

Cutting Charts

These recommendations are based on our experience and tests made under optimum metal sawing conditions. If specific considerations such as cutting rate, surface finish, accuracy or tool life are of major concern, you may have to deviate from the basic recommendation given. If you are in doubt call the **MARVEL HOT LINE, 1-800-628-8462**, for our recommendation.

Spartan PA 10, PA 13, PA 18

Follow Tooth Pitch, and Speed Selection for the appropriate blade width and material size. Then follow feed color code as shown on the machine console.

Type of Blade

Blade Marvel No. 8 Mark II, V-10A, PA 10

Size of Stock		Up to 4" Stock						Over 4" Stock					
Materials		Teeth	Speed FPM	No. 8 Mark II		No. V-10A		Teeth	Speed FPM	No. 8 Mark II		No. V-10A	
				Pressure Lbs.	C/Rate	Pressure Lbs.	C/Rate			Pressure Lbs.	C/Rate	Pressure Lbs.	C/Rate
Carbon Steel	1015-1050	5/8 MT	200-260	60-75	4-6	80-100	6-10	3/4 MT	200-280	90-100	7-10	120-140	9-12
	1065	5/8 MT	140-180	60-80	4-5	80-100	5-6	3/4 MT	145-180	90-100	5-7	120-140	7-8
	1095	5/8 MT	140-180	60-80	2-3.5	100-120	3-4	3/4 MT	145-180	100-120	4-5	120-140	5-6
Free Machining Carbon Steels	1137, 1151	4/6 MT	200-240	60-80	5-8	70-110	8-11	3/4 MT	200-240	60-80	6-12	120-145	9-13
	L1141	4/6 MT	200-280	60-80	5-8	70-110	8-11	3/4 MT	200-280	60-80	6-12	120-145	9-13
	1141	4/6 MT	200-280	60-80	5-8	70-110	8-11	3/4 MT	200-280	60-80	6-12	120-145	9-13
Cast Iron		5/8 MT	120-160	50-60	4-5	80-100	5-6	3/4 MT	120-160	50-60	4-5	100-110	5-6
Chrome Moly	4130-4150	5/8 MT	175-220	70-90	4-5	80-100	5-7	3/4 MT	180-230	80-110	4-6	120-150	7-10
	41L40-41L50	4/6 MT	185-240	80-100	5-6	80-100	8-10	3/4 MT	185-240	80-110	5-7	120-150	10-12
