

The logo features a red sine wave graphic that loops around the text. The text "SINE-POWER" is in a bold, black, sans-serif font.

SINE-POWER



**HIGH PERFORMANCE HSS ROUGHER
for TITANIUM, TITANIUM ALLOYS AND
STAINLESS STEELS**



Leading Through Innovation

SINE-POWER for Titanium and Titanium alloys is specifically designed for Aerospace and Power-Generation applications where efficient roughing of difficult to machine materials is essential.

Moreover, the engineered geometry allows exceptional metal removal rates at increased feeds and results in a better surface finish than a standard rougher.

ENGINEERED FLUTE GEOMETRY

- Optimal chip formation and evacuation
- Reduces friction and heat generation

APPLICATIONS:
TITANIUM
TITANIUM ALLOYS
STAINLESS STEELS

MATERIAL:
HSS Co8%



VARIABLE FACE PROFILE & SINUSOIDAL CUTTING EDGES

- Reduces vibrations and chatter
- Allows large depths of cut in slotting and profiling operations



CORNER PROTECTION:

- Standard chamfer
- Corner radius on request



CENTER CUTTING

- 4&6 flute
- Higher stability
- Axial machining



Excellent chip formation

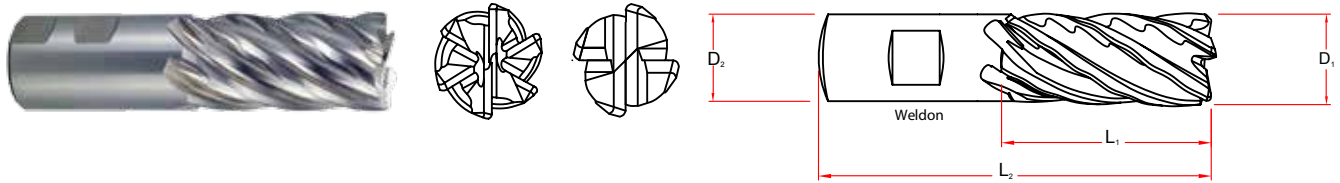
SINE-POWER	
Material	HSS Co8%
Dimension	ø2''(R.125'') x ø2'' x 4'' x 7-3/4''
No. of Flute	6
Coating	Uncoated

CUTTING CONDITIONS		
Milling Method	Slotting	Profiling
Material	6Al4V Titanium	
Coolant	Wet Cut	
RPM	100 rev/min	100 rev/min
Feed	2 IPM	3.15 ~ 4.2 IPM
Axial Depth	1-1/2 inch	1-1/2 inch
Radial Depth	2 inch	0.1 ~ 0.2 inch
Feed/Tooth	.0018 inch/tooth	.0053 ~ .007 inch/tooth

The above cutting conditions achieved 5 hours machining

THE SINE-POWER SPECIFIC GEOMETRY DESIGN HELPS OUR CUSTOMERS TO INCREASE THEIR PRODUCTIVITY BY 15% IN TITANIUM MACHINING.

HSS Co8, 4&6 FLUTE, FLAT SHANK





Cutting Dia. Tolerance	Shank Dia. Tolerance
.0000 / + .0030 inch	- .0001/ - .0005 inch

