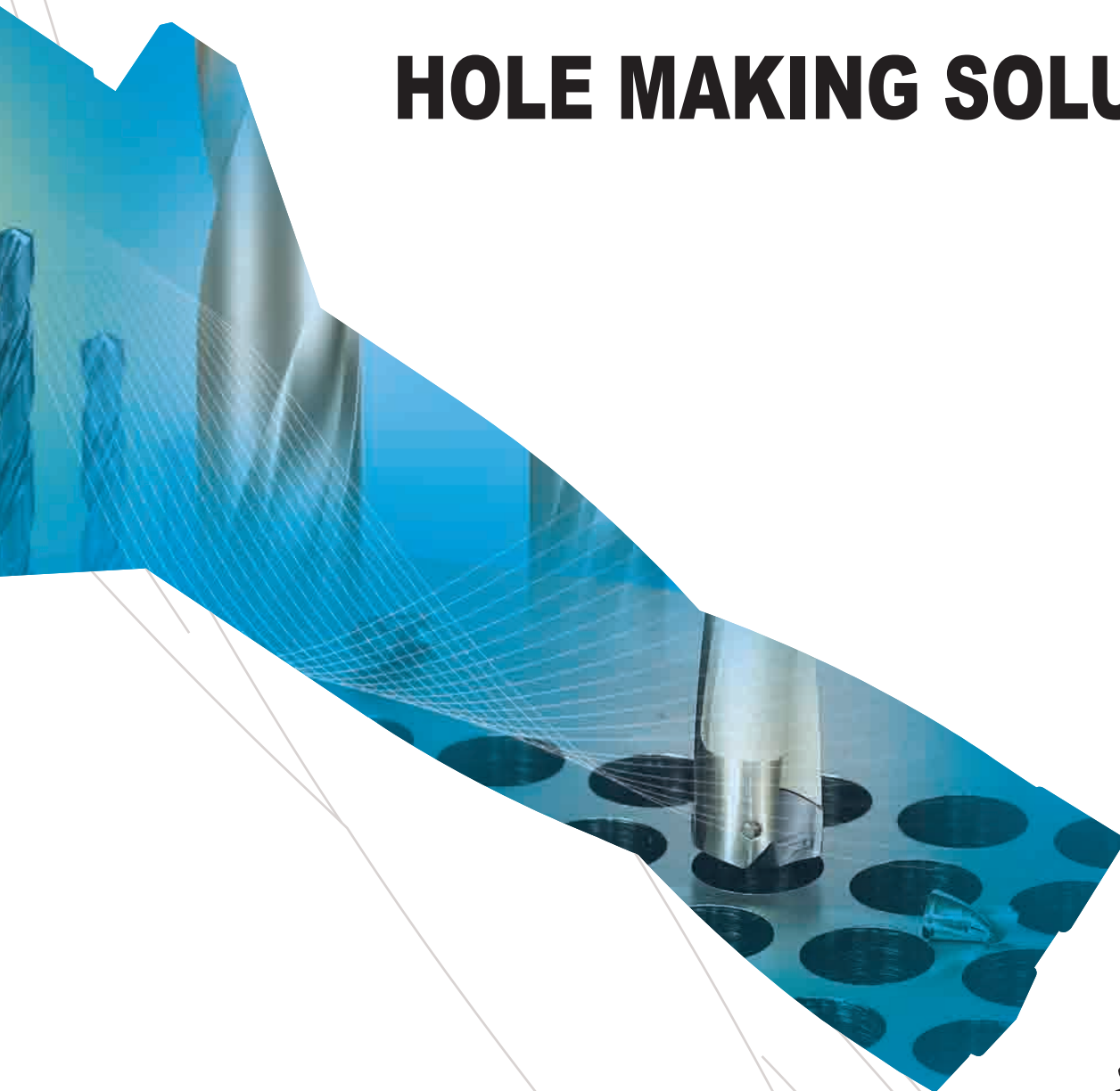
Quality, Performance, Value - Guaranteed!

HOLE MAKING SOLUTION

INDEXABLE DRILL
SOLID DRILL
REAMER
BORING TOOL
MODULAR SYSTEM





KORLOY

HOLE MAKING

Quality, Performance, Value - Guaranteed!

CONTENTS

04 I Hole making organization
06 I Index for hole making

INDEXABLE DRILL
10 I KING DRILL
26 I TPDB
40 I WPDC

SOLID DRILL
48 I Mach Solid Drill
56 I Mach Long Solid Drill
61 I Vulcan Drill
65 I Carbide Drill
67 I Burnishing Drill
68 I Top Solid Drill
69 I Poly Crystaline Diamond Drill
70 I Gun Drill

REAMER
80 I Indexable Reamer
86 I Chucking/Machine Reamer
89 I Poly Crystaline Diamond Reamer

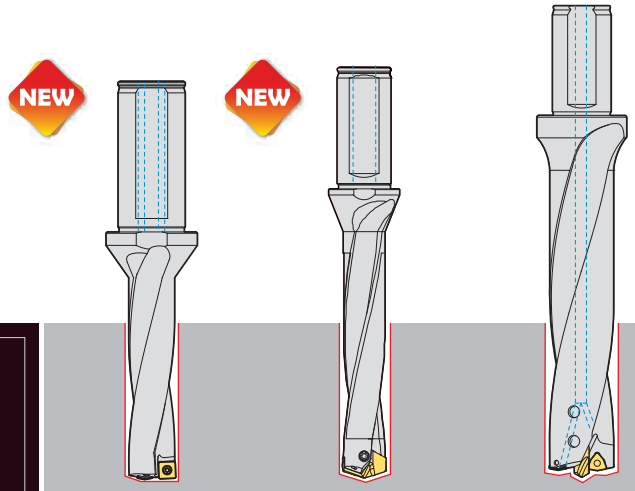
KORLOY

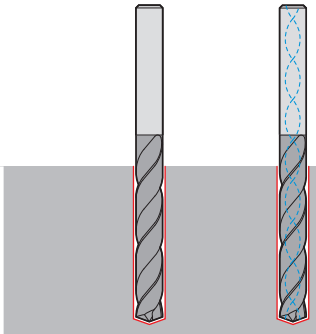
BORING TOOL
92 | Rough Boring Tool
97 | Semi/Finishing Boring Tool
102 | Fine Boring Tool

MODULAR SYSTEM
110 | Modular System

COLLET SYSTEM
126 | Collet Series

Drilling





INDEXABLE DRILL

KING DRILL
2D ~ 5D
Ø0.484 ~ Ø3.900

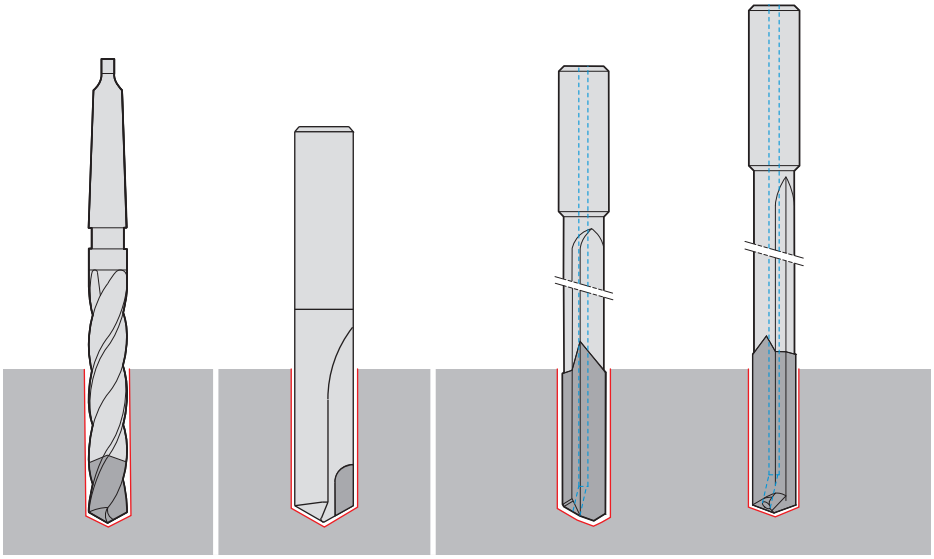
TPDB
3D ~ 8D
Ø0.394 ~ Ø1.180

WPDC
5D ~ 8D
Ø1.000 ~ Ø3.130

MACH SOLID DRILL

MSD
3D ~ 7D
Ø0.2188 ~ Ø0.7500

MSDH
3D ~ 7D
Ø0.2188 ~ Ø0.7500



TOP SOLID DRILL

TSDM
5D ~ 8D
Ø0.1875 ~ Ø0.5000

PCD DRILL

PDD
5D
Ø0.484 ~ Ø1.250

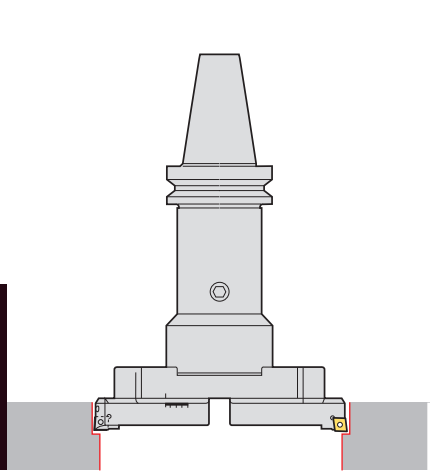
GUN DRILL

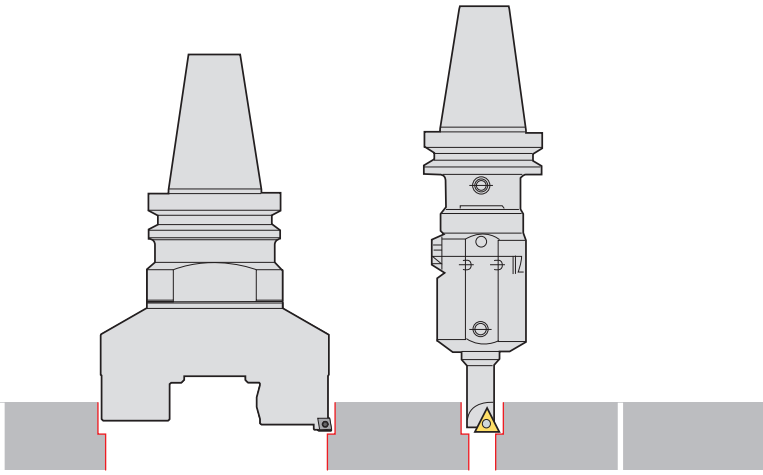
KGDS
50D ~ 100D
Ø0.079 ~ Ø1.299

KGDT
50D ~ 100D
Ø0.236 ~ Ø1.043

Reaming

Boring





ROUGH BORING TOOL

DBC
Ø28.0 ~ Ø175.0
M This is metric size.

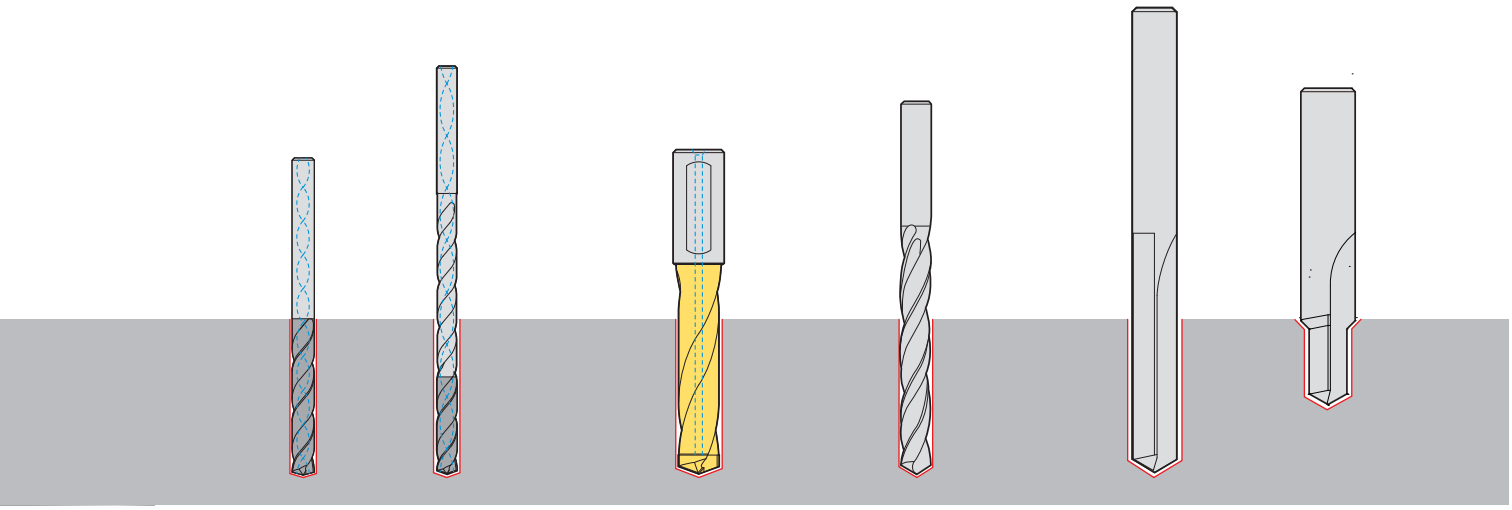
TBC
Ø130.0 ~ Ø540.0
M This is metric size.

SEMI/FINISHING BORING TOOL

FBC
Ø130.0 ~ Ø540.0
M This is metric size.

SMB
Ø8.0 ~ Ø38.0
M This is metric size.

KMB
Ø8.0 ~ Ø101.0
M This is metric size.



MACH LONG SOLID DRILL

MLDP
Ø0.2188 ~ Ø0.7500

MLD
7D ~ 25D
Ø0.2188 ~ Ø0.7500

VULCAN DRILL

VZD
2.5D, 5D
Ø12.6 ~ Ø40.5
M This is metric size.

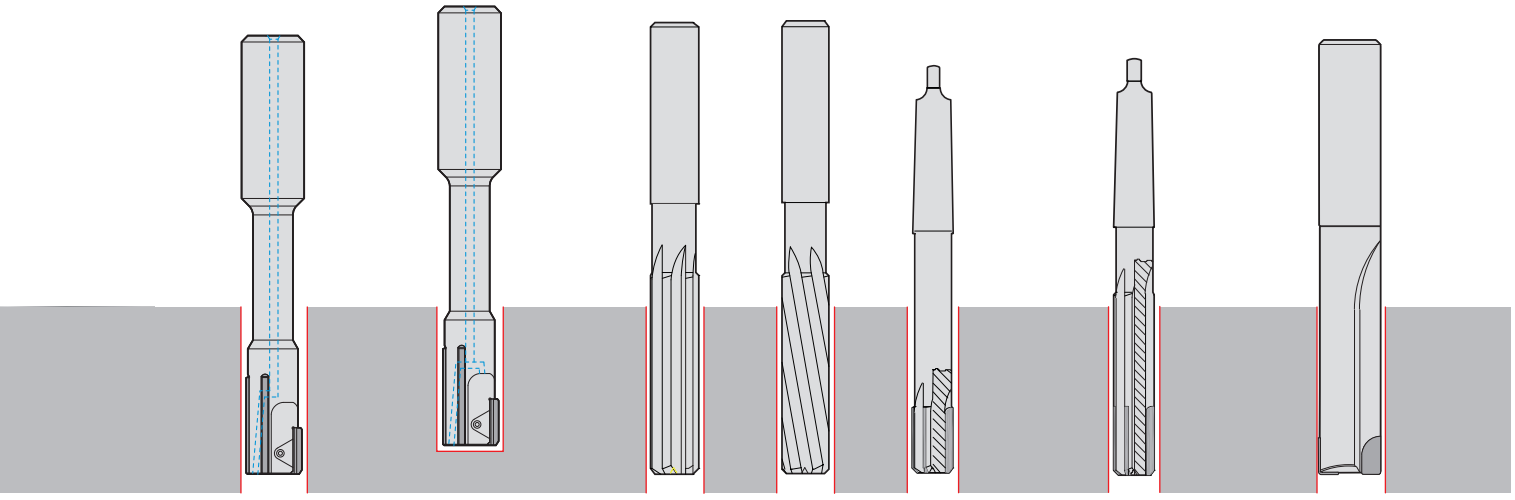
CARBIDE DRILL

SSD
Ø3120 ~ Ø0.1562

BURNISHING DRILL

BDS
5D ~ 7D
Ø4.0 ~ Ø16.0
M This is metric size.

BDT
2D ~ 4D
Ø4.2 ~ Ø10.3
M This is metric size.



INDEXABLE REAMER

IRT
3D ~ 5D
Ø0.375 ~ Ø1.250

IRB
3D ~ 5D
Ø0.375 ~ Ø1.250

CHUCKING REAMER

SCRS
3D ~ 5D
Ø5.0 ~ Ø20.0
M This is metric size.

SCRH
3D ~ 5D
Ø5.0 ~ Ø20.0
M This is metric size.

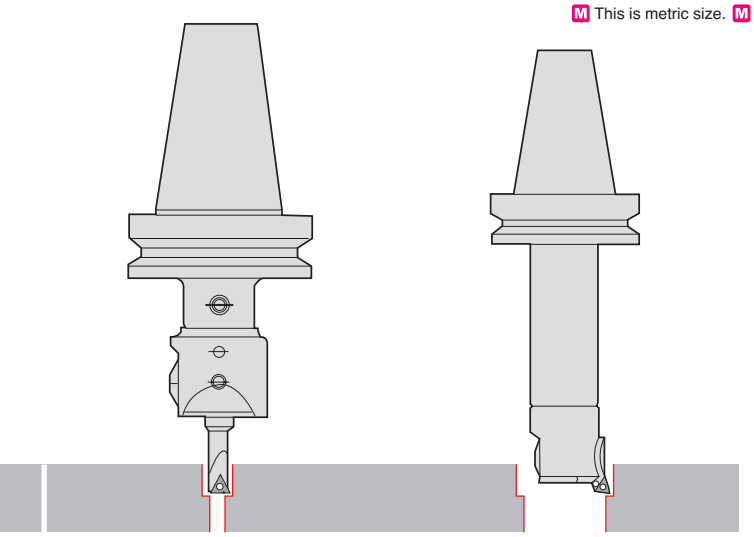
TCRS
2D ~ 3D
Ø7.0 ~ Ø30.0
M This is metric size.

MACHINE REAMER

TMRS
3D ~ 5D
Ø7.0 ~ Ø30.0
M This is metric size.

PCD REAMER

PDR
3D ~ 5D
Ø0.2187 ~ Ø0.7500



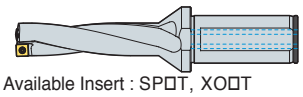
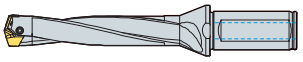
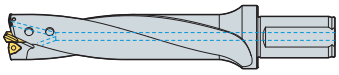
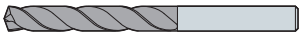
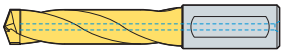
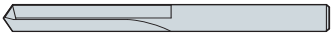
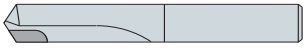
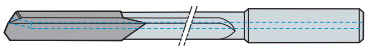
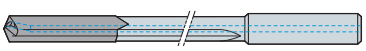
FINE BORING TOOL

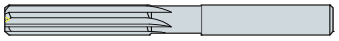
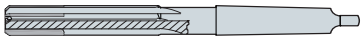
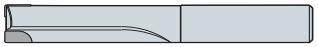
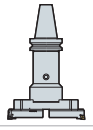
SMH
Ø6.0 ~ Ø34.0
M This is metric size.

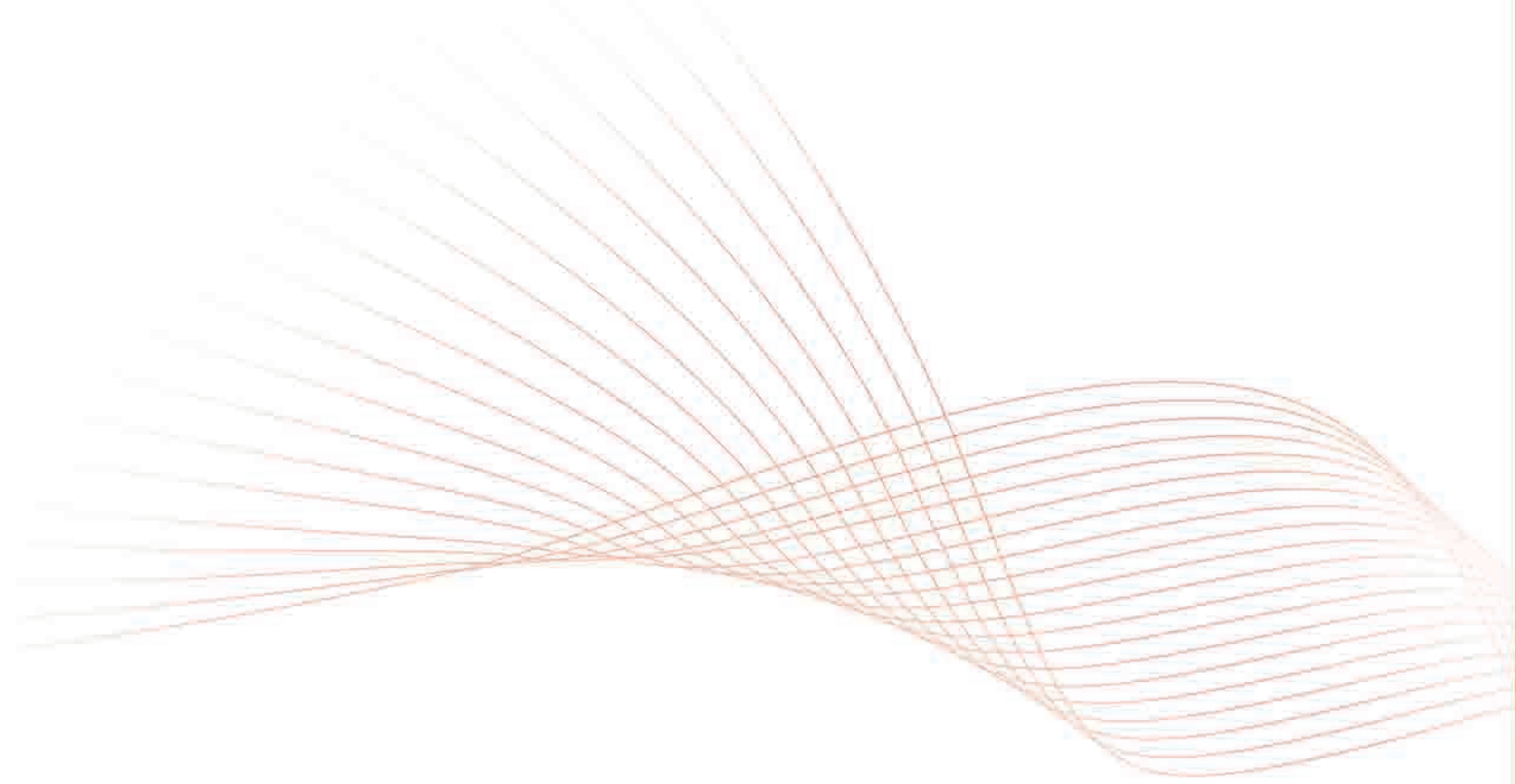
FBH
Ø20.0 ~ Ø172.0
M This is metric size.

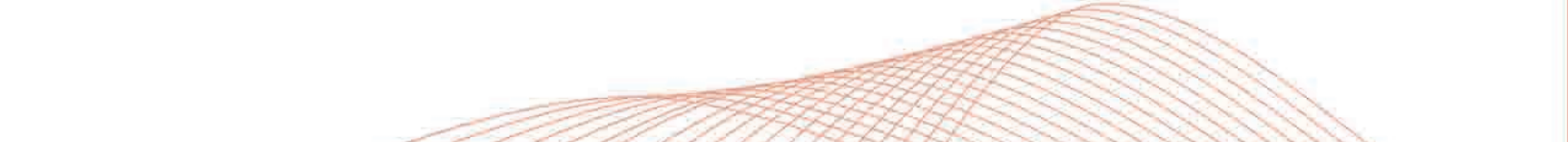
HOLE MAKING
Application Guide

Index for Hole Making

Type	Designation		Shape	Drill Dia.	Aspect ratio	Page
Indexable Drill	NEW KING DRILL	K□DA	 Available Insert : SP□T, XO□T	Ø0.484 ~ Ø3.900	2D ~ 5D	10p
	NEW TPDB	TPDBA	 Available Insert : TPD□□□B	Ø0.394 ~ Ø1.180	3D ~ 8D	26p
	Indexable drill & drill with center	WPDCA	 Available Insert : WC□T	Ø1.000 ~ Ø3.130	5D ~ 8D	40p
Solid Drill	Mach Drill	MSDA		Ø0.2188 ~ Ø0.7500	3D ~ 7D	48p
		MSDHA		Ø0.2188 ~ Ø0.7500	3D ~ 7D	
	Mach Long Drill	MLDPA		Ø0.2188 ~ Ø0.7500	-	56p
		MLDA		Ø0.2188 ~ Ø0.7500	7D ~ 25D	
	Vulcan Drill	VZD		Ø12.6 ~ Ø40.5 M This is metric size.	2.5D, 5D	61p
	Carbide Drill	SSDA		Ø0.3120 ~ Ø0.1562	-	65p
	Burnishing Drill	BDS		Ø4.0 ~ Ø16.0	5D ~ 7D	67p
		BDT		Ø4.2 ~ Ø10.3 M This is metric size.	2D ~ 4D	
	Top Solid Drill	TSDMA		Ø0.1875 ~ Ø0.5000	5D ~ 8D	68p
	PCD Drill	PDDA		Ø0.484 ~ Ø1.250	5D	69p
	Gun Drill	KGDSA		Ø0.079 ~ Ø1.299	50D ~ 100D	70p
		KGDTA		Ø0.236 ~ Ø1.043	50D ~ 100D	

Type	Designation		Shape	Drill Dia.	Aspect ratio	Page
Reamer	Indexable Reamer	IRTA	 Available Insert : RI	Ø0.375 ~ Ø1.250	3D ~ 5D	80p
		IRBA	 Available Insert : RI	Ø0.375 ~ Ø1.250	3D ~ 5D	
	Chucking/Machine Reamer	SCRS		Ø5.0 ~ Ø20.0 M This is metric size.	3D ~ 5D	86p
		SCRH		Ø5.0 ~ Ø20.0 M This is metric size.	3D ~ 5D	
		TCRS		Ø7.0 ~ Ø30.0 M This is metric size.	2D ~ 3D	
		TMRS		Ø7.0 ~ Ø30.0 M This is metric size.	3D ~ 5D	
	PCD Reamer	PDRA		Ø0.2187 ~ Ø0.7500	3D ~ 5D	89p
Boring Tool	Rough Boring Tool	DBC		Ø28.0 ~ Ø175.0 M This is metric size.	-	92p
		TBC		Ø130.0 ~ Ø540.0 M This is metric size.	-	
	Semi/Finishing Boring Tool	FBC		Ø130.0 ~ Ø540.0 M This is metric size.	-	97p
		SMB		Ø8.0 ~ Ø38.0 M This is metric size.	-	
		KMB		Ø8.0 ~ Ø101.0 M This is metric size.	-	
	Fine Boring Tool	SMH		Ø6.0 ~ Ø34.0 M This is metric size.	-	102p
		FBH		Ø20.0 ~ Ø172.0 M This is metric size.		






TPDB
KORLOY
HOLE MAKING
INDEXABLE DRILL
KING DRILL
WPDC



NEW

KING DRILL

KORLOY INDEXABLE NEW GENERATION-DRILL

Code system of holder

K 5D A 1000 125 □ - 07

KING, KORLOY

Type
A : Inch type
No code : Metric type

Aspect ratio(L/D)
2D, 2.5D, 3D, 3.5D 4D, 4.5D, 5D

Drill Dia.
Ø1.000
(Three decimal place marked)

Shank Dia.
Ø0.75, Ø1.00, Ø1.25, Ø1.50
(Two decimal place marked)

Inscribed circle of insert
05, 06, 07, 09, 11, 13, 15, 18

Shank shape

No mark :	Flange shank, Weldon
F 1 :	Flange shank, Whistle notch
F2 :	Flange shank, Without side lock
S :	Straight shank, Weldon
S1 :	Straight shank, Whistle notch
S2 :	Straight shank, Without side lock
M0, M1, M2… :	MT0, MT1, MT2 …
H63, H100 :	HSK63, HSK100
B30, B40, B50 :	BT30, BT40, BT50
HP :	Flange shank, Weldon, Horizental PT tap
VP :	Flange shank, Weldon, Vertical PT tap

Features of insert



Central insert



Peripheral insert

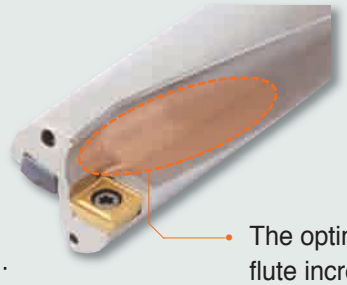
- **Optimized design of inserts for maximum drilling efficiency**
  - Excellent cutting performance and chip control due to the optimized geometry and chip breaker of both inserts, central & peripheral.
  - 2 different inserts, optimized for the central and peripheral insert locations in order to maximize cutting tool life.

Features of drill

• 3 Coolant hole system



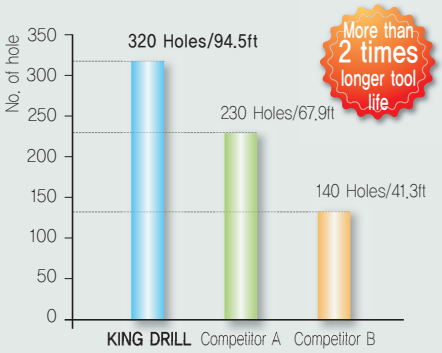
The center coolant hole system helps prevent wear on the chip pocket of the central insert and improves chip control.



The optimized shape of the flute increases the rigidity of the drill body and improves chip evacuation.

Machining performance

• Tool life comparison

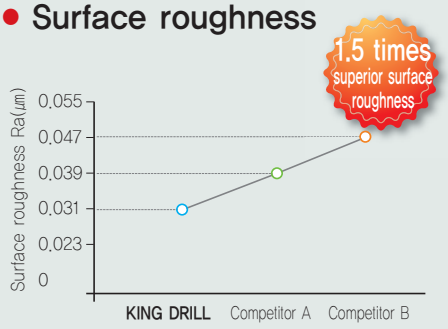


- KING DRILL : 320 Holes (94.5ft)
  Normal wear.
- Competitor A : 230 Holes (67.9ft)
  Chipping on cutting edge.
- Competitor B : 140 Holes (41.3ft)
  Wear and chipping on cutting edge.

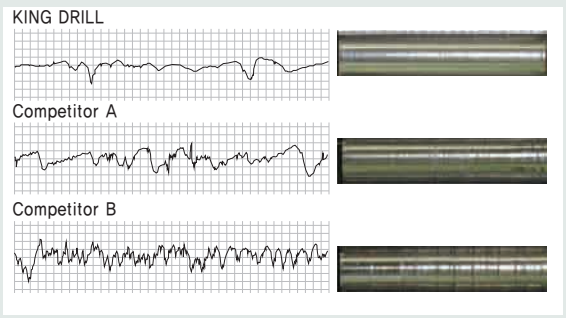
- KING DRILL has the best tool life.

- **Workpiece** AISI4140
- **Cutting condition** vc(sfm)=492, fn(ipr)=0.0039
  Depth of drilling : 3.15inch(Pass though), Wet
- **Tools** **Insert** SPMT060205-PD(PC3500)
  XOMT060204-PD(PC5300)
  Holder K5DA0875100-07

• Surface roughness

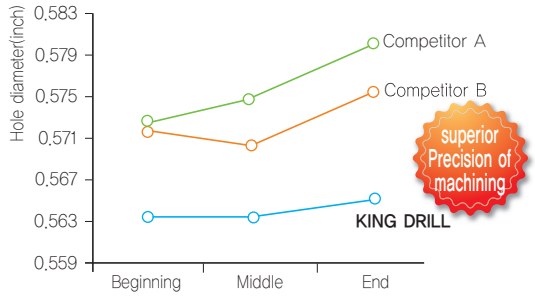


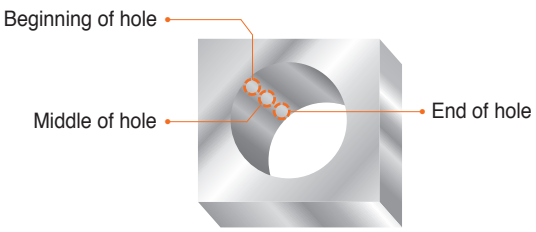
- Superior surface roughness of KING DRILL.



- **Workpiece** AISI4140
- **Cutting condition** vc(sfm)=492, fn(ipr)=0.0031, Depth of drilling : 2.36inch(Pass though), Wet
- **Tools** **Insert** SPMT050204-PD(PC3500), XOMT050204-PD(PC5300)
  Holder K5DA0562075-05

● Precision of machining



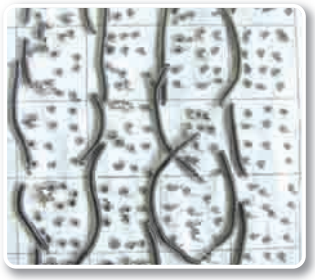


- **Workpiece** AISI4140
- **Cutting condition** vc(sfm)=492, fn(ipr)=0.0031
  Depth of drilling 19.7ft(Pass though), Wet
- **Tools** **Insert** SPMT050204-PD(PC3500)
  XOMT050204-PD(PC5300)
  Holder K5DA0562075-05

- The diameters of beginning, middle, and end of hole are regular after drilling with KING DRILL.

- KING DRILL
  Regular hole diameters at the beginning, middle and end of hole.
- Competitor A
  Hole diameter : Beginning < Middle < End
- Competitor B
  Bigger hole diameter at the end of hole.

● Chip evacuation



[KING DRILL]

- Stable chip control.



[Competitor A]

- Thin and long chips are coiled around the holder.



[Competitor B]

- Folded chips under certain cutting condition.
- Poorchip evacuation.

- **Workpiece** AISI1045
- **Cutting condition** vc(sfm)=295~590, fn(ipr)=0.0024 ~ 0.0047, t(inch)=3.5, Through coolant system, Pass through
- **Tools** **Insert** SPMT07T208-PD(PC3500), XOMT07T205-PD(PC5300)
  Holder K5DA0812100-07

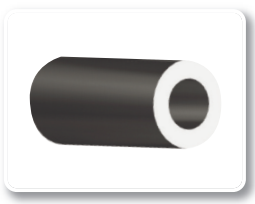
Application examples

● Example of longer tool life



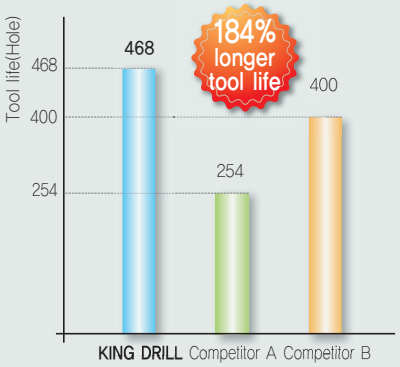
- Superior surface finish and chip evacuation.
- KING DRILL : 180ea, Competitor : 120ea
- 150% longer tool life.

[Workpiece]



- **Workpiece** Track link bush
- **Cutting condition** vc(sfm)=394, fn(ipr)=0.0039, Through coolant system
- **Tools** **Insert** SPMT07T208-PD(PC3500)
  XOMT07T205-PD(PC5300)
  Holder K5DA0812100-07
- **Machine** Drilling machine

● Example of longer tool life



- Superior chip evacuation and surface finish.
- 184% longer tool life comparing to competitor A.
- 117% longer tool life comparing to competitor B.

[Workpiece]



- **Workpiece** Hydraulic oil pump(AISI4140)
- **Cutting condition** vc(sfm)=449, fn(ipr)=0.0051
  ap(inch)=2.3(Not pass though)
  Through coolant system
- **Tools** **Insert** SPMT090308-PD(PC3500)
  XOMT090305-PD(PC5300)
  Holder K5DA1000125-09
- **Machine** KV45

● Example of improved productivity



- KING DRILL: 95 Holes, Competitor : 70 Holes, 135% longer tool life.
- 135% improved productivity.

[Workpiece]



- **Workpiece** Track link bush(AISI4130)
- **Cutting condition** **Competitor** vc(sfm)=459, fn(ipr)=0.0039
  KORLOY vc(sfm)=459, fn(ipr)=0.0047
- **Tools** **Insert** SPMT090308-PD(PC3500)
  XOMT090305-PD(PC5300)
  Holder K3DA1062125-09
- **Machine** MCT

INDEXABLE DRILL

● Example of improved productivity and tool life



[Workpiece]





Chips from KING DRILL



Chips from competitor

- **Workpiece** Track link(AISI4140)
- **Cutting condition** **Competitor** vc(sfm)=154, fn(ipr)=0.0039, Through coolant system
  KORLOY vc(sfm)=360, fn(ipr)=0.0039, Through coolant system
- **Tools** **Insert** SPMT090308-PD(PC3500), XOMT090305-PD(PC5300)
  Holder K3DA1062125-09
- **Machine** MCT

- KING DRILL has 145% longer tool life and 200% improved productivity.
- Good surface finish, improved chip control and less chattering.

Recommended cutting condition

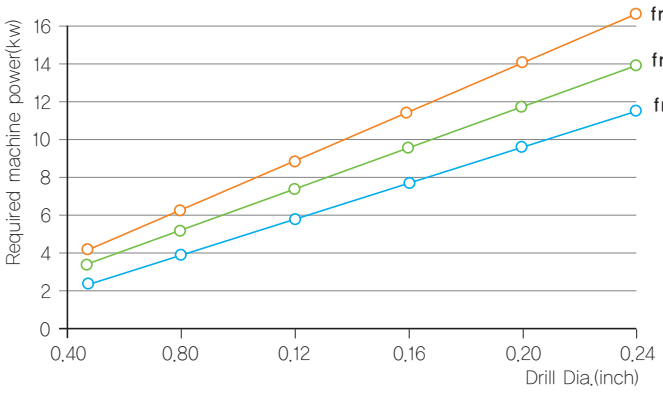
(inch)

Workpiece				Grade	vc	Feed(aspect ratio=2D, 3D, 4D) fn(ipr) depending on drill Dia.(inch)				
ISO		Workpiece	Hardness(HD)		sfm	0.47 ~0.63	0.64 ~ 0.91	0.92 ~ 1.14	1.15 ~ 1.65	1.66 ~ 2.36
P	Carbon steel	Low carbon steel	80 ~ 180	Central insert PC5300 Peripheral insert PC3500	623(426 ~ 820)	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0031
		High carbon	180 ~ 280	Central insert PC5300 Peripheral insert PC3500	459(262 ~ 656)	0.0016 ~ 0.0039	0.0016 ~ 0.0047	0.002 ~ 0.0063	0.0031 ~ 0.0071	0.0039 ~ 0.0087
	Alloy steel	Low alloy steel	140 ~ 260	Central insert PC5300 Peripheral insert PC3500	427(229 ~ 656)	0.0016 ~ 0.004	0.002 ~ 0.005	0.003 ~ 0.0063	0.0031 ~ 0.0079	0.0031 ~ 0.0094
		Low pre -hardened	200 ~ 400	Central insert PC5300 Peripheral insert PC3500	328(164 ~ 492)	0.0016 ~ 0.004	0.002 ~ 0.005	0.003 ~ 0.0063	0.0031 ~ 0.0071	0.0031 ~ 0.0087
		Low alloy steel	50 ~ 260	Central insert PC5300 Peripheral insert PC3500	328(164 ~ 524)	0.0016 ~ 0.007	0.002 ~ 0.005	0.003 ~ 0.0063	0.0031 ~ 0.0071	0.0031 ~ 0.0087
		High pre-hardenedsteel	220 ~ 450	Central insert PC5300 Peripheral insert PC3500	230(98 ~ 393)	0.0016 ~ 0.005	0.002 ~ 0.006	0.0031 ~ 0.0067	0.0031 ~ 0.0067	0.0031 ~ 0.0079
M	Stainless steel	Austenite series	135 ~ 275 Ni > 8%	PC5300	295(131 ~ 492)	0.0016 ~ 0.004	0.0024 ~ 0.0047	0.0024 ~ 0.0055	0.0024 ~ 0.0063	0.0024 ~ 0.0079
		Ferrite series Martensite series	135 ~ 275	PC5300	328(196 ~ 524)	0.0016 ~ 0.004	0.0016 ~ 0.0047	0.0024 ~ 0.0055	0.0024 ~ 0.0063	0.0024 ~ 0.0079
K	Cast iron	Gray cast iron	150 ~ 230	PC6510	623(492 ~ 820)	0.0016 ~ 0.004	0.002 ~ 0.0055	0.0024 ~ 0.0063	0.0039 ~ 0.0087	0.0039 ~ 0.0102
		Ductile cast iron	150 ~ 230	PC6510	492(328 ~ 656)	0.0016 ~ 0.005	0.0024 ~ 0.0063	0.0031 ~ 0.0071	0.0031 ~ 0.0079	0.0039 ~ 0.0087
S	Heat resisting alloy	Ni-heat resisting alloy	130 ~ 400	PC5300	164(98 ~ 328)	0.0016 ~ 0.002	0.0016 ~ 0.0031	0.0016 ~ 0.0039	0.0024 ~ 0.0047	0.0024 ~ 0.0047
		Ti-heat resisting alloy	130 ~ 400	PC5300	131(98 ~ 295)	0.0016 ~ 0.003	0.0016 ~ 0.0039	0.0024 ~ 0.0047	0.0031 ~ 0.0055	0.0031 ~ 0.0063
		High hard ened steel	Over 400	PC5300	131(98 ~ 262)	0.0016 ~ 0.003	0.0016 ~ 0.0039	0.0031 ~ 0.0047	0.0031 ~ 0.0055	0.0031 ~ 0.0063

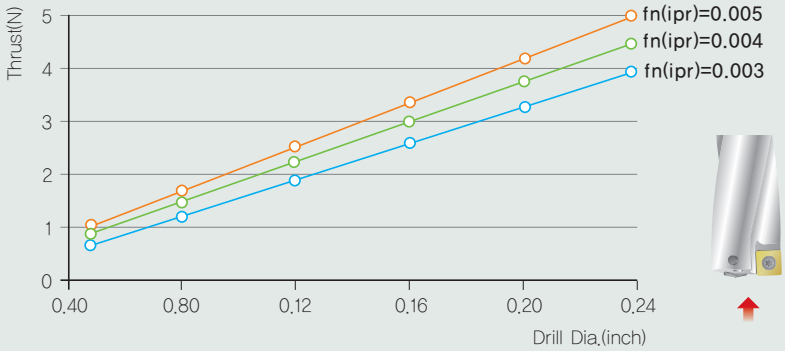
- In case of 5D, reduce 30 ~ 40% of cutting condition from the above.
- In interrupted machining part, reduce 30 ~ 50% of feed from the above machining around interrupted part.

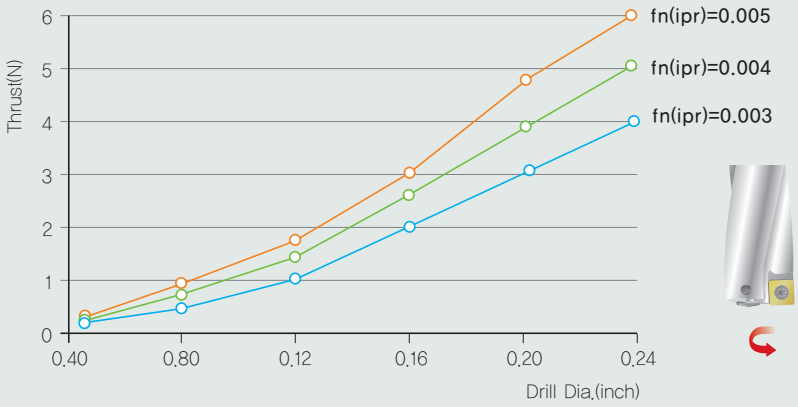
Required machine power

- The graphs below show the cutting force required in drilling.
- Machining with the KING DRILL and a machine with high rigidity and power.

