MAX MACHINING

Form Tap Drill Chart

Roll form (thread forming) tap drills at 65 percent thread, inch and metric, with the thread percentage each standard drill gives.

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Inch 65 PERCENT THREAD

THREAD	TPI	MAJOR in	65% DRILL calculated	USE THIS DRILL nearest, inch or metric	THREAD YOU GET
#4-40	40	.1120	.1009	**#38** .1015 2.58 mm	62%
#6-32	32	.1380	.1242	**1/8** .1250 3.17 mm	61%
#8-32	32	.1640	.1502	**#25** .1495 3.80 mm	68%
#10-24	24	.1900	.1716	**11/64** .1719 4.37 mm	64%
#10-32	32	.1900	.1762	**#16** .1770 4.50 mm	61%
1/4-20	20	.2500	.2279	**#1** .2280 5.79 mm	65%
1/4-28	28	.2500	.2342	**15/64** .2344 5.95 mm	64%
5/16-18	18	.3125	.2879	**7.30 mm** .2874	66%
5/16-24	24	.3125	.2941	**M** .2950 7.49 mm	62%
3/8-16	16	.3750	.3474	**S** .3480 8.84 mm	64%
3/8-24	24	.3750	.3566	**T** .3580 9.09 mm	60%
7/16-14	14	.4375	.4059	**13/32** .4062 10.32 mm	64%
7/16-20	20	.4375	.4154	**Z** .4130 10.49 mm	72%
1/2-13	13	.5000	.4660	**11.80 mm** .4646	68%
1/2-20	20	.5000	.4779	**12.10 mm** .4764	69%

Metric 65 PERCENT THREAD

THREAD	PITCH mm	MAJOR mm	65% DRILL calculated	USE THIS DRILL nearest, metric or inch	THREAD YOU GET
M3 × 0.5	0.50	3.0	2.78	**2.80 mm** .1102 in	59%
M4 × 0.7	0.70	4.0	3.69	**3.70 mm** .1457 in	63%
M5 × 0.8	0.80	5.0	4.65	**#14** .1820 4.62 mm	69%
M6 × 1.0	1.00	6.0	5.56	**7/32** .2188 5.56 mm	65%
M8 × 1.25	1.25	8.0	7.45	**7.40 mm** .2913 in	71%
M10 × 1.5	1.50	10.0	9.34	**U** .3680 9.35 mm	64%
M12 × 1.75	1.75	12.0	11.23	**11.20 mm** .4409 in	67%

THE RULE

`drill = major - 0.442 x pitch` gives 65 percent thread, the usual form tap target. We list the nearest standard drill, inch or metric, and the thread percentage it actually gives. Where the nearest drill lands far from 65 percent, ask us or the tap maker for the hole size window.

CAUTION

Form taps make no chips, so blind holes stay clean and the thread is stronger. The trade: the hole size window is tight, and only ductile materials roll well. Aluminum, brass, copper and low carbon steel are good. Stainless works with the right tap and lubricant. Cast iron and hardened steel do not. Confirm with the tap maker's chart.