GESAC

2023
HOLEMAKING TOOLS

GESAC

About GESAC

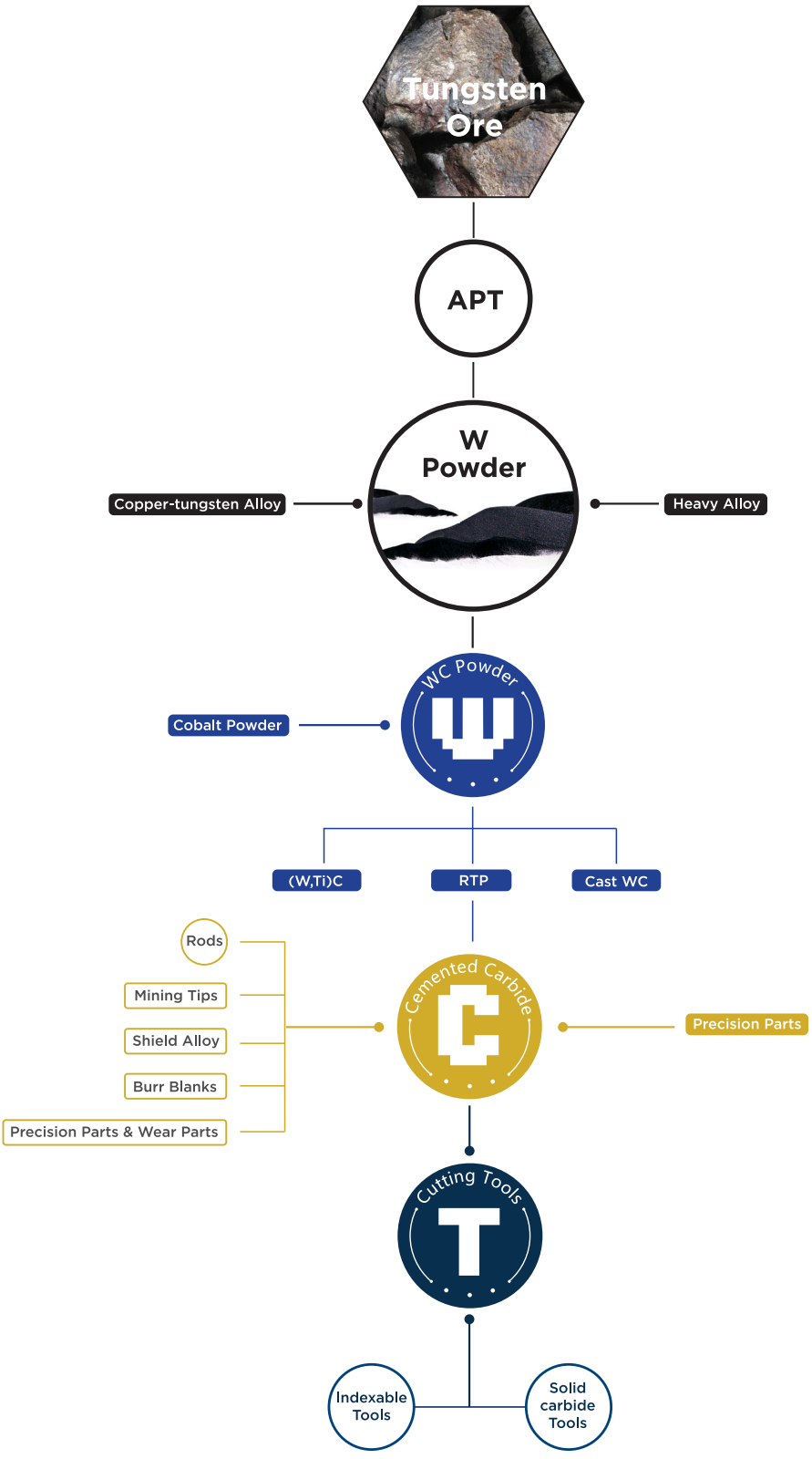
Xiamen Golden Egret Special Alloy Co., Ltd. (GESAC), founded in 1989, is a Sino-foreign joint venture with national high-tech, affiliated with XTC, which is one of six major rare earth groups in China. GESAC is committed to research & development, production and professional solutions providing of high-quality 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 four production headquarters and one national level research center domestically,and three sales branches and one production base overseas. 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

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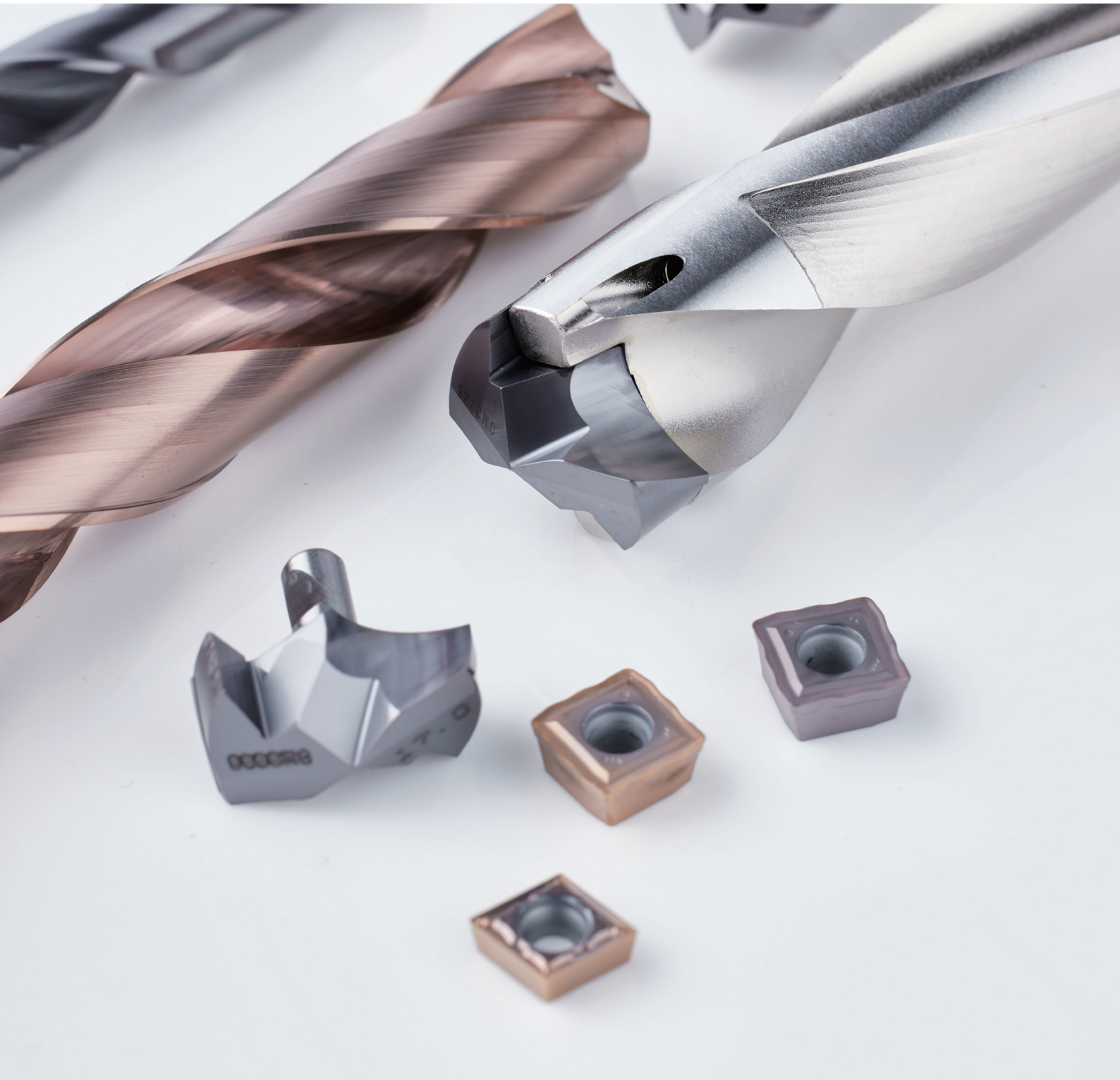
HOLEMAKING TOOLS INDEX



Drills Series Catalogue

Drills Series	Description and Profile		Point Angle	Shank Type	Coating/ Grade	Drilling Depth L/D	Coolant Type	Tool Type	Dimension Range	Hole Accuracy Class	Dimension Table Page	Cutting Parameters Page
D918S	3D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	3D	◎	D918S-A3N	D3～D20	IT9-10	P015	P091
	3D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	3D	◎	D918S-A3C	D3～D20	IT9-10	P019	P091
	5D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	5D	◎	D918S-A5N	D3～D20	IT9-10	P022	P091
	5D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	5D	◎	D918S-A5C	D3～D20	IT9-10	P025	P091
D968S	3D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D	◎	D968S-A3N	D1～D20	IT9-10	P028	P093
	3D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D	◎	D968S-A3C	D3～D20	IT9-10	P032	P093
	5D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	5D	◎	D968S-A5N	D1～D20	IT9-10	P035	P093
	5D Internal Coolant Twist Dril		140°	SHANK DIN 6535HA	AlTiN nano	5D	◎	D968S-A5C	D3～D20	IT9-10	P038	P093
D938	3D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D	◎	D938-A3N	D1～D20	IT9-10	P041	P095
	3D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	3D	◎	D938-A3C	D2～D20	IT9-10	P045	P095
	5D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	5D	◎	D938-A5N	D1～D20	IT9-10	P049	P095
	5D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	5D	◎	D938-A5C	D2～D20	IT9-10	P053	P095
	8D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA	AlTiN nano	8D	◎	D938-A8C	D2.8～D20	IT9-10	P057	P097
	12D Internal Coolant Twist Drill		135°	SHANK DIN 6535HA	AlTiN nano	12D	◎	D938-A12C	D3～D16	IT9-10	P060	P097
	15D Internal Coolant Twist Dril		135°	SHANK DIN 6535HA	AlTiN nano	15D	◎	D938-A15C	D3～D14	IT9-10	P063	P097
	20D Internal Coolant Twist Dril		135°	SHANK DIN 6535HA	AlTiN nano	20D	◎	D938-A20C	D3～D12	IT9-10	P066	P097
	25D Internal Coolant Twist Dril		135°	SHANK DIN 6535HA	AlTiN nano	25D	◎	D938-A25C	D3～D8	IT9-10	P067	P097
D928	3D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	3D	◎	D928-A3N	D3～D20	IT9-10	P068	P099
	3D Internal Coolant Twist Dril		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	3D	◎	D928-A3C	D5～D20	IT9-10	P070	P099
	5D External Coolant Twist Drill		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	5D	◎	D928-A5N	D3～D16	IT9-10	P071	P099
	5D Internal Coolant Twist Dril		140°	SHANK DIN 6535HA	AlCrN/ TiSiN	5D	◎	D928-A5C	D5～D16	IT9-10	P072	P099

◎ Most Suitable ○ Suitable

	Workpiece Material													
	P			M	K		N				S		H	
	1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
	Carbon Steels, Alloy Steel	Alloy Steels, Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys, Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Compound Material	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
	(<35HRC)	(35-48HRC)			(<35HRC)	(35-45HRC)	(Si<12%)	(Si>12%)	(<HB 200)		(<HB 450)	(<HB400)	(45-55HRC)	(55-60HRC)
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Drills Series Catalogue

Drills Series	Description and Profile		Point Angle	Shank Type	Coating/ Grade	Drilling Depth L/D	Coolant Type	Tool Type	Dimension Range	Hole Accuracy Class	Dimension Table Page	Cutting Parameters Page
D966	3D External Coolant Twist Drill		140°	SHANK DIN 6535HA		3D		D966-A3N	D3-D20	IT9-10	P073	P101
	3D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA		3D		D966-A3C	D3-D20	IT9-10	P077	P101
	5D External Coolant Twist Drill		140°	SHANK DIN 6535HA		5D		D966-A5N	D3～D20	IT9-10	P080	P101
	5D Internal Coolant Twist Drill		140°	SHANK DIN 6535HA		5D		D966-A5C	D3～D20	IT9-10	P083	P101
D998	3D External Coolant Twist Drill		140°	SHANK h6	AlTiN nano	3D		D998-Y3N	D4～D16	IT9-10	P087	P102
D101	90° NC Centre Drill		90°	SHANK h6	TiAlN			D101-AMN	D4～D20		P088	P103
D102	120° NC Centre Drill		120°	SHANK h6	TiAlN			D102-ANN	D5～D20		P089	P103
D103	145° NC Centre Drill		145°	SHANK h6	TiAlN			D103-APN	D5～D20		P090	P103
GUMD	GUMD Drill Head		140°		GM3225 GPD7115	3D/5D		GUMD	D10-D21.9	IT9-10	P110	P138
	GUMD Holder										P116	P138
GHDS	QPMG Inserts				GA4230 GM3220 GS4130			QPMG	D14-D48	IT12-13	P131	P139
	GHDS Holder					2D-5D		GHDS			P120	P139
SPMG/ WCMT	SPMG General Drilling insert				GA4230 GS4130			SPMG	D13-D50	IT12-13	P132	P139
	WCMT General Drilling insert				GA4230 GS4130			WCMT	D15-D60	IT12-13	P132	P139
GSD	MCMG Drilling Insert				GM3225			MCMG	D13～D36	IT9-IT10	P135	P140
	GSD Holder					2D-26D		GSD			P136	P140

	Workpiece Material													
	P			M	K		N				S		H	
	1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
	Carbon Steels, Alloy Steel	Alloy Steels, Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys, Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Compound Material	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
	(<35HRC)	(35-48HRC)			(<35HRC)	(35-45HRC)	(Si<12%)	(Si>12%)	(<HB 200)		(<HB 450)	(<HB400)	(45-55HRC)	(55-60HRC)
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Explanation

	Sign	Notes
Shank Type		Cylindrical Shank
		DIN6535HA Shank
Coating		TiAlN Coating
		AlTiN Nano Coating
		AlCrN/TiSiN Multiple Coating
Tool Type		External Coolant Twist Drill
		Internal Coolant Twist Drill
		Centre Drill
Length/Diameter Ratio		3D
		5D
		8D
		12D
		15D
		20D
		25D

	Sign	Notes
Dimension Data	DC	Diameter of Drill
	DMM	Diameter of Shank
	LCF	Flute Length
	LU	Recommend Maximum Drilling Depth
	LS	Shank Length
	OAL	Overall Length
	PL	Drill Tip Height
	LPR	Hangout Length
	DF	Flange Diameter
	IC	Internal Cycle Diameter
	S	Tip Height
	RE	Corner Radius
	D1	Internal Hole Diameter
	B	Insert Thickness
	DCON	Boring Shank Diameter
	LF	Effective Length
	WF	Insert Saddle Width
	DCONWS	Boring Shank Diameter (Working end)
	DCONMS	Boring Shank Diameter (Connection end)
	KAPR	Insert Saddle Cutting Edge Angle

A

SOLID CARBIDE DRILL

Solid Carbide Drills Identification System

D938 –

①

Workpiece Material	①Drills Series	
Steel	D918S	Twist Drills for Steel
Stainless Steel	D968S	Twist Drills for Stainless Steel
Steel	D938	Twist Drills for Steel
Cast Iron	D928	Twist Drills for Cast Iron
Aluminum Alloy	D966	Twist Drills for Aluminum Alloy
Hardened Steel	D998	Twist Drills for Hardened Steel
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

A	5	C –	1200

②Shank Type	
A	DIN6535HA
E	DIN6535HE
B	DIN6535HB
Y	Straight Cylindrical Shank
M	Mose Shank

③Drilling Depth	
3	Depth≤3D
5	Depth≤5D
8	Depth≤8D
12	Depth≤12D
15	Depth≤15D
20	Depth≤20D
25	Depth≤25D
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

Solid Carbide Drill Product Lineup

D918S Series High Performance Twist Drill for Steel

- Suitable for mild steel drilling, interrupted cutting, defective coolant condition and other severe working.
- 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

D968S Series High Efficient Twist Drill for Stainless Steel

- Suitable for high efficient drilling of stainless steel, carbon steel, alloy steel, heat-resistant alloys and titanium alloys, etc
- Unique bottom edge design--stronger chip breaking capability and larger chip holding space
- New substrate coating contributes to superior toughness and wear resistance
- Large groove design provides good chip evacuation performance

D938 Series Twist Drill for Steel

- Suitable for steel（≤ 48HRC）and cast iron
- Unique cutting edge treatment, consolidates the cutting edge, improves the drilling performance and stability
- New AlTiN-nano coating, superior wear-resistance and longer service life
- Straight cutting edge, improves tool strength

D938 Series Deep Hole Internal Coolant Twist Drill

- Suitable for efficient drilling of steel, cast iron and stainless steel
- New substrate material, perfect balance of toughness and wear resistance
- Using AlTiN-nano coating and unique post-processing of coating
- Optimize groove profile and drill point design, with super self-centering performance, chip breaking performance and good chip evacuation performance

Solid Carbide Drill Product Lineup

D928 Series Twist Drill for Cast Iron

- Suitable for drilling cast iron of automobile industry and other industries
- Wave formed cutting edge, lowers machining torque
- Four margin design, improves hole wall quality and accuracy
- Widened chisel edge design, strengthen drilling point

D966 Series Twist Drill for Aluminium Alloy

- Suitable for the processing of aluminium alloy, copper alloy and other nonferrous alloy
- High precision surface treatment technology for smoother chip removal
- Unique edge design makes cutting easily

D998 Series Twist Drill for Hardened Steel

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

D101/D102/D103 NC Centre Drill

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

Application Summary of Solid Carbide Drills

<table>
<tr><th rowspan="2">ISO Material Group</th><th rowspan="2">GESAC Material Group</th><th colspan="7">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>20*D</th><th>25*D</th><th>Chamfer / Center Hole</th><th>3*D</th><th>5*D</th></tr>
<tr><td rowspan="3">P</td><td>Carbon Steel, Alloy Steel (＜35HRC)</td><td colspan="2" rowspan="3">D938
D918S</td><td rowspan="3">D938</td><td rowspan="3">D938</td><td rowspan="3">D938</td><td rowspan="3">D938</td><td rowspan="3">D938</td><td rowspan="11">D101
D102
D103</td><td colspan="2" rowspan="3">D938
D918S</td></tr>
<tr><td>Alloy Steel (35-48HRC)</td></tr>
<tr><td>PH and Ferritic/ Martensitic (＜35HRC)</td></tr>
<tr><td>M</td><td>Stainless Steel</td><td colspan="2">D968S</td><td></td><td></td><td></td><td></td><td></td><td colspan="2">D968S</td></tr>
<tr><td rowspan="2">K</td><td>Gray Cast Iron、Ductile Cast Iron(＜32HRC)</td><td colspan="2" rowspan="2">D938
D928</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td colspan="2" rowspan="2">D938
D928</td></tr>
<tr><td>High Alloy Cast Iron (35-45HRC)</td></tr>
<tr><td rowspan="4">N</td><td>Forged Aluminium Alloys
Cast Aluminium Alloys (Si≤12%)</td><td colspan="2" rowspan="3">D966</td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td colspan="2" rowspan="3">D966</td></tr>
<tr><td>Cast Aluminium Alloys (Si＞12%)</td></tr>
<tr><td>Copper Alloys (＜HB200)</td></tr>
<tr><td>Composite</td><td colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td rowspan="2">S</td><td>Heat Resistant Super Alloys (＜HB450)</td><td colspan="2" rowspan="2">D968S</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td colspan="2" rowspan="2">D968S</td></tr>
<tr><td>Titanium Alloys (＜HB400)</td></tr>
<tr><td rowspan="2">H</td><td>Hardened Steels (45-60HRC)</td><td colspan="2"></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 colspan="2"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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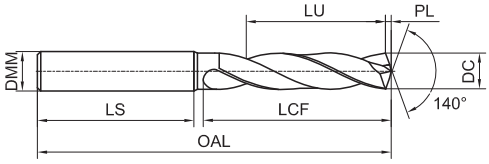
D918S-A3N

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D External Coolant Twist Drills For Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-0300	3.00	20	62	6	36	15.5	0.55	●
D918S-A3N-0310	3.10	20	62	6	36	15.4	0.56	●
D918S-A3N-0320	3.20	20	62	6	36	15.2	0.58	●
D918S-A3N-0330	3.30	20	62	6	36	15.1	0.60	●
D918S-A3N-0340	3.40	20	62	6	36	14.9	0.62	●
D918S-A3N-0350	3.50	20	62	6	36	14.8	0.64	●
D918S-A3N-0360	3.60	20	62	6	36	14.6	0.66	●
D918S-A3N-0365	3.65	20	62	6	36	14.5	0.66	○
D918S-A3N-0370	3.70	20	62	6	36	14.5	0.67	●
D918S-A3N-0380	3.80	24	66	6	36	18.3	0.69	●
D918S-A3N-0390	3.90	24	66	6	36	18.2	0.71	●
D918S-A3N-0400	4.00	24	66	6	36	18.0	0.73	●
D918S-A3N-0410	4.10	24	66	6	36	17.9	0.75	●
D918S-A3N-0415	4.15	24	66	6	36	17.8	0.76	●
D918S-A3N-0420	4.20	24	66	6	36	17.7	0.76	●
D918S-A3N-0430	4.30	24	66	6	36	17.6	0.78	●
D918S-A3N-0440	4.40	24	66	6	36	17.4	0.80	●
D918S-A3N-0450	4.50	24	66	6	36	17.3	0.82	●
D918S-A3N-0460	4.60	24	66	6	36	17.1	0.84	●
D918S-A3N-0470	4.70	24	66	6	36	17.0	0.86	●
D918S-A3N-0480	4.80	28	66	6	36	20.8	0.87	●
D918S-A3N-0490	4.90	28	66	6	36	20.7	0.89	●
D918S-A3N-0500	5.00	28	66	6	36	20.5	0.91	●
D918S-A3N-0510	5.10	28	66	6	36	20.4	0.93	●
D918S-A3N-0520	5.20	28	66	6	36	20.2	0.95	●
D918S-A3N-0530	5.30	28	66	6	36	20.1	0.96	●
D918S-A3N-0540	5.40	28	66	6	36	19.9	0.98	●
D918S-A3N-0550	5.50	28	66	6	36	19.8	1.00	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-0560	5.60	28	66	6	36	19.6	1.02	●
D918S-A3N-0570	5.70	28	66	6	36	19.5	1.04	●
D918S-A3N-0575	5.75	28	66	6	36	19.4	1.05	○
D918S-A3N-0580	5.80	28	66	6	36	19.3	1.06	●
D918S-A3N-0590	5.90	28	66	6	36	19.2	1.07	●
D918S-A3N-0600	6.00	28	66	6	36	19.0	1.09	●
D918S-A3N-0610	6.10	34	79	8	36	24.9	1.11	●
D918S-A3N-0620	6.20	34	79	8	36	24.7	1.13	●
D918S-A3N-0630	6.30	34	79	8	36	24.6	1.15	●
D918S-A3N-0640	6.40	34	79	8	36	24.4	1.16	●
D918S-A3N-0650	6.50	34	79	8	36	24.3	1.18	●
D918S-A3N-0660	6.60	34	79	8	36	24.1	1.20	●
D918S-A3N-0670	6.70	34	79	8	36	24.0	1.22	●
D918S-A3N-0675	6.75	34	79	8	36	23.9	1.23	○
D918S-A3N-0680	6.80	34	79	8	36	23.8	1.24	●
D918S-A3N-0690	6.90	34	79	8	36	23.7	1.26	●
D918S-A3N-0700	7.00	34	79	8	36	23.5	1.27	●
D918S-A3N-0710	7.10	41	79	8	36	30.4	1.29	●
D918S-A3N-0720	7.20	41	79	8	36	30.2	1.31	●
D918S-A3N-0730	7.30	41	79	8	36	30.1	1.33	●
D918S-A3N-0740	7.40	41	79	8	36	29.9	1.35	●
D918S-A3N-0745	7.45	41	79	8	36	29.8	1.36	○
D918S-A3N-0750	7.50	41	79	8	36	29.8	1.36	●
D918S-A3N-0755	7.55	41	79	8	36	29.7	1.37	○
D918S-A3N-0760	7.60	41	79	8	36	29.6	1.38	●
D918S-A3N-0770	7.70	41	79	8	36	29.5	1.40	●
D918S-A3N-0780	7.80	41	79	8	36	29.3	1.42	●
D918S-A3N-0790	7.90	41	79	8	36	29.2	1.44	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

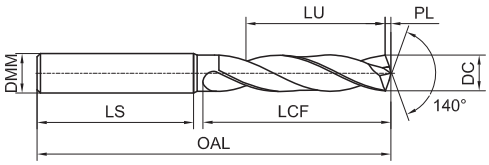
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A3N

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D External Coolant Twist Drills For Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-0800	8.00	41	79	8	36	29.0	1.46	●
D918S-A3N-0810	8.10	47	89	10	40	34.9	1.47	●
D918S-A3N-0820	8.20	47	89	10	40	34.7	1.49	●
D918S-A3N-0830	8.30	47	89	10	40	34.6	1.51	●
D918S-A3N-0840	8.40	47	89	10	40	34.4	1.53	●
D918S-A3N-0850	8.50	47	89	10	40	34.3	1.55	●
D918S-A3N-0860	8.60	47	89	10	40	34.1	1.57	●
D918S-A3N-0870	8.70	47	89	10	40	34.0	1.58	●
D918S-A3N-0880	8.80	47	89	10	40	33.8	1.60	●
D918S-A3N-0890	8.90	47	89	10	40	33.7	1.62	●
D918S-A3N-0900	9.00	47	89	10	40	33.5	1.64	●
D918S-A3N-0910	9.10	47	89	10	40	33.4	1.66	●
D918S-A3N-0920	9.20	47	89	10	40	33.2	1.67	●
D918S-A3N-0930	9.30	47	89	10	40	33.1	1.69	●
D918S-A3N-0940	9.40	47	89	10	40	32.9	1.71	●
D918S-A3N-0950	9.50	47	89	10	40	32.8	1.73	●
D918S-A3N-0960	9.60	47	89	10	40	32.6	1.75	●
D918S-A3N-0970	9.70	47	89	10	40	32.5	1.77	●
D918S-A3N-0980	9.80	47	89	10	40	32.3	1.78	●
D918S-A3N-0990	9.90	47	89	10	40	32.2	1.80	●
D918S-A3N-0995	9.95	47	89	10	40	32.1	1.81	○
D918S-A3N-1000	10.00	47	89	10	40	32.0	1.82	●
D918S-A3N-1010	10.10	55	102	12	45	39.9	1.84	●
D918S-A3N-1020	10.20	55	102	12	45	39.7	1.86	●
D918S-A3N-1030	10.30	55	102	12	45	39.6	1.87	●
D918S-A3N-1040	10.40	55	102	12	45	39.4	1.89	●
D918S-A3N-1050	10.50	55	102	12	45	39.3	1.91	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-1060	10.60	55	102	12	45	39.1	1.93	●
D918S-A3N-1070	10.70	55	102	12	45	39.0	1.95	●
D918S-A3N-1080	10.80	55	102	12	45	38.8	1.97	●
D918S-A3N-1085	10.85	55	102	12	45	38.7	1.97	●
D918S-A3N-1090	10.90	55	102	12	45	38.7	1.98	●
D918S-A3N-1100	11.00	55	102	12	45	38.5	2.00	●
D918S-A3N-1110	11.10	55	102	12	45	38.4	2.02	●
D918S-A3N-1120	11.20	55	102	12	45	38.2	2.04	●
D918S-A3N-1130	11.30	55	102	12	45	38.1	2.06	●
D918S-A3N-1140	11.40	55	102	12	45	37.9	2.07	●
D918S-A3N-1150	11.50	55	102	12	45	37.8	2.09	●
D918S-A3N-1160	11.60	55	102	12	45	37.6	2.11	●
D918S-A3N-1170	11.70	55	102	12	45	37.5	2.13	●
D918S-A3N-1180	11.80	55	102	12	45	37.3	2.15	●
D918S-A3N-1190	11.90	55	102	12	45	37.2	2.17	●
D918S-A3N-1200	12.00	55	102	12	45	37.0	2.18	●
D918S-A3N-1205	12.05	55	102	12	45	36.9	2.19	●
D918S-A3N-1210	12.10	60	107	14	45	41.9	2.20	●
D918S-A3N-1220	12.20	60	107	14	45	41.7	2.22	●
D918S-A3N-1230	12.30	60	107	14	45	41.6	2.24	●
D918S-A3N-1240	12.40	60	107	14	45	41.4	2.26	○
D918S-A3N-1250	12.50	60	107	14	45	41.3	2.27	●
D918S-A3N-1260	12.60	60	107	14	45	41.1	2.29	●
D918S-A3N-1270	12.70	60	107	14	45	41.0	2.31	●
D918S-A3N-1280	12.80	60	107	14	45	40.8	2.33	●
D918S-A3N-1290	12.90	60	107	14	45	40.7	2.35	○
D918S-A3N-1300	13.00	60	107	14	45	40.5	2.37	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

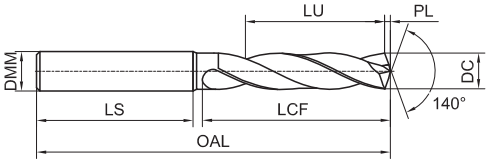
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A3N

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D External Coolant Twist Drills For Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-1305	13.05	60	107	14	45	40.4	2.37	○
D918S-A3N-1310	13.10	60	107	14	45	40.4	2.38	●
D918S-A3N-1320	13.20	60	107	14	45	40.2	2.40	●
D918S-A3N-1330	13.30	60	107	14	45	40.1	2.42	○
D918S-A3N-1340	13.40	60	107	14	45	39.9	2.44	○
D918S-A3N-1350	13.50	60	107	14	45	39.8	2.46	●
D918S-A3N-1360	13.60	60	107	14	45	39.6	2.47	○
D918S-A3N-1370	13.70	60	107	14	45	39.5	2.49	○
D918S-A3N-1380	13.80	60	107	14	45	39.3	2.51	●
D918S-A3N-1390	13.90	60	107	14	45	39.2	2.53	○
D918S-A3N-1395	13.95	60	107	14	45	39.1	2.54	○
D918S-A3N-1400	14.00	60	107	14	45	39.0	2.55	●
D918S-A3N-1410	14.10	65	115	16	48	43.9	2.57	●
D918S-A3N-1420	14.20	65	115	16	48	43.7	2.58	●
D918S-A3N-1425	14.25	65	115	16	48	43.6	2.59	○
D918S-A3N-1430	14.30	65	115	16	48	43.6	2.60	●
D918S-A3N-1440	14.40	65	115	16	48	43.4	2.62	○
D918S-A3N-1450	14.50	65	115	16	48	43.3	2.64	●
D918S-A3N-1460	14.60	65	115	16	48	43.1	2.66	●
D918S-A3N-1470	14.70	65	115	16	48	43.0	2.68	○
D918S-A3N-1480	14.80	65	115	16	48	42.8	2.69	●
D918S-A3N-1490	14.90	65	115	16	48	42.7	2.71	○
D918S-A3N-1500	15.00	65	115	16	48	42.5	2.73	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-1510	15.10	65	115	16	48	42.4	2.75	○
D918S-A3N-1520	15.20	65	115	16	48	42.2	2.77	●
D918S-A3N-1530	15.30	65	115	16	48	42.1	2.78	●
D918S-A3N-1540	15.40	65	115	16	48	41.9	2.80	○
D918S-A3N-1550	15.50	65	115	16	48	41.8	2.82	●
D918S-A3N-1555	15.55	65	115	16	48	41.7	2.83	○
D918S-A3N-1560	15.60	65	115	16	48	41.6	2.84	○
D918S-A3N-1570	15.70	65	115	16	48	41.5	2.86	●
D918S-A3N-1580	15.80	65	115	16	48	41.3	2.88	○
D918S-A3N-1590	15.90	65	115	16	48	41.2	2.89	○
D918S-A3N-1600	16.00	65	115	16	48	41.0	2.91	●
D918S-A3N-1610	16.10	73	123	18	48	48.9	2.93	○
D918S-A3N-1620	16.20	73	123	18	48	48.7	2.95	○
D918S-A3N-1630	16.30	73	123	18	48	48.6	2.97	○
D918S-A3N-1640	16.40	73	123	18	48	48.4	2.98	○
D918S-A3N-1650	16.50	73	123	18	48	48.3	3.00	○
D918S-A3N-1660	16.60	73	123	18	48	48.1	3.02	○
D918S-A3N-1670	16.70	73	123	18	48	48.0	3.04	○
D918S-A3N-1680	16.80	73	123	18	48	47.8	3.06	○
D918S-A3N-1700	17.00	73	123	18	48	47.5	3.09	○
D918S-A3N-1710	17.10	73	123	18	48	47.4	3.11	○
D918S-A3N-1720	17.20	73	123	18	48	47.2	3.13	○
D918S-A3N-1730	17.30	73	123	18	48	47.1	3.15	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

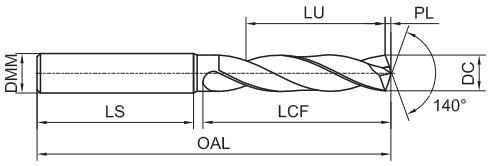
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A3N

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D External Coolant Twist Drills For Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3N-1740	17.40	73	123	18	48	46.9	3.17	○
D918S-A3N-1750	17.50	73	123	18	48	46.8	3.18	○
D918S-A3N-1760	17.60	73	123	18	48	46.6	3.20	○
D918S-A3N-1770	17.70	73	123	18	48	46.5	3.22	○
D918S-A3N-1780	17.80	73	123	18	48	46.3	3.24	○
D918S-A3N-1800	18.00	73	123	18	48	46.0	3.28	●
D918S-A3N-1810	18.10	79	131	20	50	51.9	3.29	○
D918S-A3N-1840	18.40	79	131	20	50	51.4	3.35	○
D918S-A3N-1850	18.50	79	131	20	50	51.3	3.37	○
D918S-A3N-1860	18.60	79	131	20	50	51.1	3.38	○
D918S-A3N-1880	18.80	79	131	20	50	50.8	3.42	○
D918S-A3N-1900	19.00	79	131	20	50	50.5	3.46	○
D918S-A3N-1910	19.10	79	131	20	50	50.4	3.48	○
D918S-A3N-1920	19.20	79	131	20	50	50.2	3.49	○
D918S-A3N-1950	19.50	79	131	20	50	49.8	3.55	○
D918S-A3N-1960	19.60	79	131	20	50	49.6	3.57	○
D918S-A3N-1980	19.80	79	131	20	50	49.3	3.60	○
D918S-A3N-1990	19.90	79	131	20	50	49.2	3.62	○
D918S-A3N-2000	20.00	79	131	20	50	49.0	3.64	●

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

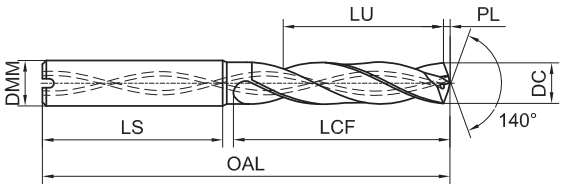
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A3C

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D Internal Coolant Twist Drill For Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3C-0300	3.00	20	62	6	36	15.5	0.55	●
D918S-A3C-0310	3.10	20	62	6	36	15.4	0.56	●
D918S-A3C-0320	3.20	20	62	6	36	15.2	0.58	●
D918S-A3C-0330	3.30	20	62	6	36	15.1	0.60	●
D918S-A3C-0340	3.40	20	62	6	36	14.9	0.62	●
D918S-A3C-0350	3.50	20	62	6	36	14.8	0.64	●
D918S-A3C-0360	3.60	20	62	6	36	14.6	0.66	●
D918S-A3C-0370	3.70	20	62	6	36	14.5	0.67	●
D918S-A3C-0380	3.80	24	66	6	36	18.3	0.69	●
D918S-A3C-0390	3.90	24	66	6	36	18.2	0.71	●
D918S-A3C-0400	4.00	24	66	6	36	18.0	0.73	●
D918S-A3C-0410	4.10	24	66	6	36	17.9	0.75	●
D918S-A3C-0420	4.20	24	66	6	36	17.7	0.76	●
D918S-A3C-0430	4.30	24	66	6	36	17.6	0.78	●
D918S-A3C-0440	4.40	24	66	6	36	17.4	0.80	●
D918S-A3C-0450	4.50	24	66	6	36	17.3	0.82	●
D918S-A3C-0460	4.60	24	66	6	36	17.1	0.84	●
D918S-A3C-0470	4.70	24	66	6	36	17.0	0.86	●
D918S-A3C-0480	4.80	28	66	6	36	20.8	0.87	●
D918S-A3C-0490	4.90	28	66	6	36	20.7	0.89	●
D918S-A3C-0500	5.00	28	66	6	36	20.5	0.91	●
D918S-A3C-0505	5.05	28	66	6	36	20.4	0.92	○
D918S-A3C-0510	5.10	28	66	6	36	20.4	0.93	●
D918S-A3C-0520	5.20	28	66	6	36	20.2	0.95	●
D918S-A3C-0530	5.30	28	66	6	36	20.1	0.96	●
D918S-A3C-0540	5.40	28	66	6	36	19.9	0.98	●
D918S-A3C-0550	5.50	28	66	6	36	19.8	1.00	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3C-0560	5.60	28	66	6	36	19.6	1.02	●
D918S-A3C-0570	5.70	28	66	6	36	19.5	1.04	●
D918S-A3C-0580	5.80	28	66	6	36	19.3	1.06	●
D918S-A3C-0590	5.90	28	66	6	36	19.2	1.07	●
D918S-A3C-0600	6.00	28	66	6	36	19.0	1.09	●
D918S-A3C-0610	6.10	34	79	8	36	24.9	1.11	●
D918S-A3C-0620	6.20	34	79	8	36	24.7	1.13	●
D918S-A3C-0630	6.30	34	79	8	36	24.6	1.15	●
D918S-A3C-0640	6.40	34	79	8	36	24.4	1.16	●
D918S-A3C-0650	6.50	34	79	8	36	24.3	1.18	●
D918S-A3C-0660	6.60	34	79	8	36	24.1	1.20	●
D918S-A3C-0670	6.70	34	79	8	36	24.0	1.22	●
D918S-A3C-0675	6.75	34	79	8	36	23.9	1.23	○
D918S-A3C-0680	6.80	34	79	8	36	23.8	1.24	●
D918S-A3C-0690	6.90	34	79	8	36	23.7	1.26	●
D918S-A3C-0700	7.00	34	79	8	36	23.5	1.27	●
D918S-A3C-0710	7.10	41	79	8	36	30.4	1.29	●
D918S-A3C-0720	7.20	41	79	8	36	30.2	1.31	●
D918S-A3C-0730	7.30	41	79	8	36	30.1	1.33	●
D918S-A3C-0740	7.40	41	79	8	36	29.9	1.35	●
D918S-A3C-0750	7.50	41	79	8	36	29.8	1.36	●
D918S-A3C-0760	7.60	41	79	8	36	29.6	1.38	●
D918S-A3C-0770	7.70	41	79	8	36	29.5	1.40	●
D918S-A3C-0780	7.80	41	79	8	36	29.3	1.42	●
D918S-A3C-0790	7.90	41	79	8	36	29.2	1.44	●
D918S-A3C-0800	8.00	41	79	8	36	29.0	1.46	●
D918S-A3C-0810	8.10	47	89	10	40	34.9	1.47	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○	○	○	○								

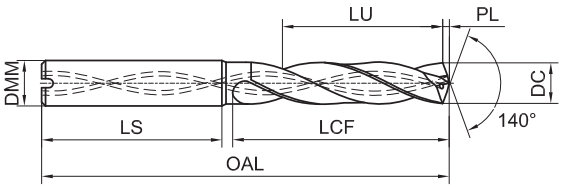
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A3C

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D Internal Coolant Twist Drill For Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3C-0820	8.20	47	89	10	40	34.7	1.49	●
D918S-A3C-0830	8.30	47	89	10	40	34.6	1.51	●
D918S-A3C-0840	8.40	47	89	10	40	34.4	1.53	●
D918S-A3C-0850	8.50	47	89	10	40	34.3	1.55	●
D918S-A3C-0855	8.55	47	89	10	40	34.2	1.56	○
D918S-A3C-0860	8.60	47	89	10	40	34.1	1.57	●
D918S-A3C-0870	8.70	47	89	10	40	34.0	1.58	●
D918S-A3C-0880	8.80	47	89	10	40	33.8	1.60	●
D918S-A3C-0890	8.90	47	89	10	40	33.7	1.62	●
D918S-A3C-0900	9.00	47	89	10	40	33.5	1.64	●
D918S-A3C-0910	9.10	47	89	10	40	33.4	1.66	●
D918S-A3C-0920	9.20	47	89	10	40	33.2	1.67	●
D918S-A3C-0930	9.30	47	89	10	40	33.1	1.69	●
D918S-A3C-0940	9.40	47	89	10	40	32.9	1.71	●
D918S-A3C-0950	9.50	47	89	10	40	32.8	1.73	●
D918S-A3C-0960	9.60	47	89	10	40	32.6	1.75	●
D918S-A3C-0970	9.70	47	89	10	40	32.5	1.77	●
D918S-A3C-0980	9.80	47	89	10	40	32.3	1.78	●
D918S-A3C-0990	9.90	47	89	10	40	32.2	1.80	●
D918S-A3C-1000	10.00	47	89	10	40	32.0	1.82	●
D918S-A3C-1010	10.10	55	102	12	45	39.9	1.84	●
D918S-A3C-1020	10.20	55	102	12	45	39.7	1.86	●
D918S-A3C-1030	10.30	55	102	12	45	39.6	1.87	●
D918S-A3C-1040	10.40	55	102	12	45	39.4	1.89	●
D918S-A3C-1050	10.50	55	102	12	45	39.3	1.91	●
D918S-A3C-1060	10.60	55	102	12	45	39.1	1.93	○
D918S-A3C-1070	10.70	55	102	12	45	39.0	1.95	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3C-1080	10.80	55	102	12	45	38.8	1.97	●
D918S-A3C-1090	10.90	55	102	12	45	38.7	1.98	●
D918S-A3C-1100	11.00	55	102	12	45	38.5	2.00	●
D918S-A3C-1110	11.10	55	102	12	45	38.4	2.02	●
D918S-A3C-1120	11.20	55	102	12	45	38.2	2.04	●
D918S-A3C-1130	11.30	55	102	12	45	38.1	2.06	●
D918S-A3C-1140	11.40	55	102	12	45	37.9	2.07	●
D918S-A3C-1150	11.50	55	102	12	45	37.8	2.09	○
D918S-A3C-1160	11.60	55	102	12	45	37.6	2.11	●
D918S-A3C-1170	11.70	55	102	12	45	37.5	2.13	●
D918S-A3C-1180	11.80	55	102	12	45	37.3	2.15	●
D918S-A3C-1190	11.90	55	102	12	45	37.2	2.17	●
D918S-A3C-1200	12.00	55	102	12	45	37.0	2.18	●
D918S-A3C-1210	12.10	60	107	14	45	41.9	2.20	○
D918S-A3C-1220	12.20	60	107	14	45	41.7	2.22	●
D918S-A3C-1230	12.30	60	107	14	45	41.6	2.24	●
D918S-A3C-1240	12.40	60	107	14	45	41.4	2.26	○
D918S-A3C-1250	12.50	60	107	14	45	41.3	2.27	●
D918S-A3C-1260	12.60	60	107	14	45	41.1	2.29	○
D918S-A3C-1270	12.70	60	107	14	45	41.0	2.31	○
D918S-A3C-1280	12.80	60	107	14	45	40.8	2.33	○
D918S-A3C-1290	12.90	60	107	14	45	40.7	2.35	○
D918S-A3C-1300	13.00	60	107	14	45	40.5	2.37	●
D918S-A3C-1310	13.10	60	107	14	45	40.4	2.38	○
D918S-A3C-1320	13.20	60	107	14	45	40.2	2.40	○
D918S-A3C-1330	13.30	60	107	14	45	40.1	2.42	○
D918S-A3C-1340	13.40	60	107	14	45	39.9	2.44	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○	○	○	○								

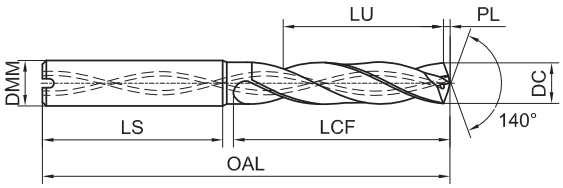
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A3C

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

High Performance 3D Internal Coolant Twist Drill For Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3C-1350	13.50	60	107	14	45	39.8	2.46	●
D918S-A3C-1360	13.60	60	107	14	45	39.6	2.47	○
D918S-A3C-1370	13.70	60	107	14	45	39.5	2.49	○
D918S-A3C-1380	13.80	60	107	14	45	39.3	2.51	○
D918S-A3C-1390	13.90	60	107	14	45	39.2	2.53	○
D918S-A3C-1400	14.00	60	107	14	45	39.0	2.55	●
D918S-A3C-1410	14.10	65	115	16	48	43.9	2.57	○
D918S-A3C-1420	14.20	65	115	16	48	43.7	2.58	●
D918S-A3C-1430	14.30	65	115	16	48	43.6	2.60	○
D918S-A3C-1440	14.40	65	115	16	48	43.4	2.62	○
D918S-A3C-1450	14.50	65	115	16	48	43.3	2.64	●
D918S-A3C-1460	14.60	65	115	16	48	43.1	2.66	○
D918S-A3C-1470	14.70	65	115	16	48	43.0	2.68	○
D918S-A3C-1480	14.80	65	115	16	48	42.8	2.69	○
D918S-A3C-1490	14.90	65	115	16	48	42.7	2.71	○
D918S-A3C-1500	15.00	65	115	16	48	42.5	2.73	●
D918S-A3C-1510	15.10	65	115	16	48	42.4	2.75	○
D918S-A3C-1520	15.20	65	115	16	48	42.2	2.77	○
D918S-A3C-1530	15.30	65	115	16	48	42.1	2.78	●
D918S-A3C-1540	15.40	65	115	16	48	41.9	2.80	○
D918S-A3C-1550	15.50	65	115	16	48	41.8	2.82	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A3C-1560	15.60	65	115	16	48	41.6	2.84	○
D918S-A3C-1570	15.70	65	115	16	48	41.5	2.86	○
D918S-A3C-1580	15.80	65	115	16	48	41.3	2.88	●
D918S-A3C-1590	15.90	65	115	16	48	41.2	2.89	○
D918S-A3C-1600	16.00	65	115	16	48	41.0	2.91	●
D918S-A3C-1650	16.50	73	123	18	48	48.3	3.00	○
D918S-A3C-1670	16.70	73	123	18	48	48.0	3.04	○
D918S-A3C-1680	16.80	73	123	18	48	47.8	3.06	○
D918S-A3C-1700	17.00	73	123	18	48	47.5	3.09	○
D918S-A3C-1750	17.50	73	123	18	48	46.8	3.18	○
D918S-A3C-1770	17.70	73	123	18	48	46.5	3.22	○
D918S-A3C-1780	17.80	73	123	18	48	46.3	3.24	○
D918S-A3C-1800	18.00	73	123	18	48	46.0	3.28	○
D918S-A3C-1850	18.50	79	131	20	50	51.3	3.37	○
D918S-A3C-1870	18.70	79	131	20	50	51.0	3.40	○
D918S-A3C-1880	18.80	79	131	20	50	50.8	3.42	○
D918S-A3C-1900	19.00	79	131	20	50	50.5	3.46	○
D918S-A3C-1950	19.50	79	131	20	50	49.8	3.55	○
D918S-A3C-1960	19.60	79	131	20	50	49.6	3.57	○
D918S-A3C-1980	19.80	79	131	20	50	49.3	3.60	○
D918S-A3C-2000	20.00	79	131	20	50	49.0	3.64	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
≥1—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

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○	○	○	○								

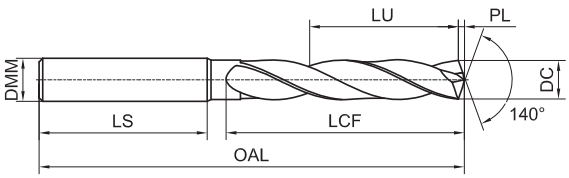
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A5N

High Performance 5D External Coolant Twist Drills For Steel

SHANK DIN 6535HA | AlCrN/TiSiN | 5D



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5N-0300	3.00	28	66	6	36	23.5	0.55	●
D918S-A5N-0310	3.10	28	66	6	36	23.4	0.56	●
D918S-A5N-0320	3.20	28	66	6	36	23.2	0.58	●
D918S-A5N-0330	3.30	28	66	6	36	23.1	0.60	●
D918S-A5N-0340	3.40	28	66	6	36	22.9	0.62	●
D918S-A5N-0350	3.50	28	66	6	36	22.8	0.64	●
D918S-A5N-0360	3.60	28	66	6	36	22.6	0.66	●
D918S-A5N-0370	3.70	28	66	6	36	22.5	0.67	●
D918S-A5N-0380	3.80	36	74	6	36	30.3	0.69	●
D918S-A5N-0390	3.90	36	74	6	36	30.2	0.71	●
D918S-A5N-0400	4.00	36	74	6	36	30.0	0.73	●
D918S-A5N-0405	4.05	36	74	6	36	29.9	0.74	○
D918S-A5N-0410	4.10	36	74	6	36	29.9	0.75	●
D918S-A5N-0420	4.20	36	74	6	36	29.7	0.76	●
D918S-A5N-0430	4.30	36	74	6	36	29.6	0.78	●
D918S-A5N-0440	4.40	36	74	6	36	29.4	0.80	●
D918S-A5N-0450	4.50	36	74	6	36	29.3	0.82	●
D918S-A5N-0460	4.60	36	74	6	36	29.1	0.84	●
D918S-A5N-0465	4.65	36	74	6	36	29.0	0.85	○
D918S-A5N-0470	4.70	36	74	6	36	29.0	0.86	●
D918S-A5N-0480	4.80	44	82	6	36	36.8	0.87	●
D918S-A5N-0490	4.90	44	82	6	36	36.7	0.89	●
D918S-A5N-0500	5.00	44	82	6	36	36.5	0.91	●
D918S-A5N-0510	5.10	44	82	6	36	36.4	0.93	●
D918S-A5N-0515	5.15	44	82	6	36	36.3	0.94	○
D918S-A5N-0520	5.20	44	82	6	36	36.2	0.95	●
D918S-A5N-0530	5.30	44	82	6	36	36.1	0.96	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5N-0540	5.40	44	82	6	36	35.9	0.98	●
D918S-A5N-0550	5.50	44	82	6	36	35.8	1.00	●
D918S-A5N-0555	5.55	44	82	6	36	35.7	1.01	●
D918S-A5N-0560	5.60	44	82	6	36	35.6	1.02	●
D918S-A5N-0570	5.70	44	82	6	36	35.5	1.04	●
D918S-A5N-0580	5.80	44	82	6	36	35.3	1.06	●
D918S-A5N-0590	5.90	44	82	6	36	35.2	1.07	●
D918S-A5N-0600	6.00	44	82	6	36	35.0	1.09	●
D918S-A5N-0605	6.05	53	91	8	36	43.9	1.10	○
D918S-A5N-0610	6.10	53	91	8	36	43.9	1.11	●
D918S-A5N-0620	6.20	53	91	8	36	43.7	1.13	●
D918S-A5N-0630	6.30	53	91	8	36	43.6	1.15	●
D918S-A5N-0640	6.40	53	91	8	36	43.4	1.16	●
D918S-A5N-0650	6.50	53	91	8	36	43.3	1.18	●
D918S-A5N-0660	6.60	53	91	8	36	43.1	1.20	●
D918S-A5N-0670	6.70	53	91	8	36	43.0	1.22	●
D918S-A5N-0680	6.80	53	91	8	36	42.8	1.24	●
D918S-A5N-0690	6.90	53	91	8	36	42.7	1.26	●
D918S-A5N-0700	7.00	53	91	8	36	42.5	1.27	●
D918S-A5N-0710	7.10	53	91	8	36	42.4	1.29	●
D918S-A5N-0720	7.20	53	91	8	36	42.2	1.31	●
D918S-A5N-0730	7.30	53	91	8	36	42.1	1.33	●
D918S-A5N-0740	7.40	53	91	8	36	41.9	1.35	●
D918S-A5N-0750	7.50	53	91	8	36	41.8	1.36	●
D918S-A5N-0760	7.60	53	91	8	36	41.6	1.38	●
D918S-A5N-0770	7.70	53	91	8	36	41.5	1.40	●
D918S-A5N-0780	7.80	53	91	8	36	41.3	1.42	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

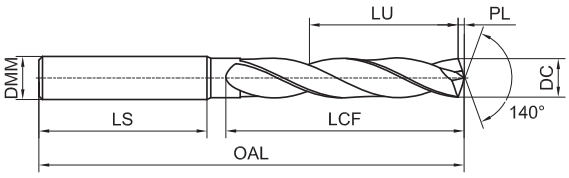
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A5N

High Performance 5D External Coolant Twist Drills For Steel

SHANK DIN 6535HA | AlCrN/TiSiN | 5D



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5N-0790	7.90	53	91	8	36	41.2	1.44	●
D918S-A5N-0800	8.00	53	91	8	36	41.0	1.46	●
D918S-A5N-0810	8.10	61	103	10	40	48.9	1.47	●
D918S-A5N-0820	8.20	61	103	10	40	48.7	1.49	●
D918S-A5N-0860	8.60	61	103	10	40	48.1	1.57	●
D918S-A5N-0870	8.70	61	103	10	40	48.0	1.58	●
D918S-A5N-0880	8.80	61	103	10	40	47.8	1.60	●
D918S-A5N-0890	8.90	61	103	10	40	47.7	1.62	●
D918S-A5N-0900	9.00	61	103	10	40	47.5	1.64	●
D918S-A5N-0910	9.10	61	103	10	40	47.4	1.66	●
D918S-A5N-0920	9.20	61	103	10	40	47.2	1.67	●
D918S-A5N-0930	9.30	61	103	10	40	47.1	1.69	●
D918S-A5N-0940	9.40	61	103	10	40	46.9	1.71	●
D918S-A5N-0950	9.50	61	103	10	40	46.8	1.73	●
D918S-A5N-0955	9.55	61	103	10	40	46.7	1.74	○
D918S-A5N-0960	9.60	61	103	10	40	46.6	1.75	●
D918S-A5N-0970	9.70	61	103	10	40	46.5	1.77	●
D918S-A5N-0980	9.80	61	103	10	40	46.3	1.78	●
D918S-A5N-0990	9.90	61	103	10	40	46.2	1.80	●
D918S-A5N-1000	10.00	61	103	10	40	46.0	1.82	●
D918S-A5N-1010	10.10	71	118	12	45	55.9	1.84	●
D918S-A5N-1020	10.20	71	118	12	45	55.7	1.86	●
D918S-A5N-1030	10.30	71	118	12	45	55.6	1.87	●
D918S-A5N-1040	10.40	71	118	12	45	55.4	1.89	●
D918S-A5N-1050	10.50	71	118	12	45	55.3	1.91	●
D918S-A5N-1060	10.60	71	118	12	45	55.1	1.93	●
D918S-A5N-1070	10.70	71	118	12	45	55.0	1.95	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5N-1080	10.80	71	118	12	45	54.8	1.97	○
D918S-A5N-1090	10.90	71	118	12	45	54.7	1.98	●
D918S-A5N-1100	11.00	71	118	12	45	54.5	2.00	●
D918S-A5N-1110	11.10	71	118	12	45	54.4	2.02	●
D918S-A5N-1120	11.20	71	118	12	45	54.2	2.04	●
D918S-A5N-1130	11.30	71	118	12	45	54.1	2.06	●
D918S-A5N-1140	11.40	71	118	12	45	53.9	2.07	●
D918S-A5N-1150	11.50	71	118	12	45	53.8	2.09	●
D918S-A5N-1160	11.60	71	118	12	45	53.6	2.11	●
D918S-A5N-1170	11.70	71	118	12	45	53.5	2.13	●
D918S-A5N-1180	11.80	71	118	12	45	53.3	2.15	●
D918S-A5N-1190	11.90	71	118	12	45	53.2	2.17	●
D918S-A5N-1200	12.00	71	118	12	45	53.0	2.18	●
D918S-A5N-1210	12.10	77	124	14	45	58.9	2.20	○
D918S-A5N-1220	12.20	77	124	14	45	58.7	2.22	●
D918S-A5N-1230	12.30	77	124	14	45	58.6	2.24	●
D918S-A5N-1240	12.40	77	124	14	45	58.4	2.26	○
D918S-A5N-1250	12.50	77	124	14	45	58.3	2.27	●
D918S-A5N-1260	12.60	77	124	14	45	58.1	2.29	●
D918S-A5N-1270	12.70	77	124	14	45	58.0	2.31	○
D918S-A5N-1280	12.80	77	124	14	45	57.8	2.33	●
D918S-A5N-1290	12.90	77	124	14	45	57.7	2.35	○
D918S-A5N-1300	13.00	77	124	14	45	57.5	2.37	●
D918S-A5N-1310	13.10	77	124	14	45	57.4	2.38	●
D918S-A5N-1320	13.20	77	124	14	45	57.2	2.40	○
D918S-A5N-1330	13.30	77	124	14	45	57.1	2.42	●
D918S-A5N-1340	13.40	77	124	14	45	56.9	2.44	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

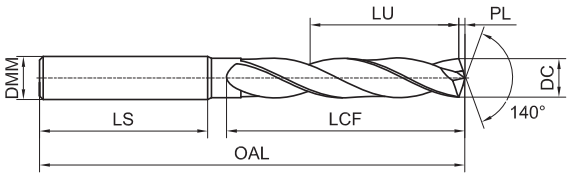
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A5N

High Performance 5D External Coolant Twist Drills For Steel

SHANK DIN 6535HA | AlCrN/TiSiN | 5D



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5N-1350	13.50	77	124	14	45	56.8	2.46	●
D918S-A5N-1360	13.60	77	124	14	45	56.6	2.47	○
D918S-A5N-1370	13.70	77	124	14	45	56.5	2.49	○
D918S-A5N-1380	13.80	77	124	14	45	56.3	2.51	○
D918S-A5N-1390	13.90	77	124	14	45	56.2	2.53	○
D918S-A5N-1400	14.00	77	124	14	45	56.0	2.55	●
D918S-A5N-1410	14.10	83	133	16	48	61.9	2.57	○
D918S-A5N-1420	14.20	83	133	16	48	61.7	2.58	●
D918S-A5N-1425	14.25	83	133	16	48	61.6	2.59	○
D918S-A5N-1430	14.30	83	133	16	48	61.6	2.60	●
D918S-A5N-1440	14.40	83	133	16	48	61.4	2.62	○
D918S-A5N-1450	14.50	83	133	16	48	61.3	2.64	●
D918S-A5N-1460	14.60	83	133	16	48	61.1	2.66	●
D918S-A5N-1470	14.70	83	133	16	48	61.0	2.68	○
D918S-A5N-1480	14.80	83	133	16	48	60.8	2.69	○
D918S-A5N-1490	14.90	83	133	16	48	60.7	2.71	●
D918S-A5N-1500	15.00	83	133	16	48	60.5	2.73	●
D918S-A5N-1510	15.10	83	133	16	48	60.4	2.75	○
D918S-A5N-1520	15.20	83	133	16	48	60.2	2.77	○
D918S-A5N-1530	15.30	83	133	16	48	60.1	2.78	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5N-1540	15.40	83	133	16	48	59.9	2.80	○
D918S-A5N-1550	15.50	83	133	16	48	59.8	2.82	○
D918S-A5N-1560	15.60	83	133	16	48	59.6	2.84	○
D918S-A5N-1570	15.70	83	133	16	48	59.5	2.86	○
D918S-A5N-1580	15.80	83	133	16	48	59.3	2.88	○
D918S-A5N-1590	15.90	83	133	16	48	59.2	2.89	○
D918S-A5N-1600	16.00	83	133	16	48	59.0	2.91	●
D918S-A5N-1650	16.50	93	143	18	48	68.3	3.00	○
D918S-A5N-1660	16.60	93	143	18	48	68.1	3.02	○
D918S-A5N-1680	16.80	93	143	18	48	67.8	3.06	○
D918S-A5N-1700	17.00	93	143	18	48	67.5	3.09	○
D918S-A5N-1750	17.50	93	143	18	48	66.8	3.18	○
D918S-A5N-1770	17.70	93	143	18	48	66.5	3.22	○
D918S-A5N-1780	17.80	93	143	18	48	66.3	3.24	○
D918S-A5N-1800	18.00	93	143	18	48	66.0	3.28	○
D918S-A5N-1850	18.50	101	153	20	50	73.3	3.37	○
D918S-A5N-1860	18.60	101	153	20	50	73.1	3.38	○
D918S-A5N-1900	19.00	101	153	20	50	72.5	3.46	○
D918S-A5N-1950	19.50	101	153	20	50	71.8	3.55	○
D918S-A5N-2000	20.00	101	153	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
≥1—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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○		○	○								

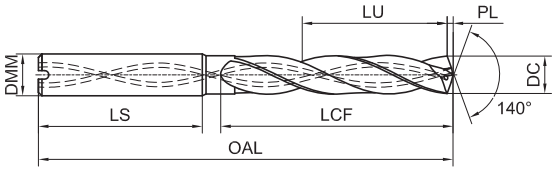
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A5C

