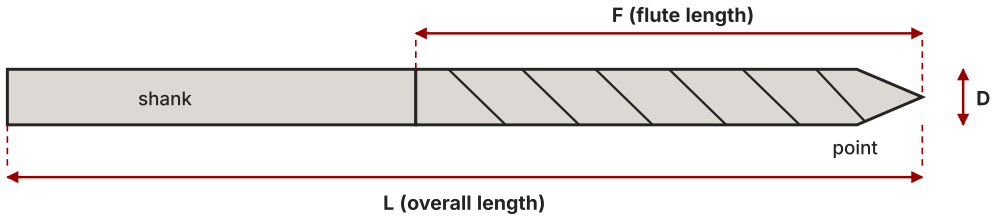
Drill Bit Sizes

jandesupply.com/reference-drill-bit-sizes.php

J & E Supply & FASTENER CO.

Decimal sizes of number, letter, fractional and metric twist drills, jobber, screw machine (stub) and taper length flute and overall lengths, and the tap drill for each thread.

A **twist drill** is sized by its **diameter** across the margins at the point. Inch drills come in **fractional** sizes (1/64″ steps), **number** sizes (#80, the smallest, up to #1) and **letter** sizes (A up to Z, bigger than #1) that fill the gaps between fractions; metric drills are sized in millimeters. The same size comes in different lengths: **jobber** length is the everyday drill, **screw machine** (stub) length is shorter and stiffer, **taper length** is longer for deep holes.



The letters match the table columns. Not to scale.

Number drill sizes — ASME B94.11M (inches)

DRILL	DECIMAL
#80	0.0135
#79	0.0145
#78	0.0160
#77	0.0180
#76	0.0200
#75	0.0210
#74	0.0225
#73	0.0240
#72	0.0250
#71	0.0260
#70	0.0280
#69	0.0292
#68	0.0310
#67	0.0320
#66	0.0330
#65	0.0350
#64	0.0360
#63	0.0370
#62	0.0380
#61	0.0390
#60	0.0400
#59	0.0410
#58	0.0420
#57	0.0430
#56	0.0465
#55	0.0520
#54	0.0550
#53	0.0595
#52	0.0635
#51	0.0670
#50	0.0700
#49	0.0730
#48	0.0760
#47	0.0785
#46	0.0810
#45	0.0820
#44	0.0860
#43	0.0890
#42	0.0935
#41	0.0960
#40	0.0980

Scan for this page online — plus free guides, charts & calculators at **jandesupply.com**
J & E Supply & Fastener Co. · Oklahoma City **405-670-1234** · Duncan **580-255-2582**

DRILL	DECIMAL
#39	0.0995
#38	0.1015
#37	0.1040
#36	0.1065
#35	0.1100
#34	0.1110
#33	0.1130
#32	0.1160
#31	0.1200
#30	0.1285
#29	0.1360
#28	0.1405
#27	0.1440
#26	0.1470
#25	0.1495
#24	0.1520
#23	0.1540
#22	0.1570
#21	0.1590
#20	0.1610
#19	0.1660
#18	0.1695
#17	0.1730
#16	0.1770
#15	0.1800
#14	0.1820
#13	0.1850
#12	0.1890
#11	0.1910
#10	0.1935
#9	0.1960
#8	0.1990
#7	0.2010
#6	0.2040
#5	0.2055
#4	0.2090
#3	0.2130
#2	0.2210
#1	0.2280

Nominal diameter, inches.

Letter drill sizes — ASME B94.11M (inches)

DRILL	DECIMAL
A	0.2340
B	0.2380
C	0.2420
D	0.2460
E	0.2500
F	0.2570
G	0.2610
H	0.2660
I	0.2720
J	0.2770
K	—
L	0.2900
M	0.2950
N	0.3020
O	0.3160
P	0.3230
Q	0.3320
R	0.3390
S	0.3480
T	0.3580

DRILL	DECIMAL
U	0.3680
V	0.3770
W	0.3860
X	0.3970
Y	0.4040
Z	0.4130

Nominal diameter, inches. Letter E and 1/4″ are the same size. A dash: our sources differ — give us a call.

