

### Morse Tapers¶

Different numbers of Morse Tapers have slightly different tapers, but all approximate 5/8 inch per foot (0.05208 inch per inch). Morse taper shanks are used on a variety of tools, and exclusively on the shanks of twist drills. Old twist drills are, in fact, an inexpensive source for Morse tapers.

Taper Foot Inch	Large End Taper/ Angle	Small End From Center	Length	Taper/ Inch
#0	0.3561	0.2520	2.00	.6246 .0521 1.4908
#1	0.4750	0.3690	2.13	.5986 .0499 1.4287
#2	0.7000	0.5720	2.56	.5994 .0500 1.4307
#3	0.9380	0.7780	3.19	.6024 .0502 1.4377
#4	1.2310	1.0200	4.06	.6233 .0519 1.4876
#4-1/2	1.5000	1.2660	4.50	.6240 .0520 1.4894
#5	1.7480	1.4750	5.19	.6315 .0526 1.5073
#6	2.4940	2.1160	7.25	.6257 .0521 1.4933
#7	3.2700	2.7500	10.00	.6240 .0520 1.4894

### Jacobs Tapers¶

Jacobs tapers are used for drill chucks.

Taper Foot Inch	Large End Taper/ Angle	Small End From Center	Length	Taper/ Inch
#0	0.2500	0.2284	0.44	.5915 .0493 1.4117
#1	0.3840	0.3334	0.66	.9251 .0771 2.2074
#2	0.5590	0.4876	0.88	.9786 .0816 2.3350
#2 Short	0.5488	0.4876	0.75	.9786 .0816 2.3350
#3	0.8110	0.7461	1.22	.6390 .0532 1.5251
#4	1.1240	1.0372	1.66	.6289 .0524 1.5009
#5	1.4130	1.3161	1.88	.6201 .0517 1.4801
#6	0.6760	0.6241	1.00	.6229 .0519 1.4868
#33	0.6240	0.5605	1.00	.7619 .0635 1.8184

### Brown & Sharpe Tapers¶

Brown & Sharpe tapers are used for taper shanks on tools such as end mills and reamers, arbors, collets and machine tool spindles, especially milling machines and grinding machines.

The taper is approximately 1/2 inch per foot (0.04167 inch per inch) for all sizes except for taper No. 10, where the taper is 0.5161 inch per foot (0.04301 inch per inch). In many cases there are a number of different lengths of sockets corresponding to the same number of taper; all these tapers, however, are of the same diameter at the small end.

Taper Foot Inch	Large End Taper/ Angle	Small End From Center	Length	Taper/ Inch
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#1	0.2392	0.2000	0.94	.5020	.0418	1.1983
#2	0.2997	0.2500	1.19	.5020	.0418	1.1983
#3	0.3753	0.3125	1.50	.5020	.0418	1.1983
#4	0.4207	0.3500	1.69	.5024	.0419	1.1992
#5	0.5388	0.4500	2.13	.5016	.0418	1.1973
#6	0.5996	0.5000	2.38	.5033	.0419	1.2013
#7	0.7201	0.6000	2.88	.5015	.0418	1.1970
#8	0.8987	0.7500	3.56	.5010	.0418	1.1959
#9	1.0775	0.9001	4.25	.5009	.0417	1.1955
#10	1.2597	1.0447	5.00	.5161	.0430	1.2320
#11	1.4978	1.2500	5.94	.5010	.0418	1.1959
#12	1.7968	1.5001	7.13	.4997	.0416	1.1928
#13	2.0731	1.7501	7.75	.5002	.0417	1.1940
#14	2.3438	2.0000	8.25	.5000	.0417	1.1935
#15	2.6146	2.2500	8.75	.5000	.0417	1.1935
#16	2.8854	2.5000	9.25	.5000	.0417	1.1935
#17	3.1563	2.7500	9.75	.5000	.0417	1.1935
#18	3.4271	3.0000	10.25	.5000	.0417	1.1935

#### Jarno Tapers¶

Originally proposed by Oscar J. Beale of Brown & Sharpe, the Jarno tapers are based on a mathematical relationship to the taper number. The major diameter is one-eighth inch per taper number, the minor diameter is one-tenth inch per taper number, and the length is one-half inch per taper number. For example, a #7 Jarno taper is 7/8" at the big end, 0.7000" at the small end, and is 3½" long. All Jarno tapers taper at a rate of 0.6000 inches per foot (0.0500 inch per inch).

Taper Foot Inch	Large End Taper/ Angle	Small End From Center	Length	Taper/		
#2	0.2500	0.2000	1.00	.6000	.0500	1.4321
#3	0.3750	0.3000	1.50	.6000	.0500	1.4321
#4	0.5000	0.4000	2.00	.6000	.0500	1.4321
#5	0.6250	0.5000	2.50	.6000	.0500	1.4321
#6	0.7500	0.6000	3.00	.6000	.0500	1.4321
#7	0.8750	0.7000	3.50	.6000	.0500	1.4321
#8	1.0000	0.8000	4.00	.6000	.0500	1.4321
#9	1.1250	0.9000	4.50	.6000	.0500	1.4321
#10	1.2500	1.0000	5.00	.6000	.0500	1.4321
#11	1.3750	1.1000	5.50	.6000	.0500	1.4321
#12	1.5000	1.2000	6.00	.6000	.0500	1.4321
#13	1.6250	1.3000	6.50	.6000	.0500	1.4321
#14	1.7500	1.4000	7.00	.6000	.0500	1.4321
#15	1.8750	1.5000	7.50	.6000	.0500	1.4321
#16	2.0000	1.6000	8.00	.6000	.0500	1.4321
#17	2.1250	1.7000	8.50	.6000	.0500	1.4321
#18	2.2500	1.8000	9.00	.6000	.0500	1.4321
#19	2.3750	1.9000	9.50	.6000	.0500	1.4321
#20	2.5000	2.0000	10.00	.6000	.0500	1.4321