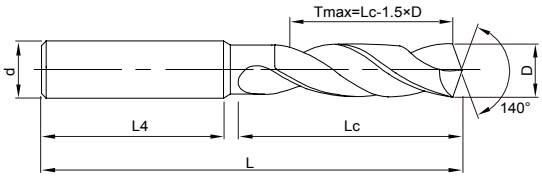
| Workpiece Material | | | | | |
|---|---|---|---|---|---|
| P | | | M | K | |
| 1 2 3 4 | 5 | 6 7 | 1 2 3 | 1 2 | 3 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) |
| ◎ | ◎ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P075

# D918-A3N

3D External Cooling Twist Drills for General Purpose


Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3N-0300 | 3.00 | 20 | 36 | 62 | 6 | ○ |
| D918-A3N-0325 | 3.25 | 20 | 36 | 62 | 6 | ○ |
| D918-A3N-0330 | 3.30 | 20 | 36 | 62 | 6 | ● |
| D918-A3N-0340 | 3.40 | 20 | 36 | 62 | 6 | ○ |
| D918-A3N-0350 | 3.50 | 20 | 36 | 62 | 6 | ○ |
| D918-A3N-0370 | 3.70 | 20 | 36 | 62 | 6 | ○ |
| D918-A3N-0400 | 4.00 | 24 | 36 | 66 | 6 | ○ |
| D918-A3N-0420 | 4.20 | 24 | 36 | 66 | 6 | ● |
| D918-A3N-0430 | 4.30 | 24 | 36 | 66 | 6 | ○ |
| D918-A3N-0450 | 4.50 | 24 | 36 | 66 | 6 | ● |
| D918-A3N-0465 | 4.65 | 24 | 36 | 66 | 6 | ○ |
| D918-A3N-0480 | 4.80 | 28 | 36 | 66 | 6 | ○ |
| D918-A3N-0500 | 5.00 | 28 | 36 | 66 | 6 | ○ |
| D918-A3N-0510 | 5.10 | 28 | 36 | 66 | 6 | ● |
| D918-A3N-0520 | 5.20 | 28 | 36 | 66 | 6 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3N-0550 | 5.50 | 28 | 36 | 66 | 6 | ● |
| D918-A3N-0560 | 5.60 | 28 | 36 | 66 | 6 | ● |
| D918-A3N-0580 | 5.80 | 28 | 36 | 66 | 6 | ● |
| D918-A3N-0600 | 6.00 | 28 | 36 | 66 | 6 | ● |
| D918-A3N-0610 | 6.10 | 34 | 36 | 79 | 8 | ○ |
| D918-A3N-0620 | 6.20 | 34 | 36 | 79 | 8 | ● |
| D918-A3N-0630 | 6.30 | 34 | 36 | 79 | 8 | ● |
| D918-A3N-0650 | 6.50 | 34 | 36 | 79 | 8 | ○ |
| D918-A3N-0660 | 6.60 | 34 | 36 | 79 | 8 | ● |
| D918-A3N-0680 | 6.80 | 34 | 36 | 79 | 8 | ○ |
| D918-A3N-0690 | 6.90 | 34 | 36 | 79 | 8 | ● |
| D918-A3N-0700 | 7.00 | 34 | 36 | 79 | 8 | ● |
| D918-A3N-0720 | 7.20 | 41 | 36 | 79 | 8 | ● |
| D918-A3N-0740 | 7.40 | 41 | 36 | 79 | 8 | ○ |
| D918-A3N-0750 | 7.50 | 41 | 36 | 79 | 8 | ○ |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

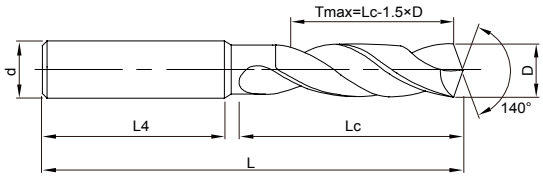
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | | ○ | ○ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A3N

3D External Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3N-0780 | 7.80 | 41 | 36 | 79 | 8 | ○ |
| D918-A3N-0800 | 8.00 | 41 | 36 | 79 | 8 | ● |
| D918-A3N-0810 | 8.10 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0840 | 8.40 | 47 | 40 | 89 | 10 | ● |
| D918-A3N-0850 | 8.50 | 47 | 40 | 89 | 10 | ● |
| D918-A3N-0860 | 8.60 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0870 | 8.70 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0880 | 8.80 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0900 | 9.00 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0930 | 9.30 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0950 | 9.50 | 47 | 40 | 89 | 10 | ● |
| D918-A3N-0960 | 9.60 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-0980 | 9.80 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-1000 | 10.00 | 47 | 40 | 89 | 10 | ○ |
| D918-A3N-1025 | 10.25 | 55 | 45 | 102 | 12 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3N-1040 | 10.40 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1060 | 10.60 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1080 | 10.80 | 55 | 45 | 102 | 12 | ● |
| D918-A3N-1100 | 11.00 | 55 | 45 | 102 | 12 | ● |
| D918-A3N-1120 | 11.20 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1150 | 11.50 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1180 | 11.80 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1200 | 12.00 | 55 | 45 | 102 | 12 | ○ |
| D918-A3N-1225 | 12.25 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1250 | 12.50 | 60 | 45 | 107 | 14 | ● |
| D918-A3N-1270 | 12.70 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1275 | 12.75 | 60 | 45 | 107 | 14 | ● |
| D918-A3N-1280 | 12.80 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1300 | 13.00 | 60 | 45 | 107 | 14 | ● |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | | ○ | ○ | | | |

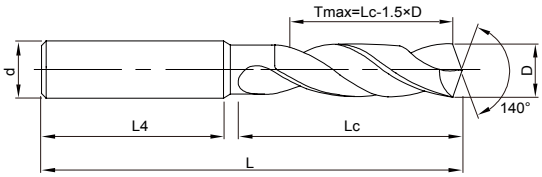
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P076

# D918-A3N

SHANK DIN 6535HA | TiAlN | 3D

3D External Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3N-1310 | 13.10 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1350 | 13.50 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1380 | 13.80 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1400 | 14.00 | 60 | 45 | 107 | 14 | ○ |
| D918-A3N-1425 | 14.25 | 65 | 48 | 115 | 16 | ○ |
| D918-A3N-1450 | 14.50 | 65 | 48 | 115 | 16 | ● |
| D918-A3N-1475 | 14.75 | 65 | 48 | 115 | 16 | ● |
| D918-A3N-1480 | 14.80 | 65 | 48 | 115 | 16 | ○ |
| D918-A3N-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D918-A3N-1510 | 15.10 | 65 | 48 | 115 | 16 | ○ |
| D918-A3N-1550 | 15.50 | 65 | 48 | 115 | 16 | ○ |
| D918-A3N-1580 | 15.80 | 65 | 48 | 115 | 16 | ○ |
| D918-A3N-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3N-1650 | 16.50 | 73 | 48 | 123 | 18 | ○ |
| D918-A3N-1675 | 16.75 | 73 | 48 | 123 | 18 | ○ |
| D918-A3N-1680 | 16.80 | 73 | 48 | 123 | 18 | ○ |
| D918-A3N-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D918-A3N-1750 | 17.50 | 73 | 48 | 123 | 18 | ● |
| D918-A3N-1780 | 17.80 | 73 | 48 | 123 | 18 | ○ |
| D918-A3N-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D918-A3N-1850 | 18.50 | 79 | 50 | 131 | 20 | ○ |
| D918-A3N-1880 | 18.80 | 79 | 50 | 131 | 20 | ○ |
| D918-A3N-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D918-A3N-1950 | 19.50 | 79 | 50 | 131 | 20 | ○ |
| D918-A3N-1980 | 19.80 | 79 | 50 | 131 | 20 | ○ |
| D918-A3N-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

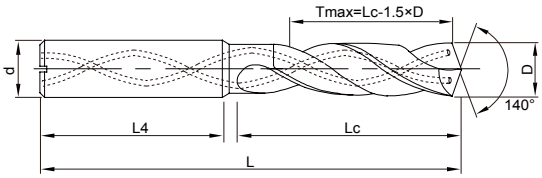
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | | ○ | ○ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A3C

3D Inner Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3C-0500 | 5.00 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0510 | 5.10 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0520 | 5.20 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0550 | 5.50 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0555 | 5.55 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0580 | 5.80 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0600 | 6.00 | 28 | 36 | 66 | 6 | ○ |
| D918-A3C-0610 | 6.10 | 34 | 36 | 79 | 8 | ○ |
| D918-A3C-0620 | 6.20 | 34 | 36 | 79 | 8 | ○ |
| D918-A3C-0630 | 6.30 | 34 | 36 | 79 | 8 | ○ |
| D918-A3C-0650 | 6.50 | 34 | 36 | 79 | 8 | ○ |
| D918-A3C-0660 | 6.60 | 34 | 36 | 79 | 8 | ● |
| D918-A3C-0680 | 6.80 | 34 | 36 | 79 | 8 | ○ |
| D918-A3C-0690 | 6.90 | 34 | 36 | 79 | 8 | ○ |
| D918-A3C-0700 | 7.00 | 34 | 36 | 79 | 8 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3C-0710 | 7.10 | 41 | 36 | 79 | 8 | ○ |
| D918-A3C-0740 | 7.40 | 41 | 36 | 79 | 8 | ○ |
| D918-A3C-0750 | 7.50 | 41 | 36 | 79 | 8 | ○ |
| D918-A3C-0780 | 7.80 | 41 | 36 | 79 | 8 | ○ |
| D918-A3C-0800 | 8.00 | 41 | 36 | 79 | 8 | ○ |
| D918-A3C-0810 | 8.10 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0840 | 8.40 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0850 | 8.50 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0860 | 8.60 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0870 | 8.70 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0880 | 8.80 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0900 | 9.00 | 47 | 40 | 89 | 10 | ● |
| D918-A3C-0930 | 9.30 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0950 | 9.50 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-0960 | 9.60 | 47 | 40 | 89 | 10 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

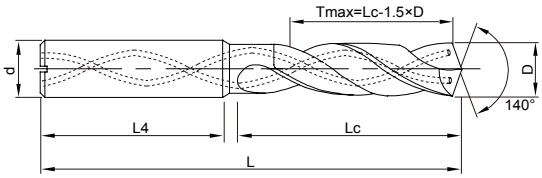
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A3C

3D Inner Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3C-0980 | 9.80 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-1000 | 10.00 | 47 | 40 | 89 | 10 | ○ |
| D918-A3C-1025 | 10.25 | 55 | 45 | 102 | 12 | ● |
| D918-A3C-1040 | 10.40 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1060 | 10.60 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1080 | 10.80 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1100 | 11.00 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1120 | 11.20 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1150 | 11.50 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1180 | 11.80 | 55 | 45 | 102 | 12 | ○ |
| D918-A3C-1200 | 12.00 | 55 | 45 | 102 | 12 | ● |
| D918-A3C-1225 | 12.25 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1250 | 12.50 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1270 | 12.70 | 60 | 45 | 107 | 14 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A3C-1275 | 12.75 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1280 | 12.80 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1300 | 13.00 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1310 | 13.10 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1350 | 13.50 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1380 | 13.80 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1400 | 14.00 | 60 | 45 | 107 | 14 | ○ |
| D918-A3C-1425 | 14.25 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1450 | 14.50 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1475 | 14.75 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1480 | 14.80 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1510 | 15.10 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1550 | 15.50 | 65 | 48 | 115 | 16 | ● |
| D918-A3C-1580 | 15.80 | 65 | 48 | 115 | 16 | ○ |
| D918-A3C-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

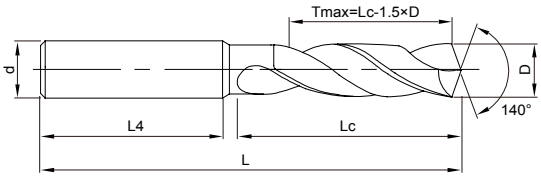
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A5N

5D External Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5N-0300 | 3.00 | 28 | 36 | 66 | 6 | ● |
| D918-A5N-0325 | 3.25 | 28 | 36 | 66 | 6 | ○ |
| D918-A5N-0330 | 3.30 | 28 | 36 | 66 | 6 | ○ |
| D918-A5N-0340 | 3.40 | 28 | 36 | 66 | 6 | ● |
| D918-A5N-0350 | 3.50 | 28 | 36 | 66 | 6 | ● |
| D918-A5N-0370 | 3.70 | 28 | 36 | 66 | 6 | ○ |
| D918-A5N-0400 | 4.00 | 36 | 36 | 74 | 6 | ○ |
| D918-A5N-0420 | 4.20 | 36 | 36 | 74 | 6 | ● |
| D918-A5N-0430 | 4.30 | 36 | 36 | 74 | 6 | ● |
| D918-A5N-0450 | 4.50 | 36 | 36 | 74 | 6 | ○ |
| D918-A5N-0465 | 4.65 | 36 | 36 | 74 | 6 | ○ |
| D918-A5N-0480 | 4.80 | 44 | 36 | 82 | 6 | ○ |
| D918-A5N-0500 | 5.00 | 44 | 36 | 82 | 6 | ● |
| D918-A5N-0510 | 5.10 | 44 | 36 | 82 | 6 | ● |
| D918-A5N-0520 | 5.20 | 44 | 36 | 82 | 6 | ● |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5N-0550 | 5.50 | 44 | 36 | 82 | 6 | ● |
| D918-A5N-0555 | 5.55 | 44 | 36 | 82 | 6 | ● |
| D918-A5N-0580 | 5.80 | 44 | 36 | 82 | 6 | ● |
| D918-A5N-0600 | 6.00 | 44 | 36 | 82 | 6 | ● |
| D918-A5N-0610 | 6.10 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0620 | 6.20 | 53 | 36 | 91 | 8 | ● |
| D918-A5N-0630 | 6.30 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0650 | 6.50 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0660 | 6.60 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0680 | 6.80 | 53 | 36 | 91 | 8 | ● |
| D918-A5N-0690 | 6.90 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0700 | 7.00 | 53 | 36 | 91 | 8 | ● |
| D918-A5N-0710 | 7.10 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0740 | 7.40 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0750 | 7.50 | 53 | 36 | 91 | 8 | ○ |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | | ○ | ○ | | | |

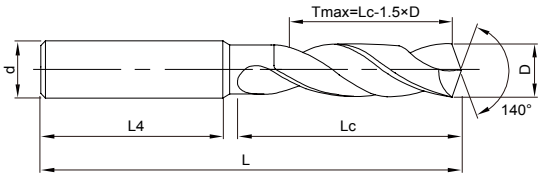
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A5N

SHANK DIN 6535HA | TiAlN | 5D

5D External Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5N-0780 | 7.80 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D918-A5N-0810 | 8.10 | 61 | 40 | 103 | 10 | ● |
| D918-A5N-0840 | 8.40 | 61 | 40 | 103 | 10 | ○ |
| D918-A5N-0850 | 8.50 | 61 | 40 | 103 | 10 | ● |
| D918-A5N-0860 | 8.60 | 61 | 40 | 103 | 10 | ○ |
| D918-A5N-0870 | 8.70 | 61 | 40 | 103 | 10 | ● |
| D918-A5N-0880 | 8.80 | 61 | 40 | 103 | 10 | ● |
| D918-A5N-0900 | 9.00 | 61 | 40 | 103 | 10 | ● |
| D918-A5N-0930 | 9.30 | 61 | 40 | 103 | 10 | ○ |
| D918-A5N-0950 | 9.50 | 61 | 40 | 103 | 10 | ○ |
| D918-A5N-0970 | 9.70 | 61 | 40 | 103 | 10 | ● |
| D918-A5N-0980 | 9.80 | 61 | 40 | 103 | 10 | ○ |
| D918-A5N-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D918-A5N-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5N-1040 | 10.40 | 71 | 45 | 118 | 12 | ● |
| D918-A5N-1050 | 10.50 | 71 | 45 | 118 | 12 | ● |
| D918-A5N-1060 | 10.60 | 71 | 45 | 118 | 12 | ○ |
| D918-A5N-1080 | 10.80 | 71 | 45 | 118 | 12 | ○ |
| D918-A5N-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D918-A5N-1120 | 11.20 | 71 | 45 | 118 | 12 | ○ |
| D918-A5N-1150 | 11.50 | 71 | 45 | 118 | 12 | ○ |
| D918-A5N-1180 | 11.80 | 71 | 45 | 118 | 12 | ○ |
| D918-A5N-1200 | 12.00 | 71 | 45 | 118 | 12 | ● |
| D918-A5N-1220 | 12.20 | 77 | 45 | 124 | 14 | ○ |
| D918-A5N-1225 | 12.25 | 77 | 45 | 124 | 14 | ○ |
| D918-A5N-1250 | 12.50 | 77 | 45 | 124 | 14 | ● |
| D918-A5N-1270 | 12.70 | 77 | 45 | 124 | 14 | ○ |
| D918-A5N-1275 | 12.75 | 77 | 45 | 124 | 14 | ○ |
| D918-A5N-1280 | 12.80 | 77 | 45 | 124 | 14 | ○ |

Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

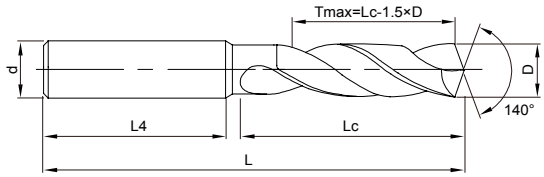
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | | ○ | ○ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A5N

5D External Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5N-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D918-A5N-1350 | 13.50 | 77 | 45 | 124 | 14 | ● |
| D918-A5N-1380 | 13.80 | 77 | 45 | 124 | 14 | ○ |
| D918-A5N-1400 | 14.00 | 77 | 45 | 124 | 14 | ● |
| D918-A5N-1425 | 14.25 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1475 | 14.75 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1480 | 14.80 | 83 | 48 | 133 | 16 | ● |
| D918-A5N-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1510 | 15.10 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1550 | 15.50 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1580 | 15.80 | 83 | 48 | 133 | 16 | ○ |
| D918-A5N-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5N-1650 | 16.50 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1675 | 16.75 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1680 | 16.80 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1750 | 17.50 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1780 | 17.80 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D918-A5N-1850 | 18.50 | 101 | 50 | 153 | 20 | ○ |
| D918-A5N-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D918-A5N-1950 | 19.50 | 101 | 50 | 153 | 20 | ○ |
| D918-A5N-1980 | 19.80 | 101 | 50 | 153 | 20 | ○ |
| D918-A5N-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard Customization from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ≥2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

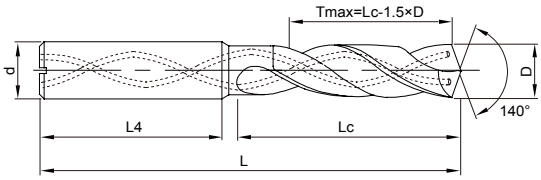
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | | ○ | ○ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A5C

5D Inner Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5C-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0510 | 5.10 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0520 | 5.20 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0550 | 5.50 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0555 | 5.55 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0580 | 5.80 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D918-A5C-0610 | 6.10 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0620 | 6.20 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0630 | 6.30 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0650 | 6.50 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0660 | 6.60 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0690 | 6.90 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5C-0710 | 7.10 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0740 | 7.40 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0750 | 7.50 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0780 | 7.80 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D918-A5C-0810 | 8.10 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-0840 | 8.40 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-0860 | 8.60 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-0870 | 8.70 | 61 | 40 | 103 | 10 | ● |
| D918-A5C-0880 | 8.80 | 61 | 40 | 103 | 10 | ● |
| D918-A5C-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-0930 | 9.30 | 61 | 40 | 103 | 10 | ● |
| D918-A5C-0950 | 9.50 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-0960 | 9.60 | 61 | 40 | 103 | 10 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

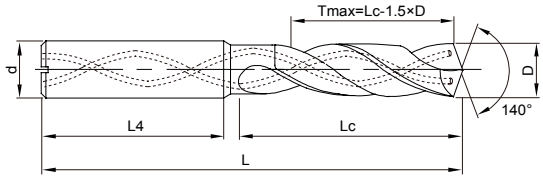
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D918-A5C

5D Inner Cooling Twist Drills for General Purpose




Tmax-Recommended Maximum Depth

》Continue

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5C-0980 | 9.80 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D918-A5C-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1040 | 10.40 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1060 | 10.60 | 71 | 45 | 118 | 12 | ● |
| D918-A5C-1080 | 10.80 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1120 | 11.20 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1150 | 11.50 | 71 | 45 | 118 | 12 | ● |
| D918-A5C-1180 | 11.80 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D918-A5C-1220 | 12.20 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1225 | 12.25 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D918-A5C-1270 | 12.70 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1275 | 12.75 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1280 | 12.80 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1350 | 13.50 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1380 | 13.80 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D918-A5C-1425 | 14.25 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1475 | 14.75 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1480 | 14.80 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1510 | 15.10 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1550 | 15.50 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1580 | 15.80 | 83 | 48 | 133 | 16 | ○ |
| D918-A5C-1600 | 16.00 | 83 | 48 | 133 | 16 | |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

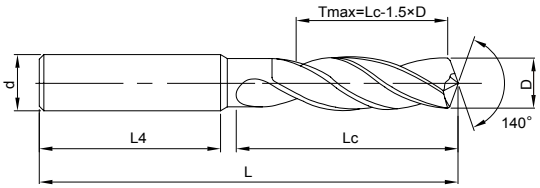
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ◎ | ○ | ◎ | ○ | ○ | ○ | ○ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P079

# D928-A3N

3D External Cooling Twist Drills for Cast Iron


Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A3N-0300 | 3.00 | 20 | 36 | 62 | 6 | ○ |
| D928-A3N-0330 | 3.30 | 20 | 36 | 62 | 6 | ○ |
| D928-A3N-0400 | 4.00 | 24 | 36 | 66 | 6 | ○ |
| D928-A3N-0420 | 4.20 | 24 | 36 | 66 | 6 | ○ |
| D928-A3N-0500 | 5.00 | 28 | 36 | 66 | 6 | ○ |
| D928-A3N-0600 | 6.00 | 28 | 36 | 66 | 6 | ○ |
| D928-A3N-0680 | 6.80 | 34 | 36 | 79 | 8 | ○ |
| D928-A3N-0700 | 7.00 | 34 | 36 | 79 | 8 | ○ |
| D928-A3N-0800 | 8.00 | 41 | 36 | 79 | 8 | ○ |
| D928-A3N-0850 | 8.50 | 47 | 40 | 89 | 10 | ○ |
| D928-A3N-0900 | 9.00 | 47 | 40 | 89 | 10 | ○ |
| D928-A3N-1000 | 10.00 | 47 | 40 | 89 | 10 | ○ |
| D928-A3N-1025 | 10.25 | 55 | 45 | 102 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A3N-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D928-A3N-1100 | 11.00 | 55 | 45 | 102 | 12 | ○ |
| D928-A3N-1200 | 12.00 | 55 | 45 | 102 | 12 | ○ |
| D928-A3N-1250 | 12.50 | 60 | 45 | 107 | 14 | ○ |
| D928-A3N-1300 | 13.00 | 60 | 45 | 107 | 14 | ○ |
| D928-A3N-1400 | 14.00 | 60 | 45 | 107 | 14 | ○ |
| D928-A3N-1450 | 14.50 | 65 | 48 | 115 | 16 | ○ |
| D928-A3N-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D928-A3N-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |
| D928-A3N-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D928-A3N-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D928-A3N-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D928-A3N-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

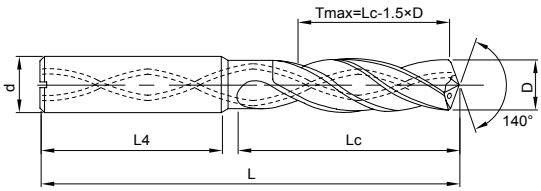
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | | | | ◎ | ◎ | | | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P081

# D928-A3C

3D Inner Cooling Twist Drills for Cast Iron




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A3C-0500 | 5.00 | 28 | 36 | 66 | 6 | ○ |
| D928-A3C-0600 | 6.00 | 28 | 36 | 66 | 6 | ○ |
| D928-A3C-0680 | 6.80 | 34 | 36 | 79 | 8 | ○ |
| D928-A3C-0700 | 7.00 | 34 | 36 | 79 | 8 | ○ |
| D928-A3C-0800 | 8.00 | 41 | 36 | 79 | 8 | ○ |
| D928-A3C-0850 | 8.50 | 47 | 40 | 89 | 10 | ○ |
| D928-A3C-0900 | 9.00 | 47 | 40 | 89 | 10 | ○ |
| D928-A3C-1000 | 10.00 | 47 | 40 | 89 | 10 | ○ |
| D928-A3C-1025 | 10.25 | 55 | 45 | 102 | 12 | ○ |
| D928-A3C-1050 | 10.50 | 55 | 45 | 102 | 12 | ○ |
| D928-A3C-1100 | 11.00 | 55 | 45 | 102 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A3C-1200 | 12.00 | 55 | 45 | 102 | 12 | ○ |
| D928-A3C-1250 | 12.50 | 60 | 45 | 107 | 14 | ○ |
| D928-A3C-1300 | 13.00 | 60 | 45 | 107 | 14 | ○ |
| D928-A3C-1400 | 14.00 | 60 | 45 | 107 | 14 | ○ |
| D928-A3C-1450 | 14.50 | 65 | 48 | 115 | 16 | ○ |
| D928-A3C-1500 | 15.00 | 65 | 48 | 115 | 16 | ○ |
| D928-A3C-1600 | 16.00 | 65 | 48 | 115 | 16 | ○ |
| D928-A3C-1700 | 17.00 | 73 | 48 | 123 | 18 | ○ |
| D928-A3C-1800 | 18.00 | 73 | 48 | 123 | 18 | ○ |
| D928-A3C-1900 | 19.00 | 79 | 50 | 131 | 20 | ○ |
| D928-A3C-2000 | 20.00 | 79 | 50 | 131 | 20 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

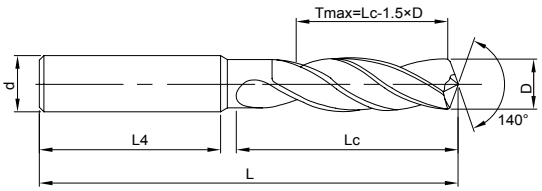
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | | | | ◎ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P081

# D928-A5N

5D External Cooling Twist Drills for Cast Iron


Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A5N-0300 | 3.00 | 28 | 36 | 66 | 6 | ○ |
| D928-A5N-0330 | 3.30 | 28 | 36 | 66 | 6 | ○ |
| D928-A5N-0400 | 4.00 | 36 | 36 | 74 | 6 | ○ |
| D928-A5N-0420 | 4.20 | 36 | 36 | 74 | 6 | ○ |
| D928-A5N-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D928-A5N-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D928-A5N-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D928-A5N-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D928-A5N-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D928-A5N-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D928-A5N-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D928-A5N-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D928-A5N-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A5N-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D928-A5N-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |
| D928-A5N-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D928-A5N-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |
| D928-A5N-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D928-A5N-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D928-A5N-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D928-A5N-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D928-A5N-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D928-A5N-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D928-A5N-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D928-A5N-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D928-A5N-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | | | | ◎ | ◎ | | | |

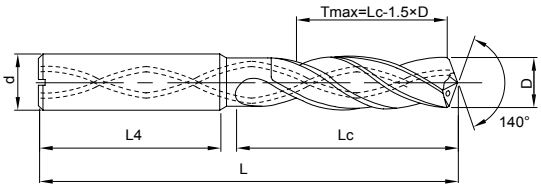
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P081

# D928-A5C

5D Inner Cooling Twist Drills for Cast Iron

SHANK DIN 6535HA | AlCrN/TiSiN | 5D




Tmax-Recommended Maximum Depth

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A5C-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D928-A5C-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D928-A5C-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D928-A5C-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D928-A5C-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D928-A5C-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D928-A5C-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D928-A5C-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D928-A5C-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |
| D928-A5C-1050 | 10.50 | 71 | 45 | 118 | 12 | ○ |
| D928-A5C-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(m7) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D928-A5C-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D928-A5C-1250 | 12.50 | 77 | 45 | 124 | 14 | ○ |
| D928-A5C-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D928-A5C-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D928-A5C-1450 | 14.50 | 83 | 48 | 133 | 16 | ○ |
| D928-A5C-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D928-A5C-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D928-A5C-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D928-A5C-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D928-A5C-1900 | 19.00 | 101 | 50 | 153 | 20 | ○ |
| D928-A5C-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(m7) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.002/+0.012 | 0.000/-0.006 |
| >3—6 | +0.004/+0.016 | 0.000/-0.008 |
| >6—10 | +0.006/+0.021 | 0.000/-0.009 |
| >10—18 | +0.007/+0.025 | 0.000/-0.011 |
| >18—20 | +0.008/+0.029 | 0.000/-0.013 |

Unit(mm)

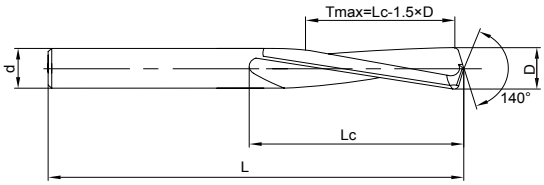
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | | | | ◎ | ◎ | ○ | ○ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P081

# D998-Y3N

3D External Cooling Twist Drills for Hardened Steel




Tmax-Recommended Maximum Depth

| Ordering Code | D(h7) | Lc | L | d(h6) | Stock |
|---|---|---|---|---|---|
| D998-Y3N-0400 | 4.0 | 22 | 55 | 4 | ○ |
| D998-Y3N-0500 | 5.0 | 26 | 62 | 5 | ○ |
| D998-Y3N-0600 | 6.0 | 28 | 66 | 6 | ○ |
| D998-Y3N-0700 | 7.0 | 34 | 74 | 7 | ○ |
| D998-Y3N-0800 | 8.0 | 37 | 79 | 8 | ○ |
| D998-Y3N-0900 | 9.0 | 40 | 84 | 9 | ○ |
| D998-Y3N-1000 | 10.0 | 43 | 89 | 10 | ○ |

| Ordering Code | D(h7) | Lc | L | d(h6) | Stock |
|---|---|---|---|---|---|
| D998-Y3N-1100 | 11.0 | 47 | 95 | 11 | ○ |
| D998-Y3N-1200 | 12.0 | 51 | 102 | 12 | ○ |
| D998-Y3N-1300 | 13.0 | 51 | 102 | 13 | ○ |
| D998-Y3N-1400 | 14.0 | 54 | 107 | 14 | ○ |
| D998-Y3N-1500 | 15.0 | 56 | 111 | 15 | ○ |
| D998-Y3N-1600 | 16.0 | 58 | 115 | 16 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(h7) | d(h6) |
|---|---|---|
| ≥2—3 | 0.000/-0.010 | 0.000/-0.006 |
| >3—6 | 0.000/-0.012 | 0.000/-0.008 |
| >6—10 | 0.000/-0.015 | 0.000/-0.009 |
| >10—18 | 0.000/-0.018 | 0.000/-0.011 |
| >18—20 | 0.000/-0.021 | 0.000/-0.013 |

Unit(mm)

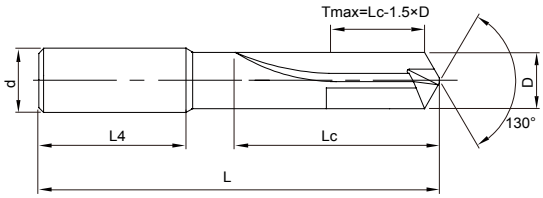
| Workpiece Material | | | | | | | |
|---|---|---|---|---|---|---|---|
| P | | | M | K | | H | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 | 2 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Hardened Steels (45-55HRC) | Hardened Steels (55-60HRC) |
| | | | | | | ◎ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P083

# D713-A5N

5D External Cooling Straight Fluted Drills for Cast Iron




Tmax-Recommended Maximum Depth

| Ordering Code | D(k6) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D713-A5N-0400 | 4.00 | 36 | 36 | 74 | 6 | ○ |
| D713-A5N-0420 | 4.20 | 36 | 36 | 74 | 6 | ○ |
| D713-A5N-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D713-A5N-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D713-A5N-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D713-A5N-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D713-A5N-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D713-A5N-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D713-A5N-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D713-A5N-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D713-A5N-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |
| D713-A5N-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(k6) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D713-A5N-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D713-A5N-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D713-A5N-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D713-A5N-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D713-A5N-1550 | 15.50 | 83 | 48 | 133 | 16 | ○ |
| D713-A5N-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D713-A5N-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D713-A5N-1750 | 17.50 | 93 | 48 | 143 | 18 | ○ |
| D713-A5N-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D713-A5N-1950 | 19.50 | 101 | 50 | 153 | 20 | ○ |
| D713-A5N-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(k6) | d(h6) |
|---|---|---|
| ≥2—3 | +0.006/+0.000 | 0.000/-0.006 |
| >3—6 | +0.009/+0.001 | 0.000/-0.008 |
| >6—10 | +0.010/+0.001 | 0.000/-0.009 |
| >10—18 | +0.012/+0.001 | 0.000/-0.011 |
| >18—20 | +0.015/+0.002 | 0.000/-0.013 |

Unit(mm)

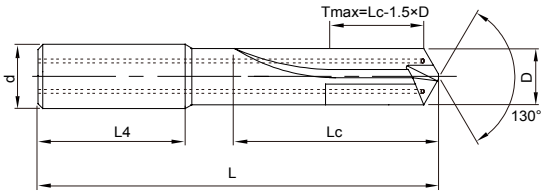
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| | | | | ◎ | ◎ | | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P084

# D713-A5C

5D Inner Cooling Straight Fluted Drills for Cast Iron


Tmax-Recommended Maximum Depth

| Ordering Code | D(k6) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D713-A5C-0400 | 4.00 | 36 | 36 | 74 | 6 | ○ |
| D713-A5C-0420 | 4.20 | 36 | 36 | 74 | 6 | ○ |
| D713-A5C-0500 | 5.00 | 44 | 36 | 82 | 6 | ○ |
| D713-A5C-0600 | 6.00 | 44 | 36 | 82 | 6 | ○ |
| D713-A5C-0680 | 6.80 | 53 | 36 | 91 | 8 | ○ |
| D713-A5C-0700 | 7.00 | 53 | 36 | 91 | 8 | ○ |
| D713-A5C-0800 | 8.00 | 53 | 36 | 91 | 8 | ○ |
| D713-A5C-0850 | 8.50 | 61 | 40 | 103 | 10 | ○ |
| D713-A5C-0900 | 9.00 | 61 | 40 | 103 | 10 | ○ |
| D713-A5C-1000 | 10.00 | 61 | 40 | 103 | 10 | ○ |
| D713-A5C-1025 | 10.25 | 71 | 45 | 118 | 12 | ○ |
| D713-A5C-1100 | 11.00 | 71 | 45 | 118 | 12 | ○ |

| Ordering Code | D(k6) | Lc | L4 | L | d(h6) | Stock |
|---|---|---|---|---|---|---|
| D713-A5C-1200 | 12.00 | 71 | 45 | 118 | 12 | ○ |
| D713-A5C-1300 | 13.00 | 77 | 45 | 124 | 14 | ○ |
| D713-A5C-1400 | 14.00 | 77 | 45 | 124 | 14 | ○ |
| D713-A5C-1500 | 15.00 | 83 | 48 | 133 | 16 | ○ |
| D713-A5C-1550 | 15.50 | 83 | 48 | 133 | 16 | ○ |
| D713-A5C-1600 | 16.00 | 83 | 48 | 133 | 16 | ○ |
| D713-A5C-1700 | 17.00 | 93 | 48 | 143 | 18 | ○ |
| D713-A5C-1750 | 17.50 | 93 | 48 | 143 | 18 | ○ |
| D713-A5C-1800 | 18.00 | 93 | 48 | 143 | 18 | ○ |
| D713-A5C-1950 | 19.50 | 101 | 50 | 153 | 20 | ○ |
| D713-A5C-2000 | 20.00 | 101 | 50 | 153 | 20 | ○ |

Note：Accept non-standard custom from D3 to D20 tool.

