黄氏设计承印 15061112288

JINOO精诺

常州精诺工具制造有限公司

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JINOO精诺

孔加工刀具

Professional Tool Manufacturer

刀具专业制造商

常州精诺工具制造有限公司
Changzhou Jingnuo Tools Co., Ltd.

JINOO精诺

常州精诺工具制造有限公司成立于2006年，主要从事铣刀、钻头、铰刀、非标类刀具等不同碳化钨钢切削工具的生产与销售。所销售的产品广泛应用于汽车、摩托车发动机、机械、电子、医疗和模具等各大行业领域。

公司已建立先进的“WALTER”CNC刀具研磨机械设备成型体系，以便客户更精密的刀具需求。

Changzhou Jingnuo Tools Co., Ltd. was established in 2006. It is mainly engaged in the production and sales of different tungsten carbide cutting tools, such as milling cutters, drills, reamers, and non-standard tools. The products sold are widely used in major industries, such as automobiles, motorcycle engines, machinery, electronics, medical treatment and molds.

We built up the fabrication facilities by“WALTER”CNC Grinding Machines which supports us for more precision products to customers.

精诺工具
TOOLSMANUFACTURE

JINOO精诺

See P18-23 for specifications

See P24-29 for specifications

New universal series twist drill

2200 range

Universal Series Upgrade

- Suitable for steel parts, cast iron, stainless steel, non-ferrous metal processing
- New J-style groove design, curved edge, double plane back angle
- Wave-shaped cutting edge design of the drill tip, taking into account the strength and sharpness of the cutting edge, effectively reducing cutting resistance.
- lit. short cross-bladed blade, good for centering
- High feed rate and high productivity can be realized.

Twist drills for stainless steel

2600 range

Specialized for stainless steel and hard-to-cut materials

- Independently developed new series of drills for stainless steel, heat-resistant alloys, titanium alloys, etc.
- New extra-large G-type groove design, with excellent measuring space and discharge performance.
- Unique tip design for better chipping performance.
- New blade material and coating for greater toughness and corrosion resistance

2100Series Universal Machining Twist Drill

- HELICA protective layer Curved Edge, Sharpened Back Angle
- Curved Edge, Sharpened Back Angle
- Applicable materials: steel, cast iron, etc

For specification details, seeP12-17

2300Series Plain steel machining twist drills

- A ITiN-nano coating Straight edge, flat back angle
- A pplicable materials: steel, cast iron, etc.
- **New ATN-n8no coating for excellent tool wear resistance**

For specification details, seeP30-42

For specification details, seeP50-52

2500Series Twist Drill for Aluminum Alloy

- **Suitable for aluminum and copper.**
- **X-shaped drill tip design with excellent self-centering function**

For specification details, seeP43-49

3000Series Deep Hole Drilling

- **For efficient drilling of steel, cast iron and stainless steel.**
- **New base material, perfect balance of toughness and abrasion resistance**
- **U se of ATTN-based nano-coatings and unique post-coating treatments**
- **O ptimized groove and drill tip design, strong self-centering performance and corrosion breakage and discharge performance.**

7200Series Straight Groove Drill

- **Straight groove design, suitable for cast iron, aluminum alloy machining**
- **Four-flute design improves hole wall quality and hole accuracy.**
- **X-shape drill tip, excellent self-centering performance.**

For specification details, seeP55-56

9100Series NC Center Drill

- **Suitable for center drilling and chamfering on CNC machine tools**
- **Suitable for steel, cast iron, aluminum alloy, copper alloy machining**

For specification details, seeP57

Carbide Drill Bits Catalog

Adaptation of processing materials	name (of a thing)	encodings	depiction	summit angle	Shank size standard	Drilling depth	auger shape	layer	Blade diameter range mm	Size Page	Cutting Parameters Page

D2100 range Universal Machining Twist Drill

steel	3D External Cold Twist Drill	D2103-NHA		140	DIN 6535HA	3D		HELICA	3-20	12	60
steel	3D Internal cold twist drill	D2103-CHA		140	DIN 6535HA	3D		HELICA	3-20	12	60
steel	5D External Cold Twist Drill	D2105-NHA		140	DIN 6535HA	5D		HELICA	3-20	15	60
steel	5D Internal cold twist drill	D2105-CHA		140	DIN 6535HA	5D		HELICA	3-20	15	60

D2200 range Twist drill for steel

steel	3D External Cold Twist Drill	D2203-NHA		140	DIN 6535HA	3D		HELICA	3-20	18	61
steel	3D Internal cold twist drill	D2203-CHA		140	DIN 6535HA	3D		HELICA	3-20	18	61
steel	5D External Cold Twist Drill	D2205-NHA		140	DIN 6535HA	5D		HELICA	3-20	21	61
steel	5D Internal cold twist drill	D2205-CHA		140	DIN 6535HA	5D		HELICA	3-20	21	61

D2600 range Twist drill for stainless steel

不锈钢	3D Internal cold twist drill	D2603-CHA		140	DIN 6535HA	3D		TiAlSiN	3-20	24	64
不锈钢	5D Internal cold twist drill	D2605-CHA		140	DIN 6535HA	5D		TiAlSiN	3-20	27	64

D2300 range Plain steel machining twist drill

steel	3D External Cold Twist Drill	D2303-NHA		140	DIN 6535HA	3D		ALTIN NANO	3-20	30	62
steel	3DInternal cold twist drill	D2303-CHA		140	DIN 6535HA	3D		ALTIN NANO	3-20	30	62
steel	5D External Cold Twist Drill	D2305-NHA		140	DIN 6535HA	5D		ALTIN NANO	3-20	33	62
steel	5D Internal cold twist drill	D2305-CHA		140	DIN 6535HA	5D		ALTIN NANO	3-20	33	62
steel	8D Internal cold twist drill	D2308-CHA		140	DIN 6535HA	8D		ALTIN NANO	3-16	36	62
steel	12D Internal cold twist drill	D2312-CHA		135	DIN 6535HA	12D		ALTIN NANO	3-20	40	62

Processing Range Correspondence Table

P(Steel materials)						H(hardened material)						M(stainless steels)			S(High temperature alloys and titanium alloys)				K(foundry iron)				N(non-ferrous metals)						
P1	P2	P4	P5	P6	P11	H3	H5	H7	H8	H12	H21	M1	M2	M4	S1	S2	S3	S11	K1	K2	K3	K4	N1	N2	N3	N4	N5	N10	N11
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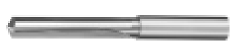
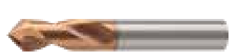
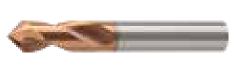
● 最适应 ○ 适应

Carbide Drill Bits Catalog

Adaptation of processing materials	name (of a thing)	encodings	depiction	summit angle	Shank size standard	Drilling depth	auger shape	layer	Blade diameter range mm	Size Page	Cutting Paramet-ers Page
D3000range deep hole drilling											
Steel Stainless steel Cast iron	15DInternal cold twist drill	D3015-CHA		135	DIN 6535HA	15D		ALTIN NANO	3-14	43	65
Steel Stainless steel Cast iron	20DInternal cold twist drill	D3020-CHA		135	DIN 6535HA	20D		ALTIN NANO	3-12	45	65
Steel Stainless steel Cast iron	25DInternal cold twist drill	D3025-CHA		135	DIN 6535HA	25D		ALTIN NANO	3-12	47	65
Steel Stainless steel Cast iron	30DInternal cold twist drill	D3030-CHA		135	DIN 6535HA	30D		ALTIN NANO	3-10	48	65
Steel Stainless steel Cast iron	40DInternal cold twist drill	D3040-CHA		135	DIN 6535HA	40D		ALTIN NANO	3-8	49	65
D2500 range Twist Drill for Aluminum											
aluminum	5DExternal Cold Twist Drill	D2505-NHA		140	DIN 6535HA	5D			3-20	50	63
aluminum	5DInternal cold twist drill	D2505-CHA		140	DIN 6535HA	5D			3-20	50	63
D5200range triple-edged drill											
Cast Iron Silicon Aluminum Alloy	3DExternally cooled three-flute drills	D5203-NYZ		150	JINOO	3D		TIALN	3-20	53	66
D7200range straight groove drill											
Cast Iron Silicon Aluminum Alloy	5DExternal Cold Straight Groove Drill	D7205-NHA		120	DIN 6535HA	5D			4-20	55	67
Cast Iron Silicon Aluminum Alloy	5DInternal Cooling Straight Groove Drill	D7205-CHA		130	DIN 6535HA	5D		TIALN	4-20	56	67
D9100range NCcenter drill											
Steel cast iron aluminum alloy	NC center drill	D9100-090		90	DIN 6535HA	90°		TIALN	5-20	57	68
Steel cast iron aluminum alloy	NC center drill	D9100-120		120	DIN 6535HA	120°		TIALN	5-20	57	68

Processing Range Correspondence Table																													
P(Steel materials)						H(hardened material)						M(stainless steels)			S(High temperature alloys and titanium alloys)				K(foundry iron)				N(non-ferrous metals)						
P1	P2	P4	P5	P6	P11	H3	H5	H7	H8	H12	H21	M1	M2	M4	S1	S2	S3	S11	K1	K2	K3	K4	N1	N2	N3	N4	N5	N10	N11
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● 最适应 ○ 适应

Drill Coding Rules:

D	2	6	0	5	-	C	H	A	-	0	8	0	0
(1)	(2)		(3)			(4)	(5)			(6)			

(1)	-	product category		D	driller

(2)	-	product category		21	Twist drills for steel
				22	Twist drills for steel
				23	Twist drills for steel
				25	Twist drill series for aluminum alloy
				26	Twist drills for stainless steel
				30	Deep Hole Twist Drill
				52	triple-edged drill
				72	straight groove drill
				91	NC Center Drill

(3)	-	Depth of cut		00	center drill
				03	3xd
				05	5xd
				08	8xd
				20	20xd

(4)	-	Cooling method		N	outside cold
				C	internal cold

(5)	-	Shank form		HA	DIN6535HA
				HB	DIN6535HB
				HE	DIN6535HE
				YZ	Plain cylindrical shank

(6)	-	Blade Diameter		0050	0.5mm
				0100	1mm
				0800	8mm
				1000	10mm

Workpiece material table

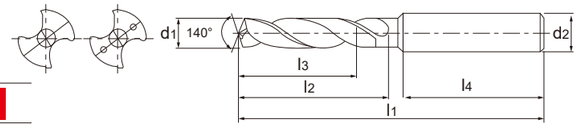
material group ISO		Workpiece materials	quantity contained	tensile strength	Brinell hardness	Rockwell hardness
				N/mm²	HB	HRC
P Steel materials	P1	Easy Cutting Steel		<320	<125	
	P2	mild steel	C<0.25%	320–530	<125	
	P4	Medium carbon steel, low alloy steel	0.25%<C<0.60%	520–850	<220	<25
	P5	Alloy steel, tempered steel		550–1200	<330	28–35
	P6	high carbon steel	C>0.6%	600–1200	370–750	45–65
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel		600–1350	250–450	38–50
H hardened material	H3	case-hardened rigid		800–1500		58–62
	H5	tempered steel		490–1200		35–56
	H7	bearing steel		900–1600		56–64
	H8	Tool steel, high speed steel				60–64
	H12	Hardened Stainless Steel				33–50
	H21	manganese steel				35–64
M stainless steels	M1	austenitic stainless steel		600–1100	<150	
	M2	High strength austenitic stainless steel		1100–1750	150–230	
	M4	Duplex stainless steel		600–1300	230–310	
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys		500–1200	160–260	25–48
	S2	Cobalt-based high temperature alloys		1000–1450	250–450	25–48
	S3	Nickel-based high-temperature alloys		600–1700	160–450	<48
	S11	aluminum alloy		900–1600	300–400	33–38
K foundry iron	K1	gray cast iron		130–340	110–270	<32
	K2	peristaltic cast iron		300–570	120–290	<32
	K3	malleable iron		200–530	150–290	<28
	K4	ductile iron		400–900	180–350	<43
N non-ferrous metals	N1	aluminum-silicon alloy	silicon content<9%	<200	60–90	
	N2	Silicon Aluminum Alloy	9%<silicon content<16%	200–300	70–100	
	N3	High Silicon Aluminum Alloy	silicon content>16%	200–350	90–150	
	N4	Casting Aluminum Alloy		155–460	45–100	
	N5	Forged Aluminum Alloy			60–90	
	N10	copper (chemistry)		20–30	35–45	
	N11	copper alloy			120–200	

D2100Series-3D Standard Twist Drill

HELICA 3D

HELICA protective layer
Curved Edge, Sharpened Back Angle

Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2103-NHA-D0300	D2103-CHA-D0300	3		6	62	20	14	36
D2103-NHA-D0325	D2103-CHA-D0325	3.25		6	62	20	14	36
D2103-NHA-D0330	D2103-CHA-D0330	3.3	M4	6	62	20	14	36
D2103-NHA-D0340	D2103-CHA-D0340	3.4		6	62	20	14	36
D2103-NHA-D0350	D2103-CHA-D0350	3.5		6	62	20	14	36
D2103-NHA-D0370	D2103-CHA-D0370	3.7		6	62	20	14	36
D2103-NHA-D0400	D2103-CHA-D0400	4		6	66	24	17	36
D2103-NHA-D0420	D2103-CHA-D0420	4.2	M5	6	66	24	17	36
D2103-NHA-D0430	D2103-CHA-D0430	4.3		6	66	24	17	36
D2103-NHA-D0450	D2103-CHA-D0450	4.5		6	66	24	17	36
D2103-NHA-D0465	D2103-CHA-D0465	4.65		6	66	24	17	36
D2103-NHA-D0480	D2103-CHA-D0480	4.8		6	66	28	20	36
D2103-NHA-D0500	D2103-CHA-D0500	5	M6	6	66	28	20	36
D2103-NHA-D0510	D2103-CHA-D0510	5.1		6	66	28	20	36
D2103-NHA-D0520	D2103-CHA-D0520	5.2		6	66	28	20	36
D2103-NHA-D0550	D2103-CHA-D0550	5.5		6	66	28	20	36
D2103-NHA-D0555	D2103-CHA-D0555	5.55		6	66	28	20	36
D2103-NHA-D0580	D2103-CHA-D0580	5.8		6	66	28	20	36
D2103-NHA-D0600	D2103-CHA-D0600	6		6	66	28	20	36
D2103-NHA-D0610	D2103-CHA-D0610	6.1		8	79	34	24	36
D2103-NHA-D0620	D2103-CHA-D0620	6.2		8	79	34	24	36
D2103-NHA-D0630	D2103-CHA-D0630	6.3		8	79	34	24	36
D2103-NHA-D0650	D2103-CHA-D0650	6.5		8	79	34	24	36
D2103-NHA-D0660	D2103-CHA-D0660	6.6		8	79	34	24	36
D2103-NHA-D0680	D2103-CHA-D0680	6.8	M8	8	79	34	24	36
D2103-NHA-D0690	D2103-CHA-D0690	6.9		8	79	34	24	36
D2103-NHA-D0700	D2103-CHA-D0700	7	M8X1	8	79	34	24	36
D2103-NHA-D0710	D2103-CHA-D0710	7.1		8	79	41	29	36
D2103-NHA-D0740	D2103-CHA-D0740	7.4		8	79	41	29	36
D2103-NHA-D0750	D2103-CHA-D0750	7.5		8	79	41	29	36

Recommended cutting amounts are shown in P60

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

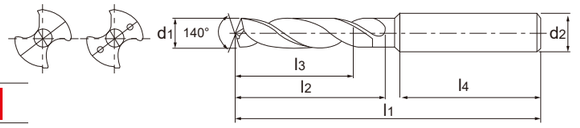
Unit (mm)

D2100Series-3D Standard Twist Drill

HELICA 3D

HELICA protective layer
Curved Edge, Sharpened Back Angle

Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2103-NHA-D0780	D2103-CHA-D0780	7.80		8.00	79	41	29	36
D2103-NHA-D0800	D2103-CHA-D0800	8.00		8.00	79	41	29	36
D2103-NHA-D0810	D2103-CHA-D0810	8.10		10.00	89	47	35	40
D2103-NHA-D0840	D2103-CHA-D0840	8.40		10.00	89	47	35	40
D2103-NHA-D0850	D2103-CHA-D0850	8.50	M10	10.00	89	47	35	40
D2103-NHA-D0860	D2103-CHA-D0860	8.60		10.00	89	47	35	40
D2103-NHA-D0870	D2103-CHA-D0870	8.70		10.00	89	47	35	40
D2103-NHA-D0880	D2103-CHA-D0880	8.80		10.00	89	47	35	40
D2103-NHA-D0900	D2103-CHA-D0900	9.00	M10X1	10.00	89	47	35	40
D2103-NHA-D0930	D2103-CHA-D0930	9.30		10.00	89	47	35	40
D2103-NHA-D0950	D2103-CHA-D0950	9.50		10.00	89	47	35	40
D2103-NHA-D0960	D2103-CHA-D0960	9.60		10.00	89	47	35	40
D2103-NHA-D0980	D2103-CHA-D0980	9.80		10.00	89	47	35	40
D2103-NHA-D1000	D2103-CHA-D1000	10.00		10.00	89	47	35	40
D2103-NHA-D1025	D2103-CHA-D1025	10.25	M12	12.00	102	55	40	45
D2103-NHA-D1040	D2103-CHA-D1040	10.40		12.00	102	55	40	45
D2103-NHA-D1050	D2103-CHA-D1050	10.50	M12X1.5	12.00	102	55	40	45
D2103-NHA-D1060	D2103-CHA-D1060	10.60		12.00	102	55	40	45
D2103-NHA-D1080	D2103-CHA-D1080	10.80		12.00	102	55	40	45
D2103-NHA-D1100	D2103-CHA-D1100	11.00		12.00	102	55	40	45
D2103-NHA-D1120	D2103-CHA-D1120	11.20		12.00	102	55	40	45
D2103-NHA-D1150	D2103-CHA-D1150	11.50		12.00	102	55	40	45
D2103-NHA-D1180	D2103-CHA-D1180	11.80		12.00	102	55	40	45
D2103-NHA-D1200	D2103-CHA-D1200	12.00	M14	12.00	102	55	40	45
D2103-NHA-D1225	D2103-CHA-D1225	12.25		14.00	107	60	43	45
D2103-NHA-D1250	D2103-CHA-D1250	12.50	M14X1.5	14.00	107	60	43	45
D2103-NHA-D1270	D2103-CHA-D1270	12.70		14.00	107	60	43	45
D2103-NHA-D1275	D2103-CHA-D1275	12.75		14.00	107	60	43	45
D2103-NHA-D1280	D2103-CHA-D1280	12.80		14.00	107	60	43	45
D2103-NHA-D1300	D2103-CHA-D1300	13.00		14.00	107	60	43	45

Recommended cutting amounts are shown in P60

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

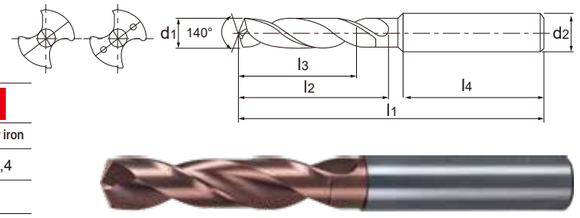
Unit (mm)

D2100Series-3D Standard Twist Drill

HELICA 3D

HELICA protective layer
Curved Edge, Sharpened Back Angle

Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric	d2(h6)	l1	l2	l3	l4
D2103-NHA-D1310	D2103-CHA-D1310	13.10		14.00	107	60	43	45
D2103-NHA-D1350	D2103-CHA-D1350	13.50		14.00	107	60	43	45
D2103-NHA-D1380	D2103-CHA-D1380	13.80		14.00	107	60	43	45
D2103-NHA-D1400	D2103-CHA-D1400	14.00	M16	14.00	107	60	43	45
D2103-NHA-D1425	D2103-CHA-D1425	14.25		16.00	115	65	45	48
D2103-NHA-D1450	D2103-CHA-D1450	14.50	M16X1.5	16.00	115	65	45	48
D2103-NHA-D1475	D2103-CHA-D1475	14.75		16.00	115	65	45	48
D2103-NHA-D1480	D2103-CHA-D1480	14.80		16.00	115	65	45	48
D2103-NHA-D1500	D2103-CHA-D1500	15.00		16.00	115	65	45	48
D2103-NHA-D1510	D2103-CHA-D1510	15.10		16.00	115	65	45	48
D2103-NHA-D1550	D2103-CHA-D1550	15.50		16.00	115	65	45	48
D2103-NHA-D1580	D2103-CHA-D1580	15.80		16.00	115	65	45	48
D2103-NHA-D1600	D2103-CHA-D1600	16.00		16.00	115	65	45	48
D2103-NHA-D1650	D2103-CHA-D1650	16.50		18.00	123	73	51	48
D2103-NHA-D1675	D2103-CHA-D1675	16.75		18.00	123	73	51	48
D2103-NHA-D1680	D2103-CHA-D1680	16.80		18.00	123	73	51	48
D2103-NHA-D1700	D2103-CHA-D1700	17.00		18.00	123	73	51	48
D2103-NHA-D1750	D2103-CHA-D1750	17.50		18.00	123	73	51	48
D2103-NHA-D1780	D2103-CHA-D1780	17.80		18.00	123	73	51	48
D2103-NHA-D1800	D2103-CHA-D1800	18.00		18.00	123	73	51	48
D2103-NHA-D1850	D2103-CHA-D1850	18.50		20.00	131	79	55	50
D2103-NHA-D1880	D2103-CHA-D1880	18.80		20.00	131	79	55	50
D2103-NHA-D1900	D2103-CHA-D1900	19.00		20.00	131	79	55	50
D2103-NHA-D1950	D2103-CHA-D1950	19.50		20.00	131	79	55	50
D2103-NHA-D1980	D2103-CHA-D1980	19.80		20.00	131	79	55	50
D2103-NHA-D2000	D2103-CHA-D2000	20.00		20.00	131	79	55	50