INCH SERIES

Unit: Inch

EDP No.	Cutting Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer	No. of Flute
	D ₁	D ₂	L ₁	L ₂		
E2F64048	3/4	3/4	1 5/8	3 7/8	.030	4
E2F64901	3/4	3/4	2 1/4	4 1/2	.030	4
E2F64902	3/4	3/4	3	5 1/4	.030	4
E2F64064	1	1	2	4 1/2	.030	4
E2F64903	1	1	2	4 1/2	.030	6
E2F64904	1	1	3	5 1/2	.030	4
E2F64905	1	1	3	5 1/2	.030	6
E2F64906	1	1	4	6 1/2	.030	4
E2F64907	1	1	4	6 1/2	.030	6
E2F64116	1 1/4	1 1/4	2	4 1/2	.040	4
E2F64908	1 1/4	1 1/4	2	4 1/2	.040	6
E2F64909	1 1/4	1 1/4	3	5 1/2	.040	4
E2F64910	1 1/4	1 1/4	3	5 1/2	.040	6
E2F64911	1 1/4	1 1/4	4	6 1/2	.040	4
E2F64912	1 1/4	1 1/4	4	6 1/2	.040	6
E2F64132	1 1/2	1 1/4	2	4 1/2	.040	6
E2F64913	1 1/2	1 1/4	3	5 1/2	.040	6
E2F64914	1 1/2	1 1/4	4	6 1/2	.040	6
E2F64915	1 1/2	1 1/4	6	8 1/2	.040	6
E2F64200	2	2	2	5 3/4	.040	6
E2F64916	2	2	3	6 3/4	.040	6
E2F64917	2	2	4	7 3/4	.040	6
E2F64918	2	2	6	9 3/4	.040	6
E2F64919	2	2	8	11 3/4	.040	6

Corner radius available on request

SPEED AND FEED RECOMMENDATIONS					Diameter (inch)					
ISO HARDNESS (BHN)	Work Materials	Type of cut			Parameters	3/4	1	1 1/4	1 1/2	2
M < 250	Stainless Steel - Free Machining 303, 416, 420F, 430F, 440F	Profiling 	2	0.5	SFM (Vc)	110 (88-132)				
					RPM	560	420	336	280	210
					Fz	0.0020	0.0030	0.0040	0.0050	0.0060
					Feed (IPM)	7	8	8	8	8
		Slotting 	1	1	SFM (Vc)	95 (76-114)				
					RPM	484	363	290	242	181
					Fz	0.0025	0.0035	0.0045	0.0055	0.0065
					Feed (IPM)	7	8	8	8	7
M < 275	Stainless Steel - Difficult 304, 304L, 316, 316L	Profiling 	1.5	0.5	SFM (Vc)	100 (80-120)				
					RPM	509	382	306	255	191
					Fz	0.0020	0.0030	0.0040	0.0050	0.0060
					Feed (IPM)	6	7	7	8	7
		Slotting 	1	1	SFM (Vc)	80 (64-96)				
					RPM	407	306	244	204	153
					Fz	0.0025	0.0035	0.0045	0.0055	0.0065
					Feed (IPM)	6	6	7	7	6
M < 325	Stainless Steel PH 13-8 PH, 15-5PH, 17-4 PH, Custom 450	Profiling 	1.5	0.5	SFM (Vc)	85 (68-102)				
					RPM	433	325	260	216	162
					Fz	0.0020	0.0030	0.0040	0.0050	0.0060
					Feed (IPM)	5	6	6	6	6
		Slotting 	1	1	SFM (Vc)	75 (60-90)				
					RPM	382	287	229	191	143
					Fz	0.0025	0.0035	0.0045	0.0055	0.0065
					Feed (IPM)	6	6	6	6	6
S < 350	Titanium Base Alloy Pure Titanium, Ti6Al4V, Ti6Al2Sn4Zr2Mo, Ti4Al4Mo2Sn0.5Si	Profiling 	2	0.5	SFM (Vc)	75 (60-90)				
					RPM	382	287	229	191	143
					Fz	0.0017	0.0025	0.0030	0.0035	0.0045
					Feed (IPM)	4	4	4	4	4
		Slotting 	1	1	SFM (Vc)	65 (52-78)				
					RPM	331	248	199	166	124
					Fz	0.0017	0.0025	0.0030	0.0035	0.0045
					Feed (IPM)	3	4	4	3	3
S < 450	Titanium Base Alloy - Difficult Ti10Al2Fe3Al, Ti5Al5V5Mo3Cr, Ti7Al4Mo, Ti3Al8V6Cr4Zr4Mo, Ti6Al6V6Sn, Ti15V3Cr3Sn3Al	Profiling 	1.5	0.5	SFM (Vc)	60 (48-72)				
					RPM	306	229	183	153	115
					Fz	0.0017	0.0025	0.0030	0.0035	0.0045
					Feed (IPM)	3	3	3	3	3
		Slotting 	1	1	SFM (Vc)	40 (32-48)				
					RPM	204	153	122	102	76
					Fz	0.0017	0.0025	0.0030	0.0035	0.0045
					Feed (IPM)	2	2	2	2	2