● Stock ○ Available upon Order

| Nominal Size Range | D(k6) | d(h6) |
|---|---|---|
| ⩾2—3 | +0.006/+0.000 | 0.000/-0.006 |
| ＞3—6 | +0.009/+0.001 | 0.000/-0.008 |
| ＞6—10 | +0.010/+0.001 | 0.000/-0.009 |
| ＞10—18 | +0.012/+0.001 | 0.000/-0.011 |
| ＞18—20 | +0.015/+0.002 | 0.000/-0.013 |

Unit(mm)

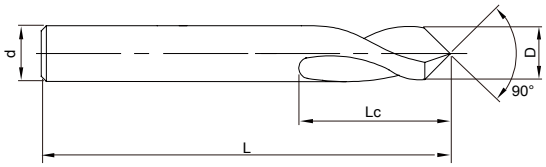
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (＜35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (＜48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (＜32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si⩽12%) | Cast Aluminium Alloys (Si＞12%) | Copper Alloys (＜200HB) |
| | | | | ◎ | ◎ | | ◎ | |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P084

# D101-AMN

90°NC Centre Drills




Tmax-Recommended Maximum Depth

| Ordering Code | D | Lc | L | d(h6) | Stock |
|---|---|---|---|---|---|
| D101-AMN-0500 | 5.00 | 10 | 62 | 5 | ● |
| D101-AMN-0600 | 6.00 | 15 | 66 | 6 | ● |
| D101-AMN-0800 | 8.00 | 17 | 79 | 8 | ● |
| D101-AMN-1000 | 10.00 | 20 | 89 | 10 | ● |
| D101-AMN-1200 | 12.00 | 25 | 102 | 12 | ● |
| D101-AMN-1400 | 14.00 | 30 | 107 | 14 | ● |
| D101-AMN-1600 | 16.00 | 35 | 115 | 16 | ● |
| D101-AMN-2000 | 20.00 | 40 | 131 | 20 | ● |

Note：Accept non-standard custom from D2 to D20 tool.

Unit(mm)

● Stock ○ Available upon Order

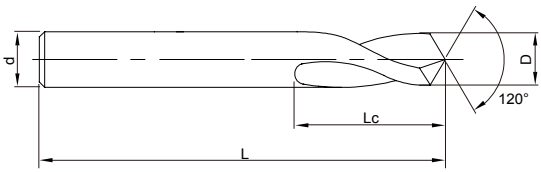
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1234 | 5 | 6 | 123 | 12 | 3 | 12 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | ○ | ○ | | ◎ | | ◎ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P078

# D102-ANN

120°NC Centre Drills




| Ordering Code | D | Lc | L | d(h6) | Stock |
|---|---|---|---|---|---|
| D102-ANN-0500 | 5.00 | 10 | 62 | 5 | ○ |
| D102-ANN-0600 | 6.00 | 15 | 66 | 6 | ○ |
| D102-ANN-0800 | 8.00 | 17 | 79 | 8 | ○ |
| D102-ANN-1000 | 10.00 | 20 | 89 | 10 | ○ |
| D102-ANN-1200 | 12.00 | 25 | 102 | 12 | ○ |
| D102-ANN-1400 | 14.00 | 30 | 107 | 14 | ○ |
| D102-ANN-1600 | 16.00 | 35 | 115 | 16 | ○ |
| D102-ANN-2000 | 20.00 | 40 | 131 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

Unit(mm)

● Stock ○ Available upon Order

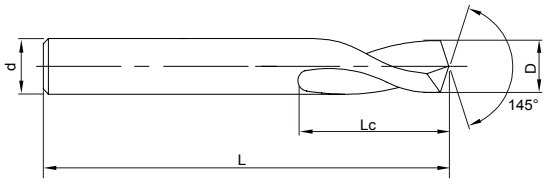
| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | ○ | ○ | | ◎ | | ◎ | ○ | ○ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P078

# D103-APN

145°NC Centre Drills




| Ordering Code | D | Lc | L | d(h6) | Stock |
|---|---|---|---|---|---|
| D103-APN-0500 | 5.00 | 10 | 62 | 5 | ○ |
| D103-APN-0600 | 6.00 | 15 | 66 | 6 | ○ |
| D103-APN-0800 | 8.00 | 17 | 79 | 8 | ○ |
| D103-APN-1000 | 10.00 | 20 | 89 | 10 | ○ |
| D103-APN-1200 | 12.00 | 25 | 102 | 12 | ○ |
| D103-APN-1400 | 14.00 | 30 | 107 | 14 | ○ |
| D103-APN-1600 | 16.00 | 35 | 115 | 16 | ○ |
| D103-APN-2000 | 20.00 | 40 | 131 | 20 | ○ |

Note：Accept non-standard custom from D2 to D20 tool.

Unit(mm)

● Stock ○ Available upon Order

| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | |
| 1234 | 5 | 6 | 123 | 12 | 3 | 12 | 3 | 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) |
| ○ | ○ | ○ | | ◎ | | ◎ | ○ | ○ |

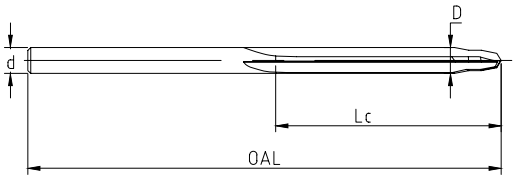
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P078

# D612-Y3N

Triple-angle Drills for Composite Material

SHANK U-DIA 3D




| Ordering Code | D(mm) | D(in) | Lc | OAL | d | Linenumber /Diameter (in) | Stock |
|---|---|---|---|---|---|---|---|
| D612-Y3N-0249 | 2.49 | 0.0980 | 15 | 60 | 2.49 | — | ○ |
| D612-Y3N-0270 | 2.70 | 0.1063 | 15 | 60 | 2.70 | — | ○ |
| D612-Y3N-0300 | 3.00 | 0.1181 | 18 | 60 | 3.00 | — | ○ |
| D612-Y3N-0320 | 3.20 | 0.1260 | 20 | 75 | 3.20 | — | ○ |
| D612-Y3N-0326 | 3.26 | 0.1283 | 20 | 75 | 3.26 | 30# | ○ |
| D612-Y3N-0400 | 4.00 | 0.1575 | 30 | 75 | 4.00 | — | ○ |
| D612-Y3N-0409 | 4.09 | 0.1610 | 30 | 75 | 4.09 | 20# | ○ |
| D612-Y3N-0450 | 4.50 | 0.1772 | 30 | 75 | 4.50 | 16# | ○ |
| D612-Y3N-0480 | 4.80 | 0.1890 | 30 | 75 | 4.80 | 12# | ○ |

| Ordering Code | D(mm) | D(in) | Lc | OAL | d | Linenumber /Diameter (in) | Stock |
|---|---|---|---|---|---|---|---|
| D612-Y3N-04826 | 4.826 | 0.1900 | 30 | 75 | 4.83 | — | ○ |
| D612-Y3N-0491 | 4.91 | 0.1933 | 30 | 75 | 4.91 | 10# | ○ |
| D612-Y3N-0500 | 5.00 | 0.1969 | 35 | 100 | 5.00 | — | ○ |
| D612-Y3N-0505 | 5.05 | 0.1988 | 35 | 100 | 5.05 | 8# | ○ |
| D612-Y3N-0522 | 5.22 | 0.2055 | 35 | 100 | 5.22 | 5# | ○ |
| D612-Y3N-0600 | 6.00 | 0.2362 | 40 | 100 | 6.00 | — | ○ |
| D612-Y3N-0635 | 6.35 | 0.2500 | 40 | 100 | 6.35 | — | ○ |
| D612-Y3N-0794 | 7.94 | 0.3126 | 40 | 100 | 7.94 | — | ○ |

Unit(mm)

Note：Accept non-standard custom from D1.5 to D16 tool.

● Stock ○ Available upon Order

| Workpiece Material | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| P | | | M | K | | N | | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 1 2 | 3 | 4 | 5 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Grey Cast Iron、Nodular Cast Iron (<32HRC) | High Alloy Cast Iron (35-45HRC) | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) | Composite Material |
| | | | | | | | | | ◎ |

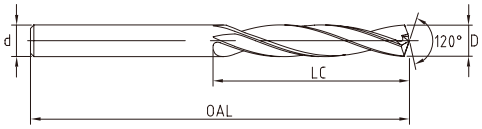
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P085

# D973-Y5N

Twist Drills for Composite and Metal

SHANK AlCrN/TiSiN 5D




| Ordering Code | D(mm) | D(in) | Lc | OAL | d | Linenumber / Diameter (in) | Stock |
|---|---|---|---|---|---|---|---|
| D973-Y5N-0250 | 2.50 | 0.0984 | 25 | 75 | 2.50 | —— | ○ |
| D973-Y5N-0270 | 2.70 | 0.1063 | 25 | 75 | 2.70 | —— | ○ |
| D973-Y5N-0300 | 3.00 | 0.1181 | 25 | 75 | 3.00 | —— | ○ |
| D973-Y5N-0310 | 3.10 | 0.1220 | 25 | 75 | 3.10 | —— | ○ |
| D973-Y5N-0326 | 3.26 | 0.1285 | 35 | 75 | 3.26 | 30# | ○ |
| D973-Y5N-0400 | 4.00 | 0.1575 | 35 | 100 | 4.00 | —— | ○ |
| D973-Y5N-0409 | 4.09 | 0.1610 | 40 | 100 | 4.09 | 20# | ○ |
| D973-Y5N-0417 | 4.17 | 0.1640 | 40 | 100 | 4.17 | —— | ○ |
| D973-Y5N-0470 | 4.70 | 0.1850 | 40 | 100 | 4.70 | 13# | ○ |
| D973-Y5N-0483 | 4.83 | 0.1900 | 40 | 100 | 4.83 | —— | ○ |
| D973-Y5N-0500 | 5.00 | 0.1969 | 40 | 100 | 5.00 | —— | ○ |
| D973-Y5N-0556 | 5.56 | 0.2190 | 40 | 100 | 5.56 | —— | ○ |
| D973-Y5N-0595 | 5.95 | 0.2344 | 40 | 100 | 5.95 | 15/64 | ○ |
| D973-Y5N-0600 | 6.00 | 0.2362 | 40 | 100 | 6.00 | —— | ○ |
| D973-Y5N-0635 | 6.35 | 0.2500 | 40 | 100 | 6.35 | 1/4 | ○ |
| D973-Y5N-0750 | 7.50 | 0.2953 | 45 | 120 | 7.50 | —— | ○ |
| D973-Y5N-0794 | 7.94 | 0.3125 | 45 | 120 | 7.94 | 5/16 | ○ |

Note：Accept non-standard custom from D2 to D16 tool.

Unit(mm)

● Stock ○ Available upon Order

| Workpiece Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| P | | | M | N | | | | S |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 4 | 5 | 1 2 3 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) | Composite Material | Titanium alloy, Heat-resistant Super Alloys |
| ○ | ○ | | ◎ | ◎ | ◎ | | ○ | ◎ |

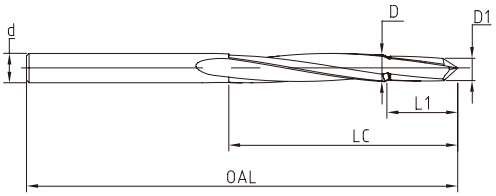
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P085

# D573-Y3N

Core Drills for Composite and Metal

SHANK AlCrN/TiSiN 3




| Ordering Code | D(mm) | D(in) | D1 | L1 | Lc | d | OAL | Linenumber / Diameter (in) | Stock |
|---|---|---|---|---|---|---|---|---|---|
| D573-Y3N-0400 | 4.00 | 0.157 | 3.26 | 8.0 | 40.0 | 4.00 | 80 | — | ○ |
| D573-Y3N-0409 | 4.09 | 0.161 | 3.37 | 8.0 | 40.0 | 4.09 | 80 | 20# | ○ |
| D573-Y3N-0417 | 4.17 | 0.164 | 3.37 | 8.0 | 40.0 | 4.17 | 80 | — | ○ |
| D573-Y3N-0437 | 4.37 | 0.172 | 4.10 | 8.0 | 40.0 | 4.37 | 80 | 17# | ○ |
| D573-Y3N-0450 | 4.50 | 0.177 | 4.10 | 8.0 | 40.0 | 4.50 | 100 | — | ○ |
| D573-Y3N-0470 | 4.70 | 0.185 | 4.17 | 8.0 | 40.0 | 4.70 | 100 | 13# | ○ |
| D573-Y3N-0485 | 4.85 | 0.191 | 4.37 | 8.0 | 40.0 | 4.85 | 100 | 11# | ○ |
| D573-Y3N-0500 | 5.00 | 0.197 | 4.37 | 10.0 | 50.0 | 5.00 | 100 | — | ○ |
| D573-Y3N-0518 | 5.18 | 0.204 | 4.85 | 10.0 | 50.0 | 5.18 | 100 | 6# | ○ |
| D573-Y3N-0556 | 5.56 | 0.219 | 4.70 | 10.0 | 50.0 | 5.56 | 100 | — | ○ |
| D573-Y3N-0595 | 5.95 | 0.234 | 5.56 | 10.0 | 50.0 | 5.95 | 100 | — | ○ |
| D573-Y3N-0625 | 6.25 | 0.246 | 5.95 | 10.0 | 50.0 | 6.25 | 100 | — | ○ |
| D573-Y3N-0754 | 7.54 | 0.297 | 6.35 | 10.0 | 50.0 | 7.54 | 100 | — | ○ |
| D573-Y3N-0767 | 7.67 | 0.302 | 6.35 | 10.0 | 50.0 | 7.67 | 120 | — | ○ |
| D573-Y3N-0930 | 9.30 | 0.366 | 8.40 | 10.0 | 50.0 | 9.30 | 120 | — | ○ |

Note：Accept non-standard custom from D3 to D16 tool.

Unit(mm)

● Stock ○ Available upon Order

Workpiece Material

| P | | | M | N | | | | S |
|---|---|---|---|---|---|---|---|---|
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 4 | 5 | 1 2 3 4 |
| Carbon Steels、Alloy Steels (<35HRC) | Alloy Steels、Tool Steels (35-48HRC) | PH and Ferrite/ Martensitic Stainless (<48HRC) | Stainless Steel | Wrought Aluminium Alloys, Cast Aluminium Alloys (Si≤12%) | Cast Aluminium Alloys (Si>12%) | Copper Alloys (<200HB) | Composite Material | Titanium alloy, Heat-resistant Super Alloys |
| ○ | ○ | | ◎ | ◎ | ◎ | | ◎ | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P085

# Recommended Cutting Data

## D918S High Performance Twist Drills for Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 | Φ10 |
| P | Low-carbon Steels,Long Chipping（＜125HB） | 100-80-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（＜125HB） | 100-75-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | High-carbon Steels,Medium-carbon Steels（＜25HRC） | 90-70-45 | 120-80-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Alloy Steels，Tool Steels.（＜35HRC） | 90-70-45 | 110-80-50 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Alloy Steels，Tool Steels.（35-48HRC） | 80-60-40 | 90-60-40 | 0.09-0.12-0.14 | 0.10-0.14-0.17 | 0.13-0.17-0.22 | 0.17-0.23-0.29 | 0.21-0.28-0.35 |
| M | Austenitic Stainless Steels(130- 200HB) | 40-30-20 | 80-60-40 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.12-0.14 | 0.08-0.13-0.18 | 0.09-0.15-0.20 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（<25HRC） | 40-30-20 | 80-60-40 | 0.03-0.06-0.08 | 0.04-0.08-0.10 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.11-0.14 |
| | Duplex Stainless Steels (<30HRC) | 35-25-20 | 60-45-30 | 0.03-0.06-0.08 | 0.04-0.08-0.10 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.11-0.14 |
| K | Grey Cast Iron (<32HRC) | 100-80-60 | 140-120-60 | 0.13-0.17-0.20 | 0.15-0.20-0.23 | 0.17-0.25-0.30 | 0.20-0.27-0.35 | 0.23-0.30-0.40 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（<28HRC) | 100-80-60 | 140-120-60 | 0.11-0.15-0.18 | 0.13-0.17-0.20 | 0.15-0.20-0.25 | 0.17-0.25-0.32 | 0.20-0.28-0.36 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron (<45HRC) | 90-70-60 | 100-90-60 | 0.06-0.09-0.11 | 0.08-0.10-0.13 | 0.10-0.13-0.16 | 0.12-0.16-0.20 | 0.14-0.20-0.26 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D918S High Performance Twist Drills for Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | Φ18 | Φ20 |
| P | Low-carbon Steels,Long Chipping（<125HB） | 100-80-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（<125HB） | 100-75-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | High-carbon Steels,Medium-carbon Steels（<25HRC） | 90-70-45 | 120-80-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Alloy Steels，Tool Steels.（<35HRC） | 90-70-45 | 110-80-50 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Alloy Steels，Tool Steels.（35-48HRC） | 80-60-40 | 90-60-40 | 0.22-0.30-0.37 | 0.26-0.35-0.41 | 0.28-0.37-0.44 | 0.31-0.38-0.46 | 0.31-0.39-0.47 |
| M | Austenitic Stainless Steels(130- 200HB) | 40-30-20 | 80-60-40 | 0.10-0.17-0.22 | 0.11-0.18-0.24 | 0.12-0.20-0.24 | 0.13-0.22-0.26 | 0.14-0.24-0.28 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（<25HRC） | 40-30-20 | 80-60-40 | 0.08-0.13-0.16 | 0.09-0.13-0.18 | 0.10-0.14-0.18 | 0.10-0.14-0.20 | 0.12-0.16-0.22 |
| | Duplex Stainless Steels (<30HRC) | 35-25-20 | 60-45-30 | 0.08-0.13-0.16 | 0.09-0.13-0.18 | 0.10-0.14-0.18 | 0.10-0.14-0.20 | 0.12-0.16-0.22 |
| K | Grey Cast Iron (<32HRC) | 100-80-60 | 140-120-60 | 0.25-0.33-0.45 | 0.28-0.36-0.48 | 0.30-0.40-0.50 | 0.32-0.42-0.52 | 0.35-0.45-0.55 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（<28HRC） | 100-80-60 | 140-120-60 | 0.22-0.30-0.42 | 0.24-0.33-0.45 | 0.25-0.35-0.48 | 0.28-0.38-0.48 | 0.30-0.40-0.50 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron (<45HRC) | 90-70-60 | 100-90-60 | 0.16-0.22-0.28 | 0.18-0.24-0.30 | 0.20-0.26-0.32 | 0.22-0.28-0.34 | 0.23-0.28-0.35 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D968S High Performance Twist Drills for Stainless Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 | Φ10 |
| P | Low-carbon Steels,Long Chipping（<125HB） | 100-80-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（<125HB） | 100-75-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | High-carbon Steels,Medium-carbon Steels（<25HRC） | 90-70-45 | 120-80-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Alloy Steels，Tool Steels.（<35HRC） | 90-70-45 | 110-80-50 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| M | Austenitic Stainless Steels(130- 200HB) | 40-30-20 | 80-60-40 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.12-0.14 | 0.08-0.13-0.18 | 0.09-0.15-0.20 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（< 25HRC） | 40-30-20 | 80-60-40 | 0.03-0.06-0.08 | 0.04-0.08-0.10 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.11-0.14 |
| | Duplex Stainless Steels（<30HRC） | 35-25-20 | 60-45-30 | 0.03-0.06-0.08 | 0.04-0.08-0.10 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.11-0.14 |
| S | Iron-based Heat-resistant Alloys(160-260HB) | - | 50-40-25 | 0.03-0.05-0.08 | 0.04-0.07-0.10 | 0.05-0.09-0.10 | 0.06-0.10-0.12 | 0.07-0.12-0.14 |
| | Cobalt-based Heat-resistant AlloysCobalt-based Heat-resistant Alloys（250-450HB） | - | 50-40-25 | 0.03-0.05-0.08 | 0.04-0.07-0.10 | 0.05-0.09-0.10 | 0.06-0.10-0.12 | 0.07-0.12-0.14 |
| | Nickel-based Heat-resistant Alloys(160-450HB) | - | 50-40-25 | 0.03-0.05-0.07 | 0.04-0.07-0.09 | 0.05-0.09-0.10 | 0.06-0.10-0.12 | 0.07-0.12-0.14 |
| | Titanium and Titanium Alloys((300-400HB) | - | 45-35-20 | 0.03-0.04-0.06 | 0.04-0.06-0.08 | 0.05-0.08-0.10 | 0.06-0.09-0.11 | 0.07-0.10-0.12 |

Remark:
1.Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2.Make sure total indicated run-out(TIR) is less than 0.02mm.
3.The recommended cutting condition is suitable for apply water soluble.
4.If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D968S High Performance Twist Drills for Stainless Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | Φ18 | Φ20 |
| P | Low-carbon Steels,Long Chipping（<125HB） | 100-80-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（<125HB） | 100-75-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | High-carbon Steels,Medium-carbon Steels（<25HRC） | 90-70-45 | 120-80-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Alloy Steels，Tool Steels.（<35HRC） | 90-70-45 | 110-80-50 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| M | Austenitic Stainless Steels(130- 200HB) | 40-30-20 | 80-60-40 | 0.10-0.17-0.22 | 0.11-0.18-0.24 | 0.12-0.20-0.24 | 0.13-0.22-0.26 | 0.14-0.24-0.28 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（<25HRC） | 40-30-20 | 80-60-40 | 0.08-0.13-0.16 | 0.09-0.13-0.18 | 0.10-0.14-0.18 | 0.10-0.14-0.20 | 0.12-0.16-0.22 |
| | Duplex Stainless Steels（<30HRC） | 35-25-20 | 60-45-30 | 0.08-0.13-0.16 | 0.09-0.13-0.18 | 0.10-0.14-0.18 | 0.10-0.14-0.20 | 0.12-0.16-0.22 |
| S | Iron-based Heat-resistant Alloys(160-260HB) | - | 50-40-25 | 0.08-0.14-0.16 | 0.09-0.15-0.18 | 0.10-0.17-0.18 | 0.10-0.16-0.20 | 0.12-0.18-0.22 |
| | Cobalt-based Heat-resistant AlloysCobalt-based Heat-resistant Alloys（250-450HB） | - | 50-40-25 | 0.08-0.14-0.16 | 0.09-0.15-0.18 | 0.10-0.17-0.18 | 0.10-0.16-0.20 | 0.12-0.18-0.22 |
| | Nickel-based Heat-resistant Alloys(160-450HB) | - | 50-40-25 | 0.08-0.14-0.16 | 0.09-0.15-0.18 | 0.10-0.17-0.18 | 0.10-0.16-0.20 | 0.12-0.18-0.22 |
| | Titanium and Titanium Alloys((300-400HB) | - | 45-35-20 | 0.08-0.12-0.14 | 0.09-0.13-0.16 | 0.10-0.14-0.16 | 0.10-0.15-0.18 | 0.12-0.16-0.20 |

【Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D938 3D/5D Twist Drills for Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 | Φ10 |
| P | Low-carbon Steels, Long Chipping（< 125HB） | 120-80-50 | 140-100-60 | 0.10-0.15-0.20 | 0.10-0.15-0.20 | 0.14-0.19-0.25 | 0.16-0.22-0.32 | 0.16-0.22-0.35 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（< 125HB） | 120-75-50 | 140-100-60 | 0.10-0.15-0.20 | 0.10-0.15-0.20 | 0.14-0.19-0.25 | 0.16-0.22-0.32 | 0.16-0.22-0.35 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC） | 120-70-45 | 120-80-60 | 0.10-0.15-0.20 | 0.10-0.15-0.20 | 0.14-0.19-0.25 | 0.16-0.22-0.30 | 0.16-0.22-0.32 |
| | Alloy Steels，Tool Steels.（<35HRC） | 100-70-45 | 110-80-60 | 0.09-0.13-0.16 | 0.09-0.13-0.16 | 0.12-0.17-0.23 | 0.14-0.20-0.28 | 0.14-0.20-0.30 |
| | Alloy Steels，Tool Steels.(35-48HRC) | 80-60-35 | 90-60-35 | 0.08-0.11-0.14 | 0.08-0.11-0.14 | 0.08-0.14-0.20 | 0.09-0.16-0.25 | 0.09-0.16-0.28 |
| | PH and Ferrite/ Martensitic Steels (<35HRC) | 70-50-30 | 90-60-30 | 0.05-0.08-0.11 | 0.05-0.08-0.11 | 0.07-0.12-0.17 | 0.08-0.14-0.20 | 0.08-0.14-0.23 |
| | High-Strength PH and Ferrite/ Martensitic Steels (35-48HRC) | 70-45-25 | 80-50-30 | 0.04-0.06-0.08 | 0.04-0.06-0.08 | 0.06-0.10-0.14 | 0.08-0.13-0.18 | 0.08-0.13-0.20 |
| K | Grey Cast Iron (<32HRC) | 140-100-60 | 160-120-60 | 0.13-0.17-0.20 | 0.15-0.20-0.23 | 0.17-0.25-0.30 | 0.20-0.27-0.35 | 0.23-0.30-0.40 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（< 28HRC） | 120-80-60 | 140-100-60 | 0.11-0.15-0.18 | 0.13-0.17-0.20 | 0.15-0.20-0.25 | 0.17-0.25-0.32 | 0.20-0.28-0.36 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 100-70-50 | 100-80-50 | 0.06-0.09-0.11 | 0.08-0.10-0.13 | 0.10-0.13-0.16 | 0.12-0.16-0.20 | 0.14-0.20-0.26 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D938 3D/5D Twist Drills for Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | Φ18 | Φ20 |
| P | Low-carbon Steels, Long Chipping（< 125HB) | 120-80-50 | 140-100-60 | 0.18-0.28-0.40 | 0.22-0.32-0.45 | 0.22-0.32-0.45 | 0.25-0.38-0.50 | 0.25-0.38-0.50 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（< 125HB) | 120-75-50 | 140-100-60 | 0.18-0.28-0.40 | 0.22-0.32-0.45 | 0.22-0.32-0.45 | 0.25-0.38-0.50 | 0.25-0.38-0.50 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC) | 120-70-45 | 120-80-60 | 0.18-0.28-0.38 | 0.22-0.32-0.45 | 0.22-0.32-0.45 | 0.25-0.38-0.50 | 0.25-0.38-0.50 |
| | Alloy Steels，Tool Steels.（<35HRC) | 100-70-45 | 110-80-60 | 0.15-0.23-0.34 | 0.18-0.25-0.38 | 0.18-0.25-0.38 | 0.20-0.30-0.40 | 0.20-0.30-0.40 |
| | Alloy Steels，Tool Steels.（35-48HRC) | 80-60-35 | 90-60-35 | 0.11-0.19-0.30 | 0.12-0.22-0.32 | 0.12-0.22-0.32 | 0.14-0.24-0.34 | 0.14-0.24-0.34 |
| | PH and Ferrite/ Martensitic Steels (<35HRC) | 70-50-30 | 90-60-30 | 0.10-0.18-0.28 | 0.12-0.20-0.30 | 0.12-0.20-0.30 | 0.14-0.24-0.32 | 0.14-0.24-0.32 |
| | High-Strength PH and Ferrite/ Martensitic Steels (35-48HRC) | 70-45-25 | 80-50-30 | 0.10-0.18-0.28 | 0.12-0.20-0.30 | 0.12-0.20-0.30 | 0.14-0.24-0.32 | 0.14-0.24-0.32 |
| K | Grey Cast Iron (<32HRC) | 140-100-60 | 160-120-60 | 0.25-0.33-0.45 | 0.28-0.36-0.48 | 0.30-0.40-0.50 | 0.32-0.42-0.52 | 0.35-0.45-0.55 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（<28HRC) | 120-80-60 | 140-100-60 | 0.22-0.30-0.42 | 0.24-0.33-0.45 | 0.25-0.35-0.48 | 0.28-0.38-0.48 | 0.30-0.40-0.50 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 100-70-50 | 100-80-50 | 0.16-0.22-0.28 | 0.18-0.24-0.30 | 0.20-0.26-0.32 | 0.22-0.28-0.34 | 0.23-0.28-0.35 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D938 8D/12D/15D Twist Drills for Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | |
|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 |
| P | Low-carbon Steels, Long Chipping（< 125HB) | | 140-100-60 | 0.10-0.15-0.20 | 0.10-0.15-0.20 | 0.14-0.19-0.25 | 0.16-0.22-0.32 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（< 125HB) | | 140-100-60 | 0.10-0.15-0.20 | 0.10-0.15-0.20 | 0.14-0.19-0.25 | 0.16-0.22-0.32 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC) | | 120-80-60 | 0.10-0.15-0.20 | 0.10-0.15-0.20 | 0.14-0.19-0.25 | 0.16-0.22-0.30 |
| | Alloy Steels，Tool Steels.（<35HRC) | | 110-80-60 | 0.09-0.13-0.16 | 0.09-0.13-0.16 | 0.12-0.17-0.23 | 0.14-0.20-0.28 |
| | Alloy Steels，Tool Steels.(35-48HRC) | | 90-60-35 | 0.08-0.11-0.14 | 0.08-0.11-0.14 | 0.08-0.14-0.20 | 0.09-0.16-0.25 |
| | PH and Ferrite/ Martensitic Steels (<35HRC) | | 90-60-30 | 0.05-0.08-0.11 | 0.05-0.08-0.11 | 0.07-0.12-0.17 | 0.08-0.14-0.20 |
| | High-Strength PH and Ferrite/ Martensitic Steels (35-48HRC) | | 80-50-30 | 0.04-0.06-0.08 | 0.04-0.06-0.08 | 0.06-0.10-0.14 | 0.08-0.13-0.18 |
| M | Austenitic Stainless Steels(130-200HB) | | 60-50-40 | 0.04-0.08-0.10 | 0.04-0.08-0.10 | 0.06-0.10-0.12 | 0.06-0.10-0.12 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（< 25HRC) | | 60-50-40 | 0.04-0.06-0.08 | 0.04-0.06-0.08 | 0.06-0.08-0.10 | 0.06-0.08-0.10 |
| | Duplex Stainless Steels（<30HRC) | | 50-40-30 | 0.04-0.06-0.08 | 0.04-0.06-0.08 | 0.06-0.08-0.10 | 0.06-0.08-0.10 |
| K | Grey Cast Iron (<32HRC) | | 160-120-60 | 0.13-0.17-0.20 | 0.15-0.20-0.23 | 0.17-0.25-0.30 | 0.20-0.27-0.35 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron (<28HRC) | | 140-100-60 | 0.11-0.15-0.18 | 0.13-0.17-0.20 | 0.15-0.20-0.25 | 0.17-0.25-0.32 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | | 100-80-50 | 0.06-0.09-0.11 | 0.08-0.10-0.13 | 0.10-0.13-0.16 | 0.12-0.16-0.20 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D938 8D/12D/15D Twist Drills for Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | |
|---|---|---|---|---|---|---|---|
| | | | | Φ10 | Φ12 | Φ14 | Φ16 |
| P | Low-carbon Steels, Long Chipping（< 125HB） | | 140-100-60 | 0.16-0.22-0.35 | 0.18-0.28-0.40 | 0.22-0.32-0.45 | 0.22-0.32-0.45 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（< 125HB） | | 140-100-60 | 0.16-0.22-0.35 | 0.18-0.28-0.40 | 0.22-0.32-0.45 | 0.22-0.32-0.45 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC） | | 120-80-60 | 0.16-0.22-0.32 | 0.18-0.28-0.38 | 0.22-0.32-0.45 | 0.22-0.32-0.45 |
| | Alloy Steels，Tool Steels.（<35HRC） | | 110-80-60 | 0.14-0.20-0.30 | 0.15-0.23-0.34 | 0.18-0.25-0.38 | 0.18-0.25-0.38 |
| | Alloy Steels，Tool Steels.（35-48HRC） | | 90-60-35 | 0.09-0.16-0.28 | 0.11-0.19-0.30 | 0.12-0.22-0.32 | 0.12-0.22-0.32 |
| | PH and Ferrite/ Martensitic Steels（<35HRC） | | 90-60-30 | 0.08-0.14-0.23 | 0.10-0.18-0.28 | 0.12-0.20-0.30 | 0.12-0.20-0.30 |
| | High-Strength PH and Ferrite/ Martensitic Steels（35-48HRC） | | 80-50-30 | 0.08-0.13-0.20 | 0.10-0.18-0.28 | 0.12-0.20-0.30 | 0.12-0.20-0.30 |
| M | Austenitic Stainless Steels(130-200HB) | | 60-50-40 | 0.08-0.12-0.16 | 0.08-0.12-0.16 | 0.10-0.14-0.18 | 0.10-0.14-0.18 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（< 25HRC） | | 60-50-40 | 0.08-0.10-0.12 | 0.08-0.10-0.12 | 0.10-0.12-0.14 | 0.10-0.12-0.14 |
| | Duplex Stainless Steels（<30HRC） | | 50-40-30 | 0.08-0.10-0.12 | 0.08-0.10-0.12 | 0.10-0.12-0.14 | 0.10-0.12-0.14 |
| K | Grey Cast Iron（<32HRC） | | 160-120-60 | 0.23-0.30-0.40 | 0.25-0.33-0.45 | 0.28-0.36-0.48 | 0.30-0.40-0.50 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（<28HRC） | | 140-100-60 | 0.20-0.28-0.36 | 0.22-0.30-0.42 | 0.24-0.33-0.45 | 0.25-0.35-0.48 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | | 100-80-50 | 0.14-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.24-0.30 | 0.20-0.26-0.32 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D101/D102/D103 NC Centre Drills