Fractional drill sizes — ASME B94.11M (inches)

DRILL	DECIMAL	MM
1/64″	0.0156	0.40
1/32″	0.0312	0.79
3/64″	0.0469	1.19
1/16″	0.0625	1.59
5/64″	0.0781	1.98
3/32″	0.0938	2.38
7/64″	0.1094	2.78
1/8″	0.1250	3.17
9/64″	0.1406	3.57
5/32″	0.1562	3.97
11/64″	0.1719	4.37
3/16″	0.1875	4.76
13/64″	0.2031	5.16
7/32″	0.2188	5.56
15/64″	0.2344	5.95
1/4″	0.2500	6.35
17/64″	0.2656	6.75
9/32″	0.2812	7.14
19/64″	0.2969	7.54
5/16″	0.3125	7.94
21/64″	0.3281	8.33
11/32″	0.3438	8.73
23/64″	0.3594	9.13
3/8″	0.3750	9.52
25/64″	0.3906	9.92
13/32″	0.4062	10.32
27/64″	0.4219	10.72
7/16″	0.4375	11.11
29/64″	0.4531	11.51
15/32″	0.4688	11.91
31/64″	0.4844	12.30
1/2″	0.5000	12.70
33/64″	0.5156	13.10
17/32″	0.5312	13.49
35/64″	0.5469	13.89
9/16″	0.5625	14.29
37/64″	0.5781	14.68
19/32″	0.5938	15.08
39/64″	0.6094	15.48
5/8″	0.6250	15.88
41/64″	0.6406	16.27
21/32″	0.6562	16.67
43/64″	0.6719	17.07
11/16″	0.6875	17.46
45/64″	0.7031	17.86
23/32″	0.7188	18.26
47/64″	0.7344	18.65
3/4″	0.7500	19.05
49/64″	0.7656	19.45
25/32″	0.7812	19.84
51/64″	0.7969	20.24
13/16″	0.8125	20.64
53/64″	0.8281	21.03

DRILL	DECIMAL	MM
27/32″	0.8438	21.43
55/64″	0.8594	21.83
7/8″	0.8750	22.22
57/64″	0.8906	22.62
29/32″	0.9062	23.02
59/64″	0.9219	23.42
15/16″	0.9375	23.81
61/64″	0.9531	24.21
31/32″	0.9688	24.61
63/64″	0.9844	25.00
1″	1.0000	25.40

Nominal diameter. Decimal and mm from our conversion chart.

Large fractional drill sizes (over 1 inch)

DRILL	DECIMAL
1-1/64″	1.0156
1-1/32″	1.0312
1-1/16″	1.0625
1-7/64″	1.1094
1-1/8″	1.1250
1-3/16″	1.1875
1-1/4″	1.2500
1-5/16″	1.3125
1-11/32″	1.3438
1-3/8″	1.3750
1-7/16″	1.4375
1-15/32″	1.4688
1-1/2″	1.5000
1-9/16″	1.5625
1-5/8″	1.6250
1-11/16″	1.6875
1-3/4″	1.7500
1-13/16″	1.8125
1-7/8″	1.8750
2″	2.0000
2-13/16″	2.8125
2-15/16″	2.9375

Nominal, inches. These sizes are taper shank drills; their lengths depend on the Morse taper and aren't on our chart.

Metric drill sizes — inch equivalents

DRILL	INCH EQUIVALENT
0.2 mm	0.0079
0.25 mm	0.0098
0.28 mm	0.0110
0.3 mm	0.0118
0.32 mm	0.0126
0.35 mm	0.0138
0.38 mm	0.0150
0.4 mm	0.0157
0.42 mm	0.0165
0.45 mm	0.0177
0.48 mm	0.0189
0.5 mm	0.0197
0.55 mm	0.0217
0.6 mm	0.0236
0.65 mm	0.0256
0.7 mm	0.0276
0.75 mm	0.0295
0.8 mm	0.0315
0.85 mm	0.0335
0.95 mm	0.0374

Scan for this page online — plus free guides, charts & calculators at **jandesupply.com**
J & E Supply & Fastener Co. · Oklahoma City **405-670-1234** · Duncan **580-255-2582**

