

The image features two golden-colored twist drill bits positioned diagonally across the frame. The background is a vibrant blue with a complex, metallic, scale-like pattern that gives it a three-dimensional appearance. The drill bits have a polished, reflective surface. The bit in the foreground is slightly lower and to the left of the one behind it, creating a sense of depth. The text is overlaid on the upper portion of the image.

New product of
hole making

GD series
General-purpose
twist drill





Boring Tools

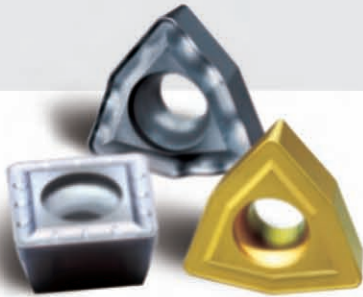
*Drills
Reamers
Thread cutters*



ZTD

**New shallow drill
series**

Boring tools



Drills • C2-C103

Solid carbide drills C2-C86

Indexable shallow drills C87-C103

Reamers • C104-C113

Solid carbide reamers C104-C113

Threading cutters • C114-C140

Solid carbide threading cutters C120-C131

Solid carbide threading mills • C133



How to choose the right solid carbide drills

Shape

Product category

Shape size

ST series for machining of soft steel, stainless steel



Internal coolant

Straight shank



Internal coolant

Whistle notch shank



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter d ₂ (mm)	Drilling depth l(d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter d ₂ (h ₆)	Overall length l ₁	Flute length l ₂	Recommended drilling depth l ₃	Shank length l ₄	
3.0	3	Internal coolant	Straight shank	1534ST03C-0300	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0300	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0300	6	66	28	23	36	☆
3.1	3		Straight shank	1534ST03C-0310	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0310	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0310	6	66	28	23	36	☆
3.2	3		Straight shank	1534ST03C-0320	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0320	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0320	6	66	28	23	36	☆
3.25	3		Straight shank	1534ST03C-0325	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0325	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0325	6	66	28	23	36	☆
3.3	3		Straight shank	1534ST03C-0330	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0330	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0330	6	66	28	23	36	☆
3.4	3		Straight shank	1534ST03C-0340	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0340	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0340	6	66	28	23	36	☆
3.5	3		Straight shank	1534ST03C-0350	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0350	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0350	6	66	28	23	36	☆

☆ Recommended grade (produce according to order)

Applicable material table

Very suitable Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	○	○				○					○

Code key

C6

Cutting parameters

C78

Cutting parameters

C80-C86

Applicable workpiece material range

Product features

Specifications

Type, depth of drilling, cooling system, type of shank, basic dimensions and grade.

Code key, cutting parameters, technical information

BORING TOOLS

Drills

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C102	Technical information for shallow drills
C103	Recommended cutting parameters for shallow drills

Drilling tools overview

Application	Type of drills	Type	Shape of drills	Coolant mode	Diameter range	Workpiece material						Page		
						P	M	K	N	S	H	Specification	Cutting parameters	
						Soft steel	Common steel	Stainless steel	Cast iron	Non-ferrous metal	Heat resistant alloy			High hardness steel
General machining	Twist drill	GD03		External cooling	Ø2-Ø25								C7-C44	C74-C76
		GD03C		Internal cooling	Ø3-Ø25									
		GD05		External cooling	Ø2-Ø25									
		GD05C		Internal cooling	Ø3-Ø25									
		GD08C		Internal cooling	Ø3-Ø18									
Deep drilling	Twist drill	1588SL 12/20/30C		Internal cooling	Ø3-Ø20								C45-C51	C77
For soft steel, stainless steel	Twist drill	1534ST03C		Internal cooling	Ø3-Ø20								C54-C67	C78
		1536ST05C		Internal cooling	Ø3-Ø20									
		1736ST05C		Internal cooling	Ø3-Ø20									
For aluminum, cast iron	Twist drill	1105SC03		External cooling	Ø2-Ø16								C68-71	C78
		1101SC05		External cooling	Ø2-Ø16									
	Straight flute drill	1576PC05		External cooling	Ø4-Ø20								C72-C73	C79
		1579PC15C		Internal cooling	Ø5-Ø14									
Indexable drills series	Shallow drills	ZTD 02/03/04/05		Internal cooling	Ø13-Ø50								C89-C95	C103
		ZD03		Internal cooling	Ø16-Ø58								C96-C97	C103

○ Very suitable ○ Suitable

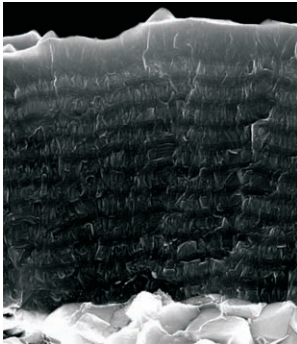
Grade introduction of solid carbide drills

Coated grade

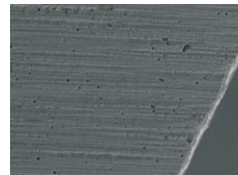
KDG3013

New AlCrN substrate composite coating, with excellent abrasion resistance and bonding resistance, improves the stability of the insert edge.

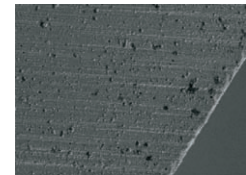
Unique coating after-treatment technology effectively reduces the cutting resistance for smoother chip evacuation and higher security.



AlCrN substrate composite coating



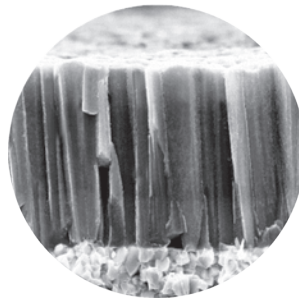
KDG3013



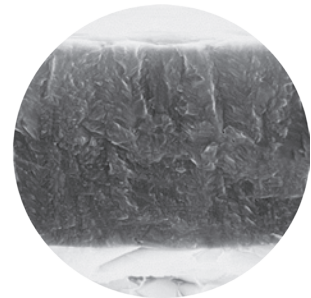
Conventional coating

KDG303

Ultra-fine carbide substrate with high strength, toughness and wear resistance, in combination with nano-structured nc-TiAlN coating aiming at optimizing drilling operations, makes sure the tools have very high toughness and hardness. Unique coating technology gives the tools smooth surface and excellent wear resistance, and outstanding thermal stability and chemical stability provide effective protection for the cutting edge.



Common TiAlN coating



nc-TiAlN coating

Uncoated grade

YK20F

Ultra-fine grain carbide substrate with high hardness, outstanding wear resistance, and long tool life.

YK30F

Ultra-fine carbide substrate with high strength, toughness and wear resistance gives the cutting edge perfect strength.

Solid carbide drills code key

Type to tool

GD ▶ General-purpose twist drill

Mode of cooling

C ▶ Internal cooling
Default ▶ External cooling

Type of shank

S ▶ slim shank
Default ▶ meet DIN6535HA standard

GD 03 C -0600 S

Length code

03 ▶ 3d
05 ▶ 5d
08 ▶ 8d

Specification

0600 ▶ Nominal diameter in compliance with DIN6535HA regulation

Code	Description
1	As per DIN338
2	As per DIN1897
3	As per QJ/ZZQ(TO)01.001.002
4	As per DIN6537K
5	As per DIN6537K
6	As per DIN6537K
7	As per the rule ZZC-C in QJ/ZZQ(TO)01.001.002
8	As per the rule ZZC-D in QJ/ZZQ(TO)01.001.002
9	As per the rule ZZC-E in QJ/ZZQ(TO)01.001.002

Length code

Code	Description
SL	Deep twist drills
ST	Twist drill for soft steel, stainless steel
PC	Straight flute drill for aluminum, cast iron

Geometry

Code	Description
1	Drills

Type to tool

Code	Description
C	Internal coolant
Default	External coolant

Mode of cooling

1 5 8 8 SL 12 C -0850

Type of shank

Code	Description
1	Straight shank
2	Square head straight shank as per DIN10
3	Double flattened straight shank as per DIN1809
5	Straight shank as per DIN6535HA
7	Whistle notch shank as per DIN6535HE
9	Tapered shank

Type of drill

Code	Description
0	Twist drill
3	Multiple functions twist drill
4	Centering drill
5	Step drill
7	Straight flute drill
8	Deep drill

Specification

Code	Description
0850	Nominal diameter of drill

Identification of drilling depth

Cutting depth shown when the tool is non-pilot drill		Point angle identification shown when tool is pilot drill	
Code	Description	Code	Description
03	(2-3) d	90	pilot drill with 90° point angle
05	(4-5) d	120	pilot drill with 120° point angle
08	(7-8) d		
12	(12) d		
15	(15) d		
20	(20) d		
30	(30) d		

GD series General-purpose twist drill

Application range

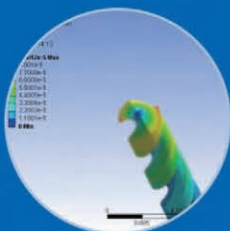
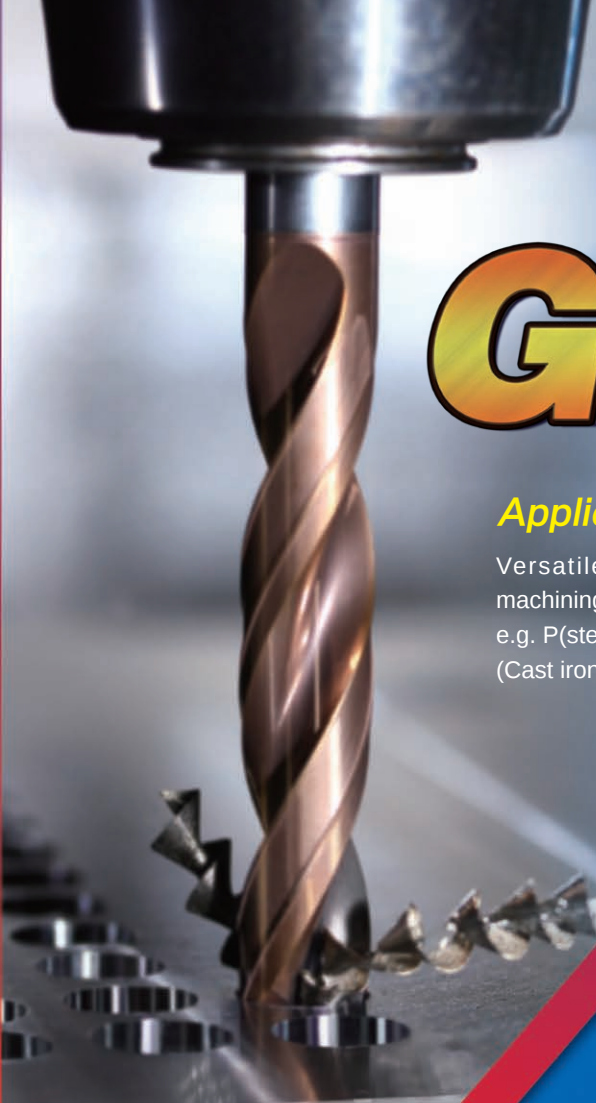
Versatile, for high efficiency machining in a variety of material
e.g. P(steel), M(stainless steel), K
(Cast iron).

- Linear cutting edge with high strength.
Optimized drill point structure for better cutting performance.

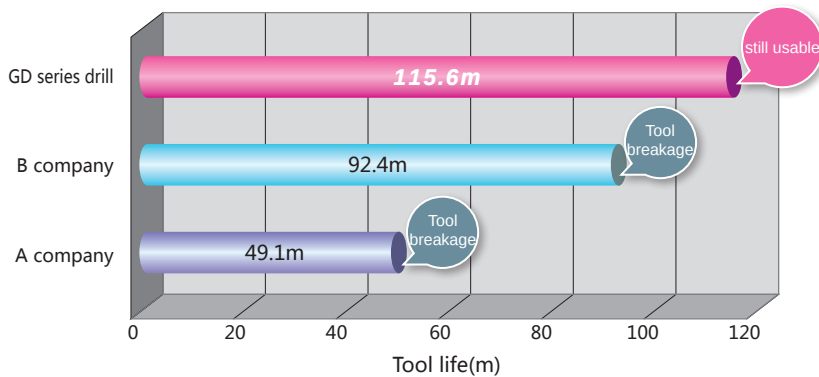
- Simulation in combination with testing for superior overall performance.

- Professional after treatment for coating ensures low-resistance high-efficiency machining.

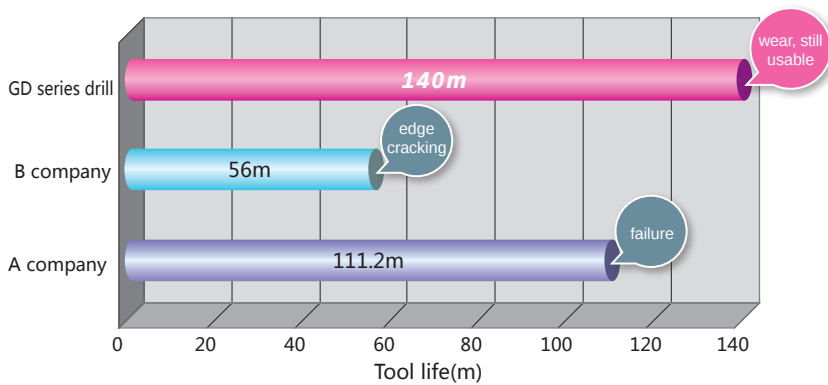
- Double edge-line design for improved machining stability.



Long and stable tool life



tool : GD05C-0560
workpiece material: C70S6(HRC30)
V=100m/min; f= 0.15mm/r; H=27mm
cooling system: water soluble cooling

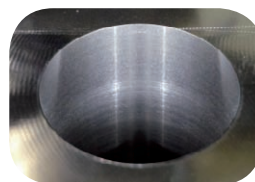


tool: GD05C-1000
workpiece material: 45[#]steel(HB180)
V=150m/min; f=0.25mm/r; H=40mm
cooling system: water soluble cooling

outstanding machining precision

quality of hole wall:

tool: GD03C-0820
workpiece material: C70S6(HRC30)
V=120m/min; f=0.23mm/r; H=30mm;
cooling system: water soluble cooling



GD series drill



A company

excellent chip breaking performance

chip breaking performance:

tool: GD05C-0600
workpiece material: 1Cr18Ni9Ti(HB180)
V=75m/min; f=0.2mm/r; H=30mm;
cooling system: water soluble cooling

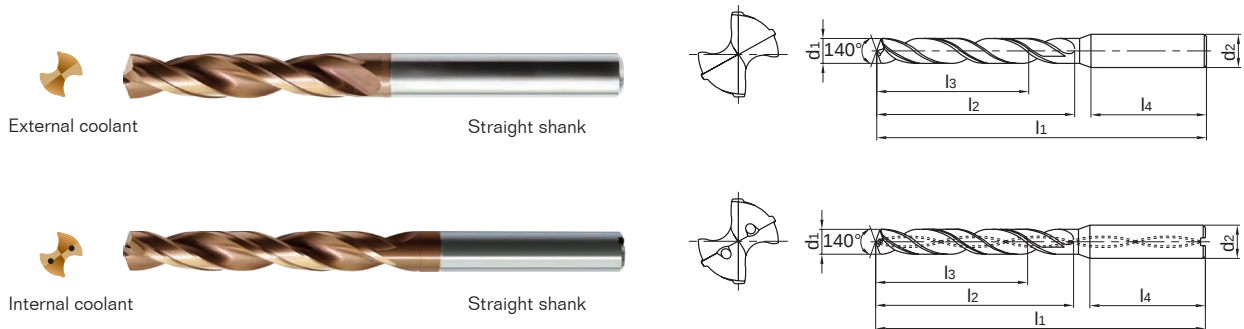


GD series drill



A company

GD series General machining



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
2.0	3	External coolant	Straight shank	GD03-0200S	3	58	13	9	28		NO.2-64UNF	○
	5			GD05-0200S	3	58	18	14	28			○
	3			GD03-0200	4	58	13	9	28			●
	5			GD05-0200	4	58	18	14	28			●
2.1	3			GD03-0210S	3	58	13	9	28	NO.3-48UNC		○
	5			GD05-0210S	3	58	18	14	28			○
	3			GD03-0210	4	58	13	9	28			●
	5			GD05-0210	4	58	18	14	28			●
2.15	3			GD03-0215S	3	58	13	9	28	NO.3-56UNF		○
	5			GD05-0215S	3	58	18	14	28			○
	3			GD03-0215	4	58	13	9	28			●
	5			GD05-0215	4	58	18	14	28			●
2.2	3			GD03-0220S	3	58	13	9	28			○
	5			GD05-0220S	3	58	18	14	28			○
	3			GD03-0220	4	58	13	9	28			●
	5			GD05-0220	4	58	18	14	28			●
2.3	3			GD03-0230S	3	58	13	9	28		M2.5×0.45	○
	5			GD05-0230S	3	58	18	14	28			○
	3			GD03-0230	4	58	13	9	28		NO.3-56UNF	●
	5			GD05-0230	4	58	18	14	28			●

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h5.

● Stock available ○ Make-to-order

Drilling tools

GD series

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

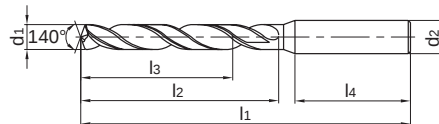
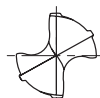
GD series General machining



External coolant



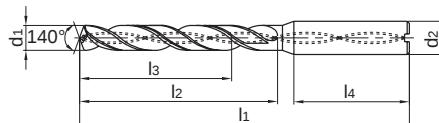
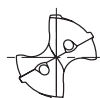
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
2.35	3	External coolant	Straight shank	GD03-0235S	3	58	17	12	28	NO.4-40UNC		○
	5			GD05-0235S	3	58	22	17	28			○
	3			GD03-0235	4	58	17	12	28			●
	5			GD05-0235	4	58	22	17	28			●
2.4	3			GD03-0240S	3	58	17	12	28	NO.4-48UNF		○
	5			GD05-0240S	3	58	22	17	28			○
	3			GD03-0240	4	58	17	12	28			●
	5			GD05-0240	4	58	22	17	28			●
2.5	3			GD03-0250S	3	58	17	12	28	M3×0.5		○
	5			GD05-0250S	3	58	22	17	28			○
	3			GD03-0250	4	58	17	12	28			●
	5			GD05-0250	4	58	22	17	28			●
2.55	3			GD03-0255S	3	58	17	12	28	NO.4-40UNC		○
	5			GD05-0255S	3	58	22	17	28			○
	3			GD03-0255	4	58	17	12	28			●
	5			GD05-0255	4	58	22	17	28			●
2.6	3			GD03-0260S	3	58	17	12	28	NO.4-48UNF		○
	5			GD05-0260S	3	58	22	17	28			○
	3			GD03-0260	4	58	17	12	28			●
	5			GD05-0260	4	58	22	17	28			●
2.65	3			GD03-0265S	3	58	17	12	28	NO.5-40UNC		○
	5			GD05-0265S	3	58	22	17	28			○
	3			GD03-0265	4	58	17	12	28			●
	5			GD05-0265	4	58	22	17	28			●
2.7	3			GD03-0270S	3	58	17	12	28	NO.5-44UNF		○
	5			GD05-0270S	3	58	22	17	28			○
	3			GD03-0270	4	58	17	12	28			●
	5			GD05-0270	4	58	22	17	28			●

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade	
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄				
2.8	3	External coolant	Straight shank	GD03-0280S	3	58	17	12	28		M3×0.5	○	
	5			GD05-0280S	3	58	22	17	28			○	
	3			GD03-0280	4	58	17	12	28			●	
	5			GD05-0280	4	58	22	17	28			●	
2.85	3			GD03-0285S	3	58	17	12	28	NO.6-32UNC		○	
	5			GD05-0285S	3	58	22	17	28			○	
	3			GD03-0285	4	58	17	12	28			●	
	5			GD05-0285	4	58	22	17	28			●	
2.9	3			GD03-0290S	3	58	17	12	28		NO.5-40UNC NO.5-44UNF	○	
	5			GD05-0290S	3	58	22	17	28			○	
	3			GD03-0290	4	58	17	12	28			●	
	5			GD05-0290	4	58	22	17	28			●	
2.95	3			GD03-0295S	3	58	17	12	28	NO.6-40UNF		○	
	5			GD05-0295S	3	58	22	17	28			○	
	3			GD03-0295	4	58	17	12	28			●	
	5			GD05-0295	4	58	22	17	28			●	
3.0	3			Internal coolant	GD03-0300S	3	62	20	14	36			○
	5				GD05-0300S	3	66	28	23	36			○
	3				GD03C-0300S	3	62	20	14	36			○
	5				GD05C-0300S	3	66	28	23	36			○
	3	External coolant	GD03-0300	6	62	20	14	36			●		
	5		GD05-0300	6	66	28	23	36			●		
	3		GD03C-0300	6	62	20	14	36			●		
	5		GD05C-0300	6	66	28	23	36			●		
3.1	8	Internal coolant	GD08C-0300	6	72	34	29	36			●		
	3		GD03-0310S	4	62	20	14	36			●		
	5		GD05-0310S	4	66	28	23	36			●		
	3		GD03C-0310S	4	62	20	14	36			●		
	5		GD05C-0310S	4	66	28	23	36			●		
	3		GD03-0310	6	62	20	14	36			○		
	5		GD05-0310	6	66	28	23	36			○		
	8		GD08C-0310	6	72	34	29	36			○		

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

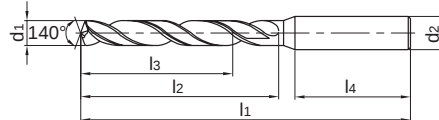
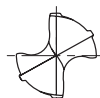
GD series General machining



External coolant



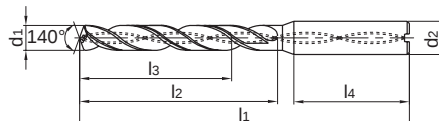
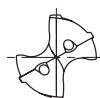
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
3.15	3	External coolant	Straight shank	GD03-0315S	4	62	20	14	36		NO.6-32UNC	●
	5			GD05-0315S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0315S	4	62	20	14	36			●
	5			GD05C-0315S	4	66	28	23	36			●
	3	External coolant		GD03-0315	6	62	20	14	36			○
	5			GD05-0315	6	66	28	23	36			○
	3	Internal coolant		GD03C-0315	6	62	20	14	36			○
	5			GD05C-0315	6	66	28	23	36			○
3.2	3	External coolant		GD03-0320S	4	62	20	14	36		NO.6-40UNF	●
	5			GD05-0320S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0320S	4	62	20	14	36			●
	5			GD05C-0320S	4	66	28	23	36			●
	3	External coolant		GD03-0320	6	62	20	14	36			○
	5			GD05-0320	6	66	28	23	36			○
	3	Internal coolant		GD03C-0320	6	62	20	14	36			○
	5			GD05C-0320	6	66	28	23	36			○
	8		GD08C-0320	6	72	34	29	36	○			
	3.25	3	External coolant	GD03-0325S	4	62	20	14	36			
5		GD05-0325S		4	66	28	23	36	●			
3		Internal coolant	GD03C-0325S	4	62	20	14	36	●			
5			GD05C-0325S	4	66	28	23	36	●			
3		External coolant	GD03-0325	6	62	20	14	36	○			
5			GD05-0325	6	66	28	23	36	○			
3		Internal coolant	GD03C-0325	6	62	20	14	36	○			
5			GD05C-0325	6	66	28	23	36	○			

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h6)	l ₁	l ₂	l ₃	l ₄			
3.3	3	External coolant	Straight shank	GD03-0330S	4	62	20	14	36	M4×0.7		●
	5			GD05-0330S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0330S	4	62	20	14	36			●
	5			GD05C-0330S	4	66	28	23	36			●
	3	External coolant		GD03-0330	6	62	20	14	36			○
	5			GD05-0330	6	66	28	23	36			○
	3	Internal coolant		GD03C-0330	6	62	20	14	36			○
	5			GD05C-0330	6	66	28	23	36			○
	8	GD08C-0330		6	72	34	29	36			○	
3.4	3	External coolant		GD03-0340S	4	62	20	14	36			●
	5			GD05-0340S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0340S	4	62	20	14	36			●
	5			GD05C-0340S	4	66	28	23	36			●
	3	External coolant		GD03-0340	6	62	20	14	36			○
	5			GD05-0340	6	66	28	23	36			○
	3	Internal coolant		GD03C-0340	6	62	20	14	36			○
	5			GD05C-0340	6	66	28	23	36			○
	8	GD08C-0340		6	72	34	29	36			○	
3.5	3	External coolant		GD03-0350S	4	62	20	14	36	M4×0.5		●
	5			GD05-0350S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0350S	4	62	20	14	36			●
	5			GD05C-0350S	4	66	28	23	36			●
	3	External coolant		GD03-0350	6	62	20	14	36		NO.8-32UNC	○
	5			GD05-0350	6	66	28	23	36		NO.8-36UNF	○
	3	Internal coolant		GD03C-0350	6	62	20	14	36			○
	5			GD05C-0350	6	66	28	23	36			○
	8	GD08C-0350		6	72	34	29	36			○	
3.6	3	External coolant		GD03-0360S	4	62	20	14	36			●
	5			GD05-0360S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0360S	4	62	20	14	36			●
	5			GD05C-0360S	4	66	28	23	36			●
	3	External coolant		GD03-0360	6	62	20	14	36			○
	5		GD05-0360	6	66	28	23	36			○	
	3	Internal coolant	GD03C-0360	6	62	20	14	36			○	
	5		GD05C-0360	6	66	28	23	36			○	
	8	GD08C-0360	6	72	34	29	36		○			

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₅.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material									
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy
KDG3013	○	○	○	○	○	○	○	○		○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

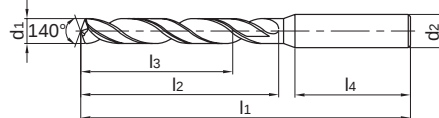
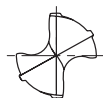
GD series General machining



External coolant



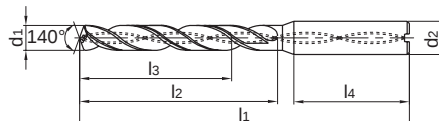
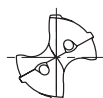
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
3.7	3	External coolant	Straight shank	GD03-0370S	4	62	20	14	36		M4×0.7	●
	5			GD05-0370S	4	66	28	23	36			●
	3	Internal coolant		GD03C-0370S	4	62	20	14	36			●
	5			GD05C-0370S	4	66	28	23	36			●
	3	External coolant		GD03-0370	6	62	20	14	36			○
	5			GD05-0370	6	66	28	23	36			○
	3	Internal coolant		GD03C-0370	6	62	20	14	36			○
	5			GD05C-0370	6	66	28	23	36			○
	8	GD08C-0370		6	72	34	29	36		○		
3.8	3	External coolant		GD03-0380S	4	66	24	17	36		M4×0.5 NO.8-32UNC	●
	5			GD05-0380S	4	74	36	29	36			●
	3	Internal coolant		GD03C-0380S	4	66	24	17	36			●
	5			GD05C-0380S	4	74	36	29	36			●
	3	External coolant		GD03-0380	6	66	24	17	36			○
	5			GD05-0380	6	74	36	29	36			○
	3	Internal coolant		GD03C-0380	6	66	24	17	36			○
	5		GD05C-0380	6	74	36	29	36		○		
	8	GD08C-0380	6	81	43	36	36		○			
3.85	3	External coolant	GD03-0385S	4	66	24	17	36		NO.8-36UNF	●	
	5		GD05-0385S	4	74	36	29	36			●	
	3	Internal coolant	GD03C-0385S	4	66	24	17	36			●	
	5		GD05C-0385S	4	74	36	29	36			●	
	3	External coolant	GD03-0385	6	66	24	17	36			○	
	5		GD05-0385	6	74	36	29	36			○	
	3	Internal coolant	GD03C-0385	6	66	24	17	36			○	
	5		GD05C-0385	6	74	36	29	36			○	

● Stock available ○ Make-to-order

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
3.9	3	External coolant	Straight shank	GD03-0390S	4	66	24	17	36	NO.10-24UNC		●
	5			GD05-0390S	4	74	36	29	36			●
	3	Internal coolant		GD03C-0390S	4	66	24	17	36			●
	5			GD05C-0390S	4	74	36	29	36			●
	3	External coolant		GD03-0390	6	66	24	17	36			○
	5			GD05-0390	6	74	36	29	36			○
	3	Internal coolant		GD03C-0390	6	66	24	17	36			○
	5			GD05C-0390	6	74	36	29	36			○
	8	GD08C-0390		6	81	43	36	36			○	
4.0	3	External coolant		GD03-0400S	4	66	24	17	36			●
	5			GD05-0400S	4	74	36	29	36			●
	3	Internal coolant		GD03C-0400S	4	66	24	17	36			●
	5			GD05C-0400S	4	74	36	29	36			●
	3	External coolant		GD03-0400	6	66	24	17	36			○
	5			GD05-0400	6	74	36	29	36			○
	3	Internal coolant		GD03C-0400	6	66	24	17	36			○
	5			GD05C-0400	6	74	36	29	36			○
	8	GD08C-0400		6	81	43	36	36			○	
4.1	3	External coolant		GD03-0410S	5	66	24	17	36	NO.10-32UNF		○
	5			GD05-0410S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0410S	5	66	24	17	36			○
	5			GD05C-0410S	5	74	36	29	36			○
	3	External coolant		GD03-0410	6	66	24	17	36			●
	5			GD05-0410	6	74	36	29	36			●
	3	Internal coolant		GD03C-0410	6	66	24	17	36			●
	5			GD05C-0410	6	74	36	29	36			●
	8	GD08C-0410		6	81	43	36	36			○	
4.2	3	External coolant		GD03-0420S	5	66	24	17	36	M5×0.8		○
	5			GD05-0420S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0420S	5	66	24	17	36			○
	5			GD05C-0420S	5	74	36	29	36			○
	3	External coolant		GD03-0420	6	66	24	17	36			●
	5			GD05-0420	6	74	36	29	36			●
	3	Internal coolant		GD03C-0420	6	66	24	17	36			●
	5			GD05C-0420	6	74	36	29	36			●
	8	GD08C-0420		6	81	43	36	36			○	

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

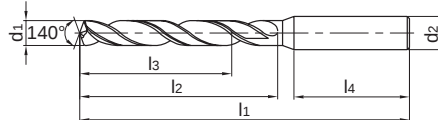
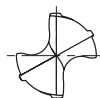
GD series General machining



External coolant



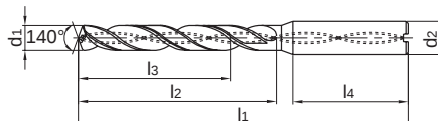
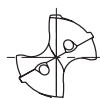
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
4.3	3	External coolant	Straight shank	GD03-0430S	5	66	24	17	36			○
	5			GD05-0430S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0430S	5	66	24	17	36			○
	5			GD05C-0430S	5	74	36	29	36			○
	3	External coolant		GD03-0430	6	66	24	17	36			●
	5			GD05-0430	6	74	36	29	36			●
	3	Internal coolant		GD03C-0430	6	66	24	17	36			●
	5			GD05C-0430	6	74	36	29	36			●
	8	GD08C-0430		6	81	43	36	36			○	
4.35	3	External coolant		GD03-0435S	5	66	24	17	36		NO.10-24UNC	○
	5			GD05-0435S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0435S	5	66	24	17	36			○
	5			GD05C-0435S	5	74	36	29	36			○
	3	External coolant		GD03-0435	6	66	24	17	36			●
	5			GD05-0435	6	74	36	29	36			●
	3	Internal coolant		GD03C-0435	6	66	24	17	36			●
	5			GD05C-0435	6	74	36	29	36			●
4.4	3	External coolant		GD03-0440S	5	66	24	17	36		○	
	5			GD05-0440S	5	74	36	29	36		○	
	3	Internal coolant		GD03C-0440S	5	66	24	17	36		○	
	5			GD05C-0440S	5	74	36	29	36		○	
	3	External coolant		GD03-0440	6	66	24	17	36		●	
	5			GD05-0440	6	74	36	29	36		●	
	3	Internal coolant		GD03C-0440	6	66	24	17	36		●	
	5			GD05C-0440	6	74	36	29	36		●	
8	GD08C-0440	6		81	43	36	36		○			

