

## Tap Drill Sizes for Jarflos (Coldforming Taps)

### Machine Screw and Fractional Sizes

Tap Size	75% Thread			70% Thread			65% Thread		
	Theoretical Hole Size	Nearest Drill	Decimal Equivalent	Theoretical Hole Size	Nearest Drill	Decimal Equivalent	Theoretical Hole Size	Nearest Drill	Decimal Equivalent
0-80	.0536	1.35mm	.0531	.0540	1.35mm	.0531	.0545	54	.0550
1-64	.0650	1.65mm	.0650	.0655	1.65mm	.0650	.0661	---	---
1-72	.0659	1.65mm	.0659	.0663	---	---	.0669	1.7mm	.0669
2-56	.0769	1.95mm	.0768	.0774	1.95mm	.0768	.0781	5/64	.0781
2-64	.0780	5/64	.0781	.0785	47	.0785	.0791	2.0mm	.0787
3-48	.0884	2.25mm	.0886	.0890	43	.0890	.0898	43	.0890
3-56	.0899	43	.0890	.0904	---	---	.0911	2.3mm	.0906
4-40	.0993	39	.0984	.1000	39	.0995	.1010	39	.0995
4-48	.1014	38	.1015	.1020	38	.1015	.1028	2.6mm	.1024
5-40	.1123	34	.1110	.1130	33	.1130	.1140	33	.1130
5-44	.1134	33	.1130	.1141	2.9mm	.1142	.1150	2.9mm	.1142
6-32	.1221	3.1mm	.1220	.1230	3.1mm	.1220	.1243	---	---
6-40	.1253	1/8	.1250	.1260	3.2mm	.1260	.1270	3.2mm	.1260
8-32	.1481	3.75mm	.1476	.1490	---	---	.1503	25	.1495
8-36	.1498	25	.1495	.1507	3.8mm	.1496	.1518	24	.1520
10-24	.1688	---	---	.1700	18	.1695	.1717	11/64	.1719
10-32	.1741	17	.1730	.1750	---	---	.1763	---	---
12-24	.1948	10	.1935	.1960	9	.1960	.1977	5.0mm	.1968
12-28	.1978	5.0mm	.1968	.1989	8	.1990	.2003	8	.1990
1/4-20	.2245	5.7mm	.2244	.2260	---	---	.2280	1	.2280
1/4-28	.2318	---	---	.2329	5.9mm	.2323	.2343	A	.2340
5/16-18	.2842	7.2mm	.2835	.2861	7.25mm	.2854	.2879	7.3mm	.2874
5/16-24	.2912	7.4mm	.2913	.2927	---	---	.2941	M	.2950
3/8-16	.3431	11/32	.3437	.3452	8.75mm	.3445	.3474	S	.3480
3/8-24	.3537	9.0mm	.3543	.3552	9.0mm	.3543	.3566	---	---
7/16-14	.4011	---	---	.4035	Y	.4040	.4059	13/32	.4062
7/16-20	.4120	Z	.4130	.4137	10.5mm	.4134	.4154	---	---
1/2-13	.4608	---	---	.4634	---	---	.4660	---	---
1/2-20	.4745	12.0mm	.4724	.4762	---	---	.4779	---	---
9/16-12	.5200	---	---	.5229	---	---	.5257	---	---
9/16-18	.5342	13.5mm	.5315	.5361	---	---	.5380	---	---
5/8-11	.5787	37/64	.5781	.5817	37/64	.5781	.5848	---	---
5/8-18	.5967	19/32	.5937	.5986	---	---	.6004	---	---
3/4-10	.6990	---	---	.7024	---	---	.7058	45/64	.7031
3/4-16	.7181	23/32	.7230	.7202	23/32	.7187	.7224	---	---

Note: For best results, check the hole size after drilling. Reaming may be necessary. Tapping an undersize hole may result in tap breakage due to excessive torque. As a starting recommendation, a 65% thread should be considered. Increased productivity, lower torque and greater tool life may be expected when tapping holes with a 65% thread. Tapping over 75% of thread is not recommended.

#### Tap Drill Formula

$$\text{Hole size} = \text{Basic Major Diameter} - 0.0068 \times \frac{\text{Percent of Full Thread}}{\text{Number of Threads per Inch}}$$

Example: Find the nearest drill size for a 1/4-20 Jarflo to produce 65% thread.

$$\text{Hole size} = 0.250 - 0.0068 \times 65/20$$

$$\text{Hole size} = 0.250 - 0.0221$$

Hole size = 0.2279 inches; the nearest drill is #1 (0.2280).

