

Series *XP, XP-NB, MXP, MXP-NB, XPR, XPR-NB, XPB & XPB-NB*

Cutting Parameters

Suggested Starting Speeds & Feed Rates

Material Group	ISO Code	Material Examples	Finishing Cuts		Medium Cuts		Heavy Cuts		Slotting	
			.1D Radial x 2D Axial		.25D Radial x 1.5D Axial		.5D Radial x 1.5D Axial		.5D Axial	
			SFM	IPM	SFM	IPM	SFM	IPM	SFM	IPM
Steel	P	1018 thru 1095, 12L14, A-36, Hot Rolled	600	60.00	600	50.00	600	45.00	600	40.00
Steel Alloys	P	4140 thru 8820	500	50.00	500	45.00	500	40.00	500	35.00
		Steel Alloys <45 HRC, Cobalt Chrome	200	30.00	200	25.00	200	20.00	200	15.00
Tool & Mold Steels	P	H-13, O-1, A-2, D-2, S7, P20	250	30.00	250	25.00	250	20.00	250	15.00
	H*	AR-450, steels > 45 HRC	100	6.00	100	5.00	100	4.00	80	3.00
Stainless Steel	M	303,304, 316	450	40.00	450	35.00	450	30.00	450	25.00
		410, 420, 440, 13-8, 15-5, 17-4 Ph	350	35.00	350	30.00	350	25.00	350	20.00
High Temp - Titanium	S	6Al4V, 5553, 99	200	10.00	200	8.00	200	7.00	200	6.00
High Temp - Nickel Based Alloys	S	Inconel 100, 718, Hastelloy-B, Rene 77, Jethete M252, Haynes 75	80	8.00	80	7.00	80	6.00	80	4.00
		Inconel 625, Waspalloy	120	10.00	120	9.00	120	8.00	120	6.00
		Monel 400	250	20.00	250	18.00	250	16.00	250	12.00
High Temp - Iron Based Alloys	S	Aeromet 100, A286, Jethete M152	100	8.00	100	7.00	100	6.00	100	5.00
High Temp - Cobalt Based Alloys	S	Kovar, L-405, L-605, Stellite SF12	70	7.00	70	6.00	70	5.00	70	4.00
Cast Iron	K	Gray Cast, Malleable and Ductile Irons	600	60.00	600	50.00	600	45.00	600	40.00

**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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Cutting Parameters

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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