Recommended cutting amounts are shown in P60

尺寸范围	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
＞3-6	+0.004/+0.016	0.000/-0.008
＞6-10	+0.006/+0.021	0.000/-0.009
＞10-18	+0.007/+0.025	0.000/-0.011
＞18-20	+0.008/+0.029	0.000/-0.013

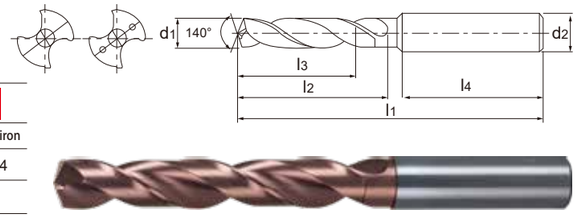
unit(mm)

D2100Series-5D Standard Twist Drill

HELICA 5D

HELICA protective layer
Curved Edge, Sharpened Back Angle

Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric	d2(h6)	l1	l2	l3	l4
D2105-NHA-D0300	D2105-CHA-D0300	3.00		6.00	66	28	23	36
D2105-NHA-D0325	D2105-CHA-D0325	3.25		6.00	66	28	23	36
D2105-NHA-D0330	D2105-CHA-D0330	3.30	M4	6.00	66	28	23	36
D2105-NHA-D0340	D2105-CHA-D0340	3.40		6.00	66	28	23	36
D2105-NHA-D0350	D2105-CHA-D0350	3.50		6.00	66	28	23	36
D2105-NHA-D0370	D2105-CHA-D0370	3.70		6.00	66	28	23	36
D2105-NHA-D0400	D2105-CHA-D0400	4.00		6.00	74	36	29	36
D2105-NHA-D0420	D2105-CHA-D0420	4.20	M5	6.00	74	36	29	36
D2105-NHA-D0430	D2105-CHA-D0430	4.30		6.00	74	36	29	36
D2105-NHA-D0450	D2105-CHA-D0450	4.50		6.00	74	36	29	36
D2105-NHA-D0465	D2105-CHA-D0465	4.65		6.00	74	36	29	36
D2105-NHA-D0480	D2105-CHA-D0480	4.80		6.00	82	44	35	36
D2105-NHA-D0500	D2105-CHA-D0500	5.00	M6	6.00	82	44	35	36
D2105-NHA-D0510	D2105-CHA-D0510	5.10		6.00	82	44	35	36
D2105-NHA-D0520	D2105-CHA-D0520	5.20		6.00	82	44	35	36
D2105-NHA-D0550	D2105-CHA-D0550	5.50		6.00	82	44	35	36
D2105-NHA-D0555	D2105-CHA-D0555	5.55		6.00	82	44	35	36
D2105-NHA-D0580	D2105-CHA-D0580	5.80		6.00	82	44	35	36
D2105-NHA-D0600	D2105-CHA-D0600	6.00		6.00	82	44	35	36
D2105-NHA-D0610	D2105-CHA-D0610	6.10		8.00	91	53	43	36
D2105-NHA-D0620	D2105-CHA-D0620	6.20		8.00	91	53	43	36
D2105-NHA-D0630	D2105-CHA-D0630	6.30		8.00	91	53	43	36
D2105-NHA-D0650	D2105-CHA-D0650	6.50		8.00	91	53	43	36
D2105-NHA-D0660	D2105-CHA-D0660	6.60		8.00	91	53	43	36
D2105-NHA-D0680	D2105-CHA-D0680	6.80	M8	8.00	91	53	43	36
D2105-NHA-D0690	D2105-CHA-D0690	6.90		8.00	91	53	43	36
D2105-NHA-D0700	D2105-CHA-D0700	7.00	M8X1	8.00	91	53	43	36
D2105-NHA-D0710	D2105-CHA-D0710	7.10		8.00	91	53	43	36
D2105-NHA-D0740	D2105-CHA-D0740	7.40		8.00	91	53	43	36
D2105-NHA-D0750	D2105-CHA-D0750	7.50		8.00	91	53	43	36

Recommended cutting amounts are shown in P60

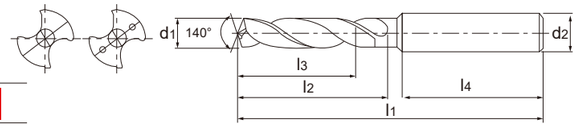
尺寸范围	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
＞3-6	+0.004/+0.016	0.000/-0.008
＞6-10	+0.006/+0.021	0.000/-0.009
＞10-18	+0.007/+0.025	0.000/-0.011
＞18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2100Series-5D Standard Twist Drill

HELICA 5D

HELICA protective layer
Curved Edge, Sharpened Back Angle



Applicable materials: steel, cast iron, etc.

P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric	d2(h6)	l1	l2	l3	l4
D2105-NHA-D0780	D2105-CHA-D0780	7.80		8.00	91	53	43	36
D2105-NHA-D0800	D2105-CHA-D0800	8.00		8.00	91	53	43	36
D2105-NHA-D0810	D2105-CHA-D0810	8.10		10.00	103	61	49	40
D2105-NHA-D0840	D2105-CHA-D0840	8.40		10.00	103	61	49	40
D2105-NHA-D0850	D2105-CHA-D0850	8.50	M10	10.00	103	61	49	40
D2105-NHA-D0860	D2105-CHA-D0860	8.60		10.00	103	61	49	40
D2105-NHA-D0870	D2105-CHA-D0870	8.70		10.00	103	61	49	40
D2105-NHA-D0880	D2105-CHA-D0880	8.80		10.00	103	61	49	40
D2105-NHA-D0900	D2105-CHA-D0900	9.00	M10X1	10.00	103	61	49	40
D2105-NHA-D0930	D2105-CHA-D0930	9.30		10.00	103	61	49	40
D2105-NHA-D0950	D2105-CHA-D0950	9.50		10.00	103	61	49	40
D2105-NHA-D0960	D2105-CHA-D0960	9.60		10.00	103	61	49	40
D2105-NHA-D0980	D2105-CHA-D0980	9.80		10.00	103	61	49	40
D2105-NHA-D1000	D2105-CHA-D1000	10.00		10.00	103	61	49	40
D2105-NHA-D1025	D2105-CHA-D1025	10.25	M12	12.00	118	71	56	45
D2105-NHA-D1040	D2105-CHA-D1040	10.40		12.00	118	71	56	45
D2105-NHA-D1050	D2105-CHA-D1050	10.50	M12X1.5	12.00	118	71	56	45
D2105-NHA-D1060	D2105-CHA-D1060	10.60		12.00	118	71	56	45
D2105-NHA-D1080	D2105-CHA-D1080	10.80		12.00	118	71	56	45
D2105-NHA-D1100	D2105-CHA-D1100	11.00		12.00	118	71	56	45
D2105-NHA-D1120	D2105-CHA-D1120	11.20		12.00	118	71	56	45
D2105-NHA-D1150	D2105-CHA-D1150	11.50		12.00	118	71	56	45
D2105-NHA-D1180	D2105-CHA-D1180	11.80		12.00	118	71	56	45
D2105-NHA-D1200	D2105-CHA-D1200	12.00	M14	12.00	118	71	56	45
D2105-NHA-D1220	D2105-CHA-D1220	12.20		14.00	124	77	60	45
D2105-NHA-D1225	D2105-CHA-D1225	12.25		14.00	124	77	60	45
D2105-NHA-D1250	D2105-CHA-D1250	12.50	M14X1.5	14.00	124	77	60	45
D2105-NHA-D1270	D2105-CHA-D1270	12.70		14.00	124	77	60	45
D2105-NHA-D1275	D2105-CHA-D1275	12.75		14.00	124	77	60	45
D2105-NHA-D1280	D2105-CHA-D1280	12.80		14.00	124	77	60	45

Recommended cutting amounts are shown in P60

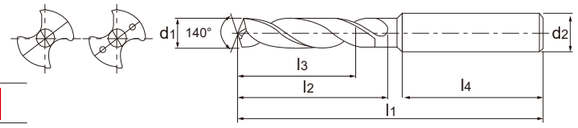
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2100Series-5D Standard Twist Drill

HELICA 5D

HELICA protective layer
Curved Edge, Sharpened Back Angle



Applicable materials: steel, cast iron, etc.

P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric	d2(h6)	l1	l2	l3	l4
D2105-NHA-D1310	D2105-CHA-D1310	13.00		14.00	124	77	60	45
D2105-NHA-D1350	D2105-CHA-D1350	13.50		14.00	124	77	60	45
D2105-NHA-D1380	D2105-CHA-D1380	13.80		14.00	124	77	60	45
D2105-NHA-D1400	D2105-CHA-D1400	14.00	M16	14.00	124	77	60	45
D2105-NHA-D1425	D2105-CHA-D1425	14.25		16.00	133	83	63	48
D2105-NHA-D1450	D2105-CHA-D1450	14.50	M16X1.5	16.00	133	83	63	48
D2105-NHA-D1475	D2105-CHA-D1475	14.75		16.00	133	83	63	48
D2105-NHA-D1480	D2105-CHA-D1480	14.80		16.00	133	83	63	48
D2105-NHA-D1500	D2105-CHA-D1500	15.00		16.00	133	83	63	48
D2105-NHA-D1510	D2105-CHA-D1510	15.10		16.00	133	83	63	48
D2105-NHA-D1550	D2105-CHA-D1550	15.50		16.00	133	83	63	48
D2105-NHA-D1580	D2105-CHA-D1580	15.80		16.00	133	83	63	48
D2105-NHA-D1600	D2105-CHA-D1600	16.00		16.00	133	83	63	48
D2105-NHA-D1650	D2105-CHA-D1650	16.50		18.00	143	93	71	48
D2105-NHA-D1675	D2105-CHA-D1675	16.75		18.00	143	93	71	48
D2105-NHA-D1680	D2105-CHA-D1680	16.80		18.00	143	93	71	48
D2105-NHA-D1700	D2105-CHA-D1700	17.00		18.00	143	93	71	48
D2105-NHA-D1750	D2105-CHA-D1750	17.50		18.00	143	93	71	48
D2105-NHA-D1780	D2105-CHA-D1780	17.80		18.00	143	93	71	48
D2105-NHA-D1800	D2105-CHA-D1800	18.00		18.00	143	93	71	48
D2105-NHA-D1850	D2105-CHA-D1850	18.50		20.00	153	101	77	50
D2105-NHA-D1900	D2105-CHA-D1900	19.00		20.00	153	101	77	50
D2105-NHA-D1950	D2105-CHA-D1950	19.50		20.00	153	101	77	50
D2105-NHA-D1980	D2105-CHA-D1980	19.80		20.00	153	101	77	50
D2105-NHA-D2000	D2105-CHA-D2000	20.00		20.00	153	101	77	50

Recommended cutting amounts are shown in P60

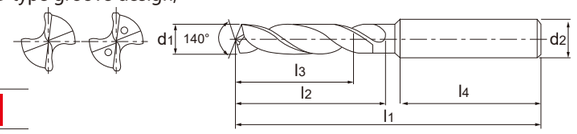
尺寸范围	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2200Series-3D Straight Shank Twist Drill

HELICA 3D

New wave-shaped edge design, taking into account both edge strength and sharpness, effectively reducing cutting resistance; new G-type groove design, enhanced cutting performance and cutting space;
Curved edge, flat back angle
Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric system	d2(h6)	l1	l2	l3	l4
D2200-NHA-D0300	D2203-CHA-D0300	3		6	62	20	14	36
D2200-NHA-D0325	D2203-CHA-D0325	3.25		6	62	20	14	36
D2200-NHA-D0330	D2203-CHA-D0330	3.3	M4	6	62	20	14	36
D2200-NHA-D0340	D2203-CHA-D0340	3.4		6	62	20	14	36
D2200-NHA-D0350	D2203-CHA-D0350	3.5		6	62	20	14	36
D2200-NHA-D0370	D2203-CHA-D0370	3.7		6	62	20	14	36
D2200-NHA-D0400	D2203-CHA-D0400	4		6	66	24	17	36
D2200-NHA-D0420	D2203-CHA-D0420	4.2	M5	6	66	24	17	36
D2200-NHA-D0430	D2203-CHA-D0430	4.3		6	66	24	17	36
D2200-NHA-D0450	D2203-CHA-D0450	4.5		6	66	24	17	36
D2200-NHA-D0465	D2203-CHA-D0465	4.65		6	66	24	17	36
D2200-NHA-D0480	D2203-CHA-D0480	4.8		6	66	28	20	36
D2200-NHA-D0500	D2203-CHA-D0500	5	M6	6	66	28	20	36
D2200-NHA-D0510	D2203-CHA-D0510	5.1		6	66	28	20	36
D2200-NHA-D0520	D2203-CHA-D0520	5.2		6	66	28	20	36
D2200-NHA-D0550	D2203-CHA-D0550	5.5		6	66	28	20	36
D2200-NHA-D0555	D2203-CHA-D0555	5.55		6	66	28	20	36
D2200-NHA-D0580	D2203-CHA-D0580	5.8		6	66	28	20	36
D2200-NHA-D0600	D2203-CHA-D0600	6		6	66	28	20	36
D2200-NHA-D0610	D2203-CHA-D0610	6.1		8	79	34	24	36
D2200-NHA-D0620	D2203-CHA-D0620	6.2		8	79	34	24	36
D2200-NHA-D0630	D2203-CHA-D0630	6.3		8	79	34	24	36
D2200-NHA-D0650	D2203-CHA-D0650	6.5		8	79	34	24	36
D2200-NHA-D0660	D2203-CHA-D0660	6.6		8	79	34	24	36
D2200-NHA-D0680	D2203-CHA-D0680	6.8	M8	8	79	34	24	36
D2200-NHA-D0690	D2203-CHA-D0690	6.9		8	79	34	24	36
D2200-NHA-D0700	D2203-CHA-D0700	7	M8X1	8	79	34	24	36
D2200-NHA-D0710	D2203-CHA-D0710	7.1		8	79	41	29	36
D2200-NHA-D0740	D2203-CHA-D0740	7.4		8	79	41	29	36
D2200-NHA-D0750	D2203-CHA-D0750	7.5		8	79	41	29	36

Recommended cutting amounts are shown in P61

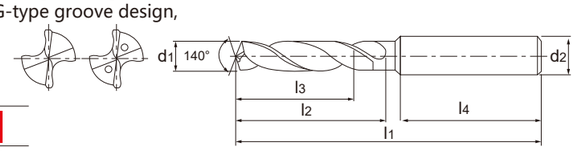
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit:(mm)

D2200Series-3D Straight Shank Twist Drill

HELICA 3D

New wave-shaped edge design, taking into account both edge strength and sharpness, effectively reducing cutting resistance; new G-type groove design, enhanced cutting performance and cutting space;
Curved edge, flat back angle
Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric system	d2(h6)	l1	l2	l3	l4
D2200-NHA-D0780	D2203-CHA-D0780	7.80		8	79	41	29	36
D2200-NHA-D0800	D2203-CHA-D0800	8		8	79	41	29	36
D2200-NHA-D0810	D2203-CHA-D0810	8.10		10	89	47	35	40
D2200-NHA-D0840	D2203-CHA-D0840	8.40		10	89	47	35	40
D2200-NHA-D0850	D2203-CHA-D0850	8.50	M10	10	89	47	35	40
D2200-NHA-D0860	D2203-CHA-D0860	8.60		10	89	47	35	40
D2200-NHA-D0870	D2203-CHA-D0870	8.70		10	89	47	35	40
D2200-NHA-D0880	D2203-CHA-D0880	8.80		10	89	47	35	40
D2200-NHA-D0900	D2203-CHA-D0900	9	M10X1	10	89	47	35	40
D2200-NHA-D0930	D2203-CHA-D0930	9.30		10	89	47	35	40
D2200-NHA-D0950	D2203-CHA-D0950	9.50		10	89	47	35	40
D2200-NHA-D0960	D2203-CHA-D0960	9.60		10	89	47	35	40
D2200-NHA-D0980	D2203-CHA-D0980	9.80		10	89	47	35	40
D2200-NHA-D1000	D2203-CHA-D1000	10		10	89	47	35	40
D2200-NHA-D1025	D2203-CHA-D1025	10.25	M12	12	102	55	40	45
D2200-NHA-D1040	D2203-CHA-D1040	10.40		12	102	55	40	45
D2200-NHA-D1050	D2203-CHA-D1050	10.50	M12X1.5	12	102	55	40	45
D2200-NHA-D1060	D2203-CHA-D1060	10.60		12	102	55	40	45
D2200-NHA-D1080	D2203-CHA-D1080	10.80		12	102	55	40	45
D2200-NHA-D1100	D2203-CHA-D1100	11		12	102	55	40	45
D2200-NHA-D1120	D2203-CHA-D1120	11.20		12	102	55	40	45
D2200-NHA-D1150	D2203-CHA-D1150	11.50		12	102	55	40	45
D2200-NHA-D1180	D2203-CHA-D1180	11.80		12	102	55	40	45
D2200-NHA-D1200	D2203-CHA-D1200	12	M14	12	102	55	40	45
D2200-NHA-D1225	D2203-CHA-D1225	12.25		14	107	60	43	45
D2200-NHA-D1250	D2203-CHA-D1250	12.50	M14X1.5	14	107	60	43	45
D2200-NHA-D1270	D2203-CHA-D1270	12.70		14	107	60	43	45
D2200-NHA-D1275	D2203-CHA-D1275	12.75		14	107	60	43	45
D2200-NHA-D1280	D2203-CHA-D1280	12.80		14	107	60	43	45
D2200-NHA-D1300	D2203-CHA-D1300	13		14	107	60	43	45

Recommended cutting amounts are shown in P61

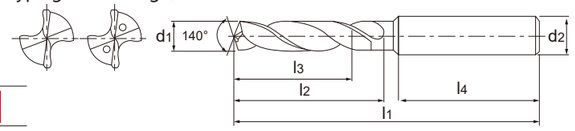
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit:(mm)

D2200Series-3D Straight Shank Twist Drill

HELICA 3D

New wave-shaped edge design, taking into account both edge strength and sharpness, effectively reducing cutting resistance; new G-type groove design, enhanced cutting performance and cutting space;
Curved edge, flat back angle
Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric system	d2(h6)	l1	l2	l3	l4
D2203-NHA-D1310	D2203-CHA-D1310	13.10		14	107	60	43	45
D2203-NHA-D1350	D2203-CHA-D1350	13.50		14	107	60	43	45
D2103-NHA-D1380	D2103-CHA-D1380	13.80		14	107	60	43	45
D2203-NHA-D1400	D2203-CHA-D1400	14	M16	14	107	60	43	45
D2203-NHA-D1425	D2203-CHA-D1425	14.25		16	115	65	45	48
D2203-NHA-D1450	D2203-CHA-D1450	14.50	M16x1.5	16	115	65	45	48
D2203-NHA-D1475	D2203-CHA-D1475	14.75		16	115	65	45	48
D2203-NHA-D1480	D2203-CHA-D1480	14.80		16	115	65	45	48
D2203-NHA-D1500	D2203-CHA-D1500	15		16	115	65	45	48
D2203-NHA-D1510	D2203-CHA-D1510	15.10		16	115	65	45	48
D2203-NHA-D1550	D2203-CHA-D1550	15.50		16	115	65	45	48
D2203-NHA-D1580	D2203-CHA-D1580	15.80		16	115	65	45	48
D2203-NHA-D1600	D2203-CHA-D1600	16		16	115	65	45	48
D2203-NHA-D1650	D2203-CHA-D1650	16.50		18	123	73	51	48
D2203-NHA-D1675	D2203-CHA-D1675	16.75		18	123	73	51	48
D2203-NHA-D1680	D2203-CHA-D1680	16.80		18	123	73	51	48
D2203-NHA-D1700	D2203-CHA-D1700	17		18	123	73	51	48
D2203-NHA-D1750	D2203-CHA-D1750	17.50		18	123	73	51	48
D2203-NHA-D1780	D2203-CHA-D1780	17.80		18	123	73	51	48
D2203-NHA-D1800	D2203-CHA-D1800	18		18	123	73	51	48
D2203-NHA-D1850	D2203-CHA-D1850	18.50		20	131	79	55	50
D2203-NHA-D1880	D2203-CHA-D1880	18.80		20	131	79	55	50
D2203-NHA-D1900	D2203-CHA-D1900	19		20	131	79	55	50
D2203-NHA-D1950	D2203-CHA-D1950	19.50		20	131	79	55	50
D2203-NHA-D1980	D2203-CHA-D1980	19.80		20	131	79	55	50
D2203-NHA-D2000	D2203-CHA-D2000	20		20	131	79	55	50

Recommended cutting amounts are shown in P61

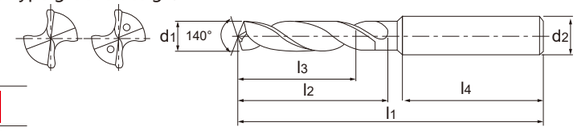
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2200Series-5D Straight Shank Twist Drill

