

ZrN-Coated 2D/3D Carving CNC High Speed Steel (HSS) Router Bits

Operating RPM: 18,000 / Depth of Cut: 1 x Tool Diameter

3 Flute Ball Nose

	1/32" (0.031")		1/8" (0.125") - 3.2mm (.126")		Tool Reference #'s	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	HSS1300	1/32" Dia.
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	27" - 81"	0.0005" - 0.0015"	50" - 100"	0.0009" - 0.0018"	HSS1304	1/8" Dia.
Wood, MDF, Sign-Foam	40" - 108"	0.00075" - 0.002"	80" - 100"	0.0015" - 0.0025"	HSS1306	1/8" Dia.

3 Flute Flat Bottom

	1/16" (0.0625")		Tool Reference #'s	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	HSS1310	1/16" Dia.
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	20" - 30"	0.0004" - 0.0006"		
Wood, MDF, Sign-Foam	30" - 45"	0.0006" - 0.0008"		

4 Flute Ball Nose & Flat Bottom

	1/16" (0.0625")		1/8" (0.125")		Tool Reference #'s	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	HSS1302	1/16" Dia.
Aluminum, Copper, Brass	25" - 30"	0.00037" - 0.00045"	25" - 30"	0.00037" - 0.00045"	HSS1312	1/8" Dia.
Plastic, Acrylic, Plexiglas®	25" - 30"	0.00037" - 0.00045"	25" - 30"	0.00037" - 0.00045"		
Wood, MDF, Sign-Foam	35" - 45"	0.0005" - 0.00065"	35" - 45"	0.0005" - 0.00065"		

* IPM Inches per minute

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%

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

To find **Chip Load** = $\frac{\text{Feed Rate}}{\text{RPM} \times \text{\# of Flutes}}$

Disclaimer: It is important to understand that these values are only recommendations.