

Application Chart for HPT High Performance Taps

	WORKPIECE MATERIAL	EXAMPLES	HARDNESS		RECOMMENDED TAP			
			BRN	HRc	CUTTING TAP		FORMING TAP	
					SPEED (SFM)	THROUGH HOLE (Use Spiral Point Where Available)	BLIND HOLE (Use Spiral Flute Where Available)	SPEED (SFM)
Steel	Low Carbon (Less Than 0.3% C)	1008, 1118, 12L14, 1213, 1513, A36	< 200	<15	25 - 50	-	-	50 - 100
	Medium Carbon (0.3% - 0.6% C)	1030, 1040, 1045, 1050,	< 275	< 28	15 - 40	DIN Length or Exotic	Din Length or Exotic	30 - 80
	High Carbon, Alloyed (More than 0.6% C)	1070, 1080, 1561, 1572	< 300	< 32	15 - 30	DIN Length or Exotic	Din Length or Exotic	-
	Hardened	4140, Hard 1340, 50100	275 - 320	28 - 34	12- 25	Exotic	Exotic	-
320 - 420			34 - 45	5 - 15	Hard Material	Hard Material	-	
Stainless Steel	Free Machining	303,410, 416, 440F	<275	< 28	25 - 40	DIN Length or Exotic	DIN Length or Exotic	50 - 80
	Austenitic	200 Series, 300 Series	< 275	< 28	15 - 35	DIN Length or Exotic	Exotic or DIN Length	30 - 70
		Nitronic 32, 40, 50, 60	350-425	38 - 45	5 - 10	Hard Material	Hard Material	-
	Martensitic & Ferritic	400 Series: 416 Se, 420F, 420FSe; 440F, 440FSe	< 275	< 28	20 - 35	DIN Length or Exotics	DIN Length or Exotics	40 - 70
Hardened	15-5 PH, 17-4 PH, A-236, AM-350	275 - 320	28 - 34	5 -15	Exotic	Exotic	-	
		320 - 425	34 - 45	5 - 15	Hard Material	Hard Material	-	
Tool Steel	Hot Work, Cold Work, Mold	A2, D2, H11, P2, P4	275 - 320	28 - 34	7 - 20	DIN Length or Exotic	DIN Length or Exotic	-
			320 - 420	34 - 45	3 - 10	Hard Material	Hard Material	-
Cast Iron	Grey, Pearlitic, Ferritic	ASTM A48 Class 20; 25; 30; 40; 50; SAIJ 431C Grade G-1800; 3000; 4000	<260	<26	35 - 60	Cast Iron or Hard Material	Cast Iron or Hard Material	-
	Ductile, Pearlitic, Ferritic	ASTM A536 GRADES 60-40-18; 65-45-12; 80-55-06	<260	<26	20 - 40	Cast Iron or Hard Material	Cast Iron or Hard Material	-
	Malleable	ASTM A47 Grades 32510; 35018, ASTM A 220; Grades 40010; 45006; 60004; 70003; 80002	<260	<26	10 - 30	Cast Iron or Hard Material	Cast Iron or Hard Material	-
Titanium Alloys	Commercially Pure	99.5, 99.2, 98.9, Ti- 0.2 Pd, Ti code - 12	< 275	< 28	25 - 45	Exotic	Exotic	50 - 90
	Alpha and Beta Alloys Annealed	Ti-5Al-2.55 Sn, Ti-6Al-4V	275 - 320	28 - 34	10 - 25	Exotic or DIN Length	Exotic or DIN Length	-
	Alpha and Beta Alloys Solution Treated and Aged	Ti-6Al-4V ELI, Ti-6Al-6V-2 Sn	320 - 420	34 - 45	2 - 8	Hard Material	Hard Material	-
Nickel Alloys	Nickel and Nickel Base Alloys Wrought and Cast	Nickel 200, Monel Alloy 400, Duranickel Alloy 301	170 - 250	< 25	10 - 25	Exotic	Exotic	-
	Nickel Base High Temperature Alloys Wrought and Cast	Inconel 718, Nimonic 90, Rene 41, Hastelloy B and C, Inconel 600	250 - 320	28 - 34	6 - 12	Exotic	Exotic	-
Aluminum Alloys	Unalloyed	1000 Series	-	-	40 - 80	Aluminum	Aluminum	80 - 160
			-	-	70 - 100	Aluminum	Aluminum	140 - 200
	Cast	360, A380	-	-	60 - 90	Aluminum	Aluminum	120 - 180

SPEEDS in Surface Feet per Minute (SFM) are suggested starting points and may be increased or decreased depending on actual material and machining conditions.

SPEEDS may be increased for coated taps, reduced percentage of full threads, fine pitch taps, and spiral point taps.

SPEEDS may need to be decreased for coarse pitch taps, higher percentages of full thread, and spiral flute taps.

PIPE TAPS should be run at one half to three quarters of the speed for taps of comparable pitch and diameter.