

# GARR TOOL Speeds and Feeds for TMS and TMR End Mills

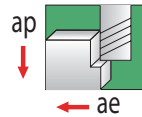
Metric

TECHNICAL

(CHIP THINNING CALCULATION ALREADY APPLIED)

Material Type	SMM (Vc)	CHIPLOAD PER FLUTE (Fz) at 2% RADIAL ENGAGEMENT (USING PROGRAMMED CALCULATION - PG. 281)					
		6.0 (.2362)	8.0 (.3150)	10.0 (.3937)	12.0 (.4724)	16.0 (.6299)	20.0 (.7874)
<b>TITANIUM ALLOYS</b>							
6Al-4V	75 - 120	.050 - .105	.075 - .130	.090 - .165	.105 - .200	.130 - .240	.165 - .365
5553	45 - 75	.035 - .070	.045 - .090	.065 - .105	.075 - .140	.090 - .165	.105 - .200
<b>STAINLESS STEELS</b>							
Free Machining (303)	90 - 120	.050 - .105	.075 - .130	.090 - .165	.105 - .200	.130 - .240	.165 - .365
Austenitic (304 / 304L)	70 - 100	.040 - .090	.065 - .110	.075 - .130	.090 - .165	.110 - .200	.130 - .240
Martensitic (17-4 / 416)	60 - 75	.035 - .070	.045 - .090	.065 - .105	.075 - .140	.090 - .165	.105 - .200
<b>TOOL STEELS UNDER 40Rc</b>							
8620	80 - 120	.040 - .090	.065 - .110	.075 - .130	.090 - .165	.110 - .200	.130 - .240
4140, D2 & S7	75 - 110	.035 - .070	.045 - .090	.065 - .105	.075 - .140	.090 - .165	.105 - .200
<b>CARBON STEELS</b>							
1000 Series, A36 & 12L14	90 - 150	.050 - .105	.075 - .130	.090 - .165	.105 - .200	.130 - .240	.165 - .365
<b>CAST MATERIALS</b>							
Steel & Iron	75 - 110	.050 - .105	.075 - .130	.090 - .165	.105 - .200	.130 - .240	.165 - .365
Aluminum	90 - 120	.040 - .090	.065 - .110	.075 - .130	.090 - .165	.110 - .200	.130 - .240
<b>ALUMINUM</b>							
6061-T6	90 - 150	.050 - .105	.075 - .130	.090 - .165	.105 - .200	.130 - .240	.165 - .365
<b>COPPER &amp; BRASS ALLOYS</b>							
Short Chip	75 - 110	.050 - .105	.075 - .130	.090 - .165	.105 - .200	.130 - .240	.165 - .365
Long Chip	60 - 90	.040 - .090	.065 - .110	.075 - .130	.090 - .165	.110 - .200	.130 - .240

## SMM / RPM Conversion



ap = full flute length  
ae = 2%

SMM (Vc)	DIAMETER (d)					
	.2362"	.3150"	.3937"	.4724"	.6299"	.7874"
	6.0	8.0	10.0	12.0	16.0	20.0
RPM (n)						
30	1592	1194	955	796	597	477
35	1857	1393	1114	928	696	557
40	2122	1592	1273	1061	796	637
45	2387	1790	1432	1194	895	716
50	2653	1989	1592	1326	995	796
55	2918	2188	1751	1459	1094	875
60	3183	2387	1910	1592	1194	955
65	3448	2586	2069	1724	1293	1035
70	3714	2785	2228	1857	1393	1114
75	3979	2984	2387	1989	1492	1194
80	4244	3183	2546	2122	1592	1273
85	4509	3382	2706	2255	1691	1353
90	4775	3581	2865	2387	1790	1432
95	5040	3780	3024	2520	1890	1512
100	5305	3979	3183	2653	1989	1592
120	6366	4775	3820	3183	2387	1910
150	7958	5968	4775	3979	2984	2387
175	9284	6963	5570	4642	3482	2785
200	10610	7958	6366	5305	3979	3183

**NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.**