HELICA 5D

New wave-shaped edge design, taking into account both edge strength and sharpness, effectively reducing cutting resistance; new G-type groove design, enhanced cutting performance and cutting space;
Curved edge, flat back angle
Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric system	d2(h6)	l1	l2	l3	l4
D2205-NHA-D0300	D2205-CHA-D0300	3		6	66	28	23	36
D2205-NHA-D0325	D2205-CHA-D0325	3.25		6	66	28	23	36
D2205-NHA-D0330	D2205-CHA-D0330	3.30	M4	6	66	28	23	36
D2205-NHA-D0340	D2205-CHA-D0340	3.40		6	66	28	23	36
D2205-NHA-D0350	D2205-CHA-D0350	3.50		6	66	28	23	36
D2205-NHA-D0370	D2205-CHA-D0370	3.70		6	66	28	23	36
D2205-NHA-D0400	D2205-CHA-D0400	4		6	74	36	29	36
D2205-NHA-D0420	D2205-CHA-D0420	4.20	M5	6	74	36	29	36
D2205-NHA-D0430	D2205-CHA-D0430	4.30		6	74	36	29	36
D2205-NHA-D0450	D2205-CHA-D0450	4.50		6	74	36	29	36
D2205-NHA-D0465	D2205-CHA-D0465	4.65		6	74	36	29	36
D2205-NHA-D0480	D2205-CHA-D0480	4.80		6	82	44	35	36
D2205-NHA-D0500	D2205-CHA-D0500	5	M6	6	82	44	35	36
D2205-NHA-D0510	D2205-CHA-D0510	5.10		6	82	44	35	36
D2205-NHA-D0520	D2205-CHA-D0520	5.20		6	82	44	35	36
D2205-NHA-D0550	D2205-CHA-D0550	5.50		6	82	44	35	36
D2205-NHA-D0555	D2205-CHA-D0555	5.55		6	82	44	35	36
D2205-NHA-D0580	D2205-CHA-D0580	5.80		6	82	44	35	36
D2205-NHA-D0600	D2205-CHA-D0600	6		6	82	44	35	36
D2205-NHA-D0610	D2205-CHA-D0610	6.10		8	91	53	43	36
D2205-NHA-D0620	D2205-CHA-D0620	6.20		8	91	53	43	36
D2205-NHA-D0630	D2205-CHA-D0630	6.30		8	91	53	43	36
D2205-NHA-D0650	D2205-CHA-D0650	6.50		8	91	53	43	36
D2205-NHA-D0660	D2205-CHA-D0660	6.60		8	91	53	43	36
D2205-NHA-D0680	D2205-CHA-D0680	6.80	M8	8	91	53	43	36
D2205-NHA-D0690	D2205-CHA-D0690	6.90		8	91	53	43	36
D2205-NHA-D0700	D2205-CHA-D0700	7	M8X1	8	91	53	43	36
D2205-NHA-D0710	D2205-CHA-D0710	7.10		8	91	53	43	36
D2205-NHA-D0740	D2205-CHA-D0740	7.40		8	91	53	43	36
D2205-NHA-D0750	D2205-CHA-D0750	7.50		8	91	53	43	36

Recommended cutting amounts are shown in P61

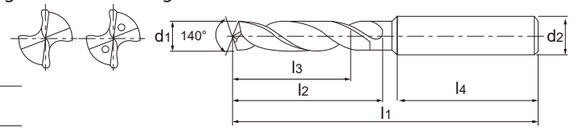
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2200Series-3D Straight Shank Twist Drill

HELICA 5D

The new wave edge design combines edge strength and sharpness to effectively reduce cutting resistance; the new G-shaped groove design enhances cutting performance and cutting space;
HELICA coating Curved edge, flat back angle.
Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric system	d2(h6)	l1	l2	l3	l4
D2205-NHA-D0780	D2205-CHA-D0780	7.80		8	91	53	43	36
D2205-NHA-D0800	D2205-CHA-D0800	8		8	91	53	43	36
D2205-NHA-D0810	D2205-CHA-D0810	8.10		10	103	61	49	40
D2205-NHA-D0840	D2205-CHA-D0840	8.40		10	103	61	49	40
D2205-NHA-D0850	D2205-CHA-D0850	8.50	M10	10	103	61	49	40
D2205-NHA-D0860	D2205-CHA-D0860	8.60		10	103	61	49	40
D2205-NHA-D0870	D2205-CHA-D0870	8.70		10	103	61	49	40
D2205-NHA-D0880	D2205-CHA-D0880	8.80		10	103	61	49	40
D2205-NHA-D0900	D2205-CHA-D0900	9	M10X1	10	103	61	49	40
D2205-NHA-D0930	D2205-CHA-D0930	9.30		10	103	61	49	40
D2205-NHA-D0950	D2205-CHA-D0950	9.50		10	103	61	49	40
D2205-NHA-D0960	D2205-CHA-D0960	9.60		10	103	61	49	40
D2205-NHA-D0980	D2205-CHA-D0980	9.80		10	103	61	49	40
D2205-NHA-D1000	D2205-CHA-D1000	10		10	103	61	49	40
D2205-NHA-D1025	D2205-CHA-D1025	10.25	M12	12	118	71	56	45
D2205-NHA-D1040	D2205-CHA-D1040	10.40		12	118	71	56	45
D2205-NHA-D1050	D2205-CHA-D1050	10.5	M12X1.5	12	118	71	56	45
D2205-NHA-D1060	D2205-CHA-D1060	10.60		12	118	71	56	45
D2205-NHA-D1080	D2205-CHA-D1080	10.80		12	118	71	56	45
D2205-NHA-D1100	D2205-CHA-D1100	11		12	118	71	56	45
D2205-NHA-D1120	D2205-CHA-D1120	11.20		12	118	71	56	45
D2205-NHA-D1150	D2205-CHA-D1150	11.50		12	118	71	56	45
D2205-NHA-D1180	D2205-CHA-D1180	11.80		12	118	71	56	45
D2205-NHA-D1200	D2205-CHA-D1200	12	M14	12	118	71	56	45
D2205-NHA-D1220	D2205-CHA-D1220	12.20		14	124	77	60	45
D2205-NHA-D1225	D2205-CHA-D1225	12.25		14	124	77	60	45
D2205-NHA-D1250	D2205-CHA-D1250	12.50	M14X1.5	14	124	77	60	45
D2205-NHA-D1270	D2205-CHA-D1270	12.70		14	124	77	60	45
D2205-NHA-D1275	D2205-CHA-D1275	12.75		14	124	77	60	45
D2205-NHA-D1280	D2205-CHA-D1280	12.80		14	124	77	60	45

Recommended cutting amounts are shown in P61

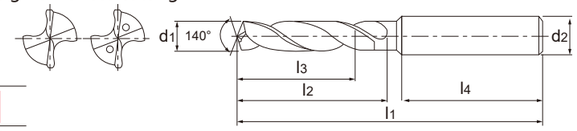
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
＞3-6	+0.004/+0.016	0.000/-0.008
＞6-10	+0.006/+0.021	0.000/-0.009
＞10-18	+0.007/+0.025	0.000/-0.011
＞18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2200Series-5D Straight Shank Twist Drill

HELICA 5D

The new wave edge design combines edge strength and sharpness to effectively reduce cutting resistance; the new G-shaped groove design enhances cutting performance and cutting space;
HELICA coating Curved edge, flat back angle.
Applicable materials: steel, cast iron, etc.



P		H	M	K
Carbon steel, alloy steel (HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	stainless steels	foundry iron
1,2,4,5	11	5,12	1,2,4	1,2,3,4
◎	○	○	○	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M metric system	d2(h6)	l1	l2	l3	l4
D2205-NHA-D1300	D2205-CHA-D1300	13		14	124	77	60	45
D2205-NHA-D1350	D2205-CHA-D1350	13.50		14	124	77	60	45
D2205-NHA-D1380	D2205-CHA-D1380	13.80		14	124	77	60	45
D2205-NHA-D1400	D2205-CHA-D1400	14	M16	14	124	77	60	45
D2205-NHA-D1425	D2205-CHA-D1425	14.25		16	133	83	63	48
D2205-NHA-D1450	D2205-CHA-D1450	14.50	M16X1.5	16	133	83	63	48
D2205-NHA-D1475	D2205-CHA-D1475	14.75		16	133	83	63	48
D2205-NHA-D1480	D2205-CHA-D1480	14.80		16	133	83	63	48
D2205-NHA-D1500	D2205-CHA-D1500	15		16	133	83	63	48
D2205-NHA-D1510	D2205-CHA-D1510	15.10		16	133	83	63	48
D2205-NHA-D1550	D2205-CHA-D1550	15.50		16	133	83	63	48
D2205-NHA-D1580	D2205-CHA-D1580	15.80		16	133	83	63	48
D2205-NHA-D1600	D2205-CHA-D1600	16		16	133	83	63	48
D2205-NHA-D1650	D2205-CHA-D1650	16.50		18	143	93	71	48
D2205-NHA-D1675	D2205-CHA-D1675	16.75		18	143	93	71	48
D2205-NHA-D1680	D2205-CHA-D1680	16.80		18	143	93	71	48
D2205-NHA-D1700	D2205-CHA-D1700	17		18	143	93	71	48
D2205-NHA-D1750	D2205-CHA-D1750	17.50		18	143	93	71	48
D2205-NHA-D1780	D2205-CHA-D1780	17.80		18	143	93	71	48
D2205-NHA-D1800	D2205-CHA-D1800	18		18	143	93	71	48
D2205-NHA-D1850	D2205-CHA-D1850	18.50		20	153	101	77	50
D2205-NHA-D1900	D2205-CHA-D1900	19		20	153	101	77	50
D2205-NHA-D1950	D2205-CHA-D1950	19.50		20	153	101	77	50
D2205-NHA-D1980	D2205-CHA-D1980	19.80		20	153	101	77	50
D2205-NHA-D2000	D2205-CHA-D2000	20		20	153	101	77	50

Recommended cutting amounts are shown in P61

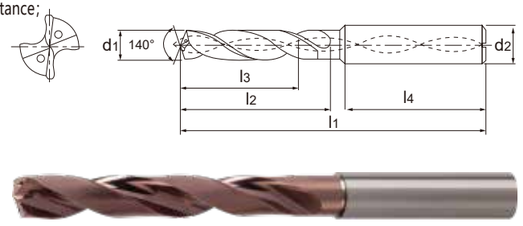
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
＞3-6	+0.004/+0.016	0.000/-0.008
＞6-10	+0.006/+0.021	0.000/-0.009
＞10-18	+0.007/+0.025	0.000/-0.011
＞18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2600Series-3D Internal Cooling Straight Shank Twist Drill

TiAlSiN 3D

New blade material and coating upgrades for greater toughness and wear resistance;
New groove design with excellent cutting space and discharge performance.;
Curved Edge, Flat Back Angle
Applicable materials: stainless steel, titanium alloy, high-temperature alloy, etc.



P	H	M	S	N
Carbon steel, alloy steel(HRC<35)	hardened steel	stainless steels	High temperature alloys, titanium alloys	non-ferrous metals
1,2,11	12	1,2,4	1,2,3,11,13	10,11
○	○	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Thread Size M metric system	diameter of handle d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D2603-CHA-D0300	3		4	62	20	14	36
D2603-CHA-D0325	3.25		4	62	20	14	36
D2603-CHA-D0330	3.3	M4	4	62	20	14	36
D2603-CHA-D0340	3.4		4	62	20	14	36
D2603-CHA-D0350	3.5		4	62	20	14	36
D2603-CHA-D0370	3.7		4	62	20	14	36
D2603-CHA-D0400	4		4	66	24	17	36
D2603-CHA-D0420	4.2	M5	6	66	24	17	36
D2603-CHA-D0430	4.3		6	66	24	17	36
D2603-CHA-D0450	4.5		6	66	24	17	36
D2603-CHA-D0465	4.65		6	66	24	17	36
D2603-CHA-D0480	4.8		6	66	28	20	36
D2603-CHA-D0500	5	M6	6	66	28	20	36
D2603-CHA-D0510	5.1		6	66	28	20	36
D2603-CHA-D0520	5.2		6	66	28	20	36
D2603-CHA-D0550	5.5		6	66	28	20	36
D2603-CHA-D0555	5.55		6	66	28	20	36
D2603-CHA-D0580	5.8		6	66	28	20	36
D2603-CHA-D0600	6		6	66	28	20	36
D2603-CHA-D0610	6.1		8	79	34	24	36
D2603-CHA-D0620	6.2		8	79	34	24	36
D2603-CHA-D0630	6.3		8	79	34	24	36
D2603-CHA-D0650	6.5		8	79	34	24	36
D2603-CHA-D0660	6.6		8	79	34	24	36
D2603-CHA-D0680	6.8	M8	8	79	34	24	36
D2603-CHA-D0690	6.9		8	79	34	24	36
D2603-CHA-D0700	7	M8X1	8	79	34	24	36
D2603-CHA-D0710	7.1		8	79	41	29	36
D2603-CHA-D0740	7.4		8	79	41	29	36
D2603-CHA-D0750	7.5		8	79	41	29	36

Recommended cutting amounts are shown in P64

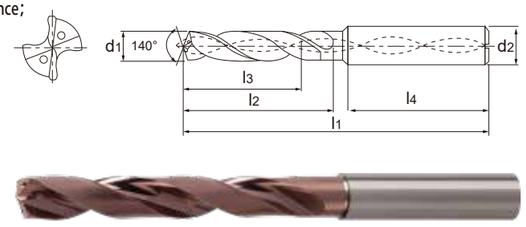
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2600Series-3D Internal Cooling Straight Shank Twist Drill

TiAlSiN 3D

New blade material and coating upgrades for greater toughness and wear resistance;
New groove design with excellent cutting space and discharge performance.;
Curved Edge, Flat Back Angle
Applicable materials: stainless steel, titanium alloy, high-temperature alloy, etc.



P	H	M	S	N
Carbon steel, alloy steel(HRC<35)	hardened steel	stainless steels	High temperature alloys, titanium alloys	non-ferrous metals
1,2,11	12	1,2,4	1,2,3,11,13	10,11
○	○	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Thread Size Mmetric system	diameter of handle d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D2603-CHA-D0780	7.8		8	79	41	29	36
D2603-CHA-D0800	8		8	79	41	29	36
D2603-CHA-D0810	8.1		10	89	47	35	40
D2603-CHA-D0840	8.4		10	89	47	35	40
D2603-CHA-D0850	8.5	M10	10	89	47	35	40
D2603-CHA-D0860	8.6		10	89	47	35	40
D2603-CHA-D0870	8.7		10	89	47	35	40
D2603-CHA-D0880	8.8		10	89	47	35	40
D2603-CHA-D0900	9	M10X1	10	89	47	35	40
D2603-CHA-D0930	9.3		10	89	47	35	40
D2603-CHA-D0950	9.5		10	89	47	35	40
D2603-CHA-D0960	9.6		10	89	47	35	40
D2603-CHA-D0980	9.8		10	89	47	35	40
D2603-CHA-D1000	10		10	89	47	35	40
D2603-CHA-D1025	10.25	M12	12	102	55	40	45
D2603-CHA-D1040	10.4		12	102	55	40	45
D2603-CHA-D1050	10.5	M12X1.5	12	102	55	40	45
D2603-CHA-D1060	10.6		12	102	55	40	45
D2603-CHA-D1080	10.8		12	102	55	40	45
D2603-CHA-D1100	11		12	102	55	40	45
D2603-CHA-D1120	11.2		12	102	55	40	45
D2603-CHA-D1150	11.5		12	102	55	40	45
D2603-CHA-D1180	11.8		12	102	55	40	45
D2603-CHA-D1200	12	M14	12	102	55	40	45
D2603-CHA-D1225	12.25		14	107	60	43	45
D2603-CHA-D1250	12.5	M14X1.5	14	107	60	43	45
D2603-CHA-D1270	12.7		14	107	60	43	45
D2603-CHA-D1275	12.75		14	107	60	43	45
D2603-CHA-D1280	12.8		14	107	60	43	45
D2603-CHA-D1300	13		14	107	60	43	45

Recommended cutting amounts are shown in P64

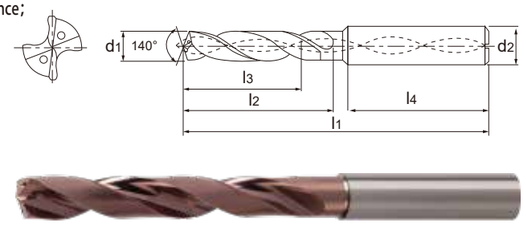
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit((mm)

D2600Series-3D Internal Cooling Straight Shank Twist Drill

TiAlSiN 3D

New blade material and coating upgrades for greater toughness and wear resistance;
New groove design with excellent cutting space and discharge performance.;
Curved Edge, Flat Back Angle
Applicable materials: stainless steel, titanium alloy, high-temperature alloy, etc.



P	H	M	S	N
Carbon steel, alloy steel(HRC<35)	hardened steel	stainless steels	High temperature alloys, titanium alloys	non-ferrous metals
1,2,11	12	1,2,4	1,2,3,11,13	10,11
○	○	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Thread Size M公制	diameter of handle d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D2603-CHA-D1310	13.1		14	107	60	43	45
D2603-CHA-D1350	13.5		14	107	60	43	45
D2603-CHA-D1380	13.8		14	107	60	43	45
D2603-CHA-D1400	14	M16	14	107	60	43	45
D2603-CHA-D1425	14.25		16	115	65	45	48
D2603-CHA-D1450	14.5	M16x1.5	16	115	65	45	48
D2603-CHA-D1475	14.75		16	115	65	45	48
D2603-CHA-D1480	14.8		16	115	65	45	48
D2603-CHA-D1500	15		16	115	65	45	48
D2603-CHA-D1510	15.1		16	115	65	45	48
D2603-CHA-D1550	15.5		16	115	65	45	48
D2603-CHA-D1580	15.8		16	115	65	45	48
D2603-CHA-D1600	16		16	115	65	45	48
D2603-CHA-D1650	16.5		18	123	73	51	48
D2603-CHA-D1675	16.75		18	123	73	51	48
D2603-CHA-D1680	16.8		18	123	73	51	48
D2603-CHA-D1700	17		18	123	73	51	48
D2603-CHA-D1750	17.5		18	123	73	51	48
D2603-CHA-D1780	17.8		18	123	73	51	48
D2603-CHA-D1800	18		18	123	73	51	48
D2603-CHA-D1850	18.5		20	131	79	55	50
D2603-CHA-D1880	18.8		20	131	79	55	50
D2603-CHA-D1900	19		20	131	79	55	50
D2603-CHA-D1950	19.5		20	131	79	55	50
D2603-CHA-D1980	19.8		20	131	79	55	50
D2603-CHA-D2000	20		20	131	79	55	50

Recommended cutting amounts are shown in P64

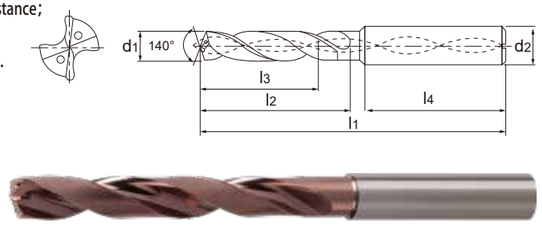
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit:(mm)

D2600Series-5D Internal Cooling Straight Shank Twist Drill

TiAlSiN 5D

New blade material and coating upgrades for greater toughness and wear resistance;
New groove design with excellent cutting space and discharge performance.;
Curved Edge, Flat Back Angle
Applicable materials: stainless steel, titanium alloy, high-temperature alloy, etc.



P	H	M	S	N
Carbon steel, alloy steel(HRC<35)	hardened steel	stainless steels	High temperature alloys, titanium alloys	non-ferrous metals
1,2,11	12	1,2,4	1,2,3,11,13	10,11
○	○	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Thread Size M公制	diameter of handle d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D2605-CHA-D0300	3		4	66	28	23	36
D2605-CHA-D0325	3.25		4	66	28	23	36
D2605-CHA-D0330	3.3	M4	4	66	28	23	36
D2605-CHA-D0340	3.4		4	66	28	23	36
D2605-CHA-D0350	3.5		4	66	28	23	36
D2605-CHA-D0370	3.7		4	66	28	23	36
D2605-CHA-D0400	4		4	74	36	29	36
D2605-CHA-D0420	4.2	M5	6	74	36	29	36
D2605-CHA-D0430	4.3		6	74	36	29	36
D2605-CHA-D0450	4.5		6	74	36	29	36
D2605-CHA-D0465	4.65		6	74	36	29	36
D2605-CHA-D0480	4.8		6	82	44	35	36
D2605-CHA-D0500	5	M6	6	82	44	35	36
D2605-CHA-D0510	5.1		6	82	44	35	36
D2605-CHA-D0520	5.2		6	82	44	35	36
D2605-CHA-D0550	5.5		6	82	44	35	36
D2605-CHA-D0555	5.55		6	82	44	35	36
D2605-CHA-D0580	5.8		6	82	44	35	36
D2605-CHA-D0600	6		6	82	44	35	36
D2605-CHA-D0610	6.1		8	91	53	43	36
D2605-CHA-D0620	6.2		8	91	53	43	36
D2605-CHA-D0630	6.3		8	91	53	43	36
D2605-CHA-D0650	6.5		8	91	53	43	36
D2605-CHA-D0660	6.6		8	91	53	43	36
D2605-CHA-D0680	6.8	M8	8	91	53	43	36
D2605-CHA-D0690	6.9		8	91	53	43	36
D2605-CHA-D0700	7	M8X1	8	91	53	43	36
D2605-CHA-D0710	7.1		8	91	53	43	36
D2605-CHA-D0740	7.4		8	91	53	43	36
D2605-CHA-D0750	7.5		8	91	53	43	36

Recommended cutting amounts are shown in P64

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

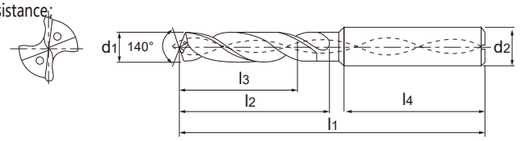
unit:(mm)

D2600Series-5D Internal Cooling Straight Shank Twist Drill

TiAlSiN 5D

New blade material and coating upgrades for greater toughness and wear resistance;
New groove design with excellent cutting space and discharge performance.;
Curved Edge, Flat Back Angle

Applicable materials: stainless steel, titanium alloy, high-temperature alloy, etc.



