

BLADE SPEED/REMOVAL RATES

For use with Bi-Metal Blades*

TYPE OF MATERIAL	UNDER 1"		1" TO 3"		3" TO 6"		6" - OVER	
	Blade Speed (SFM)	Removal Rate (in ² /min.)	Blade Speed (SFM)	Removal Rate (in ² /min.)	Blade Speed (SFM)	Removal Rate (in ² /min.)	Blade Speed (SFM)	Removal Rate (in ² /min.)
STRUCTURAL STEEL SHAPES								
A36, A242, A662	300		280		260		240	
CARBON STEEL								
1005 - 1013	310	8 - 12	290	10 - 15	270	13 - 18	250	11 - 16
1015 - 1035	300	9 - 13	280	13 - 17	260	15 - 20	250	11 - 17
1040 - 1059	240	5 - 7	230	6 - 8	205	8 - 11	190	7 - 10
1060 - 1080	220	4 - 7	205	7 - 8	195	8 - 11	160	7 - 9
1084 - 1095	200	3 - 6	190	5 - 7	180	6 - 8	130	5 - 8
FREE MACHINING STEEL								
1110	310	9 - 12	280	11 - 15	280	15 - 18	240	12 - 15
1117 - 1118	300	9 - 13	270	11 - 16	270	14 - 19	230	12 - 17
1137 - 1151	260	6 - 8	230	7 - 10	220	10 - 13	190	8 - 12
1211 - 1215	310	9 - 12	290	11 - 15	270	14 - 19	250	13 - 17
MANGANESE STEEL								
1330 - 1345	260	4 - 7	240	6 - 8	215	8 - 11	195	6 - 9
1513 - 1536	300	11 - 13	280	14 - 15	260	16 - 18	240	12 - 17
1541 - 1572	245	4 - 7	230	6 - 8	200	9 - 11	175	8 - 10
MOLYBDENUM STEEL								
4012 - 4024	250	4 - 7	230	6 - 8	200	8 - 11	175	6 - 10
4027 - 4037	240	4 - 7	230	6 - 9	190	8 - 11	170	6 - 10
4042 - 4047	220	4 - 6	210	5 - 7	170	6 - 9	150	5 - 8
CHROME MOLY STEEL								
4118 - 4130	230	5 - 9	220	7 - 11	200	9 - 13	180	8 - 12
4135 - 4142	220	4 - 7	210	6 - 9	190	9 - 13	170	8 - 12
4145 - 4161	200	2 - 6	180	5 - 8	180	6 - 10	160	5 - 8
NICKEL CHROME MOLY STEEL								
4317 - 4320	210	4 - 6	190	5 - 8	170	6 - 9	150	5 - 8
4337 - 4340	200	4 - 6	180	4 - 7	160	5 - 8	140	4 - 7
4718 - 4720	275	4 - 7	270	6 - 8	245	7 - 10	220	5 - 8
8615 - 8627	210	4 - 6	190	5 - 7	170	6 - 8	150	4 - 7
8630 - 8645	210	3 - 5	190	4 - 6	170	5 - 7	150	4 - 6
8647 - 8660	210	2 - 4	190	3 - 5	170	4 - 6	150	3 - 5
8715 - 8750	210	3 - 6	190	5 - 8	170	6 - 8	150	4 - 7
9310 - 9317	190	2 - 4	160	3 - 5	150	3 - 5	130	2 - 4
9437 - 9445	210	4 - 6	190	5 - 7	170	5 - 8	150	4 - 7
9747 - 9763	210	3 - 5	190	4 - 6	170	4 - 7	150	3 - 6
9840 - 9850	210	4 - 7	190	5 - 8	170	6 - 9	150	4 - 8
NICKEL MOLY STEEL								
4615 - 4626	220	4 - 7	200	5 - 8	180	6 - 9	160	5 - 8
4815 - 4820	210	3 - 6	190	3 - 6	170	4 - 6	140	4 - 6
CHROMIUM STEEL								
5045 - 5046	210	5 - 8	190	6 - 9	170	8 - 11	150	7 - 10
5120 - 5135	230	4 - 6	210	6 - 8	180	7 - 10	160	5 - 9
5140 - 5160	210	4 - 6	190	4 - 6	170	5 - 7	150	4 - 6
50100 - 52100	175	3 - 5	140	4 - 6	130	5 - 7	110	4 - 6
CHROME VANADIUM STEEL								
6118	230	4 - 6	210	5 - 8	190	6 - 9	170	5 - 8
6150	210	3 - 5	190	4 - 7	170	5 - 8	150	4 - 7
SILICON STEEL								
9254 - 9260	210	3 - 5	190	4 - 6	190	4 - 8	160	3 - 7
COLD WORK DIE STEEL								
A2, A3, A6	210	2 - 4	190	3 - 5	190	3 - 6	160	2 - 4
A7	170	2 - 4	160	4 - 5	150	3 - 6	125	2 - 4
D2, D3, D4	135	1 - 3	115	2 - 4	120	2 - 4	80	2 - 3
D7	110	1 - 3	90	1 - 3	80	2 - 3	60	1 - 3
O1, O2	240	3 - 6	230	4 - 7	200	5 - 8	180	4 - 7
O6, O7	230	4 - 7	220	5 - 8	200	6 - 9	160	5 - 8
HOT WORK STEEL								
H12, H13, H21	235	3 - 6	200	4 - 6	190	4 - 7	170	3 - 6
H22, H24, H25	190	2 - 4	175	2 - 5	160	3 - 6	135	2 - 4
SHOCK RESISTANT STEEL								
S1	230	3 - 6	210	4 - 6	200	4 - 7	160	3 - 6
S2, S5	180	2 - 4	165	3 - 5	150	3 - 6	120	2 - 4