SHANK DIN 6535HA | AlCrN/TiSiN | 5D

High Performance 5D Internal Coolant Twist Drills For Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5C-0300	3.00	28	66	6	36	23.5	0.55	●
D918S-A5C-0310	3.10	28	66	6	36	23.4	0.56	●
D918S-A5C-0320	3.20	28	66	6	36	23.2	0.58	●
D918S-A5C-0330	3.30	28	66	6	36	23.1	0.60	●
D918S-A5C-0340	3.40	28	66	6	36	22.9	0.62	●
D918S-A5C-0350	3.50	28	66	6	36	22.8	0.64	●
D918S-A5C-0360	3.60	28	66	6	36	22.6	0.66	●
D918S-A5C-0370	3.70	28	66	6	36	22.5	0.67	●
D918S-A5C-0380	3.80	36	74	6	36	30.3	0.69	●
D918S-A5C-0390	3.90	36	74	6	36	30.2	0.71	●
D918S-A5C-0400	4.00	36	74	6	36	30.0	0.73	●
D918S-A5C-0410	4.10	36	74	6	36	29.9	0.75	●
D918S-A5C-0420	4.20	36	74	6	36	29.7	0.76	●
D918S-A5C-0430	4.30	36	74	6	36	29.6	0.78	●
D918S-A5C-0440	4.40	36	74	6	36	29.4	0.80	●
D918S-A5C-0450	4.50	36	74	6	36	29.3	0.82	●
D918S-A5C-0460	4.60	36	74	6	36	29.1	0.84	●
D918S-A5C-0470	4.70	36	74	6	36	29.0	0.86	●
D918S-A5C-0480	4.80	44	82	6	36	36.8	0.87	●
D918S-A5C-0490	4.90	44	82	6	36	36.7	0.89	●
D918S-A5C-0500	5.00	44	82	6	36	36.5	0.91	●
D918S-A5C-0510	5.10	44	82	6	36	36.4	0.93	●
D918S-A5C-0520	5.20	44	82	6	36	36.2	0.95	●
D918S-A5C-0530	5.30	44	82	6	36	36.1	0.96	●
D918S-A5C-0540	5.40	44	82	6	36	35.9	0.98	●
D918S-A5C-0550	5.50	44	82	6	36	35.8	1.00	●
D918S-A5C-0555	5.55	44	82	6	36	35.7	1.01	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5C-0560	5.60	44	82	6	36	35.6	1.02	●
D918S-A5C-0570	5.70	44	82	6	36	35.5	1.04	●
D918S-A5C-0580	5.80	44	82	6	36	35.3	1.06	●
D918S-A5C-0590	5.90	44	82	6	36	35.2	1.07	●
D918S-A5C-0600	6.00	44	82	6	36	35.0	1.09	●
D918S-A5C-0610	6.10	53	91	8	36	43.9	1.11	●
D918S-A5C-0620	6.20	53	91	8	36	43.7	1.13	●
D918S-A5C-0630	6.30	53	91	8	36	43.6	1.15	●
D918S-A5C-0640	6.40	53	91	8	36	43.4	1.16	●
D918S-A5C-0650	6.50	53	91	8	36	43.3	1.18	●
D918S-A5C-0660	6.60	53	91	8	36	43.1	1.20	●
D918S-A5C-0670	6.70	53	91	8	36	43.0	1.22	●
D918S-A5C-0680	6.80	53	91	8	36	42.8	1.24	●
D918S-A5C-0690	6.90	53	91	8	36	42.7	1.26	●
D918S-A5C-0700	7.00	53	91	8	36	42.5	1.27	●
D918S-A5C-0710	7.10	53	91	8	36	42.4	1.29	●
D918S-A5C-0720	7.20	53	91	8	36	42.2	1.31	●
D918S-A5C-0730	7.30	53	91	8	36	42.1	1.33	●
D918S-A5C-0740	7.40	53	91	8	36	41.9	1.35	●
D918S-A5C-0750	7.50	53	91	8	36	41.8	1.36	●
D918S-A5C-0760	7.60	53	91	8	36	41.6	1.38	●
D918S-A5C-0770	7.70	53	91	8	36	41.5	1.40	●
D918S-A5C-0780	7.80	53	91	8	36	41.3	1.42	●
D918S-A5C-0790	7.90	53	91	8	36	41.2	1.44	●
D918S-A5C-0800	8.00	53	91	8	36	41.0	1.46	●
D918S-A5C-0810	8.10	61	103	10	40	48.9	1.47	●
D918S-A5C-0820	8.20	61	103	10	40	48.7	1.49	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○	○	○	○								

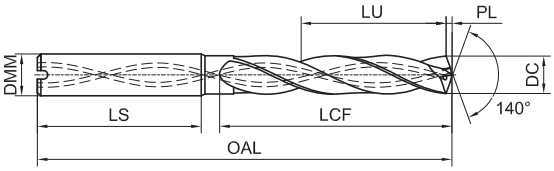
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A5C

SHANK DIN 6535HA | AlCrN/TiSiN | 5D

High Performance 5D Internal Coolant Twist Drills For Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5C-0830	8.30	61	103	10	40	48.6	1.51	●
D918S-A5C-0840	8.40	61	103	10	40	48.4	1.53	●
D918S-A5C-0850	8.50	61	103	10	40	48.3	1.55	●
D918S-A5C-0860	8.60	61	103	10	40	48.1	1.57	●
D918S-A5C-0870	8.70	61	103	10	40	48.0	1.58	●
D918S-A5C-0880	8.80	61	103	10	40	47.8	1.60	●
D918S-A5C-0890	8.90	61	103	10	40	47.7	1.62	●
D918S-A5C-0900	9.00	61	103	10	40	47.5	1.64	●
D918S-A5C-0910	9.10	61	103	10	40	47.4	1.66	●
D918S-A5C-0920	9.20	61	103	10	40	47.2	1.67	●
D918S-A5C-0930	9.30	61	103	10	40	47.1	1.69	●
D918S-A5C-0940	9.40	61	103	10	40	46.9	1.71	●
D918S-A5C-0950	9.50	61	103	10	40	46.8	1.73	●
D918S-A5C-0960	9.60	61	103	10	40	46.6	1.75	●
D918S-A5C-0970	9.70	61	103	10	40	46.5	1.77	●
D918S-A5C-0980	9.80	61	103	10	40	46.3	1.78	●
D918S-A5C-0990	9.90	61	103	10	40	46.2	1.80	●
D918S-A5C-1000	10.00	61	103	10	40	46.0	1.82	●
D918S-A5C-1010	10.10	71	118	12	45	55.9	1.84	●
D918S-A5C-1020	10.20	71	118	12	45	55.7	1.86	●
D918S-A5C-1030	10.30	71	118	12	45	55.6	1.87	●
D918S-A5C-1040	10.40	71	118	12	45	55.4	1.89	●
D918S-A5C-1050	10.50	71	118	12	45	55.3	1.91	●
D918S-A5C-1060	10.60	71	118	12	45	55.1	1.93	●
D918S-A5C-1070	10.70	71	118	12	45	55.0	1.95	●
D918S-A5C-1080	10.80	71	118	12	45	54.8	1.97	●
D918S-A5C-1090	10.90	71	118	12	45	54.7	1.98	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5C-1100	11.00	71	118	12	45	54.5	2.00	●
D918S-A5C-1110	11.10	71	118	12	45	54.4	2.02	●
D918S-A5C-1120	11.20	71	118	12	45	54.2	2.04	●
D918S-A5C-1130	11.30	71	118	12	45	54.1	2.06	○
D918S-A5C-1140	11.40	71	118	12	45	53.9	2.07	●
D918S-A5C-1145	11.45	71	118	12	45	53.8	2.08	○
D918S-A5C-1150	11.50	71	118	12	45	53.8	2.09	●
D918S-A5C-1160	11.60	71	118	12	45	53.6	2.11	●
D918S-A5C-1170	11.70	71	118	12	45	53.5	2.13	●
D918S-A5C-1180	11.80	71	118	12	45	53.3	2.15	●
D918S-A5C-1190	11.90	71	118	12	45	53.2	2.17	●
D918S-A5C-1200	12.00	71	118	12	45	53.0	2.18	●
D918S-A5C-1210	12.10	77	124	14	45	58.9	2.20	○
D918S-A5C-1220	12.20	77	124	14	45	58.7	2.22	●
D918S-A5C-1230	12.30	77	124	14	45	58.6	2.24	●
D918S-A5C-1240	12.40	77	124	14	45	58.4	2.26	○
D918S-A5C-1250	12.50	77	124	14	45	58.3	2.27	●
D918S-A5C-1260	12.60	77	124	14	45	58.1	2.29	○
D918S-A5C-1270	12.70	77	124	14	45	58.0	2.31	●
D918S-A5C-1280	12.80	77	124	14	45	57.8	2.33	○
D918S-A5C-1290	12.90	77	124	14	45	57.7	2.35	●
D918S-A5C-1300	13.00	77	124	14	45	57.5	2.37	●
D918S-A5C-1310	13.10	77	124	14	45	57.4	2.38	○
D918S-A5C-1320	13.20	77	124	14	45	57.2	2.40	○
D918S-A5C-1330	13.30	77	124	14	45	57.1	2.42	○
D918S-A5C-1340	13.40	77	124	14	45	56.9	2.44	○
D918S-A5C-1350	13.50	77	124	14	45	56.8	2.46	●

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○	○	○	○								

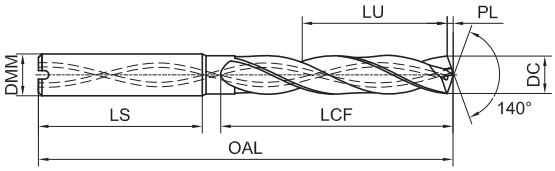
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D918S-A5C

SHANK DIN 6535HA | AlCrN/TiSiN | 5D

High Performance 5D Internal Coolant Twist Drills For Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5C-1360	13.60	77	124	14	45	56.6	2.47	○
D918S-A5C-1370	13.70	77	124	14	45	56.5	2.49	●
D918S-A5C-1380	13.80	77	124	14	45	56.3	2.51	●
D918S-A5C-1390	13.90	77	124	14	45	56.2	2.53	○
D918S-A5C-1400	14.00	77	124	14	45	56.0	2.55	●
D918S-A5C-1410	14.10	83	133	16	48	61.9	2.57	○
D918S-A5C-1420	14.20	83	133	16	48	61.7	2.58	●
D918S-A5C-1430	14.30	83	133	16	48	61.6	2.60	○
D918S-A5C-1440	14.40	83	133	16	48	61.4	2.62	○
D918S-A5C-1450	14.50	83	133	16	48	61.3	2.64	●
D918S-A5C-1460	14.60	83	133	16	48	61.1	2.66	○
D918S-A5C-1470	14.70	83	133	16	48	61.0	2.68	○
D918S-A5C-1480	14.80	83	133	16	48	60.8	2.69	○
D918S-A5C-1490	14.90	83	133	16	48	60.7	2.71	○
D918S-A5C-1500	15.00	83	133	16	48	60.5	2.73	●
D918S-A5C-1505	15.05	83	133	16	48	60.4	2.74	○
D918S-A5C-1510	15.10	83	133	16	48	60.4	2.75	●
D918S-A5C-1520	15.20	83	133	16	48	60.2	2.77	●
D918S-A5C-1530	15.30	83	133	16	48	60.1	2.78	○
D918S-A5C-1540	15.40	83	133	16	48	59.9	2.80	○
D918S-A5C-1550	15.50	83	133	16	48	59.8	2.82	●
D918S-A5C-1560	15.60	83	133	16	48	59.6	2.84	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D918S-A5C-1570	15.70	83	133	16	48	59.5	2.86	○
D918S-A5C-1580	15.80	83	133	16	48	59.3	2.88	●
D918S-A5C-1590	15.90	83	133	16	48	59.2	2.89	○
D918S-A5C-1600	16.00	83	133	16	48	59.0	2.91	●
D918S-A5C-1650	16.50	93	143	18	48	68.3	3.00	○
D918S-A5C-1670	16.70	93	143	18	48	68.0	3.04	○
D918S-A5C-1680	16.80	93	143	18	48	67.8	3.06	○
D918S-A5C-1690	16.90	93	143	18	48	67.7	3.08	○
D918S-A5C-1700	17.00	93	143	18	48	67.5	3.09	○
D918S-A5C-1720	17.20	93	143	18	48	67.2	3.13	○
D918S-A5C-1750	17.50	93	143	18	48	66.8	3.18	○
D918S-A5C-1770	17.70	93	143	18	48	66.5	3.22	○
D918S-A5C-1780	17.80	93	143	18	48	66.3	3.24	○
D918S-A5C-1800	18.00	93	143	18	48	66.0	3.28	○
D918S-A5C-1850	18.50	101	153	20	50	73.3	3.37	○
D918S-A5C-1860	18.60	101	153	20	50	73.1	3.38	○
D918S-A5C-1880	18.80	101	153	20	50	72.8	3.42	○
D918S-A5C-1900	19.00	101	153	20	50	72.5	3.46	○
D918S-A5C-1930	19.30	101	153	20	50	72.1	3.51	○
D918S-A5C-1950	19.50	101	153	20	50	71.8	3.55	○
D918S-A5C-1980	19.80	101	153	20	50	71.3	3.60	○
D918S-A5C-2000	20.00	101	153	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
≥1—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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	○	○	○	○								

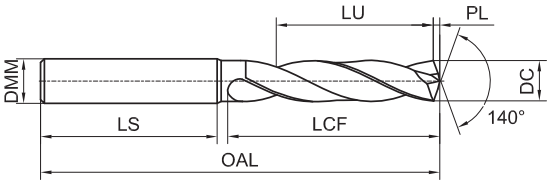
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P091

D968S-A3N

SHANK DIN 6535HA | AlTiN nano | 3D

High Efficient 3D External Coolant Twist Drills for Stainless Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-0100	1.00	7	45	4	30	5.5	0.18	●
D968S-A3N-0110	1.10	7	45	4	30	5.4	0.20	●
D968S-A3N-0120	1.20	7	45	4	30	5.2	0.22	●
D968S-A3N-0130	1.30	7	45	4	30	5.1	0.24	●
D968S-A3N-0140	1.40	7	45	4	30	4.9	0.25	●
D968S-A3N-0150	1.50	9	55	4	38	6.8	0.27	●
D968S-A3N-0160	1.60	9	55	4	38	6.6	0.29	●
D968S-A3N-0175	1.75	9	55	4	38	6.4	0.32	●
D968S-A3N-0180	1.80	9	55	4	38	6.3	0.33	●
D968S-A3N-0190	1.90	9	55	4	38	6.2	0.35	●
D968S-A3N-0200	2.00	13	55	4	36	10.0	0.36	●
D968S-A3N-0210	2.10	13	55	4	36	9.9	0.38	●
D968S-A3N-0220	2.20	13	55	4	36	9.7	0.40	●
D968S-A3N-0230	2.30	13	55	4	36	9.6	0.42	●
D968S-A3N-0240	2.40	17	55	4	33	13.4	0.44	●
D968S-A3N-0250	2.50	17	55	4	33	13.3	0.45	●
D968S-A3N-0260	2.60	17	55	4	33	13.1	0.47	●
D968S-A3N-0270	2.70	17	55	4	33	13.0	0.49	●
D968S-A3N-0280	2.80	17	55	4	33	12.8	0.51	●
D968S-A3N-0290	2.90	17	55	4	33	12.7	0.53	●
D968S-A3N-0295	2.95	17	55	4	33	12.6	0.54	●
D968S-A3N-0300	3.00	20	62	6	36	15.5	0.55	●
D968S-A3N-0305	3.05	20	62	6	36	15.4	0.56	○
D968S-A3N-0310	3.10	20	62	6	36	15.4	0.56	●
D968S-A3N-0315	3.15	20	62	6	36	15.3	0.57	●
D968S-A3N-0320	3.20	20	62	6	36	15.2	0.58	●
D968S-A3N-0325	3.25	20	62	6	36	15.1	0.59	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-0330	3.30	20	62	6	36	15.1	0.60	●
D968S-A3N-0340	3.40	20	62	6	36	14.9	0.62	●
D968S-A3N-0350	3.50	20	62	6	36	14.8	0.64	●
D968S-A3N-0360	3.60	20	62	6	36	14.6	0.66	●
D968S-A3N-0370	3.70	20	62	6	36	14.5	0.67	●
D968S-A3N-0380	3.80	24	66	6	36	18.3	0.69	●
D968S-A3N-0390	3.90	24	66	6	36	18.2	0.71	●
D968S-A3N-0400	4.00	24	66	6	36	18.0	0.73	●
D968S-A3N-0410	4.10	24	66	6	36	17.9	0.75	●
D968S-A3N-0420	4.20	24	66	6	36	17.7	0.76	●
D968S-A3N-0430	4.30	24	66	6	36	17.6	0.78	●
D968S-A3N-0440	4.40	24	66	6	36	17.4	0.80	●
D968S-A3N-0450	4.50	24	66	6	36	17.3	0.82	●
D968S-A3N-0460	4.60	24	66	6	36	17.1	0.84	●
D968S-A3N-0465	4.65	24	66	6	36	17.0	0.85	●
D968S-A3N-0470	4.70	24	66	6	36	17.0	0.86	●
D968S-A3N-0480	4.80	28	66	6	36	20.8	0.87	●
D968S-A3N-0490	4.90	28	66	6	36	20.7	0.89	●
D968S-A3N-0500	5.00	28	66	6	36	20.5	0.91	●
D968S-A3N-0510	5.10	28	66	6	36	20.4	0.93	●
D968S-A3N-0515	5.15	28	66	6	36	20.3	0.94	●
D968S-A3N-0520	5.20	28	66	6	36	20.2	0.95	●
D968S-A3N-0530	5.30	28	66	6	36	20.1	0.96	●
D968S-A3N-0540	5.40	28	66	6	36	19.9	0.98	●
D968S-A3N-0550	5.50	28	66	6	36	19.8	1.00	●
D968S-A3N-0555	5.55	28	66	6	36	19.7	1.01	●
D968S-A3N-0560	5.60	28	66	6	36	19.6	1.02	●

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool Unit(mm)

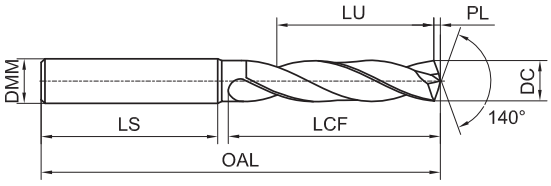
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
○			◎							○	○		

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A3N

High Efficient 3D External Coolant Twist Drills for Stainless Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-0570	5.70	28	66	6	36	19.5	1.04	●
D968S-A3N-0580	5.80	28	66	6	36	19.3	1.06	●
D968S-A3N-0590	5.90	28	66	6	36	19.2	1.07	●
D968S-A3N-0600	6.00	28	66	6	36	19.0	1.09	●
D968S-A3N-0605	6.05	34	79	8	36	24.9	1.10	●
D968S-A3N-0610	6.10	34	79	8	36	24.9	1.11	●
D968S-A3N-0620	6.20	34	79	8	36	24.7	1.13	●
D968S-A3N-0630	6.30	34	79	8	36	24.6	1.15	●
D968S-A3N-0640	6.40	34	79	8	36	24.4	1.16	●
D968S-A3N-0650	6.50	34	79	8	36	24.3	1.18	●
D968S-A3N-0660	6.60	34	79	8	36	24.1	1.20	●
D968S-A3N-0670	6.70	34	79	8	36	24.0	1.22	●
D968S-A3N-0680	6.80	34	79	8	36	23.8	1.24	●
D968S-A3N-0690	6.90	34	79	8	36	23.7	1.26	●
D968S-A3N-0700	7.00	34	79	8	36	23.5	1.27	●
D968S-A3N-0710	7.10	41	79	8	36	30.4	1.29	●
D968S-A3N-0720	7.20	41	79	8	36	30.2	1.31	●
D968S-A3N-0730	7.30	41	79	8	36	30.1	1.33	●
D968S-A3N-0740	7.40	41	79	8	36	29.9	1.35	●
D968S-A3N-0745	7.45	41	79	8	36	29.8	1.36	●
D968S-A3N-0750	7.50	41	79	8	36	29.8	1.36	●
D968S-A3N-0755	7.55	41	79	8	36	29.7	1.37	●
D968S-A3N-0760	7.60	41	79	8	36	29.6	1.38	●
D968S-A3N-0770	7.70	41	79	8	36	29.5	1.40	○
D968S-A3N-0780	7.80	41	79	8	36	29.3	1.42	●
D968S-A3N-0790	7.90	41	79	8	36	29.2	1.44	●
D968S-A3N-0800	8.00	41	79	8	36	29.0	1.46	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-0810	8.10	47	89	10	40	34.9	1.47	●
D968S-A3N-0820	8.20	47	89	10	40	34.7	1.49	●
D968S-A3N-0830	8.30	47	89	10	40	34.6	1.51	●
D968S-A3N-0840	8.40	47	89	10	40	34.4	1.53	●
D968S-A3N-0850	8.50	47	89	10	40	34.3	1.55	●
D968S-A3N-0860	8.60	47	89	10	40	34.1	1.57	●
D968S-A3N-0870	8.70	47	89	10	40	34.0	1.58	●
D968S-A3N-0880	8.80	47	89	10	40	33.8	1.60	●
D968S-A3N-0890	8.90	47	89	10	40	33.7	1.62	●
D968S-A3N-0900	9.00	47	89	10	40	33.5	1.64	●
D968S-A3N-0910	9.10	47	89	10	40	33.4	1.66	●
D968S-A3N-0920	9.20	47	89	10	40	33.2	1.67	●
D968S-A3N-0930	9.30	47	89	10	40	33.1	1.69	●
D968S-A3N-0935	9.35	47	89	10	40	33.0	1.70	●
D968S-A3N-0940	9.40	47	89	10	40	32.9	1.71	●
D968S-A3N-0945	9.45	47	89	10	40	32.8	1.72	●
D968S-A3N-0950	9.50	47	89	10	40	32.8	1.73	●
D968S-A3N-0955	9.55	47	89	10	40	32.7	1.74	●
D968S-A3N-0960	9.60	47	89	10	40	32.6	1.75	●
D968S-A3N-0970	9.70	47	89	10	40	32.5	1.77	●
D968S-A3N-0980	9.80	47	89	10	40	32.3	1.78	●
D968S-A3N-0990	9.90	47	89	10	40	32.2	1.80	●
D968S-A3N-1000	10.00	47	89	10	40	32.0	1.82	●
D968S-A3N-1010	10.10	55	102	12	45	39.9	1.84	●
D968S-A3N-1020	10.20	55	102	12	45	39.7	1.86	●
D968S-A3N-1025	10.25	55	102	12	45	39.6	1.87	●
D968S-A3N-1030	10.30	55	102	12	45	39.6	1.87	●

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
○			◎							○	○		

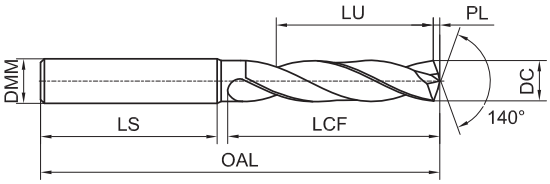
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A3N

SHANK DIN 6535HA | AlTiN nano | 3D

High Efficient 3D External Coolant Twist Drills for Stainless Steel



》 Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-1040	10.40	55	102	12	45	39.4	1.89	●
D968S-A3N-1050	10.50	55	102	12	45	39.3	1.91	●
D968S-A3N-1060	10.60	55	102	12	45	39.1	1.93	●
D968S-A3N-1070	10.70	55	102	12	45	39.0	1.95	○
D968S-A3N-1080	10.80	55	102	12	45	38.8	1.97	●
D968S-A3N-1090	10.90	55	102	12	45	38.7	1.98	○
D968S-A3N-1100	11.00	55	102	12	45	38.5	2.00	●
D968S-A3N-1110	11.10	55	102	12	45	38.4	2.02	●
D968S-A3N-1120	11.20	55	102	12	45	38.2	2.04	●
D968S-A3N-1130	11.30	55	102	12	45	38.1	2.06	●
D968S-A3N-1140	11.40	55	102	12	45	37.9	2.07	●
D968S-A3N-1150	11.50	55	102	12	45	37.8	2.09	●
D968S-A3N-1160	11.60	55	102	12	45	37.6	2.11	●
D968S-A3N-1170	11.70	55	102	12	45	37.5	2.13	●
D968S-A3N-1180	11.80	55	102	12	45	37.3	2.15	●
D968S-A3N-1190	11.90	55	102	12	45	37.2	2.17	●
D968S-A3N-1200	12.00	55	102	12	45	37.0	2.18	●
D968S-A3N-1210	12.10	60	107	14	45	41.9	2.20	●
D968S-A3N-1220	12.20	60	107	14	45	41.7	2.22	○
D968S-A3N-1225	12.25	60	107	14	45	41.6	2.23	○
D968S-A3N-1230	12.30	60	107	14	45	41.6	2.24	○
D968S-A3N-1240	12.40	60	107	14	45	41.4	2.26	●
D968S-A3N-1250	12.50	60	107	14	45	41.3	2.27	●
D968S-A3N-1260	12.60	60	107	14	45	41.1	2.29	○
D968S-A3N-1270	12.70	60	107	14	45	41.0	2.31	●
D968S-A3N-1275	12.75	60	107	14	45	40.9	2.32	○
D968S-A3N-1280	12.80	60	107	14	45	40.8	2.33	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-1290	12.90	60	107	14	45	40.7	2.35	○
D968S-A3N-1300	13.00	60	107	14	45	40.5	2.37	●
D968S-A3N-1310	13.10	60	107	14	45	40.4	2.38	●
D968S-A3N-1320	13.20	60	107	14	45	40.2	2.40	○
D968S-A3N-1330	13.30	60	107	14	45	40.1	2.42	○
D968S-A3N-1340	13.40	60	107	14	45	39.9	2.44	○
D968S-A3N-1350	13.50	60	107	14	45	39.8	2.46	●
D968S-A3N-1370	13.70	60	107	14	45	39.5	2.49	○
D968S-A3N-1380	13.80	60	107	14	45	39.3	2.51	○
D968S-A3N-1390	13.90	60	107	14	45	39.2	2.53	○
D968S-A3N-1400	14.00	60	107	14	45	39.0	2.55	●
D968S-A3N-1410	14.10	65	115	16	48	43.9	2.57	○
D968S-A3N-1420	14.20	65	115	16	48	43.7	2.58	○
D968S-A3N-1425	14.25	65	115	16	48	43.6	2.59	○
D968S-A3N-1430	14.30	65	115	16	48	43.6	2.60	○
D968S-A3N-1440	14.40	65	115	16	48	43.4	2.62	○
D968S-A3N-1450	14.50	65	115	16	48	43.3	2.64	●
D968S-A3N-1460	14.60	65	115	16	48	43.1	2.66	○
D968S-A3N-1470	14.70	65	115	16	48	43.0	2.68	○
D968S-A3N-1475	14.75	65	115	16	48	42.9	2.68	○
D968S-A3N-1480	14.80	65	115	16	48	42.8	2.69	○
D968S-A3N-1490	14.90	65	115	16	48	42.7	2.71	○
D968S-A3N-1500	15.00	65	115	16	48	42.5	2.73	●
D968S-A3N-1510	15.10	65	115	16	48	42.4	2.75	○
D968S-A3N-1520	15.20	65	115	16	48	42.2	2.77	●
D968S-A3N-1530	15.30	65	115	16	48	42.1	2.78	○
D968S-A3N-1540	15.40	65	115	16	48	41.9	2.80	○

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool Unit(mm)

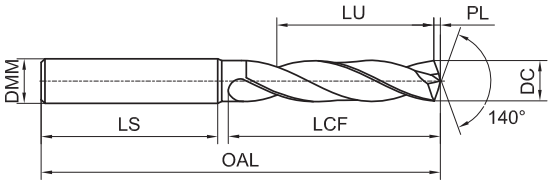
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
○			◎							○	○		

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A3N

High Efficient 3D External Coolant Twist Drills for Stainless Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-1550	15.50	65	115	16	48	41.8	2.82	○
D968S-A3N-1570	15.70	65	115	16	48	41.5	2.86	○
D968S-A3N-1580	15.80	65	115	16	48	41.3	2.88	○
D968S-A3N-1590	15.90	65	115	16	48	41.2	2.89	○
D968S-A3N-1600	16.00	65	115	16	48	41.0	2.91	●
D968S-A3N-1620	16.20	73	123	18	48	48.7	2.95	○
D968S-A3N-1630	16.30	73	123	18	48	48.6	2.97	○
D968S-A3N-1640	16.40	73	123	18	48	48.4	2.98	○
D968S-A3N-1650	16.50	73	123	18	48	48.3	3.00	○
D968S-A3N-1660	16.60	73	123	18	48	48.1	3.02	○
D968S-A3N-1670	16.70	73	123	18	48	48.0	3.04	○
D968S-A3N-1675	16.75	73	123	18	48	47.9	3.05	○
D968S-A3N-1680	16.80	73	123	18	48	47.8	3.06	○
D968S-A3N-1700	17.00	73	123	18	48	47.5	3.09	●
D968S-A3N-1720	17.20	73	123	18	48	47.2	3.13	○
D968S-A3N-1730	17.30	73	123	18	48	47.1	3.15	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3N-1740	17.40	73	123	18	48	46.9	3.17	○
D968S-A3N-1750	17.50	73	123	18	48	46.8	3.18	○
D968S-A3N-1760	17.60	73	123	18	48	46.6	3.20	○
D968S-A3N-1770	17.70	73	123	18	48	46.5	3.22	○
D968S-A3N-1780	17.80	73	123	18	48	46.3	3.24	○
D968S-A3N-1800	18.00	73	123	18	48	46.0	3.28	●
D968S-A3N-1840	18.40	79	131	20	50	51.4	3.35	○
D968S-A3N-1850	18.50	79	131	20	50	51.3	3.37	○
D968S-A3N-1860	18.60	79	131	20	50	51.1	3.38	○
D968S-A3N-1880	18.80	79	131	20	50	50.8	3.42	○
D968S-A3N-1900	19.00	79	131	20	50	50.5	3.46	○
D968S-A3N-1910	19.10	79	131	20	50	50.4	3.48	○
D968S-A3N-1950	19.50	79	131	20	50	49.8	3.55	○
D968S-A3N-1980	19.80	79	131	20	50	49.3	3.60	○
D968S-A3N-1990	19.90	79	131	20	50	49.2	3.62	○
D968S-A3N-2000	20.00	79	131	20	50	49.0	3.64	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎							○	○		

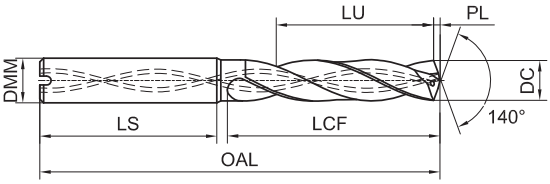
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A3C

SHANK DIN 6535HA | AlTiN nano | 3D

High Efficient 3D Internal Coolant Twist Drills for Stainless Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3C-0300	3.00	20	62	6	36	15.5	0.55	●
D968S-A3C-0310	3.10	20	62	6	36	15.4	0.56	●
D968S-A3C-0320	3.20	20	62	6	36	15.2	0.58	○
D968S-A3C-0325	3.25	20	62	6	36	15.1	0.59	●
D968S-A3C-0330	3.30	20	62	6	36	15.1	0.60	●
D968S-A3C-0340	3.40	20	62	6	36	14.9	0.62	●
D968S-A3C-0350	3.50	20	62	6	36	14.8	0.64	●
D968S-A3C-0360	3.60	20	62	6	36	16.6	0.66	●
D968S-A3C-0370	3.70	20	62	6	36	16.5	0.67	●
D968S-A3C-0380	3.80	24	66	6	36	18.3	0.69	●
D968S-A3C-0390	3.90	24	66	6	36	18.2	0.71	●
D968S-A3C-0400	4.00	24	66	6	36	18.0	0.73	●
D968S-A3C-0410	4.10	24	66	6	36	17.9	0.75	●
D968S-A3C-0420	4.20	24	66	6	36	17.7	0.76	●
D968S-A3C-0430	4.30	24	66	6	36	17.6	0.78	○
D968S-A3C-0440	4.40	24	66	6	36	17.4	0.80	●
D968S-A3C-0450	4.50	24	66	6	36	17.3	0.82	●
D968S-A3C-0460	4.60	24	66	6	36	17.1	0.84	●
D968S-A3C-0465	4.65	24	66	6	36	29.0	0.85	●
D968S-A3C-0470	4.70	24	66	6	36	17.0	0.86	●
D968S-A3C-0480	4.80	28	66	6	36	28.8	0.87	●
D968S-A3C-0490	4.90	28	66	6	36	20.7	0.89	●
D968S-A3C-0500	5.00	28	66	6	36	20.5	0.91	●
D968S-A3C-0510	5.10	28	66	6	36	28.4	0.93	●
D968S-A3C-0515	5.15	28	66	6	36	20.3	0.94	●
D968S-A3C-0520	5.20	28	66	6	36	28.2	0.95	●
D968S-A3C-0530	5.30	28	66	6	36	28.1	0.96	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3C-0540	5.40	28	66	6	36	19.9	0.98	●
D968S-A3C-0550	5.50	28	66	6	36	19.8	1.00	●
D968S-A3C-0555	5.55	28	66	6	36	19.7	1.01	●
D968S-A3C-0560	5.60	28	66	6	36	19.6	1.02	●
D968S-A3C-0570	5.70	28	66	6	36	35.5	1.04	●
D968S-A3C-0580	5.80	28	66	6	36	35.3	1.06	●
D968S-A3C-0590	5.90	28	66	6	36	19.2	1.07	●
D968S-A3C-0600	6.00	28	66	6	36	19.0	1.09	●
D968S-A3C-0610	6.10	34	79	8	36	24.9	1.11	●
D968S-A3C-0620	6.20	34	79	8	36	34.7	1.13	●
D968S-A3C-0630	6.30	34	79	8	36	34.6	1.15	●
D968S-A3C-0640	6.40	34	79	8	36	34.4	1.16	●
D968S-A3C-0650	6.50	34	79	8	36	24.3	1.18	●
D968S-A3C-0660	6.60	34	79	8	36	43.1	1.20	○
D968S-A3C-0670	6.70	34	79	8	36	43.0	1.22	●
D968S-A3C-0680	6.80	34	79	8	36	42.8	1.24	●
D968S-A3C-0690	6.90	34	79	8	36	42.7	1.26	●
D968S-A3C-0700	7.00	34	79	8	36	23.5	1.27	●
D968S-A3C-0710	7.10	41	79	8	36	30.4	1.29	●
D968S-A3C-0720	7.20	41	79	8	36	30.2	1.31	○
D968S-A3C-0730	7.30	41	79	8	36	30.1	1.33	●
D968S-A3C-0740	7.40	41	79	8	36	41.9	1.35	●
D968S-A3C-0745	7.45	41	79	8	36	29.8	1.36	●
D968S-A3C-0750	7.50	41	79	8	36	41.8	1.36	○
D968S-A3C-0755	7.55	41	79	8	36	41.7	1.37	●
D968S-A3C-0760	7.60	41	79	8	36	29.6	1.38	●
D968S-A3C-0770	7.70	41	79	8	36	41.5	1.40	●

● Stock ○ Available upon Order Note：Accept customization from D2 to D20 tool Unit(mm)

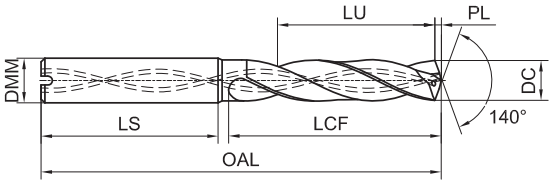
Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎			○	○	○		○	○		

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A3C

High Efficient 3D Internal Coolant Twist Drills for Stainless Steel



》 Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3C-0775	7.75	41	79	8	36	41.4	1.41	●
D968S-A3C-0780	7.80	41	79	8	36	41.3	1.42	●
D968S-A3C-0790	7.90	41	79	8	36	41.2	1.44	●
D968S-A3C-0800	8.00	41	79	8	36	41.0	1.46	●
D968S-A3C-0810	8.10	47	89	10	40	40.9	1.47	●
D968S-A3C-0815	8.15	47	89	10	40	34.8	1.48	●
D968S-A3C-0820	8.20	47	89	10	40	48.7	1.49	●
D968S-A3C-0830	8.30	47	89	10	40	34.6	1.51	●
D968S-A3C-0840	8.40	47	89	10	40	48.4	1.53	●
D968S-A3C-0850	8.50	47	89	10	40	48.3	1.55	●
D968S-A3C-0860	8.60	47	89	10	40	34.1	1.57	○
D968S-A3C-0870	8.70	47	89	10	40	34.0	1.58	●
D968S-A3C-0880	8.80	47	89	10	40	47.8	1.60	●
D968S-A3C-0890	8.90	47	89	10	40	47.7	1.62	○
D968S-A3C-0900	9.00	47	89	10	40	47.5	1.64	●
D968S-A3C-0910	9.10	47	89	10	40	33.4	1.66	●
D968S-A3C-0920	9.20	47	89	10	40	47.2	1.67	●
D968S-A3C-0925	9.25	47	89	10	40	47.1	1.68	●
D968S-A3C-0930	9.30	47	89	10	40	47.1	1.69	●
D968S-A3C-0935	9.35	47	89	10	40	47.0	1.70	●
D968S-A3C-0940	9.40	47	89	10	40	32.9	1.71	●
D968S-A3C-0950	9.50	47	89	10	40	46.8	1.73	●
D968S-A3C-0955	9.55	47	89	10	40	46.7	1.74	●
D968S-A3C-0960	9.60	47	89	10	40	32.6	1.75	●
D968S-A3C-0970	9.70	47	89	10	40	46.5	1.77	●
D968S-A3C-0980	9.80	47	89	10	40	32.3	1.78	●
D968S-A3C-0990	9.90	47	89	10	40	56.2	1.80	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3C-1000	10.00	47	89	10	40	32.0	1.82	●
D968S-A3C-1010	10.10	55	102	12	45	39.9	1.84	●
D968S-A3C-1020	10.20	55	102	12	45	55.7	1.86	●
D968S-A3C-1030	10.30	55	102	12	45	39.6	1.87	●
D968S-A3C-1040	10.40	55	102	12	45	55.4	1.89	○
D968S-A3C-1050	10.50	55	102	12	45	55.3	1.91	●
D968S-A3C-1060	10.60	55	102	12	45	55.1	1.93	○
D968S-A3C-1070	10.70	55	102	12	45	55.0	1.95	●
D968S-A3C-1080	10.80	55	102	12	45	38.8	1.97	●
D968S-A3C-1090	10.90	55	102	12	45	54.7	1.98	●
D968S-A3C-1100	11.00	55	102	12	45	38.5	2.00	●
D968S-A3C-1110	11.10	55	102	12	45	38.4	2.02	○
D968S-A3C-1120	11.20	55	102	12	45	38.2	2.04	●
D968S-A3C-1130	11.30	55	102	12	45	38.1	2.06	●
D968S-A3C-1140	11.40	55	102	12	45	37.9	2.07	●
D968S-A3C-1150	11.50	55	102	12	45	37.8	2.09	●
D968S-A3C-1160	11.60	55	102	12	45	37.6	2.11	●
D968S-A3C-1170	11.70	55	102	12	45	37.5	2.13	●
D968S-A3C-1180	11.80	55	102	12	45	37.3	2.15	●
D968S-A3C-1190	11.90	55	102	12	45	37.2	2.17	○
D968S-A3C-1200	12.00	55	102	12	45	37.0	2.18	●
D968S-A3C-1210	12.10	60	107	14	45	41.9	2.20	●
D968S-A3C-1220	12.20	60	107	14	45	41.7	2.22	●
D968S-A3C-1230	12.30	60	107	14	45	41.6	2.24	○
D968S-A3C-1240	12.40	60	107	14	45	41.4	2.26	●
D968S-A3C-1250	12.50	60	107	14	45	41.3	2.27	●
D968S-A3C-1260	12.60	60	107	14	45	41.1	2.29	●

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎			○	○	○		○	○		

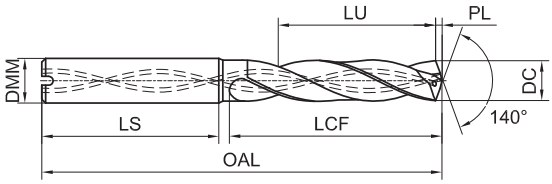
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A3C

SHANK DIN 6535HA | AlTiN nano | 3D

High Efficient 3D Internal Coolant Twist Drills for Stainless Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3C-1270	12.70	60	107	14	45	41.0	2.31	○
D968S-A3C-1280	12.80	60	107	14	45	40.8	2.33	○
D968S-A3C-1285	12.85	60	107	14	45	40.7	2.34	○
D968S-A3C-1290	12.90	60	107	14	45	40.7	2.35	○
D968S-A3C-1300	13.00	60	107	14	45	40.5	2.37	●
D968S-A3C-1310	13.10	60	107	14	45	40.4	2.38	○
D968S-A3C-1340	13.40	60	107	14	45	39.9	2.44	○
D968S-A3C-1350	13.50	60	107	14	45	39.8	2.46	●
D968S-A3C-1360	13.60	60	107	14	45	39.6	2.47	○
D968S-A3C-1370	13.70	60	107	14	45	39.5	2.49	○
D968S-A3C-1375	13.75	60	107	14	45	39.4	2.50	○
D968S-A3C-1380	13.80	60	107	14	45	39.3	2.51	○
D968S-A3C-1400	14.00	60	107	14	45	39.0	2.55	●
D968S-A3C-1405	14.05	60	107	14	45	38.9	2.56	○
D968S-A3C-1420	14.20	65	115	16	48	43.7	2.58	●
D968S-A3C-1430	14.30	65	115	16	48	43.6	2.60	○
D968S-A3C-1440	14.40	65	115	16	48	43.4	2.62	○
D968S-A3C-1450	14.50	65	115	16	48	43.3	2.64	●
D968S-A3C-1460	14.60	65	115	16	48	43.1	2.66	●
D968S-A3C-1470	14.70	65	115	16	48	43.0	2.68	○
D968S-A3C-1480	14.80	65	115	16	48	42.8	2.69	○
D968S-A3C-1500	15.00	65	115	16	48	42.5	2.73	●
D968S-A3C-1510	15.10	65	115	16	48	42.4	2.75	○
D968S-A3C-1520	15.20	65	115	16	48	42.2	2.77	○
D968S-A3C-1530	15.30	65	115	16	48	42.1	2.78	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A3C-1550	15.50	65	115	16	48	41.8	2.82	○
D968S-A3C-1570	15.70	65	115	16	48	41.5	2.86	○
D968S-A3C-1580	15.80	65	115	16	48	41.3	2.88	○
D968S-A3C-1590	15.90	65	115	16	48	41.2	2.89	○
D968S-A3C-1600	16.00	65	115	16	48	41.0	2.91	○
D968S-A3C-1610	16.10	73	123	18	48	48.9	2.93	○
D968S-A3C-1630	16.30	73	123	18	48	48.6	2.97	○
D968S-A3C-1650	16.50	73	123	18	48	48.3	3.00	○
D968S-A3C-1660	16.60	73	123	18	48	48.1	3.02	○
D968S-A3C-1680	16.80	73	123	18	48	47.8	3.06	○
D968S-A3C-1700	17.00	73	123	18	48	47.5	3.09	○
D968S-A3C-1750	17.50	73	123	18	48	46.8	3.18	○
D968S-A3C-1760	17.60	73	123	18	48	46.6	3.20	○
D968S-A3C-1770	17.70	73	123	18	48	46.5	3.22	○
D968S-A3C-1780	17.80	73	123	18	48	46.3	3.24	○
D968S-A3C-1800	18.00	73	123	18	48	46.0	3.28	○
D968S-A3C-1810	18.10	79	131	20	50	51.9	3.29	○
D968S-A3C-1840	18.40	79	131	20	50	51.4	3.35	○
D968S-A3C-1850	18.50	79	131	20	50	51.3	3.37	○
D968S-A3C-1880	18.80	79	131	20	50	50.8	3.42	○
D968S-A3C-1900	19.00	79	131	20	50	50.5	3.46	○
D968S-A3C-1950	19.50	79	131	20	50	49.8	3.55	○
D968S-A3C-1960	19.60	79	131	20	50	49.6	3.57	○
D968S-A3C-1980	19.80	79	131	20	50	49.3	3.60	○
D968S-A3C-2000	20.00	79	131	20	50	49.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D2 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎			○	○	○		○	○		

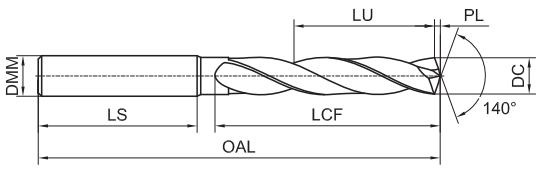
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A5N

High Efficient 5D External Coolant Twist Drills for Stainless Steel

SHANK DIN 6535HA | AlTiN nano | 5D



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5N-0170	1.70	12	55	4	35	9.5	0.31	●
D968S-A5N-0180	1.80	12	55	4	35	9.5	0.31	●
D968S-A5N-0200	2.00	18	62	4	38	15.0	0.36	●
D968S-A5N-0205	2.05	18	62	4	38	14.9	0.37	●
D968S-A5N-0220	2.20	18	62	4	38	14.7	0.40	●
D968S-A5N-0250	2.50	22	62	4	34	18.3	0.45	●
D968S-A5N-0260	2.60	22	62	4	34	18.1	0.47	●
D968S-A5N-0280	2.80	22	62	4	35	17.8	0.51	○
D968S-A5N-0290	2.90	22	62	4	35	17.7	0.53	○
D968S-A5N-0300	3.00	28	66	6	36	23.5	0.55	●
D968S-A5N-0310	3.10	28	66	6	36	23.4	0.56	●
D968S-A5N-0320	3.20	28	66	6	36	23.2	0.58	●
D968S-A5N-0330	3.30	28	66	6	36	23.1	0.60	●
D968S-A5N-0340	3.40	28	66	6	36	22.9	0.62	●
D968S-A5N-0350	3.50	28	66	6	36	22.8	0.64	●
D968S-A5N-0360	3.60	28	66	6	36	22.6	0.66	●
D968S-A5N-0370	3.70	28	66	6	36	22.5	0.67	●
D968S-A5N-0380	3.80	36	74	6	36	30.3	0.69	●
D968S-A5N-0390	3.90	36	74	6	36	30.2	0.71	○
D968S-A5N-0400	4.00	36	74	6	36	30.0	0.73	●
D968S-A5N-0410	4.10	36	74	6	36	29.9	0.75	○
D968S-A5N-0420	4.20	36	74	6	36	29.7	0.76	●
D968S-A5N-0430	4.30	36	74	6	36	29.6	0.78	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5N-0440	4.40	36	74	6	36	29.4	0.80	○
D968S-A5N-0450	4.50	36	74	6	36	29.3	0.82	●
D968S-A5N-0460	4.60	36	74	6	36	29.1	0.84	○
D968S-A5N-0470	4.70	36	74	6	36	29.0	0.86	○
D968S-A5N-0480	4.80	44	82	6	36	36.8	0.87	●
D968S-A5N-0490	4.90	44	82	6	36	36.7	0.89	●
D968S-A5N-0500	5.00	44	82	6	36	36.5	0.91	●
D968S-A5N-0510	5.10	44	82	6	36	36.4	0.93	●
D968S-A5N-0520	5.20	44	82	6	36	36.2	0.95	○
D968S-A5N-0530	5.30	44	82	6	36	36.1	0.96	○
D968S-A5N-0540	5.40	44	82	6	36	35.9	0.98	●
D968S-A5N-0550	5.50	44	82	6	36	35.8	1.00	●
D968S-A5N-0560	5.60	44	82	6	36	35.6	1.02	●
D968S-A5N-0570	5.70	44	82	6	36	35.5	1.04	○
D968S-A5N-0580	5.80	44	82	6	36	35.3	1.06	○
D968S-A5N-0590	5.90	44	82	6	36	35.2	1.07	○
D968S-A5N-0600	6.00	44	82	6	36	35.0	1.09	●
D968S-A5N-0610	6.10	53	91	8	36	43.9	1.11	○
D968S-A5N-0620	6.20	53	91	8	36	43.7	1.13	○
D968S-A5N-0630	6.30	53	91	8	36	43.6	1.15	○
D968S-A5N-0640	6.40	53	91	8	36	43.4	1.16	○
D968S-A5N-0650	6.50	53	91	8	36	43.3	1.18	●
D968S-A5N-0660	6.60	53	91	8	36	43.1	1.20	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool Unit(mm)

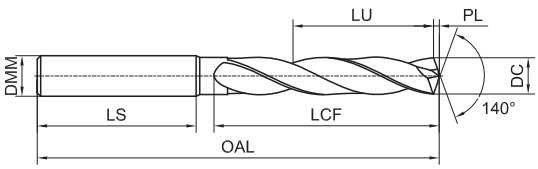
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎										

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A5N

High Efficient 5D External Coolant Twist Drills for Stainless Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5N-0670	6.70	53	91	8	36	43.0	1.22	●
D968S-A5N-0680	6.80	53	91	8	36	42.8	1.24	●
D968S-A5N-0690	6.90	53	91	8	36	42.7	1.26	○
D968S-A5N-0700	7.00	53	91	8	36	42.5	1.27	●
D968S-A5N-0710	7.10	53	91	8	36	42.4	1.29	○
D968S-A5N-0720	7.20	53	91	8	36	42.2	1.31	○
D968S-A5N-0730	7.30	53	91	8	36	42.1	1.33	○
D968S-A5N-0740	7.40	53	91	8	36	41.9	1.35	○
D968S-A5N-0750	7.50	53	91	8	36	41.8	1.36	○
D968S-A5N-0760	7.60	53	91	8	36	41.6	1.38	○
D968S-A5N-0770	7.70	53	91	8	36	41.5	1.40	○
D968S-A5N-0780	7.80	53	91	8	36	41.3	1.42	○
D968S-A5N-0790	7.90	53	91	8	36	41.2	1.44	○
D968S-A5N-0800	8.00	53	91	8	36	41.0	1.46	●
D968S-A5N-0810	8.10	61	103	10	40	48.9	1.47	○
D968S-A5N-0820	8.20	61	103	10	40	48.7	1.49	●
D968S-A5N-0830	8.30	61	103	10	40	48.6	1.51	○
D968S-A5N-0840	8.40	61	103	10	40	48.4	1.53	○
D968S-A5N-0850	8.50	61	103	10	40	48.3	1.55	●
D968S-A5N-0860	8.60	61	103	10	40	48.1	1.57	●
D968S-A5N-0870	8.70	61	103	10	40	48.0	1.58	○
D968S-A5N-0880	8.80	61	103	10	40	47.8	1.60	○
D968S-A5N-0890	8.90	61	103	10	40	47.7	1.62	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5N-0900	9.00	61	103	10	40	47.5	1.64	●
D968S-A5N-0910	9.10	61	103	10	40	47.3	1.66	○
D968S-A5N-0920	9.20	61	103	10	40	47.2	1.67	○
D968S-A5N-0930	9.30	61	103	10	40	47.0	1.69	○
D968S-A5N-0940	9.40	61	103	10	40	46.9	1.71	○
D968S-A5N-0950	9.50	61	103	10	40	46.8	1.73	●
D968S-A5N-0960	9.60	61	103	10	40	46.6	1.75	○
D968S-A5N-0970	9.70	61	103	10	40	46.5	1.77	○
D968S-A5N-0980	9.80	61	103	10	40	46.3	1.78	●
D968S-A5N-0990	9.90	61	103	10	40	46.1	1.80	○
D968S-A5N-1000	10.00	61	103	10	40	46.0	1.82	●
D968S-A5N-1010	10.10	71	118	12	45	55.9	1.84	○
D968S-A5N-1020	10.20	71	118	12	45	55.7	1.86	●
D968S-A5N-1030	10.30	71	118	12	45	55.6	1.87	●
D968S-A5N-1040	10.40	71	118	12	45	55.4	1.89	○
D968S-A5N-1050	10.50	71	118	12	45	55.3	1.91	●
D968S-A5N-1060	10.60	71	118	12	45	55.1	1.93	○
D968S-A5N-1070	10.70	71	118	12	45	55.0	1.95	○
D968S-A5N-1080	10.80	71	118	12	45	54.8	1.97	○
D968S-A5N-1090	10.90	71	118	12	45	54.7	1.98	○
D968S-A5N-1100	11.00	71	118	12	45	54.5	2.00	●
D968S-A5N-1110	11.10	71	118	12	45	54.4	2.02	○
D968S-A5N-1120	11.20	71	118	12	45	54.2	2.04	○

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎										

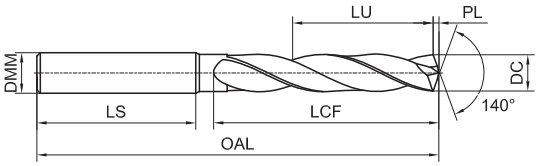
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A5N

High Efficient 5D External Coolant Twist Drills for Stainless Steel

SHANK DIN 6535HA | AlTiN nano | 5D



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5N-1130	11.30	71	118	12	45	54.1	2.06	○
D968S-A5N-1140	11.40	71	118	12	45	53.9	2.07	○
D968S-A5N-1150	11.50	71	118	12	45	53.8	2.09	○
D968S-A5N-1160	11.60	71	118	12	45	53.6	2.11	○
D968S-A5N-1170	11.70	71	118	12	45	53.5	2.13	○
D968S-A5N-1180	11.80	71	118	12	45	53.3	2.15	●
D968S-A5N-1190	11.90	71	118	12	45	53.2	2.17	○
D968S-A5N-1200	12.00	71	118	12	45	53.0	2.18	●
D968S-A5N-1210	12.10	77	124	14	45	58.9	2.20	○
D968S-A5N-1220	12.20	77	124	14	45	58.7	2.22	○
D968S-A5N-1230	12.30	77	124	14	45	58.6	2.24	○
D968S-A5N-1240	12.40	77	124	14	45	58.4	2.26	○
D968S-A5N-1250	12.50	77	124	14	45	58.3	2.27	○
D968S-A5N-1260	12.60	77	124	14	45	58.1	2.29	○
D968S-A5N-1270	12.70	77	124	14	45	58.0	2.31	○
D968S-A5N-1280	12.80	77	124	14	45	57.8	2.33	○
D968S-A5N-1290	12.90	77	124	14	45	57.7	2.35	○
D968S-A5N-1300	13.00	77	124	14	45	57.5	2.37	●
D968S-A5N-1320	13.20	77	124	14	45	57.2	2.40	○
D968S-A5N-1350	13.50	77	124	14	45	56.8	2.46	○
D968S-A5N-1370	13.70	77	124	14	45	56.5	2.49	○
D968S-A5N-1380	13.80	77	124	14	45	56.3	2.51	○
D968S-A5N-1390	13.90	77	124	14	45	56.2	2.53	○
D968S-A5N-1400	14.00	77	124	14	45	56.0	2.55	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5N-1420	14.20	83	133	16	48	61.7	2.58	○
D968S-A5N-1430	14.30	83	133	16	48	61.6	2.60	○
D968S-A5N-1450	14.50	83	133	16	48	61.3	2.64	○
D968S-A5N-1460	14.60	83	133	16	48	61.1	2.66	○
D968S-A5N-1480	14.80	83	133	16	48	60.8	2.69	○
D968S-A5N-1500	15.00	83	133	16	48	60.5	2.73	○
D968S-A5N-1510	15.10	83	133	16	48	60.4	2.75	○
D968S-A5N-1550	15.50	83	133	16	48	59.8	2.82	○
D968S-A5N-1570	15.70	83	133	16	48	59.5	2.86	○
D968S-A5N-1580	15.80	83	133	16	48	59.3	2.88	○
D968S-A5N-1600	16.00	83	133	16	48	59.0	2.91	○
D968S-A5N-1650	16.50	93	143	18	48	68.3	3.00	○
D968S-A5N-1660	16.60	93	143	18	48	68.1	3.02	○
D968S-A5N-1680	16.80	93	143	18	48	67.8	3.06	○
D968S-A5N-1700	17.00	93	143	18	48	67.5	3.09	○
D968S-A5N-1750	17.50	93	143	18	48	66.8	3.18	○
D968S-A5N-1780	17.80	93	143	18	48	66.3	3.24	○
D968S-A5N-1800	18.00	93	143	18	48	66.0	3.28	○
D968S-A5N-1850	18.50	101	153	20	50	73.3	3.37	○
D968S-A5N-1860	18.60	101	153	20	50	73.1	3.38	○
D968S-A5N-1900	19.00	101	153	20	50	72.5	3.46	○
D968S-A5N-1950	19.50	101	153	20	50	71.8	3.55	○
D968S-A5N-2000	20.00	101	153	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
≥1—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

Workpiece Material

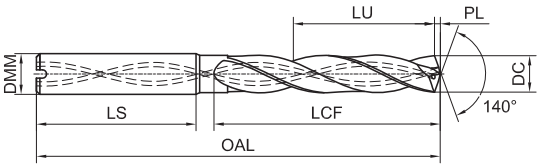
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎										

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A5C

High Efficient 5D Internal Coolant Twist Drills for Stainless Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5C-0300	3.00	28	66	6	36	23.5	0.55	●
D968S-A5C-0310	3.10	28	66	6	36	23.4	0.56	●
D968S-A5C-0320	3.20	28	66	6	36	23.2	0.58	●
D968S-A5C-0330	3.30	28	66	6	36	23.1	0.60	●
D968S-A5C-0340	3.40	28	66	6	36	22.9	0.62	●
D968S-A5C-0350	3.50	28	66	6	36	22.8	0.64	●
D968S-A5C-0360	3.60	28	66	6	36	22.6	0.66	●
D968S-A5C-0370	3.70	28	66	6	36	22.5	0.67	●
D968S-A5C-0380	3.80	36	74	6	36	30.3	0.69	●
D968S-A5C-0390	3.90	36	74	6	36	30.2	0.71	●
D968S-A5C-0400	4.00	36	74	6	36	30.0	0.73	●
D968S-A5C-0410	4.10	36	74	6	36	29.9	0.75	●
D968S-A5C-0420	4.20	36	74	6	36	29.7	0.76	●
D968S-A5C-0430	4.30	36	74	6	36	29.6	0.78	●
D968S-A5C-0440	4.40	36	74	6	36	29.4	0.80	●
D968S-A5C-0450	4.50	36	74	6	36	29.3	0.82	●
D968S-A5C-0460	4.60	36	74	6	36	29.1	0.84	●
D968S-A5C-0470	4.70	36	74	6	36	29.0	0.86	○
D968S-A5C-0480	4.80	44	82	6	36	36.8	0.87	●
D968S-A5C-0490	4.90	44	82	6	36	36.7	0.89	●
D968S-A5C-0500	5.00	44	82	6	36	36.5	0.91	●
D968S-A5C-0510	5.10	44	82	6	36	36.4	0.93	●
D968S-A5C-0520	5.20	44	82	6	36	36.2	0.95	●
D968S-A5C-0530	5.30	44	82	6	36	36.1	0.96	●
D968S-A5C-0540	5.40	44	82	6	36	35.9	0.98	●
D968S-A5C-0550	5.50	44	82	6	36	35.8	1.00	●
D968S-A5C-0555	5.55	44	82	6	36	35.7	1.01	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5C-0560	5.60	44	82	6	36	35.6	1.02	●
D968S-A5C-0570	5.70	44	82	6	36	35.5	1.04	●
D968S-A5C-0580	5.80	44	82	6	36	35.3	1.06	●
D968S-A5C-0590	5.90	44	82	6	36	35.2	1.07	●
D968S-A5C-0600	6.00	44	82	6	36	35.0	1.09	●
D968S-A5C-0610	6.10	53	91	8	36	43.9	1.11	○
D968S-A5C-0620	6.20	53	91	8	36	43.7	1.13	●
D968S-A5C-0630	6.30	53	91	8	36	43.6	1.15	●
D968S-A5C-0640	6.40	53	91	8	36	43.4	1.16	●
D968S-A5C-0650	6.50	53	91	8	36	43.3	1.18	●
D968S-A5C-0660	6.60	53	91	8	36	43.1	1.20	●
D968S-A5C-0670	6.70	53	91	8	36	43.0	1.22	●
D968S-A5C-0680	6.80	53	91	8	36	42.8	1.24	●
D968S-A5C-0690	6.90	53	91	8	36	42.7	1.26	●
D968S-A5C-0700	7.00	53	91	8	36	42.5	1.27	●
D968S-A5C-0710	7.10	53	91	8	36	42.4	1.29	●
D968S-A5C-0720	7.20	53	91	8	36	42.2	1.31	●
D968S-A5C-0730	7.30	53	91	8	36	42.1	1.33	●
D968S-A5C-0735	7.35	53	91	8	36	42.0	1.34	●
D968S-A5C-0740	7.40	53	91	8	36	41.9	1.35	●
D968S-A5C-0750	7.50	53	91	8	36	41.8	1.36	●
D968S-A5C-0760	7.60	53	91	8	36	41.6	1.38	●
D968S-A5C-0770	7.70	53	91	8	36	41.5	1.40	●
D968S-A5C-0780	7.80	53	91	8	36	41.3	1.42	●
D968S-A5C-0790	7.90	53	91	8	36	41.2	1.44	●
D968S-A5C-0800	8.00	53	91	8	36	41.0	1.46	●
D968S-A5C-0810	8.10	61	103	10	40	48.9	1.47	●

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

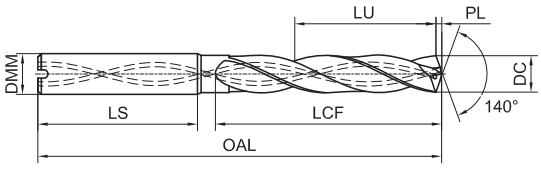
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎			○	○	○		○	○		

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A5C

High Efficient 5D Internal Coolant Twist Drills for Stainless Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5C-0820	8.20	61	103	10	40	48.7	1.49	●
D968S-A5C-0830	8.30	61	103	10	40	48.6	1.51	○
D968S-A5C-0840	8.40	61	103	10	40	48.4	1.53	○
D968S-A5C-0850	8.50	61	103	10	40	48.3	1.55	●
D968S-A5C-0860	8.60	61	103	10	40	48.1	1.57	●
D968S-A5C-0870	8.70	61	103	10	40	48.0	1.58	●
D968S-A5C-0880	8.80	61	103	10	40	47.8	1.60	●
D968S-A5C-0890	8.90	61	103	10	40	47.7	1.62	●
D968S-A5C-0900	9.00	61	103	10	40	47.5	1.64	●
D968S-A5C-0910	9.10	61	103	10	40	47.4	1.66	●
D968S-A5C-0920	9.20	61	103	10	40	47.2	1.67	●
D968S-A5C-0930	9.30	61	103	10	40	47.1	1.69	●
D968S-A5C-0940	9.40	61	103	10	40	46.9	1.71	●
D968S-A5C-0950	9.50	61	103	10	40	46.8	1.73	●
D968S-A5C-0960	9.60	61	103	10	40	46.6	1.75	●
D968S-A5C-0970	9.70	61	103	10	40	46.5	1.77	●
D968S-A5C-0980	9.80	61	103	10	40	46.3	1.78	●
D968S-A5C-0990	9.90	61	103	10	40	46.2	1.80	●
D968S-A5C-1000	10.00	61	103	10	40	46.0	1.82	●
D968S-A5C-1010	10.10	71	118	12	45	55.9	1.84	○
D968S-A5C-1020	10.20	71	118	12	45	55.7	1.86	●
D968S-A5C-1025	10.25	71	118	12	45	55.6	1.87	●
D968S-A5C-1030	10.30	71	118	12	45	55.6	1.87	●
D968S-A5C-1040	10.40	71	118	12	45	55.4	1.89	○
D968S-A5C-1050	10.50	71	118	12	45	55.3	1.91	●
D968S-A5C-1060	10.60	71	118	12	45	55.1	1.93	●
D968S-A5C-1070	10.70	71	118	12	45	55.0	1.95	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5C-1080	10.80	71	118	12	45	54.8	1.97	●
D968S-A5C-1090	10.90	71	118	12	45	54.7	1.98	●
D968S-A5C-1100	11.00	71	118	12	45	54.5	2.00	●
D968S-A5C-1110	11.10	71	118	12	45	54.4	2.02	●
D968S-A5C-1120	11.20	71	118	12	45	54.2	2.04	●
D968S-A5C-1130	11.30	71	118	12	45	54.1	2.06	○
D968S-A5C-1140	11.40	71	118	12	45	53.9	2.07	○
D968S-A5C-1150	11.50	71	118	12	45	53.8	2.09	●
D968S-A5C-1160	11.60	71	118	12	45	53.6	2.11	○
D968S-A5C-1170	11.70	71	118	12	45	53.5	2.13	●
D968S-A5C-1180	11.80	71	118	12	45	53.3	2.15	○
D968S-A5C-1190	11.90	71	118	12	45	53.2	2.17	●
D968S-A5C-1200	12.00	71	118	12	45	53.0	2.18	●
D968S-A5C-1210	12.10	77	124	14	45	58.9	2.20	●
D968S-A5C-1220	12.20	77	124	14	45	58.7	2.22	●
D968S-A5C-1230	12.30	77	124	14	45	58.6	2.24	●
D968S-A5C-1240	12.40	77	124	14	45	58.4	2.26	○
D968S-A5C-1250	12.50	77	124	14	45	58.3	2.27	●
D968S-A5C-1260	12.60	77	124	14	45	58.1	2.29	●
D968S-A5C-1270	12.70	77	124	14	45	58.0	2.31	○
D968S-A5C-1280	12.80	77	124	14	45	57.8	2.33	○
D968S-A5C-1290	12.90	77	124	14	45	57.7	2.35	○
D968S-A5C-1300	13.00	77	124	14	45	57.5	2.37	●
D968S-A5C-1310	13.10	77	124	14	45	57.4	2.38	●
D968S-A5C-1320	13.20	77	124	14	45	57.2	2.40	○
D968S-A5C-1330	13.30	77	124	14	45	57.1	2.42	○
D968S-A5C-1340	13.40	77	124	14	45	56.9	2.44	○

