

Solid Carbide CNC Spiral Ball Nose Router Bits Speed and Feed Chart

Material	Chip Load						
	1/16"	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"
Aluminum	0.002" - 0.004"	0.003" - 0.005"	0.004" - 0.006"	0.006" - 0.008"	0.010" - 0.012"	0.012" - 0.014"	0.014" - 0.016"
Softwood	0.003" - 0.005"	0.005" - 0.007"	0.007" - 0.009"	0.008" - 0.010"	0.009" - 0.011"	0.010" - 0.012"	0.011" - 0.013"
Hardwood	0.002" - 0.004"	0.003" - 0.005"	0.005" - 0.007"	0.006" - 0.008"	0.007" - 0.009"	0.008" - 0.010"	0.009" - 0.011"
MDF	0.003" - 0.005"	0.005" - 0.007"	0.006" - 0.008"	0.007" - 0.009"	0.008" - 0.010"	0.009" - 0.011"	0.010" - 0.012"
Soft Plastic	0.002" - 0.004"	0.002" - 0.004"	0.004" - 0.006"	0.004" - 0.006"	0.006" - 0.008"	0.010" - 0.012"	0.012" - 0.014"
Hard Plastic	0.002" - 0.004"	0.002" - 0.004"	0.004" - 0.006"	0.004" - 0.006"	0.006" - 0.008"	0.008" - 0.010"	0.010" - 0.012"
Sign Foam	0.003" - 0.005"	0.005" - 0.007"	0.006" - 0.008"	0.007" - 0.009"	0.008" - 0.010"	0.009" - 0.011"	0.010" - 0.012"

Tool Reference #'s	
46369	1/8" Dia.
46373	1/16" Dia.
46374	1/4" Dia.
46375	1/8" Dia.
46376	1/4" Dia.
46378	3/8" Dia.
46380	1/2" Dia.
46384	1/2" Dia.
46386	5/8" Dia.
46387	3/4" Dia.
46476	1/4" Dia.
46477	1/2" Dia.

Operating RPM: 18,000

Simple Machining Calculations:

To find **RPM:** SFM x 3.82 / diameter of tool

To find **SFM:** 0.262 x diameter of tool x RPM

To find **Feed Rate:** RPM x # of flutes x chip load

Depth of Cut: 1 x D Use recommended chip load

2 x D Reduce chip load by 25%

3 x D Reduce chip load by 50%