

KING Drill Mini

Indexable drill for small diameter machining (Ø0.359 to Ø0.469 inch)

- Excellent centering and chip management by applying a unique insert shape
- Maintained high rigidity through variable flutes and an optimized coolant system, achieving stable chip evacuation



LOMT-LD

Indexable drill for small diameter machining (Ø0.359 to Ø0.469 inch)

KING Drill Mini

The indexable drill offers faster setup and replacement times compared to solid drills since just the inserts need to be changed making maintenance much easier. It enables excellent productivity, economy, and flexibility across a wide range of materials and machining conditions. KORLOY has launched combining these advantages in the KING Drill Mini, a small-diameter indexable drill.

The holder features variable flutes and a coolant system optimized for small-diameter machining (Ø0.359 to Ø0.469 inch), providing excellent rigidity and stable chip evacuation. The insert improves centering performance with its V-shaped cutting edge and achieves superior chip management through curved cutting edges. Additionally, the insert design is the same for both internal and external applications, enhancing management efficiency.

KING Drill Mini maximizes production line efficiency in small-diameter machining by optimizing cost, time, and flexibility, making it an ideal drilling solution.

» Maximize production efficiency

- Quick tool changes and minimized equipment setup time

» Excellent centering and chip management

- Applies a V-shaped cutting edge and a curved cutting edge

» Excellent holder rigidity and stable chip evacuation

- Applied optimized variable flutes and coolant system

» Improved management efficiency

- Uses the same insert for both internal and external cutting



✓ Code System

Holder						
K	3D	A	0359	075		- 03
KING, KORLOY	Depth of cut 2D, 3D	Type A: Inch type	Drill Diameter 0359: Ø0.359 inch	Shank Diameter Ø0.75 inch	Shank Type None: Flange Shank, Weldon HP: Flange Shank, Weldon, PT Tap	Applied insert inscribed circle 03: LOMT03

✓ Insert Features

- Curved cutting edge and L-type design for improved chip management
- V-shaped cutting edge applied to enhance centering

