Whitney Suggested Cutting Speeds (SFM)

FEED AND SPEED CHART

Material	high Speed Steel	Cobalt Tool Steel	Uncoated Carbide	Coated Carbide
NON-FERROUS MATERIAL				
Aluminum Alloys	600+ ft./min.	—	1200+ ft./min.	—
Magnesium Alloys	600+ ft./min.	—	1000+ ft./min.	—
Brass	300+ ft./min.	—	800 ft./min.	650+ ft./min.
Bronze	80-100 ft./min.	—	250-300 ft./min.	—
TITANIUM (Double Starting Feed Rates)				
Commercially Pure	115-140 ft./min.	—	275-325 ft./min.	—
Alpha & Alpha-Beta Alloys	—	30-50 ft./min.	200-225 ft./min.	—
FERROUS MATERIAL				
STEELS				
Free Machining Carbon Steel	130-180 ft./min.	—	450-500 ft./min.	750-900 ft./min.
Low Carbon Steel	120-170 ft./min.	—	400-450 ft./min.	600-650 ft./min.
Medium Carbon Steel	100-120 ft./min.	—	375-425 ft./min.	550-600 ft./min.
Alloy Steel	100-120 ft./min.	—	375-425 ft./min.	550-600 ft./min.
Alloy and Med. Carbon	—	—	—	—
Heat Treated (Rc 26-32)	75-100 ft./min.		250-300 ft./min.	450-500 ft./min.
Alloy and Med. Carbon	—	—	—	—
Heat Treated (Rc 36-40)	—	50-60 ft./min.	180-200 ft./min.	225-275 ft./min.
Alloy and Med. Carbon	—			
Heat Treated (Rc 40-48)	—	40-50 ft./min.	150-180 ft./min.	220-250 ft./min.
Alloy and Med. Carbon	—	—	—	—
Heat Treated (Rc 48+)	—	20-30 ft./min.	100-120 ft./min.	—
Tool Steel (Wrought)	40-60 ft./min.	—	180-200 ft./min.	350 ft./min.
STAINLESS STEELS				
Free Machining	80-110 ft./min.	—	100-140 ft./min.	140+ ft./min.
Stainless (300 Series)	50-70 ft./min.	—	80-100 ft./min.	100+ ft./min.
17-4PH Annealed	50-80 ft./min.	—	150-190 ft./min.	190+ ft./min.
17-4PH 200,000 PSI	30-50 ft./min.	—	100-140 ft./min.	140+ ft./min.
HIGH TEMPERATURE ALLOYS				
Hasteloy X, Inconel	15-20 ft./min.	—	45-55 ft./min.	—
Inconel X	—	20-25 ft./min.	—	—
Monel Nickel Alloy	—	20-25 ft./min.	—	—
CAST IRON				
Malleable Iron	100-140 ft./min.	—	400-450 ft./min.	540-700 ft./min.
Gray Cast Iron	65-110 ft./min.	—	220-300 ft./min.	340-450 ft./min.
Ductile Iron	80-125 ft./min.	—	300-350 ft./min.	460-550 ft./min.

USE: .002 - .005 as a starting chip load per tooth.
For Titanium double the starting feed rates.
For Deep Slots reduce the ft/min by 20% to 40%

Important: An interactive Speed and Feed Calculator is available on our website at www.whitneytool.com