

Decimal and metric equivalents of drill sizes

Drill size	Dec. equiv.	mm	Drill size	Dec. equiv.	mm	Drill size	Dec. equiv.	mm	Drill size	Dec. equiv.	mm
1/64"	.0156	0.40	—	.1142	2.90	5	.2055	5.22	41/64"	.6406	16.27
1/32"	.0313	0.80	32	.1160	2.95	4	.2090	5.31	21/32"	.6562	16.67
60	.0400	1.02	31	.1200	3.05	3	.2130	5.41	43/64"	.6719	17.07
59	.0410	1.04	1/8"	.1250	3.18	7/32"	.2188	5.56	11/16"	.6875	17.46
58	.0420	1.07	30	.1285	3.26	2	.2210	5.61	45/64"	.7031	17.86
57	.0430	1.09	—	.1299	3.30	1	.2280	5.79	23/32"	.7188	18.26
56	.0465	1.18	29	.1360	3.45	15/64"	.2344	5.95	47/64"	.7344	18.65
3/64"	.0469	1.19	28	.1405	3.57	1/4"	.2500	6.35	3/4"	.7500	19.05
55	.0520	1.32	9/64"	.1406	3.58	F	.2570	6.53	49/64"	.7656	19.45
54	.0550	1.40	27	.1440	3.66	—	.2638	6.70	29/32"	.7812	19.84
53	.0595	1.51	26	.1470	3.73	17/64"	.2656	6.75	13/16"	.8125	20.64
1/16"	.0625	1.59	25	.1495	3.80	9/32"	.2812	7.15	27/32"	.8438	21.43
52	.0635	1.61	24	.1520	3.86	19/64"	.2969	7.54	7/8"	.8750	22.23
51	.0670	1.70	23	.1540	3.91	5/16"	.3125	7.94	57/64"	.8906	22.62
50	.0700	1.78	5/32"	.1562	3.97	21/64"	.3281	8.33	29/32"	.9062	23.02
49	.0730	1.85	22	.1570	3.99	—	.3346	8.50	59/64"	.9219	23.42
48	.0760	1.93	21	.1590	4.04	11/32"	.3438	8.73	15/16"	.9375	23.81
5/64"	.0781	1.98	20	.1610	4.09	23/64"	.3594	9.13	61/64"	.9531	24.21
47	.0785	1.99	—	.1654	4.20	U	.3680	9.35	31/32"	.9688	24.61
—	.0787	2.00	19	.1660	4.22	3/8"	.3750	9.53	63/64"	.9844	25.00
46	.0810	2.06	18	.1695	4.31	25/64"	.3906	9.92	1"	1.0000	25.40
45	.0820	2.08	11/64"	.1719	4.37	—	.4016	10.20	1 1/32"	1.0312	26.19
44	.0860	2.18	17	.1730	4.39	13/32"	.4062	10.32	1 1/16"	1.0625	26.98
43	.0890	2.26	16	.1770	4.50	27/64"	.4219	10.72	1 3/32"	1.0938	27.78
42	.0935	2.37	15	.1800	4.57	7/16"	.4375	11.11	1 1/8"	1.1250	28.58
3/32"	.0938	2.38	14	.1820	4.62	29/64"	.4531	11.51	1 5/32"	1.1562	29.37
41	.0960	2.44	13	.1850	4.70	15/32"	.4688	11.91	1 3/16"	1.1875	30.16
40	.0980	2.49	3/16"	.1875	4.76	31/64"	.4844	12.30	1 7/32"	1.2188	30.96
—	.0984	2.50	12	.1890	4.80	1/2"	.5000	12.70	1 1/4"	1.2500	31.75
39	.0995	2.53	11	.1910	4.85	33/64"	.5156	13.10	1 9/32"	1.2812	32.54
38	.1015	2.58	10	.1935	4.91	17/32"	.5312	13.50	1 5/16"	1.3125	33.34
37	.1040	2.64	9	.1960	4.98	35/64"	.5469	13.90	1 11/32"	1.3438	34.13
36	.1065	2.71	—	.1969	5.00	9/16"	.5625	14.29	1 3/8"	1.3750	34.93
7/64"	.1094	2.78	8	.1990	5.05	37/64"	.5781	14.68	1 13/32"	1.4062	35.72
35	.1100	2.79	7	.2010	5.11	19/32"	.5938	15.08	1 7/16"	1.4375	36.51
34	.1110	2.82	13/64"	.2031	5.16	39/64"	.6094	15.48	1 15/32"	1.4688	37.31
33	.1130	2.87	6	.2040	5.18	5/8"	.6250	15.88	1 1/2"	1.5000	38.10