DRILL	INCH EQUIVALENT
1 mm	0.0394
1.05 mm	0.0413
1.1 mm	0.0433
1.15 mm	0.0453
1.2 mm	0.0472
1.25 mm	0.0492
1.3 mm	0.0512
1.35 mm	0.0531
1.4 mm	0.0551
1.45 mm	0.0571
1.5 mm	0.0591
1.55 mm	0.0610
1.6 mm	0.0630
1.65 mm	0.0650
1.7 mm	0.0669
1.75 mm	0.0689
1.8 mm	0.0709
1.85 mm	0.0728
1.9 mm	0.0748
1.95 mm	—
2 mm	0.0787
2.05 mm	0.0807
2.1 mm	0.0827
2.15 mm	0.0846
2.2 mm	0.0866
2.25 mm	0.0886
2.3 mm	0.0906
2.35 mm	0.0925
2.4 mm	0.0945
2.45 mm	—
2.5 mm	0.0984
2.6 mm	0.1024
2.7 mm	—
2.8 mm	0.1102
2.9 mm	0.1142
3 mm	0.1181
3.1 mm	0.1220
3.2 mm	0.1260
3.3 mm	0.1299
3.4 mm	0.1339
3.5 mm	0.1378
3.6 mm	0.1417
3.7 mm	0.1457
3.8 mm	0.1496
3.9 mm	0.1535
4 mm	0.1575
4.1 mm	0.1614
4.2 mm	0.1654
4.3 mm	—
4.4 mm	0.1732
4.5 mm	0.1772
4.6 mm	0.1811
4.7 mm	0.1850
4.8 mm	0.1890
5 mm	0.1969
5.1 mm	0.2008
5.2 mm	0.2047
5.3 mm	—
5.4 mm	—
5.5 mm	0.2165
5.6 mm	0.2205
5.7 mm	0.2244
5.8 mm	—
5.9 mm	—

DRILL	INCH EQUIVALENT
6 mm	0.2362
6.1 mm	—
6.2 mm	—
6.3 mm	0.2480
6.4 mm	0.2520
6.5 mm	0.2559
6.6 mm	0.2598
6.7 mm	0.2638
6.8 mm	0.2677
6.9 mm	0.2717
7 mm	0.2756
7.1 mm	0.2795
7.2 mm	0.2835
7.3 mm	0.2874
7.4 mm	0.2913
7.5 mm	0.2953
7.6 mm	0.2992
7.7 mm	0.3031
7.8 mm	—
7.9 mm	0.3110
8 mm	0.3150
8.1 mm	0.3189
8.2 mm	0.3228
8.5 mm	0.3346
8.6 mm	0.3386
8.7 mm	0.3425
8.8 mm	—
8.9 mm	—
9 mm	0.3543
9.1 mm	—
9.2 mm	0.3622
9.3 mm	0.3661
9.4 mm	—
9.5 mm	0.3740
9.6 mm	—
9.7 mm	—
9.8 mm	0.3858
10 mm	0.3937
10.2 mm	0.4016
10.5 mm	0.4134
10.8 mm	0.4252
11 mm	0.4331
11.2 mm	0.4409
11.5 mm	—
11.8 mm	—
12 mm	0.4724
12.2 mm	—
12.5 mm	0.4921
12.8 mm	—
13 mm	0.5118
13.2 mm	0.5197
13.5 mm	0.5315
13.8 mm	0.5433
14 mm	—
14.25 mm	0.5610
14.5 mm	0.5709
14.75 mm	0.5807
15 mm	0.5906
15.25 mm	0.6004
15.5 mm	0.6102
15.75 mm	0.6201
16 mm	0.6299
17.5 mm	—
20 mm	—

The mm size is the nominal diameter; the inch equivalent is nominal, inches. A dash: our two sources round it differently or differ. Metric drill lengths follow DIN or ISO series and aren't on this chart.