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | |
|---|---|---|---|---|---|---|---|
| | | | | Φ4 | Φ6 | Φ8 | Φ10 |
| P | Low-carbon Steels, Long Chipping（< 125HB） | 130-100-60 | - | 0.12-0.15-0.18 | 0.14-0.17-0.20 | 0.16-0.20-0.26 | 0.18-0.24-0.3 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（<125HB） | 120-100-60 | - | 0.10-0.14-0.18 | 0.14-0.16-0.20 | 0.16-0.20-0.24 | 0.18-0.24-0.3 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC） | 110-80-60 | - | 0.10-0.13-0.16 | 0.12-0.15-0.18 | 0.14-0.18-0.22 | 0.16-0.20-0.24 |
| | Alloy Steels，Tool Steels.（<35HRC） | 110-80-60 | - | 0.10-0.13-0.16 | 0.12-0.15-0.18 | 0.14-0.18-0.22 | 0.16-0.20-0.24 |
| | Alloy Steels，Tool Steels.（35-48HRC） | 100-80-60 | - | 0.10-0.12-0.16 | 0.12-0.14-0.18 | 0.14-0.16-0.20 | 0.16-0.20-0.24 |
| | PH and Ferrite/ Martensitic Steels（<35HRC） | 100-80-60 | - | 0.10-0.12-0.16 | 0.12-0.14-0.18 | 0.14-0.16-0.20 | 0.16-0.20-0.24 |
| K | Grey Cast Iron（<32HRC） | 140-120-60 | - | 0.12-0.20-0.26 | 0.17-0.26-0.32 | 0.20-0.32-0.40 | 0.25-0.30-0.36 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（<28HRC） | 130-105-60 | - | 0.12-0.18-0.24 | 0.15-0.20-0.27 | 0.17-0.22-0.30 | 0.20-0.26-0.32 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 120-90-60 | - | 0.10-0.16-0.22 | 0.10-0.13-0.16 | 0.13-0.17-0.21 | 0.15-0.20-0.26 |
| N | Wrought Aluminium Alloys(Si<12%) | 150-120-60 | - | 0.12-0.20-0.26 | 0.17-0.26-0.32 | 0.20-0.32-0.40 | 0.25-0.30-0.36 |
| | Cast Aluminium Alloys(Si<12%) | 150-120-60 | - | 0.12-0.18-0.24 | 0.15-0.20-0.27 | 0.17-0.22-0.30 | 0.20-0.26-0.32 |
| | Cast Aluminium Alloys(Si>12%) | 150-120-60 | - | 0.10-0.13-0.16 | 0.12-0.15-0.18 | 0.14-0.18-0.22 | 0.16-0.20-0.24 |
| | Copper，Copper Alloys（<200HB） | 150-120-60 | - | 0.10-0.12-0.16 | 0.12-0.14-0.18 | 0.14-0.16-0.20 | 0.16-0.20-0.24 |

【Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D101/D102/D103 NC Centre Drills

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | |
|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | Φ20 |
| P | Low-carbon Steels, Long Chipping（< 125HB) | 130-100-60 | - | 0.20-0.26-0.32 | 0.24-0.30-0.35 | 0.28-0.34-0.4 | 0.32-0.38-0.45 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels (<125HB) | 120-100-60 | - | 0.20-0.26-0.32 | 0.24-0.28-0.34 | 0.28-0.34-0.4 | 0.32-0.38-0.45 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC) | 110-80-60 | - | 0.18-0.24-0.30 | 0.20-0.26-0.30 | 0.22-0.28-0.32 | 0.26-0.32-0.40 |
| | Alloy Steels，Tool Steels. (<35HRC) | 110-80-60 | - | 0.18-0.24-0.30 | 0.20-0.26-0.30 | 0.22-0.28-0.32 | 0.26-0.32-0.40 |
| | Alloy Steels，Tool Steels. (35-48HRC) | 100-80-60 | - | 0.18-0.24-0.30 | 0.20-0.26-0.30 | 0.22-0.28-0.32 | 0.26-0.32-0.40 |
| | PH and Ferrite/ Martensitic Steels (<35HRC) | 100-80-60 | - | 0.18-0.24-0.30 | 0.20-0.26-0.30 | 0.22-0.28-0.32 | 0.26-0.32-0.40 |
| K | Grey Cast Iron (<32HRC) | 140-120-60 | - | 0.26-0.32-0.38 | 0.28-0.32-0.40 | 0.30-0.36-0.42 | 0.32-0.38-0.44 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron (<28HRC) | 130-105-60 | - | 0.22-0.28-0.34 | 0.24-0.30-0.36 | 0.26-0.32-0.38 | 0.30-0.36-0.42 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 120-90-60 | - | 0.17-0.22-0.28 | 0.19-0.26-0.31 | 0.20-0.27-0.33 | 0.28-0.29-0.35 |
| N | Wrought Aluminium Alloys(Si<12%) | 150-120-60 | - | 0.26-0.32-0.38 | 0.28-0.32-0.40 | 0.30-0.36-0.42 | 0.32-0.38-0.44 |
| | Cast Aluminium Alloys(Si<12%) | 150-120-60 | - | 0.22-0.28-0.34 | 0.24-0.30-0.36 | 0.26-0.32-0.38 | 0.30-0.36-0.42 |
| | Cast Aluminium Alloys(Si>12%) | 150-120-60 | - | 0.18-0.24-0.30 | 0.20-0.26-0.30 | 0.22-0.28-0.32 | 0.26-0.32-0.40 |
| | Copper，Copper Alloys（<200HB) | 150-120-60 | - | 0.18-0.24-0.30 | 0.20-0.26-0.30 | 0.22-0.28-0.32 | 0.26-0.32-0.40 |

【Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D918 Twist Drills for General Purpose

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 | Φ10 |
| P | Low-carbon Steels, Long Chipping（< 125HB） | 100-80-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（<125HB） | 100-75-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC） | 90-70-45 | 120-80-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Alloy Steels，Tool Steels.（<35HRC） | 90-70-45 | 110-80-50 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Alloy Steels，Tool Steels.（35-48HRC） | 80-60-40 | 90-60-40 | 0.09-0.12-0.14 | 0.10-0.14-0.17 | 0.13-0.17-0.22 | 0.17-0.23-0.29 | 0.21-0.28-0.35 |
| | PH and Ferrite/ Martensitic Steels（<35HRC） | 70-50-30 | 80-50-30 | 0.09-0.12-0.14 | 0.10-0.14-0.17 | 0.13-0.17-0.22 | 0.17-0.23-0.29 | 0.21-0.28-0.35 |
| M | Austenitic Stainless Steels(130-200HB) | - | 50-40-20 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.12-0.14 | 0.08-0.13-0.18 | 0.09-0.15-0.20 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（< 25HRC） | - | 55-40-30 | 0.03-0.06-0.08 | 0.04-0.08-0.10 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.11-0.14 |
| | Duplex Stainless Steels（<30HRC） | - | 55-40-20 | 0.03-0.06-0.08 | 0.04-0.08-0.10 | 0.05-0.08-0.10 | 0.06-0.10-0.12 | 0.07-0.11-0.14 |
| K | Grey Cast Iron（<32HRC） | 100-80-60 | 140-120-60 | 0.13-0.17-0.21 | 0.15-0.20-0.26 | 0.17-0.26-0.32 | 0.20-0.32-0.40 | 0.25-0.36-0.42 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（<28HRC） | 100-80-60 | 140-120-60 | 0.11-0.15-0.18 | 0.13-0.18-0.22 | 0.15-0.23-0.27 | 0.17-0.26-0.38 | 0.22-0.28-0.38 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 90-70-60 | 100-90-60 | 0.06-0.09-0.11 | 0.08-0.10-0.13 | 0.10-0.13-0.16 | 0.13-0.17-0.21 | 0.15-0.20-0.26 |
| N | Wrought Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |
| | Cast Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |
| | Cast Aluminium Alloys(Si>12%) | - | 270-180-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |
| | Copper，Copper Alloys（<200HB） | - | 180-135-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D918 Twist Drills for General Purpose

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | Φ18 | Φ20 |
| P | Low-carbon Steels, Long Chipping（< 125HB) | 100-80-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（< 125HB) | 100-75-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC) | 90-70-45 | 120-80-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Alloy Steels，Tool Steels.（<35HRC) | 90-70-45 | 110-80-50 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Alloy Steels，Tool Steels.(35-48HRC) | 80-60-40 | 90-60-40 | 0.22-0.30-0.37 | 0.26-0.35-0.41 | 0.28-0.37-0.44 | 0.31-0.38-0.46 | 0.31-0.39-0.47 |
| | PH and Ferrite/ Martensitic Steels (<35HRC) | 70-50-30 | 80-50-30 | 0.22-0.30-0.37 | 0.26-0.35-0.41 | 0.28-0.37-0.44 | 0.31-0.38-0.46 | 0.31-0.39-0.47 |
| M | Austenitic Stainless Steels(130-200HB) | - | 50-40-20 | 0.10-0.17-0.22 | 0.11-0.18-0.24 | 0.12-0.20-0.24 | 0.13-0.22-0.26 | 0.14-0.24-0.28 |
| | High-Strength Austenitic Stainless Steels and Cast Stainless Steels（< 25HRC) | - | 55-40-30 | 0.08-0.13-0.16 | 0.09-0.13-0.18 | 0.10-0.14-0.18 | 0.10-0.14-0.20 | 0.12-0.16-0.22 |
| | Duplex Stainless Steels（<30HRC) | - | 55-40-20 | 0.08-0.13-0.16 | 0.09-0.13-0.18 | 0.10-0.14-0.18 | 0.10-0.14-0.20 | 0.12-0.16-0.22 |
| K | Grey Cast Iron (<32HRC) | 100-80-60 | 140-120-60 | 0.26-0.38-0.46 | 0.28-0.40-0.50 | 0.30-0.42-0.52 | 0.32-0.44-0.54 | 0.36-0.48-0.56 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（< 28HRC) | 100-80-60 | 140-120-60 | 0.22-0.34-0.42 | 0.24-0.35-0.44 | 0.26-0.40-0.48 | 0.30-0.40-0.46 | 0.34-0.43-0.50 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 90-70-60 | 100-90-60 | 0.17-0.22-0.28 | 0.19-0.26-0.31 | 0.20-0.27-0.33 | 0.23-0.28-0.34 | 0.23-0.29-0.35 |
| N | Wrought Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |
| | Cast Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |
| | Cast Aluminium Alloys(Si>12%) | - | 270-180-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |
| | Copper，Copper Alloys（<200HB) | - | 180-135-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D928 Twist Drills for Cast Iron

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 | Φ10 |
| P | Low-carbon Steels, Long Chipping（< 125HB） | 100-80-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（<125HB） | 100-75-50 | 140-100-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC） | 90-70-45 | 100-80-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| | Alloy Steels，Tool Steels.（<35HRC） | 90-70-45 | 100-80-60 | 0.09-0.13-0.16 | 0.11-0.15-0.19 | 0.14-0.19-0.23 | 0.19-0.25-0.31 | 0.23-0.30-0.38 |
| K | Grey Cast Iron（<32HRC） | 100-80-60 | 160-140-60 | 0.13-0.17-0.21 | 0.15-0.20-0.26 | 0.17-0.26-0.32 | 0.20-0.32-0.40 | 0.25-0.36-0.42 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（< 28HRC） | 100-80-60 | 140-120-60 | 0.11-0.15-0.18 | 0.13-0.18-0.22 | 0.15-0.23-0.27 | 0.17-0.26-0.38 | 0.22-0.28-0.38 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 90-70-60 | 100-90-60 | 0.06-0.09-0.11 | 0.08-0.10-0.13 | 0.10-0.13-0.16 | 0.13-0.17-0.21 | 0.15-0.20-0.26 |
| N | Wrought Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |
| | Cast Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |
| | Cast Aluminium Alloys(Si>12%) | - | 270-180-90 | 0.06-0.09-0.11 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D928 Twist Drills for Cast Iron

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | Φ18 | Φ20 |
| P | Low-carbon Steels, Long Chipping（< 125HB) | 100-80-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Low-carbon Steels，Short Chipping，Free-cutting Steels（< 125HB) | 100-75-50 | 140-100-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | High-carbon Steels,Medium-carbon Steels（< 25HRC) | 90-70-45 | 100-80-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| | Alloy Steels，Tool Steels.（<35HRC) | 90-70-45 | 100-80-60 | 0.24-0.33-0.41 | 0.28-0.38-0.45 | 0.30-0.42-0.50 | 0.33-0.42-0.50 | 0.34-0.43-0.51 |
| K | Grey Cast Iron (<32HRC) | 100-80-60 | 160-140-60 | 0.26-0.38-0.46 | 0.28-0.40-0.50 | 0.30-0.42-0.52 | 0.32-0.44-0.54 | 0.36-0.48-0.56 |
| | Moderately Difficult Alloy Cast iron，Nodular Cast Iron（< 28HRC) | 100-80-60 | 140-120-60 | 0.22-0.34-0.42 | 0.24-0.35-0.44 | 0.26-0.40-0.48 | 0.30-0.40-0.46 | 0.34-0.43-0.50 |
| | Difficult High-alloy Cast Iron，Nodular Cast Iron(<45HRC) | 90-70-60 | 100-90-60 | 0.17-0.22-0.28 | 0.19-0.26-0.31 | 0.20-0.27-0.33 | 0.23-0.28-0.34 | 0.23-0.29-0.35 |
| N | Wrought Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |
| | Cast Aluminium Alloys(Si<12%) | - | 315-230-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |
| | Cast Aluminium Alloys(Si>12%) | - | 270-180-90 | 0.22-0.34-0.42 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D998 Twist Drills for Hardened Steel

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ3 | Φ4 | Φ6 | Φ8 | Φ10 |
| H | Hardened SteelsHardened Steels（45-55HRC） | 40-30-20 | - | 0.04-0.06-0.08 | 0.05-0.08-0.10 | 0.06-0.10-0.13 | 0.08-0.12-0.15 | 0.09-0.14-0.16 |
| | Hardened SteelsHardened Steels（55-60HRC） | 30-20-15 | - | 0.03-0.05-0.07 | 0.03-0.06-0.08 | 0.04-0.08-0.12 | 0.06-0.10-0.13 | 0.08-0.12-0.15 |

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ12 | Φ14 | Φ16 | - | - |
| H | Hardened SteelsHardened Steels（45-55HRC） | 40-30-20 | - | 0.10-0.15-0.17 | 0.10-0.16-0.20 | 0.10-0.16-0.20 | - | - |
| | Hardened SteelsHardened Steels（55-60HRC） | 30-20-15 | - | 0.09-0.13-0.16 | 0.10-0.14-0.17 | 0.10-0.14-0.17 | - | - |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D713 Straight Flute Drills for Cast Iron

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ4 | Φ6 | Φ8 | Φ10 | Φ12 |
| K | Grey Cast Iron (<32HRC) | 100-80-60 | 140-110-60 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 | 0.22-0.34-0.42 |
| | Moderately Difficult Alloy Cast iron, Nodular Cast Iron（< 28HRC) | 100-80-60 | 120-100-60 | 0.13-0.18-0.22 | 0.15-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.22-0.30-0.38 |
| | Difficult High-alloy Cast Iron, Nodular Cast Iron(<45HRC) | 90-70-60 | 100-90-60 | 0.08-0.10-0.13 | 0.10-0.13-0.16 | 0.13-0.17-0.21 | 0.15-0.20-0.26 | 0.17-0.22-0.28 |
| N | Cast Aluminium Alloys(Si<12%) | 100-80-60 | 140-110-60 | 0.13-0.20-0.26 | 0.16-0.22-0.28 | 0.18-0.26-0.32 | 0.20-0.30-0.38 | 0.22-0.34-0.42 |

| Workpiece | | Vc (m/min) | | fn (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Φ14 | Φ16 | Φ18 | Φ20 | - |
| K | Grey Cast Iron (<32HRC) | 100-80-60 | 140-110-60 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 | - |
| | Moderately Difficult Alloy Cast iron, Nodular Cast Iron（< 28HRC) | 100-80-60 | 120-100-60 | 0.24-0.32-0.40 | 0.26-0.32-0.40 | 0.28-0.36-0.42 | 0.30-0.38-0.46 | - |
| | Difficult High-alloy Cast Iron, Nodular Cast Iron(<45HRC) | 90-70-60 | 100-90-60 | 0.19-0.26-0.31 | 0.20-0.27-0.33 | 0.23-0.28-0.34 | 0.23-0.29-0.35 | - |
| N | Cast Aluminium Alloys(Si<12%) | 100-80-60 | 140-110-60 | 0.24-0.36-0.44 | 0.28-0.38-0.46 | 0.32-0.40-0.48 | 0.34-0.42-0.48 | - |

Remark:
1. Make sure work piece and machine are stable and use a precision holder, use hydraulic chucks, high quality collet chucks.
2. Make sure total indicated run-out(TIR) is less than 0.02mm.
3. The recommended cutting condition is suitable for apply water soluble.
4. If the tool size is not in the table, please refer to the table closest to the blade diameter size selection of cutting parameters, adjust cutting parameters according to actual working conditions during processing.

# Recommended Cutting Data

## D612 Triple-angle Drill for Composite Material

| Application | Workpiece | | Vc | fn |
|---|---|---|---|---|
| | | | m/min | mm/rev |
| Drilling | N | CFRP、GFRP | 60 | 0.08 |

## D973 Twist Drills for Composite and Metal

| Application | Workpiece | | Vc | fn |
|---|---|---|---|---|
| | | | m/min | mm/rev |
| Drilling | N | CFRP+Aluminium Alloys | 60 | 0.08 |
| | N S | CFRP+Titanium alloy | 20 | 0.05 |
| | N | Aluminium Alloys | 60 | 0.08 |
| | S | Titanium alloy | 15 | 0.05 |
| | M | Stainless Steel | 15 | 0.05 |

## D573 Core Drills for Composite and Metal

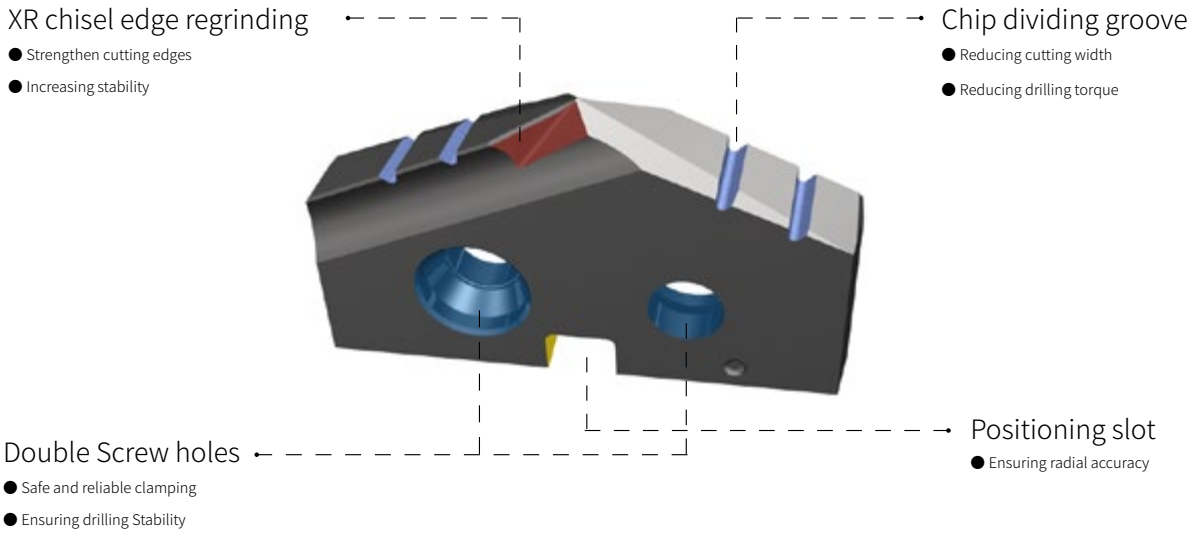
| Application | Workpiece | | Vc | fn |
|---|---|---|---|---|
| | | | m/min | mm/rev |
| Drilling | N | CFRP | 60 | 0.08 |
| | N | CFRP+Aluminium Alloys | 60 | 0.08 |
| | N S | CFRP+Titanium alloy | 20 | 0.05 |
| | N | Aluminium Alloys | 60 | 0.08 |
| | S | Titanium alloy | 15 | 0.05 |
| | M | Stainless Steel | 15 | 0.05 |

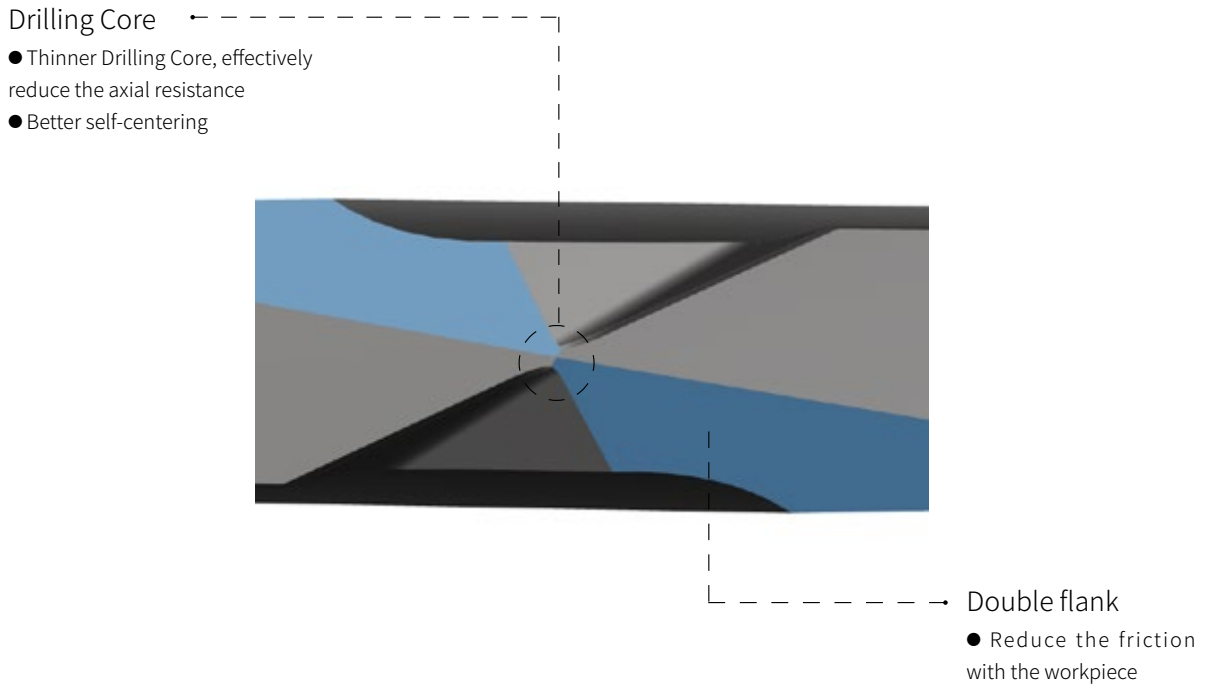
Remark:
CFRP：Glass fiber reinforced plastics GFRP：Glass fiber reinforced plastics
1. Please use the pneumatic tools with better rigidity, drill set and ensure processing stability
2. When using the small size cutting tool, reduce the tool feed 20%-30%

B

# Indexable Drilling

# Spade Drill Inserts



## Identification of Spade Drill

**GSD – 125 – 08D - FC 20 - (S)**

① ② ③ ④ ⑤ ⑥

| ①Drill Type | |
|---|---|
| GSD | GESAC Spade Drills |

| ②Bore Diameter | |
|---|---|
| 125 | Dia.of mounting position Φ12.5mm |

| ③Bore Diameter | |
|---|---|
| 08D | Effective drilling depth is 8D |

| ④Shank Type | |
|---|---|
| FC | Flange-Plat |
| FMT | M—Morse taper shank |

| ⑤Shank Size | |
|---|---|
| FC | Φ20 Φ25 Φ32 |
| FMT | 2 3 4 |

| ⑥Groove Type | |
|---|---|
| - | Helical flute |
| S | Straight flute |

## Identification of Spade Drill Inserts

**M C M G 0200 T3–DS–GM3225**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| ①Shape | |
|---|---|
| M | Spade drill |

| ②Relief Angle | |
|---|---|
| C | 7° |

| ③Tolerance |
|---|
| M |

| ④Chip breaker/Hole Symbol | |
|---|---|
| G | Double-sided |

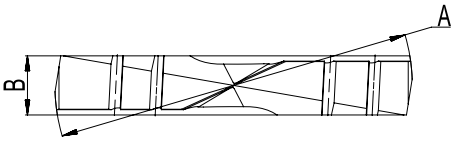
| ⑤Diameter | |
|---|---|
| 0200 | 20.0mm |

| ⑥Thickness(mm) | |
|---|---|
| T3 | 3.97 |

| ⑦Chip breaker Symbol |
|---|
| Indicates the cutting properties and chipbreaker |

| ⑧Grade |
|---|
| GM3225 |

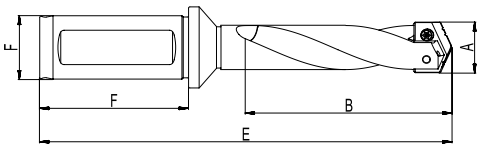
# Spade Drill Inserts




| Ordering Code | Diameter (mm) | Thickness (mm) | Grade | Ordering Code | Diameter (mm) | Thickness (mm) | Grade |
|---|---|---|---|---|---|---|---|
| | | | GM3225 | | | | GM3225 |
| MCMG013003-DS | 13.00 | 3.18 | ● | MCMG025004-DS | 25.00 | 4.76 | ● |
| MCMG013503-DS | 13.50 | | ● | MCMG025504-DS | 25.50 | | ● |
| MCMG014003-DS | 14.00 | | ● | MCMG026004-DS | 26.00 | | ● |
| MCMG014503-DS | 14.50 | | ● | MCMG026504-DS | 26.50 | | ● |
| MCMG015003-DS | 15.00 | | ● | MCMG027004-DS | 27.00 | | ● |
| MCMG015503-DS | 15.50 | | ● | MCMG027504-DS | 27.50 | | ● |
| MCMG016003-DS | 16.00 | | ● | MCMG028004-DS | 28.00 | | ● |
| MCMG016503-DS | 16.50 | | ● | MCMG028504-DS | 28.50 | | ● |
| MCMG017003-DS | 17.00 | | ● | MCMG029004-DS | 29.00 | | ● |
| MCMG017503-DS | 17.50 | | ● | MCMG029504-DS | 29.50 | | ● |
| MCMG0180T3-DS | 18.00 | 3.97 | ● | MCMG030004-DS | 30.00 | | ● |
| MCMG0185T3-DS | 18.50 | | ● | MCMG030504-DS | 30.50 | | ● |
| MCMG0190T3-DS | 19.00 | | ● | MCMG031004-DS | 31.00 | | ● |
| MCMG0195T3-DS | 19.50 | | ● | MCMG031504-DS | 31.50 | | ● |
| MCMG0200T3-DS | 20.00 | | ● | MCMG032004-DS | 32.00 | | ● |
| MCMG0205T3-DS | 20.50 | | ● | MCMG032504-DS | 32.50 | | ● |
| MCMG0210T3-DS | 21.00 | | ● | MCMG033004-DS | 33.00 | | ● |
| MCMG0215T3-DS | 21.50 | | ● | MCMG033504-DS | 33.50 | | ● |
| MCMG0220T3-DS | 22.00 | | ● | MCMG034004-DS | 34.00 | | ● |
| MCMG0225T3-DS | 22.50 | | ● | MCMG034504-DS | 34.50 | | ● |
| MCMG0230T3-DS | 23.00 | | ● | MCMG035004-DS | 35.00 | | ● |
| MCMG0235T3-DS | 23.50 | | ● | MCMG035504-DS | 35.50 | | ● |
| MCMG0240T3-DS | 24.00 | | ● | MCMG036004-DS | 36.00 | | ● |
| MCMG0245T3-DS | 24.50 | | ● | | | | |

● Stock ○ Available upon order

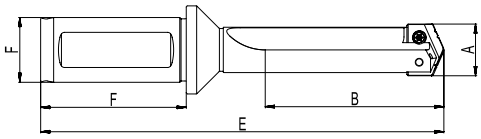
# The Lateral Fixation Type Flange Shank and Helical Flute Holder




| Ordering Code | Drill Insert Range A | Max. Drill Depth B | Overall Length E | Shank F | | Screw | Wrench |
|---|---|---|---|---|---|---|---|
| | | | | Dia. | Length | | |
| GSD-125-04D-FC20 | 13.0 ~ 15.0 | 63.5 | 142.1 | 20.0 | 50.0 | PSI52M025060-03712C | PTT08PC |
| GSD-125-07D-FC20 | | 114.3 | 192.9 | | | | |
| GSD-125-11D-FC20 | | 177.8 | 256.4 | | | | |
| GSD-150-03D-FC20 | 15.5 ~ 17.5 | 63.5 | 142.1 | | | | |
| GSD-150-06D-FC20 | | 114.3 | 192.9 | | | | |
| GSD-150-10D-FC20 | | 177.8 | 256.4 | | | | |
| GSD-175-05D-FC25 | 18.0 ~ 21.5 | 117.5 | 210.8 | 25.0 | 56.0 | PSI52M030075-04212C | PTT09PC |
| GSD-175-07D-FC25 | | 168.3 | 261.6 | | | | |
| GSD-175-12D-FC25 | | 269.9 | 363.2 | | | | |
| GSD-215-04D-FC25 | 22.0 ~ 24.0 | 117.5 | 210.8 | | | | |
| GSD-215-07D-FC25 | | 168.3 | 261.6 | | | | |
| GSD-215-11D-FC25 | | 269.9 | 363.2 | | | | |
| GSD-245-04D-FC32 | 25.0 ~ 29.0 | 136.5 | 239.4 | 32.0 | 60.0 | PSI52M040095-05218C | PTT158PC |
| GSD-245-06D-FC32 | | 187.3 | 290.2 | | | | |
| GSD-245-09D-FC32 | | 288.9 | 391.8 | | | | |
| GSD-295-03D-FC32 | 30.0 ~ 36.0 | 136.5 | 239.4 | | | | |
| GSD-295-05D-FC32 | | 187.3 | 290.2 | | | | |
| GSD-295-08D-FC32 | | 288.9 | 391.8 | | | | |