Maximum cutting speeds for SST power taps – RPM

Tap dia.	Mild steel	Stainless steel	Aluminum
#6	800	500	1,600
#8	670	400	1,500
#10	600	350	1,400
#12	550	300	1,200
1/4"	450	250	1,000
5/16"	370	200	850
3/8"	300	150	700
7/16"	260	120	600
1/2"	230	100	500

Drilling speeds – RPM HSS drill bits and countersinks

Dia.	Mild steel	Stainless steel	Aluminum and brass	Dia.	Mild steel	Stainless steel	Aluminum and brass
1/16"	4900	2450	6110	3/8"	820	400	1020
3/32"	3250	1600	4070	7/16"	700	350	870
1/8"	2450	1200	3060	1/2"	610	300	760
5/32"	1950	950	2450	5/8"	490	250	610
3/16"	1630	800	2040	3/4"	410	200	510
7/32"	1400	700	1750	7/8"	350	170	440
1/4"	1220	600	1530	1"	305	150	380
5/16"	980	500	1220	1 1/4"	245	120	310

Recommended max. RPM for through holes. Reduce speed by one-third for blind holes. Make sure blind hole is deep enough to allow chips to accumulate at the bottom.

Tap drill sizes – Metric

SIZE	PITCH mm	mm	DRILL Wire gage/ fract. equiv.
M2.5	.45	2.0	46
M3	.5	2.5	40
M3.5	.6	2.9	33
M4	.7	3.3	30
M5	.8	4.2	19
M6	1.0	5.0	9
M8	1.25	6.7	17/64"
M10	1.5	8.5	21/64"
M12	1.75	10.2	13/32"

Taper pipe tap drill sizes NPT and NPTF

Tap size	Drill size	Tap size	Drill size
1/8" – 27	11/32"	1" – 11 1/2	1 5/32"
1/4" – 18	7/16"	1 1/4" – 11 1/2	1 1/2"
3/8" – 18	37/64"	1 1/2" – 11 1/2	1 47/64"
1/2" – 14	45/64"	2" – 11 1/2	2 7/32"
3/4" – 14	29/32"		

Recommended RPM and feed rates for different materials

ANNULAR CUTTERS

Cutter dia.		Mild steel		High tensile steel	Brass	Aluminum
SFM*		80'	Feed	25'	150'	185'
inch	mm	rpm	inch/rev.	rpm	rpm	rpm
9/16"	14	543	.014	170	710	900
5/8"	16	489	.014	153	680	855
11/16"	17	444	.017	139	635	800
3/4"	19	407	.021	127	600	750
13/16"	21	376	.021	118	580	735
7/8"	22	349	.021	109	560	710
15/16"	24	326	.021	102	550	695
1"	25	306	.021	95	540	680
1 1/8"	29	272	.028	85	515	635
1 1/4"	32	244	.035	76	475	600
1 3/8"	35	222	.035	69	455	575
1 1/2"	38	204	.042	64	440	550
1 5/8"	41	188	.042	59	425	420
1 3/4"	44	175	.042	55	390	490
1 7/8"	48	163	.042	51	370	465
2"	51	153	.042	48	350	430

Reduce feed rates by 50% for thin walled work pieces, oblique entry, curved surfaces, semi-circles and fragile set-ups.

Increase feed rates by 25% for soft materials and deep hole drilling.

Multiply rpm by 2 for carbide core cut.

* SFM = Surface Feet per Minute

Tap drill sizes – Fractional

Tap size	Thread form	Drill size
2-56	NC	50
3-48	NC	47
4-40	NC	43
5-40	NC	38
6-32	NC	36
8-32	NC	29
10-24	NC	25
10-32	NF	21
12-24	NC	16
1/4"-20	NC	7

Tap size	Thread form	Drill size
1/4"-28	NF	3
5/16"-18	NC	F
5/16"-24	NF	17/64"
3/8"-16	NC	5/16"
3/8"-24	NF	21/64"
7/16"-14	NC	U
7/16"-20	NF	25/64"
1/2"-13	NC	27/64"
1/2"-20	NF	29/64"
9/16"-12	NC	31/64"

Tap size	Thread form	Drill size
9/16"-18	NF	33/64"
5/8"-11	NC	17/32"
5/8"-18	NF	37/64"
3/4"-10	NC	21/32"
3/4"-16	NF	11/16"
7/8"-9	NC	49/64"
7/8"-14	NF	13/16"
1-8	NC	7/8"
1-12	NF	15/16"
1-14	NS	15/16"