Number drill lengths — jobber and screw machine

DRILL	JOBBER F / L	SCREW MACHINE F / L
#80	1/8 / 3/4	—
#79	1/8 / 3/4	—
#78	3/16 / 7/8	—
#77	3/16 / 7/8	—
#76	3/16 / 7/8	—
#75	1/4 / 1	—
#74	1/4 / 1	—
#73	—	—
#72	—	—
#71	—	—
#70	—	—
#69	—	—
#68	—	—
#67	—	—
#66	—	—
#65	—	—
#64	—	—
#63	—	—
#62	—	—
#61	—	—
#60	11/16 / 1-5/8	1/2 / 1-3/8
#59	11/16 / 1-5/8	1/2 / 1-3/8
#58	11/16 / 1-5/8	1/2 / 1-3/8
#57	3/4 / 1-3/4	1/2 / 1-3/8
#56	3/4 / 1-3/4	1/2 / 1-3/8
#55	7/8 / 1-7/8	5/8 / 1-5/8
#54	7/8 / 1-7/8	5/8 / 1-5/8
#53	7/8 / 1-7/8	5/8 / 1-5/8
#52	7/8 / 1-7/8	11/16 / 1-11/16
#51	1 / 2	11/16 / 1-11/16
#50	1 / 2	11/16 / 1-11/16
#49	1 / 2	11/16 / 1-11/16
#48	1 / 2	11/16 / 1-11/16
#47	1 / 2	—
#46	1-1/8 / 2-1/8	3/4 / 1-3/4
#45	1-1/8 / 2-1/8	3/4 / 1-3/4
#44	1-1/8 / 2-1/8	3/4 / 1-3/4
#43	1-1/4 / 2-1/4	3/4 / 1-3/4
#42	1-1/4 / 2-1/4	3/4 / 1-3/4
#41	1-3/8 / 2-3/8	13/16 / 1-13/16
#40	1-3/8 / 2-3/8	13/16 / 1-13/16
#39	1-3/8 / 2-3/8	13/16 / 1-13/16
#38	1-7/16 / 2-1/2	13/16 / 1-13/16
#37	1-7/16 / 2-1/2	13/16 / 1-13/16
#36	1-7/16 / 2-1/2	13/16 / 1-13/16
#35	1-1/2 / 2-5/8	7/8 / 1-7/8
#34	1-1/2 / 2-5/8	7/8 / 1-7/8
#33	1-1/2 / 2-5/8	— / 1-7/8
#32	1-5/8 / 2-3/4	7/8 / 1-7/8
#31	1-5/8 / 2-3/4	7/8 / 1-7/8
#30	1-5/8 / 2-3/4	15/16 / 1-15/16
#29	1-3/4 / 2-7/8	15/16 / 1-15/16
#28	1-3/4 / 2-7/8	15/16 / 1-15/16
#27	1-7/8 / 3	1 / 2-1/16
#26	1-7/8 / 3	1 / 2-1/16
#25	1-7/8 / 3	1 / 2-1/16
#24	2 / 3-1/8	1 / 2-1/16
#23	2 / 3-1/8	1 / 2-1/16
#22	2 / 3-1/8	1-1/16 / 2-1/8

DRILL	JOBBER F / L	SCREW MACHINE F / L
#21	2-1/8 / 3-1/4	1-1/16 / 2-1/8
#20	2-1/8 / 3-1/4	1-1/16 / 2-1/8
#19	2-1/8 / 3-1/4	1-1/16 / 2-1/8
#18	2-1/8 / 3-1/4	1-1/16 / 2-1/8
#17	—	— / 2-3/16
#16	2-3/16 / 3-3/8	— / 2-3/16
#15	2-3/16 / 3-3/8	— / 2-3/16
#14	2-3/16 / 3-3/8	— / 2-3/16
#13	2-5/16 / 3-1/2	— / 2-3/16
#12	2-5/16 / 3-1/2	1-3/16 / 2-1/4
#11	2-5/16 / 3-1/2	1-3/16 / 2-1/4
#10	2-7/16 / 3-5/8	1-3/16 / 2-1/4
#9	2-7/16 / 3-5/8	1-3/16 / 2-1/4
#8	2-7/16 / 3-5/8	1-3/16 / 2-1/4
#7	2-7/16 / 3-5/8	1-3/16 / 2-1/4
#6	2-1/2 / 3-3/4	1-1/4 / 2-3/8
#5	2-1/2 / 3-3/4	1-1/4 / 2-3/8
#4	2-1/2 / 3-3/4	1-1/4 / 2-3/8
#3	2-1/2 / 3-3/4	1-1/4 / 2-3/8
#2	2-5/8 / 3-7/8	1-5/16 / 2-7/16
#1	2-5/8 / 3-7/8	1-5/16 / 2-7/16

All nominal, inches. F = flute length, L = overall length. A dash: our sources differ, or only one lists it — give us a call.