Application of a V-shaped cutting edge

- Improves centering

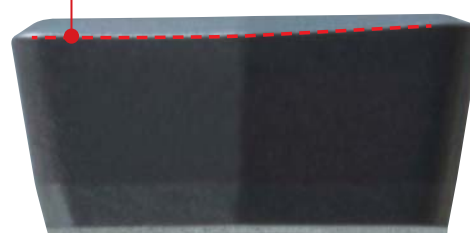
Application of L-type

- Enhances chip management



Application of a curved cutting edge

- Improves chip management by inducing chip curvature



✓ Holder Features

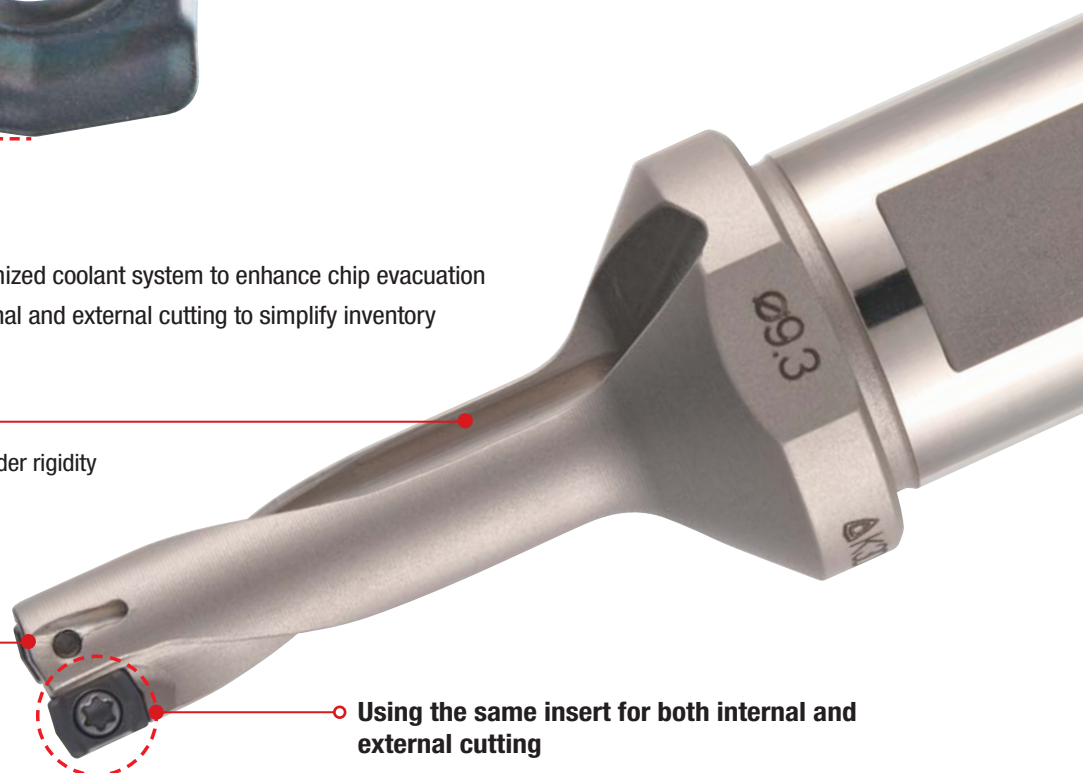
- Applied variable flutes and an optimized coolant system to enhance chip evacuation
- Uses the same insert for both internal and external cutting to simplify inventory management

Application of variable flutes

- optimized flute design to enhance holder rigidity and improve chip evacuation

Application of an optimized coolant system

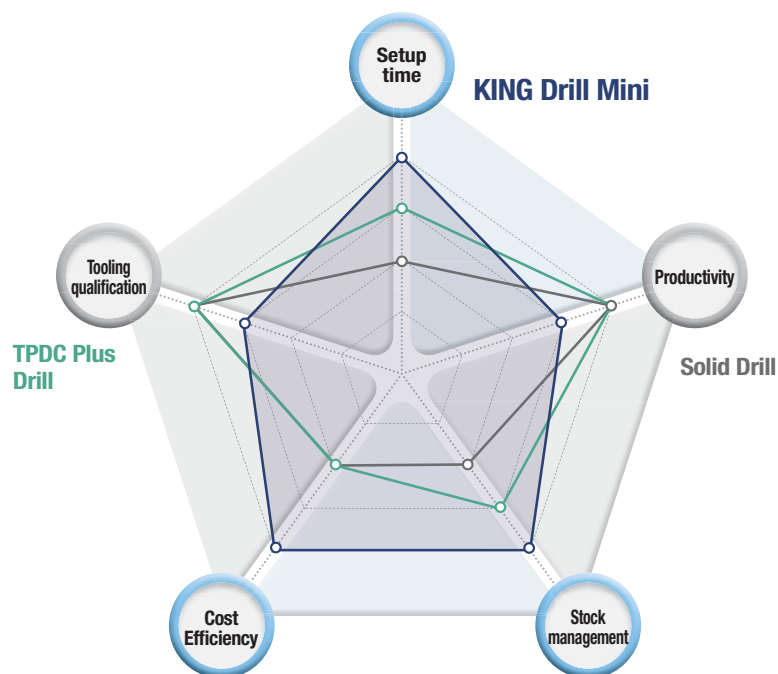
- Design tailored for small diameters to improve chip evacuation