● Stock ○ Available upon order

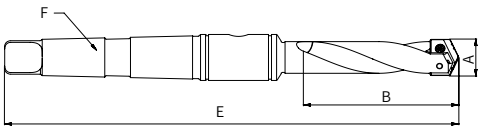
# The Lateral Fixation Type Flange Shank and Straight Flute Holder




| Ordering Code | Drill Insert Range A | Max. Drill Depth B | Overall Length E | Shank F | | Screw | Wrench |
|---|---|---|---|---|---|---|---|
| | | | | Dia. | Length | | |
| GSD-125-01D-FC20-S | 13.0 ~ 15.0 | 22.2 | 97.6 | 20.0 | 50.0 | PSI52M025060-03712C | PTT08PC |
| GSD-125-02D-FC20-S | | 34.9 | 113.5 | | | | |
| GSD-125-19D-FC20-S | | 295.0 | 373.9 | | | | |
| GSD-125-25D-FC20-S | | 387.0 | 466.0 | | | | |
| GSD-150-01D-FC20-S | 15.5 ~ 17.5 | 22.2 | 97.6 | | | | |
| GSD-150-02D-FC20-S | | 34.9 | 113.5 | | | | |
| GSD-150-16D-FC20-S | | 295.0 | 373.9 | | | | |
| GSD-150-22D-FC20-S | | 387.0 | 466.0 | | | | |
| GSD-175-02D-FC25-S | 18.0 ~ 21.5 | 47.6 | 131.8 | 25.0 | 56.0 | PSI52M030075-04212C | PTT09PC |
| GSD-175-03D-FC25-S | | 66.7 | 163.2 | | | | |
| GSD-175-21D-FC25-S | | 457.0 | 550.5 | | | | |
| GSD-175-26D-FC25-S | | 569.0 | 658.5 | | | | |
| GSD-215-01D-FC25-S | 22.0 ~ 24.0 | 47.6 | 131.8 | | | | |
| GSD-215-02D-FC25-S | | 66.7 | 163.2 | | | | |
| GSD-215-19D-FC25-S | | 457.0 | 550.5 | | | | |
| GSD-215-23D-FC25-S | | 569.0 | 658.5 | | | | |
| GSD-245-01D-FC32-S | 25.0 ~ 29.0 | 57.2 | 148.5 | 32.0 | 60.0 | PSI52M040095-05218C | PTT158PC |
| GSD-245-02D-FC32-S | | 85.7 | 188.6 | | | | |
| GSD-245-17D-FC32-S | | 511.0 | 614.1 | | | | |
| GSD-245-23D-FC32-S | | 692.0 | 795.1 | | | | |
| GSD-295-01D-FC32-S | 30.0 ~ 36.0 | 57.2 | 148.5 | | | | |
| GSD-295-02D-FC32-S | | 85.7 | 188.6 | | | | |
| GSD-295-14D-FC32-S | | 511.0 | 614.1 | | | | |
| GSD-295-19D-FC32-S | | 692.0 | 795.1 | | | | |

● Stock ○ Available upon order

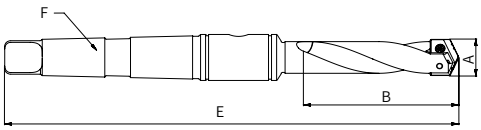
# The Morse Taper-shank and Helical Flute Holder




| Ordering Code | Drill Insert Range A | Max. Drill Depth B | Overall Length E | Shank F | Screw | Wrench |
|---|---|---|---|---|---|---|
| GSD-125-02D-FMT2 | 13.0 ~ 15.0 | 35.0 | 164.3 | FMT2 | PSI52M025060-03712C | PTT08PC |
| GSD-125-04D-FMT2 | | 63.5 | 192.9 | | | |
| GSD-125-07D-FMT2 | | 114.3 | 243.7 | | | |
| GSD-125-11D-FMT2 | | 177.8 | 307.2 | | | |
| GSD-150-02D-FMT2 | 15.5 ~ 17.5 | 35.0 | 164.3 | | | |
| GSD-150-03D-FMT2 | | 63.5 | 192.9 | | | |
| GSD-150-06D-FMT2 | | 114.3 | 243.7 | | | |
| GSD-150-10D-FMT2 | | 177.8 | 307.2 | | | |
| GSD-175-03D-FMT3 | 18.0 ~ 21.5 | 69.8 | 232.5 | FMT3 | PSI52M030075-04212C | PTT09PC |
| GSD-175-05D-FMT3 | | 120.7 | 283.3 | | | |
| GSD-175-07D-FMT3 | | 171.5 | 334.2 | | | |
| GSD-175-12D-FMT3 | | 273.1 | 435.8 | | | |
| GSD-215-02D-FMT3 | 22.0 ~ 24.0 | 69.8 | 232.5 | | | |
| GSD-215-05D-FMT3 | | 120.7 | 283.3 | | | |
| GSD-215-07D-FMT3 | | 171.5 | 334.2 | | | |
| GSD-215-11D-FMT3 | | 273.1 | 435.8 | | | |
| GSD-245-02D-FMT4 | 25.0 ~ 29.0 | 85.7 | 273.8 | FMT4 | PSI52M040095-05218C | PTT158PC |
| GSD-245-04D-FMT4 | | 136.5 | 324.6 | | | |
| GSD-245-06D-FMT4 | | 187.3 | 375.4 | | | |
| GSD-245-09D-FMT4 | | 289.0 | 477.0 | | | |
| GSD-295-02D-FMT4 | 30.0 ~ 35.0 | 85.7 | 281.0 | | | |
| GSD-295-04D-FMT4 | | 136.5 | 331.8 | | | |
| GSD-295-05D-FMT4 | | 187.3 | 382.6 | | | |
| GSD-295-08D-FMT4 | | 289.0 | 484.2 | | | |

● Stock ○ Available upon order

## The Morse Taper-shank and Straight Flute Holder




| Ordering Code | Drill Insert Range A | Max. Drill Depth B | Overall Length E | Shank F | Screw | Wrench |
|---|---|---|---|---|---|---|
| GSD-125-02D-FMT2-S | 13.0 ~ 15.0 | 35.0 | 164.3 | FMT2 | PSI52M025060-03712C | PTT08PC |
| GSD-150-02D-FMT2-S | 15.5 ~ 17.5 | 35.0 | 164.3 | | | |
| GSD-175-03D-FMT3-S | 18.0 ~ 21.5 | 69.8 | 232.5 | FMT3 | PSI52M030075-04212C | PTT09PC |
| GSD-215-02D-FMT3-S | 22.0 ~ 24.0 | 69.8 | 232.5 | | | |
| GSD-245-02D-FMT4-S | 25.0 ~ 29.0 | 85.7 | 273.8 | FMT4 | PSI52M040095-05218C | PTT158PC |
| GSD-295-02D-FMT4-S | 30.0 ~ 35.0 | 85.7 | 281.0 | | | |

● Stock ○ Available upon order

## Spade Drill Body Parts

| Srew | | Wrench | |
|---|---|---|---|
| Type | Ordering Code | Type | Ordering Code |
| SI52M2.5*6.0 | PSI52M025060-03712C | T08 | PTT08PC |
| SI52M3.0*7.5 | PSI52M030075-04212C | T09 | PTT09PC |
| SI52M4.0*9.5 | PSI52M040095-05218C | T15 | PTT15PC |

# Recommended Cutting Data

## GSD series spade drill

| Workpiece Materials | | Material Hardness (HB) | Recommended Cutting Speed (m/min) | Feed (mm/rev)*Refer toDiameter Range * | | |
|---|---|---|---|---|---|---|
| | | | | Ø13.0 – 17.5 | Ø18.0 – 24.0 | Ø25.0 – 35.0 |
| P | Low Carbon Steel | 85–275 | (100)<br>80 – 120 | 0.18-0.22 | 0.24-0.28 | 0.25-0.30 |
| | Medium Carbon Steel | 125– 325 | (90)<br>80 – 105 | 0.18-0.22 | 0.21-0.28 | 0.28-0.32 |
| | Alloy Steel | 125– 375 | (80)<br>60– 100 | 0.12-0.16 | 0.16-0.22 | 0.22-0.28 |
| | High Alloy Steel | 225– 400 | (70)<br>50 – 90 | 0.12-0.16 | 0.15-0.20 | 0.20-0.25 |
| | Structural Steel | 100– 350 | (80)<br>60–100 | 0.16-0.20 | 0.18-0.22 | 0.22-0.28 |
| M | Stainless Steel 300 Series | 135 – 275 | (60)<br>40 –70 | 0.12-0.16 | 0.16-0.20 | 0.22-0.26 |
| | Stainless Steel 400 Series | 185 – 350 | (50)<br>40 – 60 | 0.15-0.18 | 0.18-0.22 | 0.22-0.26 |
| | Duplex Stainless Steel | 135– 275 | (40)<br>30– 50 | 0.10-0.15 | 0.15-0.18 | 0.18-0.22 |
| K | Forged cast iron | 150 – 230 | (100)<br>80–120 | 0.18-0.25 | 0.25-0.30 | 0.30-0.35 |
| | Gray cast iron | 150 – 230 | (100)<br>80–120 | 0.18-0.25 | 0.25-0.30 | 0.30-0.35 |
| | Nodular cast iron | 160 – 260 | (80)<br>60–100 | 0.15-0.20 | 0.25-0.28 | 0.28-0.38 |

| Holders With different length | | | | | |
|---|---|---|---|---|---|
| Parameters | Length of different holders | | | | |
| | Drill Depth < 8D | 8D ⩾ Drill Depth < 12D | 12D ⩾ Drill Depth < 16D | 16D ⩾ Drill Depth < 20D | 20D ⩾ Drill Depth |
| Speed | Refer to the above sheet | 0.9 | 0.85 | 0.8 | 0.75 |
| Feed | Refer to the above sheet | | 0.95 | 0.9 | 0.9 |

Note: The parameters recommended in the table are based on the premise of perfect equipment and efficiency. Please according to the actual equipment situation, reduce the speed and feed (speed reduced by 20%, feed reduced by 10%) when application.

## Indexable Deep Drill Body Identification

**GD 600 A – 016.10 S E 4**

① ② ③ ④ ⑤ ⑥ ⑦

| ①Tool Type | |
|---|---|
| GD | Indexable Deep Drlll |

| ②Major Serles Code | |
|---|---|
| 600 | Indexable Type |
| 602 | Brazed Type |

| ③Mlnor Serles Code | |
|---|---|
| A | SubfamllyA |
| other | standard |

| ④Tool Diameter | |
|---|---|
| 016.10 | Dla.= Ø16.10 |

| ⑤Tube Type | |
|---|---|
| S | Slngle Tube |
| D | Double Tube |

| ⑥Connectlon Type | |
|---|---|
| E | External Thread Connection |
| I | Internal Thread Connectlon |

| ⑦Thread Number | |
|---|---|
| 4 | 4Start Threads |

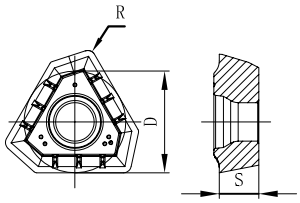
## Indexable Deep Drill Body List

| Type | Series | Figure | Application | Advantage |
|---|---|---|---|---|
| Indexable Deep Drill | GD600 |  | Deep hole drilling for general materials<br>Dia.：Φ38 ～ Φ107mm<br>Max. Depth：100xD | Screw Locking<br>High productivity，Lowest cost per hole，Good performance consistence |
| | GD602B |  | Deep hole drilling for general materials<br>Dia.：⩽ Φ25mm<br>Max. Depth：100xD | Brazed<br>Multi-edge design, highly polish hole |

GD600 系列

# TPMT

Deep Hole Drill Inserts

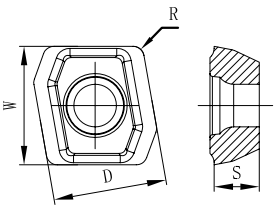



| Model Type | Grade | Dimension(mm) | | | | Stock |
|---|---|---|---|---|---|---|
| | | D | S | R | W | |
| TPMT140308-ED | GA4230 | 8.45 | 3.50 | 0.80 | - | ● |
| TPMT1704DD | GA4230 | 10.30 | 4.00 | 0.80 | - | ● |
| TPMT2405DD | GA4230 | 14.20 | 5.50 | 1.20 | - | ● |
| TPMT280716-ED | GA4230 | 17.00 | 7.50 | 1.60 | - | ● |

● Stock ○ Order

# NPMT

Deep Hole Drill Inserts

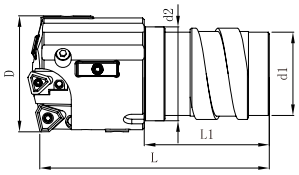



| ModelType | Grade | Dimension(mm) | | | | Stock |
|---|---|---|---|---|---|---|
| | | D | S | R | W | |
| NPMT0803DD | GA4230 | 8.00 | 3.18 | 0.80 | 8.36 | ○ |

● Stock ○ Order

# GD600

Deep Hole Drill Body




| Ordering Code | D | L | L1 | d1 | d2 |
|---|---|---|---|---|---|
| GD600-XXX.XXSE4 | Ø38.00-39.60 | 85 | 37 | 27 | 30 |
| GD600-XXX.XXSE4 | Ø39.61-43.00 | 85 | 37 | 30 | 33 |
| GD600-XXX.XXSE4 | Ø43.01-47.00 | 95 | 37 | 33 | 36 |
| GD600-XXX.XXSE4 | Ø47.01-51.70 | 95 | 37 | 36 | 39 |
| GD600-XXX.XXSE4 | Ø51.71-56.20 | 100 | 41 | 39.5 | 43 |
| GD600-XXX.XXSE4 | Ø56.21-60.60 | 110 | 41 | 43.5 | 47 |
| GD600-XXX.XXSE4 | Ø60.61-65.00 | 110 | 77 | 47 | 52 |
| GD600-XXX.XXSE4 | Ø65.01-66.99 | 150 | 77 | 47 | 52 |
| GD600-XXX.XXSE4 | Ø67.00-72.99 | 150 | 77 | 53 | 58 |
| GD600-XXX.XXSE4 | Ø73.00-79.99 | 150 | 77 | 58 | 63 |
| GD600-XXX.XXSE4 | Ø80.00-86.99 | 180 | 100 | 64 | 70 |
| GD600-XXX.XXSE4 | Ø87.00-99.99 | 180 | 100 | 71 | 77 |
| GD600-XXX.XXSE4 | Ø100.00-106.99 | 180 | 100 | 83 | 89 |

Note: All deep hole drill bodies are non-standard customized, requiring the customer to provide the diameter and interface form, the default is sandvik interface form.

## GD600 Series

| Insert Assembly | | Diameter（mm） | | | | | |
|---|---|---|---|---|---|---|---|
| | | Ø38.00-39.60 | Ø39.61-43.00 | Ø43.01-47.00 | Ø47.01-51.70 | Ø51.71-56.20 | Ø56.21-60.60 |
| Insert | Internal | NPMT0803DD | NPMT0803DD | NPMT0803DD | TPMT140308-ED | TPMT140308-ED | TPMT140308-ED |
| | Central | NPMT0803DD | NPMT0803DD | TPMT140308-ED | TPMT140308-ED | TPMT140308-ED | TPMT1704DD |
| | External | NPMT0803DD | TPMT140308-ED | TPMT140308-ED | TPMT140308-ED | TPMT1704DD | TPMT1704DD |

| Insert Assembly | | Diameter（mm） | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ø60.61-65.00 | Ø65.01-66.99 | Ø67.00-72.99 | Ø73.00-79.99 | Ø80.00-86.99 | Ø87.00-99.99 | Ø100.00-106.99 |
| Insert | Internal | TPMT1704DD | TPMT1704DD | TPMT1704DD | TPMT2405DD | TPMT2405DD | TPMT2405DD | TPMT280716-ED |
| | Central | TPMT1704DD | TPMT1704DD | TPMT1704DD | TPMT2405DD | TPMT2405DD | TPMT2405DD | TPMT280716-ED |
| | External | TPMT1704DD | TPMT1704DD | TPMT2405DD | TPMT1704DD | TPMT2405DD | TPMT280716-ED | TPMT2405DD |

# Recommended Cutting Data

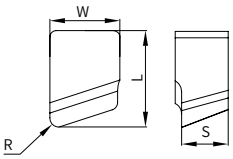
## Indexable Deep Hole Drill GD600

| Workpiece Materials | | | | HB | Vc Speed (m/min) | Feed (mm/rev) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Ø38.00 -39.99 | Ø40.00 -51.99 | Ø52.00 -63.99 | Ø64.00 -84.99 | Ø85.00 -106.99 |
| P | Non-alloy steel, cast steel, free cutting steel | 0.1-0.25%C | Annealed | 125 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | 0.25-0.55%C | Annealed | 190 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | 0.25-0.55%C | Quenched and tempered | 250 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | 0.55-0.80%C | Annealed | 220 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | 0.55-0.80%C | Quenched and tempered | 300 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | Low alloy steel and cast steel(less than 5% of alloying elements) | | Annealed | 200 | 60-100 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | | Quenched and tempered | 275 | 60-100 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | | | 300 | 50-100 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | | | 350 | 50-100 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | High alloy steel, cast steel and tool steel | | Annealed | 200 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | | Quenched and tempered | 325 | 60-120 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| M | Stainless steel and cast steel | | Ferritic/ Martensite | 200 | 60-110 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | | Martensite | 240 | 60-110 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| | | | Austenite | 180 | 60-110 | 0.08-0.15 | 0.1-0.2 | 0.13-0.23 | 0.15-0.25 | 0.18-0.3 |
| K | Malleable Cast Iron | | Ferritic/ Martensite | 130 | 60-100 | 0.08-0.13 | 0.1-0.15 | 0.13-0.18 | 0.15-0.2 | 0.18-0.23 |
| | | | Pearlitic | 230 | 60-100 | 0.08-0.13 | 0.1-0.15 | 0.13-0.18 | 0.15-0.2 | 0.18-0.23 |
| | Gray Cast Iron(GG) | | Ferritic | 160 | 60-100 | 0.08-0.13 | 0.1-0.15 | 0.13-0.18 | 0.15-0.2 | 0.18-0.23 |
| | | | Pearlitic | 250 | 60-100 | 0.08-0.13 | 0.1-0.15 | 0.13-0.18 | 0.15-0.2 | 0.18-0.23 |
| | Nodular Cast Iron(GGG) | | Ferritic | 180 | 60-100 | 0.08-0.13 | 0.1-0.15 | 0.13-0.18 | 0.15-0.2 | 0.18-0.23 |
| | | | Pearlitic | 260 | 60-100 | 0.08-0.13 | 0.1-0.15 | 0.13-0.18 | 0.15-0.2 | 0.18-0.23 |

GD602B Series

# ZOMR

Deep Hole Drill Inserts

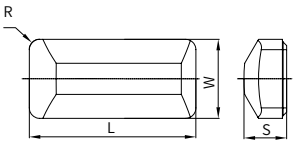



| Type | Grade | 尺寸 Dimension(mm) | | | | Stock |
|---|---|---|---|---|---|---|
| | | S | R | W | L | |
| ZOMR0502-PA | GN9125 | 2.2 | 0.35 | 4.0 | 5.0 | ○ |
| ZOMR0402-PA | GN9125 | 2.2 | 0.4 | 4.1 | 6.1 | ○ |
| ZOMR0302-PA | GN9125 | 2.2 | 0.4 | 3.3 | 4.5 | ○ |

● Stock ○ Order

# PAD

Guide Pad

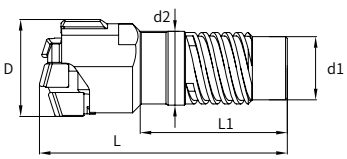



| Type | Grade | Dimension(mm) | | | | Stock |
|---|---|---|---|---|---|---|
| | | W | S | L | R | |
| PAD-04080A | GT20A | 3.8 | 2.05 | 8.00 | 0.5 | ○ |

● Stock ○ Order

# GD602B

Deep Hole Drill body




| Type | Dimension(mm) | | | | |
|---|---|---|---|---|---|
| | D | L | L1 | d1 | d2 |
| GD602B-XXX.XXSE4 | 16.08 | 42.58 | 25.00 | 10.80 | 12.60 |

# Recommended Cutting Data

## Indexable Deep Hole Drill GD602A/B

| Workpiece Material | | | | HB | Vc Speed(m/min) | f (mm/rev) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Ø8.00-15.59 | Ø15.60-19.99 | Ø20.00-25.00 |
| P | Non-alloy steel, cast steel, free cutting steel | 0.1-0.25%C | Annealed | 125 | 70-120 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | 0.25-0.55%C | Annealed | 190 | 70-120 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | 0.25-0.55%C | Quenched and tempered | 250 | 40-70 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | 0.55-0.80%C | Annealed | 220 | 70-120 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | 0.55-0.80%C | Quenched and tempered | 300 | 55-100 | 0.05-0.1 | 0.08-0.12 | 0.1-0.15 |
| | Low alloy steel and cast steel(less than 5% of alloying elements) | | Annealed | 200 | 70-100 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | | Quenched and tempered | 275 | 55-100 | 0.05-0.1 | 0.08-0.12 | 0.1-0.15 |
| | | | | 300 | 55-100 | 0.05-0.1 | 0.08-0.12 | 0.1-0.15 |
| | | | | 350 | 55-100 | 0.05-0.1 | 0.08-0.12 | 0.1-0.15 |
| | High alloy steel, cast steel and tool steel | | Annealed | 200 | 50-85 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | | Quenched and tempered | 325 | 55-100 | 0.05-0.1 | 0.08-0.12 | 0.1-0.15 |
| M | Stainless steel and cast steel | | Ferritic/Martensite | 200 | 60-100 | 0.05-0.13 | 0.08-0.15 | 0.1-0.28 |
| | | | Martensite | 240 | 60-100 | 0.05-0.13 | 0.08-0.15 | 0.1-0.28 |
| | | | Austenite | 180 | 60-100 | 0.05-0.12 | 0.05-0.12 | 0.08-0.25 |
| K | Malleable cast iron | | Ferritic/Martensite | 130 | 80-100 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | | | Pearlitic | 230 | 80-100 | 0.05-0.13 | 0.08-0.15 | 0.1-0.17 |
| | Gray cast iron(GG) | | Ferritic | 160 | 60-100 | 0.05-0.13 | 0.06-0.13 | 0.08-0.18 |
| | | | Pearlitic | 250 | 60-100 | 0.05-0.13 | 0.06-0.13 | 0.08-0.18 |
| | Cast iron nodular(GGG) | | Ferritic | 180 | 50-100 | 0.05-0.13 | 0.06-0.13 | 0.08-0.18 |
| | | | Pearlitic | 260 | 50-100 | 0.05-0.13 | 0.06-0.13 | 0.08-0.18 |

# Indexable Drill Body Identification System

**GHD - 200 - 3D - FC 25 - Q 06 A**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| ①Tool type | |
|---|---|
| GHD | Indexable drill |

| ②Dia of drill | |
|---|---|
| Range | Φ14-Φ51 |

| ③Aspect Ratio |
|---|
| 2D/3D/4D/5D |

| ④Shank type | |
|---|---|
| FC | Flange-Flat |
| FW | Flange-Weldone |
| FH | Flange-Whistle |

| ⑤Shank size |
|---|
| Φ20 Φ25 |
| Φ32 Φ40 |

| ⑥Insert shape | |
|---|---|
| Q | □ |

| ⑦Cutting edge length |
|---|
| 04、05、06、07<br>09、11、13、15 |

| ⑧Drill type | |
|---|---|
| A | General |
| D | Customer-made |

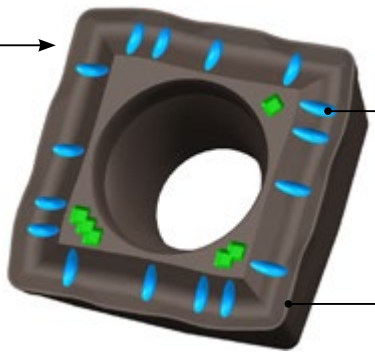
## QPMG Drilling Inserts

Fist shape cutting edge

• Having better performance of chip control and cutting stability

Same insert can be used as inside or outside insert

• Convenient for tools management



Cooling groove design

• Perfect cooling performance

Local wide cutting edge and small rake angle

• Having better fracture resistance

## GHD Drill Body

• High-quality alloy steel

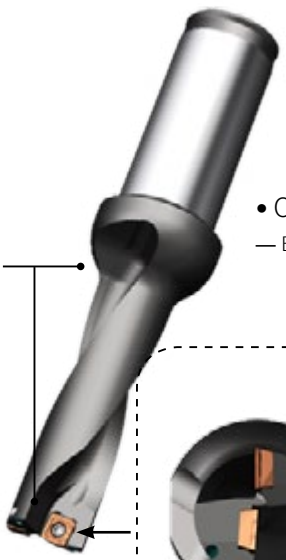
—Superior rigidity and fracture resistance

• Advanced spiral groove design and manufacturing technology

— Improving chipremoval performance

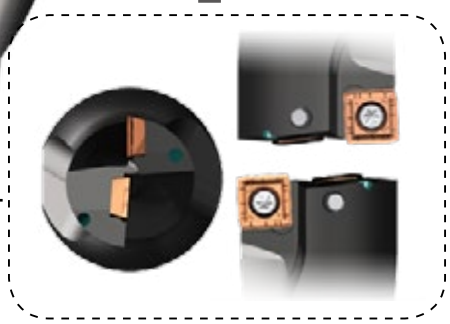
• Nickel-coated surface treatment

— Great corrosion resistance



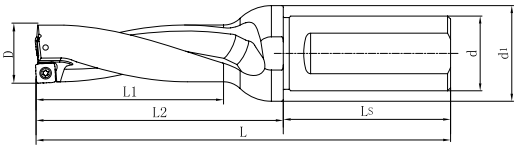
• Optimized structure design

— Better stability and less noise



# GHD-2D

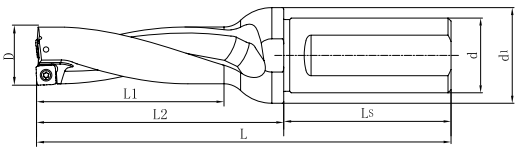
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ14.0 | GHD-140-2D-FC20-Q04A | 14.0 | 20 | 25 | 50 | 46 | 30 | 96 | QPMG040204 |
| Φ14.5 | GHD-145-2D-FC20-Q04A | 14.5 | 20 | 25 | 50 | 46 | 30 | 96 | |
| Φ15.0 | GHD-150-2D-FC20-Q04A | 15.0 | 20 | 25 | 50 | 48 | 32 | 98 | |
| Φ15.5 | GHD-155-2D-FC20-Q04A | 15.5 | 20 | 25 | 50 | 48 | 32 | 98 | |
| Φ16.0 | GHD-160-2D-FC20-Q05A | 16.0 | 20 | 25 | 50 | 50 | 34 | 100 | QPMG050204 |
| Φ16.5 | GHD-165-2D-FC20-Q05A | 16.5 | 20 | 25 | 50 | 50 | 34 | 100 | |
| Φ17.0 | GHD-170-2D-FC25-Q05A | 17.0 | 25 | 32 | 56 | 57 | 37 | 113 | |
| Φ17.5 | GHD-175-2D-FC25-Q05A | 17.5 | 25 | 32 | 56 | 57 | 37 | 113 | |
| Φ18.0 | GHD-180-2D-FC25-Q05A | 18.0 | 25 | 32 | 56 | 59 | 39 | 115 | |
| Φ18.5 | GHD-185-2D-FC25-Q05A | 18.5 | 25 | 32 | 56 | 59 | 39 | 115 | |
| Φ19.0 | GHD-190-2D-FC25-Q06A | 19.0 | 25 | 32 | 56 | 61 | 41 | 117 | QPMG060204 |
| Φ19.5 | GHD-195-2D-FC25-Q06A | 19.5 | 25 | 32 | 56 | 61 | 41 | 117 | |
| Φ20.0 | GHD-200-2D-FC25-Q06A | 20.0 | 25 | 32 | 56 | 63 | 43 | 119 | |
| Φ20.5 | GHD-205-2D-FC25-Q06A | 20.5 | 25 | 32 | 56 | 63 | 43 | 119 | |
| Φ21.0 | GHD-210-2D-FC25-Q06A | 21.0 | 25 | 32 | 56 | 65 | 45 | 121 | |
| Φ21.5 | GHD-215-2D-FC25-Q06A | 21.5 | 25 | 32 | 56 | 65 | 45 | 121 | |
| Φ22.0 | GHD-220-2D-FC25-Q06A | 22.0 | 25 | 32 | 56 | 67 | 47 | 123 | |
| Φ22.5 | GHD-225-2D-FC25-Q06A | 22.5 | 25 | 32 | 56 | 67 | 47 | 123 | |
| Φ23.0 | GHD-230-2D-FC25-Q07A | 23.0 | 25 | 32 | 56 | 69 | 49 | 125 | QPMG07T306 |
| Φ23.5 | GHD-235-2D-FC25-Q07A | 23.5 | 25 | 32 | 56 | 69 | 49 | 125 | |
| Φ24.0 | GHD-240-2D-FC25-Q07A | 24.0 | 25 | 32 | 56 | 71 | 51 | 127 | |
| Φ24.5 | GHD-245-2D-FC25-Q07A | 24.5 | 25 | 32 | 56 | 71 | 51 | 127 | |
| Φ25.0 | GHD-250-2D-FC25-Q07A | 25.0 | 25 | 32 | 56 | 73 | 53 | 129 | |
| Φ25.5 | GHD-255-2D-FC32-Q07A | 25.5 | 32 | 42 | 60 | 81 | 56 | 141 | |
| Φ26.0 | GHD-260-2D-FC32-Q07A | 26.0 | 32 | 42 | 60 | 81 | 56 | 141 | |
| Φ26.5 | GHD-265-2D-FC32-Q07A | 26.5 | 32 | 42 | 60 | 81 | 56 | 141 | |
| Φ27.0 | GHD-270-2D-FC32-Q07A | 27.0 | 32 | 42 | 60 | 83 | 58 | 143 | |

# GHD-2D

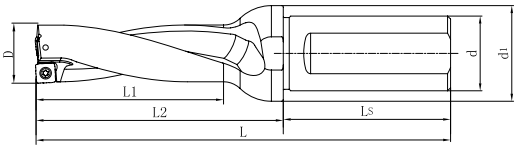
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ27.5 | GHD-275-2D-FC32-Q09A | 27.5 | 32 | 42 | 60 | 83 | 58 | 143 | QPMG09T308 |
| Φ28.0 | GHD-280-2D-FC32-Q09A | 28.0 | 32 | 42 | 60 | 85 | 60 | 145 | |
| Φ28.5 | GHD-285-2D-FC32-Q09A | 28.5 | 32 | 42 | 60 | 85 | 60 | 145 | |
| Φ29.0 | GHD-290-2D-FC32-Q09A | 29.0 | 32 | 42 | 60 | 87 | 62 | 147 | |
| Φ29.5 | GHD-295-2D-FC32-Q09A | 29.5 | 32 | 42 | 60 | 87 | 62 | 147 | |
| Φ30.0 | GHD-300-2D-FC32-Q09A | 30.0 | 32 | 42 | 60 | 89 | 64 | 149 | |
| Φ30.5 | GHD-305-2D-FC32-Q09A | 30.5 | 32 | 42 | 60 | 89 | 64 | 149 | |
| Φ31.0 | GHD-310-2D-FC32-Q09A | 31.0 | 32 | 42 | 60 | 91 | 66 | 151 | |
| Φ31.5 | GHD-315-2D-FC32-Q09A | 31.5 | 32 | 42 | 60 | 91 | 66 | 151 | |
| Φ32.0 | GHD-320-2D-FC32-Q09A | 32.0 | 32 | 42 | 60 | 93 | 68 | 153 | |
| Φ32.5 | GHD-325-2D-FC32-Q09A | 32.5 | 32 | 48 | 60 | 93 | 68 | 153 | |
| Φ33.0 | GHD-330-2D-FC40-Q09A | 33.0 | 40 | 48 | 70 | 100 | 70 | 170 | |
| Φ33.5 | GHD-335-2D-FC40-Q11A | 33.5 | 40 | 48 | 70 | 100 | 70 | 170 | QPMG110408 |
| Φ34.0 | GHD-340-2D-FC40-Q11A | 34.0 | 40 | 48 | 70 | 103 | 73 | 173 | |
| Φ34.5 | GHD-345-2D-FC40-Q11A | 34.5 | 40 | 48 | 70 | 103 | 73 | 173 | |
| Φ35.0 | GHD-350-2D-FC40-Q11A | 35.0 | 40 | 48 | 70 | 105 | 75 | 175 | |
| Φ35.5 | GHD-355-2D-FC40-Q11A | 35.5 | 40 | 48 | 70 | 105 | 75 | 175 | |
| Φ36.0 | GHD-360-2D-FC40-Q11A | 36.0 | 40 | 48 | 70 | 107 | 77 | 177 | |
| Φ36.5 | GHD-365-2D-FC40-Q11A | 36.5 | 40 | 48 | 70 | 107 | 77 | 177 | |
| Φ37.0 | GHD-370-2D-FC40-Q11A | 37.0 | 40 | 48 | 70 | 109 | 79 | 179 | |
| Φ37.5 | GHD-375-2D-FC40-Q11A | 37.5 | 40 | 48 | 70 | 109 | 79 | 179 | |
| Φ38.0 | GHD-380-2D-FC40-Q11A | 38.0 | 40 | 48 | 70 | 111 | 81 | 181 | |
| Φ38.5 | GHD-385-2D-FC40-Q11A | 38.5 | 40 | 48 | 70 | 111 | 81 | 181 | |
| Φ39.0 | GHD-390-2D-FC40-Q11A | 39.0 | 40 | 48 | 70 | 113 | 83 | 183 | |
| Φ39.5 | GHD-395-2D-FC40-Q11A | 39.5 | 40 | 48 | 70 | 113 | 83 | 183 | |
| Φ40.0 | GHD-400-2D-FC40-Q11A | 40.0 | 40 | 48 | 70 | 116 | 86 | 186 | |

