

REAMERS - CARBIDE

Technical Information

Carbide Reamers		
Material Guide	SFM	Feed (IPR)
INCONEL	20 - 60	.0010 - .0050
RENE	20 - 60	.0020 - .0060
TITANIUM	30 - 90	.0020 - .0080
WASPOLOY	20 - 60	.0020 - .0060
STAINLESS STEEL - 300 SERIES	20 - 80	.0040 - .0080
STAINLESS STEEL - 400 SERIES	30 - 120	.0050 - .0100
MAGNESIUM	100 - 250	.0050 - .0150
MONEL	40 - 120	.0040 - .0120
STEEL - CAST & FORGED	40 - 100	.0030 - .0100
STEEL - HEAT TREATED (35-40 RC)	40 - 70	.0040 - .0080
STEEL - HEAT TREATED (40-45 RC)	30 - 50	.0020 - .0060
STEEL - HEAT TREATED (45+ RC)	15 - 40	.0010 - .0040
STEEL - MEDIUM CARBON	50 - 100	.0050 - .0100
MOLD STEEL	40 - 120	.0040 - .0060
TOOL STEEL	30 - 90	.0040 - .0060
CAST IRON - SOFT	80 - 200	.0060 - .0150
CAST IRON - MEDIUM	60 - 150	.0060 - .0120
CAST IRON - HARD	40 - 90	.0040 - .0100
ALUMINUM / ALUMINUM ALLOYS	100 - 250	.0050 - .0150
ALUMINUM - HIGH SILICON	80 - 200	.0030 - .0120
BRASS	100 - 250	.0050 - .0150
BRONZE	90 - 175	.0030 - .0120
COPPER / COPPER ALLOYS	90 - 220	.0050 - .0150
EPOXY FIBER	100 - 250	.0050 - .0150
PLASTIC	100 - 300	.0050 - .0150
RESIN - FIBER GLASS	100 - 300	.0050 - .0150
MASONITE	60 - 150	.0050 - .0150
PHENOLIC	60 - 100	.0050 - .0150

REAMERS - COBALT & HIGH SPEED STEEL

Technical Information

Cobalt & High Speed Steel Reamers			
Material Guide	Hardness	SFM	IPR
STEEL - ALL TYPES	60 + Rc	8 - 12	-
	50 + Rc	-	.0020 - .0040
	30 - 50 Rc	-	.0040 - .0080
	50 - 60 Rc	15 - 30	-
	40 - 50 Rc	20 - 40	-
	30 - 40 Rc	35 - 65	-
	Less than 30 Rc	60 - 90	-
CAST IRON & MALLEABLE	-	50 - 85	.0050 - .0120
ALUMINUM, BRASS, BRONZE, COPPER	-	90 - 175	.0050 - .0120
FIBER, PLASTIC, HARD RUBBER, ETC.	-	90 - 175	.0050 - .0120

Recommended Stock Removal		
Material Guide	Reamer Diameter	Removal (In)
STEEL - ALL TYPES	Up to 1/16" incl.	.0030 - .0050
	Over 1/16" to 1/8" incl.	.0040 - .0080
	Over 1/8" to 1/4" incl.	.0060 - .0120
	Over 1/4" to 3/8" incl.	.0080 - .0140
	Over 3/8" to 1/2" incl.	.0100 - .0150
	Over 1/2" to 3/4" incl.	.0120 - .0180

Recommended Lubricants		
Material Guide	Hardness	Lubricants
STEEL - ALL TYPES	Steel harder than 50 Rc	Light Oil
	Steel softer than 50 Rc	Light Oil for good finished or Soluble Oil and Water
CAST IRON & MALLEABLE IRON	-	Soluble Oil and Water
NON-FERROUS MATERIALS	-	Soluble Oil and Water

Workpiece hardness and machinability must be considered when setting machine speed. The feed rate plays an important part in the life expectancy of a tool and the hole finish which one is looking to attain. Improper feed rate can cause excessive tool wear as well as an inadequate hole finish.

To eliminate chatter, slow cutting speed and increase feed appropriately. Stock removal roughing operations should not exceed 2 to 4 percent of tool diameter in most case. Stock removal recommendations on finishing operations .002" to .004".

For best results with brass, cast iron, and some plastics, use a Left-Hand Spiral-Fluted reamer with negative shear action. This type of reamer helps prevent chips from working back into the flutes and scoring the hole. In all reaming operations, use constant-flow coolants. Soluble oil is effective for most metals; however, sulfur-based oils are recommended for stainless and certain alloy steels, lard oil and kerosene improve the finish on aluminum.