	4340	4/6 MT	125-150	75-90	3-4	80-120	4-5	3/4 MT	125-150	85-110	3-4.5	130-160	4.5-7
	4340HT, (321BHN)	4/6 MT	60-90	60-80	2-3	80-100	3-4	3/4 MT	75-95	70-90	3-4	110-130	4-5
	4620, 4720	4/6 MT	60-90	60-80	2-3	80-100	3-4	3/4 MT	60-90	70-90	3-4	110-130	4-5
	4820	5/8 MT	195-220	70-90	4-5	80-110	5-7	3/4 MT	195-230	100-120	5-7	120-140	7-9
Chrome	5120	5/8 MT	195-220	70-90	3-5	100-120	5-7	3/4 MT	195-240	100-110	4-6	120-140	7-9
	52100	5/8 MT	135-150	70-100	3-4	100-120	4-5	3/4 MT	135-150	80-110	3-5	120-140	5-6
Chrome Van Silicon	6150	5/8 MT	80-220	100	3-4	100-110	4-5	3/4 MT	140-210	90-110	3.5-4.5	110-120	5-6
	8620	5/8 MT	195-220	70-90	4-5	100-110	5-6	3/4 MT	195-220	80-100	4.5-5.5	110-120	6-7
	9310	5/8 MT	100-140	65-80	2-3	100-120	3-4	3/4 MT	110-150	70-90	3-4	110-130	4-5
Tool Steels	T-1, T-2, T-4, T-5 M-1, M-2, M-3, M-4	4/6 PV	70-100	60-90	2-3	100-110	3-4	3/4 PV	70-100	65-105	2-3	110-130	4-5
	T-15, M-15	4/6 PV	80-100	70-95	1-2	100-110	2-3	3/4 PV	80-110	70-110	2-3	110-130	2-3
	D-2, D-3, D-6	4/6 PV	65-100	70-90	2-2.5	100-110	2.5-3.5	3/4 PV	65-100	80-100	2-2.5	110-130	2.5-3.5
	A-2, A-4, O-7 O-1, O-2, O-6	4/6 PV	100-140	70-90	3-4	100-120	3.5-4.5	3/4 PV	100-140	90-110	3.5-4.5	110-130	4.5-6
	W-1, W-2, W-3	4/6 PV	110-160	70-90	2-2.5	100-120	3-4	3/4 PV	115-180	90-110	2-3	110-130	5-6
	H-12, H-13, H-21	4/6 PV	115-160	70-90	2-4	100-130	3.5-4	3/4 PV	115-160	90-100	3-4.5	120-140	5-7
	S-1, S-2, S-5	4/6 PV	95-140	70-90	2-3	100-130	3-4	3/4 PV	95-150	80-100	3-4	120-140	5-6
	M-42, M-43	4/6 PV	70-100	70-90	1-1.5	100-130	1.5-2	3/4 PV	70-100	80-100	1-1.5	120-140	2-2.5
	P-20	4/6 PV	85-140	70-90	2-3	100-130	3-4	3/4 PV	75-140	90-110	3-3.5	120-140	5-6

