

# Catalog of **Drilling Solution** 2023/2024



# C

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**Carbide Drills**

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**U Drills**

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C129

## Carbide Drills

C1-C105

- **TTW/TTS SERIES**  
For General Purpose 3D,5D,7D

P M K C1
- **TTS DEEP SERIES**  
For General Purpose 12D,16D,20D,25D,30D

P M K C38
- **TKW/TKS SERIES**  
For Cast Iron 3D,5D

K C45
- **CTW/CTS SERIES**  
For General Steel 3D,5D

P C74
- **DTW/DTS SERIES**  
For Stainless Steel 3D,5D

M C87
- **MICRO DRILL SERIES**  
For General Purpose

P M K C92
- **MICRO DRILL SERIES**  
For Aluminium Purpose

N C95
- **FSD HIGH EFFICIENCY FLAT SERIES**  
For General Purpose

P M K C99
- **CCD CARBIDE CENTER DRILL**

P M K C105
- **CSD CARBIDE SPOTTING DRILL**

P M K C105

## U Drills

C106-C115

- DRILL BODY 2D,3D,4D,5D C106
- SPMX05-14  
For General Purpose P M K C114
- SPGX05-14  
For Aluminium Purpose N C114

## DTT Exchangable Head Drills

C116-C119

- DRILL BODY 3D,5D,8D C116
- DTT DRILL INSERT RANGE 12.0-30.5mm P K C117

## Deep Hole Drills

C120-C126

- BRAZED TYPE BTA DRILLS 16.XX-19.XX-25.XX P M K C120
- INDEXABLE DRILL INSERTS EQUIVALENT  
TO 800 SERIES P M K C125

## CDR 45° Chamfer Cutter

C127-C128

- SPMX05-14  
For General Purpose P M K C127
- SPGX05-14  
For Aluminium Purpose N C127

## Non-Standard Drills

C129



**TT SERIES**

**P M K**  
[C1~C44]



- Curved cutting edge design disperse the cutting force, it is not easy to cause chipping and wear due to stress concentration, and facilitate chip removal.
- Nano composite Balzers-PT coating ,superior wear resistance,longer tool life.
- Specially suitable for hole machining of carbon steel, alloy steel,stainless steel and other materials.
- Deep hole drill series L/D=12~30.

**CT SERIES**

**P K**  
[C74~C86]



- Suitable for steel( $\leq$ HRC48),cast iron efficient drilling.
- Unique cutting edge preparation to add strength to the cutting edge and improve the drilling stability.
- Nano composite AlTiN coating ,superior wear resistance,longer tool life.

**TK SERIES**

**K**  
[C45~C73]



- For cast iron processing for automotive engines and other industries .
- Waveform blade, reduce processing torque , improve hole wall quality and hole precision.
- Wide horizontal blade design and improve the intensity of the drill.

**DT SERIES**

**M**  
[C87~C91]



- Suitable for stainless steel,heat-resistant alloy and titanium alloy efficient drilling.
- Unique drill point design,better chip evacuation performance and larger groove profile.
- New substrate material and coating,stronger toughness and wear resistance ability.
- Optimize the groove profile,with excellent chip removal performance.

## TDM Micro-drill SERIES

### TDMC SERIES



[C92~C94]



- Ultra fine particles and super wear resistant cemented carbide are used.
- New composite TiAlN coating is developed to enhance the fatigue resistance and wear resistance of drill.
- Specially suitable for hole machining of carbon steel, alloy steel, stainless steel and other materials.
- Long life, high efficiency.

### TDMAL SERIES



[C95~C98]



- Ultra fine cemented carbide round bar was used.
- Ultra precision tolerance control, excellent cutting force and chip removal.
- Especially suitable for aluminium alloy, Copper alloy and resin precision hole processing.

### FSD SERIES



[C99~C104]



- Point angle 180°
- Better centering ability, chip evacuation smoothly because of point geometry and flute design.
- Suitable for machining inclined hole, drilling on ball surface and thin sheet, restraining the burr also.

### CCD SERIES



[C105]



- Carbide Center Drill with High-performance and Multi-Purpose Series.

### CSD SERIES



[C105]



- Carbide Spotting Drill with High-performance and Multi-Purpose Series.

TTW/TKW/CTW/DTW Drills (mm)

Flute Dia.	Dia. Tolerance(m7)
=2-3	+0.002/+0.012
>3-6	+0.004/+0.016
>6-10	+0.006/+0.021
>10-18	+0.007/+0.025
>18-20	+0.008/+0.029

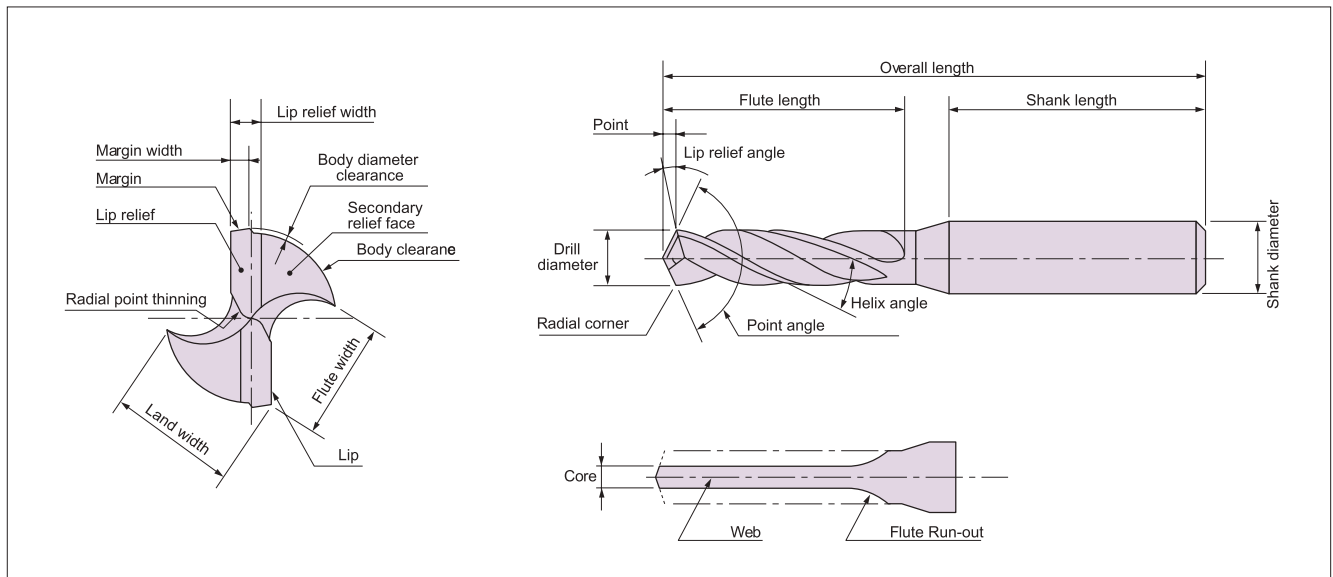
Shank Dia.	Shank Tolerance(h6)
=2-3	0.000/-0.006
>3-6	0.000/-0.008
>6-10	0.000/-0.009
>10-18	0.000/-0.011
>18-20	0.000/-0.013

TTS/TKS/CTS/DTS Drills (mm)

Flute Dia.	Dia. Tolerance(m7)
=2-3	+0.002/+0.012
>3-6	+0.004/+0.016
>6-10	+0.006/+0.021
>10-18	+0.007/+0.025
>18-20	+0.008/+0.029

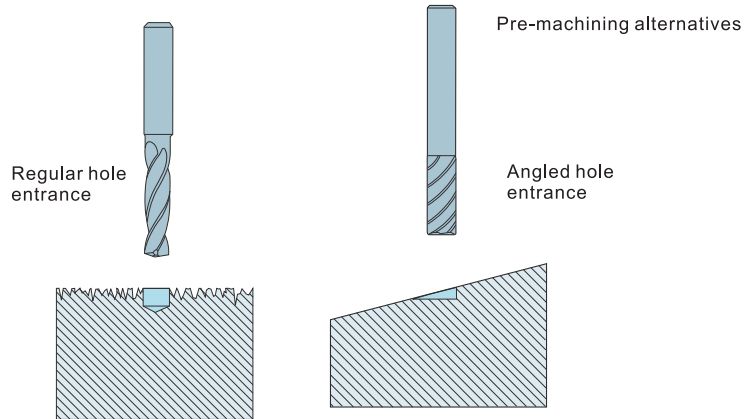
Shank Dia.	Shank Tolerance(h6)
=2-3	0.000/-0.006
>3-6	0.000/-0.008
>6-10	0.000/-0.009
>10-18	0.000/-0.011
>18-20	0.000/-0.013

Terminology



Irregular/Angled Hole Entrance

If irregular or angle entrance use pre operations accordingly

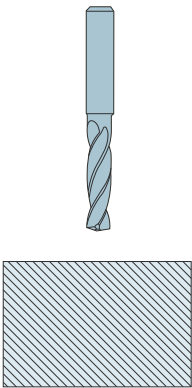


Pre drill with a short standard TT Series

Machine a flat using an end mill from the TOTIME range

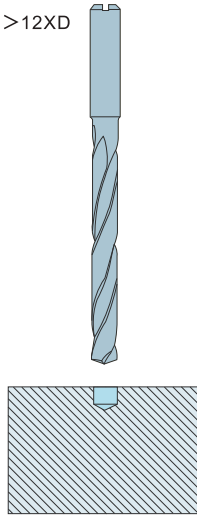
Recommended Tool Holders

3-12XD



No pre-drilling or entrance feed needed

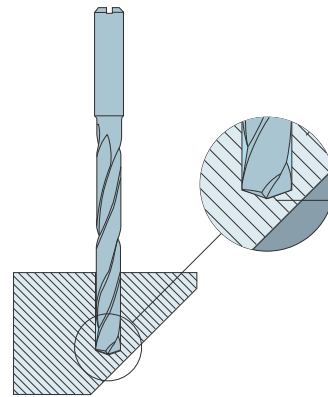
>12XD



When using a longer drill it's recommended to drill a pilot hole

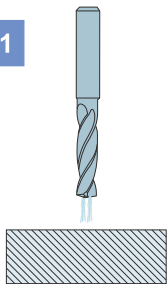
Angled Hole Exits

Before hole exit reduce the feed/rev by 50%



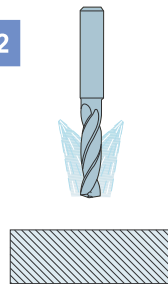
Coolant Recommendations

1



First choice

2



≤ 5 x D

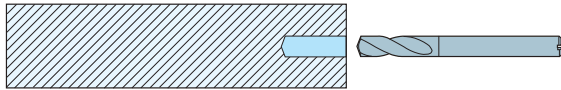
1. Coolant pressure\*  
 Minimum recommended coolant pressure 10 bar with  $\leq 5 \times D$   
 Minimum recommended coolant pressure 30 bar with  $> 5 \times D$   
 Minimum recommended coolant pressure 40 bar with  $> 16 \times D$

2. Coolant mix  
 Recommended emulsion mix 6-8%.  
 When drilling in stainless steels, superalloys and high strength steels a mix of 10% is recommended.

\*If lower coolant pressure is used adjust by reducing cutting data accordingly.

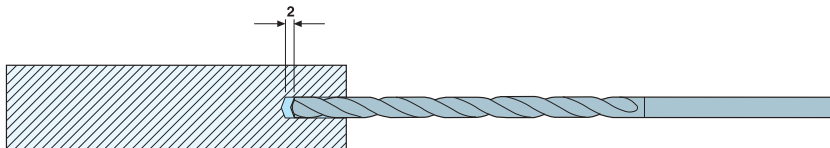
TTS16 (16 x D) up to TTS30 (30 x D) - STEP BY STEP

1.



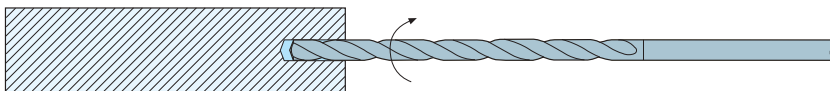
1. Drill a pilot hole 2-3 x D.  
Use a standard drill with the same diameter i.e. TTS 3D. (with 140° point angle)

2.



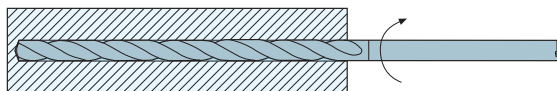
2. Enter the hole with the machine spindle stopped or use a low rpm (500). Stop 2 mm (0.080") above the pilot hole depth.

3.



3. Start the machine spindle and the coolant. drill with the recommended cutting data. (No peck drilling)

4.

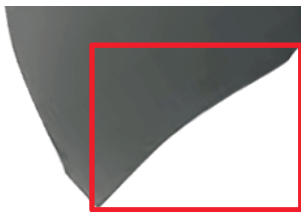


4. When reaching full depth, reduce the rpm to 500 and then retract the drill with 4 times the work feed to avoid retraction marks.

TT Serie								
	<b>TTW TTS</b>	<b>TTW05 TTS05</b>	<b>TTW07 TTS07</b>	<b>TTS12</b>	<b>TTS16</b>	<b>TTS20</b>	<b>TTS25</b>	<b>TTS30</b>
Drill Depth	3XD	5XD	7XD	12XD	16XD	20XD	25XD	30XD
Range	3-20	3-20	4.5-20	3-12	3-12	3-12	3-12	3-12
Drill Tolerance	m7	m7	m7	m7	m7	m7	m7	m7
Shank Tolerance	h6	h6	h6	h6	h6	h6	h6	h6
Hole Tolerance	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9
Page	C3	C17	C30	C38	C39	C40	C41	C42

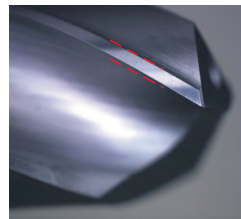
Technological Innovation

1. Curved Cutting Edge



The edge design has two advantages, one is to disperse the cutting force, it is not easy to cause chipping and wear due to stress concentration, and the second is to facilitate chip removal.

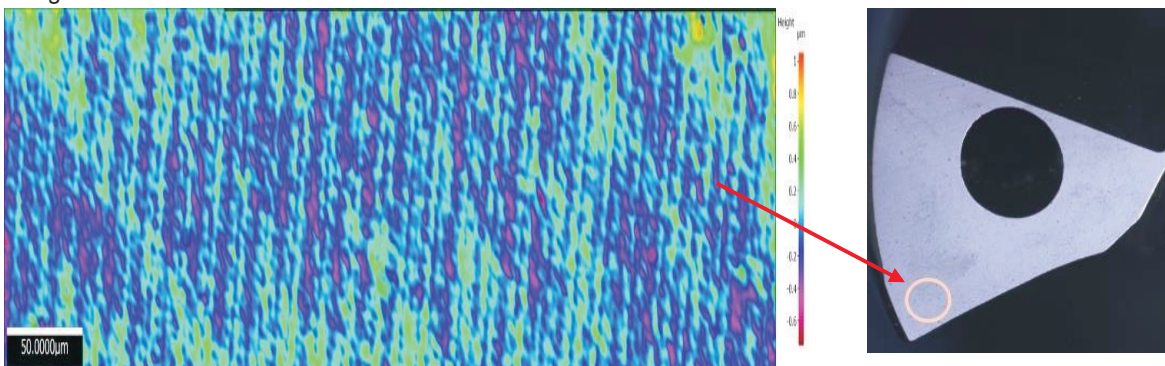
2. Narrow Cutting Edge



Some carbon steels have good ductility and shrinkage holes may occur. The cutting edge is narrow, which reduces friction and helps improve shrinkage holes.

3. Drill Surface Quality

Roughness: 0.14 μm



### Initial check points

- Fixturing stability
- Machine spindle condition
- Tool holder condition
- Clamping of tool:
  - Run-out within 0,04 TIR
  - If using pre drilling within 0,04 TIR
- Chip evacuation:
  - Cutting data
- Coolant:
  - Pressure
  - Flow
  - Concentration

<p><b>Chipping/Center</b></p> <ul style="list-style-type: none"> <li>▪ Reduce feed during entrance</li> <li>▪ Increase coolant pressure and adjust the feed to optimize the chip formation</li> </ul>		<p><b>Unsatisfactory surface finish- Feedmax</b></p> <ul style="list-style-type: none"> <li>▪ Reduce the feed/rev</li> <li>▪ Increase the cutting speed</li> </ul>	
<p><b>Wear/Periphery land</b></p> <ul style="list-style-type: none"> <li>▪ Reduce the cutting speed</li> <li>▪ Increase coolant concentration</li> </ul>		<p><b>Unsatisfactory positioning of the hole</b></p> <ul style="list-style-type: none"> <li>▪ Reduce feed/rev. on entrance</li> <li>▪ Reduce feed/rev</li> <li>▪ If drilling through rough, hard and angled surfaces - reduce the feed by 30% - 50% during entrance and exit</li> <li>▪ Center drill with a 140° point angle</li> </ul>	
<p><b>Built-up edge</b></p> <ul style="list-style-type: none"> <li>▪ If closer to the periphery increase the cutting speed</li> <li>▪ If closer to center increase feed/rev</li> <li>▪ If the drill is worn, regrind it</li> </ul>		<p><b>Breakage on contact/at hole bottom</b></p> <ul style="list-style-type: none"> <li>▪ Reduce the feed/rev. during entrance/exit</li> <li>▪ Adjust cutting data for improved chip evacuation</li> </ul>	
<p><b>Chipping/Outer corner, cutting edge</b></p> <ul style="list-style-type: none"> <li>▪ Reduce feed during entrance/exit</li> <li>▪ Reduce the cutting speed</li> <li>▪ Increase coolant concentration</li> <li>▪ Regrind the drill</li> </ul>		<p><b>Burrs on exit</b></p> <ul style="list-style-type: none"> <li>▪ Reduce the feed/rev. on exit</li> <li>▪ Reduce the width of edge preparation</li> </ul>	
<p><b>Rapid flank wear</b></p> <ul style="list-style-type: none"> <li>▪ Reduce the cutting speed</li> <li>▪ Increase coolant concentration</li> </ul>		<p><b>Unsatisfactory diameter tolerance</b></p> <ul style="list-style-type: none"> <li>▪ Increase the feed/rev</li> </ul>	

### Applications

Industry: Automobile Manufacturing Industry  
 Workpiece: Crankshaft  
 Material: 42CrMo  
 Machine: Machining Center  
 Hardness: HRC28 - 32  
 Cooling Method: Internal Cooling  
 Tool: TTS25080D8 (8x25D)  
 Vc (m/min) : 62. 8  
 f (mm/rev) : 0. 2  
 Depth (mm) : 150  
 Tool live (Pieces) : 220

Industry: Automobile Manufacturing Industry  
 Workpiece: Universal Joint  
 Material: S50C  
 Machine: Machining Center  
 Hardness: HRC20  
 Cooling Method: Internal Cooling  
 Tool: TTS05083D10 (8. 3x5D)  
 Vc (m/min) : 62. 5  
 f (mm/rev) : 0. 12  
 Depth (mm) : 38  
 Tool live (Pieces) : 400



Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

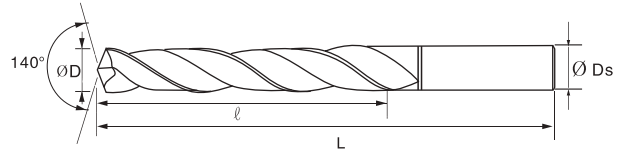
CDR 45° Chamfer Cutter

Non-standard Tools

Carbide Drills

## TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW030D6	3.0	20	6	62	●
TTW031D6	3.1	20	6	62	●
TTW032D6	3.2	20	6	62	●
TTW033D6	3.3	20	6	62	●
TTW034D6	3.4	20	6	62	●
TTW035D6	3.5	20	6	62	●
TTW036D6	3.6	20	6	62	●
TTW037D6	3.7	20	6	62	●
TTW038D6	3.8	24	6	66	●
TTW039D6	3.9	24	6	66	●
TTW040D6	4.0	24	6	66	●
TTW041D6	4.1	24	6	66	●
TTW042D6	4.2	24	6	66	●
TTW043D6	4.3	24	6	66	●
TTW044D6	4.4	24	6	66	●
TTW045D6	4.5	24	6	66	●
TTW046D6	4.6	26	6	66	●
TTW047D6	4.7	26	6	66	●
TTW048D6	4.8	28	6	66	●
TTW049D6	4.9	28	6	66	●
TTW050D6	5.0	28	6	66	●
TTW051D6	5.1	28	6	66	●
TTW052D6	5.2	28	6	66	●
TTW053D6	5.3	28	6	66	●
TTW054D6	5.4	28	6	66	●
TTW055D6	5.5	28	6	66	●
TTW056D6	5.6	28	6	66	●
TTW057D6	5.7	28	6	66	●
TTW058D6	5.8	28	6	66	●
TTW059D6	5.9	28	6	66	●
TTW060D6	6.0	28	6	66	●
TTW061D8	6.1	34	8	79	●
TTW062D8	6.2	34	8	79	●
TTW063D8	6.3	34	8	79	●

● Stock ○ Non-stock

U Drills

Head Exchangable Drills

Deep Hole Drills

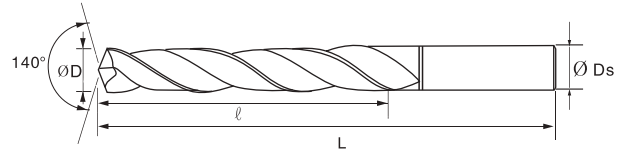
CDR 45° Chamfer Cutter

Non-standard Tools



## TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



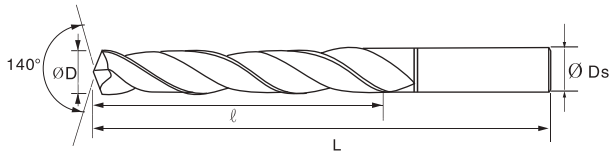
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTW064D8	6.4	34	8	79	●
TTW065D8	6.5	34	8	79	●
TTW066D8	6.6	34	8	79	●
TTW067D8	6.7	34	8	79	●
TTW068D8	6.8	34	8	79	●
TTW069D8	6.9	34	8	79	●
TTW070D8	7.0	34	8	79	●
TTW071D8	7.1	41	8	79	●
TTW072D8	7.2	41	8	79	●
TTW073D8	7.3	41	8	79	●
TTW074D8	7.4	41	8	79	●
TTW075D8	7.5	41	8	79	●
TTW076D8	7.6	41	8	79	●
TTW077D8	7.7	41	8	79	●
TTW078D8	7.8	41	8	79	●
TTW079D8	7.9	41	8	79	●
TTW080D8	8.0	41	8	79	●
TTW081D10	8.1	47	10	89	●
TTW082D10	8.2	47	10	89	●
TTW083D10	8.3	47	10	89	●
TTW084D10	8.4	47	10	89	●
TTW085D10	8.5	47	10	89	●
TTW086D10	8.6	47	10	89	●
TTW087D10	8.7	47	10	89	●
TTW088D10	8.8	47	10	89	●
TTW089D10	8.9	47	10	89	●
TTW090D10	9.0	47	10	89	●
TTW091D10	9.1	47	10	89	●
TTW092D10	9.2	47	10	89	●
TTW093D10	9.3	47	10	89	●
TTW094D10	9.4	47	10	89	●
TTW095D10	9.5	47	10	89	●
TTW096D10	9.6	47	10	89	●
TTW097D10	9.7	47	10	89	●

●Stock ○Non-stock

## TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



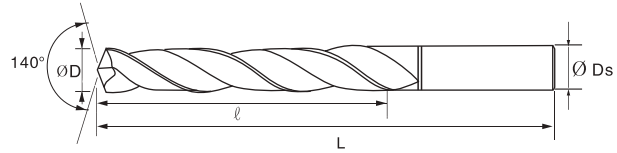
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW098D10	9.8	47	10	89	●
TTW099D10	9.9	47	10	89	●
TTW100D10	10.0	47	10	89	●
TTW101D12	10.1	55	12	102	●
TTW102D12	10.2	55	12	102	●
TTW103D12	10.3	55	12	102	●
TTW104D12	10.4	55	12	102	●
TTW105D12	10.5	55	12	102	●
TTW106D12	10.6	55	12	102	●
TTW107D12	10.7	55	12	102	●
TTW108D12	10.8	55	12	102	●
TTW109D12	10.9	55	12	102	●
TTW110D12	11.0	55	12	102	●
TTW111D12	11.1	55	12	102	●
TTW112D12	11.2	55	12	102	●
TTW113D12	11.3	55	12	102	●
TTW114D12	11.4	55	12	102	●
TTW115D12	11.5	55	12	102	●
TTW116D12	11.6	55	12	102	●
TTW117D12	11.7	55	12	102	●
TTW118D12	11.8	55	12	102	●
TTW119D12	11.9	55	12	102	●
TTW120D12	12.0	55	12	102	●
TTW121D14	12.1	60	14	107	●
TTW122D14	12.2	60	14	107	●
TTW123D14	12.3	60	14	107	●
TTW124D14	12.4	60	14	107	●
TTW125D14	12.5	60	14	107	●
TTW126D14	12.6	60	14	107	●
TTW127D14	12.7	60	14	107	●
TTW128D14	12.8	60	14	107	●
TTW129D14	12.9	60	14	107	●
TTW130D14	13.0	60	14	107	●
TTW131D14	13.1	60	14	107	●

● Stock ○ Non-stock

## TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

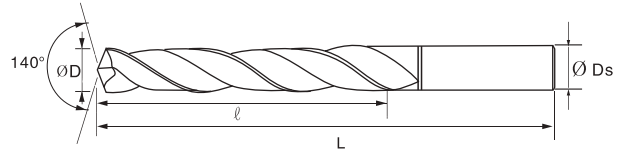
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTW132D14	13.2	60	14	107	●
TTW133D14	13.3	60	14	107	●
TTW134D14	13.4	60	14	107	●
TTW135D14	13.5	60	14	107	●
TTW136D14	13.6	60	14	107	●
TTW137D14	13.7	60	14	107	●
TTW138D14	13.8	60	14	107	●
TTW139D14	13.9	60	14	107	●
TTW140D14	14.0	60	14	107	●
TTW141D16	14.1	65	16	115	●
TTW142D16	14.2	65	16	115	●
TTW143D16	14.3	65	16	115	●
TTW144D16	14.4	65	16	115	●
TTW145D16	14.5	65	16	115	●
TTW146D16	14.6	65	16	115	●
TTW147D16	14.7	65	16	115	●
TTW148D16	14.8	65	16	115	●
TTW149D16	14.9	65	16	115	●
TTW150D16	15.0	65	16	115	●
TTW151D16	15.1	65	16	115	●
TTW152D16	15.2	65	16	115	●
TTW153D16	15.3	65	16	115	●
TTW154D16	15.4	65	16	115	●
TTW155D16	15.5	65	16	115	●
TTW156D16	15.6	65	16	115	●
TTW157D16	15.7	65	16	115	●
TTW158D16	15.8	65	16	115	●
TTW159D16	15.9	65	16	115	●
TTW160D16	16.0	65	16	115	●
TTW165D18	16.5	73	18	123	○
TTW170D18	17.0	73	18	123	○
TTW175D18	17.5	73	18	123	○
TTW180D18	18.0	73	18	123	○
TTW185D20	18.5	79	20	131	○

● Stock ○ Non-stock

Carbide Drills

## TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



U Drills

Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW190D20	19.0	79	20	131	○
TTW195D20	19.5	79	20	131	○
TTW200D20	20.0	79	20	131	○

**Notice: The MOQ for Non-stock item is 5pcs.**

● Stock ○ Non-stock

Head Exchangable Drills

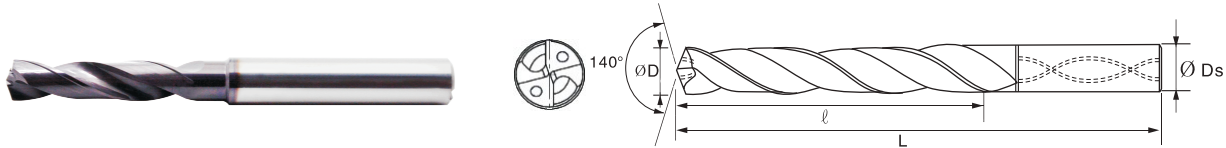
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



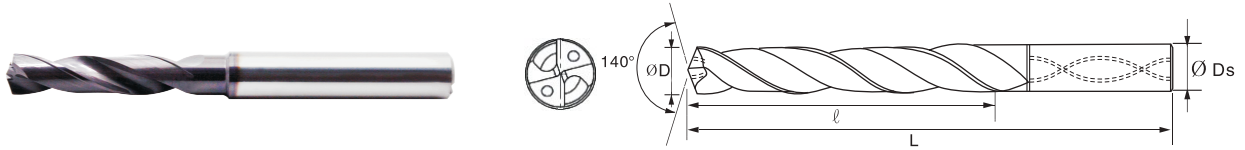
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS030D6	3.0	20	6	62	●
TTS031D6	3.1	20	6	62	●
TTS032D6	3.2	20	6	62	●
TTS033D6	3.3	20	6	62	●
TTS034D6	3.4	20	6	62	●
TTS035D6	3.5	20	6	62	●
TTS036D6	3.6	20	6	62	●
TTS037D6	3.7	20	6	62	●
TTS038D6	3.8	24	6	66	●
TTS039D6	3.9	24	6	66	●
TTS040D6	4.0	24	6	66	●
TTS041D6	4.1	24	6	66	●
TTS042D6	4.2	24	6	66	●
TTS043D6	4.3	24	6	66	●
TTS044D6	4.4	24	6	66	●
TTS045D6	4.5	24	6	66	●
TTS046D6	4.6	24	6	66	●
TTS047D6	4.7	24	6	66	●
TTS048D6	4.8	28	6	66	●
TTS049D6	4.9	28	6	66	●
TTS050D6	5.0	28	6	66	●
TTS051D6	5.1	28	6	66	●
TTS052D6	5.2	28	6	66	●
TTS053D6	5.3	28	6	66	●
TTS054D6	5.4	28	6	66	●
TTS055D6	5.5	28	6	66	●
TTS056D6	5.6	28	6	66	●
TTS057D6	5.7	28	6	66	●
TTS058D6	5.8	28	6	66	●
TTS059D6	5.9	28	6	66	●
TTS060D6	6.0	28	6	66	●
TTS061D8	6.1	34	8	79	●
TTS062D8	6.2	34	8	79	●

● Stock ○ Non-stock

## TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



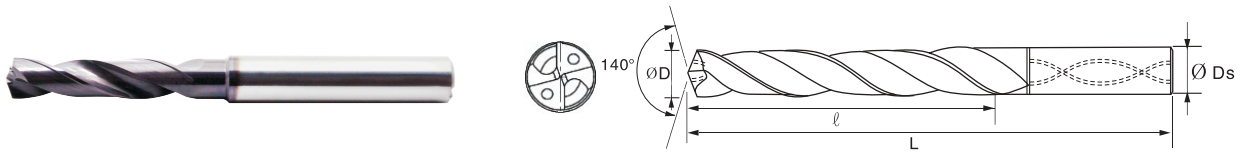
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS063D8	6.3	34	8	79	●
TTS064D8	6.4	34	8	79	●
TTS065D8	6.5	34	8	79	●
TTS066D8	6.6	34	8	79	●
TTS067D8	6.7	34	8	79	●
TTS068D8	6.8	34	8	79	●
TTS069D8	6.9	34	8	79	●
TTS070D8	7.0	34	8	79	●
TTS071D8	7.1	41	8	79	●
TTS072D8	7.2	41	8	79	●
TTS073D8	7.3	41	8	79	●
TTS074D8	7.4	41	8	79	●
TTS075D8	7.5	41	8	79	●
TTS076D8	7.6	41	8	79	●
TTS077D8	7.7	41	8	79	●
TTS078D8	7.8	41	8	79	●
TTS079D8	7.9	41	8	79	●
TTS080D8	8.0	41	8	79	●
TTS081D10	8.1	47	10	89	●
TTS082D10	8.2	47	10	89	●
TTS083D10	8.3	47	10	89	●
TTS084D10	8.4	47	10	89	●
TTS085D10	8.5	47	10	89	●
TTS086D10	8.6	47	10	89	●
TTS087D10	8.7	47	10	89	●
TTS088D10	8.8	47	10	89	●
TTS089D10	8.9	47	10	89	●
TTS090D10	9.0	47	10	89	●
TTS091D10	9.1	47	10	89	●
TTS092D10	9.2	47	10	89	●
TTS093D10	9.3	47	10	89	●
TTS094D10	9.4	47	10	89	●
TTS095D10	9.5	47	10	89	●

● Stock ○ Non-stock

## TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



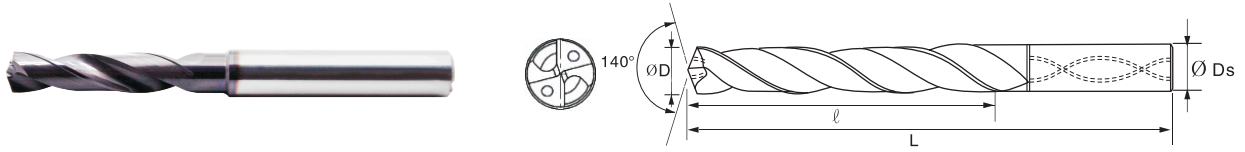
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS096D10	9.6	47	10	89	●
TTS097D10	9.7	47	10	89	●
TTS098D10	9.8	47	10	89	●
TTS099D10	9.9	47	10	89	●
TTS100D10	10.0	47	10	89	●
TTS101D12	10.1	55	12	102	●
TTS102D12	10.2	55	12	102	●
TTS103D12	10.3	55	12	102	●
TTS104D12	10.4	55	12	102	●
TTS105D12	10.5	55	12	102	●
TTS106D12	10.6	55	12	102	●
TTS107D12	10.7	55	12	102	●
TTS108D12	10.8	55	12	102	●
TTS109D12	10.9	55	12	102	●
TTS110D12	11.0	55	12	102	●
TTS111D12	11.1	55	12	102	●
TTS112D12	11.2	55	12	102	●
TTS113D12	11.3	55	12	102	●
TTS114D12	11.4	55	12	102	●
TTS115D12	11.5	55	12	102	●
TTS116D12	11.6	55	12	102	●
TTS117D12	11.7	55	12	102	●
TTS118D12	11.8	55	12	102	●
TTS119D12	11.9	55	12	102	●
TTS120D12	12.0	55	12	102	●
TTS121D14	12.1	60	14	107	●
TTS122D14	12.2	60	14	107	●
TTS123D14	12.3	60	14	107	●
TTS124D14	12.4	60	14	107	●
TTS125D14	12.5	60	14	107	●
TTS126D14	12.6	60	14	107	●
TTS127D14	12.7	60	14	107	●
TTS128D14	12.8	60	14	107	●

● Stock ○ Non-stock

## TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

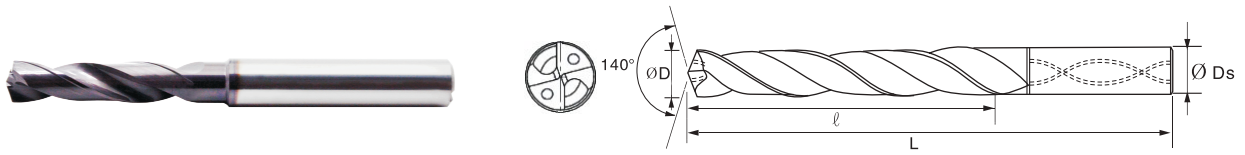
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS129D14	12.9	60	14	107	●
TTS130D14	13.0	60	14	107	●
TTS131D14	13.1	60	14	107	●
TTS132D14	13.2	60	14	107	●
TTS133D14	13.3	60	14	107	●
TTS134D14	13.4	60	14	107	●
TTS135D14	13.5	60	14	107	●
TTS136D14	13.6	60	14	107	●
TTS137D14	13.7	60	14	107	●
TTS138D14	13.8	60	14	107	●
TTS139D14	13.9	60	14	107	●
TTS140D14	14.0	60	14	107	●
TTS141D16	14.1	65	16	115	●
TTS142D16	14.2	65	16	115	●
TTS143D16	14.3	65	16	115	●
TTS144D16	14.4	65	16	115	●
TTS145D16	14.5	65	16	115	●
TTS146D16	14.6	65	16	115	●
TTS147D16	14.7	65	16	115	●
TTS148D16	14.8	65	16	115	●
TTS149D16	14.9	65	16	115	●
TTS150D16	15.0	65	16	115	●
TTS151D16	15.1	65	16	115	●
TTS152D16	15.2	65	16	115	●
TTS153D16	15.3	65	16	115	●
TTS154D16	15.4	65	16	115	●
TTS155D16	15.5	65	16	115	●
TTS156D16	15.6	65	16	115	●
TTS157D16	15.7	65	16	115	●
TTS158D16	15.8	65	16	115	●
TTS159D16	15.9	65	16	115	●
TTS160D16	16.0	65	16	115	●
TTS165D18	16.5	73	18	123	○

