

North American Tool SPECIAL TAPS ENGINEERING DATA

TABLE OF SPEEDS FOR TAPS (USE ONLY AS SUGGESTED STARTING R.P.M.)

MACHINE SCREW and FRACTIONAL SIZES

Tap Size (UNC/UNF)	Taper Pipe Taps (NPT/NPTF)	Surface Feet per Minute (SFM)																	
		5'	10'	15'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'
0 (.060)		318	637	955	1273	1592	1910	2546	3183	3820	4456	5093	5729	6366	7003	7639	8276	8913	9549
1 (.073)		273	546	819	1046	1308	1570	2093	2617	3140	3663	4186	4710	5233	5756	6279	6805	7326	7849
2 (.086)		212	424	637	888	1110	1333	1777	2221	2665	3109	3554	3999	4442	4886	5330	5774	6218	6662
3 (.099)		191	382	573	772	964	1157	1543	1929	2315	2701	3086	3472	3858	4244	4629	5015	5401	5787
4 (.112)		174	347	521	682	853	1023	1364	1705	2046	2387	2728	3069	3411	3751	4092	4434	4775	5116
5 (.125)		147	294	441	611	764	917	1222	1528	1833	2139	2445	2750	3056	3361	3667	3973	4278	4584
6 (.138)		136	273	409	553	691	829	1106	1382	1659	1935	2212	2488	2766	3042	3318	3595	3871	4148
8 (.164)		119	239	358	466	583	699	932	1165	1398	1631	1864	2097	2330	2563	2796	3029	3262	3495
10 (.190)		101	201	302	402	502	603	804	1005	1205	1406	1607	1808	2009	2210	2411	2612	2813	3014
12 (.216)		87	174	260	354	442	531	707	884	1061	1238	1415	1592	1769	1945	2122	2300	2476	2653
14 (.242)		79	158	237	316	395	474	631	789	947	1105	1263	1421	1579	1736	1894	2052	2210	2368
1/4		76	153	229	306	382	458	611	764	917	1070	1222	1375	1528	1681	1833	1986	2139	2292
5/16	1/16	62	123	185	245	306	367	489	611	733	856	978	1100	1222	1345	1467	1589	1711	1833
3/8		50	101	151	204	255	305	407	509	611	713	815	917	1019	1120	1222	1324	1426	1528
7/16	1/8	43	87	130	175	219	262	349	437	524	611	698	786	873	960	1048	1135	1222	1310
1/2		38	76	115	153	191	229	305	382	458	535	611	688	764	840	917	993	1070	1146
9/16	1/4	34	68	102	137	172	206	274	342	410	478	547	616	683	752	820	888	952	1020
5/8		32	64	96	122	153	183	244	306	367	428	489	550	611	672	733	794	856	917
11/16	3/8	28	55	83	111	138	167	222	278	333	389	444	500	556	611	667	722	778	833
3/4		25	51	76	102	128	153	203	255	305	357	407	458	509	560	611	662	713	764
7/8	1/2	22	43	65	87	109	131	175	218	262	306	350	392	437	480	524	568	611	655
1"		19	38	57	76	96	115	153	191	230	268	305	344	382	420	458	497	535	573
1 1/8	3/4	17	34	51	68	84	102	136	170	204	238	272	306	340	373	407	441	475	509
1 1/4		15	31	46	61	76	92	122	153	183	214	244	275	305	336	367	397	428	458
1 3/8	1	14	28	42	56	69	83	111	139	167	194	222	250	278	306	333	361	389	417
1 1/2		13	25	38	51	63	76	102	127	153	178	204	229	255	280	305	331	356	382
1 5/8		12	23	35	47	59	71	94	118	141	165	188	212	235	259	282	306	329	353
1 3/4	1 1/4	11	22	33	44	55	65	87	109	131	153	175	196	218	240	262	284	306	327
1 7/8	1 1/2	10	20	30	41	51	61	81	102	122	143	163	183	204	224	244	265	285	306
2"		9	19	29	38	48	57	76	96	115	134	153	172	191	210	229	248	267	287

METRIC SIZES

Metric Tap Size	Dec. Equiv. Size	Surface Feet per Minute (SFM)																	
		5'	10'	15'	20'	25'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	130'	140'	150'
M1	.0394	490	979	1469	1959	2449	2938	3918	4897	5877	6856	7836	8815	9795	10774	11754	12733	13713	14692
M2	.0787	242	484	725	967	1209	1451	1934	2418	2901	3385	3868	4352	4835	5319	5803	6286	6770	7253
M3	.1181	162	324	486	647	809	971	1295	1619	1942	2266	2590	2914	3237	3561	3885	4208	4532	4856
M3.5	.1378	138	277	415	554	692	830	1107	1384	1661	1938	2214	2491	2768	3045	3322	3599	3875	4152
M4	.1575	122	243	365	487	608	730	973	1217	1460	1703	1946	2190	2433	2676	2920	3163	3406	3650
M5	.1969	97	194	291	388	485	582	776	970	1163	1357	1551	1745	1939	2133	2327	2521	2715	2909
M6	.2362	81	162	243	324	405	486	647	809	971	1133	1295	1457	1619	1781	1942	2104	2266	2428
M7	.2756	69	138	208	277	346	415	554	692	830	969	1107	1246	1384	1522	1661	1799	1938	2076
M8	.3150	61	121	182	243	303	364	485	606	728	849	970	1091	1213	1334	1455	1577	1698	1819
M10	.3937	48	97	145	194	242	291	388	485	582	679	776	873	970	1067	1163	1260	1357	1454
M12	.4724	40	81	121	162	202	243	324	405	486	567	647	728	809	890	971	1052	1133	1214
M14	.5512	35	69	104	139	173	208	277	347	416	485	555	624	693	763	832	901	971	1040
M16	.6299	30	61	91	121	152	182	243	303	364	424	485	546	606	667	728	788	849	910
M18	.7087	27	54	81	108	135	162	216	269	323	377	431	485	539	593	647	700	754	808
M20	.7874	24	49	73	97	121	146	194	243	291	340	388	437	485	534	582	631	680	728
M22	.8661	22	44	66	88	110	132	176	221	265	309	353	397	441	485	529	573	618	662
M24	.9449	20	40	61	81	101	121	162	202	243	283	323	364	404	445	485	526	566	606
M27	1.0630	18	36	54	72	90	108	144	180	216	252	287	323	359	395	431	467	503	539
M30	1.1811	16	32	49	65	81	97	129	162	194	226	259	291	323	356	388	420	453	485

Factors to be considered when determining tapping speeds:

- Material to be tapped
- Percentage of full thread to be cut
- Depth of hole
- Lubrication
- Length of chamfer on tap
- Machine equipment and rigidity
- Pitch of thread
- Horizontal or vertical tapping

S.F.M. / R.P.M. EQUATIONS:	S.F.M. = 0.26 X R.P.M. X TOOL DIAMETER	R.P.M. = $\frac{3.82 \times \text{S.F.M.}}{\text{TOOL DIAMETER}}$
-----------------------------------	--	---