KEY

Indicates KUT-ALL (MT)
and Eagle Beak (PR)

Marvel MAX (PV)

C/RATE

Cutting Rate in Square
Inches Per Minute

Heavy Duty 1 1/4" Blade

No. 13A, 15, 15APC, 81, 81APC, PA13

Heavy Duty 1 1/2" Blade

No. 15M10, 15APCM10, 25, MV525, 2125, PA18

Up to 5" Stock				Over 5" Stock				Over 5" Stock				Size of Stock	
Teeth	Speed FPM	Pressure Lbs.	C/Rate	Teeth	Speed FPM	Pressure Lbs.	C/Rate	Teeth	Speed FPM	Pressure Lbs.	C/Rate	Materials	
4/6 MT	300-330	80-120	17-25	3/4 MT	240-300	120-180	20-26	2/3 PR	240-300	195-330	20-26	1015-1050	Carbon Steel
4/6 MT	195-240	100-120	9-11	3/4 MT	200-260	140-240	11-13	2/3 PR	200-260	300-390	13-15.5	1065	
4/6 MT	150-180	100-120	5-9	3/4 MT	150-180	120-200	8-10	2/3 PR	150-180	180-300	9.5-12	1095	
4/6 MT	210-290	80-100	12-18	3/4 MT	210-280	80-120	8-14	2/3 PR	210-280	150-180	9.5-17	1137, 1151	Free Machining Carbon Steels
4/6 MT	270-300	70-100	22-30	3/4 MT	270-300	80-120	24-34	2/3 PR	270-300	405-450	24-32	L1141	
4/6 MT	240-280	100-120	20-30	3/4MT	240-280	80-120	20-30	2/3 PR	240-280	150-180	20-30	1141	
4/6 MT	120-160	100-120	8-12	3/4 MT	120-160	140-180	8-12	3/4 PR	120-160	180-240	9.5-14.5		Cast Iron
4/6 MT	195-275	110-180	10-15	3/4 MT	200-275	190-260	12-16	3/4 PR	200-275	285-390	14.5-19	4130-4150	Chrome Moly
4/6 MT	220-300	150-200	11-15	3/4 MT	200-300	190-260	14-18	3/4 PR	200-300	300-450	17-21.5	41L40-41L50	
4/6 MT	130-200	150-200	6-10	3/4 MT	135-190	190-260	7-11	3/4 PR	135-190	285-390	8.5-13	4340	
4/6 MT	90-120	140-180	5-7	3/4 MT	90-120	140-180	5-8	3/4 PR	90-120	210-270	6-9.5	4340HT, (321BHN)	
4/6 MT	130-175	140-180	8-10	3/4 MT	130-175	150-190	9-11	3/4 PR	130-175	225-285	11-13	4620-4720	
4/6 MT	195-240	140-180	8-11	3/4 MT	195-240	150-190	9-12	3/4 PR	195-240	225-285	11-14.5	4820	
4/6 MT	200-255	140-180	9-11	3/4 MT	200-255	150-190	10-12	3/4 PR	200-255	225-285	12-14.5	5120	
4/6 MT	145-180	140-190	7-8	3/4 MT	140-190	150-190	7.5-9	3/4 PR	140-190	225-285	9-11	52100	Chrome
4/6 MT	145-220	150-190	6-8	3/4 MT	145-220	160-220	7-9	3/4 PR	145-220	240-330	8.5-11	6150	Chrome Van Silicon
4/6 MT	195-260	160-220	9-11	3/4 MT	195-260	160-240	10-12	3/4 PR	195-260	240-360	12-14.5	8620	
4/6 MT	110-185	120-180	6-7	3/4 MT	120-180	130-180	6-7.5	3/4 PR	120-180	195-270	7-9	9310	
4/6 PV	85-120	130-160	3-4	3/4 PV	95-120	140-180	4-4.5	3/4 PV	95-120	210-270	5-5.5	T-1, T-2, T-4, T-5 M-1, M-2, M-3, M-4	Tool Steels
4/6 PV	80-120	130-170	2-3.5	3/4 PV	90-120	140-180	2-3.5	3/4 PV	90-120	210-270	2.5-4	T-15, M-15	
4/6 PV	70-110	130-180	3-4	3/4 PV	70-110	140-180	3-4	3/4 PV	70-110	210-270	3-3.5	D2, D3, D6	
4/6 PV	115-180	140-160	7-8	3/4 PV	115-180	150-200	7-8	3/4 PV	115-180	225-270	8.5-9.5	A2, A4, O7 O1, O2, O6	
4/6 PV	150-200	140-160	6-7	3/4 PV	150-200	150-210	6-8	3/4 PV	150-200	225-315	7-9.5	W-1, W-2, W-3	
4/6 PV	130-200	150-200	5-7	3/4 PV	115-180	150-200	5-7	3/4 PV	115-180	225-300	6-8	H-12, H-13, H-21	
4/6 PV	110-160	150-180	5-6	3/4 PV	110-160	150-200	5-6.5	3/4 PV	110-160	225-300	6-8	S-1, S-2, S-5	
4/6 PV	75-110	140-150	2-2.5	3/4 PV	75-140	140-180	2-2.5	3/4 PV	75-140	210-270	2.5-3	M-42, M43	
4/6 PV	120-160	150-180	3-4	3/4 PV	120-160	150-180	3-5	3/4 PV	150-180	225-270	3.5-6	P-20	

Cutting Charts (cont'd)