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎			○	○	○		○	○		

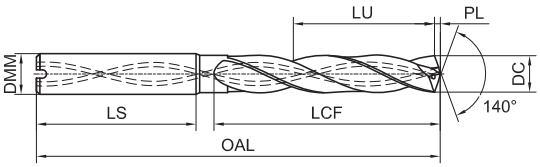
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D968S-A5C

SHANK DIN 6535HA | AlTiN nano | 5D

High Efficient 5D Internal Coolant Twist Drills for Stainless Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5C-1350	13.50	77	124	14	45	56.8	2.46	○
D968S-A5C-1360	13.60	77	124	14	45	56.6	2.47	○
D968S-A5C-1370	13.70	77	124	14	45	56.5	2.49	○
D968S-A5C-1380	13.80	77	124	14	45	56.3	2.51	○
D968S-A5C-1390	13.90	77	124	14	45	56.2	2.53	○
D968S-A5C-1400	14.00	77	124	14	45	56.0	2.55	●
D968S-A5C-1410	14.10	83	133	16	48	61.9	2.57	●
D968S-A5C-1420	14.20	83	133	16	48	61.7	2.58	●
D968S-A5C-1430	14.30	83	133	16	48	61.6	2.60	●
D968S-A5C-1450	14.50	83	133	16	48	61.3	2.64	●
D968S-A5C-1460	14.60	83	133	16	48	61.1	2.66	●
D968S-A5C-1470	14.70	83	133	16	48	61.0	2.68	○
D968S-A5C-1480	14.80	83	133	16	48	60.8	2.69	○
D968S-A5C-1490	14.90	83	133	16	48	60.7	2.71	○
D968S-A5C-1500	15.00	83	133	16	48	60.5	2.73	●
D968S-A5C-1510	15.10	83	133	16	48	60.4	2.75	○
D968S-A5C-1520	15.20	83	133	16	48	60.2	2.77	○
D968S-A5C-1530	15.30	83	133	16	48	60.1	2.78	○
D968S-A5C-1550	15.50	83	133	16	48	59.8	2.82	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D968S-A5C-1570	15.70	83	133	16	48	59.5	2.86	○
D968S-A5C-1580	15.80	83	133	16	48	59.3	2.88	○
D968S-A5C-1600	16.00	83	133	16	48	59.0	2.91	●
D968S-A5C-1650	16.50	93	143	18	48	68.3	3.00	○
D968S-A5C-1680	16.80	93	143	18	48	67.8	3.06	○
D968S-A5C-1690	16.90	93	143	18	48	67.7	3.08	○
D968S-A5C-1700	17.00	93	143	18	48	67.5	3.09	○
D968S-A5C-1720	17.20	93	143	18	48	67.2	3.13	○
D968S-A5C-1750	17.50	93	143	18	48	66.8	3.18	○
D968S-A5C-1770	17.70	93	143	18	48	66.5	3.22	○
D968S-A5C-1780	17.80	93	143	18	48	66.3	3.24	○
D968S-A5C-1800	18.00	93	143	18	48	66.0	3.28	○
D968S-A5C-1850	18.50	101	153	20	50	73.3	3.37	○
D968S-A5C-1860	18.60	101	153	20	50	73.1	3.38	○
D968S-A5C-1880	18.80	101	153	20	50	72.8	3.42	○
D968S-A5C-1900	19.00	101	153	20	50	72.5	3.46	○
D968S-A5C-1950	19.50	101	153	20	50	71.8	3.55	○
D968S-A5C-1980	19.80	101	153	20	50	71.3	3.60	○
D968S-A5C-2000	20.00	101	153	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D2 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○			◎			○	○	○		○	○		

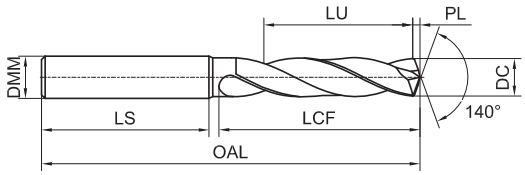
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P093

D938-A3N

SHANK DIN 6535HA | AlTiN nano | 3D

3D External Cooling Twist Drills for Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-0100	1.00	7	45	4	30	5.5	0.18	●
D938-A3N-0110	1.10	7	45	4	30	5.4	0.20	●
D938-A3N-0120	1.20	7	45	4	30	5.2	0.22	●
D938-A3N-0130	1.30	7	45	4	30	5.1	0.24	●
D938-A3N-0140	1.40	7	45	4	30	4.9	0.25	●
D938-A3N-0145	1.45	7	45	4	30	4.8	0.26	○
D938-A3N-0150	1.50	9	55	4	38	6.8	0.27	●
D938-A3N-0160	1.60	9	55	4	38	6.6	0.29	●
D938-A3N-0170	1.70	9	55	4	38	6.5	0.31	●
D938-A3N-0180	1.80	9	55	4	38	6.3	0.33	●
D938-A3N-0190	1.90	9	55	4	38	6.2	0.35	●
D938-A3N-0200	2.00	13	55	4	36	10.0	0.36	●
D938-A3N-0210	2.10	13	55	4	36	9.9	0.38	●
D938-A3N-0220	2.20	13	55	4	36	9.7	0.40	●
D938-A3N-0230	2.30	13	55	4	36	9.6	0.42	●
D938-A3N-0240	2.40	17	55	4	33	13.4	0.44	●
D938-A3N-0250	2.50	17	55	4	33	13.3	0.45	●
D938-A3N-0260	2.60	17	55	4	33	13.1	0.47	●
D938-A3N-0270	2.70	17	55	4	33	13.0	0.49	●
D938-A3N-0280	2.80	17	55	4	33	12.8	0.51	●
D938-A3N-0290	2.90	17	55	4	33	12.7	0.53	●
D938-A3N-0295	2.95	20	62	6	36	15.6	0.54	○
D938-A3N-0300	3.00	20	62	6	36	15.5	0.55	●
D938-A3N-0305	3.05	20	62	6	36	15.4	0.56	●
D938-A3N-0310	3.10	20	62	6	36	15.4	0.56	●
D938-A3N-0320	3.20	20	62	6	36	15.2	0.58	●
D938-A3N-0325	3.25	20	62	6	36	15.1	0.59	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-0330	3.30	20	62	6	36	15.1	0.60	●
D938-A3N-0340	3.40	20	62	6	36	14.9	0.62	●
D938-A3N-0350	3.50	20	62	6	36	14.8	0.64	●
D938-A3N-0360	3.60	20	62	6	36	14.6	0.66	●
D938-A3N-0365	3.65	20	62	6	36	14.5	0.66	○
D938-A3N-0370	3.70	20	62	6	36	14.5	0.67	●
D938-A3N-0380	3.80	24	66	6	36	18.3	0.69	●
D938-A3N-0390	3.90	24	66	6	36	18.2	0.71	●
D938-A3N-0395	3.95	24	66	6	36	18.1	0.72	○
D938-A3N-0400	4.00	24	66	6	36	18.0	0.73	●
D938-A3N-0410	4.10	24	66	6	36	17.9	0.75	●
D938-A3N-0415	4.15	24	66	6	36	17.8	0.76	●
D938-A3N-0420	4.20	24	66	6	36	17.7	0.76	●
D938-A3N-0430	4.30	24	66	6	36	17.6	0.78	●
D938-A3N-0440	4.40	24	66	6	36	17.4	0.80	●
D938-A3N-0450	4.50	24	66	6	36	17.3	0.82	●
D938-A3N-0460	4.60	24	66	6	36	17.1	0.84	●
D938-A3N-0465	4.65	24	66	6	36	17.0	0.85	●
D938-A3N-0470	4.70	24	66	6	36	17.0	0.86	●
D938-A3N-0480	4.80	28	66	6	36	20.8	0.87	●
D938-A3N-0490	4.90	28	66	6	36	20.7	0.89	●
D938-A3N-0500	5.00	28	66	6	36	20.5	0.91	●
D938-A3N-0510	5.10	28	66	6	36	20.4	0.93	●
D938-A3N-0520	5.20	28	66	6	36	20.2	0.95	●
D938-A3N-0530	5.30	28	66	6	36	20.1	0.96	●
D938-A3N-0540	5.40	28	66	6	36	19.9	0.98	●
D938-A3N-0550	5.50	28	66	6	36	19.8	1.00	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

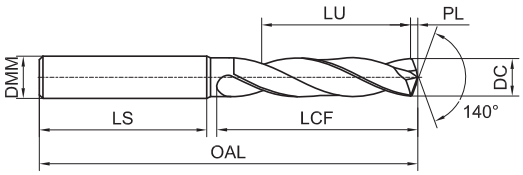
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3N

SHANK DIN 6535HA | AlTiN nano | 3D

3D External Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-0555	5.55	28	66	6	36	19.7	1.01	●
D938-A3N-0560	5.60	28	66	6	36	19.6	1.02	●
D938-A3N-0570	5.70	28	66	6	36	19.5	1.04	●
D938-A3N-0580	5.80	28	66	6	36	19.3	1.06	●
D938-A3N-0590	5.90	28	66	6	36	19.2	1.07	●
D938-A3N-0600	6.00	28	66	6	36	19.0	1.09	●
D938-A3N-0610	6.10	34	79	8	36	24.9	1.11	●
D938-A3N-0620	6.20	34	79	8	36	24.7	1.13	●
D938-A3N-0625	6.25	34	79	8	36	24.6	1.14	○
D938-A3N-0630	6.30	34	79	8	36	24.6	1.15	●
D938-A3N-0640	6.40	34	79	8	36	24.4	1.16	●
D938-A3N-0650	6.50	34	79	8	36	24.3	1.18	●
D938-A3N-0655	6.55	34	79	8	36	24.2	1.19	○
D938-A3N-0660	6.60	34	79	8	36	24.1	1.20	●
D938-A3N-0670	6.70	34	79	8	36	24.0	1.22	●
D938-A3N-0680	6.80	34	79	8	36	23.8	1.24	●
D938-A3N-0690	6.90	34	79	8	36	23.7	1.26	●
D938-A3N-0700	7.00	34	79	8	36	23.5	1.27	●
D938-A3N-0710	7.10	41	79	8	36	30.4	1.29	●
D938-A3N-0720	7.20	41	79	8	36	30.2	1.31	●
D938-A3N-0730	7.30	41	79	8	36	30.1	1.33	●
D938-A3N-0740	7.40	41	79	8	36	29.9	1.35	●
D938-A3N-0745	7.45	41	79	8	36	29.8	1.36	●
D938-A3N-0750	7.50	41	79	8	36	29.8	1.36	●
D938-A3N-0755	7.55	41	79	8	36	29.7	1.37	●
D938-A3N-0760	7.60	41	79	8	36	29.6	1.38	●
D938-A3N-0770	7.70	41	79	8	36	29.5	1.40	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-0780	7.80	41	79	8	36	29.3	1.42	●
D938-A3N-0790	7.90	41	79	8	36	29.2	1.44	●
D938-A3N-0800	8.00	41	79	8	36	29.0	1.46	●
D938-A3N-0810	8.10	47	89	10	40	34.9	1.47	●
D938-A3N-0820	8.20	47	89	10	40	34.7	1.49	●
D938-A3N-0830	8.30	47	89	10	40	34.6	1.51	●
D938-A3N-0840	8.40	47	89	10	40	34.4	1.53	●
D938-A3N-0850	8.50	47	89	10	40	34.3	1.55	●
D938-A3N-0860	8.60	47	89	10	40	34.1	1.57	●
D938-A3N-0870	8.70	47	89	10	40	34.0	1.58	●
D938-A3N-0880	8.80	47	89	10	40	33.8	1.60	●
D938-A3N-0890	8.90	47	89	10	40	33.7	1.62	●
D938-A3N-0900	9.00	47	89	10	40	33.5	1.64	●
D938-A3N-0910	9.10	47	89	10	40	33.4	1.66	●
D938-A3N-0920	9.20	47	89	10	40	33.2	1.67	●
D938-A3N-0925	9.25	47	89	10	40	33.1	1.68	○
D938-A3N-0930	9.30	47	89	10	40	33.1	1.69	●
D938-A3N-0935	9.35	47	89	10	40	33.0	1.70	●
D938-A3N-0940	9.40	47	89	10	40	32.9	1.71	●
D938-A3N-0950	9.50	47	89	10	40	32.8	1.73	●
D938-A3N-0955	9.55	47	89	10	40	32.7	1.74	●
D938-A3N-0960	9.60	47	89	10	40	32.6	1.75	●
D938-A3N-0970	9.70	47	89	10	40	32.5	1.77	●
D938-A3N-0980	9.80	47	89	10	40	32.3	1.78	●
D938-A3N-0990	9.90	47	89	10	40	32.2	1.80	●
D938-A3N-1000	10.00	47	89	10	40	32.0	1.82	●
D938-A3N-1010	10.10	55	102	12	45	39.9	1.84	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

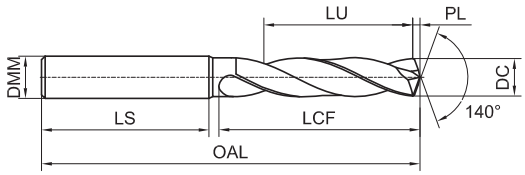
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3N

SHANK DIN 6535HA | AlTiN nano | 3D

3D External Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-1015	10.15	55	102	12	45	39.8	1.85	○
D938-A3N-1020	10.20	55	102	12	45	39.7	1.86	●
D938-A3N-1025	10.25	55	102	12	45	39.6	1.87	●
D938-A3N-1030	10.30	55	102	12	45	39.6	1.87	●
D938-A3N-1035	10.35	55	102	12	45	39.5	1.88	●
D938-A3N-1040	10.40	55	102	12	45	39.4	1.89	●
D938-A3N-1050	10.50	55	102	12	45	39.3	1.91	●
D938-A3N-1060	10.60	55	102	12	45	39.1	1.93	●
D938-A3N-1070	10.70	55	102	12	45	39.0	1.95	●
D938-A3N-1080	10.80	55	102	12	45	38.8	1.97	●
D938-A3N-1085	10.85	55	102	12	45	38.7	1.97	●
D938-A3N-1090	10.90	55	102	12	45	38.7	1.98	●
D938-A3N-1100	11.00	55	102	12	45	38.5	2.00	●
D938-A3N-1110	11.10	55	102	12	45	38.4	2.02	●
D938-A3N-1120	11.20	55	102	12	45	38.2	2.04	●
D938-A3N-1130	11.30	55	102	12	45	38.1	2.06	●
D938-A3N-1140	11.40	55	102	12	45	37.9	2.07	●
D938-A3N-1150	11.50	55	102	12	45	37.8	2.09	●
D938-A3N-1160	11.60	55	102	12	45	37.6	2.11	●
D938-A3N-1170	11.70	55	102	12	45	37.5	2.13	●
D938-A3N-1180	11.80	55	102	12	45	37.3	2.15	●
D938-A3N-1190	11.90	55	102	12	45	37.2	2.17	●
D938-A3N-1200	12.00	55	102	12	45	37.0	2.18	●
D938-A3N-1210	12.10	60	107	14	45	41.9	2.20	●
D938-A3N-1215	12.15	60	107	14	45	41.8	2.21	○
D938-A3N-1220	12.20	60	107	14	45	41.7	2.22	●
D938-A3N-1225	12.25	60	107	14	45	41.6	2.23	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-1230	12.30	60	107	14	45	41.6	2.24	●
D938-A3N-1240	12.40	60	107	14	45	41.4	2.26	●
D938-A3N-1250	12.50	60	107	14	45	41.3	2.27	●
D938-A3N-1260	12.60	60	107	14	45	41.1	2.29	●
D938-A3N-1270	12.70	60	107	14	45	41.0	2.31	●
D938-A3N-1280	12.80	60	107	14	45	40.8	2.33	●
D938-A3N-1290	12.90	60	107	14	45	40.7	2.35	○
D938-A3N-1300	13.00	60	107	14	45	40.5	2.37	●
D938-A3N-1310	13.10	60	107	14	45	40.4	2.38	●
D938-A3N-1315	13.15	60	107	14	45	40.3	2.39	○
D938-A3N-1320	13.20	60	107	14	45	40.2	2.40	●
D938-A3N-1325	13.25	60	107	14	45	40.1	2.41	○
D938-A3N-1330	13.30	60	107	14	45	40.1	2.42	○
D938-A3N-1340	13.40	60	107	14	45	39.9	2.44	●
D938-A3N-1350	13.50	60	107	14	45	39.8	2.46	●
D938-A3N-1370	13.70	60	107	14	45	39.5	2.49	○
D938-A3N-1380	13.80	60	107	14	45	39.3	2.51	●
D938-A3N-1400	14.00	60	107	14	45	39.0	2.55	●
D938-A3N-1410	14.10	65	115	16	48	43.9	2.57	●
D938-A3N-1420	14.20	65	115	16	48	43.7	2.58	●
D938-A3N-1430	14.30	65	115	16	48	43.6	2.60	●
D938-A3N-1440	14.40	65	115	16	48	43.4	2.62	●
D938-A3N-1450	14.50	65	115	16	48	43.3	2.64	●
D938-A3N-1460	14.60	65	115	16	48	43.1	2.66	●
D938-A3N-1470	14.70	65	115	16	48	43.0	2.68	●
D938-A3N-1480	14.80	65	115	16	48	42.8	2.69	●
D938-A3N-1490	14.90	65	115	16	48	42.7	2.71	○

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

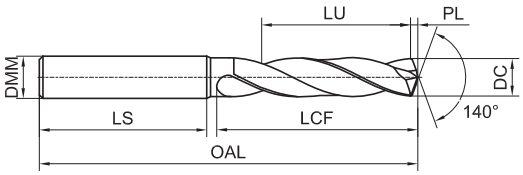
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3N

SHANK DIN 6535HA | AlTiN nano | 3D

3D External Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-1500	15.00	65	115	16	48	42.5	2.73	●
D938-A3N-1510	15.10	65	115	16	48	42.4	2.75	●
D938-A3N-1520	15.20	65	115	16	48	42.2	2.77	●
D938-A3N-1525	15.25	65	115	16	48	42.1	2.78	○
D938-A3N-1530	15.30	65	115	16	48	42.1	2.78	●
D938-A3N-1540	15.40	65	115	16	48	41.9	2.80	○
D938-A3N-1550	15.50	65	115	16	48	41.8	2.82	●
D938-A3N-1560	15.60	65	115	16	48	41.6	2.84	○
D938-A3N-1570	15.70	65	115	16	48	41.5	2.86	●
D938-A3N-1580	15.80	65	115	16	48	41.3	2.88	●
D938-A3N-1590	15.90	65	115	16	48	41.2	2.89	○
D938-A3N-1600	16.00	65	115	16	48	41.0	2.91	●
D938-A3N-1610	16.10	73	123	18	48	48.9	2.93	●
D938-A3N-1620	16.20	73	123	18	48	48.7	2.95	●
D938-A3N-1630	16.30	73	123	18	48	48.6	2.97	○
D938-A3N-1640	16.40	73	123	18	48	48.4	2.98	●
D938-A3N-1650	16.50	73	123	18	48	48.3	3.00	●
D938-A3N-1660	16.60	73	123	18	48	48.1	3.02	●
D938-A3N-1670	16.70	73	123	18	48	48.0	3.04	○
D938-A3N-1680	16.80	73	123	18	48	47.8	3.06	○
D938-A3N-1690	16.90	73	123	18	48	47.7	3.08	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3N-1700	17.00	73	123	18	48	47.5	3.09	●
D938-A3N-1720	17.20	73	123	18	48	47.2	3.13	●
D938-A3N-1730	17.30	73	123	18	48	47.1	3.15	○
D938-A3N-1740	17.40	73	123	18	48	46.9	3.17	●
D938-A3N-1750	17.50	73	123	18	48	46.8	3.18	●
D938-A3N-1760	17.60	73	123	18	48	46.6	3.20	●
D938-A3N-1770	17.70	73	123	18	48	46.5	3.22	○
D938-A3N-1780	17.80	73	123	18	48	46.3	3.24	○
D938-A3N-1800	18.00	73	123	18	48	46.0	3.28	●
D938-A3N-1820	18.20	79	131	20	50	51.7	3.31	●
D938-A3N-1840	18.40	79	131	20	50	51.4	3.35	○
D938-A3N-1850	18.50	79	131	20	50	51.3	3.37	●
D938-A3N-1860	18.60	79	131	20	50	51.1	3.38	○
D938-A3N-1880	18.80	79	131	20	50	50.8	3.42	○
D938-A3N-1900	19.00	79	131	20	50	50.5	3.46	●
D938-A3N-1910	19.10	79	131	20	50	50.4	3.48	○
D938-A3N-1930	19.30	79	131	20	50	50.1	3.51	○
D938-A3N-1950	19.50	79	131	20	50	49.8	3.55	●
D938-A3N-1980	19.80	79	131	20	50	49.3	3.60	○
D938-A3N-1990	19.90	79	131	20	50	49.2	3.62	○
D938-A3N-2000	20.00	79	131	20	50	49.0	3.64	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

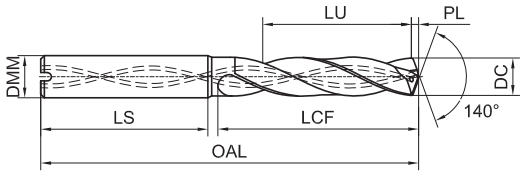
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3C

3D Internal Cooling Twist Drills for Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-0200	2.00	13	55	4	36	10.0	0.36	●
D938-A3C-0210	2.10	13	55	4	36	9.9	0.38	●
D938-A3C-0220	2.20	13	55	4	36	9.7	0.40	●
D938-A3C-0230	2.30	13	55	4	36	9.6	0.42	●
D938-A3C-0240	2.40	17	55	4	33	13.4	0.44	●
D938-A3C-0250	2.50	17	55	4	33	13.3	0.45	●
D938-A3C-0260	2.60	17	55	4	33	13.1	0.47	●
D938-A3C-0270	2.70	17	55	4	33	13.0	0.49	●
D938-A3C-0280	2.80	17	55	4	33	12.8	0.51	●
D938-A3C-0290	2.90	17	55	4	33	12.7	0.53	●
D938-A3C-0300	3.00	20	62	6	36	15.5	0.55	●
D938-A3C-0310	3.10	20	62	6	36	15.4	0.56	●
D938-A3C-0320	3.20	20	62	6	36	15.2	0.58	●
D938-A3C-0325	3.25	20	62	6	36	15.1	0.59	●
D938-A3C-0330	3.30	20	62	6	36	15.1	0.60	●
D938-A3C-0340	3.40	20	62	6	36	14.9	0.62	●
D938-A3C-0350	3.50	20	62	6	36	14.8	0.64	●
D938-A3C-0360	3.60	20	62	6	36	14.6	0.66	●
D938-A3C-0370	3.70	20	62	6	36	14.5	0.67	●
D938-A3C-0380	3.80	24	66	6	36	18.3	0.69	●
D938-A3C-0390	3.90	24	66	6	36	18.2	0.71	●
D938-A3C-0400	4.00	24	66	6	36	18.0	0.73	●
D938-A3C-0405	4.05	24	66	6	36	17.9	0.74	○
D938-A3C-0410	4.10	24	66	6	36	17.9	0.75	●
D938-A3C-0420	4.20	24	66	6	36	17.7	0.76	●
D938-A3C-0430	4.30	24	66	6	36	17.6	0.78	●
D938-A3C-0440	4.40	24	66	6	36	17.4	0.80	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-0450	4.50	24	66	6	36	17.3	0.82	●
D938-A3C-0460	4.60	24	66	6	36	17.1	0.84	●
D938-A3C-0465	4.65	24	66	6	36	17.0	0.85	●
D938-A3C-0470	4.70	24	66	6	36	17.0	0.86	●
D938-A3C-0480	4.80	28	66	6	36	20.8	0.87	●
D938-A3C-0490	4.90	28	66	6	36	20.7	0.89	●
D938-A3C-0500	5.00	28	66	6	36	20.5	0.91	●
D938-A3C-0510	5.10	28	66	6	36	20.4	0.93	●
D938-A3C-0520	5.20	28	66	6	36	20.2	0.95	●
D938-A3C-0530	5.30	28	66	6	36	20.1	0.96	●
D938-A3C-0540	5.40	28	66	6	36	19.9	0.98	●
D938-A3C-0550	5.50	28	66	6	36	19.8	1.00	●
D938-A3C-0555	5.55	28	66	6	36	19.7	1.01	●
D938-A3C-0560	5.60	28	66	6	36	19.6	1.02	●
D938-A3C-0570	5.70	28	66	6	36	19.5	1.04	●
D938-A3C-0580	5.80	28	66	6	36	19.3	1.06	●
D938-A3C-0590	5.90	28	66	6	36	19.2	1.07	●
D938-A3C-0600	6.00	28	66	6	36	19.0	1.09	●
D938-A3C-0605	6.05	34	79	8	36	24.9	1.10	●
D938-A3C-0610	6.10	34	79	8	36	24.9	1.11	●
D938-A3C-0620	6.20	34	79	8	36	24.7	1.13	●
D938-A3C-0630	6.30	34	79	8	36	24.6	1.15	●
D938-A3C-0640	6.40	34	79	8	36	24.4	1.16	●
D938-A3C-0650	6.50	34	79	8	36	24.3	1.18	●
D938-A3C-0660	6.60	34	79	8	36	24.1	1.20	●
D938-A3C-0670	6.70	34	79	8	36	24.0	1.22	●
D938-A3C-0675	6.75	34	79	8	36	23.9	1.23	○

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

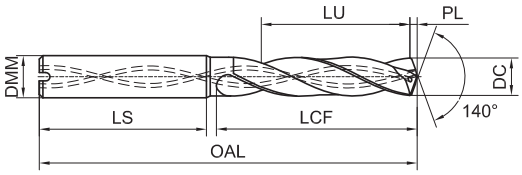
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3C

SHANK DIN 6535HA | AlTiN nano | 3D

3D Internal Cooling Twist Drills for Steel



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-0680	6.80	34	79	8	36	23.8	1.24	●
D938-A3C-0690	6.90	34	79	8	36	23.7	1.26	●
D938-A3C-0700	7.00	34	79	8	36	23.5	1.27	●
D938-A3C-0710	7.10	41	79	8	36	30.4	1.29	●
D938-A3C-0720	7.20	41	79	8	36	30.2	1.31	●
D938-A3C-0730	7.30	41	79	8	36	30.1	1.33	●
D938-A3C-0740	7.40	41	79	8	36	29.9	1.35	●
D938-A3C-0745	7.45	41	79	8	36	29.8	1.36	●
D938-A3C-0750	7.50	41	79	8	36	29.8	1.36	●
D938-A3C-0755	7.55	41	79	8	36	29.7	1.37	●
D938-A3C-0760	7.60	41	79	8	36	29.6	1.38	●
D938-A3C-0770	7.70	41	79	8	36	29.5	1.40	●
D938-A3C-0775	7.75	41	79	8	36	29.4	1.41	●
D938-A3C-0780	7.80	41	79	8	36	29.3	1.42	●
D938-A3C-0790	7.90	41	79	8	36	29.2	1.44	●
D938-A3C-0800	8.00	41	79	8	36	29.0	1.46	●
D938-A3C-0810	8.10	47	89	10	40	34.9	1.47	●
D938-A3C-0820	8.20	47	89	10	40	34.7	1.49	●
D938-A3C-0825	8.25	47	89	10	40	34.6	1.50	●
D938-A3C-0830	8.30	47	89	10	40	34.6	1.51	●
D938-A3C-0840	8.40	47	89	10	40	34.4	1.53	●
D938-A3C-0850	8.50	47	89	10	40	34.3	1.55	●
D938-A3C-0860	8.60	47	89	10	40	34.1	1.57	●
D938-A3C-0870	8.70	47	89	10	40	34.0	1.58	●
D938-A3C-0880	8.80	47	89	10	40	33.8	1.60	●
D938-A3C-0890	8.90	47	89	10	40	33.7	1.62	●
D938-A3C-0900	9.00	47	89	10	40	33.5	1.64	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-0910	9.10	47	89	10	40	33.4	1.66	●
D938-A3C-0920	9.20	47	89	10	40	33.2	1.67	●
D938-A3C-0925	9.25	47	89	10	40	33.1	1.68	●
D938-A3C-0930	9.30	47	89	10	40	33.1	1.69	○
D938-A3C-0935	9.35	47	89	10	40	33.0	1.70	●
D938-A3C-0940	9.40	47	89	10	40	32.9	1.71	●
D938-A3C-0950	9.50	47	89	10	40	32.8	1.73	●
D938-A3C-0955	9.55	47	89	10	40	32.7	1.74	●
D938-A3C-0960	9.60	47	89	10	40	32.6	1.75	●
D938-A3C-0970	9.70	47	89	10	40	32.5	1.77	●
D938-A3C-0980	9.80	47	89	10	40	32.3	1.78	●
D938-A3C-0990	9.90	47	89	10	40	32.2	1.80	●
D938-A3C-1000	10.00	47	89	10	40	32.0	1.82	●
D938-A3C-1010	10.10	55	102	12	45	39.9	1.84	●
D938-A3C-1020	10.20	55	102	12	45	39.7	1.86	●
D938-A3C-1025	10.25	55	102	12	45	39.6	1.87	●
D938-A3C-1030	10.30	55	102	12	45	39.6	1.87	●
D938-A3C-1040	10.40	55	102	12	45	39.4	1.89	●
D938-A3C-1050	10.50	55	102	12	45	39.3	1.91	●
D938-A3C-1060	10.60	55	102	12	45	39.1	1.93	●
D938-A3C-1070	10.70	55	102	12	45	39.0	1.95	●
D938-A3C-1080	10.80	55	102	12	45	38.8	1.97	●
D938-A3C-1085	10.85	55	102	12	45	38.8	1.97	●
D938-A3C-1090	10.90	55	102	12	45	38.7	1.98	●
D938-A3C-1100	11.00	55	102	12	45	38.5	2.00	●
D938-A3C-1110	11.10	55	102	12	45	38.4	2.02	○
D938-A3C-1105	11.05	55	102	12	45	38.4	2.01	○

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

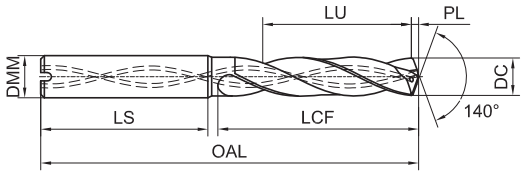
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3C

3D Internal Cooling Twist Drills for Steel



》 Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-1120	11.20	55	102	12	45	38.2	2.04	●
D938-A3C-1130	11.30	55	102	12	45	38.1	2.06	●
D938-A3C-1140	11.40	55	102	12	45	37.9	2.07	●
D938-A3C-1150	11.50	55	102	12	45	37.8	2.09	●
D938-A3C-1160	11.60	55	102	12	45	37.6	2.11	○
D938-A3C-1170	11.70	55	102	12	45	37.5	2.13	●
D938-A3C-1180	11.80	55	102	12	45	37.3	2.15	●
D938-A3C-1190	11.90	55	102	12	45	37.2	2.17	○
D938-A3C-1200	12.00	55	102	12	45	37.0	2.18	●
D938-A3C-1210	12.10	60	107	14	45	41.9	2.20	○
D938-A3C-1220	12.20	60	107	14	45	41.7	2.22	●
D938-A3C-1230	12.30	60	107	14	45	41.6	2.24	○
D938-A3C-1240	12.40	60	107	14	45	41.4	2.26	○
D938-A3C-1245	12.45	60	107	14	45	41.3	2.27	○
D938-A3C-1250	12.50	60	107	14	45	41.3	2.27	●
D938-A3C-1260	12.60	60	107	14	45	41.1	2.29	○
D938-A3C-1270	12.70	60	107	14	45	41.0	2.31	○
D938-A3C-1280	12.80	60	107	14	45	40.8	2.33	●
D938-A3C-1285	12.85	60	107	14	45	40.7	2.34	○
D938-A3C-1300	13.00	60	107	14	45	40.5	2.37	●
D938-A3C-1310	13.10	60	107	14	45	40.4	2.38	○
D938-A3C-1320	13.20	60	107	14	45	40.2	2.40	○
D938-A3C-1340	13.40	60	107	14	45	39.9	2.44	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-1350	13.50	60	107	14	45	39.8	2.46	●
D938-A3C-1360	13.60	60	107	14	45	39.6	2.47	○
D938-A3C-1370	13.70	60	107	14	45	39.5	2.49	○
D938-A3C-1375	13.75	60	107	14	45	39.4	2.50	○
D938-A3C-1380	13.80	60	107	14	45	39.3	2.51	○
D938-A3C-1390	13.90	60	107	14	45	39.2	2.53	○
D938-A3C-1400	14.00	60	107	14	45	39.0	2.55	●
D938-A3C-1405	14.05	60	107	14	45	38.9	2.56	○
D938-A3C-1420	14.20	65	115	16	48	43.7	2.58	●
D938-A3C-1430	14.30	65	115	16	48	43.6	2.60	○
D938-A3C-1450	14.50	65	115	16	48	43.3	2.64	●
D938-A3C-1460	14.60	65	115	16	48	43.1	2.66	○
D938-A3C-1470	14.70	65	115	16	48	43.0	2.68	○
D938-A3C-1480	14.80	65	115	16	48	42.8	2.69	●
D938-A3C-1500	15.00	65	115	16	48	42.5	2.73	●
D938-A3C-1510	15.10	65	115	16	48	42.4	2.75	○
D938-A3C-1520	15.20	65	115	16	48	42.2	2.77	○
D938-A3C-1530	15.30	65	115	16	48	42.1	2.78	●
D938-A3C-1550	15.50	65	115	16	48	41.8	2.82	○
D938-A3C-1570	15.70	65	115	16	48	41.5	2.86	●
D938-A3C-1580	15.80	65	115	16	48	41.3	2.88	●
D938-A3C-1600	16.00	65	115	16	48	41.0	2.91	○
D938-A3C-1610	16.10	65	115	16	48	40.9	2.93	○

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

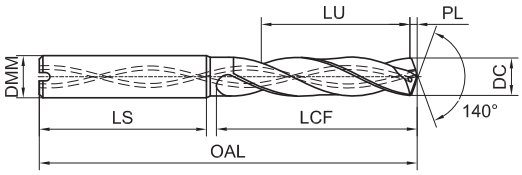
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A3C

3D Internal Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A3C-1650	16.50	73	123	18	48	48.3	3.00	●
D938-A3C-1680	16.80	73	123	18	48	47.8	3.06	○
D938-A3C-1690	16.90	73	123	18	48	47.7	3.08	○
D938-A3C-1700	17.00	73	123	18	48	47.5	3.09	●
D938-A3C-1750	17.50	73	123	18	48	46.8	3.18	●
D938-A3C-1770	17.70	73	123	18	48	46.5	3.22	○
D938-A3C-1780	17.80	73	123	18	48	46.3	3.24	○
D938-A3C-1800	18.00	73	123	18	48	46.0	3.28	●
D938-A3C-1830	18.30	79	131	20	50	51.6	3.33	○
D938-A3C-1850	18.50	79	131	20	50	51.3	3.37	○
D938-A3C-1880	18.80	79	131	20	50	50.8	3.42	○
D938-A3C-1900	19.00	79	131	20	50	50.5	3.46	○
D938-A3C-1930	19.30	79	131	20	50	50.1	3.51	○
D938-A3C-1950	19.50	79	131	20	50	49.8	3.55	○
D938-A3C-1960	19.60	79	131	20	50	49.6	3.57	○
D938-A3C-1970	19.70	79	131	20	50	49.5	3.59	○
D938-A3C-1980	19.80	79	131	20	50	49.3	3.60	○
D938-A3C-2000	20.00	79	131	20	50	49.0	3.64	●

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

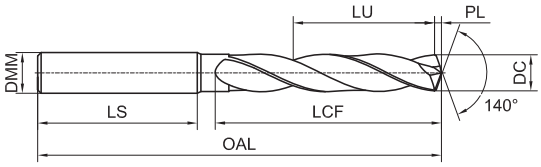
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5N

SHANK DIN 6535HA | AlTiN nano | 5D

5D External Cooling Twist Drills for Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-0100	1.00	9	45	4	28	7.5	0.18	●
D938-A5N-0160	1.60	12	55	4	35	9.6	0.29	●
D938-A5N-0165	1.65	12	55	4	35	9.5	0.30	●
D938-A5N-0190	1.90	12	55	4	35	9.2	0.35	●
D938-A5N-0200	2.00	18	62	4	38	15.0	0.36	●
D938-A5N-0210	2.10	18	62	4	38	14.9	0.38	●
D938-A5N-0230	2.30	18	62	4	38	14.6	0.42	●
D938-A5N-0235	2.35	18	62	4	38	14.5	0.43	●
D938-A5N-0240	2.40	22	62	4	35	18.4	0.44	●
D938-A5N-0250	2.50	22	62	4	35	18.3	0.45	●
D938-A5N-0260	2.60	22	62	4	35	18.1	0.47	●
D938-A5N-0270	2.70	22	62	4	35	18.0	0.49	●
D938-A5N-0280	2.80	22	62	4	35	17.8	0.51	●
D938-A5N-0290	2.90	22	62	4	35	17.7	0.53	●
D938-A5N-0300	3.00	28	66	6	36	23.5	0.55	●
D938-A5N-0310	3.10	28	66	6	36	23.4	0.56	●
D938-A5N-0315	3.15	28	66	6	36	23.3	0.57	●
D938-A5N-0320	3.20	28	66	6	36	23.2	0.58	●
D938-A5N-0325	3.25	28	66	6	36	23.1	0.59	○
D938-A5N-0330	3.30	28	66	6	36	23.1	0.60	●
D938-A5N-0340	3.40	28	66	6	36	22.9	0.62	●
D938-A5N-0350	3.50	28	66	6	36	22.8	0.64	●
D938-A5N-0360	3.60	28	66	6	36	22.6	0.66	●
D938-A5N-0365	3.65	28	66	6	36	22.5	0.66	●
D938-A5N-0370	3.70	28	66	6	36	22.5	0.67	●
D938-A5N-0380	3.80	36	74	6	36	30.3	0.69	●
D938-A5N-0390	3.90	36	74	6	36	30.2	0.71	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-0400	4.00	36	74	6	36	30.0	0.73	●
D938-A5N-0405	4.05	36	74	6	36	29.9	0.74	●
D938-A5N-0410	4.10	36	74	6	36	29.9	0.75	●
D938-A5N-0420	4.20	36	74	6	36	29.7	0.76	●
D938-A5N-0425	4.25	36	74	6	36	29.6	0.77	○
D938-A5N-0430	4.30	36	74	6	36	29.6	0.78	●
D938-A5N-0440	4.40	36	74	6	36	29.4	0.80	●
D938-A5N-0450	4.50	36	74	6	36	29.3	0.82	●
D938-A5N-0460	4.60	36	74	6	36	29.1	0.84	●
D938-A5N-0465	4.65	36	74	6	36	29.0	0.85	●
D938-A5N-0470	4.70	36	74	6	36	29.0	0.86	●
D938-A5N-0480	4.80	44	82	6	36	36.8	0.87	●
D938-A5N-0490	4.90	44	82	6	36	36.7	0.89	●
D938-A5N-0500	5.00	44	82	6	36	36.5	0.91	●
D938-A5N-0505	5.05	44	82	6	36	36.4	0.92	●
D938-A5N-0510	5.10	44	82	6	36	36.4	0.93	●
D938-A5N-0520	5.20	44	82	6	36	36.2	0.95	●
D938-A5N-0530	5.30	44	82	6	36	36.1	0.96	●
D938-A5N-0540	5.40	44	82	6	36	35.9	0.98	●
D938-A5N-0550	5.50	44	82	6	36	35.8	1.00	●
D938-A5N-0555	5.55	44	82	6	36	35.7	1.01	●
D938-A5N-0560	5.60	44	82	6	36	35.6	1.02	●
D938-A5N-0570	5.70	44	82	6	36	35.5	1.04	●
D938-A5N-0580	5.80	44	82	6	36	35.3	1.06	●
D938-A5N-0590	5.90	44	82	6	36	35.2	1.07	●
D938-A5N-0600	6.00	44	82	6	36	35.0	1.09	●
D938-A5N-0610	6.10	53	91	8	36	43.9	1.11	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool Unit(mm)

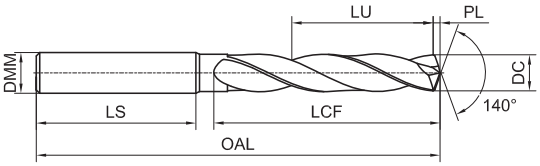
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5N

5D External Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-0620	6.20	53	91	8	36	43.7	1.13	●
D938-A5N-0630	6.30	53	91	8	36	43.6	1.15	●
D938-A5N-0640	6.40	53	91	8	36	43.4	1.16	●
D938-A5N-0650	6.50	53	91	8	36	43.3	1.18	●
D938-A5N-0660	6.60	53	91	8	36	43.1	1.20	●
D938-A5N-0670	6.70	53	91	8	36	43.0	1.22	●
D938-A5N-0680	6.80	53	91	8	36	42.8	1.24	●
D938-A5N-0690	6.90	53	91	8	36	42.7	1.26	○
D938-A5N-0700	7.00	53	91	8	36	42.5	1.27	●
D938-A5N-0710	7.10	53	91	8	36	42.4	1.29	●
D938-A5N-0720	7.20	53	91	8	36	42.2	1.31	●
D938-A5N-0730	7.30	53	91	8	36	42.1	1.33	●
D938-A5N-0740	7.40	53	91	8	36	41.9	1.35	●
D938-A5N-0745	7.45	53	91	8	36	41.8	1.36	●
D938-A5N-0750	7.50	53	91	8	36	41.8	1.36	●
D938-A5N-0755	7.55	53	91	8	36	41.7	1.37	●
D938-A5N-0760	7.60	53	91	8	36	41.6	1.38	●
D938-A5N-0770	7.70	53	91	8	36	41.5	1.40	●
D938-A5N-0780	7.80	53	91	8	36	41.3	1.42	●
D938-A5N-0685	6.85	53	91	8	36	42.7	1.25	●
D938-A5N-0790	7.90	53	91	8	36	41.2	1.44	●
D938-A5N-0800	8.00	53	91	8	36	41.0	1.46	●
D938-A5N-0810	8.10	61	103	10	40	48.9	1.47	●
D938-A5N-0815	8.15	61	103	10	40	48.8	1.48	●
D938-A5N-0820	8.20	61	103	10	40	48.7	1.49	●
D938-A5N-0830	8.30	61	103	10	40	48.6	1.51	●
D938-A5N-0840	8.40	61	103	10	40	48.4	1.53	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-0850	8.50	61	103	10	40	48.3	1.55	●
D938-A5N-0860	8.60	61	103	10	40	48.1	1.57	●
D938-A5N-0870	8.70	61	103	10	40	48.0	1.58	●
D938-A5N-0880	8.80	61	103	10	40	47.8	1.60	●
D938-A5N-0890	8.90	61	103	10	40	47.7	1.62	●
D938-A5N-0900	9.00	61	103	10	40	47.5	1.64	●
D938-A5N-0910	9.10	61	103	10	40	47.4	1.66	●
D938-A5N-0920	9.20	61	103	10	40	47.2	1.67	●
D938-A5N-0925	9.25	61	103	10	40	47.1	1.68	●
D938-A5N-0930	9.30	61	103	10	40	47.1	1.69	●
D938-A5N-0935	9.35	61	103	10	40	47.0	1.70	●
D938-A5N-0940	9.40	61	103	10	40	46.9	1.71	●
D938-A5N-0950	9.50	61	103	10	40	46.8	1.73	●
D938-A5N-0955	9.55	61	103	10	40	46.7	1.74	●
D938-A5N-0960	9.60	61	103	10	40	46.6	1.75	●
D938-A5N-0970	9.70	61	103	10	40	46.5	1.77	●
D938-A5N-0980	9.80	61	103	10	40	46.3	1.78	●
D938-A5N-0990	9.90	61	103	10	40	46.2	1.80	●
D938-A5N-1000	10.00	61	103	10	40	46.0	1.82	●
D938-A5N-1005	10.05	61	103	10	40	45.9	1.83	●
D938-A5N-1010	10.10	71	118	12	45	55.9	1.84	●
D938-A5N-1020	10.20	71	118	12	45	55.7	1.86	●
D938-A5N-1025	10.25	71	118	12	45	55.6	1.87	●
D938-A5N-1030	10.30	71	118	12	45	55.6	1.87	●
D938-A5N-1040	10.40	71	118	12	45	55.4	1.89	●
D938-A5N-1050	10.50	71	118	12	45	55.3	1.91	●
D938-A5N-1060	10.60	71	118	12	45	55.1	1.93	●

● Stock ○ Available upon Order Note: Accept customization from D1 to D20 tool Unit(mm)

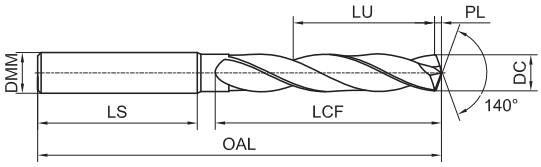
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5N

5D External Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-1070	10.70	71	118	12	45	55.0	1.95	●
D938-A5N-1080	10.80	71	118	12	45	54.8	1.97	●
D938-A5N-1085	10.85	71	118	12	45	54.7	1.97	●
D938-A5N-1090	10.90	71	118	12	45	54.7	1.98	●
D938-A5N-1100	11.00	71	118	12	45	54.5	2.00	●
D938-A5N-1110	11.10	71	118	12	45	54.4	2.02	●
D938-A5N-1120	11.20	71	118	12	45	54.2	2.04	●
D938-A5N-1130	11.30	71	118	12	45	54.1	2.06	●
D938-A5N-1140	11.40	71	118	12	45	53.9	2.07	●
D938-A5N-1150	11.50	71	118	12	45	53.8	2.09	●
D938-A5N-1160	11.60	71	118	12	45	53.6	2.11	●
D938-A5N-1170	11.70	71	118	12	45	53.5	2.13	●
D938-A5N-1180	11.80	71	118	12	45	53.3	2.15	●
D938-A5N-1190	11.90	71	118	12	45	53.2	2.17	●
D938-A5N-1200	12.00	71	118	12	45	53.0	2.18	●
D938-A5N-1210	12.10	77	124	14	45	58.9	2.20	○
D938-A5N-1220	12.20	77	124	14	45	58.7	2.22	●
D938-A5N-1230	12.30	77	124	14	45	58.6	2.24	●
D938-A5N-1240	12.40	77	124	14	45	58.4	2.26	○
D938-A5N-1250	12.50	77	124	14	45	58.3	2.27	●
D938-A5N-1260	12.60	77	124	14	45	58.1	2.29	●
D938-A5N-1270	12.70	77	124	14	45	58.0	2.31	●
D938-A5N-1280	12.80	77	124	14	45	57.8	2.33	●
D938-A5N-1290	12.90	77	124	14	45	57.7	2.35	●
D938-A5N-1300	13.00	77	124	14	45	57.5	2.37	●
D938-A5N-1320	13.20	77	124	14	45	57.2	2.40	●
D938-A5N-1350	13.50	77	124	14	45	56.8	2.46	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-1355	13.55	77	124	14	45	56.7	2.47	○
D938-A5N-1370	13.70	77	124	14	45	56.5	2.49	●
D938-A5N-1375	13.75	77	124	14	45	56.4	2.50	●
D938-A5N-1380	13.80	77	124	14	45	56.3	2.51	●
D938-A5N-1390	13.90	77	124	14	45	56.2	2.53	●
D938-A5N-1400	14.00	77	124	14	45	56.0	2.55	●
D938-A5N-1410	14.10	83	133	16	48	61.9	2.57	○
D938-A5N-1420	14.20	83	133	16	48	61.7	2.58	●
D938-A5N-1430	14.30	83	133	16	48	61.6	2.60	○
D938-A5N-1450	14.50	83	133	16	48	61.3	2.64	●
D938-A5N-1460	14.60	83	133	16	48	61.1	2.66	●
D938-A5N-1470	14.70	83	133	16	48	61.0	2.68	○
D938-A5N-1480	14.80	83	133	16	48	60.8	2.69	●
D938-A5N-1500	15.00	83	133	16	48	60.5	2.73	●
D938-A5N-1510	15.10	83	133	16	48	60.4	2.75	○
D938-A5N-1525	15.25	83	133	16	48	60.1	2.78	○
D938-A5N-1530	15.30	83	133	16	48	60.1	2.78	○
D938-A5N-1550	15.50	83	133	16	48	59.8	2.82	●
D938-A5N-1570	15.70	83	133	16	48	59.5	2.86	●
D938-A5N-1580	15.80	83	133	16	48	59.3	2.88	●
D938-A5N-1600	16.00	83	133	16	48	59.0	2.91	●
D938-A5N-1650	16.50	93	143	18	48	68.3	3.00	●
D938-A5N-1660	16.60	93	143	18	48	68.1	3.02	●
D938-A5N-1680	16.80	93	143	18	48	67.8	3.06	○
D938-A5N-1695	16.95	93	143	18	48	67.6	3.08	●
D938-A5N-1700	17.00	93	143	18	48	67.5	3.09	●
D938-A5N-1730	17.30	93	143	18	48	67.1	3.15	○

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool Unit(mm)

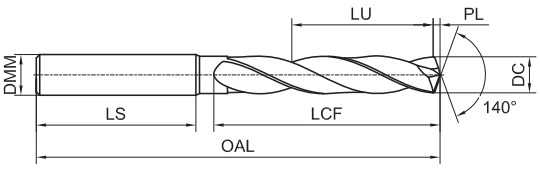
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5N

5D External Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5N-1750	17.50	93	143	18	48	66.8	3.18	●
D938-A5N-1780	17.80	93	143	18	48	66.3	3.24	○
D938-A5N-1795	17.95	93	143	18	48	66.1	3.27	○
D938-A5N-1800	18.00	93	143	18	48	66.0	3.28	●
D938-A5N-1830	18.30	101	153	20	50	73.6	3.33	○
D938-A5N-1850	18.50	101	153	20	50	73.3	3.37	●
D938-A5N-1860	18.60	101	153	20	50	73.1	3.38	●
D938-A5N-1900	19.00	101	153	20	50	72.5	3.46	●
D938-A5N-1950	19.50	101	153	20	50	71.8	3.55	●
D938-A5N-2000	20.00	101	153	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D1 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

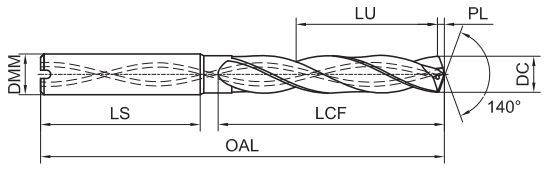
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎		○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5C

5D Internal Cooling Twist Drills for Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-0170	1.70	12	55	4	36	9.5	0.31	○
D938-A5C-0200	2.00	18	62	4	38	15.0	0.36	●
D938-A5C-0250	2.50	22	62	4	35	18.3	0.45	●
D938-A5C-0260	2.60	22	62	4	35	18.1	0.47	●
D938-A5C-0270	2.70	22	62	4	35	18.0	0.49	○
D938-A5C-0280	2.80	22	62	4	35	17.8	0.51	●
D938-A5C-0300	3.00	28	66	6	36	23.5	0.55	●
D938-A5C-0305	3.05	28	66	6	36	23.4	0.56	●
D938-A5C-0310	3.10	28	66	6	36	23.4	0.56	●
D938-A5C-0320	3.20	28	66	6	36	23.2	0.58	●
D938-A5C-0325	3.25	28	66	6	36	23.1	0.59	●
D938-A5C-0330	3.30	28	66	6	36	23.1	0.60	●
D938-A5C-0340	3.40	28	66	6	36	22.9	0.62	●
D938-A5C-0350	3.50	28	66	6	36	22.8	0.64	●
D938-A5C-0360	3.60	28	66	6	36	22.6	0.66	●
D938-A5C-0365	3.65	28	66	6	36	22.5	0.66	○
D938-A5C-0370	3.70	28	66	6	36	22.5	0.67	●
D938-A5C-0380	3.80	36	74	6	36	30.3	0.69	●
D938-A5C-0390	3.90	36	74	6	36	30.2	0.71	●
D938-A5C-0400	4.00	36	74	6	36	30.0	0.73	●
D938-A5C-0405	4.05	36	74	6	36	29.9	0.74	●
D938-A5C-0410	4.10	36	74	6	36	29.9	0.75	●
D938-A5C-0420	4.20	36	74	6	36	29.7	0.76	●
D938-A5C-0430	4.30	36	74	6	36	29.6	0.78	●
D938-A5C-0440	4.40	36	74	6	36	29.4	0.80	●
D938-A5C-0450	4.50	36	74	6	36	29.3	0.82	●
D938-A5C-0460	4.60	36	74	6	36	29.1	0.84	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-0465	4.65	36	74	6	36	29.0	0.85	●
D938-A5C-0470	4.70	36	74	6	36	29.0	0.86	●
D938-A5C-0480	4.80	44	82	6	36	36.8	0.87	●
D938-A5C-0490	4.90	44	82	6	36	36.7	0.89	●
D938-A5C-0500	5.00	44	82	6	36	36.5	0.91	●
D938-A5C-0505	5.05	44	82	6	36	36.4	0.92	●
D938-A5C-0510	5.10	44	82	6	36	36.4	0.93	●
D938-A5C-0520	5.20	44	82	6	36	36.2	0.95	●
D938-A5C-0530	5.30	44	82	6	36	36.1	0.96	●
D938-A5C-0540	5.40	44	82	6	36	35.9	0.98	●
D938-A5C-0550	5.50	44	82	6	36	35.8	1.00	●
D938-A5C-0555	5.55	44	82	6	36	35.7	1.01	●
D938-A5C-0560	5.60	44	82	6	36	35.6	1.02	●
D938-A5C-0570	5.70	44	82	6	36	35.5	1.04	●
D938-A5C-0580	5.80	44	82	6	36	35.3	1.06	●
D938-A5C-0590	5.90	44	82	6	36	35.2	1.07	●
D938-A5C-0600	6.00	44	82	6	36	35.0	1.09	●
D938-A5C-0605	6.05	44	82	6	36	34.9	1.10	○
D938-A5C-0610	6.10	53	91	8	36	43.9	1.11	●
D938-A5C-0620	6.20	53	91	8	36	43.7	1.13	●
D938-A5C-0630	6.30	53	91	8	36	43.6	1.15	●
D938-A5C-0640	6.40	53	91	8	36	43.4	1.16	●
D938-A5C-0650	6.50	53	91	8	36	43.3	1.18	●
D938-A5C-0660	6.60	53	91	8	36	43.1	1.20	●
D938-A5C-0670	6.70	53	91	8	36	43.0	1.22	●
D938-A5C-0680	6.80	53	91	8	36	42.8	1.24	●
D938-A5C-0690	6.90	53	91	8	36	42.7	1.26	●

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

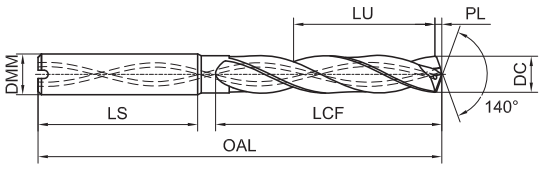
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5C

5D Internal Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-0700	7.00	53	91	8	36	42.5	1.27	●
D938-A5C-0705	7.05	53	91	8	36	42.4	1.28	●
D938-A5C-0710	7.10	53	91	8	36	42.4	1.29	●
D938-A5C-0720	7.20	53	91	8	36	42.2	1.31	●
D938-A5C-0730	7.30	53	91	8	36	42.1	1.33	●
D938-A5C-0740	7.40	53	91	8	36	41.9	1.35	●
D938-A5C-0745	7.45	53	91	8	36	41.8	1.36	●
D938-A5C-0750	7.50	53	91	8	36	41.8	1.36	●
D938-A5C-0755	7.55	53	91	8	36	41.7	1.37	●
D938-A5C-0760	7.60	53	91	8	36	41.6	1.38	●
D938-A5C-0770	7.70	53	91	8	36	41.5	1.40	●
D938-A5C-0780	7.80	53	91	8	36	41.3	1.42	●
D938-A5C-0790	7.90	53	91	8	36	41.2	1.44	●
D938-A5C-0800	8.00	53	91	8	36	41.0	1.46	●
D938-A5C-0805	8.05	53	91	8	36	40.9	1.46	●
D938-A5C-0810	8.10	61	103	10	40	48.9	1.47	●
D938-A5C-0820	8.20	61	103	10	40	48.7	1.49	●
D938-A5C-0830	8.30	61	103	10	40	48.6	1.51	●
D938-A5C-0840	8.40	61	103	10	40	48.4	1.53	●
D938-A5C-0850	8.50	61	103	10	40	48.3	1.55	●
D938-A5C-0860	8.60	61	103	10	40	48.1	1.57	●
D938-A5C-0870	8.70	61	103	10	40	48.0	1.58	●
D938-A5C-0880	8.80	61	103	10	40	47.8	1.60	●
D938-A5C-0890	8.90	61	103	10	40	47.7	1.62	●
D938-A5C-0900	9.00	61	103	10	40	47.5	1.64	●
D938-A5C-0905	9.05	61	103	10	40	47.4	1.65	○
D938-A5C-0910	9.10	61	103	10	40	47.4	1.66	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-0920	9.20	61	103	10	40	47.2	1.67	●
D938-A5C-0925	9.25	61	103	10	40	47.1	1.68	●
D938-A5C-0930	9.30	61	103	10	40	47.1	1.69	●
D938-A5C-0935	9.35	61	103	10	40	47.0	1.70	●
D938-A5C-0940	9.40	61	103	10	40	46.9	1.71	●
D938-A5C-0950	9.50	61	103	10	40	46.8	1.73	●
D938-A5C-0955	9.55	61	103	10	40	46.7	1.74	●
D938-A5C-0960	9.60	61	103	10	40	46.6	1.75	●
D938-A5C-0970	9.70	61	103	10	40	46.5	1.77	●
D938-A5C-0975	9.75	61	103	10	40	46.4	1.77	○
D938-A5C-0980	9.80	61	103	10	40	46.3	1.78	●
D938-A5C-0990	9.90	61	103	10	40	46.2	1.80	●
D938-A5C-1000	10.00	61	103	10	40	46.0	1.82	●
D938-A5C-1005	10.05	61	103	10	40	45.9	1.83	●
D938-A5C-1010	10.10	71	118	12	45	55.9	1.84	●
D938-A5C-1020	10.20	71	118	12	45	55.7	1.86	●
D938-A5C-1025	10.25	71	118	12	45	55.6	1.87	●
D938-A5C-1030	10.30	71	118	12	45	55.6	1.87	●
D938-A5C-1040	10.40	71	118	12	45	55.4	1.89	●
D938-A5C-1050	10.50	71	118	12	45	55.3	1.91	●
D938-A5C-1060	10.60	71	118	12	45	55.1	1.93	●
D938-A5C-1070	10.70	71	118	12	45	55.0	1.95	●
D938-A5C-1080	10.80	71	118	12	45	54.8	1.97	●
D938-A5C-1085	10.85	71	118	12	45	54.7	1.97	●
D938-A5C-1090	10.90	71	118	12	45	54.7	1.98	●
D938-A5C-1100	11.00	71	118	12	45	54.5	2.00	●
D938-A5C-1110	11.10	71	118	12	45	54.4	2.02	●

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

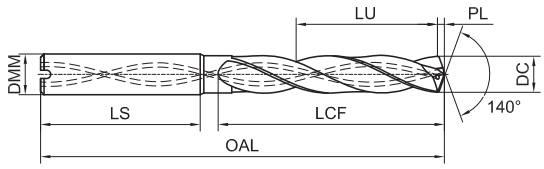
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5C

