

Hole Sizes for Cut Tapping Metric System

Notes:

1. This chart is supplied as a recommendation only. Actual sizes may vary depending on application and the material being tapped. Other thread and hole sizes are available upon request.
2. For aluminum or other soft materials a hole minor diameter on the low side of the suggested range is recommended. For harder materials, a hole minor diameter on the high side of the suggested range is recommended.
3. These recommendations are for cutting with regular preload-locking threading taps.
4. Preload-locking threads can be applied to threading tools in sizes from 0.30 mm.

Metric Thread Size	Hole Minor Dia. Min (mm)	Hole Minor Dia. Max (mm)	Drill Size*	Metric Thread Size	Hole Minor Dia. Min (mm)	Hole Minor Dia. Max (mm)	Drill Size*
M1.6 x 0.35	1.373	1.418	#54	M14.0 x 1.50	12.725	13.030	13 mm
M2.0 x 0.40	1.740	1.792	#50	M14.0 x 2.00	12.319	12.700	31/64
M2.5 x 0.45	2.210	2.261	#43	M16.0 x 1.50	14.732	15.037	15 mm
M3.0 x 0.50	2.667	2.743	#36	M16.0 x 2.00	14.300	14.707	9/16
M3.5 x 0.60	3.099	3.200	1/8	M18.0 x 1.50	16.739	17.018	17 mm
M4.0 x 0.70	3.556	3.632	#28	M18.0 x 2.50	15.875	16.383	5/8
M4.5 x 0.75	4.013	4.115	#21	M20.0 x 1.50	18.745	19.025	19 mm
M5.0 x 0.80	4.318	4.470	11/64	M20.0 x 2.50	17.882	18.364	23/32
M6.0 x 1.00	5.156	5.359	#5	M22.0 x 1.50	20.726	21.031	21 mm
M7.0 x 1.00	6.147	6.350	C	M22.0 x 2.50	19.888	20.371	20 mm
M8.0 x 1.00	7.163	7.341	9/32	M24.0 x 3.00	21.463	22.047	55/64
M8.0 x 1.25	6.934	7.188	J	M27.0 x 3.00	24.460	25.044	31/32
M9.0 x 1.25	7.950	8.179	8 mm	M28.0 x 1.50	26.746	27.026	1 1/16
M10.0 x 1.25	8.941	9.195	T	M30.0 x 2.00	28.321	28.702	28.5 mm
M10.0 x 1.50	8.738	9.017	S	M30.0 x 3.50	27.051	27.737	1 5/64
M11.0 x 1.50	9.728	10.033	W	M33.0 x 2.00	31.318	31.699	1 15/64
M12.0 x 1.25	10.947	11.176	11 mm	M33.0 x 3.50	30.048	30.734	1 3/16
M12.0 x 1.75	10.516	10.871	27/64	M36.0 x 4.00	32.614	33.401	1 5/16
M14.0 x 1.25	12.954	13.183	33/64	M39.0 x 4.00	35.611	36.398	1 13/32

* **Note:** Drill size callouts were determined to best fit the hole minor diameter range.

Hole Sizes for Cut Tapping Fractional System

Notes:

1. This chart is supplied as a recommendation only. Actual sizes may vary depending on application and the material being tapped. Other thread and hole sizes are available upon request.
2. For aluminum or other soft materials a hole minor diameter on the low side of the suggested range is recommended. For harder materials, a hole minor diameter on the high side of the suggested range is recommended.
3. These recommendations are for cutting with regular preload-locking threading taps.
4. Preload-locking threads can be applied to threading tools in sizes from #0000-160 Inch.