● Stock ○ Non-stock



## TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS170D18	17.0	73	18	123	○
TTS175D18	17.5	73	18	123	○
TTS180D18	18.0	73	18	123	○
TTS185D20	18.5	79	20	131	○
TTS190D20	19.0	79	20	131	○
TTS195D20	19.5	79	20	131	○
TTS200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

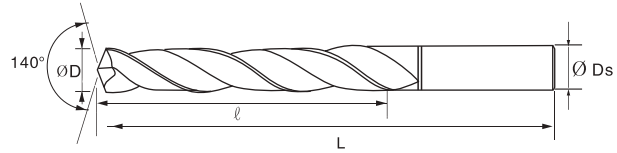
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTW0318D6	3.18	1/8	20	6	62	○
TTW0357D6	3.57	9/64	20	6	62	○
TTW0397D6	3.97	5/32	24	6	66	○
TTW0437D6	4.37	11/64	24	6	66	○
TTW0476D6	4.76	3/16	26	6	66	○
TTW0516D6	5.16	13/64	28	6	66	○
TTW0556D6	5.56	7/32	28	6	66	○
TTW0595D6	5.95	15/64	28	6	66	○
TTW0635D8	6.35	1/4	34	8	79	○
TTW0675D8	6.75	17/64	34	8	79	○
TTW0714D8	7.14	9/32	41	8	79	○
TTW0754D8	7.54	19/64	41	8	79	○
TTW0794D8	7.94	5/16	41	8	79	○
TTW0833D10	8.33	21/64	47	10	89	○
TTW0873D10	8.73	11/32	47	10	89	○
TTW0913D10	9.13	23/64	47	10	89	○
TTW0952D10	9.52	3/8	47	10	89	○
TTW0992D10	9.92	25/64	47	10	89	○
TTW1032D12	10.32	13/32	55	12	102	○
TTW1072D12	10.72	27/64	55	12	102	○
TTW1111D12	11.11	7/16	55	12	102	○
TTW1151D12	11.51	29/64	55	12	102	○
TTW1191D12	11.91	15/32	55	12	102	○
TTW1349D14	13.49	17/32	60	14	107	○
TTW1389D14	13.89	35/64	60	14	107	○
TTW1429D16	14.29	9/16	65	16	115	○
TTW1468D16	14.68	37/64	65	16	115	○
TTW1508D16	15.08	19/32	65	16	115	○
TTW1548D16	15.48	39/64	65	16	115	○
TTW1588D16	15.88	5/8	65	16	115	○
TTW1627D18	16.27	41/64	73	18	123	○
TTW1667D18	16.67	21/32	73	18	123	○
TTW1707D18	17.07	43/64	73	18	123	○
TTW1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

# High Performance Carbide Drill for General Purpose



Carbide Drills

U Drills

Head Exchangable Drills

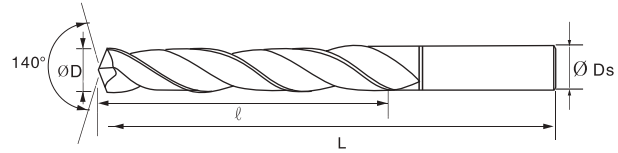
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

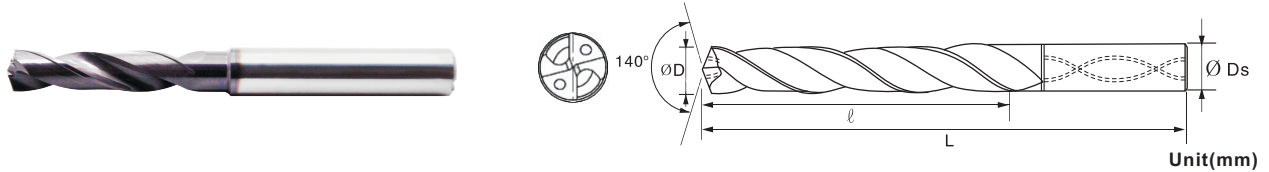
Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTW1786D18	17.86	45/64	73	18	123	○
TTW1826D20	18.26	23/32	79	20	131	○
TTW1865D20	18.65	47/64	79	20	131	○
TTW1905D20	19.05	3/4	79	20	131	○
TTW1945D20	19.45	49/64	79	20	131	○
TTW1984D20	19.84	25/32	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

## TTS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>Ds</i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTS0318D6	3.18	1/8	20	6	62	○
TTS0357D6	3.57	9/64	20	6	62	○
TTS0397D6	3.97	5/32	24	6	66	○
TTS0437D6	4.37	11/64	24	6	66	○
TTS0476D6	4.76	3/16	26	6	66	○
TTS0516D6	5.16	13/64	28	6	66	○
TTS0556D6	5.56	7/32	28	6	66	○
TTS0595D6	5.95	15/64	28	6	66	○
TTS0635D8	6.35	1/4	34	8	79	○
TTS0675D8	6.75	17/64	34	8	79	○
TTS0714D8	7.14	9/32	41	8	79	○
TTS0754D8	7.54	19/64	41	8	79	○
TTS0794D8	7.94	5/16	41	8	79	○
TTS0833D10	8.33	21/64	47	10	89	○
TTS0873D10	8.73	11/32	47	10	89	○
TTS0913D10	9.13	23/64	47	10	89	○
TTS0952D10	9.52	3/8	47	10	89	○
TTS0992D10	9.92	25/64	47	10	89	○
TTS1032D12	10.32	13/32	55	12	102	○
TTS1072D12	10.72	27/64	55	12	102	○
TTS1111D12	11.11	7/16	55	12	102	○
TTS1151D12	11.51	29/64	55	12	102	○
TTS1191D12	11.91	15/32	55	12	102	○
TTS1349D14	13.49	17/32	60	14	107	○
TTS1389D14	13.89	35/64	65	14	115	○
TTS1429D16	14.29	9/16	65	16	115	○
TTS1468D16	14.68	37/64	65	16	115	○
TTS1508D16	15.08	19/32	65	16	115	○
TTS1548D16	15.48	39/64	65	16	115	○
TTS1588D16	15.88	5/8	65	16	115	○
TTS1627D18	16.27	41/64	73	18	123	○
TTS1667D18	16.67	21/32	73	18	123	○
TTS1707D18	17.07	43/64	73	18	123	○
TTS1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

# High Performance Carbide Drill for General Purpose



Carbide Drills

U Drills

Head Exchangable Drills

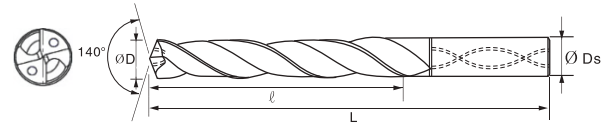
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

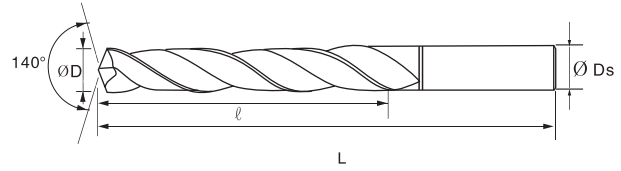
Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTS1786D18	17.86	45/64	73	18	123	○
TTS1826D20	18.26	23/32	79	20	131	○
TTS1865D20	18.65	47/64	79	20	131	○
TTS1905D20	19.05	3/4	79	20	131	○
TTS1945D20	19.45	49/64	79	20	131	○
TTS1984D20	19.84	25/32	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

## TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



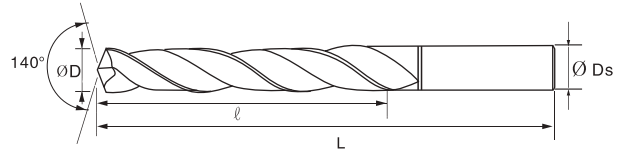
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW05030D6	3.0	26	6	66	●
TTW05031D6	3.1	26	6	66	●
TTW05032D6	3.2	26	6	66	●
TTW05033D6	3.3	26	6	66	●
TTW05034D6	3.4	26	6	66	●
TTW05035D6	3.5	26	6	66	●
TTW05036D6	3.6	26	6	66	●
TTW05037D6	3.7	26	6	66	●
TTW05038D6	3.8	34	6	74	●
TTW05039D6	3.9	34	6	74	●
TTW05040D6	4.0	34	6	74	●
TTW05041D6	4.1	34	6	74	●
TTW05042D6	4.2	34	6	74	●
TTW05043D6	4.3	34	6	74	●
TTW05044D6	4.4	34	6	74	●
TTW05045D6	4.5	34	6	74	●
TTW05046D6	4.6	34	6	74	●
TTW05047D6	4.7	34	6	74	●
TTW05048D6	4.8	44	6	82	●
TTW05049D6	4.9	44	6	82	●
TTW05050D6	5.0	44	6	82	●
TTW05051D6	5.1	44	6	82	●
TTW05052D6	5.2	44	6	82	●
TTW05053D6	5.3	44	6	82	●
TTW05054D6	5.4	44	6	82	●
TTW05055D6	5.5	44	6	82	●
TTW05056D6	5.6	44	6	82	●
TTW05057D6	5.7	44	6	82	●
TTW05058D6	5.8	44	6	82	●
TTW05059D6	5.9	44	6	82	●
TTW05060D6	6.0	44	6	82	●
TTW05061D8	6.1	44	8	82	●

● Stock ○ Non-stock

## TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW05062D8	6.2	53	8	91	●
TTW05063D8	6.3	53	8	91	●
TTW05064D8	6.4	53	8	91	●
TTW05065D8	6.5	53	8	91	●
TTW05066D8	6.6	53	8	91	●
TTW05067D8	6.7	53	8	91	●
TTW05068D8	6.8	53	8	91	●
TTW05069D8	6.9	53	8	91	●
TTW05070D8	7.0	53	8	91	●
TTW05071D8	7.1	53	8	91	●
TTW05072D8	7.2	53	8	91	●
TTW05073D8	7.3	53	8	91	●
TTW05074D8	7.4	53	8	91	●
TTW05075D8	7.5	53	8	91	●
TTW05076D8	7.6	53	8	91	●
TTW05077D8	7.7	53	8	91	●
TTW05078D8	7.8	53	8	91	●
TTW05079D8	7.9	53	8	91	●
TTW05080D8	8.0	53	8	91	●
TTW05081D10	8.1	61	10	103	●
TTW05082D10	8.2	61	10	103	●
TTW05083D10	8.3	61	10	103	●
TTW05084D10	8.4	61	10	103	●
TTW05085D10	8.5	61	10	103	●
TTW05086D10	8.6	61	10	103	●
TTW05087D10	8.7	61	10	103	●
TTW05088D10	8.8	61	10	103	●
TTW05089D10	8.9	61	10	103	●
TTW05090D10	9.0	61	10	103	●
TTW05091D10	9.1	61	10	103	●
TTW05092D10	9.2	61	10	103	●
TTW05093D10	9.3	61	10	103	●
TTW05094D10	9.4	61	10	103	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

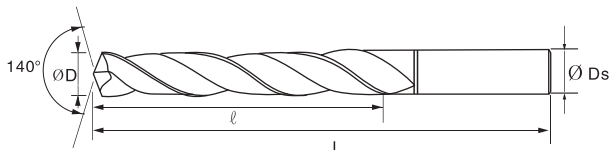
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



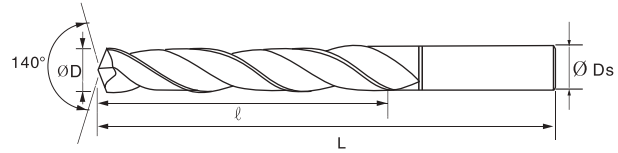
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTW05095D10	9.5	61	10	103	●
TTW05096D10	9.6	61	10	103	●
TTW05097D10	9.7	61	10	103	●
TTW05098D10	9.8	61	10	103	●
TTW05099D10	9.9	61	10	103	●
TTW05100D10	10.0	61	10	103	●
TTW05101D12	10.1	71	12	118	●
TTW05102D12	10.2	71	12	118	●
TTW05103D12	10.3	71	12	118	●
TTW05104D12	10.4	71	12	118	●
TTW05105D12	10.5	71	12	118	●
TTW05106D12	10.6	71	12	118	●
TTW05107D12	10.7	71	12	118	●
TTW05108D12	10.8	71	12	118	●
TTW05109D12	10.9	71	12	118	●
TTW05110D12	11.0	71	12	118	●
TTW05111D12	11.1	71	12	118	●
TTW05112D12	11.2	71	12	118	●
TTW05113D12	11.3	71	12	118	●
TTW05114D12	11.4	71	12	118	●
TTW05115D12	11.5	71	12	118	●
TTW05116D12	11.6	71	12	118	●
TTW05117D12	11.7	71	12	118	●
TTW05118D12	11.8	71	12	118	●
TTW05119D12	11.9	71	12	118	●
TTW05120D12	12.0	71	12	118	●
TTW05121D14	12.1	77	14	124	●
TTW05122D14	12.2	77	14	124	●
TTW05123D14	12.3	77	14	124	●
TTW05124D14	12.4	77	14	124	●
TTW05125D14	12.5	77	14	124	●
TTW05126D14	12.6	77	14	124	●
TTW05127D14	12.7	77	14	124	●

● Stock ○ Non-stock



TTW Drill Series 5D External Coolant					
Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



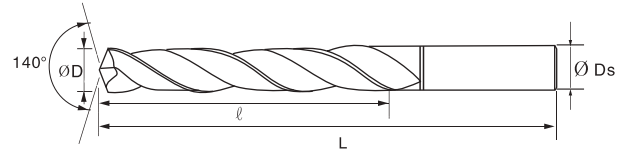
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTW05128D14	12.8	77	14	124	●
TTW05129D14	12.9	77	14	124	●
TTW05130D14	13.0	77	14	124	●
TTW05131D14	13.1	77	14	124	●
TTW05132D14	13.2	77	14	124	●
TTW05133D14	13.3	77	14	124	●
TTW05134D14	13.4	77	14	124	●
TTW05135D14	13.5	77	14	124	●
TTW05136D14	13.6	77	14	124	●
TTW05137D14	13.7	77	14	124	●
TTW05138D14	13.8	77	14	124	●
TTW05139D14	13.9	77	14	124	●
TTW05140D14	14.0	77	14	124	●
TTW05141D16	14.1	83	16	133	●
TTW05142D16	14.2	83	16	133	●
TTW05143D16	14.3	83	16	133	●
TTW05144D16	14.4	83	16	133	●
TTW05145D16	14.5	83	16	133	●
TTW05146D16	14.6	83	16	133	●
TTW05147D16	14.7	83	16	133	●
TTW05148D16	14.8	83	16	133	●
TTW05149D16	14.9	83	16	133	●
TTW05150D16	15.0	83	16	133	●
TTW05151D16	15.1	83	16	133	●
TTW05152D16	15.2	83	16	133	●
TTW05153D16	15.3	83	16	133	●
TTW05154D16	15.4	83	16	133	●
TTW05155D16	15.5	83	16	133	●
TTW05156D16	15.6	83	16	133	●
TTW05157D16	15.7	83	16	133	●
TTW05158D16	15.8	83	16	133	●
TTW05159D16	15.9	83	16	133	●
TTW05160D16	16.0	83	16	133	●

● Stock ○ Non-stock

## TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTW05165D18	16.5	93	18	143	○
TTW05170D18	17.0	93	18	143	○
TTW05175D18	17.5	93	18	143	○
TTW05180D18	18.0	93	18	143	○
TTW05185D20	18.5	101	20	153	○
TTW05190D20	19.0	101	20	153	○
TTW05195D20	19.5	101	20	153	○
TTW05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

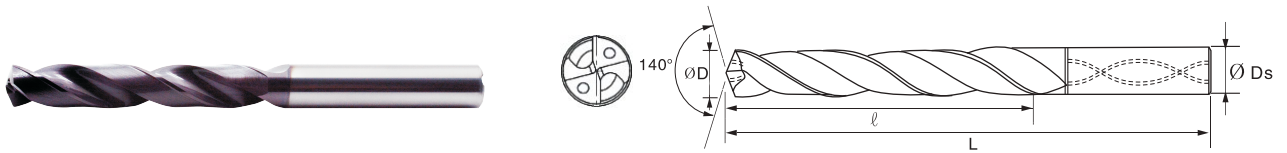
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS05030D6	3.0	26	6	66	●
TTS05031D6	3.1	26	6	66	●
TTS05032D6	3.2	26	6	66	●
TTS05033D6	3.3	26	6	66	●
TTS05034D6	3.4	26	6	66	●
TTS05035D6	3.5	26	6	66	●
TTS05036D6	3.6	26	6	66	●
TTS05037D6	3.7	26	6	66	●
TTS05038D6	3.8	34	6	74	●
TTS05039D6	3.9	34	6	74	●
TTS05040D6	4.0	34	6	74	●
TTS05041D6	4.1	34	6	74	●
TTS05042D6	4.2	34	6	74	●
TTS05043D6	4.3	34	6	74	●
TTS05044D6	4.4	34	6	74	●
TTS05045D6	4.5	34	6	74	●
TTS05046D6	4.6	34	6	74	●
TTS05047D6	4.7	34	6	74	●
TTS05048D6	4.8	44	6	82	●
TTS05049D6	4.9	44	6	82	●
TTS05050D6	5.0	44	6	82	●
TTS05051D6	5.1	44	6	82	●
TTS05052D6	5.2	44	6	82	●
TTS05053D6	5.3	44	6	82	●
TTS05054D6	5.4	44	6	82	●
TTS05055D6	5.5	44	6	82	●
TTS05056D6	5.6	44	6	82	●
TTS05057D6	5.7	44	6	82	●
TTS05058D6	5.8	44	6	82	●
TTS05059D6	5.9	44	6	82	●
TTS05060D6	6.0	44	6	82	●
TTS05061D8	6.1	44	8	82	●
TTS05062D8	6.2	53	8	91	●
TTS05063D8	6.3	53	8	91	●
TTS05064D8	6.4	53	8	91	●
TTS05065D8	6.5	53	8	91	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

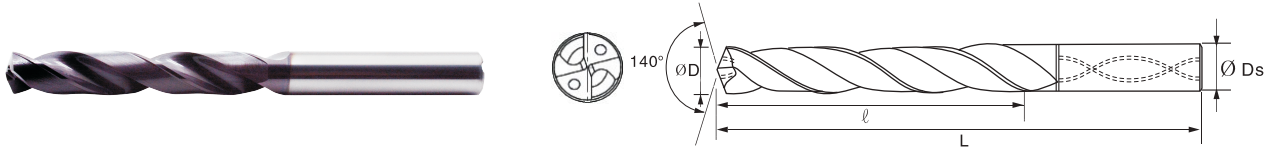
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



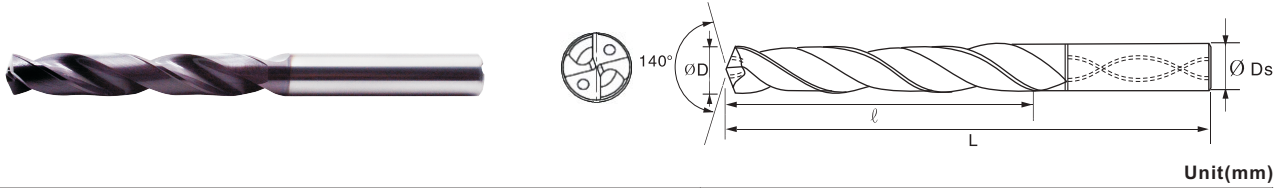
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS05066D8	6.6	53	8	91	●
TTS05067D8	6.7	53	8	91	●
TTS05068D8	6.8	53	8	91	●
TTS05069D8	6.9	53	8	91	●
TTS05070D8	7.0	53	8	91	●
TTS05071D8	7.1	53	8	91	●
TTS05072D8	7.2	53	8	91	●
TTS05073D8	7.3	53	8	91	●
TTS05074D8	7.4	53	8	91	●
TTS05075D8	7.5	53	8	91	●
TTS05076D8	7.6	53	8	91	●
TTS05077D8	7.7	53	8	91	●
TTS05078D8	7.8	53	8	91	●
TTS05079D8	7.9	53	8	91	●
TTS05080D8	8.0	53	8	91	●
TTS05081D10	8.1	61	10	103	●
TTS05082D10	8.2	61	10	103	●
TTS05083D10	8.3	61	10	103	●
TTS05084D10	8.4	61	10	103	●
TTS05085D10	8.5	61	10	103	●
TTS05086D10	8.6	61	10	103	●
TTS05087D10	8.7	61	10	103	●
TTS05088D10	8.8	61	10	103	●
TTS05089D10	8.9	61	10	103	●
TTS05090D10	9.0	61	10	103	●
TTS05091D10	9.1	61	10	103	●
TTS05092D10	9.2	61	10	103	●
TTS05093D10	9.3	61	10	103	●
TTS05094D10	9.4	61	10	103	●
TTS05095D10	9.5	61	10	103	●
TTS05096D10	9.6	61	10	103	●
TTS05097D10	9.7	61	10	103	●
TTS05098D10	9.8	61	10	103	●
TTS05099D10	9.9	61	10	103	●
TTS05100D10	10.0	61	10	103	●
TTS05101D12	10.1	71	12	118	●
TTS05102D12	10.2	71	12	118	●

● Stock ○ Non-stock

## TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS05103D12	10.3	71	12	118	●
TTS05104D12	10.4	71	12	118	●
TTS05105D12	10.5	71	12	118	●
TTS05106D12	10.6	71	12	118	●
TTS05107D12	10.7	71	12	118	●
TTS05108D12	10.8	71	12	118	●
TTS05109D12	10.9	71	12	118	●
TTS05110D12	11.0	71	12	118	●
TTS05111D12	11.1	71	12	118	●
TTS05112D12	11.2	71	12	118	●
TTS05113D12	11.3	71	12	118	●
TTS05114D12	11.4	71	12	118	●
TTS05115D12	11.5	71	12	118	●
TTS05116D12	11.6	71	12	118	●
TTS05117D12	11.7	71	12	118	●
TTS05118D12	11.8	71	12	118	●
TTS05119D12	11.9	71	12	118	●
TTS05120D12	12.0	71	12	118	●
TTS05121D14	12.1	77	14	124	●
TTS05122D14	12.2	77	14	124	●
TTS05123D14	12.3	77	14	124	●
TTS05124D14	12.4	77	14	124	●
TTS05125D14	12.5	77	14	124	●
TTS05126D14	12.6	77	14	124	●
TTS05127D14	12.7	77	14	124	●
TTS05128D14	12.8	77	14	124	●
TTS05129D14	12.9	77	14	124	●
TTS05130D14	13.0	77	14	124	●
TTS05131D14	13.1	77	14	124	●
TTS05132D14	13.2	77	14	124	●
TTS05133D14	13.3	77	14	124	●
TTS05134D14	13.4	77	14	124	●
TTS05135D14	13.5	77	14	124	●
TTS05136D14	13.6	77	14	124	●
TTS05137D14	13.7	77	14	124	●
TTS05138D14	13.8	77	14	124	●
TTS05139D14	13.9	77	14	124	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

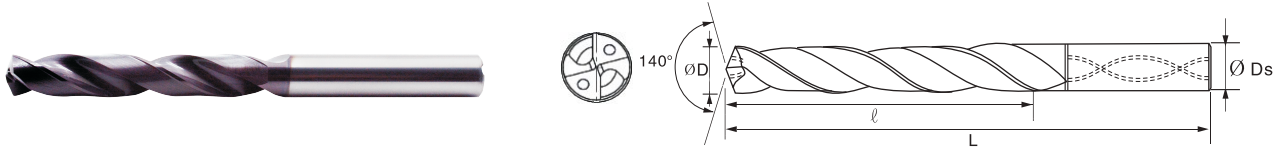
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

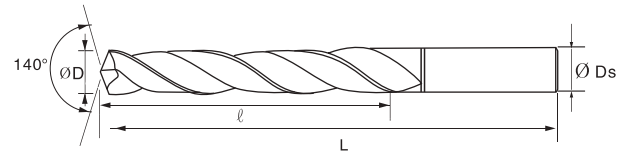
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS05140D14	14.0	77	14	124	●
TTS05141D16	14.1	83	16	133	●
TTS05142D16	14.2	83	16	133	●
TTS05143D16	14.3	83	16	133	●
TTS05144D16	14.4	83	16	133	●
TTS05145D16	14.5	83	16	133	●
TTS05146D16	14.6	83	16	133	●
TTS05147D16	14.7	83	16	133	●
TTS05148D16	14.8	83	16	133	●
TTS05149D16	14.9	83	16	133	●
TTS05150D16	15.0	83	16	133	●
TTS05151D16	15.1	83	16	133	●
TTS05152D16	15.2	83	16	133	●
TTS05153D16	15.3	83	16	133	●
TTS05154D16	15.4	83	16	133	●
TTS05155D16	15.5	83	16	133	●
TTS05156D16	15.6	83	16	133	●
TTS05157D16	15.7	83	16	133	●
TTS05158D16	15.8	83	16	133	●
TTS05159D16	15.9	83	16	133	●
TTS05160D16	16.0	83	16	133	●
TTS05165D18	16.5	93	18	143	○
TTS05170D18	17.0	93	18	143	○
TTS05175D18	17.5	93	18	143	○
TTS05180D18	18.0	93	18	143	○
TTS05185D20	18.5	101	20	153	○
TTS05190D20	19.0	101	20	153	○
TTS05195D20	19.5	101	20	153	○
TTS05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

## TTW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>Ds</i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTW050318D6	3.18	1/8	26	6	66	○
TTW050357D6	3.57	9/64	26	6	66	○
TTW050397D6	3.97	5/32	34	6	74	○
TTW050437D6	4.37	11/64	34	6	74	○
TTW050476D6	4.76	3/16	44	6	82	○
TTW050516D6	5.16	13/64	44	6	82	○
TTW050556D6	5.56	7/32	44	6	82	○
TTW050595D6	5.95	15/64	44	6	82	○
TTW050635D8	6.35	1/4	53	8	91	○
TTW050675D8	6.75	17/64	53	8	91	○
TTW050714D8	7.14	9/32	53	8	91	○
TTW050754D8	7.54	19/64	53	8	91	○
TTW050794D8	7.94	5/16	53	8	91	○
TTW050833D10	8.33	21/64	61	10	103	○
TTW050873D10	8.73	11/32	61	10	103	○
TTW050913D10	9.13	23/64	61	10	103	○
TTW050952D10	9.52	3/8	61	10	103	○
TTW050992D10	9.92	25/64	61	10	103	○
TTW051032D12	10.32	13/32	71	12	118	○
TTW051072D12	10.72	27/64	71	12	118	○
TTW051111D12	11.11	7/16	71	12	118	○
TTW051151D12	11.51	29/64	71	12	118	○
TTW051191D12	11.91	15/32	71	12	118	○
TTW051349D14	13.49	17/32	77	14	124	○
TTW051389D14	13.89	35/64	77	14	124	○
TTW051429D16	14.29	9/16	83	16	133	○
TTW051468D16	14.68	37/64	83	16	133	○
TTW051508D16	15.08	19/32	83	16	133	○
TTW051548D16	15.48	39/64	83	16	133	○
TTW051588D16	15.88	5/8	83	16	133	○
TTW051627D18	16.27	41/64	93	18	143	○
TTW051667D18	16.67	21/32	93	18	143	○
TTW051707D18	17.07	43/64	93	18	143	○
TTW051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

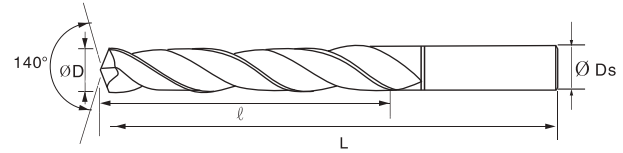
# High Performance Carbide Drill for General Purpose



Carbide Drills

## TTW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

U Drills

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTW051786D18	17.86	45/64	93	18	143	○
TTW051826D20	18.26	23/32	101	20	153	○
TTW051865D20	18.65	47/64	101	20	153	○
TTW051905D20	19.05	3/4	101	20	153	○
TTW051945D20	19.45	49/64	101	20	153	○
TTW051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Head Exchangable Drills

Deep Hole Drills

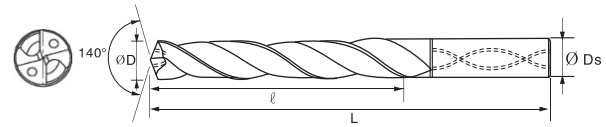
CDR 45° Chamfer Cutter

Non-standard Tools



## TTS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



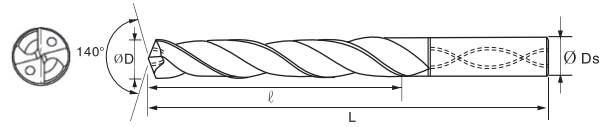
Unit(mm)

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>Ds</i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTS050318D6	3.18	1/8	26	6	66	○
TTS050357D6	3.57	9/64	26	6	66	○
TTS050397D6	3.97	5/32	34	6	74	○
TTS050437D6	4.37	11/64	34	6	74	○
TTS050476D6	4.76	3/16	44	6	82	○
TTS050516D6	5.16	13/64	44	6	82	○
TTS050556D6	5.56	7/32	44	6	82	○
TTS050595D6	5.95	15/64	44	6	82	○
TTS050635D8	6.35	1/4	53	8	91	○
TTS050675D8	6.75	17/64	53	8	91	○
TTS050714D8	7.14	9/32	53	8	91	○
TTS050754D8	7.54	19/64	53	8	91	○
TTS050794D8	7.94	5/16	53	8	91	○
TTS050833D10	8.33	21/64	61	10	103	○
TTS050873D10	8.73	11/32	61	10	103	○
TTS050913D10	9.13	23/64	61	10	103	○
TTS050952D10	9.52	3/8	61	10	103	○
TTS050992D10	9.92	25/64	61	10	103	○
TTS051032D12	10.32	13/32	71	12	118	○
TTS051072D12	10.72	27/64	71	12	118	○
TTS051111D12	11.11	7/16	71	12	118	○
TTS051151D12	11.51	29/64	71	12	118	○
TTS051191D12	11.91	15/32	71	12	118	○
TTS051349D14	13.49	17/32	77	14	124	○
TTS051389D14	13.89	35/64	77	14	124	○
TTS051429D16	14.29	9/16	83	16	133	○
TTS051468D16	14.68	37/64	83	16	133	○
TTS051508D16	15.08	19/32	83	16	133	○
TTS051548D16	15.48	39/64	83	16	133	○
TTS051588D16	15.88	5/8	83	16	133	○
TTS051627D18	16.27	41/64	93	18	143	○
TTS051667D18	16.67	21/32	93	18	143	○
TTS051707D18	17.07	43/64	93	18	143	○
TTS051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

## TTS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

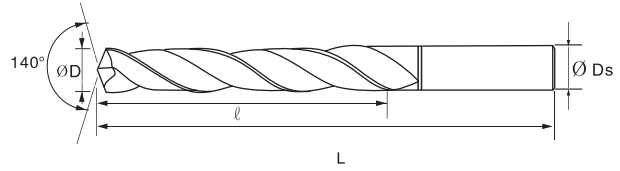
Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TTS051786D18	17.86	45/64	93	18	143	○
TTS051826D20	18.26	23/32	101	20	153	○
TTS051865D20	18.65	47/64	101	20	153	○
TTS051905D20	19.05	3/4	101	20	153	○
TTS051945D20	19.45	49/64	101	20	153	○
TTS051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

## TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTW07045D6	4.5	45	6	94	○
TTW07046D6	4.6	45	6	94	○
TTW07047D6	4.7	45	6	94	○
TTW07048D6	4.8	45	6	94	○
TTW07049D6	4.9	45	6	94	○
TTW07050D6	5.0	45	6	94	○
TTW07051D6	5.1	45	6	94	○
TTW07052D6	5.2	45	6	94	○
TTW07053D6	5.3	45	6	94	○
TTW07054D6	5.4	45	6	94	○
TTW07055D6	5.5	45	6	94	○
TTW07056D6	5.6	45	6	94	○
TTW07057D6	5.7	45	6	94	○
TTW07058D6	5.8	45	6	94	○
TTW07059D6	5.9	45	6	94	○
TTW07060D6	6.0	45	6	94	○
TTW07061D8	6.1	57	8	110	○
TTW07062D8	6.2	57	8	110	○
TTW07063D8	6.3	57	8	110	○
TTW07064D8	6.4	57	8	110	○
TTW07065D8	6.5	57	8	110	○
TTW07066D8	6.6	57	8	110	○
TTW07067D8	6.7	57	8	110	○
TTW07068D8	6.8	57	8	110	○
TTW07069D8	6.9	57	8	110	○
TTW07070D8	7.0	57	8	110	○
TTW07071D8	7.1	57	8	110	○
TTW07072D8	7.2	57	8	110	○
TTW07073D8	7.3	57	8	110	○
TTW07074D8	7.4	57	8	110	○
TTW07075D8	7.5	57	8	110	○
TTW07076D8	7.6	57	8	110	○

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

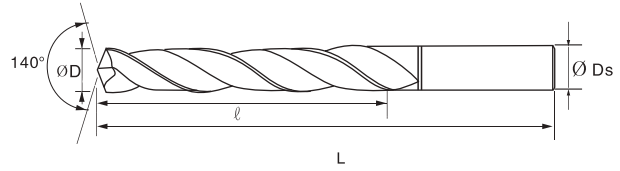
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



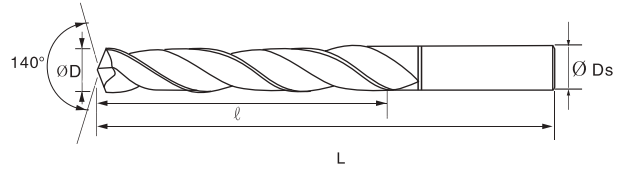
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW07077D8	7.7	57	8	110	○
TTW07078D8	7.8	57	8	110	○
TTW07079D8	7.9	57	8	110	○
TTW07080D8	8.0	57	8	110	○
TTW07081D10	8.1	62	10	122	○
TTW07082D10	8.2	62	10	122	○
TTW07083D10	8.3	62	10	122	○
TTW07084D10	8.4	62	10	122	○
TTW07085D10	8.5	62	10	122	○
TTW07086D10	8.6	62	10	122	○
TTW07087D10	8.7	62	10	122	○
TTW07088D10	8.8	62	10	122	○
TTW07089D10	8.9	62	10	122	○
TTW07090D10	9.0	62	10	122	○
TTW07091D10	9.1	62	10	122	○
TTW07092D10	9.2	62	10	122	○
TTW07093D10	9.3	62	10	122	○
TTW07094D10	9.4	62	10	122	○
TTW07095D10	9.5	62	10	122	○
TTW07096D10	9.6	62	10	122	○
TTW07097D10	9.7	62	10	122	○
TTW07098D10	9.8	62	10	122	○
TTW07099D10	9.9	62	10	122	○
TTW07100D10	10.0	62	10	122	○
TTW07101D12	10.1	72	12	141	○
TTW07102D12	10.2	72	12	141	○
TTW07103D12	10.3	72	12	141	○
TTW07104D12	10.4	72	12	141	○
TTW07105D12	10.5	72	12	141	○
TTW07106D12	10.6	72	12	141	○
TTW07107D12	10.7	72	12	141	○
TTW07108D12	10.8	72	12	141	○

