SOUTHERN CARBIDE Speeds and Feeds for Saws

Calculating speeds and feeds for saws is critical as the calculations are used to determine that enough power is available for achieving the desired depth and width of cut at higher feeds and speeds. Factors that come into play include horsepower availability, equipment, tool, and blade rigidity, and use of coolant among others. The following are approximations to be used for general reference only.

RPM = Rotations Per Minute
SFPM = Surface Feet Per Minute

Cutter Diameter = Diameter of cutter in Inches

IPM = Inches Per Minute
IPT = Inches Per Tooth
RPM = SFPM x 3.12 ÷ Cutter Diameter
IPM = IPT x RPM x # of Teeth

MATERIAL CLASS	MATERIAL	BRINEL	SAW SFPM	SAW IPT
Non-ferrous (Soft)	Aluminum Alloy - Wrought	30 - 150	2000 - 6000	.0003 - .0006
	Magnesium Alloy	50 - 90	3000 - 5000	.0003 - .0004
	Lead Alloy	20-Oct	300 - 2500	.0003 - .0004
	Non Metal & Plastic	-	3000 - 6000	.0003 - .0006
	Zinc Alloy - Die Cast	80 - 100	2500 - 6000	.0003 - .0005
	Aluminum Bronze	40 - 175	200 - 2500	.0003 - .0004
Non-ferrous (Hard)	Brass Alloy - Leaded & Free Cutting	10 - 100 Rb	500 - 3000	.0003 - .0004
	Nickel Silver	10 - 100 Rb	300 - 1200	.0003 - .0004
	Copper Alloy -Tough	40 - 200	300 - 1000	.0003 - .0004
	Ductile Cast Iron – Austenitic	120 - 275	250 - 1100	.0003 - .0004
	Ductile Cast Iron - Ferritic	140 - 270	225 - 850	.0003 - .0004
	Ductile Cast Iron – Martensitic	270 - 400	175 - 450	.0002 - .0004
Cast Iron	Gray - Pearlitic	220 - 320	225 - 450	.0003 - .0004
	Gray - Ferritic	110 - 240	200 - 600	.0002 - .0004
	Malleable Cast Iron - Martensitic	200 - 320	175 - 375	.0002 - .0003
	Low & Medium Carbon Steel (Free Machining)	100 - 250	200 - 650	.0002 - .0004
Low Carbon Steels	Low & Medium Carbon Steel (Wrought)	100 - 375	200 - 550	.0002 - .0004
	Low & Medium Carbon Alloy Steel (Free Machining)	100 - 275	350 - 1200	.0003 - .0006
Medium Strength Steels	Low & Medium Carbon - Alloy Steel	85 - 375	300 - 650	.0002 - .0004
	Stainless Steel - 400 Series	135 - 325	275 - 800	.0002 - .0005
	Stainless Steel 400 Series (Free Machining)	135 - 275	300 - 825	.0003 - .0006
High Strength Steels	High Strength Steel - Wrought & Tool Steel	175 - 400	125 - 175	.0002 - .0003
	High Temp Alloys - Nickel & Iron Base Alloy	140 - 300	150 - 500	.0001 - .0003
High Temp Alloys	Stainless Steel - 300 Series	135 - 375	400 - 850	.0003 - .0006
	Stainless Steel - PH Series	150 - 440	250 - 450	.0002 - .0004
	Titanium Alloy	110 - 380	85 - 175	.0001 - .0003