Cutting Speeds

Material	HSS	Carbide
Carbon Steel	80-100 SFPM	300-400 SFPM
Alloy Steel	40-80 SFPM	200-300 SFPM
Tool Steels	40-60 SFPM	160-200 SFPM
Aluminum Alloys	250-400 SFPM	300-600 SFPM
Brass, Bronze, Copper	200-300 SFPM	360-400 SFPM
Cast Iron	70-90 SFPM	250-300 SFPM

Drilling Feed Rates

Drill Size	IPR
.125/.250	0.002/0.004
.250/.500	0.004/0.007
.500/1.000	0.007/0.015

Chip Load FPT

Material	End Mill ⌀				
	1/4	3/8	1/2	3/4	1
Carbon Steel	0.001	0.002	0.003	0.004	0.006
Alloy Steel	0.001	0.002	0.003	0.004	0.006
Aluminum Alloys	0.002	0.003	0.005	0.008	0.010
Brass & Bronze	0.002	0.003	0.005	0.008	0.010
Cast Iron	0.001	0.002	0.003	0.004	0.006

RPM = 3.82 x SFPM / Diameter

Feed Rate (Milling IPM) = RPM x FPT x # of teeth

Feed Rate (Drilling IPM) = RPM x IPR

Feed Rate (Lathe) = IPR

Drill Point Depth = .3(118) x Drill Diameter

Extra Drill Depth for Blind Tapping = Pitch x 9

Tapping FR = TPI / RPM

Reaming = Drill Speed/2 & Drill Feed x 2

Inches to mm = 1" = 25.4mm

MM to inches = 1mm = .03937"

Pipe Taps = 4-5 Threads from end of tap

Bridgeport Tramming = Side to side (x) half, back and forth (y) double

Lathe Feed = 010"/rev for most turning

Endmill Plunge rate = ¼ of normal federate

Chamfer Depth = Drill Diameter + Chamfer Amount x Chamfer Angle (example .5 for 90°)

Chamfer Angle Chart

Angle	Amount	Angle	Amount
60°	0.866	82°	0.575
90°	0.500	118°	0.300
120°	0.288	135°	0.207