

Series *SM5F, SM5F-NB, MSM5F, MSM5F-NB*

Cutting Parameters

Suggested Starting Speeds & Feed Rates

Material Group	ISO Code	Material Examples	Finishing Cuts		Medium Cuts		Heavy Cuts		Facing	
			.1D Radial x 2D Axial		.25D Radial x 1.5D Axial		.5D Radial x 1.5D Axial		.75D Radial x .25D Axial	
			SFM	IPM	SFM	IPM	SFM	IPM	SFM	IPM
Steel	P	1018 thru 1095, 12L14, A-36, Hot Rolled	600	75.00	600	70.00	600	60.00	600	70.00
Steel Alloys	P	4140 thru 8820	500	60.00	500	55.00	500	50.00	500	55.00
		Steel Alloys <45 HRC, Cobalt Chrome	300	30.00	300	25.00	300	20.00	300	25.00
Tool & Mold Steels	P	H-13, O-1, A-2, D-2, S7, P20	250	40.00	250	35.00	250	30.00	250	35.00
	H*	AR-450, Steels >45 HRC	100	8.00	100	6.00	100	5.00	100	6.00
Stainless Steel	M	303,304, 316	450	45.00	450	40.00	450	35.00	450	35.00
		410, 420, 440, 13-8, 15-5, 17-4 Ph	350	40.00	350	35.00	350	30.00	350	35.00
High Temp - Titanium	S	6Al4V, 5553, 99	200	15.00	200	12.00	200	10.00	200	12.00
High Temp - Nickel Based Alloys	S	Inconel 100, 718, Hastelloy-B, Rene 77, Jethete M252, Haynes 75	80	7.00	80	6.00	80	5.00	80	6.00
		Inconel 625, Waspalloy	120	10.00	120	8.00	120	7.00	120	8.00
		Monel 400	250	16.00	250	12.00	250	10.00	250	12.00
High Temp - Iron Based Alloys	S	Aeromet 100, A286, Jethete M152	100	8.00	100	6.00	100	5.00	100	6.00
High Temp - Cobalt Based Alloys	S	Kovar, L-405, L-605, Stellite SF12	70	6.00	70	5.00	70	4.00	70	5.00
Cast Iron	K	Gray Cast, Malleable and Ductile Iron	600	75.00	600	70.00	600	60.00	600	70.00

**When machining Hardened Materials > 45 HRC, use the Series with "NB."
Having an AlTiN coating will result in much longer tool life*

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Recommended Chip Loads

Material Group	ISO Code	Material Examples	Cutting Diameter							
			1/8	3/16	1/4	3/8	1/2	5/8	3/4	1
Steel	P	1018 thru 1095, 12L14, A-36, Hot Rolled	0.0007	0.0010	0.0020	0.0030	0.0040	0.0050	0.0060	0.0070
Steel Alloys	P	4140 thru 8820	0.0005	0.0007	0.0015	0.0020	0.0030	0.0040	0.0050	0.0060
		Cobalt Chrome	0.0008	0.0010	0.0020	0.0030	0.0050	0.0070	0.0080	0.0100
		Steel Alloys <45 HRC	0.0003	0.0003	0.0005	0.0008	0.0010	0.0015	0.0020	0.0030
Tool & Mold Steels	P	H-13, O-1, A-2, D-2, S7, P20	0.0005	0.0010	0.0015	0.0020	0.0030	0.0040	0.0050	0.0050
	H*	AR-450, Steels >45 HRC	0.0002	0.0003	0.0005	0.0008	0.0010	0.0015	0.0020	0.0030
Stainless Steel	M	303,304, 316	0.0007	0.0010	0.0015	0.0020	0.0030	0.0040	0.0050	0.0060
		410, 420, 440, 13-8, 15-5, 17-4 Ph	0.0005	0.0008	0.0010	0.0015	0.0025	0.0030	0.0040	0.0050
High Temp - Titanium	S	6Al4V, 5553, 99	0.0005	0.0008	0.0010	0.0012	0.0015	0.0020	0.0030	0.0040
High Temp - Nickel Based Alloys	S	Inconel 100, 718, Hastelloy-B, Rene 77, Jethete M252, Haynes 75	0.0005	0.0007	0.0010	0.0015	0.0020	0.0025	0.0030	0.0030
		Inconel 625, Waspalloy	0.0005	0.0007	0.0010	0.0015	0.0020	0.0025	0.0030	0.0030
		Monel 400	0.0005	0.0010	0.0015	0.0020	0.0025	0.0030	0.0040	0.0050
High Temp - Iron Based Alloys	S	Aeromet 100, A286, Jethete M152	0.0005	0.0007	0.0010	0.0015	0.0020	0.0025	0.0030	0.0030
High Temp - Cobalt Based Alloys	S	Kovar, L-405, L-605, Stellite SF12	0.0005	0.0007	0.0010	0.0015	0.0020	0.0025	0.0030	0.0030
Cast Iron	K	Gray Cast, Malleable and Ductile Iron	0.0050	0.0007	0.0010	0.0015	0.0020	0.0030	0.0040	0.0050

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