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄			
4.45	3	External coolant	Straight shank	GD03-0445S	5	66	24	17	36	NO.10-32UNF		○
	5			GD05-0445S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0445S	5	66	24	17	36			○
	5			GD05C-0445S	5	74	36	29	36			○
	3	External coolant		GD03-0445	6	66	24	17	36			●
	5			GD05-0445	6	74	36	29	36			●
	3	Internal coolant		GD03C-0445	6	66	24	17	36			●
	5			GD05C-0445	6	74	36	29	36			●
4.5	3	External coolant		GD03-0450S	5	66	24	17	36	NO.12-24UNC M5×0.5		○
	5			GD05-0450S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0450S	5	66	24	17	36			○
	5			GD05C-0450S	5	74	36	29	36			○
	3	External coolant		GD03-0450	6	66	24	17	36			●
	5			GD05-0450	6	74	36	29	36			●
	3	Internal coolant		GD03C-0450	6	66	24	17	36			●
	5			GD05C-0450	6	74	36	29	36			●
	8	GD08C-0450		6	81	43	36	36	○			
	4.6	3		External coolant	GD03-0460S	5	66	24	17			36
5		GD05-0460S			5	74	36	29	36	○		
3		Internal coolant		GD03C-0460S	5	66	24	17	36	○		
5				GD05C-0460S	5	74	36	29	36	○		
3		External coolant		GD03-0460	6	66	24	17	36	●		
5				GD05-0460	6	74	36	29	36	●		
3		Internal coolant		GD03C-0460	6	66	24	17	36	●		
5				GD05C-0460	6	74	36	29	36	●		
8		GD08C-0460		6	81	43	36	36	○			
4.65		3		External coolant	GD03-0465S	5	66	24	17	36	M5×0.8	
	5	GD05-0465S			5	74	36	29	36	○		
	3	Internal coolant		GD03C-0465S	5	66	24	17	36	○		
	5			GD05C-0465S	5	74	36	29	36	○		
	3	External coolant		GD03-0465	6	66	24	17	36	●		
	5			GD05-0465	6	74	36	29	36	●		
	3	Internal coolant		GD03C-0465	6	66	24	17	36	●		
	5			GD05C-0465	6	74	36	29	36	●		

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key Cutting parameters Technical information

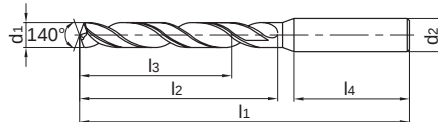
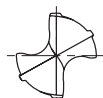
GD series General machining



External coolant



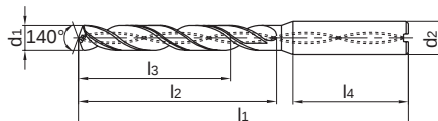
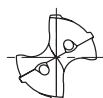
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
4.7	3	External coolant	Straight shank	GD03-0470S	5	66	24	17	36	NO.12-28UNF		○
	5			GD05-0470S	5	74	36	29	36			○
	3	Internal coolant		GD03C-0470S	5	66	24	17	36			○
	5			GD05C-0470S	5	74	36	29	36			○
	3	External coolant		GD03-0470	6	66	24	17	36			●
	5			GD05-0470	6	74	36	29	36			●
	3	Internal coolant		GD03C-0470	6	66	24	17	36			●
	5			GD05C-0470	6	74	36	29	36			●
	8	GD08C-0470		6	81	43	36	36			○	
4.8	3	External coolant		GD03-0480S	5	66	28	20	36	M5×0.5		○
	5			GD05-0480S	5	82	44	35	36			○
	3	Internal coolant		GD03C-0480S	5	66	28	20	36			○
	5			GD05C-0480S	5	82	44	35	36			○
	3	External coolant		GD03-0480	6	66	28	20	36			●
	5			GD05-0480	6	82	44	35	36			●
	3	Internal coolant		GD03C-0480	6	66	28	20	36			●
	5			GD05C-0480	6	82	44	35	36			●
	8	GD08C-0480		6	95	57	48	36			○	
4.9	3	External coolant		GD03-0490S	5	66	28	20	36			○
	5			GD05-0490S	5	82	44	35	36			○
	3	Internal coolant		GD03C-0490S	5	66	28	20	36			○
	5			GD05C-0490S	5	82	44	35	36			○
	3	External coolant		GD03-0490	6	66	28	20	36			●
	5			GD05-0490	6	82	44	35	36			●
	3	Internal coolant		GD03C-0490	6	66	28	20	36			●
	5			GD05C-0490	6	82	44	35	36			●
	8	GD08C-0490		6	95	57	48	36			○	

● Stock available ○ Make-to-order

Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter d ₂ (h ₆)	Overall length l ₁	Flute length l ₂	Recommended drilling depth l ₃	Shank length l ₄	cutting taps / tread milling cutters	forming taps	
5.0	3	External coolant	Straight shank	GD03-0500S	5	66	28	20	36	M6×1	NO.12-24UNC	○
	5			GD05-0500S	5	82	44	35	36			○
	3	Internal coolant		GD03C-0500S	5	66	28	20	36			○
	5			GD05C-0500S	5	82	44	35	36			○
	3	External coolant		GD03-0500	6	66	28	20	36			●
	5			GD05-0500	6	82	44	35	36			●
	3	Internal coolant		GD03C-0500	6	66	28	20	36			●
	5			GD05C-0500	6	82	44	35	36			●
	8	GD08C-0500		6	95	57	48	36	○			
5.1	3	External coolant		GD03-0510	6	66	28	20	36	1/4-20UNC	NO.12-28UNF	●
	5			GD05-0510	6	82	44	35	36			●
	3	Internal coolant		GD03C-0510	6	66	28	20	36			●
	5			GD05C-0510	6	82	44	35	36			●
	8			GD08C-0510	6	95	57	48	36			○
5.2	3	External coolant		GD03-0520	6	66	28	20	36			●
	5			GD05-0520	6	82	44	35	36			●
	3	Internal coolant		GD03C-0520	6	66	28	20	36			●
	5			GD05C-0520	6	82	44	35	36			●
	8		GD08C-0520	6	95	57	48	36	○			
5.25	3	External coolant	GD03-0525	6	66	28	20	36	M6×0.75		●	
	5		GD05-0525	6	82	44	35	36			●	
	3	Internal coolant	GD03C-0525	6	66	28	20	36			●	
	5		GD05C-0525	6	82	44	35	36			●	
5.3	3	External coolant	GD03-0530	6	66	28	20	36			●	
	5		GD05-0530	6	82	44	35	36			●	
	3	Internal coolant	GD03C-0530	6	66	28	20	36			●	
	5		GD05C-0530	6	82	44	35	36			●	
	8		GD08C-0530	6	95	57	48	36			○	
5.4	3	External coolant	GD03-0540	6	66	28	20	36			●	
	5		GD05-0540	6	82	44	35	36			●	
	3	Internal coolant	GD03C-0540	6	66	28	20	36			●	
	5		GD05C-0540	6	82	44	35	36			●	
	8		GD08C-0540	6	95	57	48	36			○	

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₅.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material									
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Heat resistant alloy
KDG3013	○	○	○	○	○	○	○	○	○	○

Code key C6 Cutting parameters C74-C76 Technical information C80-C86

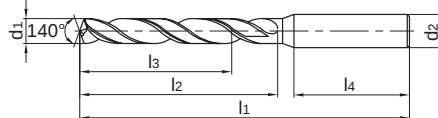
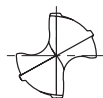
GD series General machining



External coolant



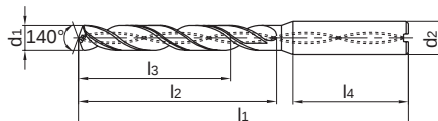
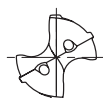
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
5.5	3	External coolant	Straight shank	GD03-0550	6	66	28	20	36	1/4-28UNF		●
	5			GD05-0550	6	82	44	35	36			●
	3	Internal coolant		GD03C-0550	6	66	28	20	36			●
	5			GD05C-0550	6	82	44	35	36			●
	8			GD08C-0550	6	95	57	48	36			○
5.55	3	External coolant		GD03-0555	6	66	28	20	36		●	
	5			GD05-0555	6	82	44	35	36		●	
	3	Internal coolant		GD03C-0555	6	66	28	20	36		●	
	5			GD05C-0555	6	82	44	35	36		●	
5.6	3	External coolant		GD03-0560	6	66	28	20	36	M6×1	●	
	5			GD05-0560	6	82	44	35	36		●	
	3	Internal coolant		GD03C-0560	6	66	28	20	36		●	
	5			GD05C-0560	6	82	44	35	36		●	
	8			GD08C-0560	6	95	57	48	36		○	
5.7	3	External coolant		GD03-0570	6	66	28	20	36	M6×0.75	●	
	5			GD05-0570	6	82	44	35	36		●	
	3	Internal coolant		GD03C-0570	6	66	28	20	36		●	
	5			GD05C-0570	6	82	44	35	36		●	
	8			GD08C-0570	6	95	57	48	36		○	
5.75	3	External coolant		GD03-0575	6	66	28	20	36	1/4-20UNC	●	
	5			GD05-0575	6	82	44	35	36		●	
	3	Internal coolant		GD03C-0575	6	66	28	20	36		●	
	5			GD05C-0575	6	82	44	35	36		●	
5.8	3	External coolant		GD03-0580	6	66	28	20	36		●	
	5			GD05-0580	6	82	44	35	36		●	
	3	Internal coolant		GD03C-0580	6	66	28	20	36		●	
	5			GD05C-0580	6	82	44	35	36		●	
	8			GD08C-0580	6	95	57	48	36		○	

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h6)	l ₁	l ₂	l ₃	l ₄			
5.9	3	External coolant	Straight shank	GD03-0590	6	66	28	20	36			●
	5			GD05-0590	6	82	44	35	36			●
	3	Internal coolant		GD03C-0590	6	66	28	20	36			●
	5			GD05C-0590	6	82	44	35	36			●
	8			GD08C-0590	6	95	57	48	36			○
5.95	3	External coolant		GD03-0595	6	66	28	20	36		1/4-28UNF	●
	5			GD05-0595	6	82	44	35	36			●
	3	Internal coolant		GD03C-0595	6	66	28	20	36			●
	5			GD05C-0595	6	82	44	35	36			●
	8			GD08C-0595	6	95	57	48	36			○
6.0	3	External coolant		GD03-0600	6	66	28	20	36	M7×1		●
	5			GD05-0600	6	82	44	35	36			●
	3	Internal coolant		GD03C-0600	6	66	28	20	36			●
	5			GD05C-0600	6	82	44	35	36			●
	8			GD08C-0600	6	95	57	48	36			○
6.1	3	External coolant		GD03-0610S	7	79	34	24	36			○
	5			GD05-0610S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0610S	7	79	34	24	36			○
	5			GD05C-0610S	7	91	53	43	36			○
	3	External coolant		GD03-0610	8	79	34	24	36			●
	5			GD05-0610	8	91	53	43	36			●
	3	Internal coolant		GD03C-0610	8	79	34	24	36			●
	5			GD05C-0610	8	91	53	43	36			●
	8			GD08C-0610	8	114	76	66	36			○
	8			GD08C-0610	8	114	76	66	36			○
6.2	3	External coolant		GD03-0620S	7	79	34	24	36			○
	5			GD05-0620S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0620S	7	79	34	24	36			○
	5			GD05C-0620S	7	91	53	43	36			○
	3	External coolant		GD03-0620	8	79	34	24	36			●
	5			GD05-0620	8	91	53	43	36			●
	3	Internal coolant		GD03C-0620	8	79	34	24	36			●
	5			GD05C-0620	8	91	53	43	36			●
	8			GD08C-0620	8	114	76	66	36			○
8	GD08C-0620			8	114	76	66	36			○	

Note: For drilling depth (l/d) of 8, namely GD08C series, tolerance of shank diameter is h₅.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material									
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Heat resistant alloy
KDG3013	○	○	○	○	○	○	○	○	○	○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

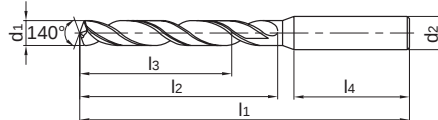
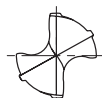
GD series General machining



External coolant



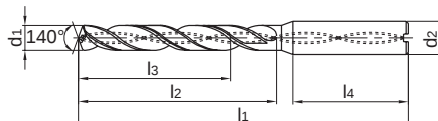
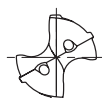
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
6.3	3	External coolant	Straight shank	GD03-0630S	7	79	34	24	36			○
	5			GD05-0630S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0630S	7	79	34	24	36			○
	5			GD05C-0630S	7	91	53	43	36			○
	3	External coolant		GD03-0630	8	79	34	24	36			●
	5			GD05-0630	8	91	53	43	36			●
	3	Internal coolant		GD03C-0630	8	79	34	24	36			●
	5			GD05C-0630	8	91	53	43	36			●
	8	GD08C-0630		8	114	76	66	36			○	
6.4	3	External coolant		GD03-0640S	7	79	34	24	36			○
	5			GD05-0640S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0640S	7	79	34	24	36			○
	5			GD05C-0640S	7	91	53	43	36			○
	3	External coolant		GD03-0640	8	79	34	24	36			●
	5			GD05-0640	8	91	53	43	36			●
	3	Internal coolant		GD03C-0640	8	79	34	24	36			●
	5			GD05C-0640	8	91	53	43	36			●
	8	GD08C-0640		8	114	76	66	36			○	
6.5	3	External coolant		GD03-0650S	7	79	34	24	36			○
	5			GD05-0650S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0650S	7	79	34	24	36			○
	5			GD05C-0650S	7	91	53	43	36			○
	3	External coolant		GD03-0650	8	79	34	24	36			●
	5			GD05-0650	8	91	53	43	36			●
	3	Internal coolant		GD03C-0650	8	79	34	24	36			●
	5			GD05C-0650	8	91	53	43	36			●
	8	GD08C-0650		8	114	76	66	36			○	

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄			
6.6	3	External coolant	Straight shank	GD03-0660S	7	79	34	24	36	5/16-18UNC	M7×1	○
	5			GD05-0660S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0660S	7	79	34	24	36			○
	5			GD05C-0660S	7	91	53	43	36			○
	3	External coolant		GD03-0660	8	79	34	24	36			●
	5			GD05-0660	8	91	53	43	36			●
	3	Internal coolant		GD03C-0660	8	79	34	24	36			●
	5			GD05C-0660	8	91	53	43	36			●
	8			GD08C-0660	8	114	76	66	36			○
	8			GD08C-0660	8	114	76	66	36			○
6.7	3	External coolant		GD03-0670S	7	79	34	24	36	M8×1.25		○
	5			GD05-0670S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0670S	7	79	34	24	36			○
	5			GD05C-0670S	7	91	53	43	36			○
	3	External coolant		GD03-0670	8	79	34	24	36			●
	5			GD05-0670	8	91	53	43	36			●
	3	Internal coolant		GD03C-0670	8	79	34	24	36			●
	5			GD05C-0670	8	91	53	43	36			●
	8			GD08C-0670	8	114	76	66	36			○
	8			GD08C-0670	8	114	76	66	36			○
6.75	3	External coolant		GD03-0675S	7	79	34	24	36	M8×1.25		○
	5			GD05-0675S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0675S	7	79	34	24	36			○
	5			GD05C-0675S	7	91	53	43	36			○
	3	External coolant		GD03-0675	8	79	34	24	36			●
	5			GD05-0675	8	91	53	43	36			●
	3	Internal coolant		GD03C-0675	8	79	34	24	36			●
	5			GD05C-0675	8	91	53	43	36			●
	8			GD08C-0675	8	114	76	66	36			○
	8			GD08C-0675	8	114	76	66	36			○
6.8	3	External coolant		GD03-0680S	7	79	34	24	36			○
	5			GD05-0680S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0680S	7	79	34	24	36			○
	5			GD05C-0680S	7	91	53	43	36			○
	3	External coolant		GD03-0680	8	79	34	24	36			●
	5			GD05-0680	8	91	53	43	36			●
	3	Internal coolant		GD03C-0680	8	79	34	24	36			●
	5			GD05C-0680	8	91	53	43	36			●
	8			GD08C-0680	8	114	76	66	36			○
	8			GD08C-0680	8	114	76	66	36			○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key C6
Cutting parameters C74-C76
Technical information C80-C86

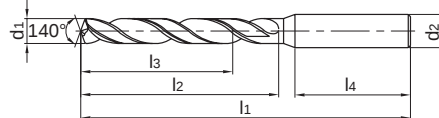
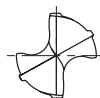
GD series General machining



External coolant



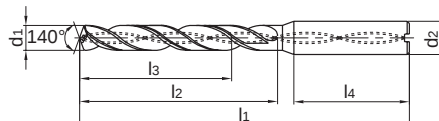
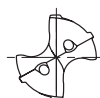
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
6.9	3	External coolant	Straight shank	GD03-0690S	7	79	34	24	36	5/16-24UNF		○
	5			GD05-0690S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0690S	7	79	34	24	36			○
	5			GD05C-0690S	7	91	53	43	36			○
	3	External coolant		GD03-0690	8	79	34	24	36			●
	5			GD05-0690	8	91	53	43	36			●
	3	Internal coolant		GD03C-0690	8	79	34	24	36			●
	5			GD05C-0690	8	91	53	43	36			●
	8	GD08C-0690		8	114	76	66	36			○	
7.0	3	External coolant		GD03-0700S	7	79	34	24	36	M8×1		○
	5			GD05-0700S	7	91	53	43	36			○
	3	Internal coolant		GD03C-0700S	7	79	34	24	36			○
	5			GD05C-0700S	7	91	53	43	36			○
	3	External coolant		GD03-0700	8	79	34	24	36			●
	5			GD05-0700	8	91	53	43	36			●
	3	Internal coolant		GD03C-0700	8	79	34	24	36			●
	5			GD05C-0700	8	91	53	43	36			●
	8	GD08C-0700		8	116	76	66	36			○	
7.1	3	External coolant		GD03-0710	8	79	41	29	36			●
	5			GD05-0710	8	91	53	43	36			●
	3	Internal coolant		GD03C-0710	8	79	41	29	36			●
	5			GD05C-0710	8	91	53	43	36			●
	8	GD08C-0710		8	116	76	66	36			○	
7.2	3	External coolant		GD03-0720	8	79	41	29	36			●
	5			GD05-0720	8	91	53	43	36			●
	3	Internal coolant		GD03C-0720	8	79	41	29	36			●
	5			GD05C-0720	8	91	53	43	36			●
	8	GD08C-0720		8	116	76	66	36			○	

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄			
7.3	3	External coolant	Straight shank	GD03-0730	8	79	41	29	36		5/16-18UNC	●
	5			GD05-0730	8	91	53	43	36			●
	3	GD03C-0730		8	79	41	29	36	●			
	5	GD05C-0730		8	91	53	43	36	●			
	8	GD08C-0730		8	116	76	66	36	○			
7.4	3	External coolant		GD03-0740	8	79	41	29	36			●
	5			GD05-0740	8	91	53	43	36			●
	3	GD03C-0740		8	79	41	29	36	●			
	5	GD05C-0740		8	91	53	43	36	●			
	8	GD08C-0740		8	116	76	66	36	○			
7.45	3	External coolant		GD03-0745	8	79	41	29	36		M8×1.25 5/16-24UNF	●
	5			GD05-0745	8	91	53	43	36			●
	3	Internal coolant		GD03C-0745	8	79	41	29	36			●
	5			GD05C-0745	8	91	53	43	36			●
7.5	3	External coolant		GD03-0750	8	79	41	29	36			●
	5			GD05-0750	8	91	53	43	36			●
	3	Internal coolant		GD03C-0750	8	79	41	29	36			●
	5			GD05C-0750	8	91	53	43	36			●
	8			GD08C-0750	8	116	76	66	36			○
7.6	3	External coolant		GD03-0760	8	79	41	29	36		M8×1	●
	5			GD05-0760	8	91	53	43	36			●
	3	Internal coolant		GD03C-0760	8	79	41	29	36			●
	5			GD05C-0760	8	91	53	43	36			●
	8			GD08C-0760	8	116	76	66	36			○
7.7	3	External coolant		GD03-0770	8	79	41	29	36			●
	5			GD05-0770	8	91	53	43	36			●
	3	Internal coolant		GD03C-0770	8	79	41	29	36			●
	5			GD05C-0770	8	91	53	43	36			●
	8			GD08C-0770	8	116	76	66	36			○
7.8	3	External coolant		GD03-0780	8	79	41	29	36			●
	5			GD05-0780	8	91	53	43	36			●
	3	Internal coolant		GD03C-0780	8	79	41	29	36			●
	5			GD05C-0780	8	91	53	43	36			●
	8			GD08C-0780	8	116	76	66	36			○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key Cutting parameters Technical information

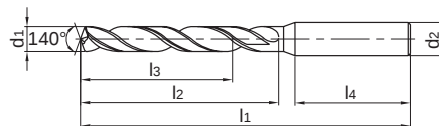
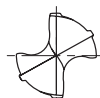
GD series General machining



External coolant



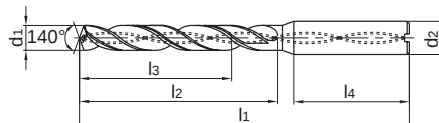
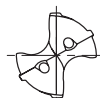
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade	
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013	
					d2(h6)	l1	l2	l3	l4				
7.9	3	External coolant	Straight shank	GD03-0790	8	79	41	29	36	3/8-16UNC		●	
	5			GD05-0790	8	91	53	43	36			●	
	3	Internal coolant		GD03C-0790	8	79	41	29	36			●	
	5			GD05C-0790	8	91	53	43	36			●	
	8			GD08C-0790	8	116	76	66	36			○	
8.0	3	External coolant		GD03-0800	8	79	41	29	36		3/8-16UNC		●
	5			GD05-0800	8	91	53	43	36				●
	3	Internal coolant		GD03C-0800	8	79	41	29	36				●
	5			GD05C-0800	8	91	53	43	36				●
	8			GD08C-0800	8	116	76	66	36				○
8.1	3	External coolant		GD03-0810S	9	89	47	35	40				○
	5			GD05-0810S	9	103	61	49	40				○
	3	Internal coolant		GD03C-0810S	9	89	47	35	40				○
	5			GD05C-0810S	9	103	61	49	40				○
	3	External coolant		GD03-0810	10	89	47	35	40				●
	5			GD05-0810	10	103	61	49	40			●	
	3	Internal coolant		GD03C-0810	10	89	47	35	40			●	
	5			GD05C-0810	10	103	61	49	40			●	
	8			GD08C-0810	10	142	95	83	40			○	
8.2	3	External coolant		GD03-0820S	9	89	47	35	40				○
	5			GD05-0820S	9	103	61	49	40				○
	3	Internal coolant		GD03C-0820S	9	89	47	35	40				○
	5			GD05C-0820S	9	103	61	49	40				○
	3	External coolant		GD03-0820	10	89	47	35	40				●
	5			GD05-0820	10	103	61	49	40				●
	3	Internal coolant		GD03C-0820	10	89	47	35	40				●
	5			GD05C-0820	10	103	61	49	40				●
	8			GD08C-0820	10	142	95	83	40				○

● Stock available ○ Make-to-order

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
8.3	3	External coolant	Straight shank	GD03-0830S	9	89	47	35	40			○
	5			GD05-0830S	9	103	61	49	40			○
	3	Internal coolant		GD03C-0830S	9	89	47	35	40			○
	5			GD05C-0830S	9	103	61	49	40			○
	3	External coolant		GD03-0830	10	89	47	35	40			●
	5			GD05-0830	10	103	61	49	40			●
	3	Internal coolant		GD03C-0830	10	89	47	35	40			●
	5			GD05C-0830	10	103	61	49	40			●
	8	GD08C-0830		10	142	95	83	40			○	
	8.4	3		External coolant	GD03-0840S	9	89	47	35	40		
5		GD05-0840S			9	103	61	49	40			○
3		Internal coolant		GD03C-0840S	9	89	47	35	40			○
5				GD05C-0840S	9	103	61	49	40			○
3		External coolant		GD03-0840	10	89	47	35	40			●
5				GD05-0840	10	103	61	49	40			●
3		Internal coolant		GD03C-0840	10	89	47	35	40			●
5				GD05C-0840	10	103	61	49	40			●
8		GD08C-0840		10	142	95	83	40			○	
8.5		3		External coolant	GD03-0850S	9	89	47	35	40	M10×1.5 3/8-24UNF	
	5	GD05-0850S			9	103	61	49	40			○
	3	Internal coolant		GD03C-0850S	9	89	47	35	40			○
	5			GD05C-0850S	9	103	61	49	40			○
	3	External coolant		GD03-0850	10	89	47	35	40			●
	5			GD05-0850	10	103	61	49	40			●
	3	Internal coolant		GD03C-0850	10	89	47	35	40			●
	5			GD05C-0850	10	103	61	49	40			●
	8	GD08C-0850		10	142	95	83	40		○		
	8.6	3		External coolant	GD03-0860S	9	89	47	35	40		
5		GD05-0860S			9	103	61	49	40			○
3		Internal coolant		GD03C-0860S	9	89	47	35	40			○
5				GD05C-0860S	9	103	61	49	40			○
3		External coolant		GD03-0860	10	89	47	35	40			●
5				GD05-0860	10	103	61	49	40			●
3		Internal coolant		GD03C-0860	10	89	47	35	40			●
5				GD05C-0860	10	103	61	49	40			●
8		GD08C-0860		10	142	95	83	40			○	

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key C6 Cutting parameters C74-C76 Technical information C80-C86

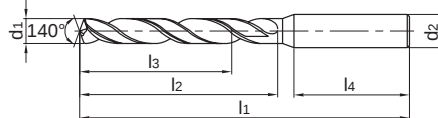
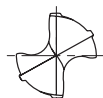
GD series General machining



External coolant



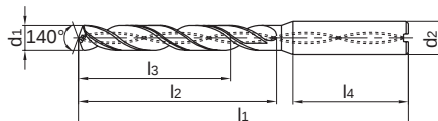
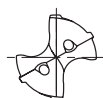
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade				
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013				
					d2(h6)	l1	l2	l3	l4							
8.7	3	External coolant	Straight shank	GD03-0870S	9	89	47	35	40	M10×1.25		○				
	5			GD05-0870S	9	103	61	49	40			○				
	3	Internal coolant		GD03C-0870S	9	89	47	35	40			○				
	5			GD05C-0870S	9	103	61	49	40			○				
	3	External coolant		GD03-0870	10	89	47	35	40			●				
	5			GD05-0870	10	103	61	49	40			●				
	3	Internal coolant		GD03C-0870	10	89	47	35	40			●				
	5			GD05C-0870	10	103	61	49	40			●				
8		GD08C-0870		10	142	95	83	40	○							
8.75	3	External coolant		GD03-0875S	9	89	47	35	40			M10×1.25		○		
	5			GD05-0875S	9	103	61	49	40					○		
	3	Internal coolant		GD03C-0875S	9	89	47	35	40					○		
	5			GD05C-0875S	9	103	61	49	40					○		
	3	External coolant		GD03-0875	10	89	47	35	40					●		
	5			GD05-0875	10	103	61	49	40					●		
	3	Internal coolant		GD03C-0875	10	89	47	35	40					●		
	5			GD05C-0875	10	103	61	49	40					●		
8.8	3	External coolant		GD03-0880S	9	89	47	35	40					M10×1.25	3/8-16UNC	○
	5			GD05-0880S	9	103	61	49	40							○
	3	Internal coolant		GD03C-0880S	9	89	47	35	40							○
	5			GD05C-0880S	9	103	61	49	40							○
	3	External coolant		GD03-0880	10	89	47	35	40							●
	5			GD05-0880	10	103	61	49	40							●
	3	Internal coolant		GD03C-0880	10	89	47	35	40							●
	5			GD05C-0880	10	103	61	49	40							●
8		GD08C-0880		10	142	95	83	40	○							

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade		
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps			
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄					
8.9	3	External coolant	Straight shank	GD03-0890S	9	89	47	35	40	M10×1	3/8-24UNF	○		
	5			GD05-0890S	9	103	61	49	40			○		
	3	Internal coolant		GD03C-0890S	9	89	47	35	40			○		
	5			GD05C-0890S	9	103	61	49	40			○		
	3	External coolant		GD03-0890	10	89	47	35	40			●		
	5			GD05-0890	10	103	61	49	40			●		
	3	Internal coolant		GD03C-0890	10	89	47	35	40			●		
	5			GD05C-0890	10	103	61	49	40			●		
8	GD08C-0890	10		142	95	83	40	○						
9.0	3	External coolant		GD03-0900S	9	89	47	35	40			M10×1	3/8-24UNF	○
	5			GD05-0900S	9	103	61	49	40					○
	3	Internal coolant		GD03C-0900S	9	89	47	35	40					○
	5			GD05C-0900S	9	103	61	49	40					○
	3	External coolant		GD03-0900	10	89	47	35	40					●
	5			GD05-0900	10	103	61	49	40					●
	3	Internal coolant		GD03C-0900	10	89	47	35	40					●
	5		GD05C-0900	10	103	61	49	40	●					
9.1	3	External coolant	GD03-0910	10	89	47	35	40			●			
	5		GD05-0910	10	103	61	49	40			●			
	3	Internal coolant	GD03C-0910	10	89	47	35	40			●			
	5		GD05C-0910	10	103	61	49	40			●			
	8	GD08C-0910	10	142	95	83	40	○						
9.2	3	External coolant	GD03-0920	10	89	47	35	40			●			
	5		GD05-0920	10	103	61	49	40			●			
	3	Internal coolant	GD03C-0920	10	89	47	35	40			●			
	5		GD05C-0920	10	103	61	49	40			●			
	8	GD08C-0920	10	142	95	83	40	○						
9.3	3	External coolant	GD03-0930	10	89	47	35	40			●			
	5		GD05-0930	10	103	61	49	40			●			
	3	Internal coolant	GD03C-0930	10	89	47	35	40			●			
	5		GD05C-0930	10	103	61	49	40			●			
	8	GD08C-0930	10	142	95	83	40	○						

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key C6 Cutting parameters C74-C76 Technical information C80-C86

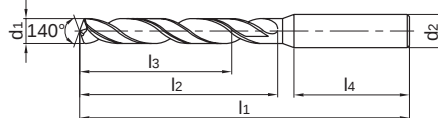
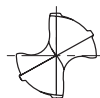
GD series General machining



External coolant



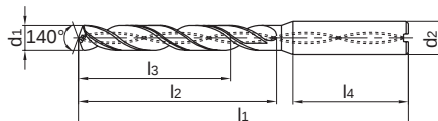
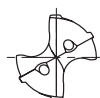
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade	
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013	
					d2(h6)	l1	l2	l3	l4				
9.35	3	External coolant	Straight shank	GD03-0935	10	89	47	35	40	7/16-14UNC	M10×1.5	●	
	5			GD05-0935	10	103	61	49	40			●	
	3	Internal coolant		GD03C-0935	10	89	47	35	40			●	
	5			GD05C-0935	10	103	61	49	40			●	
9.4	3	External coolant		GD03-0940	10	89	47	35	40				●
	5			GD05-0940	10	103	61	49	40				●
	3	Internal coolant		GD03C-0940	10	89	47	35	40				●
	5			GD05C-0940	10	103	61	49	40				●
	8			GD08C-0940	10	142	95	83	40				○
9.45	3	External coolant		GD03-0945	10	89	47	35	40		M10×1.25	●	
	5			GD05-0945	10	103	61	49	40			●	
	3	Internal coolant		GD03C-0945	10	89	47	35	40			●	
	5			GD05C-0945	10	103	61	49	40			●	
9.5	3	External coolant		GD03-0950	10	89	47	35	40				●
	5			GD05-0950	10	103	61	49	40				●
	3	Internal coolant		GD03C-0950	10	89	47	35	40				●
	5			GD05C-0950	10	103	61	49	40				●
	8			GD08C-0950	10	142	95	83	40				○
9.6	3	External coolant		GD03-0960	10	89	47	35	40		M10×1	●	
	5			GD05-0960	10	103	61	49	40			●	
	3	Internal coolant		GD03C-0960	10	89	47	35	40			●	
	5			GD05C-0960	10	103	61	49	40			●	
	8			GD08C-0960	10	142	95	83	40			○	
9.7	3	External coolant		GD03-0970	10	89	47	35	40			●	
	5			GD05-0970	10	103	61	49	40			●	
	3	Internal coolant		GD03C-0970	10	89	47	35	40			●	
	5			GD05C-0970	10	103	61	49	40			●	
	8			GD08C-0970	10	142	95	83	40			○	