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Type of Blade

Medium Duty 1" Blade Marvel No. 8 Mark II, V-10A


Size of Stock		Up to 4" Stock						Over 4" Stock					
Materials		Teeth	Speed FPM	No. 8 Mark II		No. V-10A		Teeth	Speed FPM	No. 8 Mark II		No. V-10A	
				Pressure Lbs.	C/Rate	Pressure Lbs.	C/Rate			Pressure Lbs.	C/Rate	Pressure Lbs.	C/Rate
Stainless Steel	201, 202, 304	4/6 PV	75-100	70-90	1-2	100-120	2-3	3/4 PV	80-110	90-110	2-3	120-140	3-4
	303, 303F	4/6 PV	90-140	70-90	2-3	100-120	3-4	3/4 PV	100-150	100-120	4-5	120-140	5-6
	310, 308, 316, 330	4/6 PV	75-100	60-85	1-2	100-120	2-3	3/4 PV	75-100	100-110	1.5-2.5	140-140	2-4
	321-347	4/6 PV	70-100	60-80	1-2	100-120	2-3	3/4 PV	80-110	70-100	2-2.5	120-140	3-4
	416-430F	4/6 PV	85-140	70-90	2-3	100-120	3-4	3/4 PV	110-150	70-100	2.5-3	120-140	4-5
	436	4/6 PV	70-110	70-90	1-2	100-120	2-3	3/4 PV	80-120	70-100	2-2.5	120-140	3-4
	440A, 440C	4/6 PV	70-100	70-90	2-2.5	100-120	3-3.5	3/4 PV	75-100	70-100	2.5-3	120-140	3.5-4.5
	403, 410, 420F	4/6 PV	100-150	70-90	2-3	100-120	3-4	3/4 PV	110-155	80-100	3-3.5	120-140	4-5
	17-4PH, 17-7PH	4/6 PV	70-100	60-80	1-2	100-120	2-3	3/4 PV	75-110	80-100	2-2.5	120-140	3-4
	A286	4/6 PV	65-80	60-80	1-1.5	100-120	1.5-2	3/4 PV	65-85	80-100	1-2	120-140	2-2.5
Non-Ferrous Metals	Aluminum	4/6 MT	250-400	40-90	8-14	100-120	8-14	3/4 MT	250-450	50-120	7-15	120-140	12-20
	Manganese Bronze	4/6 MT	140-180	40-70	2-4	100-110	3-5	4/6 MT	140-180	50-80	2-5	110-120	4-6
	Aluminum Bronze	4/6 MT	120-140	50-85	1-3	110-120	2-4	3/4 MT	125-150	50-100	1-4	120-130	2-5
	Copper	4/6 MT	150-200	50-90	2-4	110-120	4-6	3/4 MT	150-210	50-100	2-5	120-130	5-7
	Monel K	4/6 PV	70-90	50-80	1-2	100-120	2-3	3/4 PV	60-90	50-90	2-2.5	110-130	2-3
	Inconel-X	3/4 PV	60-90	80-100	.5-1	100-120	1-2	3/4 PV	60-90	50-85	1-2	110-130	1-2
Hastelloy	Hastelloy "A"	3/4 PV	120-130	60-90	1-1.5	120-130	3-4	3/4 PV	60-90	120-140	.5-1	140-160	2-3
	Hastelloy "B"	3/4 PV	120-130	60-90	1-1.5	120-130	2-3	3/4 PV	60-90	120-140	.5-1	140-160	1.5-2.5
	Hastelloy "C"	3/4 PV	120-130	60-90	.5-1	120-130	1.5-2.5	3/4 PV	60-90	120-140	.5-1	140-160	1.5-2.5
Titanium		3/4 PV	120-130	60-90	.7-1.3	120-130	1-1.5	3/4 PV	60-90	120-140	.7-1.3	140-160	1-1.5

Structural	Medium Duty 1" Blade Marvel No. 8 Mark II, V-10A				Heavy Duty 1 1/4"-1 1/2" Blade No. 13A, 15, 15A, 81, 81A PC, 25			
	Teeth	Pressure Speed	Lbs.	C/Rate	Teeth	Pressure Speed	Lbs.	C/Rate
Bar Size Angles, Channels, Beams	6/10 MT	200-260	40-60	5-7	4/6 PR2	240-280	70-100	Up To 12
Structural Shapes & Tubes Up To 80# Per Ft.	6/8 MT	200-260	40-60	7-9	4/6 PR2	240-280	70-120	Up To 12
Structural Shapes Up To 100# Per Ft.	4/6 PR2	200-260	60-80	7-9	4/6 PR2	240-280	70-120	Up To 15
Structural Shapes Over 100# Per Ft.	3/4 PR2	240-280	60-80	10-12	3/4 PR2	240-280	80-130	Up To 15

Cutting Charts (cont'd)



KEY

 Indicates KUT-ALL (MT) and Eagle Beak (PR)

 Marvel Max (PV)