5D Internal Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-1120	11.20	71	118	12	45	54.2	2.04	●
D938-A5C-1125	11.25	71	118	12	45	54.1	2.05	○
D938-A5C-1130	11.30	71	118	12	45	54.1	2.06	●
D938-A5C-1140	11.40	71	118	12	45	53.9	2.07	●
D938-A5C-1150	11.50	71	118	12	45	53.8	2.09	●
D938-A5C-1160	11.60	71	118	12	45	53.6	2.11	●
D938-A5C-1170	11.70	71	118	12	45	53.5	2.13	●
D938-A5C-1180	11.80	71	118	12	45	53.3	2.15	●
D938-A5C-1190	11.90	71	118	12	45	53.2	2.17	●
D938-A5C-1200	12.00	71	118	12	45	53.0	2.18	●
D938-A5C-1205	12.05	71	118	12	45	52.9	2.19	●
D938-A5C-1210	12.10	77	124	14	45	58.9	2.20	●
D938-A5C-1220	12.20	77	124	14	45	58.7	2.22	●
D938-A5C-1230	12.30	77	124	14	45	58.6	2.24	○
D938-A5C-1240	12.40	77	124	14	45	58.4	2.26	○
D938-A5C-1250	12.50	77	124	14	45	58.3	2.27	●
D938-A5C-1260	12.60	77	124	14	45	58.1	2.29	●
D938-A5C-1270	12.70	77	124	14	45	58.0	2.31	●
D938-A5C-1280	12.80	77	124	14	45	57.8	2.33	○
D938-A5C-1285	12.85	77	124	14	45	57.7	2.34	●
D938-A5C-1290	12.90	77	124	14	45	57.7	2.35	○
D938-A5C-1300	13.00	77	124	14	45	57.5	2.37	●
D938-A5C-1310	13.10	77	124	14	45	57.4	2.38	○
D938-A5C-1320	13.20	77	124	14	45	57.2	2.40	○
D938-A5C-1325	13.25	77	124	14	45	57.1	2.41	○
D938-A5C-1330	13.30	77	124	14	45	57.1	2.42	●
D938-A5C-1350	13.50	77	124	14	45	56.8	2.46	●
D938-A5C-1360	13.60	77	124	14	45	56.6	2.47	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-1370	13.70	77	124	14	45	56.5	2.49	●
D938-A5C-1380	13.80	77	124	14	45	56.3	2.51	●
D938-A5C-1390	13.90	77	124	14	45	56.2	2.53	○
D938-A5C-1400	14.00	77	124	14	45	56.0	2.55	●
D938-A5C-1410	14.10	83	133	16	48	61.9	2.57	○
D938-A5C-1420	14.20	83	133	16	48	61.7	2.58	●
D938-A5C-1430	14.30	83	133	16	48	61.6	2.60	●
D938-A5C-1440	14.40	83	133	16	48	61.4	2.62	○
D938-A5C-1450	14.50	83	133	16	48	61.3	2.64	●
D938-A5C-1460	14.60	83	133	16	48	61.1	2.66	○
D938-A5C-1470	14.70	83	133	16	48	61.0	2.68	○
D938-A5C-1480	14.80	83	133	16	48	60.8	2.69	○
D938-A5C-1500	15.00	83	133	16	48	60.5	2.73	●
D938-A5C-1510	15.10	83	133	16	48	60.4	2.75	●
D938-A5C-1520	15.20	83	133	16	48	60.2	2.77	●
D938-A5C-1530	15.30	83	133	16	48	60.1	2.78	○
D938-A5C-1550	15.50	83	133	16	48	59.8	2.82	●
D938-A5C-1570	15.70	83	133	16	48	59.5	2.86	○
D938-A5C-1580	15.80	83	133	16	48	59.3	2.88	●
D938-A5C-1600	16.00	83	133	16	48	59.0	2.91	●
D938-A5C-1610	16.10	93	143	18	48	68.9	2.93	○
D938-A5C-1630	16.30	93	143	18	48	68.6	2.97	○
D938-A5C-1650	16.50	93	143	18	48	68.3	3.00	●
D938-A5C-1670	16.70	93	143	18	48	68.0	3.04	○
D938-A5C-1680	16.80	93	143	18	48	67.8	3.06	○
D938-A5C-1690	16.90	93	143	18	48	67.7	3.08	○
D938-A5C-1700	17.00	93	143	18	48	67.5	3.09	●

● Stock ○ Available upon Order Note: Accept customization from D2 to D20 tool Unit(mm)

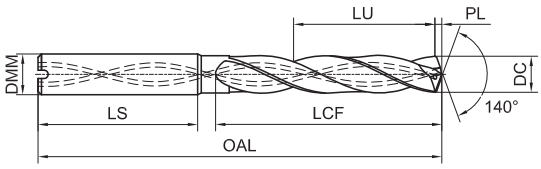
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A5C

5D Internal Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A5C-1710	17.10	93	143	18	48	67.4	3.11	○
D938-A5C-1720	17.20	93	143	18	48	67.2	3.13	○
D938-A5C-1730	17.30	93	143	18	48	67.1	3.15	○
D938-A5C-1750	17.50	93	143	18	48	66.8	3.18	●
D938-A5C-1770	17.70	93	143	18	48	66.5	3.22	○
D938-A5C-1780	17.80	93	143	18	48	66.3	3.24	○
D938-A5C-1800	18.00	93	143	18	48	66.0	3.28	●
D938-A5C-1850	18.50	101	153	20	50	73.3	3.37	●
D938-A5C-1860	18.60	101	153	20	50	73.1	3.38	○
D938-A5C-1870	18.70	101	153	20	50	73.0	3.40	○
D938-A5C-1880	18.80	101	153	20	50	72.8	3.42	●
D938-A5C-1900	19.00	101	153	20	50	72.5	3.46	●
D938-A5C-1950	19.50	101	153	20	50	71.8	3.55	●
D938-A5C-1960	19.60	101	153	20	50	71.6	3.57	○
D938-A5C-1980	19.80	101	153	20	50	71.3	3.60	○
D938-A5C-2000	20.00	101	153	20	50	71.0	3.64	●

● Stock ○ Available upon Order Note：Accept customization from D2 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material

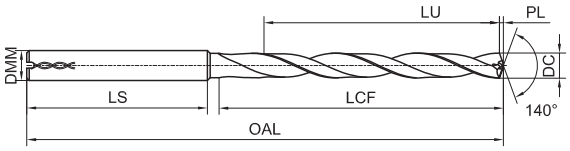
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P095

D938-A8C

8D Internal Cooling Twist Drills for Steel



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A8C-0250	2.50	31	66	4	30	27.3	0.45	○
D938-A8C-0280	2.80	31	66	4	30	26.8	0.51	●
D938-A8C-0290	2.90	31	66	4	30	26.7	0.53	●
D938-A8C-0300	3.00	34	72	6	36	29.5	0.55	●
D938-A8C-0310	3.10	34	72	6	36	29.4	0.56	●
D938-A8C-0320	3.20	34	72	6	36	29.2	0.58	●
D938-A8C-0325	3.25	34	72	6	36	29.1	0.59	●
D938-A8C-0330	3.30	34	72	6	36	29.1	0.60	●
D938-A8C-0340	3.40	34	72	6	36	28.9	0.62	●
D938-A8C-0350	3.50	34	72	6	36	28.8	0.64	●
D938-A8C-0360	3.60	34	72	6	36	28.6	0.66	●
D938-A8C-0370	3.70	34	72	6	36	28.5	0.67	●
D938-A8C-0380	3.80	43	81	6	36	37.3	0.69	○
D938-A8C-0390	3.90	43	81	6	36	37.2	0.71	●
D938-A8C-0400	4.00	43	81	6	36	37.0	0.73	●
D938-A8C-0410	4.10	43	81	6	36	36.9	0.75	●
D938-A8C-0415	4.15	43	81	6	36	36.8	0.76	○
D938-A8C-0420	4.20	43	81	6	36	36.7	0.76	●
D938-A8C-0425	4.25	43	81	6	36	36.6	0.77	○
D938-A8C-0430	4.30	43	81	6	36	36.6	0.78	●
D938-A8C-0440	4.40	43	81	6	36	36.4	0.80	●
D938-A8C-0450	4.50	43	81	6	36	36.3	0.82	●
D938-A8C-0460	4.60	43	81	6	36	36.1	0.84	●
D938-A8C-0470	4.70	43	81	6	36	36.0	0.86	●
D938-A8C-0480	4.80	57	95	6	36	49.8	0.87	●
D938-A8C-0490	4.90	57	95	6	36	49.7	0.89	●
D938-A8C-0500	5.00	57	95	6	36	49.5	0.91	●
D938-A8C-0510	5.10	57	95	6	36	49.4	0.93	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A8C-0520	5.20	57	95	6	36	49.2	0.95	●
D938-A8C-0530	5.30	57	95	6	36	49.1	0.96	●
D938-A8C-0540	5.40	57	95	6	36	48.9	0.98	●
D938-A8C-0550	5.50	57	95	6	36	48.8	1.00	●
D938-A8C-0560	5.60	57	95	6	36	48.6	1.02	●
D938-A8C-0570	5.70	57	95	6	36	48.5	1.04	●
D938-A8C-0580	5.80	57	95	6	36	48.3	1.06	●
D938-A8C-0590	5.90	57	95	6	36	48.2	1.07	●
D938-A8C-0600	6.00	57	95	6	36	48.0	1.09	●
D938-A8C-0610	6.10	76	114	8	36	66.9	1.11	●
D938-A8C-0620	6.20	76	114	8	36	66.7	1.13	●
D938-A8C-0630	6.30	76	114	8	36	66.6	1.15	●
D938-A8C-0640	6.40	76	114	8	36	66.4	1.16	●
D938-A8C-0650	6.50	76	114	8	36	66.3	1.18	●
D938-A8C-0660	6.60	76	114	8	36	66.1	1.20	●
D938-A8C-0670	6.70	76	114	8	36	66.0	1.22	●
D938-A8C-0680	6.80	76	114	8	36	65.8	1.24	●
D938-A8C-0690	6.90	76	114	8	36	65.7	1.26	●
D938-A8C-0700	7.00	76	114	8	36	65.5	1.27	●
D938-A8C-0710	7.10	76	114	8	36	65.4	1.29	●
D938-A8C-0720	7.20	76	114	8	36	65.2	1.31	●
D938-A8C-0730	7.30	76	114	8	36	65.1	1.33	●
D938-A8C-0740	7.40	76	114	8	36	64.9	1.35	○
D938-A8C-0750	7.50	76	114	8	36	64.8	1.36	●
D938-A8C-0760	7.60	76	114	8	36	64.6	1.38	●
D938-A8C-0770	7.70	76	114	8	36	64.5	1.40	●
D938-A8C-0780	7.80	76	114	8	36	64.3	1.42	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

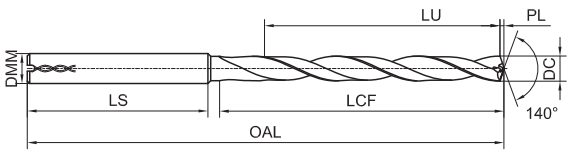
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A8C

8D Internal Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A8C-0790	7.90	76	114	8	36	64.2	1.44	●
D938-A8C-0800	8.00	76	114	8	36	64.0	1.46	●
D938-A8C-0810	8.10	95	142	10	40	82.9	1.47	●
D938-A8C-0820	8.20	95	142	10	40	82.7	1.49	●
D938-A8C-0830	8.30	95	142	10	40	82.6	1.51	●
D938-A8C-0840	8.40	95	142	10	40	82.4	1.53	●
D938-A8C-0850	8.50	95	142	10	40	82.3	1.55	●
D938-A8C-0860	8.60	95	142	10	40	82.1	1.57	●
D938-A8C-0870	8.70	95	142	10	40	82.0	1.58	●
D938-A8C-0880	8.80	95	142	10	40	81.8	1.60	●
D938-A8C-0890	8.90	95	142	10	40	81.7	1.62	●
D938-A8C-0900	9.00	95	142	10	40	81.5	1.64	●
D938-A8C-0910	9.10	95	142	10	40	81.4	1.66	●
D938-A8C-0920	9.20	95	142	10	40	81.2	1.67	●
D938-A8C-0930	9.30	95	142	10	40	81.1	1.69	●
D938-A8C-0940	9.40	95	142	10	40	80.9	1.71	●
D938-A8C-0950	9.50	95	142	10	40	80.8	1.73	●
D938-A8C-0960	9.60	95	142	10	40	80.6	1.75	○
D938-A8C-0970	9.70	95	142	10	40	80.5	1.77	●
D938-A8C-0980	9.80	95	142	10	40	80.3	1.78	●
D938-A8C-0990	9.90	95	142	10	40	80.2	1.80	●
D938-A8C-1000	10.00	95	142	10	40	80.0	1.82	●
D938-A8C-1010	10.10	114	162	12	45	98.9	1.84	○
D938-A8C-1020	10.20	114	162	12	45	98.7	1.86	●
D938-A8C-1030	10.30	114	162	12	45	98.6	1.87	●
D938-A8C-1040	10.40	114	162	12	45	98.4	1.89	●
D938-A8C-1050	10.50	114	162	12	45	98.3	1.91	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A8C-1060	10.60	114	162	12	45	98.1	1.93	●
D938-A8C-1080	10.80	114	162	12	45	97.8	1.97	●
D938-A8C-1090	10.90	114	162	12	45	97.7	1.98	●
D938-A8C-1100	11.00	114	162	12	45	97.5	2.00	●
D938-A8C-1110	11.10	114	162	12	45	97.4	2.02	○
D938-A8C-1120	11.20	114	162	12	45	97.2	2.04	●
D938-A8C-1130	11.30	114	162	12	45	97.1	2.06	○
D938-A8C-1140	11.40	114	162	12	45	96.9	2.07	●
D938-A8C-1150	11.50	114	162	12	45	96.8	2.09	●
D938-A8C-1160	11.60	114	162	12	45	96.6	2.11	●
D938-A8C-1170	11.70	114	162	12	45	96.5	2.13	●
D938-A8C-1180	11.80	114	162	12	45	96.3	2.15	●
D938-A8C-1190	11.90	114	162	12	45	96.2	2.17	●
D938-A8C-1200	12.00	114	162	12	45	96.0	2.18	●
D938-A8C-1210	12.10	133	182	14	45	114.9	2.20	●
D938-A8C-1220	12.20	133	182	14	45	114.7	2.22	○
D938-A8C-1230	12.30	133	182	14	45	114.6	2.24	○
D938-A8C-1240	12.40	133	182	14	45	114.4	2.26	○
D938-A8C-1250	12.50	133	182	14	45	114.3	2.27	●
D938-A8C-1260	12.60	133	182	14	45	114.1	2.29	○
D938-A8C-1270	12.70	133	182	14	45	114.0	2.31	○
D938-A8C-1280	12.80	133	182	14	45	113.8	2.33	○
D938-A8C-1290	12.90	133	182	14	45	113.7	2.35	○
D938-A8C-1300	13.00	133	182	14	45	113.5	2.37	●
D938-A8C-1320	13.20	133	182	14	45	113.2	2.40	○
D938-A8C-1350	13.50	133	182	14	45	112.8	2.46	●
D938-A8C-1370	13.70	133	182	14	45	112.5	2.49	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

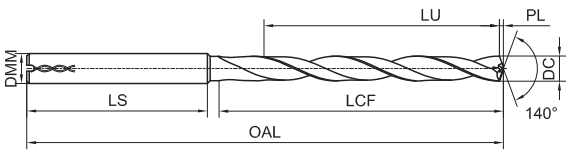
Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A8C

8D Internal Cooling Twist Drills for Steel



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A8C-1380	13.80	133	182	14	45	112.3	2.51	○
D938-A8C-1390	13.90	133	182	14	45	112.2	2.53	○
D938-A8C-1400	14.00	133	182	14	45	112.0	2.55	●
D938-A8C-1420	14.20	152	203	16	48	130.7	2.58	○
D938-A8C-1430	14.30	152	203	16	48	130.6	2.60	○
D938-A8C-1450	14.50	152	203	16	48	130.3	2.64	●
D938-A8C-1460	14.60	152	203	16	48	130.1	2.66	○
D938-A8C-1470	14.70	152	203	16	48	130.0	2.68	○
D938-A8C-1480	14.80	152	203	16	48	129.8	2.69	○
D938-A8C-1500	15.00	152	203	16	48	129.5	2.73	●
D938-A8C-1510	15.10	152	203	16	48	129.4	2.75	○
D938-A8C-1520	15.20	152	203	16	48	129.2	2.77	○
D938-A8C-1530	15.30	152	203	16	48	129.1	2.78	○
D938-A8C-1550	15.50	152	203	16	48	128.8	2.82	●
D938-A8C-1570	15.70	152	203	16	48	128.5	2.86	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A8C-1580	15.80	152	203	16	48	128.3	2.88	○
D938-A8C-1590	15.90	152	203	16	48	128.2	2.89	○
D938-A8C-1600	16.00	152	203	16	48	128.0	2.91	●
D938-A8C-1650	16.50	171	222	18	48	146.3	3.00	●
D938-A8C-1670	16.70	171	222	18	48	146.0	3.04	○
D938-A8C-1700	17.00	171	222	18	48	145.5	3.09	●
D938-A8C-1740	17.40	171	222	18	48	144.9	3.17	○
D938-A8C-1750	17.50	171	222	18	48	144.8	3.18	○
D938-A8C-1780	17.80	171	222	18	48	144.3	3.24	○
D938-A8C-1800	18.00	171	222	18	48	144.0	3.28	●
D938-A8C-1850	18.50	190	243	20	50	162.3	3.37	○
D938-A8C-1900	19.00	190	243	20	50	161.5	3.46	○
D938-A8C-1950	19.50	190	243	20	50	160.8	3.55	○
D938-A8C-2000	20.00	190	243	20	50	160.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

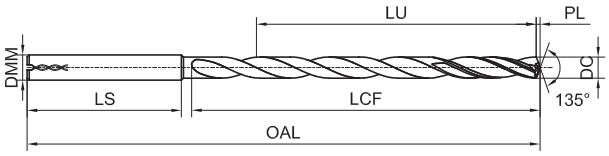
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A12C NEW

SHANK DIN 6535HA | AlTiN nano | 12D

12D Internal Cooling Twist Deep Drills for Steel



Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A12C-0300	3.00	54	92	6	36	49.5	0.62	●
D938-A12C-0310	3.10	54	92	6	36	49.4	0.64	○
D938-A12C-0320	3.20	54	92	6	36	49.2	0.66	○
D938-A12C-0330	3.30	54	92	6	36	49.1	0.68	●
D938-A12C-0340	3.40	54	92	6	36	48.9	0.70	○
D938-A12C-0350	3.50	54	92	6	36	48.8	0.72	●
D938-A12C-0360	3.60	54	92	6	36	48.6	0.75	○
D938-A12C-0370	3.70	54	92	6	36	48.5	0.77	○
D938-A12C-0380	3.80	64	102	6	36	58.3	0.79	●
D938-A12C-0390	3.90	64	102	6	36	58.2	0.81	●
D938-A12C-0400	4.00	64	102	6	36	58.0	0.83	●
D938-A12C-0410	4.10	64	102	6	36	57.9	0.85	○
D938-A12C-0420	4.20	64	102	6	36	57.7	0.87	●
D938-A12C-0430	4.30	64	102	6	36	57.6	0.89	●
D938-A12C-0440	4.40	64	102	6	36	57.4	0.91	○
D938-A12C-0450	4.50	64	102	6	36	57.3	0.93	●
D938-A12C-0460	4.60	64	102	6	36	57.1	0.95	○
D938-A12C-0470	4.70	64	102	6	36	57.0	0.97	●

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A12C-0480	4.80	83	121	6	36	75.8	0.99	●
D938-A12C-0490	4.90	83	121	6	36	75.7	1.01	○
D938-A12C-0500	5.00	83	121	6	36	75.5	1.04	●
D938-A12C-0510	5.10	83	121	6	36	75.4	1.06	○
D938-A12C-0520	5.20	83	121	6	36	75.2	1.08	○
D938-A12C-0530	5.30	83	121	6	36	75.1	1.10	○
D938-A12C-0540	5.40	83	121	6	36	74.9	1.12	○
D938-A12C-0550	5.50	83	121	6	36	74.8	1.14	●
D938-A12C-0560	5.60	83	121	6	36	74.6	1.16	○
D938-A12C-0570	5.70	83	121	6	36	74.5	1.18	○
D938-A12C-0580	5.80	83	121	6	36	74.3	1.20	○
D938-A12C-0590	5.90	83	121	6	36	74.2	1.22	○
D938-A12C-0600	6.00	83	121	6	36	74.0	1.24	●
D938-A12C-0610	6.10	110	148	8	36	100.9	1.26	●
D938-A12C-0620	6.20	110	148	8	36	100.7	1.28	○
D938-A12C-0630	6.30	110	148	8	36	100.6	1.30	○
D938-A12C-0640	6.40	110	148	8	36	100.4	1.33	○
D938-A12C-0650	6.50	110	148	8	36	100.3	1.35	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D16 tool Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

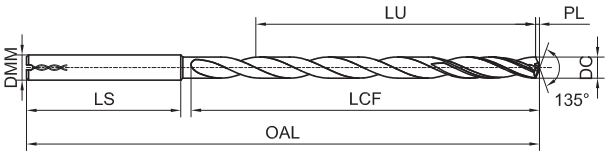
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A12C NEW

SHANK DIN 6535HA | AlTiN nano | 12D

12D Internal Cooling Twist Deep Drills for Steel



》Continue

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A12C-0660	6.60	110	148	8	36	100.1	1.37	○
D938-A12C-0670	6.70	110	148	8	36	100.0	1.39	○
D938-A12C-0680	6.80	110	148	8	36	99.8	1.41	●
D938-A12C-0690	6.90	110	148	8	36	99.7	1.43	○
D938-A12C-0700	7.00	110	148	8	36	99.5	1.45	●
D938-A12C-0710	7.10	110	148	8	36	99.4	1.47	○
D938-A12C-0720	7.20	110	148	8	36	99.2	1.49	○
D938-A12C-0730	7.30	110	148	8	36	99.1	1.51	○
D938-A12C-0740	7.40	110	148	8	36	98.9	1.53	○
D938-A12C-0750	7.50	110	148	8	36	98.8	1.55	○
D938-A12C-0760	7.60	110	148	8	36	98.6	1.57	○
D938-A12C-0770	7.70	110	148	8	36	98.5	1.59	○
D938-A12C-0780	7.80	110	148	8	36	98.3	1.62	○
D938-A12C-0790	7.90	110	148	8	36	98.2	1.64	○
D938-A12C-0800	8.00	110	148	8	36	98.0	1.66	●
D938-A12C-0810	8.10	138	180	10	40	125.9	1.68	○
D938-A12C-0820	8.20	138	180	10	40	125.7	1.70	○
D938-A12C-0830	8.30	138	180	10	40	125.6	1.72	○

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A12C-0840	8.40	138	180	10	40	125.4	1.74	○
D938-A12C-0850	8.50	138	180	10	40	125.3	1.76	●
D938-A12C-0860	8.60	138	180	10	40	125.1	1.78	○
D938-A12C-0870	8.70	138	180	10	40	125.0	1.80	●
D938-A12C-0880	8.80	138	180	10	40	124.8	1.82	○
D938-A12C-0890	8.90	138	180	10	40	124.7	1.84	○
D938-A12C-0900	9.00	138	180	10	40	124.5	1.86	●
D938-A12C-0910	9.10	138	180	10	40	124.4	1.88	○
D938-A12C-0920	9.20	138	180	10	40	124.2	1.91	○
D938-A12C-0930	9.30	138	180	10	40	124.1	1.93	○
D938-A12C-0940	9.40	138	180	10	40	123.9	1.95	○
D938-A12C-0950	9.50	138	180	10	40	123.8	1.97	●
D938-A12C-0960	9.60	138	180	10	40	123.6	1.99	○
D938-A12C-0970	9.70	138	180	10	40	123.5	2.01	○
D938-A12C-0980	9.80	138	180	10	40	123.3	2.03	○
D938-A12C-0990	9.90	138	180	10	40	123.2	2.05	○
D938-A12C-1000	10.00	138	180	10	40	123.0	2.07	●
D938-A12C-1020	10.20	158	206	12	45	142.7	2.11	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D16 tool Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

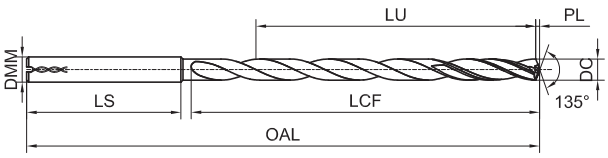
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A12C NEW

SHANK DIN 6535HA | AlTiN nano | 12D

12D Internal Cooling Twist Deep Drills for Steel



》Continue

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A12C-1030	10.30	158	206	12	45	142.6	2.13	○
D938-A12C-1050	10.50	158	206	12	45	142.3	2.17	●
D938-A12C-1060	10.60	158	206	12	45	142.1	2.20	○
D938-A12C-1080	10.80	158	206	12	45	141.8	2.24	○
D938-A12C-1100	11.00	158	206	12	45	141.5	2.28	○
D938-A12C-1120	11.20	158	206	12	45	141.2	2.32	○
D938-A12C-1150	11.50	158	206	12	45	140.8	2.38	○
D938-A12C-1160	11.60	158	206	12	45	140.6	2.40	○
D938-A12C-1180	11.80	158	206	12	45	140.3	2.44	○
D938-A12C-1190	11.90	158	206	12	45	140.2	2.46	○
D938-A12C-1200	12.00	158	206	12	45	140.0	2.49	●
D938-A12C-1210	12.10	182	230	14	45	163.9	2.51	○
D938-A12C-1220	12.20	182	230	14	45	163.7	2.53	○
D938-A12C-1240	12.40	182	230	14	45	163.4	2.57	○
D938-A12C-1250	12.50	182	230	14	45	163.3	2.59	○
D938-A12C-1270	12.70	182	230	14	45	163.0	2.63	○
D938-A12C-1280	12.80	182	230	14	45	162.8	2.65	○
D938-A12C-1300	13.00	182	230	14	45	162.5	2.69	○

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A12C-1350	13.50	182	230	14	45	161.8	2.80	○
D938-A12C-1380	13.80	182	230	14	45	161.3	2.86	○
D938-A12C-1400	14.00	182	230	14	45	161.0	2.90	○
D938-A12C-1420	14.20	208	260	16	48	186.7	2.94	○
D938-A12C-1450	14.50	208	260	16	48	186.3	3.00	○
D938-A12C-1480	14.80	208	260	16	48	185.8	3.07	○
D938-A12C-1500	15.00	208	260	16	48	185.5	3.11	○
D938-A12C-1550	15.50	208	260	16	48	184.8	3.21	○
D938-A12C-1580	15.80	208	260	16	48	184.3	3.27	○
D938-A12C-1600	16.00	208	260	16	48	184.0	3.31	○

Unit(mm)

● Stock ○ Available upon Order Note: Accept customization from D3 to D16 tool

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Nominal Size Range	DC(h7)	DMM(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

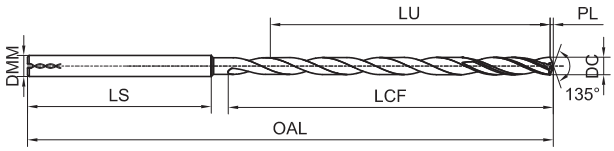
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A15C NEW

15D Internal Cooling Twist Deep Drills for Steel



Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A15C-0300	3.00	55	95	6	36	50.5	0.62	●
D938-A15C-0310	3.10	67	106	6	36	62.4	0.64	○
D938-A15C-0320	3.20	67	106	6	36	62.2	0.66	○
D938-A15C-0330	3.30	67	106	6	36	62.1	0.68	○
D938-A15C-0340	3.40	67	106	6	36	61.9	0.70	○
D938-A15C-0350	3.50	76	116	6	36	70.8	0.72	●
D938-A15C-0360	3.60	76	116	6	36	70.6	0.75	○
D938-A15C-0370	3.70	76	116	6	36	70.5	0.77	○
D938-A15C-0380	3.80	76	116	6	36	70.3	0.79	○
D938-A15C-0390	3.90	76	116	6	36	70.2	0.81	○
D938-A15C-0400	4.00	76	116	6	36	70.0	0.83	●
D938-A15C-0410	4.10	93	133	6	36	86.9	0.85	○
D938-A15C-0420	4.20	93	133	6	36	86.7	0.87	●
D938-A15C-0430	4.30	93	133	6	36	86.6	0.89	○
D938-A15C-0440	4.40	93	133	6	36	86.4	0.91	○
D938-A15C-0450	4.50	93	133	6	36	86.3	0.93	●
D938-A15C-0460	4.60	93	133	6	36	86.1	0.95	○
D938-A15C-0470	4.70	93	133	6	36	86.0	0.97	○

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A15C-0480	4.80	93	133	6	36	85.8	0.99	○
D938-A15C-0490	4.90	93	133	6	36	85.7	1.01	○
D938-A15C-0500	5.00	93	133	6	36	85.5	1.04	●
D938-A15C-0510	5.10	110	150	6	36	102.4	1.06	●
D938-A15C-0520	5.20	110	150	6	36	102.2	1.08	○
D938-A15C-0530	5.30	110	150	6	36	102.1	1.10	○
D938-A15C-0540	5.40	110	150	6	36	101.9	1.12	○
D938-A15C-0550	5.50	110	150	6	36	101.8	1.14	●
D938-A15C-0560	5.60	110	150	6	36	101.6	1.16	○
D938-A15C-0570	5.70	110	150	6	36	101.5	1.18	○
D938-A15C-0580	5.80	110	150	6	36	101.3	1.20	○
D938-A15C-0590	5.90	110	150	6	36	101.2	1.22	○
D938-A15C-0600	6.00	110	150	6	36	101.0	1.24	●
D938-A15C-0610	6.10	127	167	8	36	117.9	1.26	○
D938-A15C-0620	6.20	127	167	8	36	117.7	1.28	○
D938-A15C-0630	6.30	127	167	8	36	117.6	1.30	○
D938-A15C-0640	6.40	127	167	8	36	117.4	1.33	○
D938-A15C-0650	6.50	127	167	8	36	117.3	1.35	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D14 tool

Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

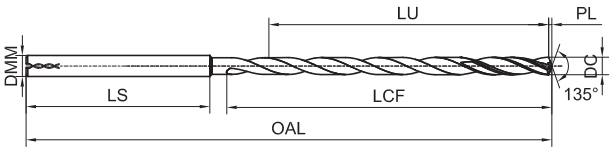
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A15C NEW

SHANK DIN 6535HA | AlTiN nano | 15D

15D Internal Cooling Twist Deep Drills for Steel



》Continue

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A15C-0660	6.60	127	167	8	36	117.1	1.37	○
D938-A15C-0670	6.70	127	167	8	36	117.0	1.39	○
D938-A15C-0680	6.80	127	167	8	36	116.8	1.41	○
D938-A15C-0690	6.90	127	167	8	36	116.7	1.43	○
D938-A15C-0700	7.00	127	167	8	36	116.5	1.45	●
D938-A15C-0710	7.10	143	183	8	36	132.4	1.47	○
D938-A15C-0720	7.20	143	183	8	36	132.2	1.49	○
D938-A15C-0730	7.30	143	183	8	36	132.1	1.51	○
D938-A15C-0740	7.40	143	183	8	36	131.9	1.53	○
D938-A15C-0750	7.50	143	183	8	36	131.8	1.55	●
D938-A15C-0760	7.60	143	183	8	36	131.6	1.57	○
D938-A15C-0770	7.70	143	183	8	36	131.5	1.59	○
D938-A15C-0780	7.80	143	183	8	36	131.3	1.62	○
D938-A15C-0790	7.90	143	183	8	36	131.2	1.64	○
D938-A15C-0800	8.00	143	183	8	36	131.0	1.66	●
D938-A15C-0810	8.10	160	204	10	40	147.9	1.68	○
D938-A15C-0820	8.20	160	204	10	40	147.7	1.70	○
D938-A15C-0830	8.30	160	204	10	40	147.6	1.72	○

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A15C-0840	8.40	160	204	10	40	147.4	1.74	○
D938-A15C-0850	8.50	160	204	10	40	147.3	1.76	●
D938-A15C-0860	8.60	160	204	10	40	147.1	1.78	○
D938-A15C-0870	8.70	160	204	10	40	147.0	1.80	○
D938-A15C-0880	8.80	160	204	10	40	146.8	1.82	○
D938-A15C-0890	8.90	160	204	10	40	146.7	1.84	○
D938-A15C-0900	9.00	160	204	10	40	146.5	1.86	●
D938-A15C-0910	9.10	177	221	10	40	163.4	1.88	○
D938-A15C-0920	9.20	177	221	10	40	163.2	1.91	○
D938-A15C-0930	9.30	177	221	10	40	163.1	1.93	○
D938-A15C-0940	9.40	177	221	10	40	162.9	1.95	○
D938-A15C-0950	9.50	177	221	10	40	162.8	1.97	○
D938-A15C-0960	9.60	177	221	10	40	162.6	1.99	○
D938-A15C-0970	9.70	177	221	10	40	162.5	2.01	○
D938-A15C-0980	9.80	177	221	10	40	162.3	2.03	○
D938-A15C-0990	9.90	177	221	10	40	162.2	2.05	○
D938-A15C-1000	10.00	177	221	10	40	162.0	2.07	●
D938-A15C-1020	10.20	198	247	12	45	182.7	2.11	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D14 tool

Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

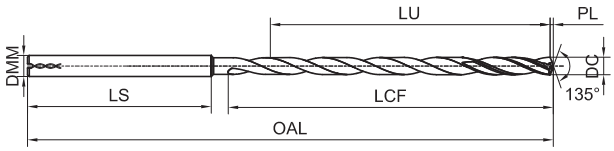
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A15C NEW

SHANK DIN 6535HA | AlTiN nano | 15D

15D Internal Cooling Twist Deep Drills for Steel



》Continue

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A15C-1030	10.30	198	247	12	45	182.6	2.13	○
D938-A15C-1040	10.40	198	247	12	45	182.4	2.15	○
D938-A15C-1050	10.50	198	247	12	45	182.3	2.17	●
D938-A15C-1080	10.80	198	247	12	45	181.8	2.24	○
D938-A15C-1100	11.00	198	247	12	45	181.5	2.28	●
D938-A15C-1120	11.20	214	263	12	45	197.2	2.32	○
D938-A15C-1150	11.50	214	263	12	45	196.8	2.38	○
D938-A15C-1160	11.60	214	263	12	45	196.6	2.40	○
D938-A15C-1170	11.70	214	263	12	45	196.5	2.42	○
D938-A15C-1180	11.80	214	263	12	45	196.3	2.44	○
D938-A15C-1200	12.00	214	263	12	45	196.0	2.49	○
D938-A15C-1210	12.10	248	297	14	45	229.9	2.51	○
D938-A15C-1220	12.20	248	297	14	45	229.7	2.53	○
D938-A15C-1250	12.50	248	297	14	45	229.3	2.59	●
D938-A15C-1280	12.80	248	297	14	45	228.8	2.65	○
D938-A15C-1300	13.00	248	297	14	45	228.5	2.69	○
D938-A15C-1350	13.50	248	297	14	45	227.8	2.80	○
D938-A15C-1380	13.80	248	297	14	45	227.3	2.86	○
D938-A15C-1400	14.00	248	297	14	45	227.0	2.90	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D14 tool

Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Nominal Size Range	DC(h7)	DMM(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

Workpiece Material

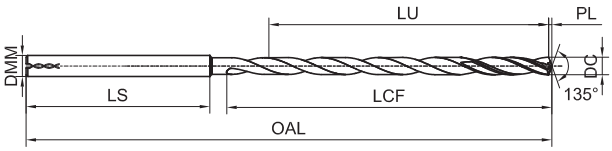
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A20C NEW

20D Internal Coolant Twist Drill for Steel



Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A20C-0300	3.00	70	110	6	36	65.5	0.62	○
D938-A20C-0310	3.10	83	123	6	36	78.4	0.64	○
D938-A20C-0350	3.50	96	136	6	36	90.8	0.72	○
D938-A20C-0400	4.00	96	136	6	36	90.0	0.83	●
D938-A20C-0420	4.20	118	158	6	36	111.7	0.87	○
D938-A20C-0450	4.50	118	158	6	36	111.3	0.93	●
D938-A20C-0500	5.00	118	158	6	36	110.5	1.04	●
D938-A20C-0510	5.10	140	180	6	36	132.4	1.06	○
D938-A20C-0550	5.50	140	180	6	36	131.8	1.14	●
D938-A20C-0595	5.95	140	180	6	36	131.1	1.23	○
D938-A20C-0600	6.00	140	180	6	36	131.0	1.24	●
D938-A20C-0635	6.35	162	202	8	36	152.5	1.32	○
D938-A20C-0650	6.50	162	202	8	36	152.3	1.35	●
D938-A20C-0675	6.75	162	202	8	36	151.9	1.40	○
D938-A20C-0700	7.00	162	202	8	36	151.5	1.45	○
D938-A20C-0750	7.50	183	223	8	36	171.8	1.55	○
D938-A20C-0800	8.00	183	223	8	36	171.0	1.66	●
D938-A20C-0850	8.50	205	249	10	40	192.3	1.76	○
D938-A20C-0900	9.00	205	249	10	40	191.5	1.86	○
D938-A20C-1000	10.00	227	271	10	40	212.0	2.07	●
D938-A20C-1100	11.00	253	302	12	45	236.5	2.28	○
D938-A20C-1200	12.00	274	323	12	45	256.0	2.49	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D12 tool

Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Nominal Size Range	DC(h7)	DMM(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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

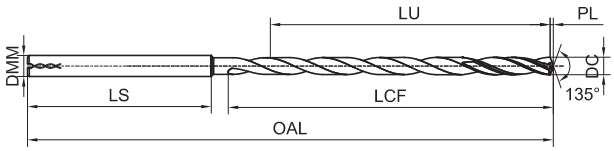
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D938-A25C NEW

SHANK DIN 6535HA | AlTiN nano | 25D

25D Internal Coolant Twist Deep Drills for Steel



Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D938-A25C-0300	3.00	85	125	6	36	80.5	0.62	○
D938-A25C-0310	3.10	101	141	6	36	96.4	0.64	○
D938-A25C-0350	3.50	116	156	6	36	110.8	0.72	○
D938-A25C-0380	3.80	116	156	6	36	110.3	0.79	○
D938-A25C-0400	4.00	116	156	6	36	110.0	0.83	●
D938-A25C-0420	4.20	143	183	6	36	136.7	0.87	○
D938-A25C-0450	4.50	143	183	6	36	136.3	0.93	○
D938-A25C-0500	5.00	143	183	6	36	135.5	1.04	●
D938-A25C-0510	5.10	170	210	6	36	162.4	1.06	○
D938-A25C-0550	5.50	170	210	6	36	161.8	1.14	●
D938-A25C-0595	5.95	170	210	6	36	161.1	1.23	○
D938-A25C-0600	6.00	170	210	6	36	161.0	1.24	●
D938-A25C-0630	6.30	197	237	8	36	187.6	1.30	○
D938-A25C-0635	6.35	197	237	8	36	187.5	1.32	○
D938-A25C-0650	6.50	197	237	8	36	187.3	1.35	●
D938-A25C-0675	6.75	197	237	8	36	186.9	1.40	○
D938-A25C-0700	7.00	197	237	8	36	186.5	1.45	●
D938-A25C-0750	7.50	223	263	8	36	211.8	1.55	○
D938-A25C-0800	8.00	223	263	8	36	211.0	1.66	●

● Stock ○ Available upon Order Note: Accept customization from D3 to D14 tool

Unit(mm)

Note: Guiding drill for Deep-hole drills is the same specification of D938-A3C drills

Nominal Size Range	DC(h7)	DMM(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

Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
◎	◎	◎	○	○	○								

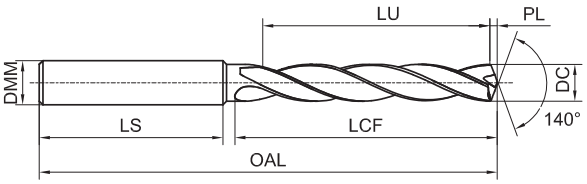
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P097

D928-A3N

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

3D External Coolant Twist Drills for Cast Iron



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A3N-0300	3.00	20	62	6	36	15.5	0.55	○
D928-A3N-0330	3.30	20	62	6	36	15.1	0.60	○
D928-A3N-0380	3.80	24	66	6	36	18.3	0.69	○
D928-A3N-0400	4.00	24	66	6	36	18.0	0.73	○
D928-A3N-0420	4.20	24	66	6	36	17.7	0.76	○
D928-A3N-0440	4.40	24	66	6	36	17.4	0.80	○
D928-A3N-0500	5.00	28	66	6	36	20.5	0.91	○
D928-A3N-0510	5.10	28	66	6	36	20.4	0.93	○
D928-A3N-0600	6.00	28	66	6	36	19.0	1.09	○
D928-A3N-0650	6.50	34	79	8	36	24.3	1.18	○
D928-A3N-0670	6.70	34	79	8	36	24.0	1.22	○
D928-A3N-0680	6.80	34	79	8	36	23.8	1.24	○
D928-A3N-0690	6.90	34	79	8	36	23.7	1.26	○
D928-A3N-0700	7.00	34	79	8	36	23.5	1.27	○
D928-A3N-0720	7.20	41	79	8	36	30.2	1.31	○
D928-A3N-0770	7.70	41	79	8	36	29.5	1.40	○
D928-A3N-0780	7.80	41	79	8	36	29.3	1.42	○
D928-A3N-0800	8.00	41	79	8	36	29.0	1.46	○
D928-A3N-0810	8.10	47	89	10	40	34.9	1.47	○
D928-A3N-0850	8.50	47	89	10	40	34.3	1.55	○
D928-A3N-0870	8.70	47	89	10	40	34.0	1.58	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A3N-0910	9.10	47	89	10	40	33.4	1.66	○
D928-A3N-0980	9.80	47	89	10	40	32.3	1.78	○
D928-A3N-1000	10.00	47	89	10	40	32.0	1.82	○
D928-A3N-1020	10.20	55	102	12	45	39.7	1.86	○
D928-A3N-1025	10.25	55	102	12	45	39.6	1.87	○
D928-A3N-1030	10.30	55	102	12	45	39.6	1.87	○
D928-A3N-1040	10.40	55	102	12	45	39.4	1.89	○
D928-A3N-1050	10.50	55	102	12	45	39.3	1.91	○
D928-A3N-1060	10.60	55	102	12	45	39.1	1.93	○
D928-A3N-1070	10.70	55	102	12	45	39.0	1.95	○
D928-A3N-1080	10.80	55	102	12	45	38.8	1.97	○
D928-A3N-1100	11.00	55	102	12	45	38.5	2.00	○
D928-A3N-1120	11.20	55	102	12	45	38.2	2.04	○
D928-A3N-1150	11.50	55	102	12	45	37.8	2.09	○
D928-A3N-1170	11.70	55	102	12	45	37.5	2.13	○
D928-A3N-1200	12.00	55	102	12	45	37.0	2.18	○
D928-A3N-1250	12.50	60	107	14	45	41.3	2.27	○
D928-A3N-1270	12.70	60	107	14	45	41.0	2.31	○
D928-A3N-1300	13.00	60	107	14	45	40.5	2.37	○
D928-A3N-1400	14.00	60	107	14	45	39.0	2.55	○
D928-A3N-1450	14.50	65	115	16	48	43.3	2.64	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool

Unit(mm)

Workpiece Material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○				◎	◎								

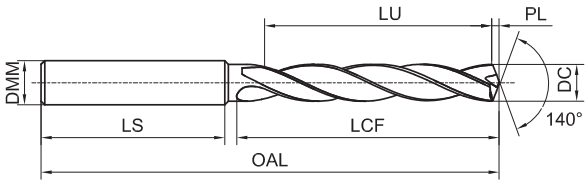
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P099

D928-A3N

SHANK DIN 6535HA | AlCrN/TiSiN | 3D

3D External Coolant Twist Drills for Cast Iron



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A3N-1500	15.00	65	115	16	48	42.5	2.73	○
D928-A3N-1570	15.70	65	115	16	48	41.5	2.86	○
D928-A3N-1600	16.00	65	115	16	48	41.0	2.91	○
D928-A3N-1610	16.10	73	123	18	48	48.9	2.93	○
D928-A3N-1650	16.50	73	123	18	48	48.3	3.00	○
D928-A3N-1660	16.60	73	123	18	48	48.1	3.02	○
D928-A3N-1700	17.00	73	123	18	48	47.5	3.09	○
D928-A3N-1800	18.00	73	123	18	48	46.0	3.28	○
D928-A3N-1850	18.50	79	131	20	50	51.3	3.37	○
D928-A3N-1900	19.00	79	131	20	50	50.5	3.46	○
D928-A3N-2000	20.00	79	131	20	50	49.0	3.64	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○				◎	◎								

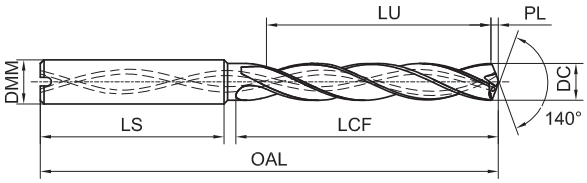
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P099

D928-A3C

3D Internal Coolant Twist Drills for Cast Iron

SHANK DIN 6535HA | AlCrN/TiSiN | 3D



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A3C-0500	5.00	28	66	6	36	20.5	5.59	○
D928-A3C-0520	5.20	28	66	6	36	20.2	0.95	○
D928-A3C-0600	6.00	28	66	6	36	19.0	6.71	○
D928-A3C-0680	6.80	34	79	8	36	23.8	7.61	○
D928-A3C-0700	7.00	34	79	8	36	23.5	7.83	○
D928-A3C-0800	8.00	41	79	8	36	29.0	8.95	○
D928-A3C-0850	8.50	47	89	10	40	34.3	9.51	○
D928-A3C-0900	9.00	47	89	10	40	33.5	10.07	○
D928-A3C-1000	10.00	47	89	10	40	32.0	11.19	○
D928-A3C-1025	10.25	55	102	12	45	39.6	11.47	○
D928-A3C-1050	10.50	55	102	12	45	39.3	11.75	○
D928-A3C-1100	11.00	55	102	12	45	38.5	12.30	○
D928-A3C-1130	11.30	55	102	12	45	38.1	2.06	○
D928-A3C-1200	12.00	55	102	12	45	37.0	13.42	○
D928-A3C-1250	12.50	60	107	14	45	41.3	13.98	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A3C-1280	12.80	60	107	14	45	40.8	2.33	○
D928-A3C-1300	13.00	60	107	14	45	40.5	14.54	○
D928-A3C-1330	13.30	60	107	14	45	40.1	2.42	○
D928-A3C-1400	14.00	60	107	14	45	39.0	15.66	○
D928-A3C-1450	14.50	65	115	16	48	43.3	16.22	○
D928-A3C-1480	14.80	65	115	16	48	42.8	2.69	○
D928-A3C-1500	15.00	65	115	16	48	42.5	16.78	○
D928-A3C-1510	15.10	65	115	16	48	42.4	2.75	○
D928-A3C-1600	16.00	65	115	16	48	41.0	17.90	○
D928-A3C-1700	17.00	73	123	18	48	47.5	19.02	○
D928-A3C-1800	18.00	73	123	18	48	46.0	20.13	○
D928-A3C-1850	18.50	79	131	20	50	51.3	3.37	○
D928-A3C-1900	19.00	79	131	20	50	50.5	21.25	○
D928-A3C-2000	20.00	79	131	20	50	49.0	22.37	○

Unit(mm)

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○				◎	◎	○	○						

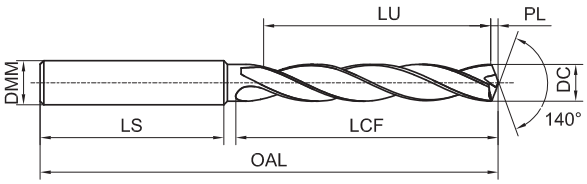
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P099

D928-A5N

SHANK DIN 6535HA | AlCrN/TiSiN | 5D

5D External Coolant Twist Drills for Cast Iron



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A5N-0300	3.00	28	66	6	36	23.5	0.55	●
D928-A5N-0330	3.30	28	66	6	36	23.1	0.60	●
D928-A5N-0340	3.40	28	66	6	36	22.9	0.62	○
D928-A5N-0400	4.00	36	74	6	36	30.0	0.73	○
D928-A5N-0420	4.20	36	74	6	36	29.7	0.76	○
D928-A5N-0430	4.30	36	74	6	36	29.6	0.78	○
D928-A5N-0480	4.80	44	82	6	36	36.8	0.87	○
D928-A5N-0500	5.00	44	82	6	36	36.5	0.91	●
D928-A5N-0505	5.05	44	82	6	36	36.4	0.92	○
D928-A5N-0510	5.10	44	82	6	36	36.4	0.93	○
D928-A5N-0530	5.30	44	82	6	36	36.1	0.96	○
D928-A5N-0580	5.80	44	82	6	36	35.3	1.06	○
D928-A5N-0600	6.00	44	82	6	36	35.0	1.09	●
D928-A5N-0670	6.70	53	91	8	36	43.0	1.22	○
D928-A5N-0680	6.80	53	91	8	36	42.8	1.24	●
D928-A5N-0700	7.00	53	91	8	36	42.5	1.27	●
D928-A5N-0780	7.80	53	91	8	36	41.3	1.42	○
D928-A5N-0800	8.00	53	91	8	36	41.0	1.46	○
D928-A5N-0850	8.50	61	103	10	40	48.3	1.55	○
D928-A5N-0860	8.60	61	103	10	40	48.1	1.57	○
D928-A5N-0900	9.00	61	103	10	40	47.5	1.64	○
D928-A5N-0910	9.10	61	103	10	40	47.5	1.64	●
D928-A5N-0970	9.70	61	103	10	40	46.5	1.77	○
D928-A5N-0980	9.80	61	103	10	40	46.3	1.78	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A5N-1000	10.00	61	103	10	40	46.0	1.82	○
D928-A5N-1025	10.25	71	118	12	45	55.6	1.87	●
D928-A5N-1030	10.30	71	118	12	45	55.6	1.87	○
D928-A5N-1050	10.50	71	118	12	45	55.3	1.91	●
D928-A5N-1070	10.70	71	118	12	45	55.0	1.95	○
D928-A5N-1080	10.80	71	118	12	45	54.8	1.97	○
D928-A5N-1100	11.00	71	118	12	45	54.5	2.00	●
D928-A5N-1110	11.10	71	118	12	45	54.4	2.02	○
D928-A5N-1120	11.20	71	118	12	45	54.2	2.04	○
D928-A5N-1140	11.40	71	118	12	45	53.9	2.07	○
D928-A5N-1180	11.80	71	118	12	45	53.3	2.15	○
D928-A5N-1200	12.00	71	118	12	45	53.0	2.18	○
D928-A5N-1250	12.50	77	124	14	45	58.3	2.27	●
D928-A5N-1300	13.00	77	124	14	45	57.5	2.37	○
D928-A5N-1350	13.50	77	124	14	45	56.8	2.46	○
D928-A5N-1380	13.80	77	124	14	45	57.5	2.37	○
D928-A5N-1400	14.00	77	124	14	45	56.0	2.55	○
D928-A5N-1450	14.50	83	133	16	48	61.3	2.64	○
D928-A5N-1500	15.00	83	133	16	48	60.5	2.73	○
D928-A5N-1600	16.00	83	133	16	48	59.0	2.91	○
D928-A5N-1700	17.00	93	143	18	48	67.5	3.09	○
D928-A5N-1800	18.00	93	143	18	48	66	3.28	○
D928-A5N-1900	19.00	101	153	20	50	72.5	3.46	○
D928-A5N-2000	20.00	101	153	20	50	71	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
≥1—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

Workpiece Material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○				◎	◎								

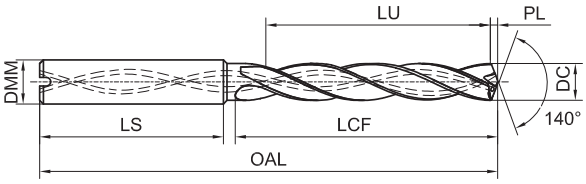
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P099

D928-A5C

SHANK DIN 6535HA | AlCrN/TiSiN | 5D

5D Internal Coolant Twist Drills for Cast Iron



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A5C-0250	2.50	22	62	4	35	18.3	0.45	○
D928-A5C-0260	2.60	22	62	4	35	18.1	0.47	○
D928-A5C-0330	3.30	28	66	6	36	23.1	0.60	○
D928-A5C-0340	3.40	28	66	6	36	22.9	0.62	○
D928-A5C-0420	4.20	36	74	6	36	29.7	0.76	○
D928-A5C-0430	4.30	36	74	6	36	29.6	0.78	○
D928-A5C-0500	5.00	44	82	6	36	36.5	0.91	●
D928-A5C-0510	5.10	44	82	6	36	36.4	0.93	○
D928-A5C-0600	6.00	44	82	6	36	35.0	1.09	●
D928-A5C-0680	6.80	53	91	8	36	42.8	1.24	●
D928-A5C-0690	6.90	53	91	8	36	42.7	1.26	○
D928-A5C-0700	7.00	53	91	8	36	42.5	1.27	●
D928-A5C-0800	8.00	53	91	8	36	41.0	1.46	●
D928-A5C-0850	8.50	61	103	10	40	48.3	1.55	●
D928-A5C-0860	8.60	61	103	10	40	48.3	1.55	○
D928-A5C-0900	9.00	61	103	10	40	47.5	1.64	●
D928-A5C-1000	10.00	61	103	10	40	46	1.82	●
D928-A5C-1020	10.20	71	118	12	45	55.7	1.86	○
D928-A5C-1025	10.25	71	118	12	45	55.6	1.87	●
D928-A5C-1030	10.30	71	118	12	45	55.6	1.87	○
D928-A5C-1050	10.50	71	118	12	45	55.25	1.91	●

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D928-A5C-1100	11.00	71	118	12	45	54.5	2.00	●
D928-A5C-1110	11.10	71	118	12	45	54.4	2.02	○
D928-A5C-1150	11.50	71	118	12	45	53.8	2.09	○
D928-A5C-1200	12.00	71	118	12	45	53	2.18	●
D928-A5C-1210	12.10	77	124	14	45	58.9	2.20	○
D928-A5C-1220	12.20	77	124	14	45	58.7	2.22	○
D928-A5C-1250	12.50	77	124	14	45	58.25	2.27	○
D928-A5C-1270	12.70	77	124	14	45	58.0	2.31	○
D928-A5C-1300	13.00	77	124	14	45	57.5	2.37	○
D928-A5C-1355	13.55	77	124	14	45	56.7	2.47	○
D928-A5C-1400	14.00	77	124	14	45	56	2.55	○
D928-A5C-1450	14.50	83	133	16	48	61.3	2.64	○
D928-A5C-1500	15.00	83	133	16	48	60.5	2.73	○
D928-A5C-1600	16.00	83	133	16	48	59.0	2.91	○
D928-A5C-1700	17.00	93	143	18	48	67.5	3.09	○
D928-A5C-1750	17.50	93	143	18	48	66.8	3.18	○
D928-A5C-1800	18.00	93	143	18	48	66.0	3.26	○
D928-A5C-1900	19.00	101	153	20	50	72.5	3.46	○
D928-A5C-1950	19.50	101	153	20	50	71.8	3.55	○
D928-A5C-2000	20.00	101	153	20	50	71.0	3.64	○

Unit(mm)

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
○				◎	◎	○	○						

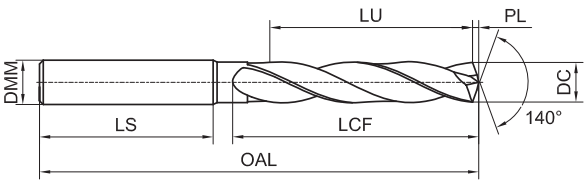
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P099

D966-A3N

SHANK DIN 6535HA 3D

3D External Coolant Twist Drills for Aluminium Alloy



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-0300	3.00	20	62	6	36	15.5	0.55	○
D966-A3N-0310	3.10	20	62	6	36	15.4	0.56	○
D966-A3N-0320	3.20	20	62	6	36	15.2	0.58	○
D966-A3N-0330	3.30	20	62	6	36	15.1	0.60	○
D966-A3N-0340	3.40	20	62	6	36	14.9	0.62	○
D966-A3N-0350	3.50	20	62	6	36	14.8	0.64	○
D966-A3N-0360	3.60	20	62	6	36	14.6	0.66	○
D966-A3N-0370	3.70	20	62	6	36	14.5	0.67	○
D966-A3N-0380	3.80	24	66	6	36	18.3	0.69	○
D966-A3N-0390	3.90	24	66	6	36	18.2	0.71	○
D966-A3N-0400	4.00	24	66	6	36	18.0	0.73	○
D966-A3N-0410	4.10	24	66	6	36	17.9	0.75	○
D966-A3N-0420	4.20	24	66	6	36	17.7	0.76	○
D966-A3N-0430	4.30	24	66	6	36	17.6	0.78	○
D966-A3N-0440	4.40	24	66	6	36	17.4	0.80	○
D966-A3N-0450	4.50	24	66	6	36	17.3	0.82	○
D966-A3N-0460	4.60	24	66	6	36	17.1	0.84	○
D966-A3N-0470	4.70	24	66	6	36	17.0	0.86	○
D966-A3N-0480	4.80	28	66	6	36	20.8	0.87	○
D966-A3N-0490	4.90	28	66	6	36	20.7	0.89	○
D966-A3N-0500	5.00	28	66	6	36	20.5	0.91	○
D966-A3N-0510	5.10	28	66	6	36	20.4	0.93	○
D966-A3N-0520	5.20	28	66	6	36	20.2	0.95	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-0530	5.30	28	66	6	36	20.1	0.96	○
D966-A3N-0540	5.40	28	66	6	36	19.9	0.98	○
D966-A3N-0550	5.50	28	66	6	36	19.8	1.00	○
D966-A3N-0560	5.60	28	66	6	36	19.6	1.02	○
D966-A3N-0570	5.70	28	66	6	36	19.5	1.04	○
D966-A3N-0580	5.80	28	66	6	36	19.3	1.06	○
D966-A3N-0590	5.90	28	66	6	36	19.2	1.07	○
D966-A3N-0600	6.00	28	66	6	36	19.0	1.09	○
D966-A3N-0610	6.10	34	79	8	36	24.9	1.11	○
D966-A3N-0620	6.20	34	79	8	36	24.7	1.13	○
D966-A3N-0625	6.25	34	79	8	36	24.6	1.14	○
D966-A3N-0630	6.30	34	79	8	36	24.6	1.15	○
D966-A3N-0640	6.40	34	79	8	36	24.4	1.16	○
D966-A3N-0650	6.50	34	79	8	36	24.3	1.18	○
D966-A3N-0660	6.60	34	79	8	36	24.1	1.20	○
D966-A3N-0670	6.70	34	79	8	36	24.0	1.22	○
D966-A3N-0680	6.80	34	79	8	36	23.8	1.24	○
D966-A3N-0690	6.90	34	79	8	36	23.7	1.26	○
D966-A3N-0700	7.00	34	79	8	36	23.5	1.27	○
D966-A3N-0710	7.10	41	79	8	36	30.4	1.29	○
D966-A3N-0720	7.20	41	79	8	36	30.2	1.31	○
D966-A3N-0730	7.30	41	79	8	36	30.1	1.33	○
D966-A3N-0740	7.40	41	79	8	36	29.9	1.35	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

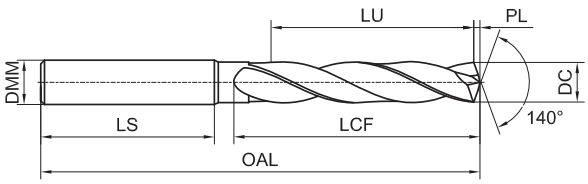
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A3N

SHANK DIN 6535HA 3D

3D External Coolant Twist Drills for Aluminium Alloy



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-0750	7.50	41	79	8	36	29.8	1.36	○
D966-A3N-0760	7.60	41	79	8	36	29.6	1.38	○
D966-A3N-0770	7.70	41	79	8	36	29.5	1.40	○
D966-A3N-0780	7.80	41	79	8	36	29.3	1.42	○
D966-A3N-0790	7.90	41	79	8	36	29.2	1.44	○
D966-A3N-0800	8.00	41	79	8	36	29.0	1.46	○
D966-A3N-0810	8.10	47	89	10	40	34.9	1.47	○
D966-A3N-0820	8.20	47	89	10	40	34.7	1.49	○
D966-A3N-0830	8.30	47	89	10	40	34.6	1.51	○
D966-A3N-0840	8.40	47	89	10	40	34.4	1.53	○
D966-A3N-0850	8.50	47	89	10	40	34.3	1.55	○
D966-A3N-0860	8.60	47	89	10	40	34.1	1.57	○
D966-A3N-0870	8.70	47	89	10	40	34.0	1.58	○
D966-A3N-0880	8.80	47	89	10	40	33.8	1.60	○
D966-A3N-0890	8.90	47	89	10	40	33.7	1.62	○
D966-A3N-0900	9.00	47	89	10	40	33.5	1.64	○
D966-A3N-0910	9.10	47	89	10	40	33.4	1.66	○
D966-A3N-0920	9.20	47	89	10	40	33.2	1.67	○
D966-A3N-0930	9.30	47	89	10	40	33.1	1.69	○
D966-A3N-0940	9.40	47	89	10	40	32.9	1.71	○
D966-A3N-0950	9.50	47	89	10	40	32.8	1.73	○
D966-A3N-0960	9.60	47	89	10	40	32.6	1.75	○
D966-A3N-0970	9.70	47	89	10	40	32.5	1.77	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-0980	9.80	47	89	10	40	32.3	1.78	○
D966-A3N-0990	9.90	47	89	10	40	32.2	1.80	○
D966-A3N-1000	10.00	47	89	10	40	32.0	1.82	○
D966-A3N-1010	10.10	55	102	12	45	39.9	1.84	○
D966-A3N-1020	10.20	55	102	12	45	39.7	1.86	○
D966-A3N-1030	10.30	55	102	12	45	39.6	1.87	○
D966-A3N-1040	10.40	55	102	12	45	39.4	1.89	○
D966-A3N-1050	10.50	55	102	12	45	39.3	1.91	○
D966-A3N-1060	10.60	55	102	12	45	39.1	1.93	○
D966-A3N-1070	10.70	55	102	12	45	39.0	1.95	○
D966-A3N-1080	10.80	55	102	12	45	38.8	1.97	○
D966-A3N-1090	10.90	55	102	12	45	38.7	1.98	○
D966-A3N-1100	11.00	55	102	12	45	38.5	2.00	○
D966-A3N-1110	11.10	55	102	12	45	38.4	2.02	○
D966-A3N-1120	11.20	55	102	12	45	38.2	2.04	○
D966-A3N-1130	11.30	55	102	12	45	38.1	2.06	○
D966-A3N-1140	11.40	55	102	12	45	37.9	2.07	○
D966-A3N-1150	11.50	55	102	12	45	37.8	2.09	○
D966-A3N-1160	11.60	55	102	12	45	37.6	2.11	○
D966-A3N-1170	11.70	55	102	12	45	37.5	2.13	○
D966-A3N-1180	11.80	55	102	12	45	37.3	2.15	○
D966-A3N-1190	11.90	55	102	12	45	37.2	2.17	○
D966-A3N-1200	12.00	55	102	12	45	37.0	2.18	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