● Stock ○ Non-stock

## TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW07109D12	10.9	72	12	141	○
TTW07110D12	11.0	72	12	141	○
TTW07111D12	11.1	72	12	141	○
TTW07112D12	11.2	72	12	141	○
TTW07113D12	11.3	72	12	141	○
TTW07114D12	11.4	72	12	141	○
TTW07115D12	11.5	72	12	141	○
TTW07116D12	11.6	72	12	141	○
TTW07117D12	11.7	72	12	141	○
TTW07118D12	11.8	72	12	141	○
TTW07119D12	11.9	72	12	141	○
TTW07120D12	12.0	72	12	141	○
TTW07121D14	12.1	83	14	155	○
TTW07122D14	12.2	83	14	155	○
TTW07123D14	12.3	83	14	155	○
TTW07124D14	12.4	83	14	155	○
TTW07125D14	12.5	83	14	155	○
TTW07126D14	12.6	83	14	155	○
TTW07127D14	12.7	83	14	155	○
TTW07128D14	12.8	83	14	155	○
TTW07129D14	12.9	83	14	155	○
TTW07130D14	13.0	83	14	155	○
TTW07131D14	13.1	83	14	155	○
TTW07132D14	13.2	83	14	155	○
TTW07133D14	13.3	83	14	155	○
TTW07134D14	13.4	83	14	155	○
TTW07135D14	13.5	83	14	155	○
TTW07136D14	13.6	83	14	155	○
TTW07137D14	13.7	83	14	155	○
TTW07138D14	13.8	83	14	155	○
TTW07139D14	13.9	83	14	155	○
TTW07140D14	14.0	83	14	155	○

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

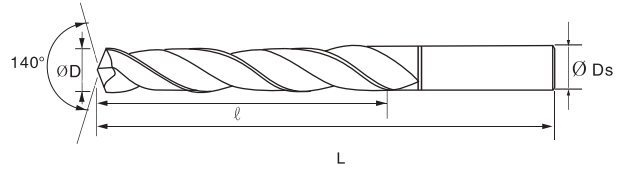
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

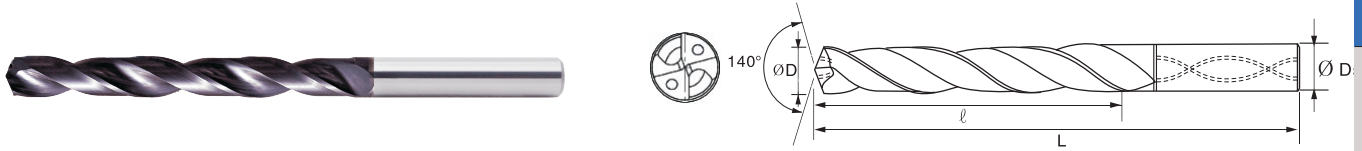
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW07141D16	14.1	92	16	171	○
TTW07142D16	14.2	92	16	171	○
TTW07143D16	14.3	92	16	171	○
TTW07144D16	14.4	92	16	171	○
TTW07145D16	14.5	92	16	171	○
TTW07146D16	14.6	92	16	171	○
TTW07147D16	14.7	92	16	171	○
TTW07148D16	14.8	92	16	171	○
TTW07149D16	14.9	92	16	171	○
TTW07150D16	15.0	92	16	171	○
TTW07151D16	15.1	92	16	171	○
TTW07152D16	15.2	92	16	171	○
TTW07153D16	15.3	92	16	171	○
TTW07154D16	15.4	92	16	171	○
TTW07155D16	15.5	92	16	171	○
TTW07156D16	15.6	92	16	171	○
TTW07157D16	15.7	92	16	171	○
TTW07158D16	15.8	92	16	171	○
TTW07159D16	15.9	92	16	171	○
TTW07160D16	16.0	92	16	171	○
TTW07165D18	16.5	103	18	185	○
TTW07170D18	17.0	103	18	185	○
TTW07175D18	17.5	103	18	185	○
TTW07180D18	18.0	103	18	185	○
TTW07185D20	18.5	112	20	200	○
TTW07190D20	19.0	112	20	200	○
TTW07195D20	19.5	112	20	200	○
TTW07200D20	20.0	112	20	200	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

## TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS07045D6	4.5	45	6	94	○
TTS07046D6	4.6	45	6	94	○
TTS07047D6	4.7	45	6	94	○
TTS07048D6	4.8	45	6	94	○
TTS07049D6	4.9	45	6	94	○
TTS07050D6	5.0	45	6	94	○
TTS07051D6	5.1	45	6	94	○
TTS07052D6	5.2	45	6	94	○
TTS07053D6	5.3	45	6	94	○
TTS07054D6	5.4	45	6	94	○
TTS07055D6	5.5	45	6	94	○
TTS07056D6	5.6	45	6	94	○
TTS07057D6	5.7	45	6	94	○
TTS07058D6	5.8	45	6	94	○
TTS07059D6	5.9	45	6	94	○
TTS07060D6	6.0	45	6	94	○
TTS07061D8	6.1	57	8	110	○
TTS07062D8	6.2	57	8	110	○
TTS07063D8	6.3	57	8	110	○
TTS07064D8	6.4	57	8	110	○
TTS07065D8	6.5	57	8	110	○
TTS07066D8	6.6	57	8	110	○
TTS07067D8	6.7	57	8	110	○
TTS07068D8	6.8	57	8	110	○
TTS07069D8	6.9	57	8	110	○
TTS07070D8	7.0	57	8	110	○
TTS07071D8	7.1	57	8	110	○
TTS07072D8	7.2	57	8	110	○
TTS07073D8	7.3	57	8	110	○
TTS07074D8	7.4	57	8	110	○
TTS07075D8	7.5	57	8	110	○
TTS07076D8	7.6	57	8	110	○

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

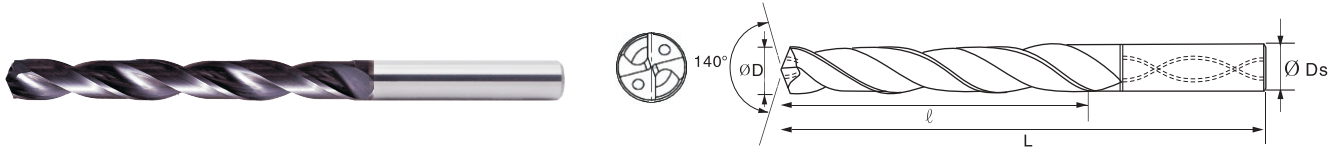
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

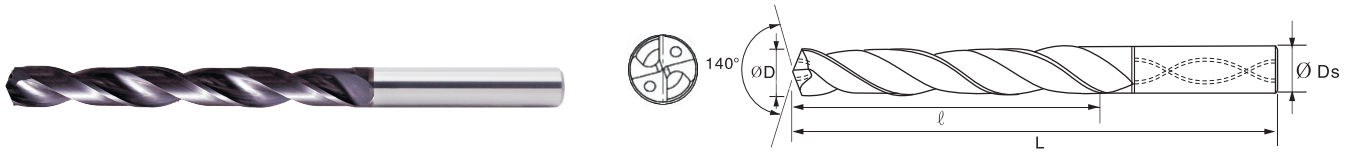
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS07077D8	7.7	57	8	110	○
TTS07078D8	7.8	57	8	110	○
TTS07079D8	7.9	57	8	110	○
TTS07080D8	8.0	57	8	110	○
TTS07081D10	8.1	62	10	122	○
TTS07082D10	8.2	62	10	122	○
TTS07083D10	8.3	62	10	122	○
TTS07084D10	8.4	62	10	122	○
TTS07085D10	8.5	62	10	122	○
TTS07086D10	8.6	62	10	122	○
TTS07087D10	8.7	62	10	122	○
TTS07088D10	8.8	62	10	122	○
TTS07089D10	8.9	62	10	122	○
TTS07090D10	9.0	62	10	122	○
TTS07091D10	9.1	62	10	122	○
TTS07092D10	9.2	62	10	122	○
TTS07093D10	9.3	62	10	122	○
TTS07094D10	9.4	62	10	122	○
TTS07095D10	9.5	62	10	122	○
TTS07096D10	9.6	62	10	122	○
TTS07097D10	9.7	62	10	122	○
TTS07098D10	9.8	62	10	122	○
TTS07099D10	9.9	62	10	122	○
TTS07100D10	10.0	62	10	122	○
TTS07101D12	10.1	72	12	141	○
TTS07102D12	10.2	72	12	141	○
TTS07103D12	10.3	72	12	141	○
TTS07104D12	10.4	72	12	141	○
TTS07105D12	10.5	72	12	141	○
TTS07106D12	10.6	72	12	141	○
TTS07107D12	10.7	72	12	141	○
TTS07108D12	10.8	72	12	141	○

● Stock ○ Non-stock



TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS07109D12	10.9	72	12	141	○
TTS07110D12	11.0	72	12	141	○
TTS07111D12	11.1	72	12	141	○
TTS07112D12	11.2	72	12	141	○
TTS07113D12	11.3	72	12	141	○
TTS07114D12	11.4	72	12	141	○
TTS07115D12	11.5	72	12	141	○
TTS07116D12	11.6	72	12	141	○
TTS07117D12	11.7	72	12	141	○
TTS07118D12	11.8	72	12	141	○
TTS07119D12	11.9	72	12	141	○
TTS07120D12	12.0	72	12	141	○
TTS07121D14	12.1	83	14	155	○
TTS07122D14	12.2	83	14	155	○
TTS07123D14	12.3	83	14	155	○
TTS07124D14	12.4	83	14	155	○
TTS07125D14	12.5	83	14	155	○
TTS07126D14	12.6	83	14	155	○
TTS07127D14	12.7	83	14	155	○
TTS07128D14	12.8	83	14	155	○
TTS07129D14	12.9	83	14	155	○
TTS07130D14	13.0	83	14	155	○
TTS07131D14	13.1	83	14	155	○
TTS07132D14	13.2	83	14	155	○
TTS07133D14	13.3	83	14	155	○
TTS07134D14	13.4	83	14	155	○
TTS07135D14	13.5	83	14	155	○
TTS07136D14	13.6	83	14	155	○
TTS07137D14	13.7	83	14	155	○
TTS07138D14	13.8	83	14	155	○
TTS07139D14	13.9	83	14	155	○
TTS07140D14	14.0	83	14	155	○

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

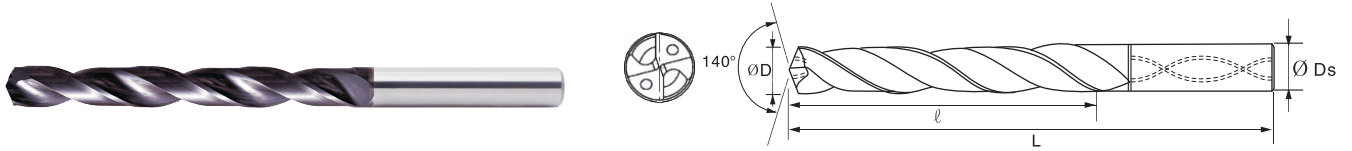
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

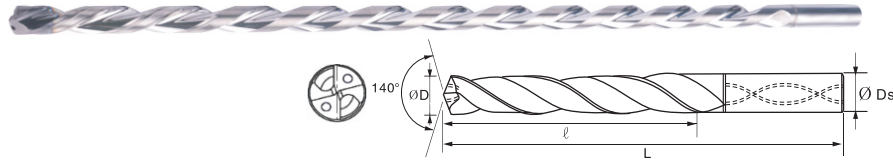
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS07141D16	14.1	92	16	171	○
TTS07142D16	14.2	92	16	171	○
TTS07143D16	14.3	92	16	171	○
TTS07144D16	14.4	92	16	171	○
TTS07145D16	14.5	92	16	171	○
TTS07146D16	14.6	92	16	171	○
TTS07147D16	14.7	92	16	171	○
TTS07148D16	14.8	92	16	171	○
TTS07149D16	14.9	92	16	171	○
TTS07150D16	15.0	92	16	171	○
TTS07151D16	15.1	92	16	171	○
TTS07152D16	15.2	92	16	171	○
TTS07153D16	15.3	92	16	171	○
TTS07154D16	15.4	92	16	171	○
TTS07155D16	15.5	92	16	171	○
TTS07156D16	15.6	92	16	171	○
TTS07157D16	15.7	92	16	171	○
TTS07158D16	15.8	92	16	171	○
TTS07159D16	15.9	92	16	171	○
TTS07160D16	16.0	92	16	171	○
TTS07165D18	16.5	103	18	185	○
TTS07170D18	17.0	103	18	185	○
TTS07175D18	17.5	103	18	185	○
TTS07180D18	18.0	103	18	185	○
TTS07185D20	18.5	112	20	200	○
TTS07190D20	19.0	112	20	200	○
TTS07195D20	19.5	112	20	200	○
TTS07200D20	20.0	112	20	200	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 12D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

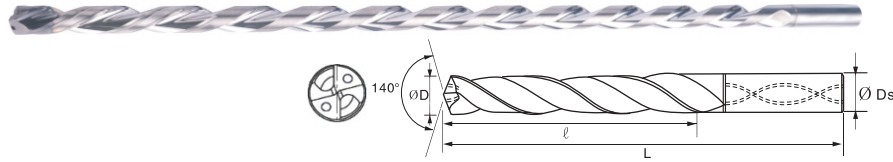
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS12030D4	3.0	45	4	80	○
TTS12035D4	3.5	45	4	80	○
TTS12040D4	4.0	50	4	88	○
TTS12045D6	4.5	55	6	106	○
TTS12050D6	5.0	66	6	116	○
TTS12055D6	5.5	66	6	116	○
TTS12060D6	6.0	66	6	116	○
TTS12065D8	6.5	84	8	138	○
TTS12070D8	7.0	84	8	138	○
TTS12075D8	7.5	84	8	138	○
TTS12080D8	8.0	84	8	138	○
TTS12085D10	8.5	108	10	169	○
TTS12090D10	9.0	108	10	169	○
TTS12095D10	9.5	108	10	169	○
TTS12100D10	10.0	108	10	169	○
TTS12105D12	10.5	132	12	201	○
TTS12110D12	11.0	132	12	201	○
TTS12115D12	11.5	132	12	201	○
TTS12120D12	12.0	132	12	201	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 16D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

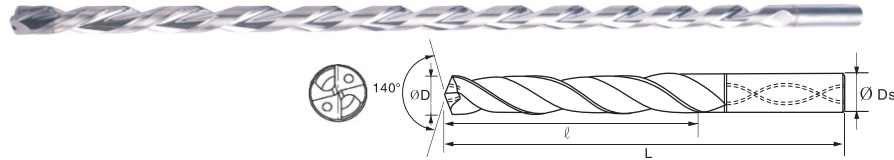
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS16030D4	3.0	50	4	88	○
TTS16035D4	3.5	60	4	99	○
TTS16040D4	4.0	60	4	99	○
TTS16045D6	4.5	70	6	117	○
TTS16050D6	5.0	90	6	142	○
TTS16055D6	5.5	90	6	142	○
TTS16060D6	6.0	90	6	142	○
TTS16065D8	6.5	120	8	177	○
TTS16070D8	7.0	120	8	177	○
TTS16075D8	7.5	120	8	177	○
TTS16080D8	8.0	120	8	177	○
TTS16085D10	8.5	150	10	216	○
TTS16090D10	9.0	150	10	216	○
TTS16095D10	9.5	150	10	216	○
TTS16100D10	10.0	150	10	216	○
TTS16105D12	10.5	180	12	256	○
TTS16110D12	11.0	180	12	256	○
TTS16115D12	11.5	180	12	256	○
TTS16120D12	12.0	180	12	256	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 20D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS20030D4	3.0	63	4	101	○
TTS20035D4	3.5	70	4	114	○
TTS20040D4	4.0	70	4	114	○
TTS20045D6	4.5	90	6	138	○
TTS20050D6	5.0	110	6	160	○
TTS20055D6	5.5	110	6	160	○
TTS20060D6	6.0	110	6	160	○
TTS20065D8	6.5	145	8	199	○
TTS20070D8	7.0	145	8	199	○
TTS20075D8	7.5	145	8	199	○
TTS20080D8	8.0	145	8	199	○
TTS20085D10	8.5	185	10	246	○
TTS20090D10	9.0	185	10	246	○
TTS20095D10	9.5	185	10	246	○
TTS20100D10	10.0	185	10	246	○
TTS20105D12	10.5	225	12	294	○
TTS20110D12	11.0	225	12	294	○
TTS20115D12	11.5	225	12	294	○
TTS20120D12	12.0	225	12	294	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

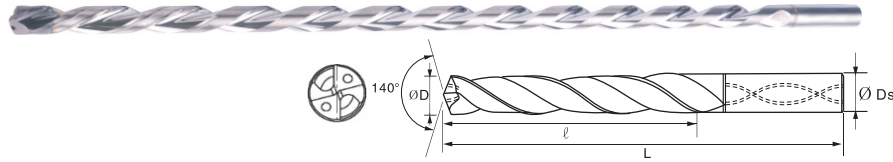
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

TTS Drill Series 25D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

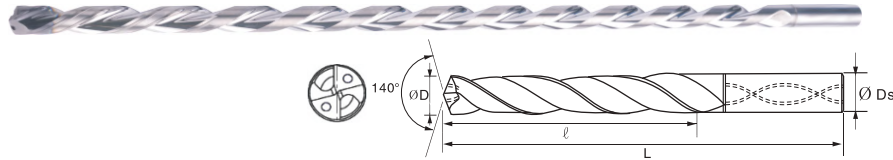
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TTS25030D4	3.0	79	4	117	○
TTS25035D4	3.5	94	4	133	○
TTS25040D4	4.0	94	4	133	○
TTS25045D6	4.5	112	6	160	○
TTS25050D6	5.0	140	6	190	○
TTS25055D6	5.5	140	6	190	○
TTS25060D6	6.0	140	6	190	○
TTS25065D8	6.5	188	8	241	○
TTS25070D8	7.0	188	8	241	○
TTS25075D8	7.5	188	8	241	○
TTS25080D8	8.0	188	8	241	○
TTS25085D10	8.5	234	10	295	○
TTS25090D10	9.0	234	10	295	○
TTS25095D10	9.5	234	10	295	○
TTS25100D10	10.0	234	10	295	○
TTS25105D12	10.5	281	12	350	○
TTS25110D12	11.0	281	12	350	○
TTS25115D12	11.5	281	12	350	○
TTS25120D12	12.0	281	12	350	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 30D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzars-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS30030D4	3.0	105	4	133	○
TTS30035D4	3.5	112	4	151	○
TTS30040D4	4.0	112	4	151	○
TTS30045D6	4.5	135	6	185	○
TTS30050D6	5.0	170	6	220	○
TTS30055D6	5.5	170	6	220	○
TTS30060D6	6.0	170	6	220	○
TTS30065D8	6.5	225	8	279	○
TTS30070D8	7.0	225	8	279	○
TTS30075D8	7.5	225	8	279	○
TTS30080D8	8.0	225	8	279	○
TTS30085D10	8.5	285	10	346	○
TTS30090D10	9.0	285	10	346	○
TTS30095D10	9.5	285	10	346	○
TTS30100D10	10.0	285	10	346	○
TTS30105D12	10.5	300	12	369	○
TTS30110D12	11.0	300	12	369	○
TTS30115D12	11.5	300	12	369	○
TTS30120D12	12.0	300	12	369	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

**TTW Series 3D/5D (External Coolant)**

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.12	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	70.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.12	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	60.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.11	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	50.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.11	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	30.00
K	Grey cast irons 250, etc.	~ 200	0.12	0.13	0.13	0.22	0.26	0.28	0.30	0.32	0.34	0.36	40.00
	Ductile cast irons 450-10S, etc.	~ 300	0.11	0.12	0.12	0.20	0.24	0.26	0.28	0.30	0.32	0.34	35.00
N	Aluminium alloys AlSi11Cu3, etc.	-	-	-	-	-	-	-	-	-	-	-	-

**TTS Series 3D/5D (Internal Coolant)**

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.12	0.14	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	90.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.12	0.14	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	80.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.11	0.13	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	75.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.11	0.13	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	50.00
K	Grey cast irons 250, etc.	~ 200	0.12	0.13	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	50.00
	Ductile cast irons 450-10S, etc.	~ 300	0.11	0.12	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	45.00
N	Aluminium alloys AlSi11Cu3, etc.	-	0.10	0.20	0.22	0.26	0.30	0.34	0.36	0.38	0.40	0.42	180.00

**TTW Series 7D (External Coolant)**

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø4.5	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20	
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	63.00	
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	54.00	
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	45.00	
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	27.00	
K	Grey cast irons 250, etc.	~ 200	0.13	0.13	0.22	0.26	0.28	0.30	0.32	0.34	0.36	36.00	
	Ductile cast irons 450-10S, etc.	~ 300	0.12	0.12	0.20	0.24	0.26	0.28	0.30	0.32	0.34	30.00	
N	Aluminium alloys AlSi11Cu3, etc.	-	-	-	-	-	-	-	-	-	-	-	



TTS Series 7D (Internal Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)									Vc (m/min)
			ø4.5	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.14	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	75.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.14	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	66.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.13	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	60.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.13	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	40.00
K	Grey cast irons 250, etc.	~ 200	0.13	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	40.00
	Ductile cast irons 450-10S, etc.	~ 300	0.12	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	38.00
N	Aluminium alloys AlSi11Cu3, etc.	-	0.20	0.22	0.26	0.30	0.34	0.36	0.38	0.40	0.42	150.00

TTS Series 12D/16D/20D/25D/30D (Internal Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)						Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.12	0.14	0.18	0.22	0.26	0.28	81.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.12	0.14	0.18	0.22	0.26	0.28	68.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.11	0.13	0.16	0.20	0.24	0.26	58.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.11	0.13	0.16	0.20	0.24	0.26	36.00
K	Grey cast irons 250, etc.	~ 200	0.12	0.13	0.18	0.22	0.26	0.28	45.00
	Ductile cast irons 450-10S, etc.	~ 300	0.11	0.12	0.16	0.20	0.24	0.26	40.00
N	Aluminium alloys AlSi11Cu3, etc.	-	0.12	0.14	0.20	0.24	0.28	0.32	135.00

Carbide Drills  
U Drills  
Head Exchangable Drills  
Deep Hole Drills  
Chamfer Cutter CDR 45°  
Non-standard Tools

### TK Series



#### General Features

TK Series is a special drill for cast iron that combines reduced cutting resistance and improved drill strength.

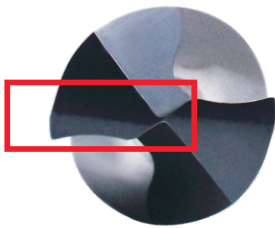
#### Product Range

Model No.	Diameter Range (mm)	Hole Depth (L/D)	Coolant Supply
TKW Type	D3.0-D20.0	up to 3	External
		up to 5	
TKS Type	D3.0-D20.0	up to 3	Internal
		up to 5	

※When the tensile strength is greater than 500, can be made on request.

## Technological Innovation

### 1. Cutting Edge Design



Special cutting edge is designed for processing cast iron to enhance the cutting strength of drill and is conducive to chip removal.

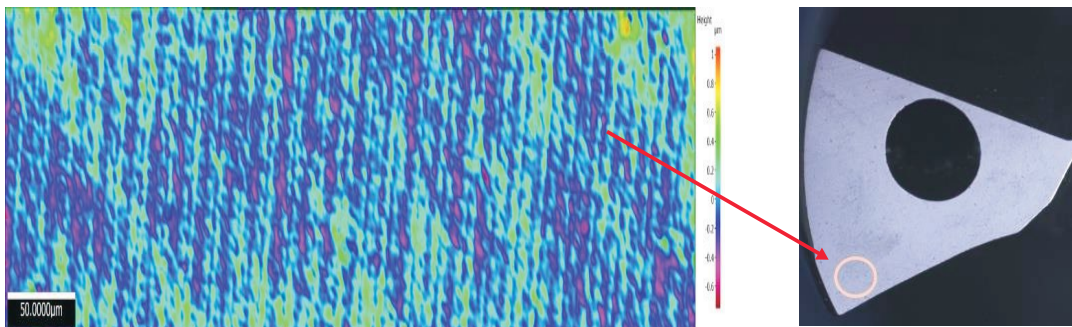
### 2. Point Angle Design and Coated



135° point angle design and wide transverse edge is designed to realize high-efficiency cutting of cast iron. The new TiAlN coating realizes the high wear resistance of the drill.

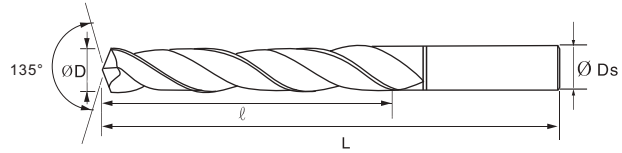
### 3. Drill Surface Quality

Roughness: 0.14 μm



## TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW030D6	3.0	20	6	62	●
TKW031D6	3.1	20	6	62	●
TKW032D6	3.2	20	6	62	●
TKW033D6	3.3	20	6	62	●
TKW034D6	3.4	20	6	62	●
TKW035D6	3.5	20	6	62	●
TKW036D6	3.6	20	6	62	●
TKW037D6	3.7	20	6	62	●
TKW038D6	3.8	24	6	66	●
TKW039D6	3.9	24	6	66	●
TKW040D6	4.0	24	6	66	●
TKW041D6	4.1	24	6	66	●
TKW042D6	4.2	24	6	66	●
TKW043D6	4.3	24	6	66	●
TKW044D6	4.4	24	6	66	●
TKW045D6	4.5	24	6	66	●
TKW046D6	4.6	26	6	66	●
TKW047D6	4.7	26	6	66	●
TKW048D6	4.8	28	6	66	●
TKW049D6	4.9	28	6	66	●
TKW050D6	5.0	28	6	66	●
TKW051D6	5.1	28	6	66	●
TKW052D6	5.2	28	6	66	●
TKW053D6	5.3	28	6	66	●
TKW054D6	5.4	28	6	66	●
TKW055D6	5.5	28	6	66	●
TKW056D6	5.6	28	6	66	●
TKW057D6	5.7	28	6	66	●
TKW058D6	5.8	28	6	66	●
TKW059D6	5.9	28	6	66	●
TKW060D6	6.0	28	6	66	●
TKW061D8	6.1	34	8	79	●
TKW062D8	6.2	34	8	79	●
TKW063D8	6.3	34	8	79	●

● Stock ○ Non-stock

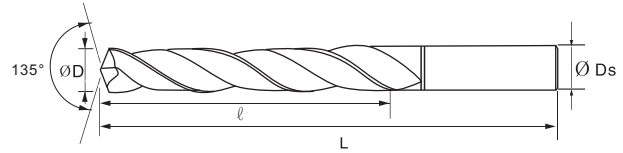
# High Performance Carbide Drill for Cast Iron



Carbide Drills

## TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron (Tensile Strength ≤ 500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKW064D8	6.4	34	8	79	●
TKW065D8	6.5	34	8	79	●
TKW066D8	6.6	34	8	79	●
TKW067D8	6.7	34	8	79	●
TKW068D8	6.8	34	8	79	●
TKW069D8	6.9	34	8	79	●
TKW070D8	7.0	34	8	79	●
TKW071D8	7.1	41	8	79	●
TKW072D8	7.2	41	8	79	●
TKW073D8	7.3	41	8	79	●
TKW074D8	7.4	41	8	79	●
TKW075D8	7.5	41	8	79	●
TKW076D8	7.6	41	8	79	●
TKW077D8	7.7	41	8	79	●
TKW078D8	7.8	41	8	79	●
TKW079D8	7.9	41	8	79	●
TKW080D8	8.0	41	8	79	●
TKW081D10	8.1	47	10	89	●
TKW082D10	8.2	47	10	89	●
TKW083D10	8.3	47	10	89	●
TKW084D10	8.4	47	10	89	●
TKW085D10	8.5	47	10	89	●
TKW086D10	8.6	47	10	89	●
TKW087D10	8.7	47	10	89	●
TKW088D10	8.8	47	10	89	●
TKW089D10	8.9	47	10	89	●
TKW090D10	9.0	47	10	89	●
TKW091D10	9.1	47	10	89	●
TKW092D10	9.2	47	10	89	●
TKW093D10	9.3	47	10	89	●
TKW094D10	9.4	47	10	89	●
TKW095D10	9.5	47	10	89	●
TKW096D10	9.6	47	10	89	●
TKW097D10	9.7	47	10	89	●

●Stock ○Non-stock

U Drills

Head Exchangable Drills

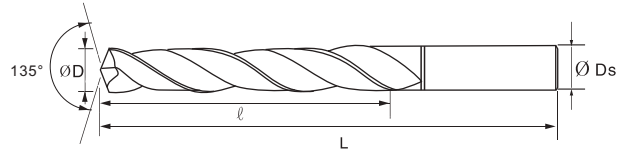
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKW098D10	9.8	47	10	89	●
TKW099D10	9.9	47	10	89	●
TKW100D10	10.0	47	10	89	●
TKW101D12	10.1	55	12	102	●
TKW102D12	10.2	55	12	102	●
TKW103D12	10.3	55	12	102	●
TKW104D12	10.4	55	12	102	●
TKW105D12	10.5	55	12	102	●
TKW106D12	10.6	55	12	102	●
TKW107D12	10.7	55	12	102	●
TKW108D12	10.8	55	12	102	●
TKW109D12	10.9	55	12	102	●
TKW110D12	11.0	55	12	102	●
TKW111D12	11.1	55	12	102	●
TKW112D12	11.2	55	12	102	●
TKW113D12	11.3	55	12	102	●
TKW114D12	11.4	55	12	102	●
TKW115D12	11.5	55	12	102	●
TKW116D12	11.6	55	12	102	●
TKW117D12	11.7	55	12	102	●
TKW118D12	11.8	55	12	102	●
TKW119D12	11.9	55	12	102	●
TKW120D12	12.0	55	12	102	●
TKW121D14	12.1	60	14	107	●
TKW122D14	12.2	60	14	107	●
TKW123D14	12.3	60	14	107	●
TKW124D14	12.4	60	14	107	●
TKW125D14	12.5	60	14	107	●
TKW126D14	12.6	60	14	107	●
TKW127D14	12.7	60	14	107	●
TKW128D14	12.8	60	14	107	●
TKW129D14	12.9	60	14	107	●
TKW130D14	13.0	60	14	107	●
TKW131D14	13.1	60	14	107	●

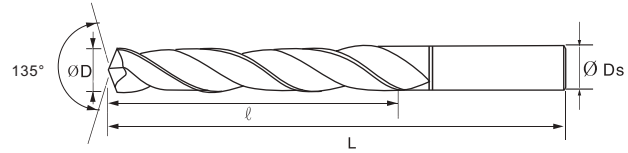
● Stock ○ Non-stock

# High Performance Carbide Drill for Cast Iron



## TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW132D14	13.2	60	14	107	●
TKW133D14	13.3	60	14	107	●
TKW134D14	13.4	60	14	107	●
TKW135D14	13.5	60	14	107	●
TKW136D14	13.6	60	14	107	●
TKW137D14	13.7	60	14	107	●
TKW138D14	13.8	60	14	107	●
TKW139D14	13.9	60	14	107	●
TKW140D14	14.0	60	14	107	●
TKW141D16	14.1	65	16	115	●
TKW142D16	14.2	65	16	115	●
TKW143D16	14.3	65	16	115	●
TKW144D16	14.4	65	16	115	●
TKW145D16	14.5	65	16	115	●
TKW146D16	14.6	65	16	115	●
TKW147D16	14.7	65	16	115	●
TKW148D16	14.8	65	16	115	●
TKW149D16	14.9	65	16	115	●
TKW150D16	15.0	65	16	115	●
TKW151D16	15.1	65	16	115	●
TKW152D16	15.2	65	16	115	●
TKW153D16	15.3	65	16	115	●
TKW154D16	15.4	65	16	115	●
TKW155D16	15.5	65	16	115	●
TKW156D16	15.6	65	16	115	●
TKW157D16	15.7	65	16	115	●
TKW158D16	15.8	65	16	115	●
TKW159D16	15.9	65	16	115	●
TKW160D16	16.0	65	16	115	●
TKW165D18	16.5	73	18	123	○
TKW170D18	17.0	73	18	123	○
TKW175D18	17.5	73	18	123	○
TKW180D18	18.0	73	18	123	○
TKW185D20	18.5	79	20	131	○

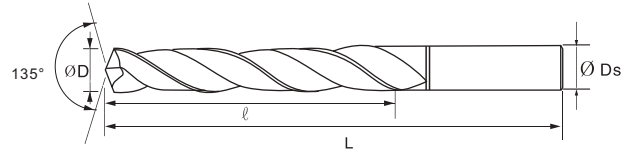
● Stock ○ Non-stock

# High Performance Carbide Drill for Cast Iron



## TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW190D20	19.0	79	20	131	○
TKW195D20	19.5	79	20	131	○
TKW200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

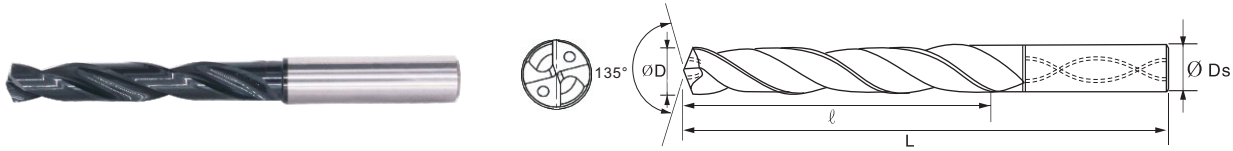
Non-standard Tools

# High Performance Carbide Drill for Cast Iron



## TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

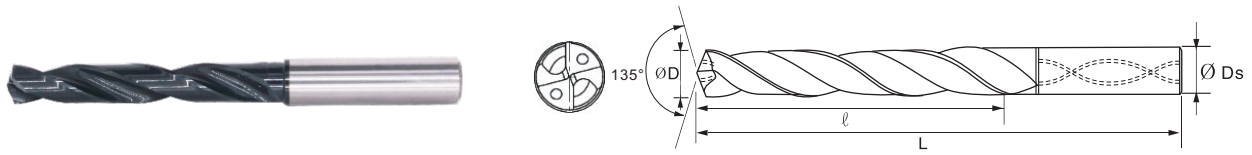
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKS030D6	3.0	20	6	62	●
TKS031D6	3.1	20	6	62	●
TKS032D6	3.2	20	6	62	●
TKS033D6	3.3	20	6	62	●
TKS034D6	3.4	20	6	62	●
TKS035D6	3.5	20	6	62	●
TKS036D6	3.6	20	6	62	●
TKS037D6	3.7	20	6	62	●
TKS038D6	3.8	24	6	66	●
TKS039D6	3.9	24	6	66	●
TKS040D6	4.0	24	6	66	●
TKS041D6	4.1	24	6	66	●
TKS042D6	4.2	24	6	66	●
TKS043D6	4.3	24	6	66	●
TKS044D6	4.4	24	6	66	●
TKS045D6	4.5	24	6	66	●
TKS046D6	4.6	24	6	66	●
TKS047D6	4.7	24	6	66	●
TKS048D6	4.8	28	6	66	●
TKS049D6	4.9	28	6	66	●
TKS050D6	5.0	28	6	66	●
TKS051D6	5.1	28	6	66	●
TKS052D6	5.2	28	6	66	●
TKS053D6	5.3	28	6	66	●
TKS054D6	5.4	28	6	66	●
TKS055D6	5.5	28	6	66	●
TKS056D6	5.6	28	6	66	●
TKS057D6	5.7	28	6	66	●
TKS058D6	5.8	28	6	66	●
TKS059D6	5.9	28	6	66	●
TKS060D6	6.0	28	6	66	●
TKS061D8	6.1	34	8	79	●
TKS062D8	6.2	34	8	79	●