Letter drill lengths — jobber and screw machine

DRILL	JOBBER F / L	SCREW MACHINE F / L
A	2-5/8 / 3-7/8	1-5/16 / 2-7/16
B	2-3/4 / 4	1-3/8 / 2-1/2
C	2-3/4 / 4	1-3/8 / 2-1/2
D	2-3/4 / 4	1-3/8 / 2-1/2
E	2-3/4 / 4	1-3/8 / 2-1/2
F	2-7/8 / 4-1/8	1-7/16 / 2-5/8
G	2-7/8 / 4-1/8	1-7/16 / 2-5/8
H	2-7/8 / 4-1/8	1-1/2 / 2-11/16
I	2-7/8 / 4-1/8	1-1/2 / 2-11/16
J	2-7/8 / 4-1/8	1-1/2 / 2-11/16
K	2-15/16 / 4-1/4	1-1/2 / 2-11/16
L	2-15/16 / 4-1/4	1-9/16 / 2-3/4
M	3-1/16 / 4-3/8	1-9/16 / 2-3/4
N	3-1/16 / 4-3/8	—
O	3-3/16 / 4-1/2	1-11/16 / 2-15/16
P	3-5/16 / 4-5/8	1-11/16 / 2-15/16
Q	3-7/16 / 4-3/4	1-11/16 / 3
R	3-7/16 / 4-3/4	1-11/16 / 3
S	3-1/2 / 4-7/8	1-3/4 / 3-1/16
T	3-1/2 / 4-7/8	1-3/4 / 3-1/16
U	3-5/8 / 5	1-13/16 / 3-1/8
V	3-5/8 / 5	1-7/8 / 3-1/4
W	3-3/4 / 5-1/8	1-7/8 / 3-1/4
X	3-3/4 / 5-1/8	1-15/16 / 3-5/16
Y	3-7/8 / 5-1/4	1-15/16 / 3-5/16
Z	3-7/8 / 5-1/4	2 / 3-3/8

All nominal, inches. F = flute length, L = overall length. A dash: our sources differ, or only one lists it — give us a call.

Fractional drill lengths — jobber and screw machine

DRILL	JOBBER F / L	SCREW MACHINE F / L
1/64″	3/16 / 3/4	—
1/32″	—	—
3/64″	—	—
1/16″	7/8 / 1-7/8	5/8 / 1-5/8
5/64″	1 / 2	11/16 / 1-11/16
3/32″	1-1/4 / 2-1/4	3/4 / 1-3/4

DRILL	JOBBER F / L	SCREW MACHINE F / L
7/64″	1-1/2 / 2-5/8	13/16 / 1-13/16
1/8″	1-5/8 / 2-3/4	7/8 / 1-7/8
9/64″	1-3/4 / 2-7/8	15/16 / 1-15/16
5/32″	2 / 3-1/8	1 / 2-1/16
11/64″	2-1/8 / 3-1/4	1-1/16 / 2-1/8
3/16″	2-5/16 / 3-1/2	— / 2-3/16
13/64″	2-7/16 / 3-5/8	1-3/16 / 2-1/4
7/32″	2-1/2 / 3-3/4	1-1/4 / 2-3/8
15/64″	2-5/8 / 3-7/8	1-5/16 / 2-7/16
1/4″	2-3/4 / 4	1-3/8 / 2-1/2
17/64″	2-7/8 / 4-1/8	1-7/16 / 2-5/8
9/32″	2-15/16 / 4-1/4	1-1/2 / 2-11/16
19/64″	3-1/16 / 4-3/8	1-9/16 / 2-3/4
5/16″	3-3/16 / 4-1/2	1-5/8 / 2-13/16
21/64″	— / 4-5/8	1-11/16 / 2-15/16
11/32″	3-7/16 / 4-3/4	1-11/16 / 3
23/64″	3-1/2 / 4-7/8	1-3/4 / 3-1/16
3/8″	3-5/8 / 5	1-13/16 / 3-1/8
25/64″	3-3/4 / 5-1/8	1-7/8 / 3-1/4
13/32″	3-7/8 / 5-1/4	1-15/16 / 3-5/16
27/64″	3-15/16 / 5-3/8	2 / 3-3/8
7/16″	4-1/16 / 5-1/2	2-1/16 / 3-7/16
29/64″	4-3/16 / 5-5/8	2-1/8 / 3-9/16
15/32″	4-5/16 / 5-3/4	2-1/8 / 3-5/8
31/64″	4-3/8 / 5-7/8	2-3/16 / 3-11/16
1/2″	4-1/2 / 6	2-1/4 / 3-3/4
33/64″	4-13/16 / 6-5/8	—
17/32″	4-13/16 / 6-5/8	—
35/64″	4-13/16 / 6-5/8	—
9/16″	4-13/16 / 6-5/8	—
37/64″	4-13/16 / 6-5/8	—
19/32″	5-3/16 / 7-1/8	—
39/64″	5-3/16 / 7-1/8	—
5/8″	5-3/16 / 7-1/8	—
41/64″	5-3/16 / 7-1/8	—
21/32″	5-3/16 / 7-1/8	—
43/64″	5-5/8 / 7-5/8	—
11/16″	5-5/8 / 7-5/8	—
45/64″	—	—
23/32″	—	—
47/64″	—	—
3/4″	—	—
49/64″	—	—
25/32″	—	—
51/64″	—	—
13/16″	—	—
53/64″	—	—
27/32″	—	—
55/64″	—	—
7/8″	—	—
57/64″	—	—
29/32″	—	—
59/64″	—	—
15/16″	—	—
61/64″	—	—
31/32″	—	—
63/64″	—	—
1″	—	—