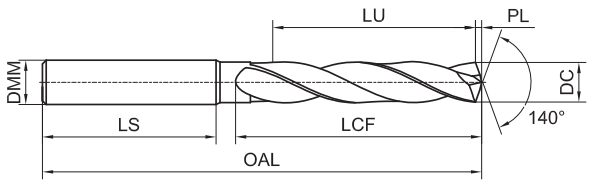
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A3N

SHANK DIN 6535HA 3D

3D External Coolant Twist Drills for Aluminium Alloy



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-1210	12.10	60	107	14	45	41.9	2.20	○
D966-A3N-1220	12.20	60	107	14	45	41.7	2.22	○
D966-A3N-1230	12.30	60	107	14	45	41.6	2.24	○
D966-A3N-1240	12.40	60	107	14	45	41.4	2.26	○
D966-A3N-1250	12.50	60	107	14	45	41.3	2.27	○
D966-A3N-1260	12.60	60	107	14	45	41.1	2.29	○
D966-A3N-1270	12.70	60	107	14	45	41.0	2.31	○
D966-A3N-1280	12.80	60	107	14	45	40.8	2.33	○
D966-A3N-1290	12.90	60	107	14	45	40.7	2.35	○
D966-A3N-1300	13.00	60	107	14	45	40.5	2.37	○
D966-A3N-1310	13.10	60	107	14	45	40.4	2.38	○
D966-A3N-1320	13.20	60	107	14	45	40.2	2.40	○
D966-A3N-1330	13.30	60	107	14	45	40.1	2.42	○
D966-A3N-1340	13.40	60	107	14	45	39.9	2.44	○
D966-A3N-1350	13.50	60	107	14	45	39.8	2.46	○
D966-A3N-1370	13.70	60	107	14	45	39.5	2.49	○
D966-A3N-1380	13.80	60	107	14	45	39.3	2.51	○
D966-A3N-1400	14.00	60	107	14	45	39.0	2.55	○
D966-A3N-1410	14.10	65	115	16	48	43.9	2.57	○
D966-A3N-1420	14.20	65	115	16	48	43.7	2.58	○
D966-A3N-1430	14.30	65	115	16	48	43.6	2.60	○
D966-A3N-1440	14.40	65	115	16	48	43.4	2.62	○
D966-A3N-1450	14.50	65	115	16	48	43.3	2.64	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-1460	14.60	65	115	16	48	43.1	2.66	○
D966-A3N-1470	14.70	65	115	16	48	43.0	2.68	○
D966-A3N-1480	14.80	65	115	16	48	42.8	2.69	○
D966-A3N-1490	14.90	65	115	16	48	42.7	2.71	○
D966-A3N-1500	15.00	65	115	16	48	42.5	2.73	○
D966-A3N-1510	15.10	65	115	16	48	42.4	2.75	○
D966-A3N-1520	15.20	65	115	16	48	42.2	2.77	○
D966-A3N-1530	15.30	65	115	16	48	42.1	2.78	○
D966-A3N-1540	15.40	65	115	16	48	41.9	2.80	○
D966-A3N-1550	15.50	65	115	16	48	41.8	2.82	○
D966-A3N-1570	15.70	65	115	16	48	41.5	2.86	○
D966-A3N-1580	15.80	65	115	16	48	41.3	2.88	○
D966-A3N-1590	15.90	65	115	16	48	41.2	2.89	○
D966-A3N-1600	16.00	65	115	16	48	41.0	2.91	○
D966-A3N-1620	16.20	73	123	18	48	48.7	2.95	○
D966-A3N-1630	16.30	73	123	18	48	48.6	2.97	○
D966-A3N-1640	16.40	73	123	18	48	48.4	2.98	○
D966-A3N-1650	16.50	73	123	18	48	48.3	3.00	○
D966-A3N-1660	16.60	73	123	18	48	48.1	3.02	○
D966-A3N-1670	16.70	73	123	18	48	48.0	3.04	○
D966-A3N-1680	16.80	73	123	18	48	47.8	3.06	○
D966-A3N-1700	17.00	73	123	18	48	47.5	3.09	○
D966-A3N-1720	17.20	73	123	18	48	47.2	3.13	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

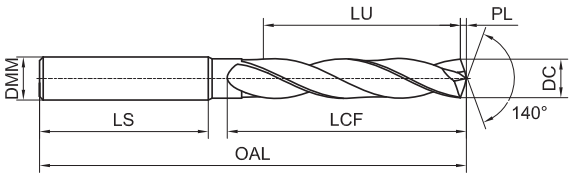
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A3N

SHANK DIN 6535HA 3D

3D External Coolant Twist Drills for Aluminium Alloy



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3N-1730	17.30	73	123	18	48	47.1	3.15	○
D966-A3N-1740	17.40	73	123	18	48	46.9	3.17	○
D966-A3N-1750	17.50	73	123	18	48	46.8	3.18	○
D966-A3N-1760	17.60	73	123	18	48	46.6	3.20	○
D966-A3N-1770	17.70	73	123	18	48	46.5	3.22	○
D966-A3N-1780	17.80	73	123	18	48	46.3	3.24	○
D966-A3N-1800	18.00	73	123	18	48	46.0	3.28	○
D966-A3N-1840	18.40	79	131	20	50	51.4	3.35	○
D966-A3N-1850	18.50	79	131	20	50	51.3	3.37	○
D966-A3N-1860	18.60	79	131	20	50	51.1	3.38	○
D966-A3N-1880	18.80	79	131	20	50	50.8	3.42	○
D966-A3N-1900	19.00	79	131	20	50	50.5	3.46	○
D966-A3N-1910	19.10	79	131	20	50	50.4	3.48	○
D966-A3N-1950	19.50	79	131	20	50	49.8	3.55	○
D966-A3N-1980	19.80	79	131	20	50	49.3	3.60	○
D966-A3N-1990	19.90	79	131	20	50	49.2	3.62	○
D966-A3N-2000	20.00	79	131	20	50	49.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece material														
P			M	K		N				S		H		
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

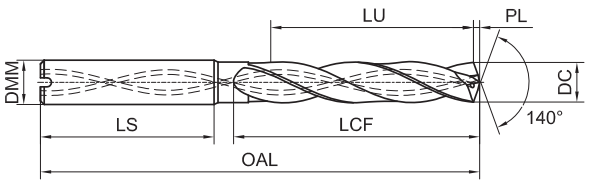
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A3C

SHANK DIN 6535HA 3D

3D Internal Coolant Twist Drills for Aluminium Alloy



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3C-0300	3.00	20	62	6	36	15.5	0.55	○
D966-A3C-0310	3.10	20	62	6	36	15.4	0.56	○
D966-A3C-0320	3.20	20	62	6	36	15.2	0.58	○
D966-A3C-0330	3.30	20	62	6	36	15.1	0.60	○
D966-A3C-0340	3.40	20	62	6	36	14.9	0.62	○
D966-A3C-0350	3.50	20	62	6	36	14.8	0.64	○
D966-A3C-0360	3.60	20	62	6	36	14.6	0.66	○
D966-A3C-0370	3.70	20	62	6	36	14.5	0.67	○
D966-A3C-0380	3.80	24	66	6	36	18.3	0.69	○
D966-A3C-0390	3.90	24	66	6	36	18.2	0.71	○
D966-A3C-0400	4.00	24	66	6	36	18.0	0.73	○
D966-A3C-0410	4.10	24	66	6	36	17.9	0.75	○
D966-A3C-0420	4.20	24	66	6	36	17.7	0.76	○
D966-A3C-0430	4.30	24	66	6	36	17.6	0.78	○
D966-A3C-0440	4.40	24	66	6	36	17.4	0.80	○
D966-A3C-0450	4.50	24	66	6	36	17.3	0.82	○
D966-A3C-0460	4.60	24	66	6	36	17.1	0.84	○
D966-A3C-0470	4.70	24	66	6	36	17.0	0.86	○
D966-A3C-0480	4.80	28	66	6	36	20.8	0.87	○
D966-A3C-0490	4.90	28	66	6	36	20.7	0.89	○
D966-A3C-0500	5.00	28	66	6	36	20.5	0.91	○
D966-A3C-0510	5.10	28	66	6	36	20.4	0.93	○
D966-A3C-0520	5.20	28	66	6	36	20.2	0.95	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3C-0530	5.30	28	66	6	36	20.1	0.96	○
D966-A3C-0540	5.40	28	66	6	36	19.9	0.98	○
D966-A3C-0550	5.50	28	66	6	36	19.8	1.00	○
D966-A3C-0560	5.60	28	66	6	36	19.6	1.02	○
D966-A3C-0570	5.70	28	66	6	36	19.5	1.04	○
D966-A3C-0580	5.80	28	66	6	36	19.3	1.06	○
D966-A3C-0590	5.90	28	66	6	36	19.2	1.07	○
D966-A3C-0600	6.00	28	66	6	36	19.0	1.09	○
D966-A3C-0610	6.10	34	79	8	36	24.9	1.11	○
D966-A3C-0620	6.20	34	79	8	36	24.7	1.13	○
D966-A3C-0630	6.30	34	79	8	36	24.6	1.15	○
D966-A3C-0640	6.40	34	79	8	36	24.4	1.16	○
D966-A3C-0650	6.50	34	79	8	36	24.3	1.18	○
D966-A3C-0660	6.60	34	79	8	36	24.1	1.20	○
D966-A3C-0670	6.70	34	79	8	36	24.0	1.22	○
D966-A3C-0680	6.80	34	79	8	36	23.8	1.24	○
D966-A3C-0690	6.90	34	79	8	36	23.7	1.26	○
D966-A3C-0700	7.00	34	79	8	36	23.5	1.27	○
D966-A3C-0710	7.10	41	79	8	36	30.4	1.29	○
D966-A3C-0720	7.20	41	79	8	36	30.2	1.31	○
D966-A3C-0730	7.30	41	79	8	36	30.1	1.33	○
D966-A3C-0740	7.40	41	79	8	36	29.9	1.35	○
D966-A3C-0750	7.50	41	79	8	36	29.8	1.36	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

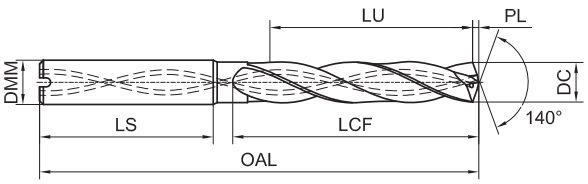
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A3C

SHANK DIN 6535HA 3D

3D Internal Coolant Twist Drills for Aluminium Alloy



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3C-0760	7.60	41	79	8	36	29.6	1.38	○
D966-A3C-0770	7.70	41	79	8	36	29.5	1.40	○
D966-A3C-0780	7.80	41	79	8	36	29.3	1.42	○
D966-A3C-0790	7.90	41	79	8	36	29.2	1.44	○
D966-A3C-0800	8.00	41	79	8	36	29.0	1.46	○
D966-A3C-0810	8.10	47	89	10	40	34.9	1.47	○
D966-A3C-0820	8.20	47	89	10	40	34.7	1.49	○
D966-A3C-0830	8.30	47	89	10	40	34.6	1.51	○
D966-A3C-0840	8.40	47	89	10	40	34.4	1.53	○
D966-A3C-0850	8.50	47	89	10	40	34.3	1.55	○
D966-A3C-0860	8.60	47	89	10	40	34.1	1.57	○
D966-A3C-0870	8.70	47	89	10	40	34.0	1.58	○
D966-A3C-0880	8.80	47	89	10	40	33.8	1.60	○
D966-A3C-0890	8.90	47	89	10	40	33.7	1.62	○
D966-A3C-0900	9.00	47	89	10	40	33.5	1.64	○
D966-A3C-0910	9.10	47	89	10	40	33.4	1.66	○
D966-A3C-0920	9.20	47	89	10	40	33.2	1.67	○
D966-A3C-0930	9.30	47	89	10	40	33.1	1.69	○
D966-A3C-0940	9.40	47	89	10	40	32.9	1.71	○
D966-A3C-0950	9.50	47	89	10	40	32.8	1.73	○
D966-A3C-0960	9.60	47	89	10	40	32.6	1.75	○
D966-A3C-0970	9.70	47	89	10	40	32.5	1.77	○
D966-A3C-0980	9.80	47	89	10	40	32.3	1.78	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3C-0990	9.90	47	89	10	40	32.2	1.80	○
D966-A3C-1000	10.00	47	89	10	40	32.0	1.82	○
D966-A3C-1010	10.10	55	102	12	45	39.9	1.84	○
D966-A3C-1020	10.20	55	102	12	45	39.7	1.86	○
D966-A3C-1030	10.30	55	102	12	45	39.6	1.87	○
D966-A3C-1040	10.40	55	102	12	45	39.4	1.89	○
D966-A3C-1050	10.50	55	102	12	45	39.3	1.91	○
D966-A3C-1060	10.60	55	102	12	45	39.1	1.93	○
D966-A3C-1070	10.70	55	102	12	45	39.0	1.95	○
D966-A3C-1080	10.80	55	102	12	45	38.8	1.97	○
D966-A3C-1090	10.90	55	102	12	45	38.7	1.98	○
D966-A3C-1100	11.00	55	102	12	45	38.5	2.00	○
D966-A3C-1110	11.10	55	102	12	45	38.4	2.02	○
D966-A3C-1120	11.20	55	102	12	45	38.2	2.04	○
D966-A3C-1130	11.30	55	102	12	45	38.1	2.06	○
D966-A3C-1140	11.40	55	102	12	45	37.9	2.07	○
D966-A3C-1150	11.50	55	102	12	45	37.8	2.09	○
D966-A3C-1160	11.60	55	102	12	45	37.6	2.11	○
D966-A3C-1170	11.70	55	102	12	45	37.5	2.13	○
D966-A3C-1180	11.80	55	102	12	45	37.3	2.15	○
D966-A3C-1190	11.90	55	102	12	45	37.2	2.17	○
D966-A3C-1200	12.00	55	102	12	45	37.0	2.18	○
D966-A3C-1210	12.10	60	107	14	45	41.9	2.20	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

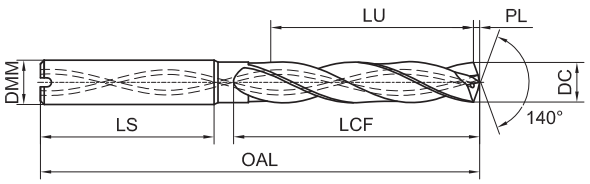
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A3C

SHANK DIN 6535HA 3D

3D Internal Coolant Twist Drills for Aluminium Alloy



》 Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3C-1220	12.20	60	107	14	45	41.7	2.22	○
D966-A3C-1230	12.30	60	107	14	45	41.6	2.24	○
D966-A3C-1250	12.50	60	107	14	45	41.3	2.27	○
D966-A3C-1260	12.60	60	107	14	45	41.1	2.29	○
D966-A3C-1270	12.70	60	107	14	45	41.0	2.31	○
D966-A3C-1280	12.80	60	107	14	45	40.8	2.33	○
D966-A3C-1300	13.00	60	107	14	45	40.5	2.37	○
D966-A3C-1340	13.40	60	107	14	45	39.9	2.44	○
D966-A3C-1350	13.50	60	107	14	45	39.8	2.46	○
D966-A3C-1360	13.60	60	107	14	45	39.6	2.47	○
D966-A3C-1370	13.70	60	107	14	45	39.5	2.49	○
D966-A3C-1380	13.80	60	107	14	45	39.3	2.51	○
D966-A3C-1400	14.00	60	107	14	45	39.0	2.55	○
D966-A3C-1420	14.20	65	115	16	48	43.7	2.58	○
D966-A3C-1430	14.30	65	115	16	48	43.6	2.60	○
D966-A3C-1450	14.50	65	115	16	48	43.3	2.64	○
D966-A3C-1460	14.60	65	115	16	48	43.1	2.66	○
D966-A3C-1470	14.70	65	115	16	48	43.0	2.68	○
D966-A3C-1480	17.80	65	115	16	48	38.3	3.24	○
D966-A3C-1500	15.00	65	115	16	48	42.5	2.73	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A3C-1520	15.20	65	115	16	48	42.2	2.77	○
D966-A3C-1530	15.30	65	115	16	48	42.1	2.78	○
D966-A3C-1550	15.50	65	115	16	48	41.8	2.82	○
D966-A3C-1570	15.70	65	115	16	48	41.5	2.86	○
D966-A3C-1580	15.80	65	115	16	48	41.3	2.88	○
D966-A3C-1600	16.00	65	115	16	48	41.0	2.91	○
D966-A3C-1650	16.50	73	123	18	48	48.3	3.00	○
D966-A3C-1680	16.80	73	123	18	48	47.8	3.06	○
D966-A3C-1700	17.00	73	123	18	48	47.5	3.09	○
D966-A3C-1750	17.50	73	123	18	48	46.8	3.18	○
D966-A3C-1770	17.70	73	123	18	48	46.5	3.22	○
D966-A3C-1780	17.80	73	123	18	48	46.3	3.24	○
D966-A3C-1800	18.00	73	123	18	48	46.0	3.28	○
D966-A3C-1850	18.50	79	131	20	50	51.3	3.37	○
D966-A3C-1880	18.80	79	131	20	50	50.8	3.42	○
D966-A3C-1900	19.00	79	131	20	50	50.5	3.46	○
D966-A3C-1950	19.50	79	131	20	50	49.8	3.55	○
D966-A3C-1960	19.60	79	131	20	50	49.6	3.57	○
D966-A3C-1980	19.80	79	131	20	50	49.3	3.60	○
D966-A3C-2000	20.00	79	131	20	50	49.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
≥1—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

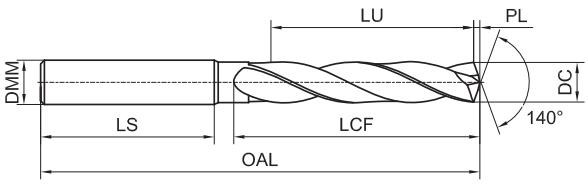
Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5N

5D External Coolant Twist Drills for Aluminium Alloy



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5N-0200	2.00	18	62	4	38	15.0	0.36	○
D966-A5N-0250	2.50	22	62	4	34	18.3	0.45	○
D966-A5N-0270	2.70	22	62	4	34	18.0	0.49	○
D966-A5N-0300	3.00	28	66	6	36	23.5	0.55	●
D966-A5N-0310	3.10	28	66	6	36	23.4	0.56	○
D966-A5N-0320	3.20	28	66	6	36	23.2	0.58	○
D966-A5N-0330	3.30	28	66	6	36	23.1	0.60	●
D966-A5N-0340	3.40	28	66	6	36	22.9	0.62	○
D966-A5N-0350	3.50	28	66	6	36	22.8	0.64	○
D966-A5N-0360	3.60	28	66	6	36	22.6	0.66	○
D966-A5N-0370	3.70	28	66	6	36	22.5	0.67	○
D966-A5N-0380	3.80	36	74	6	36	30.3	0.69	○
D966-A5N-0390	3.90	36	74	6	36	30.2	0.71	○
D966-A5N-0400	4.00	36	74	6	36	30.0	0.73	●
D966-A5N-0410	4.10	36	74	6	36	29.9	0.75	○
D966-A5N-0420	4.20	36	74	6	36	29.7	0.76	●
D966-A5N-0430	4.30	36	74	6	36	29.6	0.78	○
D966-A5N-0440	4.40	36	74	6	36	29.4	0.80	○
D966-A5N-0450	4.50	36	74	6	36	29.3	0.82	○
D966-A5N-0460	4.60	36	74	6	36	29.1	0.84	○
D966-A5N-0470	4.70	36	74	6	36	29.0	0.86	○
D966-A5N-0475	4.75	36	74	6	36	28.9	0.86	○
D966-A5N-0480	4.80	44	82	6	36	36.8	0.87	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5N-0490	4.90	44	82	6	36	36.7	0.89	○
D966-A5N-0500	5.00	44	82	6	36	36.5	0.91	●
D966-A5N-0510	5.10	44	82	6	36	36.4	0.93	○
D966-A5N-0520	5.20	44	82	6	36	36.2	0.95	○
D966-A5N-0530	5.30	44	82	6	36	36.1	0.96	○
D966-A5N-0540	5.40	44	82	6	36	35.9	0.98	○
D966-A5N-0550	5.50	44	82	6	36	36.5	1.00	●
D966-A5N-0560	5.60	44	82	6	36	35.6	1.02	○
D966-A5N-0570	5.70	44	82	6	36	35.5	1.04	○
D966-A5N-0580	5.80	44	82	6	36	35.3	1.06	○
D966-A5N-0590	5.90	44	82	6	36	35.2	1.07	○
D966-A5N-0595	5.95	44	82	6	36	35.1	1.08	○
D966-A5N-0600	6.00	44	82	6	36	35.0	1.09	●
D966-A5N-0610	6.10	53	91	8	36	43.9	1.11	○
D966-A5N-0620	6.20	53	91	8	36	43.7	1.13	○
D966-A5N-0630	6.30	53	91	8	36	43.6	1.15	○
D966-A5N-0635	6.35	53	91	8	36	43.5	1.16	○
D966-A5N-0640	6.40	53	91	8	36	43.4	1.16	○
D966-A5N-0650	6.50	53	91	8	36	43.3	1.18	○
D966-A5N-0660	6.60	53	91	8	36	43.1	1.20	○
D966-A5N-0670	6.70	53	91	8	36	43.0	1.22	○
D966-A5N-0680	6.80	53	91	8	36	42.8	1.24	●
D966-A5N-0685	6.85	53	91	8	36	42.7	1.25	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

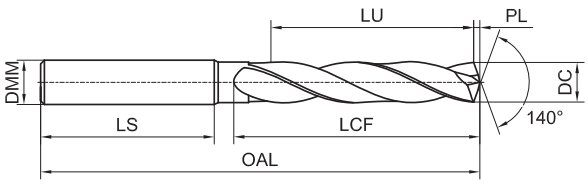
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5N

SHANK DIN 6535HA 5D

5D External Coolant Twist Drills for Aluminium Alloy



》 Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5N-0690	6.90	53	91	8	36	42.7	1.26	○
D966-A5N-0700	7.00	53	91	8	36	42.5	1.27	●
D966-A5N-0710	7.10	53	91	8	36	42.4	1.29	○
D966-A5N-0720	7.20	53	91	8	36	42.2	1.31	○
D966-A5N-0730	7.30	53	91	8	36	42.1	1.33	○
D966-A5N-0740	7.40	53	91	8	36	41.9	1.35	○
D966-A5N-0750	7.50	53	91	8	36	41.8	1.36	○
D966-A5N-0760	7.60	53	91	8	36	41.6	1.38	○
D966-A5N-0770	7.70	53	91	8	36	41.5	1.40	○
D966-A5N-0780	7.80	53	91	8	36	41.3	1.42	○
D966-A5N-0790	7.90	53	91	8	36	41.2	1.44	○
D966-A5N-0800	8.00	53	91	8	36	41.0	1.46	○
D966-A5N-0810	8.10	61	103	10	40	48.9	1.47	○
D966-A5N-0820	8.20	61	103	10	40	48.7	1.49	○
D966-A5N-0830	8.30	61	103	10	40	48.6	1.51	○
D966-A5N-0840	8.40	61	103	10	40	48.4	1.53	○
D966-A5N-0850	8.50	61	103	10	40	48.3	1.55	●
D966-A5N-0860	8.60	61	103	10	40	48.1	1.57	○
D966-A5N-0870	8.70	61	103	10	40	48.0	1.58	○
D966-A5N-0880	8.80	61	103	10	40	47.8	1.60	○
D966-A5N-0890	8.90	61	103	10	40	47.7	1.62	○
D966-A5N-0900	9.00	61	103	10	40	47.5	1.64	●
D966-A5N-0910	9.10	61	103	10	40	47.4	1.66	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5N-0920	9.20	61	103	10	40	47.2	1.67	○
D966-A5N-0930	9.30	61	103	10	40	47.1	1.69	○
D966-A5N-0940	9.40	61	103	10	40	46.9	1.71	○
D966-A5N-0950	9.50	61	103	10	40	46.8	1.73	○
D966-A5N-0960	9.60	61	103	10	40	46.6	1.75	○
D966-A5N-0970	9.70	61	103	10	40	46.5	1.77	○
D966-A5N-0980	9.80	61	103	10	40	46.3	1.78	○
D966-A5N-0990	9.90	61	103	10	40	46.2	1.80	○
D966-A5N-1000	10.00	61	103	10	40	46.0	1.82	○
D966-A5N-1010	10.10	71	118	12	45	55.9	1.84	○
D966-A5N-1020	10.20	71	118	12	45	55.7	1.86	○
D966-A5N-1030	10.30	71	118	12	45	55.6	1.87	○
D966-A5N-1040	10.40	71	118	12	45	55.4	1.89	○
D966-A5N-1050	10.50	71	118	12	45	55.3	1.91	●
D966-A5N-1060	10.60	71	118	12	45	55.1	1.93	○
D966-A5N-1070	10.70	71	118	12	45	55.0	1.95	○
D966-A5N-1080	10.80	71	118	12	45	54.8	1.97	○
D966-A5N-1090	10.90	71	118	12	45	54.7	1.98	○
D966-A5N-1100	11.00	71	118	12	45	54.5	2.00	●
D966-A5N-1110	11.10	71	118	12	45	54.4	2.02	○
D966-A5N-1120	11.20	71	118	12	45	54.2	2.04	○
D966-A5N-1130	11.30	71	118	12	45	54.1	2.06	○
D966-A5N-1140	11.40	71	118	12	45	53.9	2.07	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

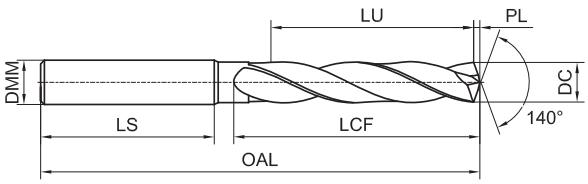
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5N

SHANK DIN 6535HA 5D

5D External Coolant Twist Drills for Aluminium Alloy



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5N-1150	11.50	71	118	12	45	53.8	2.09	○
D966-A5N-1160	11.60	71	118	12	45	53.6	2.11	○
D966-A5N-1170	11.70	71	118	12	45	53.5	2.13	○
D966-A5N-1180	11.80	71	118	12	45	53.3	2.15	○
D966-A5N-1190	11.90	71	118	12	45	53.2	2.17	○
D966-A5N-1200	12.00	71	118	12	45	53.0	2.18	○
D966-A5N-1210	12.10	77	124	14	45	58.9	2.20	○
D966-A5N-1220	12.20	77	124	14	45	58.7	2.22	○
D966-A5N-1230	12.30	77	124	14	45	58.6	2.24	○
D966-A5N-1240	12.40	77	124	14	45	58.4	2.26	○
D966-A5N-1250	12.50	77	124	14	45	58.3	2.27	○
D966-A5N-1260	12.60	77	124	14	45	58.1	2.29	○
D966-A5N-1270	12.70	77	124	14	45	58.0	2.31	○
D966-A5N-1280	12.80	77	124	14	45	57.8	2.33	○
D966-A5N-1290	12.90	77	124	14	45	57.7	2.35	○
D966-A5N-1300	13.00	77	124	14	45	57.5	2.37	○
D966-A5N-1320	13.20	77	124	14	45	57.2	2.40	○
D966-A5N-1350	13.50	77	124	14	45	56.8	2.46	○
D966-A5N-1370	13.70	77	124	14	45	56.5	2.49	○
D966-A5N-1380	13.80	77	124	14	45	56.3	2.51	○
D966-A5N-1390	13.90	77	124	14	45	56.2	2.53	○
D966-A5N-1400	14.00	77	124	14	45	56.0	2.55	○
D966-A5N-1420	14.20	83	133	16	48	61.7	2.58	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5N-1430	14.30	83	133	16	48	61.6	2.60	○
D966-A5N-1450	14.50	83	133	16	48	61.3	2.64	○
D966-A5N-1460	14.60	83	133	16	48	61.1	2.66	○
D966-A5N-1480	14.80	83	133	16	48	60.8	2.69	○
D966-A5N-1500	15.00	83	133	16	48	60.5	2.73	○
D966-A5N-1510	15.10	83	133	16	48	60.4	2.75	○
D966-A5N-1550	15.50	83	133	16	48	59.8	2.82	○
D966-A5N-1570	15.70	83	133	16	48	59.5	2.86	○
D966-A5N-1580	15.80	83	133	16	48	59.3	2.88	○
D966-A5N-1600	16.00	83	133	16	48	59.0	2.91	○
D966-A5N-1650	16.50	93	143	18	48	68.3	3.00	○
D966-A5N-1660	16.60	93	143	18	48	68.1	3.02	○
D966-A5N-1680	16.80	93	143	18	48	67.8	3.06	○
D966-A5N-1700	17.00	93	143	18	48	67.5	3.09	○
D966-A5N-1750	17.50	93	143	18	48	66.8	3.18	○
D966-A5N-1780	17.80	93	143	18	48	66.3	3.24	○
D966-A5N-1800	18.00	93	143	18	48	66.0	3.28	○
D966-A5N-1850	18.50	101	153	20	50	73.3	3.37	○
D966-A5N-1860	18.60	101	153	20	50	73.1	3.38	○
D966-A5N-1900	19.00	101	153	20	50	72.5	3.46	○
D966-A5N-1950	19.50	101	153	20	50	71.8	3.55	○
D966-A5N-2000	20.00	101	153	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

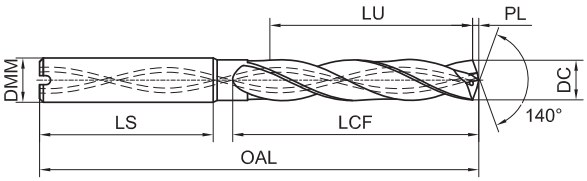
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5C

SHANK DIN 6535HA 5D

5D Internal Coolant Twist Drills for Aluminium Alloy



Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-0300	3.00	28	66.0	6	36	23.5	0.55	●
D966-A5C-0310	3.10	28	66.0	6	36	23.4	0.56	○
D966-A5C-0320	3.20	28	66.0	6	36	23.2	0.58	○
D966-A5C-0330	3.30	28	66.0	6	36	23.1	0.60	●
D966-A5C-0340	3.40	28	66.0	6	36	22.9	0.62	○
D966-A5C-0350	3.50	28	66.0	6	36	22.8	0.64	○
D966-A5C-0360	3.60	28	66.0	6	36	22.6	0.66	○
D966-A5C-0370	3.70	28	66.0	6	36	22.5	0.67	○
D966-A5C-0380	3.80	36	74.0	6	36	30.3	0.69	○
D966-A5C-0390	3.90	36	74.0	6	36	30.2	0.71	○
D966-A5C-0400	4.00	36	74.0	6	36	30.0	0.73	●
D966-A5C-0410	4.10	36	74.0	6	36	29.9	0.75	○
D966-A5C-0420	4.20	36	74.0	6	36	29.7	0.76	●
D966-A5C-0430	4.30	36	74.0	6	36	29.6	0.78	○
D966-A5C-0440	4.40	36	74.0	6	36	29.4	0.80	○
D966-A5C-0450	4.50	36	74.0	6	36	29.3	0.82	○
D966-A5C-0460	4.60	36	74.0	6	36	29.1	0.84	○
D966-A5C-0470	4.70	36	74.0	6	36	29.0	0.86	○
D966-A5C-0480	4.80	44	82.0	6	36	36.8	0.87	○
D966-A5C-0490	4.90	44	82.0	6	36	36.7	0.89	○
D966-A5C-0500	5.00	44	82.0	6	36	36.5	0.91	●
D966-A5C-0510	5.10	44	82.0	6	36	36.4	0.93	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-0520	5.20	44	82.0	6	36	36.2	0.95	○
D966-A5C-0530	5.30	44	82.0	6	36	36.1	0.96	○
D966-A5C-0540	5.40	44	82.0	6	36	35.9	0.98	○
D966-A5C-0550	5.50	44	82.0	6	36	35.8	1.00	○
D966-A5C-0560	5.60	44	82.0	6	36	35.6	1.02	○
D966-A5C-0570	5.70	44	82.0	6	36	35.5	1.04	○
D966-A5C-0580	5.80	44	82.0	6	36	35.3	1.06	○
D966-A5C-0590	5.90	44	82.0	6	36	35.2	1.07	○
D966-A5C-0600	6.00	44	82.0	6	36	35.0	1.09	●
D966-A5C-0610	6.10	53	91.0	8	36	43.9	1.11	○
D966-A5C-0620	6.20	53	91.0	8	36	43.7	1.13	○
D966-A5C-0630	6.30	53	91.0	8	36	43.6	1.15	○
D966-A5C-0640	6.40	53	91.0	8	36	43.4	1.16	○
D966-A5C-0650	6.50	53	91.0	8	36	43.3	1.18	○
D966-A5C-0660	6.60	53	91.0	8	36	43.1	1.20	○
D966-A5C-0670	6.70	53	91.0	8	36	43.0	1.22	○
D966-A5C-0680	6.80	53	91.0	8	36	42.8	1.24	●
D966-A5C-0690	6.90	53	91.0	8	36	42.7	1.26	○
D966-A5C-0700	7.00	53	91.0	8	36	42.5	1.27	●
D966-A5C-0710	7.10	53	91.0	8	36	42.4	1.29	○
D966-A5C-0720	7.20	53	91.0	8	36	42.2	1.31	○
D966-A5C-0730	7.30	53	91.0	8	36	42.1	1.33	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

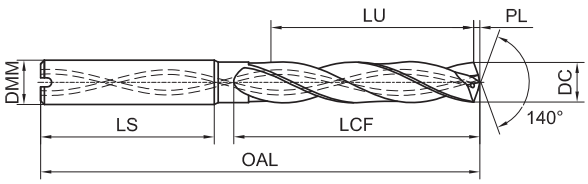
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5C

SHANK DIN 6535HA 5D

5D Internal Coolant Twist Drills for Aluminium Alloy



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Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-0740	7.40	53	91.0	8	36	41.9	1.35	○
D966-A5C-0750	7.50	53	91.0	8	36	41.8	1.36	○
D966-A5C-0760	7.60	53	91.0	8	36	41.6	1.38	○
D966-A5C-0770	7.70	53	91.0	8	36	41.5	1.40	○
D966-A5C-0780	7.80	53	91.0	8	36	41.3	1.42	○
D966-A5C-0790	7.90	53	91.0	8	36	41.2	1.44	○
D966-A5C-0800	8.00	53	91.0	8	36	41.0	1.46	●
D966-A5C-0810	8.10	61	103.0	10	40	48.9	1.47	○
D966-A5C-0820	8.20	61	103.0	10	40	48.7	1.49	○
D966-A5C-0830	8.30	61	103.0	10	40	48.6	1.51	○
D966-A5C-0840	8.40	61	103.0	10	40	48.4	1.53	○
D966-A5C-0850	8.50	61	103.0	10	40	48.3	1.55	○
D966-A5C-0860	8.60	61	103.0	10	40	48.1	1.57	○
D966-A5C-0870	8.70	61	103.0	10	40	48.0	1.58	○
D966-A5C-0880	8.80	61	103.0	10	40	47.8	1.60	○
D966-A5C-0890	8.90	61	103.0	10	40	47.7	1.62	○
D966-A5C-0900	9.00	61	103.0	10	40	47.5	1.64	●
D966-A5C-0910	9.10	61	103.0	10	40	47.4	1.66	○
D966-A5C-0920	9.20	61	103.0	10	40	47.2	1.67	○
D966-A5C-0930	9.30	61	103.0	10	40	47.1	1.69	○
D966-A5C-0940	9.40	61	103.0	10	40	46.9	1.71	○
D966-A5C-0950	9.50	61	103.0	10	40	46.8	1.73	○
D966-A5C-0960	9.60	61	103.0	10	40	46.6	1.75	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-0970	9.70	61	103.0	10	40	46.5	1.77	○
D966-A5C-0980	9.80	61	103.0	10	40	46.3	1.78	○
D966-A5C-0990	9.90	61	103.0	10	40	46.2	1.80	○
D966-A5C-1000	10.00	61	103.0	10	40	46.0	1.82	●
D966-A5C-1010	10.10	71	118.0	12	45	55.9	1.84	○
D966-A5C-1020	10.20	71	118.0	12	45	55.7	1.86	○
D966-A5C-1030	10.30	71	118.0	12	45	55.6	1.87	○
D966-A5C-1040	10.40	71	118.0	12	45	55.4	1.89	○
D966-A5C-1050	10.50	71	118.0	12	45	55.3	1.91	●
D966-A5C-1060	10.60	71	118.0	12	45	55.1	1.93	○
D966-A5C-1070	10.70	71	118.0	12	45	55.0	1.95	○
D966-A5C-1080	10.80	71	118.0	12	45	54.8	1.97	○
D966-A5C-1090	10.90	71	118.0	12	45	54.7	1.98	○
D966-A5C-1100	11.00	71	118.0	12	45	54.5	2.00	●
D966-A5C-1110	11.10	71	118.0	12	45	54.4	2.02	○
D966-A5C-1120	11.20	71	118.0	12	45	54.2	2.04	○
D966-A5C-1130	11.30	71	118.0	12	45	54.1	2.06	○
D966-A5C-1140	11.40	71	118.0	12	45	53.9	2.07	○
D966-A5C-1150	11.50	71	118.0	12	45	53.8	2.09	○
D966-A5C-1160	11.60	71	118.0	12	45	53.6	2.11	○
D966-A5C-1170	11.70	71	118.0	12	45	53.5	2.13	○
D966-A5C-1180	11.80	71	118.0	12	45	53.3	2.15	○
D966-A5C-1190	11.90	71	118.0	12	45	53.2	2.17	○

● Stock ○ Available upon Order Note: Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1234	5	67	123	12	3	12	3	4	5	123	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

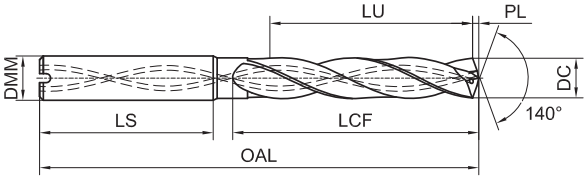
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5C

SHANK DIN 6535HA 5D

5D Internal Coolant Twist Drills for Aluminium Alloy



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-1200	12.00	71	118.0	12	45	53.0	2.18	●
D966-A5C-1210	12.10	77	124.0	14	45	58.9	2.20	○
D966-A5C-1220	12.20	77	124.0	14	45	58.7	2.22	○
D966-A5C-1230	12.30	77	124.0	14	45	58.6	2.24	○
D966-A5C-1240	12.40	77	124.0	14	45	58.4	2.26	○
D966-A5C-1250	12.50	77	124.0	14	45	58.3	2.27	○
D966-A5C-1260	12.60	77	124.0	14	45	58.1	2.29	○
D966-A5C-1270	12.70	77	124.0	14	45	58.0	2.31	○
D966-A5C-1280	12.80	77	124.0	14	45	57.8	2.33	○
D966-A5C-1300	13.00	77	124.0	14	45	57.5	2.37	○
D966-A5C-1310	13.10	77	124.0	14	45	57.4	2.38	○
D966-A5C-1320	13.20	77	124.0	14	45	57.2	2.40	○
D966-A5C-1350	13.50	77	124.0	14	45	56.8	2.46	○
D966-A5C-1360	13.60	77	124.0	14	45	56.6	2.47	○
D966-A5C-1370	13.70	77	124.0	14	45	56.5	2.49	○
D966-A5C-1380	13.80	77	124.0	14	45	56.3	2.51	○
D966-A5C-1390	13.90	77	124.0	14	45	56.2	2.53	○
D966-A5C-1400	14.00	77	124.0	14	45	56.0	2.55	○
D966-A5C-1410	14.10	83	133.0	16	48	61.9	2.57	○
D966-A5C-1420	14.20	83	133.0	16	48	61.7	2.58	○
D966-A5C-1430	14.30	83	133.0	16	48	61.6	2.60	○
D966-A5C-1450	14.50	83	133.0	16	48	61.3	2.64	○
D966-A5C-1460	14.60	83	133.0	16	48	61.1	2.66	○

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-1470	14.70	83	133.0	16	48	61.0	2.68	○
D966-A5C-1480	14.80	83	133.0	16	48	60.8	2.69	○
D966-A5C-1500	15.00	83	133.0	16	48	60.5	2.73	○
D966-A5C-1510	15.10	83	133.0	16	48	60.4	2.75	○
D966-A5C-1520	15.20	83	133.0	16	48	60.2	2.77	○
D966-A5C-1530	15.30	83	133.0	16	48	60.1	2.78	○
D966-A5C-1550	15.50	83	133.0	16	48	59.8	2.82	○
D966-A5C-1570	15.70	83	133.0	16	48	59.5	2.86	○
D966-A5C-1580	15.80	83	133.0	16	48	59.3	2.88	○
D966-A5C-1600	16.00	83	133.0	16	48	59.0	2.91	○
D966-A5C-1650	16.50	93	143.0	18	48	68.3	3.00	○
D966-A5C-1680	16.80	93	143.0	18	48	67.8	3.06	○
D966-A5C-1690	16.90	93	143.0	18	48	67.7	3.08	○
D966-A5C-1700	17.00	93	143.0	18	48	67.5	3.09	○
D966-A5C-1720	17.20	93	143.0	18	48	67.2	3.13	○
D966-A5C-1750	17.50	93	143.0	18	48	66.8	3.18	○
D966-A5C-1770	17.70	93	143.0	18	48	66.5	3.22	○
D966-A5C-1780	17.80	93	143.0	18	48	66.3	3.24	○
D966-A5C-1800	18.00	93	143.0	18	48	66.0	3.28	○
D966-A5C-1850	18.50	101	153.0	20	50	73.3	3.37	○
D966-A5C-1860	18.60	101	153.0	20	50	73.1	3.38	○
D966-A5C-1880	18.80	101	153.0	20	50	72.8	3.42	○
D966-A5C-1900	19.00	101	153.0	20	50	72.5	3.46	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

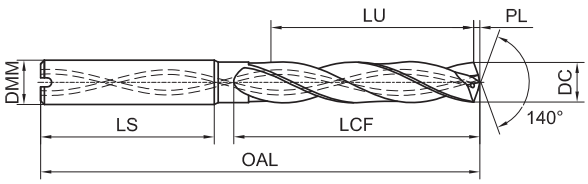
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D966-A5C

SHANK DIN 6535HA 5D

5D Internal Coolant Twist Drills for Aluminium Alloy



》Continue

Ordering Code	DC (m7)	LCF	OAL	DMM (h6)	LS	LU	PL	Stock
D966-A5C-1950	19.50	101	153.0	20	50	71.8	3.55	○
D966-A5C-1980	19.80	101	153.0	20	50	71.3	3.60	○
D966-A5C-2000	20.00	101	153.0	20	50	71.0	3.64	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Nominal Size Range	DC(m7)	DMM(h6)
⩾1—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

Workpiece material

P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
<35HRC	35-48HRC			<35HRC	35-45HRC	Si<12%	Si>12%	<HB200		<HB450	<HB400	45-55HRC	55-60HRC
						◎	◎	○	○				

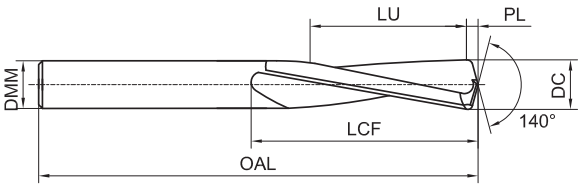
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P101

D998-Y3N

SHANK h6 | AlTiN nano | 3D

3D External Coolant Twist Drill for Hardened Steel



Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LU	PL	Stock
D998-Y3N-0400	4.00	22	55	4	16.0	0.73	●
D998-Y3N-0500	5.00	26	62	5	18.5	0.91	●
D998-Y3N-0600	6.00	28	66	6	19.0	1.09	●
D998-Y3N-0700	7.00	34	74	7	23.5	1.27	●
D998-Y3N-0800	8.00	37	79	8	25.0	1.46	●
D998-Y3N-0900	9.00	40	84	9	26.5	1.64	●
D998-Y3N-1000	10.00	43	89	10	28.0	1.82	●

Ordering Code	DC (h7)	LCF	OAL	DMM (h6)	LU	PL	Stock
D998-Y3N-1100	11.00	47	95	11	30.5	2.00	○
D998-Y3N-1200	12.00	51	102	12	33.0	2.18	●
D998-Y3N-1300	13.00	51	102	13	31.5	2.37	○
D998-Y3N-1400	14.00	54	107	14	33.0	2.55	●
D998-Y3N-1500	15.00	56	111	15	33.5	2.73	○
D998-Y3N-1600	16.00	58	115	16	34.0	2.91	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool

Unit(mm)

Nominal Size Range	DC(h7)	DMM(h6)
⩾1—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

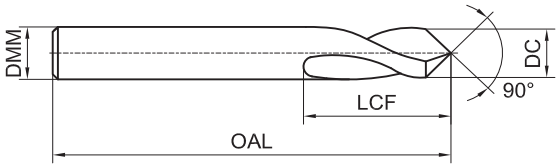
Workpiece material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
	○			○	○							◎	○

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P102

D101-AMN

90°NC Centre Drills



Ordering Code	DC	LCF	OAL	DMM(h6)	Stock
D101-AMN-0400	4	8	50	4	●
D101-AMN-0500	5	10	62	5	●
D101-AMN-0600	6	15	66	6	●
D101-AMN-0800	8	17	79	8	●
D101-AMN-1000	10	20	89	10	●
D101-AMN-1200	12	25	102	12	●
D101-AMN-1400	14	30	107	14	●
D101-AMN-1600	16	35	115	16	●
D101-AMN-1800	18	38	123	18	○
D101-AMN-2000	20	40	131	20	●

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material														
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
○	○	○		◎		◎	○						

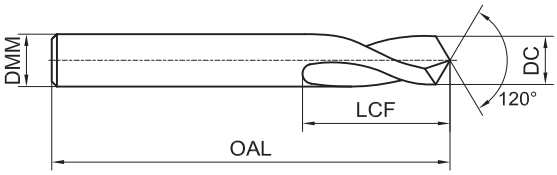
◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P103

D102-ANN

120°NC Centre Drills

SHANK h6 | TiAlN



Ordering Code	DC	LCF	OAL	DMM(h6)	Stock
D102-ANN-0500	5	10	62	5	●
D102-ANN-0600	6	15	66	6	●
D102-ANN-0800	8	17	79	8	●
D102-ANN-1000	10	20	89	10	●
D102-ANN-1200	12	25	102	12	●
D102-ANN-1400	14	30	107	14	○
D102-ANN-1600	16	35	115	16	●
D102-ANN-2000	20	40	131	20	●

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

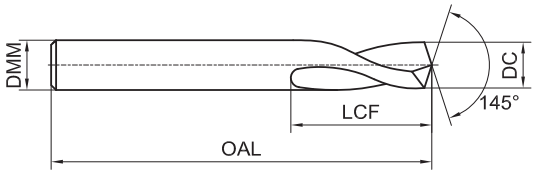
Workpiece Material													
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
○	○	○		◎		◎	○						

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P103

D103-APN

145°NC Centre Drills



Ordering Code	DC	LCF	OAL	DMM(h6)	Stock
D103-APN-0500	5	10	62	5	●
D103-APN-0600	6	15	66	6	●
D103-APN-0800	8	17	79	8	●
D103-APN-1000	10	20	89	10	●
D103-APN-1200	12	25	102	12	●
D103-APN-1400	14	30	107	14	○
D103-APN-1600	16	35	115	16	○
D103-APN-2000	20	40	131	20	○

● Stock ○ Available upon Order Note：Accept customization from D3 to D20 tool Unit(mm)

Workpiece Material														
P			M	K		N				S		H	
1 2 3 4	5	6 7	1 2 3	1 2	3	1 2	3	4	5	1 2 3	4	1	2
Carbon Steel, Alloy Steel	Alloy Steels,Tool Steel	PH and Ferritic/ Martensitic Stainless Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron	Forged Aluminium Alloys,Cast Aluminium Alloys	Cast Aluminium Alloys	Copper Alloys	Composite	Heat Resistant Super Alloys	Titanium Alloys	Hardened Steel	Hardened Steel
＜35HRC	35-48HRC			＜35HRC	35-45HRC	Si＜12%	Si＞12%	＜HB200		＜HB450	＜HB400	45-55HRC	55-60HRC
○	○	○		◎		◎	○						

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P103

Recommended Machining Parameters

D918S High Performance Twist Drill for Steel

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel/Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (35-48HRC)	80-60-40	90-60-40	0.09-0.13-0.16	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 Steel (130- 200HB)	—	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
	Strength Austenitic /Cast Stainless Steel (<25HRC)	—	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 Steel (<30HRC)	—	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	Gray Cast Iron, Ductile Cast Iron (<28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D918S Series High Performance Twist Drill for Steel

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low Carbon Steel, Long Chip (＜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 Steel, Short Chip, Automatic Steel (＜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 Steel/Medium Carbon Steel (＜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 Steel, Tool Steel (＜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 Steel, Tool Steel （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 Steel (130- 200HB)	—	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
	Strength Austenitic /Cast Stainless Steel (＜25HRC)	—	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 Steel (＜30HRC)	—	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	Gray Cast Iron, Ductile Cast Iron（＜28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D968S Series High Efficient Twist Drill for Stainless Steel

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel/Medium Carbon Steel (<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 Steel, Tool Steel (<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	Alloy Steel, Tool Steel (35-48HRC)	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
	Austenitic Stainless Steel (130- 200HB)	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
	Strength Austenitic /Cast Stainless Steel (<25HRC)	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 Base Superalloy (160-260HB)	25-15-10	35-25-15	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
	Cobalt Base Superalloy (250-450HB)	25-15-10	35-25-15	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
	Nickel Base Superalloy (160-450HB)	25-15-10	35-25-15	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
	Titanium and Titanium Alloy (300-400HB)	40-30-15	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

Note：5D external Coolant drill is not suitable for machining S-type workpiece material

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D968S Series High Efficient Twist Drill for Stainless Steel

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel/Medium Carbon Steel (<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 Steel, Tool Steel (<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	Alloy Steel, Tool Steel (35-48HRC)	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
	Austenitic Stainless Steel (130- 200HB)	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
	Strength Austenitic /Cast Stainless Steel (<25HRC)	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 Base Superalloy (160-260HB)	25-15-10	35-25-15	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
	Cobalt Base Superalloy (250-450HB)	25-15-10	35-25-15	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
	Nickel Base Superalloy (160-450HB)	25-15-10	35-25-15	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
	Titanium and Titanium Alloy (300-400HB)	40-30-15	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

Note：5D external Coolant drill is not suitable for machining S-type workpiece material

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D938 Twist Drills for Steel 3D\5D

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel and Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (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 Ferritic, Martensitic Steel (<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 Ferritic, Martensitic Steel (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
M	Alloy Steel, Tool Steel (35-48HRC)	—	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
	Austenitic Stainless Steel (130- 200HB)	—	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
	Strength Austenitic /Cast Stainless Steel (<25HRC)	—	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	Gray Cast Iron, Ductile Cast Iron (<28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D938 Twist Drills for Steel 3D\5D

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel and Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (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 Ferritic, Martensitic Steel (<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 Ferritic, Martensitic Steel (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
M	Alloy Steel, Tool Steel (35-48HRC)	—	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
	Austenitic Stainless Steel (130- 200HB)	—	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
	Strength Austenitic /Cast Stainless Steel (<25HRC)	—	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	Gray Cast Iron, Ductile Cast Iron (<28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D938 Twist Deep-hole Drills, 8D/12D/15D/20D/25D

Workpiece		Cutting Speed Vc (m/min)	Feed Rate fn (mm/rev)			
			Φ3	Φ4	Φ6	Φ8
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel and Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (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 Ferritic, Martensitic Steel (<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 Ferritic, Martensitic Steel (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	Alloy Steel, Tool Steel (35-48HRC)	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
	Austenitic Stainless Steel (130- 200HB)	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
	Strength Austenitic /Cast Stainless Steel （<25HRC)	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	Gray Cast Iron, Ductile Cast Iron (<28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D938 Twist Deep-hole Drills, 8D/12D/15D/20D/25D

Workpiece		Cutting Speed Vc (m/min)	Feed Rate fn (mm/rev)			
			Φ10	Φ12	Φ14	Φ16
P	Low Carbon Steel, Long Chip (<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 Steel, Short Chip, Automatic Steel (<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 Steel and Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (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 Ferritic, Martensitic Steel (<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 Ferritic, Martensitic Steel (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	Alloy Steel, Tool Steel (35-48HRC)	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
	Austenitic Stainless Steel (130- 200HB)	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
	Strength Austenitic /Cast Stainless Steel（<25HRC）	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	Gray Cast Iron, Ductile Cast Iron (<28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D928 Twist Drill for Cast Iron

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
P	Low Carbon Steel, Long Chip (＜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 Steel, Short Chip, Free Cutting Steel (＜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 Steel and Medium Carbon Steel (＜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 Steel, Tool Steel (＜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	Gray Cast Iron, Ductile Cast Iron（＜28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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	Forged 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
	Casted 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
	Casted 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D928 Twist Drill for Cast Iron

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
P	Low Carbon Steel, Long Chip (＜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 Steel, Short Chip, Free Cutting Steel (＜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 Steel and Medium Carbon Steel (＜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 Steel, Tool Steel (＜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	Gray Cast Iron, Ductile Cast Iron（＜28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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	Forged 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
	Casted 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
	Casted 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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D966 Twist Drill for Aluminium

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ3	Φ4	Φ6	Φ8	Φ10
N	Forged Aluminium Alloy (Si＜12%)	250-150-80	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
	Casted Aluminium Alloy (Si＜12%)	230-150-80	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
	Casted Aluminium Alloy (Si＞12%)	230-150-80	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 Alloy (＜200HB)	160-120-70	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

Workpiece		Cutting Speed Vc (m/min)		Feed Rate fn (mm/rev)				
				Φ12	Φ14	Φ16	Φ18	Φ20
N	Forged Aluminium Alloy (Si＜12%)	250-150-80	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
	Casted Aluminium Alloy (Si＜12%)	230-150-80	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
	Casted Aluminium Alloy (Si＞12%)	230-150-80	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 Alloy (＜200HB)	160-120-70	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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D998 Twist Drill for Hardened Steel

Workpiece		Cutting Speed Vc (m/min)	Feed Rate fn (mm/rev)				
			Φ3	Φ4	Φ6	Φ8	Φ10
P	Alloy Steel, Tool Steel (35-48HRC)	80-60-30	0.09-0.13-0.16	0.10-0.14-0.17	0.13-0.17-0.22	0.17-0.23-0.29	0.21-0.28-0.35
K	Gray Cast Iron, Ductile Cast Iron（<28HRC)	100-80-60	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
K	Cast Iron Alloy, Ductile Cast Iron（<28HRC)	100-80-60	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
K	High Cast Iron Alloy, Ductile Cast Iron (<45HRC)	90-70-60	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
H	Hardened Steel (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
H	Hardened Steel (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		Cutting Speed Vc (m/min)	Feed Rate fn (mm/rev)				
			Φ12	Φ14	Φ16	_	_
P	Alloy Steel, Tool Steel (35-48HRC)	80-60-30	0.22-0.30-0.37	0.26-0.35-0.41	0.28-0.37-0.44	_	_
K	Gray Cast Iron, Ductile Cast Iron（<28HRC)	100-80-60	0.25-0.33-0.45	0.28-0.36-0.48	0.30-0.40-0.50	_	_
K	Cast Iron Alloy, Ductile Cast Iron（<28HRC)	100-80-60	0.22-0.30-0.42	0.24-0.33-0.45	0.25-0.35-0.48	_	_
K	High Cast Iron Alloy, Ductile Cast Iron (<45HRC)	90-70-60	0.16-0.22-0.28	0.18-0.24-0.30	0.20-0.26-0.32	_	_
H	Hardened Steel (45-55HRC)	40-30-20	0.10-0.15-0.17	0.10-0.16-0.20	0.10-0.16-0.20	_	_
H	Hardened Steel (55-60HRC)	30-20-15	0.09-0.13-0.16	0.10-0.14-0.17	0.10-0.14-0.17	_	_

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D101/D102/D103 NC Centre Drills

Workpiece		Cutting Speed Vc (m/min)	Feed Rate 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 Steel and Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (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 , Ferritic and Martensitic Steel (<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	Gray 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
	Cast Iron Alloy with Medium Process, Ductile 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
	Hard to Process High Alloy Cast Iron, Ductile 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	Forged Aluminium Alloy (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
	Casted Aluminium Alloy (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
	Casted Aluminium Alloy(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 Alloy (<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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

Recommended Machining Parameters

D101/D102/D103 NC Centre Drills

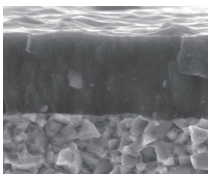
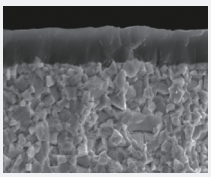
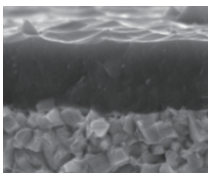
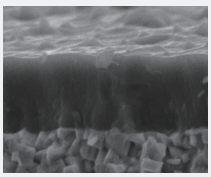
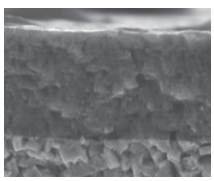
Workpiece		Cutting Speed Vc (m/min)	Feed Rate fn (mm/rev)			
			Φ12	Φ14	Φ16	Φ20
P	Low Carbon Steel, Long Chipping (<125HB)	130-100-60	0.20-0.26-0.32	0.24-0.30-0.35	0.28-0.34-0.4	0.32-0.38-0.45
	Low Carbon Steel，Short Chipping，Free-cutting Steels (<125HB)	120-100-60	0.20-0.26-0.32	0.24-0.28-0.34	0.28-0.34-0.4	0.32-0.38-0.45
	High Carbon Steel and Medium Carbon Steel (<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 Steel, Tool Steel (<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 Steel, Tool Steel (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 , Ferritic and Martensitic Steel (<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	Gray Cast Iron, Ductile Cast Iron (<28HRC)	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
	Cast Iron Alloy, Ductile 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
	High Cast Iron Alloy, Ductile 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	Forged Aluminium Alloy (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
	Casted Aluminium Alloy (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
	Casted Aluminium Alloy(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 Alloy (<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

【Note】
1. Please use the machine with high rigidity. It is recommended to use hydraulic，thermal expansion and strong holders with spring chucks
2. Make sure total indicated run-out(TIR) is less than 0.02mm
3. The recommended cutting condition is suitable for water-soluble cutting fluid
4. If the tool size is not listed in the table, please choose the tool size that is closest to it and adjust the cutting parameters in accordance with the processing's actual working conditions.

B

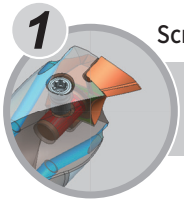
INDEXABLE DRILL

Overview of Drill Grades

Grade	Color	Coating composition	Features
GM3225	Purple gray		• High Co fine grain carbide substrate with the newly upgraded AlTiN coating, provides excellent wear resistance and collapse resistance, can be used for a variety of cutting speeds and feed machining. • Applicable to steel, stainless steel, cast iron general processing.
GM3220	Bronze		• New double nanostructure PVD coating, with high Co subfine crystalline hard alloy substrate,improve wear resistance and red hardness. • Suitable for continuous - slight discontinuous - medium discontinuous conditions, stainless steel, mild steel low speed processing.
GA4230	Fuchsia		• PVD TiAN coating combined with high damage resistance of the hard alloy substrate, has excellent heat resistance and crack resistance, to achieve stable processing under different working conditions.
GS4130	Purple gray		• The latest nano TiAlN coating with high toughness micro-grained carbide substrate, achieve good wear resistance and toughness. •Suitable for unstable steel conditions and difficult to process materials.
GPD7115	Purple gray		• High strength and toughness of subfine crystalline carbide substrate with a new nano composite multilayer PVD coating, bringing excellent wear resistance and red hardness. Special surface treatment can effectively inhibit the formation of debris nodules. • Suitable for medium and low speed processing of steel.