● Stock ○ Non-stock



## TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS063D8	6.3	34	8	79	●
TKS064D8	6.4	34	8	79	●
TKS065D8	6.5	34	8	79	●
TKS066D8	6.6	34	8	79	●
TKS067D8	6.7	34	8	79	●
TKS068D8	6.8	34	8	79	●
TKS069D8	6.9	34	8	79	●
TKS070D8	7.0	34	8	79	●
TKS071D8	7.1	41	8	79	●
TKS072D8	7.2	41	8	79	●
TKS073D8	7.3	41	8	79	●
TKS074D8	7.4	41	8	79	●
TKS075D8	7.5	41	8	79	●
TKS076D8	7.6	41	8	79	●
TKS077D8	7.7	41	8	79	●
TKS078D8	7.8	41	8	79	●
TKS079D8	7.9	41	8	79	●
TKS080D8	8.0	41	8	79	●
TKS081D10	8.1	47	10	89	●
TKS082D10	8.2	47	10	89	●
TKS083D10	8.3	47	10	89	●
TKS084D10	8.4	47	10	89	●
TKS085D10	8.5	47	10	89	●
TKS086D10	8.6	47	10	89	●
TKS087D10	8.7	47	10	89	●
TKS088D10	8.8	47	10	89	●
TKS089D10	8.9	47	10	89	●
TKS090D10	9.0	47	10	89	●
TKS091D10	9.1	47	10	89	●
TKS092D10	9.2	47	10	89	●
TKS093D10	9.3	47	10	89	●
TKS094D10	9.4	47	10	89	●
TKS095D10	9.5	47	10	89	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

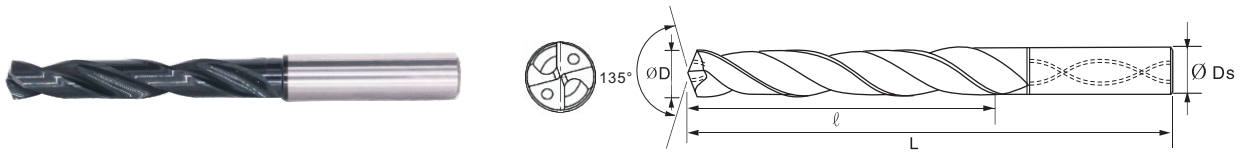
# High Performance Carbide Drill for Cast Iron



Carbide Drills

## TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength ≤ 500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKS096D10	9.6	47	10	89	●
TKS097D10	9.7	47	10	89	●
TKS098D10	9.8	47	10	89	●
TKS099D10	9.9	47	10	89	●
TKS100D10	10.0	47	10	89	●
TKS101D12	10.1	55	12	102	●
TKS102D12	10.2	55	12	102	●
TKS103D12	10.3	55	12	102	●
TKS104D12	10.4	55	12	102	●
TKS105D12	10.5	55	12	102	●
TKS106D12	10.6	55	12	102	●
TKS107D12	10.7	55	12	102	●
TKS108D12	10.8	55	12	102	●
TKS109D12	10.9	55	12	102	●
TKS110D12	11.0	55	12	102	●
TKS111D12	11.1	55	12	102	●
TKS112D12	11.2	55	12	102	●
TKS113D12	11.3	55	12	102	●
TKS114D12	11.4	55	12	102	●
TKS115D12	11.5	55	12	102	●
TKS116D12	11.6	55	12	102	●
TKS117D12	11.7	55	12	102	●
TKS118D12	11.8	55	12	102	●
TKS119D12	11.9	55	12	102	●
TKS120D12	12.0	55	12	102	●
TKS121D14	12.1	60	14	107	●
TKS122D14	12.2	60	14	107	●
TKS123D14	12.3	60	14	107	●
TKS124D14	12.4	60	14	107	●
TKS125D14	12.5	60	14	107	●
TKS126D14	12.6	60	14	107	●
TKS127D14	12.7	60	14	107	●
TKS128D14	12.8	60	14	107	●

● Stock ○ Non-stock

U Drills

Head Exchangable Drills

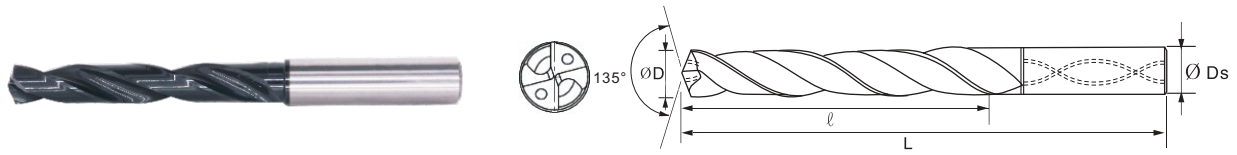
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



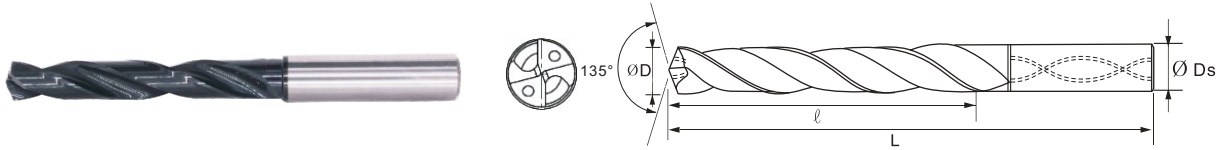
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKS129D14	12.9	60	14	107	●
TKS130D14	13.0	60	14	107	●
TKS131D14	13.1	60	14	107	●
TKS132D14	13.2	60	14	107	●
TKS133D14	13.3	60	14	107	●
TKS134D14	13.4	60	14	107	●
TKS135D14	13.5	60	14	107	●
TKS136D14	13.6	60	14	107	●
TKS137D14	13.7	60	14	107	●
TKS138D14	13.8	60	14	107	●
TKS139D14	13.9	60	14	107	●
TKS140D14	14.0	60	14	107	●
TKS141D16	14.1	65	16	115	●
TKS142D16	14.2	65	16	115	●
TKS143D16	14.3	65	16	115	●
TKS144D16	14.4	65	16	115	●
TKS145D16	14.5	65	16	115	●
TKS146D16	14.6	65	16	115	●
TKS147D16	14.7	65	16	115	●
TKS148D16	14.8	65	16	115	●
TKS149D16	14.9	65	16	115	●
TKS150D16	15.0	65	16	115	●
TKS151D16	15.1	65	16	115	●
TKS152D16	15.2	65	16	115	●
TKS153D16	15.3	65	16	115	●
TKS154D16	15.4	65	16	115	●
TKS155D16	15.5	65	16	115	●
TKS156D16	15.6	65	16	115	●
TKS157D16	15.7	65	16	115	●
TKS158D16	15.8	65	16	115	●
TKS159D16	15.9	65	16	115	●
TKS160D16	16.0	65	16	115	●
TKS165D18	16.5	73	18	123	○

● Stock ○ Non-stock

## TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

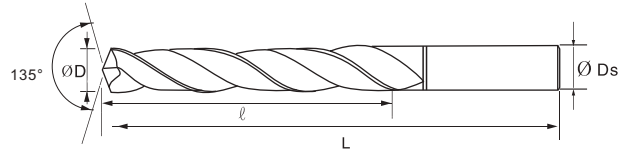
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS170D18	17.0	73	18	123	○
TKS175D18	17.5	73	18	123	○
TKS180D18	18.0	73	18	123	○
TKS185D20	18.5	79	20	131	○
TKS190D20	19.0	79	20	131	○
TKS195D20	19.5	79	20	131	○
TKS200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

## TKW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

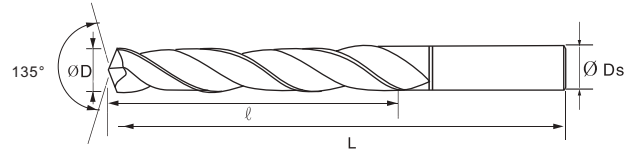
Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>Ds</i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TKW0318D6	3.18	1/8	20	6	62	○
TKW0357D6	3.57	9/64	20	6	62	○
TKW0397D6	3.97	5/32	24	6	66	○
TKW0437D6	4.37	11/64	24	6	66	○
TKW0476D6	4.76	3/16	26	6	66	○
TKW0516D6	5.16	13/64	28	6	66	○
TKW0556D6	5.56	7/32	28	6	66	○
TKW0595D6	5.95	15/64	28	6	66	○
TKW0635D8	6.35	1/4	34	8	79	○
TKW0675D8	6.75	17/64	34	8	79	○
TKW0714D8	7.14	9/32	41	8	79	○
TKW0754D8	7.54	19/64	41	8	79	○
TKW0794D8	7.94	5/16	41	8	79	○
TKW0833D10	8.33	21/64	47	10	89	○
TKW0873D10	8.73	11/32	47	10	89	○
TKW0913D10	9.13	23/64	47	10	89	○
TKW0952D10	9.52	3/8	47	10	89	○
TKW0992D10	9.92	25/64	47	10	89	○
TKW1032D12	10.32	13/32	55	12	102	○
TKW1072D12	10.72	27/64	55	12	102	○
TKW1111D12	11.11	7/16	55	12	102	○
TKW1151D12	11.51	29/64	55	12	102	○
TKW1191D12	11.91	15/32	55	12	102	○
TKW1349D14	13.49	17/32	60	14	107	○
TKW1389D14	13.89	35/64	60	14	107	○
TKW1429D16	14.29	9/16	65	16	115	○
TKW1468D16	14.68	37/64	65	16	115	○
TKW1508D16	15.08	19/32	65	16	115	○
TKW1548D16	15.48	39/64	65	16	115	○
TKW1588D16	15.88	5/8	65	16	115	○
TKW1627D18	16.27	41/64	73	18	123	○
TKW1667D18	16.67	21/32	73	18	123	○
TKW1707D18	17.07	43/64	73	18	123	○
TKW1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

Carbide Drills

## TKW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

U Drills

Model No.	Cutting Diameter		Cutting Length <i>ℓ</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TKW1786D18	17.86	45/64	73	18	123	○
TKW1826D20	18.26	23/32	79	20	131	○
TKW1865D20	18.65	47/64	79	20	131	○
TKW1905D20	19.05	3/4	79	20	131	○
TKW1945D20	19.45	49/64	79	20	131	○
TKW1984D20	19.84	25/32	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Head Exchangable Drills

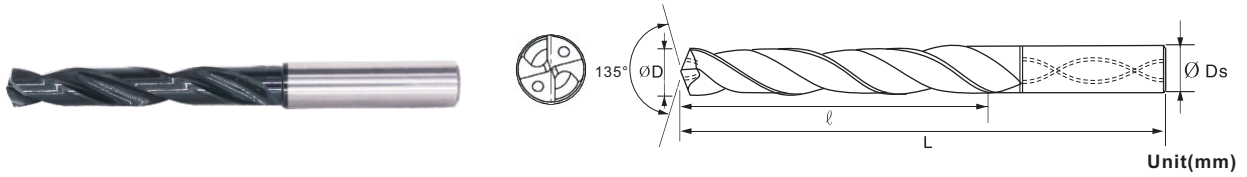
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TKS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		

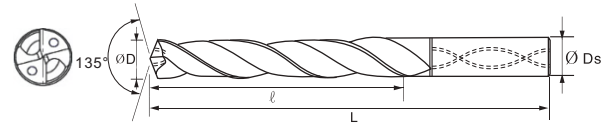


Model No.	Cutting Diameter		Cutting Length $\ell$	Shank Diameter Ds	Total Length L	Stock
	D					
	mm	inch				
TKS0318D6	3.18	1/8	20	6	62	○
TKS0357D6	3.57	9/64	20	6	62	○
TKS0397D6	3.97	5/32	24	6	66	○
TKS0437D6	4.37	11/64	24	6	66	○
TKS0476D6	4.76	3/16	26	6	66	○
TKS0516D6	5.16	13/64	28	6	66	○
TKS0556D6	5.56	7/32	28	6	66	○
TKS0595D6	5.95	15/64	28	6	66	○
TKS0635D8	6.35	1/4	34	8	79	○
TKS0675D8	6.75	17/64	34	8	79	○
TKS0714D8	7.14	9/32	41	8	79	○
TKS0754D8	7.54	19/64	41	8	79	○
TKS0794D8	7.94	5/16	41	8	79	○
TKS0833D10	8.33	21/64	47	10	89	○
TKS0873D10	8.73	11/32	47	10	89	○
TKS0913D10	9.13	23/64	47	10	89	○
TKS0952D10	9.52	3/8	47	10	89	○
TKS0992D10	9.92	25/64	47	10	89	○
TKS1032D12	10.32	13/32	55	12	102	○
TKS1072D12	10.72	27/64	55	12	102	○
TKS1111D12	11.11	7/16	55	12	102	○
TKS1151D12	11.51	29/64	55	12	102	○
TKS1191D12	11.91	15/32	55	12	102	○
TKS1349D14	13.49	17/32	60	14	107	○
TKS1389D14	13.89	35/64	60	14	107	○
TKS1429D16	14.29	9/16	65	16	115	○
TKS1468D16	14.68	37/64	65	16	115	○
TKS1508D16	15.08	19/32	65	16	115	○
TKS1548D16	15.48	39/64	65	16	115	○
TKS1588D16	15.88	5/8	65	16	115	○
TKS1627D18	16.27	41/64	73	18	123	○
TKS1667D18	16.67	21/32	73	18	123	○
TKS1707D18	17.07	43/64	73	18	123	○
TKS1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

## TKS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TKS1786D18	17.86	45/64	73	18	123	○
TKS1826D20	18.26	23/32	79	20	131	○
TKS1865D20	18.65	47/64	79	20	131	○
TKS1905D20	19.05	3/4	79	20	131	○
TKS1945D20	19.45	49/64	79	20	131	○
TKS1984D20	19.84	25/32	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

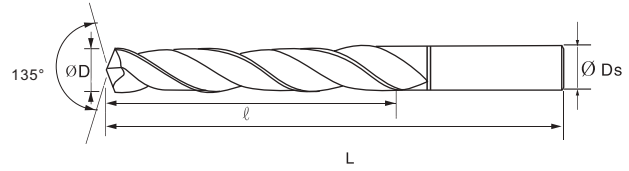


# High Performance Carbide Drill for Cast Iron



## TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05030D6	3.0	26	6	66	●
TKW05031D6	3.1	26	6	66	●
TKW05032D6	3.2	26	6	66	●
TKW05033D6	3.3	26	6	66	●
TKW05034D6	3.4	26	6	66	●
TKW05035D6	3.5	26	6	66	●
TKW05036D6	3.6	26	6	66	●
TKW05037D6	3.7	26	6	66	●
TKW05038D6	3.8	34	6	74	●
TKW05039D6	3.9	34	6	74	●
TKW05040D6	4.0	34	6	74	●
TKW05041D6	4.1	34	6	74	●
TKW05042D6	4.2	34	6	74	●
TKW05043D6	4.3	34	6	74	●
TKW05044D6	4.4	34	6	74	●
TKW05045D6	4.5	34	6	74	●
TKW05046D6	4.6	34	6	74	●
TKW05047D6	4.7	34	6	74	●
TKW05048D6	4.8	44	6	82	●
TKW05049D6	4.9	44	6	82	●
TKW05050D6	5.0	44	6	82	●
TKW05051D6	5.1	44	6	82	●
TKW05052D6	5.2	44	6	82	●
TKW05053D6	5.3	44	6	82	●
TKW05054D6	5.4	44	6	82	●
TKW05055D6	5.5	44	6	82	●
TKW05056D6	5.6	44	6	82	●
TKW05057D6	5.7	44	6	82	●
TKW05058D6	5.8	44	6	82	●
TKW05059D6	5.9	44	6	82	●
TKW05060D6	6.0	44	6	82	●
TKW05061D8	6.1	44	8	82	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

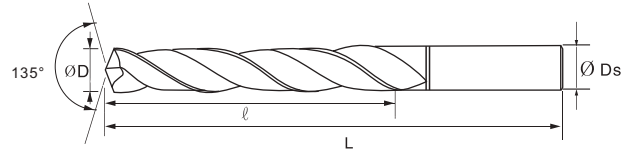
# High Performance Carbide Drill for Cast Iron



Carbide Drills

## TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



U Drills

Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05062D8	6.2	53	8	91	●
TKW05063D8	6.3	53	8	91	●
TKW05064D8	6.4	53	8	91	●
TKW05065D8	6.5	53	8	91	●
TKW05066D8	6.6	53	8	91	●
TKW05067D8	6.7	53	8	91	●
TKW05068D8	6.8	53	8	91	●
TKW05069D8	6.9	53	8	91	●
TKW05070D8	7.0	53	8	91	●
TKW05071D8	7.1	53	8	91	●
TKW05072D8	7.2	53	8	91	●
TKW05073D8	7.3	53	8	91	●
TKW05074D8	7.4	53	8	91	●
TKW05075D8	7.5	53	8	91	●
TKW05076D8	7.6	53	8	91	●
TKW05077D8	7.7	53	8	91	●
TKW05078D8	7.8	53	8	91	●
TKW05079D8	7.9	53	8	91	●
TKW05080D8	8.0	53	8	91	●
TKW05081D10	8.1	61	10	103	●
TKW05082D10	8.2	61	10	103	●
TKW05083D10	8.3	61	10	103	●
TKW05084D10	8.4	61	10	103	●
TKW05085D10	8.5	61	10	103	●
TKW05086D10	8.6	61	10	103	●
TKW05087D10	8.7	61	10	103	●
TKW05088D10	8.8	61	10	103	●
TKW05089D10	8.9	61	10	103	●
TKW05090D10	9.0	61	10	103	●
TKW05091D10	9.1	61	10	103	●
TKW05092D10	9.2	61	10	103	●
TKW05093D10	9.3	61	10	103	●
TKW05094D10	9.4	61	10	103	●

● Stock ○ Non-stock

Head Exchangable Drills

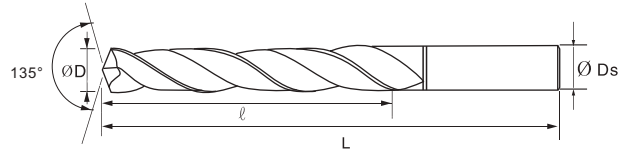
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05095D10	9.5	61	10	103	●
TKW05096D10	9.6	61	10	103	●
TKW05097D10	9.7	61	10	103	●
TKW05098D10	9.8	61	10	103	●
TKW05099D10	9.9	61	10	103	●
TKW05100D10	10.0	61	10	103	●
TKW05101D12	10.1	71	12	118	●
TKW05102D12	10.2	71	12	118	●
TKW05103D12	10.3	71	12	118	●
TKW05104D12	10.4	71	12	118	●
TKW05105D12	10.5	71	12	118	●
TKW05106D12	10.6	71	12	118	●
TKW05107D12	10.7	71	12	118	●
TKW05108D12	10.8	71	12	118	●
TKW05109D12	10.9	71	12	118	●
TKW05110D12	11.0	71	12	118	●
TKW05111D12	11.1	71	12	118	●
TKW05112D12	11.2	71	12	118	●
TKW05113D12	11.3	71	12	118	●
TKW05114D12	11.4	71	12	118	●
TKW05115D12	11.5	71	12	118	●
TKW05116D12	11.6	71	12	118	●
TKW05117D12	11.7	71	12	118	●
TKW05118D12	11.8	71	12	118	●
TKW05119D12	11.9	71	12	118	●
TKW05120D12	12.0	71	12	118	●
TKW05121D14	12.1	77	14	124	●
TKW05122D14	12.2	77	14	124	●
TKW05123D14	12.3	77	14	124	●
TKW05124D14	12.4	77	14	124	●
TKW05125D14	12.5	77	14	124	●
TKW05126D14	12.6	77	14	124	●
TKW05127D14	12.7	77	14	124	●

● Stock ○ Non-stock

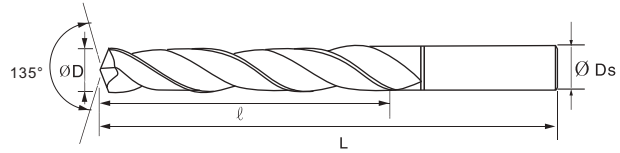
# High Performance Carbide Drill for Cast Iron



Carbide Drills

## TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



U Drills

Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05128D14	12.8	77	14	124	●
TKW05129D14	12.9	77	14	124	●
TKW05130D14	13.0	77	14	124	●
TKW05131D14	13.1	77	14	124	●
TKW05132D14	13.2	77	14	124	●
TKW05133D14	13.3	77	14	124	●
TKW05134D14	13.4	77	14	124	●
TKW05135D14	13.5	77	14	124	●
TKW05136D14	13.6	77	14	124	●
TKW05137D14	13.7	77	14	124	●
TKW05138D14	13.8	77	14	124	●
TKW05139D14	13.9	77	14	124	●
TKW05140D14	14.0	77	14	124	●
TKW05141D16	14.1	83	16	133	●
TKW05142D16	14.2	83	16	133	●
TKW05143D16	14.3	83	16	133	●
TKW05144D16	14.4	83	16	133	●
TKW05145D16	14.5	83	16	133	●
TKW05146D16	14.6	83	16	133	●
TKW05147D16	14.7	83	16	133	●
TKW05148D16	14.8	83	16	133	●
TKW05149D16	14.9	83	16	133	●
TKW05150D16	15.0	83	16	133	●
TKW05151D16	15.1	83	16	133	●
TKW05152D16	15.2	83	16	133	●
TKW05153D16	15.3	83	16	133	●
TKW05154D16	15.4	83	16	133	●
TKW05155D16	15.5	83	16	133	●
TKW05156D16	15.6	83	16	133	●
TKW05157D16	15.7	83	16	133	●
TKW05158D16	15.8	83	16	133	●
TKW05159D16	15.9	83	16	133	●
TKW05160D16	16.0	83	16	133	●

● Stock ○ Non-stock

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

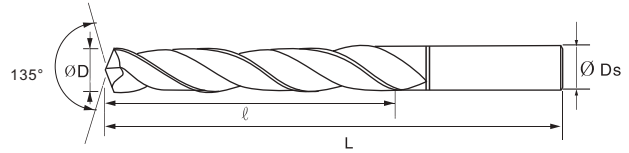
Non-standard Tools

# High Performance Carbide Drill for Cast Iron



## TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05165D18	16.5	93	18	143	○
TKW05170D18	17.0	93	18	143	○
TKW05175D18	17.5	93	18	143	○
TKW05180D18	18.0	93	18	143	○
TKW05185D20	18.5	101	20	153	○
TKW05190D20	19.0	101	20	153	○
TKW05195D20	19.5	101	20	153	○
TKW05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

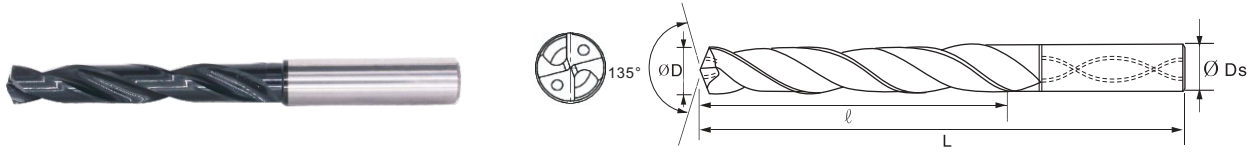
Non-standard Tools

# High Performance Carbide Drill for Cast Iron



## TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKS05030D6	3.0	26	6	66	●
TKS05031D6	3.1	26	6	66	●
TKS05032D6	3.2	26	6	66	●
TKS05033D6	3.3	26	6	66	●
TKS05034D6	3.4	26	6	66	●
TKS05035D6	3.5	26	6	66	●
TKS05036D6	3.6	26	6	66	●
TKS05037D6	3.7	26	6	66	●
TKS05038D6	3.8	34	6	74	●
TKS05039D6	3.9	34	6	74	●
TKS05040D6	4.0	34	6	74	●
TKS05041D6	4.1	34	6	74	●
TKS05042D6	4.2	34	6	74	●
TKS05043D6	4.3	34	6	74	●
TKS05044D6	4.4	34	6	74	●
TKS05045D6	4.5	34	6	74	●
TKS05046D6	4.6	34	6	74	●
TKS05047D6	4.7	34	6	74	●
TKS05048D6	4.8	44	6	82	●
TKS05049D6	4.9	44	6	82	●
TKS05050D6	5.0	44	6	82	●
TKS05051D6	5.1	44	6	82	●
TKS05052D6	5.2	44	6	82	●
TKS05053D6	5.3	44	6	82	●
TKS05054D6	5.4	44	6	82	●
TKS05055D6	5.5	44	6	82	●
TKS05056D6	5.6	44	6	82	●
TKS05057D6	5.7	44	6	82	●
TKS05058D6	5.8	44	6	82	●
TKS05059D6	5.9	44	6	82	●
TKS05060D6	6.0	44	6	82	●
TKS05061D8	6.1	44	8	82	●
TKS05062D8	6.2	53	8	91	●
TKS05063D8	6.3	53	8	91	●
TKS05064D8	6.4	53	8	91	●
TKS05065D8	6.5	53	8	91	●

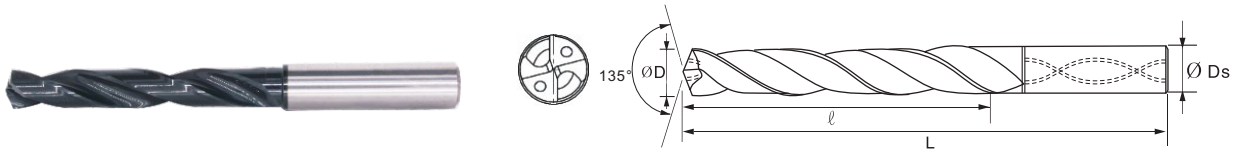
● Stock ○ Non-stock

# High Performance Carbide Drill for Cast Iron



## TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS05066D8	6.6	53	8	91	●
TKS05067D8	6.7	53	8	91	●
TKS05068D8	6.8	53	8	91	●
TKS05069D8	6.9	53	8	91	●
TKS05070D8	7.0	53	8	91	●
TKS05071D8	7.1	53	8	91	●
TKS05072D8	7.2	53	8	91	●
TKS05073D8	7.3	53	8	91	●
TKS05074D8	7.4	53	8	91	●
TKS05075D8	7.5	53	8	91	●
TKS05076D8	7.6	53	8	91	●
TKS05077D8	7.7	53	8	91	●
TKS05078D8	7.8	53	8	91	●
TKS05079D8	7.9	53	8	91	●
TKS05080D8	8.0	53	8	91	●
TKS05081D10	8.1	61	10	103	●
TKS05082D10	8.2	61	10	103	●
TKS05083D10	8.3	61	10	103	●
TKS05084D10	8.4	61	10	103	●
TKS05085D10	8.5	61	10	103	●
TKS05086D10	8.6	61	10	103	●
TKS05087D10	8.7	61	10	103	●
TKS05088D10	8.8	61	10	103	●
TKS05089D10	8.9	61	10	103	●
TKS05090D10	9.0	61	10	103	●
TKS05091D10	9.1	61	10	103	●
TKS05092D10	9.2	61	10	103	●
TKS05093D10	9.3	61	10	103	●
TKS05094D10	9.4	61	10	103	●
TKS05095D10	9.5	61	10	103	●
TKS05096D10	9.6	61	10	103	●
TKS05097D10	9.7	61	10	103	●
TKS05098D10	9.8	61	10	103	●
TKS05099D10	9.9	61	10	103	●
TKS05100D10	10.0	61	10	103	●
TKS05101D12	10.1	71	12	118	●
TKS05102D12	10.2	71	12	118	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

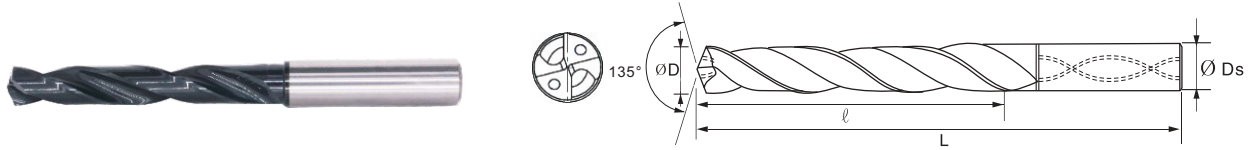
# High Performance Carbide Drill for Cast Iron



Carbide Drills

## TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKS05103D12	10.3	71	12	118	●
TKS05104D12	10.4	71	12	118	●
TKS05105D12	10.5	71	12	118	●
TKS05106D12	10.6	71	12	118	●
TKS05107D12	10.7	71	12	118	●
TKS05108D12	10.8	71	12	118	●
TKS05109D12	10.9	71	12	118	●
TKS05110D12	11.0	71	12	118	●
TKS05111D12	11.1	71	12	118	●
TKS05112D12	11.2	71	12	118	●
TKS05113D12	11.3	71	12	118	●
TKS05114D12	11.4	71	12	118	●
TKS05115D12	11.5	71	12	118	●
TKS05116D12	11.6	71	12	118	●
TKS05117D12	11.7	71	12	118	●
TKS05118D12	11.8	71	12	118	●
TKS05119D12	11.9	71	12	118	●
TKS05120D12	12.0	71	12	118	●
TKS05121D14	12.1	77	14	124	●
TKS05122D14	12.2	77	14	124	●
TKS05123D14	12.3	77	14	124	●
TKS05124D14	12.4	77	14	124	●
TKS05125D14	12.5	77	14	124	●
TKS05126D14	12.6	77	14	124	●
TKS05127D14	12.7	77	14	124	●
TKS05128D14	12.8	77	14	124	●
TKS05129D14	12.9	77	14	124	●
TKS05130D14	13.0	77	14	124	●
TKS05131D14	13.1	77	14	124	●
TKS05132D14	13.2	77	14	124	●
TKS05133D14	13.3	77	14	124	●
TKS05134D14	13.4	77	14	124	●
TKS05135D14	13.5	77	14	124	●
TKS05136D14	13.6	77	14	124	●
TKS05137D14	13.7	77	14	124	●
TKS05138D14	13.8	77	14	124	●
TKS05139D14	13.9	77	14	124	●

● Stock ○ Non-stock

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

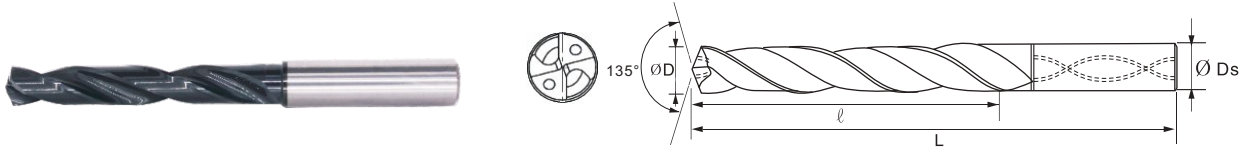


# High Performance Carbide Drill for Cast Iron



## TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength ≤ 500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TKS05140D14	14.0	77	14	124	●
TKS05141D16	14.1	83	16	133	●
TKS05142D16	14.2	83	16	133	●
TKS05143D16	14.3	83	16	133	●
TKS05144D16	14.4	83	16	133	●
TKS05145D16	14.5	83	16	133	●
TKS05146D16	14.6	83	16	133	●
TKS05147D16	14.7	83	16	133	●
TKS05148D16	14.8	83	16	133	●
TKS05149D16	14.9	83	16	133	●
TKS05150D16	15.0	83	16	133	●
TKS05151D16	15.1	83	16	133	●
TKS05152D16	15.2	83	16	133	●
TKS05153D16	15.3	83	16	133	●
TKS05154D16	15.4	83	16	133	●
TKS05155D16	15.5	83	16	133	●
TKS05156D16	15.6	83	16	133	●
TKS05157D16	15.7	83	16	133	●
TKS05158D16	15.8	83	16	133	●
TKS05159D16	15.9	83	16	133	●
TKS05160D16	16.0	83	16	133	●
TKS05165D18	16.5	93	18	143	○
TKS05170D18	17.0	93	18	143	○
TKS05175D18	17.5	93	18	143	○
TKS05180D18	18.0	93	18	143	○
TKS05185D20	18.5	101	20	153	○
TKS05190D20	19.0	101	20	153	○
TKS05195D20	19.5	101	20	153	○
TKS05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

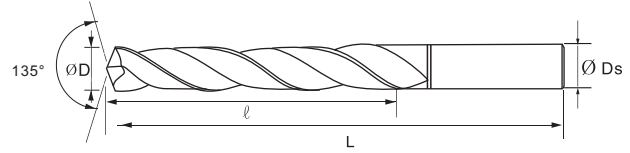
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

TKW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	D					
	mm	inch				
TKW050318D6	3.18	1/8	26	6	66	○
TKW050357D6	3.57	9/64	26	6	66	○
TKW050397D6	3.97	5/32	34	6	74	○
TKW050437D6	4.37	11/64	34	6	74	○
TKW050476D6	4.76	3/16	44	6	82	○
TKW050516D6	5.16	13/64	44	6	82	○
TKW050556D6	5.56	7/32	44	6	82	○
TKW050595D6	5.95	15/64	44	6	82	○
TKW050635D8	6.35	1/4	53	8	91	○
TKW050675D8	6.75	17/64	53	8	91	○
TKW050714D8	7.14	9/32	53	8	91	○
TKW050754D8	7.54	19/64	53	8	91	○
TKW050794D8	7.94	5/16	53	8	91	○
TKW050833D10	8.33	21/64	61	10	103	○
TKW050873D10	8.73	11/32	61	10	103	○
TKW050913D10	9.13	23/64	61	10	103	○
TKW050952D10	9.52	3/8	61	10	103	○
TKW050992D10	9.92	25/64	61	10	103	○
TKW051032D12	10.32	13/32	71	12	118	○
TKW051072D12	10.72	27/64	71	12	118	○
TKW051111D12	11.11	7/16	71	12	118	○
TKW051151D12	11.51	29/64	71	12	118	○
TKW051191D12	11.91	15/32	71	12	118	○
TKW051349D14	13.49	17/32	77	14	124	○
TKW051389D14	13.89	35/64	77	14	124	○
TKW051429D16	14.29	9/16	83	16	133	○
TKW051468D16	14.68	37/64	83	16	133	○
TKW051508D16	15.08	19/32	83	16	133	○
TKW051548D16	15.48	39/64	83	16	133	○
TKW051588D16	15.88	5/8	83	16	133	○
TKW051627D18	16.27	41/64	93	18	143	○
TKW051667D18	16.67	21/32	93	18	143	○
TKW051707D18	17.07	43/64	93	18	143	○
TKW051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

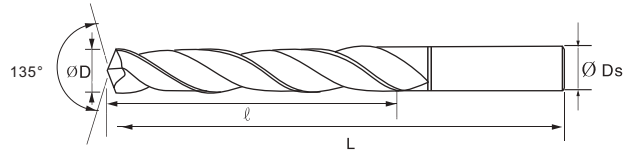
Non-standard Tools

# High Performance Carbide Drill for Cast Iron



## TKW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length	Shank Diameter	Total Length	Stock
	D					
	mm	inch	ℓ	Ds	L	
TKW051786D18	17.86	45/64	93	18	143	○
TKW051826D20	18.26	23/32	101	20	153	○
TKW051865D20	18.65	47/64	101	20	153	○
TKW051905D20	19.05	3/4	101	20	153	○
TKW051945D20	19.45	49/64	101	20	153	○
TKW051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

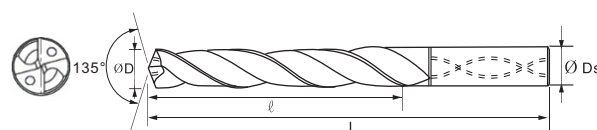
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TKS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength ≤ 500)		



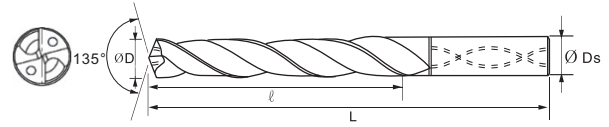
Unit(mm)

Model No.	Cutting Diameter		Cutting Length <i>l</i>	Shank Diameter <i>D<sub>s</sub></i>	Total Length <i>L</i>	Stock
	D					
	mm	inch				
TKS050318D6	3.18	1/8	26	6	66	○
TKS050357D6	3.57	9/64	26	6	66	○
TKS050397D6	3.97	5/32	34	6	74	○
TKS050437D6	4.37	11/64	34	6	74	○
TKS050476D6	4.76	3/16	44	6	82	○
TKS050516D6	5.16	13/64	44	6	82	○
TKS050556D6	5.56	7/32	44	6	82	○
TKS050595D6	5.95	15/64	44	6	82	○
TKS050635D8	6.35	1/4	53	8	91	○
TKS050675D8	6.75	17/64	53	8	91	○
TKS050714D8	7.14	9/32	53	8	91	○
TKS050754D8	7.54	19/64	53	8	91	○
TKS050794D8	7.94	5/16	53	8	91	○
TKS050833D10	8.33	21/64	61	10	103	○
TKS050873D10	8.73	11/32	61	10	103	○
TKS050913D10	9.13	23/64	61	10	103	○
TKS050952D10	9.52	3/8	61	10	103	○
TKS050992D10	9.92	25/64	61	10	103	○
TKS051032D12	10.32	13/32	71	12	118	○
TKS051072D12	10.72	27/64	71	12	118	○
TKS051111D12	11.11	7/16	71	12	118	○
TKS051151D12	11.51	29/64	71	12	118	○
TKS051191D12	11.91	15/32	71	12	118	○
TKS051349D14	13.49	17/32	77	14	124	○
TKS051389D14	13.89	35/64	77	14	124	○
TKS051429D16	14.29	9/16	83	16	133	○
TKS051468D16	14.68	37/64	83	16	133	○
TKS051508D16	15.08	19/32	83	16	133	○
TKS051548D16	15.48	39/64	83	16	133	○
TKS051588D16	15.88	5/8	83	16	133	○
TKS051627D18	16.27	41/64	93	18	143	○
TKS051667D18	16.67	21/32	93	18	143	○
TKS051707D18	17.07	43/64	93	18	143	○
TKS051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

## TKS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAIN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength ≤ 500)		



Unit(mm)

Model No.	Cutting Diameter		Cutting Length	Shank Diameter	Total Length	Stock
	D					
	mm	inch	l	Ds	L	
TKS051786D18	17.86	45/64	93	18	143	○
TKS051826D20	18.26	23/32	101	20	153	○
TKS051865D20	18.65	47/64	101	20	153	○
TKS051905D20	19.05	3/4	101	20	153	○
TKS051945D20	19.45	49/64	101	20	153	○
TKS051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

Carbide Drills

**TKW Series 3D/5D (External Coolant)**

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
K	Grey cast irons FC250,etc.	~ 200	0.17	0.20	0.25	0.27	0.30	0.28	0.33	0.40	0.42	0.45	60~140
	Ductile cast irons FCD500,etc.(Tensile Strength≤500Mpa)	~ 300	0.09	0.10	0.13	0.16	0.20	0.26	0.22	0.26	0.28	0.28	50~100

U Drills

Head Exchangable Drills

**TKS Series 3D/5D (Internal Coolant)**

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
K	Grey cast irons FC250,etc.	~ 200	0.17	0.20	0.25	0.27	0.30	0.28	0.33	0.40	0.42	0.45	60~160
	Ductile cast irons FCD500,etc.(Tensile Strength≤500Mpa)	~ 300	0.09	0.10	0.13	0.16	0.20	0.26	0.22	0.26	0.28	0.28	50~100

Deep Hole Drills

CDR 45° Chamfer Cutter

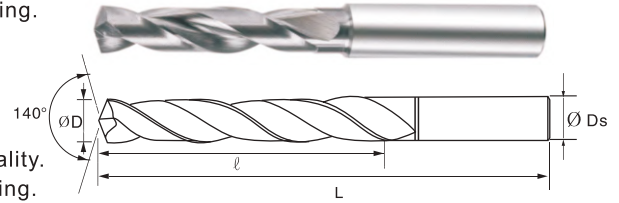
Non-standard Tools

## 1.CTW 3D/5D series (External coolant )

- ① Carbide Material.
- ② Original corner-radius design, achieve the excellent chip removal and work precision.
- ③ Nanocomposite AlTiN coating makes the high speed and high efficiency drill machining.
- ④ Diameter from 3 mm to 20 mm, suitable for different type of machining.

