

# Tapping Speeds & Torque Requirements

## TAPPING SPEEDS

Material	Tapping Speed (SFM)
Aluminum	90 - 110
Brass	80 - 100
Bronze	40 - 60
Copper	70 - 90
Copper-Beryllium	40 - 50
Inconel, Hastalloy, Waspalloy	5 - 15
Iron-Cast	65 - 75
Iron-Malleable	30 - 60
Magnesium	90 - 110
Plastics	60 - 90
Steel-Cast	30 - 40
Steel-Free Machining	50 - 80
Steel-Chromium	25 - 40
Steel-Alloy	20 - 35
Steel-Stainless	15 - 30
Titanium	10 - 25
Zinc-Die Cast	80 - 120

$$\text{RPM} = \frac{3.82 \times \text{SFM}}{\text{Tap Diameter}}$$

$$\text{FEED (IPR)} = \frac{1}{\text{Pitch}}$$

$$\text{FEED (IPM)} = \text{Feed (IPR)} \times \text{Speed (RPM)}$$

Tapping speeds are for general purpose taps. Consult tap manufacturer for high geometry taps.

## TORQUE REQUIREMENTS

Tap Size	Brass	Aluminum and Leaded Brass	200 BHN Steel	300 BHN Steel	400 BHN Steel	Approximate Breaking Torque
#6	4	2	7	9	10	8
#8	4.5	2.25	8	10	11	30
#10	8.5	4.25	15	19	21	42
1/4	16	8	28	36	40	106
5/16	24	12	42	54	60	180
3/8	37	18.50	65	83	93	240
7/16	54	27	94.5	122	135	500
1/2	68	34	119	153	170	700
9/16	88	44	154	198	220	850
5/8	119	59.50	208	268	298	1000
3/4	170	85	298	383	425	1500
7/8	238	119	416	536	595	2100
1	337	168.50	590	758	842	2700
1 1/4	544	277	970	1246	1385	3000+
1 1/2	850	425	1488	1912	2125	3000+
1 3/4	1411	706	2471	3177	3530	3000+
2	1904	952	3332	4284	4760	3000+
2 1/4	2159	1080	3780	4860	5400	3000+
2 1/2	2975	1488	5208	6996	7440	3000+
2 - 8	533	267	933	1199	1333	3000+
2 1/2 - 8	663	332	1160	1492	1658	3000+
3 - 8	1139	570	1995	2565	2850	3000+
4 - 8	1411	706	2471	3177	3530	3000+
5 - 8	1768	884	3094	3978	4420	3000+
6 - 8	2125	1063	3720	4784	5315	3000+

All values in table above are in inch/lbs. Approximate values based on sharp, 4 Flute coarse pitch hand taps at 65% thread height. Dull taps require approximately 50% more torque. For 55% and 75% thread heights, multiply above values by .75 and 1.25 respectively. Torque values for helical flute taps are approximately 70% of those shown. Torque values for chip drive taps are approximately 60% of those shown. Torque values for fine pitch threads are approximately 50% of those shown.