P	H	M	S	N
Carbon steel, alloy steel(HRC<35)	hardened steel	stainless steels	High temperature alloys, titanium alloys	non-ferrous metals
1,2,11	12	1,2,4	1,2,3,11,13	10,11
○	○	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Thread Size M公制	diameter of handle d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D2605-CHA-D0780	7.8		8	91	53	43	36
D2605-CHA-D0800	8		8	91	53	43	36
D2605-CHA-D0810	8.1		10	103	61	49	40
D2605-CHA-D0840	8.4		10	103	61	49	40
D2605-CHA-D0850	8.5	M10	10	103	61	49	40
D2605-CHA-D0860	8.6		10	103	61	49	40
D2605-CHA-D0870	8.7		10	103	61	49	40
D2605-CHA-D0880	8.8		10	103	61	49	40
D2605-CHA-D0900	9	M10X1	10	103	61	49	40
D2605-CHA-D0930	9.3		10	103	61	49	40
D2605-CHA-D0950	9.5		10	103	61	49	40
D2605-CHA-D0960	9.6		10	103	61	49	40
D2605-CHA-D0980	9.8		10	103	61	49	40
D2605-CHA-D1000	10		10	103	61	49	40
D2605-CHA-D1025	10.25	M12	12	118	71	56	45
D2605-CHA-D1040	10.4		12	118	71	56	45
D2605-CHA-D1050	10.5	M12X1.5	12	118	71	56	45
D2605-CHA-D1060	10.6		12	118	71	56	45
D2605-CHA-D1080	10.8		12	118	71	56	45
D2605-CHA-D1100	11		12	118	71	56	45
D2605-CHA-D1120	11.2		12	118	71	56	45
D2605-CHA-D1150	11.5		12	118	71	56	45
D2605-CHA-D1180	11.8		12	118	71	56	45
D2605-CHA-D1200	12	M14	12	118	71	56	45
D2605-CHA-D1220	12.2		14	124	77	60	45
D2605-CHA-D1225	12.25		14	124	77	60	45
D2605-CHA-D1250	12.5	M14X1.5	14	124	77	60	45
D2605-CHA-D1270	12.7		14	124	77	60	45
D2605-CHA-D1275	12.75		14	124	77	60	45
D2605-CHA-D1280	12.8		14	124	77	60	45

Recommended cutting amounts are shown in P64

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

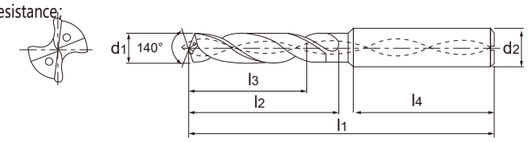
unit(mm)

D2600Series-5D Internal Cooling Straight Shank Twist Drill

TiAlSiN 5D

New blade material and coating upgrades for greater toughness and wear resistance;
New groove design with excellent cutting space and discharge performance.;
Curved Edge, Flat Back Angle

Applicable materials: stainless steel, titanium alloy, high-temperature alloy, etc.



P	H	M	S	N
Carbon steel, alloy steel(HRC<35)	hardened steel	stainless steels	High temperature alloys, titanium alloys	non-ferrous metals
1,2,11	12	1,2,4	1,2,3,11,13	10,11
○	○	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Thread Size M公制	diameter of handle d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D2605-CHA-D1300	13		14	124	77	60	45
D2605-CHA-D1350	13.5		14	124	77	60	45
D2605-CHA-D1380	13.8		14	124	77	60	45
D2605-CHA-D1400	14	M16	14	124	77	60	45
D2605-CHA-D1425	14.25		16	133	83	63	48
D2605-CHA-D1450	14.5	M16X1.5	16	133	83	63	48
D2605-CHA-D1475	14.75		16	133	83	63	48
D2605-CHA-D1480	14.8		16	133	83	63	48
D2605-CHA-D1500	15		16	133	83	63	48
D2605-CHA-D1510	15.1		16	133	83	63	48
D2605-CHA-D1550	15.5		16	133	83	63	48
D2605-CHA-D1580	15.8		16	133	83	63	48
D2605-CHA-D1600	16		16	133	83	63	48
D2605-CHA-D1650	16.5		18	143	93	71	48
D2605-CHA-D1675	16.75		18	143	93	71	48
D2605-CHA-D1680	16.8		18	143	93	71	48
D2605-CHA-D1700	17		18	143	93	71	48
D2605-CHA-D1750	17.5		18	143	93	71	48
D2605-CHA-D1780	17.8		18	143	93	71	48
D2605-CHA-D1800	18		18	143	93	71	48
D2605-CHA-D1850	18.5		20	153	101	77	50
D2605-CHA-D1900	19		20	153	101	77	50
D2605-CHA-D1950	19.5		20	153	101	77	50
D2605-CHA-D1980	19.8		20	153	101	77	50
D2605-CHA-D2000	20		20	153	101	77	50

Recommended cutting amounts are shown in P64

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

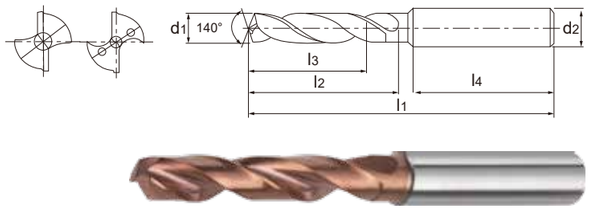
unit(mm)

D2300Series-3D Straight Shank Twist Drill

AlTiN nano | 3D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.



P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2303-NHA-D0300	D2303-CHA-D0300	3.00		6.00	62	20	14	36
D2303-NHA-D0325	D2303-CHA-D0325	3.25		6.00	62	20	14	36
D2303-NHA-D0330	D2303-CHA-D0330	3.30	M4	6.00	62	20	14	36
D2303-NHA-D0340	D2303-CHA-D0340	3.40		6.00	62	20	14	36
D2303-NHA-D0350	D2303-CHA-D0350	3.50		6.00	62	20	14	36
D2303-NHA-D0370	D2303-CHA-D0370	3.70		6.00	62	20	14	36
D2303-NHA-D0400	D2303-CHA-D0400	4.00		6.00	66	24	17	36
D2303-NHA-D0420	D2303-CHA-D0420	4.20	M5	6.00	66	24	17	36
D2303-NHA-D0430	D2303-CHA-D0430	4.30		6.00	66	24	17	36
D2303-NHA-D0450	D2303-CHA-D0450	4.50		6.00	66	24	17	36
D2303-NHA-D0465	D2303-CHA-D0465	4.65		6.00	66	24	17	36
D2303-NHA-D0480	D2303-CHA-D0480	4.80		6.00	66	28	20	36
D2303-NHA-D0500	D2303-CHA-D0500	5.00	M6	6.00	66	28	20	36
D2303-NHA-D0510	D2303-CHA-D0510	5.10		6.00	66	28	20	36
D2303-NHA-D0520	D2303-CHA-D0520	5.20		6.00	66	28	20	36
D2303-NHA-D0550	D2303-CHA-D0550	5.50		6.00	66	28	20	36
D2303-NHA-D0555	D2303-CHA-D0555	5.55		6.00	66	28	20	36
D2303-NHA-D0580	D2303-CHA-D0580	5.80		6.00	66	28	20	36
D2303-NHA-D0600	D2303-CHA-D0600	6.00		6.00	66	28	20	36
D2303-NHA-D0610	D2303-CHA-D0610	6.10		8.00	79	34	24	36
D2303-NHA-D0620	D2303-CHA-D0620	6.20		8.00	79	34	24	36
D2303-NHA-D0630	D2303-CHA-D0630	6.30		8.00	79	34	24	36
D2303-NHA-D0650	D2303-CHA-D0650	6.50		8.00	79	34	24	36
D2303-NHA-D0660	D2303-CHA-D0660	6.60		8.00	79	34	24	36
D2303-NHA-D0680	D2303-CHA-D0680	6.80	M8	8.00	79	34	24	36
D2303-NHA-D0690	D2303-CHA-D0690	6.90		8.00	79	34	24	36
D2303-NHA-D0700	D2303-CHA-D0700	7.00	M8X1	8.00	79	34	24	36
D2303-NHA-D0710	D2303-CHA-D0710	7.10		8.00	79	41	29	36
D2303-NHA-D0740	D2303-CHA-D0740	7.40		8.00	79	41	29	36
D2303-NHA-D0750	D2303-CHA-D0750	7.50		8.00	79	41	29	36

Recommended cutting amounts are shown in P62

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

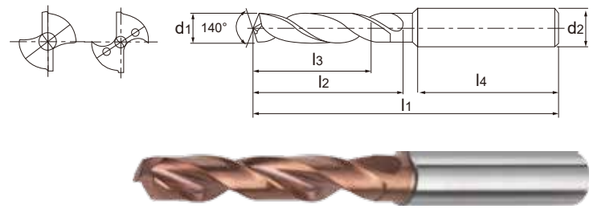
unit(mm)

D2300Series-3D Straight Shank Twist Drill

AlTiN nano | 3D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.



P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2303-NHA-D0780	D2303-CHA-D0780	7.80		8.00	79	41	29	36
D2303-NHA-D0800	D2303-CHA-D0800	8.00		8.00	79	41	29	36
D2303-NHA-D0810	D2303-CHA-D0810	8.10		10.00	89	47	35	40
D2303-NHA-D0840	D2303-CHA-D0840	8.40		10.00	89	47	35	40
D2303-NHA-D0850	D2303-CHA-D0850	8.50	M10	10.00	89	47	35	40
D2303-NHA-D0860	D2303-CHA-D0860	8.60		10.00	89	47	35	40
D2303-NHA-D0870	D2303-CHA-D0870	8.70		10.00	89	47	35	40
D2303-NHA-D0880	D2303-CHA-D0880	8.80		10.00	89	47	35	40
D2303-NHA-D0900	D2303-CHA-D0900	9.00	M10X1	10.00	89	47	35	40
D2303-NHA-D0930	D2303-CHA-D0930	9.30		10.00	89	47	35	40
D2303-NHA-D0950	D2303-CHA-D0950	9.50		10.00	89	47	35	40
D2303-NHA-D0960	D2303-CHA-D0960	9.60		10.00	89	47	35	40
D2303-NHA-D0980	D2303-CHA-D0980	9.80		10.00	89	47	35	40
D2303-NHA-D1000	D2303-CHA-D1000	10.00		10.00	89	47	35	40
D2303-NHA-D1025	D2303-CHA-D1025	10.25	M12	12.00	102	55	40	45
D2303-NHA-D1040	D2303-CHA-D1040	10.40		12.00	102	55	40	45
D2303-NHA-D1050	D2303-CHA-D1050	10.50	M12X1.5	12.00	102	55	40	45
D2303-NHA-D1060	D2303-CHA-D1060	10.60		12.00	102	55	40	45
D2303-NHA-D1080	D2303-CHA-D1080	10.80		12.00	102	55	40	45
D2303-NHA-D1100	D2303-CHA-D1100	11.00		12.00	102	55	40	45
D2303-NHA-D1120	D2303-CHA-D1120	11.20		12.00	102	55	40	45
D2303-NHA-D1150	D2303-CHA-D1150	11.50		12.00	102	55	40	45
D2303-NHA-D1180	D2303-CHA-D1180	11.80		12.00	102	55	40	45
D2303-NHA-D1200	D2303-CHA-D1200	12.00	M14	12.00	102	55	40	45
D2303-NHA-D1225	D2303-CHA-D1225	12.25		14.00	107	60	43	45
D2303-NHA-D1250	D2303-CHA-D1250	12.50	M14X1.5	14.00	107	60	43	45
D2303-NHA-D1270	D2303-CHA-D1270	12.70		14.00	107	60	43	45
D2303-NHA-D1275	D2303-CHA-D1275	12.75		14.00	107	60	43	45
D2303-NHA-D1280	D2303-CHA-D1280	12.80		14.00	107	60	43	45
D2303-NHA-D1300	D2303-CHA-D1300	13.00		14.00	107	60	43	45

Recommended cutting amounts are shown in P62

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

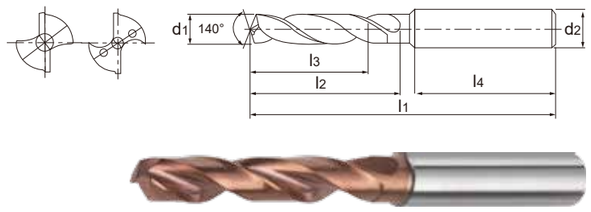
unit(mm)

D2300Series-3D Straight Shank Twist Drill

AlTiN nano | 3D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.



P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2303-NHA-D1310	D2303-CHA-D1310	13.10		14.00	107	60	43	45
D2303-NHA-D1350	D2303-CHA-D1350	13.50		14.00	107	60	43	45
D2303-NHA-D1380	D2303-CHA-D1380	13.80		14.00	107	60	43	45
D2303-NHA-D1400	D2303-CHA-D1400	14.00	M16	14.00	107	60	43	45
D2303-NHA-D1425	D2303-CHA-D1425	14.25		16.00	115	65	45	48
D2303-NHA-D1450	D2303-CHA-D1450	14.50	M16X1.5	16.00	115	65	45	48
D2303-NHA-D1475	D2303-CHA-D1475	14.75		16.00	115	65	45	48
D2303-NHA-D1480	D2303-CHA-D1480	14.80		16.00	115	65	45	48
D2303-NHA-D1500	D2303-CHA-D1500	15.00		16.00	115	65	45	48
D2303-NHA-D1510	D2303-CHA-D1510	15.10		16.00	115	65	45	48
D2303-NHA-D1550	D2303-CHA-D1550	15.50		16.00	115	65	45	48
D2303-NHA-D1580	D2303-CHA-D1580	15.80		16.00	115	65	45	48
D2303-NHA-D1600	D2303-CHA-D1600	16.00		16.00	115	65	45	48
D2303-NHA-D1650	D2303-CHA-D1650	16.50		18.00	123	73	51	48
D2303-NHA-D1675	D2303-CHA-D1675	16.75		18.00	123	73	51	48
D2303-NHA-D1680	D2303-CHA-D1680	16.80		18.00	123	73	51	48
D2303-NHA-D1700	D2303-CHA-D1700	17.00		18.00	123	73	51	48
D2303-NHA-D1750	D2303-CHA-D1750	17.50		18.00	123	73	51	48
D2303-NHA-D1780	D2303-CHA-D1780	17.80		18.00	123	73	51	48
D2303-NHA-D1800	D2303-CHA-D1800	18.00		18.00	123	73	51	48
D2303-NHA-D1850	D2303-CHA-D1850	18.50		20.00	131	79	55	50
D2303-NHA-D1880	D2303-CHA-D1880	18.80		20.00	131	79	55	50
D2303-NHA-D1900	D2303-CHA-D1900	19.00		20.00	131	79	55	50
D2303-NHA-D1950	D2303-CHA-D1950	19.50		20.00	131	79	55	50
D2303-NHA-D1980	D2303-CHA-D1980	19.80		20.00	131	79	55	50
D2303-NHA-D2000	D2303-CHA-D2000	20.00		20.00	131	79	55	50

Recommended cutting amounts are shown in P62

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

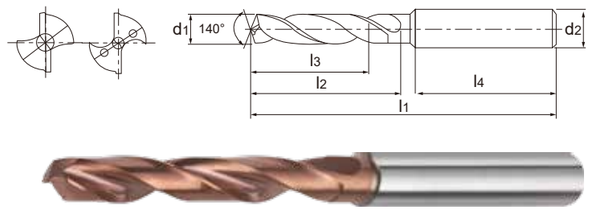
unit(mm)

D2300Series-5D Straight Shank Twist Drill

AlTiN nano | 5D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.



P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2305-NHA-D0300	D2305-CHA-D0300	3.00		6.00	66	28	23	36
D2305-NHA-D0325	D2305-CHA-D0325	3.25		6.00	66	28	23	36
D2305-NHA-D0330	D2305-CHA-D0330	3.30	M4	6.00	66	28	23	36
D2305-NHA-D0340	D2305-CHA-D0340	3.40		6.00	66	28	23	36
D2305-NHA-D0350	D2305-CHA-D0350	3.50		6.00	66	28	23	36
D2305-NHA-D0370	D2305-CHA-D0370	3.70		6.00	66	28	23	36
D2305-NHA-D0400	D2305-CHA-D0400	4.00		6.00	74	36	29	36
D2305-NHA-D0420	D2305-CHA-D0420	4.20	M5	6.00	74	36	29	36
D2305-NHA-D0430	D2305-CHA-D0430	4.30		6.00	74	36	29	36
D2305-NHA-D0450	D2305-CHA-D0450	4.50		6.00	74	36	29	36
D2305-NHA-D0465	D2305-CHA-D0465	4.65		6.00	74	36	29	36
D2305-NHA-D0480	D2305-CHA-D0480	4.80		6.00	82	44	35	36
D2305-NHA-D0500	D2305-CHA-D0500	5.00	M6	6.00	82	44	35	36
D2305-NHA-D0510	D2305-CHA-D0510	5.10		6.00	82	44	35	36
D2305-NHA-D0520	D2305-CHA-D0520	5.20		6.00	82	44	35	36
D2305-NHA-D0550	D2305-CHA-D0550	5.50		6.00	82	44	35	36
D2305-NHA-D0555	D2305-CHA-D0555	5.55		6.00	82	44	35	36
D2305-NHA-D0580	D2305-CHA-D0580	5.80		6.00	82	44	35	36
D2305-NHA-D0600	D2305-CHA-D0600	6.00		6.00	82	44	35	36
D2305-NHA-D0610	D2305-CHA-D0610	6.10		8.00	91	53	43	36
D2305-NHA-D0620	D2305-CHA-D0620	6.20		8.00	91	53	43	36
D2305-NHA-D0630	D2305-CHA-D0630	6.30		8.00	91	53	43	36
D2305-NHA-D0650	D2305-CHA-D0650	6.50		8.00	91	53	43	36
D2305-NHA-D0660	D2305-CHA-D0660	6.60		8.00	91	53	43	36
D2305-NHA-D0680	D2305-CHA-D0680	6.80	M8	8.00	91	53	43	36
D2305-NHA-D0690	D2305-CHA-D0690	6.90		8.00	91	53	43	36
D2305-NHA-D0700	D2305-CHA-D0700	7.00	M8X1	8.00	91	53	43	36
D2305-NHA-D0710	D2305-CHA-D0710	7.10		8.00	91	53	43	36
D2305-NHA-D0740	D2305-CHA-D0740	7.40		8.00	91	53	43	36
D2305-NHA-D0750	D2305-CHA-D0750	7.50		8.00	91	53	43	36

Recommended cutting amounts are shown in P62

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

unit(mm)

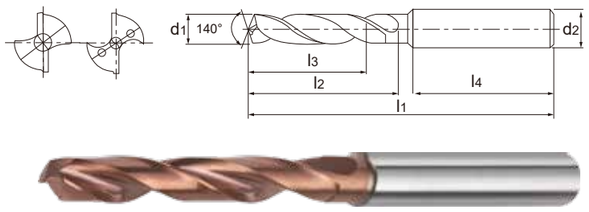
D2300Series-5D Straight Shank Twist Drill

AlTiN nano | 5D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○



◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2305-NHA-D0780	D2305-CHA-D0780	7.80		8.00	91	53	43	36
D2305-NHA-D0800	D2305-CHA-D0800	8.00		8.00	91	53	43	36
D2305-NHA-D0810	D2305-CHA-D0810	8.10		10.00	103	61	49	40
D2305-NHA-D0840	D2305-CHA-D0840	8.40		10.00	103	61	49	40
D2305-NHA-D0850	D2305-CHA-D0850	8.50	M10	10.00	103	61	49	40
D2305-NHA-D0860	D2305-CHA-D0860	8.60		10.00	103	61	49	40
D2305-NHA-D0870	D2305-CHA-D0870	8.70		10.00	103	61	49	40
D2305-NHA-D0880	D2305-CHA-D0880	8.80		10.00	103	61	49	40
D2305-NHA-D0900	D2305-CHA-D0900	9.00	M10X1	10.00	103	61	49	40
D2305-NHA-D0930	D2305-CHA-D0930	9.30		10.00	103	61	49	40
D2305-NHA-D0950	D2305-CHA-D0950	9.50		10.00	103	61	49	40
D2305-NHA-D0960	D2305-CHA-D0960	9.60		10.00	103	61	49	40
D2305-NHA-D0980	D2305-CHA-D0980	9.80		10.00	103	61	49	40
D2305-NHA-D1000	D2305-CHA-D1000	10.00		10.00	103	61	49	40
D2305-NHA-D1025	D2305-CHA-D1025	10.25	M12	12.00	118	71	56	45
D2305-NHA-D1040	D2305-CHA-D1040	10.40		12.00	118	71	56	45
D2305-NHA-D1050	D2305-CHA-D1050	10.50	M12X1.5	12.00	118	71	56	45
D2305-NHA-D1060	D2305-CHA-D1060	10.60		12.00	118	71	56	45
D2305-NHA-D1080	D2305-CHA-D1080	10.80		12.00	118	71	56	45
D2305-NHA-D1100	D2305-CHA-D1100	11.00		12.00	118	71	56	45
D2305-NHA-D1120	D2305-CHA-D1120	11.20		12.00	118	71	56	45
D2305-NHA-D1150	D2305-CHA-D1150	11.50		12.00	118	71	56	45
D2305-NHA-D1180	D2305-CHA-D1180	11.80		12.00	118	71	56	45
D2305-NHA-D1200	D2305-CHA-D1200	12.00	M14	12.00	118	71	56	45
D2305-NHA-D1220	D2305-CHA-D1220	12.20		14.00	124	77	60	45
D2305-NHA-D1225	D2305-CHA-D1225	12.25		14.00	124	77	60	45
D2305-NHA-D1250	D2305-CHA-D1250	12.50	M14X1.5	14.00	124	77	60	45
D2305-NHA-D1270	D2305-CHA-D1270	12.70		14.00	124	77	60	45
D2305-NHA-D1275	D2305-CHA-D1275	12.75		14.00	124	77	60	45
D2305-NHA-D1280	D2305-CHA-D1280	12.80		14.00	124	77	60	45