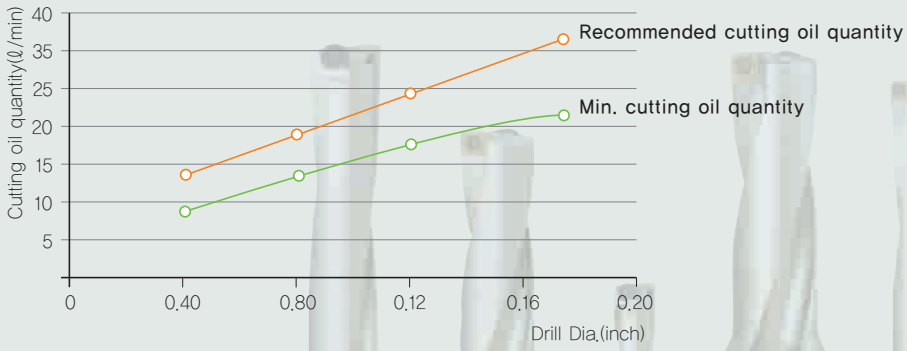


- **Workpiece** AISI4140(240HB)
- **Cutting condition** vc(sfm)=328
  Through coolant system



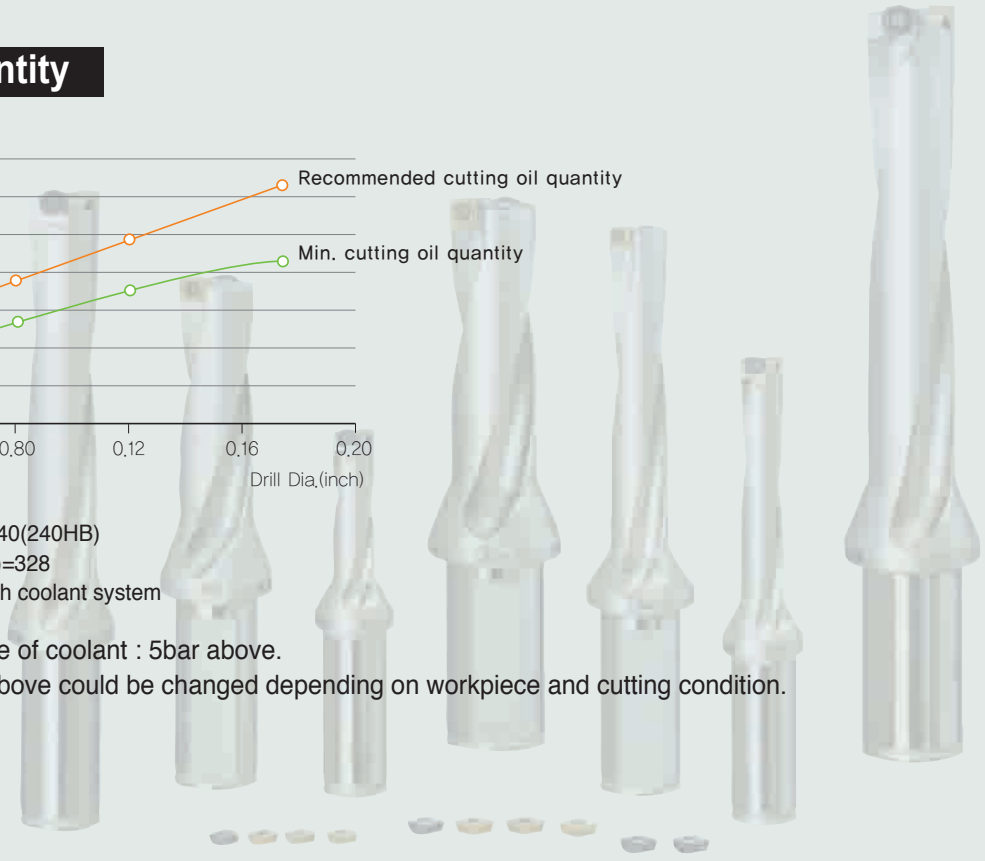


Cutting oil quantity

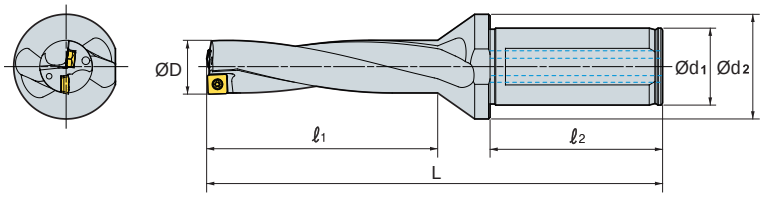


- **Workpiece** AISI4140(240HB)
- **Cutting condition** vc(sfm)=328
  Through coolant system

- Recommended pressure of coolant : 5bar above.
- The data of the graph above could be changed depending on workpiece and cutting condition.



Drill tolerance and hole tolerance



(inch)

Drill Dia.		Ø0.472 ~ Ø1.141	Ø1.181 ~ Ø1.771	Ø1.811 ~ Ø2.362
2D ~ 3D	Drill tolerance(ØD)	0 ~ -0.006	0 ~ -0.006	0 ~ -0.006
	Hole tolerance	-0.016 ~ +0.008	-0.004 ~ +0.010	-0.004 ~ +0.011
4D ~ 5D	Drill tolerance(ØD)	0 ~ -0.006	0 ~ -0.006	0 ~ -0.006
	Hole tolerance	-0.002 ~ +0.010	-0.002 ~ +0.012	-0.002 ~ +0.013

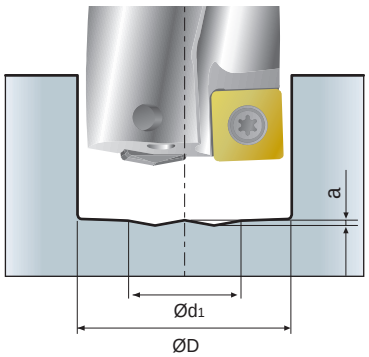
- The actual hole tolerance of KING DRILL is as shown in the chart above.
- The length of drill, kind of workpiece, machine stability, and cutting condition could affect the hole tolerance.

The shape of the bottom of blind hole

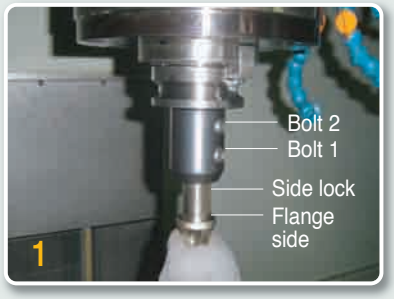
(inch)

Drill Dia.(Ø)	Peripheral insert	Central insert	a	Ød1
Ø0.472 ~ Ø0.531	SPMT040204-PD	XOMT040204-PD	0.016	Ø0.242 ~ Ø0.272
Ø0.535 ~ Ø0.630	SPMT050204-PD	XOMT050204-PD	0.016	Ø0.274 ~ Ø0.334
Ø0.634 ~ Ø0.768	SPMT060205-PD	XOMT060204-PD	0.020	Ø0.325 ~ Ø0.393
Ø0.772 ~ Ø0.925	SPMT07T208-PD	XOMT07T205-PD	0.020	Ø0.395 ~ Ø0.474
Ø0.929 ~ Ø1.161	SPMT090308-PD	XOMT090305-PD	0.028	Ø0.476 ~ Ø0.595
Ø1.165 ~ Ø1.398	SPMT11T308-PD	XOMT11T306-PD	0.031	Ø0.597 ~ Ø0.716
Ø1.402 ~ Ø1.687	SPMT130410-PD	XOMT130406-PD	0.039	Ø0.718 ~ Ø0.864
Ø1.691 ~ Ø2.000	SPMT15M510-PD	XOMT15M508-PD	0.043	Ø0.866 ~ Ø1.024
Ø2.003 ~ Ø2.398	SPMT180510-PD	XOMT180508-PD	0.047	Ø1.026 ~ Ø1.228

- KING DRILL drills with two inserts, central and peripheral.
- Refer to the above chart for remaining insert curve of blind hole bottom.



How to clamp KING DRILL to side lock arbor





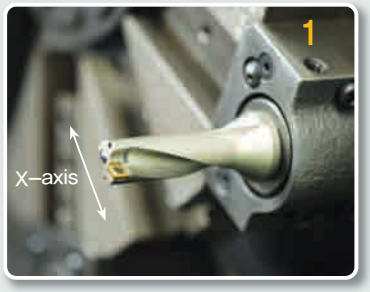


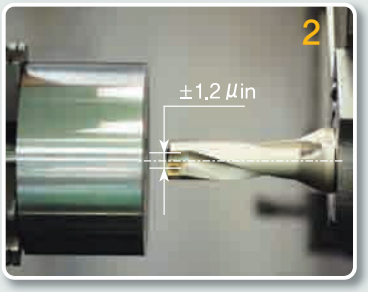


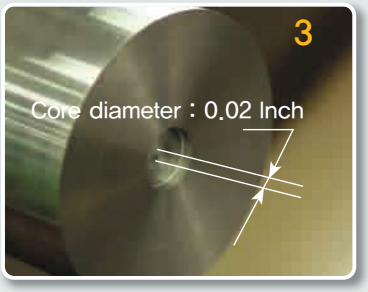
● Recommendation to use side lock arbor for KING DRILL

1. Insert the part of side lock of drill to the same direction of clamping the bolt to the arbor.
2. Push the flange side of drill into the arbor.
3. Clamp the bolt 1 first.
4. Next, clamp the bolt 2.

Notice for setting the drill in the lathe



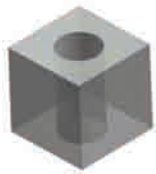
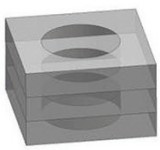




• Set the peripheral insert parallel to the X-axis.(Based on the side lock)
• If the machined core is 0.02inch after machining 0.2inch, that is the proper setting.

∗Please make sure that the location of the side lock could be different depending on manufacturers of machine.

Machining required attention

Workpiece	Machining	
	**Machining irregular face**	• Possible chipping and fracture of the insert. • Reduce normal feed 25%.
	**Machining convex side**	• Possible initial contact with central insert. • educe feed 50% until both inserts are engaged.
	**Machining concave side**	• Reduce feed 50% until both inserts are engaged.
	**Boring**	• Reduce feed 50% from normal conditions.
	**Ramping**	• Reduce feed 50% from normal conditions.
	**Machining cross holes**	• Reduce feed 50% in the overlapped section.
	**Machining overlapped holes**	• Reduce feed 50% from normal conditions.
	**Machining overlapped panels**	• Possible chipping and fracture of insert. • Reduce normal feed 25%.

Solutions for machining failure

Failure	Detail	Solution
Different diameters of one machined hole.	Different diameters of one machined hole. → The end of hole Diameter is bigger.	• Use more coolant and check the coolant evacuation. • Change the drill to one with small aspect ratio. • Change the cutting condition for better chip control.
Enlarging or reducing hole diameter.	Enlarging or reducing hole diameter.	• Milling → Use more coolant. → Check the coolant evacuation. • Turning → Check the center of drill and workpiece. → Rotate the drill to 180°.
Chattering	Vibration while machining.	• Set the overhang of drill short. • Reduce the cutting speed and feed. • Stable clamping. • Check the torque of machine.
Poor chip evacuation.	Long chip	• Mild steel/STS → Speed up, Feed down
		• Alloy steel/carbon steel → Speed up, Feed up
	Short chip	• Speed down, feed down,pressure of coolant up.
Poor surface finish.	Scratch on the machined side.	• Set the cutting condition for better chip control. • Feed down or speed up. • Increase the coolant flow and check the coolant evacuation. • Set the overhang of drill short and more stable clamping.
Short tool life of insert.	Too much wear or chipping on insert.	• Check the cutting condition. • Use more coolant and check the coolant evacuation. • Set the overhang of drill short and more stable clamping. • Change the insert grade.

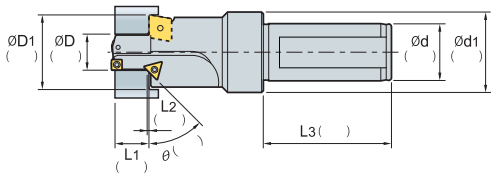
Insert and parts

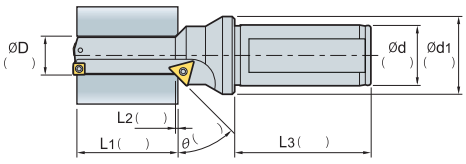
Drill Dia.(Ø)	Peripheral insert	Central insert	Screw	Wrench	Torque(Nm)
Ø0.472 ~ Ø0.531	SPMT040204-PD	XOMT040204-PD	FTNA0204	TW06P	0.4
Ø0.535 ~ Ø0.630	SPMT050204-PD	XOMT050204-PD	FTNA0204	TW06P	0.4
Ø0.634 ~ Ø0.768	SPMT060205-PD	XOMT060204-PD	FTKA02206S	TW07P	0.8
Ø0.772 ~ Ø0.925	SPMT07T208-PD	XOMT07T205-PD	FTKA02565	TW07S	0.8
Ø0.929 ~ Ø1.161	SPMT090308-PD	XOMT090305-PD	FTKA0307	TW09S	1.2
Ø1.165 ~ Ø1.398	SPMT11T308-PD	XOMT11T306-PD	FTKA03508	TW15S	3.0
Ø1.402 ~ Ø1.687	SPMT130410-PD	XOMT130406-PD	FTKA0410	TW15S	3.0
Ø1.691 ~ Ø2.000	SPMT15M510-PD	XOMT15M508-PD	FTNC04511	TW20S	5.0
Ø2.003 ~ Ø2.398	SPMT180510-PD	XOMT180508-PD	FTNA0511	TW20-100	5.0

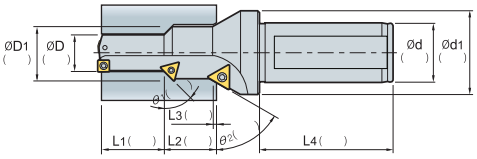
∗In clamping insert, clean the tip seat and apply the CASMOLY1000 on screw.
∗Make sure to use KORLOY's screw and ranch only.

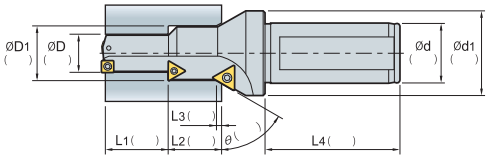
Special drill order form

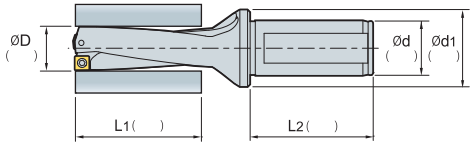
(☑ Mark 'V' in the box)

☐ 

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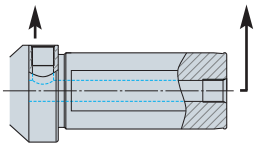
☐ 

Note

- ···› **Currently using tool :**
- ···› **Current cutting condition**
  - RPM or vc(sfm) :
  - vf(ipm) or fn(ipr) :
  - Depth of cut(inch) :
- ···› **Tool life :**
- ···› **Currently using machine**
  - Machining center :
  - General lathe :
  - CNC lathe :

Coolant Type

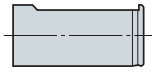
☐ Oil hole on the flange part ☐ Oil hole on the shank



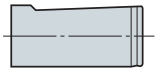
Hole type

☐ Blind hole
☐ Thru hole

Types of shank

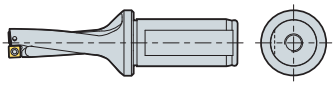
☐  (Flat type:Standard)

☐  (Weldon type)

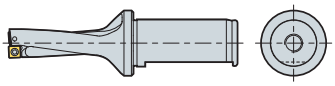
☐  (Whistle notch type)

Location of side lock

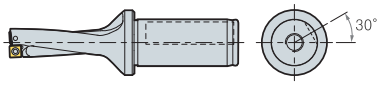
☐ Parallel to peripheral insert(Standard)



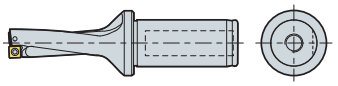
☐ 90° angle to peripheral insert



☐ 150° angle to peripheral insert



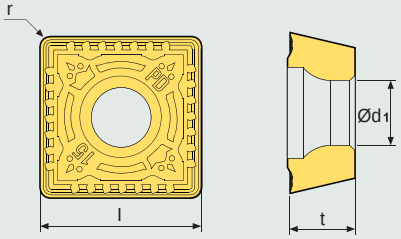
☐ 180° angle to peripheral insert



Insert

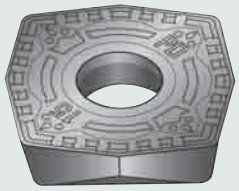


Peripheral insert

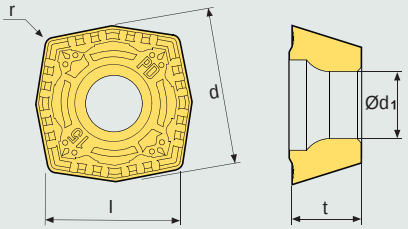


(inch)

Drill Dia.(Ø)	Designation		Grade	l	t	r	d1
Ø0.472 ~ Ø0.531	SPMT	040204-PD	PC3500	0.19	0.09	0.02	0.09
Ø0.535 ~ Ø0.630		050204-PD	PC3500	0.20	0.09	0.02	0.09
Ø0.634 ~ Ø0.768		060205-PD	PC3500	0.24	0.10	0.02	0.10
Ø0.772 ~ Ø0.925		07T208-PD	PC3500	0.30	0.11	0.03	0.11
Ø0.929 ~ Ø1.161		090308-PD	PC3500	0.36	0.13	0.03	0.13
Ø1.165 ~ Ø1.398		11T308-PD	PC3500	0.43	0.16	0.03	0.16
Ø1.402 ~ Ø1.687		130410-PD	PC3500	0.51	0.18	0.04	0.18
Ø1.691 ~ Ø2.000		15M510-PD	PC3500	0.60	0.20	0.04	0.22
Ø2.003 ~ Ø2.398		180510-PD	PC3500	0.72	0.22	0.04	0.24



Central insert



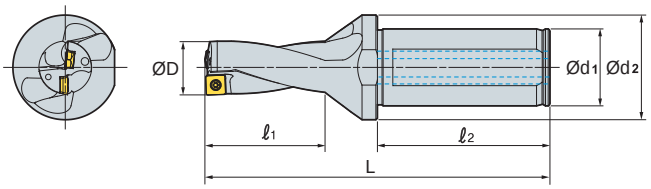
(inch)

Drill Dia.(Ø)	Designation		Grade	l	d	t	r	d1
Ø0.472 ~ Ø0.531	XOMT	040204-PD	PC5300	0.17	0.19	0.09	0.02	0.09
Ø0.535 ~ Ø0.630		050204-PD	PC5300	0.19	0.21	0.09	0.02	0.09
Ø0.634 ~ Ø0.768		060204-PD	PC5300	0.23	0.26	0.10	0.02	0.10
Ø0.772 ~ Ø0.925		07T205-PD	PC5300	0.27	0.31	0.11	0.02	0.11
Ø0.929 ~ Ø1.161		090305-PD	PC5300	0.33	0.38	0.13	0.02	0.13
Ø1.165 ~ Ø1.398		11T306-PD	PC5300	0.39	0.45	0.16	0.02	0.16
Ø1.402 ~ Ø1.687		130406-PD	PC5300	0.47	0.54	0.18	0.02	0.18
Ø1.691 ~ Ø2.000		15M508-PD	PC5300	0.55	0.63	0.20	0.03	0.22
Ø2.003 ~ Ø2.398		180508-PD	PC5300	0.65	0.74	0.22	0.03	0.24

KING DRILL-2D

KORLOY INDEXABLE NEW GENERATION-DRILL





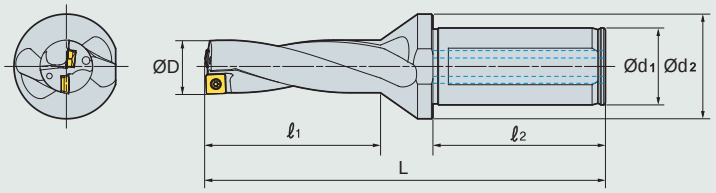
(inch)

Designation		ØD		Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K2DA	0484075-04	0.484	31/64	0.75	0.98	1.06	1.97	3.58	SPMT040204-□□ SPMT040204-□□ XOMT040204-□□	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	1.14	1.97	3.66			
	0531075-04	0.531	17/32	0.75	0.98	1.14	1.97	3.66			
	0562075-05	0.562	9/16	0.75	0.98	1.22	1.97	3.78	SPMT050204-□□ XOMT050204-□□	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	1.38	1.97	3.98			
	0687100-06	0.687	11/16	1.00	1.34	1.46	2.20	4.29	SPMT060205-□□ XOMT060204-□□	FTKA02206S	TW07P
	0750100-06	0.750	3/4	1.00	1.34	1.61	2.20	4.49			
	0812100-07	0.812	13/16	1.00	1.34	1.77	2.20	4.72	SPMT07T208-□□ XOMT07T205-□□	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	1.85	2.20	4.80			
	0937125-09	0.937	15/16	1.25	1.73	2.01	2.36	5.24	SPMT090308-□□ XOMT090305-□□	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	2.09	2.36	5.31			
	1031125-09	1.031	1 1/32	1.25	1.73	2.17	2.36	5.39			
	1062125-09	1.062	1 1/16	1.25	1.73	2.24	2.36	5.51			
	1125125-09	1.125	1 1/8	1.25	1.73	2.40	2.36	5.71			
	1187125-11	1.187	1 3/16	1.25	1.73	2.48	2.36	5.91	SPMT11T308-□□ XOMT11T306-□□	FTKA0307	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	2.64	2.36	6.06			
	1312125-11	1.312	1 5/16	1.25	1.73	2.72	2.36	6.18			
	1375125-11	1.375	1 3/8	1.25	1.73	2.87	2.36	6.34			
	1437150-13	1.437	1 7/16	1.50	1.89	2.99	2.76	6.93	SPMT130410-□□ XOMT130406-□□	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	3.15	2.76	7.13			
	1562150-13	1.562	1 9/16	1.50	1.89	3.31	2.76	7.32			
	1625150-13	1.625	1 5/8	1.50	1.89	3.39	2.76	7.40			
	1687150-13	1.687	1 11/16	1.50	2.28	3.58	2.76	7.72			
	1750150-15	1.750	1 3/4	1.50	2.28	3.66	2.76	7.80	SPMT15M510-□□ XOMT15M508-□□	FTNC04511	TW20S
	1812150-15	1.812	1 13/16	1.50	2.28	3.82	2.76	7.99			
	1875150-15	1.875	1 7/8	1.50	2.28	3.98	2.76	8.19			
	1937150-15	1.937	1 15/16	1.50	2.28	4.06	2.76	8.27			
	2000150-15	2.000	2	1.50	2.68	4.25	2.76	8.58			
	2062150-18	2.062	2 1/16	1.50	2.68	4.33	2.76	8.66	SPMT180510-□□ XOMT180508-□□	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	4.49	2.76	8.82			
	2187150-18	2.187	2 3/16	1.50	2.68	4.65	2.76	9.06			
	2250150-18	2.250	2 1/4	1.50	2.68	4.76	2.76	9.17			
	2313150-18	2.313	2 5/16	1.50	2.68	5.00	2.76	9.41			
	2375150-18	2.375	2 3/8	1.50	2.68	5.12	2.76	9.53			

KING DRILL-3D

KORLOY INDEXABLE NEW GENERATION-DRILL





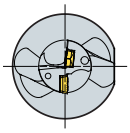
(inch)

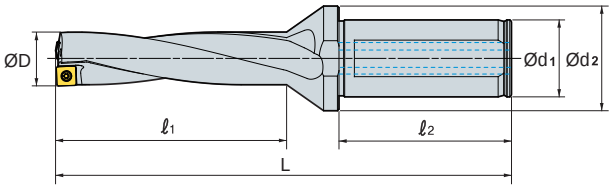
Designation		ØD		Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K3DA	0484075-04	0.484	31/64	0.75	0.98	1.54	1.97	4.06	SPMT040204-□□ XOMT040204-□□	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	1.65	1.97	4.17			
	0531075-04	0.531	17/32	0.75	0.98	1.65	1.97	4.17			
	0562075-05	0.562	9/16	0.75	0.98	1.77	1.97	4.33	SPMT050204-□□ XOMT050204-□□	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	2.01	1.97	4.61			
	0687100-06	0.687	11/16	1.00	1.34	2.13	2.20	4.96	SPMT060205-□□ XOMT060204-□□	FTKA02206S	TW07P
	0750100-06	0.750	3/4	1.00	1.34	2.36	2.20	5.24			
	0812100-07	0.812	13/16	1.00	1.34	2.60	2.20	5.55	SPMT07T208-□□ XOMT07T205-□□	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	2.72	2.20	5.67			
	0937125-09	0.937	15/16	1.25	1.73	2.95	2.36	6.18	SPMT090308-□□ XOMT090305-□□	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	3.07	2.36	6.30			
	1031125-09	1.031	1 1/32	1.25	1.73	3.19	2.36	6.42			
	1062125-09	1.062	1 1/16	1.25	1.73	3.31	2.36	6.57			
	1125125-09	1.125	1 1/8	1.25	1.73	3.54	2.36	6.85			
	1187125-11	1.187	1 3/16	1.25	1.73	3.66	2.36	7.09	SPMT11T308-□□ XOMT11T306-□□	FTKA03508	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	3.90	2.36	7.32			
	1312125-11	1.312	1 5/16	1.25	1.73	4.02	2.36	7.48			
	1375125-11	1.375	1 3/8	1.25	1.73	4.25	2.36	7.72			
	1437150-13	1.437	1 7/16	1.50	1.89	4.41	2.76	8.35	SPMT130410-□□ XOMT130406-□□	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	4.65	2.76	8.62			
	1562150-13	1.562	1 9/16	1.50	1.89	4.88	2.76	8.90			
	1625150-13	1.625	1 5/8	1.50	1.89	5.00	2.76	9.02			
	1687150-13	1.687	1 11/16	1.50	2.28	5.28	2.76	9.41			
	1750150-15	1.750	1 3/4	1.50	2.28	5.39	2.76	9.53	SPMT15M510-□□ XOMT15M508-□□	FTNC04511	TW20S
	1812150-15	1.812	1 13/16	1.50	2.28	5.63	2.76	9.80			
	1875150-15	1.875	1 7/8	1.50	2.28	5.87	2.76	10.08			
	1937150-15	1.937	1 15/16	1.50	2.28	5.98	2.76	10.20			
	2000150-15	2.000	2	1.50	2.68	6.26	2.76	10.59			
	2062150-18	2.062	2 1/16	1.50	2.68	6.38	2.76	10.71	SPMT180510-□□ XOMT180508-□□	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	6.61	2.76	10.94			
	2187150-18	2.187	2 3/16	1.50	2.68	6.85	2.76	11.26			
	2250150-18	2.250	2 1/4	1.50	2.68	7.01	2.76	11.42			
	2313150-18	2.313	2 5/16	1.50	2.68	7.32	2.76	11.73			
	2375150-18	2.375	2 3/8	1.50	2.68	7.48	2.76	11.89			

KING DRILL-4D

KORLOY INDEXABLE NEW GENERATION-DRILL







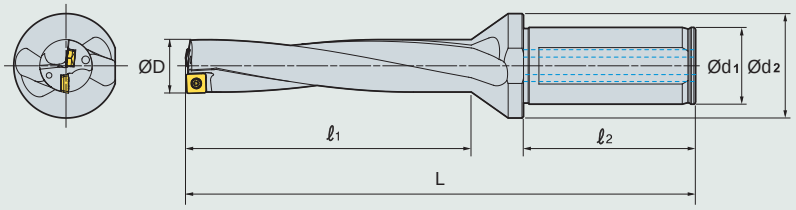
(inch)

Designation		ØD		Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K4DA	0484075-04	0.484	31/64	0.75	0.98	2.01	1.97	4.53	SPMT040204-□□ XOMT040204-□□	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	2.17	1.97	4.69			
	0531075-04	0.531	17/32	0.75	0.98	2.17	1.97	4.69			
	0562075-05	0.562	9/16	0.75	0.98	2.32	1.97	4.88	SPMT050204-□□ XOMT050204-□□	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	2.64	1.97	5.24			
	0687100-06	0.687	11/16	1.00	1.34	2.80	2.20	5.63	SPMT060205-□□ XOMT060204-□□	FTKA02206S	TW07P
	0750100-06	0.750	3/4	1.00	1.34	3.11	2.20	5.98			
	0812100-07	0.812	13/16	1.00	1.34	3.43	2.20	6.38	SPMT07T208-□□ XOMT07T205-□□	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	3.58	2.20	6.54			
	0937125-09	0.937	15/16	1.25	1.73	3.90	2.36	7.13	SPMT090308-□□ XOMT090305-□□	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	4.06	2.36	7.28			
	1031125-09	1.031	1 1/32	1.25	1.73	4.21	2.36	7.44			
	1062125-09	1.062	1 1/16	1.25	1.73	4.37	2.36	7.64			
	1125125-09	1.125	1 1/8	1.25	1.73	4.69	2.36	7.99			
	1187125-11	1.187	1 3/16	1.25	1.73	4.84	2.36	8.27	SPMT11T308-□□ XOMT11T306-□□	FTKA03508	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	5.16	2.36	8.58			
	1312125-11	1.312	1 5/16	1.25	1.73	5.31	2.36	8.78			
	1375125-11	1.375	1 3/8	1.25	1.73	5.63	2.36	9.09			
	1437150-13	1.437	1 7/16	1.50	1.89	5.83	2.76	9.76	SPMT130410-□□ XOMT130406-□□	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	6.14	2.76	10.12			
	1562150-13	1.562	1 9/16	1.50	1.89	6.46	2.76	10.47			
	1625150-13	1.625	1 5/8	1.50	1.89	6.61	2.76	10.63			
	1687150-13	1.687	1 11/16	1.50	2.28	6.97	2.76	11.10			
	1750150-15	1.750	1 3/4	1.50	2.28	7.13	2.76	11.26	SPMT15M510-□□ XOMT15M508-□□	FTNC04511	TW20S
	1812150-15	1.812	1 13/16	1.50	2.28	7.44	2.76	11.61			
	1875150-15	1.875	1 7/8	1.50	2.28	7.76	2.76	11.97			
	1937150-15	1.937	1 15/16	1.50	2.28	7.91	2.76	12.13			
	2000150-15	2.000	2	1.50	2.68	8.27	2.76	12.60			
	2062150-18	2.062	2 1/16	1.50	2.68	8.43	2.76	12.76	SPMT180510-□□ XOMT180508-□□	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	8.74	2.76	13.07			
	2187150-18	2.187	2 3/16	1.50	2.68	9.06	2.76	13.46			
	2250150-18	2.250	2 1/4	1.50	2.68	9.25	2.76	13.66			
	2313150-18	2.313	2 5/16	1.50	2.68	9.65	2.76	14.06			
	2375150-18	2.375	2 3/8	1.50	2.68	9.84	2.76	14.25			

KING DRILL-5D

KORLOY INDEXABLE NEW GENERATION-DRILL





(inch)

Designation		ØD		Ød1	Ød2	ℓ1	ℓ2	L	Insert	Screw	Wrench
K5DA	0484075-04	0.484	31/64	0.75	0.98	2.48	1.97	5.00	SPMT040204-□□ XOMT040204-□□	FTNA0204	TW06P
	0500075-04	0.500	1/2	0.75	0.98	2.48	1.97	5.00			
	0531075-04	0.531	17/32	0.75	0.98	2.68	1.97	5.20			
	0562075-05	0.562	9/16	0.75	0.98	2.87	1.97	5.43	SPMT050204-□□ XOMT050204-□□	FTNA0204	TW06P
	0625075-05	0.625	5/8	0.75	0.98	3.27	1.97	5.87			
	0687100-06	0.687	11/16	1.00	1.34	3.46	2.20	6.30	SPMT060205-□□ XOMT060204-□□	FTKA02206S	TW07P
	0750100-06	0.750	3/4	1.00	1.34	3.86	2.20	6.73			
	0812100-07	0.812	13/16	1.00	1.34	4.25	2.20	7.20	SPMT07T208-□□ XOMT07T205-□□	FTKA02565	TW07S
	0875100-07	0.875	7/8	1.00	1.34	4.45	2.20	7.40			
	0937125-09	0.937	15/16	1.25	1.73	4.84	2.36	8.07	SPMT090308-□□ XOMT090305-□□	FTKA0307	TW09S
	1000125-09	1.000	1	1.25	1.73	5.04	2.36	8.27			
	1031125-09	1.031	1 1/32	1.25	1.73	5.24	2.36	8.46			
	1062125-09	1.062	1 1/16	1.25	1.73	5.43	2.36	8.70			
	1125125-09	1.125	1 1/8	1.25	1.73	5.83	2.36	9.13			
	1187125-11	1.187	1 3/16	1.25	1.73	6.02	2.36	9.45	SPMT11T308-□□ XOMT11T306-□□	FTKA03508	TW15S
	1250125-11	1.250	1 1/4	1.25	1.73	6.42	2.36	9.84			
	1312125-11	1.312	1 5/16	1.25	1.73	6.61	2.36	10.08			
	1375125-11	1.375	1 3/8	1.25	1.73	7.01	2.36	10.47			
	1437150-13	1.437	1 7/16	1.50	1.89	7.24	2.76	11.18	SPMT130410-□□ XOMT130406-□□	FTKA0410	TW15S
	1500150-13	1.500	1 1/2	1.50	1.89	7.64	2.76	11.61			
	1562150-13	1.562	1 9/16	1.50	1.89	8.03	2.76	12.05			
	1625150-13	1.625	1 5/8	1.50	1.89	8.23	2.76	12.24			
	1687150-13	1.687	1 11/16	1.50	2.28	8.66	2.76	12.80			
	1750150-15	1.750	1 3/4	1.50	2.28	8.86	2.76	12.99	SPMT15M510-□□ XOMT15M508-□□	FTNC04511	TW20S
	1812150-15	1.812	1 13/16	1.50	2.28	9.25	2.76	13.43			
	1875150-15	1.875	1 7/8	1.50	2.28	9.65	2.76	13.86			
	1937150-15	1.937	1 15/16	1.50	2.28	9.84	2.76	14.06			
	2000150-15	2.000	2	1.50	2.68	10.28	2.76	14.61			
	2062150-18	2.062	2 1/16	1.50	2.68	10.47	2.76	14.80	SPMT180510-□□ XOMT180508-□□	FTNA0511	TW20-100
	2125150-18	2.125	2 1/8	1.50	2.68	10.87	2.76	15.20			
	2187150-18	2.187	2 3/16	1.50	2.68	11.26	2.76	15.67			
	2250150-18	2.250	2 1/4	1.50	2.68	11.50	2.76	15.91			
	2313150-18	2.313	2 5/16	1.50	2.68	11.97	2.76	16.38			
	2375150-18	2.375	2 3/8	1.50	2.68	12.20	2.76	16.61			



NEW

TPDB

TOP SOLID PIERCING DRILL BLADE-TYPE

Code system

- **Insert**

TPD 0625 B A

Top Solid Piercing Drill	Drill Dia.	Insert type	Type
	0625 : Ø0.625	B : Blade type	A : Inch type No code : Metric type

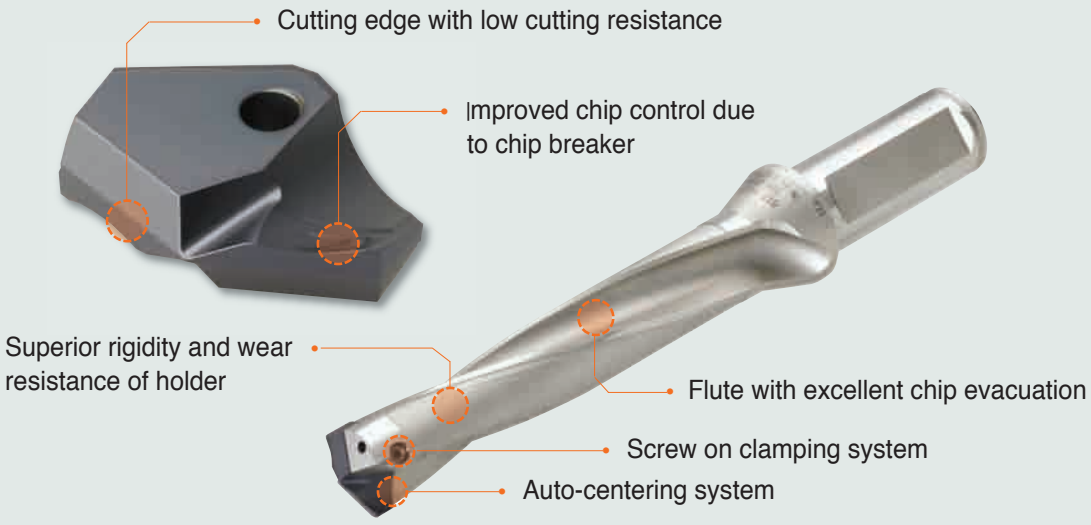
- **Holder**

TPD B A 0610 - 075 □ - 5

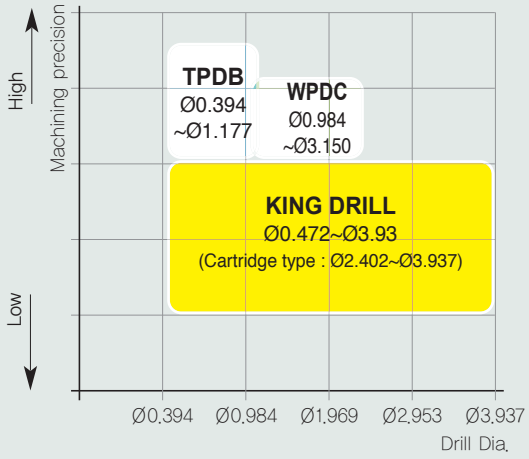
Top Solid Piercing Drill	Insert type	Type	Drill Dia.	Shank Dia.	Shank shape	Aspect ratio(L/D)
	B : Blade type	A : Inch type No code : Metric type	0610 : Ø0.610	075 : Ø0.75		3D, 5D, 8D

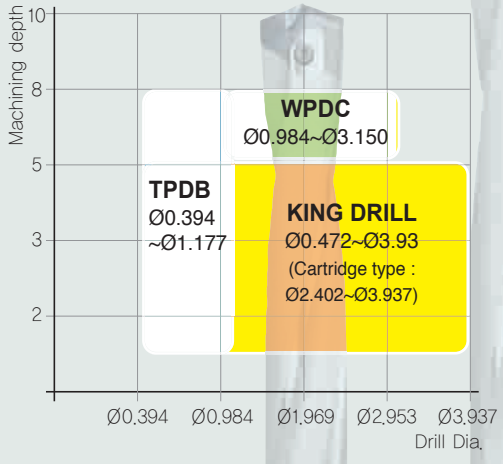
Features

- **High precision clamping system**
  - High precision grinding and superior clamping precision with auto-centering system.
- **Screw on clamping system**
  - Easy clamping system of TPDB insert.
- **Sharp cutting edge**
  - Improved chip evacuation, low cutting load, longer tool life with ultra-fine substrate and exclusive coating layer.
- **Holder with excellent durability**
  - Holder with high rigidity and superb wear resistance due to special surface treatment.



Application range

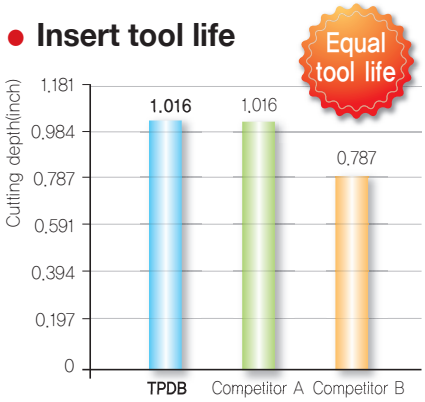




Tools	Application range					
	Drill Dia.	L/D	Tolerance of drill Dia.	Tolerance	Surface finish of hole	Material
TPDB	Ø0.394 ~ Ø1.177	~ 8 x D	h7	IT10	Ra ~ 2.0㎛	P M K S H
KING DRILL	Ø0.472 ~ Ø3.937	~ 5 x D	h12	-0.1 ~ +0.3	Ra ~ 4.0㎛	P M K N S H
WPDC	Ø0.984 ~ Ø3.150	~ 8 x D	h12	-0.1 ~ +0.3	Ra ~ 3.0㎛	P M K N S H

Cutting performance

Insert tool life



- **Workpiece** AISI4140
- **Cutting condition** vc(sfm)=331.5, fn(ipr)=0.0118
  ap(inch)=3.543(Pass through), Wet
- **Tools** **Insert** TPD0787BA(PC5300)
  Holder TPDBA0787-100-5



- TPDB
  1.016inch
  Normal wear,
  more machinable.

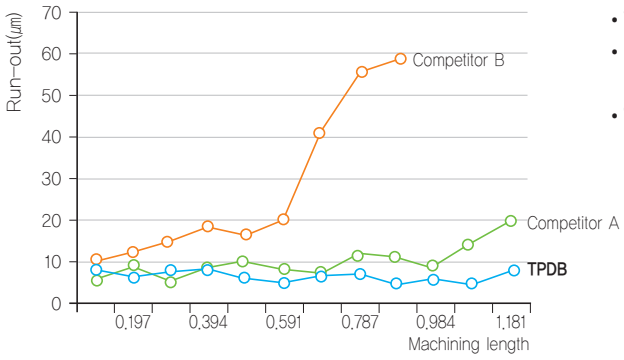


- Competitor A
  1.016inch
  Fracture on
  cutting edge.



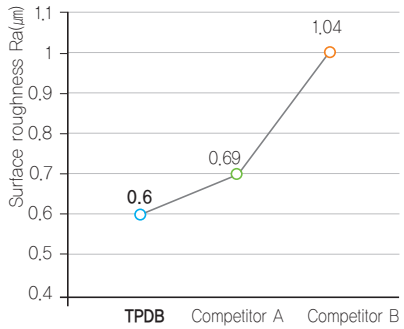
- Competitor B
  0.787inch
  Notch wear, chipping

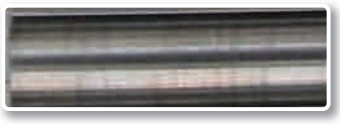
Run-out



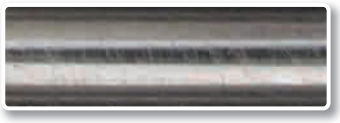
- **Workpiece** AISI4140
- **Cutting condition** vc(sfm)=298.3, fn(ipr)=0.0098
  ap(inch)=3.149(Pass through), Wet
- **Tools** **Insert** TPD0709BA(PC5300)
  Holder TPDBA0709-100-5

Surface roughness





- TPDB : Good surface roughness.
  (No scratch or rifling from chip)



- Competitor A : Scratch from
  chip evacuating.