## 2.CTS 3D/5D series (Internal coolant)

- ① Carbide Material.
- ② New groove design achieve the excellent chip removal.
- ③ Nanocomposite AlTiN coating coating makes the hard-wearing quality.
- ④ Diameter from 3 mm to 20 mm, suitable for different type of machining.



### CTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	

Unit (mm)  
 ● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW030D6	3.0	20	6	62	●
CTW031D6	3.1	20	6	62	●
CTW032D6	3.2	20	6	62	●
CTW033D6	3.3	20	6	62	●
CTW034D6	3.4	20	6	62	●
CTW035D6	3.5	20	6	62	●
CTW036D6	3.6	20	6	62	●
CTW037D6	3.7	20	6	62	●
CTW038D6	3.8	24	6	66	●
CTW039D6	3.9	24	6	66	●
CTW040D6	4.0	24	6	66	●
CTW041D6	4.1	24	6	66	●
CTW042D6	4.2	24	6	66	●
CTW043D6	4.3	24	6	66	●
CTW044D6	4.4	24	6	66	●
CTW045D6	4.5	24	6	66	●
CTW046D6	4.6	24	6	66	●
CTW047D6	4.7	24	6	66	●
CTW048D6	4.8	28	6	66	●
CTW049D6	4.9	28	6	66	●
CTW050D6	5.0	28	6	66	●
CTW051D6	5.1	28	6	66	●
CTW052D6	5.2	28	6	66	●
CTW053D6	5.3	28	6	66	●
CTW054D6	5.4	28	6	66	●
CTW055D6	5.5	28	6	66	●
CTW056D6	5.6	28	6	66	●
CTW057D6	5.7	28	6	66	●
CTW058D6	5.8	28	6	66	●
CTW059D6	5.9	28	6	66	●
CTW060D6	6.0	28	6	66	●
CTW061D8	6.1	34	8	79	●
CTW062D8	6.2	34	8	79	●
CTW063D8	6.3	34	8	79	●
CTW064D8	6.4	34	8	79	●
CTW065D8	6.5	34	8	79	●

Carbide Drills

U Drills

Head Drills

Head Exchangable

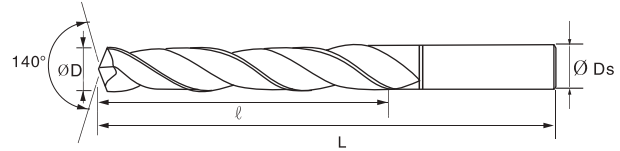
Deep Hole Drills

CDR 45°  
Chamfer Cutter

Non-standard Tools

## CTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	



Unit (mm)  
 ● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW066D8	6.6	34	8	79	●
CTW067D8	6.7	34	8	79	●
CTW068D8	6.8	34	8	79	●
CTW069D8	6.9	34	8	79	●
CTW070D8	7.0	34	8	79	●
CTW071D8	7.1	41	8	79	●
CTW072D8	7.2	41	8	79	●
CTW073D8	7.3	41	8	79	●
CTW074D8	7.4	41	8	79	●
CTW075D8	7.5	41	8	79	●
CTW076D8	7.6	41	8	79	●
CTW077D8	7.7	41	8	79	●
CTW078D8	7.8	41	8	79	●
CTW079D8	7.9	41	8	79	●
CTW080D8	8.0	41	8	79	●
CTW081D10	8.1	47	10	89	●
CTW082D10	8.2	47	10	89	●
CTW083D10	8.3	47	10	89	●
CTW084D10	8.4	47	10	89	●
CTW085D10	8.5	47	10	89	●
CTW086D10	8.6	47	10	89	●
CTW087D10	8.7	47	10	89	●
CTW088D10	8.8	47	10	89	●
CTW089D10	8.9	47	10	89	●
CTW090D10	9.0	47	10	89	●
CTW091D10	9.1	47	10	89	●
CTW092D10	9.2	47	10	89	●
CTW093D10	9.3	47	10	89	●
CTW094D10	9.4	47	10	89	●
CTW095D10	9.5	47	10	89	●
CTW096D10	9.6	47	10	89	●
CTW097D10	9.7	47	10	89	●
CTW098D10	9.8	47	10	89	●
CTW099D10	9.9	47	10	89	●
CTW100D10	10.0	47	10	89	●
CTW101D12	10.1	55	12	102	●
CTW102D12	10.2	55	12	102	●
CTW103D12	10.3	55	12	102	●
CTW104D12	10.4	55	12	102	●
CTW105D12	10.5	55	12	102	●
CTW106D12	10.6	55	12	102	●

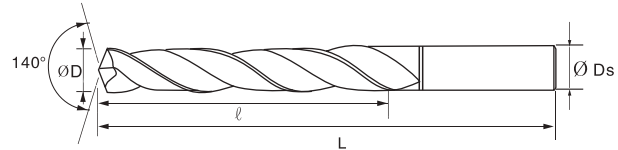


# High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)



## CTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	



Notice: The MOQ for Non-stock item is 5pcs.

Unit (mm)  
 ● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW107D12	10.7	55	12	102	●
CTW108D12	10.8	55	12	102	●
CTW109D12	10.9	55	12	102	●
CTW110D12	11.0	55	12	102	●
CTW111D12	11.1	55	12	102	●
CTW112D12	11.2	55	12	102	●
CTW113D12	11.3	55	12	102	●
CTW114D12	11.4	55	12	102	●
CTW115D12	11.5	55	12	102	●
CTW116D12	11.6	55	12	102	●
CTW117D12	11.7	55	12	102	●
CTW118D12	11.8	55	12	102	●
CTW119D12	11.9	55	12	102	●
CTW120D12	12.0	55	12	102	●
CTW125D14	12.5	60	14	107	○
CTW128D14	12.8	60	14	107	○
CTW130D14	13.0	60	14	107	○
CTW135D14	13.5	60	14	107	○
CTW138D14	13.8	60	14	107	○
CTW140D14	14.0	60	14	107	○
CTW145D16	14.5	65	16	115	○
CTW148D16	14.8	65	16	115	○
CTW150D16	15.0	65	16	115	○
CTW155D16	15.5	65	16	115	○
CTW158D16	15.8	65	16	115	○
CTW160D16	16.0	65	16	115	○
CTW165D18	16.5	73	18	123	○
CTW168D18	16.8	73	18	123	○
CTW170D18	17.0	73	18	123	○
CTW175D18	17.5	73	18	123	○
CTW178D18	17.8	73	18	123	○
CTW180D18	18.0	73	18	123	○
CTW185D20	18.5	79	20	131	○
CTW188D20	18.8	79	20	131	○
CTW190D20	19.0	79	20	131	○
CTW195D20	19.5	79	20	131	○
CTW198D20	19.8	79	20	131	○
CTW200D20	20.0	79	20	131	○

Carbide Drills

U Drills

Head Exchangable Drills

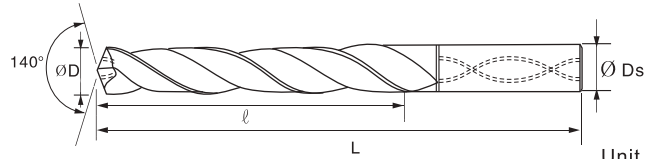
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## CTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness	≤HRC48



Unit (mm)  
 ● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTS030D6	3.0	20	6	62	●
CTS031D6	3.1	20	6	62	●
CTS032D6	3.2	20	6	62	●
CTS033D6	3.3	20	6	62	●
CTS034D6	3.4	20	6	62	●
CTS035D6	3.5	20	6	62	●
CTS036D6	3.6	20	6	62	●
CTS037D6	3.7	20	6	62	●
CTS038D6	3.8	24	6	66	●
CTS039D6	3.9	24	6	66	●
CTS040D6	4.0	24	6	66	●
CTS041D6	4.1	24	6	66	●
CTS042D6	4.2	24	6	66	●
CTS043D6	4.3	24	6	66	●
CTS044D6	4.4	24	6	66	●
CTS045D6	4.5	24	6	66	●
CTS046D6	4.6	24	6	66	●
CTS047D6	4.7	24	6	66	●
CTS048D6	4.8	28	6	66	●
CTS049D6	4.9	28	6	66	●
CTS050D6	5.0	28	6	66	●
CTS051D6	5.1	28	6	66	●
CTS052D6	5.2	28	6	66	●
CTS053D6	5.3	28	6	66	●
CTS054D6	5.4	28	6	66	●
CTS055D6	5.5	28	6	66	●
CTS056D6	5.6	28	6	66	●
CTS057D6	5.7	28	6	66	●
CTS058D6	5.8	28	6	66	●
CTS059D6	5.9	28	6	66	●
CTS060D6	6.0	28	6	66	●
CTS061D8	6.1	34	8	79	●
CTS062D8	6.2	34	8	79	●
CTS063D8	6.3	34	8	79	●
CTS064D8	6.4	34	8	79	●
CTS065D8	6.5	34	8	79	●
CTS066D8	6.6	34	8	79	●
CTS067D8	6.7	34	8	79	●

Carbide Drills

U Drills

Head Exchangable Drills

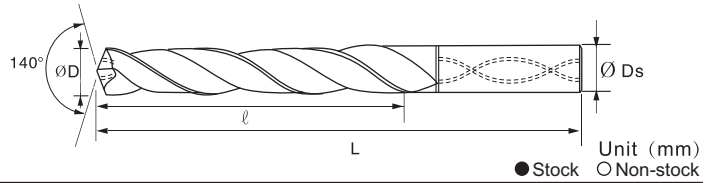
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## CTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness	≤HRC48



Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTS068D8	6.8	34	8	79	●
CTS069D8	6.9	34	8	79	●
CTS070D8	7.0	34	8	79	●
CTS071D8	7.1	41	8	79	●
CTS072D8	7.2	41	8	79	●
CTS073D8	7.3	41	8	79	●
CTS074D8	7.4	41	8	79	●
CTS075D8	7.5	41	8	79	●
CTS076D8	7.6	41	8	79	●
CTS077D8	7.7	41	8	79	●
CTS078D8	7.8	41	8	79	●
CTS079D8	7.9	41	8	79	●
CTS080D8	8.0	41	8	79	●
CTS081D10	8.1	47	10	89	●
CTS082D10	8.2	47	10	89	●
CTS083D10	8.3	47	10	89	●
CTS084D10	8.4	47	10	89	●
CTS085D10	8.5	47	10	89	●
CTS086D10	8.6	47	10	89	●
CTS087D10	8.7	47	10	89	●
CTS088D10	8.8	47	10	89	●
CTS089D10	8.9	47	10	89	●
CTS090D10	9.0	47	10	89	●
CTS091D10	9.1	47	10	89	●
CTS092D10	9.2	47	10	89	●
CTS093D10	9.3	47	10	89	●
CTS094D10	9.4	47	10	89	●
CTS095D10	9.5	47	10	89	●
CTS096D10	9.6	47	10	89	●
CTS097D10	9.7	47	10	89	●
CTS098D10	9.8	47	10	89	●
CTS099D10	9.9	47	10	89	●
CTS100D10	10.0	47	10	89	●
CTS101D12	10.1	55	12	102	●
CTS102D12	10.2	55	12	102	●
CTS103D12	10.3	55	12	102	●
CTS104D12	10.4	55	12	102	●
CTS105D12	10.5	55	12	102	●

Carbide Drills

U Drills

Head Exchangable Drills

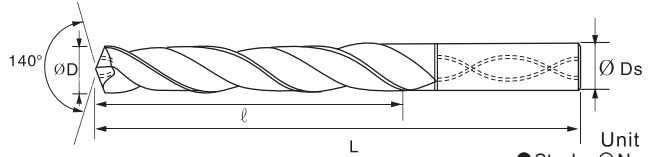
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## CTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	



Notice: The MOQ for Non-stock item is 5pcs.

● Stock  
○ Non-stock

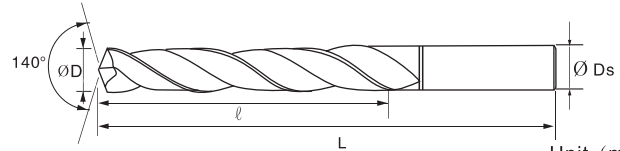
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTS106D12	10.6	55	12	102	●
CTS107D12	10.7	55	12	102	●
CTS108D12	10.8	55	12	102	●
CTS109D12	10.9	55	12	102	●
CTS110D12	11.0	55	12	102	●
CTS111D12	11.1	55	12	102	●
CTS112D12	11.2	55	12	102	●
CTS113D12	11.3	55	12	102	●
CTS114D12	11.4	55	12	102	●
CTS115D12	11.5	55	12	102	●
CTS116D12	11.6	55	12	102	●
CTS117D12	11.7	55	12	102	●
CTS118D12	11.8	55	12	102	●
CTS119D12	11.9	55	12	102	●
CTS120D12	12.0	55	12	102	●
CTS125D14	12.5	60	14	107	○
CTS128D14	12.8	60	14	107	○
CTS130D14	13.0	60	14	107	○
CTS135D14	13.5	60	14	107	○
CTS138D14	13.8	60	14	107	○
CTS140D14	14.0	60	14	107	○
CTS145D16	14.5	65	16	115	○
CTS148D16	14.8	65	16	115	○
CTS150D16	15.0	65	16	115	○
CTS155D16	15.5	65	16	115	○
CTS158D16	15.8	65	16	115	○
CTS160D16	16.0	65	16	115	○
CTS165D18	16.5	73	18	123	○
CTS168D18	16.8	73	18	123	○
CTS170D18	17.0	73	18	123	○
CTS175D18	17.5	73	18	123	○
CTS178D18	17.8	73	18	123	○
CTS180D18	18.0	73	18	123	○
CTS185D20	18.5	79	20	131	○
CTS188D20	18.8	79	20	131	○
CTS190D20	19.0	79	20	131	○
CTS195D20	19.5	79	20	131	○
CTS198D20	19.8	79	20	131	○
CTS200D20	20.0	79	20	131	○

# High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)



## CTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	



Unit (mm)  
● Stock  
○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTW05030D6	3.0	28	6	66	●
CTW05031D6	3.1	28	6	66	●
CTW05032D6	3.2	28	6	66	●
CTW05033D6	3.3	28	6	66	●
CTW05034D6	3.4	28	6	66	●
CTW05035D6	3.5	28	6	66	●
CTW05036D6	3.6	28	6	66	●
CTW05037D6	3.7	28	6	66	●
CTW05038D6	3.8	36	6	74	●
CTW05039D6	3.9	36	6	74	●
CTW05040D6	4.0	36	6	74	●
CTW05041D6	4.1	36	6	74	●
CTW05042D6	4.2	36	6	74	●
CTW05043D6	4.3	36	6	74	●
CTW05044D6	4.4	36	6	74	●
CTW05045D6	4.5	36	6	74	●
CTW05046D6	4.6	36	6	74	●
CTW050465D6	4.65	36	6	74	●
CTW05047D6	4.7	36	6	74	●
CTW05048D6	4.8	44	6	82	●
CTW05049D6	4.9	44	6	82	●
CTW05050D6	5.0	44	6	82	●
CTW05051D6	5.1	44	6	82	●
CTW05052D6	5.2	44	6	82	●
CTW05053D6	5.3	44	6	82	●
CTW05054D6	5.4	44	6	82	●
CTW05055D6	5.5	44	6	82	●
CTW05056D6	5.6	44	6	82	●
CTW05057D6	5.7	44	6	82	●
CTW05058D6	5.8	44	6	82	●
CTW05059D6	5.9	44	6	82	●
CTW05060D6	6.0	44	6	82	●
CTW05061D8	6.1	53	8	91	●
CTW05062D8	6.2	53	8	91	●
CTW05063D8	6.3	53	8	91	●
CTW05064D8	6.4	53	8	91	●
CTW05065D8	6.5	53	8	91	●
CTW05066D8	6.6	53	8	91	●
CTW05067D8	6.7	53	8	91	●
CTW05068D8	6.8	53	8	91	●

Carbide Drills

U Drills

Head Exchangable Drills

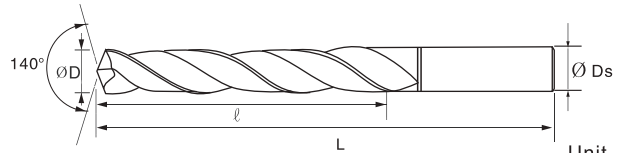
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## CTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness	≤HRC48



Unit (mm)  
 ● Stock  
 ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTW05069D8	6.9	53	8	91	●
CTW05070D8	7.0	53	8	91	●
CTW05071D8	7.1	53	8	91	●
CTW05072D8	7.2	53	8	91	●
CTW05073D8	7.3	53	8	91	●
CTW05074D8	7.4	53	8	91	●
CTW05075D8	7.5	53	8	91	●
CTW05076D8	7.6	53	8	91	●
CTW05077D8	7.7	53	8	91	●
CTW05078D8	7.8	53	8	91	●
CTW05079D8	7.9	53	8	91	●
CTW05080D8	8.0	53	8	91	●
CTW05081D10	8.1	61	10	103	●
CTW05082D10	8.2	61	10	103	●
CTW05083D10	8.3	61	10	103	●
CTW05084D10	8.4	61	10	103	●
CTW05085D10	8.5	61	10	103	●
CTW05086D10	8.6	61	10	103	●
CTW05087D10	8.7	61	10	103	●
CTW05088D10	8.8	61	10	103	●
CTW05089D10	8.9	61	10	103	●
CTW05090D10	9.0	61	10	103	●
CTW05091D10	9.1	61	10	103	●
CTW05092D10	9.2	61	10	103	●
CTW05093D10	9.3	61	10	103	●
CTW05094D10	9.4	61	10	103	●
CTW05095D10	9.5	61	10	103	●
CTW05096D10	9.6	61	10	103	●
CTW05097D10	9.7	61	10	103	●
CTW05098D10	9.8	61	10	103	●
CTW05099D10	9.9	61	10	103	●
CTW05100D10	10.0	61	10	103	●
CTW05101D12	10.1	71	12	118	●
CTW05102D12	10.2	71	12	118	●
CTW05103D12	10.3	71	12	118	●
CTW05104D12	10.4	71	12	118	●
CTW05105D12	10.5	71	12	118	●
CTW05106D12	10.6	71	12	118	●
CTW05107D12	10.7	71	12	118	●
CTW05108D12	10.8	71	12	118	●

Carbide Drills

U Drills

Head Exchangable Drills

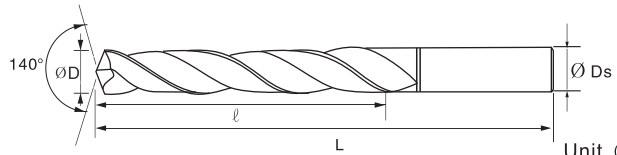
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

CTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness	≤HRC48



Notice: The MOQ for Non-stock item is 5pcs.

Unit (mm)  
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW05109D12	10.9	71	12	118	●
CTW05110D12	11.0	71	12	118	●
CTW05111D12	11.1	71	12	118	●
CTW05112D12	11.2	71	12	118	●
CTW05113D12	11.3	71	12	118	●
CTW05114D12	11.4	71	12	118	●
CTW05115D12	11.5	71	12	118	●
CTW05116D12	11.6	71	12	118	●
CTW05117D12	11.7	71	12	118	●
CTW05118D12	11.8	71	12	118	●
CTW05119D12	11.9	71	12	118	●
CTW05120D12	12.0	71	12	118	●
CTW05122D14	12.2	77	14	124	○
CTW05123D14	12.3	77	14	124	○
CTW05124D14	12.4	77	14	124	○
CTW05125D14	12.5	77	14	124	○
CTW05128D14	12.8	77	14	124	○
CTW05130D14	13.0	77	14	124	○
CTW05135D14	13.5	77	14	124	○
CTW05138D14	13.8	77	14	124	○
CTW05140D14	14.0	77	14	124	○
CTW05143D16	14.3	83	16	133	○
CTW05145D16	14.5	83	16	133	○
CTW05146D16	14.6	83	16	133	○
CTW05148D16	14.8	83	16	133	○
CTW05150D16	15.0	83	16	133	○
CTW05155D16	15.5	83	16	133	○
CTW05158D16	15.8	83	16	133	○
CTW05160D16	16.0	83	16	133	○
CTW05165D18	16.5	93	18	143	○
CTW05166D18	16.6	93	18	143	○
CTW05168D18	16.8	93	18	143	○
CTW05170D18	17.0	93	18	143	○
CTW05175D18	17.5	93	18	143	○
CTW05178D18	17.8	93	18	143	○
CTW05180D18	18.0	93	18	143	○
CTW05185D20	18.5	101	20	153	○
CTW05190D20	19.0	101	20	153	○
CTW05195D20	19.5	101	20	153	○
CTW05200D20	20.0	101	20	153	○

Carbide Drills

U Drills

Head Exchangable Drills

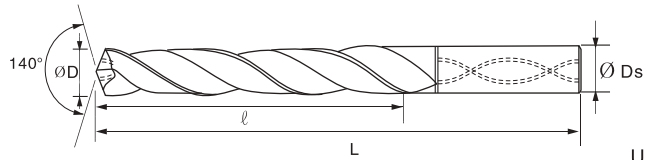
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## CTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness	≤HRC48



Unit (mm)  
 ● Stock  
 ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTS05030D6	3.0	28	6	66	●
CTS05031D6	3.1	28	6	66	●
CTS05032D6	3.2	28	6	66	●
CTS05033D6	3.3	28	6	66	●
CTS05034D6	3.4	28	6	66	●
CTS05035D6	3.5	28	6	66	●
CTS05036D6	3.6	28	6	66	●
CTS05037D6	3.7	28	6	66	●
CTS05038D6	3.8	36	6	74	●
CTS05039D6	3.9	36	6	74	●
CTS05040D6	4.0	36	6	74	●
CTS05041D6	4.1	36	6	74	●
CTS05042D6	4.2	36	6	74	●
CTS05043D6	4.3	36	6	74	●
CTS05044D6	4.4	36	6	74	●
CTS05045D6	4.5	36	6	74	●
CTS05046D6	4.6	36	6	74	●
CTS05047D6	4.7	36	6	74	●
CTS05048D6	4.8	44	6	82	●
CTS05049D6	4.9	44	6	82	●
CTS05050D6	5.0	44	6	82	●
CTS05051D6	5.1	44	6	82	●
CTS05052D6	5.2	44	6	82	●
CTS05053D6	5.3	44	6	82	●
CTS05054D6	5.4	44	6	82	●
CTS05055D6	5.5	44	6	82	●
CTS05056D6	5.6	44	6	82	●
CTS05057D6	5.7	44	6	82	●
CTS05058D6	5.8	44	6	82	●
CTS05059D6	5.9	44	6	82	●
CTS05060D6	6.0	44	6	82	●
CTS05061D8	6.1	53	8	91	●
CTS05062D8	6.2	53	8	91	●
CTS05063D8	6.3	53	8	91	●
CTS05064D8	6.4	53	8	91	●
CTS05065D8	6.5	53	8	91	●
CTS05066D8	6.6	53	8	91	●
CTS05067D8	6.7	53	8	91	●
CTS05068D8	6.8	53	8	91	●
CTS05069D8	6.9	53	8	91	●

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

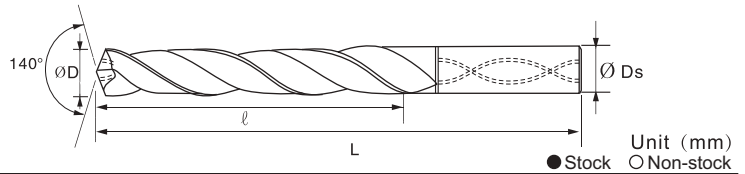
CDR 45° Chamfer Cutter

Non-standard Tools



## CTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	



Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTS05070D8	7.0	53	8	91	●
CTS05071D8	7.1	53	8	91	●
CTS05072D8	7.2	53	8	91	●
CTS05073D8	7.3	53	8	91	●
CTS05074D8	7.4	53	8	91	●
CTS05075D8	7.5	53	8	91	●
CTS05076D8	7.6	53	8	91	●
CTS05077D8	7.7	53	8	91	●
CTS05078D8	7.8	53	8	91	●
CTS05079D8	7.9	53	8	91	●
CTS05080D8	8.0	53	8	91	●
CTS05081D10	8.1	61	10	103	●
CTS05082D10	8.2	61	10	103	●
CTS05083D10	8.3	61	10	103	●
CTS05084D10	8.4	61	10	103	●
CTS05085D10	8.5	61	10	103	●
CTS05086D10	8.6	61	10	103	●
CTS05087D10	8.7	61	10	103	●
CTS05088D10	8.8	61	10	103	●
CTS05089D10	8.9	61	10	103	●
CTS05090D10	9.0	61	10	103	●
CTS05091D10	9.1	61	10	103	●
CTS05092D10	9.2	61	10	103	●
CTS05093D10	9.3	61	10	103	●
CTS05094D10	9.4	61	10	103	●
CTS05095D10	9.5	61	10	103	●
CTS05096D10	9.6	61	10	103	●
CTS05097D10	9.7	61	10	103	●
CTS05098D10	9.8	61	10	103	●
CTS05099D10	9.9	61	10	103	●
CTS05100D10	10.0	61	10	103	●
CTS05101D12	10.1	71	12	118	●
CTS05102D12	10.2	71	12	118	●
CTS05103D12	10.3	71	12	118	●
CTS05104D12	10.4	71	12	118	●
CTS05105D12	10.5	71	12	118	●
CTS05106D12	10.6	71	12	118	●
CTS05107D12	10.7	71	12	118	●
CTS05108D12	10.8	71	12	118	●
CTS05109D12	10.9	71	12	118	●

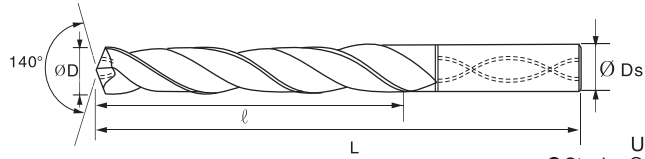
Carbide Drills  
 U Drills  
 Head Exchangable Drills  
 Deep Hole Drills  
 CDR 45° Chamfer Cutter  
 Non-standard Tools

# High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)



## CTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness ≤ HRC48	



Notice: The MOQ for Non-stock item is 5pcs.

Unit (mm)  
● Stock  
○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
CTS05110D12	11.0	71	12	118	●
CTS05111D12	11.1	71	12	118	●
CTS05112D12	11.2	71	12	118	●
CTS05113D12	11.3	71	12	118	●
CTS05114D12	11.4	71	12	118	●
CTS05115D12	11.5	71	12	118	●
CTS05116D12	11.6	71	12	118	●
CTS05117D12	11.7	71	12	118	●
CTS05118D12	11.8	71	12	118	●
CTS05119D12	11.9	71	12	118	●
CTS05120D12	12.0	71	12	118	●
CTS05122D14	12.2	77	14	124	○
CTS05123D14	12.3	77	14	124	○
CTS05124D14	12.4	77	14	124	○
CTS05125D14	12.5	77	14	124	○
CTS05128D14	12.8	77	14	124	○
CTS05130D14	13.0	77	14	124	○
CTS05135D14	13.5	77	14	124	○
CTS05138D14	13.8	77	14	124	○
CTS05140D14	14.0	77	14	124	○
CTS05143D16	14.3	83	16	133	○
CTS05145D16	14.5	83	16	133	○
CTS05146D16	14.6	83	16	133	○
CTS05148D16	14.8	83	16	133	○
CTS05150D16	15.0	83	16	133	○
CTS05155D16	15.5	83	16	133	○
CTS05158D16	15.8	83	16	133	○
CTS05160D16	16.0	83	16	133	○
CTS05165D18	16.5	93	18	143	○
CTS05166D18	16.6	93	18	143	○
CTS05168D18	16.8	93	18	143	○
CTS05170D18	17.0	93	18	143	○
CTS05175D18	17.5	93	18	143	○
CTS05178D18	17.8	93	18	143	○
CTS05180D18	18.0	93	18	143	○
CTS05185D20	18.5	101	20	153	○
CTS05190D20	19.0	101	20	153	○
CTS05195D20	19.5	101	20	153	○
CTS05200D20	20.0	101	20	153	○

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## STANDARD CUTTING CONDITIONS

### CTW Series 3D/5D (External Coolant)

Unit (mm)

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)						
				ø3 ~ ø4	ø4 ~ ø6	ø6 ~ ø8	ø8 ~ ø10	ø10 ~ ø12	ø12 ~ ø16	ø16 ~ ø20
P	Low carbon steel (C < 0.3) C15E4, E275A, E355D, etc.	~125	120~80~50	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	Carbon steel (C > 0.3) C45, C55, etc.	125 ~ 300	120~70~45	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	High alloy steel 42CrMo4, etc.	250 ~ 350	100~60~35	0.09~0.16	0.12~0.23	0.14~0.28	0.14~0.30	0.18~0.38	0.22~0.45	0.25~0.50
K	Grey cast iron 250, etc.	~ 200	140~100~60	0.13~0.20	0.17~0.30	0.20~0.35	0.23~0.40	0.25~0.45	0.28~0.48	0.32~0.52
	Ductile cast iron 450-10S, etc	~ 300	120~80~60	0.11~0.18	0.13~0.20	0.15~0.25	0.17~0.32	0.20~0.36	0.24~0.45	0.28~0.48

### CTS Series 3D/5D (Internal Coolant)

Unit (mm)

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)						
				ø3 ~ ø4	ø4 ~ ø6	ø6 ~ ø8	ø8 ~ ø10	ø10 ~ ø12	ø12 ~ ø16	ø16 ~ ø20
P	Low carbon steel (C < 0.3) C15E4, E275A, E355D, etc.	~125	140~100~60	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	Carbon steel (C > 0.3) C45, C55, etc.	125 ~ 300	120~80~60	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	High alloy steel 42CrMo4, etc.	250 ~ 350	110~80~60	0.09~0.16	0.12~0.23	0.14~0.28	0.14~0.30	0.18~0.38	0.22~0.45	0.25~0.50
K	Grey cast iron 250, etc.	~ 200	160~120~60	0.13~0.20	0.17~0.30	0.20~0.35	0.23~0.40	0.25~0.45	0.28~0.48	0.32~0.52
	Ductile cast iron 450-10S, etc	~ 300	140~100~60	0.11~0.18	0.13~0.20	0.15~0.25	0.17~0.32	0.20~0.36	0.24~0.45	0.28~0.48

Carbide Drills

U Drills

Head Exchangable Drills

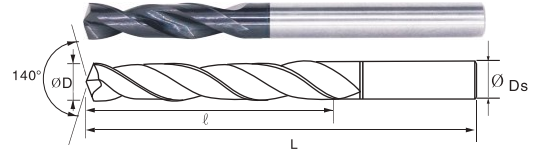
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## 1. DTW 3D/5D series (External coolant)

- ① Carbide Material.
- ② Unique bottom cutting edge design, with stronger chip breaking ability and greater chip capacity space.
- ③ Nanocomposite AlTiN coating makes the high speed and high efficiency drill machining.
- ④ Diameter from 1mm to 20mm, suitable for stainless steel processing.



## 2. DTS 3D/5D series (Internal coolant)

- ① Carbide Material.
- ② Unique bottom cutting edge design, with stronger chip breaking ability and greater chip capacity space.
- ③ New substrate coating with super toughness and wear resistance.
- ④ Diameter from 3mm to 20mm, suitable for stainless steel processing.

### DTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Stainless steel		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
DTW010D4	1.0	7	4	45	●
DTW020D4	2.0	13	4	55	●
DTW030D6	3.0	20	6	62	●
DTW033D6	3.3	20	6	62	●
DTW040D6	4.0	24	6	66	●
DTW042D6	4.2	24	6	66	●
DTW050D6	5.0	28	6	66	●
DTW060D6	6.0	28	6	66	●
DTW068D8	6.8	34	8	79	●
DTW070D8	7.0	34	8	79	●
DTW080D8	8.0	41	8	79	●
DTW085D10	8.5	47	10	89	●
DTW090D10	9.0	47	10	89	●
DTW100D10	10.0	47	10	89	●
DTW103D12	10.3	55	12	102	●
DTW105D12	10.5	55	12	102	●
DTW110D12	11.0	55	12	102	●
DTW120D12	12.0	55	12	102	●
DTW125D14	12.5	60	14	107	●
DTW130D14	13.0	60	14	107	●
DTW140D14	14.0	60	14	107	●
DTW145D16	14.5	65	16	115	●
DTW150D16	15.0	65	16	115	●
DTW160D16	16.0	65	16	115	●
DTW170D18	17.0	73	18	123	●
DTW180D18	18.0	73	18	123	●
DTW190D20	19.0	79	20	131	●
DTW200D20	20.0	79	20	131	●

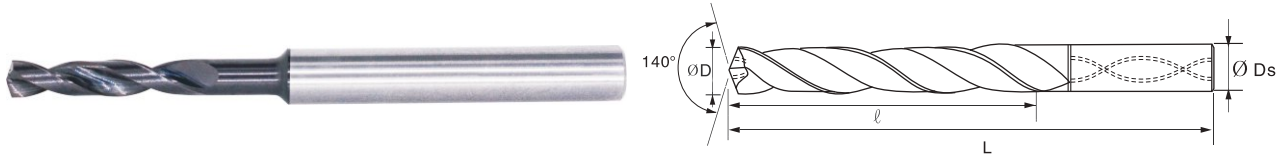
● Stock ○ Non-stock

# High Performance Carbide Drill for Stainless Steel Purpose(DTW DTS 3D&5D)



## DTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Stainless steel		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
DTS030D6	3.0	20	6	62	○
DTS033D6	3.3	20	6	62	○
DTS040D6	4.0	24	6	66	○
DTS042D6	4.2	24	6	66	○
DTS050D6	5.0	28	6	66	○
DTS060D6	6.0	28	6	66	○
DTS068D8	6.8	34	8	79	○
DTS070D8	7.0	34	8	79	○
DTS080D8	8.0	41	8	79	○
DTS085D10	8.5	47	10	89	○
DTS090D10	9.0	47	10	89	○
DTS100D10	10.0	47	10	89	○
DTS103D12	10.3	55	12	102	○
DTS105D12	10.5	55	12	102	○
DTS110D12	11.0	55	12	102	○
DTS120D12	12.0	55	12	102	○
DTS125D14	12.5	60	14	107	○
DTS130D14	13.0	60	14	107	○
DTS140D14	14.0	60	14	107	○
DTS145D16	14.5	65	16	115	○
DTS150D16	15.0	65	16	115	○
DTS160D16	16.0	65	16	115	○
DTS170D18	17.0	73	18	123	○
DTS180D18	18.0	73	18	123	○
DTS190D20	19.0	79	20	131	○
DTS200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

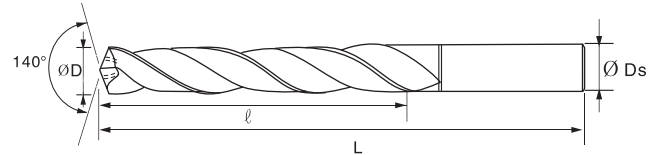
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

DTW Drill Series 5D with External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Stainless steel		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
DTW05030D6	3.0	28	6	66	●
DTW05033D6	3.3	28	6	66	●
DTW05040D6	4.0	36	6	74	●
DTW05042D6	4.2	36	6	74	●
DTW05050D6	5.0	44	6	82	●
DTW05060D6	6.0	44	6	82	●
DTW05068D8	6.8	53	8	91	●
DTW05070D8	7.0	53	8	91	●
DTW05080D8	8.0	53	8	91	●
DTW05085D10	8.5	61	10	103	●
DTW05090D10	9.0	61	10	103	●
DTW05100D10	10.0	61	10	103	●
DTW05103D12	10.3	71	12	118	●
DTW05105D12	10.5	71	12	118	●
DTW05110D12	11.0	71	12	118	●
DTW05120D12	12.0	71	12	118	●
DTW05125D14	12.5	77	14	124	●
DTW05130D14	13.0	77	14	124	●
DTW05140D14	14.0	77	14	124	●
DTW05145D16	14.5	83	16	133	●
DTW05150D16	15.0	83	16	133	●
DTW05160D16	16.0	83	16	133	●
DTW05170D18	17.0	93	18	143	●
DTW05180D18	18.0	93	18	143	●
DTW05190D20	19.0	101	20	153	●
DTW05200D20	20.0	101	20	153	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

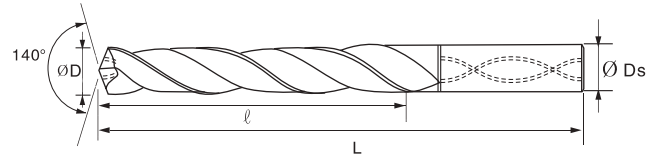
Non-standard Tools

# High Performance Carbide Drill for Stainless Steel Purpose(DTW DTS 3D&5D)



## DTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Stainless steel		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
DTS05030D6	3.0	28	6	66	○
DTS05033D6	3.3	28	6	66	○
DTS05040D6	4.0	36	6	74	○
DTS05042D6	4.2	36	6	74	○
DTS05050D6	5.0	44	6	82	○
DTS05060D6	6.0	44	6	82	○
DTS05068D8	6.8	53	8	91	○
DTS05070D8	7.0	53	8	91	○
DTS05080D8	8.0	53	8	91	○
DTS05085D10	8.5	61	10	103	○
DTS05090D10	9.0	61	10	103	○
DTS05100D10	10.0	61	10	103	○
DTS05103D12	10.3	71	12	118	○
DTS05105D12	10.5	71	12	118	○
DTS05110D12	11.0	71	12	118	○
DTS05120D12	12.0	71	12	118	○
DTS05125D14	12.5	77	14	124	○
DTS05130D14	13.0	77	14	124	○
DTS05140D14	14.0	77	14	124	○
DTS05145D16	14.5	83	16	133	○
DTS05150D16	15.0	83	16	133	○
DTS05160D16	16.0	83	16	133	○
DTS05170D18	17.0	93	18	143	○
DTS05180D18	18.0	93	18	143	○
DTS05190D20	19.0	101	20	153	○
DTS05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## STANDARD CUTTING CONDITIONS

### DTW Series 3D/5D (External Coolant)

Unit (mm)

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)				
				ø3	ø4	ø6	ø8	ø10
M	Austenitic stainless steel	130-200HB	40-30-20	0.05-0.10	0.06-0.12	0.07-0.14	0.08-0.18	0.09-0.20
	High strength austenite and cast stainless steel	<25HRC	40-30-20	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14
	Duplex stainless steel	<30HRC	35-25-20	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14

### DTS Series 3D/5D (Internal Coolant)

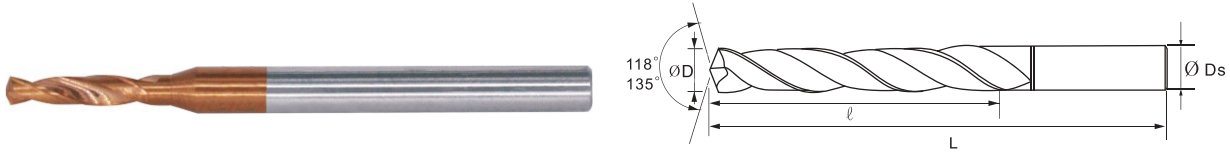
Unit (mm)

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)				
				ø3	ø4	ø6	ø8	ø10
M	Austenitic stainless steel	130-200HB	80-60-40	0.05-0.10	0.06-0.12	0.07-0.14	0.08-0.18	0.09-0.20
	High strength austenite and cast stainless steel	<25HRC	80-60-40	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14
	Duplex stainless steel	<30HRC	60-45-30	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14



## TDMC Micro Drill Series External Coolant

Material	Carbide	Helix angle	25°	Point angle	D1 ≤ 1.0mm	118°
Cutting edge tolerance	m7	Shank tolerance	h6		D1 > 1.0mm	135°
Coating	TiAlN	Standard	6537A	Suitable for processing	Steel/Stainless steel/Cast iron	



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMC-0200	0.20	2.0	3	38	●
TDMC-0250	0.25	2.5	3	38	●
TDMC-0300	0.30	3.0	3	38	●
TDMC-0350	0.35	3.0	3	38	●
TDMC-0400	0.40	4.0	3	38	●
TDMC-0450	0.45	4.0	3	38	●
TDMC-0500	0.50	5.0	3	38	●
TDMC-0550	0.55	5.0	3	38	●
TDMC-0600	0.60	6.0	3	38	●
TDMC-0650	0.65	6.0	3	38	●
TDMC-0700	0.70	6.0	3	38	●
TDMC-0750	0.75	6.0	3	38	●
TDMC-0800	0.80	6.0	3	38	●
TDMC-0850	0.85	6.0	3	38	●
TDMC-0900	0.90	6.0	3	38	●
TDMC-0950	0.95	6.0	3	38	●
TDMC-0960	0.96	6.0	3	38	●
TDMC-0970	0.97	6.0	3	38	●
TDMC-0980	0.98	6.0	3	38	●
TDMC-0990	0.99	6.0	3	38	●
TDMC-1000	1.00	7.0	3	38	●
TDMC-1010	1.01	7.0	3	38	●
TDMC-1020	1.02	7.0	3	38	●
TDMC-1030	1.03	7.0	3	38	●
TDMC-1040	1.04	7.0	3	38	●
TDMC-1050	1.05	7.0	3	38	●
TDMC-1100	1.10	7.0	3	38	●
TDMC-1150	1.15	7.0	3	38	●
TDMC-1200	1.20	8.0	3	38	●
TDMC-1250	1.25	8.0	3	38	●
TDMC-1300	1.30	8.0	3	38	●
TDMC-1350	1.35	8.0	3	38	●
TDMC-1400	1.40	8.0	3	38	●
TDMC-1450	1.45	8.0	3	38	●
TDMC-1460	1.46	8.0	3	38	●
TDMC-1470	1.47	8.0	3	38	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

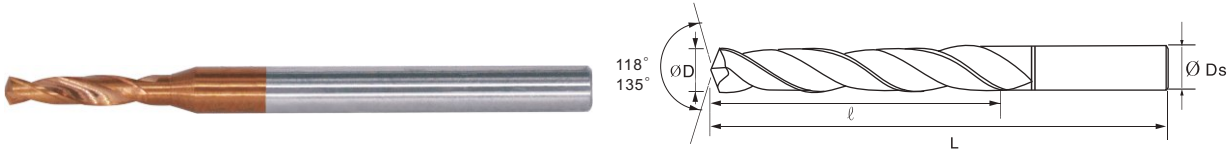
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TDMC Micro Drill Series External Coolant

Material	Carbide	Helix angle	25°	Point angle	D1 ≤ 1.0mm	118°
Cutting edge tolerance	m7	Shank tolerance	h6		D1 > 1.0mm	135°
Coating	TiAlN	Standard	6537A	Suitable for processing	Steel/Stainless steel/Cast iron	



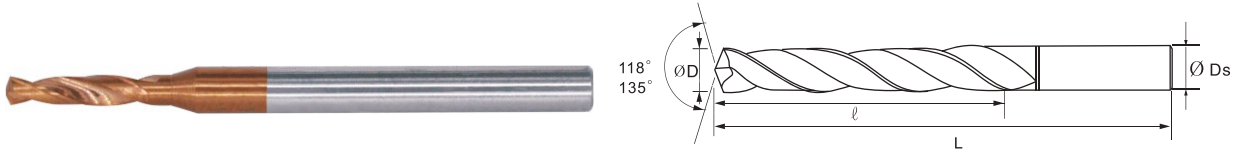
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMC-1480	1.48	8.0	3	38	●
TDMC-1490	1.49	8.0	3	38	●
TDMC-1500	1.50	8.0	3	38	●
TDMC-1510	1.51	10.0	3	38	●
TDMC-1520	1.52	10.0	3	38	●
TDMC-1530	1.53	10.0	3	38	●
TDMC-1540	1.54	10.0	3	38	●
TDMC-1550	1.55	10.0	3	38	●
TDMC-1560	1.56	10.0	3	38	●
TDMC-1570	1.57	10.0	3	38	●
TDMC-1580	1.58	10.0	3	38	●
TDMC-1590	1.59	10.0	3	38	●
TDMC-1600	1.60	10.0	3	38	●
TDMC-1610	1.61	10.0	3	38	●
TDMC-1620	1.62	10.0	3	38	●
TDMC-1630	1.63	10.0	3	38	●
TDMC-1640	1.64	10.0	3	38	●
TDMC-1650	1.65	10.0	3	38	●
TDMC-1660	1.66	10.0	3	38	●
TDMC-1670	1.67	10.0	3	38	●
TDMC-1680	1.68	10.0	3	38	●
TDMC-1690	1.69	10.0	3	38	●
TDMC-1700	1.70	10.0	3	38	●
TDMC-1710	1.71	10.0	3	38	●
TDMC-1720	1.72	10.0	3	38	●
TDMC-1730	1.73	10.0	3	38	●
TDMC-1740	1.74	10.0	3	38	●
TDMC-1750	1.75	10.0	3	38	●
TDMC-1760	1.76	10.0	3	38	●
TDMC-1770	1.77	10.0	3	38	●
TDMC-1780	1.78	10.0	3	38	●
TDMC-1790	1.79	10.0	3	38	●
TDMC-1800	1.80	10.0	3	38	●
TDMC-1810	1.81	10.0	3	38	●
TDMC-1820	1.82	10.0	3	38	●
TDMC-1830	1.83	10.0	3	38	●
TDMC-1840	1.84	10.0	3	38	●

● Stock ○ Non-stock

TDMC Micro Drill Series External Coolant

Material	Carbide	Helix angle	25°	Point angle	D1 ≤ 1.0mm	118°
Cutting edge tolerance	m7	Shank tolerance	h6		D1 > 1.0mm	135°
Coating	TiAlN	Standard	6537A	Suitable for processing	Steel/Stainless steel/Cast iron	



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMC-1850	1.85	10.0	3	38	●
TDMC-1860	1.86	10.0	3	38	●
TDMC-1870	1.87	10.0	3	38	●
TDMC-1880	1.88	10.0	3	38	●
TDMC-1890	1.89	10.0	3	38	●
TDMC-1900	1.90	10.0	3	38	●
TDMC-1910	1.91	10.0	3	38	●
TDMC-1920	1.92	10.0	3	38	●
TDMC-1930	1.93	10.0	3	38	●
TDMC-1940	1.94	10.0	3	38	●
TDMC-1950	1.95	10.0	3	38	●
TDMC-1960	1.96	10.0	3	38	●
TDMC-1970	1.97	10.0	3	38	●
TDMC-1980	1.98	10.0	3	38	●
TDMC-1990	1.99	10.0	3	38	●
TDMC-2000	2.00	10.0	3	38	●
TDMC-2050	2.05	12.0	3	38	●
TDMC-2100	2.10	12.0	3	38	●
TDMC-2150	2.15	12.0	3	38	●
TDMC-2200	2.20	12.0	3	38	●
TDMC-2250	2.25	12.0	3	38	●
TDMC-2300	2.30	12.0	3	38	●
TDMC-2350	2.35	12.0	3	38	●
TDMC-2400	2.40	12.0	3	38	●
TDMC-2450	2.45	12.0	3	38	●
TDMC-2500	2.50	12.0	3	38	●
TDMC-2550	2.55	12.0	3	38	●
TDMC-2600	2.60	12.0	3	38	●
TDMC-2650	2.65	12.0	3	38	●
TDMC-2700	2.70	12.0	3	38	●
TDMC-2750	2.75	12.0	3	38	●
TDMC-2800	2.80	12.0	3	38	●
TDMC-2850	2.85	12.0	3	38	●
TDMC-2900	2.90	12.0	3	38	●
TDMC-2950	2.95	12.0	3	38	●
TDMC-3000	3.00	12.0	3	38	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

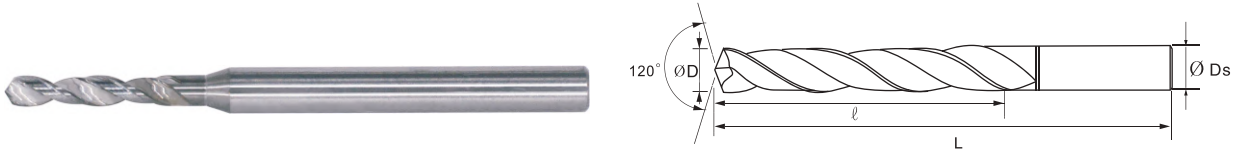
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TDMAL Micro Drill Series External Coolant

Material	Carbide	Helix angle	35°	Point angle	120°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	No Coating	Suitable for processing	Aluminum alloy/Copper alloy/Resin		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMAL-0200	0.20	3.5	3	38	●
TDMAL-0250	0.25	3.5	3	38	●
TDMAL-0300	0.30	5.0	3	38	●
TDMAL-0350	0.35	5.0	3	38	●
TDMAL-0400	0.40	6.0	3	38	●
TDMAL-0450	0.45	6.0	3	38	●
TDMAL-0500	0.50	6.0	3	38	●
TDMAL-0550	0.55	6.0	3	38	●
TDMAL-0600	0.60	7.0	3	38	●
TDMAL-0650	0.65	7.0	3	38	●
TDMAL-0700	0.70	8.0	3	38	●
TDMAL-0750	0.75	8.0	3	38	●
TDMAL-0800	0.80	8.0	3	38	●
TDMAL-0850	0.85	8.0	3	38	●
TDMAL-0900	0.90	8.0	3	38	●
TDMAL-0950	0.95	8.0	3	38	●
TDMAL-0960	0.96	8.0	3	38	●
TDMAL-0970	0.97	8.0	3	38	●
TDMAL-0980	0.98	8.0	3	38	●
TDMAL-0990	0.99	8.0	3	38	●
TDMAL-1000	1.00	10.0	3	38	●
TDMAL-1010	1.01	10.0	3	38	●
TDMAL-1020	1.02	10.0	3	38	●
TDMAL-1030	1.03	10.0	3	38	●
TDMAL-1040	1.04	10.0	3	38	●
TDMAL-1050	1.05	10.0	3	38	●
TDMAL-1100	1.10	10.0	3	38	●
TDMAL-1150	1.15	10.0	3	38	●
TDMAL-1200	1.20	10.0	3	38	●
TDMAL-1250	1.25	10.0	3	38	●
TDMAL-1300	1.30	10.0	3	38	●
TDMAL-1350	1.35	10.0	3	38	●
TDMAL-1400	1.40	10.0	3	38	●
TDMAL-1450	1.45	10.0	3	38	●
TDMAL-1460	1.46	10.0	3	38	●
TDMAL-1470	1.47	10.0	3	38	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

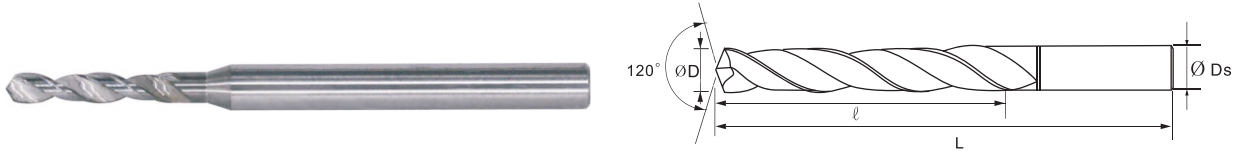
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## TDMAL Micro Drill Series External Coolant

Material	Carbide	Helix angle	35°	Point angle	120°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	No Coating	Suitable for processing	Aluminum alloy/Copper alloy/Resin		



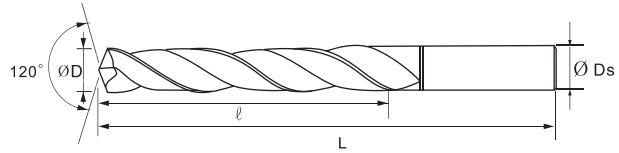
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMAL-1480	1.48	10.0	3	38	●
TDMAL-1490	1.49	10.0	3	38	●
TDMAL-1500	1.50	10.0	3	38	●
TDMAL-1510	1.51	10.0	3	38	●
TDMAL-1520	1.52	10.0	3	38	●
TDMAL-1530	1.53	10.0	3	38	●
TDMAL-1540	1.54	10.0	3	38	●
TDMAL-1550	1.55	10.0	3	38	●
TDMAL-1560	1.56	10.0	3	38	●
TDMAL-1570	1.57	10.0	3	38	●
TDMAL-1580	1.58	10.0	3	38	●
TDMAL-1590	1.59	10.0	3	38	●
TDMAL-1600	1.60	12.0	3	38	●
TDMAL-1610	1.61	12.0	3	38	●
TDMAL-1620	1.62	12.0	3	38	●
TDMAL-1630	1.63	12.0	3	38	●
TDMAL-1640	1.64	12.0	3	38	●
TDMAL-1650	1.65	12.0	3	38	●
TDMAL-1660	1.66	12.0	3	38	●
TDMAL-1670	1.67	12.0	3	38	●
TDMAL-1680	1.68	12.0	3	38	●
TDMAL-1690	1.69	12.0	3	38	●
TDMAL-1700	1.70	12.0	3	38	●
TDMAL-1710	1.71	12.0	3	38	●
TDMAL-1720	1.72	12.0	3	38	●
TDMAL-1730	1.73	12.0	3	38	●
TDMAL-1740	1.74	12.0	3	38	●
TDMAL-1750	1.75	12.0	3	38	●
TDMAL-1760	1.76	12.0	3	38	●
TDMAL-1770	1.77	12.0	3	38	●
TDMAL-1780	1.78	12.0	3	38	●
TDMAL-1790	1.79	12.0	3	38	●
TDMAL-1800	1.80	12.0	3	38	●
TDMAL-1810	1.81	12.0	3	38	●
TDMAL-1820	1.82	12.0	3	38	●
TDMAL-1830	1.83	12.0	3	38	●
TDMAL-1840	1.84	12.0	3	38	●

● Stock ○ Non-stock

## TDMAL Micro Drill Series External Coolant

Material	Carbide	Helix angle	35°	Point angle	120°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	No Coating	Suitable for processing	Aluminum alloy/Copper alloy/Resin		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	l	Ds	L	
TDMAL-1850	1.85	12.0	3	38	●
TDMAL-1860	1.86	12.0	3	38	●
TDMAL-1870	1.87	12.0	3	38	●
TDMAL-1880	1.88	12.0	3	38	●
TDMAL-1890	1.89	12.0	3	38	●
TDMAL-1900	1.90	12.0	3	38	●
TDMAL-1910	1.91	12.0	3	38	●
TDMAL-1920	1.92	12.0	3	38	●
TDMAL-1930	1.93	12.0	3	38	●
TDMAL-1940	1.94	12.0	3	38	●
TDMAL-1950	1.95	12.0	3	38	●
TDMAL-1960	1.96	12.0	3	38	●
TDMAL-1970	1.97	12.0	3	38	●
TDMAL-1980	1.98	12.0	3	38	●
TDMAL-1990	1.99	12.0	3	38	●
TDMAL-2000	2.00	12.0	3	38	●
TDMAL-2050	2.05	12.0	3	38	●
TDMAL-2100	2.10	12.0	3	38	●
TDMAL-2150	2.15	12.0	3	38	●
TDMAL-2200	2.20	12.0	3	38	●
TDMAL-2250	2.25	12.0	3	38	●
TDMAL-2300	2.30	12.0	3	38	●
TDMAL-2350	2.35	12.0	3	38	●
TDMAL-2400	2.40	12.0	3	38	●
TDMAL-2450	2.45	12.0	3	38	●
TDMAL-2500	2.50	12.0	3	38	●
TDMAL-2550	2.55	12.0	3	38	●
TDMAL-2600	2.60	12.0	3	38	●
TDMAL-2650	2.65	12.0	3	38	●
TDMAL-2700	2.70	12.0	3	38	●
TDMAL-2750	2.75	12.0	3	38	●
TDMAL-2800	2.80	12.0	3	38	●
TDMAL-2850	2.85	12.0	3	38	●
TDMAL-2900	2.90	12.0	3	38	●
TDMAL-2950	2.95	12.0	3	38	●
TDMAL-3000	3.00	12.0	3	38	●

● Stock ○ Non-stock

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

# STANDARD CUTTING CONDITIONS

## TDMC Series

Unit (mm)

ISO	Work Material	Brinell hardness(HB)	Rotation speed(rev/min)				
			Ø0.20-Ø0.29	Ø0.30-Ø0.49	Ø0.50-Ø0.99	Ø1.00-Ø1.99	Ø2.00-Ø3.00
P	Carbon steel	180-300	20000-25000	18000-20000	15000-18000	9500-15000	6300-9500
	Alloy steel	180-300	15000-20000	15000-17000	9500-15000	6000-9500	4800-6000
	Modulated steel	180-300	13000-17000	10000-13000	7000-10000	4000-7000	3000-4000
M	Stainless steel	-200	7500-15000	8000-10000	6000-8000	4000-6000	3700-4000

ISO	Work Material	Brinell hardness(HB)	Feed: f (mm/rev)				
			Ø0.20-Ø0.29	Ø0.30-Ø0.49	Ø0.50-Ø0.99	Ø1.00-Ø1.99	Ø2.00-Ø3.00
P	Carbon steel	180-300	0.002-0.01	0.01-0.04	0.02-0.04	0.03-0.06	0.07-0.10
	Alloy steel	180-300	0.0015-0.007	0.007-0.01	0.01-0.02	0.02-0.05	0.05-0.08
	Modulated steel	180-300	0.001-0.004	0.003-0.005	0.005-0.01	0.01-0.03	0.02-0.04
M	Stainless steel	-200	0.0005-0.001	0.002-0.01	0.015-0.02	0.02-0.04	0.03-0.05

## TDMAL Series

Unit (mm)

ISO	Work Material	Brinell hardness(HB)	Rotation speed(rev/min)				
			Ø0.20-Ø0.29	Ø0.30-Ø0.49	Ø0.50-Ø0.99	Ø1.00-Ø1.99	Ø2.00-Ø3.00
N	Aluminium alloy	-	16500-22200	13000-16500	12700-13000	6400-12700	5300-6400
	Copper alloy		11000-16000	11000-11500	9600-11500	4800-9600	4200-4800
	Resin		15000-20000	15000-17000	10000-15000	6000-10000	5000-6000

ISO	Work Material	Brinell hardness(HB)	Feed: f (mm/rev)				
			Ø0.20-Ø0.29	Ø0.30-Ø0.49	Ø0.50-Ø0.99	Ø1.00-Ø1.99	Ø2.00-Ø3.00
N	Aluminium alloy	-	0.005-0.02	0.02-0.04	0.04-0.06	0.06-0.12	0.12-0.20
	Copper alloy		0.002-0.008	0.008-0.015	0.015-0.04	0.04-0.08	0.08-0.15
	Resin		0.005-0.01	0.01-0.02	0.02-0.04	0.05-0.07	0.07-0.10

Carbide Drills

U Drills

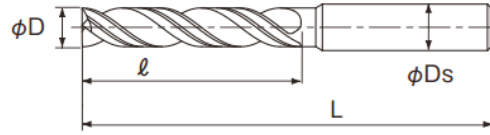
Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

## FSD High Efficiency Flat Drill



### Features

Point angle 180°.

Better centering ability, chip evacuation smoothly because of point geometry and flute design.

Suitable for machining inclined hole, drilling on ball surface and thin sheet, restraining the burr also.

## Solid Carbide Drill with Flat Bottom FSD Series

Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

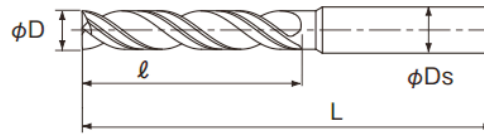
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD0300SE	3.0	16	4	49	●
FSD0310SE	3.1	16	4	49	●
FSD0320SE	3.2	16	4	49	●
FSD0330SE	3.3	16	4	49	●
FSD0340SE	3.4	16	4	49	●
FSD0350SE	3.5	16	4	49	●
FSD0360SE	3.6	16	4	49	●
FSD0370SE	3.7	16	4	49	●
FSD0380SE	3.8	16	4	49	●
FSD0390SE	3.9	16	4	49	●
FSD0400SE	4.0	16	4	49	●
FSD0410SE	4.1	20	6	61	●
FSD0420SE	4.2	20	6	61	●
FSD0430SE	4.3	20	6	61	●
FSD0440SE	4.4	20	6	61	●
FSD0450SE	4.5	20	6	61	●
FSD0460SE	4.6	20	6	61	●
FSD0470SE	4.7	20	6	61	●
FSD0480SE	4.8	20	6	61	●
FSD0490SE	4.9	20	6	61	●
FSD0500SE	5.0	20	6	61	●
FSD0510SE	5.1	24	6	65	●
FSD0520SE	5.2	24	6	65	●
FSD0530SE	5.3	24	6	65	●
FSD0540SE	5.4	24	6	65	●
FSD0550SE	5.5	24	6	65	●
FSD0560SE	5.6	24	6	65	●
FSD0570SE	5.7	24	6	65	●
FSD0580SE	5.8	24	6	65	●
FSD0590SE	5.9	24	6	65	●
FSD0600SE	6.0	24	6	65	●
FSD0610SE	6.1	28	8	69	●
FSD0620SE	6.2	28	8	69	●
FSD0630SE	6.3	28	8	69	●
FSD0640SE	6.4	28	8	69	●
FSD0650SE	6.5	28	8	69	●

● Stock ○ Non-stock



## FSD High Efficiency Flat Drill



### Features

Point angle 180°.

Better centering ability, chip evacuation smoothly because of point geometry and flute design.

Suitable for machining inclined hole, drilling on ball surface and thin sheet, restraining the burr also.

## Solid Carbide Drill with Flat Bottom FSD Series

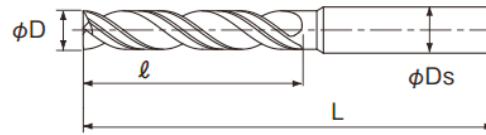
Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD0660SE	6.6	28	8	69	●
FSD0670SE	6.7	28	8	69	●
FSD0680SE	6.8	28	8	69	●
FSD0690SE	6.9	28	8	69	●
FSD0700SE	7.0	28	8	69	●
FSD0710SE	7.1	32	8	73	●
FSD0720SE	7.2	32	8	73	●
FSD0730SE	7.3	32	8	73	●
FSD0740SE	7.4	32	8	73	●
FSD0750SE	7.5	32	8	73	●
FSD0760SE	7.6	32	8	73	●
FSD0770SE	7.7	32	8	73	●
FSD0780SE	7.8	32	8	73	●
FSD0790SE	7.9	32	8	73	●
FSD0800SE	8.0	32	8	73	●
FSD0810SE	8.1	36	10	81	●
FSD0820SE	8.2	36	10	81	●
FSD0830SE	8.3	36	10	81	●
FSD0840SE	8.4	36	10	81	●
FSD0850SE	8.5	36	10	81	●
FSD0860SE	8.6	36	10	81	●
FSD0870SE	8.7	36	10	81	●
FSD0880SE	8.8	36	10	81	●
FSD0890SE	8.9	36	10	81	●
FSD0900SE	9.0	36	10	81	●
FSD0910SE	9.1	40	10	85	●
FSD0920SE	9.2	40	10	85	●
FSD0930SE	9.3	40	10	85	●
FSD0940SE	9.4	40	10	85	●
FSD0950SE	9.5	40	10	85	●
FSD0960SE	9.6	40	10	85	●
FSD0970SE	9.7	40	10	85	●
FSD0980SE	9.8	40	10	85	●
FSD0990SE	9.9	40	10	85	●
FSD1000SE	10.0	40	10	85	●
FSD1010SE	10.1	44	12	94	●

● Stock ○ Non-stock

## FSD High Efficiency Flat Drill



### Features

Point angle 180°.

Better centering ability, chip evacuation smoothly because of point geometry and flute design.

Suitable for machining inclined hole, drilling on ball surface and thin sheet, restraining the burr also.

## Solid Carbide Drill with Flat Bottom FSD Series

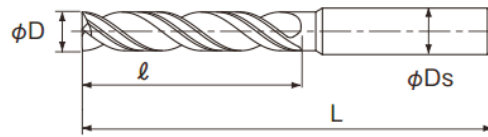
Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD1020SE	10.2	44	12	94	●
FSD1030SE	10.3	44	12	94	●
FSD1040SE	10.4	44	12	94	●
FSD1050SE	10.5	44	12	94	●
FSD1060SE	10.6	44	12	94	●
FSD1070SE	10.7	44	12	94	●
FSD1080SE	10.8	44	12	94	●
FSD1090SE	10.9	44	12	94	●
FSD1100SE	11.0	48	12	94	●
FSD1110SE	11.1	48	12	98	●
FSD1120SE	11.2	48	12	98	●
FSD1130SE	11.3	48	12	98	●
FSD1140SE	11.4	48	12	98	●
FSD1150SE	11.5	48	12	98	●
FSD1160SE	11.6	48	12	98	●
FSD1170SE	11.7	48	12	98	●
FSD1180SE	11.8	48	12	98	●
FSD1190SE	11.9	48	12	98	●
FSD1200SE	12.0	48	12	98	●
FSD1210SE	12.1	52	14	102	○
FSD1220SE	12.2	52	14	102	○
FSD1230SE	12.3	52	14	102	○
FSD1240SE	12.4	52	14	102	○
FSD1250SE	12.5	52	14	102	○
FSD1260SE	12.6	52	14	102	○
FSD1270SE	12.7	52	14	102	○
FSD1280SE	12.8	52	14	102	○
FSD1290SE	12.9	52	14	102	○
FSD1300SE	13.0	52	14	102	○
FSD1310SE	13.1	56	14	106	○
FSD1320SE	13.2	56	14	106	○
FSD1330SE	13.3	56	14	106	○
FSD1340SE	13.4	56	14	106	○
FSD1350SE	13.5	56	14	106	○
FSD1360SE	13.6	56	14	106	○
FSD1370SE	13.7	56	14	106	○

● Stock ○ Non-stock

## FSD High Efficiency Flat Drill



### Features

Point angle 180°.

Better centering ability, chip evacuation smoothly because of point geometry and flute design.

Suitable for machining inclined hole, drilling on ball surface and thin sheet, restraining the burr also.

## Solid Carbide Drill with Flat Bottom FSD Series

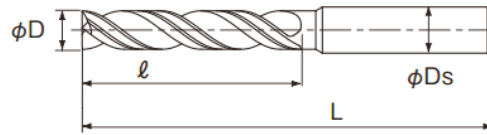
Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD1380SE	13.8	56	14	106	○
FSD1390SE	13.9	56	14	106	○
FSD1400SE	14.0	56	14	106	○
FSD1410SE	14.1	60	16	113	○
FSD1420SE	14.2	60	16	113	○
FSD1430SE	14.3	60	16	113	○
FSD1440SE	14.4	60	16	113	○
FSD1450SE	14.5	60	16	113	○
FSD1460SE	14.6	60	16	113	○
FSD1470SE	14.7	60	16	113	○
FSD1480SE	14.8	60	16	113	○
FSD1490SE	14.9	60	16	113	○
FSD1500SE	15.0	60	16	113	○
FSD1510SE	15.1	64	16	117	○
FSD1520SE	15.2	64	16	117	○
FSD1530SE	15.3	64	16	117	○
FSD1540SE	15.4	64	16	117	○
FSD1550SE	15.5	64	16	117	○
FSD1560SE	15.6	64	16	117	○
FSD1570SE	15.7	64	16	117	○
FSD1580SE	15.8	64	16	117	○
FSD1590SE	15.9	64	16	117	○
FSD1600SE	16.0	64	16	117	○
FSD1610SE	16.1	68	18	121	○
FSD1620SE	16.2	68	18	121	○
FSD1630SE	16.3	68	18	121	○
FSD1640SE	16.4	68	18	121	○
FSD1650SE	16.5	68	18	121	○
FSD1660SE	16.6	68	18	121	○
FSD1670SE	16.7	68	18	121	○
FSD1680SE	16.8	68	18	121	○
FSD1690SE	16.9	68	18	121	○
FSD1700SE	17.0	68	18	121	○
FSD1710SE	17.1	72	18	125	○
FSD1720SE	17.2	72	18	125	○
FSD1730SE	17.3	72	18	125	○

● Stock ○ Non-stock

FSD High Efficiency Flat Drill



Features

- Point angle 180°.
- Better centering ability, chip evacuation smoothly because of point geometry and flute design.
- Suitable for machining inclined hole, drilling on ball surface and thin sheet, restraining the burr also.