Recommended cutting amounts are shown in P62

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

unit(mm)

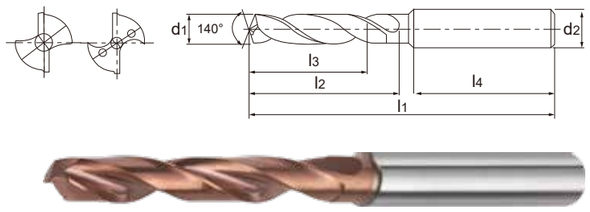
D2300Series-5D Straight Shank Twist Drill

AlTiN nano | 5D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○



◎ most suitable ○ suitability

The workpiece material table can be found at P11

model number		diameter of blade	Thread Size	diameter of handle	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2305-NHA-D1300	D2305-CHA-D1300	13.00		14.00	124	77	60	45
D2305-NHA-D1350	D2305-CHA-D1350	13.50		14.00	124	77	60	45
D2305-NHA-D1380	D2305-CHA-D1380	13.80		14.00	124	77	60	45
D2305-NHA-D1400	D2305-CHA-D1400	14.00	M16	14.00	124	77	60	45
D2305-NHA-D1425	D2305-CHA-D1425	14.25		16.00	133	83	63	48
D2305-NHA-D1450	D2305-CHA-D1450	14.50	M16X1.5	16.00	133	83	63	48
D2305-NHA-D1475	D2305-CHA-D1475	14.75		16.00	133	83	63	48
D2305-NHA-D1480	D2305-CHA-D1480	14.80		16.00	133	83	63	48
D2305-NHA-D1500	D2305-CHA-D1500	15.00		16.00	133	83	63	48
D2305-NHA-D1510	D2305-CHA-D1510	15.10		16.00	133	83	63	48
D2305-NHA-D1550	D2305-CHA-D1550	15.50		16.00	133	83	63	48
D2305-NHA-D1580	D2305-CHA-D1580	15.80		16.00	133	83	63	48
D2305-NHA-D1600	D2305-CHA-D1600	16.00		16.00	133	83	63	48
D2305-NHA-D1650	D2305-CHA-D1650	16.50		18.00	143	93	71	48
D2305-NHA-D1675	D2305-CHA-D1675	16.75		18.00	143	93	71	48
D2305-NHA-D1680	D2305-CHA-D1680	16.80		18.00	143	93	71	48
D2305-NHA-D1700	D2305-CHA-D1700	17.00		18.00	143	93	71	48
D2305-NHA-D1750	D2305-CHA-D1750	17.50		18.00	143	93	71	48
D2305-NHA-D1780	D2305-CHA-D1780	17.80		18.00	143	93	71	48
D2305-NHA-D1800	D2305-CHA-D1800	18.00		18.00	143	93	71	48
D2305-NHA-D1850	D2305-CHA-D1850	18.50		20.00	153	101	77	50
D2305-NHA-D1900	D2305-CHA-D1900	19.00		20.00	153	101	77	50
D2305-NHA-D1950	D2305-CHA-D1950	19.50		20.00	153	101	77	50
D2305-NHA-D1980	D2305-CHA-D1980	19.80		20.00	153	101	77	50
D2305-NHA-D2000	D2305-CHA-D2000	20.00		20.00	153	101	77	50

Recommended cutting amounts are shown in P62

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

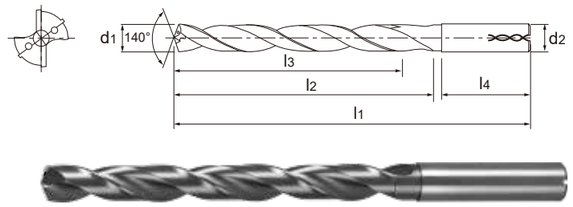
unit(mm)

D2300Series-8D internal cold twist drill

AlTiN nano | 8D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.



P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2308-CHA-D03000	3	6	72	34	36
D2308-CHA-D03100	3.1	6	72	34	36
D2308-CHA-D03200	3.2	6	72	34	36
D2308-CHA-D03300	3.3	6	72	34	36
D2308-CHA-D03400	3.4	6	72	34	36
D2308-CHA-D03500	3.5	6	72	34	36
D2308-CHA-D03600	3.6	6	72	34	36
D2308-CHA-D03700	3.7	6	72	34	36
D2308-CHA-D03800	3.8	6	81	43	36
D2308-CHA-D03900	3.9	6	81	43	36
D2308-CHA-D04000	4	6	81	43	36
D2308-CHA-D04100	4.1	6	81	43	36
D2308-CHA-D04200	4.2	6	81	43	36
D2308-CHA-D04300	4.3	6	81	43	36
D2308-CHA-D04400	4.4	6	81	43	36
D2308-CHA-D04500	4.5	6	81	43	36
D2308-CHA-D04600	4.6	6	81	43	36
D2308-CHA-D04700	4.7	6	81	43	36
D2308-CHA-D04800	4.8	6	95	57	36
D2308-CHA-D04900	4.9	6	95	57	36
D2308-CHA-D05000	5	6	95	57	36
D2308-CHA-D05100	5.1	6	95	57	36
D2308-CHA-D05200	5.2	6	95	57	36
D2308-CHA-D05300	5.3	6	95	57	36
D2308-CHA-D05400	5.4	6	95	57	36
D2308-CHA-D05500	5.5	6	95	57	36
D2308-CHA-D05600	5.6	6	95	57	36
D2308-CHA-D05700	5.7	6	95	57	36
D2308-CHA-D05800	5.8	6	95	57	36
D2308-CHA-D05900	5.9	6	95	57	36

Recommended cutting amounts are shown in P62

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

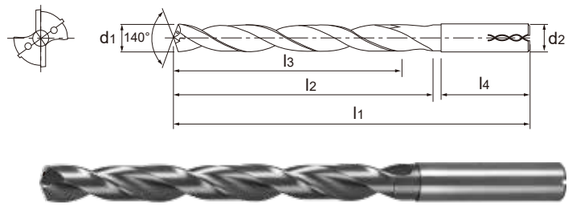
unit(mm)

D2300Series-8D internal cold twist drill

AlTiN nano | 8D

AlTiN-nano coating Straight edge, flat back angle

Applicable materials: steel, cast iron, etc.



P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2308-CHA-D06000	6	6	95	57	36
D2308-CHA-D06100	6.1	8	114	76	36
D2308-CHA-D06200	6.2	8	114	76	36
D2308-CHA-D06300	6.2	8	114	76	36
D2308-CHA-D06400	6.4	8	114	76	36
D2308-CHA-D06500	6.5	8	114	76	36
D2308-CHA-D06600	6.6	8	114	76	36
D2308-CHA-D06700	6.7	8	114	76	36
D2308-CHA-D06800	6.8	8	114	76	36
D2308-CHA-D06900	6.9	8	114	76	36
D2308-CHA-D07000	7	8	114	76	36
D2308-CHA-D07100	7.1	8	114	76	36
D2308-CHA-D07200	7.2	8	114	76	36
D2308-CHA-D07300	7.3	8	114	76	36
D2308-CHA-D07400	7.4	8	114	76	36
D2308-CHA-D07500	7.5	8	114	76	36
D2308-CHA-D07600	7.6	8	114	76	36
D2308-CHA-D07700	7.7	8	114	76	36
D2308-CHA-D07800	7.8	8	114	76	36
D2308-CHA-D07900	7.9	8	114	76	36
D2308-CHA-D08000	8	8	114	76	36
D2308-CHA-D08100	8.1	10	142	95	40
D2308-CHA-D08200	8.2	10	142	95	40
D2308-CHA-D08300	8.3	10	142	95	40
D2308-CHA-D08400	8.4	10	142	95	40
D2308-CHA-D08500	8.5	10	142	95	40
D2308-CHA-D08600	8.6	10	142	95	40
D2308-CHA-D08700	8.7	10	142	95	40
D2308-CHA-D08800	8.8	10	142	95	40
D2308-CHA-D08900	8.9	10	142	95	40

Recommended cutting amounts are shown in P62

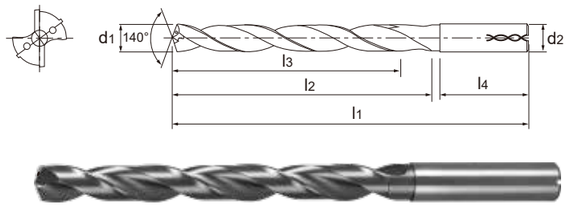
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
>3-6	+0.004/+0.016	0.000/-0.008
>6-10	+0.006/+0.021	0.000/-0.009
>10-18	+0.007/+0.025	0.000/-0.011
>18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2300Series-8D internal cold twist drill

AlTiN nano | 8D

AlTiN-nano coating Straight edge, flat back angle



Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2308-CHA-D09000	9	10	142	95	40
D2308-CHA-D09100	9.1	10	142	95	40
D2308-CHA-D09200	9.2	10	142	95	40
D2308-CHA-D09300	9.3	10	142	95	40
D2308-CHA-D09400	9.4	10	142	95	40
D2308-CHA-D09500	9.5	10	142	95	40
D2308-CHA-D09600	9.6	10	142	95	40
D2308-CHA-D09700	9.7	10	142	95	40
D2308-CHA-D09800	9.8	10	142	95	40
D2308-CHA-D09900	9.9	10	142	95	40
D2308-CHA-D10000	10	10	142	95	40
D2308-CHA-D10200	10.2	12	162	114	45
D2308-CHA-D10300	10.3	12	162	114	45
D2308-CHA-D10500	10.5	12	162	114	45
D2308-CHA-D10800	10.8	12	162	114	45
D2308-CHA-D11000	11	12	162	114	45
D2308-CHA-D11200	11.2	12	162	114	45
D2308-CHA-D11500	11.5	12	162	114	45
D2308-CHA-D11600	11.6	12	162	114	45
D2308-CHA-D11800	11.8	12	162	114	45
D2308-CHA-D12000	12	12	162	114	45
D2308-CHA-D12100	12.1	14	182	133	45
D2308-CHA-D12200	12.2	14	182	133	45
D2308-CHA-D12500	12.5	14	182	133	45
D2308-CHA-D12800	12.8	14	182	133	45
D2308-CHA-D13000	13	14	182	133	45
D2308-CHA-D13500	13.5	14	182	133	45
D2308-CHA-D13800	13.8	14	182	133	45
D2308-CHA-D14000	14	14	182	133	45
D2308-CHA-D14200	14.2	16	203	152	48

Recommended cutting amounts are shown in P62

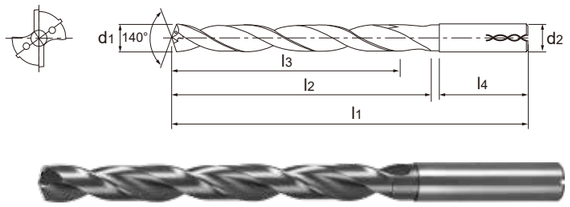
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
＞3-6	+0.004/+0.016	0.000/-0.008
＞6-10	+0.006/+0.021	0.000/-0.009
＞10-18	+0.007/+0.025	0.000/-0.011
＞18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2300Series-8D internal cold twist drill

AlTiN nano | 8D

AlTiN-nano coating Straight edge, flat back angle



Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(m7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2308-CHA-D14500	14.5	16	203	152	48
D2308-CHA-D14800	14.8	16	203	152	48
D2308-CHA-D15000	15	16	203	152	48
D2308-CHA-D15500	15.5	16	203	152	48
D2308-CHA-D15800	15.8	16	203	152	48
D2308-CHA-D15900	15.9	16	203	152	48
D2308-CHA-D16000	16	16	203	152	48

Recommended cutting amounts are shown in P62

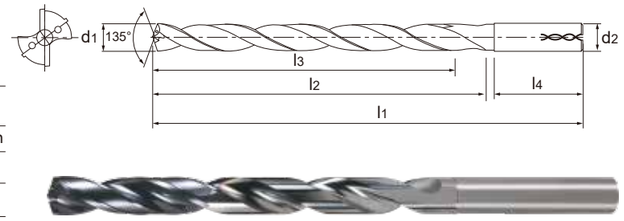
Size range	D(m7)	d(h6)
≥2-3	+0.002/+0.012	0.000/-0.006
＞3-6	+0.004/+0.016	0.000/-0.008
＞6-10	+0.006/+0.021	0.000/-0.009
＞10-18	+0.007/+0.025	0.000/-0.011
＞18-20	+0.008/+0.029	0.000/-0.013

unit(mm)

D2300Series-12D internal cold twist drill

AlTiN nano | 12D

AlTiN-nano coating Straight edge, flat back angle



Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2312-CHA-D03000	3	6	90	50	36
D2312-CHA-D03100	3.1	6	90	50	36
D2312-CHA-D03200	3.2	6	90	50	36
D2312-CHA-D03300	3.3	6	90	50	36
D2312-CHA-D03400	3.4	6	90	50	36
D2312-CHA-D03500	3.5	6	90	50	36
D2312-CHA-D03600	3.6	6	90	50	36
D2312-CHA-D03700	3.7	6	90	50	36
D2312-CHA-D03800	3.8	6	102	64	36
D2312-CHA-D03900	3.9	6	102	64	36
D2312-CHA-D04000	4	6	102	64	36
D2312-CHA-D04100	4.1	6	102	64	36
D2312-CHA-D04200	4.2	6	102	64	36
D2312-CHA-D04300	4.3	6	102	64	36
D2312-CHA-D04400	4.4	6	102	64	36
D2312-CHA-D04500	4.5	6	102	64	36
D2312-CHA-D04600	4.6	6	102	64	36
D2312-CHA-D04700	4.7	6	102	64	36
D2312-CHA-D04800	4.8	6	116	78	36
D2312-CHA-D04900	4.9	6	116	78	36
D2312-CHA-D05000	5	6	116	78	36
D2312-CHA-D05100	5.1	6	116	78	36
D2312-CHA-D05200	5.2	6	116	78	36
D2312-CHA-D05300	5.3	6	116	78	36
D2312-CHA-D05400	5.4	6	116	78	36
D2312-CHA-D05500	5.5	6	116	78	36
D2312-CHA-D05600	5.6	6	116	78	36
D2312-CHA-D05700	5.7	6	116	78	36
D2312-CHA-D05800	5.8	6	116	78	36
D2312-CHA-D05900	5.9	6	116	78	36
D2312-CHA-D06000	6	6	116	78	36

Recommended cutting amounts are shown in P62

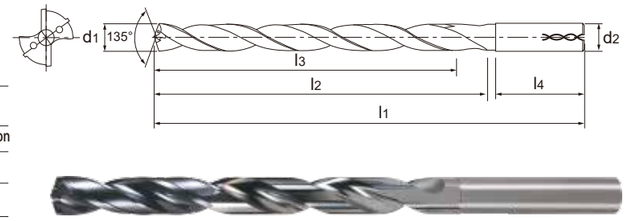
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D2300Series-12D internal cold twist drill

AlTiN nano | 12D

AlTiN-nano coating Straight edge, flat back angle



Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2312-CHA-D06100	6.1	8	146	108	36
D2312-CHA-D06200	6.2	8	146	108	36
D2312-CHA-D06300	6.2	8	146	108	36
D2312-CHA-D06400	6.4	8	146	108	36
D2312-CHA-D06500	6.5	8	146	108	36
D2312-CHA-D06600	6.6	8	146	108	36
D2312-CHA-D06700	6.7	8	146	108	36
D2312-CHA-D06800	6.8	8	146	108	36
D2312-CHA-D06900	6.9	8	146	108	36
D2312-CHA-D07000	7	8	146	108	36
D2312-CHA-D07100	7.1	8	146	108	36
D2312-CHA-D07200	7.2	8	146	108	36
D2312-CHA-D07300	7.3	8	146	108	36
D2312-CHA-D07400	7.4	8	146	108	36
D2312-CHA-D07500	7.5	8	146	108	36
D2312-CHA-D07600	7.6	8	146	108	36
D2312-CHA-D07700	7.7	8	146	108	36
D2312-CHA-D07800	7.8	8	146	108	36
D2312-CHA-D07900	7.9	8	146	108	36
D2312-CHA-D08000	8	8	146	108	36
D2312-CHA-D08100	8.1	10	162	120	40
D2312-CHA-D08200	8.2	10	162	120	40
D2312-CHA-D08300	8.3	10	162	120	40
D2312-CHA-D08400	8.4	10	162	120	40
D2312-CHA-D08500	8.5	10	162	120	40
D2312-CHA-D08600	8.6	10	162	120	40
D2312-CHA-D08700	8.7	10	162	120	40
D2312-CHA-D08800	8.8	10	162	120	40
D2312-CHA-D08900	8.9	10	162	120	40
D2312-CHA-D09000	9	10	162	120	40
D2312-CHA-D09100	9.1	10	162	120	40

Recommended cutting amounts are shown in P62

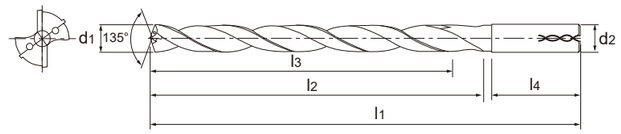
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D2300Series-12D internal cold twist drill

AlTiN nano | 12D

AlTiN-nano coating Straight edge, flat back angle



Applicable materials: steel, cast iron, etc.

P		H	K
Carbon steel, alloy steel(HRC<35)	Ferritic Stainless Steel, Martensitic Stainless Steel	hardened steel	foundry iron
4,5,6	11	5	1,2,3,4
◎	◎	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D2312-CHA-D09200	9.2	10	162	120	40
D2312-CHA-D09300	9.3	10	162	120	40
D2312-CHA-D09400	9.4	10	162	120	40
D2312-CHA-D09500	9.5	10	162	120	40
D2312-CHA-D09600	9.6	10	162	120	40
D2312-CHA-D09700	9.7	10	162	120	40
D2312-CHA-D09800	9.8	10	162	120	40
D2312-CHA-D09900	9.9	10	162	120	40
D2312-CHA-D10000	10	10	162	120	40
D2312-CHA-D10200	10.2	12	204	156	45
D2312-CHA-D10500	10.5	12	204	156	45
D2312-CHA-D11000	11	12	204	156	45
D2312-CHA-D11500	11.5	12	204	156	45
D2312-CHA-D12000	12	12	204	156	45
D2312-CHA-D12500	12.5	14	230	182	45
D2312-CHA-D12700	12.7	14	230	182	45
D2312-CHA-D13000	13	14	230	182	45
D2312-CHA-D13500	13.5	14	230	182	45
D2312-CHA-D14000	14	14	230	182	45
D2312-CHA-D14500	14.5	16	260	208	48
D2312-CHA-D15000	15	16	260	208	48
D2312-CHA-D15500	15.5	16	260	208	48
D2312-CHA-D16000	16	16	260	208	48
D2312-CHA-D16500	16.5	18	285	234	48
D2312-CHA-D17000	17	18	285	234	48
D2312-CHA-D17500	17.5	18	285	234	48
D2312-CHA-D18000	18	18	285	234	48
D2312-CHA-D18500	18.5	20	310	258	50
D2312-CHA-D19000	19	20	310	258	50
D2312-CHA-D19500	19.5	20	310	258	50
D2312-CHA-D20000	20	20	310	258	50

Recommended cutting amounts are shown in P62

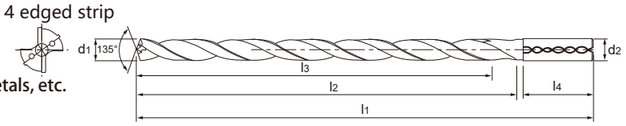
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-15D internal cold deep hole twist drill

