

# APPLICATION CHART FOR HPT HIGH PERFORMANCE TAPS

		Material	Hardness		Cutting Speed SFM	Recommended Morse Tap
			BHN	RC		
Type	Examples					
Steel	Tool Steels Mold Steels	O1; A2; D2; H13; P20	275-325	28-35	7-20	Exotic Alloys
			330-420	36-45	3-10	Hard Materials
	Alloy Steels Hardened Steel	Hard 1340; 4140; 4150; 4340; 8660; 50B40; 50100; 51100; 51B860; 52100	275-420	28-45	15-25	
Stainless Steel	Austenitic	200 series; 300 series; 304; 310; 316	<275	<28	15-35	Exotic Alloys
	Martensitic Ferritic	400 series; 416Se; 420F; 420FSe; 440F; 440FSe	<275	<28	20-35	
	Hardened	17-4PH; 15-5; 17-7PH; AM350	275-420	28-45	5-15	Hard Materials
Nickel Alloys, Wrought & Cast	—	Nickel 200; 201; 205; 211; 220 Monel 400; 401; 404; 405 Duranickel 301	<200	<20	10-25	Exotic Alloys
	—	Inconel 600; 601; 625; 702; 718; 722; 804; 855	200-300	20-32	5-15	
	—		300-420	32-45	3-12	Hard Materials
Titanium Alloys Wrought	—	99.5; 99.2; 98.9; 99.0 Ti-0.2 Pd; Ti Code-12	<275	<28	25-45	Exotic Alloys
	—	Ti-8MN; Ti-6AL4V	275-330	28-36	10-25	
	—	6 AR 4 V; Ti-8AL 1MO-1V 5 Al 2.55 Sn; Ti-1AL-8V-5FR	330-420	36-45	2-8	Hard Materials
Cast Iron	Gray Ferritic Pearlitic	ASTM A48 class 20; 25; 30; 35; 40; 45; 50; SAJ 431C Grade G1800; 2500; 3000; 3500; 4000	<260	<26	35-60	Cast Iron
	Ductile Ferritic Pearlitic	ASTM A536 Grades 60-40-18; 65-45-12; 80-55-06	<260	<26	20-40	
	Malleable	ASTM A-47; Grades 32510; 35018 ASTM A 220; Grades 40010; 45006; 60004; 70003; 80002	<260	<26	10-30	
Aluminum Alloys	Wrought	1060; 1100; 1145; 1175; 1235; 2011; 2014; 2017; 2018; 3003; 3005; 5005; 6053; 6061; 6066; 6101; 7001; 7005; 7049; 7075; 7079; 7175; 7178	—	—	70-100	Aluminum
	Cast	208; 213; 224; 242; 295; 360.0; A380.0; B443.0; 514; 520; 705; 707; A850.0; B850.0	—	—	60-80	

**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.

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

**SPEEDS** may need to be **reduced** for 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 TAPS** speeds should be between one-half and three-quarters of the speeds of taps of comparable diameter and pitch.