BLADE SPEED/REMOVAL RATES

For use with Bi-Metal Blades*								
TYPE OF MATERIAL	UNDER 1"		1" TO 3"		3" TO 6"		6" - OVER	
	Blade Speed (SFM)	Removal Rate (in ² /min.)	Blade Speed (SFM)	Removal Rate (in ² /min.)	Blade Speed (SFM)	Removal Rate (in ² /min.)	Blade Speed (SFM)	Removal Rate (in ² /min.)
SPECIAL PURPOSE STEEL								
L2, L6	210	3 - 5	210	4 - 7	190	5 - 8	175	4 - 7
L7	200	3 - 5	190	4 - 6	180	4 - 7	130	3 - 6
WATER HARDENING STEEL								
W1	265	3 - 6	240	5 - 7	220	5 - 7	180	3 - 5
HIGH SPEED STEEL								
M1, M2, M7	165	2 - 4	150	2 - 5	145	3 - 6	100	3 - 5
M3, M4, M10	125	2 - 4	100	2 - 5	100	3 - 5	80	3 - 4
M30, M33	100	1 - 3	90	2 - 3	75	2 - 3	70	1 - 3
M41, M42, M43	100	1 - 3	90	1 - 3	75	1 - 4	70	1 - 3
T1, T2	150	2 - 4	135	2 - 4	120	2 - 5	100	2 - 4
T4, T5, T6	125	1 - 3	110	1 - 4	100	2 - 4	85	1 - 3
T15, M15	90	1 - 3	70	1 - 3	60	1 - 3	50	1 - 2
AUSTENITIC STAINLESS STEEL								
201, 202, 301 - 304	135	3 - 4	120	2 - 5	120	3 - 6	85	2 - 4
303, 303F, 303Se	160	3 - 6	140	3 - 6	135	4 - 6	90	3 - 5
305, 308 - 314	100	1 - 2	85	1 - 2	75	1 - 3	65	1 - 2
316, 317, 329	100	1 - 2	90	1 - 2	80	1 - 3	60	1 - 2
321, 347, 348	140	2 - 4	125	2 - 5	120	3 - 6	90	2 - 4
330	85	1 - 2	65	1 - 3	55	1 - 4	45	1 - 2
FERRITIC STAINLESS STEEL								
429, 430	120	2 - 4	100	3 - 4	90	3 - 6	75	2 - 4
430F, 430FSe	130	3 - 5	115	5 - 6	100	5 - 7	90	4 - 6
434, 436	100	2 - 4	80	3 - 4	75	3 - 5	55	3 - 4
442	110	2 - 4	85	3 - 5	75	3 - 6	60	3 - 5
446	90	2 - 4	70	3 - 4	60	2 - 5	50	1 - 3
MARTENSITIC STAINLESS								
403, 410, 420	170	2 - 5	155	3 - 6	145	3 - 7	100	2 - 4
414, 416Se	235	5 - 9	210	6 - 9	195	7 - 11	170	5 - 9
420F, 416	220	3 - 8	200	5 - 9	190	6 - 10	150	4 - 8
440A, B, C	130	2 - 4	120	2 - 6	110	3 - 7	70	1 - 4
501, 502	135	1 - 2	120	2 - 4	100	3 - 4	80	2 - 3
NICKEL BASED ALLOYS								
Monel	100	1 - 4	90	1 - 4	85	2 - 4	65	1 - 3
K-Monel	115	1 - 4	90	1 - 4	70	2 - 4	50	1 - 2
R-Monel	130	2 - 4	100	2 - 5	90	3 - 5	60	1 - 4
K-R Monel	115	1 - 4	100	1 - 4	100	2 - 5	65	1 - 3
Inconel	105	2 - 4	90	2 - 4	75	2 - 3	50	1 - 2
Inconel 625-x-750	95	1 - 2	80	1 - 2	70	1 - 2	40	1
Inconel 718	95	1 - 2	80	1 - 2	70	1 - 2	40	1
Incoloy 800 - 802	95	1 - 2	75	1 - 2	60	1 - 2	35	1
Incoloy 804 - 825	60	1	40	1 - 2	40	1 - 2	30	1
Waspalloy	100	1	90	1 - 2	70	1 - 2	50	1
Hastelloy A	130	2 - 3	110	3 - 4	100	4 - 6	70	1 - 3
Hastelloy B	110	1 - 2	80	1 - 3	75	1 - 4	60	1 - 2
Hastelloy C	100	1 - 2	90	1 - 2	80	1 - 2	65	1
Rene 41	90	1	80	1 - 2	60	1 - 2	50	1
Udimet 500	95	1	80	1 - 2	70	1 - 2	60	1
TITANIUM								
6AL 4V	65	.5-1	50	1 - 2	50	1 - 2	40	.5 - 1
MARAGING STEEL								
Most	190	3 - 4	145	4 - 6	110	6 - 7	90	4 - 6
BRONZE								
Most	230	6 - 9	205	10 - 12	180	10 - 12	140	7 - 9
Aluminum Bronze	100	2 - 4	95	3 - 4	85	3 - 5	70	3 - 4
ALUMINUM								
Most	800		700		600		500	
CAST IRON								
Class 20	210	9 - 12	200	11 - 15	180	11 - 15	160	10 - 14
Class 40	170	7 - 9	160	7 - 10	140	8 - 12	120	7 - 11
Ductile 60-40-18, 150 HB	240	6 - 8	230	8 - 10	230	8 - 10	220	6 - 7
Ductile 80-55-06, 225 HB	140	3 - 4	130	4 - 5	120	5 - 7	110	3 - 5

*Reduce speeds by 50% for carbon blades. For carbide tipped blades, ask your Morse sales contact.