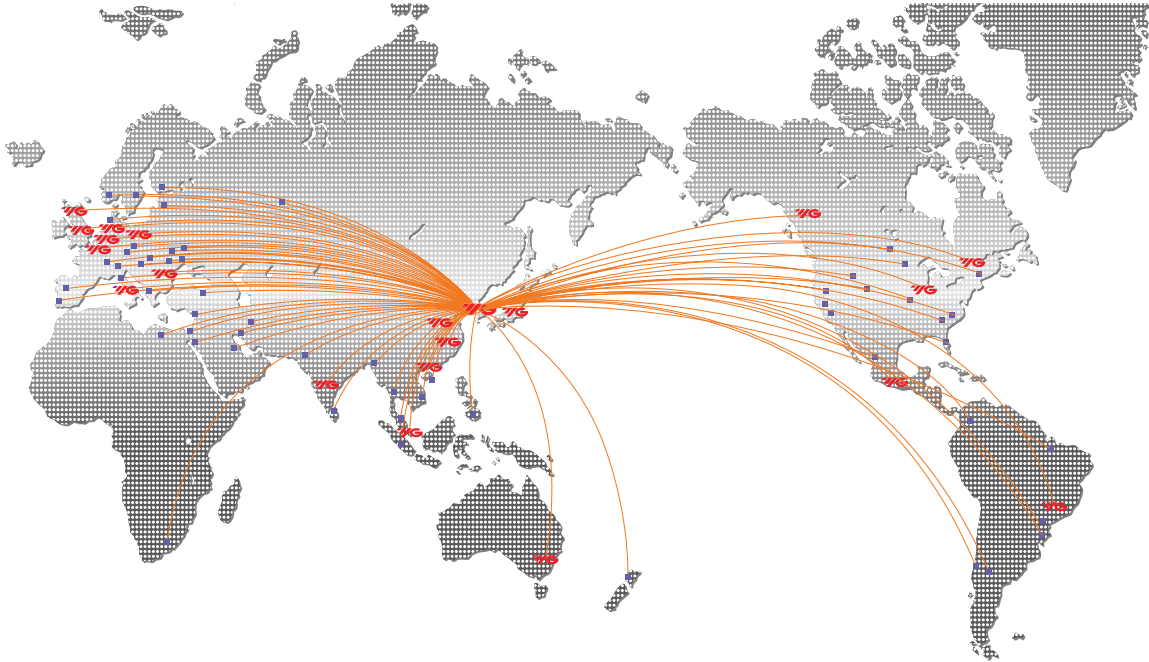
* Maximum recommended depth shown


* Reduce speed & feed for material harder than listed

* Above recommendations are based on ideal conditions; for smaller taper machining centers or less rigid conditions please adjust parameters accordingly on diameters greater than 3/4"


HIGH QUALITY PRODUCTS AND ON TIME DELIVERY FOR WORLD-WIDE CUSTOMERS

Since 1982, our commitment to quality, reliability and striving for constant innovation has allowed us to expand our market share and our partners' global network. As one of the main leading tool manufacturers, we are dedicated in offering a unique customer experience by delivering high quality cutting tool solutions around the world. In order to be responsive and to offer local solutions, YG-1 has established a global network over 75 countries and has set up international logistic centers. This is our pledge to provide the best service in order to satisfy our customers' needs at all time.



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