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

	0.5mm - 1/32" (0.031") - 1.5mm		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)	HSS1298-M	0.5mm Dia.
					HSS1300	1/32" Dia.
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	27" - 81"	0.0005" - 0.0015"	50" - 100"	0.0009" - 0.0018"	HSS1303-M	1.5mm Dia.
					HSS1304	1/8" Dia.
					HSS1304-M	3mm 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.
					HSS1312	1/8" Dia.
Aluminum, Copper, Brass	25" - 30"	0.00037" - 0.00045"	25" - 30"	0.00037" - 0.00045"		
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 feed rate
2 x D Reduce feed rate by 25%
3 x D Reduce feed rate 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 =** $\dfrac{\text{IPM}}{\text{RPM x \# of Flutes}}$

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