# GHD-2D

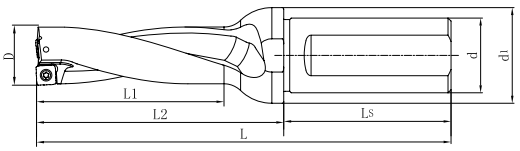
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ40.5 | GHD-405-2D-FC40-Q13A | 40.5 | 40 | 48 | 70 | 116 | 86 | 186 | QPMG130408 |
| Φ41.0 | GHD-410-2D-FC40-Q13A | 41.0 | 40 | 48 | 70 | 118 | 88 | 188 | |
| Φ41.5 | GHD-415-2D-FC40-Q13A | 41.5 | 40 | 48 | 70 | 118 | 88 | 188 | |
| Φ42.0 | GHD-420-2D-FC40-Q13A | 42.0 | 40 | 48 | 70 | 120 | 90 | 190 | |
| Φ42.5 | GHD-425-2D-FC40-Q13A | 42.5 | 40 | 48 | 70 | 120 | 90 | 190 | |
| Φ43.0 | GHD-430-2D-FC40-Q13A | 43.0 | 40 | 48 | 70 | 122 | 92 | 192 | |
| Φ43.5 | GHD-435-2D-FC40-Q13A | 43.5 | 40 | 48 | 70 | 122 | 92 | 192 | |
| Φ44.0 | GHD-440-2D-FC40-Q13A | 44.0 | 40 | 48 | 70 | 124 | 94 | 194 | |
| Φ44.5 | GHD-445-2D-FC40-Q13A | 44.5 | 40 | 48 | 70 | 124 | 94 | 194 | |
| Φ45.0 | GHD-450-2D-FC40-Q13A | 45.0 | 40 | 48 | 70 | 126 | 96 | 196 | |
| Φ45.5 | GHD-455-2D-FC40-Q15A | 45.5 | 40 | 48 | 70 | 126 | 96 | 196 | QPMG150512 |
| Φ46.0 | GHD-460-2D-FC40-Q15A | 46.0 | 40 | 48 | 70 | 128 | 98 | 198 | |
| Φ46.5 | GHD-465-2D-FC40-Q15A | 46.5 | 40 | 48 | 70 | 128 | 98 | 198 | |
| Φ47.0 | GHD-470-2D-FC40-Q15A | 47.0 | 40 | 48 | 70 | 130 | 100 | 200 | |
| Φ47.5 | GHD-475-2D-FC40-Q15A | 47.5 | 40 | 48 | 70 | 130 | 100 | 200 | |
| Φ48.0 | GHD-480-2D-FC40-Q15A | 48.0 | 40 | 48 | 70 | 132 | 102 | 202 | |
| Φ48.5 | GHD-485-2D-FC40-Q15A | 48.5 | 40 | 48 | 70 | 132 | 102 | 202 | |
| Φ49.0 | GHD-490-2D-FC40-Q15A | 49.0 | 40 | 49 | 70 | 134 | 104 | 204 | |
| Φ49.5 | GHD-495-2D-FC40-Q15A | 49.5 | 40 | 49 | 70 | 134 | 104 | 204 | |
| Φ50.0 | GHD-500-2D-FC40-Q15A | 50.0 | 40 | 50 | 70 | 136 | 106 | 206 | |
| Φ50.5 | GHD-505-2D-FC40-Q15A | 50.5 | 40 | 50 | 70 | 136 | 106 | 206 | |
| Φ51.0 | GHD-510-2D-FC40-Q15A | 51.0 | 40 | 51 | 70 | 138 | 108 | 208 | |

# GHD-3D

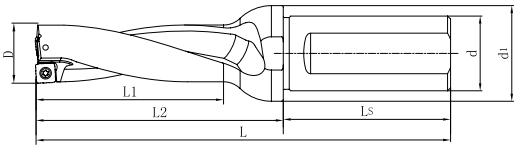
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ14.0 | GHD-140-3D-FC20-Q04A | 14.0 | 20 | 25 | 50 | 60 | 44 | 110 | QPMG040204 |
| Φ14.5 | GHD-145-3D-FC20-Q04A | 14.5 | 20 | 25 | 50 | 60 | 44 | 110 | |
| Φ15.0 | GHD-150-3D-FC20-Q04A | 15.0 | 20 | 25 | 50 | 63 | 47 | 113 | |
| Φ15.5 | GHD-155-3D-FC20-Q04A | 15.5 | 20 | 25 | 50 | 63 | 47 | 113 | |
| Φ16.0 | GHD-160-3D-FC20-Q05A | 16.0 | 20 | 25 | 50 | 66 | 50 | 116 | QPMG050204 |
| Φ16.5 | GHD-165-3D-FC20-Q05A | 16.5 | 20 | 25 | 50 | 66 | 50 | 116 | |
| Φ17.0 | GHD-170-3D-FC25-Q05A | 17.0 | 25 | 32 | 56 | 74 | 54 | 130 | |
| Φ17.5 | GHD-175-3D-FC25-Q05A | 17.5 | 25 | 32 | 56 | 74 | 54 | 130 | |
| Φ18.0 | GHD-180-3D-FC25-Q05A | 18.0 | 25 | 32 | 56 | 77 | 57 | 133 | |
| Φ18.5 | GHD-185-3D-FC25-Q05A | 18.5 | 25 | 32 | 56 | 77 | 57 | 133 | |
| Φ19.0 | GHD-190-3D-FC25-Q06A | 19.0 | 25 | 32 | 56 | 80 | 60 | 136 | QPMG060204 |
| Φ19.5 | GHD-195-3D-FC25-Q06A | 19.5 | 25 | 32 | 56 | 80 | 60 | 136 | |
| Φ20.0 | GHD-200-3D-FC25-Q06A | 20.0 | 25 | 32 | 56 | 83 | 63 | 139 | |
| Φ20.5 | GHD-205-3D-FC25-Q06A | 20.5 | 25 | 32 | 56 | 83 | 63 | 139 | |
| Φ21.0 | GHD-210-3D-FC25-Q06A | 21.0 | 25 | 32 | 56 | 86 | 66 | 142 | |
| Φ21.5 | GHD-215-3D-FC25-Q06A | 21.5 | 25 | 32 | 56 | 86 | 66 | 142 | |
| Φ22.0 | GHD-220-3D-FC25-Q06A | 22.0 | 25 | 32 | 56 | 89 | 69 | 145 | |
| Φ22.5 | GHD-225-3D-FC25-Q06A | 22.5 | 25 | 32 | 56 | 89 | 69 | 145 | |
| Φ23.0 | GHD-230-3D-FC25-Q07A | 23.0 | 25 | 32 | 56 | 92 | 72 | 148 | QPMG07T306 |
| Φ23.5 | GHD-235-3D-FC25-Q07A | 23.5 | 25 | 32 | 56 | 92 | 72 | 148 | |
| Φ24.0 | GHD-240-3D-FC25-Q07A | 24.0 | 25 | 32 | 56 | 95 | 75 | 151 | |
| Φ24.5 | GHD-245-3D-FC25-Q07A | 24.5 | 25 | 32 | 56 | 95 | 75 | 151 | |
| Φ25.0 | GHD-250-3D-FC25-Q07A | 25.0 | 25 | 32 | 56 | 98 | 78 | 154 | |
| Φ25.5 | GHD-255-3D-FC32-Q07A | 25.5 | 32 | 42 | 60 | 107 | 82 | 167 | |
| Φ26.0 | GHD-260-3D-FC32-Q07A | 26.0 | 32 | 42 | 60 | 107 | 82 | 167 | |
| Φ26.5 | GHD-265-3D-FC32-Q07A | 26.5 | 32 | 42 | 60 | 107 | 82 | 167 | |
| Φ27.0 | GHD-270-3D-FC32-Q07A | 27.0 | 32 | 42 | 60 | 110 | 85 | 170 | |

# GHD-3D

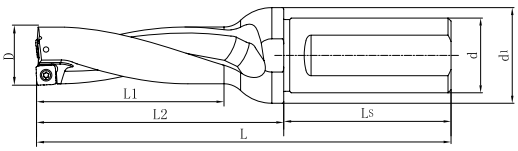
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ27.5 | GHD-275-3D-FC32-Q09A | 27.5 | 32 | 42 | 60 | 110 | 85 | 170 | QPMG09T308 |
| Φ28.0 | GHD-280-3D-FC32-Q09A | 28.0 | 32 | 42 | 60 | 113 | 88 | 173 | |
| Φ28.5 | GHD-285-3D-FC32-Q09A | 28.5 | 32 | 42 | 60 | 113 | 88 | 173 | |
| Φ29.0 | GHD-290-3D-FC32-Q09A | 29.0 | 32 | 42 | 60 | 116 | 91 | 176 | |
| Φ29.5 | GHD-295-3D-FC32-Q09A | 29.5 | 32 | 42 | 60 | 116 | 91 | 176 | |
| Φ30.0 | GHD-300-3D-FC32-Q09A | 30.0 | 32 | 42 | 60 | 119 | 94 | 179 | |
| Φ30.5 | GHD-305-3D-FC32-Q09A | 30.5 | 32 | 42 | 60 | 119 | 94 | 179 | |
| Φ31.0 | GHD-310-3D-FC32-Q09A | 31.0 | 32 | 42 | 60 | 122 | 97 | 182 | |
| Φ31.5 | GHD-315-3D-FC32-Q09A | 31.5 | 32 | 42 | 60 | 124 | 97 | 182 | |
| Φ32.0 | GHD-320-3D-FC32-Q09A | 32.0 | 32 | 42 | 60 | 125 | 100 | 185 | |
| Φ32.5 | GHD-325-3D-FC32-Q09A | 32.5 | 32 | 42 | 60 | 125 | 100 | 185 | |
| Φ33.0 | GHD-330-3D-FC40-Q09A | 33.0 | 40 | 48 | 70 | 133 | 103 | 203 | |
| Φ33.5 | GHD-335-3D-FC40-Q11A | 33.5 | 40 | 48 | 70 | 133 | 103 | 203 | QPMG110408 |
| Φ34.0 | GHD-340-3D-FC40-Q11A | 34.0 | 40 | 48 | 70 | 137 | 107 | 207 | |
| Φ34.5 | GHD-345-3D-FC40-Q11A | 34.5 | 40 | 48 | 70 | 137 | 107 | 207 | |
| Φ35.0 | GHD-350-3D-FC40-Q11A | 35.0 | 40 | 48 | 70 | 140 | 110 | 210 | |
| Φ35.5 | GHD-355-3D-FC40-Q11A | 35.5 | 40 | 48 | 70 | 140 | 110 | 210 | |
| Φ36.0 | GHD-360-3D-FC40-Q11A | 36.0 | 40 | 48 | 70 | 143 | 113 | 213 | |
| Φ36.5 | GHD-365-3D-FC40-Q11A | 36.5 | 40 | 48 | 70 | 143 | 113 | 213 | |
| Φ37.0 | GHD-370-3D-FC40-Q11A | 37.0 | 40 | 48 | 70 | 146 | 116 | 216 | |
| Φ37.5 | GHD-375-3D-FC40-Q11A | 37.5 | 40 | 48 | 70 | 146 | 116 | 216 | |
| Φ38.0 | GHD-380-3D-FC40-Q11A | 38.0 | 40 | 48 | 70 | 149 | 119 | 219 | |
| Φ38.5 | GHD-385-3D-FC40-Q11A | 38.5 | 40 | 48 | 70 | 149 | 119 | 219 | |
| Φ39.0 | GHD-390-3D-FC40-Q11A | 39.0 | 40 | 48 | 70 | 152 | 122 | 222 | |
| Φ39.5 | GHD-395-3D-FC40-Q11A | 39.5 | 40 | 48 | 70 | 152 | 122 | 222 | |
| Φ40.0 | GHD-400-3D-FC40-Q11A | 40.0 | 40 | 48 | 70 | 156 | 126 | 226 | |

# GHD-3D

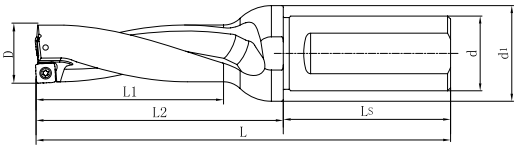
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ40.5 | GHD-405-3D-FC40-Q13A | 40.5 | 40 | 48 | 70 | 156 | 126 | 226 | QPMG130408 |
| Φ41.0 | GHD-410-3D-FC40-Q13A | 41.0 | 40 | 48 | 70 | 159 | 129 | 229 | |
| Φ41.5 | GHD-415-3D-FC40-Q13A | 41.5 | 40 | 48 | 70 | 159 | 129 | 229 | |
| Φ42.0 | GHD-420-3D-FC40-Q13A | 42.0 | 40 | 48 | 70 | 162 | 132 | 232 | |
| Φ42.5 | GHD-425-3D-FC40-Q13A | 42.5 | 40 | 48 | 70 | 162 | 132 | 232 | |
| Φ43.0 | GHD-430-3D-FC40-Q13A | 43.0 | 40 | 48 | 70 | 165 | 135 | 235 | |
| Φ43.5 | GHD-435-3D-FC40-Q13A | 43.5 | 40 | 48 | 70 | 165 | 135 | 235 | |
| Φ44.0 | GHD-440-3D-FC40-Q13A | 44.0 | 40 | 48 | 70 | 168 | 138 | 238 | |
| Φ44.5 | GHD-445-3D-FC40-Q13A | 44.5 | 40 | 48 | 70 | 168 | 138 | 238 | |
| Φ45.0 | GHD-450-3D-FC40-Q13A | 45.0 | 40 | 48 | 70 | 171 | 141 | 241 | |
| Φ45.5 | GHD-455-3D-FC40-Q15A | 45.5 | 40 | 48 | 70 | 171 | 141 | 241 | QPMG150512 |
| Φ46.0 | GHD-460-3D-FC40-Q15A | 46.0 | 40 | 48 | 70 | 174 | 144 | 244 | |
| Φ46.5 | GHD-465-3D-FC40-Q15A | 46.5 | 40 | 48 | 70 | 174 | 144 | 244 | |
| Φ47.0 | GHD-470-3D-FC40-Q15A | 47.0 | 40 | 48 | 70 | 177 | 147 | 247 | |
| Φ47.5 | GHD-475-3D-FC40-Q15A | 47.5 | 40 | 48 | 70 | 177 | 147 | 247 | |
| Φ48.0 | GHD-480-3D-FC40-Q15A | 48.0 | 40 | 48 | 70 | 180 | 150 | 250 | |
| Φ48.5 | GHD-485-3D-FC40-Q15A | 48.5 | 40 | 48 | 70 | 180 | 150 | 250 | |
| Φ49.0 | GHD-490-3D-FC40-Q15A | 49.0 | 40 | 49 | 70 | 183 | 153 | 253 | |
| Φ49.5 | GHD-495-3D-FC40-Q15A | 49.5 | 40 | 49 | 70 | 183 | 153 | 253 | |
| Φ50.0 | GHD-500-3D-FC40-Q15A | 50.0 | 40 | 50 | 70 | 186 | 156 | 256 | |
| Φ50.5 | GHD-505-3D-FC40-Q15A | 50.5 | 40 | 50 | 70 | 186 | 156 | 256 | |
| Φ51.0 | GHD-510-3D-FC40-Q15A | 51.0 | 40 | 51 | 70 | 189 | 159 | 259 | |

# GHD-4D

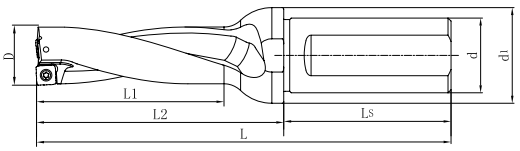
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ14.0 | GHD-140-4D-FC20-Q04A | 14.0 | 20 | 25 | 50 | 74 | 58 | 124 | QPMG040204 |
| Φ14.5 | GHD-145-4D-FC20-Q04A | 14.5 | 20 | 25 | 50 | 74 | 58 | 124 | |
| Φ15.0 | GHD-150-4D-FC20-Q04A | 15.0 | 20 | 25 | 50 | 78 | 62 | 128 | |
| Φ15.5 | GHD-155-4D-FC20-Q04A | 15.5 | 20 | 25 | 50 | 78 | 62 | 128 | |
| Φ16.0 | GHD-160-4D-FC20-Q05A | 16.0 | 20 | 25 | 50 | 82 | 66 | 132 | QPMG050204 |
| Φ16.5 | GHD-165-4D-FC20-Q05A | 16.5 | 20 | 25 | 50 | 82 | 66 | 132 | |
| Φ17.0 | GHD-170-4D-FC25-Q05A | 17.0 | 25 | 32 | 56 | 91 | 71 | 147 | |
| Φ17.5 | GHD-175-4D-FC25-Q05A | 17.5 | 25 | 32 | 56 | 91 | 71 | 147 | |
| Φ18.0 | GHD-180-4D-FC25-Q05A | 18.0 | 25 | 32 | 56 | 95 | 75 | 151 | |
| Φ18.5 | GHD-185-4D-FC25-Q05A | 18.5 | 25 | 32 | 56 | 95 | 75 | 151 | |
| Φ19.0 | GHD-190-4D-FC25-Q06A | 19.0 | 25 | 32 | 56 | 99 | 79 | 155 | QPMG060204 |
| Φ19.5 | GHD-195-4D-FC25-Q06A | 19.5 | 25 | 32 | 56 | 99 | 79 | 155 | |
| Φ20.0 | GHD-200-4D-FC25-Q06A | 20.0 | 25 | 32 | 56 | 103 | 83 | 159 | |
| Φ20.5 | GHD-205-4D-FC25-Q06A | 20.5 | 25 | 32 | 56 | 103 | 83 | 159 | |
| Φ21.0 | GHD-210-4D-FC25-Q06A | 21.0 | 25 | 32 | 56 | 107 | 87 | 163 | |
| Φ21.5 | GHD-215-4D-FC25-Q06A | 21.5 | 25 | 32 | 56 | 107 | 87 | 163 | |
| Φ22.0 | GHD-220-4D-FC25-Q06A | 22.0 | 25 | 32 | 56 | 111 | 91 | 167 | |
| Φ22.5 | GHD-225-4D-FC25-Q06A | 22.5 | 25 | 32 | 56 | 111 | 91 | 167 | |
| Φ23.0 | GHD-230-4D-FC25-Q07A | 23.0 | 25 | 32 | 56 | 115 | 95 | 171 | QPMG07T306 |
| Φ23.5 | GHD-235-4D-FC25-Q07A | 23.5 | 25 | 32 | 56 | 115 | 95 | 171 | |
| Φ24.0 | GHD-240-4D-FC25-Q07A | 24.0 | 25 | 32 | 56 | 119 | 99 | 175 | |
| Φ24.5 | GHD-245-4D-FC25-Q07A | 24.5 | 25 | 32 | 56 | 119 | 99 | 175 | |
| Φ25.0 | GHD-250-4D-FC25-Q07A | 25.0 | 25 | 32 | 56 | 123 | 103 | 179 | |
| Φ25.5 | GHD-255-4D-FC32-Q07A | 25.5 | 32 | 42 | 60 | 133 | 108 | 193 | |
| Φ26.0 | GHD-260-4D-FC32-Q07A | 26.0 | 32 | 42 | 60 | 133 | 108 | 193 | |
| Φ26.5 | GHD-265-4D-FC32-Q07A | 26.5 | 32 | 42 | 60 | 133 | 108 | 193 | |
| Φ27.0 | GHD-270-4D-FC32-Q07A | 27.0 | 32 | 42 | 60 | 137 | 112 | 197 | |

# GHD-4D

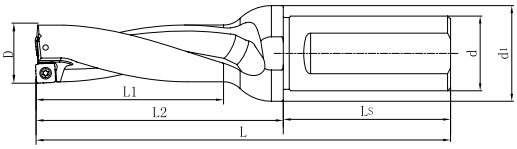
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ27.5 | GHD-275-4D-FC32-Q09A | 27.5 | 32 | 42 | 60 | 137 | 112 | 197 | QPMG09T308 |
| Φ28.0 | GHD-280-4D-FC32-Q09A | 28.0 | 32 | 42 | 60 | 141 | 116 | 201 | |
| Φ28.5 | GHD-285-4D-FC32-Q09A | 28.5 | 32 | 42 | 60 | 141 | 116 | 201 | |
| Φ29.0 | GHD-290-4D-FC32-Q09A | 29.0 | 32 | 42 | 60 | 145 | 120 | 205 | |
| Φ29.5 | GHD-295-4D-FC32-Q09A | 29.5 | 32 | 42 | 60 | 145 | 120 | 205 | |
| Φ30.0 | GHD-300-4D-FC32-Q09A | 30.0 | 32 | 42 | 60 | 149 | 124 | 209 | |
| Φ30.5 | GHD-305-4D-FC32-Q09A | 30.5 | 32 | 42 | 60 | 149 | 124 | 209 | |
| Φ31.0 | GHD-310-4D-FC32-Q09A | 31.0 | 32 | 42 | 60 | 153 | 128 | 213 | |
| Φ31.5 | GHD-315-4D-FC32-Q09A | 31.5 | 32 | 42 | 60 | 153 | 128 | 213 | |
| Φ32.0 | GHD-320-4D-FC32-Q09A | 32.0 | 32 | 42 | 60 | 157 | 132 | 217 | |
| Φ32.5 | GHD-325-4D-FC32-Q09A | 32.5 | 32 | 42 | 60 | 157 | 132 | 217 | |
| Φ33.0 | GHD-330-4D-FC40-Q09A | 33.0 | 40 | 48 | 70 | 166 | 136 | 236 | |
| Φ33.5 | GHD-335-4D-FC40-Q11A | 33.5 | 40 | 48 | 70 | 166 | 136 | 236 | QPMG110408 |
| Φ34.0 | GHD-340-4D-FC40-Q11A | 34.0 | 40 | 48 | 70 | 171 | 141 | 241 | |
| Φ34.5 | GHD-345-4D-FC40-Q11A | 34.5 | 40 | 48 | 70 | 171 | 141 | 241 | |
| Φ35.0 | GHD-350-4D-FC40-Q11A | 35.0 | 40 | 48 | 70 | 175 | 145 | 245 | |
| Φ35.5 | GHD-355-4D-FC40-Q11A | 35.5 | 40 | 48 | 70 | 175 | 145 | 245 | |
| Φ36.0 | GHD-360-4D-FC40-Q11A | 36.0 | 40 | 48 | 70 | 179 | 149 | 249 | |
| Φ36.5 | GHD-365-4D-FC40-Q11A | 36.5 | 40 | 48 | 70 | 179 | 149 | 249 | |
| Φ37.0 | GHD-370-4D-FC40-Q11A | 37.0 | 40 | 48 | 70 | 183 | 153 | 253 | |
| Φ37.5 | GHD-375-4D-FC40-Q11A | 37.5 | 40 | 48 | 70 | 183 | 153 | 253 | |
| Φ38.0 | GHD-380-4D-FC40-Q11A | 38.0 | 40 | 48 | 70 | 187 | 157 | 257 | |
| Φ38.5 | GHD-385-4D-FC40-Q11A | 38.5 | 40 | 48 | 70 | 187 | 157 | 257 | |
| Φ39.0 | GHD-390-4D-FC40-Q11A | 39.0 | 40 | 48 | 70 | 191 | 161 | 261 | |
| Φ39.5 | GHD-395-4D-FC40-Q11A | 39.5 | 40 | 48 | 70 | 191 | 161 | 261 | |
| Φ40.0 | GHD-400-4D-FC40-Q11A | 40.0 | 40 | 48 | 70 | 196 | 166 | 266 | |

# GHD-4D

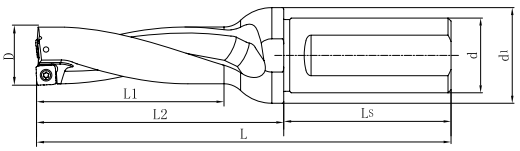
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ40.5 | GHD-405-4D-FC40-Q13A | 40.5 | 40 | 48 | 70 | 196 | 166 | 266 | QPMG130408 |
| Φ41.0 | GHD-410-4D-FC40-Q13A | 41.0 | 40 | 48 | 70 | 200 | 170 | 270 | |
| Φ41.5 | GHD-415-4D-FC40-Q13A | 41.5 | 40 | 48 | 70 | 200 | 170 | 270 | |
| Φ42.0 | GHD-420-4D-FC40-Q13A | 42.0 | 40 | 48 | 70 | 204 | 174 | 274 | |
| Φ42.5 | GHD-425-4D-FC40-Q13A | 42.5 | 40 | 48 | 70 | 204 | 174 | 274 | |
| Φ43.0 | GHD-430-4D-FC40-Q13A | 43.0 | 40 | 48 | 70 | 208 | 178 | 278 | |
| Φ43.5 | GHD-435-4D-FC40-Q13A | 43.5 | 40 | 48 | 70 | 208 | 178 | 278 | |
| Φ44.0 | GHD-440-4D-FC40-Q13A | 44.0 | 40 | 48 | 70 | 212 | 182 | 282 | |
| Φ44.5 | GHD-445-4D-FC40-Q13A | 44.5 | 40 | 48 | 70 | 212 | 182 | 282 | |
| Φ45.0 | GHD-450-4D-FC40-Q13A | 45.0 | 40 | 48 | 70 | 216 | 186 | 286 | |
| Φ45.5 | GHD-455-4D-FC40-Q15A | 45.5 | 40 | 48 | 70 | 216 | 186 | 286 | QPMG150512 |
| Φ46.0 | GHD-460-4D-FC40-Q15A | 46.0 | 40 | 48 | 70 | 220 | 190 | 290 | |
| Φ46.5 | GHD-465-4D-FC40-Q15A | 46.5 | 40 | 48 | 70 | 220 | 190 | 290 | |
| Φ47.0 | GHD-470-4D-FC40-Q15A | 47.0 | 40 | 48 | 70 | 224 | 194 | 294 | |
| Φ47.5 | GHD-475-4D-FC40-Q15A | 47.5 | 40 | 48 | 70 | 224 | 194 | 294 | |
| Φ48.0 | GHD-480-4D-FC40-Q15A | 48.0 | 40 | 48 | 70 | 228 | 198 | 298 | |
| Φ48.5 | GHD-485-4D-FC40-Q15A | 48.5 | 40 | 48 | 70 | 228 | 198 | 298 | |
| Φ49.0 | GHD-490-4D-FC40-Q15A | 49.0 | 40 | 49 | 70 | 232 | 202 | 302 | |
| Φ49.5 | GHD-495-4D-FC40-Q15A | 49.5 | 40 | 49 | 70 | 232 | 202 | 302 | |
| Φ50.0 | GHD-500-4D-FC40-Q15A | 50.0 | 40 | 50 | 70 | 236 | 206 | 306 | |
| Φ50.5 | GHD-505-4D-FC40-Q15A | 50.5 | 40 | 50 | 70 | 236 | 206 | 306 | |
| Φ51.0 | GHD-510-4D-FC40-Q15A | 51.0 | 40 | 51 | 70 | 240 | 210 | 310 | |

# GHD-5D

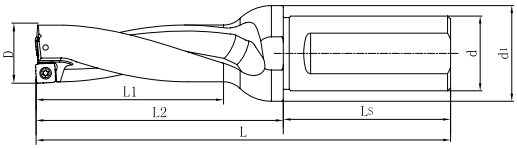
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ14.0 | GHD-140-5D-FC20-Q04A | 14.0 | 20 | 25 | 50 | 88 | 72 | 138 | QPMG040204 |
| Φ14.5 | GHD-145-5D-FC20-Q04A | 14.5 | 20 | 25 | 50 | 88 | 72 | 138 | |
| Φ15.0 | GHD-150-5D-FC20-Q04A | 15.0 | 20 | 25 | 50 | 93 | 77 | 143 | |
| Φ15.5 | GHD-155-5D-FC25-Q04A | 15.5 | 25 | 32 | 56 | 102 | 82 | 158 | |
| Φ16.0 | GHD-160-5D-FC25-Q05A | 16.0 | 25 | 32 | 56 | 102 | 82 | 158 | QPMG050204 |
| Φ16.5 | GHD-165-5D-FC25-Q05A | 16.5 | 25 | 32 | 56 | 102 | 82 | 158 | |
| Φ17.0 | GHD-170-5D-FC25-Q05A | 17.0 | 25 | 32 | 56 | 108 | 87 | 164 | |
| Φ17.5 | GHD-175-5D-FC25-Q05A | 17.5 | 25 | 32 | 56 | 108 | 87 | 164 | |
| Φ18.0 | GHD-180-5D-FC25-Q05A | 18.0 | 25 | 32 | 56 | 113 | 93 | 169 | |
| Φ18.5 | GHD-185-5D-FC25-Q05A | 18.5 | 25 | 32 | 56 | 113 | 93 | 169 | |
| Φ19.0 | GHD-190-5D-FC25-Q06A | 19.0 | 25 | 32 | 56 | 118 | 98 | 174 | QPMG060204 |
| Φ19.5 | GHD-195-5D-FC25-Q06A | 19.5 | 25 | 32 | 56 | 118 | 98 | 174 | |
| Φ20.0 | GHD-200-5D-FC25-Q06A | 20.0 | 25 | 32 | 56 | 123 | 103 | 179 | |
| Φ20.5 | GHD-205-5D-FC25-Q06A | 20.5 | 25 | 32 | 56 | 123 | 103 | 179 | |
| Φ21.0 | GHD-210-5D-FC25-Q06A | 21.0 | 25 | 32 | 56 | 128 | 108 | 184 | |
| Φ21.5 | GHD-215-5D-FC25-Q06A | 21.5 | 25 | 32 | 56 | 128 | 108 | 184 | |
| Φ22.0 | GHD-220-5D-FC25-Q06A | 22.0 | 25 | 32 | 56 | 133 | 113 | 189 | |
| Φ22.5 | GHD-225-5D-FC25-Q06A | 22.5 | 25 | 32 | 56 | 133 | 113 | 189 | |
| Φ23.0 | GHD-230-5D-FC32-Q07A | 23.0 | 32 | 42 | 56 | 143 | 118 | 203 | QPMG07T306 |
| Φ23.5 | GHD-235-5D-FC32-Q07A | 23.5 | 32 | 42 | 56 | 143 | 118 | 203 | |
| Φ24.0 | GHD-240-5D-FC32-Q07A | 24.0 | 32 | 42 | 56 | 148 | 123 | 208 | |
| Φ24.5 | GHD-245-5D-FC32-Q07A | 24.5 | 32 | 42 | 56 | 148 | 123 | 208 | |
| Φ25.0 | GHD-250-5D-FC32-Q07A | 25.0 | 32 | 42 | 56 | 153 | 128 | 213 | |
| Φ25.5 | GHD-255-5D-FC32-Q07A | 25.5 | 32 | 42 | 56 | 153 | 128 | 213 | |
| Φ26.0 | GHD-260-5D-FC32-Q07A | 26.0 | 32 | 42 | 60 | 159 | 134 | 219 | |
| Φ26.5 | GHD-265-5D-FC32-Q07A | 26.5 | 32 | 42 | 60 | 159 | 134 | 219 | |
| Φ27.0 | GHD-270-5D-FC32-Q07A | 27.0 | 32 | 42 | 60 | 164 | 139 | 224 | |