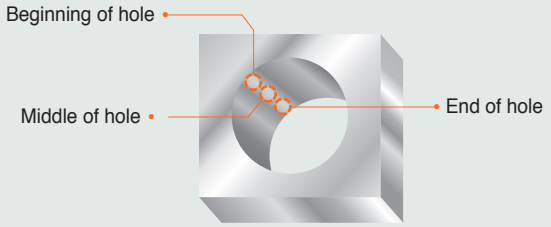


- Competitor B : Scratch and
  rifling from chip evacuating.

- **Workpiece** AISI4140
- **Cutting condition** vc(sfm)=3.543, fn(ipr)=0.0078, ap(inch)=2.362(Pass through), Wet
- **Tools** **Insert** TPD0709BA(PC5300), **Holder** TPDBA0709-100-5

Precision



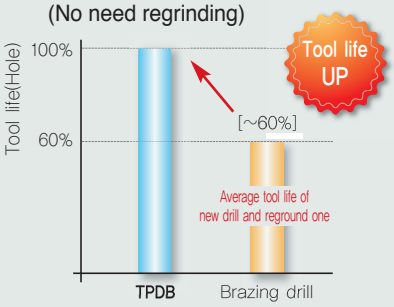


- **Workpiece** AISI1045
- **Cutting condition** vc(sfm)=265.2/331.5, fn(ipr)=0.0118/0.0138
  ap(inch)=3.543(Pass though), Wet
- **Tools**
  Insert TPD0787BA(PC5300)
  Holder TPDBA0787-100-5

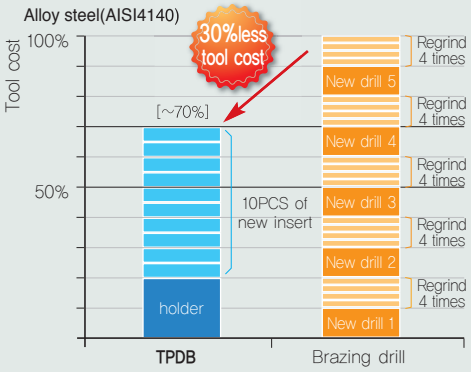
Tool cost

[Comparison of 1 insert tool life]

- Exclusive coating and substrate.
- Usable till the end of wear.
  (No need regrinding)



[Comparison of tool cost when machining 1000ea of workpiece]

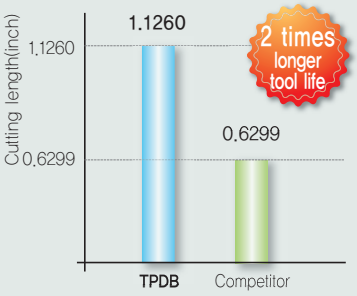


- 40% longer tool life.
- No need regrind.
- Less insert change.
- 30% less tool cost.

INDEXABLE DRILL

Application example

Part of automobile

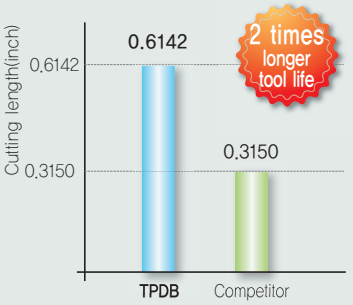




- 200% longer tool life than competitor's.

- **Workpiece** AISI80-55-06
- **Cutting condition** vc(sfm)=324.8, fn(ipr)=0.0122
  ap(inch)=1.575
  Inner coolant system
- **Tools**
  Insert TPD0768BA(PC5300)
  Holder TPDBA0768-100-5
- **Machine** MCT(Vertical)

Part of heavy equipment

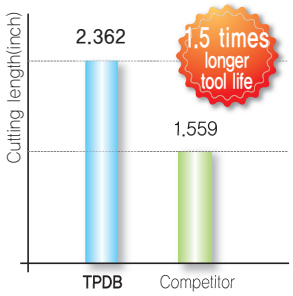




- 200% longer tool life than competitor's.

- **Workpiece** Hot forged steel
- **Cutting condition** vc(sfm)=281.8, fn(ipr)=0.0079
  ap(inch)=0.787
  Inner coolant system
- **Tools**
  Insert TPD0827BA(PC5300)
  Holder TPDBA0827-100-3
- **Machine** MCT(Vertical)

● Machine part

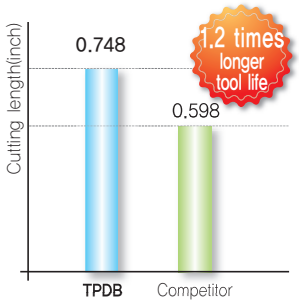


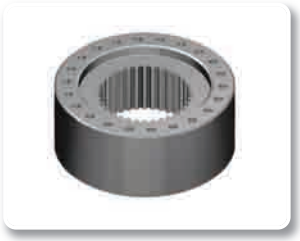


• 200% longer tool life than competitor's.

- **Workpiece** AISI No35B
- **Cutting condition** vc(sfm)=248.6
  fn(ipr)=0.0102 ap(inch)=2.362
  Outer coolant system
- **Tools** **Insert** TPD0630BA(PC5300)
  Holder TPDBA0630-075-5
- **Machine** MCT vertical

● Heavy euipment part





• 150% longer tool life than competitor's.

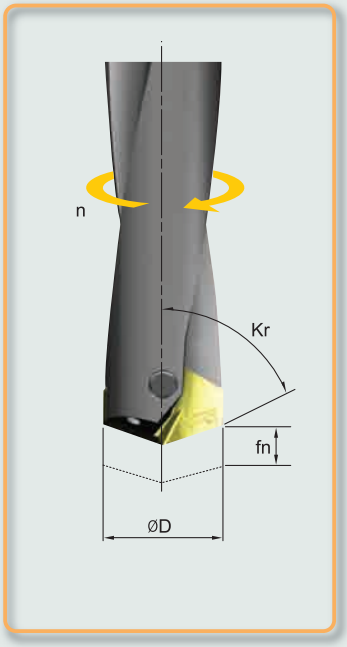
- **Workpiece** AISI1045
- **Cutting condition** vc(sfm)=132.6
  fn(ipr)=0.0055
  ap(inch)=3.740
  Inner coolant system
- **Tools** **Insert** TPD0512BA(PC5300)
  Holder TPDBA0512-063-8
- **Machine** MCT / Horizontal

Recommended cutting condition

Workpiece				Grade	vc	fn(aspect ratio=3D ~ 5D) Feed(ipr) per drill Dia.(inch)		
ISO		Workpiece	HB		sfm	0.3937 ~ 0.6260	0.6300 ~ 0.9803	0.9843 ~ 1.1772
P	Carbon steel	Low carbon steel	80 ~ 120	PC5300	365(265 ~ 464)	0.0059 ~ 0.0118	0.0079 ~ 0.0138	0.0098 ~ 0.0157
		High carbon steel	180 ~ 280	PC5300	332(232 ~ 431)	0.0059 ~ 0.0118	0.0079 ~ 0.0138	0.0098 ~ 0.0157
	Alloy steel	Low alloy steel	140 ~ 260	PC5300	365(265 ~ 464)	0.0071 ~ 0.0138	0.0091 ~ 0.015	0.0110 ~ 0.0169
		Low pre-hardened steel	200 ~ 400	PC5300	249(166 ~ 332)	0.0071 ~ 0.0138	0.0091 ~ 0.015	0.0110 ~ 0.0169
		High alloy steel	50 ~ 260	PC5300	232(166 ~ 298)	0.0071 ~ 0.0118	0.0079 ~ 0.0138	0.0098 ~ 0.0157
		High pre-hardened steel	220 ~ 450	PC5300	199(133 ~ 265)	0.0071 ~ 0.0118	0.0079 ~ 0.0138	0.0098 ~ 0.0157
M	Stainless steel	Austenite series	135 ~ 275	PC5300	166(99 ~ 232)	0.0051 ~ 0.0098	0.0059 ~ 0.0118	0.0067 ~ 0.0130
		Ferrite series Martensite series	135 ~ 275	PC5300	182(133 ~ 232)	0.0051 ~ 0.0098	0.0059 ~ 0.0118	0.0067 ~ 0.0130
K	Cast Iron	Gray cast iron	150 ~ 230	PC5300	365(265 ~ 464)	0.0071 ~ 0.0138	0.0079 ~ 0.0157	0.0098 ~ 0.0177
		Ductile cast iron	160 ~ 260	PC5300	332(232 ~ 431)	0.0071 ~ 00.0138	0.0079 ~ 0.0157	0.0098 ~ 0.0177
S	Heat resisting steel	Ni pre-hardened steel	130 ~ 400	PC5300	133(66 ~ 199)	0.0039 ~ 0.0079	0.0047 ~ 0.0087	0.0051 ~ 0.0098
		Ti pre-hardened steel	130 ~ 400	PC5300	133(66 ~ 199)	0.0039 ~ 0.0079	0.0047 ~ 0.0087	0.0051 ~ 0.0098
		High hardened steel	400 ~	PC5300	116(66 ~ 166)	0.0039 ~ 0.0079	0.0047 ~ 0.0087	0.0051 ~ 0.0098

• In case of 8D, reduce the cutting conditions to 40 ~ 50% or machine the beginning of hole first.(1.5D)
• In case of interrupted machining, reduce the feed to 30 ~ 50% machining around the interrupted part.

Formulas for machining



vc	fn	tc
vc=(π x D x n)/12 vc(sfm) : Cutting speed π : Circular constant (3.14) D(inch) : Drill Dia. n(min^{-1}) : RPM	**fn=vf/n** fn(ipr) : Feed per revolution vf(ipr) : Table feed n(min-1) : RPM	**tc=(ld x i)/(n x fn)** tc(min) : Machining time ld(inch) : Depth of drilling i : Number of drilling holes n(min^{-1}) : RPM fn(ipr) : Feed per revolution

Cutting torque and thrust (Formulas)

Mc=(Pc x 5252)/n(ft x lbs)

Mc(ft x lbs) : Cutting torque
Tc(lbs) : Cutting thrust
fn(ipr) : Feed per revolution
D(inch) : Drill diameter
K : Material coefficient

Cutting power

Pc=425 x kc x vc x fn x D/10^{7}(Kw)

Feed force

Ff=0.7 x (D/2) x fn x kc x sinKr(lbs)

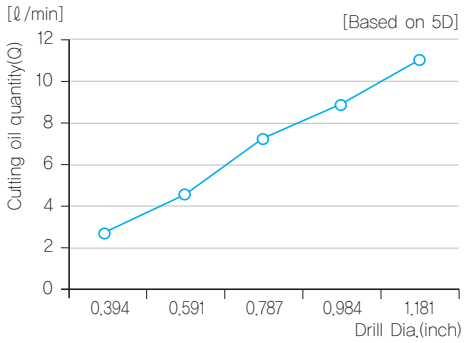
Cutting load : kc=277000(Lbf/inch^{2})

INDEXABLE DRILL

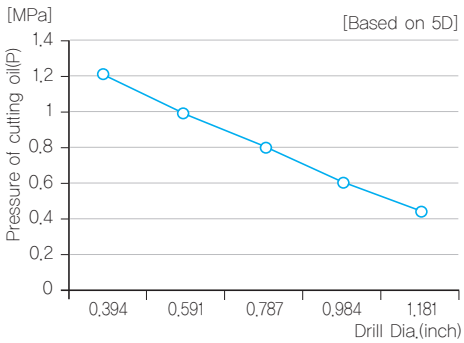
Workpiece		Tensile strength(lbf/inch^{2})	HB	Material coefficient
Cast iron	Common grade cast iron	29,875	177	1.00
	Cast iron	39,833	198	1.39
	High grade cast iron	49,791	224	1.88
General steel	Carbon steel(C0.2)	78,244	160	2.22
	Free-cutting steel(C0.12, S0.2)	88,202	183	1.42
	Manganese steel(Mn1.75)	89,624	197	1.45
Ni-chrome steel	3115(Ni1.25, Cr0.6, Mn0.5)	75,398	163	1.56
	3120(Ni1.25, Cr0.6, Mn0.7)	98,160	174	2.02
	3140	125,190	241	2.32
Chrome molybdenum steel	4115(Cr0.5, Mo0.11, Mn0.8)	89,624	167	1.62
	4130(Cr0.95, Mo0.2, Mn0.5)	109,541	229	2.10
	4140(Cr0.95, Mo0.2, Mn0.85)	133,725	269	2.41
Ni-molybdenum steel	4615(Ni1.8, Mo0.25, Mn0.5)	106,696	212	2.12
	4820(Ni3.5, Mo0.25, Mn0.6)	199,165	390	3.44
Chrome steel	5150(Cr0.8, Mn0.8)	135,148	277	2.46
Chromevanadium steel	6115(Cr0.6, Mn0.6, V0.12)	82,511	174	2.08
	6120(Cr0.8, Mn0.8, V0.1)	113,809	255	2.22

Technical information

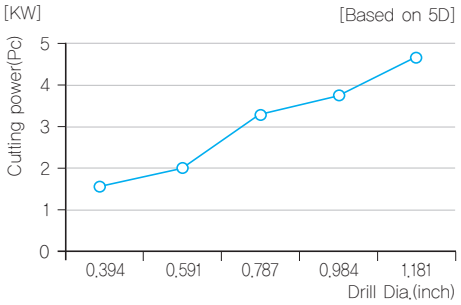
● Cutting oil quantity



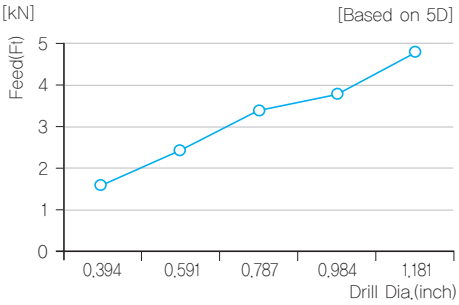
● Pressure of cutting oil



● Cutting power



● Feed



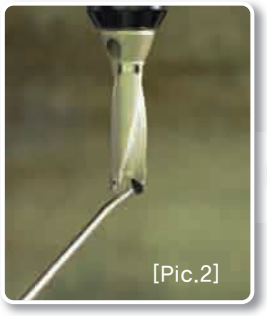
How to clamp a TPDB insert

[Clamping an insert on a holder]



- Put an insert in the holder.
- As the **[Pic.1]** clamp the insert while pushing it to the V shaped groove of the holder.
- Screw the insert.

[Changing an insert on the machine]





- Separate the insert from the holder.
- As the **[Pic.2]** clean the insert seat.
- Place the insert to the mounting seat.
- As the **[Pic.3]** clamp the insert while pushing it to the V shaped groove of the holder.

Solution for cutting failure

↑ increasing ↓ decreasing ○ coolant

Failure	Factor	Solution															
		Cutting condition					Dimension					Toughness Hardness	Hardness	Etc.			
		vc	fn	Coolant	fn(inthe beginning)	Depth of cut	Relief angle	Point angle	Thinning angle	Honing	Flute width rate			Rigidity of machine	Chattering of machine	Fixing workpiece	Overhang
Chipping	Improper cutting condition Less rigidity of tool Built-up-edge Improper grade Chattering	↓	↓	○			↓		↓	↑		↑		↑	↓	↑	↓
Wear	Excessive cutting speed (Wear on margine)	↓	↓	○													
	Low cutting speed (Wear in the center of drill)	↑	↓	○													
Fracture	Improper cutting condition Too much cutting load Too long overhang Less rigidity of machine	↓	↓	○	↓	↓								↑		↑	↓
Bad chip evacuation	Improper cutting condition		↓	○		↓					↑						
Poor surface roughness	Built-up-edge Chattering Improper cutting condition	↑	↓	○	↓			↓		↓				↑	↓		↓
Precision of hole	Low cutting speed (Wear in the center of drill)	↑	↓											↑	↓		↓

Precaution in drilling

Machining of bevel

- The approach angle and departure angle should be below 6˚.
- Reduce the feed to 3 ~ 50% in the beginning and end of machining bevel.



Machining of stack panel

- Clamp the insert tightly to prevent fracture of drill.



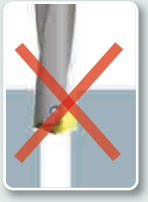
Plunging

- Fracture and deformation of drillare expected due to cutting load.



Boring

- Possibility to have wear and chipping on the corner of insert.



Types of damage to drill and solutions



Scratches on the margin

Factor

- Lack of coolant.
- Lack of lubrication in deep drilling of MQL machining.
- Bend of drill due to improper holding or insufficient rigidity drill length.
- Low rigidity or concentricity.

Solution

- Use more coolant.
- Low cutting speed.
- Fix the workpiece tightly and check the concentricity.
- Check the precision of installment of drill.(Below 0.787μin)



Wear on the margin

Factor

- Machining of all-metal or heat resisting alloy.
- Dissolution of back-tapper due to excessive drill wear.
- Unstable machining on the end of hole due to interrupted part.
- Lack of lubrication of coolant due to contacting the workpiece and outside of holder.

Solution

- Check grade and cutting parameters for material.
- Check the types of machining.
- Check the kind and concentration of coolant.



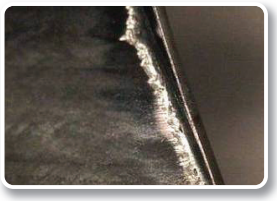
Chipping on the corner

Factor

- In interrupted machining.
- Chattering in drilling.
  (Unstable clamping, Low rigidity of machine and bending)
- Chattering due to concentricity of drill.

Solution

- Check the machining part.
- Low cutting speed.
- Fix the workpiece accurately.
- Check the machinability of the machine.
- Check the precision of drill installment.(Below 0.787μin)



Wear on the bevel

Factor

- Machining in low cutting speed.
- Machining in free-cutting steel.
- Chip erosion of flute.
- Lack of coolant.

Solution

- Increase cutting speed.
- Low thinning angle.
- Reduce the honing.
- Use more coolant.



Chipping on the bevel

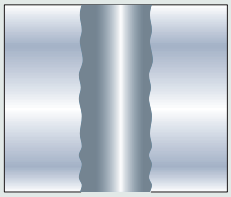
Factor

- Pre-treatment on the center of hole makes fracture on the cutting edge partially.
- Unstable chip evacuation due to step drilling.
- Chattering in drilling and less precision of installment.

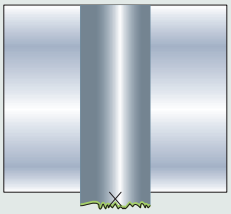
Solution

- Check the pre-machining.
- Check the clamping of workpiece.
- Check the precision of drill installment.(Below 0.787μin)

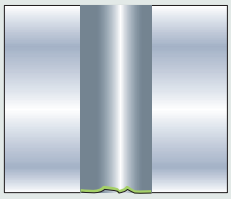
Types of damage to workpiece and check-point



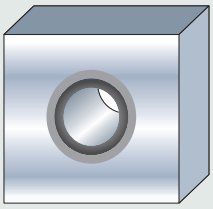
Poor surface roughness(Bending, Scratch)	
Factor	• Low rigidity of machine, improper clamping of workpiece. • Poor concentricity, lack of coolant.
Solution	• Clamp the workpiece properly and check the concentricity. • Use more coolant and increase the pressure.



Burr in the end of hole	
Factor	• High feed, excess honing on the cutting edge. • Too much wear and chipping.
Solution	• Reduce feed, use a new drill. • Increase point angle or reduce honing.



Flaking the end of hole	
Factor	• In machining of low toughness materials as cast iron. • Rapid feed and much honing on the cutting edge. • Too much wear and chipping.
Solution	• Reduce the feed. • Use a new drill. • Reduce honing on the cutting edge.



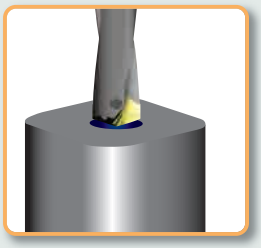
Thermal deformation and oxidation of the end of hole	
Factor	• Rapid feed. • Lack of coolant. • Excessive cutting load. • Too much wear and chipping.
Solution	• Reduce the feed and honing on the cutting edge. • Use more coolant and use a new drill.

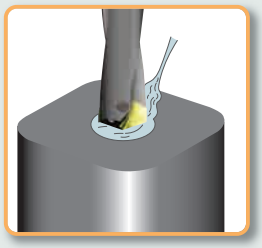
Check-point of drilling

- Clamping of workpiece
- Holder
- Coolant(Pressure, Flow, Concentration)
- Revolution of the main axis of machine
- Run-out of drill(Max.1.181inch)
- Chip evacuation

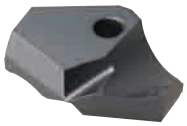
Supply of coolant

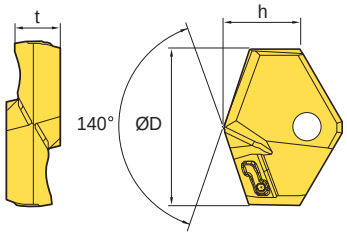
- Supply enough coolant to the beginning of the hole.
- Minimum oil pressure of coolant : Above 5 bar
- Minimum flow : Above 5ℓ/min





Insert





(inch)

Designation	Grade	ØD	h	t
TPD □□□BA	PC5300	0.394 ~ 0.432	0.217	0.138
	PC5300	0.433 ~ 0.471	0.228	0.138
	PC5300	0.472 ~ 0.511	0.248	0.138
	PC5300	0.512 ~ 0.550	0.256	0.157
	PC5300	0.551 ~ 0.590	0.268	0.157
	PC5300	0.591 ~ 0.629	0.276	0.157
	PC5300	0.630 ~ 0.668	0.303	0.217
	PC5300	0.669 ~ 0.708	0.311	0.217
	PC5300	0.709 ~ 0.747	0.319	0.236
	PC5300	0.748 ~ 0.786	0.327	0.236
	PC5300	0.787 ~ 0.826	0.382	0.256
	PC5300	0.827 ~ 0.865	0.370	0.256
	PC5300	0.866 ~ 0.905	0.378	0.276
	PC5300	0.906 ~ 0.944	0.386	0.276
	PC5300	0.945 ~ 0.983	0.421	0.295
	PC5300	0.984 ~ 1.023	0.429	0.295
	PC5300	1.024 ~ 1.062	0.433	0.335
	PC5300	0.063 ~ 1.101	0.465	0.335
	PC5300	1.102 ~ 1.141	0.496	0.374
	PC5300	1.142 ~ 1.180	0.508	0.374

Parts

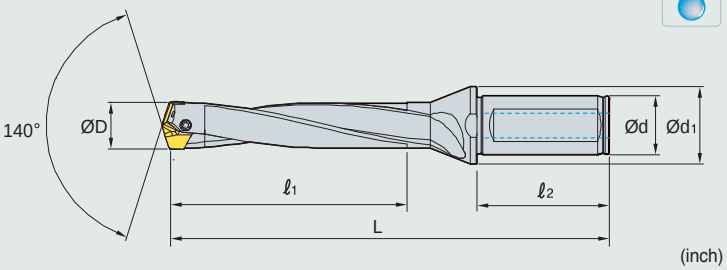
(inch)

Designation	ØD	Screw	Wrench	Torque
TPD 0394BA ~ 0508BA	0.394 ~ 0.508	FTNB0209	TW06P	0.4
0513BA ~ 0587BA	0.513 ~ 0.587	FTNB02512	TW07S	0.8
0591BA ~ 0705BA	0.591 ~ 0.705	FTNB02514	TW07S	0.8
0709BA ~ 0783BA	0.709 ~ 0.783	FTNB0316	TW09S	1.2
0787BA ~ 0941BA	0.787 ~ 0.941	FTNB0319	TW09S	1.2
0945BA ~ 1018BA	0.945 ~ 1.018	FTNB03522	TW15S	3.0
1024BA ~ 1098BA	1.024 ~ 1.098	FTNB03524	TW15S	3.0
1102BA ~ 1177BA	1.102 ~ 1.177	FTNB0426	TW15S	3.0

TPDBA-3D

TOP SOLID PIERCING DRILL BLADE





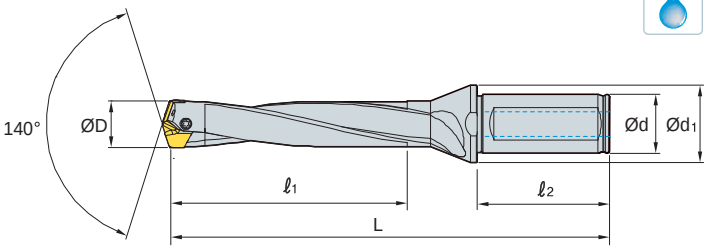
(inch)

Designation		ØD	Ød	Ød1	ℓ1	ℓ2	L	Insert
TPDBA	0394-063-3	0.394 ~ 0.412	0.625	0.787	1.181	1.890	3.740	TPD0394BA–0412BA
	0413-063-3	0.413 ~ 0.432	0.625	0.787	1.240	1.890	3.780	TPD0413BA–0432BA
	0433-063-3	0.433 ~ 0.452	0.625	0.787	1.299	1.890	3.858	TPD0433BA–0452BA
	0453-063-3	0.453 ~ 0.471	0.625	0.787	1.358	1.890	3.898	TPD0453BA–0471BA
	0472-063-3	0.472 ~ 0.491	0.625	0.787	1.417	1.890	4.016	TPD0472BA-0491BA
	0492-063-3	0.492 ~ 0.511	0.625	0.787	1.476	1.890	4.094	TPD0492BA-0511BA
	0512-063-3	0.512 ~ 0.530	0.625	0.787	1.535	1.890	4.213	TPD0512BA-0530BA
	0531-063-3	0.531 ~ 0.550	0.625	0.787	1.594	1.890	4.291	TPD0531BA-0550BA
	0551-063-3	0.551 ~ 0.570	0.625	0.787	1.654	1.890	4.370	TPD0551BA-0570BA
	0571-063-3	0.571 ~ 0.590	0.625	0.787	1.713	1.890	4.488	TPD0571BA-0590BA
	0591-075-3	0.591 ~ 0.609	0.750	0.984	1.772	1.969	4.646	TPD0591BA-0609BA
	0610-075-3	0.610 ~ 0.629	0.750	0.984	1.831	1.969	4.724	TPD0610BA-0629BA
	0630-075-3	0.630 ~ 0.649	0.750	0.984	1.890	1.969	4.803	TPD0630BA-0649BA
	0650-075-3	0.650 ~ 0.669	0.750	0.984	1.949	1.969	4.882	TPD0650BA-0669BA
	0669-075-3	0.669 ~ 0.688	0.750	0.984	2.008	1.969	5.000	TPD0669BA-0688BA
	0689-075-3	0.689 ~ 0.708	0.750	0.984	2.067	1.969	5.079	TPD0689BA-0708BA
	0709-100-3	0.709 ~ 0.727	1.000	1.299	2.126	2.205	5.394	TPD0709BA-0727BA
	0728-100-3	0.728 ~ 0.747	1.000	1.299	2.185	2.205	5.472	TPD0728BA-0747BA
	0748-100-3	0.748 ~ 0.767	1.000	1.299	2.244	2.205	5.591	TPD0748BA-0767BA
	0768-100-3	0.768 ~ 0.787	1.000	1.299	2.303	2.205	5.669	TPD0768BA-0787BA
	0787-100-3	0.787 ~ 0.806	1.000	1.299	2.362	2.205	5.748	TPD0787BA-0806BA
	0807-100-3	0.807 ~ 0.826	1.000	1.299	2.421	2.205	5.827	TPD0807BA-0826BA
	0827-100-3	0.827 ~ 0.845	1.000	1.299	2.480	2.362	5.945	TPD0827BA-0845BA
	0846-100-3	0.846 ~ 0.865	1.000	1.299	2.539	2.362	6.024	TPD0846BA-0865BA
	0866-100-3	0.866 ~ 0.885	1.000	1.299	2.598	2.362	6.102	TPD0866BA-0885BA
	0886-100-3	0.886 ~ 0.905	1.000	1.299	2.657	2.362	6.181	TPD0886BA-0905BA
	0906-100-3	0.906 ~ 0.924	1.000	1.299	2.717	2.362	6.299	TPD0906BA-0924BA
	0925-100-3	0.925 ~ 0.944	1.000	1.299	2.776	2.362	6.378	TPD0925BA-0944BA
	0945-125-3	0.945 ~ 0.964	1.250	1.693	2.835	2.362	6.614	TPD0945BA-0964BA
	0965-125-3	0.965 ~ 0.983	1.250	1.693	2.894	2.362	6.693	TPD0965BA-0983BA
	0984-125-3	0.984 ~ 1.003	1.250	1.693	2.953	2.362	6.811	TPD0984BA-1003BA
	1004-125-3	1.004 ~ 1.023	1.250	1.693	3.012	2.362	6.890	TPD1004BA-1023BA
	1024-125-3	1.024 ~ 1.062	1.250	1.693	3.071	2.362	6.969	TPD1024BA-1062BA
	1063-125-3	1.063 ~ 1.101	1.250	1.693	3.189	2.362	7.165	TPD1063BA-1101BA
	1102-125-3	1.102 ~ 1.141	1.250	1.693	3.307	2.362	7.323	TPD1102BA-1141BA
	1142-125-3	1.142 ~ 1.180	1.250	1.693	3.425	2.362	7.520	TPD1142BA-1180BA

TPDBA-5D

TOP SOLID PIERCING DRILL BLADE





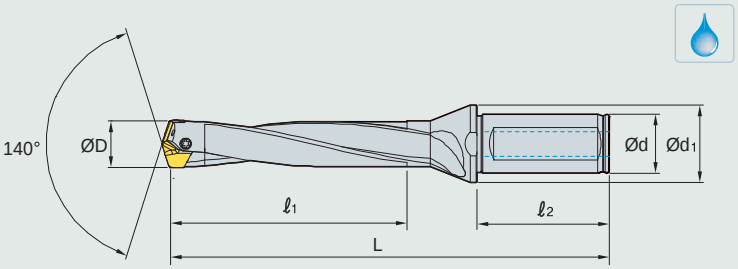
(inch)

Designation		ØD	Ød	Ød1	ℓ 1	ℓ 2	L	Insert
TPDBA	0394-063-5	0.394 ~ 0.412	0.625	0.787	1.969	1.890	4.528	TPD0394BA–0412BA
	0413-063-5	0.413 ~ 0.432	0.625	0.787	2.067	1.890	4.606	TPD0413BA–0432BA
	0433-063-5	0.433 ~ 0.452	0.625	0.787	2.165	1.890	4.724	TPD0433BA–0452BA
	0453-063-5	0.453 ~ 0.471	0.625	0.787	2.264	1.890	4.843	TPD0453BA–0471BA
	0472-063-5	0.472 ~ 0.491	0.625	0.787	2.362	1.890	4.961	TPD0472BA-0491BA
	0492-063-5	0.492 ~ 0.511	0.625	0.787	2.461	1.890	5.079	TPD0492BA-0511BA
	0512-063-5	0.512 ~ 0.530	0.625	0.787	2.559	1.890	5.236	TPD0512BA-0530BA
	0531-063-5	0.531 ~ 0.550	0.625	0.787	2.657	1.890	5.354	TPD0531BA-0550BA
	0551-063-5	0.551 ~ 0.570	0.625	0.787	2.756	1.890	5.472	TPD0551BA-0570BA
	0571-063-5	0.571 ~ 0.590	0.625	0.787	2.854	1.890	5.630	TPD0571BA-0590BA
	0591-075-5	0.591 ~ 0.609	0.750	0.984	2.953	1.969	5.827	TPD0591BA-0609BA
	0610-075-5	0.610 ~ 0.629	0.750	0.984	3.051	1.969	5.945	TPD0610BA-0629BA
	0630-075-5	0.630 ~ 0.649	0.750	0.984	3.150	1.969	6.063	TPD0630BA-0649BA
	0650-075-5	0.650 ~ 0.669	0.750	0.984	3.248	1.969	6.181	TPD0650BA-0669BA
	0669-075-5	0.669 ~ 0.688	0.750	0.984	3.346	1.969	6.339	TPD0669BA-0688BA
	0689-075-5	0.689 ~ 0.708	0.750	0.984	3.445	1.969	6.457	TPD0689BA-0708BA
	0709-100-5	0.709 ~ 0.727	1.000	1.299	3.543	2.205	6.811	TPD0709BA-0727BA
	0728-100-5	0.728 ~ 0.747	1.000	1.299	3.642	2.205	6.929	TPD0728BA-0747BA
	0748-100-5	0.748 ~ 0.767	1.000	1.299	3.740	2.205	7.087	TPD0748BA-0767BA
	0768-100-5	0.768 ~ 0.787	1.000	1.299	3.839	2.205	7.205	TPD0768BA-0787BA
	0787-100-5	0.787 ~ 0.806	1.000	1.299	3.937	2.205	7.323	TPD0787BA-0806BA
	0807-100-5	0.807 ~ 0.826	1.000	1.299	4.035	2.205	7.441	TPD0807BA-0826BA
	0827-100-5	0.827 ~ 0.845	1.000	1.299	4.134	2.362	7.598	TPD0827BA-0845BA
	0846-100-5	0.846 ~ 0.865	1.000	1.299	4.232	2.362	7.717	TPD0846BA-0865BA
	0866-100-5	0.866 ~ 0.885	1.000	1.299	4.331	2.362	7.835	TPD0866BA-0885BA
	0886-100-5	0.886 ~ 0.905	1.000	1.299	4.429	2.362	7.953	TPD0886BA-0905BA
	0906-100-5	0.906 ~ 0.924	1.000	1.299	4.528	2.362	8.110	TPD0906BA-0924BA
	0925-100-5	0.925 ~ 0.944	1.000	1.299	4.626	2.362	8.228	TPD0925BA-0944BA
	0945-125-5	0.945 ~ 0.964	1.250	1.693	4.724	2.362	8.504	TPD0945BA-0964BA
	0965-125-5	0.965 ~ 0.983	1.250	1.693	4.823	2.362	8.622	TPD0965BA-0983BA
	0984-125-5	0.984 ~ 1.003	1.250	1.693	4.921	2.362	8.780	TPD0984BA-1003BA
	1004-125-5	1.004 ~ 1.023	1.250	1.693	5.020	2.362	8.898	TPD1004BA-1023BA
	1024-125-5	1.024 ~ 1.062	1.250	1.693	5.118	2.362	9.016	TPD1024BA-1062BA
	1063-125-5	1.063 ~ 1.101	1.250	1.693	5.315	2.362	9.291	TPD1063BA-1101BA
	1102-125-5	1.102 ~ 1.141	1.250	1.693	5.512	2.362	9.528	TPD1102BA-1141BA
	1142-125-5	1.142 ~ 1.180	1.250	1.693	5.709	2.362	9.803	TPD1142BA-1180BA

TPDBA-8D

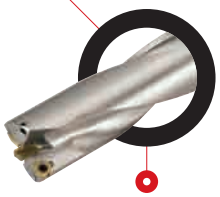
TOP SOLID PIERCING DRILL BLADE





(inch)

Designation		ØD	Ød	Ød1	ℓ 1	ℓ 2	L	Insert
TPDBA	0394-063-8	0.394 ~ 0.412	0.625	0.787	3.150	1.890	5.709	TPD0394BA–0412BA
	0413-063-8	0.413 ~ 0.432	0.625	0.787	3.307	1.890	5.866	TPD0413BA–0432BA
	0433-063-8	0.433 ~ 0.452	0.625	0.787	3.465	1.890	6.024	TPD0433BA–0452BA
	0453-063-8	0.453 ~ 0.471	0.625	0.787	3.622	1.890	6.181	TPD0453BA–0471BA
	0472-063-8	0.472 ~ 0.491	0.625	0.787	3.780	1.890	6.378	TPD0472BA-0491BA
	0492-063-8	0.492 ~ 0.511	0.625	0.787	3.937	1.890	6.555	TPD0492BA-0511BA
	0512-063-8	0.512 ~ 0.530	0.625	0.787	4.094	1.890	6.772	TPD0512BA-0530BA
	0531-063-8	0.531 ~ 0.550	0.625	0.787	4.252	1.890	6.949	TPD0531BA-0550BA
	0551-063-8	0.551 ~ 0.570	0.625	0.787	4.409	1.890	7.126	TPD0551BA-0570BA
	0571-063-8	0.571 ~ 0.590	0.625	0.787	4.567	1.890	7.343	TPD0571BA-0590BA
	0591-075-8	0.591 ~ 0.609	0.750	0.984	4.724	1.969	7.598	TPD0591BA-0609BA
	0610-075-8	0.610 ~ 0.629	0.750	0.984	4.882	1.969	7.776	TPD0610BA-0629BA
	0630-075-8	0.630 ~ 0.649	0.750	0.984	5.039	1.969	7.953	TPD0630BA-0649BA
	0650-075-8	0.650 ~ 0.669	0.750	0.984	5.197	1.969	8.130	TPD0650BA-0669BA
	0669-075-8	0.669 ~ 0.688	0.750	0.984	5.354	1.969	8.346	TPD0669BA-0688BA
	0689-075-8	0.689 ~ 0.708	0.750	0.984	5.512	1.969	8.524	TPD0689BA-0708BA
	0709-100-8	0.709 ~ 0.727	1.000	1.299	5.669	2.205	8.937	TPD0709BA-0727BA
	0728-100-8	0.728 ~ 0.747	1.000	1.299	5.827	2.205	9.114	TPD0728BA-0747BA
	0748-100-8	0.748 ~ 0.767	1.000	1.299	5.984	2.205	9.331	TPD0748BA-0767BA
	0768-100-8	0.768 ~ 0.787	1.000	1.299	6.142	2.205	9.508	TPD0768BA-0787BA
	0787-100-8	0.787 ~ 0.806	1.000	1.299	6.299	2.205	9.685	TPD0787BA-0806BA
	0807-100-8	0.807 ~ 0.826	1.000	1.299	6.457	2.205	9.862	TPD0807BA-0826BA
	0827-100-8	0.827 ~ 0.845	1.000	1.299	6.614	2.362	10.079	TPD0827BA-0845BA
	0846-100-8	0.846 ~ 0.865	1.000	1.299	6.772	2.362	10.256	TPD0846BA-0865BA
	0866-100-8	0.866 ~ 0.885	1.000	1.299	6.929	2.362	10.433	TPD0866BA-0885BA
	0886-100-8	0.886 ~ 0.905	1.000	1.299	7.087	2.362	10.610	TPD0886BA-0905BA
	0906-100-8	0.906 ~ 0.924	1.000	1.299	7.244	2.362	10.827	TPD0906BA-0924BA
	0925-100-8	0.925 ~ 0.944	1.000	1.299	7.402	2.362	11.004	TPD0925BA-0944BA
	0945-125-8	0.945 ~ 0.964	1.250	1.693	7.559	2.362	11.339	TPD0945BA-0964BA
	0965-125-8	0.965 ~ 0.983	1.250	1.693	7.717	2.362	11.516	TPD0965BA-0983BA
	0984-125-8	0.984 ~ 1.003	1.250	1.693	7.874	2.362	11.732	TPD0984BA-1003BA
	1004-125-8	1.004 ~ 1.023	1.250	1.693	8.031	2.362	11.909	TPD1004BA-1023BA
	1024-125-8	1.024 ~ 1.062	1.250	1.693	8.189	2.362	12.087	TPD1024BA-1062BA
	1063-125-8	1.063 ~ 1.101	1.250	1.693	8.504	2.362	12.480	TPD1063BA-1101BA
	1102-125-8	1.102 ~ 1.141	1.250	1.693	8.819	2.362	12.835	TPD1102BA-1141BA
	1142-125-8	1.142 ~ 1.180	1.250	1.693	9.134	2.362	13.228	TPD1142BA-1180BA



WPDC

INDEXABLE DRILLS WITH CENTER DRILL

Code system

● Drill

WPDC A 1250 - 125 - 8

Using W-type I/S Center Drill	Type	Drill Dia.	Shank Dia.	Aspect ratio
	A : Inch type No code : Metric type	1250 : Ø1.250 238256 : Ø2.38 ~ Ø2.56	125 : Ø1.25 150 : Ø1.50	5 : 5D 6.5 : 6.5D 8 : 8D

● Cartridge

CWP 2125 C

Cartridge-WPDC	Drill Dia.	Classification
	2125 : Ø2.125 238256 : Ø2.38 ~ Ø2.56	C : Central P : Peripheral

● Center drill

CD(A) H(A) 1035

Center Drill	Coolant	Dia.xLength of tool
	H : Coolant Unmarked : None	23612 : Ø0.236 x 1.2 31514 : Ø0.315 x 1.4 39414 : Ø0.394 x 1.4 47215 : Ø0.472 x 1.5 63018 : Ø0.630 x 1.8

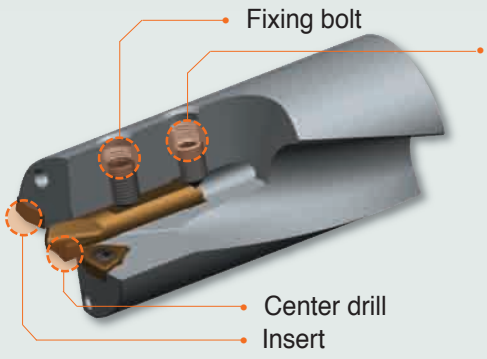
● Grade

PC 40H

PVD coating	Coating layer
	40H : TiN coating

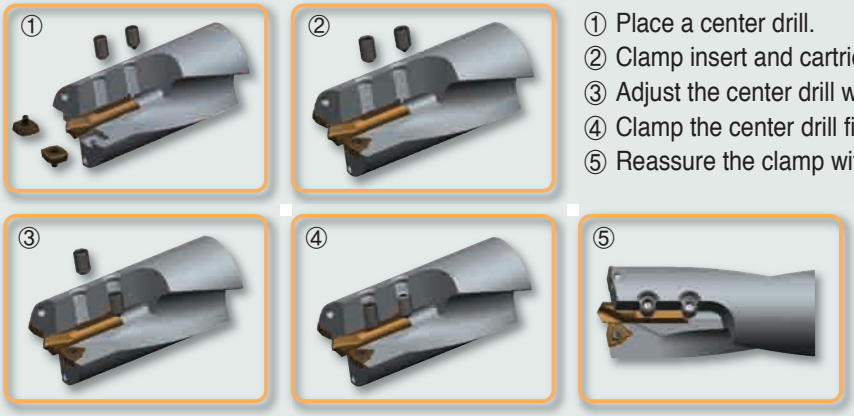
How to clamp the drill

● Features of the cone-point system



- Convenient and quick adjustable heights when inserting the center drill.
- In case the center drill brakes while in usage, it can be replaced with the bolt for adjusting conepoint.
- The bolt for adjusting cone point prevents chattering on the center drill.

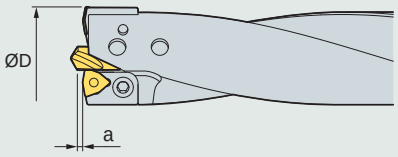
● Clamping



① Place a center drill.
② Clamp insert and cartridge.
③ Adjust the center drill with the bolt for adjusting cone point.
④ Clamp the center drill firmly with fixing bolt.
⑤ Reassure the clamp with bolt for adjusting cone point.

∗Use safety covers for your safety when clamping the center drill and insert.
∗When machining, be careful of the drill disk.

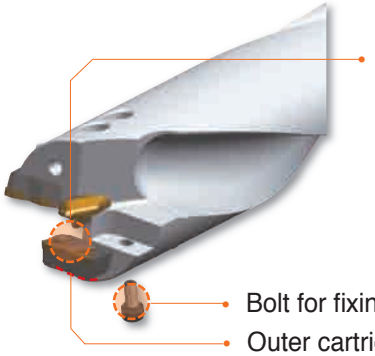
● Length of the 'a' part of center drill



- The length of 'a' being too short can cause bad surface finish or high cutting load.
  On the other hand, the length of 'a' being too long can cause tool failure and chattering while drilling.