Fractional Thread Size	Hole Minor Diameter Min.	Hole Minor Diameter Max.	Drill Size*	Fractional Thread Size	Hole Minor Diameter Min.	Hole Minor Diameter Max.	Drill Size*
0 – 80	0.0520	0.0540	#55	7/16 – 14	0.3770	0.3910	V
1 – 72	0.0640	0.0660	#52	7/16 – 20	0.3950	0.4050	X
2 – 56	0.0740	0.0770	#48	1/2 – 13	0.4350	0.4500	7/16
2 – 64	0.0760	0.0780	1.95mm	1/2 – 20	0.4580	0.4680	11.75mm
3 – 48	0.0850	0.0880	#44	9/16 – 12	0.4920	0.5080	1/2
3 – 56	0.0870	0.0900	#43	9/16 – 18	0.5160	0.5260	33/64
4 – 40	0.0960	0.0990	#41	5/8 – 11	0.5480	0.5660	14 mm
4 – 48	0.0980	0.1010	#40	5/8 – 18	0.5780	0.5890	37/64
5 – 40	0.1090	0.1120	7/64	3/4 – 10	0.6660	0.6850	43/64
5 – 44	0.1100	0.1130	#35	3/4 – 16	0.6970	0.7090	45/64
6 – 32	0.1120	0.1180	#33	7/8 – 9	0.7810	0.8030	25/32
6 – 40	0.1220	0.1250	1/8	7/8 – 14	0.8150	0.8290	21 mm
8 – 32	0.1380	0.1440	#28	1" – 8	0.8940	0.9190	29/32
8 – 36	0.1460	0.1500	#26	1" – 12	0.9300	0.9460	15/16
10 – 24	0.1550	0.1630	#21	1" – 14	0.9400	0.9540	24 mm
10 – 32	0.1640	0.1700	#19	1 1/8-7	1.0040	1.0320	1 1/64
12 – 24	0.1810	0.1890	#13	1 1/8-12	1.0550	1.0710	1 1/16
12 – 28	0.1860	0.1930	#12	1 1/4-7	1.1290	1.1570	1 9/64
1/4 - 20	0.2080	0.2180	#4	1 1/4-12	1.1800	1.1960	1 3/16
1/4 - 28	0.2200	0.2270	#2	1 3/8-6	1.2340	1.2670	1 1/4
5/16 – 18	0.2660	0.2760	H	1 3/8-12	1.3050	1.3210	1 5/16
5/16 – 24	0.2770	0.2850	J	1 1/2-6	1.3590	1.3920	1 3/8
3/8 – 16	0.3220	0.3340	P	1 1/2-12	1.4300	1.4460	1 7/16
3/8 – 24	0.3400	0.3480	11/32				

* **Note:** Drill size callouts were determined to best fit the hole minor diameter range.

Hole Sizes for Cold Form Tapping Metric System

IMPORTANT NOTES ON SPIRALOCK PRETAP HOLE SIZES

Determining Drill Size

Finding the correct drill size for a Spiralock tap may be a “Cut and Try” process.

- Not all drills are alike and therefore the pretap holes produced by different drills may be vastly different. What matters is the actual pretap hole size, how consistently this hole size is maintained, and finally, the after-tap thread percentage or minor diameter. To get good results, you must know the actual hole size and not just the drill size!
- Thin wall parts may expand during tapping and produce oversize after-tap minor diameters.

After tapping, thread minor diameter should check within Spiralock recommended minor diameter sizes for cut threads.

Suggested Procedure for Using Spiralock Tap

1. Test drill a part and measure the pretap hole size.
2. Test tap the part. Check pitch diameter with GO and NOT-GO gages. Check the thread percentage or minor diameter against the customer requirement.
3. Establish a maximum condition for the pretap hole size and monitor this frequently during the production tap run.