# GHD-5D

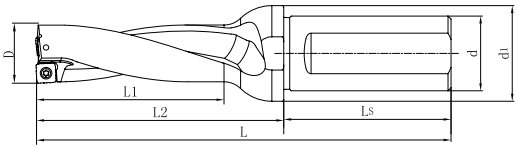
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ27.5 | GHD-275-5D-FC32-Q09A | 27.5 | 32 | 42 | 60 | 164 | 139 | 224 | QPMG09T308 |
| Φ28.0 | GHD-280-5D-FC32-Q09A | 28.0 | 32 | 42 | 60 | 169 | 144 | 229 | |
| Φ28.5 | GHD-285-5D-FC32-Q09A | 28.5 | 32 | 42 | 60 | 169 | 144 | 229 | |
| Φ29.0 | GHD-290-5D-FC32-Q09A | 29.0 | 32 | 42 | 60 | 174 | 149 | 234 | |
| Φ29.5 | GHD-295-5D-FC32-Q09A | 29.5 | 32 | 42 | 60 | 174 | 149 | 234 | |
| Φ30.0 | GHD-300-5D-FC32-Q09A | 30.0 | 32 | 42 | 60 | 179 | 154 | 239 | |
| Φ30.5 | GHD-305-5D-FC32-Q09A | 30.5 | 32 | 42 | 60 | 179 | 154 | 239 | |
| Φ31.0 | GHD-310-5D-FC32-Q09A | 31.0 | 32 | 42 | 60 | 184 | 159 | 244 | |
| Φ31.5 | GHD-315-5D-FC32-Q09A | 31.5 | 32 | 42 | 60 | 184 | 159 | 244 | |
| Φ32.0 | GHD-320-5D-FC32-Q09A | 32.0 | 32 | 42 | 60 | 194 | 164 | 254 | |
| Φ32.5 | GHD-325-5D-FC40-Q09A | 32.5 | 40 | 48 | 60 | 199 | 169 | 269 | |
| Φ33.0 | GHD-330-5D-FC40-Q09A | 33.0 | 40 | 48 | 60 | 199 | 169 | 269 | |
| Φ33.5 | GHD-335-5D-FC40-Q11A | 33.5 | 40 | 48 | 70 | 199 | 169 | 269 | QPMG110408 |
| Φ34.0 | GHD-340-5D-FC40-Q11A | 34.0 | 40 | 48 | 70 | 205 | 175 | 275 | |
| Φ34.5 | GHD-345-5D-FC40-Q11A | 34.5 | 40 | 48 | 70 | 205 | 175 | 275 | |
| Φ35.0 | GHD-350-5D-FC40-Q11A | 35.0 | 40 | 48 | 70 | 210 | 180 | 280 | |
| Φ35.5 | GHD-355-5D-FC40-Q11A | 35.5 | 40 | 48 | 70 | 210 | 180 | 280 | |
| Φ36.0 | GHD-360-5D-FC40-Q11A | 36.0 | 40 | 48 | 70 | 215 | 185 | 285 | |
| Φ36.5 | GHD-365-5D-FC40-Q11A | 36.5 | 40 | 48 | 70 | 215 | 185 | 285 | |
| Φ37.0 | GHD-370-5D-FC40-Q11A | 37.0 | 40 | 48 | 70 | 220 | 190 | 290 | |
| Φ37.5 | GHD-375-5D-FC40-Q11A | 37.5 | 40 | 48 | 70 | 220 | 190 | 290 | |
| Φ38.0 | GHD-380-5D-FC40-Q11A | 38.0 | 40 | 48 | 70 | 225 | 195 | 295 | |
| Φ38.5 | GHD-385-5D-FC40-Q11A | 38.5 | 40 | 48 | 70 | 225 | 195 | 295 | |
| Φ39.0 | GHD-390-5D-FC40-Q11A | 39.0 | 40 | 48 | 70 | 230 | 200 | 300 | |
| Φ39.5 | GHD-395-5D-FC40-Q11A | 39.5 | 40 | 48 | 70 | 230 | 200 | 300 | |
| Φ40.0 | GHD-400-5D-FC40-Q11A | 40.0 | 40 | 48 | 70 | 236 | 206 | 306 | |

# GHD-5D

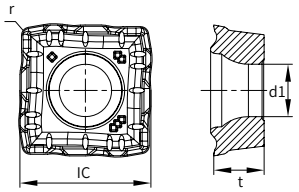
Indexable Drill (Patented)




| Dia. | Drilling body | Dimension | | | | | | | Insert |
|---|---|---|---|---|---|---|---|---|---|
| | | D | d | d1 | Ls | L2 | L1 | L | |
| Φ40.5 | GHD-405-5D-FC40-Q13A | 40.5 | 40 | 48 | 70 | 236 | 206 | 306 | QPMG130408 |
| Φ41.0 | GHD-410-5D-FC40-Q13A | 41.0 | 40 | 48 | 70 | 241 | 211 | 311 | |
| Φ41.5 | GHD-415-5D-FC40-Q13A | 41.5 | 40 | 48 | 70 | 241 | 211 | 311 | |
| Φ42.0 | GHD-420-5D-FC40-Q13A | 42.0 | 40 | 48 | 70 | 246 | 216 | 316 | |
| Φ42.5 | GHD-425-5D-FC40-Q13A | 42.5 | 40 | 48 | 70 | 246 | 216 | 316 | |
| Φ43.0 | GHD-430-5D-FC40-Q13A | 43.0 | 40 | 48 | 70 | 251 | 221 | 321 | |
| Φ43.5 | GHD-435-5D-FC40-Q13A | 43.5 | 40 | 48 | 70 | 251 | 221 | 321 | |
| Φ44.0 | GHD-440-5D-FC40-Q13A | 44.0 | 40 | 48 | 70 | 256 | 226 | 326 | |
| Φ44.5 | GHD-445-5D-FC40-Q13A | 44.5 | 40 | 48 | 70 | 256 | 226 | 326 | |
| Φ45.0 | GHD-450-5D-FC40-Q13A | 45.0 | 40 | 48 | 70 | 261 | 231 | 331 | |
| Φ45.5 | GHD-455-5D-FC40-Q15A | 45.5 | 40 | 48 | 70 | 261 | 231 | 331 | QPMG150512 |
| Φ46.0 | GHD-460-5D-FC40-Q15A | 46.0 | 40 | 48 | 70 | 266 | 236 | 336 | |
| Φ46.5 | GHD-465-5D-FC40-Q15A | 46.5 | 40 | 48 | 70 | 266 | 236 | 336 | |
| Φ47.0 | GHD-470-5D-FC40-Q15A | 47.0 | 40 | 48 | 70 | 271 | 241 | 341 | |
| Φ47.5 | GHD-475-5D-FC40-Q15A | 47.5 | 40 | 48 | 70 | 271 | 241 | 341 | |
| Φ48.0 | GHD-480-5D-FC40-Q15A | 48.0 | 40 | 48 | 70 | 276 | 246 | 346 | |
| Φ48.5 | GHD-485-5D-FC40-Q15A | 48.5 | 40 | 48 | 70 | 276 | 246 | 346 | |
| Φ49.0 | GHD-490-5D-FC40-Q15A | 49.0 | 40 | 49 | 70 | 281 | 251 | 351 | |
| Φ49.5 | GHD-495-5D-FC40-Q15A | 49.5 | 40 | 49 | 70 | 281 | 251 | 351 | |
| Φ50.0 | GHD-500-5D-FC40-Q15A | 50.0 | 40 | 50 | 70 | 286 | 256 | 356 | |
| Φ50.5 | GHD-505-5D-FC40-Q15A | 50.5 | 40 | 50 | 70 | 286 | 256 | 356 | |
| Φ51.0 | GHD-510-5D-FC40-Q15A | 51.0 | 40 | 51 | 70 | 291 | 261 | 361 | |

# QPMG

Indexable Drill Insert (Patented)

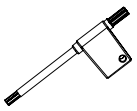



| Type | Grade | | Dimension | | | | Dia. of Drill |
|---|---|---|---|---|---|---|---|
| | GA4230 | GS4130 | IC | t | r | d1 | |
| QPMG040204-DP | ● | ● | 4.7 | 2.3 | 0.4 | 2.2 | Φ14.0 ~ Φ15.9 |
| QPMG050204-DP | ● | ● | 5.7 | 2.5 | 0.4 | 2.6 | Φ16.0 ~ Φ18.9 |
| QPMG060204-DP | ● | ● | 6.5 | 2.5 | 0.4 | 2.6 | Φ19.0 ~ Φ22.5 |
| QPMG07T306-DP | ● | ● | 7.94 | 3.5 | 0.6 | 2.85 | Φ22.6 ~ Φ27.0 |
| QPMG09T308-DP | ● | ● | 9.7 | 3.97 | 0.8 | 3.5 | Φ27.1 ~ Φ33.0 |
| QPMG110408-DP | ● | ● | 11.5 | 4.76 | 0.8 | 4.4 | Φ33.1 ~ Φ40.0 |
| QPMG130408-DP | ● | ● | 13.2 | 4.76 | 0.8 | 4.4 | Φ40.1 ~ Φ45.0 |
| QPMG150512-DP | ● | ● | 15.2 | 5.2 | 1.2 | 5.5 | Φ45.1 ~ Φ51.0 |

GA4230—Universal Grade
GS4130—Suitable for titanium alloys and heat resistant alloys, and unstable conditions

● Stock ○ Order

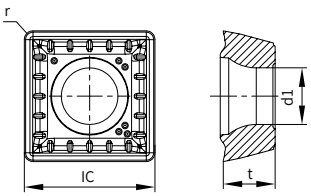
## Drill Body Parts



| Insert Type | Screw | | Wrench | | N·m Torque |
|---|---|---|---|---|---|
| | Type | Ordering Code | Type | Ordering Code | |
| QPMG040204 | SI60M020050-02704 | PSI60M020050-02704K | TT06P | PTT06PK | 0.6 |
| QPMG050204 | SI60M022055-03107 | PSI60M022055-03107K | TT07P | PTT07PK | 0.8 |
| QPMG060204 | SI60M022055-03107 | PSI60M022055-03107K | TT07P | PTT07PK | 0.8 |
| QPMG07T306 | SI60M025070-03509 | PSI60M025070-03509K | TT08P | PTT08PK | 0.8 |
| QPMG09T308 | SI60M030080-04210 | PSI60M030080-04210K | TT09P | PTT09PK | 1.2 |
| QPMG110408 | SI60M040100-05510 | PSI60M040100-05510K | TT15P | PTT15PK | 2.0 |
| QPMG130408 | SI60M022055-03107 | PSI60M022055-03107K | TT15P | PTT15PK | 2.0 |
| QPMG150512 | SI60M050110-07212 | PSI60M050110-07212K | TT20P | PTT20PK | 2.5 |

# SPMG

General Drill Insert



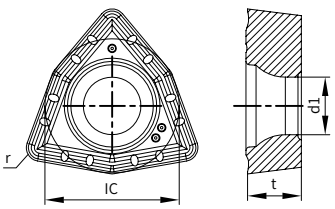

| Type | Grade | | Dimension | | | | Dia. of Drill |
|---|---|---|---|---|---|---|---|
| | GA4230 | GS4130 | IC | t | r | d1 | |
| SPMG050204-DM | ● | ● | 5 | 2.38 | 0.4 | 2.2 | Φ13.0 ~ Φ15.0 |
| SPMG060204-DM | ● | ● | 6 | 2.38 | 0.4 | 2.6 | Φ15.5 ~ Φ21.5 |
| SPMG07T308-DM | ● | ● | 7.94 | 3.97 | 0.8 | 2.8 | Φ22.0 ~ Φ27.5 |
| SPMG090408-DM | ● | ● | 9.8 | 4.3 | 0.8 | 4.23 | Φ28.0 ~ Φ33.0 |
| SPMG110408-DM | ● | ● | 11.5 | 4.76 | 0.8 | 4.4 | Φ33.0 ~ Φ41.0 |
| SPMG140512-DM | ● | ● | 14.3 | 5.2 | 1.2 | 5.75 | Φ42.0 ~ Φ50.0 |

GA4230— Universal Grade
GS4130—Suitable for titanium alloys and heat resistant alloys, and unstable conditions

● Stock ○ Order

# WCMT

General Drill Insert




| Type | Grade | Dimension | | | | Dia. of Drill | Stock |
|---|---|---|---|---|---|---|---|
| | | IC | t | r | d1 | | |
| WCMT030208-DU | GA4230 | 5.56 | 2.38 | 0.8 | 2.8 | Φ15.0 ~ Φ20.5 | ● |
| WCMT040208-DU | GA4230 | 6.35 | 2.38 | 0.8 | 2.9 | Φ21.0 ~ Φ24.5 | ● |
| WCMT050308-DU | GA4230 | 7.94 | 3.18 | 0.8 | 3.4 | Φ25.0 ~ Φ30.0 | ● |
| WCMT06T308-DU | GA4230 | 9.52 | 3.97 | 0.8 | 3.8 | Φ30.5 ~ Φ39.5 | ● |
| WCMT080412-DU | GA4230 | 12.7 | 4.76 | 1.2 | 4.4 | Φ40.0 ~ Φ60.0 | ● |

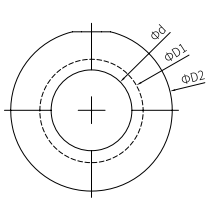
● Stock ○ Order

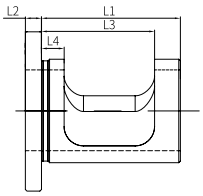
# Recommended Cutting Data

## Indexable Drill

| Workpiece Materials | | Material Hardness (HB) | Vc Recommended Cutting Speed (m/min) | Feed (mm/rev)*Refer to Diameter Range * | | | |
|---|---|---|---|---|---|---|---|
| | | | | Ø14.0 – 22.5 | Ø23.0 – 27.0 | Ø27.5 – 33.0 | Ø33.5 – 51.0 |
| P | Low Carbon Steel | 80 – 170 | (240)<br>160 – 300 | 0.04-0.06 | 0.04-0.06 | 0.04-0.08 | 0.04-0.08 |
| | High Carbon Steel | 170 – 250 | (180)<br>140 – 220 | 0.04-0.10 | 0.04-0.12 | 0.06-0.16 | 0.08-0.18 |
| | Low Alloy Steel | 140 – 260 | (180)<br>160– 250 | 0.04-0.10 | 0.06-0.12 | 0.08-0.16 | 0.08-0.18 |
| | High Alloy Steel | 180 – 300 | (160)<br>140 – 200 | 0.04-0.10 | 0.06-0.12 | 0.08-0.16 | 0.08-0.18 |
| | Cast Steel | 180 – 300 | (160)<br>140 –200 | 0.05-0.08 | 0.06-0.12 | 0.08-0.14 | 0.08-0.16 |
| M | (Fer/Mar)<br>Stainless Stee | 150 – 270 | (140)<br>120 – 200 | 0.04-0.10 | 0.06-0.12 | 0.06-0.14 | 0.06-0.16 |
| | Austenitic | 150 – 270 | (140)<br>110 – 200 | 0.04-0.10 | 0.06-0.12 | 0.06-0.14 | 0.06-0.16 |
| K | Forged Cast Iron | 150 – 230 | (160)<br>120 – 220 | 0.04-0.10 | 0.06-0.14 | 0.06-0.16 | 0.08-0.20 |
| | Gray Cast Iron | 150 – 230 | (180)<br>140 – 230 | 0.04-0.10 | 0.06-0.14 | 0.06-0.16 | 0.08-0.20 |
| | Nodular Cast Iron | 160 – 260 | (160)<br>130 – 210 | 0.04-0.12 | 0.06-0.16 | 0.08-0.18 | 0.08-0.20 |
| S | (Ni+/Fe+/Co+)HRSA | 130 – 400 | (50)<br>30–80 | 0.04-0.06 | 0.04-0.08 | 0.04-0.10 | 0.06-0.12 |
| | (Ti+)HRSA | 130 – 400 | (50)<br>30–70 | 0.04-0.08 | 0.04-0.10 | 0.06-0.12 | 0.08-0.11 |
| H | Hardened Steel | 400 – | (45)<br>30–60 | 0.04-0.08 | 0.04-0.10 | 0.06-0.12 | 0.08-0.14 |

# ES Eccentric Sleeve

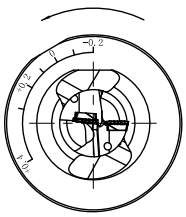


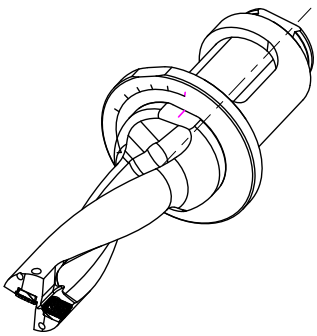




| Type | Dimension | | | | | | | Adjustment Range |
|---|---|---|---|---|---|---|---|---|
| | Φd | ΦD1 | ΦD2 | L1 | L2 | L3 | L4 | |
| ES2025A | 20 | 25 | 40 | 45 | 5 | 36 | 3.0 | -0.2 - +0.4 |
| ES2532A | 25 | 32 | 50 | 48 | 5 | 38 | 2.5 | -0.2 - +0.4 |
| ES3240A | 32 | 40 | 60 | 55 | 5 | 43 | 2.5 | -0.2 - +0.4 |
| ES4050A | 40 | 50 | 70 | 65 | 5 | 49 | 3.0 | -0.2 - +0.4 |

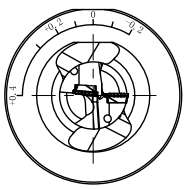
## Instructions for ES Eccentric Sleeve

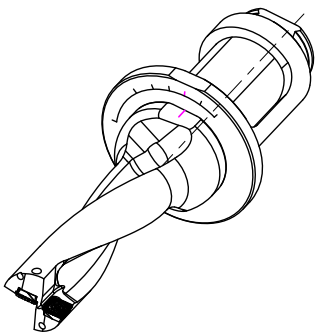
减小0.2mm位置



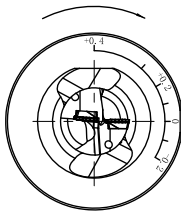


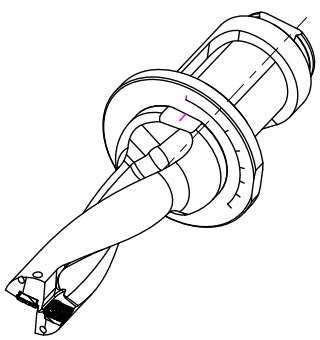
0点位置





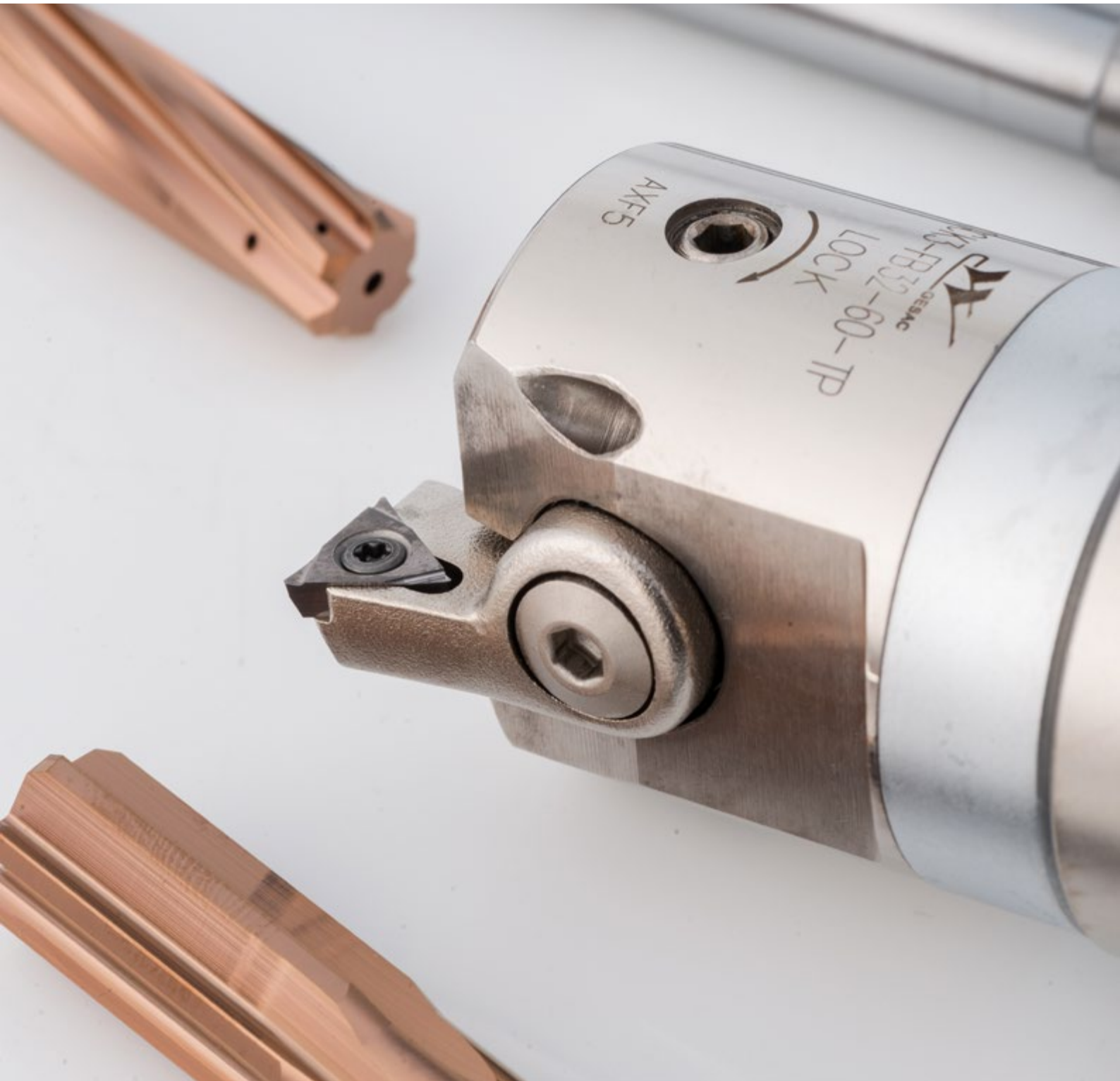
增大0.4mm位置





C

# Indexable Boring Tools



# Modular Boring System

BT-GCK Boring Adapter

GCK Extension Adaptor

GCK Reduction Adapto

RB Rough Boring Tool

FB Finishing Boring Tool

SFB Finishing Boring Tool

GBJ16 Fining Boring Tool

Rough Boring Tool
Insert Holder

Finishing Boring Tool
Insert Holder

Finishing Boring Tool
Insert Holder

Fining Boring Tool
Insert Holder

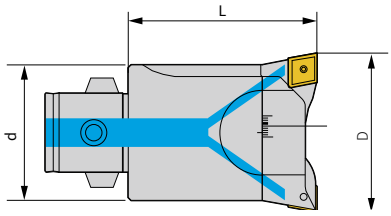
RB Rough Boring Tool

GRB Large Diameter
Rough Boring tool

GST-FB Large Diameter
Finishing Boring Tool

# RB

Rough Boring Body

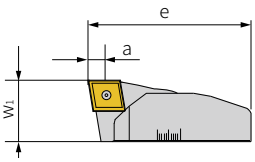


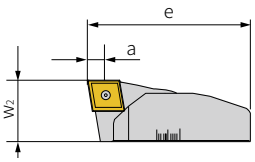

| Ordering code | d | L | Screw A | Screw B | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|
| RB19 | 11 | 21.5 | PSCAM040160D | PSCAM040160D | PTH03LD | 0.16 | ● |
| RB25 | 14 | 40 | PSCAM040160D | PSCAM040160D | PTH03LD | 0.33 | ● |
| RB32 | 18 | 52 | PSCAM050100D | PSCAM050200D | PTH40LD | 0.49 | ● |
| RB40 | 22 | 48 | PSCAM060120D | PSCAM060200D | PTH50LD | 0.98 | ● |
| RB50 | 28 | 62 | PSCAM050120D | PSCAM060250D | PTH50LD | 1.60 | ● |
| RB63 | 36 | 60 | PSCAM050160D | PSCAM080300D | PTH60LD | 1.93 | ● |
| RB80 | 36 | 60 | PSCAM050160D | PSCAM080300D | PTH60LD | 0.56 | ● |

● Standard Stock ○ Available Upon Order

# DZA/DZB

Rough Boring tool Insert Holder



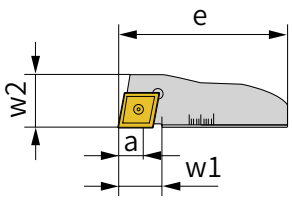




| Ordering code | | e | W1 | W2 | a | Boring range | Boring adapter | Insert | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High flute insert holder A | Low flute insert holder B | | | | | | | | | | | |
| DZA2026 | DZB2026 | 17.0 | 13.2 | 13.0 | 0.5-2 | 20-26 | RB19 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.01 | ● |
| DZA2533 | DZB2533 | 20.9 | 13.2 | 13.0 | 0.5-2 | 25-33 | RB19 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.01 | ● |
| DZA2936 | DZB2936 | 25 | 11.7 | 11.5 | 0.5-2 | 29-36 | RB25 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.17 | ● |
| DZA3542 | DZB3542 | 30 | 11.7 | 11.5 | 0.5-2 | 35-42 | RB25 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.19 | ● |
| DZA3645 | DZB3645 | 32 | 11.7 | 11.5 | 0.5-2 | 36-45 | RB32 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.37 | ● |
| DZA4453 | DZB4453 | 38 | 11.7 | 11.5 | 0.5-2 | 44-53 | RB32 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.37 | ● |
| DZA4556 | DZB4556 | 40 | 15.6 | 15.4 | 0.5-3 | 45-56 | RB40 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 0.56 | ● |
| DZA5566 | DZB5566 | 40.5 | 15.6 | 15.4 | 0.5-3 | 55-66 | RB40 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 0.58 | ● |
| DZA5674 | DZB5674 | 49 | 17.6 | 17.4 | 0.5-3 | 56-74 | RB50 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 1.10 | ● |
| DZA7492 | DZB7492 | 62 | 17.6 | 17.4 | 0.5-3 | 74-92 | RB50 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 1.14 | ● |
| DZA7090 | DZB7090 | 60 | 22.6 | 22.4 | 0.5-4 | 70-90 | RB63 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 1.78 | ● |
| DZA90110 | DZB90110 | 78 | 22.6 | 22.4 | 0.5-4 | 90-110 | RB63 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 1.90 | ● |
| DZA90130 | DZB90130 | 82 | 22.6 | 22.4 | 0.5-4 | 90-130 | RB80 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 2.30 | ● |
| DZA130170 | DZB130170 | 99.5 | 22.6 | 22.4 | 0.5-4 | 130-170 | RB80 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 2.44 | ● |

● Standard Stock ○ Available Upon Order

# DZA/DZB

Rough and Back Boring tool Insert Holder

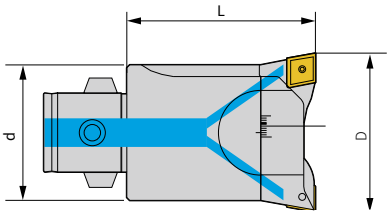



| Back boring tool insert holder C | e | W1 | W2 | Boring range | Adapter size | Insert | Sccrew | Wrench | Weight | Clamp | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DZCF2936 | 25 | 4 | 11 | 29-36 | RB25 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.01 | YB25 | ● |
| DZCF3542 | 30 | 7 | 11 | 35-42 | RB25 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.02 | YB25 | ● |
| DZCF3645 | 32 | 5 | 11 | 36-45 | RB32 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.02 | YB32 | ● |
| DZCF4453 | 38 | 9 | 11 | 44-53 | RB32 | CCMT0602 | PSI55M060025-35010D | PTT08PD | 0.02 | YB32 | ● |
| DZCF4556 | 40 | 5 | 15 | 45-56 | RB40 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 0.04 | YB40 | ● |
| DZCF5566 | 40.5 | 12 | 15 | 55-66 | RB40 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 0.05 | YB40 | ● |
| DZCF5674 | 49 | 11 | 17 | 56-74 | RB50 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 0.07 | YB50 | ● |
| DZCF7492 | 62 | 17 | 17 | 74-92 | RB50 | CCMT09T3 | PSI60M100040-57010D | PTT15PD | 0.09 | YB50 | ● |
| DZCF7090 | 60 | 12 | 21 | 70-90 | RB63 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 0.13 | YB63 | ● |
| DZCF90110 | 78 | 22 | 21 | 90-110 | RB63 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 0.18 | YB63 | ● |
| DZCF90130 | 82 | 24 | 21.5 | 90-130 | RB80 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 0.18 | YB80 | ● |
| DZCF130170 | 102.5 | 24 | 21.5 | 130-170 | RB80 | CCMT1204 | PSI45M110050-70010D | PTT20PD | 0.28 | YB80 | ● |

● Standard Stock ○ Available Upon Order

# RB

Rough Boring Tool



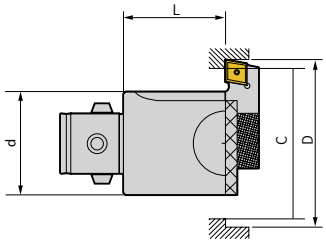

| Ordering code | d | L | Boring range | Adapter size | Insert holder | Weight | Stock |
|---|---|---|---|---|---|---|---|
| GCK1-RB19-M | 19 | 32.5 | 20-26 | GCK1 | DZA2026 DZB2026 | 0.09 | ● |
| GCK1-RB19-L | 19 | 32.5 | 25-31 | GCK1 | DZA2533 DZB2533 | 0.1 | ● |
| GCK2-RB25-M | 25 | 50 | 29-36 | GCK2 | DZA2936 DZB2936 | 0.17 | ● |
| GCK2-RB25-L | 25 | 50 | 35-42 | GCK2 | DZA3542 DZB3542 | 0.19 | ● |
| GCK3-RB32-M | 32 | 65 | 36-45 | GCK3 | DZA3645 DZB3645 | 0.37 | ● |
| GCK3-RB32-L | 32 | 65 | 44-53 | GCK3 | DZA4453 DZB4453 | 0.37 | ● |
| GCK4-RB40-M | 40 | 63 | 45-56 | GCK4 | DZA4556 DZB4556 | 0.56 | ● |
| GCK4-RB40-L | 40 | 63 | 55-66 | GCK4 | DZA5566 DZB5566 | 0.58 | ● |
| GCK5-RB50-M | 50 | 80 | 56-74 | GCK5 | DZA5674 DZB5674 | 1.10 | ● |
| GCK5-RB50-L | 50 | 80 | 74-92 | GCK5 | DZA7492 DZB7492 | 1.14 | ● |
| GCK6-RB63-M | 64 | 82 | 70-90 | GCK6 | DZA7090 DZB7090 | 1.78 | ● |
| GCK6-RB63-L | 64 | 82 | 90-110 | GCK6 | DZA90110 DZB90110 | 1.90 | ● |
| GCK6-RB80-M | 80 | 82 | 90-130 | GCK6 | DZA90130 DZB90130 | 2.30 | ● |
| GCK6-RB80-L | 80 | 82 | 130-170 | GCK6 | DZA130170 DZB130170 | 2.44 | ● |

Remarks: Quotation with the insert holder

● Standard Stock ○ Available Upon Order

# RB

Rough Back-boring Tool



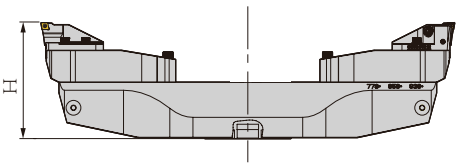

| Ordering code | D1 | L | Back boring range | Adapter size | Insert holder | Weight | Clamp | Stock |
|---|---|---|---|---|---|---|---|---|
| GCK2-RB25-MF | 25 | 50 | 29-36 | GCK2 | DZCF2936 | 0.17 | YB25 | ● |
| GCK2-RB25-LF | 25 | 50 | 35-42 | GCK2 | DZCF3542 | 0.19 | YB25 | ● |
| GCK3-RB32-MF | 32 | 63 | 36-45 | GCK3 | DZCF3645 | 0.37 | YB32 | ● |
| GCK3-RB32-LF | 32 | 63 | 44-53 | GCK3 | DZCF4453 | 0.37 | YB32 | ● |
| GCK4-RB40-MF | 40 | 63 | 45-56 | GCK4 | DZCF4556 | 0.56 | YB40 | ● |
| GCK4-RB40-LF | 40 | 63 | 55-66 | GCK4 | DZCF5566 | 0.58 | YB40 | ● |
| GCK5-RB50-MF | 50 | 80 | 56-74 | GCK5 | DZCF5674 | 1.10 | YB50 | ● |
| GCK5-RB50-LF | 50 | 80 | 74-92 | GCK5 | DZCF7492 | 1.14 | YB50 | ● |
| GCK6-RB63-MF | 64 | 80 | 70-90 | GCK6 | DZCF7090 | 1.78 | YB63 | ● |
| GCK6-RB63-LF | 64 | 80 | 90-110 | GCK6 | DZCF90110 | 1.90 | YB63 | ● |
| GCK6-RB80-MF | 80 | 80 | 90-130 | GCK6 | DZCF90130 | 2.30 | YB80 | ● |
| GCK6-RB80-LF | 80 | 80 | 130-170 | GCK6 | DZCF130170 | 2.44 | YB80 | ● |

Remarks: Quotation with the insert holder

● Standard Stock ○ Available Upon Order

# LRB

Large Diameter Rough Boring Tool




| Ordering code | H | Boring range | Adapter size | Insert holder | Insert | Weight | Stock |
|---|---|---|---|---|---|---|---|
| GCA-LRB148-200 | 102 | 148-200 | GCA | DPZRBCC12 DPZRBCN16 | CC**1204\CN**1606 | 3.86 | ● |
| GCA-LRB198-250 | 102 | 198-250 | GCA | | CC**1204\CN**1606 | 4.39 | ● |
| GCA-LRB248-300 | 102 | 248-300 | GCA | | CC**1204\CN**1606 | 4.87 | ● |
| GCB-LRB298-380 | 114 | 298-380 | GCB | | CC**1204\CN**1606 | 8.97 | ● |
| GCB-LRB378-460 | 119 | 378-460 | GCB | | CC**1204\CN**1606 | 10.73 | ○ |
| GCB-LRB458-540 | 124 | 458-540 | GCB | | CC**1204\CN**1606 | 12.66 | ○ |
| GCB-LRB538-780 | 198 | 538-780 | GCB | | CC**1204\CN**1606 | 25.11 | ○ |
| GCB-LRB778-1020 | 218 | 778-1020 | GCB | | CC**1204\CN**1606 | 36.30 | ○ |
| GCB-LRB1018-1260 | 218 | 1018-1260 | GCB | | CC**1204\CN**1606 | 43.73 | ○ |

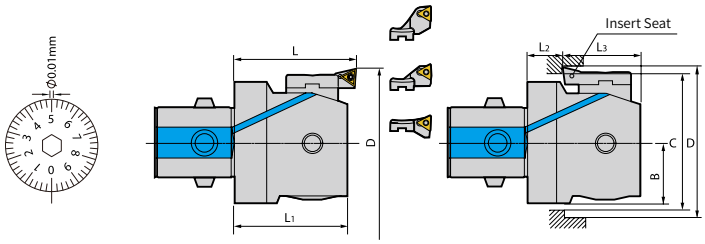
Remarks: Quotation with the spare parts

● Standard Stock ○ Available Upon Order

| Ordering code | H | Parts | Adapter size | Insert holder |
|---|---|---|---|---|
| DPZRBCC12 | CCMT120408 | PSI45M110050-70010D | PTT20PD PTH30LD/ PTH40LD | 0.25 |
| DPZRBCN16 | CNMG1606 | STMC1604 STML0828 STMX0822 STMY0823 | | 0.3 |

# FB

Finishing Boring Tool



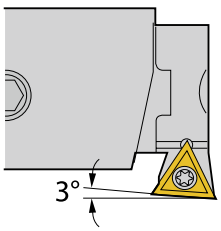

| Ordering code | Insert holder | Boring | | range D | Back Boring | | | range D | Insert | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L1 | L | | B | L2 | L3 | | | | | | |
| GCK1-FB20-36 | DPZFB1-A | 29.5 | 32.5 | 20-26 | 10 | 10.5 | 19 | - | TPGT080202 | PSI65M050020-27010D | PTT06PD | 0.06 | ● |
| | DPZFB1-B | | | 25-31 | | | | - | | | | 0.06 | ● |
| | DPZFB1-C | | | 30-36 | | | | 30-36 | | | | 0.06 | ● |
| GCK2-FB25-47 | DPZFB2-A | 32.5 | 35.5 | 25-33 | 12.5 | 11.5 | 21 | - | | | | 0.12 | ● |
| | DPZFB2-B | | | 32-40 | | | | 36-40 | | | | 0.12 | ● |
| | DPZFB2-C | | | 39-47 | | | | 39-47 | | | | 0.12 | ● |
| GCK3-FB32-60 | DPZFB3-A | 35 | 40 | 32-42 | 16 | 10 | 25 | - | | | | 0.20 | ● |
| | DPZFB3-B | | | 41-51 | | | | 46-51 | | | | 0.20 | ● |
| | DPZFB3-C | | | 50-60 | | | | 50-60 | | | | 0.20 | ● |
| GCK4-FB41-74 | DPZFB4-A | 43 | 47 | 41-54 | 20 | 14 | 29 | - | TCMT110204 (Standard) TPGH110304 (Optional) | PSI55M070030-40010D (Standard) PSI55M060025-35010D (Optional) | PTT08PD | 0.39 | ● |
| | DPZFB4-B | | | 50-63 | | | | 53-63 | | | | 0.39 | ● |
| | DPZFB4-C | | | 61-74 | | | | 61-74 | | | | 0.39 | ● |
| GCK5-FB53-95 | DPZFB5-A | 53 | 57 | 53-70 | 25.5 | 19 | 34 | 62-70 | | | | 0.80 | ● |
| | DPZFB5-B | | | 65-82 | | | | 65-82 | | | | 0.80 | ● |
| | DPZFB5-C | | | 78-95 | | | | 78-95 | | | | 0.80 | ● |
| GCK6-FB68-150 | DPZFB6-A | 67.2 | 71 | 68-100 | 32.5 | 22 | 45.2 | 80-100 | | | | 1.75 | ● |
| | DPZFB6-B | | | 94-126 | | | | 94-126 | | | | 1.75 | ● |
| | DPZFB6-C | | | 118-150 | | | | 118-150 | | | | 1.75 | ● |
| GCK7-FB100-203 | DPZFB6-A | 67.2 | 71 | 110-153 | 45.5 | 22 | 45.2 | 112-153 | | | | 2.47 | ● |
| | DPZFB6-B | | | 126-179 | | | | 126-179 | | | | 2.47 | ● |
| | DPZFB6-C | | | 150-203 | | | | 150-203 | | | | 2.47 | ● |

1.Quotation with 1 PC insert holder DPZFBX-A,while DPZFBX-B and DPZFBX-C shall be ordered separately
2. Back boring need to meet the condition as follow
C>B+D/2
C: Minimum through-hole diameter B: Boring cutter radius D: Back boring machining
Spindle reverses rolling when reverse boring.