All nominal, inches. F = flute length, L = overall length. A dash: our sources differ, or only one lists it — give us a call. Lengths past 11/16″ (jobber) and 1/2″ (screw machine): only one of our sources lists them — give us a call.

Taper length drills — ASME B94.11M (inches)

DRILL	FLUTE F	OVERALL L

Scan for this page online — plus free guides, charts & calculators at **jandesupply.com**
J & E Supply & Fastener Co. · Oklahoma City **405-670-1234** · Duncan **580-255-2582**

DRILL	FLUTE F	OVERALL L
19/64"	4	6-3/8
27/64"	4-5/8	7-1/4
7/16"	4-5/8	7-1/4
29/64"	4-3/4	7-1/2
15/32"	4-3/4	7-1/2
31/64"	4-3/4	7-3/4
1/2"	4-3/4	7-3/4

Nominal, inches. Only the sizes where two of our sources agree; for any other taper length size, give us a call.

Tap drills for inch threads

THREAD	TAP DRILL	DECIMAL
#4-40 coarse	#43	0.0890
#6-32 coarse	#36	0.1065
#8-32 coarse	#29	0.1360
#10-24 coarse	#25	0.1495
#12-24 coarse	#16	0.1770
¼"-20 coarse	#7	0.2010
5/16"-18 coarse	F	0.2570
⅜"-16 coarse	5/16	0.3125
7/16"-14 coarse	U	0.3680
½"-13 coarse	27/64	0.4219
9/16"-12 coarse	31/64	0.4844
5/8"-11 coarse	17/32	0.5312
¾"-10 coarse	21/32	0.6562
7/8"-9 coarse	49/64	0.7656
1"-8 coarse	7/8	0.8750
1⅛"-7 coarse	63/64	0.9844
1¼"-7 coarse	1 7/64	1.1094
1⅜"-6 coarse	1 7/32	1.2188
1½"-6 coarse	1 11/32	1.3438
#4-48 fine	#42	0.0935
#6-40 fine	#33	0.1130
#8-36 fine	#29	0.1360
#10-32 fine	#21	0.1590
#12-28 fine	#14	0.1820
¼"-28 fine	#3	0.2130
5/16"-24 fine	I	0.2720
⅜"-24 fine	Q	0.3320
7/16"-20 fine	25/64	0.3906
½"-20 fine	29/64	0.4531
9/16"-18 fine	33/64	0.5156
5/8"-18 fine	37/64	0.5781
¾"-16 fine	11/16	0.6875
7/8"-14 fine	13/16	0.8125
1"-12 fine	59/64	0.9219
1⅛"-12 fine	1 3/64	1.0469
1¼"-12 fine	1 11/64	1.1719
1⅜"-12 fine	1 19/64	1.2969
1½"-12 fine	1 27/64	1.4219

From our thread pitch chart (coarse and fine threads, about a 70–75% thread).

