Amana Tool®

INDUSTRIAL

ZrN-Coated and Uncoated 2D/3D Carving CNC Solid Carbide Router Bits

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

2 Flute Ball Nose

	1mm (0.0394")		1/16" (0.0625")		6mm (0.2362") - 1/4" (0.250")	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	20" - 35"	0.0005" - 0.0015"	35" - 70"	0.001" - 0.002"	140" - 210"	0.004" - 0.006"
Wood, MDF, Sign-Foam	30" - 70"	0.00075" - 0.002"	55" - 90"	0.003" - 0.005"	250" - 320"	0.007" - 0.009"

Tool Reference #'s	
46252	1/16" Dia.
46252-S	1/16" Dia.
46256	1mm Dia.
46283	1/4" Dia.
46285	1/4" Dia.
NOT AVAILABLE 46289	1/4" Dia.
46294	1/4" Dia.
46294-S	1/4" Dia.
46294-U	1/4" Dia.
46471	1mm Dia.
46479	6mm Dia.

2 Flute Flat Bottom

	1/8" (0.125")		6mm (0.2362")		1/4" (0.250")	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)
Aluminum, Copper, Brass	110" - 180"	0.003" - 0.005"	140" - 210"	0.004" - 0.006"	180" - 250"	0.005" - 0.007"
Plastic, Acrylic, Plexiglas®	70" - 145"	0.002" - 0.004"	140" - 210"	0.004" - 0.006"	180" - 250"	0.005" - 0.007"
Wood, MDF, Sign-Foam	110" - 180"	0.003" - 0.005"	250" - 320"	0.007" - 0.009"	215" - 290"	0.006" - 0.008"

Tool Reference #'s	
46254	1/8" Dia.
46577	1/4" Dia.
46585	6mm Dia.

3 Flute Ball Nose

	1/32" (0.031") - 1mm (0.0394") 1/16" (0.0625")		1/8" (0.125") - 3.2mm (.126")		3/16" (0.1875")		6mm (0.2362")		3/8" (0.375")		1/2" (0.500")	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	27" - 81"	0.0005" - 0.0015"	50" - 100"	0.0009" - 0.0018"	80" - 100"	0.0015" - 0.0025"	135" - 215"	0.0025" - 0.004"	215" - 320"	0.004" - 0.006"	320" - 430"	0.006" - 0.008"
Wood, MDF, Sign-Foam	40" - 108"	0.00075" - 0.002"	80" - 100"	0.0015" - 0.0025"	100" - 170"	0.0025" - 0.004"	215" - 320"	0.004" - 0.006"	320" - 430"	0.006" - 0.008"	375" - 490"	0.007" - 0.009"

* **IPM** Inches per minute

Tool Reference #'s	
46280	1/32" Dia.
46280-S	1/32" Dia.
46280-U	1/32" Dia.
46281	1/16" Dia.
46284	1/8" Dia.
46284-U	1/8" Dia.
46286	1/8" Dia.
46286-S	1/8" Dia.
46286-U	1/8" Dia.
46287	1/8" Dia.
46288	1/8" Dia.
46291	1/32" Dia.
46295	1/8" Dia.
46298	3/16" Dia.
46470	0.8mm Dia.
46471	0.8mm Dia.
46473	0.5mm Dia.
46474	3.2mm Dia.
46494	3/8" Dia.
46495	1/2" Dia.
NOT AVAILABLE 46580	1/32" Dia.

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 =** $\frac{\text{IPM}}{\text{RPM x \# of Flutes}}$

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ZrN-Coated and Uncoated 2D/3D Carving CNC Solid Carbide Router Bits

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

3 Flute Flat Bottom

	1/32" (0.031") - 1mm (0.0394")		1/16" (0.0625")		1/8" (0.125")		3/16" (0.1875") - 1/4 (0.25")		3/8" (0.375")		1/2" (0.500")	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	10" - 21"	0.0002" - 0.0004"	20" - 30"	0.0004" - 0.0006"	55" - 100"	0.001" - 0.002""	81" - 160"	0.0015" - 0.003"	180" - 200"	0.003" - 0.004"	215" - 320"	0.004" - 0.006"
Wood, MDF, Sign-Foam	15" - 25"	0.0003" - 0.0005"	30" - 45"	0.0006" - 0.0008"	80" - 135"	0.0015" - 0.0025"	135" - 240"	0.0025" - 0.0045"	240" - 320"	0.005" - 0.006"	320" - 490"	0.006" - 0.008"

Tool Reference #'s	
46290	1/16" Dia.
46290-U	1/16" Dia.
46299	1/8" Dia.
46570	1/32" Dia.
46571	1/32" Dia.
46573	1/8" Dia.
46574	1/8" Dia.
46576	1/8" Dia.
46575	3/16" Dia.
46578	1/4" Dia.
46579	1/2" Dia.
46581	1mm Dia.
46597	3/8" Dia.

3 Flute Extra Long Ball Nose & Flat Bottom

	1/4" (0.250")		3/8" (0.375")		1/2" (0.500")	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)
Aluminum, Copper, Brass, Plastic, Acrylic, Plexiglas®	135" - 190"	0.0025" - 0.0035"	160" - 270"	0.003" - 0.005"	215" - 320"	0.004" - 0.006"
Wood, MDF, Sign-Foam	215" - 320"	0.004" - 0.006"	270" - 370"	0.005" - 0.007"	320" - 430"	0.006" - 0.008"

Tool Reference #'s	
46490	1/4" Dia.
46491	3/8" Dia.
46493	1/2" Dia.
46496	1/2" Dia.
46590	1/4" Dia.
46591	3/8" Dia.
46593	1/2" Dia.
46596	1/2" Dia.

4 Flute Ball Nose & Flat Bottom

	1.5mm (0.0591")		1/16" (0.0625")		1/8" (0.125")		1/4" (0.250")	
	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)	IPM*	Chip Load Per Tooth (Based on 18,000 RPM)
Aluminum, Copper, Brass	25" - 30"	0.00037" - 0.00045"	25" - 30"	0.00037" - 0.00045"	25" - 30"	0.00037" - 0.00045"	25" - 30"	0.00037" - 0.00045"
Plastic, Acrylic, Plexiglas®	30" - 45"	0.0004" - 0.0006"	25" - 30"	0.00037" - 0.00045"	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"	35" - 45"	0.0005" - 0.00065"	35" - 45"	0.0005" - 0.00065"

Tool Reference #'s	
46282	1/16" Dia.
46292	1/8" Dia.
46293	1/16" Dia.
46472	1.5mm Dia.
46572	1/16" Dia.
46582	1/16" Dia.
~~46583~~ NOT AVAILABLE	1/8" Dia.
46584	1/4" Dia.

* **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 =** $\frac{\text{IPM}}{\text{RPM x \# of Flutes}}$

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