WORKSHOP REFERENCE · 01

Tapping Drill Sizes

Tap drill and internal thread minor diameters for metric, unified, pipe and Whitworth threads. Drill sizes follow DIN 336 for cutting taps.

ISO metric coarse

ISO 261 · DIN 13 · 6H

Size	Pitch mm	Tap drill mm	Minor Ø min	Minor Ø max
M1	0.25	**0.75**	0.729	0.785
M1.2	0.25	**0.95**	0.929	0.985
M1.4	0.30	**1.10**	1.075	1.142
M1.6	0.35	**1.25**	1.221	1.321
M1.8	0.35	**1.45**	1.421	1.521
M2	0.40	**1.60**	1.567	1.679
M2.2	0.45	**1.75**	1.713	1.838
M2.5	0.45	**2.05**	2.013	2.138
M3	0.50	**2.50**	2.459	2.599
M3.5	0.60	**2.90**	2.850	3.010
M4	0.70	**3.30**	3.242	3.422
M4.5	0.75	**3.70**	3.688	3.878
M5	0.80	**4.20**	4.134	4.334
M6	1.00	**5.00**	4.917	5.153
M7	1.00	**6.00**	5.917	6.153
M8	1.25	**6.80**	6.647	6.912
M9	1.25	**7.80**	7.647	7.912
M10	1.50	**8.50**	8.376	8.676
M11	1.50	**9.50**	9.376	9.676
M12	1.75	**10.20**	10.106	10.441
M14	2.00	**12.00**	11.835	12.210
M16	2.00	**14.00**	13.835	14.210
M18	2.50	**15.50**	15.294	15.744
M20	2.50	**17.50**	17.294	17.744
M22	2.50	**19.50**	19.294	19.744
M24	3.00	**21.00**	20.752	21.252
M27	3.00	**24.00**	23.752	24.252
M30	3.50	**26.50**	26.211	26.771
M33	3.50	**29.50**	29.211	29.771
M36	4.00	**32.00**	31.670	32.270
M39	4.00	**35.00**	34.670	35.270
M42	4.50	**37.50**	37.129	37.799
M45	4.50	**40.50**	40.129	40.799
M48	5.00	**43.00**	42.587	43.297
M52	5.00	**47.00**	46.587	47.297
M56	5.50	**50.50**	50.046	50.796

M1.1–M1.4 minor diameter to 5H.

BSW (Whitworth)

BS 84

Size	TPI	Tap drill mm	Minor Ø min	Minor Ø max
1/8	40	**2.50**	2.362	2.591
3/16	24	**3.60**	3.407	3.745
1/4	20	**5.10**	4.724	5.156
5/16	18	**6.50**	6.130	6.590
3/8	16	**7.90**	7.492	7.987
7/16	14	**9.20**	8.789	9.330
1/2	12	**10.50**	9.989	10.591
9/16	12	**12.00**	11.577	12.179
5/8	11	**13.50**	12.918	13.558
3/4	10	**16.25**	15.797	16.483
7/8	9	**19.25**	18.611	19.353
1	8	**22.00**	21.334	22.147
1 1/8	7	**24.50**	23.928	24.832
1 1/4	7	**27.75**	27.103	28.007
1 1/2	6	**33.50**	32.679	33.703
1 3/4	5	**39.00**	37.944	39.138
2	4.5	**44.50**	43.571	44.877