Metric Thread Size	Pre-tap Hole Diameter		Metric Thread Size	Pre-tap Hole Diameter	
	Cold-Form Drill Dia. Min. (mm)	Cold-Form Drill Dia. Max. (mm)		Cold-Form Drill Dia. Min. (mm)	Cold-Form Drill Dia. Max. (mm)
M1.6 x 0.35	1.483	1.506	M14.0 x 1.50	13.363	13.515
M2.0 x 0.40	1.867	1.892	M14.0 x 2.00	13.160	13.350
M2.5 x 0.45	2.352	2.380	M16.0 x 1.50	15.367	15.519
M3.0 x 0.50	2.835	2.865	M16.0 x 2.00	15.151	15.354
M3.5 x 0.60	3.302	3.335	M18.0 x 1.50	17.369	17.508
M4.0 x 0.70	3.769	3.805	M18.0 x 2.50	16.937	17.191
M4.5 x 0.75	4.257	4.308	M20.0 x 1.50	19.373	19.512
M5.0 x 0.80	4.658	4.735	M20.0 x 2.50	18.857	18.908
M6.0 x 1.00	5.578	5.679	M22.0 x 1.50	21.364	21.516
M7.0 x 1.00	6.574	6.675	M22.0 x 2.50	20.945	21.186
M8.0 x 1.00	7.582	7.671	M24.0 x 3.00	22.731	23.023
M8.0 x 1.25	7.468	7.595	M27.0 x 3.00	25.730	26.022
M9.0 x 1.25	8.478	8.590	M28.0 x 1.50	27.374	27.513
M10.0 x 1.25	9.472	9.599	M30.0 x 2.00	29.162	29.352
M10.0 x 1.50	9.370	9.510	M30.0 x 3.50	28.527	28.870
M11.0 x 1.50	10.363	10.516	M33.0 x 2.00	32.159	32.349
M12.0 x 1.25	11.474	11.588	M33.0 x 3.50	31.524	31.867
M12.0 x 1.75	11.257	11.435	M36.0 x 4.00	34.308	34.702
M14.0 x 1.25	13.477	13.592	M39.0 x 4.00	37.341	37.699

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	Cold-Form Drill Dia. Min.	Cold Form Drill Dia. Max.		Cold-Form Drill Dia. Min.	Cold Form Drill Dia. Max.
0 – 80	0.0559	0.0567	7/16 - 14	0.4073	0.4143
1 – 72	0.0684	0.0693	7/16 – 20	0.4164	0.4213
2 – 56	0.0801	0.0812	1/2 – 13	0.4675	0.4750
2 – 64	0.0808	0.0818	1/2 – 20	0.4789	0.4838
3 – 48	0.0921	0.0933	9/16 – 12	0.5273	0.5354
3 – 56	0.0931	0.0942	9/16 – 18	0.5390	0.5445
4 – 40	0.1038	0.1050	5/8 – 11	0.5866	0.5955
4 – 48	0.1051	0.1063	5/8 – 18	0.6015	0.6070
5 – 40	0.1168	0.1180	3/4 – 10	0.7078	0.7175
5 – 44	0.1175	0.1187	3/4 – 16	0.7236	0.7297
6 – 32	0.1248	0.1279	7/8 – 9	0.8281	0.8389
6 – 40	0.1298	0.1311	7/8 – 14	0.8448	0.8518
8 – 32	0.1508	0.1539	1” – 8	0.9472	0.9594
8 – 36	0.1548	0.1562	1” – 12	0.9648	0.9729
10 – 24	0.1724	0.1765	1” – 14	0.9698	0.9768
10 – 32	0.1768	0.1799	1 1/8-7	1.0647	1.0786
12 – 24	0.1984	0.2025	1 1/8-12	1.0898	1.0979
12 – 28	0.2009	0.2044	1 1/4-7	1.1897	1.2036
1/4 - 20	0.2289	0.2338	1 1/4-12	1.2148	1.2229
1/4 - 28	0.2349	0.2384	1 3/8-6	1.3046	1.3209
5/16 – 18	0.2890	0.2945	1 3/8-12	1.3398	1.3479
5/16 – 24	0.2949	0.2990	1 1/2-6	1.4296	1.4459
3/8 – 16	0.3486	0.3547	1 1/2-12	1.4648	1.4729
3/8 – 24	0.3574	0.3615			