

Drilling

Trouble		Check Item	Grade Selection		Cutting Conditions			Tool Geometry			Setting				Machine
		Measures	Change to Harder Grade	Change to Tougher Grade	Vc	f	Coolant Discharge Condition	Chipbreaker Review	Inner Edge's Center Height Check (Core Dia. Check)	Tool Rigidity Improvement (Short Type)	Workpiece / Tool Installation	Insert Installation	Offset Check	Adjustable Sleeve Usage	Power, Rigidity
		Trouble Item													
Edge Damage	Unusual Wear	Unsuitable Cutting Speed (too high)	●		● ↓										
		Unsuitable Cutting Speed (too low)		●	● ↑										
		Unsuitable Coolant Discharge					●								
		Poor Rigidity of Machine / Workpiece									●				●
		Small Hole Dia.											*1	●	
		Unsuitable Tool Grade	●												
	Inner Edge Cracking	No core, Too Small Core							● ↑						
		Poor Rigidity of Machine / Workpiece								●	●				●
		Unstable Drilling Start				● ↓									
		High Hardness Workpiece	●		● ↓	● ↓									
		Clogged Chips			● ↑				● ↓						
		Unstable Insert Installation										●			
	Outer Edge Cracking	Poor Rigidity of Machine / Workpiece									●				●
		Unstable Drilling Start				● ↓									
		High Hardness Workpiece	●		● ↓	● ↓									
		Poor Chip Control		●	● ↑										
		Unstable Insert Installation										●			
Toolholder, Others	Scratches on Tool Body	Poor Rigidity of Machine / Workpiece									●				●
		Inaccurate Tool Installment											*1	●	
		Clogged Chips			● ↑	● ↓									
		Unstable Drilling Start				● ↓									
	Poor Hole Dia. Accuracy / Surface Finish	Poor Rigidity of Machine / Workpiece									●				●
		Poor Rigidity of Toolholder								●		●			
		Inaccurate Tool Installment											*1	●	
		Clogged Chips			● ↑	● ↓			● ↓						
		Large Core Dia.							● ↓						
		Unstable Drilling Start				● ↓									
		Unsuitable Coolant Discharge					●								
		Unsuitable Cutting Conditions, Installation			● ↑	● ↓				●	●				●
	Long Chips	Unsuitable Cutting Conditions			● ↑										
		Unsuitable Chipbreaker						●							
	Machine Failure	Lack of Machine Power			● ↓	● ↓		●							●

*1) For lathe operation

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Technical Information