● Standard Stock ○ Available Upon Order

# DPZFB

Insert Seat

| Ordering code | | Figure | Insert | Boring head | Stock |
|---|---|---|---|---|---|
| DPZFB | 1-A |  | TPGH080202 | GCK1-FB20-36 | ● |
| | 1-B | | | | ● |
| | 1-C | | | | ● |
| | 2-A | | | GCK2-FB25-47 | ● |
| | 2-B | | | | ● |
| | 2-C | | | | ● |
| | 3-A | | | GCK3-FB32-60 | ● |
| | 3-B | | | | ● |
| | 3-C | | | | ● |
| | 4-A-TP/TC | | TCMT110204 (Standard) TPGH110304 (Optional) | GCK4-FB41-74 | ● |
| | 4-B-TP/TC | | | | ● |
| | 4-C-TP/TC | | | | ● |
| | 5-A-TP/TC | | | GCK5-FB53-95 | ● |
| | 5-B-TP/TC | | | | ● |
| | 5-C-TP/TC | | | | ● |
| | 6-A-TP/TC | | | GCK6-FB68-150 GCK7-FB100-203 | ● |
| | 6-B-TP/TC | | | | ● |
| | 6-C-TP/TC | | | | ● |

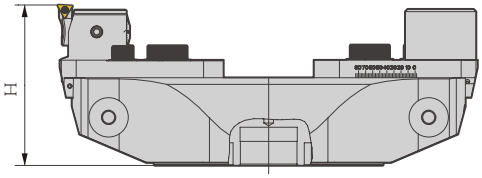


● Standard Stock ○ Available Upon Order

Remarks:
1.Quotation with 1 PC insert holder DPZFBX-1,while DPZFBX-2 and DPZFBX-3 shall be ordered separately
2.Over DPZFB4 with TCMTT11 and TPEH11 two different types ,it can be selected according to actual working condition

# LFB

Large Diameter Finishing Boring Tool




| Ordering code | H | Boring range | Adapter size | Back Boringrange | Back boring depth | Weight | Stock |
|---|---|---|---|---|---|---|---|
| GCA-LFB148-215 | 109 | 148-215 | GCA | 38-105 | 30 | 3.18 | ● |
| GCA-LFB198-265 | 109 | 198-265 | GCA | 88-155 | 30 | 3.71 | ● |
| GCA-LFB248-315 | 109 | 248-315 | GCA | 148-205 | 30 | 4.19 | ● |
| GCB-LFB298-395 | 113 | 298-395 | GCB | 188-285 | 25 | 9.5 | ○ |
| GCB-LFB378-475 | 118 | 378-475 | GCB | 268-365 | 25 | 11.26 | ○ |
| GCB-LFB458-555 | 123 | 458-555 | GCB | 348-445 | 25 | 25.64 | ○ |
| GCB-LFB538-795 | 197 | 538-795 | GCB | 428-685 | 25 | 13.19 | ○ |
| GCB-LFB778-1035 | 217 | 778-1035 | GCB | 668-925 | 25 | 36.83 | ○ |
| GCB-LFB1018-1275 | 217 | 1018-1275 | GCB | 908-1165 | 25 | 44.26 | ○ |

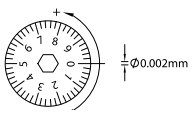
Remarks: Quotation with the spare parts

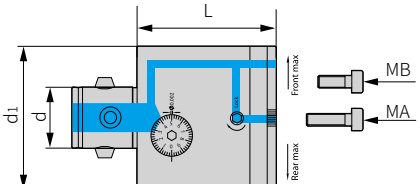
● Standard Stock ○ Available Upon Order

| Insert Seat | Insert | Screw | Wrench | Weight |
|---|---|---|---|---|
| DPZFB5-B-TC | TCMT110204 | PSI55M070030-40010D | Q08B | 0.04 |
| DPZFB5-B-TP | TPGH110304 | PSI55M060025-35010D | | 0.04 |

# SFB

Micro-boring Tool



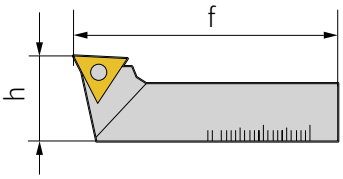

| Type | d1 | L | Boring range | Adapter size | Insert holder | Weight | Stock |
|---|---|---|---|---|---|---|---|
| GCK2-SFB25-M | 25 | 50 | 29-38 | GCK2 | DPZ2938 | 0.15 | ○ |
| GCK3-SFB32-M | 32 | 63 | 36-52 | GCK3 | DPZ3652 | 0.33 | ○ |
| GCK4-SFB40-M | 40 | 63 | 48-68 | GCK4 | DPZ4868 | 0.53 | ○ |
| GCK5-SFB50-BM | 50 | 80 | 57-80 | GCK5 | DPZ5780 | 1.02 | ○ |
| GCK6-SFB63-BMA | 64 | 8 | 70-110 | GCK6 | DPZ70110 | 1.70 | ○ |
| GCK6-SFB80-BMB | 80 | 100 | 110-150 | GCK6 | DPZ110150 | 3.50 | ○ |

Remarks: Quotation with SFB series insert holder

● Standard Stock ○ Available Upon Order

# SFB

Boring Tool Insert Holder

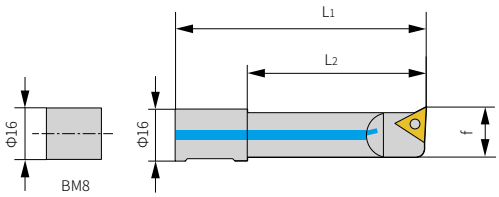



| Ordering code | | h | f | Boring range | Adapter size | Insert holder | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|
| DPZ | 2938 | 11 | 27 | 29-38 | GCK2-SFB25 | TPGH0902..L | PSI55M060025-35010D | PTT08PD | 0.01 | ○ |
| | 3652 | 13 | 35 | 36-52 | GCK3-SFB32 | TPGH0902..L | PSI55M060025-35010D | PTT08PD | 0.02 | ○ |
| | 4868 | 13 | 43 | 48-68 | GCK4-SFB40 | TPGH0902..L | PSI55M060025-35010D | PTT08PD | 0.03 | ○ |
| | 5780 | 20 | 54 | 57-80 | GCK5-SFB50 | TPGH1103..L | PSI55M070030-40010D | PTT08PD | 0.09 | ○ |
| | 70110 | 20 | 66 | 70-110 | GCK6-SFB63 | TPGH1103..L | PSI55M070030-40010D | PTT08PD | 0.14 | ○ |
| | 110150 | 20 | 106 | 110-150 | GCK6-SFB80 | TPGH1103..L | PSI55M070030-40010D | PTT08PD | 0.25 | ○ |

● Standard Stock ○ Available Upon Order

# SFB

Micaro -boring Bar

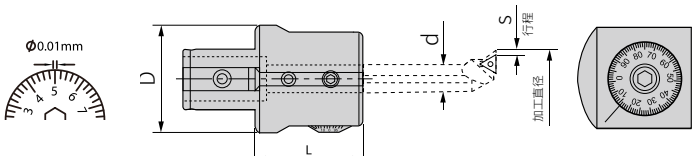



| Ordering code | L1 | L2 | Boring range | Adapter size | Insert holder | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|
| DG1606-21 | 65 | 21 | 6-9 | GCK5-SFB50<br>GCK6-SFB63<br>GCK6-SFB80 | WBGT0201..L | PSI55M040020-27010D | PTT06PD | 0.04 | ○ |
| DG1608-28 | 63 | 28 | 8-11 | | TBGT0601..L | PSI55M040020-27010D | PTT06PD | 0.04 | ○ |
| DG1610-35 | 63 | 35 | 10-13 | | TBGT0601..L | PSI55M040020-27010D | PTT06PD | 0.05 | ○ |
| DG1612-42 | 73 | 42 | 12-15 | | TPEH0902..L | PSI55M060025-35010D | PTT08PD | 0.06 | ○ |
| DG1614-50 | 78.5 | 50 | 14-17 | | TPEH0902..L | PSI55M060025-35010D | PTT08PD | 0.08 | ○ |
| DG1616-60 | 88 | 60 | 16-20 | | TPEH0902..L | PSI55M060025-35010D | PTT08PD | 0.11 | ○ |
| DG1620-65 | 92 | 65 | 20-24 | | TPEH1103..L | PSI55M070030-40010D | PTT08PD | 0.06 | ○ |
| DG1624-68 | 95 | 68 | 24-28 | | TPEH1103..L | PSI55M070030-40010D | PTT08PD | 0.20 | ○ |

● Standard Stock ○ Available Upon Order

# GBJ16

Micro-boring Head



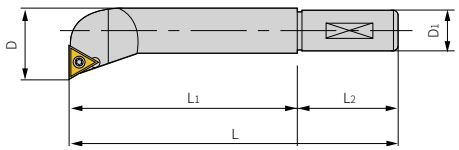

| Ordering code | D | d | L | Dial distance | Micro precision | Adapter size | Boring Range | Screw | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBJ16 | 63 | 16 | 50 | 0.01 | 5 | GCK6 | 8-50 | PSTCM0100110D | PSTCM0100070D | PTH50PK | 1.14 | ● |

Remarks:Quotation without holder ,recommend to change the holder to BT40/BT50 GCK6-55

● Standard Stock ○ Available Upon Order

# GBJ16

Micro-boring Bar




| Ordering code | | D | D1 | L1 | L2 | L | Insert | Boring Range | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBJ | 1606-24 | 6 | 16 | 24 | 34 | 66 | TBGT0601..L | 6-8 | PSI55M040020-27010D | PTT06PD | 0.06 | ● |
| | 1608-32 | 8 | 16 | 32 | 32 | 64 | TBGT0601..L | 8-11 | PSI55M040020-27010D | PTT06PD | 0.07 | ● |
| | 1610-40 | 10 | 16 | 40 | 32 | 72 | TBGT0601..L | 10-13 | PSI55M040020-27010D | PTT06PD | 0.07 | ● |
| | 1612-53 | 12 | 16 | 53 | 32 | 85 | TPGH0902..L | 12-17 | PSI55M060025-35010D | PTT08PD | 0.09 | ● |
| | 1616-68 | 16 | 16 | 68 | 32 | 100 | TPGH0902..L | 16-21 | PSI55M060025-35010D | PTT08PD | 0.13 | ● |
| | 1620-83 | 20 | 16 | 83 | 32 | 115 | TPGH0902..L | 20-26 | PSI55M070030-40010D | PTT08PD | 0.20 | ● |
| | 1625-90 | 25 | 16 | 90 | 32 | 122 | TPGH1102..L | 25-32 | PSI55M070030-40010D | PTT08PD | 0.25 | ● |
| | 1630-90 | 30 | 16 | 90 | 32 | 122 | TPGH1102..L | 30-42 | PSI55M070030-40010D | PTT08PD | 0.25 | ● |
| | 1640-90 | 40 | 16 | 90 | 32 | 122 | TPGH1102..L | 40-50 | PSI55M070030-40010D | PTT08PD | 0.26 | ● |

● Standard Stock ○ Available Upon Order

# GBJ16

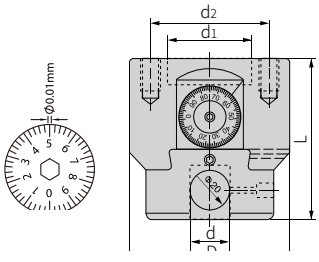
Micro-boring Tool Kit

| Ordering code | Range | Adapter | Weight | Stock |
|---|---|---|---|---|
| BT40-GBJ16-8PCS | 8-50 | BT40-GCK6-55 | 3.68 | ● |
| BT50-GBJ16-8PCS | 8-50 | BT50-GCK6-85 | 6.74 | ● |

● Standard Stock ○ Available Upon Order

# GBH2084

Micro-boring head

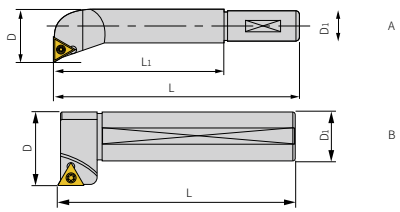



| Ordering code | D | d | d1 | d2 | L | Micro diatance | Boring Range | Dial precision | Adaptsize | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GBH2084 | 84 | 20 | 35 | 60 | 80 | 28 | 8-280 | 0.01 | GBH-A.B | 2.74 | ○ |
| | | | | | | Adjusting screw | Wrench | Locking screw | Wrench | | |
| | | | | | | PSTCM080160D | PTH40PK | PSTCM0120140D | PTH60PK | | |

Remarks:Quotation with holder ,please confirm the type of the machine spindle interface with our staff.

# GBH2084

Micro-boring bar




| | Ordering code | D | D1 | L1 | L | Figure | Insert | Range | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBH | 2008-32 | 8 | 20 | 32 | 74 | A | TBGT0601L | 8-11 | PSI55M040020-27010D | PTT06PD | 0.09 | ● |
| | 2010-40 | 10 | 20 | 40 | 75 | A | TBGT0601L | 10-13 | PSI55M040020-27010D | PTT06PD | 0.10 | ● |
| | 2012-53 | 12 | 20 | 53 | 88 | A | TPGH0902L | 12-17 | PSI55M060025-35010D | PTT08PD | 0.12 | ● |
| | 2016-68 | 16 | 20 | 68 | 103 | A | TPEH0902L | 16-21 | PSI55M060025-35010D | PTT08PD | 0.16 | ● |
| | 2020-83 | 20 | 20 | 83 | 115 | A | TPEH1103L | 20-26 | PSI55M070030-40010D | PTT08PD | 0.22 | ● |
| | 2025-96 | 25 | 20 | 96 | 131 | A | TPEH1103L | 25-135 | PSI55M070030-40010D | PTT08PD | 0.35 | ● |
| | 2030-115 | 30 | 20 | 115 | 159 | A | TPGH1103L | 30-140 | PSI55M070030-40010D | PTT08PD | 0.52 | ● |
| | 20120-97 | 30 | 20 | - | 97 | B | TPGH1103L | 120-280 | PSI55M070030-40010D | PTT08PD | 0.25 | ● |

● Standard Stock ○ Available Upon Order

# GBH2084

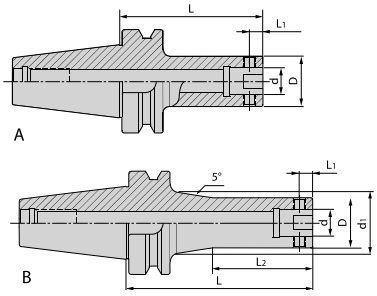
Micro-boring Tool Kit

| Ordering code | Range | Adapter | Weight | Stock |
|---|---|---|---|---|
| BT40-GBH2084-8PCS | 8-280 | BT40- GBH-A50 | 6.44 | ● |
| BT50-GBH2084-8PCS | 8-280 | BT50- GBH-A50 | 8.89 | ● |

● Standard Stock ○ Available Upon Order

# BT-GCK

Boring Adapter

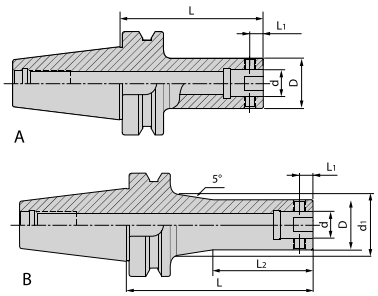



| Ordering code | | Diagram | D | d1 | d | L1 | L2 | L | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT40 | GCK1-70 | A | 19 | - | 11 | 5.05 | - | 70 | PSTCM050050D | PTH25LD | 1.03 | ● |
| | GCK1-100L | B | 19 | 20.7 | 11 | 5.05 | 60 | 100 | PSTCM050050D | PTH25LD | 1.10 | ● |
| | GCK1-130L | B | 19 | 25.5 | 11 | 5.05 | 60 | 130 | PSTCM050050D | PTH25LD | 1.18 | ● |
| | GCK2-75 | A | 24 | - | 14 | 6.62 | - | 75 | PSTCM050060D | PTH25LD | 1.10 | ● |
| | GCK2-100 | A | 24 | - | 14 | 6.62 | - | 100 | PSTCM050060D | PTH25LD | 1.18 | ● |
| | GCK2-130L | B | 24 | 28.3 | 14 | 6.62 | 75 | 130 | PSTCM050060D | PTH25LD | 1.33 | ● |
| | GCK2-160L | B | 24 | 33.6 | 14 | 6.62 | 75 | 160 | PSTCM050060D | PTH25LD | 1.49 | ● |
| | GCK3-80 | A | 31 | - | 18 | 8 | - | 80 | PSTCM060090D | PTH30LD | 1.22 | ● |
| | GCK3-100 | A | 31 | - | 18 | 8 | - | 100 | PSTCM060090D | PTH30LD | 1.32 | ● |
| | GCK3-135L | B | 31 | 34.5 | 18 | 8 | 75 | 135 | PSTCM060090D | PTH30LD | 1.54 | ● |
| | GCK3-165L | B | 31 | 39.7 | 18 | 8 | 85 | 165 | PSTCM060090D | PTH30LD | 1.76 | ● |
| | GCK4-70 | A | 39 | - | 22 | 10 | - | 70 | PSTCM080120D | PTH40LD | 1.21 | ● |
| | GCK4-100 | A | 39 | - | 22 | 10 | - | 100 | PSTCM080120D | PTH40LD | 1.46 | ● |
| | GCK4-150L | B | 39 | 43.4 | 22 | 10 | 85 | 150 | PSTCM080120D | PTH40LD | 1.90 | ● |
| | GCK4-170L | B | 39 | 46.9 | 22 | 10 | 95 | 170 | PSTCM080120D | PTH40LD | 2.16 | ● |
| | GCK5-60 | A | 50 | - | 28 | 13 | - | 60 | PSTCM100160D | PTH50LD | 1.22 | ● |
| | GCK5-80 | A | 50 | - | 28 | 13 | - | 80 | PSTCM100160D | PTH50LD | 1.52 | ● |
| | GCK5-100 | A | 50 | - | 28 | 13 | - | 100 | PSTCM080120D | PTH50LD | 1.80 | ● |
| | GCK5-150 | A | 50 | - | 28 | 13 | - | 150 | PSTCM100160D | PTH50LD | 2.52 | ● |
| | GCK5-180 | A | 50 | - | 28 | 13 | - | 180 | PSTCM100160D | PTH50LD | 2.90 | ● |
| | GCK6-55 | A | 64 | - | 36 | 16 | - | 55 | PSTCM120200D | PTH60LD | 1.22 | ● |
| | GCK6-100 | A | 64 | - | 36 | 16 | - | 100 | PSTCM120200D | PTH60LD | 2.29 | ● |
| | GCK6-150 | A | 64 | - | 36 | 16 | - | 150 | PSTCM120200D | PTH60LD | 3.50 | ● |
| | GCK6-180 | A | 64 | - | 36 | 16 | - | 180 | PSTCM120200D | PTH60LD | 4.22 | ● |
| BT50 | GCK1-80 | A | 19 | - | 11 | 5.05 | - | 80 | PSTCM050050D | PTH25LD | 3.20 | ● |
| | GCK1-115L | B | 19 | 20.7 | 11 | 5.05 | 50 | 115 | PSTCM050050D | PTH25LD | 3.73 | ● |
| | GCK1-145L | B | 19 | 26 | 11 | 5.05 | 60 | 145 | PSTCM050050D | PTH25LD | 4.20 | ● |
| | GCK2-105 | A | 24 | - | 14 | 6.62 | - | 105 | PSTCM050060D | PTH25LD | 3.78 | ● |
| | GCK2-135L | B | 24 | 26.6 | 14 | 6.62 | 65 | 135 | PSTCM050060D | PTH25LD | 3.89 | ● |
| | GCK2-165L | B | 24 | 31.9 | 14 | 6.62 | 75 | 165 | PSTCM050060D | PTH25LD | 4.08 | ● |
| | GCK3-110 | A | 31 | - | 18 | 8 | - | 110 | PSTCM060090D | PTH30LD | 3.95 | ● |

● Standard Stock ○ Available Upon Order

# BT-GCK

Boring Adapter

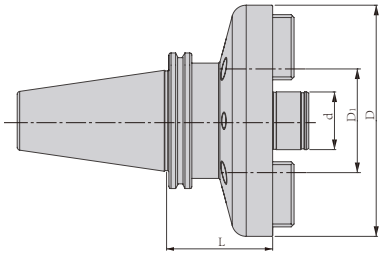



| Ordering code | | Diagram | D | d1 | d | L1 | L2 | L | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BT50 | GCK3-140L | B | 31 | 32.7 | 18 | 8 | 75 | 140 | PSTCM060090D | PTH30LD | 4.09 | ● |
| | GCK3-170L | B | 31 | 38 | 18 | 8 | 85 | 170 | PSTCM060090D | PTH30LD | 4.31 | ● |
| | GCK4-100 | A | 39 | - | 22 | 10 | - | 100 | PSTCM060090D | PTH30LD | 3.98 | ● |
| | GCK4-160L | B | 39 | 42.5 | 22 | 10 | 85 | 160 | PSTCM080120D | PTH40LD | 4.50 | ● |
| | GCK4-205L | B | 39 | 50 | 22 | 10 | 95 | 205 | PSTCM080120D | PTH40LD | 5.13 | ● |
| | GCK5-90 | A | 50 | - | 28 | 13 | - | 90 | PSTCM080120D | PTH40LD | 4.30 | ● |
| | GCK5-165 | A | 50 | - | 28 | 13 | - | 165 | PSTCM100160D | PTH50LD | 5.20 | ● |
| | GCK5-210L | B | 50 | 57.8 | 28 | 13 | 120 | 210 | PSTCM100160D | PTH50LD | 5.92 | ● |
| | GCK5-270L | B | 50 | 68.4 | 28 | 13 | 120 | 270 | PSTCM100160D | PTH50LD | 7.23 | ● |
| | GCK6-85 | A | 64 | - | 36 | 16 | - | 85 | PSTCM100160D | PTH50LD | 4.28 | ● |
| | GCK6-155 | A | 64 | - | 36 | 16 | - | 155 | PSTCM120200D | PTH60LD | 5.97 | ● |
| | GCK6-215 | A | 64 | - | 36 | 16 | - | 215 | PSTCM120200D | PTH60LD | 7.43 | ● |
| | GCK6-250 | A | 64 | - | 36 | 16 | - | 250 | PSTCM120200D | PTH60LD | 8.27 | ● |
| | GCK6-300L | B | 64 | 80.5 | 36 | 16 | 160 | 300 | PSTCM120200D | PTH60LD | 10.21 | ● |
| | GCK6-350L | B | 64 | 90 | 36 | 16 | 160 | 350 | PSTCM120200D | PTH60LD | 12.90 | ● |
| | GCK7-85 | A | 90 | - | 46 | 19.15 | - | 85 | PSTCM120200D | PTH100LD | 4.96 | ● |
| | GCK7-150 | A | 90 | - | 46 | 19.15 | - | - | PSTCM200290D | PTH100LD | 6.52 | ● |
| | GCK7-210 | A | 90 | - | 46 | 19.15 | - | - | PSTCM200290D | PTH100LD | 8.55 | ● |
| | GCK7-250 | A | 90 | - | 46 | 19.15 | - | - | PSTCM200290D | PTH100LD | 10.35 | ● |
| | GCK7-300 | A | 90 | - | 46 | 19.15 | - | - | PSTCM200290D | PTH100LD | 12.55 | ● |
| | GCK7-350 | A | 90 | - | 46 | 19.15 | - | - | PSTCM200290D | PTH100LD | 13.25 | ● |

● Standard Stock ○ Available Upon Order

# GC

Large Diameter Boring Adaptor

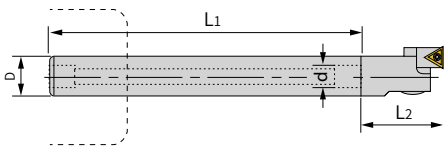



| Ordering code | D | d | L | D1 | Weight | Stock |
|---|---|---|---|---|---|---|
| BT50-GCA-55 | 100 | 40 | 55 | 66.7 | 4.28 | ● |
| BT50-GCA-150 | 100 | 40 | 150 | 66.7 | 8.63 | ● |
| BT50-GCA-200 | 100 | 40 | 200 | 66.7 | 10.92 | ● |
| BT50-GCA-250 | 100 | 40 | 250 | 66.7 | 13.21 | ● |
| BT50-GCA-300 | 100 | 40 | 300 | 66.7 | 15.5 | ○ |
| BT50-GCB-85 | 160 | 40 | 85 | 101.6 | 8.9 | ○ |
| BT50-GCB-150 | 160 | 40 | 150 | 101.6 | 11.6 | ○ |
| BT50-GCB-200 | 160 | 40 | 200 | 101.6 | 13.69 | ○ |
| BT50-GCB-250 | 160 | 40 | 250 | 101.6 | 15.77 | ○ |
| BT50-GCB-300 | 160 | 40 | 300 | 101.6 | 17.85 | ○ |

● Standard Stock ○ Available Upon Order

# GSD

Alloy Anti-vibration tool Holder

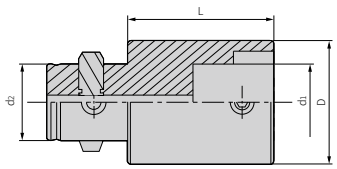



| Ordering code | | D | d | L1 | L2 | Adapter | Range | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|
| GSD | C19-GCK1-150 | 19 | 11 | 150 | 32.5 | GCK1-FB20-36 | 20-36 | 0.5 | ○ |
| | C19-GCK1-200 | 19 | 11 | 200 | 32.5 | | | 0.7 | ○ |
| | C19-GCK1-250 | 19 | 11 | 250 | 32.5 | | | 0.9 | ○ |
| | C24-GCK2-200 | 24 | 14 | 200 | 35.5 | GCK2-FB25-47 | 25-47 | 1.0 | ○ |
| | C24-GCK2-250 | 24 | 14 | 250 | 35.5 | | | 1.2 | ○ |
| | C24-GCK2-300 | 24 | 14 | 300 | 35.5 | | | 1.5 | ○ |
| | C31-GCK3-250 | 31 | 18 | 250 | 40 | GCK3-FB32-60 | 32-60 | 1.8 | ○ |
| | C31-GCK3-300 | 31 | 18 | 300 | 40 | | | 2.2 | ○ |
| | C31-GCK3-400 | 31 | 18 | 400 | 40 | | | 3.0 | ○ |

● Standard Stock ○ Available Upon Order

# GCK

Extension Adaptor

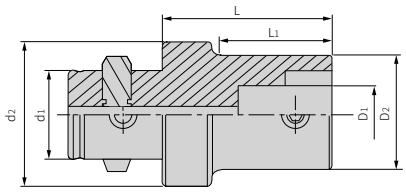



| Ordering code | | D | d1 | d2 | L | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|
| GCK | 1-1-30 | 19 | 11 | 11 | 30 | PSTCM050050D | PTH25LD | 0.06 | ● |
| | 2-2-30 | 24 | 14 | 14 | 30 | PSTCM050060D | PTH25LD | 0.09 | ● |
| | 3-3-30 | 31 | 18 | 18 | 30 | PSTCM060090D | PTH30LD | 0.14 | ● |
| | 4-4-45 | 39 | 22 | 22 | 45 | PSTCM080120D | PTH40LD | 0.29 | ● |
| | 4-4-60 | 39 | 22 | 22 | 60 | PSTCM080120D | PTH40LD | 0.47 | ● |
| | 5-5-60 | 50 | 28 | 28 | 60 | PSTCM100160D | PTH50LD | 0.75 | ● |
| | 5-5-90 | 50 | 28 | 28 | 90 | PSTCM100160D | PTH50LD | 1.18 | ● |
| | 6-6-60 | 64 | 36 | 36 | 60 | PSTCM120200D | PTH60LD | 1.46 | ● |
| | 6-6-100 | 64 | 36 | 36 | 100 | PSTCM120200D | PTH60LD | 2.35 | ● |