Tap drills for metric threads

THREAD	PITCH (MM)	TAP DRILL
M1	0.25	0.75 mm
M1.1	0.25	0.85 mm
M1.2	0.25	0.95 mm
M1.4	0.30	1.1 mm
M1.6	0.35	1.25 mm
M1.8	0.35	1.45 mm
M2	0.40	1.6 mm
M2.2	0.45	1.75 mm

THREAD	PITCH (MM)	TAP DRILL
M2.5	0.45	2.05 mm
M3	0.50	2.5 mm
M3.5	0.60	2.9 mm
M4	0.70	3.3 mm
M5	0.80	4.2 mm
M6	1.00	5.0 mm
M7	1.00	6.0 mm
M8	1.25	6.8 mm
M9	1.25	7.8 mm
M10	1.50	8.5 mm
M11	1.50	9.5 mm
M12	1.75	10.2 mm
M14	2.00	12.0 mm
M16	2.00	14.0 mm
M18	2.50	15.5 mm
M20	2.50	17.5 mm
M22	2.50	19.5 mm
M24	3.00	21.0 mm
M27	3.00	24.0 mm
M30	3.50	26.5 mm
M33	3.50	29.5 mm
M36	4.00	32.0 mm
M39	4.00	35.0 mm
M42	4.50	37.5 mm
M45	4.50	40.5 mm
M48	5.00	43.0 mm
M52	5.00	47.0 mm
M56	5.50	50.5 mm
M1×0.2	0.20	0.8 mm
M2×0.25	0.25	1.75 mm
M4×0.35	0.35	3.6 mm
M4×0.5	0.50	3.5 mm
M5×0.5	0.50	4.5 mm
M6×0.5	0.50	5.5 mm
M6×0.75	0.75	5.2 mm
M7×0.75	0.75	6.2 mm
M8×0.5	0.50	7.5 mm
M8×0.75	0.75	7.2 mm
M8×1.0	1.00	7.0 mm
M9×0.75	0.75	8.2 mm
M9×1.0	1.00	8.0 mm
M10×0.75	0.75	9.2 mm
M10×1.0	1.00	9.0 mm
M10×1.25	1.25	8.8 mm
M11×0.75	0.75	10.2 mm
M11×1.0	1.00	10.0 mm
M12×1.0	1.00	11.0 mm
M12×1.25	1.25	10.8 mm
M12×1.5	1.50	10.5 mm
M14×1.0	1.00	13.0 mm
M14×1.25	1.25	12.8 mm
M14×1.5	1.50	12.5 mm
M15×1.0	1.00	14.0 mm
M15×1.5	1.50	13.5 mm
M16×1.0	1.00	15.0 mm
M16×1.5	1.50	14.5 mm
M17×1.0	1.00	16.0 mm
M17×1.5	1.50	15.5 mm
M18×1.0	1.00	17.0 mm
M18×1.5	1.50	16.5 mm
M18×2.0	2.00	16.0 mm
M20×1.0	1.00	19.0 mm
M20×1.5	1.50	18.5 mm
M20×2.0	2.00	18.0 mm

THREAD	PITCH (MM)	TAP DRILL
M22×1.0	1.00	21.0 mm
M22×1.5	1.50	20.5 mm
M22×2.0	2.00	20.0 mm
M24×1.0	1.00	23.0 mm
M24×1.5	1.50	22.5 mm
M24×2.0	2.00	22.0 mm
M25×1.0	1.00	24.0 mm
M25×1.5	1.50	23.5 mm
M25×2.0	2.00	23.0 mm
M26×1.5	1.50	24.5 mm
M27×1.0	1.00	26.0 mm
M27×1.5	1.50	25.5 mm
M27×2.0	2.00	25.0 mm
M28×1.0	1.00	27.0 mm
M28×1.5	1.50	26.5 mm
M28×2.0	2.00	26.0 mm
M30×1.5	1.50	28.5 mm
M30×2.0	2.00	28.0 mm
M33×2.0	2.00	31.0 mm
M36×3.0	3.00	33.0 mm
M39×3.0	3.00	36.0 mm
M42×3.0	3.00	39.0 mm
M45×3.0	3.00	42.0 mm
M48×3.0	3.00	45.0 mm
M52×4.0	4.00	48.0 mm

From our metric thread pitch chart.

Good to know

The size on the drill is its nominal diameter. A twist drill is a roughing tool: it usually cuts a hole a little over its size, more in soft metal and when the point is ground off center. For a close, round hole, drill under size and ream.

Pick the length for the job. The shorter the drill, the stiffer it is and the less it walks — a screw machine (stub) drill for hard metal and short holes, jobber length for general work, taper length or an extension drill only when you need the reach.

Annular cutters

An **annular cutter** (core drill) cuts only a ring at the edge of the hole and leaves a solid slug, so it makes a large, clean, burr-free hole in steel with a magnetic drill. It is sized by the **diameter of the hole it cuts** and its **depth of cut**. There is no published standard for annular cutters: each cutter maker sets its own shank, so we show a shank diameter only where two independent cutter makers agree.