Solid Carbide Drill with Flat Bottom FSD Series

Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD1740SE	17.4	72	18	125	○
FSD1750SE	17.5	72	18	125	○
FSD1760SE	17.6	72	18	125	○
FSD1770SE	17.7	72	18	125	○
FSD1780SE	17.8	72	18	125	○
FSD1790SE	17.9	72	18	125	○
FSD1800SE	18.0	72	18	125	○
FSD1810SE	18.1	76	20	131	○
FSD1820SE	18.2	76	20	131	○
FSD1830SE	18.3	76	20	131	○
FSD1840SE	18.4	76	20	131	○
FSD1850SE	18.5	76	20	131	○
FSD1860SE	18.6	76	20	131	○
FSD1870SE	18.7	76	20	131	○
FSD1880SE	18.8	76	20	131	○
FSD1890SE	18.9	76	20	131	○
FSD1900SE	19.0	76	20	131	○
FSD1910SE	19.1	80	20	135	○
FSD1920SE	19.2	80	20	135	○
FSD1930SE	19.3	80	20	135	○
FSD1940SE	19.4	80	20	135	○
FSD1950SE	19.5	80	20	135	○
FSD1960SE	19.6	80	20	135	○
FSD1970SE	19.7	80	20	135	○
FSD1980SE	19.8	80	20	135	○
FSD1990SE	19.9	80	20	135	○
FSD2000SE	20.0	80	20	135	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

# STANDARD CUTTING CONDITIONS

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

**FSD Series**

Unit (mm)

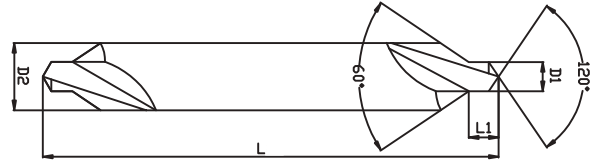
ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc(m/min)	Feed: f (mm/rev)						
				3~4	4~6	6~8	8~10	10~12	12~16	16~20
P	Low carbon steel (C < 0.3) C15E4, E275A, E355D, etc.	~125	60~90	0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35
	Carbon steel (C > 0.3) C45, C55, etc.	125~300	50~80	0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35
	High alloy steel 42CrMo4, etc.	250~350	40~70	0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35
M	Stainless steel X5CrNi18-9, etc.		20~50	0.01~0.03	0.03~0.05	0.03~0.05	0.04~0.08	0.08~0.12	0.1~0.2	0.15~0.25
K	Grey cast iron 250, etc.	~200	30~50	0.06~0.10	0.06~0.15	0.01~0.2	0.12~0.22	0.15~0.25	0.17~0.27	0.25~0.35
	Ductile cast iron 450-10S, etc.	~300	20~40	0.04~0.8	0.06~0.12	0.1~0.15	0.12~0.18	0.15~0.2	0.15~0.25	0.2~0.3
N	Aluminium alloy AISI11Cu3, etc.			0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35

# Carbide Center Drill with High-performance and Multi-Purpose Series **TOTIME**

## CCD Series

### Carbide Center Drill

Material	Carbide	Angle	60°	Coating	No
Suitable for processing	Steel, Stainless steel, Cast iron				



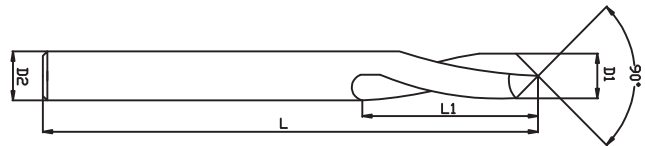
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Total Length	Shank Diameter
	D1	L1	L	D2
CCD010	1.0	1.0	40	3
CCD015	1.5	1.5	45	4
CCD020	2.0	2.0	45	5
CCD025	2.5	2.5	50	6
CCD030	3.0	3.0	55	8
CCD040	4.0	4.5	60	10
CCD050	5.0	5.5	65	12

## CSD Series

### Carbide Spotting Drill

Material	Carbide	Point angle	90°	Coating	TiAIN
Suitable for processing	Steel, Stainless steel, Cast iron				



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Total Length	Shank Diameter
	D1	L1	L	D2
CSD030	3	9	50	3
CSD040	4	10	50	4
CSD050	5	12	50	5
CSD060	6	13	50	6
CSD080	8	23	60	8
CSD100	10	24	75	10
CSD120	12	28	75	12
CSD160	16	32	100	16
CSD200	20	35	100	20



TOTIME U drill, featuring uniquely designed insert, offers highly economical drilling with enhanced stability and long tool life.

**Inserts:**

Available in the sizes SPMX/GX05,06,07,09,11 and 14  
Each has 4 cutting edges

**Drill bodies:**

ZD: Available in L/D=2, 3,4 and 5 in metric shank sizes  
from  $\varnothing D_c$  13 to 60mm Tolerance:  $-0.1 \sim +0.2$ mm

**Grades:**

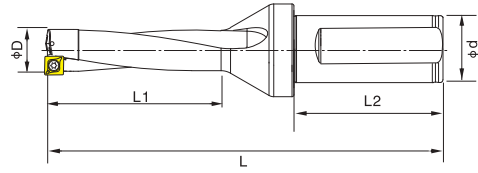
TI620: First choice for general purpose

TN200: Suitable for Non-ferrous metal processing

**TZ650:**

New PVD coating Suitable for medium and high speed machining of general-purpose materials, with high wear resistance and impact resistance.





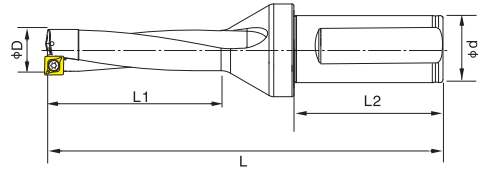
## 2D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock			
	D	L1	L	L2	d							
ZD02-13.0-XP25-SP05-02	13	26	104	56	25	SP□X050204	ST0205	T6	●			
ZD02-13.5-XP25-SP05-02	13.5	27	105						●			
ZD02-14.0-XP25-SP05-02	14	28	106						●			
ZD02-14.5-XP25-SP05-02	14.5	29	107						●			
ZD02-15.0-XP25-SP05-02	15	30	108						●			
ZD02-15.5-XP25-SP06-02	15.5	31	109						●			
ZD02-16.0-XP25-SP06-02	16	32	110			●						
ZD02-16.5-XP25-SP06-02	16.5	33	111			●						
ZD02-17.0-XP25-SP06-02	17	34	112			●						
ZD02-17.5-XP25-SP06-02	17.5	35	113			●						
ZD02-18.0-XP25-SP06-02	18	36	114			●						
ZD02-18.5-XP25-SP06-02	18.5	37	115			●						
ZD02-19.0-XP25-SP06-02	19	38	116			●						
ZD02-19.5-XP25-SP06-02	19.5	39	117			●						
ZD02-20.0-XP25-SP06-02	20	40	119	●								
ZD02-20.5-XP25-SP06-02	20.5	41	120	●								
ZD02-21.0-XP25-SP06-02	21	42	121	●								
ZD02-21.5-XP25-SP06-02	21.5	43	122	●								
ZD02-22.0-XP25-SP07-02	22	44	123	60	32	SP□X07T308	ST2506	T8	●			
ZD02-22.5-XP25-SP07-02	22.5	45	124						●			
ZD02-23.0-XP25-SP07-02	23	46	125						●			
ZD02-23.5-XP25-SP07-02	23.5	47	126						●			
ZD02-24.0-XP25-SP07-02	24	48	127						●			
ZD02-24.5-XP25-SP07-02	24.5	49	128						●			
ZD02-25.0-XP32-SP07-02	25	50	141			●						
ZD02-25.5-XP32-SP07-02	25.5	51	142			●						
ZD02-26.0-XP32-SP07-02	26	52	143			●						
ZD02-26.5-XP32-SP07-02	26.5	53	144			●						
ZD02-27.0-XP32-SP07-02	27	54	145			●						
ZD02-27.5-XP32-SP09-02	27.5	55	146			●						
ZD02-28.0-XP32-SP09-02	28	56	147			●						
ZD02-28.5-XP32-SP09-02	28.5	57	148			●						
ZD02-29.0-XP32-SP09-02	29	58	149	●								
ZD02-29.5-XP32-SP09-02	29.5	59	150	●								
ZD02-30.0-XP32-SP09-02	30	60	151	60	32	SP□X090408	ST3508	T15	●			
ZD02-30.5-XP32-SP09-02	30.5	61	152						●			
ZD02-31.0-XP32-SP09-02	31	62	153						●			
ZD02-31.5-XP32-SP09-02	31.5	63	154						●			
ZD02-32.0-XP32-SP09-02	32	64	155						●			
ZD02-32.5-XP32-SP09-02	32.5	65	156						●			
ZD02-33.0-XP32-SP09-02	33	66	157			●						
ZD02-33.5-XP32-SP11-02	33.5	67	158			●						
ZD02-34.0-XP32-SP11-02	34	68	159			●						
ZD02-34.5-XP32-SP11-02	34.5	69	160			●						
ZD02-35.0-XP32-SP11-02	35	70	161			●						
ZD02-35.5-XP32-SP11-02	35.5	71	162			●						
									SP□X110408	ST4010		●

● Stock ○ Non-stock





## 2D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD02-36.0-XP32-SP11-02	36	72	163	60	32	SP□X110408	ST4010	T15	●
ZD02-36.5-XP32-SP11-02	36.5	73	164						●
ZD02-37.0-XP32-SP11-02	37	74	165						●
ZD02-37.5-XP32-SP11-02	37.5	75	166						●
ZD02-38.0-XP32-SP11-02	38	76	167						●
ZD02-38.5-XP32-SP11-02	38.5	77	168						●
ZD02-39.0-XP32-SP11-02	39	78	169						●
ZD02-39.5-XP32-SP11-02	39.5	79	170						●
ZD02-40.0-XP32-SP11-02	40	80	171						●
ZD02-41.0-XP32-SP14-02	41	82	173						65
ZD02-42.0-XP32-SP14-02	42	84	175	●					
ZD02-43.0-XP40-SP14-02	43	86	186	●					
ZD02-44.0-XP40-SP14-02	44	88	188	●					
ZD02-45.0-XP40-SP14-02	45	90	190	●					
ZD02-46.0-XP40-SP14-02	46	92	192	●					
ZD02-47.0-XP40-SP14-02	47	94	194	●					
ZD02-48.0-XP40-SP14-02	48	96	196	●					
ZD02-49.0-XP40-SP14-02	49	98	198	●					
ZD02-50.0-XP40-SP14-02	50	100	200	●					
ZD02-51.0-XP40-SP14-02	51	102	202	SP□X090408	ST3508	T15	●		
ZD02-52.0-XP40-SP09-04	52	104	204				●		
ZD02-53.0-XP40-SP09-04	53	106	206				●		
ZD02-54.0-XP40-SP09-04	54	108	208				●		
ZD02-55.0-XP40-SP09-04	55	110	210				●		
ZD02-56.0-XP40-SP09-04	56	112	212				●		
ZD02-57.0-XP40-SP09-04	57	114	214				●		
ZD02-58.0-XP40-SP09-04	58	116	216				●		
ZD02-59.0-XP40-SP09-04	59	118	218				●		
ZD02-60.0-XP40-SP09-04	60	120	220				●		

● Stock ○ Non-stock

Carbide Drills

U Drills

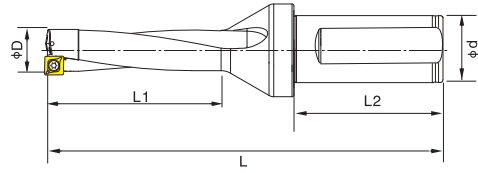
Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools





### 3D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD03-36.0-XP32-SP11-02	36	108	199	60	32	SP□X110408	ST4010	T15	●
ZD03-36.5-XP32-SP11-02	36.5	109.5	200						●
ZD03-37.0-XP32-SP11-02	37	111	202						●
ZD03-37.5-XP32-SP11-02	37.5	112.5	203						●
ZD03-38.0-XP32-SP11-02	38	114	205						●
ZD03-38.5-XP32-SP11-02	38.5	115.5	206						●
ZD03-39.0-XP32-SP11-02	39	117	206						●
ZD03-39.5-XP32-SP11-02	39.5	118.5	209						●
ZD03-40.0-XP32-SP11-02	40	120	211						●
ZD03-41.0-XP32-SP14-02	41	123	214						65
ZD03-42.0-XP32-SP14-02	42	126	217	●					
ZD03-43.0-XP40-SP14-02	43	129	229	●					
ZD03-44.0-XP40-SP14-02	44	132	232	●					
ZD03-45.0-XP40-SP14-02	45	135	235	●					
ZD03-46.0-XP40-SP14-02	46	138	238	●					
ZD03-47.0-XP40-SP14-02	47	141	241	●					
ZD03-48.0-XP40-SP14-02	48	144	244	●					
ZD03-49.0-XP40-SP14-02	49	147	247	●					
ZD03-50.0-XP40-SP14-02	50	150	250	●					
ZD03-51.0-XP40-SP14-02	51	153	253	65	SP□X090408	ST3508	T15	●	
ZD03-52.0-XP40-SP09-04	52	156	256					●	
ZD03-53.0-XP40-SP09-04	53	159	259					●	
ZD03-54.0-XP40-SP09-04	54	162	262					●	
ZD03-55.0-XP40-SP09-04	55	165	265					●	
ZD03-56.0-XP40-SP09-04	56	168	268					●	
ZD03-57.0-XP40-SP09-04	57	171	271					●	
ZD03-58.0-XP40-SP09-04	58	175	274					●	
ZD03-59.0-XP40-SP09-04	59	177	277					●	
ZD03-60.0-XP40-SP09-04	60	180	280					●	

● Stock ○ Non-stock

Carbide Drills

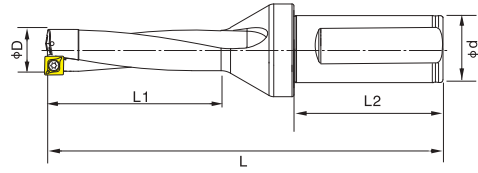
U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

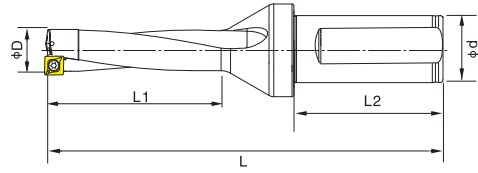


### 4D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD04-13.0-XP25-SP05-02	13	52	130	56	25	SP□X050204	ST0205	T6	●
ZD04-13.5-XP25-SP05-02	13.5	54	132						●
ZD04-14.0-XP25-SP05-02	14	56	134						●
ZD04-14.5-XP25-SP05-02	14.5	58	136						●
ZD04-15.0-XP25-SP05-02	15	60	138						●
ZD04-15.5-XP25-SP06-02	15.5	62	140						●
ZD04-16.0-XP25-SP06-02	16	64	142			●			
ZD04-16.5-XP25-SP06-02	16.5	66	144			●			
ZD04-17.0-XP25-SP06-02	17	68	146			●			
ZD04-17.5-XP25-SP06-02	17.5	70	148			●			
ZD04-18.0-XP25-SP06-02	18	72	150			●			
ZD04-18.5-XP25-SP06-02	18.5	74	152			●			
ZD04-19.0-XP25-SP06-02	19	76	154			●			
ZD04-19.5-XP25-SP06-02	19.5	78	155			●			
ZD04-20.0-XP25-SP06-02	20	80	159	60	32	SP□X060204	ST2205	T8	●
ZD04-20.5-XP25-SP06-02	20.5	82	161						●
ZD04-21.0-XP25-SP06-02	21	84	163						●
ZD04-21.5-XP25-SP06-02	21.5	86	165						●
ZD04-22.0-XP25-SP07-02	22	88	167						●
ZD04-22.5-XP25-SP07-02	22.5	90	169						●
ZD04-23.0-XP25-SP07-02	23	92	171			●			
ZD04-23.5-XP25-SP07-02	23.5	94	173			●			
ZD04-24.0-XP25-SP07-02	24	96	175			●			
ZD04-24.5-XP25-SP07-02	24.5	98	177			●			
ZD04-25.0-XP32-SP07-02	25	100	191			●			
ZD04-25.5-XP32-SP07-02	25.5	102	193			●			
ZD04-26.0-XP32-SP07-02	26	104	195			●			
ZD04-26.5-XP32-SP07-02	26.5	106	197			●			
ZD04-27.0-XP32-SP07-02	27	108	199	60	32	SP□X07T308	ST2506	T15	●
ZD04-27.5-XP32-SP09-02	27.5	110	201						●
ZD04-28.0-XP32-SP09-02	28	112	203						●
ZD04-28.5-XP32-SP09-02	28.5	114	205						●
ZD04-29.0-XP32-SP09-02	29	116	207						●
ZD04-29.5-XP32-SP09-02	29.5	118	209						●
ZD04-30.0-XP32-SP09-02	30	120	211			●			
ZD04-30.5-XP32-SP09-02	30.5	122	213			●			
ZD04-31.0-XP32-SP09-02	31	124	215			●			
ZD04-31.5-XP32-SP09-02	31.5	126	217			●			
ZD04-32.0-XP32-SP09-02	32	128	219			●			
ZD04-32.5-XP32-SP09-02	32.5	130	221			●			
ZD04-33.0-XP32-SP09-02	33	132	223			●			
ZD04-33.5-XP32-SP11-02	33.5	134	225			●			
ZD04-34.0-XP32-SP11-02	34	136	227	SP□X090408	ST3508	T15	●		
ZD04-34.5-XP32-SP11-02	34.5	138	229				●		
ZD04-35.0-XP32-SP11-02	35	140	231				●		
ZD04-35.5-XP32-SP11-02	35.5	142	233				●		
ZD04-35.5-XP32-SP11-02	35.5	142	233				●		
ZD04-34.0-XP32-SP11-02	34	136	227	SP□X110408	ST4010		T15	●	
ZD04-34.5-XP32-SP11-02	34.5	138	229					●	
ZD04-35.0-XP32-SP11-02	35	140	231					●	
ZD04-35.5-XP32-SP11-02	35.5	142	233					●	
ZD04-35.5-XP32-SP11-02	35.5	142	233					●	

● Stock ○ Non-stock



### 4D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD04-36.0-XP32-SP11-02	36	144	235	60	32	SP□X110408	ST4010	T15	●
ZD04-36.5-XP32-SP11-02	36.5	146	237						●
ZD04-37.0-XP32-SP11-02	37	148	239						●
ZD04-37.5-XP32-SP11-02	37.5	150	241						●
ZD04-38.0-XP32-SP11-02	38	152	243						●
ZD04-38.5-XP32-SP11-02	38.5	154	245						●
ZD04-39.0-XP32-SP11-02	39	156	247						●
ZD04-39.5-XP32-SP11-02	39.5	158	249						●
ZD04-40.0-XP32-SP11-02	40	160	251						●
ZD04-41.0-XP32-SP14-02	41	164	255						65
ZD04-42.0-XP32-SP14-02	42	168	259	●					
ZD04-43.0-XP40-SP14-02	43	172	272	●					
ZD04-44.0-XP40-SP14-02	44	176	276	●					
ZD04-45.0-XP40-SP14-02	45	180	280	●					
ZD04-46.0-XP40-SP14-02	46	184	284	●					
ZD04-47.0-XP40-SP14-02	47	188	288	●					
ZD04-48.0-XP40-SP14-02	48	192	292	●					
ZD04-49.0-XP40-SP14-02	49	196	296	●					
ZD04-50.0-XP40-SP14-02	50	200	300	●					
ZD04-51.0-XP40-SP14-02	51	204	304	SP□X090408	ST3508	T15	●		
ZD04-52.0-XP40-SP09-04	52	208	308				●		
ZD04-53.0-XP40-SP09-04	53	212	312				●		
ZD04-54.0-XP40-SP09-04	54	216	316				●		
ZD04-55.0-XP40-SP09-04	55	220	320				●		
ZD04-56.0-XP40-SP09-04	56	224	324				●		
ZD04-57.0-XP40-SP09-04	57	228	328				●		
ZD04-58.0-XP40-SP09-04	58	232	332				●		
ZD04-59.0-XP40-SP09-04	59	236	336				●		
ZD04-60.0-XP40-SP09-04	60	240	340				●		

● Stock ○ Non-stock

Carbide Drills

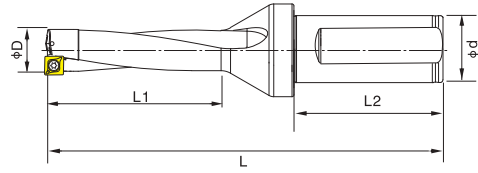
U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools



### 5D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD05-20.0-XP25-SP06-02	20	100	179	56	25	SPOX060204	ST2205	T6	●
ZD05-20.5-XP25-SP06-02	20.5	102.5	181						●
ZD05-21.0-XP25-SP06-02	21	105	184						●
ZD05-21.5-XP25-SP06-02	21.5	107.5	186						●
ZD05-22.0-XP25-SP07-02	22	110	189			SPOX07T308	ST2506	T8	●
ZD05-22.5-XP25-SP07-02	22.5	112.5	193						●
ZD05-23.0-XP25-SP07-02	23	115	194						●
ZD05-23.5-XP25-SP07-02	23.5	117.5	196						●
ZD05-24.0-XP25-SP07-02	24	120	199						●
ZD05-24.5-XP25-SP07-02	24.5	122.5	201						●
ZD05-25.0-XP32-SP07-02	25	125	216	60	32	SPOX090408	ST3508	T15	●
ZD05-25.5-XP32-SP07-02	25.5	127.5	218						●
ZD05-26.0-XP32-SP07-02	26	130	221						●
ZD05-26.5-XP32-SP07-02	26.5	132.5	223						●
ZD05-27.0-XP32-SP07-02	27	135	226			SPOX110408	ST4010	T15	●
ZD05-27.5-XP32-SP09-02	27.5	137.5	228						●
ZD05-28.0-XP32-SP09-02	28	140	231						●
ZD05-28.5-XP32-SP09-02	28.5	142.5	233						●
ZD05-29.0-XP32-SP09-02	29	145	236						●
ZD05-29.5-XP32-SP09-02	29.5	147.5	238						●
ZD05-30.0-XP32-SP09-02	30	150	241	SPOX140512	ST5010	T20	●		
ZD05-30.5-XP32-SP09-02	30.5	152.5	243				●		
ZD05-31.0-XP32-SP09-02	31	155	246				●		
ZD05-31.5-XP32-SP09-02	31.5	157.5	248				●		
ZD05-32.0-XP32-SP09-02	32	160	251			SPOX110408	ST4010	T15	●
ZD05-32.5-XP32-SP09-02	32.5	162.5	253						●
ZD05-33.0-XP32-SP09-02	33	165	256						●
ZD05-33.5-XP32-SP11-02	33.5	167.5	258						●
ZD05-34.0-XP32-SP11-02	34	170	261						●
ZD05-34.5-XP32-SP11-02	34.5	172.5	263						●
ZD05-35.0-XP32-SP11-02	35	175	266	SPOX110408	ST4010	T15	●		
ZD05-35.5-XP32-SP11-02	35.5	177.5	268				●		
ZD05-36.0-XP32-SP11-02	36	180	271				●		
ZD05-36.5-XP32-SP11-02	36.5	182.5	273				●		
ZD05-37.0-XP32-SP11-02	37	185	276				●		
ZD05-37.5-XP32-SP11-02	37.5	187.5	278				●		
ZD05-38.0-XP32-SP11-02	38	190	281				●		
ZD05-38.5-XP32-SP11-02	38.5	192.5	283				●		
ZD05-39.0-XP32-SP11-02	39	195	284	SPOX110408	ST4010	T15	●		
ZD05-39.5-XP32-SP11-02	39.5	197.5	288				●		
ZD05-40.0-XP32-SP11-02	40	200	291				●		
ZD05-41.0-XP32-SP14-02	41	205	296				SPOX140512	ST5010	T20
ZD05-42.0-XP32-SP14-02	42	210	301	●					

● Stock ○ Non-stock



# Cutting Conditions

Unit (mm)

ISO	Material	Condition	Tensile strength	Hardness	Cutting speed	Feed (mm/rev) vs. drill diameter Drill length 2,3,4xD						
			Rm(n/mm <sup>2</sup> )	HB		Vc(m/min)	SPGX05	SPGX06	SPGX07	SPGX09	SPGX11	SPGX14
P	Non-alloy steel, cast steel,	<0.25%C	Annealed	420	125	200-280	0.04-0.06	0.04-0.06	0.04-0.08	0.04-0.08	0.06-0.10	0.06-0.12
		>=0.25%C	Annealed	650	190	120-190	0.05-0.08	0.06-0.10	0.06-0.12	0.07-0.13	0.08-0.15	0.08-0.16
	free cutting steel	<0.55%C	Quenched and tempered	850	250	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
		>=0.55%C	Annealed	750	220	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
	Low alloy steel and cast steel (Less than 5% of alloying elements)	0.55-0.80%	Quenched and tempered	1000	300	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
			Annealed	600	200	120-190	0.06-0.12	0.08-0.14	0.10-0.18	0.12-0.20	0.12-0.20	0.13-0.20
			Quenched and tempered	930	275	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18
	"High alloy steel, cast steel and tool steel"		Annealed	1000	300	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18
			Quenched and tempered	1200	350	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18
	M	"Stainless steel and cast steel"	Ferritic / martensitic	680	200	170-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
Martensitic			820	240	170-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18	
Austenitic			600	180	170-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18	
K	Grey cast iron	-	-	250	120-200	0.09-0.3	0.09-0.33	0.1-0.36	0.1-0.37	0.01-0.38	0.12-0.48	
N	Aluminium Alloy	-	-	-	200-320	0.06-0.17	0.06-0.17	0.06-0.18	0.07-0.20	0.07-0.20	0.08-0.22	
	Copper Alloy	-	-	-	200-320	0.06-0.17	0.06-0.17	0.06-0.18	0.07-0.20	0.07-0.20	0.08-0.22	

ISO	Material	Condition	Tensile strength	Hardness	Cutting speed	Feed (mm/rev) vs. drill diameter Drill length 5xD						
			Rm(n/mm <sup>2</sup> )	HB		Vc(m/min)	SPGX05	SPGX06	SPGX07	SPGX09	SPGX11	SPGX14
P	Non-alloy steel, cast steel,	<0.25%C	Annealed	420	125	200-280	0.04-0.05	0.04-0.05	0.04-0.06	0.04-0.07	0.06-0.08	0.06-0.10
		>=0.25%C	Annealed	650	190	120-190	0.06-0.08	0.06-0.08	0.06-0.10	0.07-0.12	0.08-0.13	0.08-0.14
	free cutting steel	<0.55%C	Quenched and tempered	850	250	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
		>=0.55%C	Annealed	750	220	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
	Low alloy steel and cast steel (Less than 5% of alloying elements)	0.55-0.80%	Quenched and tempered	1000	300	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
			Annealed	600	200	120-190	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.12-0.18	0.13-0.18
			Quenched and tempered	930	275	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17
	"High alloy steel, cast steel and tool steel"		Annealed	1000	300	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17
			Quenched and tempered	1200	350	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17
	M	"Stainless steel and cast steel"	Ferritic / martensitic	680	200	170-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17
Martensitic			820	240	170-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17	
Austenitic			600	180	170-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17	
K	Grey cast iron	-	-	250	120-200	0.09-0.3	0.09-0.33	0.1-0.36	0.1-0.37	0.01-0.38	0.12-0.48	
N	Aluminium Alloy	-	-	-	200-320	0.05-0.15	0.05-0.15	0.06-0.16	0.06-0.16	0.06-0.20	0.08-0.18	
	Copper Alloy	-	-	-	180-280	0.05-0.15	0.05-0.15	0.06-0.16	0.06-0.16	0.07-0.20	0.08-0.18	



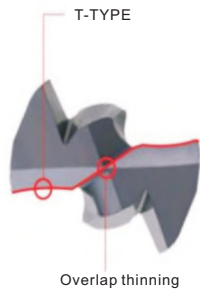
Code system of holder

<b>DDT</b>	<b>C</b>	<b>5D</b> — <b>150</b>	<b>20</b> — <b>75</b>
Insert type C: Cone type	Aspect ratio(L/D) 3D, 5D, 8D	Drill dia. 150: $\phi$ 15.0	Shank dia 20: $\phi$ 20
Flute length (mm)			

Code system of insert

<b>DTT</b>	<b>1500</b>	<b>C</b>
Drill dia. 1500: $\phi$ 15.00	Insert type C: Cone type	

Features

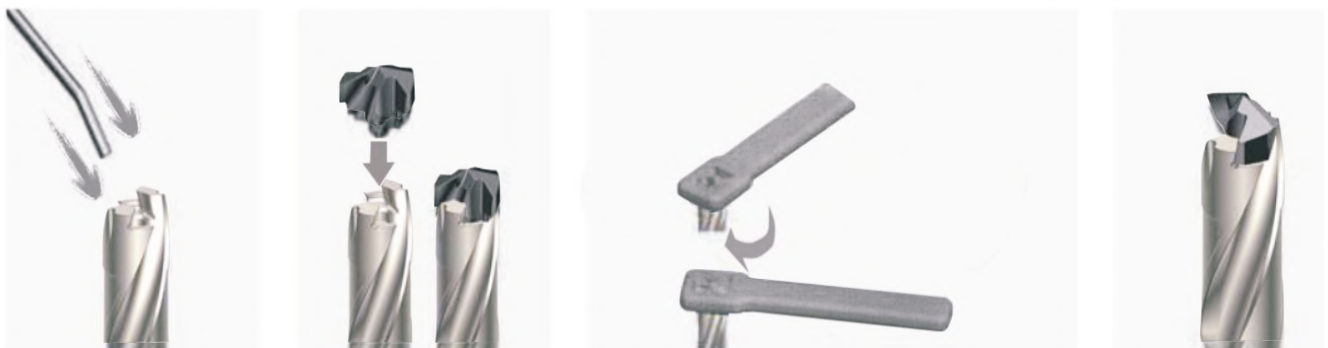


Recommended cutting condition

Workpiece			Grade	vc	Depth of cut = 3D,5D		
ISO	Material	HB			Feed rate (mm/rev) per drill dia.(mm)		
				m/min	$\phi$ 12.00- $\phi$ 15.99	$\phi$ 16.00- $\phi$ 25.99	
<b>P</b>	Carbon steel	Low carbon steel	80-120	TD530	110(80-140)	0.15-0.30	0.20-0.35
		High carbon steel	180-280	TD530	100(70-130)	0.15-0.30	0.20-0.35
	Alloy steel	Low alloy steel	140-260	TD530	110(80-140)	0.18-0.35	0.23-0.38
		Low pre-hardened steel	200-400	TD530	75(50-100)	0.18-0.35	0.23-0.38
		High alloy steel	260-320	TD530	70(50-90)	0.18-0.30	0.20-0.35
		High pre-hardened steel	300-450	TD530	60(40-80)	0.18-0.30	0.20-0.35

In case of 8D, reduce the cutting condition 40~50% lower than above after machining the beginning of hole(1.5D).  
In case of interrupted machining, reduce the feed to 0.1~0.15 around the interrupted part.