C/RATE
Cutting Rate in Square Inches Per Minute

Heavy Duty 1¼" Blade

No. 13A, 15, 15APC, 81, 81APC

Heavy Duty 1½" Blade

No. 15M10, 15APCM10, 25, MV525, 225

Up to 5" Stock				Over 5" Stock				Over 5" Stock				Size of Stock	
Teeth	Speed FPM	Pressure Lbs.	C/Rate	Teeth	Speed FPM	Pressure Lbs.	C/Rate	Teeth	Speed FPM	Pressure Lbs.	C/Rate	Materials	
4/6 PV	80-120	150-180	3-4	3/4 PV	80-120	160-200	4-6	3/4 PV	80-120	240-300	4-6	201, 202, 304	
4/6 PV	100-150	160-190	5-6	3/4 PV	100-150	160-190	6-6.5	3/4 PV	100-150	240-285	7-8	303, 303F	
4/6 PV	75-110	150-170	2.5-3	3/4 PV	75-110	150-170	2.5-3.5	3/4 PV	75-110	225-255	3-4	310, 308, 316, 330	
4/6 PV	80-115	140-180	3-4	3/4 PV	85-120	160-190	3.5-4.5	3/4 PV	85-120	240-285	4-5	321, 347	
4/6 PV	110-170	150-190	5-6	3/4 PV	110-170	160-190	6-7	3/4 PV	110-170	240-285	7-8.5	416, 430F	
4/6 PV	80-120	150-180	2.5-3	3/4 PV	80-120	160-180	3-4	3/4 PV	80-120	240-270	3.5-5	436	
4/6 PV	75-120	130-160	4-5	3/4 PV	75-120	160-190	4-5	3/4 PV	75-120	240-285	5-6	440A, 440C	
4/6 PV	110-155	150-190	4-5	3/4 PV	110-155	160-180	4-5	3/4 PV	110-155	240-270	5-6	403, 410, 420F	
4/6 PV	75-120	140-180	3-4	3/4 PV	75-120	150-185	3-4.5	3/4 PV	75-120	225-277	3.3-6	17-4PH, 17-7PH	
4/6 PV	65-85	140-170	2-3	3/4 PV	65-85	150-170	2-2.5	3/4 PV	65-85	225-255	2.5-3	A286	
4/6 PR	200-350	100-140	15-30	3/4 PV	200-400	100-140	15-35	2/3 PV	200-400	150-210	18-42	Aluminum	
4/6 PR	130-180	80-120	5-10	3/4 PV	130-190	100-150	5-10	3/4 PV	130-190	150-225	6-12	Manganese Bronze	
3/4 PV	125-150	80-150	3-5	3/4 PV	140-155	90-150	2-6	3/4 PV	140-155	140-225	2.5-7	Aluminum Bronze	
3/4 PV	170-250	100-140	5-9	3/4 PV	170-250	90-150	5-9	3/4 PV	170-250	135-225	6-11	Copper	
3/4 PV	60-95	80-150	2-3	3/4 PV	60-95	80-150	2-3	3/4 PV	60-95	120-225	2.5-3.5	Monel K	
3/4 PV	60-90	100-150	2-3	3/4 PV	60-90	100-150	2-3	3/4 PV	60-90	150-225	2.5-3.5	Inconel-X	
3/4 PV	60-90	100-150	4-5	3/4 PV	60-90	120-160	4-5	2/3 PV	60-90	180-240	5-6	Hastelloy "A"	
3/4 PV	60-90	100-150	3-4	3/4 PV	60-90	120-160	3-4	2/3 PV	60-90	180-240	3.5-5	Hastelloy "B"	
3/4 PV	60-90	100-150	2-3	3/4 PV	60-90	120-160	2-3	2/3 PV	60-90	180-240	2.5-3.5	Hastelloy "C"	
3/4 PV	60-90	100-150	1.5-2	3/4 PV	60-90	120-160	1.5-2	2/3 PV	60-90	180-240	2-2.5	Titanium	

**CALL US TOLL-FREE
AND GET THE ANSWERS**

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MARVEL HOT LINE

1-800-628-8462

- Want to talk with Marvel's metal sawing specialists?
- Need answers to metal sawing problems?
- Confused about the right blade to use?