



## Machinable End Morse Taper

### Morse #0 to Morse #3

### Taper / Arbors – full length / reduced length

**Typical application:** Machine your own Morse type accessories.

**New:** learning center at LatheCity  
<http://www.lathecity.com/LearningLatheCity.html>

**New:** product tests at LatheCity  
<http://www.lathecity.com/ProductTestsLatheCity.html>

**Sizes available.** We basically offer all types of machine taper/arbors and customize sizes.

**What are Morse taper?** If you read descriptions (specs) of lathes then you may come across the term Morse taper #2 (MT2 or MT0) .. Äh – Morse ... what? No, that's not about SOS - beep beep ... It refers to the type/shape of the lathe spindle. Morse taper (name of a guy) are standardized slopes either cut in the outside of a round (Morse taper) or a funnel like sloped boring (Morse arbor); see Fig. If the angle cut is small (1-2°), then the taper/arbor combination is self-holding. That pair fits quite tight together without bolts or glue. Therefore, a Morse arbor is use in the headstock and tailstock spindle of a lathe. (Your drill press may also have one – here it is typically a Jacobs (another guy) taper.) Morse taper are numbered from zero to seven depending on the diameter of the large end. Sherlines lathe has a Morse #1 in the headstock and Morse #0 in the tailstock. On more shop size lathes, typically at least a Morse #3 is used

in the headstock. Some other benchtop systems just have a straight through hole as an arbor, such as the UNIMAT lathes. The advantage of a Morse arbor is that it can be used as a fast tool change system. In addition, many accessories are available and the system is self-centered, i.e., it is more precise than just a boring type arbor.

**Craftsman 109 vs. Sherline lathe: tailstock accessories** We have had a few Craftsman customers purchasing Sherline accessories: that does NOT work. The accessories are not interchangeable.

**Sherline:** That's a MT0 cut off from the small diameter end. Therefore, you may use ANSI standard MT0 pieces, but would need a hack saw to cut off the small end diameter. Otherwise, the MT0 is too long and won't fit unless you extend the tailstock quill all the way. However, then you can basically not really use the tailstock. All Sherline lathes we have seen so far have the same size tailstock.

**Craftsman:** Quite a variety of different subversions of Craftsman 109 lathes exists. The one we have seen had a Morse #0 tailstock, more or less. It's a reduced length MT0 which is not that uncommon. However, they did cut the MT0 off at the large diameter end. That's rather odd and standard MT0 accessories don't fit. So, we made some "Craftsman Taper" (Tailstock

accessories) that did fit. Basically all of our accessories can also be made for a Craftsman. However, Craftsman is not that common anymore. Therefore, you need to contact us; these pieces are made to order. We have a few up for sale at eBay now and then, but ... just send us an e-mail. Nope, one cannot cut a MT0 off at the wider end using a hack saw or something since threaded ends, borings for cutting tools etc. are certainly at the wider end of a MT0.



**Fig.:** **Left)** MT0, MT1, MT2 taper (reduced length), **Middle)** MT0 and MT1 arbors, **right)** full length MT2. LatheCity sells these type of accessories.

**Why are they doing this?** Both lathes are really small benchtop jewelry type lathes. In order to miniaturize these, nonstandard ANSI MTs are used. Cutting MTs off at the wider end (Craftsman) indeed results in the smallest possible tailstock, so that's smart. What is not smart, in doing so, standard MT accessories cannot be used for Craftsman.

**Safety/Disclaimer:** Adapters are not cutting tools in themselves. Still, general safety

rules for machine tools are in place. For an extended list of safety notes, consult the literature or go to our website for a free download of a safety booklet (<http://www.lathecity.com/Books/Safety-Booklet-Lathe-City.pdf>). Use protective clothing including, most importantly, safety glasses for metal work. We do not warrant that any accessories can be used for any particular application. Damage on equipment (particularly damage on the spindle of the mill by over tightened screws) caused by usage of accessories is the customer's responsibility. **Do NOT use cutting tools/adapters that don't run true on your system.** The adapter may start to rotate when e.g. a center drill gets stuck in the work piece. In any case, switch the lathe off. Do not try to stop the rotating adapter with your hands. Make sure that the adapter is properly inserted in the Morse arbor – the quill typically needs to be moved out somewhat. Use cutting oil for drilling but not on the taper end. Usage of accessories or damage caused is at the risk of the customer. Neither LatheCity nor its owner shall be liable for damage arising from unprofessional use or misuse of LatheCity accessories.

**Returns** in resalable conditions are accepted within 14 days (eBay) or 30 days (factory direct) after shipment. All shipping costs, taxed, credit card fees, broker fees, whatever fees will be covered by the customer. No restocking fees, no questions asked. No returns of custom designs or customized designs. No returns of bulk orders. No returns of messed-up blanks. General sells and business terms as given on our web site are active.

Uwe Burghaus  
(LatheCity)

Fargo, North Dakota, USA  
[www.LatheCity.com](http://www.LatheCity.com)

[sales@lathecity.com](mailto:sales@lathecity.com)

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