GUMD Modular Drill

Introduction

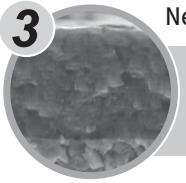


1 Screw lock latch connector

- Reliable locking
- The head is easy to replace

2 High strength drill point

- Reliable locking
- The head is easy to replace



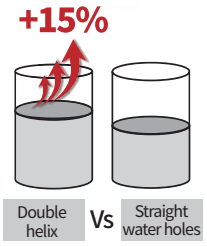
3 New material

- Long life and stable under processing toughness steel

4 Double helix inner coolant drill body

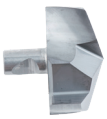
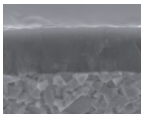
- Smooth chip evacuation and adequate cooling conditions performance

Cutting fluid discharge per unit time



Scope of application

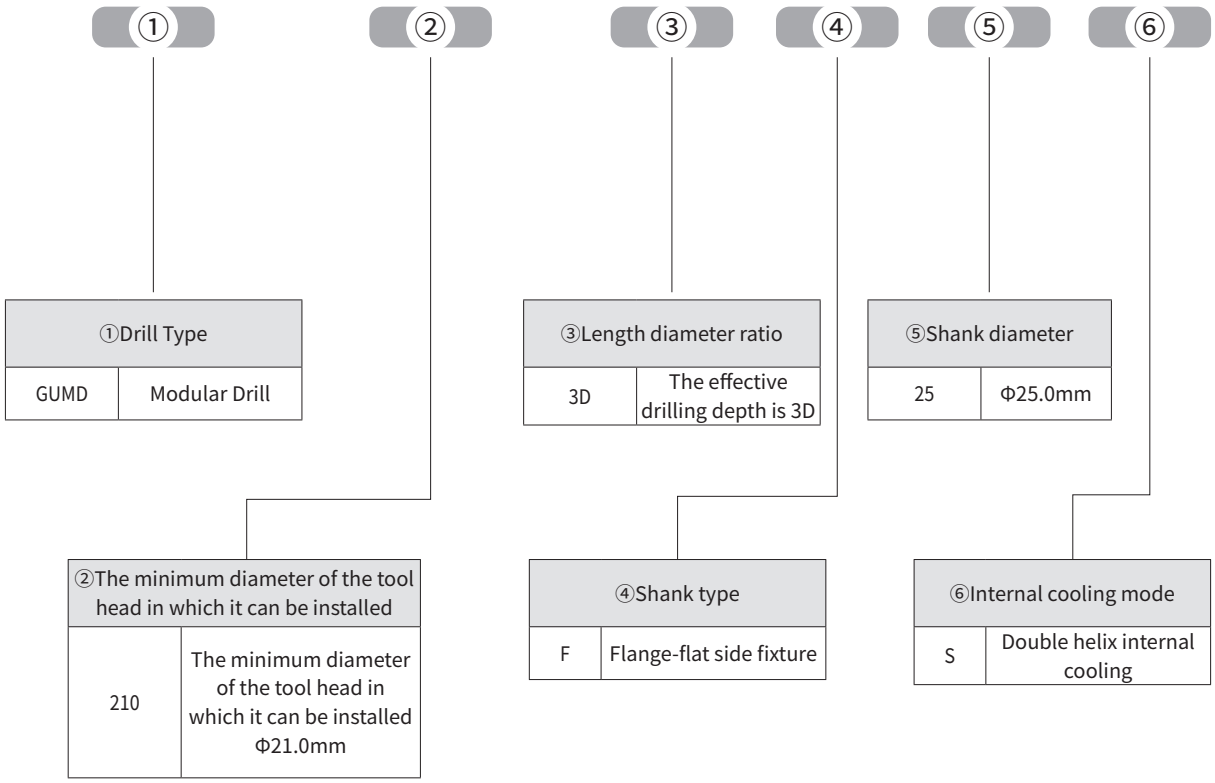
- **Drill diameter** — Φ10 ~ Φ21.9
  Standard interval 0.1mm
  Non-standard size can be customized
- **Drill Diameter** — 3D & 5D
- **Cutting Accuracy** — IT9 ~ IT11
- **Drill Accuracy** — K7

Insert Type	Material	Cutting Material		
		P	M	K
PKM	GM3225	◎ Abrasion Resistance	○	○
	GPD7115	◎ Toughness		

- **GM3225**
  Suitable for general materials, excellent performance in working conditions with high wear resistance requirements
- **New grade GPD7115**
  Have excellent performance in processing toughness steel

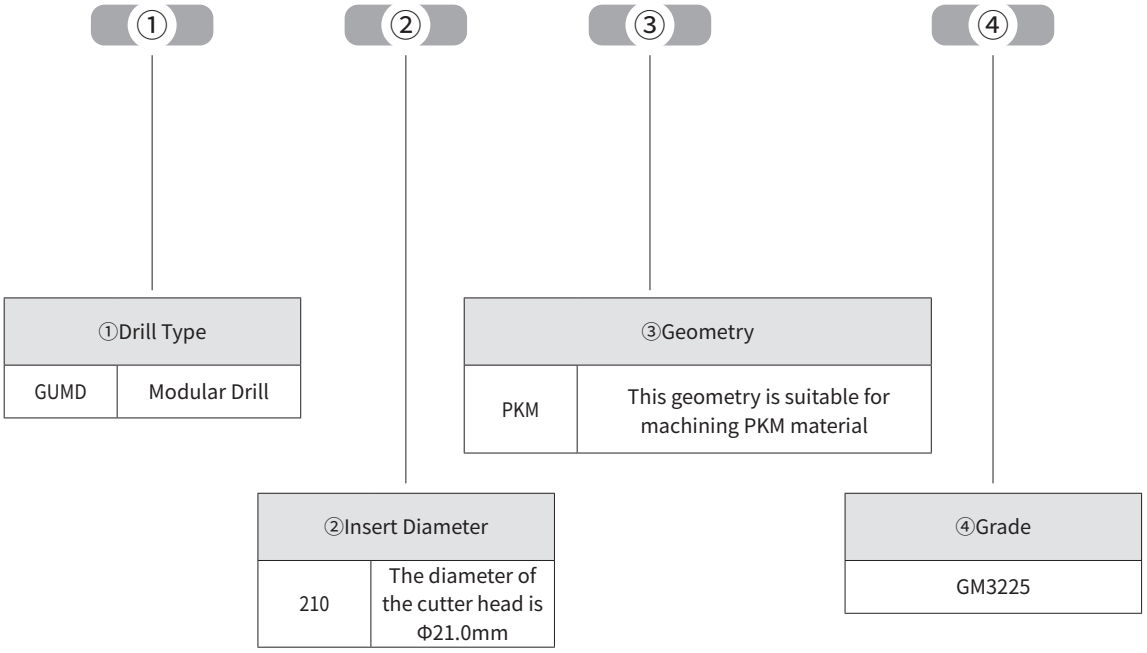
GUMD Drill Holders Identification System

GUMD－210－3D－F－25－S

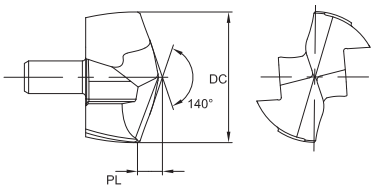


GUMD Drill Heads Identification System

GUMD – 210 – PKM – GM3225



GUMD Drill Head



Ordering Code	Dimension (mm)		Coating Grade		Adaptor
	DC (k7)	PL	GM3225	GPD7115	
GUMD100-PKM	10.0	1.82	●	●	GUMD-100-3D-F16S GUMD-100-5D-F16S
GUMD101-PKM	10.1	1.84	●	●	
GUMD102-PKM	10.2	1.86	●	●	
GUMD103-PKM	10.3	1.87	●	●	
GUMD104-PKM	10.4	1.89	●	●	
GUMD105-PKM	10.5	1.91	●	●	GUMD-105-3D-F16S GUMD-105-5D-F16S
GUMD106-PKM	10.6	1.93	●	●	
GUMD107-PKM	10.7	1.95	●	●	
GUMD108-PKM	10.8	1.97	●	●	
GUMD109-PKM	10.9	1.98	●	●	
GUMD110-PKM	11.0	2.00	●	●	GUMD-110-3D-F16S GUMD-110-5D-F16S
GUMD111-PKM	11.1	2.02	●	●	
GUMD112-PKM	11.2	2.04	●	●	
GUMD113-PKM	11.3	2.06	●	●	
GUMD114-PKM	11.4	2.07	●	●	
GUMD115-PKM	11.5	2.09	●	●	GUMD-115-3D-F16S GUMD-115-5D-F16S
GUMD116-PKM	11.6	2.11	●	●	
GUMD117-PKM	11.7	2.13	○	○	
GUMD118-PKM	11.8	2.15	●	●	
GUMD119-PKM	11.9	2.17	●	●	

● Stock ○ Available upon Order Note: Customized diameter available

Unit(mm)

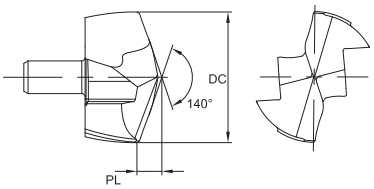
DC	Tolerance (k7)
DC=10	+0.001 +0.016
10＜DC≤18	+0.001 +0.019
18＜DC≤21.9	+0.002 +0.023

Workpiece Material						
	P			M	K	
	1 2 3	4	5	1 2 3	1 2	3
	Carbon Steel	Alloy Steel	Alloy Steel/Tool Steel	Stainless Steel	Gray Cast Iron, Ductile Cast Iron	High Alloy Cast Iron
	＜25HRC	＜35HRC	35-48HRC		＜35HRC	35-45HRC
GM3225	○	◎	◎	○	◎	◎
GPD7115	◎	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P137

GUMD Drill Head



Ordering Code	Dimension (mm)		Coating Grade		Adaptor
	DC (k7)	PL	GM3225	GPD7115	
GUMD120-PKM	12.0	2.18	●	●	GUMD-120-3D-F16S GUMD-120-5D-F16S
GUMD121-PKM	12.1	2.20	●	●	
GUMD122-PKM	12.2	2.22	●	●	
GUMD123-PKM	12.3	2.24	●	●	
GUMD124-PKM	12.4	2.26	○	○	
GUMD125-PKM	12.5	2.27	●	●	GUMD-125-3D-F16S GUMD-125-5D-F16S
GUMD126-PKM	12.6	2.29	●	●	
GUMD127-PKM	12.7	2.31	○	○	
GUMD128-PKM	12.8	2.33	●	●	
GUMD129-PKM	12.9	2.35	○	○	
GUMD130-PKM	13.0	2.37	●	●	GUMD-130-3D-F16S GUMD-130-5D-F16S
GUMD131-PKM	13.1	2.38	●	●	
GUMD132-PKM	13.2	2.40	●	●	
GUMD133-PKM	13.3	2.42	○	○	
GUMD134-PKM	13.4	2.44	○	○	
GUMD135-PKM	13.5	2.46	●	●	GUMD-135-3D-F16S GUMD-135-5D-F16S
GUMD136-PKM	13.6	2.47	○	○	
GUMD137-PKM	13.7	2.49	●	●	
GUMD138-PKM	13.8	2.51	●	●	
GUMD139-PKM	13.9	2.53	○	○	

● Stock ○ Available upon Order Note: Customized diameter available

Unit(mm)

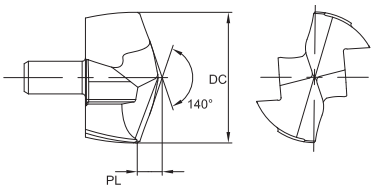
DC	Tolerance (k7)
DC=10	+0.001 +0.016
10＜DC≤18	+0.001 +0.019
18＜DC≤21.9	+0.002 +0.023

Workpiece Material						
	P			M	K	
	1 2 3	4	5	1 2 3	1 2	3
	Carbon Steel	Alloy Steel	Alloy Steel/Tool Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron
	＜25HRC	＜35HRC	35-48HRC		＜35HRC	35-45HRC
GM3225	○	◎	◎	○	◎	◎
GPD7115	◎	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P137

GUMD Drill Head



Ordering Code	Dimension (mm)		Coating Grade		Adaptor
	DC (k7)	PL	GM3225	GPD7115	
GUMD140-PKM	14.0	2.55	●	●	GUMD-140-3D-F16S GUMD-140-5D-F16S
GUMD141-PKM	14.1	2.57	●	●	
GUMD142-PKM	14.2	2.58	●	●	
GUMD143-PKM	14.3	2.60	○	○	
GUMD144-PKM	14.4	2.62	○	○	
GUMD145-PKM	14.5	2.64	●	●	GUMD-145-3D-F16S GUMD-145-5D-F16S
GUMD146-PKM	14.6	2.66	●	●	
GUMD147-PKM	14.7	2.68	○	○	
GUMD148-PKM	14.8	2.69	●	●	
GUMD149-PKM	14.9	2.71	○	○	
GUMD150-PKM	15.0	2.73	●	●	GUMD-150-3D-F20S GUMD-150-5D-F20S
GUMD151-PKM	15.1	2.75	●	●	
GUMD152-PKM	15.2	2.77	●	●	
GUMD153-PKM	15.3	2.78	●	●	
GUMD154-PKM	15.4	2.80	○	○	
GUMD155-PKM	15.5	2.82	●	●	
GUMD156-PKM	15.6	2.84	○	○	
GUMD157-PKM	15.7	2.86	○	○	
GUMD158-PKM	15.8	2.88	●	●	
GUMD159-PKM	15.9	2.89	○	○	

● Stock ○ Available upon Order Note: Customized diameter available

Unit(mm)

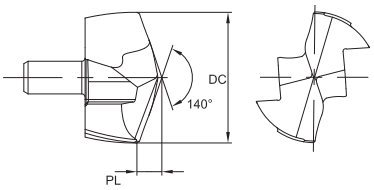
DC	Tolerance (k7)
DC=10	+0.001 +0.016
10＜DC≤18	+0.001 +0.019
18＜DC≤21.9	+0.002 +0.023

Workpiece Material						
	P			M	K	
	1 2 3	4	5	1 2 3	1 2	3
	Carbon Steel	Alloy Steel	Alloy Steel/Tool Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron
	＜25HRC	＜35HRC	35-48HRC		＜35HRC	35-45HRC
GM3225	○	◎	◎	○	◎	◎
GPD7115	◎	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P137

GUMD Drill Head



Ordering Code	Dimension (mm)		Coating Grade		Adaptor
	DC (k7)	PL	GM3225	GPD7115	
GUMD160-PKM	16.0	2.91	●	●	GUMD-160-3D-F20S GUMD-160-5D-F20S
GUMD161-PKM	16.1	2.93	●	●	
GUMD162-PKM	16.2	2.95	●	●	
GUMD163-PKM	16.3	2.97	○	○	
GUMD164-PKM	16.4	2.98	○	○	
GUMD165-PKM	16.5	3.00	●	●	
GUMD166-PKM	16.6	3.02	○	○	
GUMD167-PKM	16.7	3.04	○	○	
GUMD168-PKM	16.8	3.06	●	●	
GUMD169-PKM	16.9	3.08	○	○	
GUMD170-PKM	17.0	3.09	●	●	GUMD-170-3D-F20S GUMD-170-5D-F20S
GUMD171-PKM	17.1	3.11	●	●	
GUMD172-PKM	17.2	3.13	●	●	
GUMD173-PKM	17.3	3.15	○	○	
GUMD174-PKM	17.4	3.17	○	○	
GUMD175-PKM	17.5	3.18	●	●	
GUMD176-PKM	17.6	3.20	○	●	
GUMD177-PKM	17.7	3.22	○	○	
GUMD178-PKM	17.8	3.24	●	●	
GUMD179-PKM	17.9	3.26	○	○	

● Stock ○ Available upon Order Note: Customized diameter available

Unit(mm)

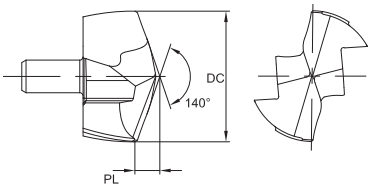
DC	Tolerance (k7)
DC=10	+0.001 +0.016
10＜DC≤18	+0.001 +0.019
18＜DC≤21.9	+0.002 +0.023

Workpiece Material						
	P			M	K	
	1 2 3	4	5	1 2 3	1 2	3
	Carbon Steel	Alloy Steel	Alloy Steel/Tool Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron
	＜25HRC	＜35HRC	35-48HRC		＜35HRC	35-45HRC
GM3225	○	◎	◎	○	◎	◎
GPD7115	◎	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P137

GUMD Drill Head



Ordering Code	Dimension (mm)		Coating Grade		Adaptor
	DC (k7)	PL	GM3225	GPD7115	
GUMD180-PKM	18.0	3.28	●	●	GUMD-180-3D-F25S GUMD-180-5D-F25S
GUMD181-PKM	18.1	3.29	●	●	
GUMD182-PKM	18.2	3.31	●	●	
GUMD183-PKM	18.3	3.33	○	○	
GUMD184-PKM	18.4	3.35	○	○	
GUMD185-PKM	18.5	3.37	●	●	
GUMD186-PKM	18.6	3.38	○	○	
GUMD187-PKM	18.7	3.40	○	○	
GUMD188-PKM	18.8	3.42	●	●	
GUMD189-PKM	18.9	3.44	○	○	
GUMD190-PKM	19.0	3.46	●	●	GUMD-190-3D-F25S GUMD-190-5D-F25S
GUMD191-PKM	19.1	3.48	●	●	
GUMD192-PKM	19.2	3.49	●	●	
GUMD193-PKM	19.3	3.51	○	○	
GUMD194-PKM	19.4	3.53	○	○	
GUMD195-PKM	19.5	3.55	●	●	
GUMD196-PKM	19.6	3.57	○	○	
GUMD197-PKM	19.7	3.59	○	○	
GUMD198-PKM	19.8	3.60	●	●	
GUMD199-PKM	19.9	3.62	○	○	

● Stock ○ Available upon Order Note: Customized diameter available

Unit(mm)

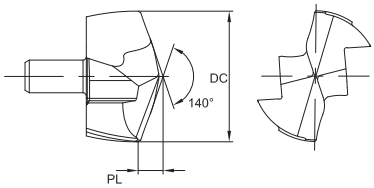
DC	Tolerance (k7)
DC=10	+0.001 +0.016
10＜DC≤18	+0.001 +0.019
18＜DC≤21.9	+0.002 +0.023

Workpiece Material						
	P			M	K	
	1 2 3	4	5	1 2 3	1 2	3
	Carbon Steel	Alloy Steel	Alloy Steel/Tool Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron
	＜25HRC	＜35HRC	35-48HRC		＜35HRC	35-45HRC
GM3225	○	◎	◎	○	◎	◎
GPD7115	◎	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P137

GUMD Drill Head



Ordering Code	Dimension (mm)		Coating Grade		Adaptor
	DC (k7)	PL	GM3225	GPD7115	
GUMD200-PKM	20.0	3.64	●	●	GUMD-200-3D-F25S GUMD-200-5D-F25S
GUMD201-PKM	20.1	3.66	○	○	
GUMD202-PKM	20.2	3.68	●	●	
GUMD203-PKM	20.3	3.69	●	●	
GUMD204-PKM	20.4	3.71	●	●	
GUMD205-PKM	20.5	3.73	●	●	
GUMD206-PKM	20.6	3.75	●	●	
GUMD207-PKM	20.7	3.77	●	●	
GUMD208-PKM	20.8	3.79	●	●	
GUMD209-PKM	20.9	3.80	●	●	
GUMD210-PKM	21.0	3.82	●	●	GUMD-210-3D-F25S GUMD-210-5D-F25S
GUMD211-PKM	21.1	3.84	○	○	
GUMD212-PKM	21.2	3.86	○	○	
GUMD213-PKM	21.3	3.88	●	●	
GUMD214-PKM	21.4	3.89	○	○	
GUMD215-PKM	21.5	3.91	●	●	
GUMD216-PKM	21.6	3.93	○	○	
GUMD217-PKM	21.7	3.95	○	○	
GUMD218-PKM	21.8	3.97	○	○	
GUMD219-PKM	21.9	3.99	○	○	

● Stock ○ Available upon Order Note: Customized diameter available

Unit(mm)

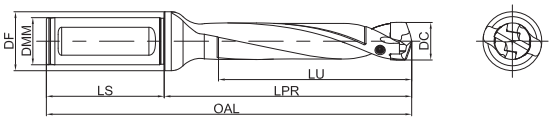
DC	Tolerance (k7)
DC=10	+0.001 +0.016
10＜DC≤18	+0.001 +0.019
18＜DC≤21.9	+0.002 +0.023

Workpiece Material						
	P			M	K	
	1 2 3	4	5	1 2 3	1 2	3
	Carbon Steel	Alloy Steel	Alloy Steel/Tool Steel	Stainless Steel	Gray Cast Iron, Nodular Cast Iron	High Alloy Cast Iron
	＜25HRC	＜35HRC	35-48HRC		＜35HRC	35-45HRC
GM3225	○	◎	◎	○	◎	◎
GPD7115	◎	○				

◎ Most Suitable ○ Suitable

Recommended Cutting Data ※ P137

GUMD Drill Holder-3D



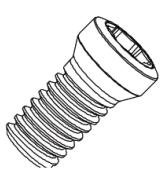
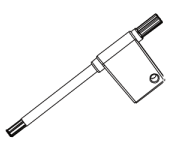
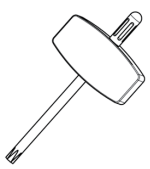
Ordering Code	Dimension (mm)						Weight (KG)	Stock	Suitable Drill Head	
	DMM (h6)	DF	LS	LU	LPR	OAL			DC min	DC max
GUMD-100-3D-F16S	16	20	48	33	48	96	0.09	●	10.0	10.4
GUMD-105-3D-F16S	16	20	48	34.5	49.5	97.5	0.10	●	10.5	10.9
GUMD-110-3D-F16S	16	20	48	36	51	99	0.10	●	11.0	11.4
GUMD-115-3D-F16S	16	20	48	37.5	52.5	100.5	0.10	●	11.5	11.9
GUMD-120-3D-F16S	16	20	48	39	54	102	0.10	●	12.0	12.4
GUMD-125-3D-F16S	16	20	48	40.5	55.5	103.5	0.10	●	12.5	12.9
GUMD-130-3D-F16S	16	20	48	42	57	105	0.11	●	13.0	13.4
GUMD-135-3D-F16S	16	20	48	43.5	58.5	106.5	0.11	●	13.5	13.9
GUMD-140-3D-F16S	16	20	48	45	60	108	0.11	●	14.0	14.4
GUMD-145-3D-F16S	16	20	48	46.5	61.5	109.5	0.11	●	14.5	14.9
GUMD-150-3D-F20S	20	25	50	50	67	117	0.18	●	15.0	15.9
GUMD-160-3D-F20S	20	25	50	53	70	120	0.18	●	16.0	16.9
GUMD-170-3D-F20S	20	25	50	56	73	123	0.19	●	17.0	17.9
GUMD-180-3D-F25S	25	32	56	62	86	142	0.34	●	18.0	18.9
GUMD-190-3D-F25S	25	32	56	65	89	145	0.35	●	19.0	19.9
GUMD-200-3D-F25S	25	32	56	68	92	148	0.36	●	20.0	20.9
GUMD-210-3D-F25S	25	32	56	71	95	151	0.37	●	21.0	21.9

● Stock ○ Available upon Order

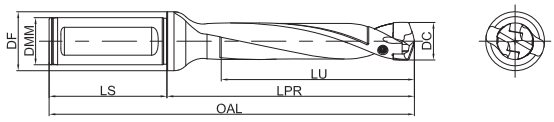
Unit(mm)

DMM	Tolerance (h6)
16	0 -0.011
20	0 -0.013
25	0 -0.013

Spare Parts

Drill Body	Screw		Flag-shaped Wrench		Key- shaped Wrench(can order separately)		
	Ordering Code	Diagram	Ordering Code	Diagram	Ordering Code	Diagram	Torque Force
GUMD-100~120	PSCCM022038B		PTT06IPB		PTI06KB		0.6
GUMD-125~150	PSCCM025046B		PTT07IPB		PTI07KB		0.9
GUMD-160~190	PSCCM030058B		PTT08IPB		PTI08KB		1.1
GUMD-200~210	PSCCM035072B		PTT09IPB		PTI09KB		1.3

GUMD Drill Holder-5D



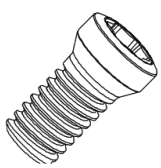
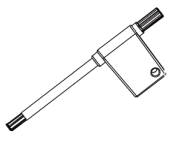
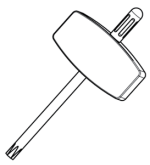
Ordering Code	Dimension (mm)						Weight (KG)	Stock	Suitable Drill Head	
	DMM (h6)	DF	LS	LU	LPR	OAL			DC min	DC max
GUMD-100-5D-F16S	16	20	48	53	68	116	0.10	●	10.0	10.4
GUMD-105-5D-F16S	16	20	48	55.5	70.5	118.5	0.10	●	10.5	10.9
GUMD-110-5D-F16S	16	20	48	58	73	121	0.11	●	11.0	11.4
GUMD-115-5D-F16S	16	20	48	60.5	75.5	123.5	0.11	●	11.5	11.9
GUMD-120-5D-F16S	16	20	48	63	78	126	0.11	●	12.0	12.4
GUMD-125-5D-F16S	16	20	48	65.5	80.5	128.5	0.12	●	12.5	12.9
GUMD-130-5D-F16S	16	20	48	68	83	131	0.12	●	13.0	13.4
GUMD-135-5D-F16S	16	20	48	70.5	85.5	133.5	0.13	●	13.5	13.9
GUMD-140-5D-F16S	16	20	48	73	88	136	0.13	●	14.0	14.4
GUMD-145-5D-F16S	16	20	48	75.5	90.5	138.5	0.13	●	14.5	14.9
GUMD-150-5D-F20S	20	25	50	83	100	150	0.20	●	15.0	15.9
GUMD-160-5D-F20S	20	25	50	88	105	155	0.21	●	16.0	16.9
GUMD-170-5D-F20S	20	25	50	93	110	160	0.23	●	17.0	17.9
GUMD-180-5D-F25S	25	32	56	100	124	180	0.38	●	18.0	18.9
GUMD-190-5D-F25S	25	32	56	105	129	185	0.40	●	19.0	19.9
GUMD-200-5D-F25S	25	32	56	110	134	190	0.41	●	20.0	20.9
GUMD-210-5D-F25S	25	32	56	115	139	195	0.44	●	21.0	21.9

● Stock ○ Available upon Order

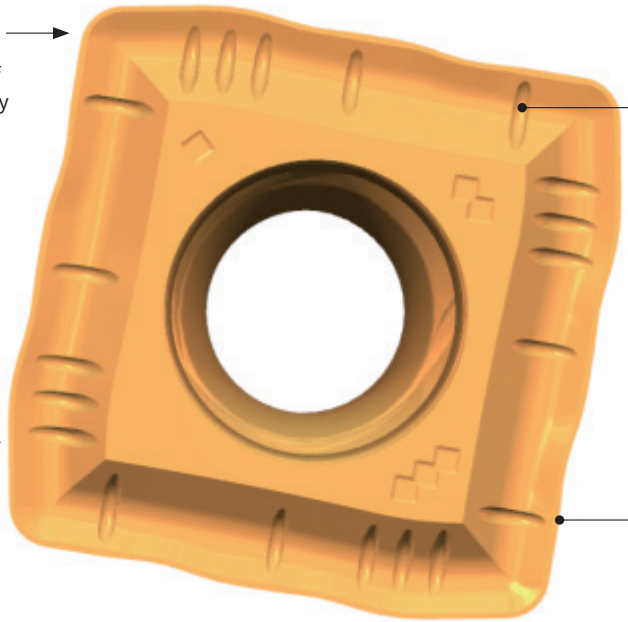
Unit(mm)

DMM	Tolerance (h6)
16	0 -0.011
20	0 -0.013
25	0 -0.013

Spare Parts

Drill Body	Screw		Flag-shaped Wrench		Key- shaped Wrench(can order separately)		
	Ordering Code	Diagram	Ordering Code	Diagram	Ordering Code	Diagram	Torque Force
GUMD-100~120	PSCCM022038B		PTT06IPB		PTI06KB		0.6
GUMD-125~150	PSCCM025046B		PTT07IPB		PTI07KB		0.9
GUMD-160~190	PSCCM030058B		PTT08IPB		PTI08KB		1.1
GUMD-200~210	PSCCM035072B		PTT09IPB		PTI09KB		1.3

QPMG Drilling Insert



Fist shape cutting edge

- Having better performance of chip control and cutting stability

Cooling groove design

- Perfect cooling performance

Same insert can be used as inside or outside insert

- Convenient for tool management

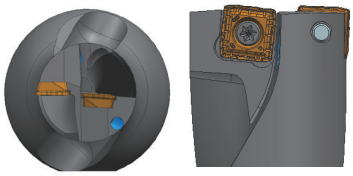
Local wide cutting edge and small rake angle

- Having better anti-fracture

GHDS Drill Body

Optimized Inner and outer insert structure design

——Balanced inner and outer cutting edge force, result in better stability



Internal coolant outlet directly inject insert rake surface

——Cooling and chip removal more sufficient，Intensified outer insert seat

Optimized flute design

——Chip remove is more smoothly,better rigidity.

Double twisted coolant channel

——Structure is more rational and chip removal smoother

Advanced surface treatment technology

——Eliminating drill body surface stress and environment protection

Indexable Drill Body Identification System

GHD–210 –3D – FC 25 – Q 06 S

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①Tool Type	
GHD	Indexable Drills

②Dia. of drill	
210	Φ21.0mm

③Aspect Ratio	
3D	3D

④Shank type	
FC	Flange-Flat

⑤Shank Dia.	
25	Φ25.0mm

⑥Insert series	
Q	Q series

⑦Cutting edge length	
06	Cutting edge length: 06

⑧Internal coolant mode	
S	Double-twisted internal coolant

Drilling Insert Identification System

Q P M G 06 02 04– DP– GA4230

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①Shape	
Q	
S	
W	

②Relief Angle	
C	7°
P	11°

③Tolerance
M

④Hole/Chipbreaker Symbol	
G	Double-sided
T	With hole Single-sided

⑤Cutting Edge Length Symbol	
06	6.5mm

⑥Thickness	
02	2.38mm

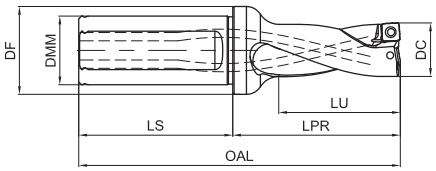
⑦Corner Rc Symbol	
04	0.4mm

⑧Chipbreaker Symbol
Indicates the cutting properties and chipbreakers

⑨Grade
GA4230

GHDS-2D

GHDS-2D Indexable Drills



Dia.	Drilling body	Dimension (mm)							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
14	GHD-140-2D-FC20-Q04S	14	20	25	50	31	44	94	0.16	●	QPMG040204
14.5	GHD-145-2D-FC20-Q04S	14.5	20	25	50	33	46	96	0.16	●	
15	GHD-150-2D-FC20-Q04S	15	20	25	50	35	47	97	0.16	●	
15.5	GHD-155-2D-FC20-Q04S	15.5	20	25	50	37	49	99	0.17	●	
16	GHD-160-2D-FC20-Q05S	16	20	25	50	37	51	101	0.17	●	QPMG050204
16.5	GHD-165-2D-FC20-Q05S	16.5	20	25	50	38	52	102	0.17	●	
17	GHD-170-2D-FC25-Q05S	17	25	32	56	38	53	109	0.28	●	
17.5	GHD-175-2D-FC25-Q05S	17.5	25	32	56	39	55	111	0.29	●	
18	GHD-180-2D-FC25-Q05S	18	25	32	56	41	56	112	0.29	●	
18.5	GHD-185-2D-FC25-Q05S	18.5	25	32	56	42	57	113	0.29	●	
19	GHD-190-2D-FC25-Q06S	19	25	32	56	42	58	114	0.30	●	QPMG060204
19.5	GHD-195-2D-FC25-Q06S	19.5	25	32	56	44	60	116	0.30	●	
20	GHD-200-2D-FC25-Q06S	20	25	32	56	44	61	117	0.31	●	
20.5	GHD-205-2D-FC25-Q06S	20.5	25	32	56	45	62	118	0.32	●	
21	GHD-210-2D-FC25-Q06S	21	25	32	56	47	64	120	0.32	●	
21.5	GHD-215-2D-FC25-Q06S	21.5	25	32	56	48	65	121	0.32	●	
22	GHD-220-2D-FC25-Q06S	22	25	32	56	49	66	122	0.32	●	
22.5	GHD-225-2D-FC25-Q06S	22.5	25	32	56	51	68	124	0.33	●	
23	GHD-230-2D-FC25-Q07S	23	25	32	56	50	69	125	0.34	●	QPMG07T306
23.5	GHD-235-2D-FC25-Q07S	23.5	25	32	56	51	70	126	0.35	●	
24	GHD-240-2D-FC25-Q07S	24	25	32	56	53	71	127	0.35	●	
24.5	GHD-245-2D-FC25-Q07S	24.5	25	32	56	55	73	129	0.36	●	
25	GHD-250-2D-FC25-Q07S	25	25	32	56	54	74	130	0.37	●	
25.5	GHD-255-2D-FC32-Q07S	25.5	32	40	60	55	76	136	0.58	●	
26	GHD-260-2D-FC32-Q07S	26	32	40	60	56	77	137	0.58	●	
26.5	GHD-265-2D-FC32-Q07S	26.5	32	40	60	58	78	138	0.59	●	
27	GHD-270-2D-FC32-Q07S	27	32	40	60	59	79	139	0.60	●	

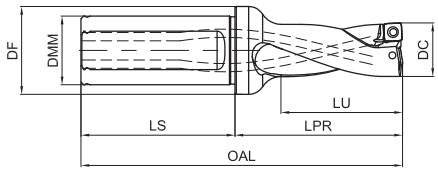
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-2D

GHDS-2D Indexable Drills



Dia.	Drilling body	Dimension (mm)							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
27.5	GHD-275-2D-FC32-Q09S	27.5	32	40	60	61	81	141	0.59	●	QPMG09T308
28	GHD-280-2D-FC32-Q09S	28	32	40	60	60	82	142	0.61	●	
28.5	GHD-285-2D-FC32-Q09S	28.5	32	40	60	62	83	143	0.62	●	
29	GHD-290-2D-FC32-Q09S	29	32	40	60	63	84	144	0.63	●	
29.5	GHD-295-2D-FC32-Q09S	29.5	32	40	60	65	86	146	0.64	●	
30	GHD-300-2D-FC32-Q09S	30	32	40	60	65	87	147	0.64	●	
30.5	GHD-305-2D-FC32-Q09S	30.5	32	40	60	68	89	149	0.66	●	
31	GHD-310-2D-FC40-Q09S	31	40	48	70	67	90	160	1.00	●	
31.5	GHD-315-2D-FC40-Q09S	31.5	40	48	70	68	91	161	1.01	●	
32	GHD-320-2D-FC40-Q09S	32	40	48	70	70	92	162	1.02	●	
32.5	GHD-325-2D-FC40-Q09S	32.5	40	48	70	72	94	164	1.04	●	
33	GHD-330-2D-FC40-Q09S	33	40	48	70	71	95	165	1.05	●	
33.5	GHD-335-2D-FC40-Q11S	33.5	40	48	70	73	97	167	1.06	●	QPMG110408
34	GHD-340-2D-FC40-Q11S	34	40	48	70	75	98	168	1.07	●	
34.5	GHD-345-2D-FC40-Q11S	34.5	40	48	70	76	99	169	1.09	●	
35	GHD-350-2D-FC40-Q11S	35	40	48	70	78	101	171	1.11	●	
35.5	GHD-355-2D-FC40-Q11S	35.5	40	48	70	79	102	172	1.12	●	
36	GHD-360-2D-FC40-Q11S	36	40	48	70	78	104	174	1.14	●	
36.5	GHD-365-2D-FC40-Q11S	36.5	40	48	70	80	105	175	1.15	●	
37	GHD-370-2D-FC40-Q11S	37	40	48	70	80	105	175	1.16	●	
37.5	GHD-375-2D-FC40-Q11S	37.5	40	48	70	81	106	176	1.17	●	
38	GHD-380-2D-FC40-Q11S	38	40	48	70	82	108	178	1.20	●	
38.5	GHD-385-2D-FC40-Q11S	38.5	40	48	70	84	109	179	1.22	●	
39	GHD-390-2D-FC40-Q11S	39	40	48	70	85	110	180	1.23	●	
39.5	GHD-395-2D-FC40-Q11S	39.5	40	48	70	85	112	182	1.25	●	
40	GHD-400-2D-FC40-Q11S	40	40	48	70	86	113	183	1.27	●	

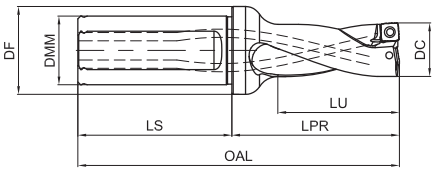
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-2D

GHDS-2D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
40.5	GHD-405-2D-FC40-Q13S	40.5	40	48	70	89	115	185	1.91	●	QPMG130408
41	GHD-410-2D-FC40-Q13S	41	40	48	70	92	117	187	1.91	●	
41.5	GHD-415-2D-FC40-Q13S	41.5	40	48	70	94	118	188	1.91	○	
42	GHD-420-2D-FC40-Q13S	42	40	48	70	92	119	189	1.91	●	
42.5	GHD-425-2D-FC40-Q13S	42.5	40	48	70	92	121	191	1.91	○	
43	GHD-430-2D-FC40-Q13S	43	40	48	70	94	122	192	1.91	●	
43.5	GHD-435-2D-FC40-Q13S	43.5	40	48	70	96	123	193	1.91	●	
44	GHD-440-2D-FC40-Q13S	44	40	48	70	98	124	194	1.91	○	
44.5	GHD-445-2D-FC40-Q13S	44.5	40	48	70	99	125	195	1.91	○	
45	GHD-450-2D-FC40-Q13S	45	40	48	70	103	127	197	1.91	●	
45.5	GHD-455-2D-FC40-Q15S	45.5	40	48	70	97	128	198	1.79	●	QPMG150512
46	GHD-460-2D-FC40-Q15S	46	40	48	70	102	130	200	1.79	●	
46.5	GHD-465-2D-FC40-Q15S	46.5	40	48	70	100	131	201	1.79	○	
47	GHD-470-2D-FC40-Q15S	47	40	48	70	102	132	202	1.79	●	
47.5	GHD-475-2D-FC40-Q15S	47.5	40	48	70	106	133	203	1.79	○	
48	GHD-480-2D-FC40-Q15S	48	40	48	70	110	135	205	1.79	●	

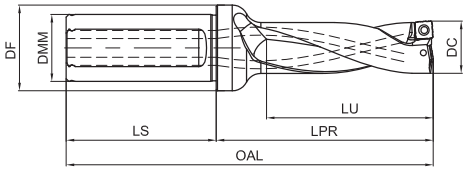
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-3D

GHDS-3D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
14	GHD-140-3D-FC20-Q04S	14	20	25	50	45	58	108	0.16	●	QPMG040204
14.5	GHD-145-3D-FC20-Q04S	14.5	20	25	50	47	60	110	0.17	●	
15	GHD-150-3D-FC20-Q04S	15	20	25	50	50	62	112	0.17	●	
15.5	GHD-155-3D-FC20-Q04S	15.5	20	25	50	52	64	114	0.18	●	
16	GHD-160-3D-FC20-Q05S	16	20	25	50	51	66	116	0.18	●	QPMG050204
16.5	GHD-165-3D-FC20-Q05S	16.5	20	25	50	53	68	118	0.18	●	
17	GHD-170-3D-FC25-Q05S	17	25	32	56	54	69	125	0.29	●	
17.5	GHD-175-3D-FC25-Q05S	17.5	25	32	56	56	72	128	0.30	●	
18	GHD-180-3D-FC25-Q05S	18	25	32	56	58	73	129	0.30	●	
18.5	GHD-185-3D-FC25-Q05S	18.5	25	32	56	60	75	131	0.31	●	
19	GHD-190-3D-FC25-Q06S	19	25	32	56	60	76	132	0.32	●	QPMG060204
19.5	GHD-195-3D-FC25-Q06S	19.5	25	32	56	62	79	135	0.33	●	
20	GHD-200-3D-FC25-Q06S	20	25	32	56	64	81	137	0.34	●	
20.5	GHD-205-3D-FC25-Q06S	20.5	25	32	56	65	82	138	0.34	●	
21	GHD-210-3D-FC25-Q06S	21	25	32	56	67	84	140	0.34	●	
21.5	GHD-215-3D-FC25-Q06S	21.5	25	32	56	69	86	142	0.35	●	
22	GHD-220-3D-FC25-Q06S	22	25	32	56	69	87	143	0.35	●	
22.5	GHD-225-3D-FC25-Q06S	22.5	25	32	56	72	90	146	0.36	●	
23	GHD-230-3D-FC25-Q07S	23	25	32	56	72	91	147	0.36	●	QPMG07T306
23.5	GHD-235-3D-FC25-Q07S	23.5	25	32	56	75	93	149	0.38	●	
24	GHD-240-3D-FC25-Q07S	24	25	32	56	76	95	151	0.39	●	
24.5	GHD-245-3D-FC25-Q07S	24.5	25	32	56	77	97	153	0.41	●	
25	GHD-250-3D-FC25-Q07S	25	25	32	56	79	99	155	0.41	●	
25.5	GHD-255-3D-FC32-Q07S	25.5	32	40	60	80	100	160	0.62	●	
26	GHD-260-3D-FC32-Q07S	26	32	40	60	81	102	162	0.63	●	
26.5	GHD-265-3D-FC32-Q07S	26.5	32	40	60	84	104	164	0.65	●	
27	GHD-270-3D-FC32-Q07S	27	32	40	60	85	105	165	0.66	●	

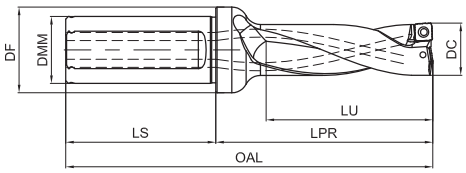
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-3D

GHDS-3D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
27.5	GHD-275-3D-FC32-Q09S	27.5	32	40	60	88	108	168	0.68	●	QPMG09T308
28	GHD-280-3D-FC32-Q09S	28	32	40	60	87	109	169	0.69	●	
28.5	GHD-285-3D-FC32-Q09S	28.5	32	40	60	90	111	171	0.69	●	
29	GHD-290-3D-FC32-Q09S	29	32	40	60	91	112	172	0.71	●	
29.5	GHD-295-3D-FC32-Q09S	29.5	32	40	60	93	115	175	0.72	●	
30	GHD-300-3D-FC32-Q09S	30	32	40	60	95	117	177	0.73	●	
30.5	GHD-305-3D-FC32-Q09S	30.5	32	40	60	97	118	178	0.74	●	
31	GHD-310-3D-FC40-Q09S	31	40	48	70	98	121	191	1.09	●	
31.5	GHD-315-3D-FC40-Q09S	31.5	40	48	70	98	122	192	1.11	●	
32	GHD-320-3D-FC40-Q09S	32	40	48	70	101	124	194	1.12	●	
32.5	GHD-325-3D-FC40-Q09S	32.5	40	48	70	103	126	196	1.14	●	
33	GHD-330-3D-FC40-Q09S	33	40	48	70	104	128	198	1.16	●	
33.5	GHD-335-3D-FC40-Q11S	33.5	40	48	70	106	130	200	1.15	●	QPMG110408
34	GHD-340-3D-FC40-Q11S	34	40	48	70	108	131	201	1.17	●	
34.5	GHD-345-3D-FC40-Q11S	34.5	40	48	70	109	134	204	1.22	●	
35	GHD-350-3D-FC40-Q11S	35	40	48	70	112	135	205	1.24	●	
35.5	GHD-355-3D-FC40-Q11S	35.5	40	48	70	114	137	207	1.26	●	
36	GHD-360-3D-FC40-Q11S	36	40	48	70	113	139	209	1.27	●	
36.5	GHD-365-3D-FC40-Q11S	36.5	40	48	70	116	141	211	1.30	●	
37	GHD-370-3D-FC40-Q11S	37	40	48	70	117	142	212	1.31	●	
37.5	GHD-375-3D-FC40-Q11S	37.5	40	48	70	118	144	214	1.34	●	
38	GHD-380-3D-FC40-Q11S	38	40	48	70	122	146	216	1.37	●	
38.5	GHD-385-3D-FC40-Q11S	38.5	40	48	70	122	148	218	1.40	●	
39	GHD-390-3D-FC40-Q11S	39	40	48	70	125	149	219	1.42	●	
39.5	GHD-395-3D-FC40-Q11S	39.5	40	48	70	124	151	221	1.43	●	
40	GHD-400-3D-FC40-Q11S	40	40	48	70	126	153	223	1.45	●	

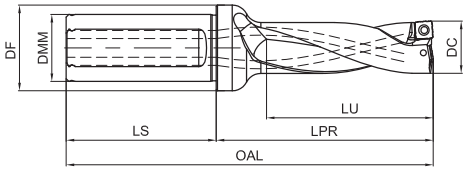
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-3D

GHDS-3D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
40.5	GHD-405-3D-FC40-Q13S	40.5	40	48	70	126	155	225	1.91	●	QPMG130408
41	GHD-410-3D-FC40-Q13S	41	40	48	70	129	157	227	1.91	●	
41.5	GHD-415-3D-FC40-Q13S	41.5	40	48	70	132	156	226.1	1.91	●	
42	GHD-420-3D-FC40-Q13S	42	40	48	70	133	160	230	1.91	●	
42.5	GHD-425-3D-FC40-Q13S	42.5	40	48	70	133	162	232	1.91	●	
43	GHD-430-3D-FC40-Q13S	43	40	48	70	135	164	234	1.91	●	
43.5	GHD-435-3D-FC40-Q13S	43.5	40	48	70	136	166	236	1.91	●	
44	GHD-440-3D-FC40-Q13S	44	40	48	70	137	167	237	1.91	●	
44.5	GHD-445-3D-FC40-Q13S	44.5	40	48	70	139	170	240	1.91	●	
45	GHD-450-3D-FC40-Q13S	45	40	48	70	142	172	242	1.79	●	
45.5	GHD-455-3D-FC40-Q15S	45.5	40	48	70	143	174	244	1.79	○	QPMG150512
46	GHD-460-3D-FC40-Q15S	46	40	48	70	146	176	246	1.79	●	
46.5	GHD-465-3D-FC40-Q15S	46.5	40	48	70	150	178	248	1.79	○	
47	GHD-470-3D-FC40-Q15S	47	40	48	70	152	179	249	1.79	○	
47.5	GHD-475-3D-FC40-Q15S	47.5	40	48	70	155	181	251	1.79	○	
48	GHD-480-3D-FC40-Q15S	48	40	48	70	159	183	253	1.79	●	

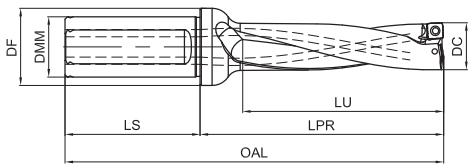
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-4D

GHDS-4D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
14	GHD-140-4D-FC20-Q04S	14	20	25	50	59	72	122	0.17	●	QPMG040204
14.5	GHD-145-4D-FC20-Q04S	14.5	20	25	50	63	75	125	0.18	●	
15	GHD-150-4D-FC20-Q04S	15	20	25	50	64	77	127	0.19	●	
15.5	GHD-155-4D-FC20-Q04S	15.5	20	25	50	66	79	129	0.19	●	
16	GHD-160-4D-FC20-Q05S	16	20	25	50	67	82	132	0.19	●	QPMG050204
16.5	GHD-165-4D-FC20-Q05S	16.5	20	25	50	70	84	134	0.20	●	
17	GHD-170-4D-FC25-Q05S	17	25	32	56	71	86	142	0.31	●	
17.5	GHD-175-4D-FC25-Q05S	17.5	25	32	56	74	89	145	0.22	●	
18	GHD-180-4D-FC25-Q05S	18	25	32	56	76	91	147	0.32	●	
18.5	GHD-185-4D-FC25-Q05S	18.5	25	32	56	78	93	149	0.33	●	
19	GHD-190-4D-FC25-Q06S	19	25	32	56	79	95	151	0.34	●	QPMG060204
19.5	GHD-195-4D-FC25-Q06S	19.5	25	32	56	83	99	155	0.35	●	
20	GHD-200-4D-FC25-Q06S	20	25	32	56	84	101	157	0.36	●	
20.5	GHD-205-4D-FC25-Q06S	20.5	25	32	56	87	103	159	0.37	●	
21	GHD-210-4D-FC25-Q06S	21	25	32	56	88	105	161	0.37	●	
21.5	GHD-215-4D-FC25-Q06S	21.5	25	32	56	90	107	163	0.38	●	
22	GHD-220-4D-FC25-Q06S	22	25	32	56	92	109	165	0.39	●	
22.5	GHD-225-4D-FC25-Q06S	22.5	25	32	56	95	112	168	0.40	●	
23	GHD-230-4D-FC25-Q07S	23	25	32	56	99	114	170	0.39	●	QPMG07T306
23.5	GHD-235-4D-FC25-Q07S	23.5	25	32	56	102	117	173	0.41	●	
24	GHD-240-4D-FC25-Q07S	24	25	32	56	101	119	175	0.44	●	
24.5	GHD-245-4D-FC25-Q07S	24.5	25	32	56	104	122	178	0.45	●	
25	GHD-250-4D-FC25-Q07S	25	25	32	56	104	124	180	0.47	●	
25.5	GHD-255-4D-FC32-Q07S	25.5	32	40	60	107	126	186	0.68	●	
26	GHD-260-4D-FC32-Q07S	26	32	40	60	108	128	188	0.70	●	
26.5	GHD-265-4D-FC32-Q07S	26.5	32	40	60	110	130	190	0.71	●	
27	GHD-270-4D-FC32-Q07S	27	32	40	60	112	132	192	0.74	●	

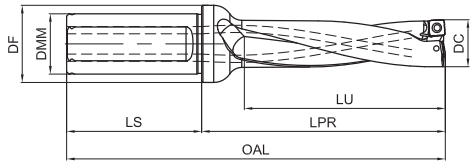
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-4D

GHDS-4D Indexable Drills



Dia.	Drilling body	Dimension (mm)							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
27.5	GHD-275-4D-FC32-Q09S	27.5	32	40	60	113	135	195	0.75	●	QPMG09T308
28	GHD-280-4D-FC32-Q09S	28	32	40	60	115	137	197	0.73	●	
28.5	GHD-285-4D-FC32-Q09S	28.5	32	40	60	118	139	199	0.76	●	
29	GHD-290-4D-FC32-Q09S	29	32	40	60	120	141	201	0.79	●	
29.5	GHD-295-4D-FC32-Q09S	29.5	32	40	60	123	144	204	0.81	●	
30	GHD-300-4D-FC32-Q09S	30	32	40	60	125	147	207	0.83	●	
30.5	GHD-305-4D-FC32-Q09S	30.5	32	40	60	126	148	208	0.85	○	
31	GHD-310-4D-FC40-Q09S	31	40	48	70	129	152	222	1.19	●	
31.5	GHD-315-4D-FC40-Q09S	31.5	40	48	70	131	154	224	1.21	○	
32	GHD-320-4D-FC40-Q09S	32	40	48	70	134	156	226	1.23	●	
32.5	GHD-325-4D-FC40-Q09S	32.5	40	48	70	137	159	229	1.25	●	
33	GHD-330-4D-FC40-Q09S	33	40	48	70	138	161	231	1.30	●	
33.5	GHD-335-4D-FC40-Q11S	33.5	40	48	70	142	163	233	1.32	●	QPMG110408
34	GHD-340-4D-FC40-Q11S	34	40	48	70	142	165	235	1.32	●	
34.5	GHD-345-4D-FC40-Q11S	34.5	40	48	70	142	168	238	1.35	○	
35	GHD-350-4D-FC40-Q11S	35	40	48	70	146	170	240	1.38	●	
35.5	GHD-355-4D-FC40-Q11S	35.5	40	48	70	146	173	243	1.41	○	
36	GHD-360-4D-FC40-Q11S	36	40	48	70	150	175	245	1.43	●	
36.5	GHD-365-4D-FC40-Q11S	36.5	40	48	70	152	177	247	1.46	○	
37	GHD-370-4D-FC40-Q11S	37	40	48	70	154	179	249	1.54	●	
37.5	GHD-375-4D-FC40-Q11S	37.5	40	48	70	158	182	252	1.57	●	
38	GHD-380-4D-FC40-Q11S	38	40	48	70	157	184	254	1.59	●	
38.5	GHD-385-4D-FC40-Q11S	38.5	40	48	70	160	186	256	1.62	○	
39	GHD-390-4D-FC40-Q11S	39	40	48	70	165	188	258	1.66	●	
39.5	GHD-395-4D-FC40-Q11S	39.5	40	48	70	166	191	261	1.70	●	
40	GHD-400-4D-FC40-Q11S	40	40	48	70	164	193	263	1.71	●	

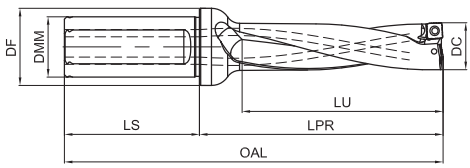
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-4D

GHDS-4D Indexable Drills



Dia.	Drilling body	Dimension (mm)							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
40.5	GHD-405-4D-FC40-Q13S	40.5	40	48	70	167	195	265	1.91	○	QPMG130408
41	GHD-410-4D-FC40-Q13S	41	40	48	70	169	198	268	1.91	○	
41.5	GHD-415-4D-FC40-Q13S	41.5	40	48	70	171	200	270	1.91	○	
42	GHD-420-4D-FC40-Q13S	42	40	48	70	174	202	272	1.91	○	
42.5	GHD-425-4D-FC40-Q13S	42.5	40	48	70	175	204	274	1.91	○	
43	GHD-430-4D-FC40-Q13S	43	40	48	70	177	207	277	1.91	○	
43.5	GHD-435-4D-FC40-Q13S	43.5	40	48	70	179	209	279	1.91	○	
44	GHD-440-4D-FC40-Q13S	44	40	48	70	181	211	281	1.91	●	

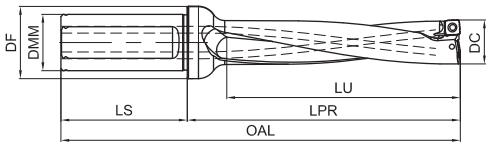
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-5D

GHDS-5D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
14	GHD-140-5D-FC20-Q04S	14	20	25	50	73	86	136	0.18	●	QPMG040204
14.5	GHD-145-5D-FC20-Q04S	14.5	20	25	50	77	90	140	0.19	●	
15	GHD-150-5D-FC20-Q04S	15	20	25	50	79	92	142	0.20	●	
15.5	GHD-155-5D-FC20-Q04S	15.5	20	25	50	81	95	145	0.20	●	
16	GHD-160-5D-FC20-Q05S	16	20	25	50	83	98	148	0.20	●	QPMG050204
16.5	GHD-165-5D-FC20-Q05S	16.5	20	25	50	87	101	151	0.21	●	
17	GHD-170-5D-FC25-Q05S	17	25	32	56	90	104	160	0.33	●	
17.5	GHD-175-5D-FC25-Q05S	17.5	25	32	56	93	107	163	0.34	●	
18	GHD-180-5D-FC25-Q05S	18	25	32	56	94	109	165	0.34	●	
18.5	GHD-185-5D-FC25-Q05S	18.5	25	32	56	97	112	168	0.35	●	
19	GHD-190-5D-FC25-Q06S	19	25	32	56	99	114	170	0.36	●	QPMG060204
19.5	GHD-195-5D-FC25-Q06S	19.5	25	32	56	103	118	174	0.37	●	
20	GHD-200-5D-FC25-Q06S	20	25	32	56	104	121	177	0.39	●	
20.5	GHD-205-5D-FC25-Q06S	20.5	25	32	56	107	124	180	0.40	●	
21	GHD-210-5D-FC25-Q06S	21	25	32	56	109	126	182	0.40	●	
21.5	GHD-215-5D-FC25-Q06S	21.5	25	32	56	112	129	185	0.41	●	
22	GHD-220-5D-FC25-Q06S	22	25	32	56	113	131	187	0.42	●	
22.5	GHD-225-5D-FC25-Q06S	22.5	25	32	56	116	134	190	0.43	●	
23	GHD-230-5D-FC32-Q07S	23	32	40	60	120	138	198	0.63	●	QPMG07T306
23.5	GHD-235-5D-FC32-Q07S	23.5	32	40	60	122	140	200	0.64	●	
24	GHD-240-5D-FC32-Q07S	24	32	40	60	124	143	203	0.67	●	
24.5	GHD-245-5D-FC32-Q07S	24.5	32	40	60	127	146	206	0.69	●	
25	GHD-250-5D-FC32-Q07S	25	32	40	60	129	149	209	0.71	●	
25.5	GHD-255-5D-FC32-Q07S	25.5	32	40	60	133	153	213	0.73	●	
26	GHD-260-5D-FC32-Q07S	26	32	40	60	137	157	217	0.76	●	
26.5	GHD-265-5D-FC32-Q07S	26.5	32	40	60	138	158	218	0.77	●	
27	GHD-270-5D-FC32-Q07S	27	32	40	60	139	159	219	0.81	●	

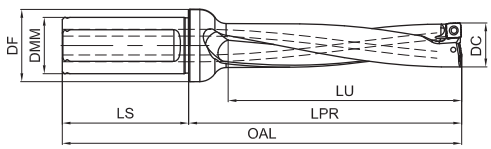
● Stock ○ Available upon Order

Unit(mm)

Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

GHDS-5D

GHDS-5D Indexable Drills



Dia.	Drilling body	Dimension（mm）							Weight (KG)	Stock	Insert
		DC	DMM	DF	LS	LU	LPR	OAL			
27.5	GHD-275-5D-FC32-Q09S	27.5	32	40	60	142	162	222	0.82	●	QPMG09T308
28	GHD-280-5D-FC32-Q09S	28	32	40	60	143	165	225	0.81	●	
28.5	GHD-285-5D-FC32-Q09S	28.5	32	40	60	147	169	229	0.83	●	
29	GHD-290-5D-FC32-Q09S	29	32	40	60	150	171	231	0.87	●	
29.5	GHD-295-5D-FC32-Q09S	29.5	32	40	60	153	174	234	0.89	●	
30	GHD-300-5D-FC32-Q09S	30	32	40	60	155	177	237	0.90	●	
30.5	GHD-305-5D-FC32-Q09S	30.5	32	40	60	158	180	240	0.93	●	
31	GHD-310-5D-FC40-Q09S	31	40	48	70	160	183	253	1.29	●	
31.5	GHD-315-5D-FC40-Q09S	31.5	40	48	70	163	186	256	1.31	●	
32	GHD-320-5D-FC40-Q09S	32	40	48	70	166	188	258	1.33	●	
32.5	GHD-325-5D-FC40-Q09S	32.5	40	48	70	170	192	262	1.37	●	
33	GHD-330-5D-FC40-Q09S	33	40	48	70	171	194	264	1.43	○	
33.5	GHD-335-5D-FC40-Q11S	33.5	40	48	70	175	199	269	1.43	○	QPMG110408
34	GHD-340-5D-FC40-Q11S	34	40	48	70	176	199	269	1.55	●	
34.5	GHD-345-5D-FC40-Q11S	34.5	40	48	70	176	199	269	1.55	○	
35	GHD-350-5D-FC40-Q11S	35	40	48	70	181	205	275	1.61	●	
35.5	GHD-355-5D-FC40-Q11S	35.5	40	48	70	182	205	275	1.61	○	
36	GHD-360-5D-FC40-Q11S	36	40	48	70	186	211	281	1.66	●	
36.5	GHD-365-5D-FC40-Q11S	36.5	40	48	70	189	214	284	1.66	○	
37	GHD-370-5D-FC40-Q11S	37	40	48	70	191	216	286	1.77	●	
37.5	GHD-375-5D-FC40-Q11S	37.5	40	48	70	195	220	290	1.77	○	
38	GHD-380-5D-FC40-Q11S	38	40	48	70	195	222	292	1.82	●	
38.5	GHD-385-5D-FC40-Q11S	38.5	40	48	70	198	225	295	1.82	○	
39	GHD-390-5D-FC40-Q11S	39	40	48	70	204	227	297	1.89	●	
39.5	GHD-395-5D-FC40-Q11S	39.5	40	48	70	207	233	303	1.89	○	
40	GHD-400-5D-FC40-Q11S	40	40	48	70	204	233	303	1.91	●	

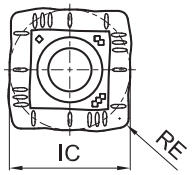
● Stock ○ Available upon Order

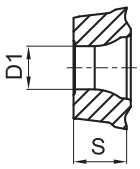
Unit(mm)

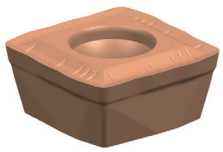
Nominal Size Range	2D-3D	4D-5D
14-30	-0.1/+0.25	-0.13/+0.28
30-40	-0.1/+0.28	-0.15/+0.3
40-48	-0.1/0.3	-0.17/+0.32

QPMG

QPMG Insert





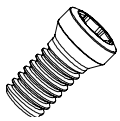
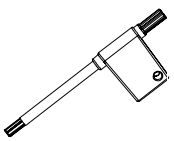


Insert Type	Grade			Dimension（mm）				Drilling Dia.
	GA4230	GM3220	GS4130	IC	S	RE	D1	
QPMG040204-DP	●	○	○	4.7	2.3	0.4	2.2	Φ14.0 ～ Φ15.9
QPMG050204-DP	●	●	●	5.7	2.5	0.4	2.6	Φ16.0 ～ Φ18.9
QPMG060204-DP	●	●	●	6.5	2.5	0.4	2.6	Φ19.0 ～ Φ22.5
QPMG07T306-DP	●	●	●	7.94	3.5	0.6	2.85	Φ22.6 ～ Φ27.0
QPMG09T308-DP	●	○	●	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
QPMG150512-DP	●	●	●	15.2	5.2	1.2	5.5	Φ45.1 ～ Φ51

GA4230- Universal Grade
GM3220 - For stainless steel
GS4130-Suitable for HRSA Material, and unstable conditions

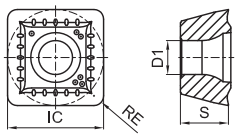
● Stock ○ Available upon order

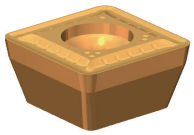
Spare Parts

Insert	Screw		Wrench		
	Ordering Code	Diagram	Ordering Code	Diagram	Torque Force
QPMG040204	PSI60M020050-02704B		PTT05IPB		0.6
QPMG050204	PSI60M022055-03107B		PTT06IPB		0.8
QPMG060204	PSI60M022055-03107B		PTT06IPB		0.8
QPMG07T306	PSI60M025070-03509B		PTT07IPB		0.8
QPMG09T308	PSI60M030080-04210B		PTT09IPB		1.4
QPMG110408	PSI60M040100-05510B		PTT15IPB		2
QPMG130408	PSI60M040100-05510B		PTT15IPB		2
QPMG150512	PSI60M050110-07212B		PTT20IPB		3

SPMG

General Indexable Drilling Insert





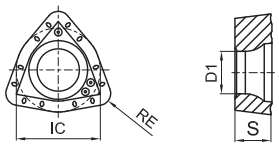
Insert Type	Dimension (mm)				Grade		Drilling Dia
	IC	S	D1	RE	GA4230	GS4130	
SPMG050204-DM	5	2.38	2.2	0.4	●	●	Φ13.0～Φ15.0
SPMG060204-DM	6	2.38	2.6	0.4	●	●	Φ15.5～Φ21.5
SPMG07T308-DM	7.94	3.97	2.8	0.8	●	●	Φ22.0～Φ27.5
SPMG090408-DM	9.8	4.3	4.2	0.8	●	●	Φ28.0～Φ33.0
SPMG110408-DM	11.5	4.76	4.4	0.8	●	●	Φ33.0～Φ41.0
SPMG140512-DM	14.3	5.2	5.8	1.2	●	●	Φ42.0～Φ50.0

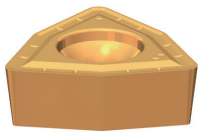
GA4230—General Grade
GS4130— Difficult to process material and unstable condition

● Stock ○ Available upon Order

WCMT

General Indexable Drilling Insert



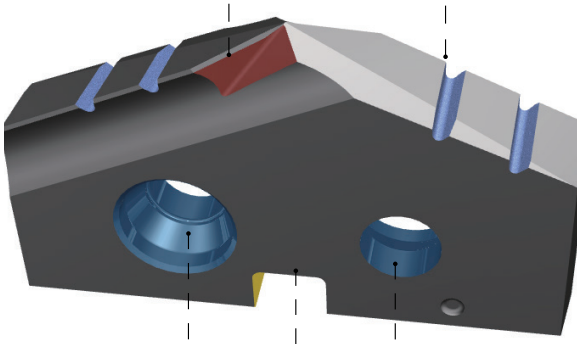


Insert Type	Dimension (mm)				Grade		Drilling Dia
	IC	S	D1	RE	GA4230	GS4130	
WCMT030208-DU	5.56	2.38	2.8	0.8	●	●	Φ15.0～Φ20.5
WCMT040208-DU	6.35	2.38	2.9	0.8	●	●	Φ21.0～Φ24.5
WCMT050308-DU	7.94	3.18	3.4	0.8	●	●	Φ25.0～Φ30.0
WCMT06T308-DU	9.52	3.97	3.8	0.8	●	●	Φ30.5～Φ39.5
WCMT080412-DU	12.7	4.76	4.4	1.2	●	●	Φ40.0～Φ60.0