Dia.(ØD)	Length of the 'a' part of center drill		
	Steel	Alloy steel	Non-ferrous metals
1.000 ~ 1.188	0.05	0.04	0.06
1.189 ~ 1.567	0.06	0.05	0.07
1.567 ~ 2.000	0.07	0.06	0.09
2.001 ~ 2.313	0.09	0.07	0.10
2.314 ~ 2.940	0.10	0.08	0.11
2.941 ~ 3.130	0.12	0.10	0.14

Adjusting diameter of cartridge type drill



- Range of adjustable drill Dia.
  ① Single cartridge type(Drill Dia. Ø1.625 ~ Ø2.313) → -0.039
  ② Dual cartridge type(Drill Dia. Ø2.380 ~ Ø3.130) → -0.197
- Diameter of the standard drills is provided with maximum size of standards.
  ex.) WPDCA256275-150-8 → Drill Dia 2.75

- Disassemble a cartridge from the holder by loosening the bolt fixed for outer cartridge.
- Machine after calculating the hole size on the side of the outer cartridge.
- Trim the sharp part after machining.
- Clamp the bolt for fixing cartridge without any gap in between the holder and the machined outer cartridge.

ex.) How to adjust drill diameter to Ø2.60 machining with WPDCA256275-150-8
→ To make the drill diameter of outer cartridge to Ø2.60, machine 0.075
Ø2.75-Ø2.56 = 0.15 → 0.15÷2 = 0.75(Radius)

Recommended cutting condition

(inch)

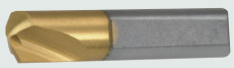
Workpiece				C/B	Grade	vc(sfm)	Feed(Aspect ratio = 5D, 6.5D, 8D) Feed(ipr) depending on drill Dia.					
ISO		Workpiece	HB				~ Ø1.188	Ø1.250 ~ Ø1.563	Ø1.625 ~ Ø1.938	Ø2.000 ~ Ø2.313	Ø2.38 ~ Ø2.94	Ø2.94 ~ Ø3.13
P	Carbon steel	Low carbon steel(~ 0.25%)	80 ~ 180	C21	PC3500	623(524 ~ 722)	0.0028 ~ 0.0043	0.0031 ~ 0.0047	0.0039 ~ 0.0055	0.0047 ~ 0.0063	0.0047 ~ 0.0063	0.0047 ~ 0.0063
		High carbon steel(~ 0.25%)	180 ~ 280	C21	PC3500	459(361 ~ 558)	0.0028 ~ 0.0043	0.0031 ~ 0.0047	0.0039 ~ 0.0055	0.0047 ~ 0.0063	0.0047 ~ 0.0063	0.0047 ~ 0.0063
	Alloy steel	Low alloy steel	140 ~ 260	C21	PC3500	426(328 ~ 525)	0.0031 ~ 0.0047	0.0031 ~ 0.0047	0.0039 ~ 0.0055	0.0047 ~ 0.0071	0.0047 ~ 0.0071	0.0047 ~ 0.0071
		High alloy steel	50 ~ 260	C21	PC3500	328(230 ~ 426)	0.0024 ~ 0.0039	0.0031 ~ 0.0047	0.0031 ~ 0.0047	0.0039 ~ 0.0063	0.0039 ~ 0.0063	0.0039 ~ 0.0063
M	Stainless steel	Stainless steel	135 ~ 275	C21	PC3500	328(230 ~ 426)	0.0024 ~ 0.0039	0.0031 ~ 0.0047	0.0039 ~ 0.0047	0.0047 ~ 0.0055	0.0047 ~ 0.0055	0.0047 ~ 0.0055
K	Cast iron	Gray cast iron	150 ~ 220	C21	PC3500	525(426 ~ 623)	0.0035 ~ 0.0059	0.0039 ~ 0.0063	0.0047 ~ 0.0079	0.0055 ~ 0.0087	0.0055 ~ 0.0087	0.0055 ~ 0.0087
		Ductile cast iron	200 ~ 300	C21	PC3500	459(558 ~ 361)	0.0035 ~ 0.0059	0.0039 ~ 0.0063	0.0047 ~ 0.0079	0.0055 ~ 0.0087	0.0055 ~ 0.0087	0.0055 ~ 0.0087
		Nalleable cast iron	130 ~ 230	C21	PC3500	492(591 ~ 394)	0.0035 ~ 0.0059	0.0039 ~ 0.0063	0.0047 ~ 0.0079	0.0055 ~ 0.0087	0.0055 ~ 0.0087	0.0055 ~ 0.0087
N	Aluminum	Aluminum	30 ~ 150	C21	PC3500	984(820 ~ 1148)	0.0031 ~ 0.0047	0.0039 ~ 0.0055	0.0047 ~ 0.0063	0.0055 ~ 0.0071	0.0055 ~ 0.0071	0.0055 ~ 0.0071
	Copper alloy	Copper alloy	150 ~ 160	C21	PC3500	820(656 ~ 984)	0.0031 ~ 0.0047	0.0039 ~ 0.0055	0.0047 ~ 0.0063	0.0055 ~ 0.0071	0.0055 ~ 0.0071	0.0055 ~ 0.0071
S	Heat resisting steel	Heat resisting steel	130 ~ 400	C21	PC3500	164(98 ~ 230)	0.0020 ~ 0.0031	0.0020 ~ 0.0031	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0024 ~ 0.0039

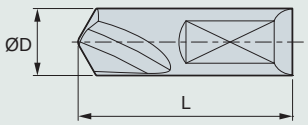
Parts

(inch)

Designation		ØD	Insert			Center drill			Cartridge		
			Insert	Screw	Wrench	Center drill	Fixing bolt	Adjusting bolt	Inner	Outer	Fixing bolt
WPDCA	1000-125-□	1.000	WC□T030204-C21	FTKA02206	TW06P	CDA23612	KHA0508	KHC0510			
	1063-125-□	1.063									
	1125-125-□	1.125	WC□T040204-C21	FTKA02565	TW07S						
	1188-125-□	1.188					KHA0510				
	1250-125-□	1.250									
	1313-125-□	1.313					KHA0610				
	1375-125-□	1.375	WC□T050308-C21	FTKA0307	TW09S	CDA31514		KHC0610			
	1438-125-□	1.438									
	1500-125-□	1.500					KHA0612				
	1563-125-□	1.563									
	1625-150-□	1.625								CWP1625P	
	1688-150-□	1.688					KHA0812		CWP16251750C	CWP1688P	BHA0510
	1750-150-□	1.750	WC□T06T308-C21	FTKA03508	TW15S	CDHA39414		KHC0812		CWP1750P	
	1813-150-□	1.813								CWP1813P	
	1875-150-□	1.875					KHA0815		CWP18131938C	CWP1875P	BHA0512
	1938-150-□	1.938								CWP1938P	
	2000-150-□	2.000								CWP2000P	
	2063-150-□	2.063							CWP20002125C	CWP2063P	BHA0612
	2125-150-□	2.125	WC□T080408-C21	FTKA0411K	TW15S		KHA1015	KHC1016		CWP2125P	
	2188-150-□	2.188								CWP2188P	
	2250-150-□	2.250				CDHA47215			CWP21882313C	CWP2250P	BHA0614
	2313-150-□	2.313								CWP2313P	
	238256-150-□	2.38~2.56							CWP238256C	CWP238256P	
	256275-150-□	2.56~2.75	WC□T050308-C21	FTKA0307	TW09S		KHA1020	KHC1020	CWP256275C	CWP256275P	BHA0510
	275294-150-□	2.75~2.94							CWP275294C	CWP275294P	
	294313-150-□	2.94~3.13	WC□T06T308-C21	FTKA03508	TW15S	CDHA63018			CWP294313C	CWP294313P	BHA0612

Center drill





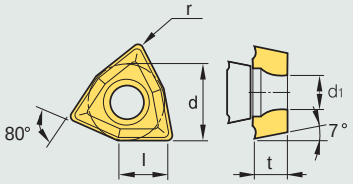
(inch)

Designation	Grade	ØD	L	Oil-hole
CDA 23612	PC40H	0.236	1.2	X
CDA 31514		0.315	1.4	X
CDHA 39414		0.394	1.4	○
CDHA 47215		0.472	1.5	○
CDHA 63018		0.630	1.8	○

∗Tin coated on the HSS drill

Insert



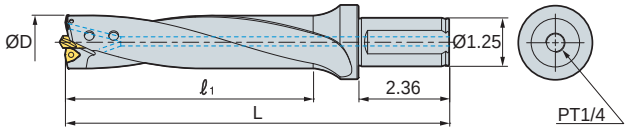


(inch)

Designation		Grade	l	d	t	r	d_1
WC□T	030204-C21	PC3500 NCM325	0.150	7/32	3/32	1/64	0.098
	040204-C21		0.169	1/4	3/32	1/64	0.110
	040208-C21		0.213	1/4	3/32	1/32	0.110
	050308-C21		0.213	5/16	1/8	1/32	0.134
	06T308-C21		0.256	3/8	5/32	1/32	0.173
	080408-C21		0.343	1/2	3/16	1/32	0.217

WPDCA-5D/6.5D/8D(Standard type)





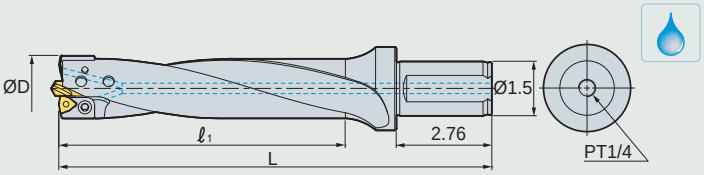
(Inch)

Designation		ØD	5.0D		6.5D		8.0D		Insert	Center drill
			ℓ1	L	ℓ1	L	ℓ1	L		
WPDCA	1000-125-□	1.000	5.91	9.45	7.28	10.83	8.66	12.20	WC□T030204-C21	CDA23612
	1063-125-□	1.063							WC□T040204-C21	
	1125-125-□	1.125								
	1188-125-□	1.188								
	1250-125-□	1.250	6.89	10.43	8.58	12.13	10.24	13.78	WC□T050308-C21	CDA31514
	1313-125-□	1.313								
	1375-125-□	1.375								
	1438-125-□	1.438	7.87	11.42	9.84	13.39	11.81	15.35		
	1500-125-□	1.500								
	1563-125-□	1.563								

∗We can provide if you order exact diameter. ex.)Machining hole 1.225inch × 6.5D → WPDCA1225-125-6.5

WPDCA-5D/6.5D/8D(Single insert cartridge type)





(Inch)

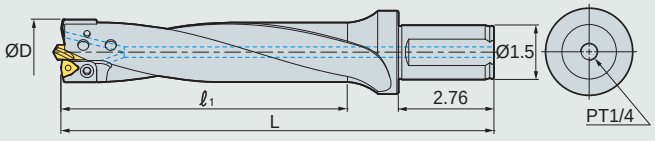
Designation		ØD	5.0D		6.5D		8.0D		Insert	Center drill	Cartridge	
			ℓ1	L	ℓ1	L	ℓ1	L			Central insert	Peripheral insert
WPDCA	1625-150-□	1.625	8.86	12.99	11.14	15.28	13.39	17.52	WC□T06T308-C21	CDHA39414	CWP16251750C	CWP1625P
	1688-150-□	1.688										CWP1688P
	1750-150-□	1.750										CWP1750P
	1813-150-□	1.813	9.84	13.98	12.4	16.54	14.96	19.09	WC□T06T308-C21	CDHA39414	CWP18131938C	CWP1813P
	1875-150-□	1.875										CWP1875P
	1938-150-□	1.938										CWP1938P
	2000-150-□	2.000	10.83	14.96	17.83	17.83	16.54	20.67	WC□T080408-C21	CDHA7215	CWP20002125C	CWP2000P
	2063-150-□	2.063										CWP2063P
	2125-150-□	2.125										CWP2125P
	2188-150-□	2.188	11.81	15.94	14.96	19.09	18.11	22.24			CWP21882313C	CWP2188P
	2250-150-□	2.250										CWP2250P
	2313-150-□	2.313										CWP2313P

∗We can provide if you order exact diameter. ex.)Machining hole 1.800inch × 5D → WPDCA1800-150-5

INDEXABLE DRILL

WPDCA-5D/6.5D/8D(Dual insert cartridge type)

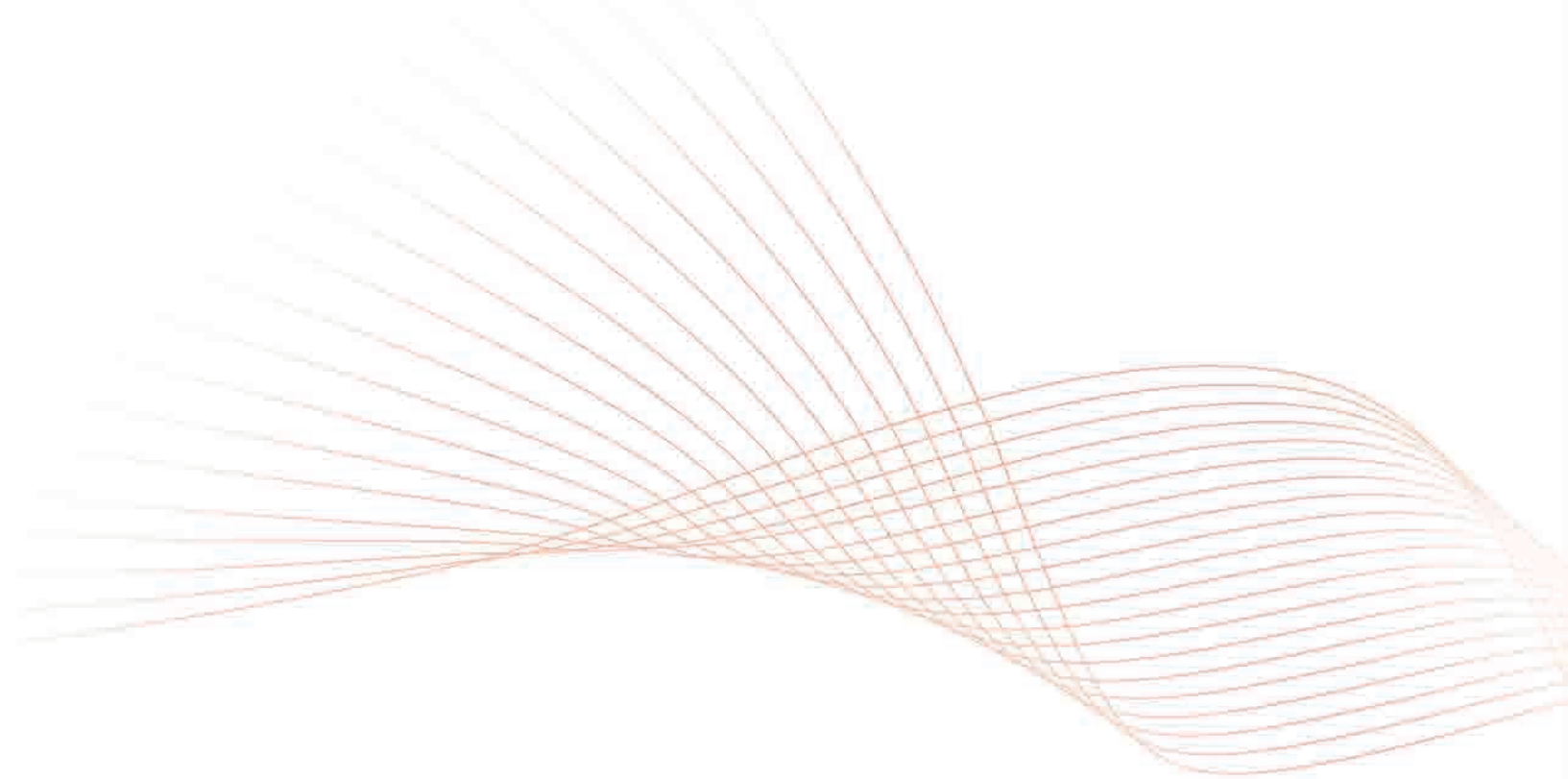


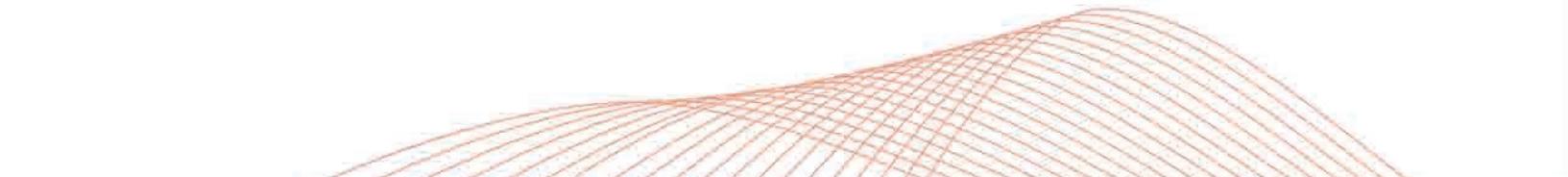


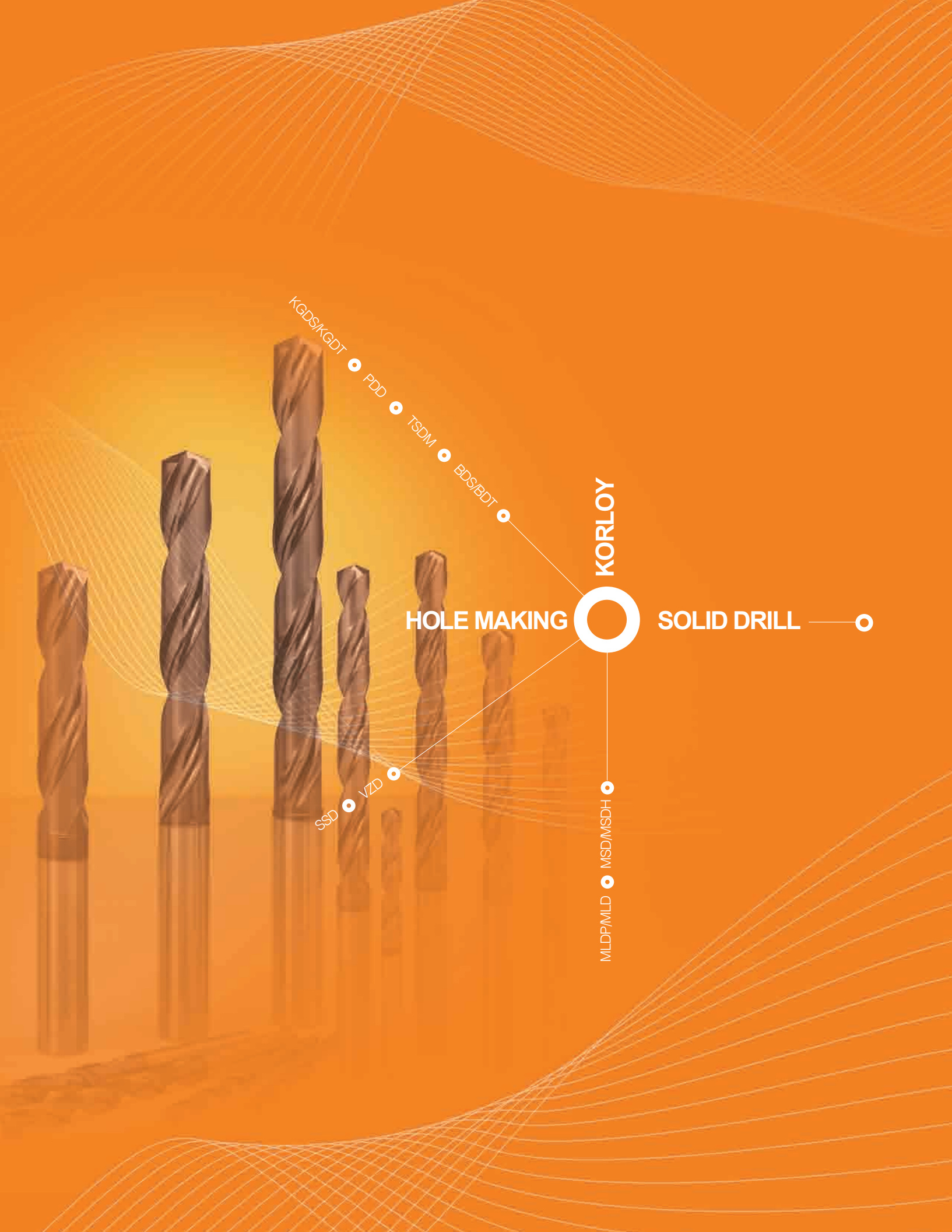
(Inch)

Designation		ØD	5.0D		6.5D		8.0D		Insert	Center drill	Cartridge	
			ℓ1	L	ℓ1	L	ℓ1	L			Central insert	Peripheral insert
WPDCA	238256-150-□	2.38~2.56	12.80	16.93	16.65	20.79	20.47	24.61	WC□T050308-C21	CDHA47215	CWP238256C	CWP238256P
	256275-150-□	2.56~2.75	13.78	17.91	17.91	22.05	22.05	26.18			CWP256275C	CWP256275P
	275294-150-□	2.75~2.94	14.76	18.90	19.21	23.35	23.62	27.76			CWP275294C	CWP275294P
	294313-150-□	2.94~3.13	15.75	19.88	20.47	24.61	25.20	29.33	WC□T06T308-C21	CDHA63018	CWP294313C	CWP294313P

∗We can provide if you order exact diameter. ex.) Machining hole 2.850inch × 6.5D → WPDCA2850-150-6.5






KGDS/KGDT
PDD
TSDM
BDS/BDT
KORLOY
HOLE MAKING
SOLID DRILL
MLDP/MLD
MSD/MSDH



MACH SOLID DRILL(MSD)

MACH SOLID DRILL

Code system

(Special type)

MSD(H) A 02188 - K X1.69 - 3.23L X 0.25S

Type
A : Inch type
No code : Metric type

MSD : No oil hole type
MSDH : Oil hole type

Tool Dia.
02188 : Ø0.2188

Applications
P(Steel)
M(Stainless steel)
K(Cast iron)
N(Aluminum)
ND(Aluminum)

Flute length
1.69 : 1.69inch

Overall length
3.23L : 3.23inch

Shank Dia.
0.25S : Ø0.25

Features

- **Optimal Chip Pocket**
  - Wide and deep chip pocket minimizes chip friction and improves chip evacuation.
- **Curvilinear designed cutting edge**
  - 0.6㎛ sized WC particle increases toughness and wear resistance.
  - New TiAlN coating layer ensures high impact resistance.
- **Standardized aspect ratio, 3D, 5D and 7D**
  - ex.) MSDA02500-3D : for steel machining with 0.394inch machining Dia., 1.181inch depth of cut with outer coolant.
- **Solid type, MSD and through coolant type, MSDH**
  - Wide line-up of MSD and MSDH for various drilling applications.
- **Low cutting resistance cutting edge**
  - Low cutting resistance cutting edge improves surface finish and chip breaking.
  - Self centering without machining a center hole.
- **High rigidity of the neck drill**
  - The new high rigidity design of neck prevents neck breakage.

Line-up specialized by workpiece

- P type : For steel machining.(Carbon steel and alloy steel)
  - General application with carbon steel, alloy steel, stainless steel, and Cast iron.
  - Low cutting resistance cutting edge, fine grain substrate, and K-Power coating layer.
- M type : For stainless steel machining.
  - Less built-up edge, Low cutting load.
  - Coolant system : Through/Outer(Water-Soluble, MQL system)
- K type : For cast iron machining.
  - Die casting, Ductile cast iron.
  - Coolant system : Through/Outer(Water-Soluble, MQL system)
- N type : Carbide drills for aluminum machining.
  - Medium and low speed machining.
  - Coolant system : Through/Outer(Water-Soluble, MQL system)
- ND type : For aluminum machining.
  - Optimal cutting edge for high speed and high efficiency machining DLC coating for improved welding resistance.
  - Coolant system : Through/Outer(Water-Soluble, MQL system)







SOLID DRILL

Features cutting edge

- Low resistant cutting edge.
- Sablized edge treatment tehnology guarantees better performance.
- Good surface roughness.
  - Low resistance cutting edge for superior performance in medium-finishing protects the workpiece and ensures good surface finish.
- Improved chip breaking.
  - Superior chip control in high to low speed machining.



Features of TiAlN coating

- Coarse particles : prevents chipping on the cutting edge.
  High wear resistance and high roughness : cover wide applications from low speed and low feed machining to high speed and high feed machining.
- Special coating on the outermost layer : Improves welding resistance due to lubrication of the layer.
- Special pre-treatment before coating : Increases the adhesion.

Line-up

● Line-up depending on the aspect ratio(L/D)



MSDA□□□-7P



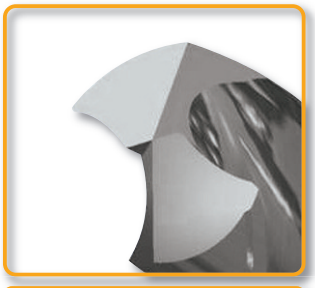
MSDA□□□-5P



MSDA□□□-3P

• Line-up as per aspect ratio(Mach Drill : Ø0.2188 ~ Ø0.7500)
Various choices as per aspect ratio(3D, 5D, 7D)

● Line-up depending on the shape



MSD Type



MSDH Type

• Wide choices for coolant type
ex.)Solid type : MSD, Through coolant type : MSDH

● Line-up depending on the workpiece

P : General machining(Carbon steel, Alloy steel, Stainless steel and cast iron)
M : Stainless steel
K : Cast iron and aluminum alloy
N : Aluminum and brass
ND : High speed machining of aluminum alloy

Formula for machining

$$vc = \frac{\pi \times Dx\, n}{12}\ (sfm), \quad fn = \frac{vf}{n}\ (ipr), \quad n = \left[\frac{vc \times 12}{\pi \times D}\ (min^{-1}),\ vf = fn \times n\ (rpm)\right]$$

Recommended cutting condition

● Mach Drill : Solid type(MSDA□□□–□P,M,K)

Workpiece		Drill Dia. Ø0.008 ~ Ø0.1969		Ø0.2008 ~ Ø0.3150		Ø0.3189 ~ Ø0.3937		Ø0.3976 ~ Ø0.4724		Ø0.4764 ~ Ø0.5512		Ø0.5551 ~ Ø0.7874	
		vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)
Mild alloy steel, General carbon steel (Under HRC 25)	4140	132 ~ 231 181.5	0.0059 ~ 0.0098	165 ~ 363 214.5	0.0079 ~ 0.0138	165 ~ 363 231	0.0079 ~ 0.0138	165 ~ 396 247.5	0.0098 ~ 0.0138	165 ~ 396 247.5	0.0098 ~ 0.0138	198 ~ 396 264	0.0098 ~ 0.0157
	1045	132 ~ 264 198	0.0059 ~ 0.0098	165 ~ 396 231	0.0079 ~ 0.0118	165 ~ 396 247.5	0.0079 ~ 0.0118	198 ~ 396 264	0.0079 ~ 0.0118	198 ~ 396 264	0.0098 ~ 0.0138	231 ~ 396 297	0.0118 ~ 0.0157
High alloy steel, High carbon steel Over HRC 25)	D2	49.5 ~ 115 99	0.0031 ~ 0.0061	66 ~ 132 99	0.0039 ~ 0.0079	66 ~ 165 115.5	0.0039 ~ 0.0079	66 ~ 198 115.5	0.0059 ~ 0.0098	66 ~ 198 132	0.0059 ~ 0.0098	99 ~ 214.5 132	0.0059 ~ 0.0098
Stainless steel	304	49.5 ~ 99 82.5	0.0020 ~ 0.0039	49.5 ~ 148.5 82.5	0.0039 ~ 0.0079	49.5 ~ 165 99	0.0039 ~ 0.0079	66 ~ 198 115.5	0.0039 ~ 0.0079	66 ~ 214.5 115.5	0.0039 ~ 0.0079	66 ~ 231 132	0.0039 ~ 0.0079
Cast iron	No 20B	132 ~ 297 231	0.0059 ~ 0.0118	165 ~ 396 264	0.0079 ~ 0.0138	165 ~ 396 264	0.0079 ~ 0.0138	198 ~ 429 297	0.0098 ~ 0.0138	198 ~ 429 313.5	0.0098 ~ 0.0157	198 ~ 462 313.5	0.0098 ~ 0.0157
	60-40-18	132 ~ 264 198	0.0039 ~ 0.0098	165 ~ 363 247.5	0.0079 ~ 0.0138	165 ~ 363 264	0.0079 ~ 0.0138	165 ~ 429 264	0.0098 ~ 0.0138	165 ~ 429 280.5	0.0098 ~ 0.0138	198 ~ 429 297	0.0098 ~ 0.0157

● Mach Drill : Through coolant type(MSDHA□□□–□P,M,K)

Workpiece		Drill Dia. vc(sfm)	Ø0.0984 ~ Ø0.1574 fn(ipr)	Ø0.1614 ~ Ø0.3150 fn(ipr)	Ø0.3187 ~ Ø0.4724 fn(ipr)	Ø0.4764 ~ Ø0.6299 fn(ipr)	Ø0.6339 ~ Ø0.7874 fn(ipr)
Mild alloy steel, General carbon steel (Under HRC 25)	4140	200 ~ 460	0.0059 ~ 0.0138	0.0059 ~ 0.0138	0.0079 ~ 0.0138	0.0098 ~ 0.0157	0.0118 ~ 0.0157
	1045	200 ~ 460	0.0059 ~ 0.0118	0.0059 ~ 0.0118	0.0079 ~ 0.0118	0.0098 ~ 0.0138	0.0118 ~ 0.0157
High alloy steel, High carbon steel Over HRC 25)	D2	130 ~ 260	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0039 ~ 0.0098	0.0059 ~ 0.0098	0.0059 ~ 0.0118
Stainless steel	304	80 ~ 260	0.0020 ~ 0.0079	0.0020 ~ 0.0079	0.0039 ~ 0.0098	0.0039 ~ 0.0098	0.0059 ~ 0.0118
Cast iron	No 20B	180 ~ 510	0.0059 ~ 0.0138	0.0059 ~ 0.0138	0.0079 ~ 0.0138	0.0098 ~ 0.0157	0.0098 ~ 0.0157
	60-40-18	180 ~ 480	0.0039 ~ 0.0138	0.0039 ~ 0.0138	0.0079 ~ 0.0138	0.0098 ~ 0.0138	0.0098 ~ 0.0157

∗ Note) 1. Reduce cutting speed 30 ~ 40% in forged steel machining.
2. Reduce vc and depending on workpiece condition, clamping status, overhang of drill, rigidity of machine and precision of spindle etc.
3. For longer tool life, apply step feed to every 1.5D.
4. Put the drill between the groove of cutting edge and end of shank.(Min. 3D)

● Mach Drill : Through coolant and outer coolant type(MSD(H)A□□□–□N)

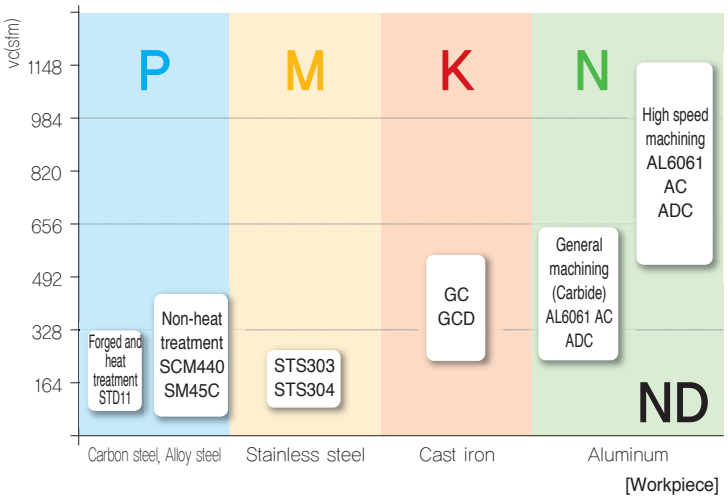
Workpiece		Drill Dia.							
		Ø0.0984 ~ Ø0.1575		Ø0.2165 ~ Ø0.2765		Ø0.3346 ~ Ø0.3937		Ø0.4528 ~ Ø0.5118	
		vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)
Alu-minum	Alloy steel (Al6061)	200 ~ 330	0.0079 ~ 0.0138	300 ~ 330	0.0118 ~ 0.0157	330 ~ 400	0.0118 ~ 0.0157	330 ~ 400	0.0118 ~ 0.0177
	Die-casting (AC,ADC)	200 ~ 330	0.0079 ~ 3.5433	330 ~ 330	0.0118 ~ 0.0157	330 ~ 400	0.0118 ~ 0.0157	330 ~ 400	0.0118 ~ 0.0177
Copper alloy(CII00)		200 ~ 260	0.0031 ~ 0.0059	200 ~ 330	0.0039 ~ 0.0079	260 ~ 330	0.0039 ~ 0.0098	260 ~ 330	0.0039 ~ 0.0098

● Mach Drill : Through coolant type(MSDHA□□□–□ND) DLC coated

Workpiece		Drill Dia.							
		Ø0.0984 ~ Ø0.1575		Ø0.2165 ~ Ø0.2765		Ø0.3346 ~ Ø0.3937		Ø0.4528 ~ Ø0.5118	
		vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)	vc(sfm)	fn(ipr)
Alu-minum	Alloy steel (Al6061)	260 ~ 530	0.0031 ~ 0.0118	260 ~ 600	0.0047 ~ 0.0138	260 ~ 600	0.0059 ~ 0.0157	260 ~ 660	0.0059 ~ 0.0177
	Die-casting (AC,ADC)	260 ~ 600	0.0031 ~ 0.0118	260 ~ 660	0.0047 ~ 0.0138	260 ~ 660	0.0059 ~ 0.0157	260 ~ 660	0.0059 ~ 0.0177
Copper alloy(CII00)		260 ~ 530	0.0031 ~ 0.0059	260 ~ 600	0.0039 ~ 0.0079	260 ~ 600	0.0039 ~ 0.0098	260 ~ 660	0.0039 ~ 0.0098

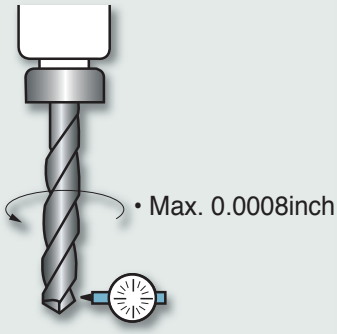
∗ Note) Recommended cutting speed is one of the important factors for the drill performance. In case of using further cutting speed or feed rate than recommended conditions to improve the productivity, please apply it after enough tests because it could be occurred some problems like early wear, built-up edge, chipping, fracture, etc.

Recommended cutting condition depending on workpiece class

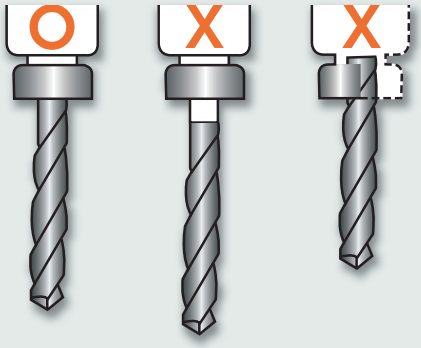


Clamp of drill

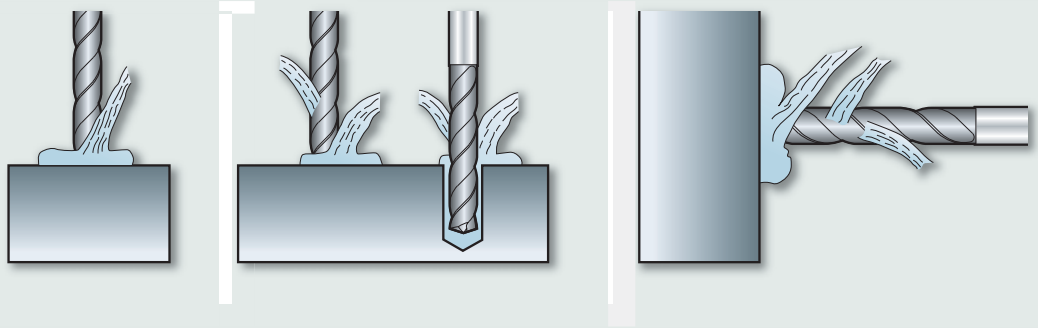
● Tolerance of drill



● Clamping

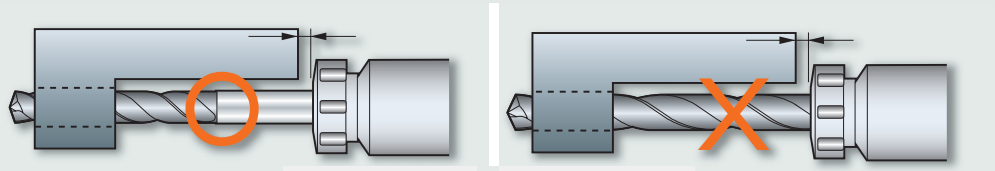


● Outer coolant system



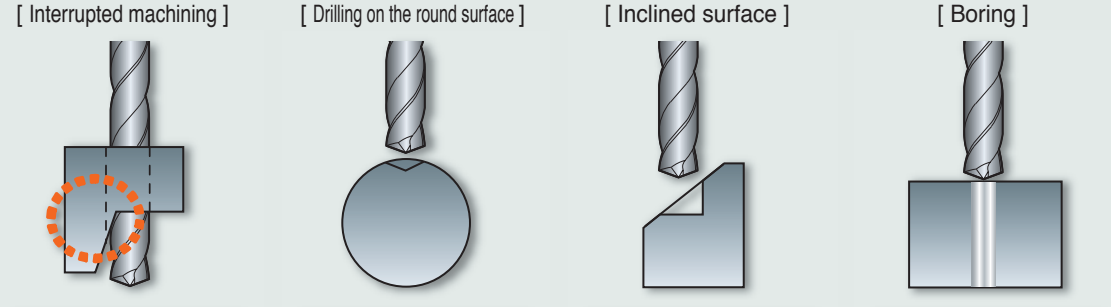
Improvement of drilling

● For higher rigidity of drill



Using short flute lengeh

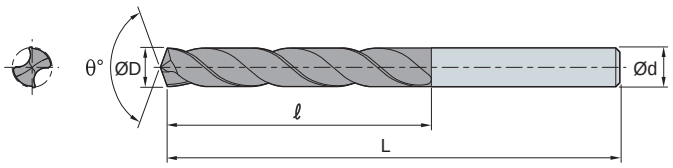
● For higher machinability



Decrease feed 50%	Primary machining : Center drilling before drilling a large point angle	Primary machining : Facing	No recommendation

Mach Sollid Drill(MSDA)-P,M,K,N

MACH SOLID DRILL



Terminology	P	M	K	N
Coating	TiAℓN			Cemented carbide
Tolerance(drill Dia.)	h7			
Tolerance(shank Dia.)	h6			
Point angle(θ°)	140°			135°
Twist angle	30°			
Thinning	X type			
Coolant	Outer coolant			

P : Steel M : Stainless steel
K : Cast iron N : Non-ferrous metalf

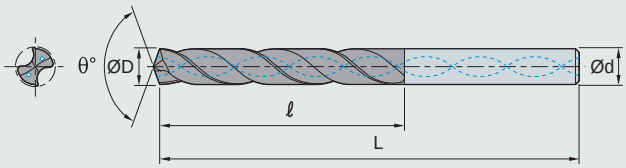
(inch)

Designation		Flute Dia.(ØD)		Shank Dia.(Ød)	Flute length(ℓ)	Overall length(L)
MSDA	02188	7/32	0.2188	0.2500	1.69	3.23
	02500	1/4	0.2500	0.2500	1.69	3.23
	02656	17/64	0.2656	0.3125	1.97	3.58
	02813	9/32	0.2813	0.3125	1.97	3.58
	02969	19/64	0.2969	0.3125	1.97	3.58
	03125	5/16	0.3125	0.3125	1.97	3.58
	03281	21/64	0.3281	0.3750	2.36	4.05
	03438	11/32	0.3438	0.3750	2.36	4.05
	03594	23/64	0.3594	0.3750	2.36	4.05
	03750	3/8	0.3750	0.3750	2.36	4.05
	03906	25/64	0.3906	0.4375	2.60	4.37
	04063	13/32	0.4063	0.4375	2.60	4.37
	04219	27/64	0.4219	0.4375	2.60	4.37
	04375	7/16	0.4375	0.4375	2.60	4.37
	04531	29/64	0.4531	0.5000	2.75	4.64
	04688	15/32	0.4688	0.5000	2.75	4.64
	04844	31/64	0.4844	0.5000	2.75	4.64
	05000	1/2	0.5000	0.5000	2.75	4.64
	05625	9/16	0.5625	0.5625	2.99	4.88
	06250	5/8	0.6250	0.6250	3.23	5.23
	06875	11/16	0.6875	0.6875	3.62	5.63
	07500	3/4	0.7500	0.7500	3.74	5.82

∗ Order made items : MSDA□□□-Material(P,M,K,N) x Flute length - Total length L x Shank Dia. S
ex.1) Workpiece : SM45C(1045)
Machined diameter : Ø0.3906inch, Flute length : 2.16inch, Total length : 4.37inch, Shank Dia. : Ø0.4375 → MSDA03906-P x 2.16 - 4.37L x 0.4375S

Mach Sollid Drill(MSDHA)-P,M,K,N,ND

MACH SOLID DRILL



Terminology	P	M	K	N	ND
Coating	TiAℓN			Cemented carbide	DLC
Tolerance(drill Dia.)	h7				
Tolerance(shank Dia.)	h6				
Point angle(θ°)	140°			135°	140°
Twist angle	30°				
Thinning	X type				N type
Coolant	Through coolant				

P : Steel M : Stainless steel K : Cast iron
N : Non-ferrous metalf ND : Aluminum alloy

(inch)

Designation		Flute Dia.(ØD)		Shank Dia.(Ød)	Flute length(ℓ)	Overall length(L)
MSDHA	02188	7/32	0.2188	0.2500	1.69	3.23
	02500	1/4	0.2500	0.2500	1.69	3.23
	02656	17/64	0.2656	0.3125	1.97	3.58
	02813	9/32	0.2813	0.3125	1.97	3.58
	02969	19/64	0.2969	0.3125	1.97	3.58
	03125	5/16	0.3125	0.3125	1.97	3.58
	03281	21/64	0.3281	0.3750	2.36	4.05
	03438	11/32	0.3438	0.3750	2.36	4.05
	03594	23/64	0.3594	0.3750	2.36	4.05
	03750	3/8	0.3750	0.4375	2.36	4.05
	03906	25/64	0.3906	0.4375	2.60	4.37
	04063	13/32	0.4063	0.4375	2.60	4.37
	04219	27/64	0.4219	0.4375	2.60	4.37
	04375	7/16	0.4375	0.5000	2.60	4.37
	04531	29/64	0.4531	0.5000	2.75	4.64
	04688	15/32	0.4688	0.5000	2.75	4.64
	04844	31/64	0.4844	0.5000	2.75	4.64
	05000	1/2	0.5000	0.5625	2.75	4.64
	05625	9/16	0.5625	0.6250	2.99	4.88
	06250	5/8	0.6250	0.6875	3.23	5.23
	06875	11/16	0.6875	0.7500	3.62	5.63
	07500	3/4	0.7500	0.7874	3.74	5.82

∗ Order made items : MSDHA□□□-Material(P,M,K,N) × Flute length - Total length L × Shank Dia. S
ex.1) Workpiece : SM45C(1045)
Machined diameter : Ø0.3906inch, Flute length : 2.16inch, Total length : 4.37inch, Shank Dia. : Ø0.4375 → MSDHA03906-P × 2.16 - 4.37L × 0.4375S



MACH LONG SOLID DRILL(MLD)

MACH LONG SOLID DRILL

Code system

(Special type)

MLD(P) A 02500 - 169 - 323L X 025S

MLD : Mach Long Drill
MLDP : Pilot Drills For MLD

Type
A : Inch type
No code : Metric type

Drill Dia.
02500=Ø0.2500

MLDP
Flute length
169=1.69inch

MLD
Depth of dilling
169=DX1.69

Overall length
323L : 3.23inch

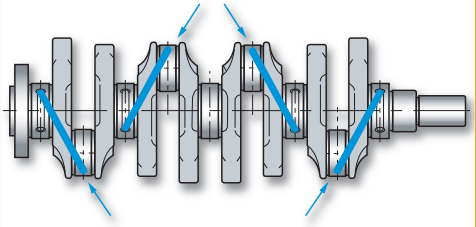
Shank Dia.
025S : Ø0.2500

Features

- Drilling over 20D without step drilling.
- Low resistance cutting edge ensures stable drilling.
- Optimal chip pocket design for good chip evacuation.
- Optimal design for drill rigidity prevents bending of drill body.
- The new coating layer, TiAlN increases lubrication and thermal resistance.