AlTiN nano | 15D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P	K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	inch	diameter of blade d1(h7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D3015-CHA-D03000		3	6	95	55	36
D3015-CHA-D03170	1/8	3.17	6	106	67	36
D3015-CHA-D03500		3.5	6	116	76	36
D3015-CHA-D03570	9/64	3.57	6	116	76	36
D3015-CHA-D03970	5/32	3.97	6	116	76	36
D3015-CHA-D04000		4	6	116	76	36
D3015-CHA-D04370	11/64	4.37	6	133	93	36
D3015-CHA-D04500		4.5	6	133	93	36
D3015-CHA-D04760	3/16	4.76	6	133	93	36
D3015-CHA-D05000		5	6	133	93	36
D3015-CHA-D05100		5.1	6	150	110	36
D3015-CHA-D05160	13/64	5.16	6	150	110	36
D3015-CHA-D05410		5.41	6	150	110	36
D3015-CHA-D05500		5.5	6	150	110	36
D3015-CHA-D05560	7/32	5.56	6	150	110	36
D3015-CHA-D05950	15/64	5.95	6	150	110	36
D3015-CHA-D06000		6	6	150	110	36
D3015-CHA-D06350	1/4	6.35	8	167	127	36
D3015-CHA-D06500		6.5	8	167	127	36
D3015-CHA-D06750	17/64	6.75	8	167	127	36
D3015-CHA-D07000		7	8	167	127	36
D3015-CHA-D07140	9/32	7.14	8	183	143	36
D3015-CHA-D07500		7.5	8	183	143	36
D3015-CHA-D07510	19/64	7.54	8	183	143	36
D3015-CHA-D07940	5/16	7.94	8	183	143	36
D3015-CHA-D08000		8	8	183	143	36
D3015-CHA-D08330	21/64	8.33	10	204	160	40
D3015-CHA-D08500		8.5	10	204	160	40
D3015-CHA-D08730	11/32	8.73	10	204	160	40
D3015-CHA-D09000		9	10	204	160	40
D3015-CHA-D09130	23/64	9.13	10	221	177	40

Recommended cutting amounts are shown in P65

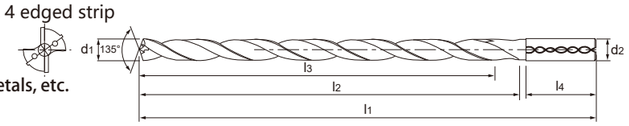
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-15D internal cold deep hole twist drill

AlTiN nano | 15D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P		K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	inch	diameter of blade d1(h7)	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D3015-CHA-D 09520	3/8	9.52	10	221	177	40
D3015-CHA-D 09920	25/64	9.92	10	221	177	40
D3015-CHA-D 10000		10	10	221	177	40
D3015-CHA-D 10320	13/32	10.32	12	247	198	45
D3015-CHA-D 10720	27/64	10.72	12	247	198	45
D3015-CHA-D 11000		11	12	247	198	45
D3015-CHA-D 11110	7/16	11.11	12	263	214	45
D3015-CHA-D 11510	29/64	11.51	12	263	214	45
D3015-CHA-D 11910	15/32	11.91	12	263	214	45
D3015-CHA-D 12000		12	12	263	214	45
D3015-CHA-D 12300	31/64	12.3	14	297	248	45
D3015-CHA-D 12700	1/2	12.7	14	297	248	45
D3015-CHA-D 13100	33/64	13.1	14	297	248	45
D3015-CHA-D 13490	17/32	13.49	14	297	248	45
D3015-CHA-D 13890	35/64	13.89	14	297	248	45
D3015-CHA-D 14000		14	14	297	248	45

Recommended cutting amounts are shown in P65

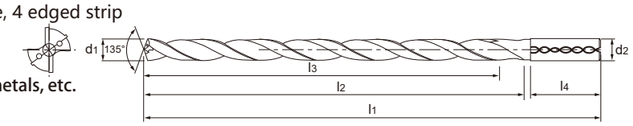
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-20D Internal Cold Deep Hole Twist Drill

AlTiN nano | 20D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P		K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	inch	pommel diameter d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D3020-CHA-D03000	3		6	107	65	60	36
D3020-CHA-D03175	3.175	1/8	6	134	92	86	36
D3020-CHA-D03500	3.5		6	134	92	86	36
D3020-CHA-D03572	3.572	9/64	6	134	92	86	36
D3020-CHA-D03969	3.969	5/32	6	134	92	86	36
D3020-CHA-D04000	4		6	134	92	86	36
D3020-CHA-D04500	4.5		6	158	118	110	36
D3020-CHA-D04763	4.763	3/16	6	158	118	110	36
D3020-CHA-D04800	4.8		6	158	118	110	36
D3020-CHA-D05000	5		6	158	118	110	36
D3020-CHA-D05500	5.5		6	170	132	123	36
D3020-CHA-D05556	5.556	7/32	6	182	144	135	36
D3020-CHA-D05800	5.8		6	182	144	135	36
D3020-CHA-D06000	6		6	182	144	135	36
D3020-CHA-D06100	6.1		8	200	162	151	36
D3020-CHA-D06350	6.35	1/4	8	200	162	151	36
D3020-CHA-D06500	6.5		8	200	162	151	36
D3020-CHA-D06800	6.8		8	200	162	151	36
D3020-CHA-D07000	7		8	200	162	151	36
D3020-CHA-D07144	7.144	9/32	8	222	184	172	36
D3020-CHA-D07400	7.4		8	222	184	172	36
D3020-CHA-D07500	7.5		8	222	184	172	36
D3020-CHA-D07938	7.938	5/16	8	222	184	172	36
D3020-CHA-D08000	8		8	222	184	172	36
D3020-CHA-D08300	8.3		10	240	198	184	40
D3020-CHA-D08500	8.5		10	240	198	184	40
D3020-CHA-D08731	8.731	11/32	10	240	198	184	40
D3020-CHA-D09000	9		10	240	198	184	40
D3020-CHA-D09525	9.525	3/8	10	262	220	205	40
D3020-CHA-D09800	9.8		10	262	220	205	40

Recommended cutting amounts are shown in P65

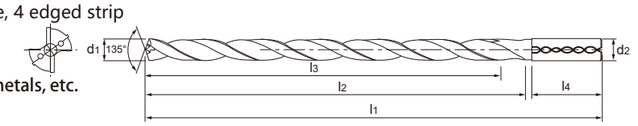
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-20D Internal Cold Deep Hole Twist Drill

AlTiN nano | 20D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P		K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	inch	pommel diameter d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D3020-CHA-D10000	10		10	262	220	205	40
D3020-CHA-D10200	10.2		12	289	242	225	45
D3020-CHA-D10319	10.319	13/32	12	289	242	225	45
D3020-CHA-D11000	11		12	289	242	225	45
D3020-CHA-D11113	11.113	7/16	12	311	264	246	45
D3020-CHA-D11500	11.5		12	311	264	246	45
D3020-CHA-D11800	11.8		12	311	264	246	45
D3020-CHA-D11906	11.906	15/32	12	311	264	246	45
D3020-CHA-D12000	12		12	311	264	246	45

Recommended cutting amounts are shown in P65

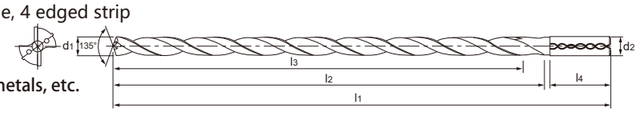
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
＞3-6	0/-0.012	0.000/-0.008
＞6-10	0/-0.015	0.000/-0.009
＞10-18	0/-0.018	0.000/-0.011
＞18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-25D Internal Cold Deep Hole Twist Drill

AlTiN nano | 25D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P		K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	inch	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D3025-CHA-D03000	3		6	125	85	36
D3025-CHA-D03100	3.1		6	141	101	36
D3025-CHA-D03500	3.5		6	156	116	36
D3025-CHA-D03800	3.8		6	156	116	36
D3025-CHA-D03970	3.97	5/32	6	156	116	36
D3025-CHA-D04000	4		6	156	116	36
D3025-CHA-D04200	4.2		6	183	143	36
D3025-CHA-D04500	4.5		6	183	143	36
D3025-CHA-D04760	4.76	3/15	6	183	143	36
D3025-CHA-D05000	5		6	183	143	36
D3025-CHA-D05100	5.1		6	210	170	36
D3025-CHA-D05500	5.5		6	210	170	36
D3025-CHA-D05560	5.56	7/32	6	210	170	36
D3025-CHA-D06000	6		6	210	170	36
D3025-CHA-D06300	6.3		8	237	197	36
D3025-CHA-D06350	6.35	1/4	8	237	197	36
D3025-CHA-D06500	6.5		8	237	197	36
D3025-CHA-D07000	7		8	237	197	36
D3025-CHA-D07140	7.14	9/32	8	263	223	36
D3025-CHA-D07500	7.5		8	263	223	36
D3025-CHA-D08000	8		8	263	223	36
D3025-CHA-D08500	8.5		10	294	250	40
D3025-CHA-D08800	8.8		10	294	250	40
D3025-CHA-D09000	9		10	294	250	40
D3025-CHA-D10000	10		10	321	277	40
D3025-CHA-D11000	11		12	359	310	40
D3025-CHA-D12000	12		12	386	337	40

Recommended cutting amounts are shown in P65

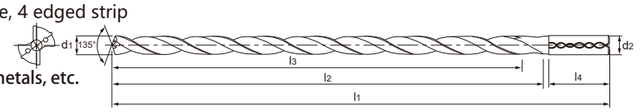
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
＞3-6	0/-0.012	0.000/-0.008
＞6-10	0/-0.015	0.000/-0.009
＞10-18	0/-0.018	0.000/-0.011
＞18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-30D internal cold deep hole twist drill

AlTiN nano | 30D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P		K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	inch	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D3030-CHA-D03000	3		6	140	100	36
D3030-CHA-D03100	3.1		6	158	118	36
D3030-CHA-D03500	3.5		6	176	136	36
D3030-CHA-D03800	3.8		6	176	136	36
D3030-CHA-D03970	3.97	5/32	6	176	136	36
D3030-CHA-D04000	4		6	176	136	36
D3030-CHA-D04200	4.2		6	208	168	36
D3030-CHA-D04500	4.5		6	208	168	36
D3030-CHA-D04760	4.76	3/16	6	208	168	36
D3030-CHA-D05000	5		6	208	168	36
D3030-CHA-D05100	5.1		6	240	200	36
D3030-CHA-D05500	5.5		6	240	200	36
D3030-CHA-D05560	5.56	7/32	6	240	200	36
D3030-CHA-D06000	6		6	240	200	36
D3030-CHA-D06300	6.3		8	272	232	36
D3030-CHA-D06350	6.35	1/4	8	272	232	36
D3030-CHA-D06500	6.5		8	272	232	36
D3030-CHA-D07000	7		8	272	232	36
D3030-CHA-D07140	7.14	9/32	8	303	263	36
D3030-CHA-D07500	7.5		8	303	263	36
D3030-CHA-D08000	8		8	303	263	36
D3030-CHA-D08500	8.5		10	339	295	40
D3030-CHA-D08800	8.8		10	339	295	40
D3030-CHA-D09000	9		10	339	295	40
D3030-CHA-D10000	10		10	371	327	40

Recommended cutting amounts are shown in P65

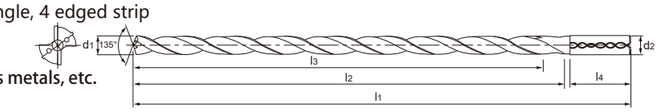
Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

unit(mm)

D3000Series-40D internal cold deep hole twist drill

AlTiN nano | 40D

AlTiN-nano coating Curved edge, flat back angle, 4 edged strip



Applicable materials: steel, cast iron, non-ferrous metals, etc.

P		K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,3,4	1,2,3,4,5,10
◎	○	◎	○

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	inch	Diameter of handle d2(h6)	overall length l1	trough length l2	shank length l4
D3040-CHA-D03000	3		6	170	130	36
D3040-CHA-D03100	3.1		6	193	153	36
D3040-CHA-D03500	3.17	1/8	6	193	153	36
D3040-CHA-D03800	3.5		6	193	153	36
D3040-CHA-D03970	3.8		6	216	176	36
D3040-CHA-D04000	3.97	5/32	6	216	176	36
D3040-CHA-D04200	4		6	216	176	36
D3040-CHA-D04500	4.2		6	238	198	36
D3040-CHA-D04760	4.5		6	238	198	36
D3040-CHA-D05000	4.76	3/16	6	258	218	36
D3040-CHA-D05100	5		6	258	218	36
D3040-CHA-D05500	5.1		6	280	240	36
D3040-CHA-D05560	5.5		6	280	240	36
D3040-CHA-D06000	5.56	7/32	6	300	260	36
D3040-CHA-D06300	6		6	300	260	36
D3040-CHA-D06350	6.3		8	322	282	36
D3040-CHA-D06500	6.35	1/4	8	322	282	36
D3040-CHA-D07000	6.5		8	322	282	36
D3040-CHA-D07140	7		8	342	302	36
D3040-CHA-D07500	7.14	9/32	8	363	323	36
D3040-CHA-D08000	7.5		8	363	323	36
D3040-CHA-D08500	8		8	383	343	36

Recommended cutting amounts are shown in P65

Size range	D(h7)	d(h6)
≥2-3	0/-0.01	0.000/-0.006
>3-6	0/-0.012	0.000/-0.008
>6-10	0/-0.015	0.000/-0.009
>10-18	0/-0.018	0.000/-0.011
>18-20	0/-0.021	0.000/-0.013

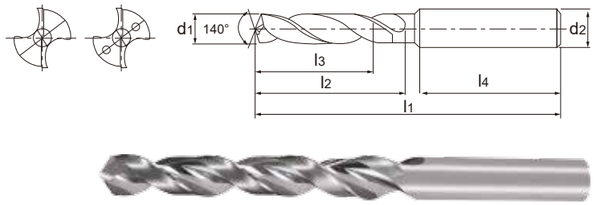
unit(mm)

D2500Series-5D Straight Shank Twist Drill

5D

Uncoated Curved edge, flat back angle

Applicable materials: aluminum alloy, copper, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
			1,2,3,4,5,10
			◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	pommel diameter	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2505-NHA-D0300	D2505-CHA-D0300	3.00		6.00	66	28	23	36
D2505-NHA-D0325	D2505-CHA-D0325	3.25		6.00	66	28	23	36
D2505-NHA-D0330	D2505-CHA-D0330	3.30	M4	6.00	66	28	23	36
D2505-NHA-D0340	D2505-CHA-D0340	3.40		6.00	66	28	23	36
D2505-NHA-D0350	D2505-CHA-D0350	3.50		6.00	66	28	23	36
D2505-NHA-D0370	D2505-CHA-D0370	3.70		6.00	66	28	23	36
D2505-NHA-D0400	D2505-CHA-D0400	4.00		6.00	74	36	29	36
D2505-NHA-D0420	D2505-CHA-D0420	4.20	M5	6.00	74	36	29	36
D2505-NHA-D0430	D2505-CHA-D0430	4.30		6.00	74	36	29	36
D2505-NHA-D0450	D2505-CHA-D0450	4.50		6.00	74	36	29	36
D2505-NHA-D0465	D2505-CHA-D0465	4.65		6.00	74	36	29	36
D2505-NHA-D0480	D2505-CHA-D0480	4.80		6.00	82	44	35	36
D2505-NHA-D0500	D2505-CHA-D0500	5.00	M6	6.00	82	44	35	36
D2505-NHA-D0510	D2505-CHA-D0510	5.10		6.00	82	44	35	36
D2505-NHA-D0520	D2505-CHA-D0520	5.20		6.00	82	44	35	36
D2505-NHA-D0550	D2505-CHA-D0550	5.50		6.00	82	44	35	36
D2505-NHA-D0555	D2505-CHA-D0555	5.55		6.00	82	44	35	36
D2505-NHA-D0580	D2505-CHA-D0580	5.80		6.00	82	44	35	36
D2505-NHA-D0600	D2505-CHA-D0600	6.00		6.00	82	44	35	36
D2505-NHA-D0610	D2505-CHA-D0610	6.10		8.00	91	53	43	36
D2505-NHA-D0620	D2505-CHA-D0620	6.20		8.00	91	53	43	36
D2505-NHA-D0630	D2505-CHA-D0630	6.30		8.00	91	53	43	36
D2505-NHA-D0650	D2505-CHA-D0650	6.50		8.00	91	53	43	36
D2505-NHA-D0660	D2505-CHA-D0660	6.60		8.00	91	53	43	36
D2505-NHA-D0680	D2505-CHA-D0680	6.80	M8	8.00	91	53	43	36
D2505-NHA-D0690	D2505-CHA-D0690	6.90		8.00	91	53	43	36
D2505-NHA-D0700	D2505-CHA-D0700	7.00	M8X1	8.00	91	53	43	36
D2505-NHA-D0710	D2505-CHA-D0710	7.10		8.00	91	53	43	36
D2505-NHA-D0740	D2505-CHA-D0740	7.40		8.00	91	53	43	36
D2505-NHA-D0750	D2505-CHA-D0750	7.50		8.00	91	53	43	36

Recommended cutting amounts are shown in P63

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

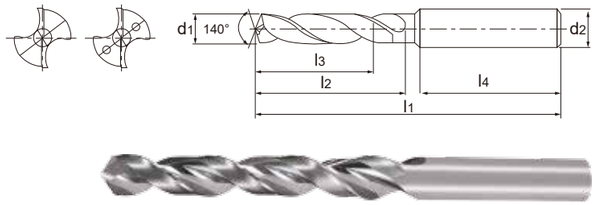
unit(mm)

D2500Series-5D Straight Shank Twist Drill

5D

Uncoated Curved edge, flat back angle

Applicable materials: aluminum alloy, copper, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
			1,2,3,4,5,10
			◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	pommel diameter	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2505-NHA-D0780	D2505-CHA-D0780	7.80		8.00	91	53	43	36
D2505-NHA-D0800	D2505-CHA-D0800	8.00		8.00	91	53	43	36
D2505-NHA-D0810	D2505-CHA-D0810	8.10		10.00	103	61	49	40
D2505-NHA-D0840	D2505-CHA-D0840	8.40		10.00	103	61	49	40
D2505-NHA-D0850	D2505-CHA-D0850	8.50	M10	10.00	103	61	49	40
D2505-NHA-D0860	D2505-CHA-D0860	8.60		10.00	103	61	49	40
D2505-NHA-D0870	D2505-CHA-D0870	8.70		10.00	103	61	49	40
D2505-NHA-D0880	D2505-CHA-D0880	8.80		10.00	103	61	49	40
D2505-NHA-D0900	D2505-CHA-D0900	9.00	M10X1	10.00	103	61	49	40
D2505-NHA-D0930	D2505-CHA-D0930	9.30		10.00	103	61	49	40
D2505-NHA-D0950	D2505-CHA-D0950	9.50		10.00	103	61	49	40
D2505-NHA-D0960	D2505-CHA-D0960	9.60		10.00	103	61	49	40
D2505-NHA-D0980	D2505-CHA-D0980	9.80		10.00	103	61	49	40
D2505-NHA-D1000	D2505-CHA-D1000	10.00		10.00	103	61	49	40
D2505-NHA-D1025	D2505-CHA-D1025	10.25	M12	12.00	118	71	56	45
D2505-NHA-D1040	D2505-CHA-D1040	10.40		12.00	118	71	56	45
D2505-NHA-D1050	D2505-CHA-D1050	10.50	M12X1.5	12.00	118	71	56	45
D2505-NHA-D1060	D2505-CHA-D1060	10.60		12.00	118	71	56	45
D2505-NHA-D1080	D2505-CHA-D1080	10.80		12.00	118	71	56	45
D2505-NHA-D1100	D2505-CHA-D1100	11.00		12.00	118	71	56	45
D2505-NHA-D1120	D2505-CHA-D1120	11.20		12.00	118	71	56	45
D2505-NHA-D1150	D2505-CHA-D1150	11.50		12.00	118	71	56	45
D2505-NHA-D1180	D2505-CHA-D1180	11.80		12.00	118	71	56	45
D2505-NHA-D1200	D2505-CHA-D1200	12.00	M14	12.00	118	71	56	45
D2505-NHA-D1220	D2505-CHA-D1220	12.20		14.00	124	77	60	45
D2505-NHA-D1225	D2505-CHA-D1225	12.25		14.00	124	77	60	45
D2505-NHA-D1250	D2505-CHA-D1250	12.50	M14X1.5	14.00	124	77	60	45
D2505-NHA-D1270	D2505-CHA-D1270	12.70		14.00	124	77	60	45
D2505-NHA-D1275	D2505-CHA-D1275	12.75		14.00	124	77	60	45
D2505-NHA-D1280	D2505-CHA-D1280	12.80		14.00	124	77	60	45

Recommended cutting amounts are shown in P63

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

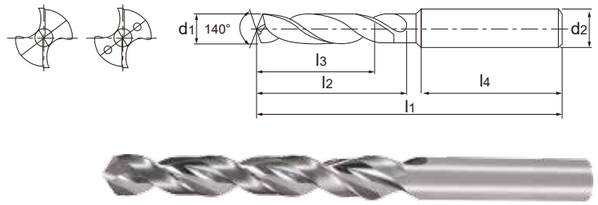
unit(mm)

