

Speeds & Feeds Reference Card

SURFACE SPEED — SFM

The app's low-end starting speeds. Begin here, then adjust up for your machine.

	Mill HSS	Mill Carb	Turn HSS	Turn Carb
Mild Steel 1018	70	300	100	350
12L14	100	350	130	400
4140	50	200	60	200
Stainless 304/316	50	150	68	200
Aluminum 6061	150	500	300	600
Aluminum 7075	150	400	250	600
Brass 360	180	400	200	500
Copper	100	400	100	400
Cast Iron	140	350	150	350
Tool Steel O1/A2	40	200	50	200

RPM

$$\text{RPM} = \text{SFM} \times 3.82 \div \text{diameter (inches)}$$

Example — Aluminum 6061, HSS, milling, 1/2 in tool:

$$150 \times 3.82 \div 0.5 = 1146 \text{ RPM} \quad (\text{matches the app's Speeds \& Feeds screen})$$

TAP DRILL — common inch taps (75% thread)

#4-40	.0890	1/4-20	.2010
#6-32	.1065	5/16-18	.2570
#8-32	.1360	3/8-16	.3125
#10-24	.1495	7/16-14	.3680
#10-32	.1590	1/2-13	.4219

Starting values for hobby use — adjust for your machine, setup, and tooling.

Free printable from theorbapp.com — home of ChipBreaker, the offline machinist calculator, eight shop tools in one.



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