ISO metric fine

ISO 261 · DIN 13 · 6H

Size	Pitch mm	Tap drill mm	Minor Ø min	Minor Ø max
M2.5×0.35	0.35	**2.15**	2.121	2.221
M3×0.35	0.35	**2.65**	2.621	2.721
M3.5×0.35	0.35	**3.15**	3.121	3.221
M4×0.5	0.50	**3.50**	3.459	3.599
M4.5×0.5	0.50	**4.00**	3.959	4.099
M5×0.5	0.50	**4.50**	4.459	4.599
M5.5×0.5	0.50	**5.00**	4.959	5.099
M6×0.75	0.75	**5.20**	5.188	5.378
M7×0.75	0.75	**6.20**	6.188	6.378
M8×0.5	0.50	**7.50**	7.459	7.599
M8×0.75	0.75	**7.20**	7.188	7.378
M8×1	1.00	**7.00**	6.917	7.153
M9×0.75	0.75	**8.20**	8.188	8.378
M9×1	1.00	**8.00**	7.917	8.153
M10×0.75	0.75	**9.20**	9.188	9.378
M10×1	1.00	**9.00**	8.917	9.153
M10×1.25	1.25	**8.80**	8.647	8.912
M11×0.75	0.75	**10.20**	10.188	10.378
M11×1	1.00	**10.00**	9.917	10.153
M12×1	1.00	**11.00**	10.917	11.153
M12×1.25	1.25	**10.80**	10.647	10.912
M12×1.5	1.50	**10.50**	10.376	10.676
M14×1	1.00	**13.00**	12.917	13.153
M14×1.25	1.25	**12.80**	12.647	12.912
M14×1.5	1.50	**12.50**	12.376	12.676
M15×1	1.00	**14.00**	13.917	14.153
M15×1.5	1.50	**13.50**	13.376	13.676
M16×1	1.00	**15.00**	14.917	15.153
M16×1.25	1.25	**14.80**	14.647	14.912
M16×1.5	1.50	**14.50**	14.376	14.676
M17×1	1.00	**16.00**	15.917	16.153
M17×1.5	1.50	**15.50**	15.376	15.676
M18×1	1.00	**17.00**	16.917	17.153
M18×1.5	1.50	**16.50**	16.376	16.676
M20×1	1.00	**19.00**	18.917	19.153
M20×1.5	1.50	**18.50**	18.376	18.676
M20×2	2.00	**18.00**	17.835	18.210
M22×1	1.00	**21.00**	20.917	21.153
M22×1.5	1.50	**20.50**	20.376	20.676
M22×2	2.00	**20.00**	19.835	20.210
M24×1	1.00	**23.00**	22.917	23.153
M24×1.5	1.50	**22.50**	22.376	22.676
M24×2	2.00	**22.00**	21.835	22.210
M25×1.5	1.50	**23.50**	23.376	23.676
M25×2	2.00	**23.00**	22.835	23.210
M27×1.5	1.50	**25.50**	25.376	25.676
M27×2	2.00	**25.00**	24.835	25.210
M28×1.5	1.50	**26.50**	26.376	26.676
M28×2	2.00	**26.00**	25.835	26.210
M30×1.5	1.50	**28.50**	28.376	28.676
M30×2	2.00	**28.00**	27.835	28.210
M30×3	3.00	**27.00**	26.752	27.252
M32×1.5	1.50	**30.50**	30.376	30.676
M32×2	2.00	**30.00**	29.835	30.210
M33×1.5	1.50	**31.50**	31.376	31.676
M33×2	2.00	**31.00**	30.835	31.210
M35×1.5	1.50	**33.50**	33.376	33.676
M36×1.5	1.50	**34.50**	34.376	34.676
M36×2	2.00	**34.00**	33.835	34.210
M36×3	3.00	**33.00**	32.752	33.252

UNC

ASME B1.1 · 2B

Size	TPI	Tap drill mm	Inch drill	Minor Ø min	Minor Ø max
No. 1	64	**1.55**	#53	1.425	1.580
No. 2	56	**1.85**	#50	1.694	1.872
No. 3	48	**2.10**	#47	1.941	2.146
No. 4	40	**2.35**	#43	2.157	2.385
No. 5	40	**2.65**	#38	2.487	2.698
No. 6	32	**2.85**	#36	2.642	2.896
No. 8	32	**3.50**	#29	3.302	3.531
No. 10	24	**3.90**	#25	3.683	3.937
No. 12	24	**4.50**	#16	4.343	4.597
1/4	20	**5.10**	#7	4.978	5.258
5/16	18	**6.60**	F	6.401	6.731
3/8	16	**8.00**	5/16	7.798	8.153
7/16	14	**9.40**	U	9.144	9.550
1/2	13	**10.80**	27/64	10.592	11.024
9/16	12	**12.20**	31/64	11.989	12.446
5/8	11	**13.50**	17/32	13.386	13.868
3/4	10	**16.50**	21/32	16.307	16.840
7/8	9	**19.50**	49/64	19.177	19.761
1	8	**22.25**	7/8	21.971	22.606
1 1/8	7	**25.00**	63/64	24.638	25.349
1 1/4	7	**28.00**	1 7/64	27.813	28.524
1 3/8	6	**30.75**	1 7/32	30.353	31.115
1 1/2	6	**34.00**	1 11/32	33.528	34.290
1 3/4	5	**39.50**	1 9/16	38.938	39.802
2	4.5	**45.00**	1 25/32	44.679	45.593