If the percent of thread is critical, the hole size will vary depending on the application; experimentation may be required.



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**Fax 1-603-332-8069**

## Tap Drill Sizes for Metric Jarflos (Coldforming Taps)

Tap Size	75% Thread				70% Thread				65% Thread			
	Theoretical Hole Size (mm)	Decimal Equivalent (inch)	Nearest Drill	Decimal Equivalent (inch)	Theoretical Hole Size (mm)	Decimal Equivalent (inch)	Nearest Drill	Decimal Equivalent (inch)	Theoretical Hole Size (mm)	Decimal Equivalent (inch)	Nearest Drill	Decimal Equivalent (inch)
M3 X 0.5	2.745	.1081	2.75mm	.1083	2.762	.1087	2.75mm	.1083	2.779	.1094	7/64	.1094
M3 X 0.6	2.694	.1061	2.7mm	.1063	2.714	.1069	36	.1065	2.735	.1077	2.75mm	.1083
M3.5 X 0.6	3.194	.1257	3.2mm	.1260	3.214	.1274	3.2mm	.1260	3.235	.1274	3.2mm	.1260
M4 X 0.7	3.643	.1434	27	.1440	3.667	.1444	27	.1440	3.691	.1453	3.7mm	.1457
M4 X 0.8	3.592	.1414	3.6mm	.1417	3.619	.1425	3.6mm	.1417	3.646	.1435	27	.1440
M4.5 X 0.75	4.118	.1621	4.1mm	.1614	4.143	.1631	4.1mm	.1614	4.169	.1661	19	.1660
M5 X 0.8	4.592	.1808	4.6mm	.1811	4.619	.1819	4.6mm	.1811	4.646	.1829	14	.1820
M5 X 0.9	4.541	.1788	15	.1800	4.572	.1800	15	.1800	4.602	.1812	4.6mm	.1811
M6 X 1.0	5.490	.2161	5.5mm	.2165	5.524	.2175	5.5mm	.2165	5.558	.2188	7/32	.2188
M6.3 X 1.0	5.790	.2280	5.8mm	.2283	5.824	.2293	5.8mm	.2283	5.858	.2306	5.8mm	.2283
M7 X 1.0	6.490	.2555	6.5mm	.2559	6.524	.2567	6.5mm	.2559	6.558	.2582	F	.2570
M8 X 1.0	7.490	.2949	7.5mm	.2953	7.524	.2962	7.5mm	.2953	7.558	.2976	19/64	.2967
M8 X 1.25	7.363	.2899	7.4mm	.2913	7.405	.2915	7.4mm	.2913	7.448	.2932	7.4mm	.2913
M10 X 1.25	9.363	.3686	9.4mm	.3701	9.405	.3703	9.4mm	.3701	9.448	.3720	9.5mm	.3740
M10 X 1.5	9.235	.3636	9.2mm	.3622	9.286	.3656	9.3mm	.3661	9.337	.3676	9.3mm	.3661
M12 X 1.25	11.363	.4474	11.4mm	.4488	11.405	.4490	11.4mm	.4488	11.448	.4507	11.4mm	.4488
M12 X 1.75	11.108	.4373	11.1mm	.4370	11.167	.4396	7/16	.4375	11.227	.4420	11.2mm	.4409
M14 X 1.25	13.363	.5261	13.4mm	.5276	13.405	.5278	13.4mm	.5276	13.448	.5294	13.4mm	.5276
M14 X 1.5	13.235	.5211	13.2mm	.5197	13.286	.5231	13.3mm	.5236	13.337	.5251	13.3mm	.5236
M14 X 2.0	12.980	.5110	13.0mm	.5118	13.048	.5137	13.0mm	.5118	13.116	.5164	13.1mm	.5157
M16 X 1.5	15.235	.5998	15.25mm	.6004	15.286	.6018	15.25mm	.6004	15.337	.6038	15.3mm	.6024
M16 X 2.0	14.980	.5898	14.0mm	.5512	15.048	.5924	15.0mm	.5906	15.116	.5951	19/32	.5938
M18 X 1.5	17.235	.6785	17.25mm	.6791	17.286	.6806	17.25mm	.6791	17.337	.6826	17.25mm	.6791
M18 X 2.5	16.725	.6585	16.75mm	.6594	16.810	.6618	16.75mm	.6594	16.895	.6643	16.75mm	.6594
M20 X 1.5	19.235	.7573	19.25mm	.7579	19.286	.7593	19.25mm	.7579	19.337	.7613	19.25mm	.7579
M20 X 2.5	18.725	.7372	18.75mm	.7382	18.810	.7406	18.75mm	.7382	18.895	.7430	18.75mm	.7382