Using the same insert for both internal and external cutting

- Easy replacement between operations and simplifies inventory management

Tool Selection Guide



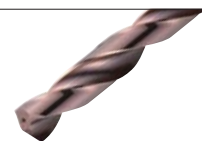
KING Drill Mini ^{New}

- Quick tool changes
- Efficient stock management
- Reduced operating costs



Solid Drill

- Excellent productivity
- Suitable for high-precision machining



TPDC Plus Drill

- Excellent productivity
- Suitable for high-precision machining



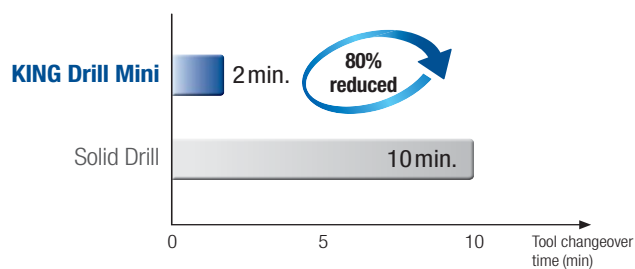
Tool	Setup time	Productivity	Stock management	Cost Efficiency	Tooling qualification
KING Drill Mini ^{New}	★★★★★	★★★	★★★★★	★★★★★	★★★
Solid Drill	★★	★★★★★	★★	★★	★★★★★
TPDC Plus Drill	★★★	★★★★★	★★★	★★	★★★★★

Cost of tool demand



Items	Workpiece	vc(sfm)	fn(ipr)	ap(inch)	DC(inch)
KING Drill Mini (K3DA0359075HP-03)	AlSi4140 [HB200]	525	0.0031	1.181(3D)	Ø0.394
Solid Drill		262	0.0079	1.181(3D)	Ø0.394

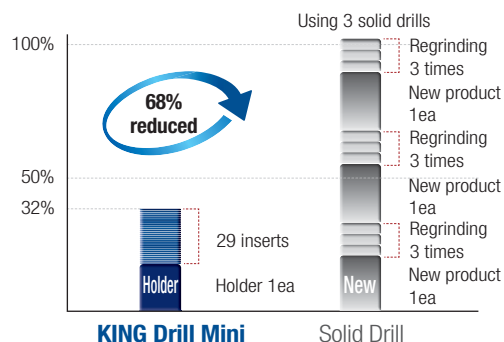
[Tool changeover time]



KING Drill Mini : replacing inserts inside the machine
Solid Drill : Machine → Remove the arbor →
Replace the solid tool → Measure the tool height → Mount the arbor

» 80% reduction in replacement time compared to solid drills

[Tool cost based on 18,898 inch of workpiece]



» The longer the machining length, the greater the tool cost savings effect

» With the surge in material costs, the maximized tool cost savings effect even more

✓ Recommended Cutting conditions

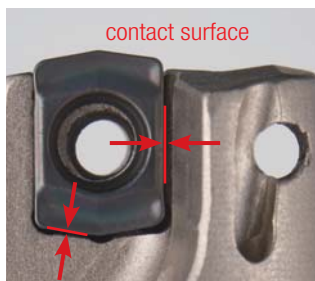
Workpiece					Non-cutting resistance (psi)	Brinell hardness (HB)	Grade	vc (sfm)	Depth of cut = 3D
ISO	Workpiece materials		AISI	ISO					fn (ipr)
P	Carbon steel	C=0.10 ~ 0.25%	1015 1025	C15 C25	217,557	80-120	PC5335	623 (427~755)	0.0020~0.0035
		C=0.20 ~ 0.55%	1035 1045	C35 C45	246,564	180-280	PC5335	492 (262~591)	0.0020~0.0035
	Low alloy steel ≤ 5%	Non-hardening treatment	4140	42CrMo4	246,564	140-260	PC5300	492 (262~591)	0.0020~0.0035
		Hardening and tempering treatment	4145	-	297,327	200-400	PC5300	328 (164~492)	0.0020~0.0035
	High alloy steel > 5%	Annealing treatment	D2	-	282,824	260-320	PC5300	328 (164~492)	0.0016~0.0031
		Hardened tool steel	H13	X40CrMoV5-1	435,113	300-450	PC5300	230 (98~394)	0.0016~0.0031
M	Austenitic		304 316	304 316	290,075	135-275	PC5335	394 (197-492)	0.0016~0.0031
K	Grey cast iron		Class 35 Class 50	250 350	130,534	150-230	PC5300	623 (427-755)	0.0016~0.0039
	Ductile cast iron		60-40-18 80-55-06 100-70-03	400-15 500-7 600-3	159,541	150-230	PC5300	427 (328-591)	0.0016~0.0031

※ The above cutting conditions are based on ideal situations, so please adjust them according to your machining environment before use.