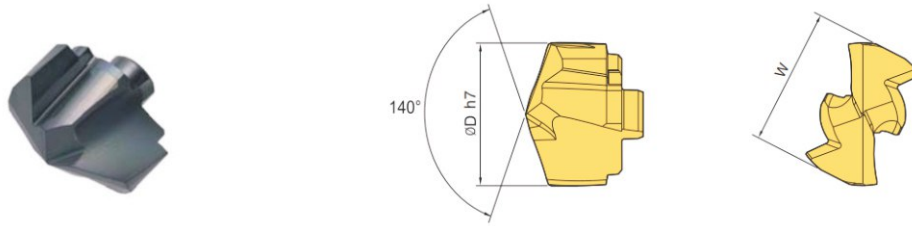
How to make good insert clamping



- Clean the mounting seat with air or cloth.
- Put an insert on the holder.
- A part of wrench and B part of insert must be parallel to each other before clamp the insert. Turn the wrench clockwise to finish clamping.
- Clamped state

Carbide Drills  
U Drills  
Head Exchangeable Drills  
Deep Hole Drills  
CDR 45° Chamfer Cutter  
Non-standard Tools

DTTC insert



Designation	Drill dia. (φ D)	W	Coated	Holder	Wrench
			TD530		
DTT 1200C	12.0	11.4	●	DTTC(3,5,8)D-12016-(36,60,96)	DTTC-W12
1220C	12.2				
1250C	12.5				
1260C	12.6				
1300C	13.0	12.3	●	DTTC(3,5,8)D-13016-(39,65,104)	DTTC-W13
1350C	13.5				
1400C	14.0				
1420C	14.2	13.4	●	DTTC(3,5,8)D-14016-(42,70,112)	DTTC-W14
1430C	14.3				
1450C	14.5				
1500C	15.0	14.3	●	DTTC(3,5,8)D-15020-(45,75,120)	DTTC-W15
1550C	15.5				
1600C	16.0	15.3	●	DTTC(3,5,8)D-16020-(48,80,128)	DTTC-W16
1630C	16.3				
1650C	16.5				
1670C	16.7				
1700C	17.0	16.3	●	DTTC(3,5,8)D-17020-(51,85,136)	DTTC-W17
1750C	17.5				
1770C	17.7				
1800C	18.0				
1810C	18.1	17.3	●	DTTC(3,5,8)D-18025-(54,90,144)	DTTC-W18
1850C	18.5				
1860C	18.6				
1870C	18.7				
1900C	19.0				
1920C	19.2				
1950C	19.5	18.3	●	DTTC(3,5,8)D-19025-(57,95,152)	DTTC-W19
1970C	19.7				
2000C	20.0				
2050C	20.5	19.2	●	DTTC(3,5,8)D-20025-(60,100,160)	DTTC-W20
2100C	21.0				
2150C	21.5	20.1	●	DTTC(3,5,8)D-21025-(63,105,168)	DTTC-W21
2200C	22.0				
2250C	22.5	21.0	●	DTTC(3,5,8)D-22025(66,110,176)	DTTC-W22
2260C	22.6				
2270C	22.7				
2300C	23.0				
2350C	23.5	21.9	●	DTTC(3,5,8)D-23025-(69,115,184)	DTTC-W23
2400C	24.0				
2450C	24.5	22.9	●	DTTC(3,5,8)D-24032-(72,120,192)	DTTC-W24
2500C	25.0				
2530C	25.3	23.9	●	DTTC(3,5,8)D-25032-(75,125,200)	DTTC-W25
2550C	25.5				
2580C	25.8				
2590C	25.9				
2600C	26.0				
2650C	26.5				
2700C	27.0	24.9	●	DTTC(3,5,8)D-26032-(78,130,208)	DTTC-W26
2750C	27.5				
2800C	28.0	25.9	●	DTTC(3,5,8)D-27032-(81,135,216)	DTTC-W27
2850C	28.5				
2900C	29.0	26.9	●	DTTC(3,5,8)D-28032-(84,140,224)	DTTC-W28
2950C	29.5				
3000C	30.0	27.9	●	DTTC(3,5,8)D-29032-(87,145,232)	DTTC-W29
3050C	30.5				
3000C	30.0	28.9	●	DTTC(3,5,8)D-30032-(90,150,240)	DTTC-W30
3050C	30.5				

DTTC Parts

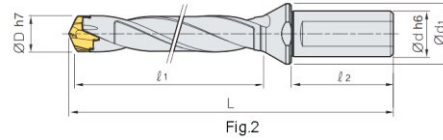
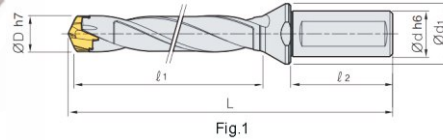
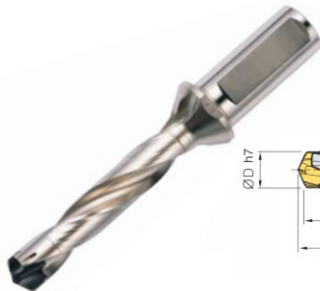
Parts(Recommended torque per wrench)

Designation	Drill dia. (φ D)	Torque(Nm)
DTTC-W12	12	2.5
DTTC-W13	13	2.5
DTTC-W14	14	2.5
DTTC-W15	15	2.5
DTTC-W16	16	2.5
DTTC-W17	17	2.5
DTTC-W18	18	2.5
DTTC-W19	19	2.5
DTTC-W20	20	3.5

(mm)

Designation	Drill dia. (φ D)	Torque(Nm)
DTTC-W21	21	3.5
DTTC-W22	22	3.5
DTTC-W23	23	3.5
DTTC-W24	24	3.5
DTTC-W25	25	3.5
DTTC-W26	26	5.5
DTTC-W27	27	5.5
DTTC-W28	28	5.5
DTTC-W29	29	5.5
DTTC-W30	30	5.5

DTTC 3D/5D/8D



Designation	φ D	φ d	φ d1	l1	l2	L	Insert	Fig.
DTTC 3D-12016-36	12.00-12.49	16	20	36	48	99	DTT1200C□-1249C□	1
3D-12516-38	12.50-12.99	16	20	38	48	101	DTT1250C□-1299C□	1
3D-13016-39	13.00-13.49	16	20	39	48	103	DTT1300C□-1349C□	1
3D-13516-41	13.50-13.99	16	20	41	48	105	DTT1350C□-1399C□	1
3D-14016-42	14.00-14.49	16	20	42	48	106	DTT1400C□-1449C□	1
3D-14516-44	14.50-14.99	16	20	44	48	107	DTT1450C□-1449C□	1
3D-15020-45	15.00-15.99	20	25	45	50	113	DTT1500C□-1599C□	2
3D-16020-48	16.00-16.99	20	25	48	50	117	DTT1600C□-1699C□	2
3D-17020-51	17.00-17.99	20	25	51	50	120	DTT1700C□-1799C□	2
3D-18025-54	18.00-18.99	25	33	54	56	132	DTT1800C□-1899C□	2
3D-19025-57	19.00-19.99	25	33	57	56	135	DTT1900C□-1999C□	2
3D-20025-60	20.00-20.99	25	33	60	56	138	DTT2000C□-2099C□	2
3D-21025-63	21.00-21.99	25	33	63	56	141	DTT2100C□-2199C□	2
3D-22025-66	22.00-22.99	25	33	66	56	145	DTT2200C□-2299C□	2
3D-23025-69	23.00-23.99	25	33	69	56	149	DTT2300C□-2399C□	2
3D-24032-72	24.00-24.99	32	43	72	60	159	DTT2400C□-2499C□	2
3D-25032-75	25.00-25.99	32	43	75	60	162	DTT2500C□-2599C□	2
3D-26032-78	26.00-26.99	32	43	78	60	173	DTT2600C□-2699C□	2

Carbide Drills

U Drills

Head Exchangeable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

DTTC 3D/5D/8D

Designation	$\phi D$	$\phi d$	$\phi d1$	I1	I2	L	Insert	Fig.
DTTC 3D-27032-81	27.00-27.99	32	43	81	60	176	DTT2700C□-2799C□	2
3D-28032-84	28.00-28.99	32	43	84	60	180	DTT2800C□-2899C□	2
3D-29032-87	29.00-29.99	32	43	87	60	185	DTT2900C□-2999C□	2
3D-30032-90	30.00-30.99	32	43	90	60	188	DTT3000C□-3099C□	2
5D-12016-60	12.00-12.49	16	20	60	48	123	DTT1200C□-1249C□	1
5D-12516-63	12.50-12.99	16	20	63	48	126	DTT1250C□-1299C□	1
5D-13016-65	13.00-13.49	16	20	65	48	129	DTT1300C□-1349C□	1
5D-13516-68	13.50-13.99	16	20	68	48	132	DTT1350C□-1399C□	1
5D-14016-70	14.00-14.49	16	20	70	48	134	DTT1400C□-1449C□	1
5D-14516-73	14.50-14.99	16	20	73	48	136	DTT1450C□-1499C□	1
5D-15020-75	15.00-15.99	20	25	75	50	143	DTT1500C□-1599C□	2
5D-16020-80	16.00-16.99	20	25	80	50	149	DTT1600C□-1699C□	2
5D-17020-85	17.00-17.99	20	25	85	50	154	DTT1700C□-1799C□	2
5D-18025-90	18.00-18.99	25	33	90	56	168	DTT1800C□-1899C□	2
5D-19025-95	19.00-19.99	25	33	95	56	173	DTT1900C□-1999C□	2
5D-20025-100	20.00-20.99	25	33	100	56	178	DTT2000C□-2099C□	2
5D-21025-105	21.00-21.99	25	33	105	56	183	DTT2100C□-2199C□	2
5D-22025-110	22.00-22.99	25	33	110	56	189	DTT2200C□-2299C□	2
5D-23025-115	23.00-23.99	25	33	115	56	195	DTT2300C□-2399C□	2
5D-24032-120	24.00-24.99	32	43	120	60	207	DTT2400C□-2499C□	2
5D-25032-125	25.00-25.99	32	43	125	60	212	DTT2500C□-2599C□	2
5D-26032-130	26.00-26.99	32	43	130	60	225	DTT2600C□-2699C□	2
5D-27032-135	27.00-27.99	32	43	135	60	230	DTT2700C□-2799C□	2
5D-28032-140	28.00-28.99	32	43	140	60	236	DTT2800C□-2899C□	2
5D-29032-145	29.00-29.99	32	43	145	60	243	DTT2900C□-2999C□	2
5D-30032-150	30.00-30.99	32	43	150	60	248	DTT3000C□-3099C□	2
8D-12016-96	12.00-12.49	16	20	96	48	159	DTT1200C□-1249C□	1
8D-12516-100	12.50-12.99	16	20	100	48	163	DTT1250C□-1299C□	1
8D-13016-104	13.00-13.49	16	20	104	48	168	DTT1300C□-1349C□	1
8D-13516-108	13.50-13.99	16	20	108	48	173	DTT1350C□-1399C□	1
8D-14016-112	14.00-14.49	16	20	112	48	176	DTT1400C□-1449C□	1
8D-14516-116	14.50-14.99	16	20	116	48	180	DTT1450C□-1499C□	1
8D-15020-120	15.00-15.99	20	25	120	50	188	DTT1500C□-1599C□	2
8D-16020-128	16.00-16.99	20	25	128	50	197	DTT1600C□-1699C□	2
8D-17020-136	17.00-17.99	20	25	136	50	205	DTT1700C□-1799C□	2
8D-18025-144	18.00-18.99	25	33	144	56	222	DTT1800C□-1899C□	2
8D-19025-152	19.00-19.99	25	33	152	56	230	DTT1900C□-1999C□	2
8D-20025-160	20.00-20.99	25	33	160	56	238	DTT2000C□-2099C□	2
8D-21025-168	21.00-21.99	25	33	168	56	246	DTT2100C□-2199C□	2
8D-22025-176	22.00-22.99	25	33	176	56	255	DTT2200C□-2299C□	2
8D-23025-184	23.00-23.99	25	33	184	56	264	DTT2300C□-2399C□	2
8D-24032-192	24.00-24.99	32	43	192	60	279	DTT2400C□-2499C□	2
8D-25032-200	25.00-25.99	32	43	200	60	287	DTT2500C□-2599C□	2
8D-26032-208	26.00-26.99	32	43	208	60	303	DTT2600C□-2699C□	2
8D-27032-216	27.00-27.99	32	43	216	60	311	DTT2700C□-2799C□	2
8D-28032-224	28.00-28.99	32	43	224	60	320	DTT2800C□-2899C□	2
8D-29032-232	29.00-29.99	32	43	232	60	330	DTT2900C□-2999C□	2
8D-30032-240	30.00-30.99	32	43	240	60	338	DTT3000C□-3099C□	2

## Deep Hole Drilling

A deep hole is defined by its depth-to-diameter ratio (D:d), and typically holes greater than 10:1 are considered deep holes. Deep hole drilling into metal has a range of applications across several industries, with its origins tracing back to the need for straighter, more accurate gun barrels, and expanding as other industries integrated deep hole drilling processes to improve their own applications.

Deep hole drilling consists of BTA drilling and gun drilling, with additional processes designed for specific tolerance objectives and generally performed on BTA-style deep hole drilling machines. Deep hole drilling is used in a variety of materials from aluminum to super-alloys, and is capable of achieving tight diameter control, straightness, and superior surface finish into workpieces.

Deep hole drilling processes work by using special tools and setups to deliver high pressure coolant, evacuate chips cleanly, and achieve depth-to-diameter holes into metal beyond what a common CNC machine can reach. This allows manufacturers to achieve their manufacturing tolerances and production requirements reliably, accurately, and efficiently.

## BTA Drilling

BTA deep hole drilling is used for larger hole drilling, typically 20 – 200 mm [0.80 – 8.00 in] in diameter. High-pressure coolant is introduced around the outside of the tool through the pressure head assembly. Chips are discharged through the tool center, through the drill tube and machine spindle.

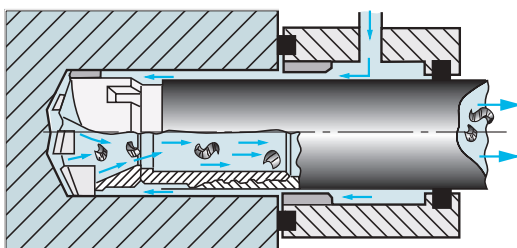
BTA drilling typically performs 5-7 times faster than gundrilling, and requires higher power.

Additional extended diameters can be drilled on BTA machines with secondary deep hole operations, such as counter-boring.

There is 2 types of drilling which are DTS systems and STS systems. We will only focus on STS systems as all our drill heads are for STS system.

The BTA—STS Drill is a single Tube Drilling system used in Deep Hole Drilling applications where fast metal removal is needed. Drill sizes in BTA Drills are from 0.312”-2.559” diameter. New drills are manufactured in a number of grades to fit individual customer requirements. BTA (STS) Drills of brazed construction can be re-tipped in our plant to an “as new” condition at a significant cost reduction and savings to the customer. These drills require high pressure coolant to flush the chips through the tube to the chip box. The STS may also be referred to as the BTA system in the deep hole drilling process.

### STS DRILLING SYSTEM

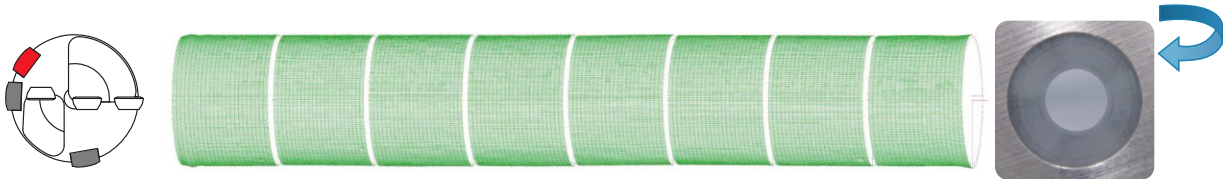


CT Coated Drills: Suitable for Medium and High speed drilling with highly accuracy and longer tool's life. (CT coating is a very special Japanese technology coating)

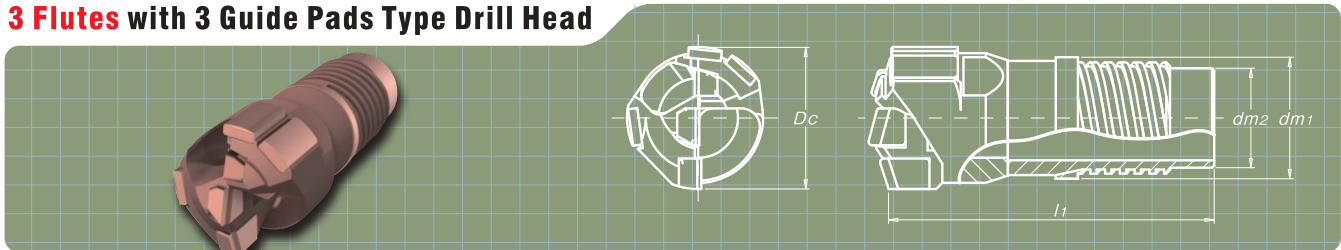
## Drill Heads Design with 3 Guide Pads(CT Coating)

A. Unique Design of 3 Flutes with 3 Guide Pads Drill Head(CT Coating)

Feature: Reduced vibration during drilling and highly improved the roundness of the drilling holes  
Holes with perfect roundness after drilling



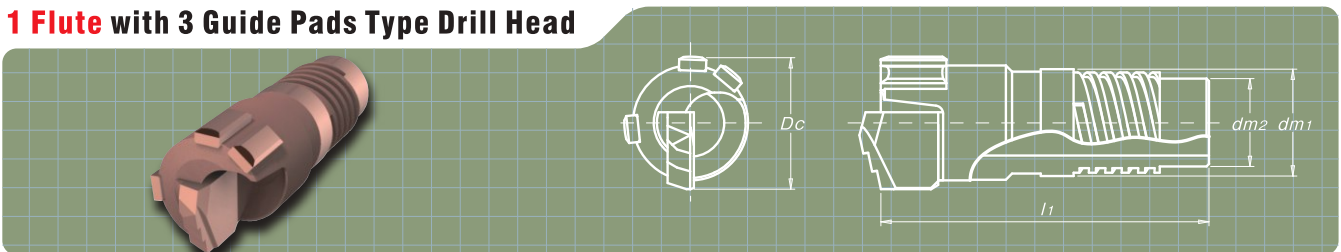
### 3 Flutes with 3 Guide Pads Type Drill Head



Unit (mm)

Drill Head Model	Drilling Range	Suitable Tube		Dimension			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
<b>BTA-Dxxxx-CT-3</b>	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●
<b>BTA-Dxxxx-CT-3</b>	17.71-18.90	BA4S-0099	16	14.5	12.5	40	●
<b>BTA-Dxxxx-CT-3</b>	18.91-20.00	BA4S-0000	17	15.5	13.5	44	●
<b>BTA-Dxxxx-CT-3</b>	20.01-21.80	BA4S-00	18	16	14	49	●
<b>BTA-Dxxxx-CT-3</b>	21.81-24.10	BA4S-01	20	18	16	52	●
<b>BTA-Dxxxx-CT-3</b>	24.11-26.00	BA4S-02	22	19.5	17.5	54	●

### 1 Flute with 3 Guide Pads Type Drill Head



Unit (mm)

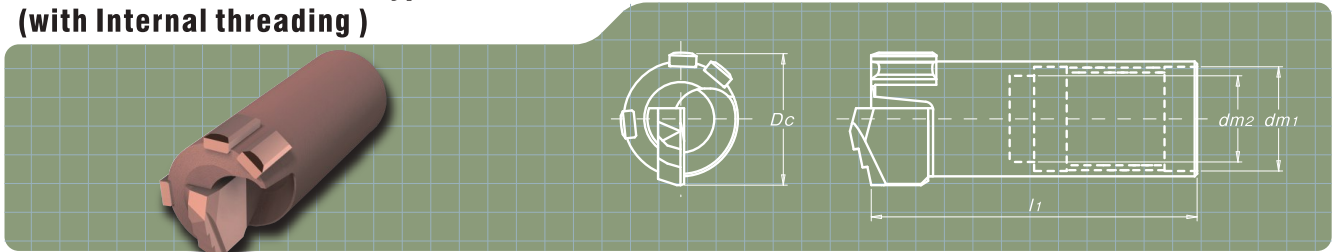
Drill Head Model	Drilling Range	Suitable Tube		Dimension			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
<b>BTA-Dxxxx-CT-T-3</b>	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●

● Stock ○ Non-stock

CT Coated Drills: Suitable for Medium and High speed drilling with highly accuracy and longer tool's life. (CT coating is a very special Japanese technology coating)

## Drill Heads Design with 3 Guide Pads(CT Coating)

### 1 Flute with 3 Guide Pads Type Drill Head (with Internal threading )



Unit (mm)

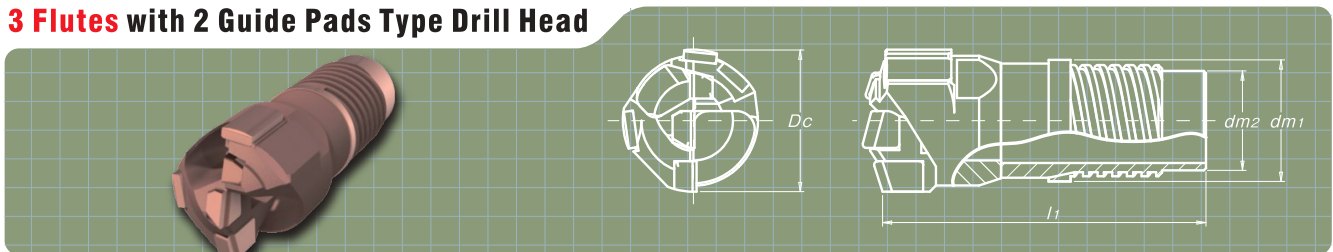
Drill Head Model	Drilling Range	Suitable Tube		Dimension			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
<b>BTA-Dxxxx-CT-E-3</b>	15.51-16.00	BA1S-1301	13	12.4	10.8	40	●
<b>BTA-Dxxxx-CT-E-3</b>	16.01-16.50	BA1S-1302	13	12.7	11.1	40	●
<b>BTA-Dxxxx-CT-E-3</b>	16.51-17.25	BA1S-1401	14	13.4	11.8	40	●
<b>BTA-Dxxxx-CT-E-3</b>	17.26-18.00	BA1S-1402	14	13.7	12.1	40	●
<b>BTA-Dxxxx-CT-E-3</b>	18.01-19.00	BA1S-1500	15	14.4	12.8	40	●
<b>BTA-Dxxxx-CT-E-3</b>	19.01-19.50	BA1S-1650	16.5	15.4	13.8	40	●

## Drill Heads Design with 2 Guide Pads(CT Coating)

### B. Drill Heads Design with 2 Guide Pads(CT Coating)

Feature: With 2 guide pads, drill is able to reduce machining resistance, achieving fast and high-precision machining.

### 3 Flutes with 2 Guide Pads Type Drill Head



Unit (mm)

Drill Head Model	Drilling Range	Suitable Tube		Dimension			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
<b>BTA-Dxxxx-CT</b>	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●
<b>BTA-Dxxxx-CT</b>	17.71-18.90	BA4S-0099	16	14.5	12.5	40	●
<b>BTA-Dxxxx-CT</b>	18.91-20.00	BA4S-0000	17	15.5	13.5	44	●
<b>BTA-Dxxxx-CT</b>	20.01-21.80	BA4S-00	18	16	14	49	●
<b>BTA-Dxxxx-CT</b>	21.81-24.10	BA4S-01	20	18	16	52	●
<b>BTA-Dxxxx-CT</b>	24.11-26.00	BA4S-02	22	19.5	17.5	54	●

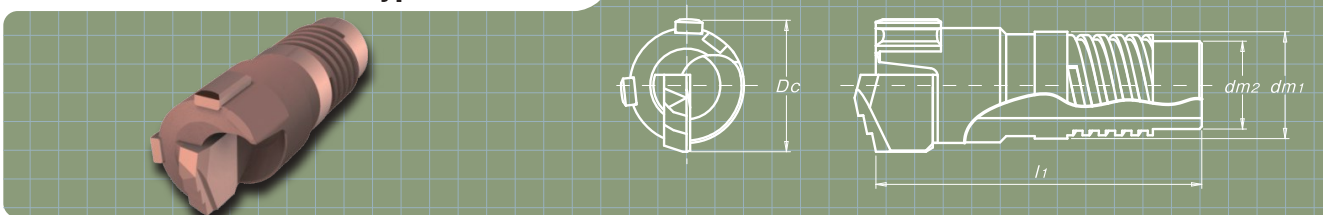
● Stock ○ Non-stock



CT Coated Drills: Suitable for Medium and High speed drilling with highly accuracy and longer tool's life. (CT coating is a very special Japanese technology coating)

## Drill Heads Design with 2 Guide Pads(CT Coating)

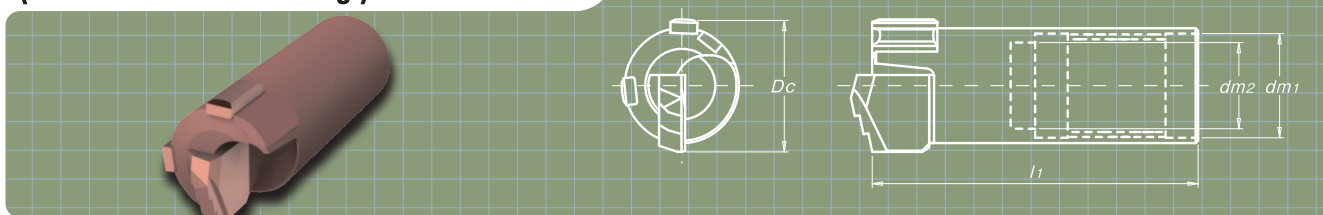
### 1 Flute with 2 Guide Pads Type Drill Head



Unit (mm)

Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
<b>BTA-Dxxxx-CT-T</b>	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●

### 1 Flute with 2 Guide Pads Type Drill Head (with Internal threading)



Unit (mm)

Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
<b>BTA-Dxxxx-CT-E</b>	15.51-16.00	BA1S-1301	13	12.4	10.8	40	●
<b>BTA-Dxxxx-CT-E</b>	16.01-16.50	BA1S-1302	13	12.7	11.1	40	●
<b>BTA-Dxxxx-CT-E</b>	16.51-17.25	BA1S-1401	14	13.4	11.8	40	●
<b>BTA-Dxxxx-CT-E</b>	17.26-18.00	BA1S-1402	14	13.7	12.1	40	●
<b>BTA-Dxxxx-CT-E</b>	18.01-19.00	BA1S-1500	15	14.4	12.8	40	●
<b>BTA-Dxxxx-CT-E</b>	19.01-19.50	BA1S-1650	16.5	15.4	13.8	40	●

● Stock ○ Non-stock



# Recommended Cutting Conditions

Machining data for BTA

Unit (mm)

ISO	Material	Condition	Tensile strength (N/mm <sup>2</sup> )	Hardness HB	Material No.	Cutting speed Vc (m/min)	Ø15.60 - Ø20.00	
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	70-120	0.08-0.15
		>=0.25%C	Annealed	650	190	2	70-120	0.08-0.15
		<0.55%C	Quenched and tempered	850	250	3	40-70	0.08-0.15
		>=0.55%C	Annealed	750	220	4	70-120	0.08-0.15
			Quenched and tempered	1000	300	5	55-100	0.08-0.12
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	600	200	6	70-100	0.08-0.15
			Quenched and tempered	930	275	7	55-100	0.08-0.12
				1000	300	8	55-100	0.08-0.12
				1200	350	9	55-100	0.08-0.12
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	50-85	0.08-0.15
			Quenched and tempered	1100	325	11	55-100	0.08-0.12
M	Stainless steel and cast steel	Ferritic / martensitic	680	200	12	60-100	0.08-0.15	
		Martensitic	820	240	13	60-100	0.08-0.15	
		Austenitic	600	180	14	60-100	0.05-0.12	
K	Grey cast iron (GG)	Ferritic		160	15	60-100	0.06-0.13	
		Pearlitic		250	16	60-100	0.06-0.13	
	Cast iron nodular (GGG)	Ferritic		180	17	80-100	0.08-0.15	
		Pearlitic		260	18	80-100	0.08-0.15	
Malleable cast iron	Ferritic		130	19	50-100	0.06-0.13		
	Pearlitic		230	20	50-100	0.06-0.13		
N	Aluminum - wrought alloy	Not cureable		60	21	65-130	0.08-0.15	
		Cured		100	22	65-100	0.08-0.15	
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23	65-130	0.08-0.15
			Cured		90	24	65-130	0.08-0.15
		>12% Si	High temp.		130	25	65-130	0.08-0.15
	Copper alloys	>1% Pb	Free cutting		110	26	65-130	0.08-0.15
			Brass		90	27	65-130	0.08-0.15
			Electrolitic copper		100	28	65-130	0.08-0.15
	Non-metallic		Duroplastics, fiber plastics			29		
			Hard rubber			30		
S	High temp. alloys	Fe based	Annealed		200	31	10-50	0.06-0.12
			Cured		280	32	10-50	0.06-0.12
		Ni or Co based	Annealed		250	33	10-50	0.06-0.12
			Cured		350	34	10-50	0.06-0.12
			Cast		320	35	10-50	0.06-0.12
	Titanium, Ti alloys			Rm 400		36	30-50	0.05-0.10
		Alpha+beta alloys cured	Rm 1050		37	30-50	0.05-0.10	
H	Hardened steel	Hardened		55HRC	38			
		Hardened		60HRC	39			
	Chilled cast iron	Cast		400	40			
Cast iron nodular	Hardened		55HRC	41				

■ Steel   
 ■ Stainless steel   
 ■ Cast iron   
 ■ Nonferrous   
 ■ High temp. alloys   
 ■ Hardened steel

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

Carbide Drills

U Drills

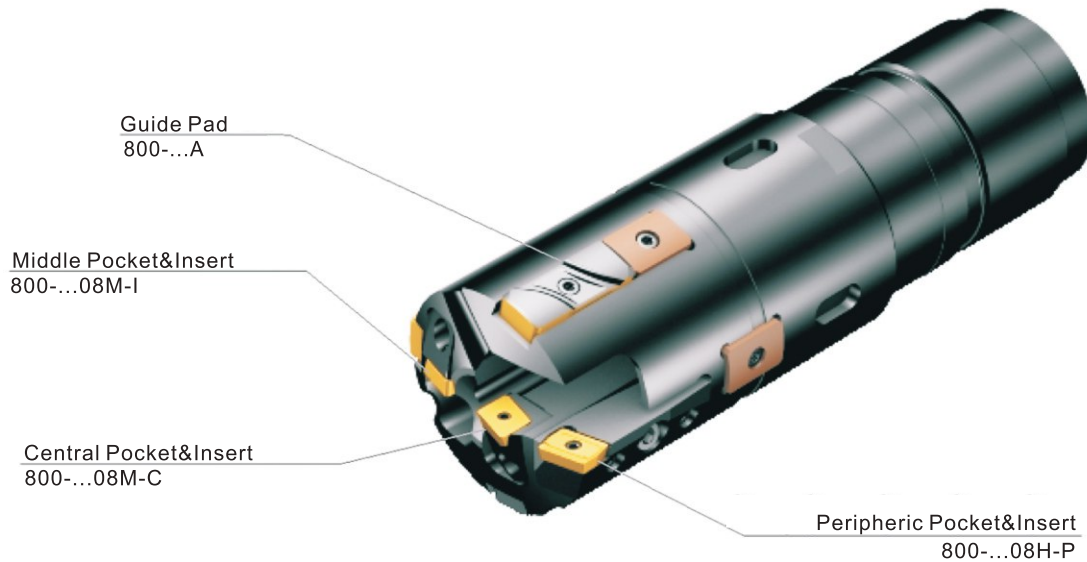
Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

800 SERIES



424.10 SERIES



**P25C:** It shows good performance when drilling steel, cast iron.

**M25C:** Not only has good performance on drilling the common steels. But also has a long tool life on drilling some special stainless steel, special high speed steel, special titanium alloy, special nickel base alloy and other difficult materials, such as superalloys for aerospace and military use.

**B25C:** It shows very high wear resistance and good edge toughness. To be used when good surface quality is demanded at medium to high cutting speed.

# Indexable Carbide Deep Hole Drill



## TOTIME 800&424.10 SERIES INSERTS

● :Continuous Cutting

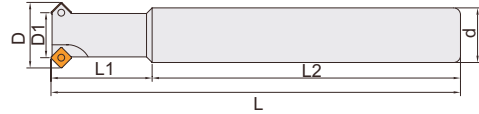
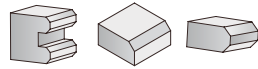
<b>800 &amp; 424.10 INSERTS</b>	P	Steel	●	●	●	●	
	M	Stainless	○	●	●	●	
	K	Cast Iron	●	●	●	●	
	S	Superalloys	○	●	●	●	
	H	Hard Materials	○	●	●	●	

Chipbreaker	Designation	P25C (Coating ●)	M25C (Coating ●)	B25C (Coating ●)	PM10	PM01
	800-050308M-C-G	●	●	●		
	800-06T308M-C-G	●	●	●		
	800-08T308M-C-G	●	●	●		
	800-10T308M-C-G	●	●	●		
	800-12T308M-C-G	●	●	●		
	800-050308M-C-L	●	●	●		
	800-06T308M-C-L	●	●	●		
	800-08T308M-C-L	●	●	●		
	800-10T308M-C-L	●	●	●		
	800-050308M-I-G	●	●	●		
	800-06T308M-I-G	●	●	●		
	800-08T308M-I-G	●	●	●		
	800-12T308M-I-G	●	●	●		
	800-050308M-I-L	●	●	●		
	800-06T308M-I-L	●	●	●		
	800-08T308M-I-L	●	●	●		
	800-12T308M-I-L	●	●	●		
	800-060308H-P-G	●	●	●		
	800-08T308H-P-G	●	●	●		
	800-09T308H-P-G	●	●	●		
	800-11T308H-P-G	●	●	●		
	800-060308H-P-L	●	●	●		
	800-08T308H-P-L	●	●	●		
	800-09T308H-P-L	●	●	●		
	800-11T308H-P-L	●	●	●		
	R424.9-13T308-22	●	●	●		
	R424.9-13T308-23	●	●	●		
	R424.9-180608-22	●	●	●		
	R424.9-180608-23	●	●	●		
	TPMT16T312R-22	●	●	●		
	TPMT16T312TR-23	●	●	●		
	TPMT220612R-22	●	●	●		
	TPMT220612TR-23	●	●	●		
	800-06A				●	
	800-07A				●	
	800-08A				●	
	800-10A				●	
	800-12A				●	
	800-14D065				●	
	800-16D075				●	
	800-18D085				●	
	800-20D100				●	
	800-22D110				●	
	800-24D120				●	
	800-26D130				●	

Carbide Drills  
U Drills  
Head Exchangeable Drills  
Deep Hole Drills  
CDR 45° Chamfer Cutter  
Non-standard Tools

● Insert coating may vary from the insert image at this catalog. Please refer to our actual insert coating upon inquiry.

# CDR45° Chamfer Cutter



Carbide Drills

U Drills

Head Exchangable Drills

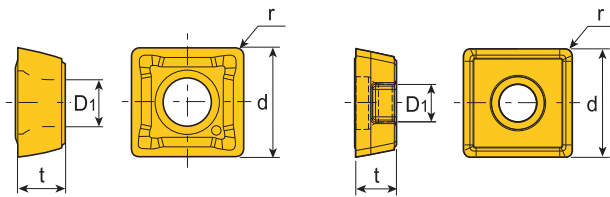
Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

Model No.	Size						Blade type	Screw	Wrench
	D	D1	d	L1	L2	L			
CDR1106C10-1T	11	6	10	17	83	100	SP□X050204	TS2003	TK06
CDR1510C12-2T	15	10	12	20	100	120	SP□X050204	TS2003	TK06
CDR1711C16-3T	17	11	16	25	125	150	SP□X050204	TS2003	TK06
CDR1913C16-3T	19	13	16	30	120	150	SP□X050204	TS2003	TK06
CDR2418C20-4T	24	18	20	35	115	150	SP□X050204	TS2003	TK06
CDR2216C16-3T	22	16	16	30	80	120	SP□X060204	TS20205	TK08
CDR2717C20-3T	27	17	20	30	80	120	SP□X07T308	TS2511	TK08
CDR3019C20-2T	30	19	20	40	110	150	SP□X090408	TS3504	TK15
CDR4029C25-3T	40	29	25	40	110	150	SP□X090408	TS3504	TK15
CDR5039C25-4T	50	39	25	40	110	150	SP□X090408	TS3504	TK15
CDR2712C20-1T	27	12	20	40	110	150	SP□X140512	TS5002	TK20
CDR4025C25-2T	40	25	25	40	140	180	SP□X140512	TS5002	TK20
CDR4732C32-3T	47	32	32	40	160	200	SP□X140512	TS5002	TK20

※ CDR2712C20-1T/CDR4025C25-2T/CDR4732C32-3T MOQ 5P.



Unit (mm)

Size	Dimension (mm)			
	d	t	r	D1
05	5.00	2.38	0.4	2.25
06	6.00	2.38	0.4	2.61
07	7.94	3.97	0.8	2.85
09	9.80	4.30	0.8	4.05
14	14.30	5.20	1.2	5.75

Insert	Designation	Material			Stock
		TI620	TZ650 <b>NEW</b>	TN200	
	SPMX050204	●	●		●
	SPMX060204	●	●		●
	SPMX07T308	●	●		●
	SPMX090408	●	●		●
	SPMX140512	●	●		●
	SPGX050204			●	●
	SPGX060204			●	●
	SPGX07T308			●	●
	SPGX090408			●	●
	SPGX140512			●	●

● Stock ○ Non-stock

Recommended Cutting Conditions

	Material	Hardness	Insert Grade	Cutting speed (m/min)	Feed/T(mm/t)
					Face Milling
P	Low alloy steel Cast steel	≤HB180	TI620	150 (100-200)	0.05-0.25
	High carbon steel Alloy steel	HB180-280	TI620	130 (100-180)	0.05-0.25
	Alloy tool steel	HB280-350	TI620	100 (80-150)	0.05-0.25
M	Stainless steel	≤HB270	TI620	100 (80-150)	0.05-0.20
K	Grey cast iron	HB180-250	TI620	130 (100-180)	0.13-0.30
N	Aluminium alloy	-	TN200	200-320	0.06-0.20
	Copper alloy	-	TN200	200-320	0.06-0.20

Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

CDR 45° Chamfer Cutter

Non-standard Tools

# Non-standard Drill made

Inquiry

Order

Company:

Customer Number:

Contact Person:

Tel:

M.B:

Fax:

Add:

E-mail:

Order Quantity \_\_\_\_\_

Delivery \_\_\_\_\_

Order No. \_\_\_\_\_

## Processing conditions and tools information

**Hole:**

- Through hole     Blind hole

Aperture \_\_\_\_\_mm . Depth \_\_\_\_\_mm

**Material to be processed**

- |  |   |
|--|---|
| <input type="checkbox"/> Carbon          | <input type="checkbox"/> Copper Alloy   |
| <input type="checkbox"/> Alloy Steel     | <input type="checkbox"/> Hardened Steel |
| <input type="checkbox"/> Stainless steel | <input type="checkbox"/> Nickel Alloy   |
| <input type="checkbox"/> Cast Iron       | <input type="checkbox"/> Aluminum       |
| <input type="checkbox"/> Titanium        | <input type="checkbox"/> Other          |

**Processing methods**

- Wet     Dry

Hardness (HRC, HB) \_\_\_\_\_

Equipment \_\_\_\_\_

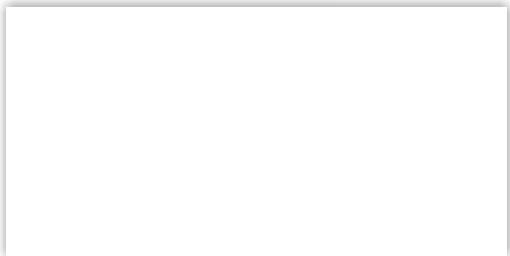
Flute modality:  Straight     Helical

**Cooling**

- External Cooling     Internal Cooling

Tensile strength (N/mm<sup>2</sup>) \_\_\_\_\_

**Non-standard Drill Drawing and Requirement of Design**



Customized Non-Standard Drill is Available.



Carbide Drills

U Drills

Head Exchangable Drills

Deep Hole Drills

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Non-standard Tools



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