D2500Series-5D Straight Shank Twist Drill

5D

Uncoated Curved edge, flat back angle

Applicable materials: aluminum alloy, copper, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
			1,2,3,4,5,10
			◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number		diameter of blade	Thread Size	pommel diameter	overall length	trough length	Maximum depth of cut	shank length
outside cold	internal cold	d1(m7)	M公制	d2(h6)	l1	l2	l3	l4
D2505-NHA-D1300	D2505-CHA-D1300	13.00		14.00	124	77	60	45
D2505-NHA-D1350	D2505-CHA-D1350	13.50		14.00	124	77	60	45
D2505-NHA-D1380	D2505-CHA-D1380	13.80		14.00	124	77	60	45
D2505-NHA-D1400	D2505-CHA-D1400	14.00	M16	14.00	124	77	60	45
D2505-NHA-D1425	D2505-CHA-D1425	14.25		16.00	133	83	63	48
D2505-NHA-D1450	D2505-CHA-D1450	14.50	M16X1.5	16.00	133	83	63	48
D2505-NHA-D1475	D2505-CHA-D1475	14.75		16.00	133	83	63	48
D2505-NHA-D1480	D2505-CHA-D1480	14.80		16.00	133	83	63	48
D2505-NHA-D1500	D2505-CHA-D1500	15.00		16.00	133	83	63	48
D2505-NHA-D1510	D2505-CHA-D1510	15.10		16.00	133	83	63	48
D2505-NHA-D1550	D2505-CHA-D1550	15.50		16.00	133	83	63	48
D2505-NHA-D1580	D2505-CHA-D1580	15.80		16.00	133	83	63	48
D2505-NHA-D1600	D2505-CHA-D1600	16.00		16.00	133	83	63	48
D2505-NHA-D1650	D2505-CHA-D1650	16.50		18.00	143	93	71	48
D2505-NHA-D1675	D2505-CHA-D1675	16.75		18.00	143	93	71	48
D2505-NHA-D1680	D2505-CHA-D1680	16.80		18.00	143	93	71	48
D2505-NHA-D1700	D2505-CHA-D1700	17.00		18.00	143	93	71	48
D2505-NHA-D1750	D2505-CHA-D1750	17.50		18.00	143	93	71	48
D2505-NHA-D1780	D2505-CHA-D1780	17.80		18.00	143	93	71	48
D2505-NHA-D1800	D2505-CHA-D1800	18.00		18.00	143	93	71	48
D2505-NHA-D1850	D2505-CHA-D1850	18.50		20.00	153	101	77	50
D2505-NHA-D1900	D2505-CHA-D1900	19.00		20.00	153	101	77	50
D2505-NHA-D1950	D2505-CHA-D1950	19.50		20.00	153	101	77	50
D2505-NHA-D1980	D2505-CHA-D1980	19.80		20.00	153	101	77	50
D2505-NHA-D2000	D2505-CHA-D2000	20.00		20.00	153	101	77	50

Recommended cutting amounts are shown in P63

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

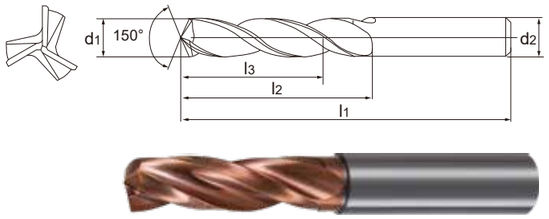
unit(mm)

D5200Series-3D Externally cooled straight shank three-flute drills

AlTiN 3D

TiAlN coatings Straight edge, flat back angle

Applicable materials: steel, cast iron, cast aluminum alloy, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
1,2,4,5,6	1,2,4	1,2,3,4	
◎	○	◎	

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade	Thread Size	pommel diameter	overall length	trough length	Maximum depth of cut
	d1(h7)	M公制	d2(h6)	l1	l2	l3
D5203-NYZ-D0300	3.00		3.00	46	16	12
D5203-NYZ-D0310	3.10		3.10	49	18	14
D5203-NYZ-D0320	3.20		3.20	49	18	14
D5203-NYZ-D0330	3.30		3.30	49	18	14
D5203-NYZ-D0340	3.40		3.40	52	20	15
D5203-NYZ-D0350	3.50		3.50	52	20	15
D5203-NYZ-D0360	3.60		3.60	52	20	15
D5203-NYZ-D0370	3.70		3.70	52	20	15
D5203-NYZ-D0380	3.80		3.80	55	22	17
D5203-NYZ-D0400	4.00		4.00	55	22	17
D5203-NYZ-D0410	4.10		4.10	55	22	17
D5203-NYZ-D0420	4.20		4.20	55	22	17
D5203-NYZ-D0450	4.50		4.50	58	24	18
D5203-NYZ-D0480	4.80		4.80	62	26	20
D5203-NYZ-D0500	5.00		5.00	62	26	20
D5203-NYZ-D0510	5.10		5.10	62	26	20
D5203-NYZ-D0520	5.20		5.20	62	26	20
D5203-NYZ-D0530	5.30		5.30	62	26	20
D5203-NYZ-D0550	5.50		5.50	66	28	21
D5203-NYZ-D0580	5.80		5.80	66	28	21
D5203-NYZ-D0600	6.00		6.00	66	28	21
D5203-NYZ-D0610	6.10		6.10	70	31	23
D5203-NYZ-D0620	6.20		6.20	70	31	23
D5203-NYZ-D0640	6.40		6.40	70	31	23
D5203-NYZ-D0650	6.50		6.50	70	31	23
D5203-NYZ-D0670	6.70		6.70	70	31	23
D5203-NYZ-D0680	6.80		6.80	74	34	25
D5203-NYZ-D0700	7.00		7.00	74	34	25
D5203-NYZ-D0710	7.10		7.10	74	34	25
D5203-NYZ-D0740	7.40		7.40	74	34	25

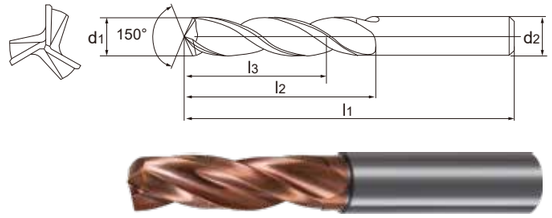
Recommended cutting amounts are shown in P66

D5200Series-3D Externally cooled straight shank three-flute drills

AlTiN 3D

TiAlN coatings Straight edge, flat back angle

Applicable materials: steel, cast iron, cast aluminum alloy, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
1,2,4,5,6	1,2,4	1,2,3,4	
◎	○	◎	

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(h7)	Thread Size M公制	pommel diameter d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3
D5203-NYZ-D0750	7.50		7.50	74	34	25
D5203-NYZ-D0780	7.80		7.80	79	37	27
D5203-NYZ-D0800	8.00		8.00	79	37	27
D5203-NYZ-D0810	8.10		8.10	79	37	27
D5203-NYZ-D0820	8.20		8.20	79	37	27
D5203-NYZ-D0840	8.40		8.40	79	37	27
D5203-NYZ-D0850	8.50		8.50	79	37	27
D5203-NYZ-D0860	8.60		8.60	84	40	29
D5203-NYZ-D0870	8.70		8.70	84	40	29
D5203-NYZ-D0880	8.80		8.80	84	40	29
D5203-NYZ-D0900	9.00		9.00	84	40	29
D5203-NYZ-D0950	9.50		9.50	84	40	29
D5203-NYZ-D0980	9.80		9.80	89	43	31
D5203-NYZ-D1000	10.00		10.00	89	43	31
D5203-NYZ-D1010	10.10		10.10	89	43	31
D5203-NYZ-D1020	10.20		10.20	89	43	31
D5203-NYZ-D1040	10.40		10.40	89	43	31
D5203-NYZ-D1050	10.50		10.50	89	43	31
D5203-NYZ-D1100	11.00		11.00	95	47	33
D5203-NYZ-D1200	12.00		12.00	102	51	35
D5203-NYZ-D1300	13.00		13.00	102	51	35
D5203-NYZ-D1400	14.00		14.00	107	54	37
D5203-NYZ-D1500	15.00		15.00	111	54	37
D5203-NYZ-D1750	17.50		17.50	123	62	40
D5203-NYZ-D1950	19.50		19.50	131	66	42
D5203-NYZ-D2000	20.00		20.00	131	66	42

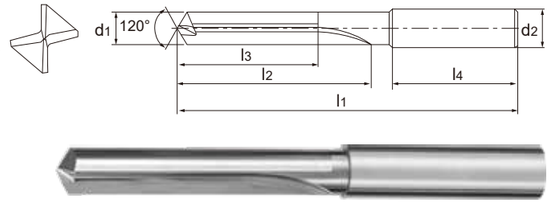
Recommended cutting amounts are shown in P66

D7200Series-5D External Cooling Straight Shank Straight Groove Drill

5D

Uncoated Straight edge, flat back angle

Applicable materials: steel, cast iron, cast aluminum alloy, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
		1,2,3,4	1,2,3,4,5,10
		◎	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(k6)	Thread Size M公制	pommel diameter d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D7205-NHA-D0400	4.00		6.00	74	36	29	36
D7205-NHA-D0420	4.20	M5	6.00	74	36	29	36
D7205-NHA-D0500	5.00	M6	6.00	82	44	35	36
D7205-NHA-D0600	6.00		6.00	82	44	35	36
D7205-NHA-D0680	6.80	M8	8.00	91	53	43	36
D7205-NHA-D0700	7.00	M8X1	8.00	91	53	43	36
D7205-NHA-D0800	8.00		8.00	91	53	43	36
D7205-NHA-D0850	8.50	M10	10.00	103	61	49	40
D7205-NHA-D0900	9.00	M10X1	10.00	103	61	49	40
D7205-NHA-D1000	10.00		10.00	103	61	49	40
D7205-NHA-D1025	10.25	M12	12.00	118	71	56	45
D7205-NHA-D1100	11.00		12.00	118	71	56	45
D7205-NHA-D1200	12.00	M14	12.00	118	71	56	45
D7205-NHA-D1300	13.00		14.00	124	77	60	45
D7205-NHA-D1400	14.00	M16	14.00	124	77	60	45
D7205-NHA-D1500	15.00		16.00	133	83	63	48
D7205-NHA-D1550	15.50		16.00	133	83	63	48
D7205-NHA-D1600	16.00		16.00	133	83	63	48
D7205-NHA-D1700	17.00		18.00	143	93	71	48
D7205-NHA-D1750	17.50		18.00	143	93	71	48
D7205-NHA-D1800	18.00		18.00	143	93	71	48
D7205-NHA-D1950	19.50		20.00	153	101	77	50
D7205-NHA-D2000	20.00		20.00	153	101	77	50

Recommended cutting amounts are shown in P67

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

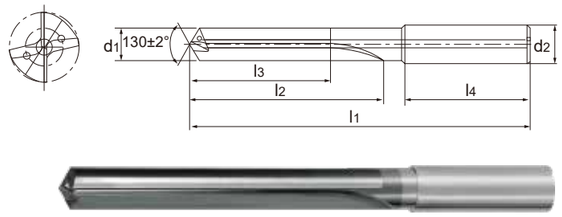
unit(mm)

D7200Series-5D Internal Coolant Straight Shank Straight Groove Drill

AlTiN 5D

TiAlN coatings Straight edge, sharpened back angle

Applicable materials: steel, cast iron, non-ferrous metals, etc.



P	M	K	N
steel	stainless steels	foundry iron	non-ferrous metals
		1,2,3,4	1,2,3,4,5,10
		◎	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

model number	diameter of blade d1(k6)	Thread Size M公制	pommel diameter d2(h6)	overall length l1	trough length l2	Maximum depth of cut l3	shank length l4
D7205-CHA-D0400	4.00		6.00	74	36	29	36
D7205-CHA-D0420	4.20	M5	6.00	74	36	29	36
D7205-CHA-D0500	5.00	M6	6.00	82	44	35	36
D7205-CHA-D0600	6.00		6.00	82	44	35	36
D7205-CHA-D0680	6.80	M8	8.00	91	53	43	36
D7205-CHA-D0700	7.00	M8X1	8.00	91	53	43	36
D7205-CHA-D0800	8.00		8.00	91	53	43	36
D7205-CHA-D0850	8.50	M10	10.00	103	61	49	40
D7205-CHA-D0900	9.00	M10X1	10.00	103	61	49	40
D7205-CHA-D1000	10.00		10.00	103	61	49	40
D7205-CHA-D1025	10.25	M12	12.00	118	71	56	45
D7205-CHA-D1100	11.00		12.00	118	71	56	45
D7205-CHA-D1200	12.00	M14	12.00	118	71	56	45
D7205-CHA-D1300	13.00		14.00	124	77	60	45
D7205-CHA-D1400	14.00	M16	14.00	124	77	60	45
D7205-CHA-D1500	15.00		16.00	133	83	63	48
D7205-CHA-D1550	15.50		16.00	133	83	63	48
D7205-CHA-D1600	16.00		16.00	133	83	63	48
D7205-CHA-D1700	17.00		18.00	143	93	71	48
D7205-CHA-D1750	17.50		18.00	143	93	71	48
D7205-CHA-D1800	18.00		18.00	143	93	71	48
D7205-CHA-D1950	19.50		20.00	153	101	77	50
D7205-CHA-D2000	20.00		20.00	153	101	77	50

Recommended cutting amounts are shown inP67

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

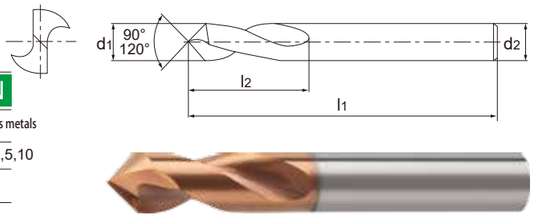
unit (mm)

D9100Series - Externally cooled straight shank NC centre drills

AlTiN

TiAlN coatings Straight edge, sharpened back angle

Applicable materials: steel, cast iron, non-ferrous metals, etc.



P		M	S	K	N
steel	Ferritic Stainless Steel, Martensitic Stainless Steel	stainless steels	High temperature alloys, titanium alloys	foundry iron	non-ferrous metals
1,2,4,5,6	11	1,2,4	1,2,3,11	1,2,3,4	1,2,3,4,5,10
◎	◎	◎	○	◎	◎

◎ most suitable ○ suitability

The workpiece material table can be found atP11

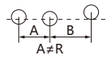
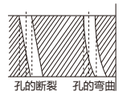
model number		diameter of blade d1(h6)	Thread Size M公制	pommel diameter d2(h6)	overall length l1	trough length l2
90°	120°					
D9100-090-D0500	D9100-120-D0500	5.00		5.00	62	10
D9100-090-D0600	D9100-120-D0600	6.00		6.00	66	15
D9100-090-D0800	D9100-120-D0800	8.00		8.00	79	17
D9100-090-D1000	D9100-120-D1000	10.00		10.00	89	20
D9100-090-D1200	D9100-120-D1200	12.00		12.00	102	25
D9100-090-D1400	D9100-120-D1400	14.00		14.00	107	30
D9100-090-D1600	D9100-120-D1600	16.00		16.00	115	35
D9100-090-D2000	D9100-120-D2000	20.00		20.00	131	40

Recommended cutting amounts are shown in P68

Drill Failure Analysis

	impunity	Possible causes		countermeasures
		our customers	driller itself	
Drill Failure Analysis	cumulative chipped tumour	Cutting speed too low		Selection of reasonable cutting parameters
		Inadequate cooling and lubrication		Internal cooling to increase the oil content of the coolant.
			Cutting edge not sharp	Correct resharpening
			uncoated	Selection of coated drill bits
	crushing blade	Feed too fast		Selection of reasonable cutting parameters
		Cutting speed too low		Selection of reasonable cutting parameters
			The rear corner is small	Correct resharpening
			Improper selection, cross blade	Correct choice. Strengthen the crossbar.
			Inappropriate drill material	Replacement of drill material
	point of a sword 	High tip runout creates single-edge cuts		Improved system rigidity, drill tip runout <0.02
		High cutting speed		Selection of reasonable cutting parameters
		Insufficient cooling		Adoption of internal cooling, adjustment of external cooling direction
	main blade (of blade)	Unstable drilling process		Improved system rigidity, drill tip runout <0.02
		End of life, overused		Correctly set resharpening intervals
			Inadequate selection, main blade	Correct selection, strengthen the main blade
	Abnormal tip wear 	End of life, overused		Correctly set resharpening intervals
		Drill tip not coinciding with spindle centre (lathe)		Corrective spindles
		High cutting speed		Reduced feed
		Inappropriate type of cutting fluid		Replacement of cutting fluid
			Improperly shaped blade	Selection of suitable blade shape
			Inappropriate drill material	Replacement of drill material
	chipped edge	Unstable drilling process		Improved system rigidity, drill tip runout <0.02
		High cutting speed		Selection of reasonable cutting parameters
		Insufficient cooling		Adoption of internal cooling, adjustment of external cooling direction
		Guide bush oversize, pre-drilled holes oversize		Checking and replacing suitable guide bushings, checking for large pre-drilled outer diameters
			Improper selection, too wide edges	Correct selection, reduce edges
			Improper selection, too small a prismatic chamfer	Correct selection, larger inverted cone
	Cutting Wrap	Cutting too long, cutting stagnation		Change of cutting parameters and drill re-selection
	Abnormal vibration sound		the back angle is too big	Correct resharpening
			Insufficient rigidity of the drill	Improve rigidity by choosing the right drill bit and adjusting the flute or helix angle.
	broken knife	rammer		Reduced operational errors
		Excessive feed, low cutting speeds		Selection of reasonable cutting parameters
		End of life, overused		Correctly set resharpening intervals
		Clogged chip conveyor		Selection of the right drill bit, adjustment of the flute or helix angle, optimisation of the feed parameters, pecking, improved cooling.
			It's not good to eat knives.	Improvement of tool rigidity, mention of workpiece mounting rigidity, pre-drilling of centre holes, pre-drilling of holes, use of guide bushings for drills
			The rear corner is small	Resurfacing correction
			Improper selection	Correct Selection
			Torn edges, hanging chippings leading to tangles	Timely grinding to avoid chipping of edges

Drill Failure Analysis

	impunity	Possible causes		countermeasures
		our customers	driller itself	
out of specific ation	heavy load		Improper selection, large core thickness	Reduce core thickness by correct selection
			Improper selection, improper edge treatment	Sharper edge with the right selection
	hole is too small	Unstable drilling process, poor straightness of hole slant, failure to pass gauge		Improved system rigidity, drill tip runout <0.02, improved workpiece support
		Feed too fast, hole slant		Reduced feed
	the hole is too big	Unstable drilling process and poor mounting of parts		Improvement of system rigidity, selection of good quality shanks, pre-drilling of centre holes, pre-drilling of holes.
		Low precision of spindle shank connection, high tool tip runout.		Machining of the draft surface to a flat surface, requiring a tip runout of <0.02 per clamping.
			Eccentricity of the cross blade, asymmetry of the main edge, large difference in edge heights	Correct manufacturing and resharpening
			Large tolerance on drill diameter	Reduced drill diameter
	Poor hole position accuracy 	Poorly clamped drills, high runout of the spindle itself		Choose a good quality shank, straighten the spindle, and require a drill tip runout of <0.02 per clamping.
		Deviation in tool eating		Improvement of system rigidity, use of good draft drills, pre-drilling of centre holes, pre-drilling of holes, machining of draft surfaces into flat surfaces, use of guide bushings for drills.
	Poor straightness or perpendicularity of holes 	High tool wear		Sharpening Drill Bits
		Poor accuracy of centre hole		Improved positional accuracy of centre holes
		lit. eating knife noodles is not flat		Pre-drilling of the centre hole, machining of the draft surface into a flat surface, use of a guide bush for the drill bit
			Asymmetric sharpness angle, high edge height difference, eccentricity of transverse edge	Resharpening the drill
			Insufficient rigidity of the drill	Improvement of drill rigidity
	Poor surface quality	Low precision of spindle shank connection and high drill tip runout.		Improved system rigidity, drill tip runout <0.02
		Insufficient cooling		Adoption of internal cooling, adjustment of external cooling direction
		Inadequate lubrication		Increase the oil content of the coolant, or increase the flow rate.
		Feed too fast		Reduced feed
		Cutting Wrap		timely sharpening
			Chopping blockage	Reselecting the drill, adjusting the flute or helix angle, optimising the machining parameters
			Severe sticking on the edge of the belt prism	Selection of coated drill bits
			Improper selection, uncoated	Correct selection, drill coating

Recommended Cutting Capacity: D2100 Series Twist Drill for Steel

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125		90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P2	mild steel（C<0.25%）	<125		90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P4	medium carbon steel（0.25%<C<0.60%）、low alloy steel	<220	<25	85	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P5	Alloy steel, tempered steel	<330	28-35	85	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P6	high carbon steel（C>0.6%）	370-750	45-65	—	—										
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50	—	60	0.07	0.1	0.12	0.14	0.16	0.18	0.2	0.22	0.24	0.26
H hardened material	H5	tempered steel		35-40	45	60	0.07	0.1	0.12	0.14	0.16	0.18	0.2	0.22	0.24	0.26
	H7	bearing steel		56-64	—	—										
	H8	Tool steel, high speed steel		38-64	—	—										
	H12	Hardened Stainless Steel		33-50	—	45	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
	H21	manganese steel		35-64	—	—										
M stainless steels	M1	austenitic stainless steel	<150		—	60	0.07	0.1	0.12	0.14	0.15	0.18	0.2	0.22	0.24	0.26
	M2	High strength austenitic stainless steel	150-230		—	55	0.07	0.1	0.12	0.14	0.15	0.18	0.2	0.22	0.24	0.26
	M4	Duplex stainless steel	135-275		—	45	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48	—	—										
	S2	Cobalt-based high temperature alloys	250-450	25-48	—	—										
	S3	Nickel-based high-temperature alloys	160-450	<48	—	—										
	S11	Titanium alloy (low alloy)	250-350	33-38	—	—										
	S13	Titanium alloy (high alloy)	300-400	36-48	—	—										
K foundry iron	K1	gray cast iron	120-290	<32	90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	K2	peristaltic cast iron	120-290	<32	90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	K3	malleable iron	130-260	<28	90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	K4	ductile iron	180-350	<43	70	80	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
N non-ferrous metals	N1	Aluminum-silicon alloy, silicon content<9%	60-90													
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100													
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150													
	N4	Casting Aluminum Alloy	60-120													
	N5	Forged Aluminum Alloy	60-90													
	N10	Duplex stainless steel														
	N11	copper alloy	120-200													

caveat：

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D2200 Series Twist Drill for Steel