Drills for deep hole drilling



• Application example of MLD
(Drilling oil holes on crank Shaft, 20D)

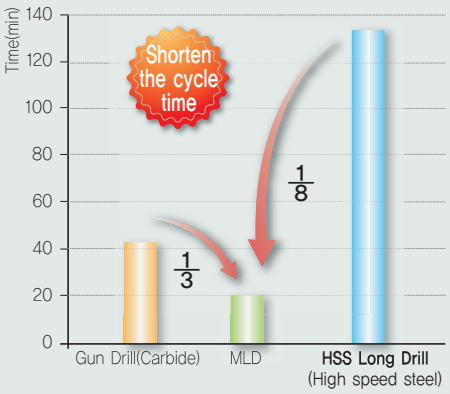
Features

- Deep and inclined drilling on crank shaft.
- Deep hole drilling on cam shaft.
- Deep hole drilling on parts of mold machinery.
  → Deep hole drilling with aspect ratio, over 15D
- Guide bush tooling is not required.
- Economical drill with long tool life.
- MQL system for protecting environment.

● MLDA productivity : MLDA02500-20A

	vc(sfm)	fn(ipr)	n(min^{-1})	vf(ipm)	Coolant	Step drilling
Gun drill(Carbide)	328	0.002	4,683	7.362	Through coolant	No required
Long HSS drill	49	0.004	703	2.056	Outer coolant	9 times(0.591inch per 1 time)
Mach long drill(MLD)	262	0.006	3,747	20.669	MQL-Air 0.5MPa, Oil 20cc/h	No required

● Comparison of cycle time

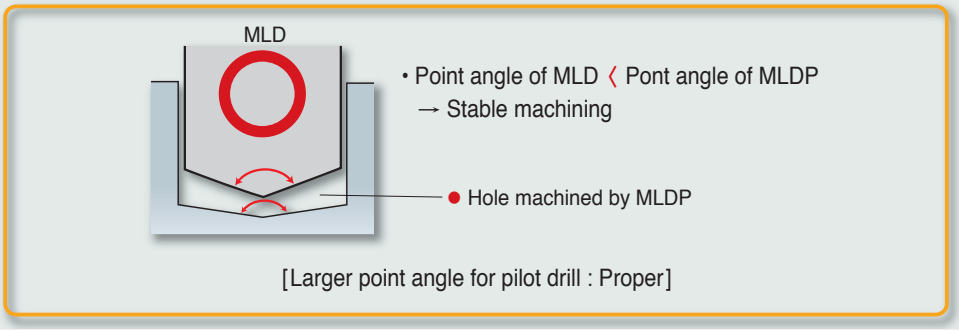


Features of MLD

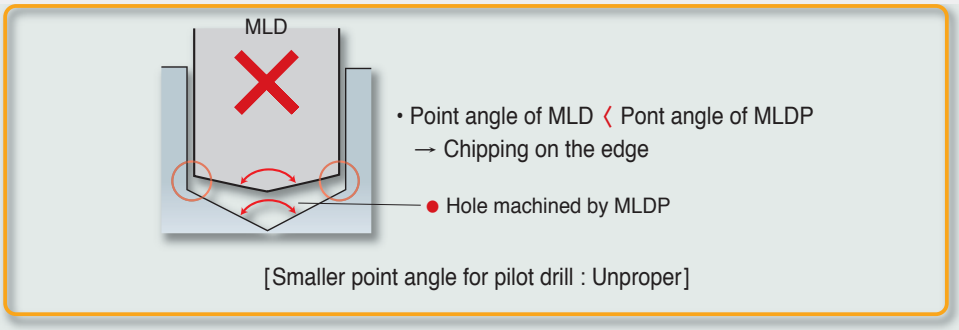
- Short cycle time(1/3 ~ 1/8)
- High productivity.
- Economical tool due to easy management for machine.
- Improvement of working condition.
- Guide bush for drill is not required.

Mach long drill(MLD) – Mach pilot drill(MLDP)

● Function of MLDP depending on point angle



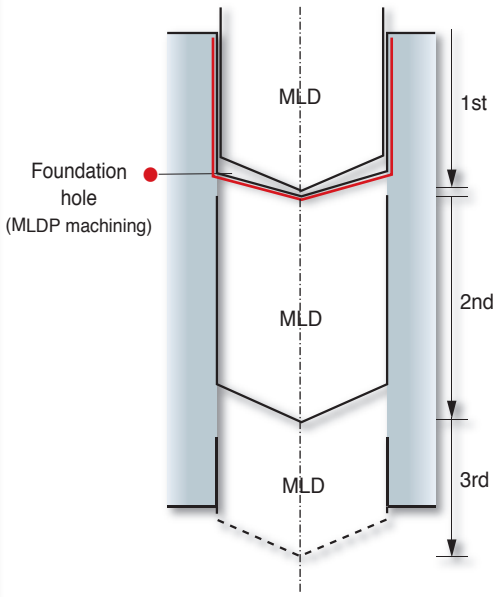
[Larger point angle for pilot drill : Proper]



[Smaller point angle for pilot drill : Unproper]

● Optimal drilling with MLD

[Chipping on the drill edge]



1) 1st. Pliot drilling
- vc(sfm) : Normal
- fn(ipr) : Normal

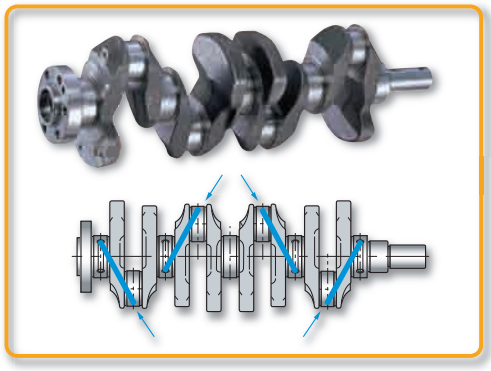
2) Deep drilling by MLD

① Approach the drill 0.04inch less than the depth of MLDP drilling.
- vc(sfm)=49
- fn(ipr)=0.020

② 2nd MLD drilling(Machining stage)
- vc(sfm)=Normal
- fn(ipr)=Normal

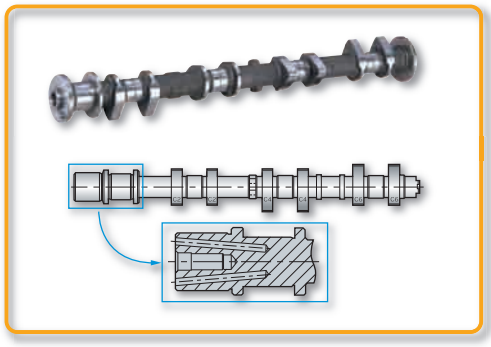
③ 3rd MLD drilling(Piercing stage)
- vc(sfm)=Normal
- fn(ipr)=Normal feed / 2

Application examples



- **Workpiece** Parts of automobile(4140, HB255 ~ 330)
- **Cutting condition** vc(sfm)=230, fn(ipr)=0.007
  MQL(30cc/hour), Air(MPa)=0.7
- **Tool** MLDA02362-22A
  (Ø0.236, Aspect ratio 18D)
- **Machine** Horizontal milling machine

• Tool life : 100 Holes



- **Workpiece** Parts of automobile(No35B)
- **Cutting condition** vc(sfm)=207, fn(ipr)=0.004
  Water-soluble
- **Tool** MLDA01575-25A
  (Ø0.1575inch, Aspect ratio 16D)
- **Machine** Rotary milling machine

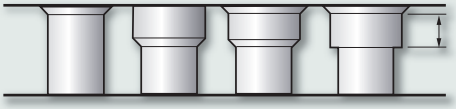
• Tool life : 440 Holes

Order form for mach step drill

MSD(H)SA Tool Dia. X Effective flute length - Flute length - Overall length L X Shank Dia.(S)

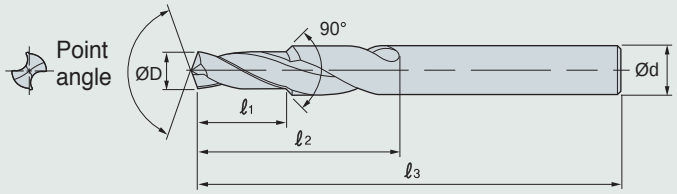
Solid type : MSDSA
Oil hole type : MSDHSA

(ØD) **(ℓ1)** **(ℓ2)** **(ℓ3)L** **(Ød)S**

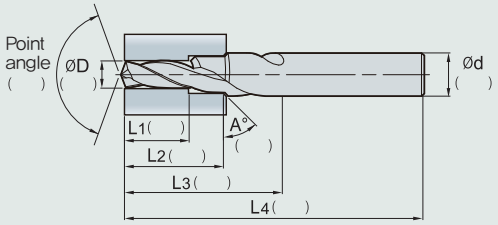


Max. ØD : 2D

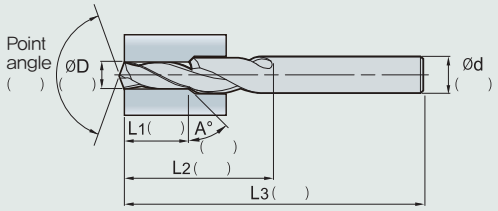
Chamfering/ Step hole/ Multi chamfering



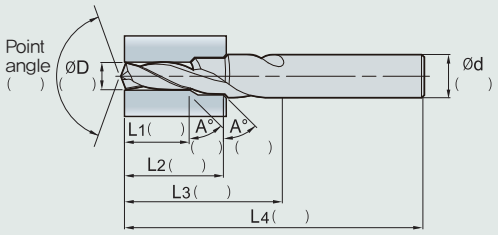
☐ Multi chamfering(Coolant : Inner☐ Outer☐)



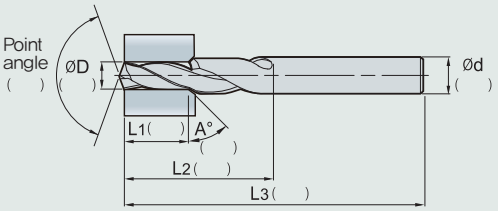
☐ Step hole(Coolant : Inner☐ Outer☐)



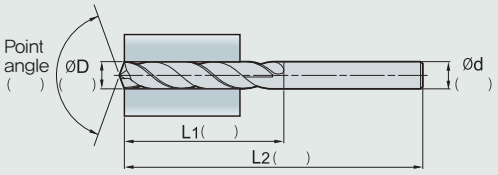
☐ Multi chamfering(Coolant : Inner☐ Outer☐)



☐ Chamfering(Coolant : Inner☐ Outer☐)



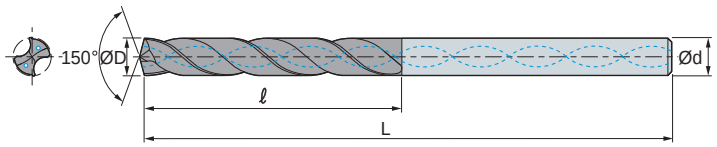
☐ Drilling(Coolant : Inner☐ Outer☐)



SOLID DRILL

Mach Long Drill(MLDPA)-Pilot drill with oil hole for MLD

MACH LONG DRILL



Coating	TiAℓN
Tolerance(Drill Dia.)	h7
Tolerance(Shank Dia.)	h6
Point angle	150°
Twist angle	30°
Thinning	X type
Coolant	Through coolant system

(inch)

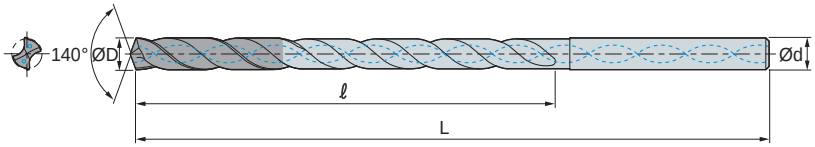
Designation		ØD		Ød	ℓ	L
MLDPA	02188	7/32	0.2188	0.2500	1.69	3.23
	02500	1/4	0.2500	0.2500	1.69	3.23
	02656	17/64	0.2656	0.3125	1.97	3.58
	02813	9/32	0.2813	0.3125	1.97	3.58
	02969	19/64	0.2969	0.3125	1.97	3.58
	03125	5/16	0.3125	0.3125	1.97	3.58
	03281	21/64	0.3281	0.3750	2.36	4.05
	03438	11/32	0.3438	0.3750	2.36	4.05
	03594	23/64	0.3594	0.3750	2.36	4.05
	03750	3/8	0.3750	0.3750	2.36	4.05

∗ Order made items : MLDPA□□□ x Flute length - Total length L x Shank Dia. S
ex.1) Machined diameter : Ø0.2500inch, Flute length : 1.69inch, Total length : 3.23inch, Shank Dia. : 0.2500
∗ MLDPA02500 x 1.69 - 3.23L x 0.25S

SOLID DRILL

Mach long drill(MLDA)-Mach long drill with oil hole for deep hole machining

MACH LONG DRILL



Coating	TiAℓN
Tolerance(Drill Dia.)	h7
Tolerance(Shank Dia.)	h6
Point angle	140°
Twist angle	30°
Thinning	X type
Coolant	Through coolant system

(inch)

Designation		ØD		Ød	20(ℓ/ØD)		25(ℓ/ØD)	
					ℓ	L	ℓ	L
MLDA	02188-□	7/32	0.2188	0.2500	4.33	6.33	5.47	7.47
	02500-□	1/4	0.2500	0.2500	5.00	7.00	6.26	8.26
	02656-□	17/64	0.2656	0.3125	5.31	7.31	6.65	8.65
	02813-□	9/32	0.2813	0.3125	5.63	7.63	7.05	9.05
	02969-□	19/64	0.2969	0.3125	5.91	7.91	7.44	9.44
	03125-□	5/16	0.3125	0.3125	6.26	8.26	7.83	9.83
	03281-□	21/64	0.3281	0.3750	6.57	8.57	8.19	10.19
	03438-□	11/32	0.3438	0.3750	6.89	8.89	-	-
	03594-□	23/64	0.3594	0.3750	7.20	9.20	-	-
	03750-□	3/8	0.3750	0.3750	7.48	9.48	-	-

∗ Order made items : MLDA□□□-Aspect ratio
ex.1) Machined diameter : Ø0.25inch, Flute length : 5inch, Total length : 7inch
∗ MLDA02500-□(Aspect ratio)



VULCAN DRILL

VULCAN DRILL

Code system

(Special type)

VZD 205 MA - 100 - 200L X 32S

Vulcan Drill

Drill Dia.
205=Ø20.5
(One decimal place)

Woekpiece
MA : Steel, Ductile cast iron
MBA : Mild steel, Steel structure
LA : Steel, Ductile cast iron
LBA : Mild steel, Steel structure

Flute length
100L : 100mm

Overall length
200L : 200mm

Shank Dia.
32S : Ø32

M This is metric size. We can also provide in inch type.

Features

- High rigidity design for high feed and high precision machining.
- Exclusive substrate and PVD coating layer reduce friction resistance and increase heat resistance and wear resistance realizing high speed machining and long tool life.
- Positive rake angle to radial direction reducing cutting resistance increases feed.
- Rmax : 6 ~ 25S, Hole tolerance : IT8 ~ 10
- Brazed drill body resisting impact ensures long tool life even in interrupted roughing.



M This is metric size. We can also provide in inch type.

Workpiece for Vulcan Drill

- General steel, alloy steel, dies steel, stainless steel, cast iron, ductile cast iron and non-ferrous steel.



Recommended cutting condition

	Workpiece	Hardness	~ Ø15		~ Ø20		~ Ø40	
			vc(m/min)	fn(mm/rev)	vc(m/min)	fn(mm/rev)	vc(m/min)	fn(mm/rev)
MA LA	Mild steel General steel Alloy steel	HB250 below	40 ~ 90 (65)	0.15 ~ 0.30 (0.20)	40 ~ 90 (65)	0.20 ~ 0.40 (0.35)	40 ~ 90 (70)	0.20 ~ 0.45 (0.35)
	General steel Alloy steel	HB320 below	40 ~ 90 (60)	0.10 ~ 0.25 (0.20)	40 ~ 90 (60)	0.15 ~ 0.35 (0.25)	40 ~ 90 (65)	0.20 ~ 0.40 (0.30)
	Hardened steel	HB250 around	40 ~ 70 (50)	0.10 ~ 0.25 (0.20)	40 ~ 70 (50)	0.15 ~ 0.30 (0.25)	40 ~ 70 (50)	0.20 ~ 0.35 (0.30)
	Stainless steel	HB250 around	30 ~ 50 (45)	0.10 ~ 0.20 (0.15)	30 ~ 50 (45)	0.15 ~ 0.25 (0.20)	30 ~ 50 (45)	0.20 ~ 0.30 (0.25)
	Ductile cast iron	-	50 ~ 100 (70)	0.20 ~ 0.35 (0.30)	50 ~ 100 (70)	0.20 ~ 0.40 (0.35)	50 ~ 100 (70)	0.25 ~ 0.50 (0.40)
MBA LBA	Mild steel General steel Alloy steel	HB250 below	40 ~ 90 (75)	0.20 ~ 0.40 (0.30)	40 ~ 90 (75)	0.20 ~ 0.40 (0.30)	40 ~ 90 (80)	0.20 ~ 0.45 (0.35)
	General steel Alloy steel	HB320 below	35 ~ 80 (55)	0.15 ~ 0.30 (0.25)	35 ~ 80 (55)	0.15 ~ 0.30 (0.25)	40 ~ 80 (60)	0.15 ~ 0.40 (0.30)

Notice

Improper workpiece

- Uneven and inclined beginning and end of workpiece.
- In the case above, reduce the feed 0.1 ~ 0.15mm/rev.

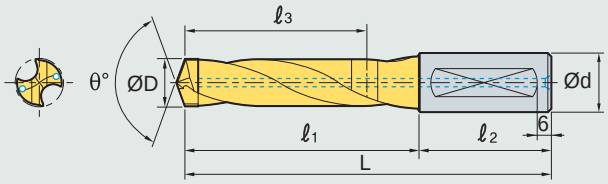
Clamping workpiece

- For high efficient machining, clamp the workpiece tightly to prevent chattering or bending of workpiece.

M This is metric size. We can also provide in inch type.

Vulcan Drill(VZD)-MA, MBA

VULCAN DRILL



Designation	MA	MBA
Coating	TiN	
Tolerance(Drill Dia.)	h7	
Tolerance(Shank Dia.)	h7	
Point angle	140°	150°
Twist angle	25°	20°
Thinning	X type	
Coolant	Through coolant	

(mm)

Designation	ØD	Ød	L	ℓ1	ℓ2	ℓ3
VZD 126 ~ 135MA, MBA	12.6 ~ 13.5	16	110	62	48	44
136 ~ 145MA, MBA	13.6 ~ 14.5	16	115	67	48	48
146 ~ 155MA, MBA	14.6 ~ 15.5	20	125	75	50	55
156 ~ 165MA, MBA	15.6 ~ 16.5	20	130	80	50	59
166 ~ 175MA, MBA	16.6 ~ 17.5	20	135	85	50	63
176 ~ 185MA, MBA	17.6 ~ 18.5	20	140	90	50	66
186 ~ 195MA, MBA	18.6 ~ 19.5	25	155	99	56	74
196 ~ 205MA, MBA	19.6 ~ 20.5	25	155	99	56	73
206 ~ 215MA, MBA	20.6 ~ 21.5	25	155	99	56	72
216 ~ 225MA, MBA	21.6 ~ 22.5	25	160	104	56	76
226 ~ 235MA, MBA	22.6 ~ 23.5	25	160	104	56	74
236 ~ 245MA, MBA	23.6 ~ 24.5	32	170	110	60	79
246 ~ 255MA, MBA	24.6 ~ 25.5	32	170	110	60	78
256 ~ 265MA, MBA	25.6 ~ 26.5	32	175	115	60	82
266 ~ 275MA, MBA	26.6 ~ 27.5	32	175	115	60	80
276 ~ 285MA, MBA	27.6 ~ 28.5	32	180	120	60	84
286 ~ 295MA, MBA	28.6 ~ 29.5	32	185	125	60	88
296 ~ 305MA, MBA	29.6 ~ 30.5	32	185	125	60	87
306 ~ 315MA, MBA	30.6 ~ 31.5	40	205	135	70	95
316 ~ 325MA, MBA	31.6 ~ 32.5	40	210	140	70	98
326 ~ 335MA, MBA	32.6 ~ 33.5	40	215	145	70	101
336 ~ 345MA, MBA	33.6 ~ 34.5	40	220	150	70	104
346 ~ 355MA, MBA	34.6 ~ 35.5	40	225	155	70	107
356 ~ 365MA, MBA	35.6 ~ 36.5	40	225	155	70	110
366 ~ 375MA, MBA	36.6 ~ 37.5	40	230	160	70	113
376 ~ 385MA, MBA	37.6 ~ 38.5	40	235	165	70	116
386 ~ 395MA, MBA	38.6 ~ 39.5	40	240	170	70	119
396 ~ 405MA, MBA	39.6 ~ 40.5	40	245	175	70	122

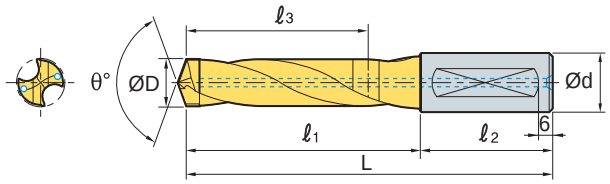
∗ VZD□□□MA : For general steel, Ductile cast iron
MBA : For mild steel, Low carbon steel
∗ Order made items : VZD□□□M□ × Flute length - Total length L
ex.1) MA type, Machined diameter : Ø18.6mm, Flute length : 110mm, Total length : 200mm
VZD186MA × 110-200L
ex.2) MA type, Machined diameter : Ø18.63, Flute length : 110mm, Total length : 200mm
VZD1863MA × 110-200L
ex.3) MA type, Machined diameter : Ø18.6, Standard
VZD186MA

M This is metric size. We can also provide in inch type.

SOLID DRILL

Vulcan Drill(VZD)-LA, LBA

VULCAN DRILL



Designation	LA	LBA
Coating	TiN	
Tolerance(Drill Dia.)	h7	
Tolerance(Shank Dia.)	h7	
Point angle	140°	150°
Twist angle	25°	20°
Thinning	X type	
Coolant	Through coolant	

(mm)

Designation		ØD	Ød	L	ℓ1	ℓ2	ℓ3
VZD	126 ~ 135LA, LBA	12.6 ~ 13.5	16	140	92	48	74
	136 ~ 145LA, LBA	13.6 ~ 14.5	16	145	97	48	78
	146 ~ 155LA, LBA	14.6 ~ 15.5	20	155	105	50	85
	156 ~ 165LA, LBA	15.6 ~ 16.5	20	165	115	50	94
	166 ~ 175LA, LBA	16.6 ~ 17.5	20	170	120	50	98
	176 ~ 185LA, LBA	17.6 ~ 18.5	20	175	125	50	101
	186 ~ 195LA, LBA	18.6 ~ 19.5	25	190	134	56	109
	196 ~ 205LA, LBA	19.6 ~ 20.5	25	195	139	56	113
	206 ~ 215LA, LBA	20.6 ~ 21.5	25	195	139	56	112
	216 ~ 225LA, LBA	21.6 ~ 22.5	25	200	144	56	116
	226 ~ 235LA, LBA	22.6 ~ 23.5	25	210	154	56	124
	236 ~ 245LA, LBA	23.6 ~ 24.5	32	220	160	60	129
	246 ~ 255LA, LBA	24.6 ~ 25.5	32	225	165	60	133
	256 ~ 265LA, LBA	25.6 ~ 26.5	32	230	170	60	137
	266 ~ 275LA, LBA	26.6 ~ 27.5	32	235	175	60	141
	276 ~ 285LA, LBA	27.6 ~ 28.5	32	240	180	60	144
	286 ~ 295LA, LBA	28.6 ~ 29.5	32	245	185	60	148
	296 ~ 305LA, LBA	29.6 ~ 30.5	32	255	195	60	157
	306 ~ 315LA, LBA	30.6 ~ 31.5	40	275	205	70	166
	316 ~ 325LA, LBA	31.6 ~ 32.5	40	280	210	70	172
	326 ~ 335LA, LBA	32.6 ~ 33.5	40	280	215	70	173
	336 ~ 345LA, LBA	33.6 ~ 34.5	40	290	220	70	177
	346 ~ 355LA, LBA	34.6 ~ 35.5	40	295	225	70	181
	356 ~ 365LA, LBA	35.6 ~ 36.5	40	300	230	70	183
	366 ~ 375LA, LBA	36.6 ~ 37.5	40	305	235	70	188
	376 ~ 385LA, LBA	37.6 ~ 38.5	40	315	245	70	193
	386 ~ 395LA, LBA	38.6 ~ 39.5	40	320	250	70	198
	396 ~ 405LA, LBA	39.6 ~ 40.5	40	325	255	70	203

∗ VZD□□□□LA : For General steel, Ductile cast iron
LBA : For Mild steel, Low carbon steel
∗ Order made items : VZD□□□□L□ × Flute length - Total length L
ex.1) LA type, Machined diameter : Ø18.6mm, Flute length : 110mm, Total length : 200mm
VZD186LA × 110-200L
ex.2) LA type, Machined diameter : Ø18.63, Flute length : 110mm, Total length : 200mm
VZD1863LA × 110-200L
ex.3) LA type, Machined diameter : Ø18.6, Standard
VZD186LA

M This is metric size. We can also provide in inch type.



CARBIDE DRILL

CARBIDE DRILL

Code system

(Special type)

SSD A 00312 X 0500 -1375L X 0312S

- **Solid Spiral Drill**
- **Type**
  A : Inch type
  No code : Metric type
- **Drill Dia.**
  00312=Ø0.0312
- **Flute length**
  0500 : 0.500inch
- **Overall length**
  1375L : 1.375inch
- **Shank Dia.**
  0312S : Ø0.312

Features

- The most important parts of drilling are precision and tool life. KORLOY solid drills are optimlzed for high precision machining with deflective strength, hardness and plastic deformation resistance.
- For small diameter machining(Ø0.039 ~ Ø0.157inch), long tool life due to wear resistance and high toughness.
- For middle sized diameter machining(Ø0.157 ~ Ø0.590inch), high productivity due to high feed from low cutting resistance cutting edge.
- For mild steel and non-ferrous steel machining.
- Superior chip control and surface finish due to high rigidity and stable flute design of drill.

SOLID DRILL

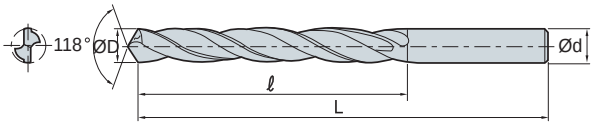
Recommended cutting condition

Workpiece	Hardness (HB)	Revolution as per drill Dia.(min^{-1})							Feed per drill Dia.(ipr)		Coolant
		Ø0.1969	Ø0.3937	Ø0.5906	Ø0.7874	Ø0.9843	Ø1.1811	Ø1.5748	Ø0.1969 ~ Ø0.4724	Ø0.5906 ~ Ø1.5748	
SM10C ~ SM45C	50	2,900	1,600	1,100	1,000	800	700	600	0.0012 ~ 0.0024	0.0012 ~ 0.0024	Wet
SM55C	70	2,300	1,530	1,050	920	765	640	560	0.0012 ~ 0.0024	0.0024 ~ 0.0047	Wet
SM55C Quenched and tempered steel	100	2,200	1,500	1,000	900	750	650	550	0.0012	0.0024	Wet
Quenched and tempered steel	150 ~ 180	700	340	250	190	160	140	120	0.0008	0.0016	Wet
Cr-Ni steel	100	2,200	1,200	800	652	550	460	380	0.0012	0.0024	Wet
Mn-steel	40 ~ 110	700	340	260	190	170	150	120	0.0016	0.0031	Dry
Casting	200 ~ 300	2,000	1,500	800	600	450	400	350	0.0012	0.0024	Dry
Malleable iron	200	2,400	1,500	900	650	500	420	380	0.0012	0.0024	Dry
Chiled casting	65Hs	350	200	150	100	80	70	55	0.0004	0.0008	Dry
Copper	60 ~ 80	6,000	4,000	2,500	2,000	1,400	1,000	800	0.0024	0.0047	Dry
Brass	80 ~ 120	5,000	3,500	2,000	1,500	1,400	1,200	1,000	0.0020	0.0039	Dry
Bronze casting	60 ~ 120	3,500	2,500	1,800	1,500	1,200	1,000	900	0.0016	0.0031	Dry
Al	60 ~ 120	16,000	8,500	5,700	4,500	3,700	3,100	2,800	0.0039	0.0079	Dry
(Si13%) Al alloy	40	8,000	4,500	2,800	2,100	1,750	1,050	700	0.0020	0.0059	Dry
Synthetic resin	90 ~ 120	8,000	5,400	2,800	2,100	1,750	1,050	200	0.0020	0.0059	Dry

Carbide Drill-SSDA

CARBIDE DRILL





Coating	X
Tolerance(Drill Dia.)	h8
Tolerance(Shank Dia.)	h7
Point angle	118°
Twist angle	30°
Thinning	S type
Coolant	Outer coolant

(inch)

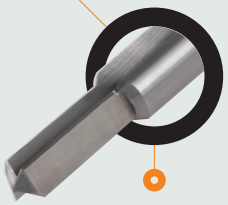
Designation		Flute Dia.(ØD)		Shank Dia.(Ød)	Flute length(ℓ)	Overall length(L)
SSDA	00312	1/32	0.0312	0.0312	0.500	1.375
	00469	3/64	0.0469	0.0469	0.750	1.750
	00625	1/16	0.0625	0.0625	0.845	1.875
	00781	5/64	0.0781	0.0781	1.000	2.000
	00938	3/32	0.0938	0.0938	1.250	2.250
	01094	7/64	0.1094	0.1094	1.500	2.625
	01250	1/8	0.1250	0.1250	1.625	2.750
	01406	9/64	0.1406	0.1406	1.750	2.875
	01562	5/32	0.1562	0.1562	2.000	3.125

∗ Drill diameter : Available from Ø0.024

∗ Order made items : SSDA□□□ × Flute length - Total length L

ex.1) Genetal type, Machined diameter : Ø0.845inch, Flute length : 0.845inch, Total length : 1.875inch, SSDA00625 × 0.845 - 1.875L

ex.2) Machined diameter : Ø0.0625inch, Genetal type SSDA0625



BURNISHING DRILL(BDS/BDT)

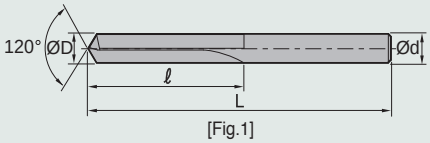
BURNISHING DRILL

Recommended cutting condition

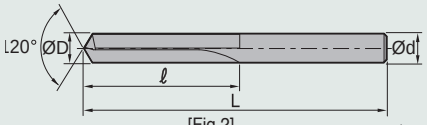
Workpiece	vc (m/min)	fn(mm/rev)				
		Ø2.0 ~ 3.0	Ø3.5 ~ 5.0	Ø5.5 ~ 8.0	Ø8.5 ~ 12	Ø12.5 ~ 18
Aluminum alloy, Copper alloy	30 ~ 60	0.02 ~ 0.05	0.03 ~ 0.10	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.30
Aluminum alloy for die castings	50 ~ 80	0.02 ~ 0.05	0.03 ~ 0.10	0.04 ~ 0.15	0.05 ~ 0.20	0.05 ~ 0.30
Cast iron(GC), Ductile cast	25 ~ 60	0.01 ~ 0.04	0.02 ~ 0.08	0.05 ~ 0.12	0.05 ~ 0.20	0.05 ~ 0.30
Iron(GCD)	20 ~ 50	0.01 ~ 0.03	0.02 ~ 0.05	0.03 ~ 0.08	0.04 ~ 0.12	0.05 ~ 0.15

Burnishing drill-BDS





[Fig.1]



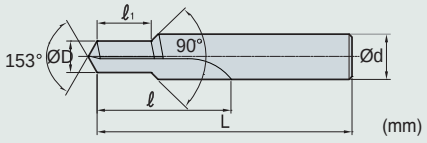
[Fig.2]

(mm)

Designation		ØD	Ød	ℓ	L	Fig.
BDS	040S	4.0	4.0	35	80	1
	050S	5.0	5.0	40	85	1
	060S	6.0	6.0	50	95	1
	070S	7.0	7.0	55	100	1
	080S	8.0	8.0	65	110	1
	090S	9.0	9.0	70	120	1
	100S	10.0	10.0	80	130	1
	110S	11.0	11.0	90	140	1
	120B	12.0	12.0	95	150	2
	130B	13.0	16.0	105	160	2
	140B	14.0	16.0	110	170	2
	150B	15.0	16.0	120	185	2
	160B	16.0	16.0	125	190	2

Step burnishing drill-BDT





(mm)

For tapping a basic hole

Designation		ØD	Ød	ℓ	ℓ1	L	Tap
BDT	M05080-ℓ1	4.2	6.0	35	9 ~ 15	90	M5 × P0.8
	M06100-ℓ1	5.0	7.0	40	11 ~ 18	95	M6 × P1.0
	M08125-ℓ1	6.8	10.0	50	15 ~ 24	105	M8 × P1.25
	M10125-ℓ1	8.8	12.0	55	17 ~ 30	110	M10 × P1.25
	M10150-ℓ1	8.5	12.0	55	17 ~ 30	110	M10 × P1.5
	M12125-ℓ1	10.8	14.0	60	19 ~ 36	120	M12 × P1.25
	M12150-ℓ1	10.5	14.0	60	19 ~ 36	120	M12 × P1.5
	M12175-ℓ1	10.3	14.0	60	19 ~ 36	120	M12 × P1.75

M This is metric size. We can also provide in inch type.

SOLID DRILL



TOP SOLID DRILL

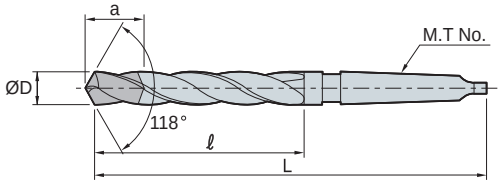
TOP SOLID DRILL

Recommended cutting condition

(inch)

Drill Dia.	Cutting condition	Ductile cast iron	Gray cast iron	Soft steel
Ø0.03 ~ Ø0.40	vc(sfm)	65 ~ 115	655 ~ 195	1655 ~ 490
	fn(ipr)	0.0085 ~ 0.016	0.0085 ~ 0.016	0.0045 ~ 0.008
Ø0.41 ~ Ø0.60	vc(sfm)	1005 ~ 230	1005 ~ 260	2305 ~ 655
	fn(ipr)	0.0125 ~ 0.016	0.0125 ~ 0.016	0.0045 ~ 0.008
Ø0.61 ~ Ø1.00	vc(sfm)	1655 ~ 295	1655 ~ 330	3305 ~ 820
	fn(ipr)	0.0125 ~ 0.018	0.0125 ~ 0.020	0.0045 ~ 0.008





(inch)

SOLID DRILL

Designation	ØD	L	ℓ	a	M.T No.
TSDMA 0310 ~ 0330	8.0 ~ 8.5	6.6	3.3	1.0	1
0340 ~ 0350	8.6 ~ 9.0	6.8	3.5	1.0	1
0360 ~ 0370	9.1 ~ 9.5	6.9	3.6	1.0	1
0380 ~ 0390	9.6 ~ 10.0	7.0	3.7	1.0	1
0400 ~ 0410	10.1 ~ 10.5	7.2	3.9	1.0	1
0420 ~ 0430	10.6 ~ 11.0	7.3	4.0	1.0	1
0440 ~ 0450	11.1 ~ 11.5	7.4	4.1	1.0	1
0460 ~ 0470	11.6 ~ 12.0	7.6	4.3	1.0	1
0480 ~ 0490	12.1 ~ 12.5	7.7	4.4	1.0	1
0500 ~ 0510	12.6 ~ 13.0	7.8	4.5	1.0	2
0520 ~ 0530	13.1 ~ 13.5	8.0	4.6	1.1	2
0540 ~ 0550	13.6 ~ 14.0	8.1	4.8	1.1	2
0560 ~ 0570	14.1 ~ 14.5	8.7	4.8	1.1	2
0580 ~ 0590	14.6 ~ 15.0	8.9	4.9	1.1	2
0600 ~ 0610	15.1 ~ 15.5	9.0	4.9	1.1	2
0620 ~ 0630	15.6 ~ 16.0	9.1	5.1	1.1	2
0640 ~ 0650	16.1 ~ 16.5	9.1	5.2	1.1	2
0660 ~ 0670	16.6 ~ 17.0	9.2	5.3	1.1	2
0680 ~ 0710	17.1 ~ 18.0	9.4	5.5	1.1	2
0720 ~ 0750	18.1 ~ 19.0	9.6	5.7	1.2	2
0760 ~ 0790	19.1 ~ 20.0	9.8	5.9	1.2	2
0800 ~ 0830	20.1 ~ 21.0	10.0	6.1	1.2	2
0840 ~ 0870	21.1 ~ 22.0	10.2	6.3	1.2	2
0880 ~ 0910	22.1 ~ 23.0	10.4	6.5	1.2	2
0920 ~ 0980	23.1 ~ 25.0	11.2	6.5	1.3	3

∗Ordrer form : TSDMA0500



PCD DRILL

POLY CRYSTALINE DIAMOND DRILL

Code system

PDD A 04375 S

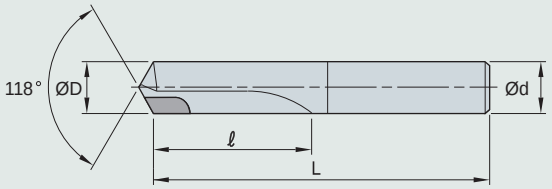
PCD Drill	Type	Tool Dia.	Type
	A : Inch type No code : Metric type	04375 : Ø0.4375	S : Solid type B : Brazed type

- For high precision machining of aluminum alloys.
- Drilling tolerance : IT 7 ~ 8 class
- High rigidity machine and high precision holder recommended.

Recommended cutting condition

Workpiece	vc(sfm)	fn(ipr)
Aluminum alloy	165~820	D ≤ Ø0.3125:0.002 ~ 0.008 D ≤ Ø0.3125:0.004 ~ 0.016





(inch)

Designation	ØD	Ød	ℓ	L
PDDA 01875S	0.1875	0.1875	1.5	3.0
02500S	0.2500	0.2500	1.5	3.5
03125S	0.3125	0.3750	2.0	4.0
03750S	0.3750	0.3750	2.0	4.5
04375S	0.4375	0.5000	2.5	4.5
05000B	0.5000	0.5000	2.5	5.0



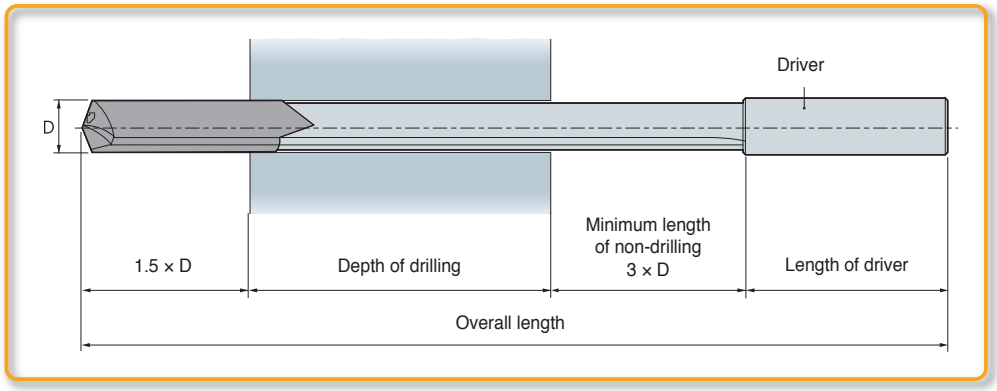
GUN DRILL

GUN DRILL

Code system

KGD S A 0.250 - 0600 / D30

KORLOY Gun Drill	Lip type	Type	Drill Dia.	Length of drill	Drive No.
	S : Single T : Twin	A : Inch type No code : Metric type	0.250 : Ø0.250	0600 : 60.0inch	D30

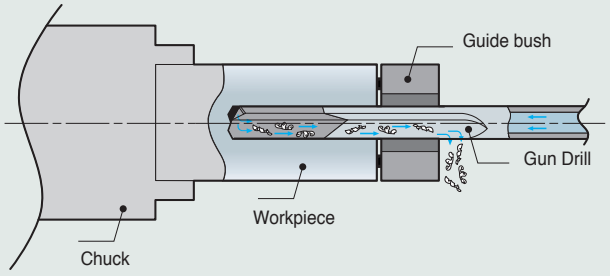


- Refer to the code system and the above drawing when ordering.
- Refer to the Page 75 for the size of a driver.

Features

- High efficiency in deep hole machining.
- High accuracy(Hole tolerance : IT9, Surface finish : Ra0.1~3.0S)
- Stable quality due to unique cutting edge and guide pad available regrinding.
- Used drill can recycle as change part of cardide.
- Depending on request, the drills can change geometry of cutting edge and drive specification.
- For ordering, please check length of drill.

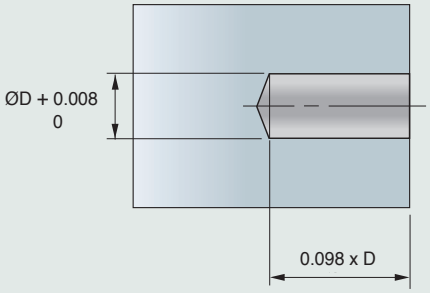
Application of Gun Drill on exclusive machine



- The guide bush is necessary for centering before gun drilling.

Application of Gun Drill on machining center

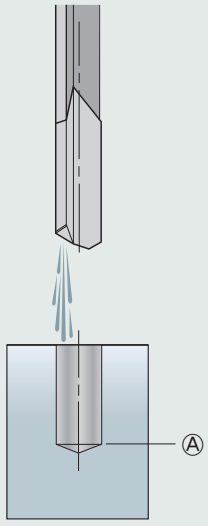
1. Machining of a pilot hole



① A pilot hole is necessary in machining on machining center in place of a guide bush.
② The diameter of the pilot hole should be 0.004~0.008(H7) bigger than one of Gun Drill and the depth of drilling should be about 0.098 × D.
③ Use Mach Drill to machine a pilot hole.

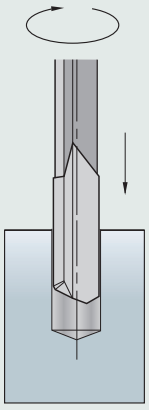

Mach Drill(MSD)

2. Moving the Gun Drill to the pilot hole



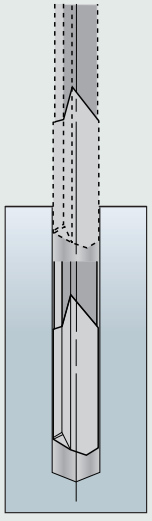
① The Gun Drill should not start drilling until drill is secured in the pilot hole.
② Coolant is necessary for Gun Drilling.