● Stock available

○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade			
					Shank diameter d ₂ (h6)	Overall length l ₁	Flute length l ₂	Recommended drilling depth l ₃	Shank length l ₄	cutting taps / tread milling cutters	forming taps	KDG3013			
9.8	3	External coolant	Straight shank	GD03-0980	10	89	47	35	40	7/16-20UNF		●			
	5			GD05-0980	10	103	61	49	40			●			
	3	Internal coolant		GD03C-0980	10	89	47	35	40			●			
	5			GD05C-0980	10	103	61	49	40			●			
	8			GD08C-0980	10	142	95	83	40			○			
9.9	3	External coolant		GD03-0990	10	89	47	35	40		7/16-20UNF		●		
	5			GD05-0990	10	103	61	49	40				●		
	3	Internal coolant		GD03C-0990	10	89	47	35	40				●		
	5			GD05C-0990	10	103	61	49	40				●		
	8			GD08C-0990	10	142	95	83	40				○		
10.0	3	External coolant		GD03-1000	10	89	47	35	40		7/16-20UNF		●		
	5			GD05-1000	10	103	61	49	40				●		
	3	Internal coolant		GD03C-1000	10	89	47	35	40				●		
	5			GD05C-1000	10	103	61	49	40				●		
	8			GD08C-1000	10	142	95	83	40				○		
10.1	3	External coolant		GD03-1010S	11	102	55	40	45			7/16-20UNF		○	
	5			GD05-1010S	11	118	71	56	45					○	
	3	Internal coolant		GD03C-1010S	11	102	55	40	45					○	
	5			GD05C-1010S	11	118	71	56	45					○	
	3	External coolant		GD03-1010	12	102	55	40	45					●	
	5			GD05-1010	12	118	71	56	45					●	
	3	Internal coolant		GD03C-1010	12	102	55	40	45					●	
	5			GD05C-1010	12	118	71	56	45					●	
	8			GD08C-1010	12	162	114	99	45					○	
10.2	3	External coolant		GD03-1020S	11	102	55	40	45				7/16-20UNF		○
	5			GD05-1020S	11	118	71	56	45						○
	3	Internal coolant		GD03C-1020S	11	102	55	40	45						○
	5			GD05C-1020S	11	118	71	56	45						○
	3	External coolant		GD03-1020	12	102	55	40	45						●
	5			GD05-1020	12	118	71	56	45						●
	3	Internal coolant		GD03C-1020	12	102	55	40	45						●
	5			GD05C-1020	12	118	71	56	45						●
	8			GD08C-1020	12	162	114	99	45						○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₅.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

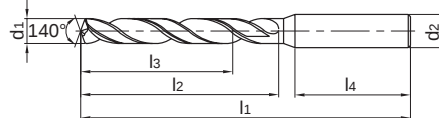
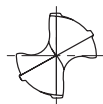
GD series General machining



External coolant



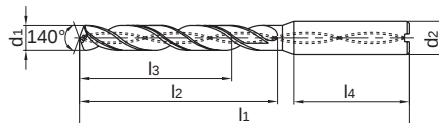
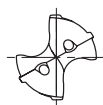
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
10.25	3	External coolant	Straight shank	GD03-1025S	11	102	55	40	45	M12×1.75		○
	5			GD05-1025S	11	118	71	56	45			○
	3	Internal coolant		GD03C-1025S	11	102	55	40	45			○
	5			GD05C-1025S	11	118	71	56	45			○
	3	External coolant		GD03-1025	12	102	55	40	45			●
	5			GD05-1025	12	118	71	56	45			●
	3	Internal coolant		GD03C-1025	12	102	55	40	45			●
	5			GD05C-1025	12	118	71	56	45			●
10.3	3	External coolant	GD03-1030S	11	102	55	40	45	7/16-14UNC		○	
	5		GD05-1030S	11	118	71	56	45			○	
	3	Internal coolant	GD03C-1030S	11	102	55	40	45			○	
	5		GD05C-1030S	11	118	71	56	45			○	
	3	External coolant	GD03-1030	12	102	55	40	45			●	
	5		GD05-1030	12	118	71	56	45			●	
	3	Internal coolant	GD03C-1030	12	102	55	40	45			●	
	5		GD05C-1030	12	118	71	56	45			●	
10.4	8		GD08C-1030	12	162	114	99	45		○		
	3	External coolant	GD03-1040S	11	102	55	40	45		○		
	5		GD05-1040S	11	118	71	56	45		○		
	3	Internal coolant	GD03C-1040S	11	102	55	40	45		○		
	5		GD05C-1040S	11	118	71	56	45		○		
	3	External coolant	GD03-1040	12	102	55	40	45		●		
	5		GD05-1040	12	118	71	56	45		●		
	3	Internal coolant	GD03C-1040	12	102	55	40	45		●		
5	GD05C-1040		12	118	71	56	45		●			
	8		GD08C-1040	12	162	114	99	45		○		

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h6)	l ₁	l ₂	l ₃	l ₄			
10.5	3	External coolant	Straight shank	GD03-1050S	11	102	55	40	45	M12×1.5	7/16-20UNF	○
	5			GD05-1050S	11	118	71	56	45			○
	3	Internal coolant		GD03C-1050S	11	102	55	40	45			○
	5			GD05C-1050S	11	118	71	56	45			○
	3	External coolant		GD03-1050	12	102	55	40	45			●
	5			GD05-1050	12	118	71	56	45			●
	3	Internal coolant		GD03C-1050	12	102	55	40	45			●
	5			GD05C-1050	12	118	71	56	45			●
	8	GD08C-1050		12	162	114	99	45	○			
10.6	3	External coolant		GD03-1060S	11	102	55	40	45			○
	5			GD05-1060S	11	118	71	56	45			○
	3	Internal coolant		GD03C-1060S	11	102	55	40	45			○
	5			GD05C-1060S	11	118	71	56	45			○
	3	External coolant		GD03-1060	12	102	55	40	45			●
	5			GD05-1060	12	118	71	56	45			●
	3	Internal coolant		GD03C-1060	12	102	55	40	45			●
	5			GD05C-1060	12	118	71	56	45			●
	8	GD08C-1060		12	162	114	99	45	○			
10.7	3	External coolant	GD03-1070S	11	102	55	40	45			○	
	5		GD05-1070S	11	118	71	56	45			○	
	3	Internal coolant	GD03C-1070S	11	102	55	40	45			○	
	5		GD05C-1070S	11	118	71	56	45			○	
	3	External coolant	GD03-1070	12	102	55	40	45			●	
	5		GD05-1070	12	118	71	56	45			●	
	3	Internal coolant	GD03C-1070	12	102	55	40	45			●	
	5		GD05C-1070	12	118	71	56	45			●	
	8	GD08C-1070	12	162	114	99	45	○				
10.75	3	External coolant	GD03-1075S	11	102	55	40	45	M12×1.25		○	
	5		GD05-1075S	11	118	71	56	45			○	
	3	Internal coolant	GD03C-1075S	11	102	55	40	45			○	
	5		GD05C-1075S	11	118	71	56	45			○	
	3	External coolant	GD03-1075	12	102	55	40	45			●	
	5		GD05-1075	12	118	71	56	45			●	
	3	Internal coolant	GD03C-1075	12	102	55	40	45			●	
	5		GD05C-1075	12	118	71	56	45			●	

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

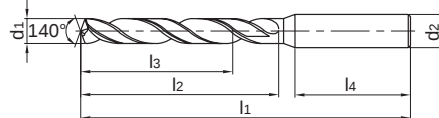
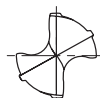
GD series General machining



External coolant



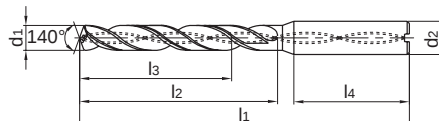
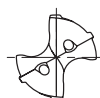
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
10.8	3	External coolant	Straight shank	GD03-1080S	11	102	55	40	45	1/2-13UNC		○
	5			GD05-1080S	11	118	71	56	45			○
	3	Internal coolant		GD03C-1080S	11	102	55	40	45			○
	5			GD05C-1080S	11	118	71	56	45			○
	3	External coolant		GD03-1080	12	102	55	40	45			●
	5			GD05-1080	12	118	71	56	45			●
	3	Internal coolant		GD03C-1080	12	102	55	40	45			●
	5			GD05C-1080	12	118	71	56	45			●
	8	GD08C-1080		12	162	114	99	45			○	
10.9	3	External coolant		GD03-1090S	11	102	55	40	45		○	
	5			GD05-1090S	11	118	71	56	45		○	
	3	Internal coolant		GD03C-1090S	11	102	55	40	45		○	
	5			GD05C-1090S	11	118	71	56	45		○	
	3	External coolant		GD03-1090	12	102	55	40	45		●	
	5			GD05-1090	12	118	71	56	45		●	
	3	Internal coolant		GD03C-1090	12	102	55	40	45		●	
	5			GD05C-1090	12	118	71	56	45		●	
	8	GD08C-1090		12	162	114	99	45		○		
11.0	3	External coolant		GD03-1100S	11	102	55	40	45		○	
	5			GD05-1100S	11	118	71	56	45		○	
	3	Internal coolant		GD03C-1100S	11	102	55	40	45		○	
	5			GD05C-1100S	11	118	71	56	45		○	
	3	External coolant		GD03-1100	12	102	55	40	45		●	
	5			GD05-1100	12	118	71	56	45		●	
	3	Internal coolant		GD03C-1100	12	102	55	40	45		●	
	5			GD05C-1100	12	118	71	56	45		●	
	8	GD08C-1100		12	162	114	99	45		○		

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄			
11.1	3	External coolant	Straight shank	GD03-1110	12	102	55	40	45			●
	5			GD05-1110	12	118	71	56	45			●
	3	Internal coolant		GD03C-1110	12	102	55	40	45			●
	5			GD05C-1110	12	118	71	56	45			●
	8			GD08C-1110	12	162	114	99	45			○
11.2	3	External coolant		GD03-1120	12	102	55	40	45			●
	5			GD05-1120	12	118	71	56	45			●
	3	Internal coolant		GD03C-1120	12	102	55	40	45			●
	5			GD05C-1120	12	118	71	56	45			●
	8			GD08C-1120	12	162	114	99	45			○
11.25	3	External coolant		GD03-1125	12	102	55	40	45		M12×1.75	●
	5			GD05-1125	12	118	71	56	45			●
	3	Internal coolant		GD03C-1125	12	102	55	40	45			●
	5			GD05C-1125	12	118	71	56	45			●
11.3	3	External coolant		GD03-1130	12	102	55	40	45		M12×1.5	●
	5			GD05-1130	12	118	71	56	45			●
	3	Internal coolant		GD03C-1130	12	102	55	40	45			●
	5			GD05C-1130	12	118	71	56	45			●
11.35	3	External coolant		GD03-1135	12	102	55	40	45		M12×1.5	●
	5			GD05-1135	12	118	71	56	45			●
	3	Internal coolant		GD03C-1135	12	102	55	40	45			●
	5			GD05C-1135	12	118	71	56	45			●
11.4	3	External coolant		GD03-1140	12	102	55	40	45		M12×1.25	●
	5			GD05-1140	12	118	71	56	45			●
	3	Internal coolant		GD03C-1140	12	102	55	40	45			●
	5			GD05C-1140	12	118	71	56	45			●
	8			GD08C-1140	12	162	114	99	45			○
11.45	3	External coolant		GD03-1145	12	102	55	40	45		M12×1.25	●
	5			GD05-1145	12	118	71	56	45			●
	3	Internal coolant		GD03C-1145	12	102	55	40	45			●
	5			GD05C-1145	12	118	71	56	45			●

Note: For drilling depth (l/d) of 8, namely GD08C series, tolerance of shank diameter is h₅.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

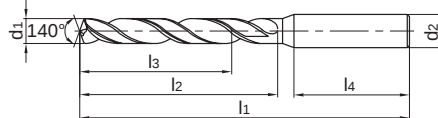
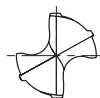
GD series General machining



External coolant



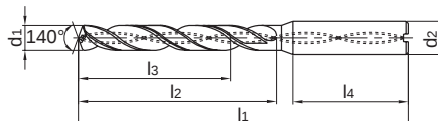
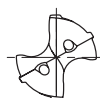
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
11.5	3	External coolant	Straight shank	GD03-1150	12	102	55	40	45	1/2-20UNF		●
	5			GD05-1150	12	118	71	56	45			●
	3	GD03C-1150		12	102	55	40	45			●	
	5	GD05C-1150		12	118	71	56	45			●	
	8	GD08C-1150		12	162	114	99	45			○	
11.6	3	External coolant		GD03-1160	12	102	55	40	45		●	
	5			GD05-1160	12	118	71	56	45		●	
	3	Internal coolant		GD03C-1160	12	102	55	40	45		●	
	5			GD05C-1160	12	118	71	56	45		●	
	8			GD08C-1160	12	162	114	99	45		○	
11.7	3	External coolant		GD03-1170	12	102	55	40	45		●	
	5			GD05-1170	12	118	71	56	45		●	
	3	Internal coolant		GD03C-1170	12	102	55	40	45		●	
	5			GD05C-1170	12	118	71	56	45		●	
	8			GD08C-1170	12	162	114	99	45		○	
11.8	3	External coolant		GD03-1180	12	102	55	40	45		●	
	5			GD05-1180	12	118	71	56	45		●	
	3	Internal coolant		GD03C-1180	12	102	55	40	45	1/2-13UNC	●	
	5			GD05C-1180	12	118	71	56	45		●	
	8			GD08C-1180	12	162	114	99	45	○		
11.9	3	External coolant		GD03-1190	12	102	55	40	45		●	
	5			GD05-1190	12	118	71	56	45		●	
	3	Internal coolant		GD03C-1190	12	102	55	40	45		●	
	5			GD05C-1190	12	118	71	56	45		●	
	8			GD08C-1190	12	162	114	99	45	○		
12.0	3	External coolant		GD03-1200	12	102	55	40	45	M14×2		●
	5			GD05-1200	12	118	71	56	45			●
	3	Internal coolant		GD03C-1200	12	102	55	40	45			●
	5			GD05C-1200	12	118	71	56	45			●
	8			GD08C-1200	12	162	114	99	45		○	

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄			
12.1	3	External coolant	Straight shank	GD03-1210	14	107	60	43	45		1/2-20UNF	●
	5			GD05-1210	14	124	77	60	45			●
	3	Internal coolant		GD03C-1210	14	107	60	43	45			●
	5			GD05C-1210	14	124	77	60	45			●
12.2	3	External coolant		GD03-1220	14	107	60	43	45	9/16-12UNC		●
	5			GD05-1220	14	124	77	60	45			●
	3	Internal coolant		GD03C-1220	14	107	60	43	45			●
	5			GD05C-1220	14	124	77	60	45			●
12.25	3	External coolant		GD03-1225	14	107	60	43	45			●
	5			GD05-1225	14	124	77	60	45			●
	3	Internal coolant		GD03C-1225	14	107	60	43	45			●
	5			GD05C-1225	14	124	77	60	45			●
12.3	3	External coolant		GD03-1230	14	107	60	43	45			●
	5			GD05-1230	14	124	77	60	45			●
	3	Internal coolant		GD03C-1230	14	107	60	43	45			●
	5			GD05C-1230	14	124	77	60	45			●
12.5	3	External coolant		GD03-1250	14	107	60	43	45	M14×1.5		●
	5			GD05-1250	14	124	77	60	45			●
	3	Internal coolant		GD03C-1250	14	107	60	43	45			●
	5			GD05C-1250	14	124	77	60	45			●
12.7	8	External coolant		GD08C-1250	14	178	133	116	45			○
	3			GD03-1270	14	107	60	43	45			●
	5	Internal coolant		GD05-1270	14	124	77	60	45			●
	3			GD03C-1270	14	107	60	43	45			●
12.75	5	External coolant		GD05C-1270	14	124	77	60	45			●
	8			GD08C-1270	14	178	133	116	45			○
	3	Internal coolant		GD03-1275	14	107	60	43	45			●
	5			GD05-1275	14	124	77	60	45			●
12.8	3	External coolant		GD03C-1275	14	107	60	43	45			●
	5			GD05C-1275	14	124	77	60	45			●
	3	Internal coolant		GD03-1280	14	107	60	43	45			●
	5			GD05-1280	14	124	77	60	45			●
12.8	8	External coolant		GD08C-1280	14	178	133	116	45			○
	3			GD03-1280	14	107	60	43	45			●
	5	Internal coolant		GD05-1280	14	124	77	60	45			●
	8			GD08C-1280	14	178	133	116	45			○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key C6 Cutting parameters C74-C76 Technical information C80-C86

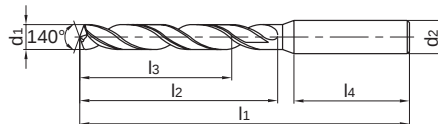
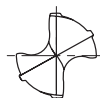
GD series General machining



External coolant



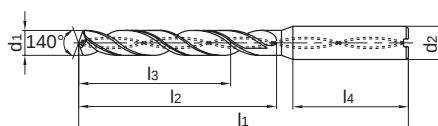
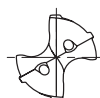
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	
					d2(h6)	l1	l2	l3	l4			
12.9	3	External coolant	Straight shank	GD03-1290	14	107	60	43	45	9/16-18UNF		●
	5	External coolant		GD05-1290	14	124	77	60	45			●
	3	Internal coolant		GD03C-1290	14	107	60	43	45			●
	5	Internal coolant		GD05C-1290	14	124	77	60	45			●
13.0	3	External coolant		GD03-1300	14	107	60	43	45			●
	5	External coolant		GD05-1300	14	124	77	60	45			●
	3	Internal coolant		GD03C-1300	14	107	60	43	45			●
	5	Internal coolant		GD05C-1300	14	124	77	60	45			●
	8			GD08C-1300	14	178	133	116	45			○
13.1	3	External coolant		GD03-1310	14	107	60	43	45		M14×2	●
	5	External coolant		GD05-1310	14	124	77	60	45			●
	3	Internal coolant		GD03C-1310	14	107	60	43	45			●
	5	Internal coolant		GD05C-1310	14	124	77	60	45			●
13.35	3	External coolant		GD03-1335	14	107	60	43	45		M14×1.5 9/16-12UNC	●
	5	External coolant		GD05-1335	14	124	77	60	45			●
	3	Internal coolant		GD03C-1335	14	107	60	43	45			●
	5	Internal coolant		GD05C-1335	14	124	77	60	45			●
13.5	3	External coolant		GD03-1350	14	107	60	43	45	5/8-11UNC		●
	5	External coolant		GD05-1350	14	124	77	60	45			●
	3	Internal coolant		GD03C-1350	14	107	60	43	45			●
	5	Internal coolant		GD05C-1350	14	124	77	60	45			●
	8			GD08C-1350	14	178	133	116	45			○
13.65	3	External coolant		GD03-1365	14	107	60	43	45		9/16-18UNF	●
	5	External coolant		GD05-1365	14	124	77	60	45			●
	3	Internal coolant		GD03C-1365	14	107	60	43	45			●
	5	Internal coolant		GD05C-1365	14	124	77	60	45			●

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade	
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps		
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄				
13.8	3	External coolant	Straight shank	GD03-1380	14	107	60	43	45	M16×2		●	
	5			GD05-1380	14	124	77	60	45			●	
	3	Internal coolant		GD03C-1380	14	107	60	43	45			●	
	5			GD05C-1380	14	124	77	60	45			●	
14.0	3	External coolant		GD03-1400	14	107	60	43	45			●	
	5			GD05-1400	14	124	77	60	45			●	
	3	Internal coolant		GD03C-1400	14	107	60	43	45			●	
	5			GD05C-1400	14	124	77	60	45			●	
	8			GD08C-1400	14	178	133	116	45			○	
	14.25	3		External coolant	GD03-1425	16	115	65	45		48	M16×1.5 5/8-18UNF	
5		GD05-1425			16	133	83	63	48		●		
3		Internal coolant		GD03C-1425	16	115	65	45	48		●		
5				GD05C-1425	16	133	83	63	48		●		
14.3	3	External coolant		GD03-1430	16	115	65	45	48		●		
	5			GD05-1430	16	133	83	63	48		●		
	3	Internal coolant		GD03C-1430	16	115	65	45	48		●		
	5			GD05C-1430	16	133	83	63	48		●		
14.5	3	External coolant		GD03-1450	16	115	65	45	48		●		
	5			GD05-1450	16	133	83	63	48		●		
	3	Internal coolant		GD03C-1450	16	115	65	45	48		●		
	5		GD05C-1450	16	133	83	63	48		●			
	8			GD08C-1450	16	204	152	132	48		○		
	14.75	3	External coolant	GD03-1475	16	115	65	45	48	5/8-11UNC			●
5		GD05-1475		16	133	83	63	48			●		
3		Internal coolant	GD03C-1475	16	115	65	45	48			●		
5			GD05C-1475	16	133	83	63	48			●		
14.8	3	External coolant	GD03-1480	16	115	65	45	48			●		
	5		GD05-1480	16	133	83	63	48			●		
	3	Internal coolant	GD03C-1480	16	115	65	45	48			●		
	5		GD05C-1480	16	133	83	63	48			●		
	8			GD08C-1480	16	204	152	132	48			○	
	15.0	3	External coolant	GD03-1500	16	115	65	45	48				●
5		GD05-1500		16	133	83	63	48		●			
3		Internal coolant	GD03C-1500	16	115	65	45	48		●			
5			GD05C-1500	16	133	83	63	48		●			
8				GD08C-1500	16	204	152	132	48			○	

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key C6 Cutting parameters C74-C76 Technical information C80-C86

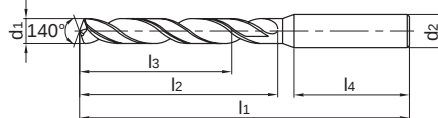
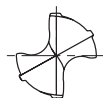
GD series General machining



External coolant



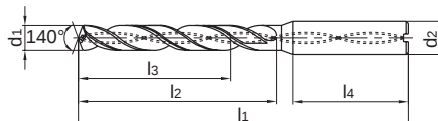
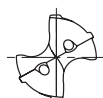
Straight shank



Internal coolant



Straight shank



- Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
15.1	3	External coolant	Straight shank	GD03-1510	16	115	65	45	48		M16×2	●
	5			GD05-1510	16	133	83	63	48			●
	3	Internal coolant		GD03C-1510	16	115	65	45	48			●
	5			GD05C-1510	16	133	83	63	48			●
15.25	3	External coolant		GD03-1525	16	115	65	45	48		5/8-18UNF	●
	5			GD05-1525	16	133	83	63	48			●
	3	Internal coolant		GD03C-1525	16	115	65	45	48			●
	5			GD05C-1525	16	133	83	63	48			●
15.35	3	External coolant		GD03-1535	16	115	65	45	48		M16×1.5	●
	5			GD05-1535	16	133	83	63	48			●
	3	Internal coolant		GD03C-1535	16	115	65	45	48			●
	5			GD05C-1535	16	133	83	63	48			●
15.5	3	External coolant		GD03-1550	16	115	65	45	48	M18×2.5		●
	5			GD05-1550	16	133	83	63	48			●
	3	Internal coolant		GD03C-1550	16	115	65	45	48			●
	5			GD05C-1550	16	133	83	63	48			●
	8			GD08C-1550	16	204	152	132	48			○
15.8	3	External coolant		GD03-1580	16	115	65	45	48			●
	5			GD05-1580	16	133	83	63	48			●
	3	Internal coolant		GD03C-1580	16	115	65	45	48			●
	5			GD05C-1580	16	133	83	63	48			●
16.0	3	External coolant		GD03-1600	16	115	65	45	48	M18×2		●
	5			GD05-1600	16	133	83	63	48			●
	3	Internal coolant		GD03C-1600	16	115	65	45	48			●
	5			GD05C-1600	16	133	83	63	48			●
	8			GD08C-1600	16	204	152	132	48			○

● Stock available ○ Make-to-order

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d ₂ (h6)	l ₁	l ₂	l ₃	l ₄			
16.5	3	External coolant	Straight shank	GD03-1650	18	123	73	51	48	3/4-10UNC		●
	5			GD05-1650	18	143	93	71	48			●
	3	Internal coolant		GD03C-1650	18	123	73	51	48			●
	5			GD05C-1650	18	143	93	71	48			●
	8			GD08C-1650	18	223	171	149	48			○
16.75	3	External coolant		GD03-1675	18	123	73	51	48			●
	5			GD05-1675	18	143	93	71	48			●
	3	Internal coolant		GD03C-1675	18	123	73	51	48			●
	5			GD05C-1675	18	143	93	71	48			●
16.8	3	External coolant		GD03-1680	18	123	73	51	48		M18×2.5	●
	5			GD05-1680	18	143	93	71	48			●
	3	Internal coolant		GD03C-1680	18	123	73	51	48			●
	5			GD05C-1680	18	143	93	71	48			●
17.0	3	External coolant		GD03-1700	18	123	73	51	48			●
	5			GD05-1700	18	143	93	71	48			●
	3	Internal coolant		GD03C-1700	18	123	73	51	48			●
	5			GD05C-1700	18	143	93	71	48			●
	8			GD08C-1700	18	223	171	149	48			○
17.5	3	External coolant		GD03-1750	18	123	73	51	48	M20×2.5 3/4-16UNF		●
	5			GD05-1750	18	143	93	71	48			●
	3	Internal coolant		GD03C-1750	18	123	73	51	48			●
	5			GD05C-1750	18	143	93	71	48			●
	8			GD08C-1750	18	223	171	149	48			○
17.8	3	External coolant		GD03-1780	18	123	73	51	48			●
	5			GD05-1780	18	143	93	71	48			●
	3	Internal coolant		GD03C-1780	18	123	73	51	48			●
	5			GD05C-1780	18	143	93	71	48			●
17.9	3	External coolant		GD03-1790	18	123	73	51	48		3/4-10UNC	●
	5			GD05-1790	18	143	93	71	48			●
	3	Internal coolant		GD03C-1790	18	123	73	51	48			●
	5			GD05C-1790	18	143	93	71	48			●
18.0	3	External coolant		GD03-1800	18	123	73	51	48	M20×2		●
	5			GD05-1800	18	143	93	71	48			●
	3	Internal coolant		GD03C-1800	18	123	73	51	48			●
	5			GD05C-1800	18	143	93	71	48			●
	8			GD08C-1800	18	223	171	149	48			○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₈.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

Drilling tools

GD series

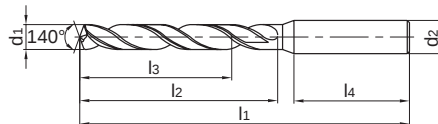
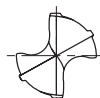
GD series General machining



External coolant



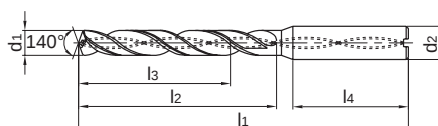
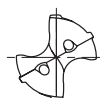
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
18.3	3	External coolant	Straight shank	GD03-1830	20	131	79	55	50		3/4-16UNF	●
	5			GD05-1830	20	153	101	77	50			●
	3	Internal coolant		GD03C-1830	20	131	79	55	50			●
	5			GD05C-1830	20	153	101	77	50			●
18.5	3	External coolant		GD03-1850	20	131	79	55	50			●
	5			GD05-1850	20	153	101	77	50			●
	3	Internal coolant		GD03C-1850	20	131	79	55	50			●
	5			GD05C-1850	20	153	101	77	50			●
18.8	3	External coolant		GD03-1880	20	131	79	55	50		M20×2.5	●
	5			GD05-1880	20	153	101	77	50			●
	3	Internal coolant		GD03C-1880	20	131	79	55	50			●
	5			GD05C-1880	20	153	101	77	50			●
19.0	3	External coolant		GD03-1900	20	131	79	55	50			●
	5			GD05-1900	20	153	101	77	50			●
	3	Internal coolant		GD03C-1900	20	131	79	55	50			●
	5			GD05C-1900	20	153	101	77	50			●
19.5	3	External coolant		GD03-1950	20	131	79	55	50	M22×2.5 7/8-9UNC		●
	5			GD05-1950	20	153	101	77	50			●
	3	Internal coolant		GD03C-1950	20	131	79	55	50			●
	5			GD05C-1950	20	153	101	77	50			●
19.8	3	External coolant		GD03-1980	20	131	79	55	50			●
	5			GD05-1980	20	153	101	77	50			●
	3	Internal coolant		GD03C-1980	20	131	79	55	50			●
	5			GD05C-1980	20	153	101	77	50			●
20.0	3	External coolant		GD03-2000	20	131	79	55	50	M22×2		●
	5			GD05-2000	20	153	101	77	50			●
	3	Internal coolant		GD03C-2000	20	131	79	55	50			●
	5			GD05C-2000	20	153	101	77	50			●

● Stock available ○ Make-to-order

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade	
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013	
					d2(h6)	l1	l2	l3	l4				
20.4	3	External coolant	Straight shank	GD03-2040	20	141	86	60	50	7/8-14UNF		○	
	5			GD05-2040	20	167	112	85	50			○	
	3	Internal coolant		GD03C-2040	20	141	86	60	50			○	
	5			GD05C-2040	20	167	112	85	50			○	
20.5	3	External coolant		GD03-2050	20	141	86	60	50			○	
	5			GD05-2050	20	167	112	85	50		○		
	3	Internal coolant		GD03C-2050	20	141	86	60	50			○	
	5			GD05C-2050	20	167	112	85	50		○		
21.0	3	External coolant		GD03-2100	20	141	86	60	50	M24×3	7/8-9UNC	○	
	5			GD05-2100	20	167	112	85	50			○	
	3	Internal coolant		GD03C-2100	20	141	86	60	50				○
	5			GD05C-2100	20	167	112	85	50				○
21.4	3	External coolant		GD03-2140	20	141	86	60	50		7/8-14UNF	○	
	5			GD05-2140	20	167	112	85	50				○
	3	Internal coolant		GD03C-2140	20	141	86	60	50				○
	5			GD05C-2140	20	167	112	85	50				○
21.5	3	External coolant		GD03-2150	20	141	86	60	50			○	
	5			GD05-2150	20	167	112	85	50				○
	3	Internal coolant		GD03C-2150	20	141	86	60	50				○
	5			GD05C-2150	20	167	112	85	50				○
22.0	3	External coolant		GD03-2200	20	141	86	60	50	M24×2		○	
	5			GD05-2200	20	167	112	85	50				○
	3	Internal coolant		GD03C-2200	20	141	86	60	50				○
	5			GD05C-2200	20	167	112	85	50				○
22.25	3	External coolant		GD03-2225	25	153	95	65	56	1-8UNC		○	
	5			GD05-2225	25	184	126	98	56				○
	3	Internal coolant		GD03C-2225	25	153	95	65	56				○
	5			GD05C-2225	25	184	126	98	56				○
22.5	3	External coolant		GD03-2250	25	153	95	65	56			○	
	5			GD05-2250	25	184	126	98	56				○
	3	Internal coolant		GD03C-2250	25	153	95	65	56				○
	5			GD05C-2250	25	184	126	98	56				○
23.0	3	External coolant		GD03-2300	25	153	95	65	56	M25×2		○	
	5			GD05-2300	25	184	126	98	56				○
	3	Internal coolant		GD03C-2300	25	153	95	65	56				○
	5			GD05C-2300	25	184	126	98	56				○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h₅.

● Stock available ○ Make-to-order

Applicable material table

● Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤ 180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

Cutting parameters

C74-C76

Technical information

C80-C86

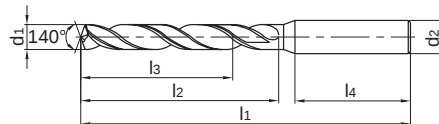
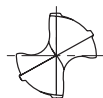
GD series General machining



External coolant



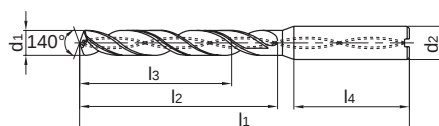
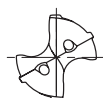
Straight shank



Internal coolant



Straight shank



● Suitable for high efficiency drilling in a variety of materials e.g steel, stainless steel, cast iron.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Suitable for thread		Grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	cutting taps / tread milling cutters	forming taps	KDG3013
					d2(h6)	l1	l2	l3	l4			
23.25	3	External coolant	Straight shank	GD03-2325	25	153	95	65	56	1-12UNF		○
	5			GD05-2325	25	184	126	98	56			○
	3	Internal coolant		GD03C-2325	25	153	95	65	56			○
	5			GD05C-2325	25	184	126	98	56			○
23.5	3	External coolant		GD03-2350	25	153	95	65	56		○	
	5			GD05-2350	25	184	126	98	56		○	
	3	Internal coolant		GD03C-2350	25	153	95	65	56		○	
	5			GD05C-2350	25	184	126	98	56		○	
24.0	3	External coolant		GD03-2400	25	153	95	65	56	M27×3	1-8UNC	○
	5			GD05-2400	25	184	126	98	56			○
	3	Internal coolant		GD03C-2400	25	153	95	65	56			○
	5			GD05C-2400	25	184	126	98	56			○
24.5	3	External coolant		GD03-2450	25	153	95	65	56		1-12UNF	○
	5			GD05-2450	25	184	126	98	56			○
	3	Internal coolant		GD03C-2450	25	153	95	65	56			○
	5			GD05C-2450	25	184	126	98	56			○
25.0	3	External coolant		GD03-2500	25	153	95	65	56	M27×2 11/8-7UNC		○
	5			GD05-2500	25	184	126	98	56			○
	3	Internal coolant		GD03C-2500	25	153	95	65	56			○
	5			GD05C-2500	25	184	126	98	56			○

Note: For drilling depth (l/d) of 8 ,namely GD08C series, tolerance of shank diameter is h5.

