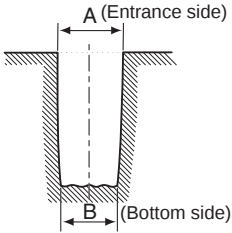
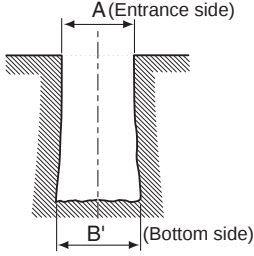


Troubleshooting

Troubleshooting

Trouble condition	Condition		Cause	Countermeasures
Hole diameter becomes smaller (at hole bottom)		There is no problem for entrance, however gradually hole diameter is getting smaller at the bottom. $A > B$	Chip jam (External or Internal edge chip stuck)	Change the cutting conditions • Increase the cutting speed • Lower the feed rate See page K38 or K49 for "Recommended Cutting Conditions".
Hole diameter becomes larger (at hole bottom)		There is no problem for entrance, however gradually hole diameter is getting larger at the bottom. $A < B'$	Internal edge chip jam.	Change the cutting conditions • Increase the cutting speed • Lower the feed rate See page K38 or K49 for "Recommended Cutting Conditions". • Check the core height See page K34~K35
Hole diameter is small (from the hole entrance)		Hole diameter is small from entrance. (At turning moment)	Inappropriate adjustment of hole diameter.	In case of using lathe machine, use X-axis and adjustment hole diameter. See page K34
			Core up for internal edge. (No core remains)	Adjust the core height. See page K34~K35

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Drilling

Indication of tool life of MagicDrill

How to judge tool life	Indication of judging tool life
Generation status of tool mark involving with insert weariness	• When an insert is new, A holder is slightly bend external side during cutting. (It is designed that cutting diameter is slightly bigger during cutting.) Once cutting is finished, a holder will be back to normal size and smaller than cutting diameter. Tool mark will not be appeared on the finishing surface. (Although depends on workpiece and cutting condition, cutting power which generates external direction, slightly tool mark might be appeared.) • When an insert is at the end of tool life, Gradually external corner part is getting wear, cutting resistance which is generated in inside, a holder will be not bend, on the contrary it will be bend inside. Once cutting is finished, a holder will be back to normal. Pulling off a holder under this condition, external edge touches on finishing surface and tool mark will be on its finishing surface.
Tracing cutting diameter	When cutting diameter is measured, suddenly it shows small diameter. In this case, an insert can be judged the end of tool life.
Generating status of at the exit side	If insert wear progress. Burrs of penetrated hole entrance (Pulling out burrs) will be bigger and identified as the insert has reached at the end of tool life.
Variation of cutting noise	DRX / DRZ Type → Light cutting noise at the beginning turns to brady noise which contains vibration noise. DRS Type → Light cutting noise at the beginning turns to whirl noise. Although, it is difficult to recognize DRX / DRZ type's smaller cutting diameter or DRS type's variation of cutting noise because of main motor noise or projection of coolant.
Variation of vibration	As the end of tool life is getting closer, vibration is getting larger and cutting noise is getting change. However, same as vibration and cutting noise, it is difficult to identify for small cutting diameter type.