

# STANDARD TAPS SPEED RECOMMENDATIONS

Workpiece Material	Brinell Hardness (BHN)	Surface Speed (SFM)
Low Carbon Steel - 1018, 12L12, 1108, 1213	≤ 120	65
Low & Medium Carbon Steel - 1018, 1551, 11L44	120 - 250	40
Medium Carbon and Alloyed Steel - 1040, 1140, 4340, 8640	≤ 250	40
Tool and Die Steels - P20, A2, D2, H12	≤ 250	20
Tool and Die Steels - P20, A2, D2, H12	250 - 350	15
Free Machining Stainless Steels - 303, 410, 416, 440F	≤ 260	35
Moderate Machining Stainless Steels - 304, 316	≤ 300	25
Difficult Machining Stainless Steels - 17-4PH, 316L, AM350	≤ 300	10
Cast Iron - Soft Gray	≤ 160	70
Cast Iron - Gray	160 - 260	60
Cast Iron - Ductile	250	50
Cast Iron - Malleable	250 - 330	35
Titanium Alloys - Commercially Pure 99.0	110 - 170	20
Titanium Alloys - Ti-6Al-4V, ASTM B367 Grades C-3, C-4	≤ 250	15
High Temperature Alloys - Inconel, Hastelloy, Waspaloy	≤ 150	25
High Temperature Alloys - Inconel, Hastelloy, Waspaloy	150 - 250	10
Aluminum Alloys - 2025, 6061, A140, 514.0	≤ 150	100
Copper Alloys - Brass and Bronze	≤ 200	50
Magnesium Alloys - AZ80A, HM12A, AM60A, ZE41A	50 - 90	70

**SPEEDS** shown are suggested starting points only and may be increased or decreased depending on actual material and machining conditions. Start conservatively and increase until the machining cycle is optimized.

**TAP SPEEDS** may be **increased** for coated taps, spiral point taps, fine pitch taps and when the percentage of thread is decreased.

**TAP SPEEDS** may need to be **decreased** for uncoated taps, spiral flute taps, coarse pitch taps, bottoming taps, difficult materials, longer thread lengths, and when the percentage of thread is increased.

**THREAD FORMING TAPS** generally form threads more efficiently at higher speeds. Suggested speeds are 50% to 100% higher than the suggested speeds for cutting taps in similar applications.

**PIPE TAP SPEEDS** should be between one-half and three-quarters of the speeds of taps of comparable diameter and pitch.

Tool Coatings Also Available