Annular cutter shank diameter — by depth of cut (inches)

CUTTER DIA.	1" DEPTH OF CUT	2" DEPTH OF CUT	3" DEPTH OF CUT	4" DEPTH OF CUT
7/16"	3/4"	3/4"	—	—
1/2"	3/4"	3/4"	—	—
9/16"	3/4"	3/4"	—	—
5/8"	3/4"	3/4"	—	—
11/16"	3/4"	3/4"	—	—
3/4"	3/4"	3/4"	3/4"	3/4"
13/16"	3/4"	3/4"	3/4"	3/4"
7/8"	3/4"	3/4"	3/4"	3/4"
15/16"	3/4"	3/4"	3/4"	3/4"
1"	3/4"	3/4"	3/4"	3/4"
1-1/16"	3/4"	3/4"	3/4"	3/4"
1-1/8"	3/4"	3/4"	3/4"	3/4"
1-3/16"	3/4"	3/4"	3/4"	3/4"
1-1/4"	3/4"	3/4"	3/4"	3/4"
1-5/16"	3/4"	3/4"	3/4"	3/4"
1-3/8"	3/4"	3/4"	3/4"	3/4"
1-7/16"	3/4"	3/4"	3/4"	3/4"
1-1/2"	3/4"	—	3/4"	—
1-9/16"	3/4"	—	3/4"	—
1-5/8"	3/4"	—	3/4"	—
1-11/16"	3/4"	—	3/4"	—
1-3/4"	3/4"	—	3/4"	—
1-13/16"	3/4"	—	3/4"	—
1-7/8"	3/4"	—	3/4"	—

CUTTER DIA.	1″ DEPTH OF CUT	2″ DEPTH OF CUT	3″ DEPTH OF CUT	4″ DEPTH OF CUT
1-15/16″	3/4″	—	3/4″	—
2″	3/4″	—	3/4″	—
2-1/16″	3/4″	3/4″	—	—
2-1/8″	3/4″	3/4″	—	—
2-3/16″	3/4″	3/4″	—	—
2-1/4″	3/4″	3/4″	—	—
2-3/8″	—	—	1-1/4″	—
2-7/16″	—	—	1-1/4″	—
2-1/2″	—	—	1-1/4″	—
2-9/16″	—	—	1-1/4″	—
2-5/8″	—	—	1-1/4″	—
2-11/16″	—	—	1-1/4″	—
2-3/4″	—	—	1-1/4″	—
2-13/16″	—	—	1-1/4″	—
2-7/8″	—	—	1-1/4″	—
2-15/16″	—	—	1-1/4″	—
3″	—	—	1-1/4″	—
3-1/16″	—	—	1-1/4″	—

Shank diameter, nominal, inches, where two of these cutter makers agree for that size and depth of cut: Champion, Drillco, Hougen, Michigan Drill, Milwaukee. A dash: our sources differ, or only one lists it — give us a call. Shank flats and pilot pins differ by maker and aren't on this chart.

Good to know: annular cutters

Match the shank to your magnetic drill. The shank is the cutter maker's, not a standard's — check that it fits your drill's arbor or adapter, and the flats your arbor's set screws need, before you cut.

Use the pilot pin and cutting fluid. The pilot pin centers the cutter and pushes the slug out when the cut breaks through. Follow the drill maker's instructions for setting up the cut.

Quick answers

What size drill do I use for a 1/4-20 tap?
A **#7** drill (0.2010″), per our thread pitch chart.

What size drill for an M6 × 1.0 tap?
A **5.0 mm** drill, per our metric thread pitch chart.

What is the decimal size of a #29 drill?
A #29 drill is **0.1360″** (nominal).

What size is a letter F drill bit?
A letter F drill is **0.2570″** (nominal).

How long is a 1/4 inch jobber drill bit?
Flute **2-3/4″**, overall **4″** (nominal, ASME B94.11M). A 1/4″ screw machine (stub) drill is 1-3/8″ flute, 2-1/2″ overall.

What shank size is an annular cutter?
It depends on the maker and the size: on our chart, cutters 7/16″ to 2-1/4″ at 1″ depth of cut have a **3/4″** shank where two cutter makers agree. Check the chart for your size and depth of cut.

Reference values drawn from the governing standards. For critical applications, confirm against the standard and the manufacturer's published data. Technical information disclaimer →