3. Start Gun Drilling



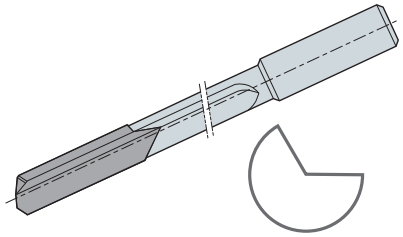
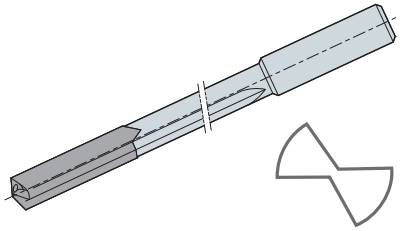
① Rotate the spindle.
② Machine by drilling into the vertical axis.

4. After Gun Drilling



① Return the drill.
② Approach the drill to the Ⓐ part.
③ Stop drilling and supplying coolant.
④ Remove the Gun Drill.

Features

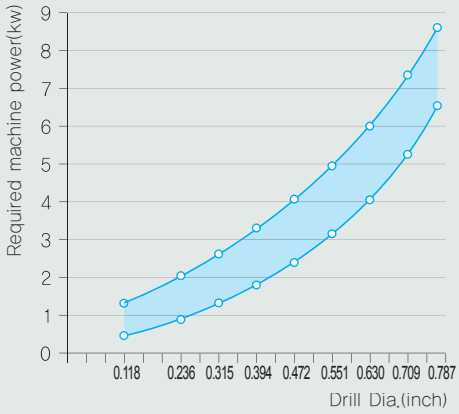
	Single lip type	Twin lip type
Shape		
Drill Dia.	Ø0.079 ~ Ø1.299	Ø6.0 ~ Ø26.5
Depth of drilling	≥ 78.74inch	≥ 39.37inch
Tolerance	IT9	IT10
Surface finish	Ra 0.1 ~ 3.0μm	Ra 1.0 ~ 4.0μm
Application	- For all workpieces machining.	- For good chip evacuation. - Higher feed rate than single lip type machining.

Recommended cutting condition

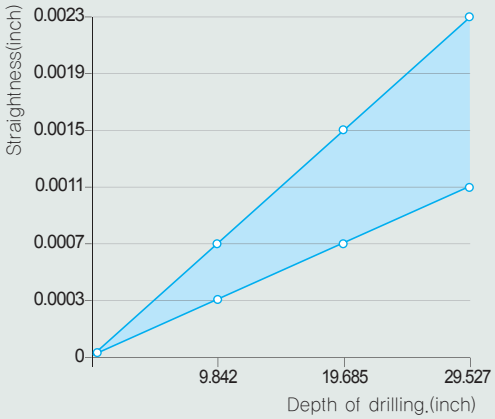
Workpiece	Hardness (HB)	vc (sfm)	fn(ipr)					
			~ Ø0.156	Ø0.157 ~ Ø0.235	Ø0.236 ~ Ø0.412	Ø0.413 ~ Ø0.550	Ø0.551 ~ Ø0.944	Ø0.945 ~
Carbon steel Alloy steel	~ 150	330 ~ 490	0.0002 ~ 0.0006	0.0004 ~ 0.0010	0.0006 ~ 0.0014	0.0008 ~ 0.0020	0.0012 ~ 0.0028	0.0016 ~ 0.0031
	150 ~ 250	260 ~ 395	0.0002 ~ 0.0004	0.0006 ~ 0.0008	0.0006 ~ 0.0012	0.0008 ~ 0.0016	0.0012 ~ 0.0024	0.0012 ~ 0.0024
	250 ~ 350	165 ~ 330	0.0002 ~ 0.0004	0.0002 ~ 0.0004	0.0004 ~ 0.0008	0.0006 ~ 0.0012	0.0008 ~ 0.0016	0.0008 ~ 0.0016
	350 ~	~ 100	-	0.0002 ~ 0.0004	0.0002 ~ 0.0004	0.0004 ~ 0.0008	0.0008 ~ 0.0014	0.0008 ~ 0.0014
Stainless steel	~ 250	165 ~ 260	0.0002 ~ 0.0006	0.0004 ~ 0.0008	0.0004 ~ 0.0008	0.0004 ~ 0.0012	0.0008 ~ 0.0014	0.0008 ~ 0.0016
	250 ~ 350	130 ~ 165	-	0.0002 ~ 0.0006	0.0004 ~ 0.0006	0.0004 ~ 0.0008	0.0004 ~ 0.0008	0.0004 ~ 0.0008
Cast iron	~ 220	260 ~ 330	0.0004 ~ 0.0005	0.0008 ~ 0.0016	0.0012 ~ 0.0020	0.0016 ~ 0.0031	0.0031 ~ 0.0047	0.0004 ~ 0.0059
	220 ~	130 ~ 260	0.0002 ~ 0.0004	0.0002 ~ 0.0006	0.0004 ~ 0.0008	0.0006 ~ 0.0012	0.0008 ~ 0.0020	0.0010 ~ 0.0028
Aluminum	-	590 ~ 820	0.0004 ~ 0.0008	0.0008 ~ 0.0016	0.0012 ~ 0.0024	0.0016 ~ 0.0031	0.0039 ~ 0.0071	0.0059 ~ 0.0079
Light alloy	-	395 ~ 655	0.0002 ~ 0.0004	0.0004 ~ 0.0008	0.0008 ~ 0.0010	0.0008 ~ 0.0012	0.0001 ~ 0.0016	0.0016 ~ 0.0024

Technical information

● Required machine power

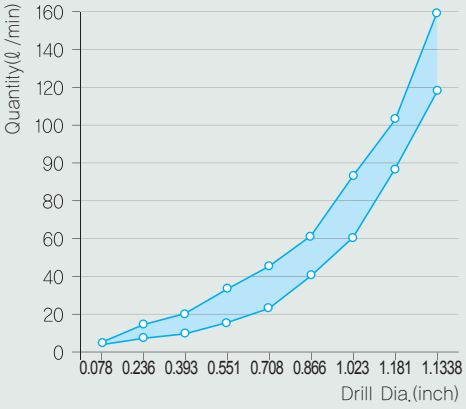


● Straightness

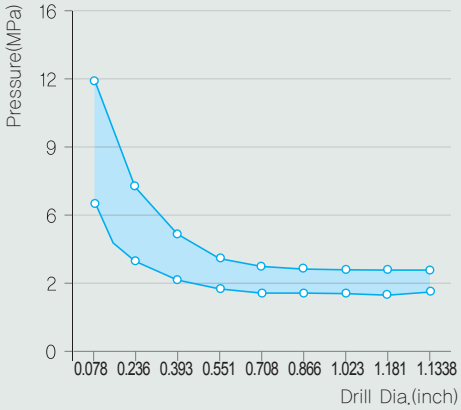


These factors determine the straightness of hole.
- Drill diameter and depth of drilling
- Cutting condition and the kind of application
- Quality of meterial
- Type of workpiece and machine
- Drill bush

● Quantity of coolant



● Pressure of coolant



The above graph shows general information but it may be changed depending on the type of tool, cutting conditions, and other factors.

• Pressure and quantity of coolant.
  - High pressure of coolant ensures excellent chip evacuation and cooling of the cutting edge.

• Use a filter for removing impurities.
  - Should be less than 20㎛. Impurities could make the flow of coolant bad, wear on the tool, and high load on the cooling pump.

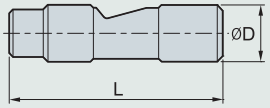
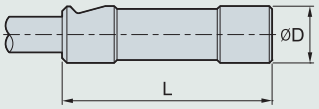
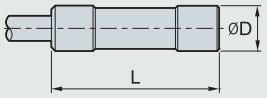
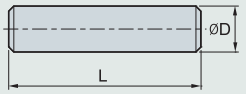
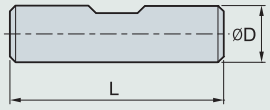
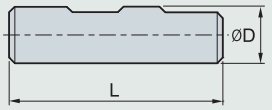
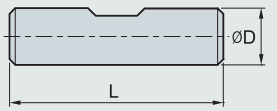
• Temperature of coolant.
  - Proper temperature of coolant : 20 ~ 22°C
  - Do not use coolant above 50°C.

Trouble shooting

Factors and solutions		Tooling failure														
		Drill										Hole				
		Short tool life	Buil-up edge	Chipping	Fracture	Wear on flank	Wear on margine	Wear on margin	Fracture of pad	Bended shank	Heat on drill	Smaller diameter	Bigger diameter	Bad straightness	Bad surface finish	Scratch
Coolant	Lack of oil pressure	●	●		●				●	●	●	●				
	Too much oil pressure												●	●	●	
	High temperature	●				●	●	●	●		●	●				
	Lack of coolant	●	●		●				●	●	●	●	●	●		●
Feed	Unsafe	●	●	●	●					●		●		●		
	High feed	●	●		●	●				●	●	●	●	●		●
	Low feed	●	●	●										●		
No. revolution	Too high	●			●	●	●	●	●	●	●					
	Too low		●									●				
Wear	Wear on cutting edge	●	●	●	●		●							●		●
	Wear on central insert	●							●	●		●	●			●
	Wear on peripheral insert	●	●				●			●		●				●
	Wear on body	●			●		●		●	●	●		●		●	●
Built-up edge	Built-up edge	●			●		●					●	●			
Chip evacuation	Bad chip evacuation	●			●	●		●	●	●		●	●	●		●
Shape of drill	Narrow flute	●		●		●		●	●		●			●		●
	Improper drill shape	●	●		●		●	●	●	●		●	●	●		●
	Improper point angle	●	●	●	●	●	●			●		●	●	●	●	
	Short uncoated head	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Back touch	●			●	●		●	●	●	●	●	●	●	●	●
Bush	Bigger than drill	●			●								●	●		●
	Gap between workpiece and bush	●			●	●						●	●	●		●
	Small bush	●			●	●		●	●	●					●	●
Clamping	Unsafe				●			●					●	●	●	●
Workpiece	Structure	●	●	●	●		●		●					●		●
	Wrong centering	●			●	●		●	●	●			●	●		●
	Contraction due to heat	●			●		●		●		●	●				●
	Thin plate machining	●			●									●	●	●
	Small diameter hole making	●			●	●		●	●		●	●				
Chattering	Too much chattering	●	●	●	●		●		●	●		●	●	●		●
	Chattering in reverse revolution	●	●	●	●		●		●	●		●	●			●

Size of driver

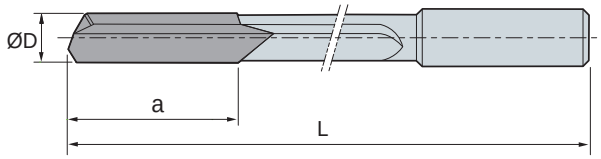
(inch)

Types	Shape	No.	ØD×L		Uncoated type	
			ØD × L	Thread	Tipped	Solid
Central Clamping Surface 15˚		D01	0.394 x 1.57		●	●
		D02	0.630 x 1.77		●	
		D03	0.750 x 2.75		●	
		D04	0.984 x 2.76		●	
		D05	1.000 x 2.75		●	
Central Clamping Surface 15˚		D06	0.630 x 1.97		●	
Central Clamping Tapered		D07	0.500 x 1.50		●	●
		D08	0.630 x 2.76			
		D09	0.750 x 2.75		●	
		D10	0.787 x 2.76			
Cylindrical DIN1835A DIN6535HA		D11	0.157 x 1.10		●	●
		D12	0.236 x 1.42		●	●
		D13	0.394 x 1.57		●	●
		D14	0.630 x 1.89		●	●
		D15	0.787 x 1.97		●	
		D16	0.984 x 2.20		●	
Weldon DIN1835B		D17	0.394 x 1.57		●	●
		D18	0.472 x 1.77		●	●
		D19	0.630 x 1.89		●	●
		D20	0.787 x 1.97		●	●
Weldon DIN6535HB		D21	0.984 x 2.20		●	
		D22	1.260 x 2.36		●	
		D23	1.575 x 2.76			
Whistle Notch DIN1835E		D24	0.394 x 1.57		●	●
		D25	0.472 x 1.77		●	●
		D26	0.630 x 1.89		●	●
		D27	0.787 x 1.97		●	●
		D28	0.984 x 2.20		●	
		D29	1.260 x 2.36		●	
Whistle Notch DIN6535HE		D30	0.394 x 1.57		●	●
		D31	0.472 x 1.77		●	●
		D32	0.630 x 1.89		●	●
		D33	0.787 x 1.97		●	●

Gun Drill-KGDSA(Single lip type)

GUN DRILL

Designation	discription
O.OOO	Diameter
□□□□	Length
D△△	Driver code no.



(inch)

Designation		ØD	a
KGDSA	O.OOO-□□□□/D△△	0.079 ~ 0.097	0.7
	O.OOO-□□□□/D△△	0.098 ~ 0.117	0.7
	O.OOO-□□□□/D△△	0.118 ~ 0.137	0.8
	O.OOO-□□□□/D△△	0.138 ~ 0.156	0.8
	O.OOO-□□□□/D△△	0.157 ~ 0.176	0.9
	O.OOO-□□□□/D△△	0.177 ~ 0.196	0.9
	O.OOO-□□□□/D△△	0.197 ~ 0.216	0.9
	O.OOO-□□□□/D△△	0.127 ~ 0.235	1.0
	O.OOO-□□□□/D△△	0.236 ~ 0.255	1.1
	O.OOO-□□□□/D△△	0.256 ~ 0.275	1.1
	O.OOO-□□□□/D△△	0.276 ~ 0.294	1.1
	O.OOO-□□□□/D△△	0.295 ~ 0.314	1.2
	O.OOO-□□□□/D△△	0.315 ~ 0.334	1.2
	O.OOO-□□□□/D△△	0.335 ~ 0.353	1.2
	O.OOO-□□□□/D△△	0.354 ~ 0.373	1.2
	O.OOO-□□□□/D△△	0.374 ~ 0.383	1.2
	O.OOO-□□□□/D△△	0.384 ~ 0.412	1.2
	O.OOO-□□□□/D△△	0.413 ~ 0.432	1.3
	O.OOO-□□□□/D△△	0.433 ~ 0.452	1.4
	O.OOO-□□□□/D△△	0.453 ~ 0.471	1.4
	O.OOO-□□□□/D△△	0.472 ~ 0.491	1.5

(inch)

Designation		ØD	a
KGDSA	O.OOO-□□□□/D△△	0.492 ~ 0.511	1.5
	O.OOO-□□□□/D△△	0.512 ~ 0.550	1.5
	O.OOO-□□□□/D△△	0.551 ~ 0.590	1.5
	O.OOO-□□□□/D△△	0.591 ~ 0.599	1.5
	O.OOO-□□□□/D△△	0.630 ~ 0.668	1.5
	O.OOO-□□□□/D△△	0.669 ~ 0.708	1.6
	O.OOO-□□□□/D△△	0.709 ~ 0.747	1.6
	O.OOO-□□□□/D△△	0.748 ~ 0.786	1.6
	O.OOO-□□□□/D△△	0.787 ~ 0.826	1.7
	O.OOO-□□□□/D△△	0.827 ~ 0.865	1.8
	O.OOO-□□□□/D△△	0.866 ~ 0.905	1.9
	O.OOO-□□□□/D△△	0.906 ~ 0.944	2.0
	O.OOO-□□□□/D△△	0.945 ~ 0.983	2.1
	O.OOO-□□□□/D△△	0.984 ~ 1.023	2.1
	O.OOO-□□□□/D△△	1.024 ~ 1.062	2.1
	O.OOO-□□□□/D△△	1.063 ~ 1.101	2.1
	O.OOO-□□□□/D△△	1.102 ~ 1.141	2.1
	O.OOO-□□□□/D△△	1.142 ~ 1.180	2.2
	O.OOO-□□□□/D△△	1.181 ~ 1.219	2.3
	O.OOO-□□□□/D△△	1.220 ~ 1.259	2.4
	O.OOO-□□□□/D△△	1.260 ~ 1.299	2.4

∗ When ordering, specify overall length and driver number.

Overall length(L)

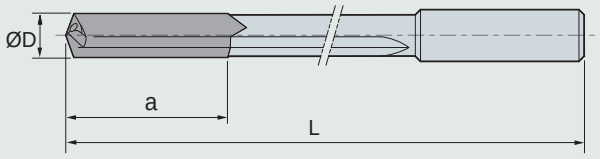
(inch)

Designation	Drill Dia.	Overall length				
		9.84	19.69	39.37	59.06	78.74
KGDSA	0.079 ~ 0.117	○	○			
	0.118 ~ 0.137	○	○	○		
	0.138 ~ 1.299	○	○	○	○	○

Gun Drill-KGDTA(Twin lip type)

GUN DRILL

Designation	discription
O.OOO	Diameter
□□□□	Length
D△△	Driver code no.



(inch)

Designation		ØD	a
KGDTA	O.OOO-□□□□/D△△	0.236 ~ 0.255	1.4
	O.OOO-□□□□/D△△	0.256 ~ 0.275	1.4
	O.OOO-□□□□/D△△	0.276 ~ 0.294	1.5
	O.OOO-□□□□/D△△	0.295 ~ 0.314	1.5
	O.OOO-□□□□/D△△	0.315 ~ 0.334	1.5
	O.OOO-□□□□/D△△	0.335 ~ 0.353	1.5
	O.OOO-□□□□/D△△	0.354 ~ 0.373	1.6
	O.OOO-□□□□/D△△	0.374 ~ 0.393	1.6
	O.OOO-□□□□/D△△	0.394 ~ 0.412	1.6
	O.OOO-□□□□/D△△	0.413 ~ 0.432	1.6
	O.OOO-□□□□/D△△	0.433 ~ 0.452	1.8
	O.OOO-□□□□/D△△	0.453 ~ 0.471	1.8
	O.OOO-□□□□/D△△	0.472 ~ 0.491	1.8
	O.OOO-□□□□/D△△	0.492 ~ 0.511	1.9

(inch)

Designation		ØD	a
KGDTA	O.OOO-□□□□/D△△	0.512~0.550	1.9
	O.OOO-□□□□/D△△	0.551~0.590	1.9
	O.OOO-□□□□/D△△	0.591~0.629	1.9
	O.OOO-□□□□/D△△	0.630~0.668	2.0
	O.OOO-□□□□/D△△	0.669~0.708	2.0
	O.OOO-□□□□/D△△	0.709~0.747	2.0
	O.OOO-□□□□/D△△	0.748~0.786	2.0
	O.OOO-□□□□/D△△	0.787~0.826	2.2
	O.OOO-□□□□/D△△	0.827~0.865	2.2
	O.OOO-□□□□/D△△	0.866~0.905	2.2
	O.OOO-□□□□/D△△	0.906~0.944	2.4
	O.OOO-□□□□/D△△	0.945~0.983	2.4
	O.OOO-□□□□/D△△	0.984~1.023	2.6
	O.OOO-□□□□/D△△	1.024~1.043	2.6

∗ When ordering, specify overall length and driver number.

Overall length(L)

(inch)

Designation	ØD	Overall length				
		9.84	19.69	39.37	59.06	78.74
KGDTA	0.276~1.043	○	○	○		



SCRS/SCRH/TCRS/TMRS
KORLOY
HOLE MAKING
REAMER
PDR
IRT/IRB



INDEXABLE REAMER

INDEXABLE REAMER

Code system

● Holder

IR T A 0625 - 0750 60 -16

Indexable Reamer

Applied method
T : Throughout hole machining
B : Blind hole machining

Type
A : Inch type
No code : Metric type

Tool Dia.
0625 : Ø0.625

Shank Dia.
0750 : Ø0750

Length
60 : 6.0inch

Insert size
15 : 15.0 × 3.0
16 : 16.0 × 3.5
17 : 17.0 × 4.5
22 : 22.0 × 6.5

● Insert

RI 15 - B 06

Reamer Insert

Insert size
15 : 15.0 × 3.0
16 : 16.0 × 3.5
17 : 17.0 × 4.5
22 : 22.0 × 6.5

Insert lead type
A : Excellent surface finish
Low cutting condition
B : General machining
High cutting condition
C : Aluminum and copper alloy
D : Blind hole, Low feed

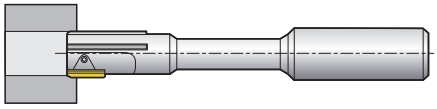
Angle of C/B
00 : 0°, Cast iron machining
06 : 6°, General steel
12 : 12°, Stainless and aluminum

Features

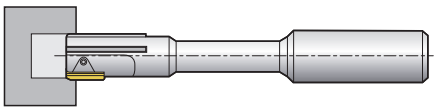
- Suitable for mass production and High performance.
- PCD or coated insert as high speed machining.
- Excellent high accuracy and adjustable machining hole.
- Accurate chucking system.(Hydraulic, Rotating type arbor)
- Inner coolant type machine to evacuate chips.
- Suitable holder and insert.
- Insert setting, using setting fixture.(KIRSD-210)

Applications

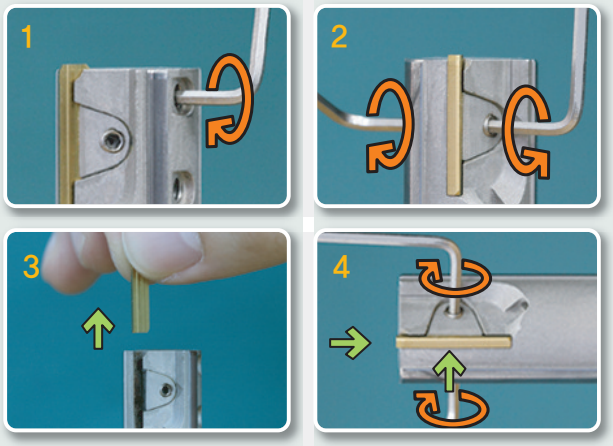
● Throughout hole machining(IRTA)



● Blind hole machining(IRBA)



How to set an insert



1. Screw the wedge screw counter clockwise with the exclusive wrench.
2. Screw the clamp screw.
   ① Top side : Counter clockwise
   ② Lower side : Clockwise
3. Remove the insert and clean the pocket.
4. Put the insert up to the edge stopper and clamp the insert.
   ① Top side : Clockwise
   ② Lower side : Counter clockwise

Exclusive fixture



- Designation : KIRSD-210
- Maximum diameter of reamer : Ø2.36 x 8.27inch
- The fixture is also available for setting special reamer and mono tool.
- Special reamers(Out of maximum setting range) are available quotation.

How to set an insert with a fixture



1. Adjust the gauge to '0'.
2. Rotate the reamer until the insert touches the gauge.
3. Rotate the reamer until the insert touches the gauge.
   ① Top side of insert : +0.0059 ~ +0.0078inch
   ② Bottom side of insert : +0.0019 ~ +0.0039inch
   ③ Back taper : 0.0039 ~ 0.0059inch

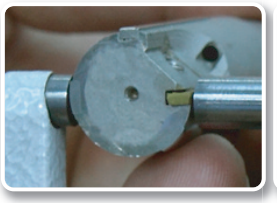
Back Taper

- Ensures low cutting load and excellent surface finish with good chip evacuation.
- Inaccurate back taper could cause unstable machining with the wear of an insert.
- The size of back taper of the insert's bottom side should be less than 0.0039 ~ 0.0059inch to one of the insert's top side.

Insert setting with a micrometer

- Lathe with both centers or Bench center are also available.

∗Notice - The setting with a micrometer is not recommended due to chipping on the cutting edge.





Recommended cutting condition

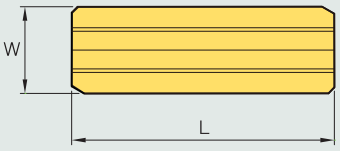
Workpiece	Type of insert		fn(ipr)	vc(sfm)		
	Angle of C/B	Lead type		Coated	Uncoated	Cermet
Carbon steel General steel	6	A	0.004 ~ 0.016	197 ~ 262	131 ~ 197	361 ~ 525
		B	0.004 ~ 0.012	262 ~ 394	197 ~ 262	
		D	0.002 ~ 0.008			
Soft steel Alloy steel	6	A	0.004 ~ 0.016	131 ~ 197	66 ~ 131	361 ~ 525
		B	0.004 ~ 0.012	262 ~ 394	197 ~ 262	
		D	0.002 ~ 0.008			
High alloy steel Tool steel	6	A	0.004 ~ 0.016	66 ~ 197	66 ~ 131	66 ~ 197
		B	0.004 ~ 0.012	131 ~ 262	131 ~ 197	131 ~ 262
		D	0.002 ~ 0.008			
Stainless steel	12	A	0.004 ~ 0.012	131 ~ 197	66 ~ 131	131 ~ 197
		B	0.004 ~ 0.008	197 ~ 262	66 ~ 131	197 ~ 262
		D	0.002 ~ 0.008			
Cast iron	6	A	0.004 ~ 0.012	197 ~ 328	131 ~ 197	-
		B	0.004 ~ 0.010	262 ~ 394	197 ~ 262	
		D	0.002 ~ 0.008			
Aluminum	12	B	0.004 ~ 0.012	-	525 ~ 626	-
		C	0.006 ~ 0.012		492 ~ 820	
		D	0.002 ~ 0.008		361 ~ 656	
Copper alloy	0	B	0.004 ~ 0.008	-	262 ~ 328	-
		D	0.002 ~ 0.008			
Non-ferrous metal	0	B	0.004 ~ 0.012	-	33 ~ 230	-

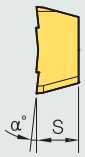
Parts

Range of diameter	Clamp	Adjusting wedge	Clamp screw	Wedge screw	Clamp wrench	Wedge wrench
10.0 ~ 11.9	CV15	AW2430	DHA0308	HSO306	HW15L	HW15L
12.0 ~ 17.9	CV16	AW2435				
18.0 ~ 27.9	CV17	AW3240	DHA0409	HS0406	HW20L	HW20L
28.0 ~ 31.9	CV22	AW3260				

Insert







(inch)

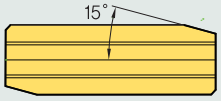
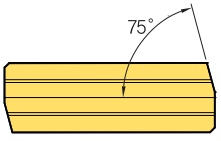
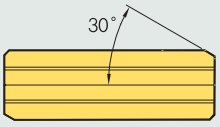
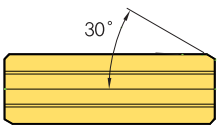
Designation		Grade			Dimensions			Reed type	Rake angle (α°)
		K10 (Uncoated)	BPK110 (TiAℓN)	BPK210 (TiN)	L	W	S		
RI	15-A06			○	0.591	0.118	0.059	A	6°
	15-A12	○			0.591	0.118	0.059	A	12°
	15-B06		○	○	0.591	0.118	0.059	B	6°
	15-B12		○		0.591	0.118	0.059	B	12°
	16-A06			○	0.630	0.138	0.059	A	6°
	16-A12	○			0.630	0.138	0.059	A	12°
	16-B06		○	○	0.630	0.138	0.059	B	6°
	16-B12		○		0.630	0.138	0.059	B	12°
	17-A06			○	0.669	0.177	0.079	A	6°
	17-A12	○			0.669	0.177	0.079	A	12°
	17-B06		○	○	0.669	0.177	0.079	B	6°
	17-B12		○		0.669	0.177	0.079	B	12°
	22-A06			○	0.866	0.256	0.118	A	6°
	22-A12	○			0.866	0.256	0.118	A	12°
	22-B06		○	○	0.866	0.256	0.118	B	6°
	22-B12		○		0.866	0.256	0.118	B	12°

∗O : Recommended grade

Angle of chip breaker

	00	06	12
Shape			
Application	For cast iron machining	For general machining	For stainless and aluminum machining

Insert lead type

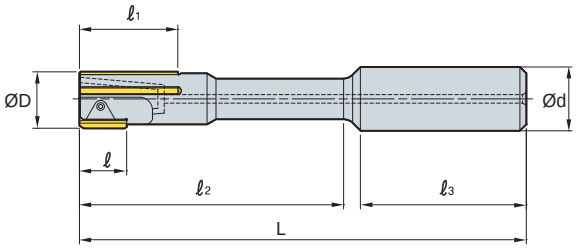
Type	Shape	Application	Type	Shape	Application
A		For excellent surface, low cutting condition	C		For aluminum and copper alloy machining
B		For general application, high cutting condition	D		For blind hole machining, low feed

REAMER

Indexable Reamer-IRTA(Throughout hole)

INDEXABLE REAMER





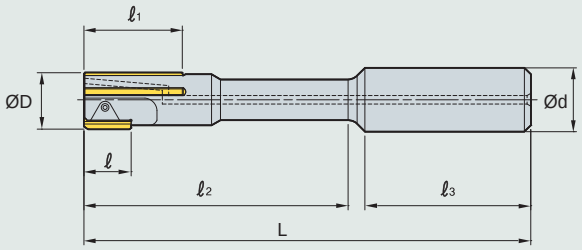
(inch)

Designation	ØD	ℓ	ℓ1	ℓ2	ℓ3	L	Ød	Insert
IRTA 0375-062550-15	0.375	0.591	1.2	3.0	1.8	5.0	0.625	RI 15
0500-062553-16	0.500	0.630	1.2	3.3	1.8	5.5	0.625	RI 16
0625-075061-16	0.625	0.630	1.2	4.0	4.0	6.0	0.750	RI 16
0750-075061-17	0.750	0.669	1.2	4.0	4.0	6.0	0.750	RI 17
0875-100065-17	0.875	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
1000-100065-17	1.000	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
1125-125065-22	1.125	0.816	1.2	4.3	4.3	6.5	1.250	RI 22
1250-125065-22	1.250	0.816	1.2	4.3	4.3	6.5	1.250	RI 22

Indexable Reamer-IRBA(Stuffed hole)

INDEXABLE REAMER





(inch)

Designation		ØD	ℓ	ℓ1	ℓ2	ℓ3	L	Ød	Insert
IRBA	0375-062550-15	0.375	0.591	1.2	3.0	1.8	5.0	0.625	RI 15
	0500-062553-16	0.500	0.630	1.2	3.3	1.8	5.5	0.625	RI 16
	0625-075061-16	0.625	0.630	1.2	4.0	4.0	6.0	0.750	RI 16
	0750-075061-17	0.750	0.669	1.2	4.0	4.0	6.0	0.750	RI 17
	0875-100065-17	0.875	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
	1000-100065-17	1.000	0.669	1.2	4.3	4.3	6.5	1.000	RI 17
	1125-125065-22	1.125	0.816	1.2	4.3	4.3	6.5	1.250	RI 22
	1250-125065-22	1.250	0.816	1.2	4.3	4.3	6.5	1.250	RI 22



CHUCKING/MACHINE REAMER

CHUCKING / MACHINE REAMER

Recommended cutting condition

(mm)

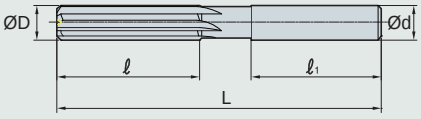
Workpiece	Hardness	Cutting condition	Reamer Dia.		
			~ Ø9	Ø10 ~ 25	Ø26 ~ 60
Steel	~ 100	vc(m/min)	8.00 ~ 12.00	8.00 ~ 12.00	8.00 ~ 12.00
		fn(mm/rev)	0.15 ~ 0.25	0.20 ~ 0.40	0.3 0~ 0.50
	100 ~ 140	vc(m/min)	5.00 ~ 10.00	5.00 ~ 10.00	5.00 ~ 10.00
		fn(mm/rev)	0.10 ~ 0.20	0.15 ~ 0.25	0.20 ~ 0.40
Cast iron	~ 220	vc(m/min)	6.00 ~ 12.00	6.00 ~ 12.00	8.00 ~ 15.00
		fn(mm/rev)	0.15 ~ 0.30	0.30 ~ 0.50	0.40 ~ 0.80
	220 ~	vc(m/min)	5.00 ~ 10.00	5.00 ~ 10.00	8.00 ~ 12.00
		fn(mm/rev)	0.10 ~ 0.20	0.20 ~ 0.35	0.30 ~ 0.50
Brass	50 ~ 120	vc(m/min)	8.00 ~ 12.00	10.00 ~ 15.00	10.00 ~ 15.00
		fn(mm/rev)	0.10 ~ 0.15	0.15 ~ 0.25	0.25 ~ 0.40
Bronze	60 ~ 100	vc(m/min)	8.00 ~ 12.00	10.00 ~ 15.00	10.00 ~ 15.00
		fn(mm/rev)	0.10 ~ 0.15	0.15 ~ 0.25	0.25 ~ 0.40
Aluminum alloy	90 ~ 120	vc(m/min)	15.00 ~ 25.00	15.00 ~ 25.00	20.00 ~ 30.00
		fn(mm/rev)	0.15 ~ 0.25	0.25 ~ 0.40	0.40 ~ 0.70
Synthetic resins	-	vc(m/min)	15.00 ~ 30.00	20.00 ~ 35.00	30.00 ~ 40.00
		fn(mm/rev)	0.15 ~ 0.25	0.25 ~ 0.40	0.40 ~ 0.50

M This is metric size. We can also provide in inch type.

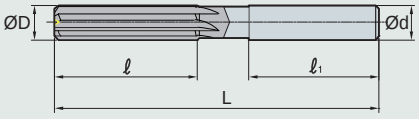
Chucking Reamer-SCRS

CHUCKING REAMER





[Fig.1]



[Fig.2]

(mm)

Designation		Tooth	ØD	Ød	ℓ	ℓ1	L	Fig.
SCRS	050S	4	5.0	6.0	20	40	100	1
	060S	4	6.0	6.0	20	40	115	1
	070S	4	7.0	8.0	20	40	125	1
	080S	4	8.0	8.0	20	40	135	1
	090S	4	9.0	10.0	20	45	140	1
	100B	4	10.0	10.0	25	50	145	2
	110B	4	11.0	12.0	25	50	150	2
	120B	4	12.0	12.0	25	50	160	2
	130B	4	13.0	16.0	25	50	165	2
	140B	6	14.0	16.0	25	50	170	2
	150B	6	15.0	16.0	30	50	180	2
	160B	6	16.0	16.0	30	50	190	2
	180B	6	18.0	20.0	30	55	210	2
	200B	6	20.0	20.0	40	60	230	2

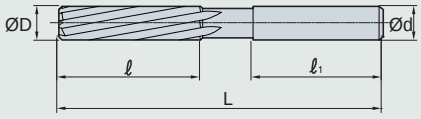
M This is metric size. We can also provide in inch type.

REAMER

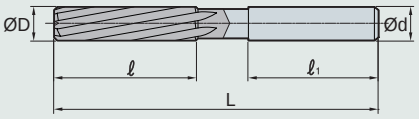
Chucking Reamer-SCRH

CHUCKING REAMER





[Fig.1]



[Fig.2]

(mm)

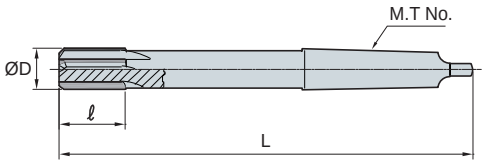
Designation		Tooth	ØD	Ød	ℓ	ℓ1	L	Fig.
SCRH	050S	4	5.0	6.0	20	40	100	1
	060S	4	6.0	6.0	20	40	115	1
	070S	4	7.0	8.0	20	40	125	1
	080S	4	8.0	8.0	20	40	135	1
	090S	4	9.0	10.0	20	45	140	1
	100B	4	10.0	10.0	25	50	145	2
	110B	4	11.0	12.0	25	50	150	2
	120B	4	12.0	12.0	25	50	160	2
	130B	4	13.0	16.0	25	50	165	2
	140B	6	14.0	16.0	25	50	170	2
	150B	6	15.0	16.0	30	50	180	2
	160B	6	16.0	16.0	30	50	190	2
	180B	6	18.0	20.0	30	55	210	2
	200B	6	20.0	20.0	40	60	230	2

M This is metric size. We can also provide in inch type.

Chucking Reamer-TCRS

CHUCKING REAMER





(mm)

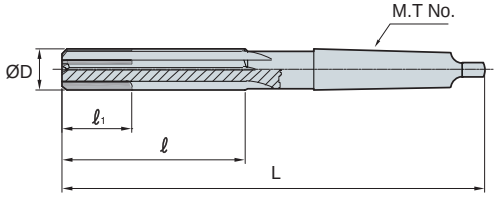
Designation	Tooth	ØD	ℓ	L	M.T No.
TCRS 070	4	7.0	20	150	1
080	4	8.0	20	150	1
090	4	9.0	20	160	1
100	4	10.0	25	160	1
110	4	11.0	25	170	1
120	4	12.0	25	170	1
130	4	13.0	25	180	1
140	6	14.0	25	190	1
150	6	15.0	30	200	2
160	6	16.0	30	200	2
180	6	18.0	30	220	2
200	6	20.0	40	230	2
250	6	25.0	40	260	3
280	8	28.0	40	270	3
300	8	30.0	50	290	3

M This is metric size. We can also provide in inch type.

Machine Reamer-TMRS

MACHINE REAMER

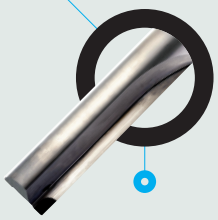




(mm)

Designation	Tooth	ØD	ℓ	ℓ1	L	M.T No.
TMRS 070	4	7.0	60	60	150	1
080	4	8.0	70	70	150	1
090	4	9.0	70	70	160	1
100	4	10.0	75	75	170	1
110	4	11.0	75	75	170	1
120	4	12.0	80	40	180	1
130	4	13.0	85	40	190	1
140	6	14.0	90	45	210	1
150	6	15.0	90	45	215	2
160	6	16.0	100	50	220	2
180	6	18.0	105	50	225	2
200	6	20.0	120	50	240	2
250	6	25.0	130	50	270	3
280	8	28.0	140	50	280	3
300	8	30.0	150	50	290	3

M This is metric size. We can also provide in inch type.



PCD REAMER

POLY CRYSTALINE DIAMOND REAMER

Code system

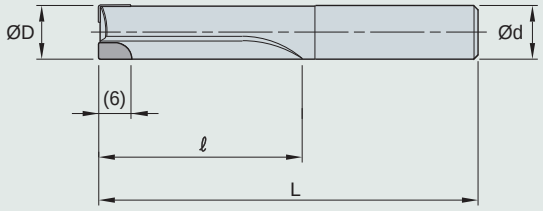
PDR A 2 03750

PCD Reamer	Type	Tooth	Diameter
	A : Inch type No code : Metric type	2 : 2flute	03750 : Ø0.3750

Recommended cutting condition

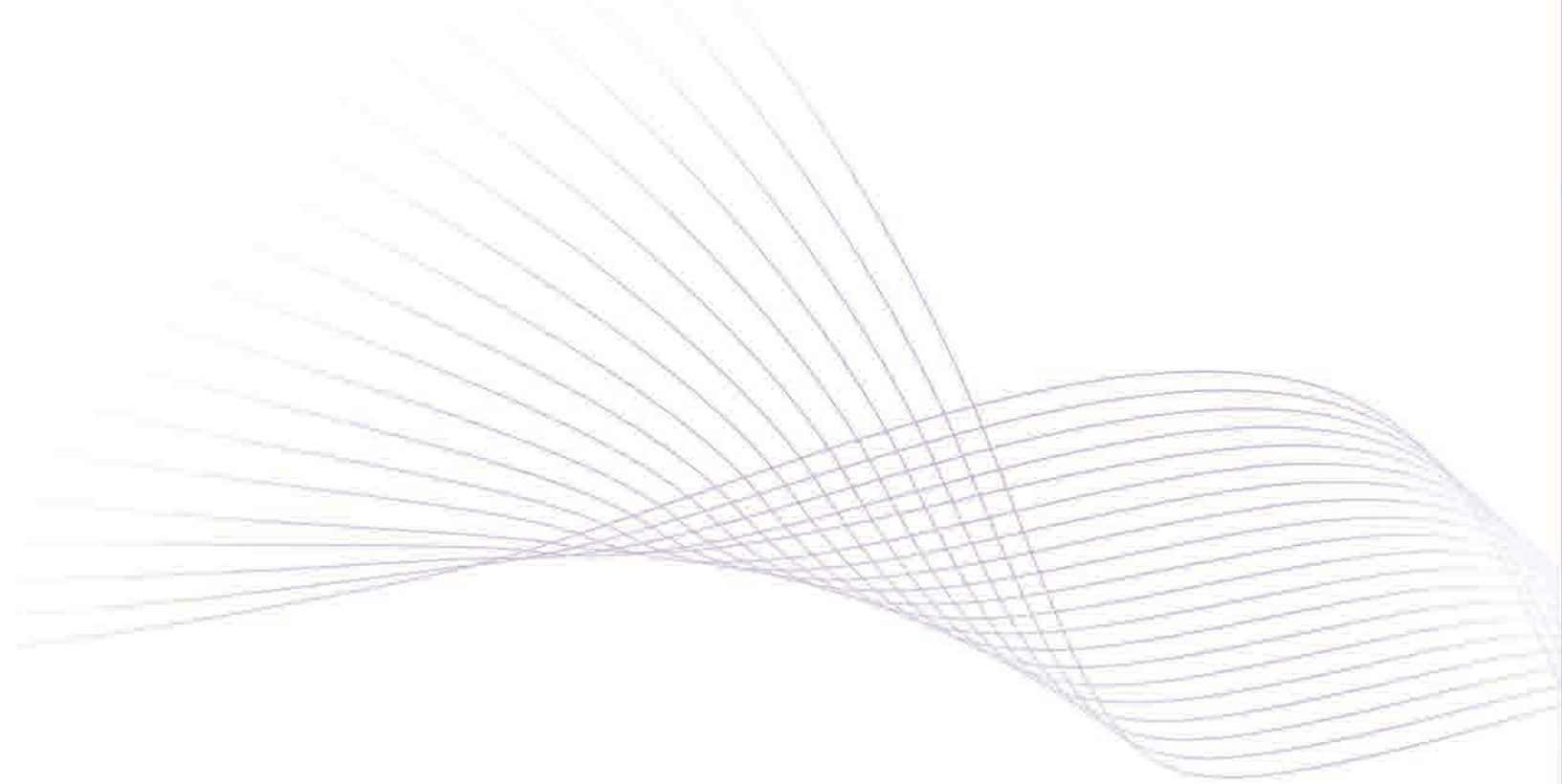
Workpiece	vc(sfm)	fn(ipr)
Aluminum alloy	165 ~ 820	0.002 ~ 0.008

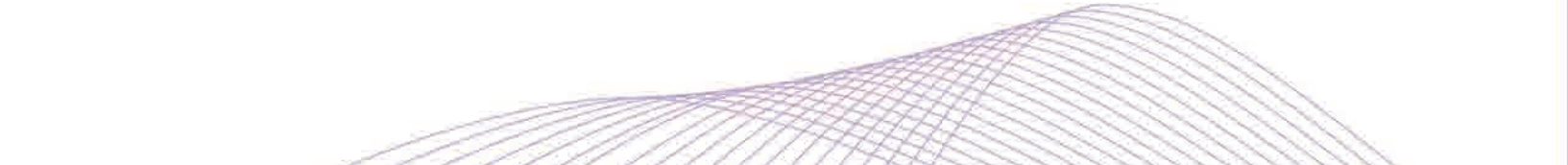




(inch)

Workpiece		Tooth	ØD	Ød	ℓ	L
PDRA	202187	2	0.2187	0.2500	1.5	3.0
	202500	2	0.2500	0.2500	1.5	3.0
	203125	2	0.3125	0.3750	1.5	3.0
	203750	2	0.3750	0.3750	1.5	3.5
	205000	2	0.5000	0.5000	2.0	4.0
	205625	2	0.5625	0.6250	2.0	4.0
	406250	4	0.6250	0.6250	2.0	4.0
	406875	4	0.6875	0.7500	2.5	4.5
	407500	4	0.7500	0.7500	2.5	4.5







FINE BORING TOOL

KORLOY

HOLE MAKING

BORING TOOL

SEMI/FINISHING BORING TOOL

ROUGH BORING TOOL



BORING TOOL

BORING TOOL

Rough Boring Tool





Semi/Finishing Boring Tool







Fine Boring Tool

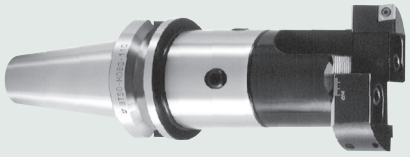


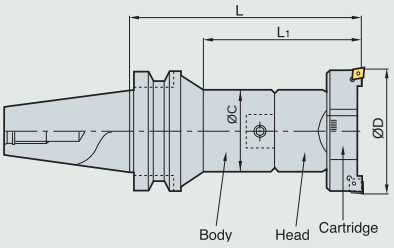


M This is metric size. We can also provide in inch type.

