



# SPEED & FEED

For high efficiency machining (HEM) suggestions and starting parameters, give us a call at **855-263-2328**.

## Cutting Parameters

(For traditional cutting Speed-n-Feed starting parameters)

	MATERIAL	HARDNESS	SFM	INCHES PER TOOTH (IPT)																								
				1/8			3/16			1/4			3/8			1/2			5/8			3/4			1			
				S	LR	HR	S	LR	HR	S	LR	HR	S	LR	HR	S	LR	HR	S	LR	HR	S	LR	HR	S	LR	HR	
N	WROUGHT ALUMINUM ALLOY	2014, 5052, 6061	< 120 HBS	1800	.0009	.0017	.0011	.0014	.0025	.0017	.0018	.0034	.0023	.0027	.0051	.0034	.0036	.0068	.0045	.0045	.0084	.0056	.0054	.0101	.0068	.0072	.0135	.0090
		7050, 7075, 7475	> 120 HBS	1600	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060
	CAST ALUMINUM ALLOY	319, 328, 355, 360, 380, 383, 390, 520, 535	< 120 HBS	900	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0042	.0079	.0053	.0056	.0105	.0070	.0070	.0131	.0088	.0084	.0158	.0105	.0112	.0210	.0140
		> 120 HBS	750	.0010	.0019	.0013	.0015	.0028	.0019	.0020	.0038	.0025	.0030	.0056	.0038	.0040	.0075	.0050	.0050	.0094	.0063	.0060	.0113	.0075	.0080	.0150	.0100	
COPPER/BRASS	C10100-C15999, C20000-C49999	< 75 HRB	550	.0008	.0015	.0010	.0012	.0023	.0015	.0016	.0030	.0020	.0024	.0045	.0030	.0032	.0060	.0040	.0040	.0075	.0050	.0048	.0090	.0060	.0064	.0120	.0080	
		75-98 HRB	435	.0007	.0013	.0009	.0011	.0020	.0013	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0035	.0066	.0044	.0042	.0079	.0053	.0056	.0105	.0070	
P	CARBON STEEL	10XX, 11XX, 122XX	<75 HRB	450	.0008	.0015	.0010	.0012	.0023	.0015	.0016	.0030	.0020	.0024	.0045	.0030	.0032	.0060	.0040	.0040	.0075	.0050	.0048	.0090	.0060	.0064	.0120	.0080
		12LXX, ASTM A27	75-98 HRB	450	.0008	.0014	.0010	.0011	.0021	.0014	.0015	.0029	.0019	.0023	.0043	.0029	.0030	.0057	.0038	.0071	.0048	.0046	.0086	.0057	.0061	.0114	.0076	
		ASTM A36	21-26 HRC	350	.0007	.0014	.0009	.0011	.0020	.0014	.0014	.0027	.0018	.0022	.0041	.0027	.0029	.0054	.0036	.0036	.0068	.0045	.0043	.0081	.0054	.0058	.0108	.0072
			71-98 HRB	450	.0007	.0013	.0009	.0011	.0020	.0013	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0035	.0066	.0044	.0042	.0079	.0053	.0056	.0105	.0070
ALLOY STEEL	12XX, 41XX, 43XX, 300M	21-36 HRC	380	.0007	.0013	.0009	.0011	.0020	.0013	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0035	.0066	.0044	.0042	.0079	.0053	.0056	.0105	.0070	
		36-50 HRC	225	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060	
TOOL STEEL	A2, H13, L6, P20, 27	>50 HRC	100	.0006	.0011	.0007	.0008	.0016	.0011	.0011	.0021	.0014	.0017	.0032	.0021	.0022	.0042	.0028	.0028	.0053	.0035	.0034	.0063	.0042	.0045	.0084	.0056	
		71-98 HRB	225	.0008	.0015	.0010	.0012	.0023	.0015	.0016	.0030	.0020	.0024	.0045	.0030	.0032	.0060	.0040	.0040	.0075	.0050	.0048	.0090	.0060	.0064	.0120	.0080	
		21-36 HRC	180	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060	
		36-50 HRC	130	.0004	.0008	.0006	.0007	.0012	.0008	.0009	.0017	.0011	.0013	.0025	.0017	.0018	.0033	.0022	.0022	.0041	.0028	.0026	.0050	.0033	.0035	.0066	.0044	
SPECIALTY ALLOYS	MARAGING 200	>50 HRC	90	.0004	.0007	.0005	.0005	.0010	.0007	.0007	.0014	.0009	.0011	.0020	.0014	.0014	.0027	.0018	.0018	.0034	.0023	.0022	.0041	.0027	.0029	.0054	.0036	
		75-98 HRB	225	.0008	.0015	.0010	.0012	.0023	.0015	.0016	.0030	.0020	.0024	.0045	.0030	.0032	.0060	.0040	.0040	.0075	.0050	.0048	.0090	.0060	.0064	.0120	.0080	
		21-36 HRC	225	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060	
		36-50 HRC	150	.0006	.0011	.0007	.0008	.0016	.0011	.0011	.0021	.0014	.0017	.0032	.0021	.0022	.0042	.0028	.0028	.0053	.0035	.0034	.0063	.0042	.0045	.0084	.0056	