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			~~HB~~	~~HRC~~	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125		90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P2	mild steel（C<0.25%）	<125		90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P4	medium carbon steel（0.25%<C<0.60%）、low alloy steel	<220	<25	85	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P5	Alloy steel, tempered steel	<330	28-35	85	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P6	high carbon steel（C>0.6%）	370-750	45-65	—	—										
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50	—	60	0.07	0.1	0.12	0.14	0.16	0.18	0.2	0.22	0.24	0.26
H hardened material	H5	tempered steel		35-40	—	—										
	H7	bearing steel		56-64	—	—										
	H8	Tool steel, high speed steel		38-64	—	—										
	H12	Hardened Stainless Steel		33-50	—	45	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
	H21	manganese steel		35-64	—	—										
M stainless steels	M1	austenitic stainless steel	<150		—	60	0.07	0.1	0.12	0.14	0.15	0.18	0.2	0.22	0.24	0.26
	M2	High strength austenitic stainless steel	150-230		—	55	0.07	0.1	0.12	0.14	0.15	0.18	0.2	0.22	0.24	0.26
	M4	Duplex stainless steel	135-275		—	45	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48	—	25	0.04	0.05	0.06	0.08	0.1	0.12	0.14	0.15	0.16	0.17
	S2	Cobalt-based high temperature alloys	250-450	25-48	—	25	0.04	0.05	0.06	0.08	0.1	0.12	0.14	0.15	0.16	0.17
	S3	Nickel-based high-temperature alloys	160-450	<48	—	—										
	S11	Titanium alloy (low alloy)	250-350	33-38	—	40	0.05	0.06	0.06	0.08	0.11	0.13	0.15	0.16	0.18	0.2
	S13	Titanium alloy (high alloy)	300-400	36-48	—	—										
K foundry iron	K1	gray cast iron	120-290	<32	90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	K2	peristaltic cast iron	120-290	<32	90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	K3	malleable iron	130-260	<28	90	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	K4	ductile iron	180-350	<43	70	80	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
N non-ferrous metals	N1	Aluminum-silicon alloy, silicon content<9%	60-90													
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100													
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150													
	N4	Casting Aluminum Alloy	60-120													
	N5	Forged Aluminum Alloy	60-90													
	N10	Duplex stainless steel														
	N11	copper alloy	120-200													

caveat：

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D2300 Series Twist Drill for Steel

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125		80	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P2	mild steel（C<0.25%）	<125		80	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P4		<220	<25	80	100	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P5	Alloy steel, tempered steel	<330	28-35	70	80	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P6	high carbon steel（C>0.6%）	370-750	45-65												
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50	45	60	0.07	0.1	0.12	0.14	0.16	0.18	0.2	0.22	0.24	0.26
H hardened material	H5	tempered steel		35-40	45	60	0.07	0.1	0.12	0.14	0.16	0.18	0.2	0.22	0.24	0.26
	H7	bearing steel		56-64	45	60	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
	H8	Tool steel, high speed steel		38-64	45	60	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
	H12	Hardened Stainless Steel		33-50	35	45	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
	H21	manganese steel		35-64	45	60	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
M stainless steels	M1	austenitic stainless steel	<150													
	M2	High strength austenitic stainless steel	150-230													
	M4	Duplex stainless steel	135-275													
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48												
	S2	Cobalt-based high temperature alloys	250-450	25-48												
	S3	Nickel-based high-temperature alloys	160-450	<48												
	S11	Titanium alloy (low alloy)	250-350	33-38												
	S13	Titanium alloy (high alloy)	300-400	36-48												
K foundry iron	K1	gray cast iron	120-290	<32	90	120	0.13	0.15	0.18	0.2	0.22	0.25	0.28	0.3	0.32	0.35
	K2	peristaltic cast iron	120-290	<32	80	100	0.11	0.13	0.15	0.18	0.2	0.22	0.25	0.28	0.3	0.32
	K3	malleable iron	130-260	<28	80	100	0.11	0.13	0.15	0.18	0.2	0.22	0.25	0.28	0.3	0.32
	K4	ductile iron	180-350	<43	70	80	0.09	0.11	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
N non-ferrous metals	N1	Aluminum-silicon alloy, silicon content<9%	60-90													
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100													
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150													
	N4	Casting Aluminum Alloy	60-120													
	N5	Forged Aluminum Alloy	60-90													
	N10	Duplex stainless steel														
	N11	copper alloy	120-200													

caveat：

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D2500 Series Twist Drill for Aluminum Alloy

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125													
	P2	mild steel（C<0.25%）	<125													
	P4		<220	<25												
	P5	Alloy steel, tempered steel	<330	28-35												
	P6	high carbon steel（C>0.6%）	370-750	45-65												
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50												
H hardened material	H5	tempered steel		35-40												
	H7	bearing steel		56-64												
	H8	Tool steel, high speed steel		38-64												
	H12	Hardened Stainless Steel		33-50												
	H21	manganese steel		35-64												
M stainless steels	M1	austenitic stainless steel	<150													
	M2	High strength austenitic stainless steel	150-230													
	M4	Duplex stainless steel	135-275													
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48												
	S2	Cobalt-based high temperature alloys	250-450	25-48												
	S3	Nickel-based high-temperature alloys	160-450	<48												
	S11	Titanium alloy (low alloy)	250-350	33-38												
	S13	Titanium alloy (high alloy)	300-400	36-48												
K foundry iron	K1	gray cast iron	120-290	<32												
	K2	peristaltic cast iron	120-290	<32												
	K3	malleable iron	130-260	<28												
	K4	ductile iron	180-350	<43												
N non-ferrous metals	N1	Aluminum-silicon alloy, silicon content<9%	60-90		80	90	0.13	0.15	0.18	0.24	0.3	0.35	0.38	0.43	0.46	0.5
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100		80	90	0.13	0.15	0.18	0.24	0.3	0.35	0.38	0.43	0.46	0.5
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150		80	90	0.13	0.15	0.18	0.24	0.3	0.35	0.38	0.43	0.46	0.5
	N4	Casting Aluminum Alloy	60-120		80	90	0.13	0.15	0.18	0.24	0.3	0.35	0.38	0.43	0.46	0.5
	N5	Forged Aluminum Alloy	60-90		80	90	0.13	0.15	0.18	0.24	0.3	0.35	0.38	0.43	0.46	0.5
	N10	Duplex stainless steel			80	90	0.13	0.15	0.18	0.24	0.3	0.35	0.38	0.43	0.46	0.5
	N11	copper alloy	120-200		70	80	0.04	0.05	0.06	0.08	0.1	0.12	0.14	0.15	0.16	0.17

caveat：

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D2600 Series Twist Drill for Stainless Steel

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125		80	90	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P2	mild steel (C<0.25%)	<125		80	90	0.07	0.1	0.13	0.16	0.18	0.2	0.22	0.25	0.28	0.3
	P4	medium carbon steel (0.25%<C<0.60%)、low alloy steel	<220	<25												
	P5	Alloy steel, tempered steel	<330	28-35												
	P6	high carbon steel (C>0.6%)	370-750	45-65												
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50	50	75	0.07	0.1	0.12	0.14	0.16	0.18	0.2	0.22	0.24	0.26
H hardened material	H5	tempered steel		35-40												
	H7	bearing steel		56-64												
	H8	Tool steel, high speed steel		38-64												
	H12	Hardened Stainless Steel		33-50	35	50	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
	H21	manganese steel		35-64												
M stainless steels	M1	austenitic stainless steel	<150		50	75	0.07	0.1	0.12	0.14	0.15	0.18	0.2	0.22	0.24	0.26
	M2	High strength austenitic stainless steel	150-230		40	60	0.07	0.1	0.12	0.14	0.15	0.18	0.2	0.22	0.24	0.26
	M4	Duplex stainless steel	135-275		35	50	0.05	0.06	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.2
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48	–	25	0.04	0.05	0.06	0.08	0.1	0.12	0.14	0.15	0.16	0.17
	S2	Cobalt-based high temperature alloys	250-450	25-48	–	25	0.04	0.05	0.06	0.08	0.1	0.12	0.14	0.15	0.16	0.17
	S3	Nickel-based high-temperature alloys	160-450	<48	–	25	0.04	0.05	0.06	0.08	0.1	0.12	0.14	0.15	0.16	0.17
	S11	Titanium alloy (low alloy)	250-350	33-38	–	40	0.05	0.06	0.06	0.08	0.11	0.13	0.15	0.16	0.18	0.2
	S13	Titanium alloy (high alloy)	300-400	36-48	–	35	0.05	0.06	0.06	0.08	0.11	0.13	0.15	0.16	0.18	0.2
K foundry iron	K1	gray cast iron	120-290	<32												
	K2	peristaltic cast iron	120-290	<32												
	K3	malleable iron	130-260	<28												
	K4	ductile iron	180-350	<43												
N non-ferrous metals	N1		60-90													
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100													
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150													
	N4	Casting Aluminum Alloy	60-120													
	N5	Forged Aluminum Alloy	60-90													
	N10	Duplex stainless steel														
	N11	copper alloy	120-200													

caveat:

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D3000 Series Deep Hole Drill

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125			70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	P2	mild steel (C<0.25%)	<125			70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	P4	medium carbon steel (0.25%<C<0.60%)、low alloy steel	<220	<25		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	P5	Alloy steel, tempered steel	<330	28-35		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	P6	high carbon steel (C>0.6%)	370-750	45-65												
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
H hardened material	H5	tempered steel		35-40		60	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	H7	bearing steel		56-64												
	H8	Tool steel, high speed steel		38-64												
	H12	Hardened Stainless Steel		33-50												
	H21	manganese steel		35-64												
M stainless steels	M1	austenitic stainless steel	<150			50	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	M2	High strength austenitic stainless steel	150-230			50	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	M4	Duplex stainless steel	135-275			50	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48												
	S2	Cobalt-based high temperature alloys	250-450	25-48												
	S3	Nickel-based high-temperature alloys	160-450	<48												
	S11	Titanium alloy (low alloy)	250-350	33-38												
	S13	Titanium alloy (high alloy)	300-400	36-48												
K foundry iron	K1	gray cast iron	120-290	<32		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	K2	peristaltic cast iron	120-290	<32		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	K3	malleable iron	130-260	<28		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
	K4	ductile iron	180-350	<43		70	0.06	0.08	0.1	0.12	0.16	0.2	0.25			
N non-ferrous metals	N1		60-90			90	0.08	0.1	0.12	0.16	0.2	0.25	0.3			
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100			90	0.08	0.1	0.12	0.16	0.2	0.25	0.3			
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150			90	0.08	0.1	0.12	0.16	0.2	0.25	0.3			
	N4	Casting Aluminum Alloy	60-120			90	0.08	0.1	0.12	0.16	0.2	0.25	0.3			
	N5	Forged Aluminum Alloy	60-90			90	0.08	0.1	0.12	0.16	0.2	0.25	0.3			
	N10	Duplex stainless steel				90	0.08	0.1	0.12	0.16	0.2	0.25	0.3			
	N11	copper alloy	120-200			80	0.06	0.08	0.1	0.12	0.16	0.2	0.25			

caveat:

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D5200 Series Triple-Edge Drills

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125			100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	P2	mild steel（C<0.25%）	<125			100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	P4	medium carbon steel（0.25%<C<0.60%）、low alloy steel	<220	<25		100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	P5	Alloy steel, tempered steel	<330	28-35		100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	P6	high carbon steel（C>0.6%）	370-750	45-65												
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50												
H hardened material	H5	tempered steel		35-40		85	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	H7	bearing steel		56-64												
	H8	Tool steel, high speed steel		38-64												
	H12	Hardened Stainless Steel		33-50												
	H21	manganese steel		35-64												
M stainless steels	M1	austenitic stainless steel	<150													
	M2	High strength austenitic stainless steel	150-230													
	M4	Duplex stainless steel	135-275													
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48												
	S2	Cobalt-based high temperature alloys	250-450	25-48												
	S3	Nickel-based high-temperature alloys	160-450	<48												
	S11	Titanium alloy (low alloy)	250-350	33-38												
	S13	Titanium alloy (high alloy)	300-400	36-48												
K foundry iron	K1	gray cast iron	120-290	<32		100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	K2	peristaltic cast iron	120-290	<32		100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	K3	malleable iron	130-260	<28		100	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
	K4	ductile iron	180-350	<43		90	0.11	0.14	0.2	0.26	0.32	0.35	0.4	0.45	0.5	0.55
N non-ferrous metals	N1		60-90													
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100													
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150													
	N4	Casting Aluminum Alloy	60-120													
	N5	Forged Aluminum Alloy	60-90													
	N10	Duplex stainless steel														
	N11	copper alloy	120-200													

caveat：

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D7200 Series Straight Groove Drill

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speedVc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125													
	P2	mild steel（C<0.25%）	<125													
	P4	medium carbon steel（0.25%<C<0.60%）、low alloy steel	<220	<25												
	P5	Alloy steel, tempered steel	<330	28-35												
	P6	high carbon steel（C>0.6%）	370-750	45-65												
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50												
H hardened material	H5	tempered steel		35-40												
	H7	bearing steel		56-64												
	H8	Tool steel, high speed steel		38-64												
	H12	Hardened Stainless Steel		33-50												
	H21	manganese steel		35-64												
M stainless steels	M1	austenitic stainless steel	<150													
	M2	High strength austenitic stainless steel	150-230													
	M4	Duplex stainless steel	135-275													
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48												
	S2	Cobalt-based high temperature alloys	250-450	25-48												
	S3	Nickel-based high-temperature alloys	160-450	<48												
	S11	Titanium alloy (low alloy)	250-350	33-38												
	S13	Titanium alloy (high alloy)	300-400	36-48												
K foundry iron	K1	gray cast iron	120-290	<32	80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	K2	peristaltic cast iron	120-290	<32	80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	K3	malleable iron	130-260	<28	80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	K4	ductile iron	180-350	<43	75	90	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
N non-ferrous metals	N1		60-90		80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100		80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150		80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	N4	Casting Aluminum Alloy	60-120		80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	N5	Forged Aluminum Alloy	60-90		80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	N10	Duplex stainless steel			80	100	0.15	0.2	0.22	0.26	0.3	0.32	0.36	0.38	0.4	0.45
	N11	copper alloy	120-200													

caveat：

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Recommended Cutting Capacity: D9100 Series NC Center Drill

material		Workpiece materials	Brinell hardness	Rockwell hardness	cutting speed Vc (m/min)		Feed per revolution fn(mm/rev)									
					Cooling method		Drill diameter d									
ISO			HB	HRC	outside cold	internal cold	3	4	6	8	10	12	14	16	18	20
P Steel materials	P1	Easy Cutting Steel	<125		100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	P2	mild steel (C<0.25%)	<125		100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	P4	medium carbon steel (0.25%<C<0.60%) 、low alloy steel	<220	<25	100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	P5	Alloy steel, tempered steel	<330	28-35	100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	P6	high carbon steel (C>0.6%)	370-750	45-65	70		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	P11	Ferritic Stainless Steel, Martensitic Stainless Steel	250-450	38-50	80		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
H hardened material	H5	tempered steel		35-40	70		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	H7	bearing steel		56-64	60		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	H8	Tool steel, high speed steel		38-64	50		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	H12	Hardened Stainless Steel		33-50	60		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	H21	manganese steel		35-64	50		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
M stainless steels	M1	austenitic stainless steel	<150		50		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	M2	High strength austenitic stainless steel	150-230		45		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	M4	Duplex stainless steel	135-275		30		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
S High temperature alloys and titanium alloys	S1	Iron-based high-temperature alloys	160-260	25-48	30		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	S2	Cobalt-based high temperature alloys	250-450	25-48	30		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	S3	Nickel-based high-temperature alloys	160-450	<48	30		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	S11	Titanium alloy (low alloy)	250-350	33-38	30		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	S13	Titanium alloy (high alloy)	300-400	36-48	30		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
K foundry iron	K1	gray cast iron	120-290	<32	100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	K2	peristaltic cast iron	120-290	<32	100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	K3	malleable iron	130-260	<28	100		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	K4	ductile iron	180-350	<43	90		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
N non-ferrous metals	N1		60-90		120		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	N2	Silicon Aluminum Alloy.9%<silicon content<16%	70-100		120		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	N3	Silicon Aluminum Alloy, Silicon Content>16%	90-150		120		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	N4	Casting Aluminum Alloy	60-120		120		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	N5	Forged Aluminum Alloy	60-90		120		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	N10	Duplex stainless steel			120		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35
	N11	copper alloy	120-200		90		0.12	0.15	0.18	0.2	0.22	0.24	0.26	0.3	0.33	0.35

caveat:

1.Please use a machine with good rigidity. Hydraulic toolholders, heat-shrinkable toolholders, and precision strong spring toolholders are recommended.;

2.The tool should be mounted in such a way that the radial runout of the drill tip is less than 0.02mm;

3.this standard cutting condition is applicable to water-soluble cutting fluid;

4.for tool specifications not in this table, please refer to the closest cutting edge diameter specifications to select cutting parameters, and also adjust the cutting parameters appropriately according to the broken pin and spindle load;

Cutting speed Vc and feed per revolution fn can be adjusted within ±20% depending on working conditions.

Calculation of drilling parameters

Cutting speed Vc (m/min)

$$V_c = \frac{D_c \times \pi \times n}{1000}$$

Spindle speed n (rpm)

$$n = \frac{V_c \times 1000}{\pi \times D_c}$$

Feed per revolution fn (mm/r)

$$f_n = \frac{V_f}{n}$$

Feed rate Vf (m/min)

$$V_f = f_n \times n$$

Metal removal rate Q (cm^3/min)

$$Q = \frac{D_c \times f_n \times V_c}{4}$$

Processing time Tc (min)

$$T_c = \frac{l_m}{V_f}$$

formula:

Dc Drill Diameter (mm) Vc cutting speed (m/min)

n Spindle speed (rpm) fn Feed per revolution(mm/rev)

Vf Feed rate(mm/min) Q lm Drilling depth (mm)

Metal removal rate(cm^3/min) π Tc processing time (min)

a constant (math.)=3.1415

example：D2605–CHA–D10

D2600 Twist drill for stainless steel

05 – The depth of cut is 5xDc 5 doubled blade diameter (e.g. of a knife blade)

C – internal cold HA–DIN6535HA straight handle

D10– 钻头刃径 Dc=10

Machining austenitic stainless steel with this drill, from the cutting table to find the recommended cutting amount: Cutting speedVc=80 m/min Feed per revolutionfn=0.21 mm/rev

Drilling depth lm In this case5xDc=5x10=50 mm 。

Calculations: speed n, feed rate Vf, metal removal rate Q and time to machine a hole Tc 1 Speed n.

n =Vcx1000/π/Dc=80x1000/3.1415/10=2547 (rpm)

2 Feed rateVf:

Vf=fnxn=0.21x2547=535 (mm/min)

3 Metal removal rateQ:

Q=DcxfnxVc/4=10x0.21x80/4=42 (cm^3/min)

4 Time to machine a holeTc： Tc=lm/Vf=50/535=0.093 (min)

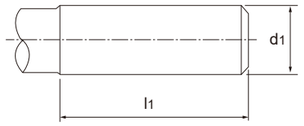
Tensile strength, Brinell hardness, Rockwell hardness comparison table

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

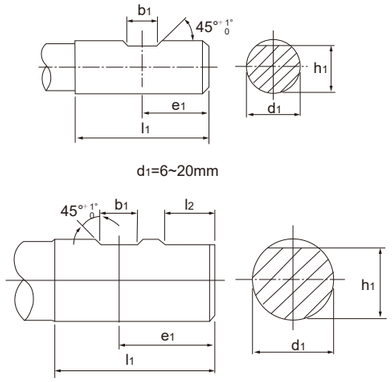
Shank Standard — The structure of shank

DIN 6535-HA



d_1 h6	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

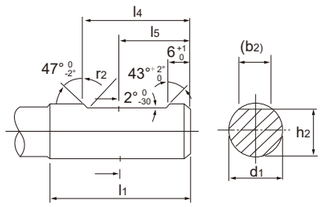


d1=6~20mm

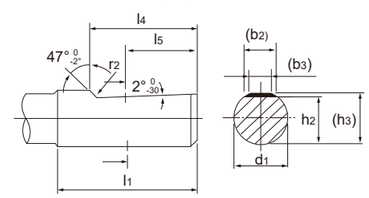
d1=25~32mm

d_1 h6	b_1 $^{+0.05}_{0}$	e_1 $^{0}_{-1}$	h_1 h11	l_1 $^{+2}_{0}$	l_2 $^{+1}_{0}$
6	4.2	18.0	5.1	36.0	
8	5.5	18.0	6.9	36.0	
10	7.0	20.0	8.5	40.0	
12	8.0	22.5	10.4	45.0	
14	8.0	22.5	12.7	45.0	
16	10.0	24.0	14.2	48.0	
18	10.0	24.0	16.2	48.0	
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



d1=6~20mm



d1=25~32mm

d_1	(b2)	(b3)	(h2)	(h3)	l_1	l_4	l_5	r_2
6.0	4.3	-	5.1	-	36.0	25.0	18.0	1.2
8.0	5.5	-	6.9	-	36.0	25.0	18.0	1.2
10.0	7.1	-	8.5	-	40.0	28.0	20.0	1.2
12.0	8.2	-	10.4	-	45.0	33.0	22.5	1.2
14.0	8.1	-	12.7	-	45.0	33.0	22.5	1.2
16.0	10.1	-	14.2	-	48.0	36.0	24.0	1.6
18.0	10.8	-	16.2	-	48.0	36.0	24.0	1.6
20.0	11.4	-	18.2	-	50.0	38.0	25.0	1.6
25.0	13.6	9.3	23.0	24.1	56.0	44.0	32.0	1.6
32.0	15.5	9.9	30.0	31.2	60.0	48.0	35.0	1.6