● Stock available ○ Make-to-order

Applicable material table

○ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB ≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG3013	○	⊗	⊗			○	⊗	⊗			○

Code key

C6

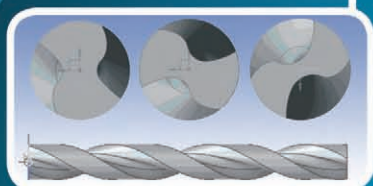
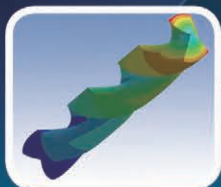
Cutting parameters

C74-C76

Technical information

C80-C86

Achieving the optimization of tool structure through analysis of simulated cutting.

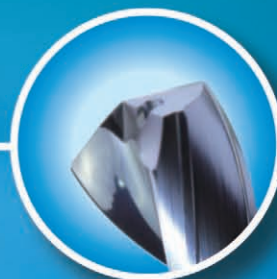


Design with change parameter helical flute, good rigidity and chip removal capability.

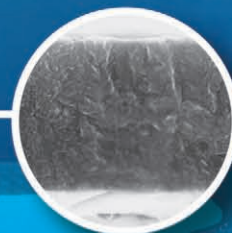
Unique cutting edge design, good chip breaking capability even for sticky, softer materials, high versatility.



Double special guiding margin, more credible guiding and more stable machining.



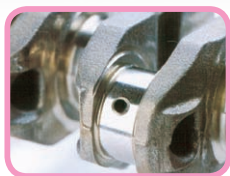
Special nano structure coating with better self lubricating capability and superb wear resistance.



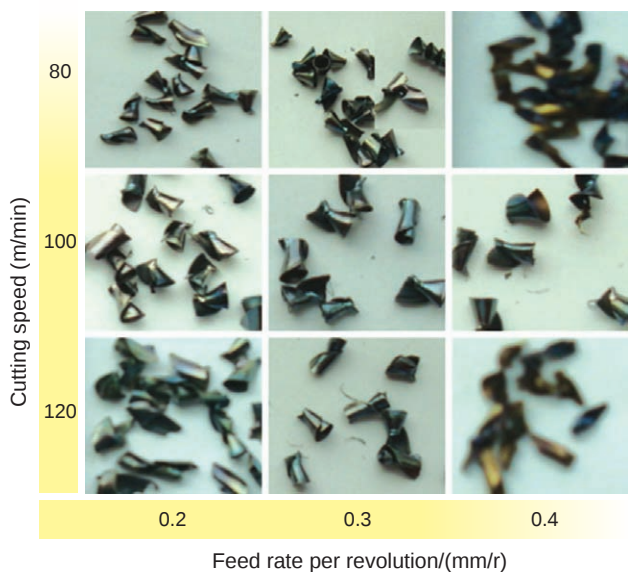
1588SL series *deep hole twist drills*

1588SL series deep hole twist drills

Outstandingly chip breaking capability

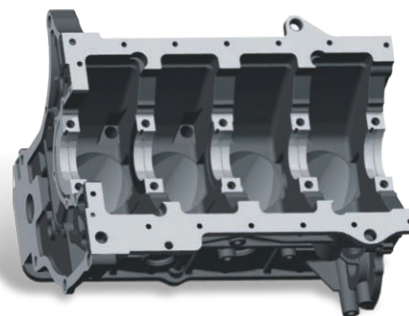


Work piece: crank shaft
Work piece material: 40Cr
Machining area: inclined oil hole
Tool type: 1588SL20C-0690/KDG303
Cutting parameters: $V_c = 80 \sim 120 \text{ m/min}$
 $f_r = 0.2 \sim 0.4 \text{ mm/r}$
Cooling system: Water soluble liquid
Drilling depth: 105mm



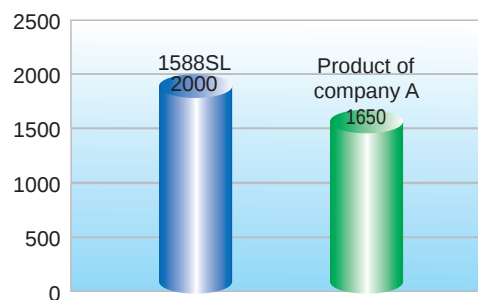
Good chip breaking capability and stable machining with different cutting speed and feed rate.

Extremely high efficiency and long tool life

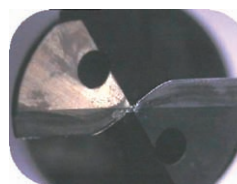


Work piece: cylinder
Work material: HT300
Machined area: crank shaft joint surface drilling
Drilling depth: 30mm
Tool type: 1588SL12C-0850/KDG303
Recommend parameters: $V_c = 80 \text{ m/min}$ $f_r = 0.2 \text{ mm/r}$
Cooling system: water-soluble liquid

Comparison of tool life(number of machined holes)



Comparison of tool life(tool wear)



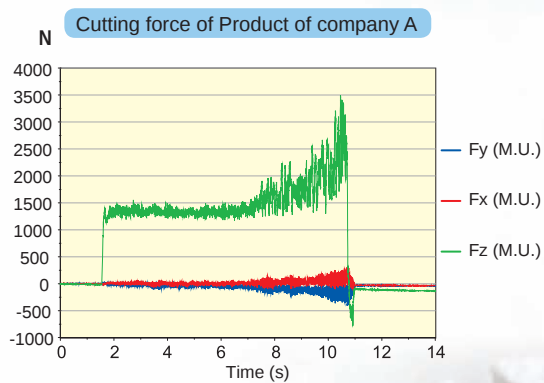
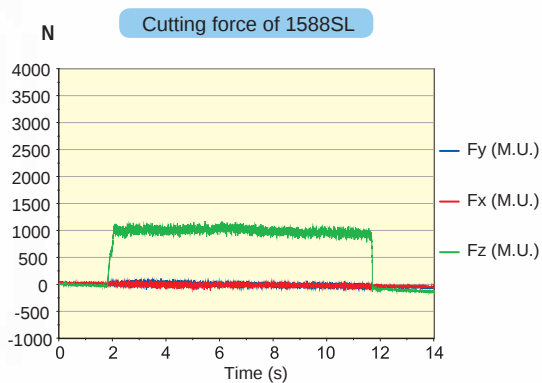
1588SL(regular wear)



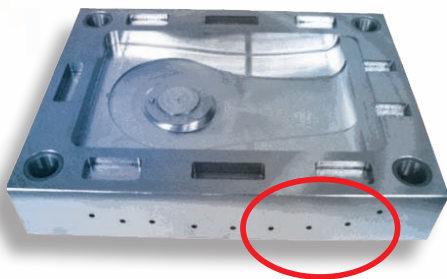
Product of company A(falling)

Good cutting performance

Tool type: 1588SL12C-0850/KDG303
 Feed rate: 0.2mm/r Drilling depth: 72mm
 Work material: 42CrMo(HB250)
 Cooling system: Emulsified liquid
 Cutting speed: 80m/min
 Machine equipment: Vertical machining center

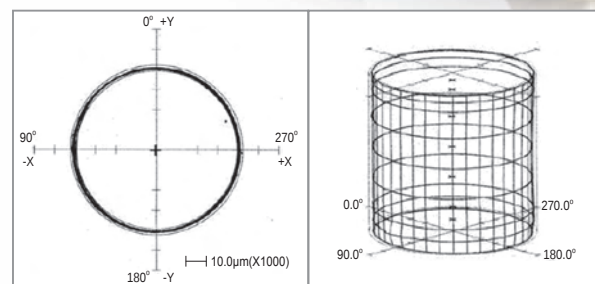


Stable machining precision

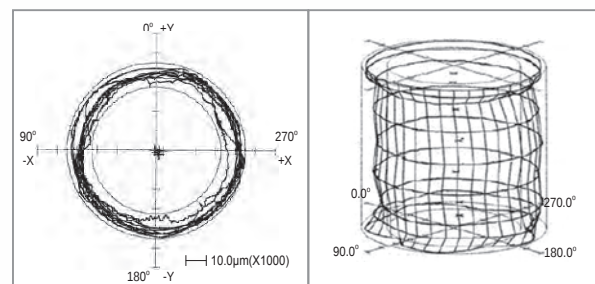


Workpiece: Die
 Machined materials: 738H
 Machined area: Hole of sidewall
 Drilling depth: 70mm
 Tool type: 1588SL12C-0600/KDG303
 Recommended parameters: $V_c=85\text{m/min}$, $f_r=0.2\text{mm/r}$
 Cooling system: Water-soluble liquid

Comparison of Machined Hole's Accuracy

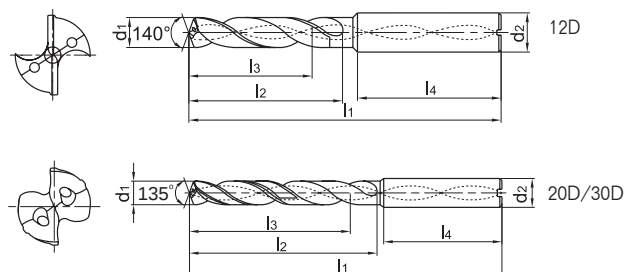


1588SL



Product of company A

SL series Deep-hole machining



● Suitable for deep-hole drilling of steel, cast iron etc.

Drill diameter d1 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d2(h5)	l1	l2	l3	l4
3.0	12	1588SL12C-0300	6	90	50	40	36
	20	1588SL20C-0300	6	110	70	62	36
	30	1588SL30C-0300	6	140	100	92	36
3.1	12	1588SL12C-0310	6	90	50	40	36
	20	1588SL20C-0310	6	123	83	72	36
	30	1588SL30C-0310	6	160	120	108	36
3.2	12	1588SL12C-0320	6	90	50	40	36
	20	1588SL20C-0320	6	123	83	72	36
	30	1588SL30C-0320	6	160	120	108	36
3.3	12	1588SL12C-0330	6	90	50	40	36
	20	1588SL20C-0330	6	123	83	72	36
	30	1588SL30C-0330	6	160	120	108	36
3.4	12	1588SL12C-0340	6	90	50	40	36
	20	1588SL20C-0340	6	123	83	72	36
	30	1588SL30C-0340	6	160	120	108	36
3.5	12	1588SL12C-0350	6	90	50	40	36
	20	1588SL20C-0350	6	123	83	72	36
	30	1588SL30C-0350	6	160	120	108	36
3.6	12	1588SL12C-0360	6	90	50	40	36
	20	1588SL20C-0360	6	136	96	84	36
	30	1588SL30C-0360	6	176	136	124	36
3.7	12	1588SL12C-0370	6	90	50	46	36
	20	1588SL20C-0370	6	136	96	84	36
	30	1588SL30C-0370	6	176	136	124	36
3.8	12	1588SL12C-0380	6	90	50	46	36
	20	1588SL20C-0380	6	136	96	84	36
	30	1588SL30C-0380	6	176	136	124	36
3.9	12	1588SL12C-0390	6	90	50	46	36
	20	1588SL20C-0390	6	136	96	84	36
	30	1588SL30C-0390	6	176	136	124	36
4.0	12	1588SL12C-0400	6	102	64	56	36
	20	1588SL20C-0400	6	136	96	84	36
	30	1588SL30C-0400	6	176	136	124	36
4.1	12	1588SL12C-0410	6	102	64	56	36
	20	1588SL20C-0410	6	148	108	96	36
	30	1588SL30C-0410	6	192	152	140	36

Drill diameter d1 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d2(h5)	l1	l2	l3	l4
4.2	12	1588SL12C-0420	6	102	64	56	36
	20	1588SL20C-0420	6	148	108	96	36
	30	1588SL30C-0420	6	192	152	140	36
4.3	12	1588SL12C-0430	6	102	64	56	36
	20	1588SL20C-0430	6	148	108	96	36
	30	1588SL30C-0430	6	192	152	140	36
4.4	12	1588SL12C-0440	6	102	64	56	36
	20	1588SL20C-0440	6	148	108	96	36
	30	1588SL30C-0440	6	192	152	140	36
4.5	12	1588SL12C-0450	6	102	64	56	36
	20	1588SL20C-0450	6	148	108	96	36
	30	1588SL30C-0450	6	192	152	140	36
4.6	12	1588SL12C-0460	6	102	64	56	36
	20	1588SL20C-0460	6	158	118	106	36
	30	1588SL30C-0460	6	208	168	156	36
4.7	12	1588SL12C-0470	6	102	64	56	36
	20	1588SL20C-0470	6	158	118	106	36
	30	1588SL30C-0470	6	208	168	156	36
4.8	12	1588SL12C-0480	6	102	64	56	36
	20	1588SL20C-0480	6	158	118	106	36
	30	1588SL30C-0480	6	208	168	156	36
4.9	12	1588SL12C-0490	6	102	64	56	36
	20	1588SL20C-0490	6	158	118	106	36
	30	1588SL30C-0490	6	208	168	156	36
5.0	12	1588SL12C-0500	6	116	78	72	36
	20	1588SL20C-0500	6	158	118	106	36
	30	1588SL30C-0500	6	208	168	156	36
5.1	12	1588SL12C-0510	6	116	78	72	36
	20	1588SL20C-0510	6	168	128	116	36
	30	1588SL30C-0510	6	228	188	170	36
5.2	12	1588SL12C-0520	6	116	78	72	36
	20	1588SL20C-0520	6	168	128	116	36
	30	1588SL30C-0520	6	228	188	170	36
5.3	12	1588SL12C-0530	6	116	78	72	36
	20	1588SL20C-0530	6	168	128	116	36
	30	1588SL30C-0530	6	228	188	170	36

Drill diameter d1 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d2(h5)	l1	l2	l3	l4
5.4	12	1588SL12C-0540	6	116	78	72	36
	20	1588SL20C-0540	6	168	128	116	36
	30	1588SL30C-0540	6	228	188	170	36
5.5	12	1588SL12C-0550	6	116	78	72	36
	20	1588SL20C-0550	6	168	128	116	36
	30	1588SL30C-0550	6	228	188	170	36
5.6	12	1588SL12C-0560	6	116	78	72	36
	20	1588SL20C-0560	6	180	140	126	36
	30	1588SL30C-0560	6	240	200	182	36
5.7	12	1588SL12C-0570	6	116	78	72	36
	20	1588SL20C-0570	6	180	140	126	36
	30	1588SL30C-0570	6	240	200	182	36
5.8	12	1588SL12C-0580	6	116	78	72	36
	20	1588SL20C-0580	6	180	140	126	36
	30	1588SL30C-0580	6	240	200	182	36
5.9	12	1588SL12C-0590	6	116	78	72	36
	20	1588SL20C-0590	6	180	140	126	36
	30	1588SL30C-0590	6	240	200	182	36
6.0	12	1588SL12C-0600	6	116	78	72	36
	20	1588SL20C-0600	6	180	140	126	36
	30	1588SL30C-0600	6	240	200	182	36
6.1	12	1588SL12C-0610	8	131	93	84	36
	20	1588SL20C-0610	8	192	150	132	36
	30	1588SL30C-0610	8	260	220	202	36
6.2	12	1588SL12C-0620	8	131	93	84	36
	20	1588SL20C-0620	8	192	150	132	36
	30	1588SL30C-0620	8	260	220	202	36
6.3	12	1588SL12C-0630	8	131	93	84	36
	20	1588SL20C-0630	8	192	150	132	36
	30	1588SL30C-0630	8	260	220	202	36
6.4	12	1588SL12C-0640	8	131	93	84	36
	20	1588SL20C-0640	8	192	150	132	36
	30	1588SL30C-0640	8	260	220	202	36
6.5	12	1588SL12C-0650	8	131	93	84	36
	20	1588SL20C-0650	8	192	150	132	36
	30	1588SL30C-0650	8	260	220	202	36
6.6	12	1588SL12C-0660	8	131	93	84	36
	20	1588SL20C-0660	8	202	162	144	36
	30	1588SL30C-0660	8	272	232	214	36
6.7	12	1588SL12C-0670	8	131	93	84	36
	20	1588SL20C-0670	8	202	162	144	36
	30	1588SL30C-0670	8	272	232	214	36
6.8	12	1588SL12C-0680	8	131	93	84	36
	20	1588SL20C-0680	8	202	162	144	36
	30	1588SL30C-0680	8	272	232	214	36
6.9	12	1588SL12C-0690	8	131	93	84	36
	20	1588SL20C-0690	8	202	162	144	36
	30	1588SL30C-0690	8	272	232	214	36
7.0	12	1588SL12C-0700	8	131	93	84	36
	20	1588SL20C-0700	8	202	162	144	36
	30	1588SL30C-0700	8	272	232	214	36
7.1	12	1588SL12C-0710	8	146	108	96	36
	20	1588SL20C-0710	8	213	173	155	36
	30	1588SL30C-0710	8	290	250	232	36
7.2	12	1588SL12C-0720	8	146	108	96	36
	20	1588SL20C-0720	8	213	173	155	36
	30	1588SL30C-0720	8	290	250	232	36
7.3	12	1588SL12C-0730	8	146	108	96	36
	20	1588SL20C-0730	8	213	173	155	36
	30	1588SL30C-0730	8	290	250	232	36
7.4	12	1588SL12C-0740	8	146	108	96	36
	20	1588SL20C-0740	8	213	173	155	36
	30	1588SL30C-0740	8	290	250	232	36
7.5	12	1588SL12C-0750	8	146	108	96	36
	20	1588SL20C-0750	8	213	173	155	36
	30	1588SL30C-0750	8	290	250	232	36
7.6	12	1588SL12C-0760	8	146	108	96	36
	20	1588SL20C-0760	8	223	183	165	36
	30	1588SL30C-0760	8	305	265	246	36
7.7	12	1588SL12C-0770	8	146	108	96	36
	20	1588SL20C-0770	8	223	183	165	36
	30	1588SL30C-0770	8	305	265	246	36

Applicable material table

○Very suitable ○Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303											

Code key

C6

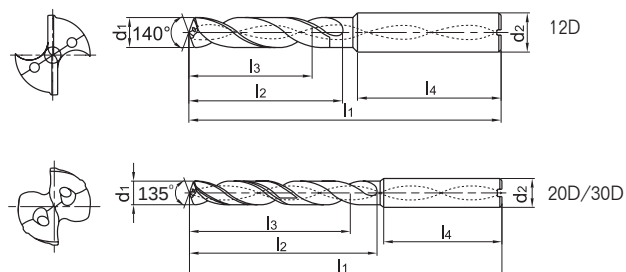
Cutting parameters

C77

Cutting parameters

C80-C86

SL series Deep-hole machining



● Suitable for deep-hole drilling of steel, cast iron etc.

Drill diameter d1 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d2(h5)	l1	l2	l3	l4
7.8	12	1588SL12C-0780	8	146	108	96	36
	20	1588SL20C-0780	8	223	183	165	36
	30	1588SL30C-0780	8	305	265	246	36
7.9	12	1588SL12C-0790	8	146	108	96	36
	20	1588SL20C-0790	8	223	183	165	36
	30	1588SL30C-0790	8	305	265	246	36
8.0	12	1588SL12C-0800	8	146	108	96	36
	20	1588SL20C-0800	8	223	183	165	36
	30	1588SL30C-0800	8	305	265	246	36
8.1	12	1588SL12C-0810	10	162	120	108	40
	20	1588SL20C-0810	10	239	195	176	40
	30	1588SL30C-0810	10	330	285	265	40
8.2	12	1588SL12C-0820	10	162	120	108	40
	20	1588SL20C-0820	10	239	195	176	40
	30	1588SL30C-0820	10	330	285	265	40
8.3	12	1588SL12C-0830	10	162	120	108	40
	20	1588SL20C-0830	10	239	195	176	40
	30	1588SL30C-0830	10	330	285	265	40
8.4	12	1588SL12C-0840	10	162	120	108	40
	20	1588SL20C-0840	10	239	195	176	40
	30	1588SL30C-0840	10	330	285	265	40
8.5	12	1588SL12C-0850	10	162	120	108	40
	20	1588SL20C-0850	10	239	195	176	40
	30	1588SL30C-0850	10	330	285	265	40
8.6	12	1588SL12C-0860	10	162	120	108	40
	20	1588SL20C-0860	10	249	205	186	40
	30	1588SL30C-0860	10	340	295	275	40
8.7	12	1588SL12C-0870	10	162	120	108	40
	20	1588SL20C-0870	10	249	205	186	40
	30	1588SL30C-0870	10	340	295	275	40
8.8	12	1588SL12C-0880	10	162	120	108	40
	20	1588SL20C-0880	10	249	205	186	40
	30	1588SL30C-0880	10	340	295	275	40
8.9	12	1588SL12C-0890	10	162	120	108	40
	20	1588SL20C-0890	10	249	205	186	40
	30	1588SL30C-0890	10	340	295	275	40

Drill diameter d1 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d2(h5)	l1	l2	l3	l4
9.0	12	1588SL12C-0900	10	162	120	108	40
	20	1588SL20C-0900	10	249	205	186	40
	30	1588SL30C-0900	10	340	295	275	40
9.1	12	1588SL12C-0910	10	174	132	120	40
	20	1588SL20C-0910	10	262	218	196	40
	30	1588SL30C-0910	10	360	315	292	40
9.2	12	1588SL12C-0920	10	174	132	120	40
	20	1588SL20C-0920	10	262	218	196	40
	30	1588SL30C-0920	10	360	315	292	40
9.3	12	1588SL12C-0930	10	174	132	120	40
	20	1588SL20C-0930	10	262	218	196	40
	30	1588SL30C-0930	10	360	315	292	40
9.4	12	1588SL12C-0940	10	174	132	120	40
	20	1588SL20C-0940	10	262	218	196	40
	30	1588SL30C-0940	10	360	315	292	40
9.5	12	1588SL12C-0950	10	174	132	120	40
	20	1588SL20C-0950	10	262	218	196	40
	30	1588SL30C-0950	10	360	315	292	40
9.6	12	1588SL12C-0960	10	174	132	120	40
	20	1588SL20C-0960	10	272	228	206	40
	30	1588SL30C-0960	10	372	328	305	40
9.7	12	1588SL12C-0970	10	174	132	120	40
	20	1588SL20C-0970	10	272	228	206	40
	30	1588SL30C-0970	10	372	328	305	40
9.8	12	1588SL12C-0980	10	174	132	120	40
	20	1588SL20C-0980	10	272	228	206	40
	30	1588SL30C-0980	10	372	328	305	40
9.9	12	1588SL12C-0990	10	174	132	120	40
	20	1588SL20C-0990	10	272	228	206	40
	30	1588SL30C-0990	10	372	328	305	40
10.0	12	1588SL12C-1000	10	174	132	120	40
	20	1588SL20C-1000	10	272	228	206	40
	30	1588SL30C-1000	10	372	328	305	40
10.1	12	1588SL12C-1010	12	204	156	144	45
	20	1588SL20C-1010	12	292	242	220	45

Drill diameter d ₁ 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d ₂ (h ₅)	l ₁	l ₂	l ₃	l ₄
10.2	12	1588SL12C-1020	12	204	156	144	45
	20	1588SL20C-1020	12	292	242	220	45
10.3	12	1588SL12C-1030	12	204	156	144	45
	20	1588SL20C-1030	12	292	242	220	45
10.4	12	1588SL12C-1040	12	204	156	144	45
	20	1588SL20C-1040	12	292	242	220	45
10.5	12	1588SL12C-1050	12	204	156	144	45
	20	1588SL20C-1050	12	292	242	220	45
10.6	12	1588SL12C-1060	12	204	156	144	45
	20	1588SL20C-1060	12	300	250	228	45
10.7	12	1588SL12C-1070	12	204	156	144	45
	20	1588SL20C-1070	12	300	250	228	45
10.8	12	1588SL12C-1080	12	204	156	144	45
	20	1588SL20C-1080	12	300	250	228	45
10.9	12	1588SL12C-1090	12	204	156	144	45
	20	1588SL20C-1090	12	300	250	228	45
11.0	12	1588SL12C-1100	12	204	156	144	45
	20	1588SL20C-1100	12	300	250	228	45
11.1	12	1588SL12C-1110	12	204	156	144	45
	20	1588SL20C-1110	12	315	265	240	45
11.2	12	1588SL12C-1120	12	204	156	144	45
	20	1588SL20C-1120	12	315	265	240	45
11.3	12	1588SL12C-1130	12	204	156	144	45
	20	1588SL20C-1130	12	315	265	240	45
11.4	12	1588SL12C-1140	12	204	156	144	45
	20	1588SL20C-1140	12	315	265	240	45
11.5	12	1588SL12C-1150	12	204	156	144	45
	20	1588SL20C-1150	12	315	265	240	45
11.6	12	1588SL12C-1160	12	204	156	144	45
	20	1588SL20C-1160	12	325	275	250	45

Drill diameter d ₁ 12D(m7) 20D/30D(h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d ₂ (h ₅)	l ₁	l ₂	l ₃	l ₄
11.7	12	1588SL12C-1170	12	204	156	144	45
	20	1588SL20C-1170	12	325	275	250	45
11.8	12	1588SL12C-1180	12	204	156	144	45
	20	1588SL20C-1180	12	325	275	250	45
11.9	12	1588SL12C-1190	12	204	156	144	45
	20	1588SL20C-1190	12	325	275	250	45
12.0	12	1588SL12C-1200	12	204	156	144	45
	20	1588SL20C-1200	12	325	275	250	45
12.5	12	1588SL12C-1250	14	230	182	168	45
	20	1588SL20C-1250	14	323	275	250	45
12.7	12	1588SL12C-1270	14	230	182	168	45
	12	1588SL12C-1280	14	230	182	168	45
13.0	12	1588SL12C-1300	14	230	182	168	45
	20	1588SL20C-1300	14	338	290	265	45
13.5	12	1588SL12C-1350	14	230	182	168	45
	20	1588SL20C-1350	14	338	290	265	45
14.0	12	1588SL12C-1400	14	230	182	168	45
	20	1588SL20C-1400	14	367	318	290	45
14.5	12	1588SL12C-1450	16	260	208	194	48
15.0	12	1588SL12C-1500	16	260	208	194	48
15.5	12	1588SL12C-1550	16	260	208	194	48
16.0	12	1588SL12C-1600	16	260	208	194	48
16.5	12	1588SL12C-1650	18	286	234	218	48
17.0	12	1588SL12C-1700	18	286	234	218	48
17.5	12	1588SL12C-1750	18	286	234	218	48
18.0	12	1588SL12C-1800	18	286	234	218	48
18.5	12	1588SL12C-1850	20	310	258	240	48
19.0	12	1588SL12C-1900	20	310	258	240	48
19.5	12	1588SL12C-1950	20	310	258	240	48
20.0	12	1588SL12C-2000	20	310	258	240	48

Applicable material table

⊙Very suitable ⊙Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	○	⊙	⊙			○	⊙	⊙	○		○

Code key

C6

Cutting parameters

C77

Cutting parameters

C80-C86

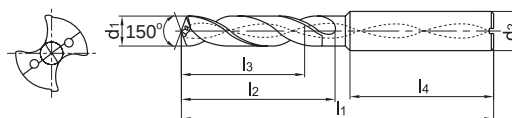
1534SP series Guide-hole machining



Internal coolant



Straight shank



Drill diameter d ₁ (h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d ₂ (h5)	l ₁	l ₂	l ₃	l ₄
3.03	3	1534SP03C-0303	6	62	20	14	36
3.13	3	1534SP03C-0313	6	62	20	14	36
3.23	3	1534SP03C-0323	6	62	20	14	36
3.33	3	1534SP03C-0333	6	62	20	14	36
3.43	3	1534SP03C-0343	6	62	20	14	36
3.53	3	1534SP03C-0353	6	62	20	14	36
3.63	3	1534SP03C-0363	6	62	20	14	36
3.73	3	1534SP03C-0373	6	62	20	14	36
3.83	3	1534SP03C-0383	6	66	24	17	36
3.93	3	1534SP03C-0393	6	66	24	17	36
4.03	3	1534SP03C-0403	6	66	24	17	36
4.13	3	1534SP03C-0413	6	66	24	17	36
4.23	3	1534SP03C-0423	6	66	24	17	36
4.33	3	1534SP03C-0433	6	66	24	17	36
4.43	3	1534SP03C-0443	6	66	24	17	36
4.53	3	1534SP03C-0453	6	66	24	17	36
4.63	3	1534SP03C-0463	6	66	24	17	36
4.73	3	1534SP03C-0473	6	66	24	17	36
4.83	3	1534SP03C-0483	6	66	28	20	36
4.93	3	1534SP03C-0493	6	66	28	20	36
5.03	3	1534SP03C-0503	6	66	28	20	36
5.13	3	1534SP03C-0513	6	66	28	20	36
5.23	3	1534SP03C-0523	6	66	28	20	36
5.33	3	1534SP03C-0533	6	66	28	20	36
5.43	3	1534SP03C-0543	6	66	28	20	36
5.53	3	1534SP03C-0553	6	66	28	20	36
5.63	3	1534SP03C-0563	6	66	28	20	36
5.73	3	1534SP03C-0573	6	66	28	20	36
5.83	3	1534SP03C-0583	6	66	28	20	36
5.93	3	1534SP03C-0593	6	66	28	20	36
6.03	3	1534SP03C-0603	6	66	28	20	36
6.13	3	1534SP03C-0613	8	79	34	24	36
6.23	3	1534SP03C-0623	8	79	34	24	36
6.33	3	1534SP03C-0633	8	79	34	24	36
6.43	3	1534SP03C-0643	8	79	34	24	36
6.53	3	1534SP03C-0653	8	79	34	24	36

Drill diameter d ₁ (h7)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d ₂ (h5)	l ₁	l ₂	l ₃	l ₄
6.63	3	1534SP03C-0663	8	79	34	24	36
6.73	3	1534SP03C-0673	8	79	34	24	36
6.83	3	1534SP03C-0683	8	79	34	24	36
6.93	3	1534SP03C-0693	8	79	34	24	36
7.03	3	1534SP03C-0703	8	79	34	24	36
7.13	3	1534SP03C-0713	8	79	41	29	36
7.23	3	1534SP03C-0723	8	79	41	29	36
7.33	3	1534SP03C-0733	8	79	41	29	36
7.43	3	1534SP03C-0743	8	79	41	29	36
7.53	3	1534SP03C-0753	8	79	41	29	36
7.63	3	1534SP03C-0763	8	79	41	29	36
7.73	3	1534SP03C-0773	8	79	41	29	36
7.83	3	1534SP03C-0783	8	79	41	29	36
7.93	3	1534SP03C-0793	8	79	41	29	36
8.03	3	1534SP03C-0803	8	79	41	29	36
8.13	3	1534SP03C-0813	10	89	47	35	40
8.23	3	1534SP03C-0823	10	89	47	35	40
8.33	3	1534SP03C-0833	10	89	47	35	40
8.43	3	1534SP03C-0843	10	89	47	35	40
8.53	3	1534SP03C-0853	10	89	47	35	40
8.63	3	1534SP03C-0863	10	89	47	35	40
8.73	3	1534SP03C-0873	10	89	47	35	40
8.83	3	1534SP03C-0883	10	89	47	35	40
8.93	3	1534SP03C-0893	10	89	47	35	40
9.03	3	1534SP03C-0903	10	89	47	35	40
9.13	3	1534SP03C-0913	10	89	47	35	40
9.23	3	1534SP03C-0923	10	89	47	35	40
9.33	3	1534SP03C-0933	10	89	47	35	40
9.43	3	1534SP03C-0943	10	89	47	35	40
9.53	3	1534SP03C-0953	10	89	47	35	40
9.63	3	1534SP03C-0963	10	89	47	35	40
9.73	3	1534SP03C-0973	10	89	47	35	40
9.83	3	1534SP03C-0983	10	89	47	35	40
9.93	3	1534SP03C-0993	10	89	47	35	40
10.03	3	1534SP03C-1003	10	89	47	35	40
10.13	3	1534SP03C-1013	12	102	55	40	45

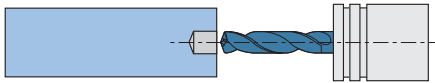
Drill diameter d ₁ (h ₇)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d ₂ (h ₅)	l ₁	l ₂	l ₃	l ₄
10.23	3	1534SP03C-1023	12	102	55	40	45
10.33	3	1534SP03C-1033	12	102	55	40	45
10.43	3	1534SP03C-1043	12	102	55	40	45
10.53	3	1534SP03C-1053	12	102	55	40	45
10.63	3	1534SP03C-1063	12	102	55	40	45
10.73	3	1534SP03C-1073	12	102	55	40	45
10.83	3	1534SP03C-1083	12	102	55	40	45
10.93	3	1534SP03C-1093	12	102	55	40	45
11.03	3	1534SP03C-1103	12	102	55	40	45
11.13	3	1534SP03C-1113	12	102	55	40	45
11.23	3	1534SP03C-1123	12	102	55	40	45
11.33	3	1534SP03C-1133	12	102	55	40	45
11.43	3	1534SP03C-1143	12	102	55	40	45

Drill diameter d ₁ (h ₇)	Drilling depth (l/d)	Type	Basic dimension(mm)				
			Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length
			d ₂ (h ₅)	l ₁	l ₂	l ₃	l ₄
11.53	3	1534SP03C-1153	12	102	55	40	45
11.63	3	1534SP03C-1163	12	102	55	40	45
11.73	3	1534SP03C-1173	12	102	55	40	45
11.83	3	1534SP03C-1183	12	102	55	40	45
11.93	3	1534SP03C-1193	12	102	55	40	45
12.03	3	1534SP03C-1203	12	102	55	40	45
12.53	3	1534SP03C-1253	14	107	60	43	45
12.73	3	1534SP03C-1273	14	107	60	43	45
12.83	3	1534SP03C-1283	14	107	60	43	45
13.03	3	1534SP03C-1303	14	107	60	43	45
13.53	3	1534SP03C-1353	14	107	60	43	45
14.03	3	1534SP03C-1403	14	107	60	43	45

◆Cutting condition of SP series hole-guide drill please reference 1534SU03C Series.