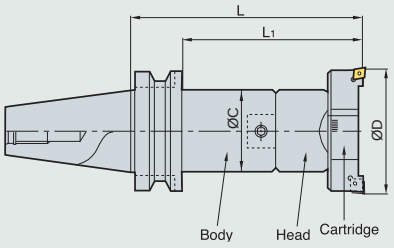
Balance cut tool(Modular type) BT-DBC

MAS403-BT





[Fig. 1]



[Fig. 2]

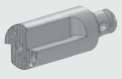
Separate stock management for body & head set.

(mm)

Designation		Boring range ØD min	Boring range ØD max	L	Boring depth L1	ØC	Body (Basic holder)	Head set (Head+Cartridge)	Insert	kg	Fig.
BT40-DBC	28-165	28	35	165	100	25	BT40-MD25F-105R	BCH-28SF	CCMT0602□□	1.7	1
	35-180	35	46	180	110	32	-MD32F-115R	-35S	CCMT0602□□	1.9	1
	46-180	46	58	180	130	40	-MD40F-110R	-46S	CCMT09T3□□	2.6	1
	58-180	58	74	180	130	50	-MD50F-100R	-58S	CCMT09T3□□	3.8	1
	74-180	74	94	180	150	63	-MD63F- 90	-74S	CCMT1204□□	5.8	2
	94-200	94	120	200	173	80	-MD80F- 100	-94S	CCMT1204□□	7.5	2
BT50-DBC	28-180	28	35	180	100	25	BT50-MD25F-120R	BCH-28SF	CCMT0602□□	4.5	1
	35-180	35	46	180	110	32	-MD32F-115R	-35S	CCMT0602□□	4.8	1
	-300	35	46	300	180	32	-MD32F-235R	-35S	CCMT0602□□	5.4	1
	46-195	46	58	195	130	40	-MD40F-125R	-46S	CCMT09T3□□	5.6	1
	-300	46	58	300	250	40	-MD40F-230R	-46S	CCMT09T3□□	6.7	1
	58-240	58	74	240	140	50	-MD50F-160R	-58S	CCMT09T3□□	7.2	1
	-330	58	74	330	280	50	-MD50F-250R	-58S	CCMT09T3□□	8.6	1
	74-230	74	94	230	160	63	-MD63F-140R	-74S	CCMT1204□□	8.8	1
	-330	74	94	330	280	63	-MD63F-240R	-74S	CCMT1204□□	11.0	1
	94-210	94	120	210	170	80	-MD80F- 110	-94S	CCMT1204□□	9.0	2
	-275	94	120	275	225	80	-MD80F- 175	-94S	CCMT1204□□	11.8	2

M This is metric size. We can also provide in inch type.

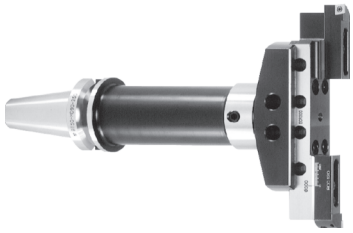
Parts

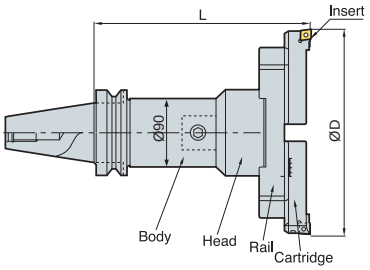
	Spare parts					
	Basic					
	Body	Taper screw	Head	Rail	Cartridge	Wrench
Type						
DBC 28	MD25F	BTT0608F	BCH-28F	-	BCC28	LW-3
35	MD32F	BTT0810F	BCH-35	-	BCC35	LW-4
46	MD40F	BTT1013F	BCH-46	-	BCC46	LW-5
58	MD50F	BTT1215F	BCH-58	-	BCC58	LW-5
74	MD63F	BTT1620F	BCH-74	-	BCC74	LW-6
94	MD80F	BTT1631F	BCH-94	-	BCC94	LW-8

M This is metric size. We can also provide in inch type.

Balance cut tool(Modular type) BT-DBC

MAS403-BT





Separate stock management for body & head set.

(mm)

Designation		Boring range ØD		L	Body (Basic holder)	Head set (Head+Cartridge)	Insert	kg
		min	max					
BT50-DBC120	**-210**	120	175	210	BT50-MD80F-110	BCH-120NS	CCMT1204□□	10.3
	-275	120	175	275	-MD80F-175	[BCH120N+BCC120]	CCMT1204□□	13.0

∗Ordering ex.)BT50-DBC120-175 Ordering
- Body : BT50-MD80F-75
- Head Set : BCH-120NS

M This is metric size. We can also provide in inch type.

BORING TOOL

Parts

	Spare parts				
	Basic				
	Body	Taper screw	Head(Solid type)	Cartridge	Wrench
Type					
DBC120	MD80F	BTT1631F	BCH-120N	BCC120	LW-8

M This is metric size. We can also provide in inch type.

Balance cut tool(Modular type) BT-DBC

MAS403-BT

Insert for DBC

Insert	Grade	Workpiece	Cutting
CCMT0620□□	Coated : NC3120	Steel, Alloy steel, Cast iron	General ~
	Coated : NC6110	Steel, Alloy steel	General ~
	Coated : PC8110, PC5300, NC9025	Stainless steel	General ~
	Cermet : CN1000, CN2000	Steel, Cast iron	Finishing ~ General
CCGT0602□□	Coated : NC3120	Steel, Alloy steel	General ~
	W.C : H01	Cast iron	Finishing ~ General
	Cermet : CN1000, CN2000	Stainless steel	Finishing ~ General
CCMT09T3□□	Coated : NC3120	Stainless steel	General ~
	Coated : NC6110	Steel, Alloy steel, Cast iron	General ~
	Coated : PC8110, PC5300, NC9025	Steel, Cast iron	General ~
	Cermet : CN1000, CN2000	Steel, Alloy steel	Finishing ~ General
CCGT09T3□□	Coated : PC8110, PC5300, NC9025	Aluminum	General ~
	W.C : H01	Steel, Alloy Steel, Cast iron	Finishing ~ General
	Cermet : CN1000, CN2000	Steel, Alloy Steel	Finishing ~ General
CCMT1204□□	Coated : NC3120	Cast iron	General ~
	Coated : NC6110	Stainless steel	General ~
	Coated : PC8110, PC5300, NC9025	Steel, Cast iron	General ~
	Cermet : CN1000, CN2000	Steel, Alloy steel	Finishing ~ General
CCGT1204□□	W.C : H01	Cast iron	Finishing ~ General

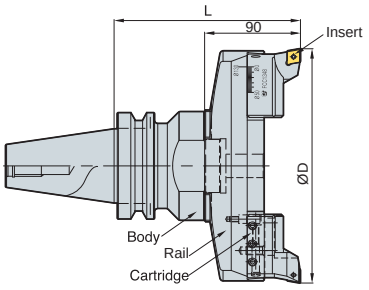
∗Insert of grade and C/B can be chosen according to various working method.
∗Please distinguish cartridge for CNMG1204□□ and for CCMT1204□□.

M This is metric size. We can also provide in inch type.

Balance cut tool for rough boring(Wide diameter) BT-TBC

MAS403-BT





Separate stock management for body & head set. (mm)

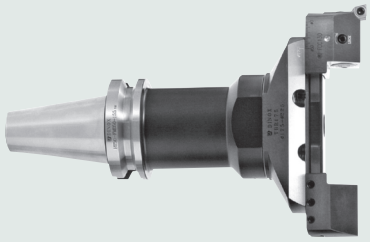
Designation	Boring range ØD		L	Body	Head set (Head + Cartridge)	Insert	kg
	min	max					
BT50-TBC 130 -175	130	180	175	BT50-FMD50- 85	TBC-130S (TBR130 + BCC1348)	CCMT1204□□	9.8
245	130	180	245	155			11.8
295	130	180	295	205			13.6
345	130	180	345	255			14.3
BT50-TBC 175 -175	175	225	175	BT50-FMD50- 85	TBC-175S (TBR175 + BCC1348)	CCMT1204□□	10.8
245	175	225	245	155			12.8
295	175	225	295	205			14.6
345	175	225	345	255			15.3
BT50-TBC 220 -175	220	270	175	BT50-FMD50- 85	TBC-220S (TBR220+BCC1348)	CCMT1204□□	11.7
245	220	270	245	155			13.7
295	220	270	295	205			15.5
345	220	270	345	255			16.2
BT50-TBC 265 -175	265	315	175	BT50-FMD50- 85	TBC-265S (TBR265+BCC1348)	CCMT1204□□	13.2
245	265	315	245	155			15.2
295	265	315	295	205			17.1
345	265	315	345	255			17.8
BT50-TBC 310 -175	310	390	175	BT50-FMD50- 85	TBC-310S (TBR310+BCC1354)	CCMT1204□□	14.5
245	310	390	245	155			16.5
295	310	390	295	205			18.4
345	310	390	345	255			19.1
BT50-TBC 385 -175	385	465	175	BT50-FMD50- 85	TBC-385S (TBR385+BCC1354)	CCMT1204□□	16.4
245	385	465	245	155			18.4
295	385	465	295	205			20.3
345	385	465	345	255			21.0
BT50-TBC 460 -175	460	540	175	BT50-FMD50- 85	TBC-460S (TBR460+BCC1354)	CCMT1204□□	18.9
245	460	540	245	155			20.9
295	460	540	295	205			22.8
345	460	540	345	255			23.5

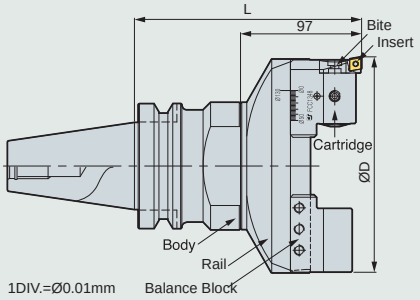
∗Cartridge set for CCMT1204□□ can be ordered.
∗Ordering ex.)BT50-TBC130-245
- Body : BT50-FMD50-155
- Head set : TBC-130S

M This is metric size. We can also provide in inch type.

Balance cut tool for finish boring(Wide diameter) BT-FBC

MAS403-BT





Separate stock management for body & head set.

(mm)

Designation		Boring range ØD min	Boring range ØD max	L	Body	Micro boring head	Bite	kg
BT50-FBC130-	182	130	180	182	BT50-FMD50- 85	FBC130S (TBR130+FCC130+FCB130)	FBB130-C09 (CC□T09T3□□) FBB130-C12 (CCMT1204□□) FBB130-T11 (TPMT1103□□, TPGT1103□□L)	10.4
	252	130	180	252	155			12.4
	302	130	180	302	205			14.2
	352	130	180	352	255			14.9
BT50-FBC175 -	182	175	225	182	BT50-FMD50- 85	FBC175S (TBR175+FCC130+FCB130)		11.4
	252	175	225	252	155			13.4
	302	175	225	302	205			15.2
	352	175	225	352	255			15.9
BT50-FBC220-	182	220	270	182	BT50-FMD50- 85	FBC220S (TBR220+FCC130+FCB130)		12.3
	252	220	270	252	155			14.3
	302	220	270	302	205			16.1
	352	220	270	352	255			16.8
BT50-FBC265-	182	265	315	182	BT50-FMD50- 85	FBC265S (TBR265+FCC130+FCB130)		13.8
	252	265	315	252	155			15.8
	302	265	315	302	205			17.6
	352	265	315	352	255			18.3
BT50-FBC310-	182	310	390	182	BT50-FMD50- 85	FBC310S (TBR310+FCC130+FCB130)		15.0
	252	310	390	252	155			17.0
	302	310	390	302	205			19.0
	352	310	390	352	255			19.7
BT50-FBC385-	182	385	465	182	BT50-FMD50- 85	FBC385S (TBR385+FCC130+FCB130)		17.0
	252	385	465	252	155			19.0
	302	385	465	302	205			20.8
	352	385	465	352	255			21.5
BT50-FBC460-	182	460	540	182	BT50-FMD50- 85	FBC460S (TBR460+FCC130+FCB130)		19.5
	252	460	540	252	155			21.5
	302	460	540	302	205			23.3
	352	460	540	352	255			24.0

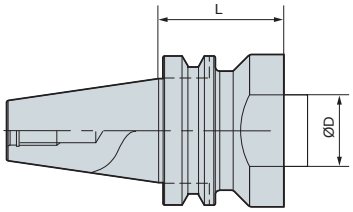
∗ When you use FBB130-C12 Bite, minimum boring range enlarged by Ø6.7mm.

∗ Ordering ex.)BT50-FBC130-252Set
- Body : BT50-FMD50-155
- HeadSet : FBC-130S
- Bite : FBB130-T11

M This is metric size. We can also provide in inch type.

Body(Basic holder) BT-FMD





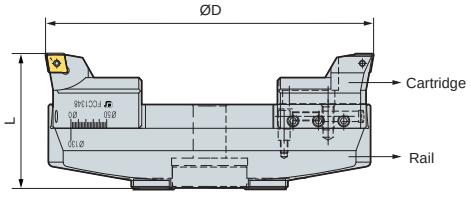
(mm)

Designation		L	ØC	kg
BT50-	FMD50- 85	85	50	5.9
	FMD50-155	155	50	7.9
	FMD50-205	205	50	9.7
	FMD50-255	255	50	10.4

M This is metric size. We can also provide in inch type.

Head set TBC





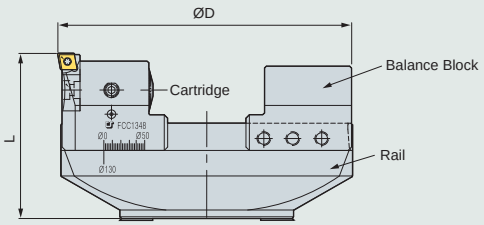
(mm)

Designation		Boring range ØD min	Boring range ØD max	L	kg	Cartridge	Insert
TBC	130S	130	180	90	5.0	BCC1348	CC□T1204□□
						BCN1348	CN□G1204□□
	175S	175	225	90	6.0	BCC1348	CC□T1204□□
						BCN1348	CN□G1204□□
	220S	220	270	90	6.9	BCC1348	CC□T1204□□
						BCN1348	CN□G1204□□
	265S	265	315	90	7.9	BCC1348	CC□T1204□□
						BCN1348	CN□G1204□□
	310S	310	390	90	9.3	BCC1354	CC□T1204□□
						BCN1354	CN□G1204□□
	385S	385	465	90	11.4	BCC1354	CC□T1204□□
						BCN1354	CN□G1204□□
	460S	460	540	90	13.6	BCC1354	CC□T1204□□
						BCN1354	CN□G1204□□

M This is metric size. We can also provide in inch type.

Head Set FBC





(mm)

Designation		Boring Range ØD min	Boring Range ØD max	L	kg	Bite
FBC	-130S	130	180	97	4.1	FBB130-C09 FBB130-C12 FBB130-T11
	-175S	175	225	97	5.1	
	-220S	220	270	97	6.0	
	-265S	265	315	97	7.0	
	-310S	310	390	97	8.0	
	-385S	385	465	97	10.1	
	-460S	460	540	97	12.3	

M This is metric size. We can also provide in inch type.

FBB Bite

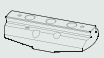


(mm)

Designation		Insert
FBB	130-C09	CCGT09T3□□
	130-C12	CCMT09T3□□, CCMT1204□□
	130-T11	TPGT1103□□, TPMT1103□□

Parts

(mm)

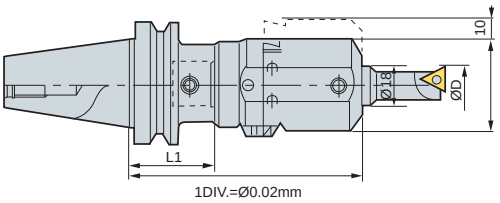
	Spare parts								
	Basic								
	Rail	Cartridge	Cartridge	Clamp bolt	Clamp bolt	Balance block	Wrench	Clamp screw	Wrench
Head set									
TBC-130S	TBR130	BCC1348	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
175S	TBR175	BCC1348	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
220S	TBR220	BCC1348	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
265S	TBR265	BCC1348	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
310S	TBR310	BCC1354	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
385S	TBR385	BCC1354	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
460S	TBR460	BCC1354	-	BX0820	BT0814	-	LW-4	BFTX0511N	TW20
FBC-130S	TBR130	-	FCC130	-	BT0814	FCB130	LW-4	BT0630	-
175S	TBR175	-	FCC130	-	BT0814	FCB130	LW-4	BT0630	-
220S	TBR220	-	FCC130	-	BT0814	FCB130	LW-4	BT0630	-
265S	TBR265	-	FCC130	-	BT0814	FCB130	LW-4	BT0630	-
310S	TBR310	-	FCC310	-	BT0814	FCB310	LW-4	BT0630	-
385S	TBR385	-	FCC310	-	BT0814	FCB310	LW-4	BT0630	-
460S	TBR460	-	FCC310	-	BT0814	FCB310	LW-4	BT0630	-

M This is metric size. We can also provide in inch type.

Small micro boring bar BT-SMB

MAS403-BT





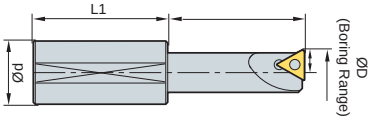
(mm)

Designation	L	L_1	Body (Basic holder)	Head	Boring bite	kg
BT40-SMB	122.5	60	BT40-MD40F-60	SMB4022	BB18-□S	2.8
BT50-SMB	122.5	60	BT50-MD40F-60	SMB4022	BB18-□S	5.4

∗Finish cutting modular type micro boring bar best suiting small size hole.
∗Boring range(BB18 Boring bite) : Ø8.0 ~ Ø38.0mm
∗Adjustable length : 10m
∗Basic holders can be chucking : HSK, BT, SK, NT50/40, MT6, Straight shank

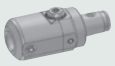
M This is metric size. We can also provide in inch type.

Boring bite : BB type(For SMB)



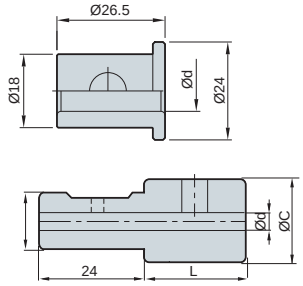
(mm)

Designation		Boring range ØD min	Boring range ØD max	S	Ød	L_1	L_2	Insert	Insert screw
BB	**18-7S**	8	28	3.5	18	30	30	TBGT0601□□L	BFTX0204A
	18-9S	10	30	4.5	18	30	40	TPGT0802□□L	BFTX0204A
	18-11S	12	32	5.5	18	30	45	TPGT1103□□L	BFTX0307A
	18-13S	14	34	6.5	18	40	45	TPGT1103□□L	BFTX0307A
	18-15S	16	36	7.5	18	40	50	TPGT1103□□L	BFTX0307A
	18-17S	18	38	8.5	18	40	50	TPGT1103□□L	BFTX0307A

	Spare parts				
	Basic				Option
	Body	Boring head	Taper screw	Wrench	Boring bite
Type					
SMB	MD40F	SMB4022	BTT1013F	LW-5	BB18

M This is metric size. We can also provide in inch type.

Clamping sleeve



(mm)

Designation		Ød
CSL	**4**	4
	5	5
	6	6
	7	7
	8	8
	10	10
	12	12

(mm)

Designation		Ød	ØC	L
LCSL	**5**	5	18	18
	6	6	18	18
	7	7	18	18
	8	8	22	22
	10	10	25	25
	12	12	25	30

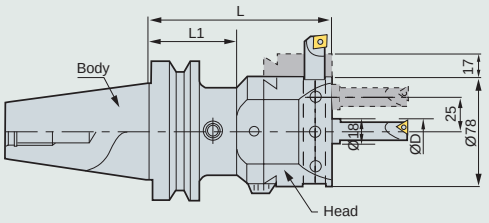
∗Special size can be ordered.

M This is metric size. We can also provide in inch type.

Micro boring bar BT-KMB

MAS403-BT





1DIV.=Ø0.02mm (mm)

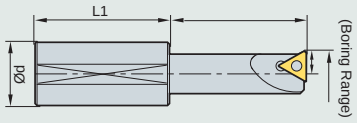
Designation	L	L_1	Body (Basic holder)	Head	Boring bite	kg
BT40-KMB	141	64	BT40-MD63F-64	KMB6336	BB18-□S	5.5
BT50-KMB	152	75	BT50-MD63F-75	KMB6336	BB18-□S	7.0

∗Finish cutting modular type micro boring bar best suiting small ~ medium size hole.
∗Boring range(BB18 Boring bite) : Ø8.0 ~ Ø101.0mm
∗Adjustable length : 17mm
∗Basic holders can be chucking : HSK, BT, SK, NT50/40, MT6, Straight shank

M This is metric size. We can also provide in inch type.

Boring bite : BB type(KMB)

(mm)

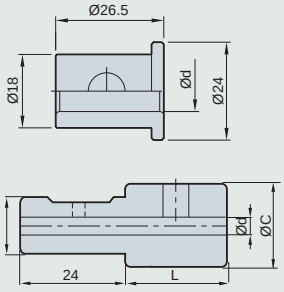


Designation	Boring range ØD				S	Ød	L_1	L_2	Insert	Insert screw
	Center		Eccentric							
BB 18-7S	8	41	43	91	3.5	18	30	30	TBGT0601□□L	BFTX0204A
18-9S	10	43	45	93	4.5	18	30	40	TPGT0802□□L	BFTX0204A
18-11S	12	45	47	95	5.5	18	30	45	TPGT1103□□L	BFTX0307A
18-13S	14	47	49	97	6.5	18	40	45	TPGT1103□□L	BFTX0307A
18-15S	16	49	51	99	7.5	18	40	50	TPGT1103□□L	BFTX0307A
18-17S	18	51	53	101	8.5	18	40	50	TPGT1103□□L	BFTX0307A

Spare parts					
	Basic				Option
	Body	Boring head	Taper screw	Wrench	Boring bite
Type					
KMB	MD63F	KMB6336	BTT1620F	LW-8	BB18

M This is metric size. We can also provide in inch type.

Clamping sleeve



(mm)

Designation	Ød
CSK 4K	4
5K	5
6K	6
7K	7
8K	8
10K	10
12K	12

Designation	Ød	ØC	L
LCSL 5K	5	18	18
6K	6	18	18
7K	7	18	18
8K	8	22	22
10K	10	25	25
12K	12	25	30

∗Special size can be ordered.

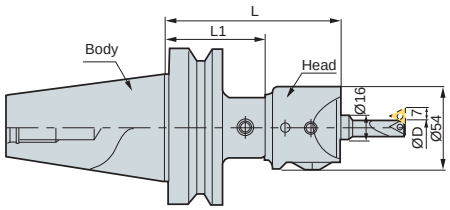
M This is metric size. We can also provide in inch type.

BORING TOOL

Small micro boring bar(For high precision) BT-SMH

MAS403-BT





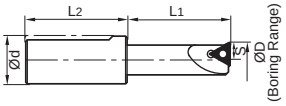
(mm)

Designation	L	L_1	Body (Basic holder)	Head	Boring bite	kg
BT40-SMH	109	60	BT40-MD40F-60	SMH4022	BB16-□S	3.0
BT50-SMH	109	60	BT50-MD40F-60	SMH4022	BB16-□S	6.0

∗Finish cutting modular type micro boring bar best suiting small size hole.
∗Boring range : Ø6.0 ~ Ø34.0mm
∗Adjustable length : 7mm
∗Basic holders can be chucking : HSK, BT, SK, NT50/40, MT6, Straight shank

M This is metric size. We can also provide in inch type.

Boring bite type



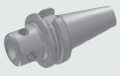
(mm)

Designation	Boring range ØD min	Boring range ØD max	S	Ød	L_1	L_2	Insert	Insert screw	Wrench
BB 16-5S	6	20	2.75	16	34	20	WBGT0601□□L	BFTX0203A	TW06
16-7S	8	22	3.5	16	34	30	TBGT0601□□L	BFTX0204A	TW06
16-9S	10	24	4.5	16	34	40	TPGT0802□□L	BFTX0204A	TW06
16-11S	12	26	5.5	16	34	45	TPGT1103□□L	BFTX0307A	TW10
16-15S	16	30	7.5	16	34	50	TPGT1103□□L	BFTX0307A	TW10
16-19S	20	34	9.5	16	34	60	TPGT1604□□L	BFTX0410A	TW15

∗Carbide shank and other special sizes can be ordered.
∗cBN and PCD Inserts can be ordered.

M This is metric size. We can also provide in inch type.

Parts

	Spare parts				
	Basic				Option
	Body	Boring head	Taper screw	Wrench	Boring bite
Type					
SMH	MD40F	SMH4022	BTT1013F	LW-5	BB16

M This is metric size. We can also provide in inch type.

Micro boring bar FBH

1DIV.=Ø0.01mm
Boring range : Ø15.0mm ~ Ø172.0mm

Features

- Fine adjustment available, one graduation on the scale is Ø0.01mm
- Compact design and intensive function can meet H6, H7 tolerance.
- Wide Boring range, Min. diameter : 15.0mm, Max. diameter : 172.0mm
- It can be applicable for various kinds of basic holders.
- Through coolant type is standard.



1 Micro boring bar with steel/carbide shank.

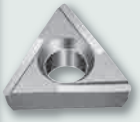
2 Modular type micro boring bar with steel /carbide shank.







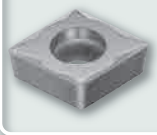
● Insert



TPGT0802□□L
TPGW0802□□
TPGT1103□□L



CCET0301□□L
CCET0401□□L



CCGT0602□□L
CCMT0602□□
CCMT09T3□□



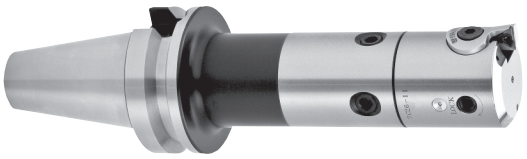
Bite
FBB □□
FBB □□
FBB □□N-1

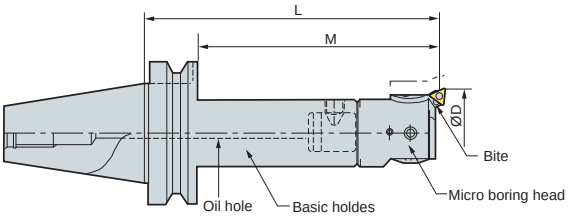


M This is metric size. We can also provide in inch type.

Micro boring bar(For high precision) BT-FBH

MAS403-BT





1DIV.=Ø0.01mm

(mm)

Designation		Boring range ØD min	Boring range ØD max	L	Max. Boring depth M	Body (Basic holder)	Micro boring head	Bite	kg
BT30-	FBH20-103	20	26(30)	103	77	BT30-MD19F-70	FBH1920N	FBB20N,FBB20N-C	0.53
	FBH26-127	26	34(40)	127	101	-MD25F-90	FBH2526N	FBB26N,FBB26N-C	0.7
	FBH33-121	33	43(50)	121	95	-MD32F-80	FBH3233N	FBB33N,FBB33N-C	0.82
	FBH42-127	42	54(62)	127	101	-MD40F-80	FBH4042N	FBB42N,FBB42N-C,FBB42N-11	1.1
	FBH53-127	53	70(82)	127	101	-MD50F-70	FBH5053N	FBB53N,FBB53N-C,FBB53N-11	1.7
BT40-	FBH20-103	20	26(30)	103	72	BT40-MD19F-70	FBH1920N	FBB20N,FBB20N-C	1.9
	FBH26-133	26	34(40)	133	100	-MD25F-95	FBH2526N	FBB26N,FBB26N-C	2.0
	FBH33-141	33	43(50)	141	110	-MD32F-100	FBH3233N	FBB33N,FBB33N-C	2.5
	FBH42-162	42	54(62)	162	130	-MD40F-115	FBH4042N	FBB42N,FBB42N-C,FBB42N-11	3.1
	FBH53-162	53	70(82)	162	130	-MD50F-105	FBH5053N	FBB53N,FBB53N-C,FBB53N-11	3.5
	FBH68-181	68	100(122)	181	150	-MD63F-110	FBH6368N	FBB68N,FBB68N-C,FBB68N-11	6.3
	FBH98-206	98	150(172)	206	173	-MD63F-135	FBH6398N	FBB68N,FBB68N-C,FBB68N-11	7.1
BT50-	FBH20-118	20	25(30)	118	76	BT50-MD19F-85	FBH1920N	FBB20N,FBB20N-C	5.2
	FBH26-142	26	34(40)	142	100	-MD25F-105	FBH2526N	FBB26N,FBB26N-C	5.8
	FBH33-151	33	43(50)	151	109	-MD32F-110	FBH3233N	FBB33N,FBB33N-C	6.0
	FBH42-192	42	54(62)	192	150	-MD40F-145	FBH4042N	FBB42N,FBB42N-C,FBB42N-11	6.3
	-242	42	54(62)	242	200	-MD40F-195	FBH4042N	FBB42N,FBB42N-C,FBB42N-11	6.6
	FBH53-182	53	70(82)	182	140	-MD50F-125	FBH5053N	FBB53N,FBB53N-C,FBB53N-11	6.9
	-282	53	70(82)	282	240	-MD50F-225	FBH5053N	FBB53N,FBB53N-C,FBB53N-11	7.2
	FBH68-201	68	100(122)	201	159	-MD63F-130	FBH6368N	FBB68N,FBB68N-C,FBB68N-11	8.1
	-301	68	100(122)	301	260	-MD63F-230	FBH6368N	FBB68N,FBB68N-C,FBB68N-11	8.5
	FBH98-211	98	150(172)	211	169	-MD63F-140	FBH6398N	FBB68N,FBB68N-C,FBB68N-11	8.9
	-265	98	150(172)	265	224	-MD63F-195	FBH6398N	FBB68N,FBB68N-C,FBB68N-11	9.4

∗Stock item basic holder, head, bite separately.
∗( ) : Extension type max.boring Dia.
∗Fine adjustment available, one graduation on the scale is Ø0.01mm Compact design and intensive function can meet H6, H7 tolerance.
∗Wide boring range : Min. diameter : Ø20.0mm / Max. diameter : Ø172.0mm
∗It can be applicable for various kinds of basic holders.
∗Oil hole type is standard.

∗Ordering ex.)BT30-FBH20-103
Basic holder : BT30-MD19F-70
Micro boring head: FBH1920N
Bite : FBB20N
∗N : New type

Code system

BT50 - FBH 33 - 151

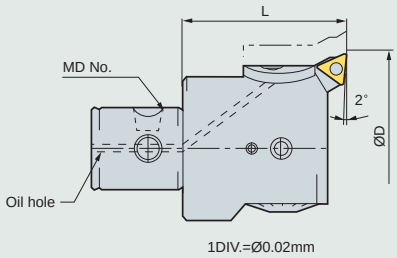
Spindle — Head No. — Length

M This is metric size. We can also provide in inch type.

Micro boring head FBH

MAS403-BT





(mm)

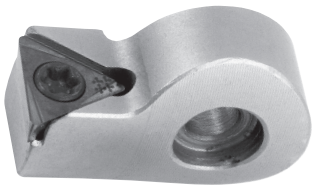
Designation		Boring range ØD		L	Scale ring 1rev. adjustable range	MD no.	kg
		min	max				
FBH	1920N	20	26(30)	33	Ø0.4mm	MD1911	0.06
	2526N	26	34(40)	37.5	Ø0.4mm	MD2514	0.12
	3233N	33	43(50)	41	Ø0.5mm	MD3218	0.24
	4042N	42	54(62)	47	Ø0.5mm	MD4022	0.41
	5053N	53	70(82)	57	Ø0.6mm	MD5028	0.80
	6368N	68	100(122)	71	Ø0.8mm	MD6336	1.70
	6398N	98	150(172)	71	Ø0.8mm	MD6336	2.35

∗Designation is separately for basic holder, head bite.
∗( ) : Extension type Max.boring Dia.

M This is metric size. We can also provide in inch type.

BORING TOOL

FBB Bite(New type)



(mm)

Designation	Insert	Boring range ØD	Clamp bolt	Micro boring head
FBB 20N	TPGT0802□□L, TPGW0802□□	Ø20 ~ 26Ømm	BXC0304	FBH1920N
20N-C	CCET0401□□L	Ø20 ~ 26Ømm	BXC0304	FBH1920N
20N-1	TPGT0802□□L, TPGW0802□□	Ø24 ~ 30Ømm	BXC0304	FBH1920N
20N-1-C	CCET0401□□L	Ø24 ~ Ø30mm	BXC0304	FBH1920N
26N	TPGT0802□□L, TPGW0802□□	Ø26 ~ Ø34mm	BXC0405	FBH2526N
26N-C	CCET0401□□L	Ø26 ~ Ø34mm	BXC0405	FBH2526N
26N-1	TPGT0802□□L, TPGW0802□□	Ø32 ~ Ø40mm	BXC0405	FBH2526N
26N-1-C	CCET0401□□L	Ø32 ~ Ø40mm	BXC0405	FBH2526N
33N	TPGT0802□□L, TPGW0802□□	Ø33 ~ Ø43mm	BXC0506	FBH3233N
33N-C	CCMT0602□□L, CCGT0602□□L	Ø33 ~ Ø43mm	BXC0506	FBH3233N
33N-1	TPGT0802□□L, TPGW0802□□	Ø41 ~ Ø50mm	BXC0506	FBH3233N
33N-1-C	CCMT0602□□L, CCGT0602□□L	Ø41 ~ Ø50mm	BXC0506	FBH3233N
42N	TPGT0802□□L, TPGW0802□□	Ø42 ~ Ø54mm	BXC0610	FBH4042N
42N-C	CCMT0602□□, CCGT0602□□L	Ø42 ~ Ø54mm	BXC0610	FBH4042N
42N-11	TPGT1103□□L	Ø42 ~ Ø54mm	BXC0610	FBH4042N
42N-1	TPGT0802□□L, TPGW0802□□	Ø50 ~ Ø62mm	BXC0610	FBH4042N
42N-1-C	CCMT0602□□, CCGT0602□□L	Ø50 ~ Ø62mm	BXC0610	FBH4042N
42N-1-T11	TPGT1103□□L	Ø50 ~ Ø62mm	BXC0610	FBH4042N
53N	TPGT0802□□L, TPGW0802□□	Ø53 ~ Ø70mm	BXC0610	FBH5053N
53N-C	CCMT0602□□, CCGT0602□□L	Ø53 ~ Ø70mm	BXC0610	FBH5053N
53N-C09	CCMT09T3□□, CCGT09T3□□L	Ø53 ~ Ø70mm	BXC0610	FBH5053N
53N-11	TPGT1103□□L	Ø53 ~ Ø70mm	BXC0610	FBH5053N
53N-1	TPGT0802□□L, TPGW0802□□	Ø65 ~ Ø82mm	BXC0610	FBH5053N
53N-1-C	CCMT0602□□, CCGT0602□□L	Ø65 ~ Ø82mm	BXC0610	FBH5053N
53N-1-C09	CCMT09T3□□, CCGT09T3□□L	Ø65 ~ Ø82mm	BXC0610	FBH5053N
53N-1-T11	TPGT1103□□L	Ø65 ~ Ø82mm	BXC0610	FBH5053N
68N	TPGT0802□□L, TPGW0802□□	Ø68 ~ Ø100mm, Ø98 ~ Ø150mm	BXC0810	FBH6368N, FBH6398N
68N-C	CCMT09T3□□, CCGT09T3□□L	Ø68 ~ Ø100mm, Ø98 ~ Ø150mm	BXC0810	FBH6368N, FBH6398N
68N-11	TPGT1103□□L	Ø68 ~ Ø100mm, Ø98 ~ Ø150mm	BXC0810	FBH6368N, FBH6398N
68N-1	TPGT0802□□L, TPGW0802□□	Ø90 ~ Ø122mm, Ø120 ~ Ø172mm	BXC0810	FBH6368N, FBH6398N
68N-1-C09	CCMT09T3□□, CCGT09T3□□L	Ø90 ~ Ø122mm, Ø120 ~ Ø172mm	BXC0810	FBH6368N, FBH6398N
68N-1-T11	TPGT1103□□L	Ø90 ~ Ø122mm, Ø120 ~ Ø172mm	BXC0810	FBH6368N, FBH6398N

Code system

FBB 20 N - 1

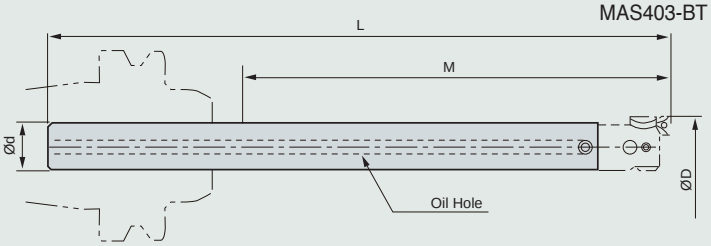
- 20 : Min. Boring dia.
- N : New type
- Non : General type
- 1 : Expansion type

M This is metric size. We can also provide in inch type.

Modular type micro boring bar with carbide/steel shank S-FBH

MAS403-BT





(mm)

Designation		Shank dia. Ød	Boring range ØD		Total length L	Max. Boring depth M	Basic shank	Micro boring head	Bite
			min	max					
S19W-FBH20N	**-120**	19	20	26(30)	190	120	S19W-MD19F-157	FBH1920N	FBB20N
	-140	19	20	26(30)	210	140	-177	FBH1920N	FBB20N
	-160	19	20	26(30)	230	160	-197	FBH1920N	FBB20N
S25W-FBH26N	**-150**	25	26	34(40)	235	150	S25W-MD25F-197.5	FBH2526N	FBB26N
	-175	25	26	34(40)	260	175	-222.5	FBH2526N	FBB26N
	-200	25	26	34(40)	285	200	-247.5	FBH2526N	FBB26N
S32W-FBH33N	**-180**	32	33	43(50)	280	180	S32W-MD32F-239	FBH3233N	FBB33N
	-240	32	33	43(50)	340	240	-299	FBH3233N	FBB33N
S19 -FBH20N	**-40**	19	20	26(30)	110	40	S19-MD19F- 77	FBH1920N	FBB20N
	-60	19	20	26(30)	130	60	- 97	FBH1920N	FBB20N
	-80	19	20	26(30)	150	80	-117	FBH1920N	FBB20N
S25 -FBH26N	**-50**	25	26	34(40)	135	50	S25-MD25F- 97.5	FBH2526N	FBB26N
	-75	25	26	34(40)	160	75	-122.5	FBH2526N	FBB26N
	-100	25	26	34(40)	185	100	-147.5	FBH2526N	FBB26N
S32 -FBH33N	**-90**	32	33	43(50)	190	90	S32-MD32F-149	FBH3233N	FBB33N
	-120	32	33	43(50)	220	120	-179	FBH3233N	FBB33N

∗Boring range : Min. diameter : 20.0mm, Max. diameter : 50.0mm
∗Micro boring head can be exchangeable for other type.
∗Solid carbide shank can be used L/D = 8 times.
∗We have many typed inserts of various grades and chip breakers with sharp edge.
∗Oil hole type is standard.
∗N : New type

M This is metric size. We can also provide in inch type.

Code system

S 19 W - FBH20 - 160

Straight shank	Shank Dia.	None : Steel W : Carbide	Micro Boring head	Max. Boring depth

Insert

Designation	Grade	Application	Screw	Wrench
CCET0401□□L	PC9030	Stainless steel	FTNA0238	TW06P
	CN1000/CN2000	Steel		
	H01	Aluminum, Copper alloy		

M This is metric size. We can also provide in inch type.

Modular type micro boring bar with carbide/steel shank S-FBH

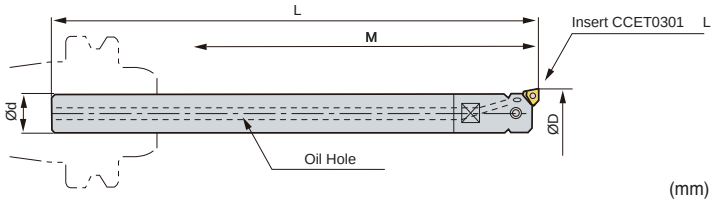
Insert

Designation	Grade	Application	Screw	Wrench
TPGT0802□□L	PCD : DA150	Aluminium, Copper alloy, Semi-sintered carbide, Hard rubber	BFTX0204A	TRX06
TPGW0802□□	Cermet : CN1000	Steel, Cast iron		
	cBN : DBN250	Hardened steel		
TPGT1103□□L	Cermet : CN1000	Steel, Cast iron	BFTX0306A	TRX10
CCGT0602□□L	Coated PC5300, PC8110	Steel, Cast iron, Stainless steel, High temperature alloy	BFTX02506N	TRX08
	Cermet : CN1000	Steel, Cast iron		
CCMT0602□□	Coated : NC3120, NC3030	Steel		
	Cermet : CN1000, CC105	Steel, Cast iron		
CCMT09T3□□	Coated : NC3120, Cermet : CN1000	Steel, Cast iron	BFTX0409N	TRX15

M This is metric size. We can also provide in inch type.

Small micro boring bar with carbide/steel shank





(mm)

Designation		Shank dia Ød	Boring range ØD min	Boring range ØD max	Total length L	Max. boring depth M	Basic shank	Micro boring head	Bite
S14W-FBH15	**-85**	14	15	18	155	85	S14W-M6-123	FBH15	FBB15-C
	-110	14	15	18	180	110	-148	FBH15	FBB15-C
S16W-FBH18	**-95**	16	18	22	165	95	S16W-M8-128	FBH18	FBB15-C
	-125	16	18	22	195	125	-158	FBH18	FBB15-C
S14-FBH15	**-40**	14	15	18	110	40	S14-M6- 78	FBH15	FBB15-C
	-55	14	15	18	125	55	- 93	FBH15	FBB15-C
S16-FBH18	**-45**	16	18	22	115	45	S16-M8- 78	FBH18	FBB15-C
	-60	16	18	22	130	60	- 93	FBH18	FBB15-C

M This is metric size. We can also provide in inch type.

Code system

S 14 W - FBH15 - 110

- S: Straight Shank
- 14: Shank Dia.
- W: None : Steel, W : Carbide
- FBH15: Micro Boring head
- 110: Max. Boring depth

Insert

Designation	Grade	Application	Screw	Wrench
CCET0301□□L	PC9030	Stainless steel	FTNA01633	TW06P
	CN1000/CN2000	Steel		
	H01	Aluminum, Copper alloy		

M This is metric size. We can also provide in inch type.