✓ Precautions for insert fastening



① As shown in Figure 1, use an air gun to remove dust from the insert contact surfaces of the holder (both internal and external edges).



② Place the insert into the holder, press the contact surfaces tightly as shown in Figure 2, and then fasten the screw.



③ When fastening, make sure the insert is fully seated against the holder's bottom contact surface. Using a wrench, gently press the top of the insert avoiding the cutting edge while tightening.



④ After fully tightening the screw, perform a comprehensive final visual inspection to check for any lifting or proper seating of the insert.

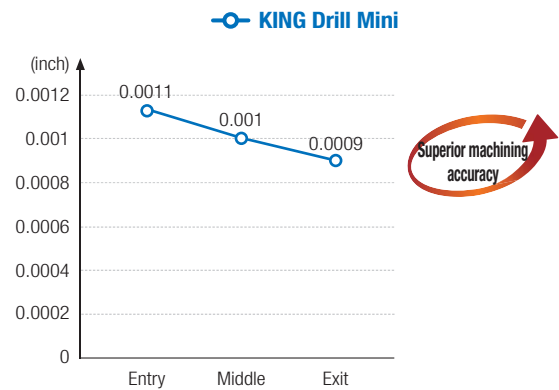
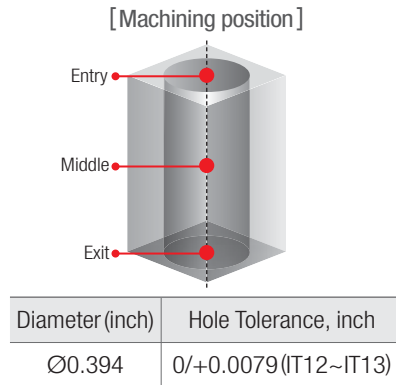
* If the insert and tip seat are not fully seated during fastening, the insert may loosen, which can lead to a drop in performance.

※ Please replace the screw when it shows signs of wear.
 ※ Use the included wrench to fasten the screw securely.

Performance evaluation

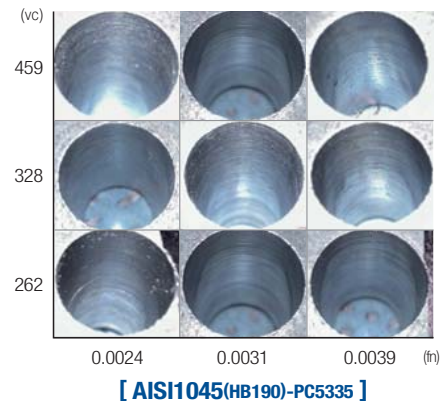
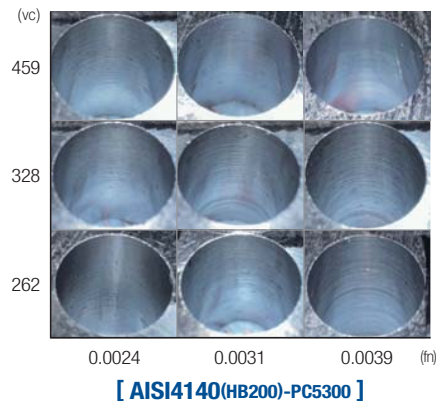
Hole tolerance

Workpiece	AISI 4140, 7.874(L) × 11.811(W) × 11.811(H), Square bar	
Cutting condition	vc(sfm) = 591, fn(ipr) = 0.0031, ap(inch) = 1.181, Wet	
Tool	Insert LOMT030104-LD(PC5300)	Holder K3DA0390075HP-03