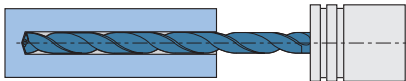
Recommended Machining Method of SL series Deep-hole Drills

1.Hole-guided Machining



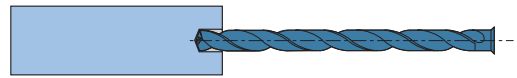
- ◆Apex angle of drills used for hole-guided machining has to be greater than the apex angle of deep-hole drills.
- ◆Diameter of drills used for hole-guided machining has to be respectively greater than the diameter of deep-hole drills. Generally the diameter range of deep-hole drills is between 0 and positive 0.1.
- ◆Generally the depth of pre-drilling hole is 1-3D (D is the diameter of pre-drilling holes). Also, it basically needs to ensure the accuracy of pre-drilling holes at the same time.

3.Deep-hole Machining (Beginning machining, to the end)



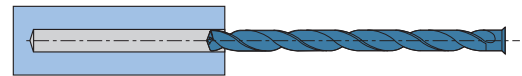
- ◆Non-stopped machining with fixed speed and feed rates. (Completed at one time, not a "Step-by-Step" machining).

2.Deep-hole Machining (Inserting into the Pre-drilling Holes)



- ◆lower speed should be applied in the process of inserting deep-hole drills into the pre-drilling holes.
- ◆Insert deep hole drill to the location 1-3mm away from the bottom of pre-drilling holes (Please make sure that the parts of drilling point are entirely inserted).

4.Deep-hole Machining (Retract from hole)



- ◆Reduce speed located 1-2mm away from hole bottom at the end of machining.
- ◆Quickly secedes the deep-hole drills back to the location where it begins to machine.
- ◆Retract under the same conditions of inserting pre-drilling holes.

Applicable material table

○Very suitable ○Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	○	⊗	⊗			○	⊗	⊗	○		○



machining of soft steel and stainless steel **series twist drill**

ST series drills with superior performance will solve the difficulties in machining of high-elongation materials such as soft steel, stainless steel, etc.

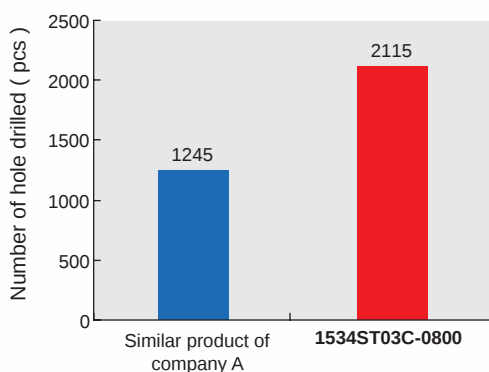
Optimized drill point design with strengthened chisel edge and ensures easy and fast cutting and excellent chip breaking.

Nano-structured TiAlN coating, outstanding wear resistance and heat resistance.

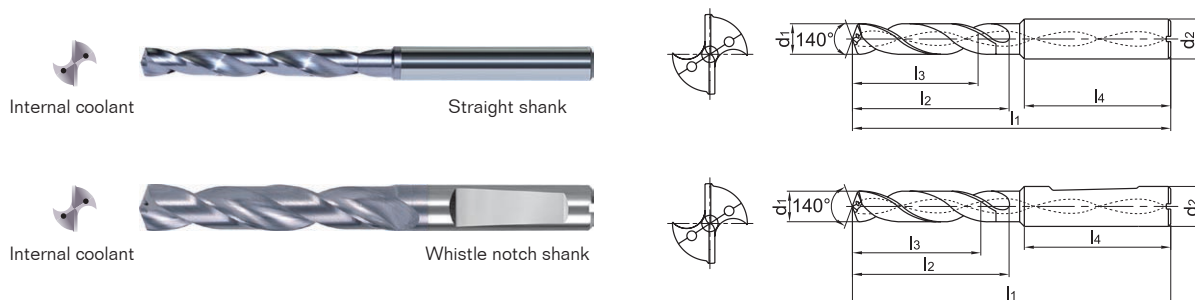
Special chipbreaker with large chip pocket ensures good chip evacuation and smooth drilling.

Application of st series twist drills

Tool type: 1534ST03C-0800
Workpiece material: 1Cr18Ni9Ti
Cooling system: oil water emulsion(internal cooling)
Cutting speed: $V_c=85\text{m/min}$
Feed rate: $f_r=0.16\text{mm/r}$
Drilling depth: 24mm(blind hole)



ST series for machining of soft steel, stainless steel



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d2(h6)	l1	l2	l3	l4	
3.0	3	Internal coolant	Straight shank	1534ST03C-0300	6	62	20	14	36	☆
	5			1536ST05C-0300	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0300	6	66	28	23	36	☆
3.1	3		Straight shank	1534ST03C-0310	6	62	20	14	36	☆
	5			1536ST05C-0310	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0310	6	66	28	23	36	☆
3.2	3		Straight shank	1534ST03C-0320	6	62	20	14	36	☆
	5			1536ST05C-0320	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0320	6	66	28	23	36	☆
3.25	3		Straight shank	1534ST03C-0325	6	62	20	14	36	☆
	5			1536ST05C-0325	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0325	6	66	28	23	36	☆
3.3	3		Straight shank	1534ST03C-0330	6	62	20	14	36	☆
	5			1536ST05C-0330	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0330	6	66	28	23	36	☆
3.4	3		Straight shank	1534ST03C-0340	6	62	20	14	36	☆
	5			1536ST05C-0340	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0340	6	66	28	23	36	☆
3.5	3		Straight shank	1534ST03C-0350	6	62	20	14	36	☆
	5			1536ST05C-0350	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0350	6	66	28	23	36	☆

☆ Recommended grade (produce according to order)

Drilling tools

ST series

Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material									
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy
			~40HRC	~50HRC	~60HRC					
KDG303	⊙	○				⊙				○

Code key

C6

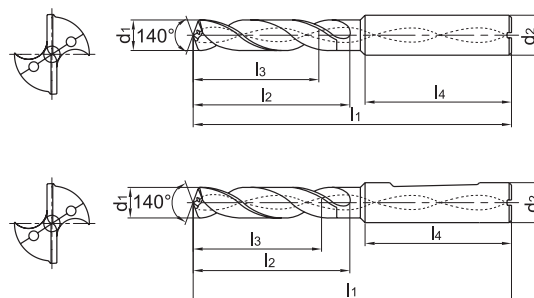
Cutting parameters

C78

Cutting parameters

C80-C86

ST series for machining of soft steel, stainless steel



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter d_1 (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade KDG303
					Shank diameter d_2 (h6)	Overall length l_1	Flute length l_2	Recommended drilling depth l_3	Shank length l_4	
3.6	3	Internal coolant	Straight shank	1534ST03C-0360	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0360	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0360	6	66	28	23	36	☆
3.7	3		Straight shank	1534ST03C-0370	6	62	20	14	36	☆
	5		Whistle notch shank	1536ST05C-0370	6	66	28	23	36	☆
	5		Whistle notch shank	1736ST05C-0370	6	66	28	23	36	☆
3.8	3		Straight shank	1534ST03C-0380	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0380	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0380	6	74	36	29	36	☆
3.9	3		Straight shank	1534ST03C-0390	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0390	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0390	6	74	36	29	36	☆
4.0	3		Straight shank	1534ST03C-0400	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0400	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0400	6	74	36	29	36	☆
4.1	3		Straight shank	1534ST03C-0410	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0410	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0410	6	74	36	29	36	☆
4.2	3		Straight shank	1534ST03C-0420	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0420	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0420	6	74	36	29	36	☆
4.3	3		Straight shank	1534ST03C-0430	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0430	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0430	6	74	36	29	36	☆
4.4	3		Straight shank	1534ST03C-0440	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0440	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0440	6	74	36	29	36	☆
4.5	3		Straight shank	1534ST03C-0450	6	66	24	17	36	☆
	5		Whistle notch shank	1536ST05C-0450	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0450	6	74	36	29	36	☆

☆ Recommended grade (produce according to order)

Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade KDG303
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	
4.6	3	Internal coolant	Straight shank	1534ST03C-0460	6	66	24	17	36	☆
	5			1536ST05C-0460	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0460	6	74	36	29	36	☆
4.65	3		Straight shank	1534ST03C-0465	6	66	24	17	36	☆
	5			1536ST05C-0465	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0465	6	74	36	29	36	☆
4.7	3		Straight shank	1534ST03C-0470	6	66	24	17	36	☆
	5			1536ST05C-0470	6	74	36	29	36	☆
	5		Whistle notch shank	1736ST05C-0470	6	74	36	29	36	☆
4.8	3		Straight shank	1534ST03C-0480	6	66	28	20	36	☆
	5			1536ST05C-0480	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0480	6	82	44	35	36	☆
4.9	3		Straight shank	1534ST03C-0490	6	66	28	20	36	☆
	5			1536ST05C-0490	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0490	6	82	44	35	36	☆
5.0	3		Straight shank	1534ST03C-0500	6	66	28	20	36	☆
	5			1536ST05C-0500	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0500	6	82	44	35	36	☆
5.1	3		Straight shank	1534ST03C-0510	6	66	28	20	36	☆
	5			1536ST05C-0510	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0510	6	82	44	35	36	☆
5.2	3		Straight shank	1534ST03C-0520	6	66	28	20	36	☆
	5			1536ST05C-0520	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0520	6	82	44	35	36	☆
5.3	3		Straight shank	1534ST03C-0530	6	66	28	20	36	☆
	5			1536ST05C-0530	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0530	6	82	44	35	36	☆
5.4	3		Straight shank	1534ST03C-0540	6	66	28	20	36	☆
	5			1536ST05C-0540	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0540	6	82	44	35	36	☆
5.5	3		Straight shank	1534ST03C-0550	6	66	28	20	36	☆
	5			1536ST05C-0550	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0550	6	82	44	35	36	☆

☆ Recommended grade (produce according to order)

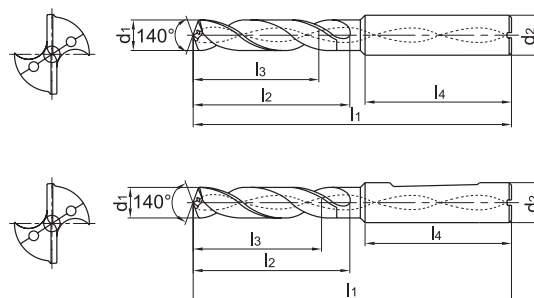
Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	⊙	○				⊙					○

Code key C6 Cutting parameters C78 Cutting parameters C80-C86

ST series for machining of soft steel, stainless steel



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter $d_1(m7)$	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade KDG303
					Shank diameter $d_2(h6)$	Overall length l_1	Flute length l_2	Recommended drilling depth l_3	Shank length l_4	
5.55	3	Internal coolant	Straight shank	1534ST03C-0555	6	66	28	20	36	☆
	5			1536ST05C-0555	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0555	6	82	44	35	36	☆
5.6	3		Straight shank	1534ST03C-0560	6	66	28	20	36	☆
	5			1536ST05C-0560	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0560	6	82	44	35	36	☆
5.7	3		Straight shank	1534ST03C-0570	6	66	28	20	36	☆
	5			1536ST05C-0570	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0570	6	82	44	35	36	☆
5.8	3		Straight shank	1534ST03C-0580	6	66	28	20	36	☆
	5			1536ST05C-0580	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0580	6	82	44	35	36	☆
5.9	3		Straight shank	1534ST03C-0590	6	66	28	20	36	☆
	5			1536ST05C-0590	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0590	6	82	44	35	36	☆
6.0	3		Straight shank	1534ST03C-0600	6	66	28	20	36	☆
	5			1536ST05C-0600	6	82	44	35	36	☆
	5		Whistle notch shank	1736ST05C-0600	6	82	44	35	36	☆
6.1	3		Straight shank	1534ST03C-0610	8	79	34	24	36	☆
	5			1536ST05C-0610	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0610	8	91	53	43	36	☆
6.2	3		Straight shank	1534ST03C-0620	8	79	34	24	36	☆
	5			1536ST05C-0620	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0620	8	91	53	43	36	☆
6.3	3		Straight shank	1534ST03C-0630	8	79	34	24	36	☆
	5			1536ST05C-0630	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0630	8	91	53	43	36	☆
6.4	3		Straight shank	1534ST03C-0640	8	79	34	24	36	☆
	5			1536ST05C-0640	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0640	8	91	53	43	36	☆

☆ Recommended grade (produce according to order)

Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade KDG303
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	
6.5	3	Internal coolant	Straight shank	1534ST03C-0650	8	79	34	24	36	☆
	5			1536ST05C-0650	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0650	8	91	53	43	36	☆
6.6	3		Straight shank	1534ST03C-0660	8	79	34	24	36	☆
	5			1536ST05C-0660	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0660	8	91	53	43	36	☆
6.7	3		Straight shank	1534ST03C-0670	8	79	34	24	36	☆
	5			1536ST05C-0670	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0670	8	91	53	43	36	☆
6.75	3		Straight shank	1534ST03C-0675	8	79	34	24	36	☆
	5			1536ST05C-0675	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0675	8	91	53	43	36	☆
6.9	3		Straight shank	1534ST03C-0690	8	79	34	24	36	☆
	5			1536ST05C-0690	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0690	8	91	53	43	36	☆
7.0	3		Straight shank	1534ST03C-0700	8	79	34	24	36	☆
	5			1536ST05C-0700	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0700	8	91	53	43	36	☆
7.1	3		Straight shank	1534ST03C-0710	8	79	41	29	36	☆
	5			1536ST05C-0710	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0710	8	91	53	43	36	☆
7.2	3		Straight shank	1534ST03C-0720	8	79	41	29	36	☆
	5			1536ST05C-0720	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0720	8	91	53	43	36	☆
7.3	3		Straight shank	1534ST03C-0730	8	79	41	29	36	☆
	5			1536ST05C-0730	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0730	8	91	53	43	36	☆
7.4	3		Straight shank	1534ST03C-0740	8	79	41	29	36	☆
	5			1536ST05C-0740	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0740	8	91	53	43	36	☆
7.5	3		Straight shank	1534ST03C-0750	8	79	41	29	36	☆
	5			1536ST05C-0750	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0750	8	91	53	43	36	☆

☆ Recommended grade (produce according to order)

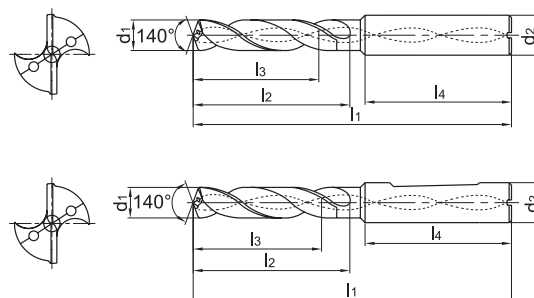
Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	⊙	○				⊙					○

Code key C6 Cutting parameters C78 Cutting parameters C80-C86

ST series for machining of soft steel, stainless steel



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter d_1 (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d_2 (h6)	l_1	l_2	l_3	l_4	
7.6	3	Internal coolant	Straight shank	1534ST03C-0760	8	79	41	29	36	☆
	5		Whistle notch shank	1536ST05C-0760	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0760	8	91	53	43	36	☆
7.7	3		Straight shank	1534ST03C-0770	8	79	41	29	36	☆
	5		Whistle notch shank	1536ST05C-0770	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0770	8	91	53	43	36	☆
7.8	3		Straight shank	1534ST03C-0780	8	79	41	29	36	☆
	5		Whistle notch shank	1536ST05C-0780	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0780	8	91	53	43	36	☆
7.9	3		Straight shank	1534ST03C-0790	8	79	41	29	36	☆
	5		Whistle notch shank	1536ST05C-0790	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0790	8	91	53	43	36	☆
8.0	3		Straight shank	1534ST03C-0800	8	79	41	29	36	☆
	5		Whistle notch shank	1536ST05C-0800	8	91	53	43	36	☆
	5		Whistle notch shank	1736ST05C-0800	8	91	53	43	36	☆
8.1	3		Straight shank	1534ST03C-0810	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0810	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0810	10	103	61	49	40	☆
8.2	3		Straight shank	1534ST03C-0820	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0820	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0820	10	103	61	49	40	☆
8.3	3		Straight shank	1534ST03C-0830	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0830	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0830	10	103	61	49	40	☆
8.4	3		Straight shank	1534ST03C-0840	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0840	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0840	10	103	61	49	40	☆
8.5	3		Straight shank	1534ST03C-0850	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0850	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0850	10	103	61	49	40	☆

☆ Recommended grade (produce according to order)

Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	KDG303
8.6	3	Internal coolant	Straight shank	1534ST03C-0860	10	89	47	35	40	☆
	5			1536ST05C-0860	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0860	10	103	61	49	40	☆
8.7	3		Straight shank	1534ST03C-0870	10	89	47	35	40	☆
	5			1536ST05C-0870	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0870	10	103	61	49	40	☆
8.8	3		Straight shank	1534ST03C-0880	10	89	47	35	40	☆
	5			1536ST05C-0880	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0880	10	103	61	49	40	☆
8.9	3		Straight shank	1534ST03C-0890	10	89	47	35	40	☆
	5			1536ST05C-0890	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0890	10	103	61	49	40	☆
9.0	3		Straight shank	1534ST03C-0900	10	89	47	35	40	☆
	5			1536ST05C-0900	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0900	10	103	61	49	40	☆
9.1	3		Straight shank	1534ST03C-0910	10	89	47	35	40	☆
	5			1536ST05C-0910	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0910	10	103	61	49	40	☆
9.3	3		Straight shank	1534ST03C-0930	10	89	47	35	40	☆
	5			1536ST05C-0930	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0930	10	103	61	49	40	☆
9.4	3		Straight shank	1534ST03C-0940	10	89	47	35	40	☆
	5			1536ST05C-0940	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0940	10	103	61	49	40	☆
9.5	3		Straight shank	1534ST03C-0950	10	89	47	35	40	☆
	5			1536ST05C-0950	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0950	10	103	61	49	40	☆
9.6	3		Straight shank	1534ST03C-0960	10	89	47	35	40	☆
	5			1536ST05C-0960	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0960	10	103	61	49	40	☆
9.7	3		Straight shank	1534ST03C-0970	10	89	47	35	40	☆
	5			1536ST05C-0970	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0970	10	103	61	49	40	☆

☆ Recommended grade (produce according to order)

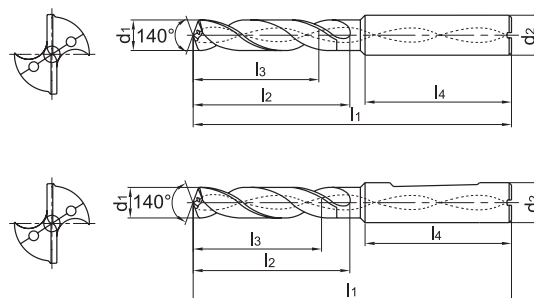
Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	⊙	○				⊙					○

Code key C6 Cutting parameters C78 Cutting parameters C80-C86

ST series for machining of soft steel, stainless steel



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter d_1 (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d_2 (h6)	l_1	l_2	l_3	l_4	
9.8	3	Internal coolant	Straight shank	1534ST03C-0980	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0980	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0980	10	103	61	49	40	☆
9.9	3		Straight shank	1534ST03C-0990	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-0990	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-0990	10	103	61	49	40	☆
10.0	3		Straight shank	1534ST03C-1000	10	89	47	35	40	☆
	5		Whistle notch shank	1536ST05C-1000	10	103	61	49	40	☆
	5		Whistle notch shank	1736ST05C-1000	10	103	61	49	40	☆
10.1	3		Straight shank	1534ST03C-1010	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1010	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1010	12	118	71	56	45	☆
10.25	3		Straight shank	1534ST03C-1025	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1025	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1025	12	118	71	56	45	☆
10.3	3		Straight shank	1534ST03C-1030	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1030	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1030	12	118	71	56	45	☆
10.4	3		Straight shank	1534ST03C-1040	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1040	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1040	12	118	71	56	45	☆
10.5	3		Straight shank	1534ST03C-1050	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1050	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1050	12	118	71	56	45	☆
10.6	3		Straight shank	1534ST03C-1060	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1060	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1060	12	118	71	56	45	☆
10.7	3		Straight shank	1534ST03C-1070	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1070	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1070	12	118	71	56	45	☆

☆ Recommended grade (produce according to order)



Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	KDG303
10.8	3	Internal coolant	Straight shank	1534ST03C-1080	12	102	55	40	45	☆
	5			1536ST05C-1080	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1080	12	118	71	56	45	☆
10.9	3		Straight shank	1534ST03C-1090	12	102	55	40	45	☆
	5			1536ST05C-1090	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1090	12	118	71	56	45	☆
11.0	3		Straight shank	1534ST03C-1100	12	102	55	40	45	☆
	5			1536ST05C-1100	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1100	12	118	71	56	45	☆
11.1	3		Straight shank	1534ST03C-1110	12	102	55	40	45	☆
	5			1536ST05C-1110	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1110	12	118	71	56	45	☆
11.2	3		Straight shank	1534ST03C-1120	12	102	55	40	45	☆
	5			1536ST05C-1120	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1120	12	118	71	56	45	☆
11.3	3		Straight shank	1534ST03C-1130	12	102	55	40	45	☆
	5			1536ST05C-1130	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1130	12	118	71	56	45	☆
11.4	3		Straight shank	1534ST03C-1140	12	102	55	40	45	☆
	5			1536ST05C-1140	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1140	12	118	71	56	45	☆
11.5	3		Straight shank	1534ST03C-1150	12	102	55	40	45	☆
	5			1536ST05C-1150	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1150	12	118	71	56	45	☆
11.6	3		Straight shank	1534ST03C-1160	12	102	55	40	45	☆
	5			1536ST05C-1160	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1160	12	118	71	56	45	☆
11.7	3		Straight shank	1534ST03C-1170	12	102	55	40	45	☆
	5			1536ST05C-1170	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1170	12	118	71	56	45	☆
11.8	3		Straight shank	1534ST03C-1180	12	102	55	40	45	☆
	5			1536ST05C-1180	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1180	12	118	71	56	45	☆

☆ Recommended grade (produce according to order)

Drilling tools

ST series

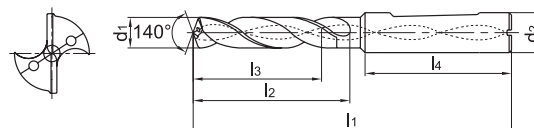
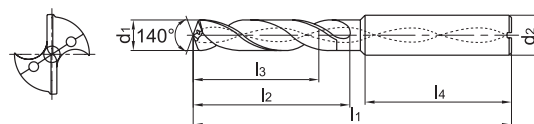
Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	⊙	○				⊙					○

Code key → C6
Cutting parameters → C78
Cutting parameters → C80-C86

ST series for machining of soft steel, stainless steel



- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter $d_1(m7)$	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					$d_2(h6)$	l_1	l_2	l_3	l_4	
11.9	3	Internal coolant	Straight shank	1534ST03C-1190	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1190	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1190	12	118	71	56	45	☆
12.0	3		Straight shank	1534ST03C-1200	12	102	55	40	45	☆
	5		Whistle notch shank	1536ST05C-1200	12	118	71	56	45	☆
	5		Whistle notch shank	1736ST05C-1200	12	118	71	56	45	☆
12.25	3		Straight shank	1534ST03C-1225	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1225	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1225	14	124	77	60	45	☆
12.3	3		Straight shank	1534ST03C-1230	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1230	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1230	14	124	77	60	45	☆
12.5	3		Straight shank	1534ST03C-1250	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1250	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1250	14	124	77	60	45	☆
12.7	3		Straight shank	1534ST03C-1270	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1270	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1270	14	124	77	60	45	☆
12.75	3		Straight shank	1534ST03C-1275	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1275	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1275	14	124	77	60	45	☆
12.8	3		Straight shank	1534ST03C-1280	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1280	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1280	14	124	77	60	45	☆
13.0	3		Straight shank	1534ST03C-1300	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1300	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1300	14	124	77	60	45	☆
13.1	3		Straight shank	1534ST03C-1310	14	107	60	43	45	☆
	5		Whistle notch shank	1536ST05C-1310	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1310	14	124	77	60	45	☆

☆ Recommended grade (produce according to order)

Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	KDG303
13.5	3	Internal coolant	Straight shank	1534ST03C-1350	14	107	60	43	45	☆
	5			1536ST05C-1350	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1350	14	124	77	60	45	☆
13.8	3		Straight shank	1534ST03C-1380	14	107	60	43	45	☆
	5			1536ST05C-1380	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1380	14	124	77	60	45	☆
14.0	3		Straight shank	1534ST03C-1400	14	107	60	43	45	☆
	5			1536ST05C-1400	14	124	77	60	45	☆
	5		Whistle notch shank	1736ST05C-1400	14	124	77	60	45	☆
14.25	3		Straight shank	1534ST03C-1425	16	115	65	45	48	☆
	5			1536ST05C-1425	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1425	16	133	83	63	48	☆
14.3	3		Straight shank	1534ST03C-1430	16	115	65	45	48	☆
	5			1536ST05C-1430	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1430	16	133	83	63	48	☆
14.5	3		Straight shank	1534ST03C-1450	16	115	65	45	48	☆
	5			1536ST05C-1450	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1450	16	133	83	63	48	☆
14.75	3		Straight shank	1534ST03C-1475	16	115	65	45	48	☆
	5			1536ST05C-1475	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1475	16	133	83	63	48	☆
14.8	3		Straight shank	1534ST03C-1480	16	115	65	45	48	☆
	5			1536ST05C-1480	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1480	16	133	83	63	48	☆
15.0	3		Straight shank	1534ST03C-1500	16	115	65	45	48	☆
	5			1536ST05C-1500	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1500	16	133	83	63	48	☆
15.1	3		Straight shank	1534ST03C-1510	16	115	65	45	48	☆
	5			1536ST05C-1510	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1510	16	133	83	63	48	☆
15.5	3		Straight shank	1534ST03C-1550	16	115	65	45	48	☆
	5			1536ST05C-1550	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1550	16	133	83	63	48	☆

☆ Recommended grade (produce according to order)

Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	⊙	○				⊙					○

Code key

C6

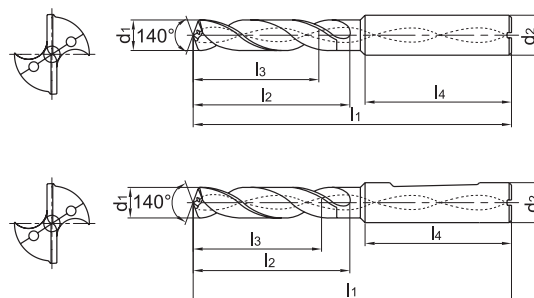
Cutting parameters

C78

Cutting parameters

C80-C86

ST series for machining of soft steel, stainless steel



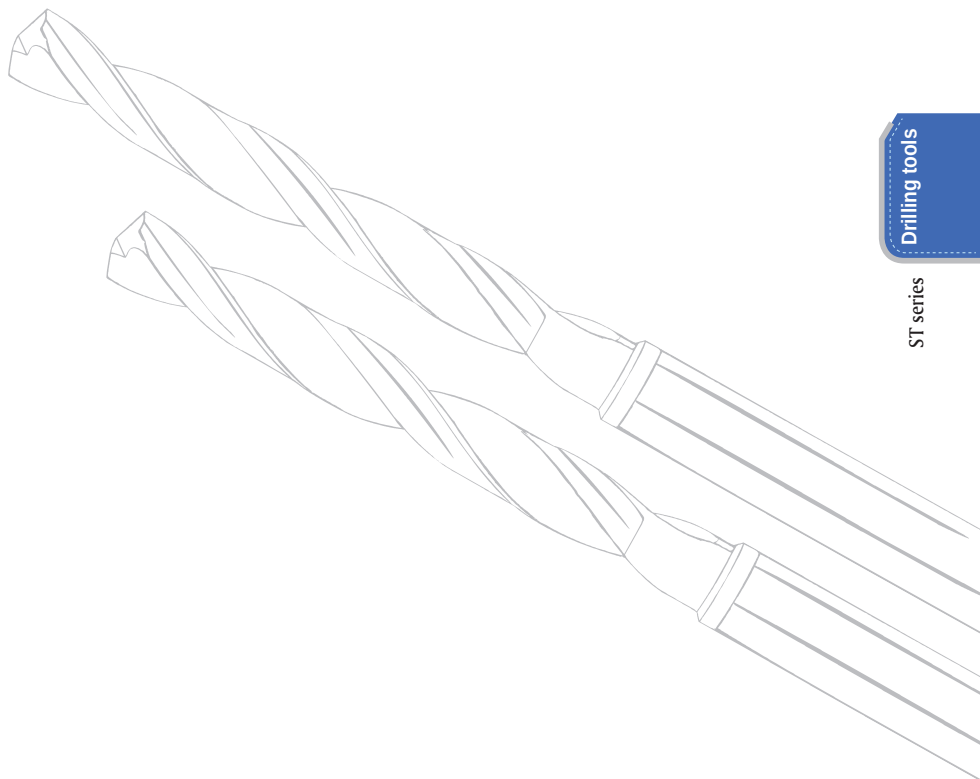
- First choice for drilling soft steel and stainless steel.
- Sharp cutting edge can avoid build-up edge, suitable for drilling hole with high performance.

Drill diameter $d_1(m7)$	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					$d_2(h6)$	l_1	l_2	l_3	l_4	
15.8	3	Internal coolant	Straight shank	1534ST03C-1580	16	115	65	45	48	☆
	5		Whistle notch shank	1536ST05C-1580	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1580	16	133	83	63	48	☆
16.0	3		Straight shank	1534ST03C-1600	16	115	65	45	48	☆
	5		Whistle notch shank	1536ST05C-1600	16	133	83	63	48	☆
	5		Whistle notch shank	1736ST05C-1600	16	133	83	63	48	☆
16.5	3		Straight shank	1534ST03C-1650	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1650	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1650	18	143	93	71	48	☆
16.75	3		Straight shank	1534ST03C-1675	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1675	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1675	18	143	93	71	48	☆
16.8	3		Straight shank	1534ST03C-1680	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1680	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1680	18	143	93	71	48	☆
17.0	3		Straight shank	1534ST03C-1700	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1700	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1700	18	143	93	71	48	☆
17.5	3		Straight shank	1534ST03C-1750	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1750	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1750	18	143	93	71	48	☆
17.8	3		Straight shank	1534ST03C-1780	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1780	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1780	18	143	93	71	48	☆
18.0	3		Straight shank	1534ST03C-1800	18	123	73	51	48	☆
	5		Whistle notch shank	1536ST05C-1800	18	143	93	71	48	☆
	5		Whistle notch shank	1736ST05C-1800	18	143	93	71	48	☆
18.5	3		Straight shank	1534ST03C-1850	20	131	79	55	50	☆
	5		Whistle notch shank	1536ST05C-1850	20	153	101	77	50	☆
	5		Whistle notch shank	1736ST05C-1850	20	153	101	77	50	☆

☆ Recommended grade (produce according to order)

Drill diameter d1(m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade ☆ KDG303
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d2(h6)	l1	l2	l3	l4	
18.8	3	Internal coolant	Straight shank	1534ST03C-1880	20	131	79	55	50	☆
	5			1536ST05C-1880	20	153	101	77	50	☆
	5		Whistle notch shank	1736ST05C-1880	20	153	101	77	50	☆
19.0	3		Straight shank	1534ST03C-1900	20	131	79	55	50	☆
	5			1536ST05C-1900	20	153	101	77	50	☆
	5		Whistle notch shank	1736ST05C-1900	20	153	101	77	50	☆
19.5	3		Straight shank	1534ST03C-1950	20	131	79	55	50	☆
	5			1536ST05C-1950	20	153	101	77	50	☆
	5		Whistle notch shank	1736ST05C-1950	20	153	101	77	50	☆
19.8	3		Straight shank	1534ST03C-1980	20	131	79	55	50	☆
	5			1536ST05C-1980	20	153	101	77	50	☆
	5		Whistle notch shank	1736ST05C-1980	20	153	101	77	50	☆
20.0	3		Straight shank	1534ST03C-2000	20	131	79	55	50	☆
	5			1536ST05C-2000	20	153	101	77	50	☆
	5		Whistle notch shank	1736ST05C-2000	20	153	101	77	50	☆

☆ Recommended grade (produce according to order)



Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
KDG303	⊙	○				⊙					○

Code key C6 Cutting parameters C78 Cutting parameters C80-C86

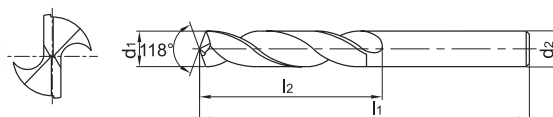
SC series(twist drill) for machining of cast iron, Al alloy



External coolant



Straight shank



- For materials with short chips such as cast iron, silicon-aluminum alloy, etc.
- Cutting edge and shank with same diameter.