● Standard Stock ○ Available Upon Order

# GCK

Reduction Adaptor




| Ordering code | | D1 | D2 | d1 | d2 | L1 | L | Screw | Wrench | Weight | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GCK | 2-1-36 | 11 | 19 | 14 | 24 | 30 | 36 | PSTCM050050D | PTH25LD | 0.08 | ● |
| | 3-1-41 | 11 | 19 | 18 | 31 | 30 | 41 | PSTCM050050D | PTH30LD | 0.12 | ● |
| | 3-2-37 | 14 | 24 | 18 | 31 | 25 | 37 | PSTCM050060D | PTH30LD | 0.13 | ● |
| | 4-1-58 | 11 | 19 | 22 | 39 | 40 | 58 | PSTCM050050D | PTH40LD | 0.24 | ● |
| | 4-2-50 | 14 | 24 | 22 | 39 | 36 | 50 | PSTCM050060D | PTH40LD | 0.22 | ● |
| | 4-3-50 | 18 | 31 | 22 | 39 | 37 | 50 | PSTCM060090D | PTH40LD | 0.30 | ● |
| | 5-1-60 | 11 | 19 | 28 | 50 | 40 | 60 | PSTCM050050D | PTH50LD | 0.38 | ● |
| | 5-2-54 | 14 | 24 | 28 | 50 | 35 | 54 | PSTCM050060D | PTH50LD | 0.38 | ● |
| | 5-2-74 | 14 | 24 | 28 | 50 | 55 | 74 | PSTCM050060D | PTH50LD | 0.45 | ● |
| | 5-3-47 | 18 | 31 | 28 | 50 | 29 | 47 | PSTCM060090D | PTH50LD | 0.46 | ● |
| | 5-3-72 | 18 | 31 | 28 | 50 | 54 | 72 | PSTCM060090D | PTH50LD | 0.54 | ● |
| | 5-4-42 | 22 | 39 | 28 | 50 | 25 | 42 | PSTCM080120D | PTH50LD | 0.43 | ● |
| | 5-4-67 | 22 | 39 | 28 | 50 | 50 | 67 | PSTCM080120D | PTH50LD | 0.62 | ● |
| | 6-1-70 | 11 | 19 | 36 | 64 | 40 | 70 | PSTCM050050D | PTH60LD | 0.90 | ● |
| | 6-2-63 | 14 | 24 | 36 | 64 | 45 | 63 | PSTCM050060D | PTH60LD | 0.66 | ● |
| | 6-2-93 | 14 | 24 | 36 | 64 | 75 | 93 | PSTCM050060D | PTH60LD | 0.71 | ● |
| | 6-3-56 | 18 | 31 | 36 | 64 | 39 | 56 | PSTCM060090D | PTH60LD | 0.70 | ● |
| | 6-3-96 | 18 | 31 | 36 | 64 | 79 | 96 | PSTCM060090D | PTH60LD | 0.91 | ● |
| | 6-4-51 | 22 | 39 | 36 | 64 | 35 | 51 | PSTCM080120D | PTH60LD | 0.76 | ● |
| | 6-4-101 | 22 | 39 | 36 | 64 | 85 | 101 | PSTCM080120D | PTH60LD | 1.19 | ● |
| | 6-5-41 | 28 | 50 | 36 | 64 | 25 | 41 | PSTCM100160D | PTH60LD | 0.72 | ● |
| | 6-5-91 | 28 | 50 | 36 | 64 | 75 | 91 | PSTCM100160D | PTH60LD | 1.46 | ● |

● Standard Stock ○ Available Upon Order

# Insert Screw Wrench

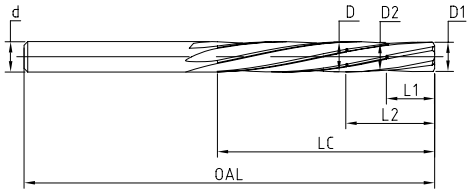



| Insert | Connector | Screw | Wrench | Stock |
|---|---|---|---|---|
| TBGT0601..L | | PSI55M040020-27010D | PTT06PD | ● |
| TPGT0802..L | | PSI55M050020-27010D | PTT08PD | ● |
| TPGH0902..L | | PSI55M060025-35010D | PTT08PD | ● |
| TPGH1103..L | | PSI55M070030-40010D | PTT08PD | ● |
| TCMT1102 | | PSI55M060025-35010D | PTT08PD | ● |
| CCMT0602 | | PSI55M060025-35010D | PTT08PD | ● |
| CCMT09T3 | | PSI60M100040-57010D | PTT15PD | ● |
| CCMT1204 | | PSI45M110050-70010D | PTT20PD | ● |
| | GCK1 | PSTCM050050D | PTH25LD | ○ |
| | GCK2 | PSTCM050060D | PTH25LD | ○ |
| | GCK3 | PSTCM060090D | PTH30LD | ○ |
| | GCK4 | PSTCM080120D | PTH40LD | ○ |
| | GCK5 | PSTCM100160D | PTH50LD | ○ |
| | GCK6 | PSTCM120200D | PTH60LD | ○ |

● Standard Stock ○ Available Upon Order

# R733-C

Reamer forComposite Mmaterial




| Ordering code | D(mm) | D（in） | D1 | L1 | D2 | L2 | Lc | OAL | d | Wire |
|---|---|---|---|---|---|---|---|---|---|---|
| R733-C-0326 | 3.26 | 0.128 | 3.10 | 6.5 | - | - | 35 | 75 | 3.26 | 30# |
| R733-C-0357 | 3.57 | 0.141 | 3.26 | 6.5 | 3.45 | 13.0 | 35 | 75 | 3.57 | 28# |
| R733-C-0400 | 4.00 | 0.157 | 3.45 | 6.5 | 3.86 | 13.0 | 35 | 75 | 4.00 | - |
| R733-C-0417 | 4.17 | 0.164 | 3.86 | 6.5 | 4.00 | 13.0 | 40 | 100 | 4.17 | - |
| R733-C-0450 | 4.50 | 0.177 | 4.17 | 6.5 | 4.39 | 13.0 | 40 | 100 | 4.50 | - |
| R733-C-0485 | 4.85 | 0.191 | 4.50 | 6.5 | 4.70 | 13.0 | 40 | 100 | 4.85 | 11# |
| R733-C-0500 | 5.00 | 0.197 | 4.70 | 6.5 | 4.85 | 13.0 | 40 | 100 | 5.00 | - |
| R733-C-0536 | 5.36 | 0.211 | 4.85 | 6.5 | 5.20 | 13.0 | 40 | 100 | 5.36 | 6# |

Unit（mm）

| Work Piece | | | | | | | |
|---|---|---|---|---|---|---|---|
| P | | | M | N | | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 4 | 5 |
| Carbon steel<br>Alloy steel<br>(＜35HRC) | Alloy steel<br>Tool steel<br>(35-48HRC) | PH and Ferrite /<br>Martensite steel | Stainless steel | Forged aluminium alloy<br>Cast aluminium alloy<br>(Si≤12%) | Cast aluminium alloy<br>(Si＞12%) | Copper alloy<br>(＜200HB) | Composite material |
| | | | | | | | ◎ |

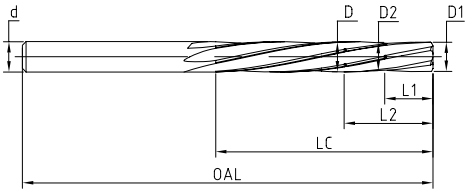
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P128

# R733-CM

Reamer for Composite and Metal

SHANK | AlCrN/TiSiN | 6




| Ordering code | D(mm) | D（in） | D1 | L1 | D2 | L2 | Lc | OAL | d | Wire |
|---|---|---|---|---|---|---|---|---|---|---|
| R733-C-0326 | 3.26 | 0.128 | 3.10 | 6.5 | - | - | 35 | 75 | 3.26 | 30# |
| R733-C-0357 | 3.57 | 0.141 | 3.26 | 6.5 | 3.45 | 13.0 | 35 | 75 | 3.57 | 28# |
| R733-C-0400 | 4.00 | 0.157 | 3.45 | 6.5 | 3.86 | 13.0 | 35 | 75 | 4.00 | - |
| R733-C-0417 | 4.17 | 0.164 | 3.86 | 6.5 | 4.00 | 13.0 | 40 | 100 | 4.17 | - |
| R733-C-0450 | 4.50 | 0.177 | 4.17 | 6.5 | 4.39 | 13.0 | 40 | 100 | 4.50 | - |
| R733-C-0485 | 4.85 | 0.191 | 4.50 | 6.5 | 4.70 | 13.0 | 40 | 100 | 4.85 | 11# |
| R733-C-0500 | 5.00 | 0.197 | 4.70 | 6.5 | 4.85 | 13.0 | 40 | 100 | 5.00 | - |
| R733-C-0536 | 5.36 | 0.211 | 4.85 | 6.5 | 5.20 | 13.0 | 40 | 100 | 5.36 | 6# |

Unit（mm）

| Work Piece | | | | | | | |
|---|---|---|---|---|---|---|---|
| P | | | M | N | | | |
| 1 2 3 4 | 5 | 6 | 1 2 3 | 1 2 | 3 | 4 | 5 |
| Carbon steel<br>Alloy steel<br>(＜35HRC) | Alloy steel<br>Tool steel<br>(35-48HRC) | PH and Ferrite /<br>Martensite steel | Stainless steel | Forged aluminium alloy<br>Cast aluminium alloy<br>(Si≤12%) | Cast aluminium alloy<br>(Si＞12%) | Copper alloy<br>(＜200HB) | Composite material |
| | | | | | | | ◎ |

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P129

# Recommended Cutting Data

## Indexable boring system

| Work Piece | | Dia | Finishing-Boring | | | Roughing | | |
|---|---|---|---|---|---|---|---|---|
| | | | V(m/min) | Feed (mm/rev) | Ap (mm) | V (m/min) | Feed (mm/rev) | Ap (mm) |
| P | Carbon steel | 25-33 | 110-140 | 0.05-0.15 | 0.05-0.3 | 100-300 | 0.15-0.25 | 2.2 |
| | | 32-42 | 115-150 | 0.05-0.15 | 0.05-0.3 | 105-140 | 0.15-0.3 | 2.7 |
| | | 40-55 | 115-150 | 0.05-0.15 | 0.06-0.35 | 105-150 | 0.15-0.3 | 2.7 |
| | | 52-70 | 115-150 | 0.15-0.2 | 0.06-0.35 | 105-150 | 0.25-0.35 | 4.3 |
| | | 120-164 | 115-150 | 0.15-0.2 | 0.7-0.5 | 105-150 | 0.3-0.4 | 4.3 |
| | | 160-204 | 115-150 | 0.15-0.2 | 0.7-0.5 | 105-150 | 0.3-0.4 | 4.3 |
| | Alloy steel | 25-33 | 100-130 | 0.05-0.15 | 0.05-0.15 | 90-120 | 0.15-0.25 | 2.2 |
| | | 32-42 | 110-140 | 0.05-0.15 | 0.05-0.15 | 100-130 | 0.15-0.3 | 3.7 |
| | | 40-55 | 110-150 | 0.05-0.15 | 0.05-0.15 | 100-130 | 0.2-0.3 | 3.7 |
| | | 52-70 | 110-150 | 0.15-0.2 | 0.15-0.2 | 100-130 | 0.25-0.35 | 4.3 |
| | | 120-164 | 110-150 | 0.15-0.2 | 0.15-0.2 | 100-130 | 0.3-0.4 | 4.3 |
| | | 160-204 | 110-150 | 0.15-0.2 | 0.15-0.2 | 100-130 | 0.3-0.4 | 4.3 |
| M | Stainless steel | 25-33 | 70-100 | 0.07-0.15 | 0.07-0.15 | 60-90 | 0.12-0.2 | 2.2 |
| | | 32-42 | 80-110 | 0.07-0.15 | 0.07-0.15 | 70-100 | 0.15-0.25 | 3.7 |
| | | 40-55 | 80-110 | 0.07-0.15 | 0.07-0.15 | 70-100 | 0.15-0.25 | 3.7 |
| | | 52-70 | 80-110 | 0.1-0.2 | 0.1-0.2 | 70-100 | 0.2-0.3 | 4.3 |
| | | 120-164 | 80-110 | 0.1-0.2 | 0.1-0.2 | 70-100 | 0.25-0.35 | 4.3 |
| | | 160-204 | 80-110 | 0.1-0.2 | 0.1-0.2 | 70-100 | 0.25-0.35 | 4.3 |
| K | Cast Iron | 25-33 | 70-100 | 0.07-0.15 | 0.12-0.35 | 60-110 | 0.2-0.3 | 2.2 |
| | | 32-42 | 80-110 | 0.07-0.15 | 0.12-0.35 | 60-110 | 0.25-0.35 | 3.7 |
| | | 40-55 | 80-110 | 0.07-0.15 | 0.2-0.5 | 60-110 | 0.25-0.35 | 3.7 |
| | | 52-70 | 80-110 | 0.12-0.2 | 0.2-0.5 | 60-110 | 0.3-0.4 | 4.3 |
| | | 120-164 | 80-110 | 0.12-0.2 | 0.25-0.75 | 60-110 | 0.3-0.45 | 4.3 |
| | | 160-204 | 80-110 | 0.12-0.2 | 0.25-0.75 | 60-110 | 0.3-0.45 | 4.3 |
| N | Aluminium alloy | 25-33 | 150-300 | 0.05-0.15 | 0.12-0.35 | 120-300 | 0.2-0.3 | 2.2 |
| | | 32-42 | 150-360 | 0.1-0.2 | 0.12-0.35 | 150-370 | 0.25-0.35 | 3.7 |
| | | 40-55 | 150-360 | 0.1-0.2 | 0.2-0.5 | 150-370 | 0.25-0.35 | 3.7 |
| | | 52-70 | 150-360 | 0.1-0.2 | 0.2-0.5 | 150-370 | 0.3-0.4 | 4.3 |
| | | 120-164 | 150-360 | 0.1-0.25 | 0.25-0.75 | 150-370 | 0.3-0.45 | 4.3 |
| | | 160-204 | 150-360 | 0.1-0.25 | 0.25-0.75 | 150-370 | 0.3-0.45 | 4.3 |
| S | High temperature alloy and heat resistant alloy | 25-33 | 30-40 | 0.07-0.15 | 0.12-0.35 | 25-35 | 0.12-0.2 | 2.2 |
| | | 32-42 | 40-45 | 0.07-0.15 | 0.12-0.35 | 30-40 | 0.15-0.25 | 3.7 |
| | | 40-55 | 40-45 | 0.07-0.15 | 0.2-0.5 | 30-40 | 0.15-0.25 | 3.7 |
| | | 52-70 | 40-45 | 0.1-0.2 | 0.2-0.5 | 30-40 | 0.2-0.3 | 4.3 |
| | | 120-164 | 40-45 | 0.1-0.2 | 0.25-0.75 | 30-40 | 0.25-0.35 | 4.3 |
| | | 160-204 | 40-45 | 0.1-0.2 | 0.25-0.75 | 30-40 | 0.25-0.35 | 4.3 |

# Recommended Cutting Data

## R733-Reamer for Composite Mmaterial

| Application | Work Piece | | Ap（mm） | Feed（mm/rev） |
|---|---|---|---|---|
| | | | m/min | mm/rev |
| Reaming | N | CFRP、GFRP | 60 | 0.08 |

CFRP： Carbon Fiber Reinforced Plastic GFRP： Glass Fiber Reinforced Plastic
1.Please use the pneumatic tools with better rigidity, drill set, ensure processing stability.
2.When using the small size cutting tool, reduce the tool feed 20%-30%.

## R733-CM Reamer for Composite and Metal

| Application | Work Piece | | Ap（mm） | Feed（mm/rev） |
|---|---|---|---|---|
| | | | m/min | mm/rev |
| Reaming | N | CFRP | 60 | 0.08 |
| | N | Aluminium alloy | 60 | 0.08 |
| | N S | Titanium alloy | 20 | 0.05 |
| | N | Aluminium alloy | 60 | 0.08 |
| | S | Titanium alloy | 15 | 0.05 |
| | M | Stainless steel | 15 | 0.05 |

CFRP： Carbon Fiber Reinforced Plastic GFRP： Glass Fiber Reinforced Plastic
1.Please use the pneumatic tools with better rigidity, drill set, ensure processing stability.
2.When using the small size cutting tool, reduce the tool feed 20%-30%.

# D

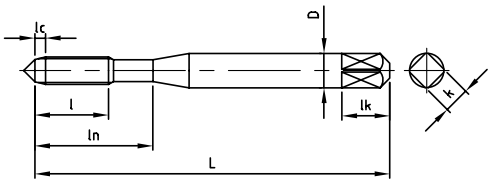
# Threading Tools

# T100 High performance helical groove tap for steel

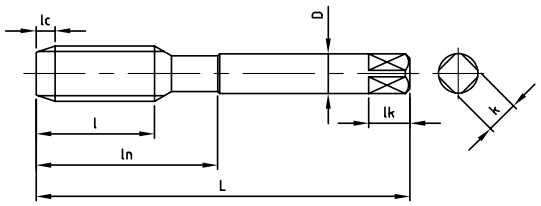
- Suitable for processing steel , machining hardness reaches 32HRC.
- New groove design for smoother chipping removal
- Optimized cutting edge processing method, better accuracy retention
- High-performance powder metallurgical high-speed steel with new coating, making it super toughness and wear resistance

# T100

High performance helical groove tap for steel




picture 1




picture 2

| Size of thread | Precision | Length of cutting cone lc | Length of thread l | Length of neck ln | Overall length L | Diameter of shank D | Figure | Number of groove | Size of square head | | Diameter of bottom hole | Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | LK | a | | |
| M3*0.5 | 6H | 2.5P | 6 | 17 | 46 | 4 | Figure 1 | 3 | 6 | 3.2 | 2.5 | ● |
| M4*0.7 | 6H | | 7.5 | 21 | 52 | 5 | Figure 1 | | 7 | 4 | 3.3 | ● |
| M5*0.8 | 6H | | 9 | 25 | 60 | 5.5 | Figure 1 | | 7 | 4.5 | 4.2 | ● |
| M6*1 | 6H | | 11 | 29 | 62 | 6 | Figure 1 | | 7 | 4.5 | 5 | ● |
| M8*1.25 | 6H | | 13 | 34 | 70 | 6.2 | Figure 2 | | 8 | 5 | 6.8 | ● |
| M10*1.5 | 6H | | 16 | 38 | 75 | 7 | Figure 2 | | 8 | 5.5 | 8.5 | ● |
| M12*1.75 | 6H | | 18 | - | 82 | 8.5 | Figure 2 | | 9 | 6.5 | 10.3 | ○ |
| M14*2 | 6H | | 20 | - | 88 | 10.5 | Figure 2 | | 11 | 8 | 12 | ○ |

● Standard Stock ○ Available Upon Order

| Cutting parameter recommendation | | |
|---|---|---|
| Material | | Cutting speed(m/min) |
| Low-carbon steel | C < 0.25% | 8 ~ 13 |
| Medium- carbon steel | C=(0.25-0.45)% | 7 ~ 12 |
| High-carbon steel | C > 0.45% | 6 ~ 9 |
| Alloy steel | SCM | 7 ~ 12 |

This table is for general choice. When processing, please adjust the cutting parameters according to the actual situation.

E

# Appendix

# Workpiece Material Table

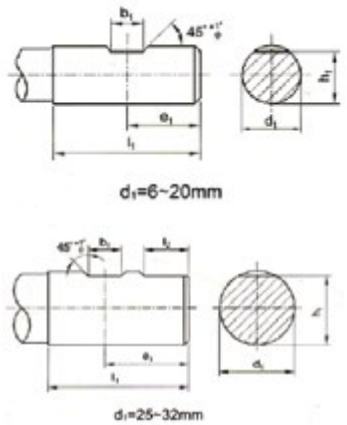
| ISO Material Group | MC | Workpiece Material | Content | Tensile Strength N/mm2 | Brinell Hardness HB | Rockwell Hardness HRC |
|---|---|---|---|---|---|---|
| P Steels | P1 | Low-carbon Steels，Long Chipping | C<0.25% | <530 | <125 | |
| | P2 | Low-carbon Steels，Short Chipping，Free-cutting Steels | C<0.25% | <530 | <125 | |
| | P3 | High-carbon Steels, Medium-carbon Steels | C>0.25% | >530 | <220 | <25 |
| | P4 | Alloy Steels，Tool Steels. | C>0.25% | 600-850 | <330 | <35 |
| | P5 | Alloy Steels，Tool Steels. | C>0.25% | 850-1400 | 340-450 | 35-48 |
| | P6 | Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels | C=(0-0.4)% | 600-900 | <330 | <35 |
| | P7 | High-strength Ferritic Stainless Steels，Martensitic Stainless Steels，PH Stainless Steels. | C=(0.1-0.6)% | 900-1350 | 330-450 | 35-48 |
| M Stainless Steels | M1 | Austenitic Stainless Steels | C=(0.05-0.15)% | <600 | 130-200 | |
| | M2 | High-Strength Austenitic Stainless Steels and Cast Stainless Steels | C=(0.05-0.15)% | 600-800 | 150-230 | <25 |
| | M3 | Duplex Stainless Steels | C=(0.05-0.20)% | <800 | 135-275 | <30 |
| K Cast Iron | K1 | Grey Cast Iron | | 125-500 | 120-290 | ＜ 32 |
| | K2 | Moderately Difficult Alloy Cast iron，Nodular Cast Iron. | | <600 | 130-260 | ＜ 28 |
| | K3 | Difficult High-alloy Cast Iron，Nodular Cast Iron | | >600 | 180-350 | ＜ 43 |
| N Non-ferrous Materials | N1 | Wrought Aluminium Alloys | | <520 | 60-90 | |
| | N2 | Cast Aluminium Alloys | Si<12% | <350 | 70-100 | |
| | N3 | Cast Aluminium Alloys | Si>12% | 200-320 | 60-120 | |
| | N4 | Copper，Copper Alloys | | 200-650 | 60-200 | |
| | N5 | Graphite，CFK，CFRP Graphite，Composite Materials | | 600-1500 | | |
| | N6 | GFK，CFK Aluminium-based Composite Materials (MMCs) | | <700 | <210 | |
| S Heat-resistant SuperAlloys、Titanium Alloys | S1 | Iron-based Heat-resistant Alloys | | 500-1200 | 160-260 | 25-48 |
| | S2 | Cobalt-based Heat-resistant Alloys | | 1000-1450 | 250-450 | 25-48 |
| | S3 | Nickel-based Heat-resistant Alloys | | 600-1700 | 160-450 | <48 |
| | S4 | Titanium and Titanium Alloys | | 900-1600 | 300-400 | 33-48 |
| H Hardened Materials | H1 | Hardened Steels | | | | 45-55 |
| | H2 | Hardened Steels | | | | 55-60 |
| | H3 | Hardened Steels | | | | 60-65 |
| | H4 | Hardened Steels | | | | >65 |

# The Structure of Shank-DIN Standard

## DIN 6535-HA

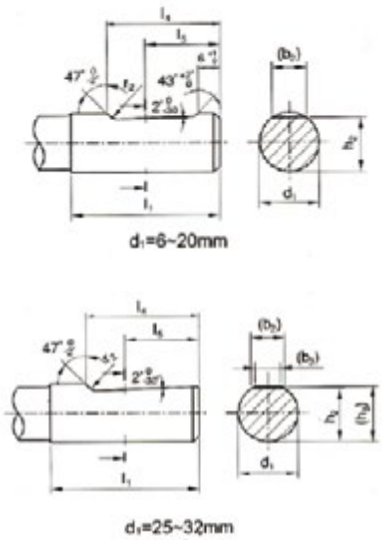
| $d_1h_6$ | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $l_1$ +2 0 | 28 | | | | 36 | | 40 | 45 | | 48 | | 50 | 56 | 60 |

## DIN 6535-HB




| $d_1$ $h_6$ | $b_1$ +0.05 0 | $e_1$ 0 -1 | $h_1$ $h_{11}$ | $l_1$ +2 0 | $l_2$ +1 0 |
|---|---|---|---|---|---|
| 6.0 | 4.2 | 18.0 | 5.1 | 36.0 | |
| 8.0 | 5.5 | | 6.9 | | |
| 10 | 7.0 | 20.0 | 8.5 | 40.0 | |
| 12 | 8.0 | 22.5 | 10.4 | 45.0 | |
| 14 | | | 12.7 | | |
| 16 | 10.0 | 24.0 | 14.2 | 48.0 | |
| 18 | | | 16.2 | | |
| 20 | 11.0 | 25.0 | 18.2 | 50.0 | |
| 25 | 12.0 | 32.0 | 23.0 | 56.0 | 17.0 |
| 32 | 14.0 | 36.0 | 30.0 | 60.0 | 19.0 |

## DIN 6535-HE




| $d_1$ | $(b_2)$ | $(b_3)$ | $(h_2)$ | $(h_3)$ | $l_1$ | $l_4$ | $l_5$ | $r_2$ |
|---|---|---|---|---|---|---|---|---|
| 6.0 | 4.3 | | 5.1 | | 36.0 | 25.0 | 18.0 | 1.2 |
| 8.0 | 5.5 | | 6.9 | | | | | |
| 10 | 7.1 | | 8.5 | | 40.0 | 28.0 | 20.0 | |
| 12 | 8.2 | | 10.4 | | 45.0 | 33.0 | 22.5 | |
| 14 | 8.1 | | 12.7 | | | | | |
| 16 | 10.1 | | 14.2 | | 48.0 | 36.0 | 24.0 | 1.6 |
| 18 | 10.8 | | 16.2 | | | | | |
| 20 | 11.4 | | 18.2 | | 50.0 | 38.0 | 25.0 | |
| 25 | 13.6 | 9.3 | 23.0 | 24.1 | 56.0 | 44.0 | 32.0 | |
| 32 | 15.5 | 9.9 | 30.0 | 31.2 | 60.0 | 48.0 | 35.0 | |

# Cutting Calculations and Definitions

| Parameter and Unit | | | |
|---|---|---|---|
| D Diameter | (mm) | Fn Feed per Revolution (mm/rev) | |
| ap Cutting Depth | (mm) | fz Feeding per Teeth (mm/tooth) | |
| ae Cutting Width | (mm) | Z Number of Teeth | |
| Vf Feed Rate | (mm/min) | n Spindle Speed (rev/min) | |
| Vc Cutting Speed | (m/min) | L Length (mm) | |
| Q Rate of Metal Removal | ($cm^3$/min) | Tc Processing Time (min) | |

| General Formula | |
|---|---|
| n Spindle Speed | $n = \frac{Vc * 1000}{\pi * D}$ (rev/min) |
| Vc Cutting Speed | $Vc = \frac{\pi * D * n}{1000}$ (m/min) |
| Vf Feed Rate | $V_f = f_z * z * n$ (mm/min) |
| fz Feed per Teeth | $f_z = \frac{V_f}{z * n}$ (mm) |
| Q Rate of Metal Removal | $Q = \frac{ae * ap * V_f}{1000}$ ($cm^3$/min) |
| Tc Processing Time | $T_c = \frac{L}{V_f}$ (min) |

# Comparison Table for Tensile Strength , Brinell Hardness and Rockwell Hardness

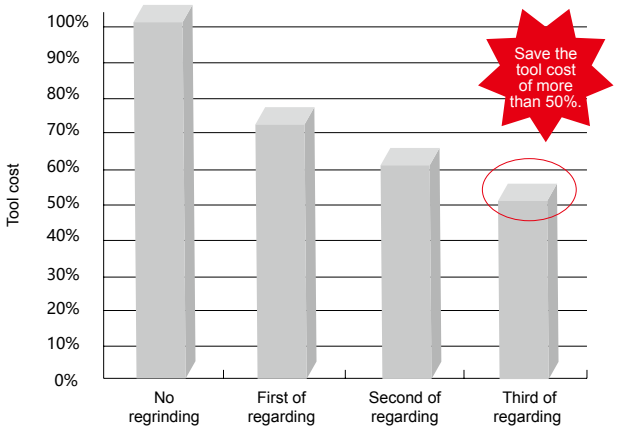
| N/mm2 | HV10 | HB | HRC |
|---|---|---|---|
| 240 | 75 | 71 | |
| 255 | 80 | 76 | |
| 270 | 85 | 81 | |
| 285 | 90 | 86 | |
| 305 | 95 | 90 | |
| 320 | 100 | 95 | |
| 335 | 105 | 100 | |
| 350 | 110 | 105 | |
| 370 | 115 | 109 | |
| 385 | 120 | 114 | |
| 400 | 125 | 119 | |
| 415 | 130 | 124 | |
| 430 | 135 | 128 | |
| 450 | 140 | 133 | |
| 465 | 145 | 138 | |
| 480 | 150 | 143 | |
| 495 | 155 | 147 | |
| 510 | 160 | 152 | |
| 530 | 165 | 157 | |
| 545 | 170 | 162 | |
| 560 | 175 | 166 | |
| 575 | 180 | 171 | |
| 595 | 185 | 176 | |
| 610 | 190 | 181 | |
| 625 | 195 | 185 | |
| 640 | 200 | 190 | |
| 660 | 205 | 195 | |
| 675 | 210 | 199 | |
| 690 | 215 | 204 | |
| 705 | 220 | 209 | |
| 720 | 225 | 214 | |
| 740 | 230 | 219 | |
| 755 | 235 | 223 | |
| 770 | 240 | 228 | |
| 785 | 245 | 233 | |
| 800 | 250 | 238 | 22 |
| 820 | 255 | 242 | 23 |
| 835 | 260 | 247 | 24 |
| 860 | 268 | 255 | 25 |
| 870 | 272 | 258 | 26 |
| 900 | 280 | 266 | 27 |

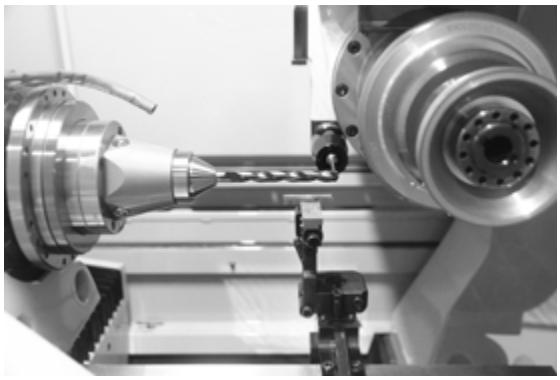
| N/mm2 | HV10 | HB | HRC |
|---|---|---|---|
| 920 | 287 | 273 | 28 |
| 940 | 293 | 278 | 29 |
| 970 | 302 | 287 | 30 |
| 995 | 310 | 295 | 31 |
| 1020 | 317 | 301 | 32 |
| 1050 | 327 | 311 | 33 |
| 1080 | 336 | 319 | 34 |
| 1110 | 345 | 328 | 35 |
| 1140 | 355 | 337 | 36 |
| 1170 | 364 | 346 | 37 |
| 1200 | 373 | 354 | 38 |
| 1230 | 382 | 363 | 39 |
| 1260 | 392 | 372 | 40 |
| 1260 | 403 | 383 | 41 |
| 1330 | 413 | 393 | 42 |
| 1360 | 423 | 402 | 43 |
| 1400 | 434 | 413 | 44 |
| 1440 | 446 | 424 | 45 |
| 1480 | 458 | 435 | 46 |
| 1530 | 473 | 449 | 47 |
| 1570 | 484 | 460 | 48 |
| 1620 | 497 | 472 | 49 |
| 1680 | 514 | 488 | 50 |
| 1730 | 527 | 501 | 51 |
| 1790 | 544 | 517 | 52 |
| 1845 | 560 | 632 | 53 |
| 1910 | 578 | 549 | 54 |
| 1980 | 596 | 567 | 55 |
| 2050 | 615 | 584 | 56 |
| 2140 | 639 | 607 | 57 |
| | 655 | 622 | 58 |
| | 675 | | 59 |
| | 698 | | 60 |
| | 720 | | 61 |
| | 745 | | 62 |
| | 773 | | 63 |
| | 800 | | 64 |
| | 829 | | 65 |
| | 864 | | 66 |
| | 900 | | 67 |
| | 940 | | 68 |

# Service of Tool Regrinding

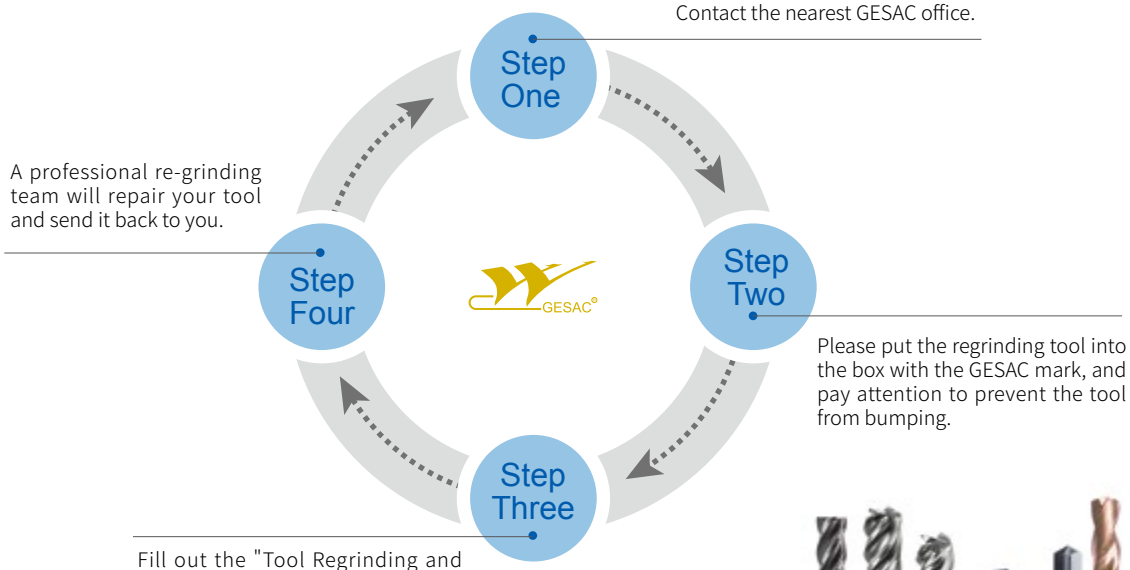
Through the system of grinding process and strict process quality control,Xiamen GESAC will let your wear tool to recover full new state. One more time to regrinding, to extend the tool life.Practical data show,reasonable tool grinding can save more than 50% of the total investment cost of tool.

Regrinding process can not only helps you save investment, reduce inventory, but also effectively avoid the waste of materials, saving resources and protecting the environment.
Xiamen GESAC cutter grinding service will help you achieve the dream of processing.
You only need to contact the nearest Xiamen GESAC agents to make your tool to restore as new!



## ► Please follow these steps




## ► GESAC provides regrinding services for a wide range of tool products, including

- Solid carbide drill
- Solid carbide endmill
- Solid carbide step drill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