AUSTENITIC - STAINLESS STEEL	NITRONIC 50, NITRONIC 60, 301, 303	75-98 HRB	250	.0007	.0013	.0009	.0011	.0020	.0013	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0035	.0066	.0044	.0042	.0079	.0053	.0056	.0105	.0070	
		304, 304L	21-36 HRC	225	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060
		INCOLOY 27-TMO, 316, 316L, 321, 347	36-50 HRC	180	.0005	.0009	.0006	.0008	.0014	.0009	.0010	.0019	.0013	.0015	.0028	.0019	.0020	.0038	.0025	.0025	.0047	.0031	.0030	.0056	.0038	.0040	.0075	.0050
		403, 410, 416, 420	75-98 HRB	325	.0007	.0013	.0009	.0011	.0020	.0013	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0035	.0066	.0044	.0042	.0079	.0053	.0056	.0105	.0070
PH STAINLESS STEEL	15-5, 17-4	21-36 HRC	225	.0006	.0011	.0007	.0008	.0016	.0011	.0011	.0021	.0014	.0017	.0032	.0021	.0022	.0042	.0028	.0028	.0053	.0035	.0034	.0063	.0042	.0045	.0084	.0056	
		CARPENTER 450, CARPENTER 465	36-50 HRC	130	.0005	.0009	.0006	.0008	.0014	.0009	.0010	.0019	.0013	.0015	.0028	.0019	.0020	.0038	.0025	.0025	.0047	.0031	.0030	.0056	.0038	.0040	.0075	.0050
K	GRAY CAST IRON	SAE J431, ASTM A48	75-98 HRB	300	.0010	.0019	.0013	.0015	.0028	.0019	.0020	.0038	.0025	.0030	.0056	.0038	.0040	.0075	.0050	.0050	.0094	.0063	.0060	.0113	.0075	.0080	.0150	.0100
		21-36 HRC	150	.0009	.0017	.0011	.0014	.0025	.0017	.0018	.0034	.0023	.0027	.0051	.0034	.0036	.0068	.0045	.0045	.0084	.0056	.0054	.0101	.0068	.0072	.0135	.0090	
	MALLEABLE CAST IRON	ASTM A47, ASTM A220	75-98 HRB	350	.0009	.0017	.0011	.0014	.0025	.0017	.0018	.0034	.0023	.0027	.0051	.0034	.0036	.0068	.0045	.0045	.0084	.0056	.0054	.0101	.0068	.0072	.0135	.0090
		ASTM A602	21-36HRC	325	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060
NODULAR (DUCTILE) CAST IRON	ASTM A536, ASTM 897	75-98 HRB	350	.0009	.0017	.0011	.0014	.0025	.0017	.0018	.0034	.0023	.0027	.0051	.0034	.0036	.0068	.0045	.0045	.0084	.0056	.0054	.0101	.0068	.0072	.0135	.0090	
		21-36 HRC	275	.0006	.0011	.0008	.0009	.0017	.0011	.0012	.0023	.0015	.0018	.0034	.0023	.0024	.0045	.0030	.0030	.0056	.0038	.0036	.0068	.0045	.0048	.0090	.0060	
S	LOW EXPANSION ALLOY	INVAR 36, KOVAR	60-85 HRB	180	.0010	.0019	.0013	.0015	.0028	.0019	.0020	.0038	.0025	.0030	.0056	.0038	.0040	.0075	.0050	.0050	.0094	.0063	.0060	.0113	.0075	.0080	.0150	.0100
		HASTELLOY C022, INCONEL 625, WASPALOY, RENE 41, INCONEL 718, INCOLOY 20	75-98 HRB	125	.0006	.0011	.0007	.0008	.0016	.0011	.0011	.0021	.0014	.0017	.0032	.0021	.0022	.0042	.0028	.0028	.0053	.0035	.0034	.0063	.0042	.0045	.0084	.0056
	NICKEL ALLOY	21-36 HRC	100	.0004	.0008	.0006	.0007	.0012	.0008	.0009	.0017	.0011	.0013	.0025	.0017	.0018	.0033	.0022	.0022	.0041	.0028	.0026	.0050	.0033	.0035	.0066	.0044	
		36-50 HRC	75	.0004	.0007	.0005	.0005	.0010	.0007	.0007	.0014	.0009	.0011	.0020	.0014	.0014	.0027	.0018	.0018	.0034	.0023	.0022	.0041	.0027	.0029	.0054	.0036	
	PURE TITANIUM	TI GRADE 1, GRADE 2, GRADE 3, GRADE 4, GRADE 7, GRADE 12	75-98 HRB	400	.0013	.0024	.0016	.0020	.0037	.0024	.0026	.0049	.0033	.0039	.0073	.0049	.0052	.0098	.0065	.0065	.0122	.0081	.0078	.0146	.0098	.0104	.0195	.0130
			21-36 HRC	400	.0010	.0019	.0013	.0015	.0028	.0019	.0020	.0038	.0025	.0030	.0056	.0038	.0040	.0075	.0050	.0050	.0094	.0063	.0060	.0113	.0075	.0080	.0150	.0100
			36-50 HRC	350	.0008	.0015	.0010	.0012	.0023	.0015	.0016	.0030	.0020	.0024	.0045	.0030	.0032	.0060	.0040	.0040	.0075	.0050	.0048	.0090	.0060	.0064	.0120	.0080
			21-36 HRC	180	.0007	.0013	.0009	.0011	.0020	.0013	.0014	.0026	.0018	.0021	.0039	.0026	.0028	.0053	.0035	.0035	.0066	.0044	.0042	.0079	.0053	.0056	.0105	.0070
	TITANIUM ALLOY	Ti6AL-4V	36-50 HRC	150	.0006	.0011	.0007	.0008	.0016	.0011	.0011	.0021	.0014	.0017	.0032	.0021												