Drill diameter d ₁ (h ₈)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)			Recommended grade
					Shank diameter	Overall length	Flute length	YK20F
					d ₂ (h ₇)	l ₁	l ₂	
2.0	3	External coolant	Straight shank	1105SC03-0200	2.0	38	12	☆
	5			1101SC05-0200	2.0	49	24	☆
2.5	3			1105SC03-0250	2.5	43	14	☆
	5			1101SC05-0250	2.5	57	30	☆
2.8	3			1105SC03-0280	2.8	46	16	☆
	5			1101SC05-0280	2.8	61	33	☆
3.0	3			1105SC03-0300	3.0	46	16	☆
	5			1101SC05-0300	3.0	61	33	☆
3.1	3			1105SC03-0310	3.1	49	18	☆
3.2	3			1105SC03-0320	3.2	49	18	☆
3.3	3			1105SC03-0330	3.3	49	18	☆
3.4	3			1105SC03-0340	3.4	52	20	☆
	5			1101SC05-0350	3.5	70	39	☆
3.5	3			1105SC03-0350	3.5	52	20	☆
3.6	3			1105SC03-0360	3.6	52	20	☆
3.7	3			1105SC03-0370	3.7	52	20	☆
3.8	3			1105SC03-0380	3.8	55	22	☆
	5			1101SC05-0380	3.8	75	43	☆
3.9	3			1105SC03-0390	3.9	55	22	☆
4.0	3			1105SC03-0400	4.0	55	22	☆
	5			1101SC05-0400	4.0	75	43	☆
4.1	3			1105SC03-0410	4.1	55	22	☆
4.2	3			1105SC03-0420	4.2	55	22	☆
	5			1101SC05-0420	4.2	75	43	☆
4.3	3			1105SC03-0430	4.3	58	24	☆
4.4	3			1105SC03-0440	4.4	58	24	☆
4.5	3			1105SC03-0450	4.5	58	24	☆
	5			1101SC05-0450	4.5	80	47	☆
4.6	3			1105SC03-0460	4.6	58	24	☆
4.7	3			1105SC03-0470	4.7	58	24	☆
4.8	3			1105SC03-0480	4.8	62	26	☆
	5			1101SC05-0480	4.8	86	52	☆

☆ Recommended grade (produce according to order)

Drill diameter d ₁ (h ₈)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)			Recommended grade
					Shank diameter	Overall length	Flute length	
					d ₂ (h ₇)	l ₁	l ₂	YK20F
4.9	3	External coolant	Straight shank	1105SC03-0490	4.9	62	26	☆
5.0	3			1105SC03-0500	5.0	62	26	☆
	5			1101SC05-0500	5.0	86	52	☆
5.1	3			1105SC03-0510	5.1	62	26	☆
5.2	3			1105SC03-0520	5.2	62	26	☆
5.3	3			1105SC03-0530	5.3	62	26	☆
5.4	3			1105SC03-0540	5.4	66	28	☆
5.5	3			1105SC03-0550	5.5	66	28	☆
	5			1101SC05-0550	5.5	93	57	☆
5.6	3			1105SC03-0560	5.6	66	28	☆
5.7	3			1105SC03-0570	5.7	66	28	☆
5.8	3			1105SC03-0580	5.8	66	28	☆
	5			1101SC05-0580	5.8	93	57	☆
5.9	3			1105SC03-0590	5.9	66	28	☆
6.0	3			1105SC03-0600	6.0	66	28	☆
	5			1101SC05-0600	6.0	93	57	☆
6.1	3			1105SC03-0610	6.1	70	31	☆
6.2	3			1105SC03-0620	6.2	70	31	☆
6.3	3			1105SC03-0630	6.3	70	31	☆
6.4	3			1105SC03-0640	6.4	70	31	☆
6.5	3			1105SC03-0650	6.5	70	31	☆
	5			1101SC05-0650	6.5	101	63	☆
6.6	3			1105SC03-0660	6.6	70	31	☆
6.7	3			1105SC03-0670	6.7	70	31	☆
6.8	3			1105SC03-0680	6.8	74	34	☆
	5			1101SC05-0680	6.8	109	69	☆
6.9	3			1105SC03-0690	6.9	74	34	☆
7.0	3			1105SC03-0700	7.0	74	34	☆
	5			1101SC05-0700	7.0	109	69	☆
7.1	3			1105SC03-0710	7.1	74	34	☆
7.2	3			1105SC03-0720	7.2	74	34	☆
7.3	3			1105SC03-0730	7.3	74	34	☆
7.4	3			1105SC03-0740	7.4	74	34	☆

☆ Recommended grade (produce according to order)

Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
YK20F							⊙	○	⊙		

Code key Cutting parameters Cutting parameters

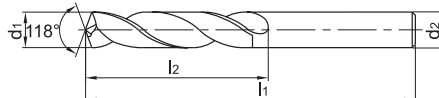
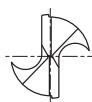
SC series(twist drill) for machining of cast iron, Al alloy



External coolant



Straight shank



- For materials with short chips such as cast iron, silicon-aluminum alloy, etc.
- Cutting edge and shank with same diameter.

Drill diameter $d_1(h_8)$	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)			Recommended grade
					Shank diameter	Overall length	Flute length	
					$d_2(h_7)$	l_1	l_2	YK20F
7.5	3	External coolant	Straight shank	1105SC03-0750	7.5	74	34	☆
	5			1101SC05-0750	7.5	109	69	☆
7.6	3			1105SC03-0760	7.6	79	37	☆
7.7	3			1105SC03-0770	7.7	79	37	☆
7.8	3			1105SC03-0780	7.8	79	37	☆
	5			1101SC05-0780	7.8	117	75	☆
7.9	3			1105SC03-0790	7.9	79	37	☆
8.0	3			1105SC03-0800	8.0	79	37	☆
	5			1101SC05-0800	8.0	117	75	☆
8.1	3			1105SC03-0810	8.1	79	37	☆
8.2	3			1105SC03-0820	8.2	79	37	☆
8.3	3			1105SC03-0830	8.3	79	37	☆
8.4	3			1105SC03-0840	8.4	79	37	☆
8.5	3			1105SC03-0850	8.5	79	37	☆
	5			1101SC05-0850	8.5	117	75	☆
8.6	3			1105SC03-0860	8.6	84	40	☆
8.7	3			1105SC03-0870	8.7	84	40	☆
8.8	3			1105SC03-0880	8.8	84	40	☆
	5			1101SC05-0880	8.8	125	81	☆
8.9	3			1105SC03-0890	8.9	84	40	☆
9.0	3			1105SC03-0900	9.0	84	40	☆
	5			1101SC05-0900	9.0	125	81	☆
9.1	3			1105SC03-0910	9.1	84	40	☆
9.2	3			1105SC03-0920	9.2	84	40	☆
9.3	3			1105SC03-0930	9.3	84	40	☆
9.4	3			1105SC03-0940	9.4	84	40	☆
9.5	3			1105SC03-0950	9.5	84	40	☆
	5			1101SC05-0950	9.5	125	81	☆
9.6	3			1105SC03-0960	9.6	89	43	☆
9.7	3			1105SC03-0970	9.7	89	43	☆
9.8	3			1105SC03-0980	9.8	89	43	☆
	5			1101SC05-0980	9.8	133	87	☆
9.9	3			1105SC03-0990	9.9	89	43	☆

☆ Recommended grade (produce according to order)

Drill diameter d ₁ (h ₈)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)			Recommended grade
					Shank diameter	Overall length	Flute length	
					d ₂ (h ₇)	l ₁	l ₂	YK20F
10.0	3	External coolant	Straight shank	1105SC03-1000	10.0	89	43	☆
	5			1101SC05-1000	10.0	133	87	☆
10.1	3			1105SC03-1010	10.1	89	43	☆
10.2	3			1105SC03-1020	10.2	89	43	☆
10.4	3			1105SC03-1040	10.4	89	43	☆
10.5	3			1105SC03-1050	10.5	89	43	☆
	5			1101SC05-1050	10.5	133	87	☆
10.7	3			1105SC03-1070	10.7	95	47	☆
10.8	3			1105SC03-1080	10.8	95	47	☆
	5			1101SC05-1080	10.8	142	94	☆
11.0	3			1105SC03-1100	11.0	95	47	☆
	5			1101SC05-1100	11.0	142	94	☆
11.5	3			1105SC03-1150	11.5	95	47	☆
	5			1101SC05-1150	11.5	142	94	☆
12.0	3			1105SC03-1200	12.0	102	51	☆
	5			1101SC05-1200	12.0	151	101	☆
12.5	3			1105SC03-1250	12.5	102	51	☆
	5			1101SC05-1250	12.5	151	101	☆
12.8	3			1105SC03-1280	12.8	102	51	☆
13.0	3			1105SC03-1300	13.0	102	51	☆
	5			1101SC05-1300	13.0	151	101	☆
13.1	3			1105SC03-1310	13.1	102	51	☆
13.5	3			1105SC03-1350	13.5	107	54	☆
	5			1101SC05-1350	13.5	160	108	☆
14.0	3			1105SC03-1400	14.0	107	54	☆
	5			1101SC05-1400	14.0	160	108	☆
14.3	3			1105SC03-1430	14.3	111	56	☆
14.5	3			1105SC03-1450	14.5	111	56	☆
	5			1101SC05-1450	14.5	169	114	☆
15.0	3			1105SC03-1500	15.0	111	56	☆
	5			1101SC05-1500	15.0	169	114	☆
15.5	5			1101SC05-1550	15.5	178	120	☆
16.0	3			1105SC03-1600	16.0	115	58	☆
	5			1101SC05-1600	16.0	178	120	☆

☆ Recommended grade (produce according to order)

Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
YK20F							⊙	○	⊙		

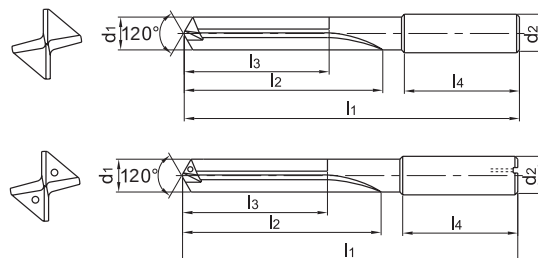
Code key Cutting parameters Cutting parameters



BORING TOOL Drilling Tools

PC series

PC series(straight flute drill) for machining of cast iron , Al alloy



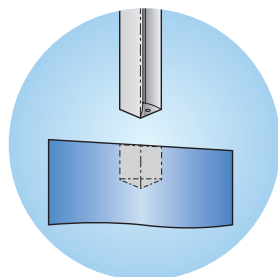
- For materials with short chips such as cast iron, silicon-aluminum alloy, etc.
- Excellent self centering capability, able to machine with high efficiency, the hole precision up to H7.
- High positional accuracy, high linearity and good surface finish can be obtained in the hole drilled.

Drill diameter d ₁ (m7)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	YK20F
4.0	5	External coolant	Straight shank	1576PC05-0400	6.0	74	36	29	36	☆
4.2	5			1576PC05-0420	6.0	74	36	29	36	☆
5.0	5			1576PC05-0500	6.0	82	44	35	36	☆
	15	1579PC15C-0500		6.0	145	105	96	36	☆	
6.0	5	External coolant		1576PC05-0600	6.0	82	44	35	36	☆
	15	Internal coolant		1579PC15C-0600	6.0	145	105	96	36	☆
6.75	5	External coolant		1576PC05-0675	8.0	91	53	43	36	☆
7.0	5			1576PC05-0700	8.0	91	53	43	36	☆
8.0	5			1576PC05-0800	8.0	91	53	43	36	☆
	15	Internal coolant		1579PC15C-0800	8.0	180	137	127	36	☆
8.5	5	External coolant		1576PC05-0850	10.0	103	61	49	40	☆
9.0	5			1576PC05-0900	10.0	103	61	49	40	☆
	15	Internal coolant		1579PC15C-0900	10.0	217	170	158	40	☆
10.0	5	External coolant		1576PC05-1000	10.0	103	61	49	40	☆
	15	Internal coolant		1579PC15C-1000	10.0	217	170	158	40	☆
10.25	5	External coolant		1576PC05-1025	12.0	118	71	56	45	☆
11.0	5			1576PC05-1100	12.0	118	71	56	45	☆
	15			Internal coolant	1579PC15C-1100	12.0	258	205	190	45
12.0	5	External coolant		1576PC05-1200	12.0	118	71	56	45	☆
	15	Internal coolant		1579PC15C-1200	12.0	258	205	190	45	☆
13.0	5	External coolant		1576PC05-1300	14.0	124	77	60	45	☆
14.0	5			1576PC05-1400	14.0	124	77	60	45	☆
	15	Internal coolant		1579PC15C-1400	14.0	290	236	219	45	☆
15.0	5	External coolant		1576PC05-1500	16.0	133	83	63	48	☆
15.5	5			1576PC05-1550	16.0	133	83	63	48	☆

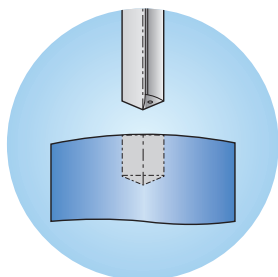
☆ Recommended grade (produce according to order)

Drill diameter d ₁ (mm)	Drilling depth (l/d)	Cooling mode	Shank type	Type	Basic dimension(mm)					Recommended grade
					Shank diameter	Overall length	Flute length	Recommended drilling depth	Shank length	
					d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	
16.0	5	External coolant	Straight shank	1576PC05-1600	16.0	133	83	63	48	☆
17.0	5			1576PC05-1700	18.0	143	93	71	48	☆
17.5	5			1576PC05-1750	18.0	143	93	71	48	☆
18.0	5			1576PC05-1800	18.0	143	93	71	48	☆
19.5	5			1576PC05-1950	20.0	153	101	77	50	☆
20.0	5			1576PC05-2000	20.0	153	101	77	50	☆

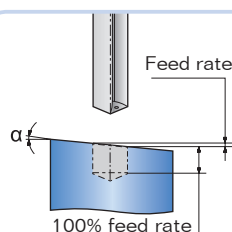
☆ Recommended grade (produce according to order)



Inclined face drilling

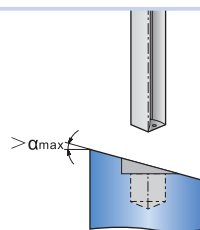


Curved face drilling



When drilling inclined face or curved face, feed rate should be reduced as recommended.

Inclined angle α	Max. feed rate
1°	80%
2°	50%
3°	30%



Surface with a large inclined angle should be pre-treated. Face milling should be conducted before drilling.

Applicable material table

⊙ Very suitable ○ Suitable

Grade	Workpiece material										
	Mild steel HB≤180	Carbon steel, Alloy steel	Pre-hardened steel, Hardened steel			Stainless steel	Cast iron	Nodular cast iron	Aluminum alloy	Copper alloy	Heat resistant alloy
			~40HRC	~50HRC	~60HRC						
YK20F							⊙	○	⊙		

Code key

C6

Cutting parameters

C79

Cutting parameters

C80-C86



BORING TOOL Drilling Tools

Recommended cutting parameters

GD series twist drills(external coolant)

3D
5D

workpiece material	Mild steel HB≤180		Carbon steel, alloy steel ~30HRC		Pre-hardened steel ~40HRC		Stainless steel		Cast iron		Nodular cast iron		Aluminum alloy		Heat resistant alloy	
Cutting speed	60~120m/min		60~120m/min		40~70m/min		25~40m/min		60~120m/min		50~100m/min		60~140m/min		15~25m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
2	14000	0.06~0.08	14000	0.06~0.08	9500	0.06~0.08	5500	0.02~0.05	14000	0.06~0.08	11000	0.06~0.08	16000	0.06~0.08	3200	0.02~0.04
3	9500	0.09~0.12	9500	0.09~0.12	6300	0.09~0.12	3700	0.03~0.07	9500	0.09~0.12	7400	0.09~0.12	10600	0.09~0.12	2100	0.03~0.06
4	7000	0.10~0.15	7000	0.10~0.15	4700	0.10~0.15	2700	0.04~0.08	7000	0.10~0.15	5600	0.10~0.15	8000	0.10~0.15	1600	0.04~0.07
5	5700	0.12~0.18	5700	0.12~0.18	3800	0.12~0.18	2200	0.05~0.10	5700	0.12~0.18	4500	0.12~0.18	6400	0.12~0.18	1250	0.05~0.09
6	4700	0.14~0.20	4700	0.14~0.20	3100	0.14~0.20	1850	0.06~0.12	4700	0.14~0.20	3700	0.14~0.20	5300	0.14~0.20	1050	0.06~0.11
8	3600	0.16~0.24	3600	0.16~0.24	2400	0.16~0.24	1400	0.08~0.16	3600	0.16~0.24	2800	0.16~0.24	4000	0.16~0.24	800	0.08~0.14
10	2800	0.18~0.27	2800	0.18~0.27	1900	0.18~0.27	1100	0.10~0.18	2800	0.18~0.27	2200	0.18~0.27	3200	0.18~0.27	600	0.10~0.16
12	2400	0.20~0.30	2400	0.20~0.30	1600	0.20~0.30	930	0.12~0.20	2400	0.20~0.30	1900	0.20~0.30	2700	0.20~0.30	500	0.12~0.18
14	2100	0.22~0.35	2100	0.22~0.35	1400	0.22~0.35	800	0.13~0.22	2100	0.22~0.35	1600	0.22~0.35	2300	0.22~0.35	450	0.13~0.20
16	1800	0.25~0.36	1800	0.25~0.36	1200	0.25~0.36	700	0.14~0.25	1800	0.25~0.36	1400	0.25~0.36	2000	0.25~0.36	400	0.14~0.23
18	1600	0.28~0.38	1600	0.28~0.38	1100	0.28~0.38	620	0.15~0.28	1600	0.28~0.38	1200	0.28~0.38	1800	0.28~0.38	350	0.15~0.25
20	1400	0.30~0.40	1400	0.30~0.40	950	0.30~0.40	550	0.16~0.30	1400	0.30~0.40	1100	0.30~0.40	1600	0.30~0.40	320	0.16~0.28

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.

GD series twist drills(internal coolant)

3D
5D

workpiece material	Mild steel HB≤180		Carbon steel, alloy steel ~30HRC		Pre-hardened steel ~40HRC		Stainless steel		Cast iron		Nodular cast iron		Aluminum alloy		Heat resistant alloy	
Cutting speed	80~150m/min		80~150m/min		50~80m/min		50~80m/min		80~150m/min		60~120m/min		100~180m/min		15~25m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
3	12700	0.09~0.12	12700	0.09~0.12	7400	0.09~0.12	6300	0.03~0.07	12700	0.09~0.12	9500	0.09~0.12	15000	0.09~0.12	2100	0.03~0.06
4	9600	0.10~0.15	9600	0.10~0.15	5600	0.10~0.15	4700	0.04~0.08	9600	0.10~0.15	7000	0.10~0.15	11100	0.10~0.15	1600	0.04~0.07
5	7600	0.12~0.18	7600	0.12~0.18	4500	0.12~0.18	3800	0.05~0.10	7600	0.12~0.18	5700	0.12~0.18	9000	0.12~0.18	1250	0.05~0.09
6	6400	0.14~0.20	6400	0.14~0.20	3700	0.14~0.20	3200	0.06~0.12	6400	0.14~0.20	4700	0.14~0.20	7400	0.14~0.20	1050	0.06~0.11
8	4800	0.16~0.24	4800	0.16~0.24	2800	0.16~0.24	2400	0.08~0.16	4800	0.16~0.24	3600	0.16~0.24	5600	0.16~0.24	800	0.08~0.14
10	3800	0.18~0.27	3800	0.18~0.27	2200	0.18~0.27	1900	0.10~0.18	3800	0.18~0.27	2800	0.18~0.27	4500	0.18~0.27	600	0.10~0.16
12	3200	0.20~0.30	3200	0.20~0.30	1900	0.20~0.30	1600	0.12~0.20	3200	0.20~0.30	2400	0.20~0.30	3700	0.20~0.30	500	0.12~0.18
14	2700	0.22~0.35	2700	0.22~0.35	1600	0.22~0.35	1350	0.13~0.22	2700	0.22~0.35	2100	0.22~0.35	3200	0.22~0.35	450	0.13~0.20
16	2400	0.25~0.36	2400	0.25~0.36	1400	0.25~0.36	1200	0.14~0.25	2400	0.25~0.36	1800	0.25~0.36	2800	0.25~0.36	400	0.14~0.23
18	2100	0.28~0.38	2100	0.28~0.38	1200	0.28~0.38	1050	0.15~0.28	2100	0.28~0.38	1600	0.28~0.38	2500	0.28~0.38	350	0.15~0.25
20	1900	0.30~0.40	1900	0.30~0.40	1100	0.30~0.40	950	0.16~0.30	1900	0.30~0.40	1400	0.30~0.40	2300	0.30~0.40	320	0.16~0.28

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.



BORING TOOL Drilling Tools

Recommended cutting parameters

GD series twist drills(internal coolant)

8D

Workpiece material	Mild steel HB≤180		Carbon steel, alloy steel ~30HRC		Pre-hardened steel ~40HRC		Stainless steel		Cast iron		Nodular cast iron		Aluminum alloy		Heat resistant alloy	
Cutting speed	80~150m/min		80~150m/min		50~80m/min		40~60m/min		80~150m/min		60~120m/min		100~180m/min		15~25m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
3	12700	0.06~0.10	12700	0.06~0.10	7400	0.06~0.10	5300	0.03~0.07	12700	0.06~0.10	9500	0.06~0.10	15000	0.09~0.12	2100	0.03~0.06
4	9600	0.08~0.12	9600	0.08~0.12	5600	0.08~0.12	4000	0.04~0.08	9600	0.08~0.12	7000	0.08~0.12	11100	0.10~0.15	1600	0.04~0.07
5	7600	0.10~0.14	7600	0.10~0.14	4500	0.10~0.14	3200	0.05~0.10	7600	0.10~0.14	5700	0.10~0.14	9000	0.10~0.14	1250	0.05~0.09
6	6400	0.11~0.16	6400	0.11~0.16	3700	0.11~0.16	2700	0.06~0.12	6400	0.11~0.16	4700	0.11~0.16	7400	0.11~0.16	1050	0.06~0.11
8	4800	0.13~0.19	4800	0.13~0.19	2800	0.13~0.19	2000	0.08~0.16	4800	0.13~0.19	3600	0.13~0.19	5600	0.13~0.19	800	0.08~0.14
10	3800	0.14~0.22	3800	0.14~0.22	2200	0.14~0.22	1600	0.10~0.18	3800	0.14~0.22	2800	0.14~0.22	4500	0.14~0.22	600	0.10~0.16
12	3200	0.16~0.24	3200	0.16~0.24	1900	0.16~0.24	1300	0.12~0.20	3200	0.16~0.24	2400	0.16~0.24	3700	0.16~0.24	500	0.12~0.18
14	2700	0.18~0.28	2700	0.18~0.28	1600	0.18~0.28	1100	0.13~0.22	2700	0.18~0.28	2100	0.18~0.28	3200	0.18~0.28	450	0.13~0.20
16	2400	0.20~0.29	2400	0.20~0.29	1400	0.20~0.29	1000	0.14~0.25	2400	0.20~0.29	1800	0.20~0.29	2800	0.20~0.29	400	0.14~0.23
18	2100	0.24~0.32	2100	0.24~0.32	1200	0.24~0.32	880	0.15~0.28	2100	0.24~0.32	1600	0.24~0.32	2500	0.24~0.32	350	0.15~0.25

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.

2. The cutting conditions above are applicable for drilling with emulsion.

3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.

4. These conditions above are applicable for cutting depth under 8D.

SL series deep twist drills(internal coolant)

12D

workpiece material	Mild steel HB≤180		Carbon steel, alloy steel ~30HRC		Pre-hardened steel ~40HRC		Stainless steel		Cast iron		Nodular cast iron		Aluminum alloy		Heat resistant alloy	
Cutting speed	60~120m/min		60~120m/min		50~80m/min		40~60m/min		80~150m/min		60~120m/min		100~180m/min		10~20m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
3	10600	0.06~0.1	10600	0.06~0.1	7400	0.06~0.1	5300	0.03~0.07	12700	0.06~0.1	9500	0.06~0.1	15000	0.09~0.12	2100	0.03~0.06
4	8000	0.08~0.12	8000	0.08~0.12	5600	0.08~0.12	4000	0.04~0.08	9600	0.08~0.12	7000	0.08~0.12	11000	0.10~0.15	1600	0.04~0.07
5	6400	0.10~0.14	6400	0.10~0.14	4500	0.10~0.14	3200	0.05~0.10	7600	0.10~0.14	5700	0.10~0.14	9000	0.10~0.15	1250	0.05~0.9
6	5300	0.11~0.16	5300	0.11~0.16	3700	0.11~0.16	2700	0.06~0.12	6400	0.11~0.16	4700	0.11~0.16	7400	0.11~0.16	1050	0.06~0.11
8	4000	0.13~0.19	4000	0.13~0.19	2800	0.13~0.19	2000	0.08~0.16	4800	0.13~0.19	3600	0.13~0.19	5600	0.13~0.19	800	0.08~0.14
10	3200	0.14~0.22	3200	0.14~0.22	2200	0.14~0.22	1600	0.10~0.18	3800	0.14~0.22	2800	0.14~0.22	4500	0.14~0.22	600	0.10~0.16
12	2700	0.16~0.24	2700	0.16~0.24	1900	0.16~0.24	1300	0.12~0.20	3200	0.16~0.24	2400	0.16~0.24	3700	0.16~0.24	500	0.12~0.18
14	2300	0.18~0.28	2300	0.18~0.28	1600	0.18~0.28	1100	0.13~0.22	2700	0.18~0.28	2100	0.18~0.28	3200	0.18~0.28	450	0.13~0.20

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.

SL series deep twist drills(internal coolant)

20D

30D

workpiece material	Mild steel HB≤180		Carbon steel, alloy steel ~30HRC		Pre-hardened steel ~40HRC		Stainless steel		Cast iron		Nodular cast iron		Aluminum alloy		Heat resistant alloy	
Cutting speed	70~90m/min		50~80m/min		40~60m/min		40~60m/min		50~80m/min		60~80m/min		100~180m/min		8~15m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
3	8250	0.06~0.1	7650	0.06~0.1	5200	0.06~0.1	4750	0.03~0.07	7100	0.06~0.1	7600	0.06~0.1	12750	0.09~0.12	1350	0.03~0.06
4	6250	0.08~0.12	5750	0.08~0.12	3900	0.08~0.12	3600	0.04~0.08	5400	0.08~0.12	5600	0.08~0.12	9350	0.10~0.15	1050	0.04~0.07
5	5000	0.10~0.14	4600	0.10~0.14	3150	0.10~0.14	2900	0.05~0.10	4250	0.10~0.14	4550	0.10~0.14	7650	0.10~0.15	800	0.05~0.9
6	4150	0.11~0.16	3800	0.11~0.16	2600	0.11~0.16	2450	0.06~0.12	3600	0.11~0.16	3750	0.11~0.16	6300	0.11~0.16	700	0.06~0.11
8	3100	0.13~0.19	2900	0.13~0.19	1950	0.13~0.19	1800	0.08~0.16	2700	0.13~0.19	2900	0.13~0.19	4750	0.13~0.19	500	0.08~0.14
10	2500	0.14~0.22	2300	0.14~0.22	1550	0.14~0.22	1450	0.10~0.18	2150	0.14~0.22	2250	0.14~0.22	3850	0.14~0.22	400	0.10~0.16
12	2100	0.16~0.24	1950	0.16~0.24	1350	0.16~0.24	1150	0.12~0.20	1800	0.16~0.24	1900	0.16~0.24	3150	0.16~0.24	350	0.12~0.18
14	1800	0.18~0.28	1650	0.18~0.28	1100	0.18~0.28	1000	0.13~0.22	1500	0.18~0.28	1700	0.18~0.28	2700	0.18~0.28	300	0.13~0.20

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.



BORING TOOL Drilling Tools

Recommended cutting parameters

ST series twist drills(internal coolant)

3D
5D

Workpiece material	Mild steel HB≤180		Carbon steel, alloy steel ~30HRC		Stainless steel					
					Austenite		Martensite		Ferrite	
Cutting speed	80~150m/min		80~150m/min		40~80 m/min		50~100 m/min		60~120 m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
3	12700	0.09~0.12	12700	0.09~0.12	6300	0.03~0.07	7400	0.03~0.07	9000	0.03~0.07
4	9600	0.10~0.15	9600	0.10~0.15	4700	0.04~0.08	5600	0.04~0.08	6700	0.04~0.08
5	7600	0.12~0.18	7600	0.12~0.18	3800	0.05~0.10	4500	0.05~0.10	5400	0.05~0.10
6	6400	0.14~0.20	6400	0.14~0.20	3200	0.06~0.12	3700	0.06~0.12	4500	0.06~0.12
8	4800	0.16~0.24	4800	0.16~0.24	2400	0.08~0.16	2800	0.08~0.16	3400	0.08~0.16
10	3800	0.18~0.27	3800	0.18~0.27	1900	0.10~0.18	2200	0.10~0.18	2700	0.10~0.18
12	3200	0.20~0.30	3200	0.20~0.30	1600	0.12~0.20	1900	0.12~0.20	2300	0.12~0.20
14	2700	0.22~0.35	2700	0.22~0.35	1350	0.13~0.22	1600	0.13~0.22	1900	0.13~0.22
16	2400	0.25~0.36	2400	0.25~0.36	1200	0.14~0.25	1400	0.14~0.25	1700	0.14~0.25
18	2100	0.28~0.38	2100	0.28~0.38	1050	0.15~0.28	1200	0.15~0.28	1500	0.15~0.28
20	1900	0.30~0.40	1900	0.30~0.40	950	0.16~0.30	1100	0.16~0.30	1350	0.16~0.30

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.

SC series twist drills(external coolant)

3D
5D

Workpiece material	Cast iron		Nodular cast iron		Silicon aluminium alloy				Aluminum alloy	
					Si≤10%		Si>10%			
Cutting speed	50~80m/min		40~70m/min		100~180m/min		80~140m/min		120~200m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
2	9550	0.06~ 0.08	8000	0.06~ 0.08	20000	0.07~0.16	18000	0.07~0.16	24000	0.07~0.16
3	6400	0.09~ 0.12	5300	0.09~ 0.12	15000	0.09~0.18	12700	0.09~0.18	16000	0.09~0.18
4	4800	0.10~ 0.15	4000	0.10~ 0.15	11000	0.10~0.22	9600	0.10~0.22	12000	0.10~0.22
5	3800	0.12~ 0.18	3200	0.12~ 0.18	9000	0.12~0.25	7600	0.12~0.25	10000	0.12~0.25
6	3100	0.14~ 0.20	2700	0.14~ 0.20	7400	0.14~0.28	6400	0.14~0.28	8500	0.14~0.28
8	2400	0.16~ 0.24	2000	0.16~ 0.24	5600	0.18~0.32	4800	0.18~0.32	6400	0.18~0.32
10	1900	0.18~ 0.27	1600	0.18~ 0.27	4500	0.22~0.36	3800	0.22~0.36	5000	0.22~0.36
12	1600	0.20~ 0.30	1300	0.20~ 0.30	3700	0.25~0.40	3200	0.25~0.40	4200	0.25~0.40
14	1350	0.22~ 0.35	1150	0.22~ 0.35	3200	0.27~0.44	2700	0.27~0.44	3600	0.27~0.44
16	1200	0.25~ 0.36	1000	0.25~ 0.36	2800	0.32~0.48	2400	0.32~0.48	3200	0.32~0.48

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.