GA4230—General Grade
GS4130— Difficult to process material and unstable condition

● Stock ○ Available upon Order

MCMG Spade Drilling insert



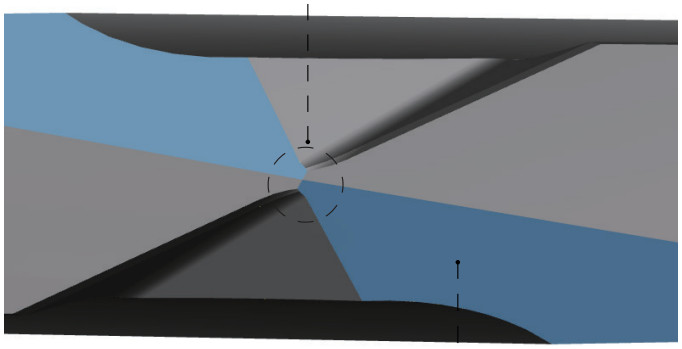
XR chisel edge regrinding
- Increase edge strength
- Enhance drilling stability

Chip dividing groove
- Reduce chip width
- Smaller drilling torque

Double screw hole
- Safe and reliable installation
- Ensure drilling stability

Locating slot
- Ensure radial accuracy

Drilling core
- Thin drilling core, effectively reduce axial resistance
- Better self-centering



Double flank surface of cutting tool
- Reduce the friction with the workpiece

Spade Drill Identification System

GSD – 125 – 08D - FC 20 - (S)

① ② ③ ④ ⑤ ⑥

①Drill Type	
GSD	Indexable Spade Drills

②Dia. of drill	
125	The dia. of insert place: Φ12.5mm

③Aspect Ratio	
08D	8D

④Shank type	
FC	Flange-Flat

⑤Shank Dia.	
20	Φ20.0mm

⑥Groove Type	
-	Helical Groove
S	Straight Groove

M C M G 0200 T3– DS– GM3225

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①Shape	
M	

②Relief Angle	
C	7°

③Tolerance
M

④Hole/Chipbreaker Symbol	
G	Double-sided

⑤Dia.	
0200	20.0mm

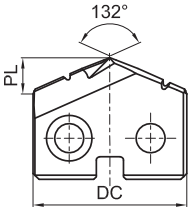
⑥Thickness	
T3	3.97mm

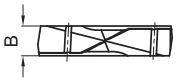
⑦Chip breaker Symbol
Indicates the cutting properties and chipbreakers

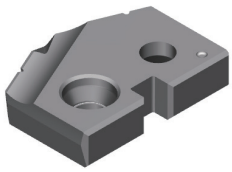
⑨Grade
GM3225

MCMG

MCMG Insert







Ordering Code	Dimension（mm）			Grade
	DC	B	PL	GM3225
MCMG013003-DS	13	3.18	2.86	●
MCMG013503-DS	13.5		2.97	●
MCMG014003-DS	14		3.08	●
MCMG014503-DS	14.5		3.19	●
MCMG015003-DS	15		3.3	●
MCMG015503-DS	15.5		3.41	●
MCMG016003-DS	16		3.52	●
MCMG016503-DS	16.5		3.63	●
MCMG017003-DS	17		3.74	●
MCMG017503-DS	17.5		3.85	●
MCMG0180T3-DS	18	3.97	3.96	●
MCMG0185T3-DS	18.5		4.07	●
MCMG0190T3-DS	19		4.18	●
MCMG0195T3-DS	19.5		4.29	●
MCMG0200T3-DS	20		4.4	●
MCMG0205T3-DS	20.5		4.51	●
MCMG0210T3-DS	21		4.62	●
MCMG0215T3-DS	21.5		4.73	●
MCMG0220T3-DS	22		4.84	●
MCMG0225T3-DS	22.5		4.95	●
MCMG0230T3-DS	23		5.06	●
MCMG0235T3-DS	23.5		5.17	●
MCMG0240T3-DS	24		5.28	●
MCMG0245T3-DS	24.5		5.39	●

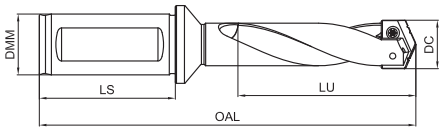
Ordering Code	Dimension（mm）			Grade
	DC	B	PL	GM3225
MCMG025004-DS	25	4.76	5.5	●
MCMG025504-DS	25.5		5.61	●
MCMG026004-DS	26		5.72	●
MCMG026504-DS	26.5		5.83	●
MCMG027004-DS	27		5.94	●
MCMG027504-DS	27.5		6.05	●
MCMG028004-DS	28		6.16	●
MCMG028504-DS	28.5		6.27	●
MCMG029004-DS	29		6.38	●
MCMG029504-DS	29.5		6.49	●
MCMG030004-DS	30		6.6	●
MCMG030504-DS	30.5		6.71	●
MCMG031004-DS	31		6.82	●
MCMG031504-DS	31.5		6.93	●
MCMG032004-DS	32		7.04	●
MCMG032504-DS	32.5		7.15	●
MCMG033004-DS	33		7.26	●
MCMG033504-DS	33.5		7.37	●
MCMG034004-DS	34		7.48	●
MCMG034504-DS	34.5		7.59	●
MCMG035004-DS	35		7.7	●
MCMG035504-DS	35.5		7.81	●
MCMG036004-DS	36		7.92	●

Note：Customized diameter available

● Stock ○ Available upon order

GSD

The Lateral Fixation Type Flange Shank and Helical Flute Holder

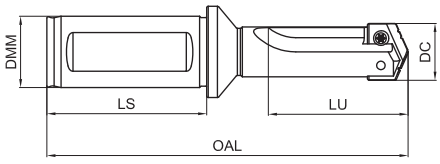


Ordering Code	Dimension (mm)					Weight (KG)	Stock	Screw	Wrench
	DC	LU	OAL	DMM	LS				
GSD-125-04D-FC20	13.0 ~ 15.0	63.5	142.1	20	50	0.24	●	PSI52M025060-03712C	PTT08PC
GSD-125-07D-FC20		114.3	192.9			0.27	●		
GSD-125-11D-FC20		177.8	256.4			0.32	○		
GSD-150-03D-FC20	15.5 ~ 17.5	63.5	142.1			0.27	●		
GSD-150-06D-FC20		114.3	192.9			0.31	●		
GSD-150-10D-FC20		177.8	256.4			0.37	●		
GSD-175-05D-FC25	18.0 ~ 21.5	117.5	210.8	25	56	0.51	●	PSI52M030075-04212C	PTT09PC
GSD-175-07D-FC25		168.3	261.6			0.57	●		
GSD-175-12D-FC25		269.9	363.2			0.75	●		
GSD-215-04D-FC25	22.0 ~ 24.5	117.5	210.8			0.60	○		
GSD-215-07D-FC25		168.3	261.6			0.69	●		
GSD-215-11D-FC25		269.9	363.2			0.94	●		
GSD-245-04D-FC32	25.0 ~ 29.0	136.5	239.4	32	60	0.93	●	PSI52M040095-05218C	PTT15PC
GSD-245-06D-FC32		187.3	290.2			1.05	●		
GSD-245-09D-FC32		288.9	391.8			1.41	○		
GSD-295-03D-FC32	30.0 ~ 36.0	136.5	239.4			1.07	○		
GSD-295-05D-FC32		187.3	290.2			1.28	●		
GSD-295-08D-FC32		288.9	391.8			1.75	○		

● Stock ○ Available upon order

GSD

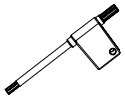
The Lateral Fixation Type Flange Shank and Straight Flute Holder



Ordering Code	Dimension（mm）					Weight (KG)	Stock	Screw	Wrench
	DC	LU	OAL	DMM	LS				
GSD-125-01D-FC20-S	13.0 ~ 15.0	22.2	97.6	20	50	0.22	○	PSI52M025060-03712C	PTT08PC
GSD-125-02D-FC20-S		34.9	113.5			0.23	●		
GSD-125-19D-FC20-S		295	373.9			0.47	○		
GSD-125-25D-FC20-S		387	466			0.52	○		
GSD-150-01D-FC20-S	15.5 ~ 17.5	22.2	97.6			0.23	○		
GSD-150-02D-FC20-S		34.9	113.5			0.24	○		
GSD-150-16D-FC20-S		295	373.9			0.56	○		
GSD-150-22D-FC20-S		387	466			0.64	○		
GSD-175-02D-FC25-S	18.0 ~ 21.5	47.6	131.8	25	56	0.39	○	PSI52M030075-04212C	PTT09PC
GSD-175-03D-FC25-S		66.7	163.2			0.54	●		
GSD-175-21D-FC25-S		457	550.5			0.98	○		
GSD-175-26D-FC25-S		569	658.5			0.96	○		
GSD-215-01D-FC25-S	22.0 ~ 24.5	47.6	131.8			0.43	○		
GSD-215-02D-FC25-S		66.7	163.2			0.49	●		
GSD-215-19D-FC25-S		457	550.5			1.29	○		
GSD-215-23D-FC25-S		569	658.5			1.34	○		
GSD-245-01D-FC32-S	25.0 ~ 29.0	57.2	148.5	32	60	0.75	○	PSI52M040095-05218C	PTT15PC
GSD-245-02D-FC32-S		85.7	188.6			1.01	○		
GSD-245-17D-FC32-S		511	614.1			1.92	○		
GSD-245-23D-FC32-S		692	795.1			2.07	○		
GSD-295-01D-FC32-S	30.0 ~ 36.0	57.2	148.5			0.84	○		
GSD-295-02D-FC32-S		85.7	188.6			0.95	●		
GSD-295-14D-FC32-S		511	614.1			2.23	○		
GSD-295-19D-FC32-S		692	795.1			2.83	○		

● Stock ○ Available upon order

Spare Parts

Dia of Insert	Screw		Wrench		
	Ordering Code	Diagram	Ordering Code	Diagram	Torque Force
Φ13.0 – Φ17.5	PSI52M025060-03712C		PTT08PC		1
Φ18.0 – Φ24.5	PSI52M030075-04212C		PTT09PC		1
Φ25.0 – Φ36.0	PSI52M040095-05218C		PTT15PC		1.5

Recommended Cutting Data

GUMD Indexable Drill

Workpiece Materials		Cutting Speed Vc(m/min)	Diameter(mm)				
			Ø11	Ø13	Ø15	Ø18	Ø21
P	Low Carbon Steel,Long Chipping（< 125HB）	60 -100-140	0.14-0.2-0.28	0.16-0.24-0.3	0.18-0.26-0.33	0.20-0.28-0.35	0.25-0.34-0.42
	Low Carbon Steel, Short Chip, Automatic Steel（< 125HB）	60 -100- 140	0.14-0.2-0.28	0.16-0.24-0.3	0.18-0.26-0.33	0.20-0.28-0.35	0.25-0.34-0.42
	High Carbon Steels, Medium-carbon Steels（< 25HRC）	60-80-120	0.14-0.2-0.28	0.16-0.24-0.3	0.18-0.26-0.33	0.20-0.28-0.35	0.25-0.34-0.42
	Alloy Steels，Tool Steels（< 35HRC）	60-80-110	0.14-0.2-0.24	0.16-0.22-0.26	0.16-0.22-0.26	0.18-0.24-0.28	0.18-0.26-0.30
	Alloy Steels，Tool Steels (35-48HRC)	35-60-90	0.10-0.14-0.18	0.12-0.16-0.20	0.12-0.16-0.20	0.14-0.18-0.22	0.14-0.18-0.22
	PH and Ferrite/Martensitic Steel（< 35HRC）	30-60-90	0.10-0.14-0.18	0.12-0.16-0.20	0.12-0.16-0.20	0.14-0.18-0.22	0.14-0.18-0.22
	High-Strength PH and Ferrite/Martensitic Steel (35-48HRC)	30-50-80	0.10-0.14-0.18	0.12-0.16-0.20	0.12-0.16-0.20	0.14-0.18-0.22	0.14-0.18-0.22
M	Austenitic Stainless Steel (130- 200HB)	40-60-80	0.12-0.16-0.18	0.13-0.16-0.2	0.14-0.18-0.24	0.14-0.2-0.26	0.15-0.22-0.3
	Strength Austenitic /Cast Stainless Steel（<25HRC）	40-60-80	0.08-0.1-0.13	0.09-0.11-0.13	0.10-0.12-0.14	0.10-0.12-0.14	0.12-0.14-0.16
	Duplex Stainless Steel (<30HRC)	30-45-60	0.08-0.1-0.13	0.09-0.11-0.13	0.10-0.12-0.14	0.10-0.12-0.14	0.12-0.14-0.16
K	(Gray Cast Iron (<32HRC)	60-120-160	0.14-0.22-0.28	0.14-0.26-0.35	0.18-0.28-0.38	0.2-0.3-0.4	0.22-0.32-0.45
	Cast Iron Alloy with Medium Process, Ductile Cast Iron（<28HRC)	60-100-140	0.14-0.2-0.25	0.14-0.22-0.3	0.16-0.26-0.35	0.18-0.3-0.4	0.2-0.3-0.42
	Hard to Process High Alloy Cast Iron Ductile Cast Iron (<45HRC)	50-80-100	0.10-0.14-0.16	0.12-0.15-0.18	0.14-0.18-0.20	0.16-0.2-0.22	0.18-0.22-0.24

Recommended Cutting Data

Indexable Drill

Workpiece		Cutting Speed Vc (m/min)	Feed (mm/rev) *According to the drills diameter			
			Φ14.0 – 22.5	Φ23.0 – 27.0	Φ27.5 – 33.0	Φ33.5 – 51.0
P	Low carbon steel, Long Chip（< 125HB）	160—240—300	0.04-0.06	0.04-0.06	0.04-0.08	0.04-0.08
	Low Carbon Steel, Short Chip, Automatic Steel（< 125HB）	140—180—220	0.04-0.10	0.04-0.12	0.06-0.16	0.08-0.18
	High Carbon Steel and Medium Carbon Steel（< 25HRC）	140—180—220	0.04-0.10	0.04-0.12	0.06-0.16	0.08-0.18
	Alloy Steel, Tool Steel（< 35HRC）	100—160—200	0.04-0.10	0.06-0.12	0.08-0.16	0.08-0.18
	Alloy Steel, Tool Steel (35-48HRC)	80—160—200	0.04-0.10	0.06-0.12	0.08-0.16	0.08-0.18
	PH and Ferritic, Martensitic Steel（< 35HRC）	80—160—200	0.03-0.08	0.04-0.12	0.08-0.14	0.08-0.16
	High Strength PH and Ferritic,Martensitic Steel（35-48HRC）	60—140—180	0.03-0.08	0.04-0.12	0.06-0.14	0.06-0.16
M	Austenitic Stainless Steel (130- 200HB)	100—140—200	0.04-0.10	0.06-0.12	0.06-0.14	0.06-0.16
	Strength Austenitic /Cast Stainless Steel（< 25HRC）	60—140—180	0.03-0.08	0.04-0.12	0.06-0.14	0.06-0.16
	Duplex Stainless Steel (<30HRC)	60—140—180	0.03-0.08	0.04-0.12	0.06-0.14	0.06-0.16
K	Gray Cast Iron (<32HRC)	140—180—230	0.04-0.10	0.06-0.14	0.06-0.16	0.08-0.20
	Cast Iron Alloy with Medium Process, Ductile Cast Iron (<28HRC)	120—160—200	0.04-0.10	0.06-0.14	0.06-0.16	0.08-0.20
	Hard to Process High Alloy Cast Iron Ductile Cast Iron（< 45HRC）	100—160—200	0.04-0.10	0.06-0.12	0.08-0.16	0.08-0.18
S	Nickel Base /Iron Base/ cobalt Base Superalloy	30—50—80	0.03-0.06	0.04-0.08	0.04-0.10	0.06-0.12
	Titanium Base Superalloy	30—50—70	0.03-0.08	0.04-0.10	0.04-0.10	0.06-0.12

Recommended Cutting Data

GSD Spade Drills

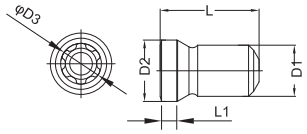
Workpiece		Cutting Speed Vc (m/min)	Feed (mm/rev) *According to the drills diameter		
			Ø13.0 – 17.5	Ø18.0 – 24.0	Ø25.0 – 35.0
P	Low Carbon Steel, Long Chip (< 125HB)	80—100—120	0.14-0.26	0.18-0.28	0.22-0.32
	Low Carbon Steel, Short Chip, Automatic Steel (< 125HB)	80—90—105	0.14-0.26	0.18-0.28	0.22-0.32
	High Carbon Steel and Medium Carbon Steel (< 25HRC)	60—80—100	0.12-0.18	0.16-0.24	0.22-0.30
	Alloy Steel, Tool Steel (< 35HRC)	60—80—100	0.12-0.16	0.16-0.22	0.22-0.28
	Alloy Steel, Tool Steel (35-48HRC)	50—70—90	0.12-0.16	0.15-0.20	0.20-0.25
	PH and Ferritic, Martensitic Steel (< 35HRC)	40—60—70	0.12-0.16	0.16-0.20	0.18-0.25
	High Strength PH and Ferritic, Martensitic Steel (35-48HRC)	30—50—80	0.10-0.14	0.14-0.20	0.16-0.22
M	Austenitic Stainless Steel (130- 200HB)	30—40—50	0.08-0.14	0.12-0.20	0.14-0.22
	Strength Austenitic /Cast Stainless Steel (< 25HRC)	20—40—50	0.08-0.14	0.12-0.20	0.14-0.22
	Duplex Stainless Steel (<30HRC)	20—40—50	0.08-0.14	0.12-0.20	0.14-0.22
K	Gray Cast Iron (<32HRC)	80—100—120	0.18-0.25	0.25-0.30	0.30-0.35
	Cast Iron Alloy with Medium Process, Ductile Cast Iron (<28HRC)	80—100—120	0.15-0.20	0.18-0.26	0.22-0.32
	Hard to Process High Alloy Cast Iron Ductile Cast Iron (< 45HRC)	60—80—100	0.15-0.20	0.18-0.26	0.22-0.32

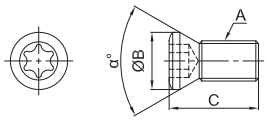
Holders with different length					
Cutting data	Length of different holders				
	Drilling depth < 8D	8D ⩾ Drilling depth < 12D	12D ⩾ Drilling depth < 16D	16D ⩾ Drilling depth < 20D	20D ⩾ Drilling depth
Cutting Speed	Refer to the above sheet	0.9	0.85	0.8	0.75
Feed	Refer to the above sheet	0.95		0.9	

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

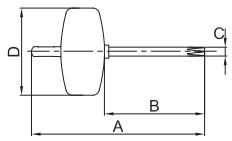
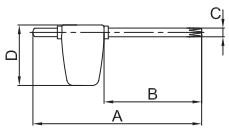
Indexable Drills Spare Parts Table

Screw

Shape	Ordering Code	Torque	Dimension					Suitable Tools
		N•m	D1(mm)	D2(mm)	D3(mm)	L(mm)	L1(mm)	
	PSCCM022038B	0.6	2.2	2.7	1.8	3.8	0.7	GUMD
	PSCCM025046B	0.9	2.5	3.0	2.0	4.6	0.9	GUMD
	PSCCM030058B	1.1	3.0	3.6	2.4	5.8	1.0	GUMD
	PSCCM035072B	1.3	3.5	4.0	2.6	7.2	1.7	GUMD

Shape	Ordering Code	Torque	Dimension				Suitable Tools
		N•m	A(mm)	ΦB(mm)	C(mm)	α°	
	PSI60M020050-02704B	0.6	2.0	2.7	5.0	60	GHDS
	PSI60M022055-03107B	0.8	2.2	3.1	5.5	60	GHDS
	PSI60M025070-03509B	0.8	2.5	3.5	7.0	60	GHDS
	PSI60M030080-04210B	1.4	3.0	4.2	8.0	60	GHDS
	PSI60M040100-05510B	2.0	4.0	5.5	10.0	60	GHDS
	PSI60M050110-07212B	3.0	5.0	7.2	11.0	60	GHDS
	PSI52M025060-03712C	1.0	2.5	3.7	6.0	52	GSD
	PSI52M030075-04212C	1.0	3.0	4.2	7.5	52	GSD
	PSI52M040095-05218C	1.5	4.0	5.2	9.5	52	GSD

Wrench

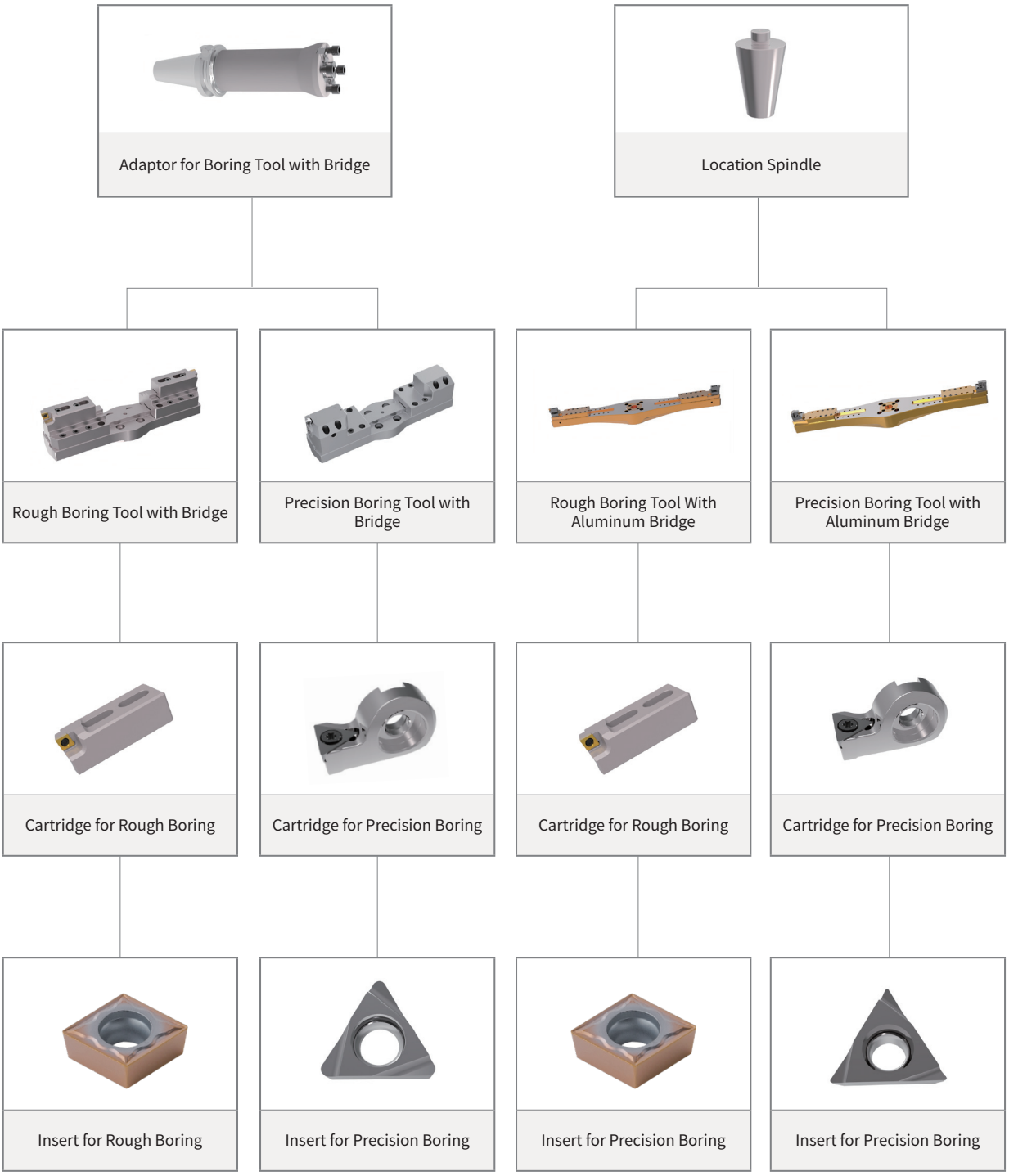
Shape	Ordering Code	Dimension				Suitable Tools
		A(mm)	B(mm)	C(mm)	D(mm)	
	PTI06KB	70	35	2	40	GUMD
	PTI07KB	70	35	2.5	40	GUMD
	PTI08KB	75	40	2.5	40	GUMD
	PTI09KB	75	75	3	40	GUMD
	PTT05IPB	67	35	2	15	GHDS、GUMD
	PTT06IPB	67	35	2	15	GHDS、GUMD
	PTT07IPB	67	35	2.5	19	GHDS、GUMD
	PTT08IPB	72	40	2.5	19	GUMD
	PTT09IPB	74	40	3	24	GHDS、GUMD
	PTT15IPB	80	45	3.5	28	GHDS
	PTT20IPB	80	45	4	28	GHDS
	PTT08PC	72	40	2.5	19	GSD
	PTT09PC	74	40	3	24	GSD
	PTT15PC	80	45	3.5	28	GSD

C

Boring Tools

Boring Tools Combination Description Table

Boring Tools Combination Description Table

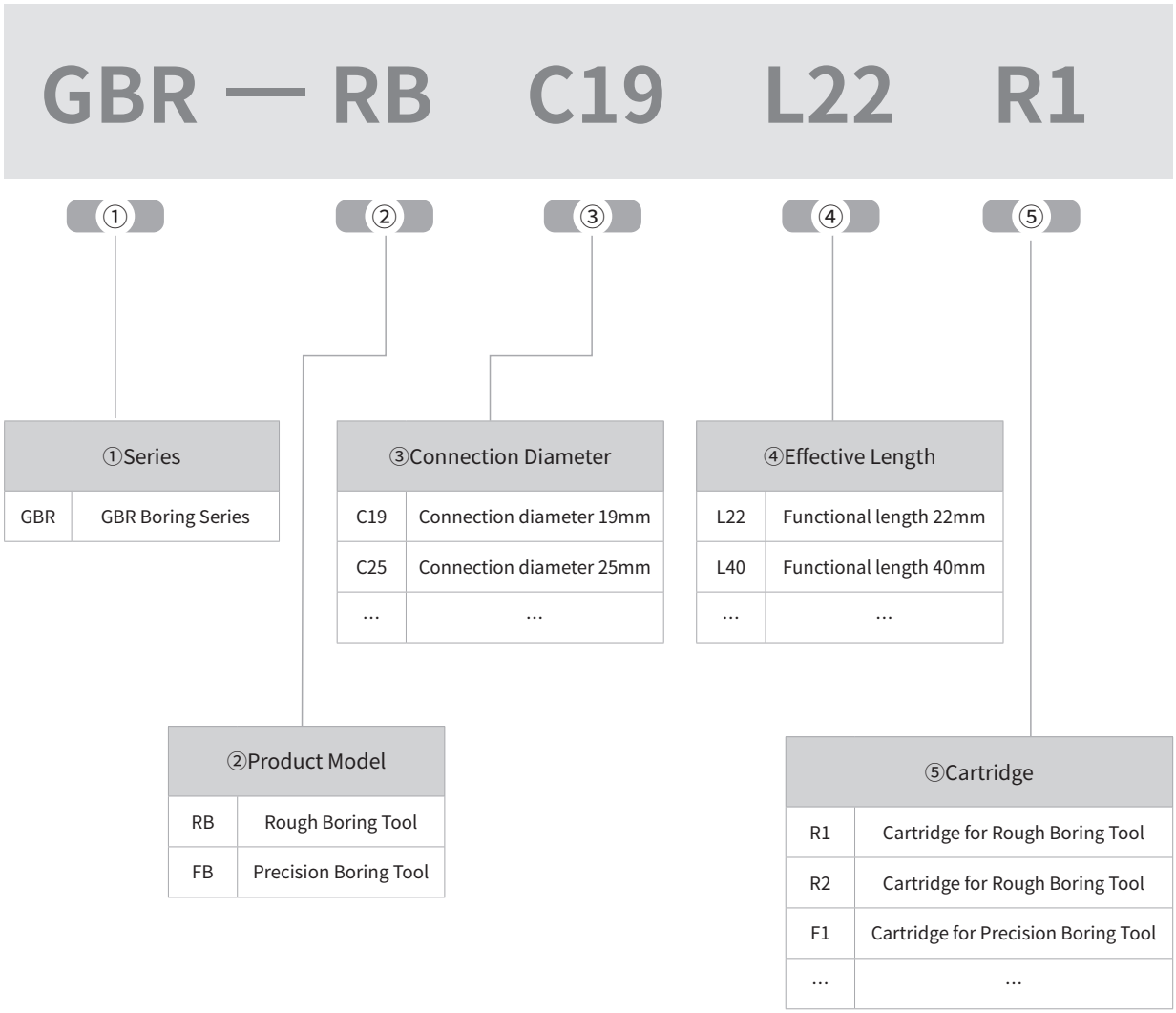


Boring Inserts Selection Table

Inserts	Ordering code	Corner Radius	Geometry		Grades	
			ap<2mm,f<0.2mm/r	ap<3mm,f<0.3mm/r	P/K	M/S
Insert for Rough Boring	CCMT060202	0.2	MM	GP	GM3225	GM3225/ GM3220
	CCMT060204	0.4	MM	GP		
	CCMT060208	0.8	MM	GP		
	CCMT09T302	0.2	MM	GP		
	CCMT09T304	0.4	MM	GP		
	CCMT09T308	0.8	MM	GP		
	CCMT120404	0.4	GP	GP		
	CCMT120408	0.8	GP	GP		
	TCMT110202	0.2	MM	GP		
	TCMT110204	0.4	MM	GP		
	TCMT110208	0.8	MM	GP		
	TCMT16T304	0.4	MM	GP		
	TCMT16T308	0.8	MM	GP		
	TCMT220408	0.8	GP	GP		
	SCMT09T304	0.4	MM	GP		
	SCMT09T304	0.4	MM	GP		
	SCMT09T308	0.8	MM	GP		
	SCMT120404	0.4	GP	GP		
	SCMT120408	0.8	GP	GP		

Inserts	Ordering code	Corner Radius	Geometry	Grades	
			ap<0.5mm，f<0.15mm/r	P/K	M/S
Insert for Precision Boring	TBGT060102	0.2	P	GAT7115/GAT7120/ GAT7125	
	TBGT060104	0.4	P		
	TPGH090202	0.2	P		
	TPGH090204	0.4	P		
	TPGH110301	0.1	P		
	TPGH110302	0.2	P		
	TPGH110304	0.4	P		
	CCGT060201	0.1	G		
	CCGT060202	0.2	G		
	CCGT060204	0.4	G		
	CCGT09T301	0.1	G		
	CCGT09T302	0.2	G		
	CCGT09T304	0.4	G		
Insert for Mini Precision Boring	TPGH090202	0.2	P		
	TPGH090204	0.4	P		
	TPGH110302	0.2	P		
	TPGH110304	0.4	P		
	WBGT060102	0.2	BRG	GAT7110B	
	WBGT060102	0.2	BRN	GNT7110B	
	WBGT060102	0.2	BRP	GPT7110B	

Boring Tools Identification System



①Series	
GBR	GBR Boring Series

③Connection Diameter	
C19	Connection diameter 19mm
C25	Connection diameter 25mm
…	…

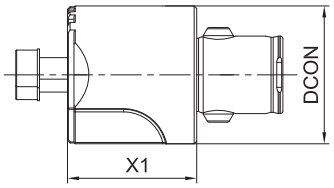
④Effective Length	
L22	Functional length 22mm
L40	Functional length 40mm
…	…

②Product Model	
RB	Rough Boring Tool
FB	Precision Boring Tool

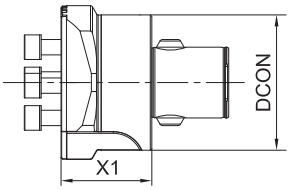
⑤Cartridge	
R1	Cartridge for Rough Boring Tool
R2	Cartridge for Rough Boring Tool
F1	Cartridge for Precision Boring Tool
…	…

Rough Boring Tool

RB



A



B

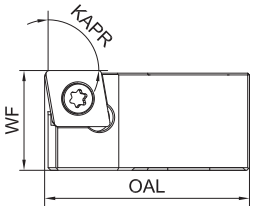
Ordering Code	Fig.	DCON (mm)	LF (mm)	Cutting Diameter for Boring (mm)	Cartridge for Boring	Cutting Diameter for Back Boring (mm)	Cartridge for Back Boring	Clamping Screw for Cartridge	Disk Spring	Allen Key for Adjusting Screw	Weight (kg)	Stock
GBR-RBC19L22R1	A	19	22	20-24	DZR1D020-024	30-35	DZFR1D030-035-CC0690	SCA-M040160-GBR	DSD4-GBR	TH30L-GBR	0.05	●
		19	22	23-27	DZR1D023-027			SCA-M040160-GBR	DSD4-GBR	TH30L-GBR	0.05	
GBR-RBC25L25R2	A	25	25	26-35	DZR2D026-035	33-41	DZFR2D033-041-CC0690	SCA-M040160-GBR	DSD4-GBR	TH30L-GBR	0.09	●
						40-48	DZFR2D040-048-CC0690	SCA-M040160-GBR	DSD4-GBR	TH30L-GBR	0.09	
GBR-RBC32L30R3	A	32	30	33-41	DZR3D033-041	42-52	DZFR3D042-052-CC0690	SCA-M050160-GBR	DSD5-GBR	TH40L-GBR	0.19	●
						51-61	DZFR3D051-061-CC0690	SCA-M050160-GBR	DSD5-GBR	TH40L-GBR	0.19	
GBR-RBC40L30R4	A	40	30	41-55	DZR4D041-055	-	-	SCA-M060200-GBR	DSD6-GBR	TH50L-GBR	0.25	●
GBR-RBC40L52R4	A	40	52	41-55	DZR4D041-055	53-65	DZFR4D053-065-CC0990	SCA-M060200-GBR	DSD6-GBR	TH50L-GBR	0.47	●
						64-76	DZFR4D064-076-CC0990	SCA-M060200-GBR	DSD6-GBR	TH50L-GBR	0.47	
GBR-RBC50L57R5	A	50	57	55-70	DZR5D055-070	53-69	DZFR5D053-069-CC0990	SCA-M060200-GBR	DSD6-GBR	TH50L-GBR	0.86	●
						68-84	DZFR5D068-084-CC0990	SCA-M060200-GBR	DSD6-GBR	TH50L-GBR	0.86	
						83-99	DZFR5D083-099-CC0990	SCA-M060200-GBR	DSD6-GBR	TH50L-GBR	0.86	
GBR-RBC63L55R6	A	63	55	70-90	DZR6D070-090	68-89	DZFR6D068-089-CC0990	SCA-M080250-GBR	DSD8-GBR	TH60L-GBR	1.49	●
						88-109	DZFR6D088-109-CC0990	SCA-M080250-GBR	DSD8-GBR	TH60L-GBR	1.49	
GBR-RBC63L55R7	B	63	55	90-110	DZR7D090-110	88-110	DZFR7D088-110-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	1.73	●
						108-130	DZFR7D108-130-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	1.73	
GBR-RBC90L55R7	A	88	55	90-110	DZR7D090-110	88-110	DZFR7D088-110-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	2.77	●
						108-130	DZFR7D108-130-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	2.77	
GBR-RBC63L55R8	B	63	55	110-133	DZR8D110-133	108-132	DZFR8D108-132-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	2.03	●
		63	55	130-153	DZR8D130-153	128-152	DZFR8D128-152-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	2.03	
GBR-RBC90L55R8	B	88	55	110-133	DZR8D110-133	108-132	DZFR8D108-132-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	3.06	●
		88	55	130-153	DZR8D130-153	128-152	DZFR8D128-152-CC1290	SCA-M100300-GBR	DSD10-GBR	TH80L-GBR	3.06	

The cartridge should be ordered separately.
The adaptor should be ordered separately.

● Stock ○ Available upon Order

Cartridge for Rough Boring Tool

DZ

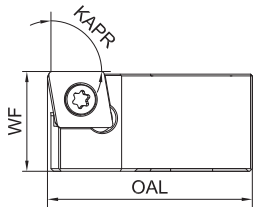


Ordering Code	Cutting Diameter (mm)	Cutting Edge Angle (°)	Functional Width (mm)	Overall Length (mm)	Insert	Clamping Screw for Adjusting Insert	Allen Key for Adjusting Screw	Clamping Screw for Insert	Allen Key for Clamping Screw	Weight (kg)	Stock
GBR-DZR1D020-024-CC0690	20-24	90	13.6	16	CCMT0602	SE-M025050-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	●
GBR-DZR1D023-027-CC0690	23-27	90	13.6	17	CCMT0602	SE-M025060-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	●
GBR-DZR2D026-035-CC0690	26-35	90	13.6	20	CCMT0602	SE-M025060-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	●
GBR-DZR3D033-041-CC0690	33-41	90	15	26	CCMT0602	SE-M030080-GBR	TH15L-GBR	SL-M025053-GBR	TT07P-GBR	0.02	●
GBR-DZR4D041-055-CC0990	41-55	90	18	32	CCMT09T3	SE-M030100-GBR	TH15L-GBR	SL-M040095-GBR	TT15P-GBR	0.03	●
GBR-DZR5D055-070-CC0990	55-70	90	18	45	CCMT09T3	SE-M040100-GBR	TH20L-GBR	SL-M040095-GBR	TT15P-GBR	0.05	●
GBR-DZR6D070-090-CC1290	70-90	90	30	59	CCMT1204	SE-M050120-GBR	TH25L-GBR	SL-M050128-GBR	TT20P-GBR	0.15	●
GBR-DZR7D090-110-CC1290	90-110	90	30	74	CCMT1204	SE-M050160-GBR	TH25L-GBR	SL-M050128-GBR	TT20P-GBR	0.21	●
GBR-DZR8D110-133-CC1290	110-133	90	30	85	CCMT1204	SE-M050160-GBR	TH25L-GBR	SL-M050128-GBR	TT20P-GBR	0.25	●
GBR-DZR8D130-153-CC1290	130-153	90	30	96	CCMT1204	SE-M050160-GBR	TH25L-GBR	SL-M050128-GBR	TT20P-GBR	0.3	●
GBR-DZR3D033-041-TC1190	33-41	90	15	26	TCMT1102	SE-M030080-GBR	TH15L-GBR	SW-M025060-GBR	TT08P-GBR	0.02	●
GBR-DZR4D041-055-TC1190	41-55	90	18	32	TCMT1102	SE-M030100-GBR	TH15L-GBR	SW-M025060-GBR	TT08P-GBR	0.03	●
GBR-DZR5D055-070-TC1190	55-70	90	18	45	TCMT1102	SE-M040100-GBR	TH20L-GBR	SW-M025060-GBR	TT08P-GBR	0.05	●
GBR-DZR6D070-090-TC1690	70-90	90	30	59	TCMT16T3	SE-M050120-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.15	●
GBR-DZR7D090-110-TC1690	90-110	90	30	74	TCMT16T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.21	●

● Stock ○ Available upon Order

Cartridge for Rough Boring Tool

DZ

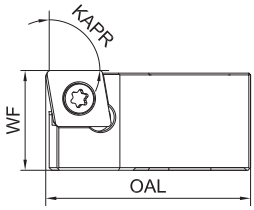


Ordering Code	Cutting Diameter (mm)	Cutting Edge Angle (°)	Functional Width (mm)	Overall Length (mm)	Insert	Clamping Screw for Adjusting Insert	Allen Key for Adjusting Screw	Clamping Screw for Insert	AllenKey for Clamping Screw	Weight (kg)	Stock
GBR-DZR8D110-133-TC1690	110-133	90	30	85	TCMT16T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.25	●
GBR-DZR8D130-153-TC1690	130-153	90	30	96	TCMT16T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.3	●
GBR-DZR1D023-027-CC0645	23-27	45	13.6	17	CCMT0602	SE-M025060-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	○
GBR-DZR2D026-035-CC0645	26-35	45	13.6	20	CCMT0602	SE-M025060-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	○
GBR-DZR3D033-041-CC0645	33-41	45	15	25	CCMT0602	SE-M030080-GBR	TH15L-GBR	SL-M025053-GBR	TT07P-GBR	0.02	○
GBR-DZR4D041-055-SC0945	41-55	45	18	30	SCMT09T3	SE-M030100-GBR	TH15L-GBR	SL-M040095-GBR	TT15P-GBR	0.03	○
GBR-DZR5D055-070-SC0945	55-70	45	30	45	SCMT09T3	SE-M040100-GBR	TH20L-GBR	SL-M040095-GBR	TT15P-GBR	0.04	○
GBR-DZR6D070-090-SC0945	70-90	45	30	59	SCMT09T3	SE-M050120-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.13	○
GBR-DZR7D090-110-SC0945	90-110	45	30	75	SCMT09T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.21	○
GBR-DZR8D110-133-SC0945	110-133	45	30	85	SCMT09T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.25	○
GBR-DZR8D130-153-SC0945	130-153	45	30	93	SCMT09T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.27	○

● Stock ○ Available upon Order

Cartridge for Rough Boring Tool

DZ

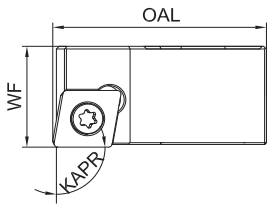


Ordering Code	Cutting Diameter (mm)	Cutting Edge Angle (°)	Functional Width (mm)	Overall Length (mm)	Insert	Clamping Screw for Adjusting Insert	Allen Key for Adjusting Screw	Clamping Screw for Insert	Allen Key for Clamping Screw	Weight (kg)	Stock
GBR-DZR1D026-030-CC0690	26-30	90	13.6	19	CCMT0602	SE-M025050-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	○
GBR-DZR2D033-042-CC0690	33-42	90	13.6	24	CCMT0602	SE-M025060-GBR	TH13L-GBR	SL-M025053-GBR	TT07P-GBR	0.01	○
GBR-DZR3D039-047-CC0990	39-47	90	15	29	CCMT09T3	SE-M030080-GBR	TH15L-GBR	SL-M040095-GBR	TT15P-GBR	0.02	○
GBR-DZR4D053-067-CC0990	53-67	90	18	38	CCMT09T3	SE-M030100-GBR	TH15L-GBR	SL-M040095-GBR	TT15P-GBR	0.05	○
GBR-DZR5D068-083-CC1290	68-83	90	20	52	CCMT1204	SE-M040100-GBR	TH20L-GBR	SL-M050128-GBR	TT20P-GBR	0.07	○
GBR-DZR6D088-108-CC1290	88-108	90	30	68	CCMT1204	SE-M050120-GBR	TH25L-GBR	SL-M050128-GBR	TT20P-GBR	0.19	○
GBR-DZR7D108-128-CC1290	108-128	90	30	83	CCMT1204	SE-M050160-GBR	TH25L-GBR	SL-M050128-GBR	TT20P-GBR	0.26	○
GBR-DZR2D033-042-TC1190	33-42	90	13.6	24	TCMT1102	SE-M025060-GBR	TH13L-GBR	SW-M025060-GBR	TT08P-GBR	0.01	○
GBR-DZR3D039-047-TC1190	39-47	90	15	29	TCMT1102	SE-M030080-GBR	TH15L-GBR	SW-M025060-GBR	TT08P-GBR	0.02	○
GBR-DZR4D053-067-TC1190	53-67	90	18	38	TCMT1102	SE-M030100-GBR	TH15L-GBR	SW-M025060-GBR	TT08P-GBR	0.05	○
GBR-DZR5D068-083-TC1690	68-83	90	20	52	TCMT16T3	SE-M040100-GBR	TH20L-GBR	SL-M040095-GBR	TT15P-GBR	0.07	○
GBR-DZR6D088-108-TC1690	88-108	90	30	68	TCMT16T3	SE-M050120-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.19	○
GBR-DZR7D108-128-TC1690	108-128	90	30	83	TCMT16T3	SE-M050160-GBR	TH25L-GBR	SL-M040095-GBR	TT15P-GBR	0.26	○

● Stock ○ Available upon Order

Cartridge for Rough Boring Tool for Back Boring

DZF

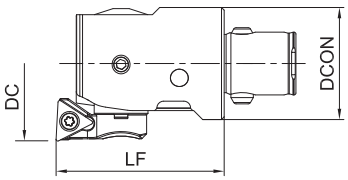


Ordering Code	Cutting Diameter (mm)	Cutting Edge Angle (°)	Functional Width (mm)	Overall Length (mm)	Insert	Clamping Screw for Insert	Allen Key for Clamping Screw	Weight (kg)	Stock
GBR-DZFR1D030-035-CC0690	30-35	90	10.3	21	CCMT0602	SL-M025053-GBR	TT07P-GBR	0.01	●
GBR-DZFR2D033-041-CC0690	33-41	90	10.3	23	CCMT0602	SL-M025053-GBR	TT07P-GBR	0.01	●
GBR-DZFR2D040-048-CC0690	40-48	90	10.3	26.6	CCMT0602	SL-M025053-GBR	TT07P-GBR	0.02	●
GBR-DZFR3D042-052-CC0690	42-52	90	10.3	30.2	CCMT0602	SL-M025053-GBR	TT07P-GBR	0.02	●
GBR-DZFR3D051-061-CC0690	51-61	90	10.3	35	CCMT0602	SL-M025053-GBR	TT07P-GBR	0.03	●
GBR-DZFR4D053-065-CC0990	53-65	90	16.6	36.6	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.06	●
GBR-DZFR4D064-076-CC0990	64-76	90	16.6	42.3	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.07	●
GBR-DZFR5D053-069-CC0990	53-69	90	16.6	45	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.06	●
GBR-DZFR5D068-084-CC0990	68-84	90	16.6	52.8	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.08	●
GBR-DZFR5D083-099-CC0990	83-99	90	16.6	62	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.1	●
GBR-DZFR6D068-089-CC0990	68-89	90	16.6	57.3	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.12	●
GBR-DZFR6D088-109-CC0990	88-109	90	16.6	67.3	CCMT09T3	SL-M040095-GBR	TT15P-GBR	0.16	●
GBR-DZFR7D088-110-CC1290	88-110	90	25.6	70.4	CCMT1204	SL-M050128-GBR	TT20P-GBR	0.25	●
GBR-DZFR7D108-130-CC1290	108-130	90	25.6	82.4	CCMT1204	SL-M050128-GBR	TT20P-GBR	0.31	●
GBR-DZFR8D108-132-CC1290	108-132	90	25.6	82.3	CCMT1204	SL-M050128-GBR	TT20P-GBR	0.29	●
GBR-DZFR8D128-152-CC1290	128-152	90	25.6	92.1	CCMT1204	SL-M050128-GBR	TT20P-GBR	0.36	●

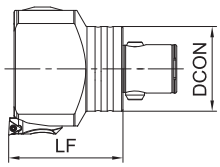
● Stock ○ Available upon Order

Precision Boring Tool

FB



A



B

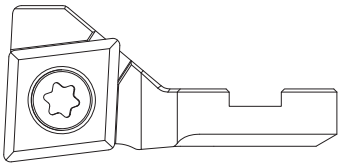
Ordering Code	Fig.	DCON (mm)	LF (mm)	Cutting Diameter for Boring (mm)	Cartridge for Boring	Cutting Diameter for Back Boring (mm)	Cartridge for Back Boring	Weight (kg)	Stock
GBR-FBC19L34F1	A	19	34	20-26	DZFBF1A	-	-	0.07	●
		19	34	25-31	DZFBF1B	-	-	0.07	
		19	34	30-36	DZFBF1C	30-36	DZFBF1C	0.07	
GBR-FBC25L37F2	A	25	37	26-34	DZFBF2A	-	-	0.13	●
		25	37	33-41	DZFBF2B	36-41	DZFBF2B	0.13	
		25	37	40-48	DZFBF2C	40-48	DZFBF2C	0.13	
GBR-FBC32L43F3	A	32	43	33-43	DZFBF3A			0.25	●
		32	43	42-52	DZFBF3B	47-52	DZFBF3B	0.25	
		32	43	51-61	DZFBF3C	51-61	DZFBF3C	0.25	
GBR-FBC40L48F4	A	40	48	42-54	DZFBF4A	-	-	0.45	●
		40	48	53-65	DZFBF4B			0.45	
		40	48	64-76	DZFBF4C			0.45	
GBR-FBC40L70F4	A	40	70	42-54	DZFBF4A	-	-	0.65	●
		40	70	53-65	DZFBF4B	55-65	DZFBF4B	0.65	
		40	70	64-76	DZFBF4C	64-76	DZFBF4C	0.65	
GBR-FBC50L75F5	A	50	75	53-69	DZFBF5A	62-69	DZFBF5A	1.12	●
		50	75	68-84	DZFBF5B	68-84	DZFBF5B	1.12	
		50	75	83-99	DZFBF5C	83-99	DZFBF5C	1.12	
GBR-FBC63L85F6	A	63	85	68-100	DZFBF6-F7A	80-100	DZFBF6-F7A	2.1	●
		63	85	98-130	DZFBF6-F7B	98-130	DZFBF6-F7B	2.1	
		63	85	128-160	DZFBF6-F7C	128-160	DZFBF6-F7C	2.1	
GBR-FBC63L85F7	B	63	85	100-152	DZFBF6-F7A	112-152	DZFBF6-F7A	2.97	●
		63	85	130-182	DZFBF6-F7B	130-182	DZFBF6-F7B	2.97	
		63	85	160-212	DZFBF6-F7C	160-212	DZFBF6-F7C	2.97	
GBR-FBC90L85F7	B	88	85	100-152	DZFBF6-F7A	112-152	DZFBF6-F7A	4.35	●
		88	85	130-182	DZFBF6-F7B	130-182	DZFBF6-F7B	4.35	
		88	85	160-212	DZFBF6-F7C	160-212	DZFBF6-F7C	4.35	

The cartridge should be ordered separately.
The adaptor should be ordered separately.
Rotating the tool on the anticlockwise direction for back boring.

● Stock ○ Available upon Order

Cartridge for Precision Boring Tool

DZFB



Ordering Code	Insert	Clamping Screw for Insert	Allen Key for Clamping Screw	Stock
GBR-DZFBF1ATB06	TBGT0601L	SW-M020037-GBR	TT06P-GBR	●
GBR-DZFBF1BTB06	TBGT0601L	SW-M020037-GBR	TT06P-GBR	●
GBR-DZFBF1CTB06	TBGT0601L	SW-M020037-GBR	TT06P-GBR	●
GBR-DZFBF2ATP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF2BTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF2CTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF3ATP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF3BTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF3CTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF4ATP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF4BTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF4CTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF5ATP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF5BTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF5CTP09	TPGH0902L	SJ-M025060-GBR	TT08P-GBR	●
GBR-DZFBF6-F7ATP11	TPGH1103L	SJ-M030080-GBR	TT08P-GBR	●
GBR-DZFBF6-F7BTP11	TPGH1103L	SJ-M030080-GBR	TT08P-GBR	●
GBR-DZFBF6-F7CTP11	TPGH1103L	SJ-M030080-GBR	TT08P-GBR	●
GBR-DZFBF2ACC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	●
GBR-DZFBF2BCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF2CCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF3ACC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	●
GBR-DZFBF3BCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF3CCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF4ACC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	●
GBR-DZFBF4BCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF4CCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF5ACC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	●
GBR-DZFBF5BCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF5CCC06	CCGT0602L	SL-M025053-GBR	TT07P-GBR	○
GBR-DZFBF6-F7ACC09	CCGT09T3L	SL-M040095-GBR	TT15P-GBR	●
GBR-DZFBF6-F7BCC09	CCGT09T3L	SL-M040095-GBR	TT15P-GBR	○
GBR-DZFBF6-F7CCC09	CCGT09T3L	SL-M040095-GBR	TT15P-GBR	○

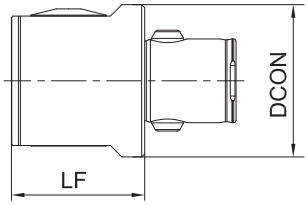
● Stock ○ Available upon Order

Spare Parts for Precision Boring Tool

Ordering Code	Lock Screw	Allen Key for Adjusting Screw	Clamping Screw for Dial	Clamping Screw for Cartridge	Allen key for Cartridge Clamping Screw
GBR-FBC19L34F1	STA-M040040-GBR	TH20L-GBR	SE-M040060xD2-GBR	SW-M040060-F-GBR	TT15P-GBR
GBR-FBC25L37F2	STA-M040060-GBR	TH20L-GBR	SE-M040060xD2-GBR	SW-M040080-F-GBR	TT15P-GBR
GBR-FBC32L43F3	STA-M050080-GBR	TH25L-GBR	SE-M050080xD2.5-GBR	SSB-M050100-GBR	TH30L-GBR
GBR-FBC40L48F4	STA-M060100-GBR	TH30L-GBR	SE-M060100xD3.2-GBR	SSB-M050120-GBR	TH30L-GBR
GBR-FBC40L70F4	STA-M060100-GBR	TH30L-GBR	SE-M060100xD3.2-GBR	SSB-M050120-GBR	TH30L-GBR
GBR-FBC50L75F5	STA-M060120-GBR	TH30L-GBR	SE-M060100xD3.2-GBR	SSB-M060160-GBR	TH40L-GBR
GBR-FBC63L85F6	STA-M100160-GBR	TH50L-GBR	SE-M100160xD6-GBR	SSB-M080200-GBR	TH50L-GBR
GBR-FBC63L85F7	STA-M100160-GBR	TH50L-GBR	SE-M100160xD6-GBR	SSB-M080250-GBR	TH50L-GBR
GBR-FBC90L85F7	STA-M100200-GBR	TH50L-GBR	SE-M100200xD6-GBR	SSB-M080250-GBR	TH50L-GBR

Mini Precision Boring Tool

MB



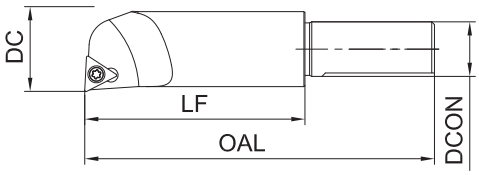
Ordering Code	DC (mm)	LF (mm)	DCON (mm)	DMM (mm)	Boring Handle	Clamping Screw for Insert	LOCK Screw	Allen Key for Adjusting Screw	Weight (kg)	Stock
GBR-MBD02-22-C40L35	2-22	35	40	10	MBC10-6+MB06	STA-M060100-GBR	STA-M060100-GBR	TH30L-GBR	0.35	●
					MB10	STA-M060100-GBR	STA-M060100-GBR	TH30L-GBR		
GBR-MBD06-50-C50L50	6-50	50	50	16	MB16	STA-M100160-GBR	STA-M100160-GBR	TH50L-GBR	1.09	●
GBR-MBD06-50-C63L50	6-50	50	63	16	MB16	STA-M100160-GBR	STA-M100160-GBR	TH50L-GBR	1.25	○

● Stock ○ Available upon Order

The boring handle should be ordered separately.
The adaptor should be ordered separately.

Mini Precision Boring Handle

MB

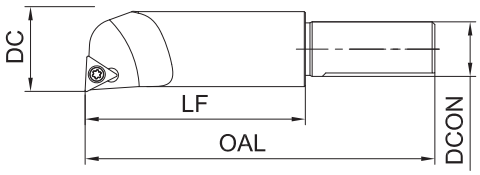


Ordering Code	DC (mm)	DCON (mm)	OAL (mm)	LF (mm)	Insert	Stock
GBR-MB10D06-08L23WB06	06-08	10	53	20	WBGT0601	●
GBR-MB10D08-10L25WB06	08-10	10	55	23	WBGT0601	●
GBR-MB10D10-12L30WB06	10-12	10	60	30	WBGT0601	●
GBR-MB10D12-14L36TP09	12-14	10	66	36	TPGH0902	●
GBR-MB10D14-16L42TP09	14-16	10	72	42	TPGH0902	●
GBR-MB10D16-18L48TP11	16-18	10	78	48	TPGH1103	●
GBR-MB10D18-20L54TP11	18-20	10	84	54	TPGH1103	●
GBR-MB10D20-22L60TP11	20-22	10	90	60	TPGH1103	●
GBR-MB16D06-08L23WB06	06-08	16	63	23	WBGT0601	●
GBR-MB16D08-11L28WB06	8-11	16	68	28	WBGT0601	●
GBR-MB16D10-13L36WB06	10-13	16	76	36	WBGT0601	●
GBR-MB16D12-16L50TP09	12-16	16	90	50	TPGH0902	●
GBR-MB16D15-21L60TP09	15-21	16	100	60	TPGH0902	●
GBR-MB16D20-26L64TP11	20-26	16	104	64	TPGH1103	●
GBR-MB16D25-31L64TP11	25-31	16	104	64	TPGH1103	●
GBR-MB16D30-36L72TP11	30-36	16	112	72	TPGH1103	●
GBR-MB16D35-41L72TP11	35-41	16	112	72	TPGH1103	●
GBR-MB16D40-46L72TP11	40-46	16	112	72	TPGH1103	●
GBR-MB16D44-50L72TP11	44-50	16	112	72	TPGH1103	●

● Stock ○ Available upon Order

Mini Anti-Vibration Precision Boring Handle

MB



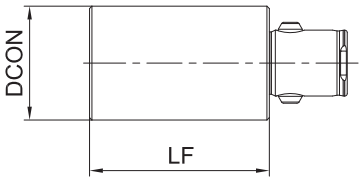
Ordering Code	DC (mm)	DCON (mm)	OAL (mm)	LF (mm)	Insert	Stock
GBR-MB06D02-03L10K	02-03	6	35	10	-	○
GBR-MB06D03-04L15K	03-04	6	40	15	-	○
GBR-MB06D04-06L20K	04-06	6	45	20	-	○
GBR-MB10D06-08L40WB06K	06-08	10	70	40	WBGT0601	○
GBR-MB10D08-10L60WB06K	08-10	10	90	60	WBGT0601	○
GBR-MB10D10-12L75WB06K	10-12	10	105	75	WBGT0601	○
GBR-MB16D06-08L45WB06K	06-08	16	85	45	WBGT0601	○
GBR-MB16D08-11L60WB06K	08-11	16	100	60	WBGT0601	○
GBR-MB16D10-13L75WB06K	10-13	16	115	75	WBGT0601	○
GBR-MB16D12-16L90TP09K	12-16	16	130	90	TPGH0902	○
GBR-MB16D15-21L110TP09K	15-21	16	150	110	TPGH0902	○

MOQ 5 pcs for D2-D6 solid carbide boring handle.
MB06E must be clamped by the reduction sleeve whose model is MBC10-6.