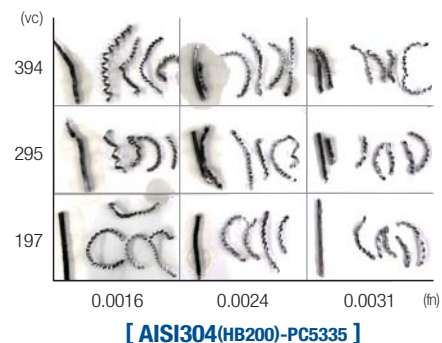
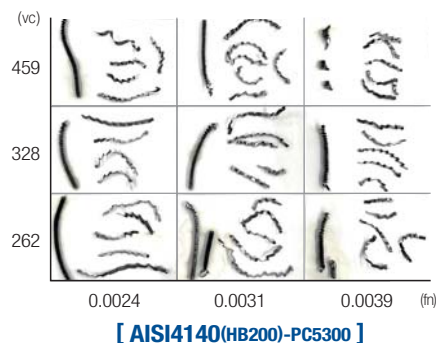
Excellent surface finish

Workpiece	7.874(L) × 11.811(W) × 11.811(H), Square bar	
Cutting condition	vc(sfm) = 262~459, fn(ipr) = 0.0024~0.0039, ap(inch) = 1.181, Wet	
Tool	Insert LOMT030104-LD	Holder K3DA0359075HP-03



Excellent chip control

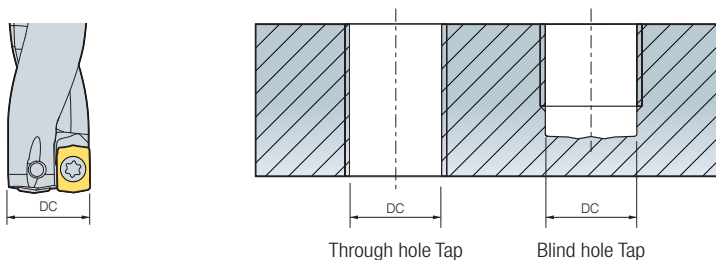
Workpiece	7.874(L) × 11.811(W) × 11.811(H), Square bar	
Cutting condition	vc(sfm) = 197~459, fn(ipr) = 0.0016~0.0039, ap(inch) = 1.181, Wet	
Tool	Insert LOMT030104-LD	Holder K3DA453075HP-03



» Consistent chip formation

KING Drill Mini – Tap For pre-drilling holes for tapping

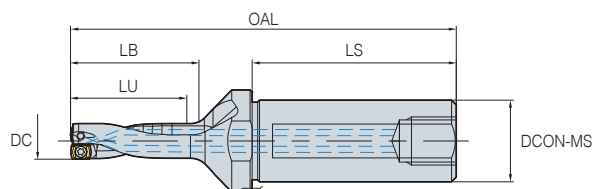
- The KING Drill Mini is designed for pre-tapping hole machining. It supports tap specifications divided into Metric and Inch types, and can be used for both through holes and blind holes.



(inch)

Type	Tap	DC	Designation
Metric	M10 x 0.75	0.368	K3DA0368075HP-03
	M11 x 1.5	0.375	K3DA0375075HP-03
	M11 x 1	0.391	K3DA0391075HP-03
	M12 x 1.75	0.402	K3DA0402075HP-03
	M12 x 1.5	0.413	K3DA0413075HP-03
	M12 x 1.25	0.425	K3DA0425075HP-03
	M13 x 1.5	0.453	K3DA0453075HP-03
Inch	7/16-14 UNC	0.368	K3DA036875HP-03
	1/2-13 UNC	0.425	K3DA0425075HP-03
	1/2-20 UNF	0.453	K3DA0453075HP-03

Drill and hole tolerance

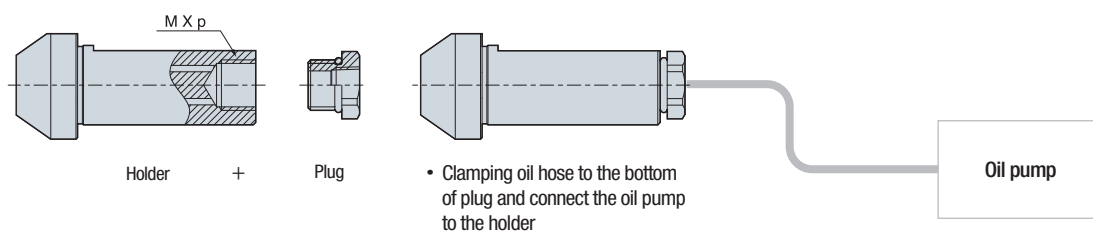


(inch)