PC series straight flute drill(external coolant)

5D

Workpiece material	Cast iron		Nodular cast iron		Silicon aluminium alloy				Aluminum alloy	
					Si≤10%		Si>10%			
Cutting speed	60~120m/min		50~100m/min		100~200m/min		80~160m/min		120~220m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
4	7000	0.10~ 0.15	5600	0.10~ 0.15	11000	0.12~ 0.20	9600	0.12~ 0.20	12000	0.12~ 0.20
5	5700	0.12~ 0.18	4500	0.12~ 0.18	9000	0.14~ 0.26	7600	0.14~ 0.26	10000	0.14~ 0.26
6	4700	0.14~ 0.20	3700	0.14~ 0.20	7400	0.16~ 0.28	6400	0.16~ 0.28	8500	0.16~ 0.28
8	3600	0.16~ 0.24	2800	0.16~ 0.24	5500	0.18~ 0.30	4800	0.18~ 0.30	6400	0.18~ 0.30
10	2800	0.18~ 0.27	2200	0.18~ 0.27	4500	0.20~ 0.32	3800	0.20~ 0.32	5000	0.20~ 0.32
12	2400	0.20~ 0.30	1900	0.20~ 0.30	3700	0.24~ 0.36	3200	0.24~ 0.36	4200	0.24~ 0.36
14	2100	0.22~ 0.35	1600	0.22~ 0.35	3200	0.28~ 0.44	2700	0.28~ 0.44	3600	0.28~ 0.44
16	1800	0.25~ 0.36	1400	0.25~ 0.36	2800	0.30~ 0.48	2400	0.30~ 0.48	3200	0.30~ 0.48
18	1600	0.28~0.38	1200	0.28~ 0.38	2500	0.34~ 0.52	2100	0.34~ 0.52	3000	0.34~ 0.52
20	1400	0.30~0.40	1100	0.30~ 0.40	2300	0.40~ 0.63	1900	0.40~ 0.63	2500	0.40~ 0.63

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 5D.

PC series straight flute drill(internal coolant)

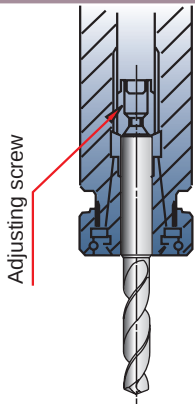
15D

Workpiece material	Cast iron		Nodular cast iron		Silicon aluminium alloy				Aluminum alloy	
					Si≤10%		Si>10%			
Cutting speed	60~120m/min		50~100m/min		100~200m/min		80~160m/min		120~220m/min	
Diameter (mm)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)	Rotating speed (min ⁻¹)	Feed rate (mm/r)
5	5700	0.08~ 0.14	4500	0.08~ 0.14	9000	0.09~ 0.18	7600	0.09~ 0.18	10000	0.09~ 0.18
6	4700	0.10~ 0.16	3700	0.10~ 0.16	7400	0.12~ 0.20	6400	0.12~ 0.20	8500	0.12~ 0.20
8	3600	0.12~ 0.20	2800	0.12~ 0.20	5500	0.12~ 0.24	4800	0.12~ 0.24	6400	0.12~ 0.24
10	2800	0.14~ 0.23	2200	0.14~ 0.23	4500	0.16~ 0.28	3800	0.16~ 0.28	5000	0.16~ 0.28
12	2400	0.16~ 0.26	1900	0.16~ 0.26	3700	0.18~ 0.32	3200	0.18~ 0.32	4200	0.18~ 0.32
14	2100	0.18~ 0.32	1600	0.18~ 0.32	3200	0.20~ 0.36	2700	0.20~ 0.36	3600	0.20~ 0.36

1. When the tool is used for the first time, please do a test cutting with 90% of the cutting speed or 85% of the feed rate stated above. As cutting conditions become stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are applicable for drilling with emulsion.
3. When clamping drill, please use a collet without any defect or dust, and keep the radial run-out of drill under 0.02mm.
4. These conditions above are applicable for cutting depth under 15D.

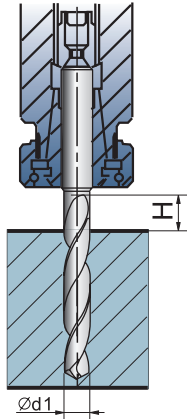
Application guide of drills

Drill clamping



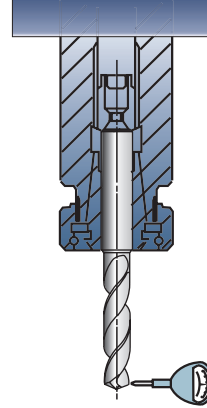
Guarantee tight clamping by using thrust bearing type collet chuck.

How to define the clamping length of drill



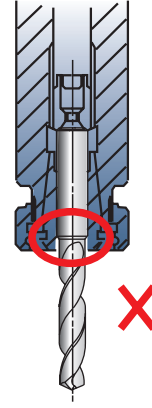
Ensure the size of H is over $1.5d1$

Radial run-out of drill clamped



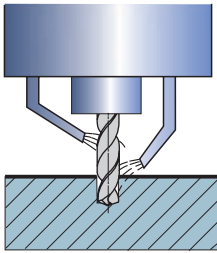
The Radial Run-out should be under 0.02mm.

Wrong drill clamping



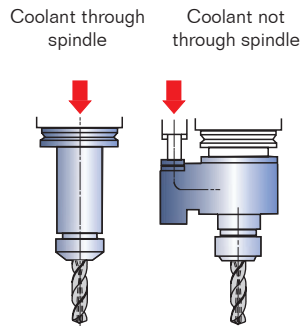
Do not clamp on the drill flutes.

Correct coolant method



The coolant liquid should be injected to the end and the middle of drill as shown in the figure.

Internal cooling: coolant supply method



coolant pressure is about 0.5~1MPa
(coolant pressure is 2~3MPa when the diameter is less than $\varnothing 5\text{ mm}$)
Coolant volume is 1.5~4L/min.

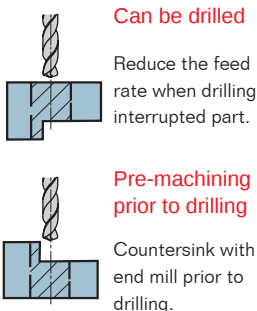
Cautions on coolant use

When using internal coolant

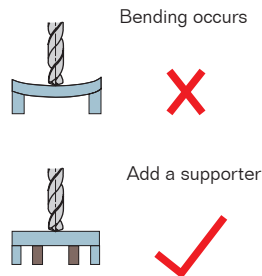
①The little chip particles and dust will cause jamming in the oil hole. A fine mesh filter should be used to prevent such jamming, especially for small-diameter drills.

②Dirt and dust particles will adhere to the oil hole and lead to unsmooth coolant flow. Coolant change as early as possible is recommended.

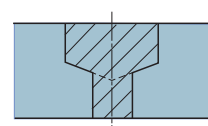
Cautions on interrupted cutting



Correct method for thin workpiece

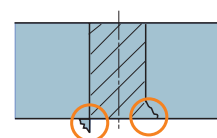


Drilling method of stepped holes



①Divided to two drilling processes.
②Drill the larger diameter hole firstly.
※Multiple step and chamfer drill can be produced by us.

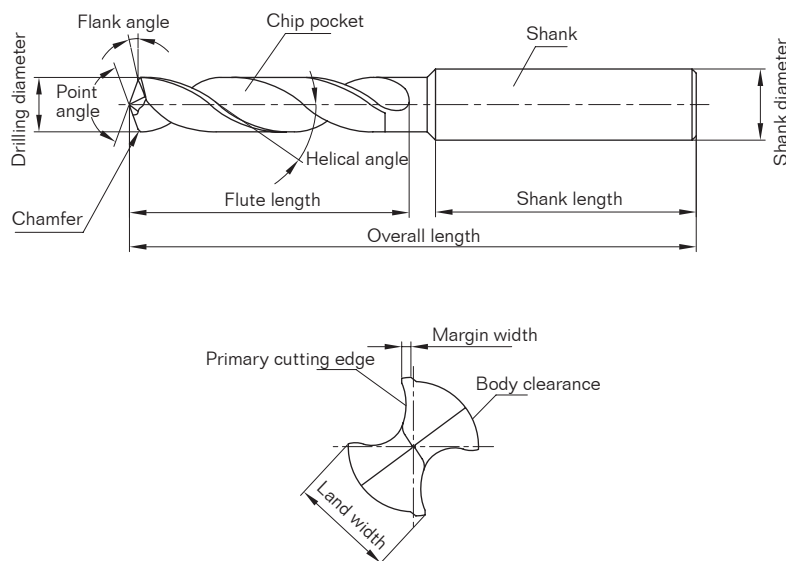
Burr and workpiece chippings on exit



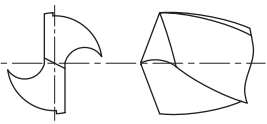
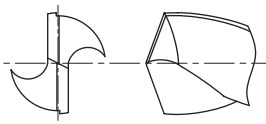
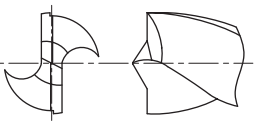
①Reduce the feed rate when approaching the exit.
②Machine chamfers at the point of exit.
③Change the point angle.

Parts terminology of drill

Terminology of drill



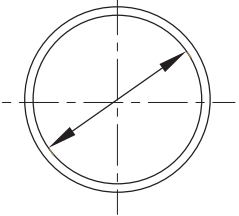
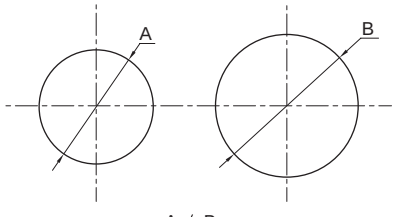
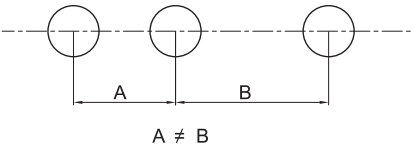
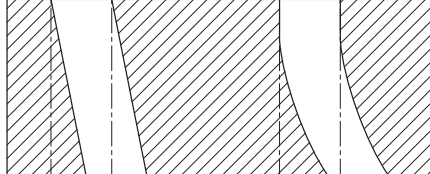
Representative cutting edge shapes

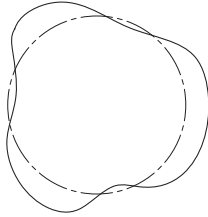
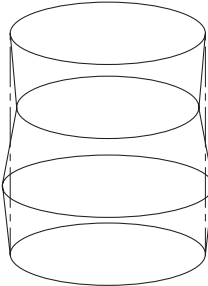
Shape	 (Conical)	 (Dual face)	 (Candler)
Features	- The flank face is conical and the clearance angel increases toward the center of drill. - Wide applications, commonly used for both soft and hard materials	- Flank face with dual flats to facilitate cutting and initial entering. - often used for small-diameter drills.	- Two-stage point angle with perfect centering capability, less burr generated when drilling hole. - First choice for drilling thin plate.

● Structure specification and cutting characteristics

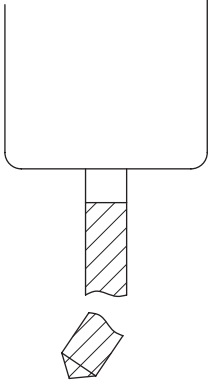
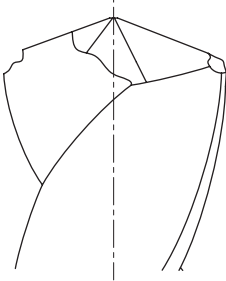
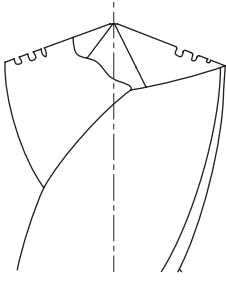
Chip pocket	The function of chip pocket is to remove the chips out of the hole. The larger the cross-sectional area is, the easier for chips to be evacuated.
Helical angle	The helical angle is the inclined angle of flute at the axial direction of a drill. It varies according to the different position of cutting edge. It decreases greatly from the peripheral toward the center. High hardness material Small $\leftarrow$ Helical angle $\rightarrow$ Large Soft material
Flute length	It is determined by depth of hole, guide bushing length and regrinding allowance. The longer the flute is, the lower the drill rigidity is, which greatly affects tool life. So it is recommended to minimize the flute length as much as possible when other requirements are met. The minimal flute length generally is depth of hole plus 1.5 times of the hole diameter.
Point angle	Generally 118°, set differently as per various applications. Soft easy-to-cut material Small $\leftarrow$ Point angle $\rightarrow$ Large for hard materials or high-efficiency machining
Core	It is an important factor that influence the rigidity and chip control of a drill. It is set according to applications. Low axial cutting force Low rigidity Easy-to-cut materials thin $\leftarrow$ core $\rightarrow$ Thick Large axial cutting force High rigidity For machining of high hardness materials, cross hole drilling etc.
Margin	As a drill guide during drilling process. The margin width need to take the hole friction into consideration. Low friction with hole wall, poor guiding performance small $\leftarrow$ margin width $\rightarrow$ large Good guiding performance, high friction with hole wall
Back taper	In order to decrease the friction with inside wall of the drilled hole, there is a slight back taper from tool nose to shank. The degree is usually represented by the quantity decreasing in the diameter per 100 mm flute length.
Body clearance	It is the part formed on the clearance face after margin, mainly to reduce the friction between inside wall of hole and drill peripheral.

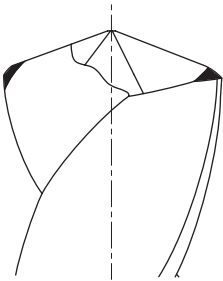
Common problems and solutions for drilling

	Problem	Cause	Solution
Hole	Oversize holes 	Poor clamping Large run-out around spindle	Select the holder and chuck with high precision Calibrating spindle Check and adjust after clamping drill
		Non-symmetric point angle Large run-out Chisel edge is off center	Regrind drill Check the precision after regrinding
	Irregular hole size  $A \neq B$	Non-symmetric point angle Large run-out Chisel edge is off center Excessive margin abrasion	Select the holder and chuck with high precision Calibrating the spindle Check and adjust after clamping drill
		Poor clamping Large spindle run-out Workpiece is not firmly held	Select the holder and chuck with high precision Calibrating spindle Check and adjust after clamping drill
		Feed rate is too high	Reduce the feed speed
		Coolant provide is not enough	Change the coolant supply method, or increase coolant volume
	Low position accuracy  $A \neq B$	Poor re-positioning precision of spindle Poor clamping Large run-out with spindle	Improve the re-positioning precision of machine Select the holder and chuck with high precision Calibrating the spindle Check and adjust after clamping drill
		The feed direction is not vertical to the workpiece surface	Adjust the feed direction vertical to the workpiece
		Top center not align with the spindle center (lathe)	Check and adjust alignment carefully before drilling
	Bad linearity Bad perpendicularity  Bad linearity Bad perpendicularity	Excessive tool abrasion	Regrind
		Poor center hole accuracy	Increase the position accuracy of hole
		Non-symmetric point angle Large run-out Chisel edge is off center	Regrind drill Check the precision after regrinding
		Insufficient drill rigidity	Increase drill rigidity
		Uneven workpiece surface Top center does not align with the spindle center (lathe)	The workpiece must be horizontal or pre-machined to horizontal before drilling Pre-drill a center hole

	Problem	Cause	Solution
Hole	Poor roundness 	Non-symmetric point angle Large drill run-out Chisel edge is off center	Regrind drill Check the precision after regrinding
		Poor clamping Large spindle run-out Workpiece is not firmly held	Select the holder and chuck with high precision Calibrating the spindle Check run-out and adjust after clamping drill
		Clearance angle is too large	Regrind drill
		Insufficient drill rigidity	Increase drill rigidity
	Poor workpiece surface quality	Incorrect regrinding	Regrind calibration
		Insufficient coolant or unsuitable coolant type	Change coolant supply method, increase coolant volume Select the cutting oil with good lubricating property
		Poor clamping Large spindle run-out	Select the holder and chuck with high precision Calibrating the spindle
		Feed rate is too high	Decrease the feed rate
		Excessive abrasion on cutting edge Excessive build-up on margin	Regrind drill Select a coated drill
		Chip jamming	Select a suitable drill (considering flute geometry, helical angle etc) Change the cutting method (adjust feed rate, use step feed etc)
	Poor cylindricity 	Non-symmetric point angle Large drill run-out Chisel edge is off center Excessive margin abrasion	Regrind drill Check the precision after regrinding
		Feed speed is too low	Increase the feed speed

Common problems and solutions for drilling

	Problem	Cause	Solution
Drill	Drill breakage 	Bend ,distortion and slippage of machine and workpiece	Increase the rigidity of drill, machine, workpiece and clamping rigidity
		Clearance angle is too small	Regrind and calibrate
		Feed rate is too high	Decrease the feed rate
		Excessive drill abrasion	Regrind drill
		Chip jamming	Select a suitable drill (considering flute geometry , helical angle etc) Change the cutting method (adjust feed rate, use step feed etc)
	Chipping on the cutting corner 	Unsuitable drill material	Select the suitable drill material
		Hard lump on the workpiece	Analyse the workpiece or select a suitable workpiece Change the cutting parameters(cutting speed , feed rate or machining method)
		Feed rate is too high	Reduce feed rate
		Insufficient coolant	Change coolant supply method, increase coolant volume
		Difficult entering the workpiece	Increase the rigidity of drill and machine Increase rigidity of workpiece and clamping. Select the drill with a sharp point for easy entry Pre-drill a centre hole Adjust the level of workpiece or pre-machined to horizontal before drilling Use guide bushing or bushing plate
	Breakage 	Poor clamping Large spindle run-out	Select the holder and chuck with high precision Calibrating the spindle
		Cutting speed and feed speed are too high	Reduce the cutting speed and feed speed.
		Clearance angle is too large	Regrind and calibrate
		Unsuitable drill material	Select the suitable drill material

	Problem	Cause	Solution
Drill	Abnormal abrasion on cutting corner 	Regrinding delay	Regrind in time
		Drill point does not align with the spindle center (lathe)	Check and adjust alignment carefully before drilling
		Cutting speed is too high	Reduce cutting speed
		Cutting edge shape is inappropriate	Select appropriate cutting edge shape
		Unsuitable drill material	Select suitable drill material
		Incorrect coolant type	Change coolant
	Abrasion and chipping on chisel edge	Feed speed is too high	Reduce feed speed.
		Cutting edge shape is inappropriate	Select appropriate cutting edge shape
		Unsuitable drill material	Select suitable drill material
		Clearance angle is too small	Regrind drill
	Breakage on margin	The size of guide bushing or drill bushing is too large	Select another bush with correct size
	Margin build-up	Excessive abrasion on cutting edge generates high heat	Regrind drill
		Insufficient coolant	Change coolant supply method, increase coolant volume
		Incorrect coolant type	Change coolant
		Workpiece material is too soft	Change drill or machining method
	High vibration	Clearance angle is too large	Regrind drill
		Drill rigidity is not enough	Increase drill rigidity
	Chips roll around the drill	Long chips Chip removal is not fluent	Change the drill and adjust machining method and cutting parameters
	One-side abrasion	Drill point does not align with the spindle center (lathe)	Check and adjust the alignment carefully before drilling
		Poor clamping	Fix drill carefully, control the radial run-out

How to choose the right indexable shallow drills

Product category

Shape

Indexable shallow drills

3D

ZTD03 applicable inserts

-53 **-PG**

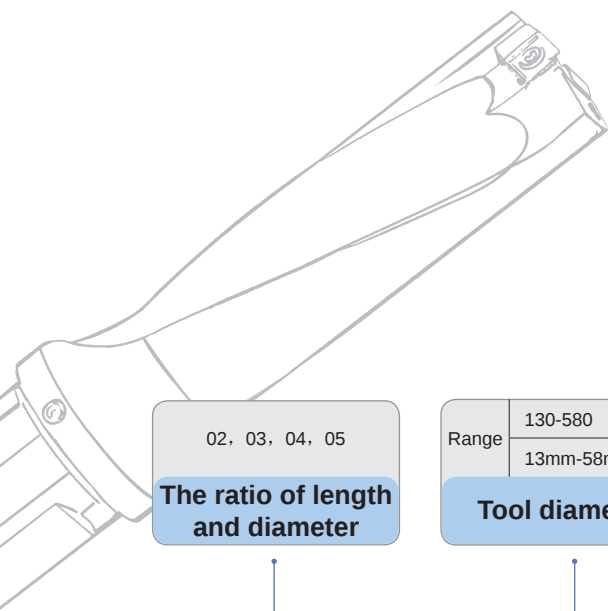
Type	Stock	Basic dimension(mm)							Applicable inserts	Screw	Wrench	Grade
		D	D1	D2	L2	L1	L					
ZD03-400-XP40-WC06-02	△	40	40	60	70	125	231	WCMX06T308	160M3 × 7	WT09IP	★	
ZD03-410-XP40-WC06-02	△	41	40	60	70	128	234	WCMX06T308	160M3 × 7	WT09IP	★	
ZD03-420-XP40-WC06-02	△	42	40	60	70	131	239	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-430-XP40-WC08-02	△	43	40	60	70	134	242	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-440-XP40-WC08-02	△	44	40	60	70	137	245	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-450-XP40-WC08-02	△	45	40	60	70	140	248	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-460-XP40-WC08-02	△	46	40	60	70	143	251	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-470-XP40-WC08-02	△	47	40	60	70	146	253	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-480-XP40-WC08-02	△	48	40	70	70	149	255	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-490-XP40-WC08-02	△	49	40	70	70	152	257	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-500-XP40-WC08-02	△	50	40	70	70	155	259	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-510-XP40-WC08-02	△	51	40	70	70	158	261	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-520-XP40-WC08-02	△	52	40	70	70	161	263	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-530-XP40-WC08-02	△	53	40	70	70	164	265	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-540-XP40-WC08-02	△	54	40	70	70	167	267	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-550-XP40-WC08-02	△	55	40	70	70	170	269	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-560-XP40-WC08-02	△	56	40	70	70	173	271	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-570-XP40-WC08-02	△	57	40	70	70	176	273	WCMX080412	160M3.5 × 10.4	WT15IP	★	
ZD03-580-XP40-WC08-02	△	58	40	70	70	179	275	WCMX080412	160M3.5 × 10.4	WT15IP	★	

▲ Stock available △ Make-to-order

Inserts specification
Including type, dimension, grade and stock.

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order

Indexable shallow drill code key



02, 03, 04, 05

The ratio of length
and diameter

Range

130-580

13mm-58mm

Tool diameter

W



S



Insert shape

C

7°

P

11°

Insert clearance
angle

Code

Edge length

W

S

03

3.8

04

4.3

05

5.4

5.0

06

6.5

6.0

07

7.94

08

8.7

09

9.8

11

11.5

Cutting edge
length(mm)

ZD 03-300-XP 32-W C 05-02

Tool type

Code	Description
ZD	Shallow drill
ZTD	Double helical inner coolant indexable shallow drill

Coupling structure
and type

Code	Description
XP	Weldon shank

Coupling size(mm)

20, 25, 32, 40

Number of tooth

Silver fox-New indexable drills for shallow holes

1 Internal coolant hose connector, which is used in lathe.

2 New tool body material with greatly improved tool rigidity.

3 Tool body with specially treated coating for superior lubricating performance.

4 Optimized structure for better chip breaking, lower vibration during cutting, higher machining precision.

5 Extremely large chip pocket, innovative liquid angle, for smoother chip evacuation.

*Innovative technology
fully upgrading*

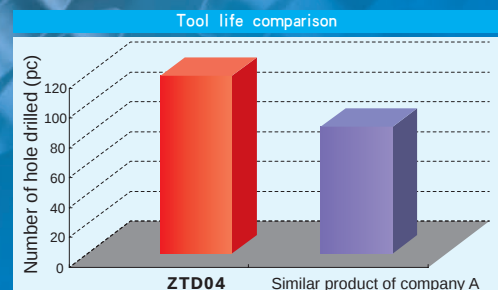
Optimized flutes and double spiraled internal coolant holes for high efficient drilling.

Case

Tool applied ZTD04-260-XP25-SP07-02
Insert applied SPGT07T308-PM /YBG205(Peripheral edge)
SPGT07T308-PM /YBG212(Inner edge)
Workpiece material 50Mn(HB240)
Cooling system Double helical internal cooling
Cutting parameters $V_c=130\text{m/min}$ $f=210\text{mm/min}$ $a_p=90\text{mm}$



Machining situation



ZTD04-260-XP25-SP07-02

Similar product of company A

- Optimized cutting edge design ensures more stable cutting and better chip breaking.
- Meeting the requirements of central edge and peripheral edge with economy and efficiency.
- Perfect combination of grade and chipbreaker solves all your difficulties in machining.



Inner edge insert



YBG212

YBG212

- Special coating technology makes insert surface smooth, reducing friction and ensuring unobstructed chip flow.
- Unique nano coating, stronger combination of substrate and highly wear-resistant TiAlN coating, higher toughness and hardness.
- Good thermal stability and chemical stability of coating provide more effective protection for the cutting edge.
- Ultra-fine solid carbide substrate with high toughness ensures high strength of cutting edge.



Peripheral edge insert



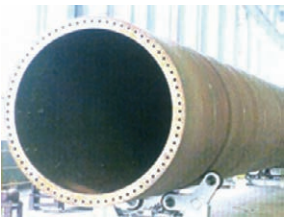
YBG205

YBG205

- Ultra-fine TiAlN base nano coating added with wear-resistant and heat-resistant rare elements greatly improves over-all properties.
- Special coating technology ensures stronger combination of substrate and coating.
- Thin PVD coating, sharp cutting edge.
- Fine grain WC base solid carbide with high hardness and high toughness.
- Special surface treatment after coating improves surface finish while eliminating harmful stress.

Because of the low speed of inner edge and the poor working condition, there is high requirement for insert toughness. Therefore, YBG212 with good over-all properties is recommended for inner edge and YBG205 with high wear resistance for peripheral edge.

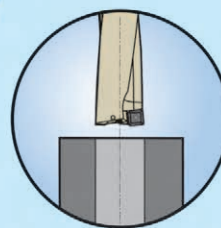
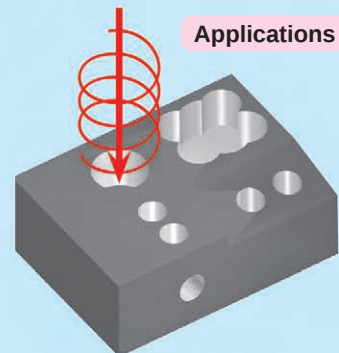
Case

Workpiece		Cooling system	Double helical internal cooling	
		Insert applied	SPGT07T308-PM/YBG205	Similar product of company A
Workpiece material	42CrMo (HRC25)	Comparison of insert abrasion (after 15 minutes of machining)	 	
Cutting parameters	$V_c=150\text{m/min}$ $f_r=0.12\text{mm/r}$ $a_p=80\text{mm}$			

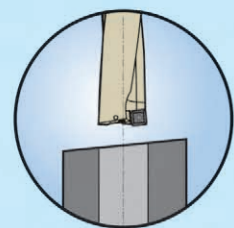


If stationary drilling method is used, the small ejected discs may lead to accidents when workpiece is drilled through, so please see to it that the machine has adequate safety measurements.

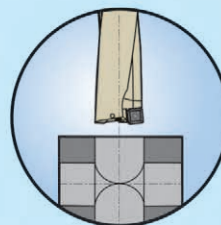
Applications



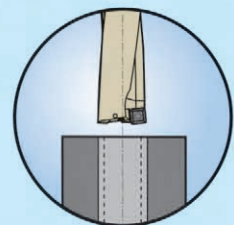
1 Common drilling



2 inclined face drilling



3 Cross-hole drilling



4 Counter boring

Safety information

■ Breakage

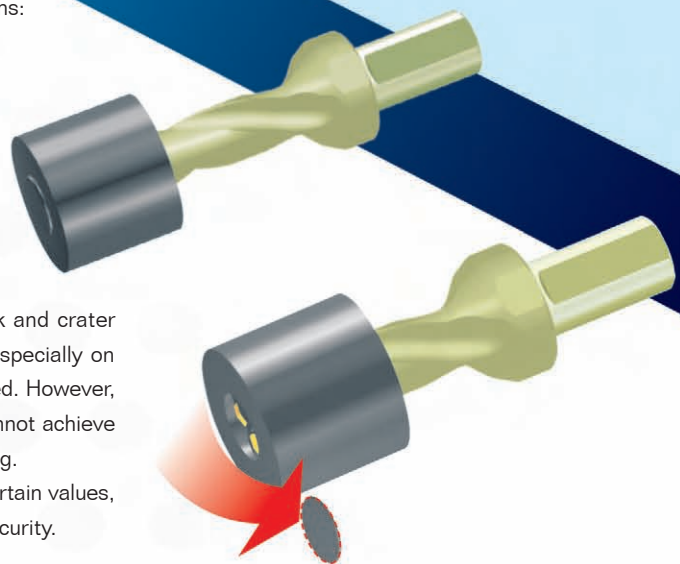
Chipping on cutting edges can be caused by various conditions:

- Off-center drill.
- Tool overhang or feed rate is too large.
- Incorrect inserts seating, tip seat was damaged.
- Poor insert stability.
- Insufficient coolant supply.
- Incorrect insert chipbreaker or grade.

■ Insert abrasion

The two most common types of insert abrasion are flank and crater abrasion. The flank abrasion is generally natural abrasion, especially on the peripheral insert which is applied with higher cutting speed. However, this abrasion will finally result that the insert cutting edge cannot achieve the tolerance and/or surface quality required for the machining.

In drilling operations, if flank and crater abrasion exceed certain values, the inserts should be changed without delay for production security.



