

MICRO END MILLS - CARBIDE

THESE VALUES ARE FOR UNCOATED TOOLS. FOR ALTiN COATED TOOLS INCREASE SFM +40%

TECHNICAL INFORMATION

SFM & CHIP LOAD										
MATERIAL / TYPE	CONDITIONS	STARTING SFM	DIAMETER RANGE - SUGGESTED CHIP LOAD PER TOOTH							
			.005-.015	.015-.030	.030-.045	.045-.060	.06-.075	.075-.090	.090-.105	.105-.125
STAINLESS STEELS										
PRECIPITATION 13-8, 15-5, 17-4PH	Slotting @≤10% of D	90	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @6% of D Axial/≤20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
AUSTENITIC 302, 303, 304L, 316L	Slotting @≤15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @6% of D Axial/≤30% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
MARTENSITIC 302, 303, 304L, 316L	Slotting @≤15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @6% of D Axial/≤30% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
HIGH TEMP ALLOYS										
COBALT BASE Stellite, Haynes 25, 188, X-40, L-605	Slotting @ 7% of D	50	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @5% of D Axial/≤20% of D Radial	80	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
NICKEL BASE Inconel 600, 625, 718, Nickel 200, 270, Invar, Monel 400, 405, K-Monel PermaNickel 300, Incoly 600	Slotting @ 7% of D	40	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @5% of D Axial/≤20% of D Radial	60	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
IRON BASE Incoly 800-802, Multimet N-155, Timken 16-26-6	Slotting @ 7% of D	80	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @5% of D Axial/≤20% of D Radial	100	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
STEELS										
HIGH STRENGTH STEELS 4140, 4340, 52100	Slotting @≤15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @6% of D Axial/≤30% of D Radial	180	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
HIGH ALLOY STEELS MOLD & DIE A-2, P20, 01, 02, D2, H-13	Slotting @≤10% of D	125	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @6% of D Axial/≤20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
MEDIUM ALLOY STEELS 200, 250, 300	Slotting @≤15% of D	125	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"
	Profiling @6% of D Axial/≤30% of D Radial	250	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"
LOW ALLOY STEELS MARAGING 10XX, 11XX, 13XX	Slotting @≤15% of D	150	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
	Profiling @6% of D Axial/≤35% of D Radial	300	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
CAST IRONS										
DUCTILE IRON Ductile Cast Iron	Slotting @≤15% of D	100	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
	Profiling @10% of D Axial/≤25% of D Radial	250	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
CAST IRON Gray Cast Iron	Slotting @≤25% of D	125	.0004"	.0004"	.0005"	.0005"	.0008"	.0008"	.0010"	.0010"
	Profiling @10% of D Axial/≤35% of D Radial	400	.0004"	.0004"	.0005"	.0005"	.0008"	.0008"	.0010"	.0010"
TITANIUMS										
TITANIUM ALLOYS 6AL-4V, ASTM 1, 2, 3, 6AL-2S For 5553, decrease SFM & IPM 25%	Slotting @≤15% of D	125	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @6% of D Axial/≤20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
ALUMINUM										
ALUMINUM ALLOYS 6061-T6, 7075	Slotting @≤15% of D	650	.0004"	.0004"	.0005"	.0006"	.0008"	.0008"	.0010"	.0010"
	Profiling @10% of D Axial/≤35% of D Radial	775	.0004"	.0004"	.0005"	.0006"	.0008"	.0008"	.0010"	.0010"

SPEED & FEED CALCULATION FORMULAS

$$\text{RPM} = (3.82 \times \text{SFM}) \div \text{Dia.}$$

$$\text{IPR} = \text{IPM} \div \text{RPM}$$

$$\text{SFM} = (\text{RPM} \times \text{Dia.}) \div 3.82$$

$$\text{IPM} = \text{IPT}(\text{chip load}) \times \text{No. of Teeth} \times \text{RPM}$$

$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$