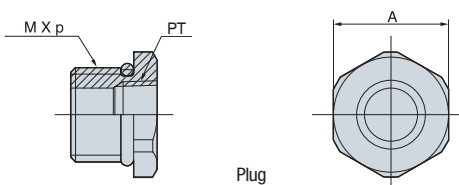
Type		KING Drill Mini	KING Drill
2D~3D	Diameter	Ø0.359 ~ Ø0.469	Ø0.484 ~ Ø1.125
	Drill tolerance	-0.0012 ~ 0.0028	-0.006 ~ 0
	Hole Tolerance	-0.0039 ~ 0.0079	-0.016 ~ 0.008

Plug

- HP available as in existing configuration (optional)



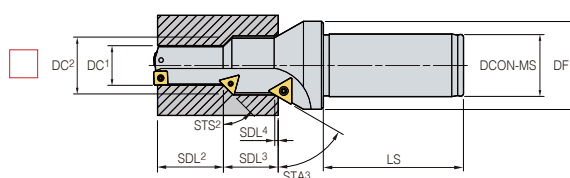
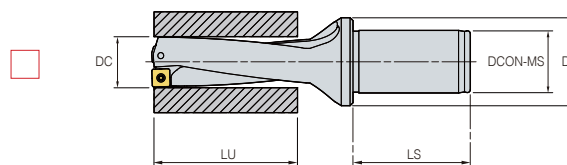
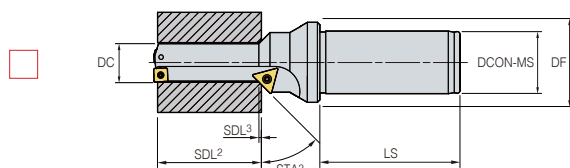
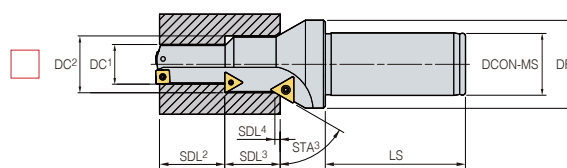
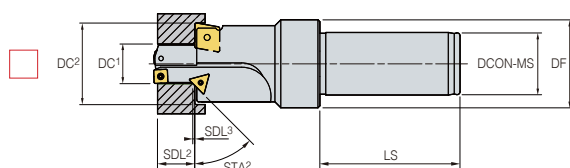
Tap type	Diameter	Shank diameter	M x p	Plug
K□DA0484075~0625075HP-□□	Ø0.359 ~ Ø0.469	0.75	M12 x 1.5	PLG12NPT18



- Plug sold separately

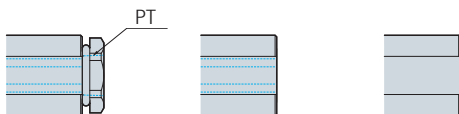
Plug type	M x p	PT Tap	A
PLG12NPT18	M12 x 1.5	1/8	5/8

Special drill order form



■ Coolant type

- ☐ Internal Coolant Plug Type
 ☐ Internal Coolant Type without Plug
 ☐ External Coolant Type



■ Tooling type

- ☐ Blind hole
 ☐ Through hole

■ Shank type

- ☐ Flat Type
☐ Weldon Type
☐ Whistle Notch Type

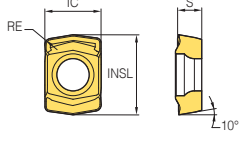
■ Side lock position

- ☐ Parallel to the external edge (standard type)
☐ 90 degrees to the external edge (standard type)
☐ Standard type with 180° direction relative to the external edge
☐ 270 degrees to the external edge (standard type)