KORLOY
HOLE MAKING
MODULAR SYSTEM
MODULAR SYSTEM



MODULAR SYSTEM

DBT/HSK
BT/MT/S-MD



EXT



RDC



MD-SDC



MD-SDC



MD-SLA



MD-DBC



MD-SMH



MD-SMB



MD-KMB

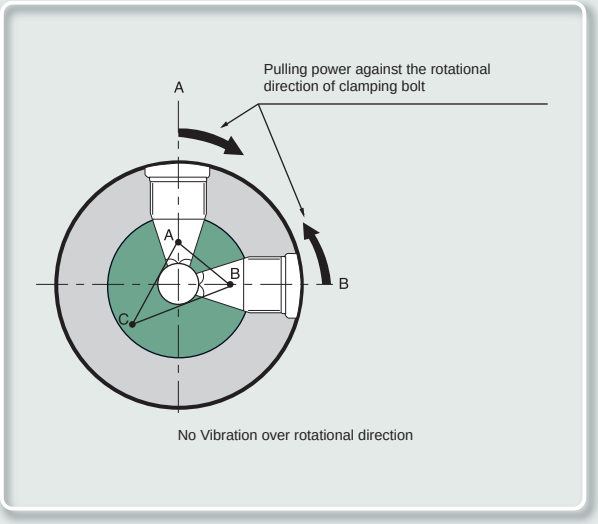


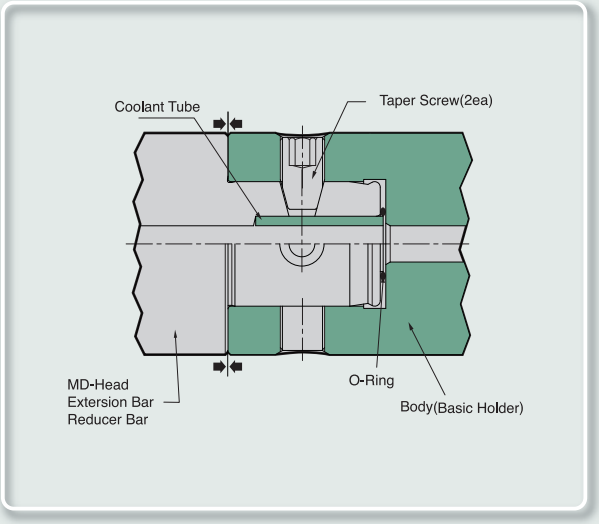
Ⓜ This is metric size. We can also provide in inch type.

Features

- Versatile tooling system meeting FMS specification.
- Flexible combination of tool units according to conditions.
- Specially designed screw provides high accuracy component mating(error less than 5㎛)and ease of detachment for one step setting.
- Cutting edge of boring system aligned with the groove on the drive key.
- Comparable accuracy and stiffness compared to uni-body type.





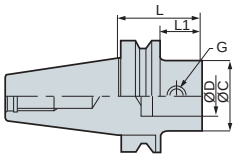


M This is metric size. We can also provide in inch type.

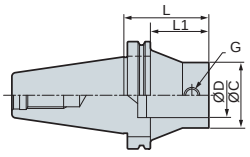
DBT-MD

MAS403-BT

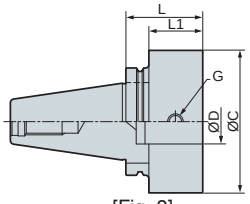




[Fig. 1]



[Fig. 2]



[Fig. 3]

(mm)

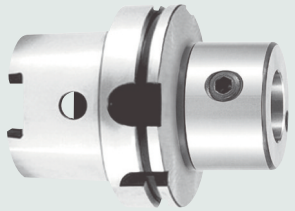
Designation		ØC	ØD	L	L_1	G	kg	Fig.
DBT30-	MD19F-70	19	11	70	48	M5	0.4	1
	MD25F-40	25	14	40	18	M6	0.3	1
	-90	25	14	90	68	M6	0.4	1
	MD32F-40	32	18	40	32	M8	0.4	1
	-80	32	18	80	58	M8	0.4	1
	MD40F-45	40	22	45	23	M10	0.4	1
	-80	40	22	80	58	M10	0.5	1
	MD50F-55	50	28	55	33	M12	0.7	3
	-70	50	28	70	48	M12	0.8	3
DBT40-	MD19F-70	19	11	70	43	M5	1.8	1
	MD25F-45	25	14	45	18	M6	1.7	1
	-95	25	14	95	68	M6	1.9	1
	MD32F-45	32	18	45	18	M8	1.7	1
	-100	32	18	100	73	M8	2.3	1
	MD40F-50	40	22	50	23	M10	2.7	1
	-115	40	22	115	88	M10	2.7	1
	MD50F-60	50	28	60	33	M12	2.3	1
	-105	50	28	105	78	M12	2.7	1
	MD63F-64	63	36	64	37	M16	3.3	3
	-110	63	36	110	83	M16	4.6	3
	MD80F-70	80	45	70	43	M16	4.7	3
	-100	80	45	100	73	M16	4.8	3
DBT50-	MD19F-50	19	11	50	12	M5	4.0	1
	-100	19	11	100	62	M5	4.3	1
	MD25F-55	25	14	55	17	M6	4.3	1
	-105	25	14	105	67	M6	4.5	1
	MD32F-60	32	18	60	22	M8	4.3	1
	-110	32	18	110	72	M8	5.1	1
	-235R	32	18	235	148	M8	5.1	2
	MD40F-60	40	22	60	22	M10	5.0	1
	-145	40	22	145	107	M10	5.1	1
	-230R	40	22	230	192	M10	5.6	2
	MD50F-70	50	28	70	22	M12	5.6	1
	-125	50	28	125	87	M12	6.0	1
	-160R	50	28	160	122	M12	6.2	2
	-250R	50	28	250	212	M12	6.5	2
	MD63F-75	63	36	75	37	M12	6.8	1
	-130	63	36	130	92	M16	6.0	1
	-140R	63	36	140	102	M16	6.0	2
	-240R	63	36	240	202	M16	8.4	2
	MD80F-75	80	45	75	37	M16	9.1	1
	-160	80	45	160	72	M16	9.4	1
	-245	80	45	245	137	M16	9.5	1
	MD90F-75	90	45	75	72	M16	9.8	1
	-160	90	45	160	137	M16	10.2	1
	-245	90	45	245	157	M16	10.4	1

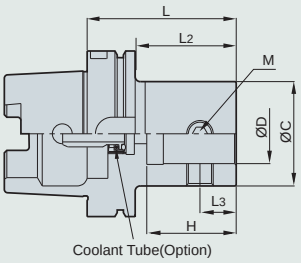
∗Beside above mentioned types, basic holders are also manufactured by customer's order.
∗Select the type in accordance with the machine spindle taper.

M This is metric size. We can also provide in inch type.

HSK-MD

DIN 69893-1, ISO 12164-1 : 2001





(mm)

Designation		ØD	ØC	L	L_1	L_2	L_3	H	K
HSK 50A-	MD19F-60	11	19	60	36	20	6.5	15	M5
	MD25F-60	14	25	60	34	18	8.0	23	M6
	MD32F-70	18	32	70	44	28	11.0	28	M8
	MD40F-75	22	40	75	49	33	13.0	33	M10
	MD50F-95	28	50	95	69	53	17.0	44	M12
HSK 63A-	MD19F-60	11	19	60	36	20	6.5	15	M5
	MD25F-60	14	25	60	34	18	8.0	23	M6
	MD32F-65	18	32	65	39	23	11.0	28	M8
	MD40F-70	22	40	70	44	28	13.0	33	M10
	MD50F-85	28	50	85	59	43	17.0	44	M12
	MD63F-95	36	63	95	69	53	22.0	54	M16
HSK 100A-	MD19F-60	11	19	60	36	20	6.5	15	M5
	MD25F-60	14	25	60	36	20	8.0	23	M6
	MD32F-65	18	32	65	36	20	11.0	28	M8
	MD40F-70	22	40	70	41	25	13.0	33	M10
	MD50F-80	28	50	80	51	35	17.0	44	M12
	MD63F-90	36	63	90	61	45	22.0	54	M16
	MD80F-105	45	80	105	76	60	27.0	65	M16
	MD90F-105	45	90	105	76	60	27.0	65	M16

M This is metric size. We can also provide in inch type.

Parts

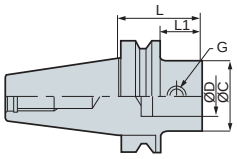
	Spare parts		
	Basic	Option	
	Taper screw	Wrench	
Type			
MD 19F	BTT0506F	LW-2.5	
25F	BTT0608F	LW-3	
32F	BTT0810F	LW-4	
40F	BTT1013F	LW-5	
50F	BTT1215F	LW-6	
63F	BTT1620F	LW-8	
80F	BTT1626F	LW-8	
90F	BTT1631F	LW-8	

M This is metric size. We can also provide in inch type.

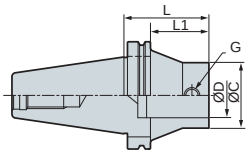
BT-MD

MAS403-BT

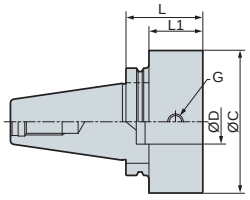




[Fig. 1]



[Fig. 2]



[Fig. 3]

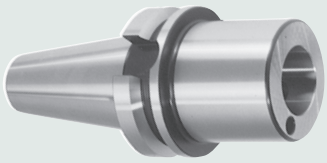
(mm)

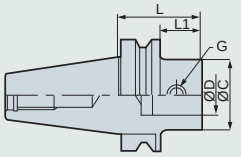
Designation	ØC	ØD	L	L_1	G	kg	Fig.
BT30- MD19F-35	19	11	35	13	M5	0.3	1
-70	19	11	70	48	M5	0.4	1
MD25F-40	25	14	40	18	M6	0.3	1
-90	25	14	90	68	M6	0.4	1
MD32F-54	32	18	54	32	M8	0.4	1
-80	32	18	80	58	M8	0.4	1
MD40F-45	40	22	45	23	M10	0.4	1
-60	40	22	60	38	M10	0.45	1
-80	40	22	80	58	M10	0.5	1
-110	40	22	110	88	M10	0.8	1
MD50F-55	50	28	55	33	M12	0.7	3
-70	50	28	70	48	M12	0.8	3
BT40- MD19F-40	19	11	40	13	M5	1.6	1
-70	19	11	70	43	M5	1.8	1
MD25F-45	25	14	45	18	M6	1.7	1
-95	25	14	95	68	M6	1.9	1
-105R	25	14	105	78	M6	1.9	2
MD32F-45	32	18	45	18	M8	1.7	1
-100	32	18	100	73	M8	2.3	1
-115R	32	18	115	88	M8	2.4	2
MD40F-50	40	22	50	23	M10	2.7	1
-60	40	22	60	33	M10	2.7	1
-110R	40	22	110	83	M10	2.7	2
-115	40	22	115	88	M10	2.7	1
MD50F-60	50	28	60	33	M12	2.3	1
-100R	50	28	100	73	M12	2.7	2
-105	50	28	105	78	M12	2.7	1
MD63F-64	63	36	64	37	M16	3.3	3
-90	63	36	90	63	M16	3.6	3
-110	63	36	110	83	M16	4.6	3
-135	63	36	135	108	M16	4.7	3
MD80F-70	80	45	70	43	M16	4.7	3
-100	80	45	100	73	M16	4.8	3
BT50- MD19F-50	19	11	50	12	M5	4.0	1
-85	19	11	85	47	M5	4.3	1
-100	19	11	100	62	M5	4.3	1
MD25F-55	25	14	55	17	M6	4.3	1
-105	25	14	105	67	M6	4.5	1
-120R	25	14	120	82	M6	4.7	2
MD32F-60	32	18	60	22	M8	4.3	1
-110	32	18	110	72	M8	5.1	1
-115R	32	18	115	77	M8	5.1	2
-235R	32	18	235	148	M8	5.1	2
MD40F-60	40	22	60	22	M10	5.0	1
-125R	40	22	125	87	M10	5.1	2
-145	40	22	145	107	M10	5.1	1

M This is metric size. We can also provide in inch type.

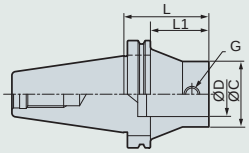
BT-MD

MAS403-BT

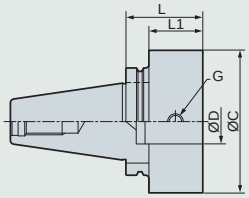




[Fig. 1]



[Fig. 2]



[Fig. 3]

(mm)

Designation		ØC	ØD	L	L_1	G	kg	Fig.
BT50-	MD40F-195	40	22	195	157	M10	5.4	1
	-230R	40	22	230	192	M10	5.6	2
	MD50F-70	50	28	70	22	M12	5.6	1
	-125	50	28	125	87	M12	6.0	1
	-160R	50	28	160	122	M12	6.2	2
	-225	50	28	225	187	M12	8.4	1
	-250R	50	28	250	212	M12	6.5	2
	MD63F-75	63	36	75	37	M12	6.8	1
	-130	63	36	130	92	M16	6.0	1
	-140	63	36	140	92	M16	6.0	1
	-140R	63	36	140	102	M16	6.0	2
	-195	63	36	195	157	M16	8.0	1
	-230	63	36	230	192	M16	8.4	1
	-240R	63	36	240	202	M16	8.4	2
	MD80F-75	80	45	75	37	M16	9.1	1
	-110	80	45	110	72	M16	9.4	1
	-175	80	45	175	137	M16	9.5	1
	MD90F-110	90	45	110	72	M16	9.8	1
	-175	90	45	175	137	M16	10.2	1
MT6-	MD19F-30	19	11	30		M5		
	MD25F-30	25	14	30		M6		
	MD32F-35	32	18	35		M8		
	MD40F-45	40	22	45		M10		
	MD50F-45	50	28	45		M12		
	MD63F-45	63	36	45		M16		
	MD80F-75	80	45	75		M16		
	MD90F-75	90	45	75		M16		
S32-	MD40F-22	40	22	102	22	M10		
	MD63F-60	63	36	140	60	M16		
S42-	MD40F-22	40	22	102	22	M10		
	MD63F-60	63	36	140	60	M16		

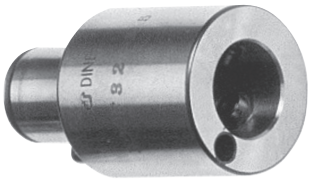
Spare parts		
	Basic	Option
	Taper screw	Wrench
Type		
MD 19F	BTT0506F	LW-2.5
25F	BTT0608F	LW-3
32F	BTT0810F	LW-4
40F	BTT1013F	LW-5
50F	BTT1215F	LW-6
63F	BTT1620F	LW-8
80F	BTT1626F	LW-8
90F	BTT1631F	LW-8

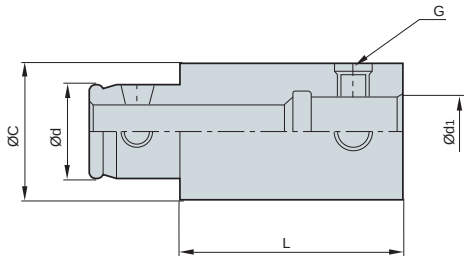
∗Beside above mentioned types, Basic Holders are also manufactured by customer's order.
∗Select the type in accordance with the machine spindle taper.

M This is metric size. We can also provide in inch type.

MODULAR SYSTEM

EXT





(mm)

Designation	ØC	Ød	L	Ød1	G
EXT 1930F	19	11	30	11	M5
1950F	19	11	50	11	M5
2530F	25	14	30	14	M6
2550F	25	14	50	14	M6
3235F	32	18	35	18	M8
3260F	32	18	60	18	M8
4040F	40	22	40	22	M10
4090F	40	22	90	22	M12
5050F	50	28	50	28	M12
50100F	50	28	100	28	M12
6360F	63	36	60	36	M16
63120F	63	36	120	36	M16
8070F	80	45	70	45	M16
80120F	80	45	120	45	M16
9080F	90	45	80	45	M16
90130F	90	45	130	45	M16

∗Besides above mentioned types, extension bars are also manufactured by customer's order.

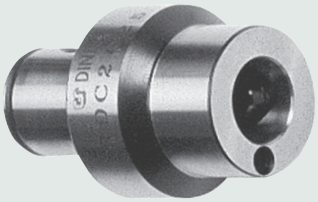
M This is metric size. We can also provide in inch type.

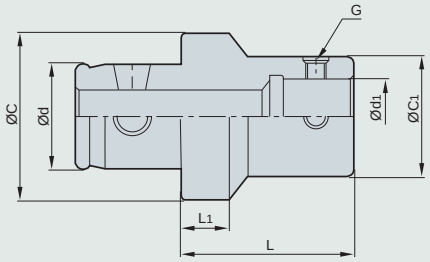
Parts

	Spare Parts		
	Basic		Option
	Taper screw	Spring pin	Wrench
Type			
MD 19F	BTT0506F	-	LW-2.5
25F	BTT0608F	SP0308	LW-3
32F	BTT0810F	SP0410	LW-4
40F	BTT1013F	SP0516	LW-5
50F	BTT1215F	SP0616	LW-6
63F	BTT1620F	SP0818	LW-8
80F	BTT1626F	SP1020	LW-8
90F	BTT1631F	SP1020	LW-8

M This is metric size. We can also provide in inch type.

Reducer Bar RDC





(mm)

Designation		Ød	ØC1	Ød1	ØC	L	L1	G
RDC	3225F	18	25	14	32	30	9	M6
	4025F	22	25	14	40	30	9	M6
	4032F	22	32	18	40	30	9	M8
	5025F	28	25	14	50	30	9	M6
	5032F	28	32	18	50	30	9	M8
	5040F	28	40	22	50	40	10	M10
	6325F	36	25	14	63	30	9	M6
	6332F	36	32	18	63	30	9	M8
	6340F	36	40	22	63	40	10	M10
	6350F	36	50	28	63	45	10	M12
	8032F	45	32	18	80	30	9	M6
	8040F	45	40	22	80	40	10	M10
	8050F	45	50	28	80	45	10	M12
	8063F	45	63	36	80	50	13	M16

∗Besides above mentioned types, extension bars are also manufactured by customer's order.

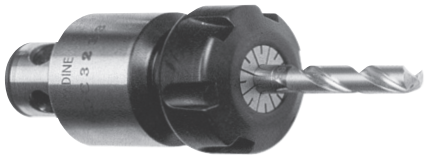
M This is metric size. We can also provide in inch type.

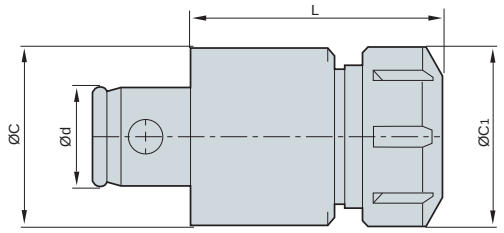
Parts

	Spare Parts		
	Basic		Option
	Taper screw	Spring pin	Wrench
Type			
MD 25F	BTT0608F	SP0308	LW-3
32F	BTT0810F	SP0410	LW-4
40F	BTT1013F	SP0516	LW-5
50F	BTT1215F	SP0616	LW-6
63F	BTT1620F	SP0818	LW-8
80F	BTT1626F	SP1020	LW-8

M This is metric size. We can also provide in inch type.

MD-SDC





(mm)

Designation		Chucking range	ØC	Ød	ØC1	L	Collet	Range
SDC	2507F	Ø1.0~Ø7.0	25	14	19	45	GER11	0.5
	2510F	Ø1.0~Ø10.0	25	14	28	50	GER16	1.0
	3213F	Ø1.0~Ø13.0	32	18	35	60	GER20	1.0
	4013F	Ø1.0~Ø13.0	40	22	35	65	GER20	1.0
	5020F	Ø2.0~Ø20	50	28	50	76	GER32	1.0
	6326F	Ø3.0~Ø26	63	36	63	90	GER40	1.0

∗Besides above mentioned types, extension bars are also manufactured by customer's order.

M This is metric size. We can also provide in inch type.

MODULAR SYSTEM

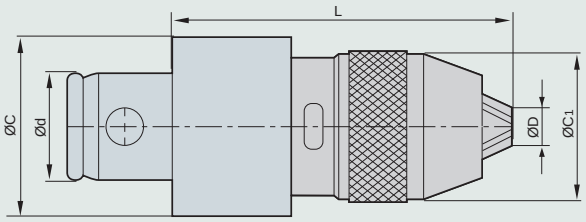
Parts

		Spare parts				
		Basic			Option	
		Nut	Adjust screw	Spring pin	Spanner	GER Collet
Type						
SDC	2507F	R11	BN0716F	SP0308	S-17	GER11-ØD
	2510F	R16	BN1025F	SP0308	S-25	GER16-ØD
	3213F	RU20	BN1325F	SP0410	35-38	GER20-ØD
	4013F	RU20	BN1830F	SP0516	35-38	GER20-ØD
	5020F	RU32	BN2230F	SP0616	48-52	GER32-ØD
	6326F	RU40	BN2838F	SP0818	62-65	GER40-ØD

M This is metric size. We can also provide in inch type.

MD-NPU





(mm)

Designation		Chucking Dia. ØD		ØC	Ød	$ØC_1$	L
		min	Max.				
NPU	4008	0	8	40	22	38	115
	5008	0	8	50	28	38	115
	5013	1	13	50	28	50	145
	6308	0	8	63	36	38	115
	6313	1	13	63	36	50	145

M This is metric size. We can also provide in inch type.

MODULAR SYSTEM

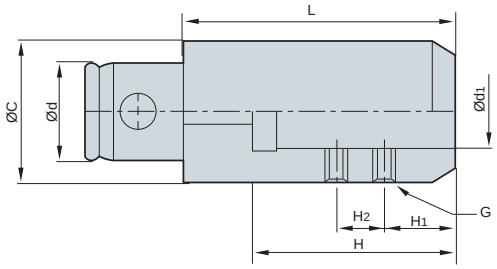
Parts

	Spare parts		
	Basic		Option
	Chuck	Spring pin	Spanner
Type			
NPU 4008	NPU08	SP0516	NPU0836
5008	NPU08	SP0616	NPU0836
5013	NPU13	SP0616	NPU1348
6308	NPU08	SP0818	NPU0836
6313	NPU13	SP0818	NPU1348

M This is metric size. We can also provide in inch type.

MD-SLA





(mm)

Designation		ØC	Ød	Ød1	L	H	H1	H2	G
SLA	5012	50	28	12	55	50	14	13	M8
	5016	50	28	16	55	50	20	-	M10
	5020	50	28	20	60	50	25	-	M12
	6312	63	36	12	55	50	14	13	M8
	6316	63	36	16	55	50	20	-	M10
	6320	63	36	20	60	50	25	-	M12
	6325	63	36	25	80	70	24	25	M12
	6332	63	36	32	85	80	25	20	M14
	8040	80	45	40	85	80	25	25	M16

M This is metric size. We can also provide in inch type.

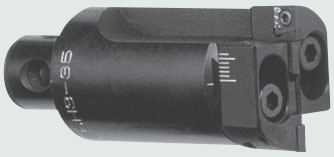
MODULAR SYSTEM

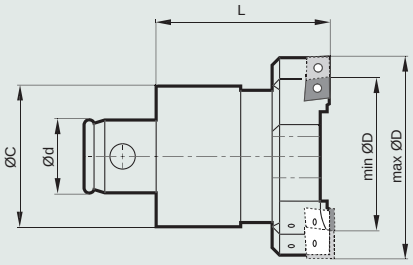
Parts

	Spare parts			
	Basic			Option
	Set screw	Adjust screw	Spring pin	Wrench
Type				
SLA 5012	BTF0808	BN1030C	SP0616	LW-4
5016	BTF1010	BN1240C	SP0616	LW-5
5020	BTF1212	BN1240C	SP0616	LW-6
6312	BTF0808	BN1030C	SP0818	LW-4
6316	BTF1010	BN1240C	SP0818	LW-5
6320	BTF1212	BN1240C	SP0818	LW-6
6325	BTF1212	BN1240C	SP0818	LW-6
6332	BTF1414	BN1240C	SP0818	LW-7
8040	BTF1616	BN1240C	SP1020	LW-8

M This is metric size. We can also provide in inch type.

MD-DBC(BCH)





(mm)

Designation		Chucking Dia. ØD		L	Ød	ØC	Cartridge	Insert
		min	Max.					
BCH-	28SF	28	35	60	14	25	BCC28	CCMT0602□□
	35S	35	46	65	18	32	BCC35	CCMT0602□□
	46S	46	58	70	22	40	BCC46	CCMT09T3□□
	58S	58	74	80	28	50	BCC58	CCMT09T3□□
	74S	74	94	90	36	63	BCC74	CCMT1204□□
	94S	94	120	100	45	80	BCC94	CCMT1204□□

M This is metric size. We can also provide in inch type.

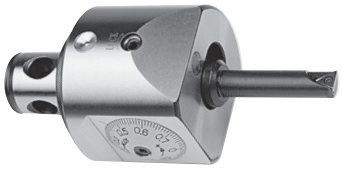
Parts

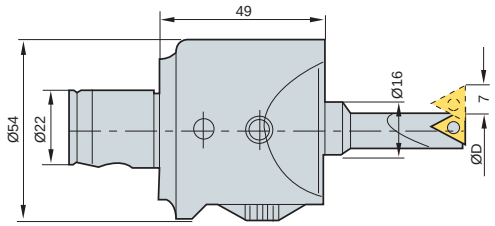
	Spare parts								
	Basic								
	Head	Spring pin	Clamp bolt	Wrench	Cartridge	Set screw	Wrench	Clamp screw	Wrench
Type									
BCH- 28SF	BCH-28F	SP0308	BX0415	LW-3	BCC28	BT0306	LW-1.5	FTKA02565	TW07
35S	BCH-35	SP0410	BX0515	LW-4	BCC35	BT0308	LW-1.5	FTKA02565	TW07
46S	BCH-46	SP0516	BX0620	LW-5	BCC46	BT0410	LW-2	FTNA0408	TW15
58S	BCH-58	SP0616	BX0620	LW-5	BCC58	BT0412	LW-2	FTNA0408	TW15
74S	BCH-74	SP0818	BX0830	LW-6	BCC74	BT0516	LW-2.5	BFTX0511N	TW20
94S	BCH-94	SP1020	BX1035	LW-8	BCC94	BT0620	LW-3	BFTX0511N	TW20

M This is metric size. We can also provide in inch type.

MD-SMH

Adjustable length : 7mm





1DIV.=Ø0.01mm

(mm)

Designation	MD No.	Boring range ØD	kg
SMH4022	40	Ø6.0 ~ Ø34.0	0.7

Parts

Spare parts					
	Basic			Option	
	Set screw	Set screw	Wrench	Boring bite	Basic holder
Type					
SMH	BTF0610	BTF0608	LW-3	BB16	MD40F

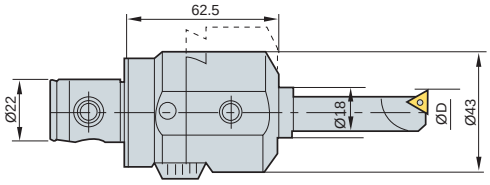
M This is metric size. We can also provide in inch type.

MODULAR SYSTEM

MD-SMB

Adjustable length : 10mm





1DIV.=Ø0.02mm

(mm)

Designation	MD No.	Boring range ØD	kg
SMB4022	40	Ø8.0 ~ Ø38.0	0.65

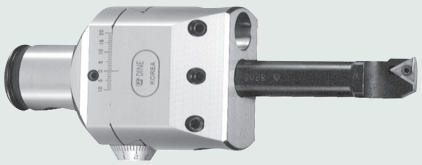
(mm)

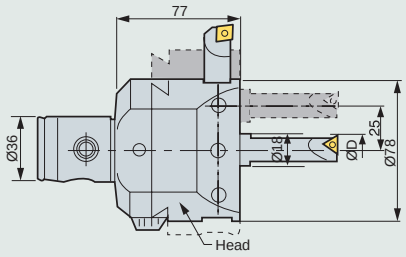
Designation		Boring range ØD		Insert	Screw
		min	Max.		
BB18-	**7S**	8	28	TBGT0601□□L	BFTX0204A
	9S	10	30	TPGT0802□□L	BFTX0204A
	11S	12	32	TPGT1103□□L	BFTX0307A
	13S	14	34	TPGT1103□□L	BFTX0307A
	15S	16	36	TPGT1103□□L	BFTX0307A
	17S	18	38	TPGT1103□□L	BFTX0307A

M This is metric size. We can also provide in inch type.

MD-KMB

Adjustable length : 17mm





1DIV.=Ø0.02mm

(mm)

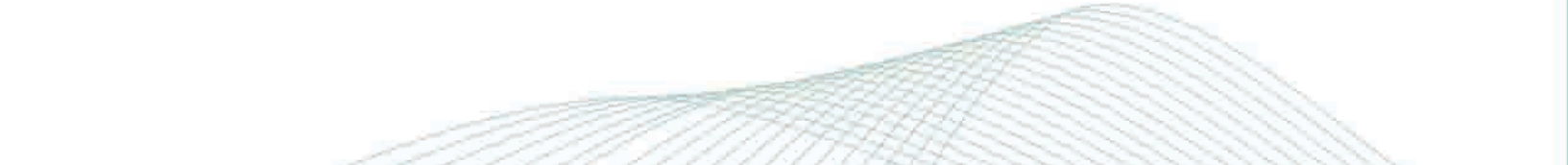
Designation	MD No.	Bite position	Boring range ØD	kg
KMB 6336	63	Center Hole	Ø8.0 ~ Ø38.0	2.2
		Eccentric Hole	Ø41.0 ~ Ø101.0	2.2
		Side Hole	Max.Ø165.0	2.2

(mm)

Designation	Boring range ØD				Insert	Screw
	Center hole		Eccentric hole			
	min	Max.	min	Max.		
BB18- 7S	8	41	43	91	TBGT0601□□L	BFTX0204A
9S	10	43	45	93	TBGT0802□□L	BFTX0204A
11S	12	45	47	95	TBGT1103□□L	BFTX0307A
13S	14	47	49	97	TBGT1103□□L	BFTX0307A
15S	16	49	51	99	TBGT1103□□L	BFTX0307A
17S	18	51	53	101	TBGT1103□□L	BFTX0307A

M This is metric size. We can also provide in inch type.

MODULAR SYSTEM



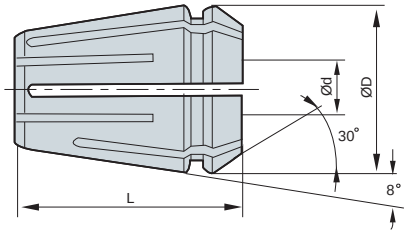
KORLOY

HOLE MAKING MODULAR SYSTEM

COLLET SERIES



GER Collet



(mm)

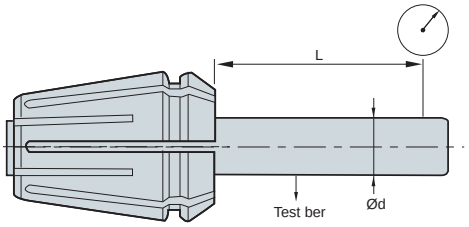
Designation	Collet Size	ØD	L	Ød(Max.)	Range(mm)
GER 11-Ød	11	11.5	18.0	7.0	0.5
16-Ød	16	17.0	27.5	10.0	0.5
20-Ød	20	21.0	31.5	13.0	0.5
25-Ød	25	26.0	34.0	16.0	0.5
32-Ød	32	33.0	40.0	20.0	0.5
40-Ød	40	41.0	46.0	26.0	0.5
50-Ød	50	52.0	60.0	34.0	0.5

∗Order ex.)Collet
-Accuracy type → GER20-5.0 : 05,00RD GER20-B
-High accuracy type → GER16-3.5 : 03,50RD GER16-HP

M This is metric size. We can also provide in inch type.

GOLLET SYSTEM

Accuracy



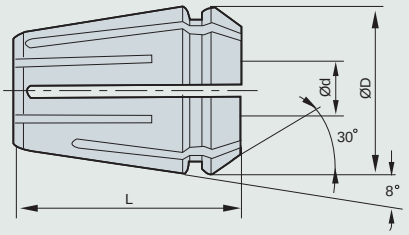
(mm)

Clamping range	L	Run-Out	
		GER	GER-HP
0.5 ~ 1.6	6.0	5㎛	2㎛
1.6 ~ 3.0	10.0	5㎛	2㎛
3.0 ~ 6.0	16.0	5㎛	2㎛
6.0 ~ 10.0	25.0	5㎛	2㎛
10.0 ~ 18.0	40.0	5㎛	2㎛
18.0 ~ 26.0	50.0	5㎛	2㎛
26.0 ~ 34.0	60.0	5㎛	-

∗High accuracy and various specification

M This is metric size. We can also provide in inch type.

ER/C(Through coolant type) Collet



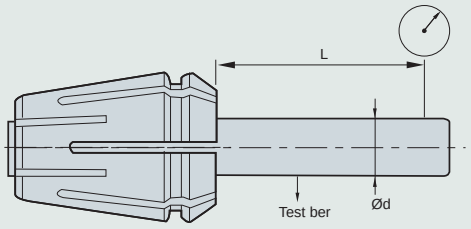
(mm)

Designation		Collet Size	ØD	L	Ød(Max.)	Range(mm)
ER	16-ØdC	16	17.0	27.5	10.0	1.0
	20-ØdC	20	21.0	31.5	13.0	1.0
	25-ØdC	25	26.0	34.0	16.0	1.0
	32-ØdC	32	33.0	40.0	20.0	1.0
	40-ØdC	40	41.0	46.0	26.0	1.0
	50-ØdC	50	52.0	60.0	34.0	1.0

∗Order ex.)Collet
-Standard : ER16-4.0C
-High accuracy type : ER16-4.0(A), ER16-4.0(AA)

M This is metric size. We can also provide in inch type.

Accuracy

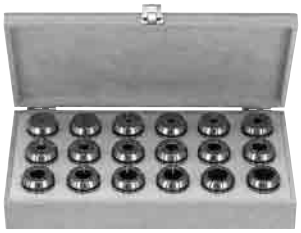


(mm)

Clamping Range	L	Run-Out	
		ER	GER-HP
Ø4.0 ~ Ø6.0	16.0	10㎛	5㎛
Ø6.0 ~ Ø10.0	25.0	10㎛	5㎛
Ø10.0 ~ Ø18.0	40.0	10㎛	5㎛
Ø18.0 ~ Ø26.0	50.0	10㎛	5㎛
Ø26.0 ~ Ø34.0	60.0	15㎛	10㎛

M This is metric size. We can also provide in inch type.

Collet Set





Standard type

(mm)

Designation		Range(mm)	Set		Collet chuck
			(ER)	(GER)	
(G)ER	11-Ø1.0 ~ Ø1.5	0.5	-	13pcs	SDC7
	11-Ø1.5 ~ Ø7.0	0.5	12pcs	13pcs	SDC7
	16-Ø1.0 ~ Ø10.0	1.0	10pcs	10pcs	SDC10
	20-Ø2.0 ~ Ø13.0	1.0	12pcs	12pcs	SDC13
	25-Ø2.0 ~ Ø16.0	1.0	15pcs	15pcs	SDC16
	32-Ø3.0 ~ Ø20.0	1.0	18pcs	18pcs	SDC20
	40-Ø4.0 ~ Ø6.0	1.0	-	23pcs	SDC26
	40-Ø6.0 ~ Ø26.0	1.0	21pcs	23pcs	SDC26
	50-Ø10.0 ~ Ø34.0	2.0	12pcs	-	SDC34

∗ER/C : Standard
∗ER/C Set : General class

M This is metric size. We can also provide in inch type.

Through coolant type

(mm)

Designation		Range(mm)	Set	Collet chuck
ER	16-Ø4C ~ Ø10C	1.0	7pcs	SDC10
	20-Ø6C ~ Ø13C	1.0	8pcs	SDC13
	25-Ø6C ~ Ø16C	1.0	11pcs	SDC16
	32-Ø8C ~ Ø20C	1.0	13pcs	SDC20
	40-Ø10C ~ Ø26C	1.0	17pcs	SDC26
	50-Ø12C ~ Ø34C	2.0	12pcs	SDC34

∗ER/C : Standard
∗ER/C Set : General class

M This is metric size. We can also provide in inch type.

[Standard type] [Through coolant type]

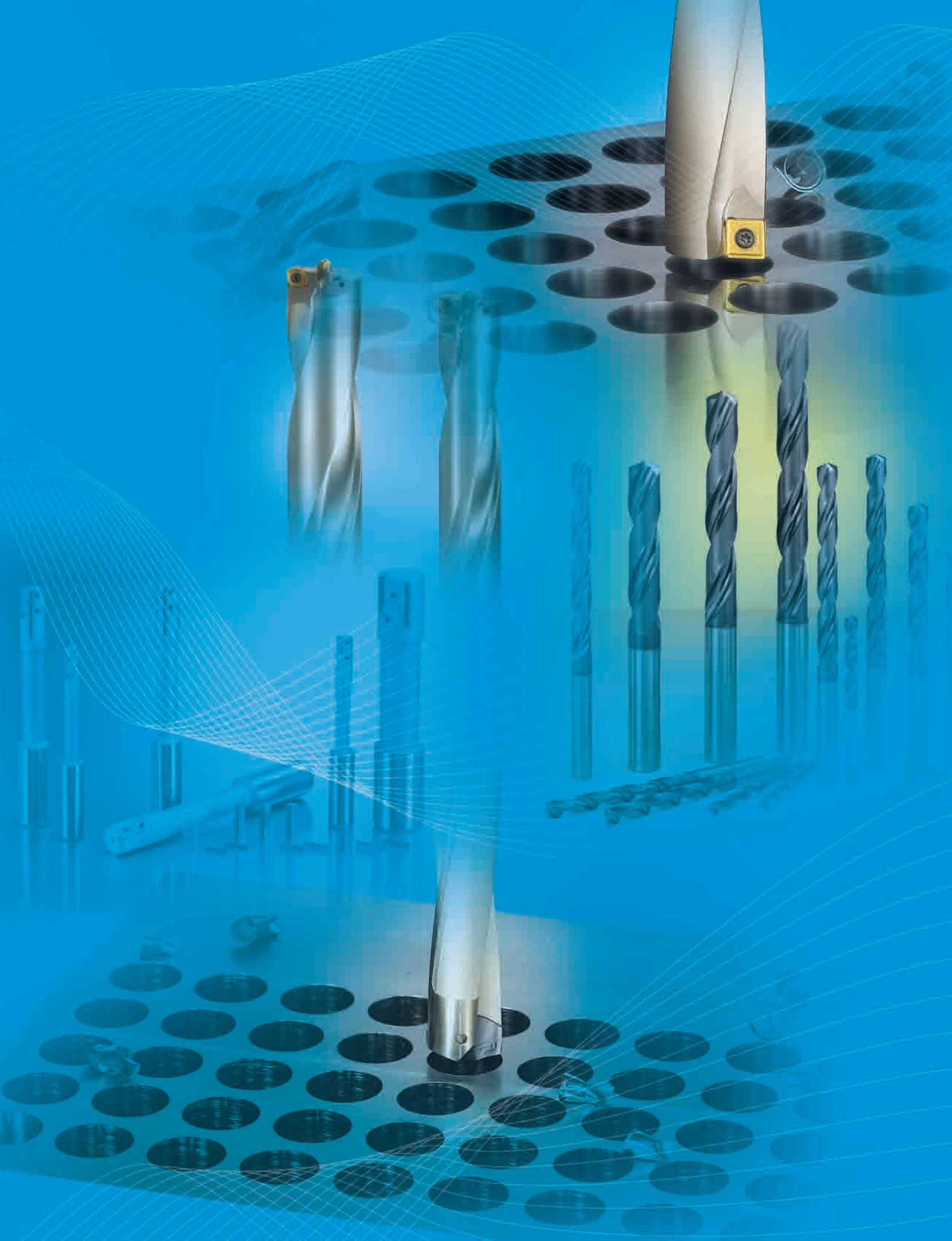


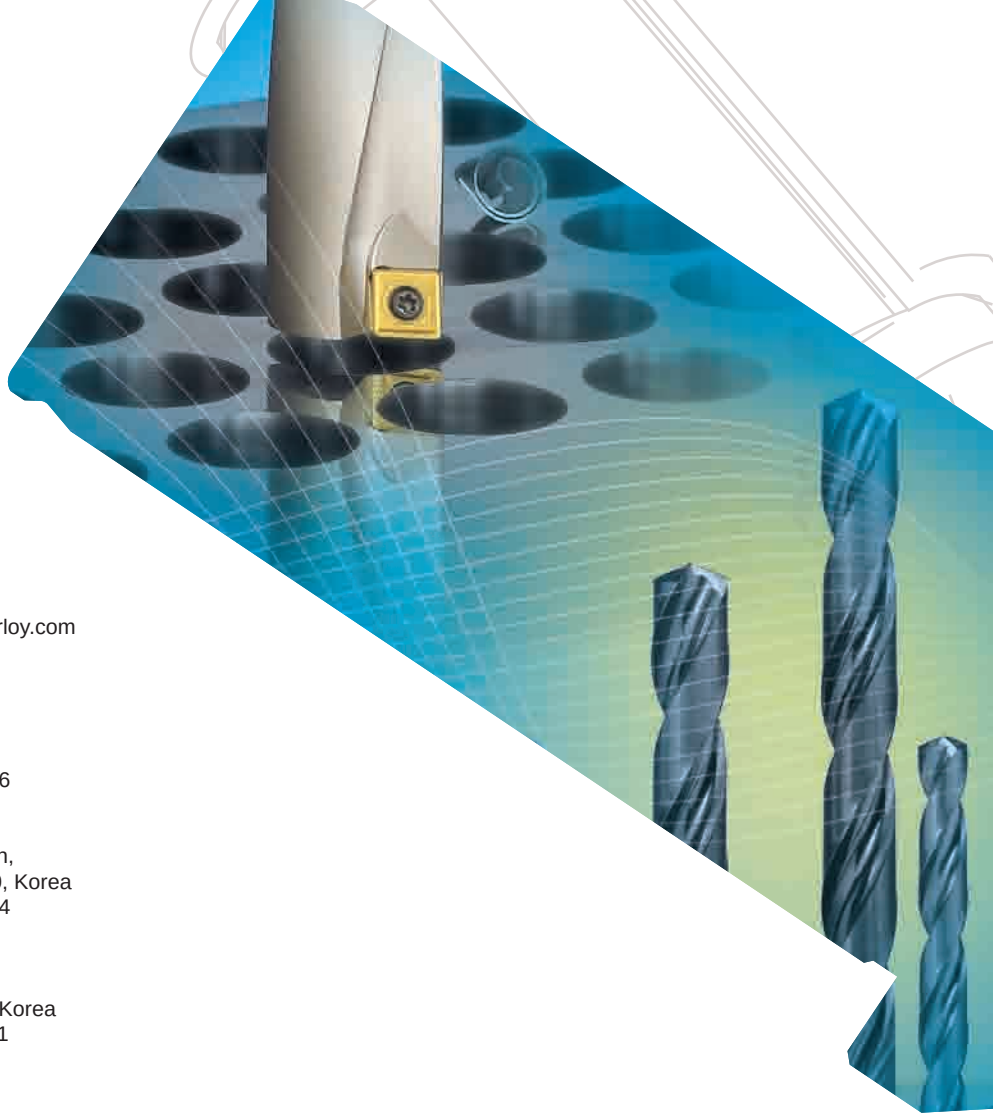




Collet sets

- Standard type : ER32SET
- Accuracy type : GER32-B Ø3,0-20,0
- High accuracy type : GER32-B Ø3,0-20,0
- Through coolant type : ER32-□C Set





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Sep.15, 2012
HM-EI-01