### Tap Drill Formula

$$\text{Hole size} = \text{Basic Major Diameter} - \frac{\text{Percent of Full Thread} \times \text{mm Pitch}}{147.06}$$

Example: find the nearest tap drill size for an M8 x 1.25 Jarflo to produce 65% thread.

$$\text{Hole size} = 8.00 - \frac{65 \times 1.25}{147.06}$$

$$\text{Hole size} = 8.00 - .5525$$

Hole size = 7.448 mm; the nearest drill is 7.4 mm.

The hole size will vary depending on the application. If the percent of thread is critical, experimentation may be required.



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## Jarflo Nucon Drills

Size for 65% to 75% thread

Tap Size	PD Limits	Drill Diameter	Part Number	Overall Length	Flute Length	Unit Price	Unit Price with TiN
2-56	H3	0.0781	140781	2 1/2	7/8	1.28	3.11
3-48	H3	0.0890	140890	2 1/2	7/8	1.06	2.58
3-56	H3	0.0906	140890	2 1/2	7/8	1.06	2.58
4-40	H5	0.0995	140995	2 1/2	7/8	1.09	2.65
5-40	H5	0.1130	141130	2 1/2	7/8	1.16	2.82
6-32	H5	0.1240	141240	2 1/2	7/8	1.30	3.16
8-32	H5	0.1495	141495	2 1/2	7/8	1.30	3.16
10-24	H5	0.1695	141695	2 1/2	7/8	1.30	3.16
10-32	H6	0.1752	141752	2 1/2	7/8	1.30	3.16
12-24	H6	0.1960	141960	2 1/2	7/8	1.63	3.96
1/4-20	H6	0.2264	142264	2 1/2	1 3/8	1.72	4.18
1/4-28	H6	0.2340	142340	2 1/2	1 3/8	1.72	4.18
5/16-18	H7	0.2854	142854	2 1/2	1 3/8	2.33	5.66
5/16-24	H7	0.2913	142933	2 1/2	1 3/8	2.33	5.66
3/8-16	H7	0.3438	143438	2 1/2	1 3/8	2.68	6.51
3/8-24	H7	0.3563	143563	2 1/2	1 3/8	3.05	7.41
7/16-14	H8	0.4040	144040	2 1/2	1 3/8	3.37	8.19
7/16-20	H8	0.4130	144130	2 1/2	1 3/8	3.45	8.38
1/2-13	H8	0.4626	144626	2 1/2	1 3/8	4.27	10.38
1/2-20	H8	0.4764	144764	2 1/2	1 3/8	4.36	10.59
<b>Metric Sizes</b>							
M3 X 0.5	D5	0.1094	141094	2 1/2	7/8	1.16	2.82
M3.5 X 0.6	D6	0.1260	141260	2 1/2	7/8	1.30	3.16
M4 X 0.7	D6	0.1440	141440	2 1/2	7/8	1.30	3.16
M5 X 0.8	D7	0.1820	141820	2 1/2	1 3/8	1.36	3.30
M6 X 1.0	D8	0.2187	142187	2 1/2	1 3/8	1.66	4.03
M7 X 1.0	D9	0.2570	142570	2 1/2	1 3/8	2.13	5.18
M8 X 1.25	D9	0.2913	142913	2 1/2	1 3/8	2.33	5.66
M10 X 1.5	D10	0.3661	143661	2 1/2	1 3/8	3.05	7.41
M12 X 1.5	D11	0.4449	144449	2 1/2	1 3/8	3.62	8.80
M12 X 1.75	D11	0.4390	144390	2 1/2	1 3/8	3.62	8.80

### Reasons for using Jarflo Nucons:

- Eliminates the need for center drilling. Special point geometry prevents the drill from walking
- Eliminates the need for reaming in many applications. The unique geometry prevents the drill from cutting oversized holes.
- These close tolerance drills are ideal for the critical demands of using Jarflos.
- Drill is specifically designed for ductile material. Aggressive flute for rapid chip removal.
- Off the shelf delivery available. Inventory is maintained for all sizes listed above. Other sizes available upon request.
- Highly specialized drill at standard drill pricing.



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