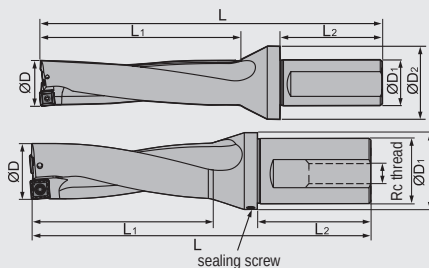
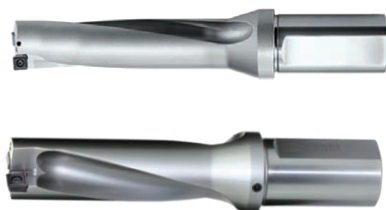


BORING TOOL Drilling Tools

Indexable shallow drills

Indexable shallow drills

ZTD02 2D



Picture 1

Picture 2

Type	Stock	Basic dimension(mm)						Applicable inserts	Insert screw	wrench	sealing screw	Rc thread	style
		ØD	ØD1	ØD2	L1	L2	L						
ZTD02-130-XP20-SP05-02	▲	13	20	25	31	50	98	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD02-140-XP20-SP05-02	▲	14	20	25	33	50	100	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD02-150-XP20-SP05-02	▲	15	20	25	35	50	102	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD02-160-XP20-SP05-02	▲	16	20	25	37	50	104	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD02-170-XP25-SP06-02	▲	17	25	32	39	56	117	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD02-180-XP25-SP06-02	▲	18	25	32	41	56	119	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD02-190-XP25-SP06-02	▲	19	25	32	43	56	121	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD02-200-XP25-SP06-02	▲	20	25	32	45	56	123	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD02-210-XP25-SP06-02	▲	21	25	32	47	56	125	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD02-220-XP25-SP07-02	▲	22	25	32	49	56	127	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD02-230-XP25-SP07-02	▲	23	25	32	51	56	129	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	---	---	Picture 1
ZTD02-240-XP25-SP07-02	▲	24	25	32	53	56	131	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD02-250-XP25-SP07-02	▲	25	25	32	55	56	133	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD02-260-XP25-SP07-02	▲	26	25	32	57	56	135	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD02-270-XP25-SP07-02	▲	27	25	32	59	56	137	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD02-280-XP32-SP09-02	▲	28	32	37	61	60	146	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD02-290-XP32-SP09-02	▲	29	32	37	63	60	148	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD02-300-XP32-SP09-02	▲	30	32	37	65	60	150	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD02-310-XP32-SP09-02	▲	31	32	37	67	60	152	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD02-320-XP32-SP09-02	▲	32	32	37	69	60	154	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD02-330-XP32-SP09-02	▲	33	32	37	71	60	156	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD02-340-XP40-SP11-02	▲	34	40	47	73	70	173	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-350-XP40-SP11-02	▲	35	40	47	75	70	175	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-360-XP40-SP11-02	▲	36	40	47	77	70	177	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-370-XP40-SP11-02	▲	37	40	47	79	70	179	SPGT110408-PM/EM	I60M4×10	WT15IP	M6×6	Rc1/4	Picture 2
ZTD02-380-XP40-SP11-02	▲	38	40	47	81	70	181	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-390-XP40-SP11-02	▲	39	40	47	83	70	183	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-400-XP40-SP11-02	▲	40	40	47	85	70	185	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-410-XP40-SP11-02	▲	41	40	47	87	70	187	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD02-420-XP40-SP14-02	△	42	40	52	89	70	199	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-430-XP40-SP14-02	△	43	40	52	91	70	201	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-440-XP40-SP14-02	△	44	40	52	93	70	203	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-450-XP40-SP14-02	△	45	40	52	95	70	205	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-460-XP40-SP14-02	△	46	40	52	97	70	207	SPGT140512-PM/EM	I60M5×13	WT20IP	M8×8	Rc1/4	Picture 2
ZTD02-470-XP40-SP14-02	△	47	40	52	99	70	209	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-480-XP40-SP14-02	△	48	40	52	101	70	211	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-490-XP40-SP14-02	△	49	40	52	103	70	213	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD02-500-XP40-SP14-02	△	50	40	52	105	70	215	SPGT140512-PM/EM	I60M5×13	WT20IP			

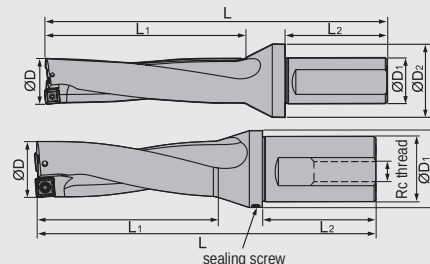
▲Stock available △Make-to-order

Drilling tools

Indexable shallow drill

Indexable shallow drills

ZTD03 3D



Picture 1

Picture 2

Type	Stock	Basic dimension(mm)						Applicable inserts	Insert screw	wrench	sealing screw	Rc thread	style
		ØD	ØD1	ØD2	L1	L2	L						
ZTD03-130-XP20-SP05-02	▲	13	20	25	44	50	111	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD03-140-XP20-SP05-02	▲	14	20	25	47	50	114	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD03-150-XP20-SP05-02	▲	15	20	25	50	50	117	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD03-160-XP20-SP05-02	▲	16	20	25	53	50	120	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD03-170-XP25-SP06-02	▲	17	25	32	56	56	134	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD03-180-XP25-SP06-02	▲	18	25	32	59	56	137	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD03-190-XP25-SP06-02	▲	19	25	32	62	56	140	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD03-200-XP25-SP06-02	▲	20	25	32	65	56	143	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD03-210-XP25-SP06-02	▲	21	25	32	68	56	146	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD03-220-XP25-SP07-02	▲	22	25	32	71	56	149	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD03-230-XP25-SP07-02	▲	23	25	32	74	56	152	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	---	---	Picture 1
ZTD03-240-XP25-SP07-02	▲	24	25	32	77	56	155	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD03-250-XP25-SP07-02	▲	25	25	32	80	56	158	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD03-260-XP25-SP07-02	▲	26	25	32	83	56	161	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD03-270-XP25-SP07-02	▲	27	25	32	86	56	164	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD03-280-XP32-SP09-02	▲	28	32	37	89	60	174	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD03-290-XP32-SP09-02	▲	29	32	37	92	60	177	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD03-300-XP32-SP09-02	▲	30	32	37	95	60	180	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD03-310-XP32-SP09-02	▲	31	32	37	98	60	183	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD03-320-XP32-SP09-02	▲	32	32	37	101	60	186	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD03-330-XP32-SP09-02	▲	33	32	37	104	60	189	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD03-340-XP40-SP11-02	▲	34	40	47	107	70	207	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-350-XP40-SP11-02	▲	35	40	47	110	70	210	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-360-XP40-SP11-02	▲	36	40	47	113	70	213	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-370-XP40-SP11-02	▲	37	40	47	116	70	216	SPGT110408-PM/EM	I60M4×10	WT15IP	M6×6	Rc1/4	Picture 2
ZTD03-380-XP40-SP11-02	▲	38	40	47	119	70	219	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-390-XP40-SP11-02	▲	39	40	47	122	70	222	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-400-XP40-SP11-02	▲	40	40	47	125	70	225	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-410-XP40-SP11-02	▲	41	40	47	128	70	228	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD03-420-XP40-SP14-02	△	42	40	52	131	70	241	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-430-XP40-SP14-02	△	43	40	52	134	70	244	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-440-XP40-SP14-02	△	44	40	52	137	70	247	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-450-XP40-SP14-02	△	45	40	52	140	70	250	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-460-XP40-SP14-02	△	46	40	52	143	70	253	SPGT140512-PM/EM	I60M5×13	WT20IP	M8×8	Rc1/4	Picture 2
ZTD03-470-XP40-SP14-02	△	47	40	52	146	70	256	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-480-XP40-SP14-02	△	48	40	52	149	70	259	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-490-XP40-SP14-02	△	49	40	52	152	70	262	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD03-500-XP40-SP14-02	△	50	40	52	155	70	265	SPGT140512-PM/EM	I60M5×13	WT20IP			

▲Stock available △Make-to-order

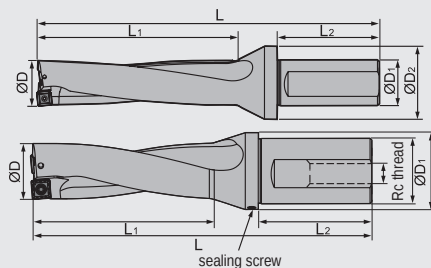
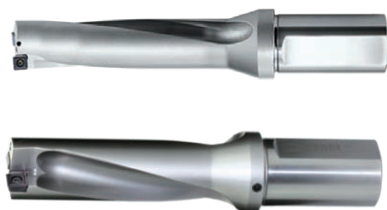


BORING TOOL Drilling Tools

Indexable shallow drills

Indexable shallow drills

ZTD04 4D



Picture 1

Picture 2

Type	Stock	Basic dimension(mm)						Applicable inserts	Insert screw	wrench	sealing screw	Rc thread	style
		ØD	ØD1	ØD2	L1	L2	L						
ZTD04-130-XP20-SP05-02	▲	13	20	25	57	50	124	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD04-140-XP20-SP05-02	▲	14	20	25	61	50	128	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD04-150-XP20-SP05-02	▲	15	20	25	65	50	132	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD04-160-XP20-SP05-02	▲	16	20	25	69	50	136	SPGT050204-PM/EM	I60M2×4.3	WT06IP			
ZTD04-170-XP25-SP06-02	▲	17	25	32	73	56	151	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD04-180-XP25-SP06-02	▲	18	25	32	77	56	155	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD04-190-XP25-SP06-02	▲	19	25	32	81	56	159	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD04-200-XP25-SP06-02	▲	20	25	32	85	56	163	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD04-210-XP25-SP06-02	▲	21	25	32	89	56	167	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD04-220-XP25-SP07-02	▲	22	25	32	93	56	171	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD04-230-XP25-SP07-02	▲	23	25	32	97	56	175	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	---	---	Picture 1
ZTD04-240-XP25-SP07-02	▲	24	25	32	101	56	179	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD04-250-XP25-SP07-02	▲	25	25	32	105	56	183	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD04-260-XP25-SP07-02	▲	26	25	32	109	56	187	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD04-270-XP25-SP07-02	▲	27	25	32	113	56	191	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD04-280-XP32-SP09-02	▲	28	32	37	117	60	202	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD04-290-XP32-SP09-02	▲	29	32	37	121	60	206	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD04-300-XP32-SP09-02	▲	30	32	37	125	60	210	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD04-310-XP32-SP09-02	▲	31	32	37	129	60	214	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD04-320-XP32-SP09-02	▲	32	32	37	133	60	218	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD04-330-XP32-SP09-02	▲	33	32	37	137	60	222	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD04-340-XP40-SP11-02	▲	34	40	47	141	70	241	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-350-XP40-SP11-02	▲	35	40	47	145	70	245	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-360-XP40-SP11-02	▲	36	40	47	149	70	249	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-370-XP40-SP11-02	▲	37	40	47	153	70	253	SPGT110408-PM/EM	I60M4×10	WT15IP	M6×6	Rc1/4	Picture 2
ZTD04-380-XP40-SP11-02	▲	38	40	47	157	70	257	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-390-XP40-SP11-02	▲	39	40	47	161	70	261	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-400-XP40-SP11-02	▲	40	40	47	165	70	265	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-410-XP40-SP11-02	▲	41	40	47	169	70	269	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD04-420-XP40-SP14-02	△	42	40	52	173	70	283	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-430-XP40-SP14-02	△	43	40	52	177	70	287	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-440-XP40-SP14-02	△	44	40	52	181	70	291	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-450-XP40-SP14-02	△	45	40	52	185	70	295	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-460-XP40-SP14-02	△	46	40	52	189	70	299	SPGT140512-PM/EM	I60M5×13	WT20IP	M8×8	Rc1/4	Picture 2
ZTD04-470-XP40-SP14-02	△	47	40	52	193	70	303	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-480-XP40-SP14-02	△	48	40	52	197	70	307	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-490-XP40-SP14-02	△	49	40	52	201	70	311	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD04-500-XP40-SP14-02	△	50	40	52	205	70	315	SPGT140512-PM/EM	I60M5×13	WT20IP			

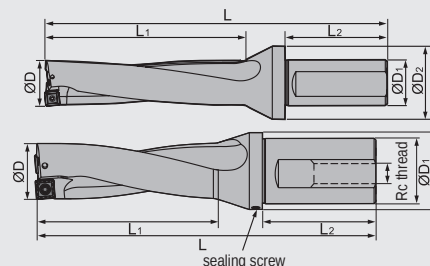
▲Stock available △Make-to-order

Drilling tools

Indexable shallow drill

Indexable shallow drills

ZTD05 5D



Picture 1

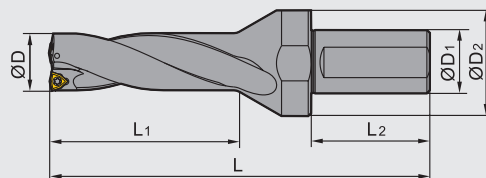
Picture 2

Type	Stock	Basic dimension(mm)						Applicable inserts	Insert screw	wrench	sealing screw	Rc thread	style
		ØD	ØD1	ØD2	L1	L2	L						
ZTD05-170-XP25-SP06-02	▲	17	25	32	90	56	168	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD05-180-XP25-SP06-02	▲	18	25	32	95	56	173	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD05-190-XP25-SP06-02	▲	19	25	32	100	56	178	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD05-200-XP25-SP06-02	▲	20	25	32	105	56	183	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD05-210-XP25-SP06-02	▲	21	25	32	110	56	188	SPGT060204-PM/EM	I60M2.2×5.5	WT07IP			
ZTD05-220-XP25-SP07-02	▲	22	25	32	115	56	193	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD05-230-XP25-SP07-02	▲	23	25	32	120	56	198	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD05-240-XP25-SP07-02	▲	24	25	32	125	56	203	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD05-250-XP25-SP07-02	▲	25	25	32	130	56	208	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP	---	---	Picture 1
ZTD05-260-XP25-SP07-02	▲	26	25	32	135	56	213	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD05-270-XP25-SP07-02	▲	27	25	32	140	56	218	SPGT07T308-PM/EM	I60M2.5×6.5	WT07IP			
ZTD05-280-XP32-SP09-02	▲	28	32	37	145	60	230	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD05-290-XP32-SP09-02	▲	29	32	37	150	60	235	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD05-300-XP32-SP09-02	▲	30	32	37	155	60	240	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD05-310-XP32-SP09-02	▲	31	32	37	160	60	245	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD05-320-XP32-SP09-02	▲	32	32	37	165	60	250	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD05-330-XP32-SP09-02	▲	33	32	37	170	60	255	SPGT090408-PM/EM	I60M3.5×8	WT15IP			
ZTD05-340-XP40-SP11-02	▲	34	40	47	175	70	275	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-350-XP40-SP11-02	▲	35	40	47	180	70	280	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-360-XP40-SP11-02	▲	36	40	47	185	70	285	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-370-XP40-SP11-02	▲	37	40	47	190	70	290	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-380-XP40-SP11-02	▲	38	40	47	195	70	295	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-390-XP40-SP11-02	▲	39	40	47	200	70	300	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-400-XP40-SP11-02	▲	40	40	47	205	70	305	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-410-XP40-SP11-02	▲	41	40	47	210	70	310	SPGT110408-PM/EM	I60M4×10	WT15IP			
ZTD05-420-XP40-SP14-02	△	42	40	52	215	70	325	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-430-XP40-SP14-02	△	43	40	52	220	70	330	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-440-XP40-SP14-02	△	44	40	52	225	70	335	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-450-XP40-SP14-02	△	45	40	52	230	70	340	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-460-XP40-SP14-02	△	46	40	52	235	70	345	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-470-XP40-SP14-02	△	47	40	52	240	70	350	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-480-XP40-SP14-02	△	48	40	52	245	70	355	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-490-XP40-SP14-02	△	49	40	52	250	70	360	SPGT140512-PM/EM	I60M5×13	WT20IP			
ZTD05-500-XP40-SP14-02	△	50	40	52	255	70	365	SPGT140512-PM/EM	I60M5×13	WT20IP			

▲Stock available △Make-to-order

Indexable shallow drills

3D

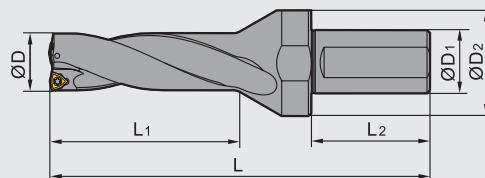


Type	Stock	Basic dimension(mm)						Applicable inserts	Screw	Wrench
		D	D ₁	D ₂	L ₂	L ₁	L			
ZD03-160-XP25-WC03-02	△	16	25	32	56	52	129	WCMX030208	I60M2.5×6.5	WT07IP
ZD03-170-XP25-WC03-02	△	17	25	32	56	55	133	WCMX030208	I60M2.5×6.5	WT07IP
ZD03-180-XP25-WC03-02	△	18	25	32	56	58	137	WCMX030208	I60M2.5×6.5	WT07IP
ZD03-190-XP25-WC03-02	△	19	25	32	56	61	140	WCMX030208	I60M2.5×6.5	WT07IP
ZD03-200-XP25-WC03-02	△	20	25	32	56	64	143	WCMX030208	I60M2.5×6.5	WT07IP
ZD03-210-XP25-WC04-02	△	21	25	45	56	67	153	WCMX040208	I60M2.5×6.5T	WT08IP
ZD03-220-XP25-WC04-02	△	22	25	45	56	70	156	WCMX040208	I60M2.5×6.5T	WT08IP
ZD03-230-XP25-WC04-02	△	23	25	45	56	73	159	WCMX040208	I60M2.5×6.5T	WT08IP
ZD03-240-XP25-WC04-02	△	24	25	45	56	76	162	WCMX040208	I60M2.5×6.5T	WT08IP
ZD03-250-XP25-WC04-02	△	25	25	45	56	79	165	WCMX040208	I60M2.5×6.5T	WT08IP
ZD03-260-XP32-WC05-02	△	26	32	55	60	83	176	WCMX050308	I60M3×7	WT09IP
ZD03-270-XP32-WC05-02	△	27	32	55	60	86	180	WCMX050308	I60M3×7	WT09IP
ZD03-280-XP32-WC05-02	△	28	32	55	60	89	184	WCMX050308	I60M3×7	WT09IP
ZD03-290-XP32-WC05-02	△	29	32	55	60	92	188	WCMX050308	I60M3×7	WT09IP
ZD03-300-XP32-WC05-02	△	30	32	55	60	95	192	WCMX050308	I60M3×7	WT09IP
ZD03-310-XP40-WC06-02	△	31	40	60	70	98	203	WCMX06T308	I60M3×7	WT09IP
ZD03-320-XP40-WC06-02	△	32	40	60	70	101	206	WCMX06T308	I60M3×7	WT09IP
ZD03-330-XP40-WC06-02	△	33	40	60	70	104	209	WCMX06T308	I60M3×7	WT09IP
ZD03-340-XP40-WC06-02	△	34	40	60	70	107	212	WCMX06T308	I60M3×7	WT09IP
ZD03-350-XP40-WC06-02	△	35	40	60	70	110	215	WCMX06T308	I60M3×7	WT09IP
ZD03-360-XP40-WC06-02	△	36	40	60	70	113	218	WCMX06T308	I60M3×7	WT09IP
ZD03-370-XP40-WC06-02	△	37	40	60	70	116	221	WCMX06T308	I60M3×7	WT09IP
ZD03-380-XP40-WC06-02	△	38	40	60	70	119	225	WCMX06T308	I60M3×7	WT09IP
ZD03-390-XP40-WC06-02	△	39	40	60	70	122	228	WCMX06T308	I60M3×7	WT09IP

▲Stock available △Make-to-order

Indexable shallow drills

3D

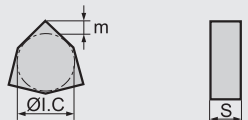


Type	Stock	Basic dimension(mm)						Applicable inserts	Screw 	Wrench 
		D	D ₁	D ₂	L ₂	L ₁	L			
ZD03-400-XP40-WC06-02	△	40	40	60	70	125	231	WCMX06T308	I60M3×7	WT09IP
ZD03-410-XP40-WC06-02	△	41	40	60	70	128	234	WCMX06T308	I60M3×7	WT09IP
ZD03-420-XP40-WC08-02	△	42	40	60	70	131	239	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-430-XP40-WC08-02	△	43	40	60	70	134	242	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-440-XP40-WC08-02	△	44	40	60	70	137	245	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-450-XP40-WC08-02	△	45	40	60	70	140	248	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-460-XP40-WC08-02	△	46	40	60	70	143	251	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-470-XP40-WC08-02	△	47	40	60	70	146	253	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-480-XP40-WC08-02	△	48	40	70	70	149	255	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-490-XP40-WC08-02	△	49	40	70	70	152	257	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-500-XP40-WC08-02	△	50	40	70	70	155	259	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-510-XP40-WC08-02	△	51	40	70	70	158	261	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-520-XP40-WC08-02	△	52	40	70	70	161	263	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-530-XP40-WC08-02	△	53	40	70	70	164	265	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-540-XP40-WC08-02	△	54	40	70	70	167	267	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-550-XP40-WC08-02	△	55	40	70	70	170	269	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-560-XP40-WC08-02	△	56	40	70	70	173	271	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-570-XP40-WC08-02	△	57	40	70	70	176	273	WCMX080412	I60M3.5×10.4	WT15IP
ZD03-580-XP40-WC08-02	△	58	40	70	70	179	275	WCMX080412	I60M3.5×10.4	WT15IP

▲Stock available △Make-to-order

Shallow drills code key

Code	Insert shap
S	
W	
Insert shape / code	

							
Code	Nose Height m Tolerance(mm)	Inscribed Circle ØI.C Tolerance(mm)	Thickness S Tolerance(mm)	Code	Nose Height m Tolerance(mm)	Inscribed Circle ØI.C Tolerance(mm)	Thickness S Tolerance(mm)
A	±0.005	±0.025	±0.025	J	±0.005	±0.05±0.13	±0.025
F	±0.005	±0.013	±0.025	K	±0.013	±0.05±0.13	±0.025
C	±0.013	±0.025	±0.025	L	±0.025	±0.05±0.13	±0.025
H	±0.013	±0.013	±0.025	M	±0.08±0.18	±0.05±0.13	±0.13
E	±0.025	±0.025	±0.025	N	±0.08±0.18	±0.05±0.13	±0.025
G	±0.025	±0.025	±0.13	U	±0.13±0.38	±0.08±0.25	±0.13
Tolerance							

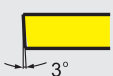
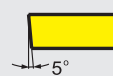
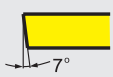
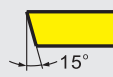
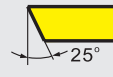
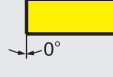
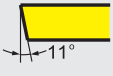
W

C

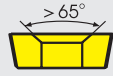
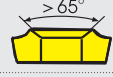
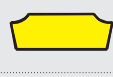
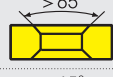
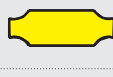
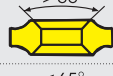
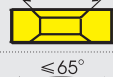
M

X

Clearance angle of main cutting edge

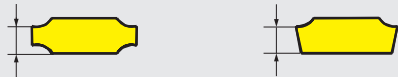
Code	Clearance angle	Code	Clearance angle
A		B	
C		D	
E		F	
G		N	
P		O	Other clearance angle

Chipbreaker and clamping system

Metric							
Code	With/Without hole	With/Without chipbreaker	Section plane of Insert	Code	With/Without hole	With/Without chipbreaker	Section plane of Insert
B	With	Without		N	Without	Without	
H	With	Single-side		R	Without	Single-side	
C	With	Without		F	Without	Double-side	
J	With	Double-side		A	With	Without	
W	With	Without		M	With	Single-side	
T	With	Single-side		G	With	Double-side	
Q	With	Without		X	---	---	Special
U	With	Double-side					

Code	Length	
	W	S
03	3.8	
04	4.3	
05	5.4	
06	6.5	6.35
08	8.7	8.0
09		9.525
12		12.7

Length of cutting edge



Thickness is defined as the height from the bottom of insert to the highest part of cutting edge.

Code	Insert thickness (mm)	Code	Insert thickness (mm)
00	0.79	05	5.96
T0	0.99	T5	5.95
01	1.59	06	6.35
T1	1.98	T6	6.75
02	2.38	07	7.94
T2	2.58	09	9.52
03	3.18	T9	9.72
T3	3.97	11	11.11
04	4.76	12	12.70
T4	4.96		

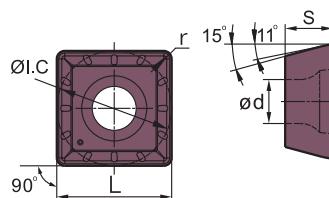
Insert thickness

08 04 12 R - PG

Nose radius	
Code	Description
04	0.4mm
08	0.8mm
12	1.2mm

Cutting direction	
Code	Description
R	Right hand
L	Left hand
N	Neutral

Chipbreaker code

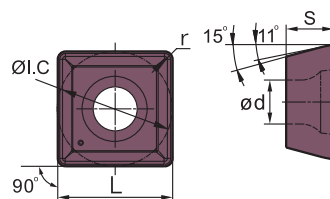
ZTD applicable inserts

Type	Basic dimension(mm)					Grade	
	L	ØI.C	s	ød	r	YBG205 (peripheral edge)	YBG212 (inner edge)
SPGT050204-PM	5	5	2.38	2.2	0.4	★	★
SPGT060204-PM	6	6	2.38	2.6	0.4	★	★
SPGT07T308-PM	7.94	7.94	3.97	2.8	0.8	★	★
SPGT090408-PM	9.8	9.8	4.3	4.2	0.8	★	★
SPGT110408-PM	11.5	11.5	4.76	4.4	0.8	★	★
SPGT140512-PM	14.3	14.3	5.2	5.75	1.2	★	★

★ Recommended grade (always stock available)

● Available grade (always stock available)

○ Make-to-order

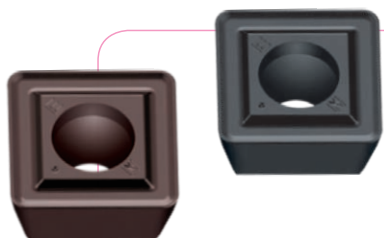


Type	Basic dimension(mm)					Grade	
	L	ØI.C	s	ød	r	YBG205 (peripheral edge)	YBG212 (inner edge)
SPGT050204-EM	5	5	2.38	2.2	0.4	★	★
SPGT060204-EM	6	6	2.38	2.6	0.4	★	★
SPGT07T308-EM	7.94	7.94	3.97	2.8	0.8	★	★
SPGT090408-EM	9.8	9.8	4.3	4.2	0.8	★	★
SPGT110408-EM	11.5	11.5	4.76	4.4	0.8	★	★
SPGT140512-EM	14.3	14.3	5.2	5.75	1.2	★	★

★ Recommended grade (always stock available)

● Available grade (always stock available)

○ Make-to-order

**-EM chipbreaker characteristics**

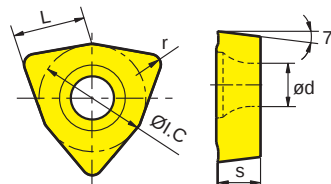
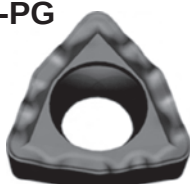
Recommended chipbreaker for M kind materials drilling. With G-class accuracy, sharp cutting edges, and high strength, better performance of resist impacts. Inserts meet the required of machining adhesive material, It is also properly suited for machining Austenite Stainless steel etc adhesive materials.

ZTD03 applicable inserts

-53

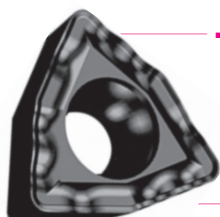


-PG



Type	Basic dimension(mm)					Grade
	L	ØI.C	s	d	r	YBG202
WCMX030208R-53	3.8	5.56	2.38	2.8	0.8	★
WCMX040208R-53	4.3	6.35	2.38	3.1	0.8	★
WCMX050308R-53	5.4	7.94	3.18	3.2	0.8	★
WCMX06T308R-53	6.5	9.525	3.97	3.7	0.8	★
WCMX080412R-53	8.7	12.7	4.76	4.3	1.2	★
WCMX030208R-PG	3.8	5.56	2.38	2.8	0.8	★
WCMX040208R-PG	4.3	6.35	2.38	3.1	0.8	★
WCMX050308R-PG	5.4	7.94	3.18	3.2	0.8	★
WCMX06T308R-PG	6.5	9.525	3.97	3.7	0.8	★
WCMX080412R-PG	8.7	12.7	4.76	4.3	1.2	★

★ Recommended grade (always stock available) ● Available grade (always stock available) ○ Make-to-order



-PG chipbreaker characteristics

Unique design of corrugated edge ensures high edge strength and good chip breaking performance, for machining of carbon steel and alloy steel.



-53 chipbreaker characteristics

Sharp cutting edge beneficial to gaining low roughness surface, mainly applicable for low load cutting of aluminum alloy, mild steel and cast iron.

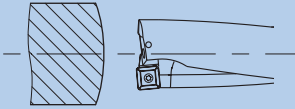
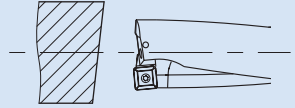
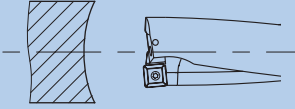
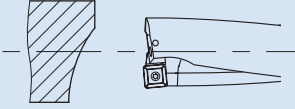
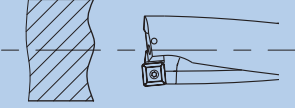
Optional accessories for ZTD drills (Ø13-Ø33)

	drill diameter	shank	adapter	D1	L1	L	H	Rc thread
	Ø13-Ø16	XP20	ZTD-XP20-THIN	18	4.23	13	14	Rc 1/8
	Ø17-Ø27	XP25	ZTD-XP25-THIN	22	4.65	17	17	Rc 1/8
	Ø28-Ø33	XP32	ZTD-XP32-THIN	29	5.65	21	22	Rc 1/4

Note: As standard, ZTD drills do not include adapter. Please order separately if it is needed.

■ Initial drill penetration

Initial drill penetration is an important factor for successful drilling. One way of ensuring good hole quality is to make sure the penetration surface of the workpiece is vertical to the drill centre axis. In addition, an indexable drill can carry out initial penetration of convex, concave, inclined and irregular surfaces by adjusting feed rates.

Workpiece surface	Countermeasures
	For a convex surface, the conditions are relatively good and the centre of the drill ideally makes contact with the workpiece first, thus normal feed can be adopted.
	When penetrating an inclined surface, the cutting edges will be unevenly loaded, which may result in the premature drill abrasion. If the angle of the inclined surface is larger than 2°, the feed should be reduced to 1/3 of the value recommended for the drill.
	When drilling into concave surface, drill center axis normally tends to go off-center, the feed should be reduced to 1/3 of the value recommended for the drill.
	When drilling into non-symmetric curved surfaces, the drill tends to deviate from the centre because it is penetrating an inclined surface. The feed should be reduced to lower than the value recommended for the initial penetration of concave surfaces.
	When drilling into irregular surface, the insert faces the risk of chipping, which may also occur when drilling through the workpiece. Therefore, the feed rate should be reduced.

Calculations for shallow drilling

● Cutting speed(V_c)

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

V_c (m/min): cutting speed
 D_c (mm): drill diameter
 n (rev/min): rotating speed

◆ Example

Spindle speed is 1600 rev/min, drill diameter is 20mm, thus cutting speed is:

$$V_c = \frac{D_c \times \pi \times n}{1000} = \frac{20 \times 3.14 \times 1600}{1000} = 100 \text{ (m/min)}$$

● Feed speed

$$V_f = f_r \times n \text{ (mm/min)}$$

V_f (mm/min): feed speed
 f_r (mm/rev): feed rate per revolution
 n (rev/min): spindle speed

◆ Example

Spindle speed is 1500 rev/min, feed rate per revolution is 0.1mm/rev, thus feed speed is:

$$V_f = f_r \times n = 0.1 \times 1500 = 150 \text{ (mm/min)}$$

● Machining time

$$T_c = \frac{I_d \times i}{n \times f_r}$$

T_c (min): machining time
 f_r (mm/rev): feed rate per revolution
 i : number of holes I_d (mm): drilling depth
 n (rev/min): spindle speed

◆ Example

Drilling a hole with a diameter of 20mm and a depth of 40mm, cutting speed is 100m/min and feed rate per revolution is 0.1mm/rev. Calculate the drilling time.

$$n = \frac{V_c \times 1000}{D_c \times \pi} = \frac{100 \times 1000}{20 \times 3.14} = 1600 \text{ (rev/min)}$$

$$T_c = \frac{I_d \times i}{n \times f_r} = \frac{40 \times 1}{1600 \times 0.1} = 0.25 \text{ (min)}$$

● Metal removal rate

$$Q = \frac{V_f \times \pi \times D_c^2}{4 \times 1000}$$

Q (cm³/min): metal removal rate
 D_c (mm): drill diameter
 V_f (mm/min): feed speed

◆ Example

Drill diameter is 20mm, feed speed is 160mm/rev, thus metal removal rate is:

$$Q = \frac{V_f \times \pi \times D_c^2}{4 \times 1000} = \frac{160 \times 3.14 \times 20^2}{4 \times 1000} = 50.24 \text{ (cm}^3\text{/min)}$$

Recommended cutting parameters for shallow drills

ISO	Materials	Hardness HB	Diameter Dc mm	Feed rate fn mm/r	Cutting speed Vc m/min
P	Carbon steel	80-200	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.09 0.05-0.09 0.06-0.10 0.07-0.11 0.08-0.12	200(170-240)
	Low alloy steel	150-260	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.09 0.05-0.12 0.06-0.14 0.08-0.16 0.10-0.20	170(140-220)
	High alloy steel	150-320	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.09 0.05-0.12 0.06-0.16 0.08-0.18 0.10-0.22	150(120-180)
	Cast steel	180-250	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.08 0.05-0.08 0.06-0.10 0.07-0.11 0.07-0.12	140(120-170)
M	Stainless steel Ferrite Martensite	150-270	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.09 0.05-0.12 0.06-0.16 0.08-0.18 0.10-0.22	160(110-230)
	Austenite	150-275	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.09 0.05-0.11 0.06-0.13 0.08-0.14 0.10-0.16	140(110-220)
K	Malleable cast iron	150-230	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.10 0.05-0.14 0.08-0.16 0.10-0.20 0.12-0.24	160(120-220)
	Gray cast iron	150-220	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.10 0.05-0.14 0.08-0.16 0.10-0.20 0.12-0.24	200(170-240)
	Nodular cast iron	160-250	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.09 0.05-0.12 0.06-0.14 0.08-0.16 0.10-0.20	160(130-200)
N	Non ferrous metals	60-110	13.0-21.0 22.0-33.0 34.0-41.0 42.0-50.0 51.0-58.0	0.05-0.10 0.05-0.14 0.08-0.16 0.10-0.20 0.12-0.24	300(250-350)