● Stock ○ Available upon Order

Extension

EX

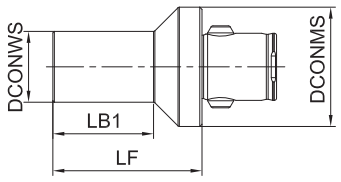


Ordering Code	DCON(mm)	LF(mm)	Weight(kg)	Stock
GBR-EXC19L20	19	20	0.04	●
GBR-EXC19L30	19	30	0.06	●
GBR-EXC25L30	25	30	0.1	●
GBR-EXC25L45	25	45	0.16	●
GBR-EXC32L30	32	30	0.17	●
GBR-EXC32L45	32	45	0.25	●
GBR-EXC40L45	40	45	0.39	●
GBR-EXC40L60	40	60	0.53	●
GBR-EXC50L60	50	60	0.83	●
GBR-EXC50L90	50	90	1.25	●
GBR-EXC63L60	63	60	1.32	●
GBR-EXC63L100	63	100	2.22	●
GBR-EXC90L105	88	105	4.59	●

● Stock ○ Available upon Order

Reduction

EX

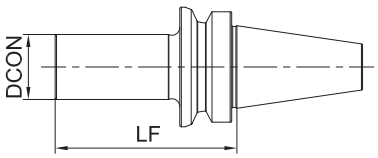


Ordering Code	DCONMS (mm)	DCONWS (mm)	LF (mm)	LB1 (mm)	Weight (kg)	Stock
GBR-EXC25-C19L40	25	19	40	26.5	0.1	●
GBR-EXC32-C19L40	32	19	40	27	0.14	●
GBR-EXC32-C25L35	32	25	35	22	0.16	●
GBR-EXC40-C19L50	40	19	50	35	0.25	●
GBR-EXC40-C25L50	40	25	50	38	0.28	●
GBR-EXC40-C32L50	40	32	50	38	0.32	●
GBR-EXC50-C19L60	50	19	60	40	0.38	●
GBR-EXC50-C25L50	50	25	50	33	0.4	●
GBR-EXC50-C25L80	50	25	80	63	0.51	●
GBR-EXC50-C32L50	50	32	50	33	0.54	●
GBR-EXC50-C32L80	50	32	80	63	0.64	●
GBR-EXC50-C40L40	50	40	40	23	0.47	●
GBR-EXC50-C40L70	50	40	70	53	0.82	●
GBR-EXC63-C19L70	63	19	70	36	0.84	●
GBR-EXC63-C25L70	63	25	70	54	0.69	●
GBR-EXC63-C25L95	63	25	95	79	0.98	●
GBR-EXC63-C32L60	63	32	60	44	0.75	●
GBR-EXC63-C32L90	63	32	90	74	1.12	●
GBR-EXC63-C40L50	63	40	50	34	0.8	●
GBR-EXC63-C40L85	63	40	85	69	1.28	●
GBR-EXC63-C50L40	63	50	40	24	0.92	●
GBR-EXC63-C50L75	63	50	75	59	1.33	●
GBR-EXC90-C63L105	88	63	105	88	3.1	●

● Stock ○ Available upon Order

Adaptor

BT30/40/50



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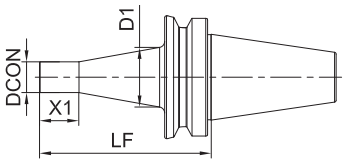


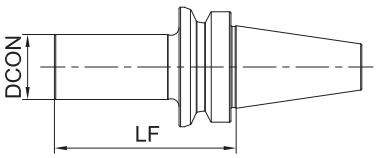
B

Ordering Code	Fig.	ISO	D1(mm)	DCON(mm)	LF(mm)	X1(mm)	Pull Nail	Weight(kg)	Stock
GBR-BT30-C19L70	B	30	31	19	70	38	M12	0.49	●
GBR-BT30-C25L70	A	30	-	25	70	-	M12	0.52	●
GBR-BT30-C32L75	A	30	-	32	75	-	M12	0.64	●
GBR-BT30-C40L50	A	30	-	40	50	-	M12	0.55	●
GBR-BT30-C50L50	A	30	-	50	50	-	M12	0.65	●
GBR-BT40-C19L70	B	40	31	19	70	38	M16	1.07	●
GBR-BT40-C25L50	A	40	-	25	50	-	M16	1.01	●
GBR-BT40-C25L85	A	40	-	25	85	-	M16	1.14	●
GBR-BT40-C25L100	A	40	-	25	100	-	M16	1.16	●
GBR-BT40-C32L50	A	40	-	32	50	-	M16	1.05	●
GBR-BT40-C32L90	A	40	-	32	90	-	M16	1.28	●
GBR-BT40-C32L115	A	40	-	32	115	-	M16	1.4	●
GBR-BT40-C40L50	A	40	-	40	50	-	M16	1.09	●
GBR-BT40-C40L100	A	40	-	40	100	-	M16	1.54	●
GBR-BT40-C40L140	A	40	-	40	140	-	M16	1.89	●
GBR-BT40-C50L50	A	40	-	50	50	-	M16	1.2	●
GBR-BT40-C50L100	A	40	-	50	100	-	M16	1.87	●
GBR-BT40-C50L150	A	40	-	50	150	-	M16	2.25	●
GBR-BT40-C63L60	A	40	-	63	60	-	M16	1.45	●
GBR-BT40-C63L120	A	40	-	63	120	-	M16	2.74	●
GBR-BT40-C63L165	A	40	-	63	165	-	M16	3.76	●
GBR-BT50-C19L100	B	50	31	19	100	42	M24	3.65	●
GBR-BT50-C25L70	B	50	50	25	70	22	M24	6.66	●
GBR-BT50-C25L110	B	50	50	25	110	62	M24	3.76	●
GBR-BT50-C25L140	B	50	50	25	140	32	M24	4.17	●

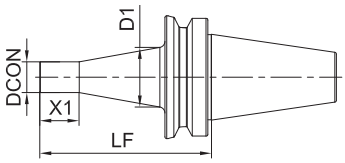
● Stock ○ Available upon Order

Adaptor

BT30/40/50



A



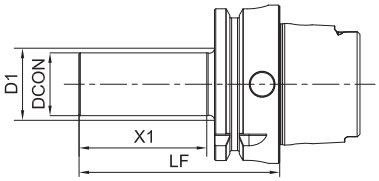
B

Ordering Code	Fig.	ISO	D1(mm)	DCON(mm)	LF(mm)	X1(mm)	Pull Nail	Weight(kg)	Stock
GBR-BT50-C32L70	A	50	-	32	70	-	M24	6.64	●
GBR-BT50-C32L120	A	50	-	32	120	-	M24	3.93	●
GBR-BT50-C32L160	B	50	60	32	160	42	M24	4.8	●
GBR-BT50-C40L70	A	50	-	40	70	-	M24	3.71	●
GBR-BT50-C40L110	A	50	-	40	110	-	M24	4.07	●
GBR-BT50-C40L160	A	50	-	40	160	-	M24	4.53	●
GBR-BT50-C40L200	A	50	-	40	200	-	M24	4.83	●
GBR-BT50-C50L70	A	50	-	50	70	-	M24	3.86	●
GBR-BT50-C50L110	A	50	-	50	110	-	M24	4.42	●
GBR-BT50-C50L160	A	50	-	50	160	-	M24	5.13	●
GBR-BT50-C50L210	A	50	-	50	210	-	M24	5.89	●
GBR-BT50-C50L230	A	50	-	50	230	-	M24	6.06	●
GBR-BT50-C50L250	A	50	-	50	250	-	M24	6.34	●
GBR-BT50-C63L80	A	50	-	63	80	-	M24	4.12	●
GBR-BT50-C63L160	A	50	-	63	160	-	M24	5.94	●
GBR-BT50-C63L230	A	50	-	63	230	-	M24	7.52	●
GBR-BT50-C63L260	A	50	-	63	260	-	M24	8.16	●
GBR-BT50-C63L280	A	50	-	63	280	-	M24	8.6	●
GBR-BT50-C63L300	A	50	-	63	300	-	M24	9.05	●
GBR-BT50-C90L100	A	50	-	88	100	-	M24	5.61	●
GBR-BT50-C90L180	A	50	-	88	180	-	M24	9.2	●
GBR-BT50-C90L250	A	50	-	88	250	-	M24	12.34	●
GBR-BT50-C90L320	A	50	-	88	320	-	M24	15.48	●
GBR-BT50-C90L350	A	50	-	88	350	-	M24	16.84	●

● Stock ○ Available upon Order

Adaptor

HSK63/100



Ordering Code	ISO	D1(mm)	DCON(mm)	LF(mm)	X1(mm)	Pull Nail	Weight(kg)	Stock
GBR-HSKA63-C19L80	63	31	19	80	40	M18x1	0.9	●
GBR-HSKA63-C25L80	63	-	25	80	-	M18x1	1	●
GBR-HSKA63-C32L85	63	-	32	85	-	M18x1	1.1	●
GBR-HSKA63-C32L120	63	-	32	120	-	M18x1	1.13	○
GBR-HSKA63-C40L80	63	-	40	80	-	M18x1	1.2	●
GBR-HSKA63-C40L120	63	-	40	120	-	M18x1	1.42	○
GBR-HSKA63-C50L60	63	-	50	60	-	M18x1	1.3	●
GBR-HSKA63-C50L115	63	-	50	115	-	M18x1	1.78	○
GBR-HSKA63-C63L70	63	-	63	70	-	M18x1	1.5	●
GBR-HSKA63-C63L110	63	-	63	110	-	M18x1	2.02	○
GBR-HSKA100-C19L100	100	31	19	100	40	M24x1.5	2.4	●
GBR-HSKA100-C25L115	100	50	25	115	70	M24x1.5	2.6	●
GBR-HSKA100-C32L110	100	-	32	110	-	M24x1.5	2.8	●
GBR-HSKA100-C40L105	100	-	40	105	-	M24x1.5	3	●
GBR-HSKA100-C40L150	100	-	40	150	-	M24x1.5	3	○
GBR-HSKA100-C50L75	100	-	50	75	-	M24x1.5	3.3	●
GBR-HSKA100-C50L140	100	-	50	140	-	M24x1.5	3.43	●
GBR-HSKA100-C50L185	100	-	50	185	-	M24x1.5	4.1	○
GBR-HSKA100-C63L75	100	-	63	75	-	M24x1.5	3.4	●
GBR-HSKA100-C63L165	100	-	63	165	-	M24x1.5	4.79	○
GBR-HSKA100-C63L215	100	-	63	215	-	M24x1.5	5.94	○
GBR-HSKA100-C90L125	100	-	88	125	-	M24x1.5	5.8	●
GBR-HSKA100-C90L215	100	-	88	215	-	M24x1.5	9.82	○
GBR-HSKA100-C90L275	100	-	88	275	-	M24x1.5	12.58	○

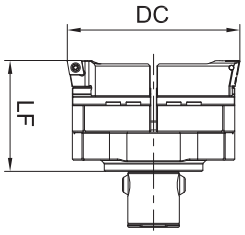
● Stock ○ Available upon Order

Spare Parts for Boring Tool Series

DCON	Expanding pin	Rubber disc	Clamping screw	Allen key for clamping screw
C19	TPD4X13.5-GBR	RRD4-1-GBR	STC-M040050-F-GBR	TH20L-GBR
C25	TPD5X17-GBR	RRD5-1-GBR	STC-M050065-F-GBR	TH25L-GBR
C32	TPD7X22-GBR	RRD7-1-GBR	STC-M060090-F-GBR	TH30L-GBR
C40	TPD8.5X26.5-GBR	RRD8.5-1.5-GBR	STC-M080110-F-GBR	TH40L-GBR
C50	TPD11X33-GBR	RRD11-1.5-GBR	STC-M100140-F-GBR	TH50L-GBR
C63	TPD14X43-GBR	RRD14-1.5-GBR	STC-M120180-F-GBR	TH60L-GBR
C90	TPD18X56-GBR	RRD16-1.5-GBR	STC-M200280-F-GBR	TH100L-GBR

Rough Boring Tool with Bridge

LRB



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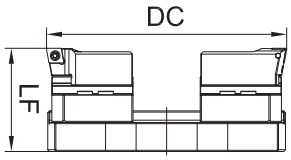


B

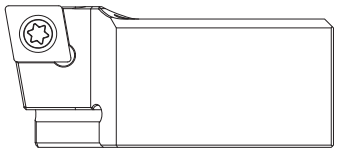
Ordering Order	Fig.	DC(mm)	LF(mm)	Connection	Weight(kg)	Cartridge	Stock
GBR-LRBD150-210C63	A	150-210	99	C63	5.1	LDZD150	○
GBR-LRBD150-210C90	A	150-210	99	C90	5.4	LDZD150	○
GBR-LRBD210-290C32	B	210-290	89	LBC32	4.83	LDZD150	○
GBR-LRBD290-370C32	B	290-370	89	LBC32	6.13	LDZD150	○
GBR-LRBD370-490C32	B	370-490	100	LBC32	12.64	LDZD370	○
GBR-LRBD490-610C32	B	490-610	115	LBC32	17.22	LDZD370	○
GBR-LRBD610-730C40	B	610-730	120	LBC40	22.6	LDZD370	○
GBR-LRBD730-850C40	B	730-850	125	LBC40	26.83	LDZD370	○

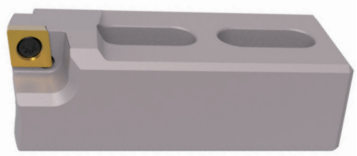
● Stock ○ Available upon Order

The cartridge should be ordered separately
The adaptor should be ordered separately
Please choose the connection made from aluminum if considering the weight. Please indicate A when ordering. For example:
GBR-LRBD730-850C40: Connection made from steel
GBR-LRBAD730-850C40: Connection made from aluminum

Cartridge for Rough Boring Tool with Bridge

LDZ





Ordering Order	Insert	Clamping Screw for Insert	Allen Key for Clamping Screw	Adjusting Screw for Cartridge	Allen Key for Adjusting Screw	Weight (kg)	Stock
GBR-LDZD150CC1290	CCMT1204	SL-M050128-GBR	TT20P-GBR	SE-M050200-GBR	TH25L-GBR	0.31	○
GBR-LDZD150TC1690	TCMT16T3	SL-M040095-GBR	TT15P-GBR	SE-M050200-GBR	TH25L-GBR	0.31	○
GBR-LDZD150TC2290	TCMT2204	SL-M050128-GBR	TT20P-GBR	SE-M050200-GBR	TH25L-GBR	0.34	○
GBR-LDZD150SC1245	SCMT1204	SL-M050128-GBR	TT20P-GBR	SE-M050200-GBR	TH25L-GBR	0.34	○
GBR-LDZD370CC1290	CCMT1204	SL-M050128-GBR	TT20P-GBR	SE-M050200-GBR	TH25L-GBR	0.74	○
GBR-LDZD370TC1690	TCMT16T3	SL-M040095-GBR	TT15P-GBR	SE-M050200-GBR	TH25L-GBR	0.74	○
GBR-LDZD370TC2290	TCMT2204	SL-M050128-GBR	TT20P-GBR	SE-M050200-GBR	TH25L-GBR	0.79	○
GBR-LDZD370SC1245	SCMT1204	SL-M050128-GBR	TT20P-GBR	SE-M050200-GBR	TH25L-GBR	0.79	○

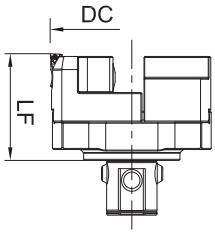
● Stock ○ Available upon Order

LRB Spare Parts

DC	Bridge	Cartridge Holder	Clamping Screw for Cartridge Holder	Clamping Screw for Cartridge	Allen Key for Clamping Screw
150-210	BG150-210C63-GBR	SL150-GBR	SCA-M080350-GBR	SCA-M080300-GBR	TH60L-GBR
	BG150-210C90-GBR	SL150-GBR	SCA-M080350-GBR	SCA-M080300-GBR	TH60L-GBR
210-290	BG210-290-GBR	SL150-GBR	SCA-M080350-GBR	SCA-M080300-GBR	TH60L-GBR
290-370	BG290-370-GBR	SL150-GBR	SCA-M080350-GBR	SCA-M080300-GBR	TH60L-GBR
370-490	BG370-490-GBR	SL370-GBR	SCA-M080350-GBR	SCA-M080250-GBR	TH60L-GBR
490-610	BG490-610-GBR	SL370-GBR	SCA-M080350-GBR	SCA-M080250-GBR	TH60L-GBR
610-730	BG610-730-GBR	SL370-GBR	SCA-M080350-GBR	SCA-M080250-GBR	TH60L-GBR
730-850	BG730-850-GBR	SL370-GBR	SCA-M080350-GBR	SCA-M080250-GBR	TH60L-GBR

Precision Boring Tool with Bridge

LFB



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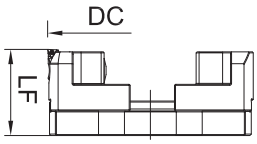


B

Ordering Order	Fig.	DC (mm)	LF (mm)	Connection	Cartridge	Weight (kg)	Stock
GBR-LFBD150-210C63	A	150-210	97	C63	GBR-DZFBF5A	5.5	○
GBR-LFBD150-210C90	A	150-210	97	C90	GBR-DZFBF5A	5.8	○
GBR-LFBD210-290C32	B	210-290	89	LBC32	GBR-DZFBF5A	6	○
GBR-LFBD290-370C32	B	290-370	89	LBC32	GBR-DZFBF5A	7.3	○
GBR-LFBD370-490C32	B	370-490	100	LBC32	GBR-DZFBF6-F7A	12.64	○
GBR-LFBD490-610C32	B	490-610	115	LBC32	GBR-DZFBF6-F7A	17.22	○
GBR-LFBD610-730C40	B	610-730	120	LBC40	GBR-DZFBF6-F7A	22.6	○
GBR-LFBD730-850C40	B	730-850	125	LBC40	GBR-DZFBF6-F7A	26.83	○

● Stock ○ Available upon Order

The cartridge should be ordered separately.
The adaptor should be ordered separately.
Please choose the connection made from aluminum if considering the weight. Please indicate A when ordering. For example:
GBR-LFBD730-850C40: Connection made from steel
GBR-LFBAD730-850C40: Connection made from aluminum

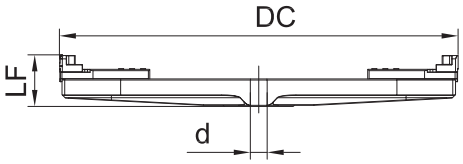
LFB Spare Parts

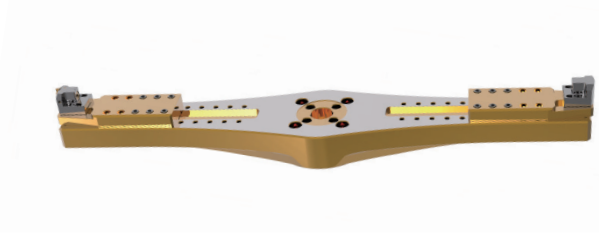
DC	Bridge	Cartridge Holder	Balance Block	Clamping Screw for Cartridge	Allen Key for Clamping Screw	Lock Screw
150-210	BG150-210C63-GBR	TM150-GBR	CW150-GBR	SCA-M080350-GBR	SSB-M060160-GBR	STA-M060120-GBR
	BG150-210C90-GBR	TM150-GBR	CW150-GBR	SCA-M080350-GBR	SSB-M060160-GBR	STA-M060120-GBR
210-290	BG210-290-GBR	TM150-GBR	CW210-GBR	SCA-M080350-GBR	SSB-M060160-GBR	STA-M060120-GBR
290-370	BG290-370-GBR	TM150-GBR	CW210-GBR	SCA-M080350-GBR	SSB-M060160-GBR	STA-M060120-GBR
370-490	BG370-490-GBR	TM370-GBR	CW370-GBR	SCA-M080350-GBR	SSB-M080250-GBR	STA-M100200-GBR
490-610	BG490-610-GBR	TM370-GBR	CW370-GBR	SCA-M080350-GBR	SSB-M080250-GBR	STA-M100200-GBR
610-730	BG610-730-GBR	TM370-GBR	CW370-GBR	SCA-M080350-GBR	SSB-M080250-GBR	STA-M100200-GBR
730-850	BG730-850-GBR	TM370-GBR	CW370-GBR	SCA-M080350-GBR	SSB-M080250-GBR	STA-M100200-GBR

Screw	Wrench
SCA-M080350-GBR	TH60L-GBR
STA-M060120-GBR	TH30L-GBR
STA-M100200-GBR	TH50L-GBR
SSB-M060160-GBR	TH40L-GBR
SSB-M080250-GBR	TH50L-GBR

Rough/Precision Boring Tool with Aluminum Bridge

HRBA Rough Boring





Ordering Code	DC (mm)	LF (mm)	D (mm)	Bridge	Extension Slide	Cartridge Holder	Cartridge	Weight (kg)	Stock
GBR-HRBAD850-1250	850-1250	169	60	BGA850-GBR	EBA400-GBR	SL150-GBR	GBR-LDZD150	30	○
GBR-HRBAD1200-1600	1200-1600	179	60	BGA1200-GBR	EBA400-GBR	SL150-GBR	GBR-LDZD150	41	○
GBR-HRBAD1450-1850	1450-1850	189	60	BGA1450-GBR	EBA400-GBR	SL150-GBR	GBR-LDZD150	61	○
GBR-HRBAD1450-2090	1450-2090	199	60	BGA1450-GBR	EBA640-GBR	SL150-GBR	GBR-LDZD150	71	○
GBR-HRBAD2050-2690	2050-2690	209	60	BGA2050-GBR	EBA640-GBR	SL150-GBR	GBR-LDZD150	111	○
GBR-HRBAD2660-3300	2660-3300	219	60	BGA2660-GBR	EBA640-GBR	SL150-GBR	GBR-LDZD150	171	○

The cartridge should be ordered separately

● Stock ○ Available upon Order

HFBA Precision Boring

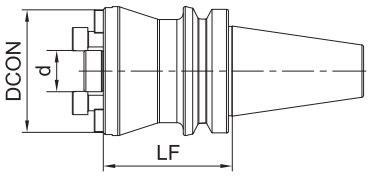
Ordering Code	DC (mm)	LF (mm)	D (mm)	Bridge	Extension Slide	Cartridge Holder	Balance Block	Cartridge	Weight (kg)	Stock
GBR-HFBAD850-1250	850-1250	167	60	BGA850-GBR	EBA400-GBR	TM150-GBR	CW210-GBR	GBR-DZFBF5A	31	○
GBR-HFBAD1200-1600	1200-1600	177	60	BGA1200-GBR	EBA400-GBR	TM150-GBR	CW210-GBR	GBR-DZFBF5A	42	○
GBR-HFBAD1450-1850	1450-1850	187	60	BGA1450-GBR	EBA400-GBR	TM150-GBR	CW210-GBR	GBR-DZFBF5A	62	○
GBR-HFBAD1450-2090	1450-2090	197	60	BGA1450-GBR	EBA640-GBR	TM150-GBR	CW210-GBR	GBR-DZFBF5A	72	○
GBR-HFBAD2050-2690	2050-2690	207	60	BGA2050-GBR	EBA640-GBR	TM150-GBR	CW210-GBR	GBR-DZFBF5A	112	○
GBR-HFBAD2660-3300	2660-3300	217	60	BGA2660-GBR	EBA640-GBR	TM150-GBR	CW210-GBR	GBR-DZFBF5A	172	○

The cartridge should be ordered separately

● Stock ○ Available upon Order

Adaptor for Boring Tool with Bridge

BT40/50

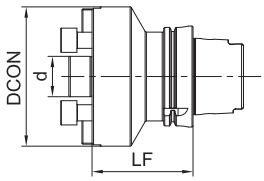


Ordering Code	ISO	LF(mm)	d (mm)	DCON(mm)	Clamping Screw	Flat Key	Weight (kg)	Stock
GBR-BT40LB-C32L60	BT40	60	32	100	SCAM120350-GBR	FK10-16X14-GBR	2.52	○
GBR-BT50LB-C32L100	BT50	100	32	100	SCAM120350-GBR	FK10-16X14-GBR	6.65	○
GBR-BT50LB-C32L150	BT50	150	32	100	SCAM120350-GBR	FK10-16X14-GBR	8.74	○
GBR-BT50LB-C32L200	BT50	200	32	100	SCAM120350-GBR	FK10-16X14-GBR	10.44	○
GBR-BT50LB-C32L250	BT50	250	32	100	SCAM120350-GBR	FK10-16X14-GBR	12.32	○
GBR-BT50LB-C32L300	BT50	300	32	100	SCAM120350-GBR	FK10-16X14-GBR	14.21	○
GBR-BT50LB-C32L350	BT50	350	32	100	SCAM120350-GBR	FK10-16X14-GBR	16.1	○
GBR-BT50LB-C40L100	BT50	100	40	136	SCAM160500-GBR	FK10-25X18-GBR	9.8	○
GBR-BT50LB-C40L250	BT50	250	40	136	SCAM160500-GBR	FK10-25X18-GBR	17	○

● Stock ○ Available upon Order

Adaptor for Boring Tool with Bridge

HSK100

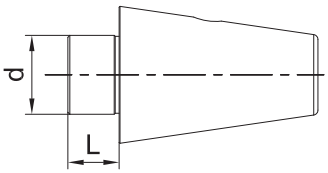


Ordering Code	ISO	LF (mm)	d (mm)	DCON (mm)	Clamping Screw	Flat Key	Weight (kg)	Stock
GBR-HSKA100LB-C32L100	HSKA100	100	32	100	SCAM120350-GBR	FK10-16X14-GBR	5.87	○
GBR-HSKA100LB-C32L150	HSKA100	150	32	100	SCAM120350-GBR	FK10-16X14-GBR	7.81	○
GBR-HSKA100LB-C32L200	HSKA100	200	32	100	SCAM120350-GBR	FK10-16X14-GBR	9.95	○
GBR-HSKA100LB-C40L100	HSKA100	100	40	136	SCAM160500-GBR	FK10-25X18-GBR	8.8	○
GBR-HSKA100LB-C40L250	HSKA100	250	40	136	SCAM160500-GBR	FK10-25X18-GBR	15.7	○

● Stock ○ Available upon Order

Location Spindle

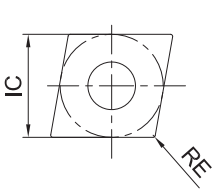
ISO

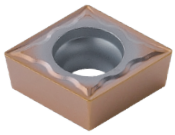


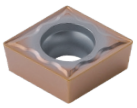
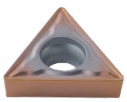
Ordering Code	ISO	d (mm)	L (mm)	Weight (kg)	Stock
GBR-ISO50C40	50	40	26	1.94	○
GBR-ISO50C60	50	60	39	2.53	○
GBR-ISO60C40	60	40	27	6.87	○
GBR-ISO60C60	60	60	43	7.54	○

● Stock ○ Available upon Order

Boring Inserts Dimensional Specification Information



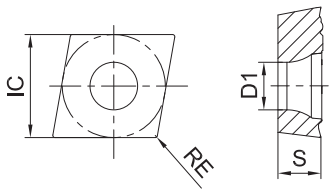


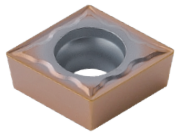
Insert	Fig.	Ordering Code	Dimension (mm)				Grade	
			IC	S	RE	D1	GM3220	GM3225
Insert for Rough Boring		CCMT060202-MM	6.35	2.38	0.2	2.8	●	●
		CCMT060204-MM	6.35	2.38	0.4	2.8	●	●
		CCMT060208-MM	6.35	2.38	0.8	2.8	●	●
		CCMT09T302-MM	9.525	3.97	0.2	4.4	●	●
		CCMT09T304-MM	9.525	3.97	0.4	4.4	●	●
		CCMT09T308-MM	9.525	3.97	0.8	4.4	●	●
		CCMT060202-GP	6.35	2.38	0.2	2.8		
		CCMT060204-GP	6.35	2.38	0.4	2.8	●	
		CCMT060208-GP	6.35	2.38	0.8	2.8	●	
		CCMT09T302-GP	9.525	3.97	0.2	4.4		
		CCMT09T304-GP	9.525	3.97	0.4	4.4	●	
		CCMT09T308-GP	9.525	3.97	0.8	4.4	●	
		CCMT120404-GP	12.7	4.76	0.4	5.5	●	
		CCMT120408-GP	12.7	4.76	0.8	5.5	●	
		CCMT120412-GP	12.7	4.76	1.2	5.5		
		TCMT110202-MM	6.35	2.38	0.2	2.8	●	●
		TCMT110204-MM	6.35	2.38	0.4	2.8	●	●
		TCMT110208-MM	6.35	2.38	0.8	2.8	●	●
		TCMT16T304-MM	9.525	3.97	0.4	4.4	●	●
		TCMT16T308-MM	9.525	3.97	0.8	4.4	●	●
		TCMT110202-GP	6.35	2.38	0.2	2.8		
		TCMT110204-GP	6.35	2.38	0.4	2.8	●	
		TCMT110208-GP	6.35	2.38	0.8	2.8	●	
		TCMT16T304-GP	9.525	3.97	0.4	4.4	●	
		TCMT16T308-GP	9.525	3.97	0.8	4.4	●	
		TCMT16T312-GP	9.525	3.97	1.2	4.4		
		TCMT220408-GP	12.7	4.76	0.8	5.5		
		SCMT09T304-MM	9.525	3.97	0.4	4.4	●	●
		SCMT09T308-MM	9.525	3.97	0.8	4.4	●	●
		SCMT09T304-GP	9.525	3.97	0.4	4.4		
		SCMT09T308-GP	9.525	3.97	0.8	4.4	○	
		SCMT120404-GP	12.7	4.76	0.4	5.56	○	
		SCMT120408-GP	12.7	4.76	0.8	5.56	○	

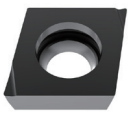
Note: If the grades are blank, it means there is no grades for the specification, but there are other grades could be chosen. Please confirm with the sales before ordering.

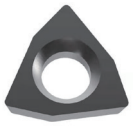
● Stock ○ Available upon Order

Boring Inserts Dimensional Specification Information





Insert	Fig.	Ordering Code	Dimension (mm)				Grade		
			IC	S	RE	D1	GAT7115	GAT7120	GAT7125
Insert for Precision Boring		TBGT060102L-P	3.97	1.59	0.2	2.3		●	
		TBGT060104L-P	3.97	1.59	0.4	2.3		●	
		TPGH090202L-P	5.56	2.38	0.2	2.5		●	
		TPGH090204L-P	5.56	2.38	0.4	2.5		●	
		TPGH110301L-P	6.35	3.18	0.1	3.4	●	●	
		TPGH110302L-P	6.35	3.18	0.2	3.4	●	●	
		TPGH110304L-P	6.35	3.18	0.4	3.4		●	
		CCGT060201L-G	6.365	2.38	0.1	2.8		●	
		CCGT060202L-G	6.35	2.38	0.2	2.8		●	
		CCGT060204L-P	6.365	2.38	0.4	2.8		○	
		CCGT09T301L-G	9.54	3.97	0.1	4.4		●	
		CCGT09T302L-G	9.525	3.97	0.2	4.4		●	
		CCGT09T304L-G	9.54	3.97	0.4	4.4		●	

Insert	Fig	Ordering Code	Dimension (mm)				Grade		
			IC	S	RE	D1	GAT7110B	GNT7110B	GPT7110B
Insert for Precision Boring		WBGT060102-BRG	3.97	1.59	0.2	2.24	●		
		WBGT060102-BRN	3.97	1.59	0.2	2.24		●	
		WBGT060102-BRP	3.97	1.59	0.2	2.24			●

● Stock ○ Available upon Order

Recommended Cutting Parameters for Rough Boring

Workpiece Material		Overhang (L/D)	Boring Range	D20-D35		D35-D55	
			Cutting Depth Ap (mm)	0.5-1.2	1.2-2.5	0.8-1.5	1.5-2.5
			Corner Radius RE(mm)	0.2	0.4	0.2-0.4	0.4
P	Low Carbon Steel, Long Chip (< 125HB)	2.5	Vc(m/min)	150-180	120-150	160-200	140-170
			fz(mm/z)	0.1-0.2	0.08- 0.2	0.15- 0.2	0.1- 0.175
		4	Vc(m/min)	140-160	100-140	160-180	120-150
			fz(mm/z)	0.1-0.18	0.08- 0.15	0.1-0.12	0.08- 0.1
		6	Vc(m/min)	60-80	40-60	60-90	50-60
			fz(mm/z)	0.06- 0.12	0.06- 0.1	0.06- 0.12	0.06- 0.1
	High Carbon Steel/ Medium Carbon Steel (< 25HRC)	2.5	Vc(m/min)	130-160	100-130	140-180	120-160
			fz(mm/z)	0.08- 0.15	0.08- 0.12	0.08- 0.2	0.06- 0.12
		4	Vc(m/min)	110-140	80-110	100-140	80-120
			fz(mm/z)	0.08- 0.12	0.08- 0.1	0.08- 0.15	0.06- 0.15
		6	Vc(m/min)	70-90	60-70	80-100	60-80
			fz(mm/z)	0.08- 0.1	0.06- 0.08	0.06- 0.1	0.06- 0.08
	Alloy Steel, Tool Steel (< 35HRC)	2.5	Vc(m/min)	140-160	90-120	150-180	100-130
			fz(mm/z)	0.08- 0.18	0.08- 0.15	0.08- 0.2	0.08- 0.18
		4	Vc(m/min)	100-130	70-100	110-150	90-120
			fz(mm/z)	0.08- 0.15	0.06- 0.12	0.08- 0.18	0.08- 0.15
		6	Vc(m/min)	80-100	60-90	80-100	70-90
			fz(mm/z)	0.08- 0.15	0.06- 0.1	0.06- 0.12	0.06- 0.12
	Alloy Steel, Tool Steel (35-48HRC)	2.5	Vc(m/min)	130-150	120-140	130-150	120-140
			fz(mm/z)	0.08- 0.18	0.06- 0.15	0.08- 0.18	0.06- 0.15
		4	Vc(m/min)	100-130	100-120	100-130	100-120
			fz(mm/z)	0.08- 0.15	0.06- 0.13	0.08- 0.15	0.06- 0.13
		6	Vc(m/min)	80-100	70-90	80-100	70-90
			fz(mm/z)	0.08- 0.12	0.06- 0.11	0.08- 0.12	0.06- 0.11
	Ferritic Stainless Steel，Martensitic Stainless Steel，PH Stainless Steel	2.5	Vc(m/min)	100-150	110-130	120-160	100-150
			fz(mm/z)	0.08-0.15	0.06- 0.12	0.08- 0.18	0.06- 0.12
		4	Vc(m/min)	90-130	90-120	100-140	90-140
			fz(mm/z)	0.08- 0.12	0.06- 0.1	0.08- 0.12	0.06- 0.1
		6	Vc(m/min)	60-90	50-70	60-90	50-70
			fz(mm/z)	0.06-0.1	0.06- 0.1	0.06- 0.12	0.06- 0.1

	D55-D70		D70-D110		D110-D150		D150-	
	0.8-1.5	1.5-3.0	0.8-1.5	1.5-3.5	0.8-2.0	2.0-3.5	0.8-2.0	2.0-4.0
	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8
	160-200	140-180	160-200	150-180	180-250	160-200	220-280	200-220
	0.15- 0.25	0.08- 0.2	0.15- 0.25	0.08- 0.2	0.15- 0.3	0.1-0.2	0.15- 0.3	0.1-0.15
	160-180	120-150	140-180	120-150	160-200	140-180	-	-
	0.1-0.12	0.08- 0.1	0.08- 0.2	0.08- 0.15	0.1-0.2	0.08- 0.15	-	-
	70-90	50-70	70-100	50-70	-	-	-	-
	0.06- 0.1	0.06- 0.1	0.06- 0.1	0.06- 0.1	-	-	-	-
	140-180	120-160	140-180	120-160	150-170	100-140	100-140	80-120
	0.08- 0.25	0.08- 0.18	0.15- 0.3	0.12- 0.2	0.15- 0.25	0.1-0.2	0.15- 0.3	0.1-0.2
	100-140	80-120	120-150	100-140	100-130	80-110	-	-
	0.08- 0.2	0.06- 0.15	0.1-0.2	0.1-0.18	0.08- 0.2	0.08- 0.12	-	-
	80-100	60-80	80-100	60-80	-	-	-	-
	0.08- 0.15	0.06- 0.1	0.08- 0.12	0.08- 0.12	-	-	-	-
	160-200	140-180	160-220	140-180	160-220	140-180	160-220	140-180
	0.1-0.25	0.1-0.15	0.1-0.3	0.1-0.25	0.1-0.3	0.1-0.25	0.1-0.35	0.1-0.3
	140-180	100-130	150-200	120-160	120-160	120-160	-	-
	0.08- 0.18	0.08- 0.12	0.1-0.2	0.08- 0.18	0.1-0.2	0.08- 0.18	-	-
	100-140	80-120	100-140	100-140	-	-	-	-
	0.06- 0.15	0.08- 0.1	0.08- 0.18	0.08- 0.15	-	-	-	-
	140-170	120-150	160-200	140-180	140-200	140-180	140-200	140-180
	0.08- 0.2	0.08- 0.18	0.1-0.3	0.1-0.25	0.1-0.35	0.1-0.3	0.1-0.35	0.1-0.3
	120-150	100-120	140-160	120-140	150-180	120-140	-	-
	0.08- 0.18	0.08- 0.15	0.08- 0.2	0.08- 0.15	0.08- 0.12	0.08- 0.12	-	-
	100-120	70-90	100-120	70-90	-	-	-	-
	0.08- 0.12	0.06- 0.11	0.08- 0.16	0.08- 0.12	-	-	-	-
	120-160	110-160	120-220	120-200	140-220	120-180	150-220	120-200
	0.08- 0.25	0.08- 0.18	0.08- 0.3	0.08-0.25	0.08-0.3	0.08-0.25	0.08-0.3	0.08- 0.25
	100-150	80-120	100-160	90-140	120-180	90-140	-	-
	0.08- 0.18	0.08- 0.12	0.08- 0.25	0.08- 0.18	0.08-0.25	0.08- 0.18	-	-
	70-100	50-70	70-100	50-70	-	-	-	-
	0.06- 0.15	0.08- 0.1	0.08-0.2	0.08-0.15	-	-	-	-

Recommended Cutting Parameters for Rough Boring

Workpiece Material		Overhang (L/D)	Boring Range	D20-D35		D35-D55		
			Cutting Depth Ap (mm)	0.5-1.2	1.2-2.5	0.8-1.5	1.5-2.5	
			Corner Radius RE(mm)	0.2	0.4	0.2-0.4	0.4	
M	Austenitic Stainless Steel (130-200HB)	2.5	Vc(m/min)	110-130	100-130	120-150	110-140	
			fz(mm/z)	0.08-0.15	0.06- 0.12	0.08- 0.18	0.06- 0.12	
		4	Vc(m/min)	80-110	80-110	90-130	90-120	
			fz(mm/z)	0.08-0.12	0.06- 0.1	0.08- 0.12	0.06- 0.1	
		6	Vc(m/min)	60-90	50-70	60-90	50-70	
			fz(mm/z)	0.06-0.1	0.06- 0.1	0.06- 0.12	0.06- 0.1	
	High-Strength Austenitic Stainless Steel and Cast Stainless Steel (＜25HRC)	2.5	Vc(m/min)	90-130	100-130	120-150	110-140	
			fz(mm/z)	0.08-0.15	0.06- 0.12	0.08- 0.18	0.06- 0.12	
		4	Vc(m/min)	70-110	80-110	90-130	90-120	
			fz(mm/z)	0.08-0.12	0.06- 0.1	0.08- 0.12	0.06- 0.1	
		6	Vc(m/min)	60-90	50-70	60-90	50-70	
			fz(mm/z)	0.06-0.1	0.06- 0.1	0.06- 0.12	0.06- 0.1	
	Duplex Stainless Steel (＜30HRC)	2.5	Vc(m/min)	80-120	70-110	100-150	90-140	
			fz(mm/z)	0.08-0.15	0.06- 0.12	0.08- 0.18	0.06- 0.12	
		4	Vc(m/min)	70-100	70-100	80-130	70-120	
			fz(mm/z)	0.08-0.12	0.06- 0.1	0.08- 0.12	0.06- 0.1	
		6	Vc(m/min)	60-90	50-70	60-90	50-70	
			fz(mm/z)	0.06-0.1	0.06-0.1	0.06- 0.12	0.06- 0.1	

	D55-D70		D70-D110		D110-D150		D150-	
	0.8-1.5	1.5-3.0	0.8-1.5	1.5-3.5	0.8-2.0	2.0-3.5	0.8-2.0	2.0-4.0
	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8
	110-160	100-150	120-200	100-160	120-200	100-160	120-200	100-180
	0.08- 0.25	0.06- 0.12	0.08-0.3	0.08-0.25	0.08-0.3	0.08-0.25	0.08-0.3	0.08- 0.25
	100-150	90-130	100-150	90-140	100-160	90-140	-	-
	0.08- 0.18	0.06- 0.1	0.08- 0.25	0.08-0.18	0.08-0.25	0.08-0.18	-	-
	70-100	50-70	70-100	50-70	-	-	-	-
	0.06- 0.15	0.06- 0.1	0.08-0.2	0.08-0.15	-	-	-	-
	120-160	100-150	130-200	120-180	140-200	120-160	140-200	120-180
	0.08- 0.25	0.06- 0.12	0.08- 0.3	0.08-0.25	0.08-0.3	0.08-0.25	0.08-0.3	0.08- 0.25
	100-150	90-130	110-150	90-150	100-160	90-140	-	-
	0.08- 0.18	0.06- 0.1	0.08-0.25	0.08-0.18	0.08-0.25	0.08-0.18	-	-
	70-100	50-70	70-100	50-70	-	-	-	-
	0.06- 0.15	0.06- 0.1	0.08-0.2	0.08-0.15	-	-	-	-
	110-150	100-150	130-180	120-180	120-200	100-160	120-200	100-180
	0.08- 0.25	0.06- 0.12	0.08- 0.3	0.08-0.25	0.08-0.3	0.08- 0.25	0.08- 0.3	0.08- 0.25
	90-140	90-130	100-140	90-140	100-160	90-140	-	-
	0.08- 0.18	0.06- 0.1	0.08-0.25	0.08-0.18	0.08-0.25	0.08-0.18	-	-
	70-100	50-70	70-90	50-70	-	-	-	-
	0.06- 0.15	0.06-0.1	0.08-0.2	0.08-0.15	-	-	-	-

Recommended Cutting Parameters for Rough Boring

Workpiece Material		Overhang (L/D)	Boring Range	D20-D35		D35-D55		
			Cutting Depth Ap (mm)	0.5-1.2	1.2-2.5	0.8-1.5	1.5-2.5	
			Corner Radius RE(mm)	0.2	0.4	0.2-0.4	0.4	
K	Grey Cast Iron GG10-25 HB＜200	2.5	Vc(m/min)	120-160	100-140	120-180	110-150	
			fz(mm/z)	0.06-0.15	0.06-0.18	0.06- 0.15	0.06- 0.12	
		4	Vc(m/min)	100-140	80-120	100-150	80-120	
			fz(mm/z)	0.06- 0.12	0.06- 0.1	0.06- 0.12	0.06- 0.1	
		6	Vc(m/min)	70-100	60-90	70-100	60-90	
			fz(mm/z)	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	
	Grey Cast Iron GG25-40	2.5	Vc(m/min)	140-200	140-200	140-220	160-250	
			fz(mm/z)	0.06- 0.15	0.06- 0.18	0.06- 0.15	0.06- 0.18	
		4	Vc(m/min)	120-160	120-160	120-180	140-200	
			fz(mm/z)	0.06- 0.12	0.06-0.14	0.06- 0.12	0.06- 0.14	
		6	Vc(m/min)	70-100	60-90	70-100	60-90	
			fz(mm/z)	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	
	Spheroidal Graphite Cast Iron	2.5	Vc(m/min)	120-180	120-180	120-200	140-220	
			fz(mm/z)	0.06- 0.15	0.06- 0.18	0.06- 0.15	0.06- 0.18	
		4	Vc(m/min)	120-160	120-160	120-180	140-200	
			fz(mm/z)	0.06- 0.12	0.06- 0.14	0.06- 0.12	0.06- 0.14	
		6	Vc(m/min)	60-100	60-90	60-100	60-90	
			fz(mm/z)	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	
N	Cast Aluminium Alloys Si＞12%	2.5	Vc(m/min)	200-300	240-350	200-300	240-350	
			fz(mm/z)	0.06-0.2	0.06-0.25	0.06-0.2	0.06-0.25	
		4	Vc(m/min)	150-220	150-220	150-220	150-220	
			fz(mm/z)	0.06-0.2	0.06-0.2	0.06-0.2	0.06-0.2	
		6	Vc(m/min)	60-100	60-100	60-100	60-100	
			fz(mm/z)	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	
	Cast Aluminium Alloys Si＜12%	2.5	Vc(m/min)	180-250	220-280	180-250	220-280	
			fz(mm/z)	0.06-0.2	0.06-0.25	0.06-0.25	0.06-0.25	
		4	Vc(m/min)	120-220	120-220	120-220	120-220	
			fz(mm/z)	0.06-0.2	0.06-0.2	0.06-0.2	0.06-0.2	
		6	Vc(m/min)	60-100	60-100	60-100	60-100	
			fz(mm/z)	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	

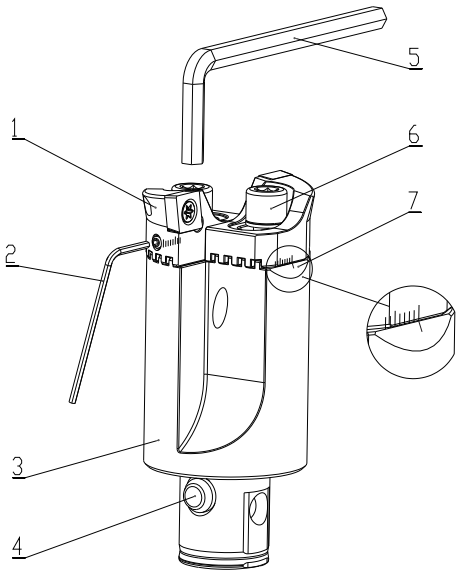
	D55-D70		D70-D110		D110-D150		D150-	
	0.8-1.5	1.5-3.0	0.8-1.5	1.5-3.5	0.8-2.0	2.0-3.5	0.8-2.0	2.0-4.0
	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8	0.2-0.4	0.4-0.8
	120-180	110-150	120-200	110-150	150-250	180-280	150-250	180-280
	0.08-0.2	0.08-0.12	0.08- 0.25	0.08-0.3	0.08-0.25	0.08-0.35	0.08-0.25	0.08-0.35
	100-150	80-120	100-150	80-120	120-170	120-170	-	-
	0.08- 0.12	0.08-0.1	0.08- 0.18	0.08- 0.2	0.08-0.18	0.08-0.25	-	-
	70-100	60-90	70-100	60-90	-	-	-	-
	0.08-0.1	0.08-0.1	0.08-0.15	0.08-0.12	-	-	-	-
	180-220	220-280	250-300	250-350	250-350	250-350	250-350	250-350
	0.08- 0.2	0.1-0.25	0.12- 0.35	0.12- 0.35	0.15-0.3	0.15-0.4	0.15-0.3	0.15-0.4
	140-180	180-220	200-270	230-300	200-300	200-270	-	-
	0.08-0.12	0.08-0.2	0.1-0.25	0.12-0.3	0.15-0.3	0.15-0.35	-	-
	60-100	60-120	70-150	60-120	-	-	-	-
	0.08-0.1	0.08-0.1	0.1-0.15	0.12-0.25	-	-	-	-
	180-220	180-240	200-240	200-280	200-280	220-300	220-300	220-300
	0.08- 0.18	0.1-0.2	0.12- 0.3	0.12- 0.3	0.15-0.3	0.15-0.35	0.15-0.3	0.15-0.35
	140-200	160-220	160-220	180-240	180-250	200-270	-	-
	0.08- 0.12	0.08-0.18	0.1-0.2	0.12- 0.25	0.15-0.25	0.15-0.35	-	-
	60-90	60-100	60-100	60-100	-	-	-	-
	0.08-0.1	0.08-0.1	0.1-0.15	0.12-0.2	-	-	-	-
	200-300	240-350	200-300	240-350	200-300	240-350	200-300	240-350
	0.06-0.25	0.06-0.3	0.06-0.25	0.06-0.3	0.06-0.25	0.06-0.4	0.06-0.25	0.06-0.4
	150-220	150-220	150-220	150-220	150-220	150-220	-	-
	0.06-0.2	0.06-0.2	0.06-0.2	0.06-0.2	0.06-0.2	0.06-0.2	-	-
	60-100	60-100	60-100	60-100	-	-	-	-
	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	-	-	-	-
	180-250	220-280	180-250	220-280	180-250	220-280	180-250	220-280
	0.06-0.25	0.06-0.3	0.06-0.25	0.06-0.3	0.06-0.3	0.06-0.4	0.06-0.3	0.06-0.4
	120-220	120-220	120-220	120-220	120-220	120-220	-	-
	0.06-0.2	0.06-0.25	0.06-0.2	0.06-0.25	0.06-0.2	0.06-0.25	-	-
	60-100	60-100	60-100	60-100	-	-	-	-
	0.06-0.1	0.06-0.1	0.06-0.1	0.06-0.1	-	-	-	-

Recommended Cutting Parameters for Precision Boring

Workpiece Material		Overhang (L/D)	Cutting Speed Vc (m/min)	Feed f (mm/rev)		Cutting Depth Ap(mm)
				Corner Radius Re (mm)		
				R=0.2	R=0.4	
P	Low Carbon Steel, Long Chip （<125HB）	2.5	200-300	0.05-0.08	0.08-0.1	0.1-0.25
		4	160-250	0.05-0.08	0.08-0.1	
		6	70-100	0.05-0.08	-	
	High Carbon Steel, Carbon Steel (<25HRC)	2.5	160-250	0.05-0.08	0.08-0.1	0.1-0.25
		4	150-200	0.05-0.08	0.08-0.1	
		6	70-100	0.05-0.08	-	
	Alloy Steel, Tool Steel (< 35HRC)	2.5	150-200	0.05-0.08	0.08-0.1	0.1-0.25
		4	120-160	0.05-0.08	0.08-0.1	
		6	70-80	0.05-0.08	-	
	Alloy Steel, Tool Steel (35-48HRC)	2.5	120-160	0.05-0.08	0.08-0.1	0.1-0.25
		4	100-140	0.05-0.08	0.08-0.1	
		6	70-100	0.05-0.08	-	
M	Stainless Steel	2.5	160-210	0.05-0.08	0.08-0.1	0.1-0.25
		4	120-160	0.05-0.08	0.08-0.1	
		6	70-90	0.05-0.08		
K	Cast Iron	2.5	120-160	0.05-0.08	0.08-0.1	0.1-0.25
		4	100-140	0.05-0.08	0.08-0.1	
		6	70-100	0.05-0.08	-	
N	Aluminum Alloy	2.5	300-400	0.05-0.08	0.08-0.1	0.1-0.25
		4	250-350	0.05-0.08	0.08-0.1	
		6	100-150	0.05-0.08	-	

Instructions of RB Rough Boring Tool

Descriptions:
1.Cartridge
2.Wrench for Adjusting
3.Tool Holder Body
4.Torque Bolt
5.Lock Wrench
6.Clamping Screw
7.Adjusting Scale Mark

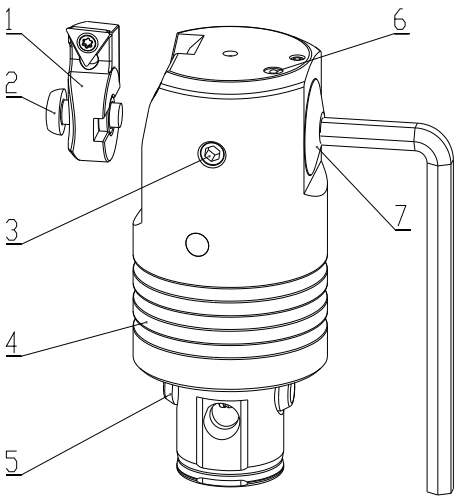


Adjustment Steps:

1. Loosening the 6# clamping screw;
2. Roughly adjust the insert holders as the scale mark, and the distance between the two bits should be 0.5mm shorter than the required distance;
3.Tighten the 6# clamping screw to lock the cartridge; then, rotate the 2# adjusting screw and Tighten the 6# clamping screw to avoid the cutter relieving;
4. Run the test and comparing the testing scale and actual requirements, then figure out the smaller number;
5. Gently loosen the 6# clamping screw, so that the 2# adjusting screw for cartridge can make the cartridge moved;
6.Tighten the 2# screw and compare it on the dial or the tool setting instrument, so that the movement of the tool holder is the previously calculated diameter difference;
7. Lock the 6# screw, and then machining the work piece as the demanded dimension.

Instructions of FB Precision Boring Tool

Descriptions:
1.Cartridge
2.Clamping Screw for Cartridge
3.Clamping Screw
4.Tool Holder Body
5.K Interface Torque Bolt
6.Oil Hole
7.Scale Line

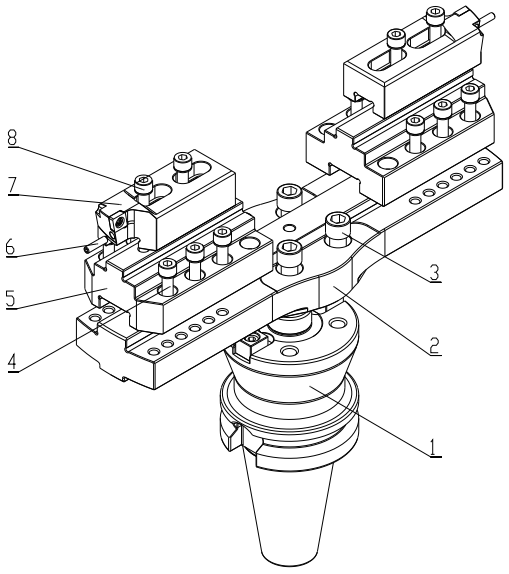


Adjustment Steps:

1.Install the 1# cartridge firmly according to the correct direction, Lock the 3# screw first, then lock the 2# locking screw.
2.Loosen the clamping screw (3#), adjust the micro-adjustable knob with the allen key to meet the demanded diameter and then rotate the clamping screw (3#) by clockwise direction. It is 0.01mm in diameter when rotating per graduation. (Rotate the graduated dial by clockwise is to increase the processing diameter and by anti-clockwise is to decrease the processing diameter);
3.Please see the mark on the body which indicates the boring range (Be sure not to be out of the adjustment range);
4.Do regular scheduled maintenance, dip it in lubricant oil (dipping the oil at the 6# oil hole);
5.Do not open the place where is sealed by the red paint, otherwise the accuracy of boring head will be damaged;
6.The boring tool must be turned by anticlockwise when back boring.

Instructions of LRB Rough Boring Tool with Bridge

Descriptions:
1.Adaptor
2.Bridge
3.Clamping Screw for Adaptor
4.Clamping Screw for Cartridge Holder
5.Cartridge Holder
6.Adjusting Screw for Cartridge
7.Cartridge
8.Clamping Screw for Cartridge

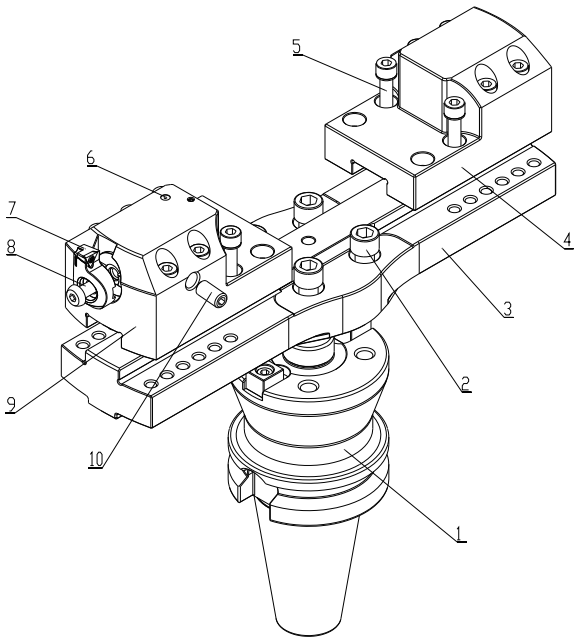


Adjustment Steps:

1.Loosen the 4# clamping screw for the cartridge holder;
2.Rough adjusting the 5# cartridge holder and 7# cartridge as the scale mark, and the distance between the two bits should be 0.5mm shorter than the one of the demanded distance(note: by adjusting the position of cartridge & cartridge holder and clamping screw for the mobile slide to be sure the adjusting size);
3.Tighten the 4# balance block and 8# clamping screw for the cartridge, and rotate the 6# adjusting screw for cartridge, preload the 8# clamping screw for cartridge and 4# clamping screw for balance block to avoid to the cutter relieving;
4.Testing run and comparing the testing size and actual requirements, then figure out the smaller number;
5.Loosen the 5# clamping screw lightly, so that the 6# adjusting screw for cartridge can make the 7# cartridge moved;
6.Rotate the 6# adjusting screw for cartridge, compared by the dial gage to figure out the smaller number;
7.Lock the 8# screw, and then machining the work piece as the demanded dimension.

Instructions of LFB Precision Boring Tool with Bridge

Descriptions:
1.Adaptor
2.Clamping Screw for Adaptor
3.Bridge
4.Balance Block
5.Clamping Screw
6.Oil Hole
7.Cartridge
8.Adjusting Screw for Cartridge
9.Precision Boring Body
10.Lock Screw



Adjustment Steps:

1. Loosen the 5# clamping screw;
2. Roughly adjust the 5# cartridge holder and 7# cartridge as the scale mark, and the distance between the two bits should be 0.5mm shorter than the one of the demanded distance(note: by adjusting the 7# cartridge and 9# boring tool body to be sure the adjusting size);
3. Tighten the 5# clamping screw;
4. Adjust the balance block as the same process to assure the dynamic balance;
5. Lock the 10# lock screw tightly, test run and comparing the testing size and actual requirements, then figure out the smaller number;
6. Loosen the 10# lock screw lightly, rotate the micro-adjustable knob (it is 0.01mm in diameter when rotating per graduation) to figure out the smaller number.
7. Lock the 10# screw, and then machining the work piece as the demanded dimension;
8. Do regular scheduled maintenance, dip it in lube oil (dipping the oil at the 6# oil hole).

D

APPENDIX

Workpiece Material

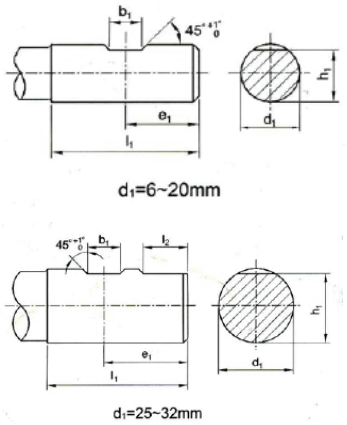
ISO Material Group	MC	Workpiece Material	Content	Tensile Strength N/mm2	Brinell Hardness HB	Rockwell Hardness HRC
P Steel	P1	Low Carbon Steel，Long Chipping	C<0.25%	<530	<125	
	P2	Low Carbon Steel，Short Chipping，Freecutting Steel	C<0.25%	<530	<125	
	P3	High Carbon Steel, Medium Carbon Steel	C>0.25%	>530	<220	<25
	P4	Alloy Steel，Tool Steel	C>0.25%	600-850	<330	<35
	P5	Alloy Steel，Tool Steel	C>0.25%	850-1400	340-450	35-48
	P6	Ferritic Stainless Steel，Martensitic Stainless Steel，PH Stainless Steel	C=(0-0.4)%	600-900	<330	<35
	P7	High-strength Ferritic Stainless Steel，Martensitic Stainless Steel，PH Stainless Steel	C=(0.1-0.6)%	900-1350	330-450	35-48
M Stainless Steel	M1	Austenitic Stainless Steel	C=(0.05-0.15)%	<600	130-200	
	M2	High-Strength Austenitic Stainless Steel and Cast Stainless Steel	C=(0.05-0.15)%	600-800	150-230	<25
	M3	Duplex Stainless Steel	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 Material	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 Material	H1	Hardened Steel				45-55
	H2	Hardened Steel				55-60
	H3	Hardened Steel				60-65
	H4	Hardened Steel				>65

The Structure of Shank-DIN Standard

DIN 6535-HA

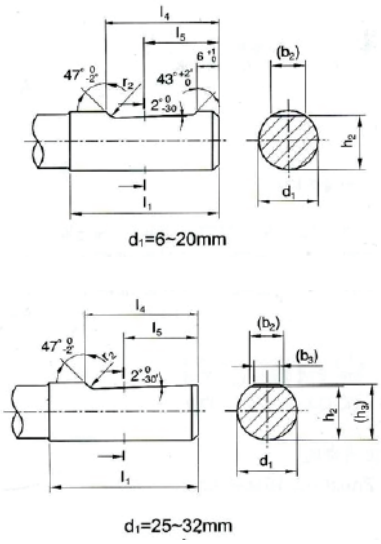
d_1h_6	2	3	4	5	6	8	10	12	14	16	18	20	25	32
l_1 +2 0	28				36		40	45		48		50	56	60

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	
8.0	5.5		6.9					
10	7.1		8.5		40.0	28.0	20.0	1.2
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	
18	10.8		16.2					
20	11.4		18.2		50.0	38.0	25.0	1.6
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	$Vf = fz * z * n$ (mm/min)
fz Feed per Teeth	$fz = \frac{Vf}{z * n}$ (mm)
Q Rate of Metal Removal	$Q = \frac{ae * ap * Vf}{1000}$ (cm^3/min)
Tc Processing Time	$Tc = \frac{L}{Vf}$ (min)

Comparison Table for Tensile Strength , Brinell Hardness and Rockwell

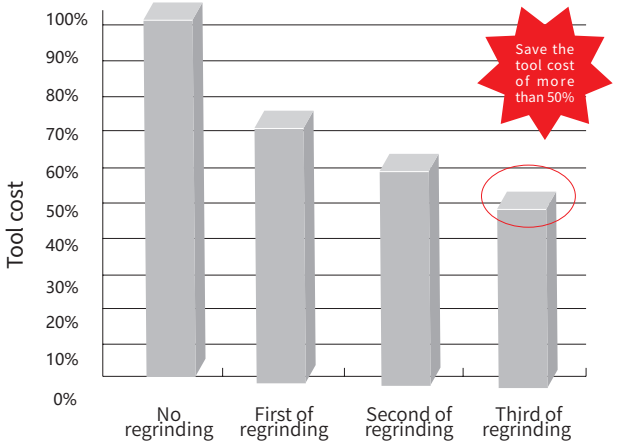
N/mm2	HV10	HB	HRC
240	75	71	
255	80	76	
270	85	81	
285	90	86	
305	95	90	
320	100	95	
335	105	100	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	157	
545	170	162	
560	175	166	
575	180	171	
595	185	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

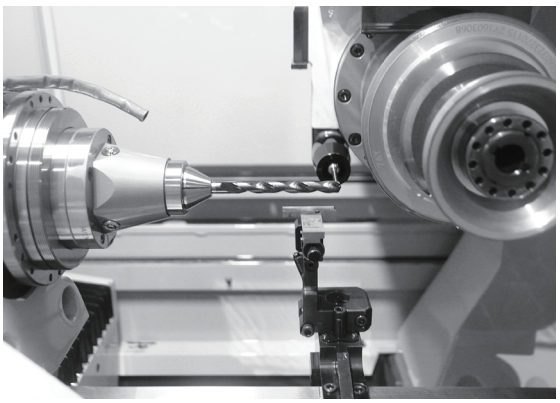
N/mm2	HV10	HB	HRC
920	287	273	28
940	293	278	29
970	302	287	30
995	310	295	31
1020	317	301	32
1050	327	311	33
1080	336	319	34
1110	345	328	35
1140	355	337	36
1170	364	346	37
1200	373	354	38
1230	382	363	39
1260	392	372	40
1260	403	383	41
1330	413	393	42
1360	423	402	43
1400	434	413	44
1440	446	424	45
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

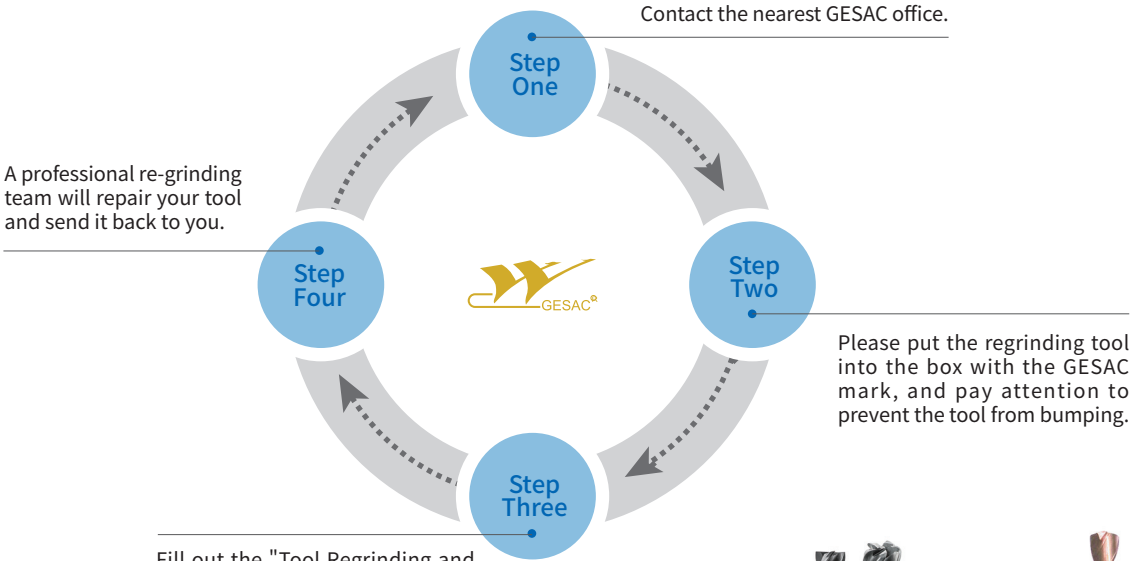
Through the system of grinding process and strict process quality control,Xiamen GESAC will let your wear tool to recover full new state.One more time to regrinding, to extend the tool life.Practical data show,reasonable tool grinding can save more than 50% of the total investment cost of tool.

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

MEMO

GESAC

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