■ Special Notes

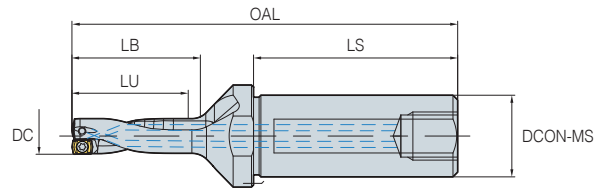
- Current tool in use :
- Current operating/machining conditions :
 - RPM or cutting speed, vc in m/min :
 - Feed rate per minute mm/min or feed per revolution mm/rev :
 - Depth of cut :

- Criteria for tool life judgment :
- Equipment in use
 - Machining center :
 - General-purpose lathe :
 - CNC lathe :

Picture	Designation	Coated		Dimension (inch)				Geometry
		PC5335	PC5300	IC	RE	S	D1	
	LOMT030104-LD	●	●	0.1378	0.0157	0.0591	0.0787	

●: Stock item

KING Drill Mini (2D, 3D)



(inch)										
Designation	DC	DCON-MS	LU	LB	LS	OAL	Tightening torque	Available inserts	Screw	Wrench
K2DA 0359075HP-03	0.359	23/64	0.75	0.748	0.945	1.969	0.4 [N·m]	LOMT030104-LD	FTKA01835	TW06P
0368075HP-03	0.368	U	0.75	0.748	0.945	1.969				
0375075HP-03	0.375	3/8	0.75	0.748	0.945	1.969				
0382075HP-03	0.382	-	0.75	0.811	1.024	1.969				
0386075HP-03	0.386	W	0.75	0.811	1.024	1.969				
0391075HP-03	0.391	25/64	0.75	0.811	1.024	1.969				
0402075HP-03	0.402	-	0.75	0.811	1.024	1.969				
0406075HP-03	0.406	13/32	0.75	0.811	1.024	1.969				
0413075HP-03	0.413	Z	0.75	0.850	1.063	1.969				
0422075HP-03	0.422	27/64	0.75	0.850	1.063	1.969				
0425075HP-03	0.425	-	0.75	0.850	1.063	1.969				
0438075HP-03	0.438	7/16	0.75	0.906	1.142	1.969				
0453075HP-03	0.453	29/64	0.75	0.906	1.142	1.969				
0469075HP-03	0.469	15/32	0.75	0.906	1.142	1.969				
K3DA 0359075HP-03	0.359	23/64	0.75	1.122	1.299	1.969	0.4 [N·m]	LOMT030104-LD	FTKA01835	TW06P
0368075HP-03	0.368	U	0.75	1.122	1.299	1.969				
0375075HP-03	0.375	3/8	0.75	1.122	1.299	1.969				
0382075HP-03	0.382	-	0.75	1.217	1.417	1.969				
0386075HP-03	0.386	W	0.75	1.217	1.417	1.969				
0391075HP-03	0.391	25/64	0.75	1.217	1.417	1.969				
0402075HP-03	0.402	-	0.75	1.217	1.417	1.969				
0406075HP-03	0.406	13/32	0.75	1.217	1.417	1.969				
0413075HP-03	0.413	Z	0.75	1.276	1.496	1.969				
0422075HP-03	0.422	27/64	0.75	1.276	1.496	1.969				
0425075HP-03	0.425	-	0.75	1.276	1.496	1.969				
0438075HP-03	0.438	7/16	0.75	1.358	1.614	1.969				
0453075HP-03	0.453	29/64	0.75	1.358	1.614	1.969				
0469075HP-03	0.469	15/32	0.75	1.358	1.614	1.969				

⚠ For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasses or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the tools can be pulled out due to centrifugal force while high speed machining.



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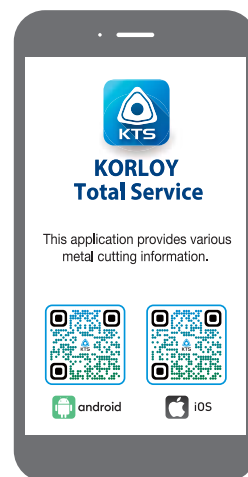
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