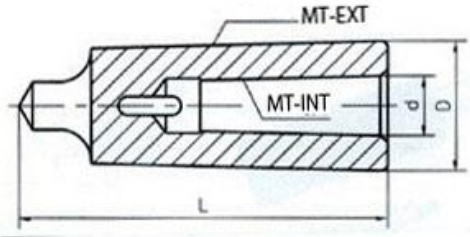


Morse Taper Sleeves allow cutting tools with a Morse Taper Shank to be fitted to machine spindles which have a different Morse Taper to that of the tool

Manufactured from Carbon steel
External and Internal Tapers hardened and ground
Manufactured to DIN 2185



Code	Ext. Morse Taper MT-EXT	Int. Morse Taper MT-INT	D mm	d mm	L mm	Weight kg	Accuracy mm
MT 100	1	0	13	9.045	80	0.10	0.015
MT 201	2	1	18.6	12.065	92	0.10	0.015
MT 301	3	1	24.1	12.065	99	0.24	0.015
MT 302	3	2	24.7	17.780	112	0.12	0.015
MT 401	4	1	31.6	12.065	124	0.60	0.015
MT 402	4	2	31.6	17.780	124	0.50	0.015
MT 403	4	3	32.4	23.825	140	0.38	0.015
MT 501	5	1	44.7	12.065	156	1.59	0.02
MT 502	5	2	44.7	17.780	156	1.49	0.02
MT 503	5	3	44.7	23.825	156	1.36	0.02
MT 504	5	4	45.5	31.267	171	0.95	0.02
MT 605	6	5	63.8	44.399	218	1.95	0.02

Packed Weight and Dimensions

Code	Ext. Morse Taper MT-EXT	Int. Morse Taper MT-INT	Weight g	W mm	H mm	L mm
MT 100	1	0	46	30	30	86
MT 201	2	1	98	25	25	98
MT 301	3	1	220	28	28	107
MT 302	3	2	184	30	30	118
MT 401	4	1	530	36	36	134
MT 402	4	2	446	36	36	134
MT 403	4	3	392	36	36	143
MT 501	5	1	1448	56	56	163
MT 502	5	2	1342	56	56	163
MT 503	5	3	1164	56	56	163
MT 504	5	4	1048	50	50	177
MT 605	6	5	2650	70	70	227

Product: Morse Taper Sleeves

Morse Taper Information

The Morse Taper was invented by Stephen A. Morse in the mid-1860s. Since then, it has evolved to encompass smaller and larger sizes and has been adopted as a standard by numerous organizations, including the International Organization for Standardization (ISO) as ISO 296 and the German Institute for Standardization (DIN) as DIN 228-1. It is one of the most widely used types, and is particularly common on the shank of taper-shank twist drills and machine reamers, in the spindles of industrial drill presses, and in the tailstocks of lathes.

Sizes

Morse Tapers come in eight sizes identified by whole numbers between 0 and 7, and one half-size (4 1/2 - very rarely found, and not shown in the table). Often the designation is abbreviated as MT followed by a digit, for example a Morse taper number 4 would be MT4. The MT2 taper is the size most often found in drill presses up to 1/2" capacity. Stub (short) versions, the same taper angle but a little over half the usual length, are occasionally encountered for the whole number sizes from 1 through 5. There are standards for these, which (inter alia) are sometimes used in lathe headstocks to preserve a larger spindle through-hole.

End types

Morse tapers are of the self-holding variety, and can have three types of ends:

- tang (illustrated) to facilitate removal with a drift
- threaded to be held in place with a drawbar
- flat (no tang or threaded section)

Self-holding tapers rely on a heavy preponderance of axial load over radial load to transmit high torques. Problems may arise using large drills in relation to the shank, if the pilot hole is too large. The threaded style is essential for any side loading, particularly milling. The only exception is that such unfavorable situations can be simulated to remove a jammed shank. Permitting chatter will help release the grip. The acute (narrow) taper angle can result in such jamming with heavy axial loads, or over long periods.

End-Milling cutters with a Morse taper shank with a tang are occasionally seen: for security these must be used with a C-collar or similar, fitting into the neck between cutter and shank, and pulling back against the large end of the taper

The taper itself is roughly 5/8" per foot, but exact ratios and dimensions for the various sizes of tang type tapers are given below.

Morse Taper Dimensions

Principal dimensions of Morse Taper Shank in accordance with BS1660, 1972 / ISO 296/DIN 228

<p>The diagram shows two views of a Morse Taper Shank. The top view is a side view showing a tapered shaft with a diameter 'A' at the small end, a diameter 'D' at the large end, and a total length 'C'. A section 'B' is indicated at the large end. A taper angle of 8 degrees is shown. The bottom view is a perspective view showing the same dimensions and a chamfered end labeled 'E Rad'.</p>	MORSE TAPER No.	A mm	B mm	C mm	D mm	E mm	TAPER per mm on dia.
	1	12.065	62.0	65.5	5.2	5	0.04988
	2	17.780	75.0	80.0	6.3	6	0.04995
	3	23.825	94.0	99.0	7.9	7	0.05020
	4	31.267	117.5	124.0	11.9	8	0.05194
	5	44.399	149.5	156.0	15.9	10	0.05263