UNF

ASME B1.1 · 2B

Size	TPI	Tap drill mm	Inch drill	Minor Ø min	Minor Ø max
No. 1	72	**1.55**	#53	1.473	1.610
No. 2	64	**1.85**	#50	1.755	1.910
No. 3	56	**2.15**	#45	2.024	2.197
No. 4	48	**2.40**	#42	2.271	2.459
No. 5	44	**2.70**	#37	2.550	2.741
No. 6	40	**2.95**	#33	2.819	3.023
No. 8	36	**3.50**	#29	3.404	3.607
No. 10	32	**4.10**	#21	3.962	4.166
No. 12	28	**4.60**	#14	4.496	4.724
1/4	28	**5.50**	#3	5.359	5.588
5/16	24	**6.90**	I	6.782	7.036
3/8	24	**8.50**	Q	8.382	8.636
7/16	20	**9.90**	25/64	9.728	10.033
1/2	20	**11.50**	29/64	11.328	11.608
9/16	18	**12.90**	33/64	12.751	13.081
5/8	18	**14.50**	37/64	14.351	14.681
3/4	16	**17.50**	11/16	17.323	17.678
7/8	14	**20.40**	13/16	20.269	20.650
1	12	**23.25**	59/64	23.114	23.571
1 1/8	12	**26.50**	1 3/64	26.289	26.746
1 1/4	12	**29.50**	1 11/64	29.464	29.921
1 3/8	12	**32.75**	1 19/64	32.639	33.096
1 1/2	12	**36.00**	1 27/64	35.814	36.271

BSP parallel (G / BSPP)

ISO 228-1

Size	TPI	Tap drill mm	Minor Ø min	Minor Ø max
G 1/16	28	**6.80**	6.561	6.843
G 1/8	28	**8.80**	8.566	8.848
G 1/4	19	**11.80**	11.445	11.890
G 3/8	19	**15.25**	14.950	15.395
G 1/2	14	**19.00**	18.631	19.172
G 5/8	14	**21.00**	20.587	21.128
G 3/4	14	**24.50**	24.117	24.658
G 7/8	14	**28.25**	27.877	28.418
G 1	11	**30.75**	30.291	30.931
G 1 1/8	11	**35.50**	34.939	35.579
G 1 1/4	11	**39.50**	38.952	39.592
G 1 1/2	11	**45.25**	44.845	45.485
G 1 3/4	11	**51.00**	50.788	51.428
G 2	11	**57.00**	56.656	57.296

BSP taper (Rc / BSPT)

ISO 7-1 · 1:16

Size	TPI	Tap drill mm
Rc 1/8	28	**8.40**
Rc 1/4	19	**11.20**
Rc 3/8	19	**14.75**
Rc 1/2	14	**18.25**
Rc 3/4	14	**23.75**
Rc 1	11	**30.00**
Rc 1 1/4	11	**38.50**
Rc 1 1/2	11	**44.50**
Rc 2	11	**56.00**

Drill size for use with a taper pipe reamer or a taper tap with long chamfer.

NPT

ASME B1.20.1 · 1:16

Size	TPI	Tap drill mm	Inch drill
1/16	27	**6.39**	D
1/8	27	**8.74**	R
1/4	18	**11.36**	7/16
3/8	18	**14.80**	37/64
1/2	14	**18.32**	23/32
3/4	14	**23.67**	59/64
1	11.5	**29.69**	1 5/32
1 1/4	11.5	**38.45**	1 1/2
1 1/2	11.5	**44.52**	1 47/64
2	11.5	**56.56**	2 7/32

Drill sizes for tapping without a taper reamer.

Quick rules

Cut tap drill ≈ D − P
Form tap drill ≈ D − 0.45 × P
Inch: drill ≈ D − 1 ÷ TPI

D is the nominal diameter and P the pitch, both in mm. Form (roll) taps need a larger hole than cutting taps; check the tap maker's table.

Which tap?

Through hole: spiral point (gun) tap pushes chips ahead.
Blind hole: spiral flute tap lifts chips out.
Tough, short-chip or cast material: straight flute tap.
Ductile material, no chips: form tap, with a larger hole.

Reference values compiled from the cited standards and published manufacturer data. Always confirm against the tool maker's recommendations for your machine, tool and set-up.

A guide only. Always check against the tool maker's data and your machine and set-up, and talk to your Teravin sales engineer before relying on it. Terms: teravin.tools/terms