



Adjustable Precision Tailstock

Product: Adjustable tailstock dead center. Available with Morse Taper #3 (MT3) or MT2 or MT1 adapters. Other adapters can be made.

Included: is what is shown on the first image above.

- Dovetail (or T-slot) slide, and dovetail (T-nut) saddle,
- 1/4-20 lead screw,
- knurled hand wheel,
- zero-adjustable scale,
- various tool steel and HSS pins (dead center), point center, spherical centers,
- MT0 arbor compatible with Sherline's mini life center,
- MT mounting adapter (usually reduced length)
- safety booklet
- this manual

NOT included: A lathe, life center, MT dead center, tool post, etc. may also be shown in the images to illustrate the application of the tool. A lathe etc. is NOT included in the sale. What is included is shown on the first image above.



Tool mounted in tailstock of a lathe

Here is the full story. On most lathes which don't have a rotatable headstock, tapers are either cut with a compound slide or by off-setting the tailstock. (See LatheCity book vol. 1) Most compound slides allow for cutting perhaps 1.0" to 1.5" long taper. That's not even long enough to machine Morse taper. In addition, the angle setting of compound slides is not very precise, usually 5° or so. China import lathes come with an adjustable tailstock. However, it's quite tricky getting the headstock and tailstock re-adjusted again once the factory alignment has been compromised. (We do offer alignment bars, see LatheCity buddy bars.) Therefore, smarter is using an adjustable tailstock center. Turn long tapers by off-setting the tailstock. Now you can also use the automatic feed of the lathe. You will also need a headstock center and a so-called drive dog (not included).



Use a second nut to protect the threads of the saddle.

Dial in the taper angle by counting the rotation of the hand wheel. Using a 20 TPI lead screw, one rotation equals an offset of 1/20"=0.05". One can easily adjust the hand

wheel by 45° increments, which corresponds to a tailstock offset of 0.0125".

The taper angle is simply given by

$$\tan(\text{taper angle}) = \text{offset} / \text{length}$$

For example, setting a 6" long round to the angle required to cut a MT1 in its end would require a tailstock offset of

$$\begin{aligned} \text{Offset} &= \tan(\text{taper angle}) \times \text{length} \\ &= \tan(1.49) \times 6" \\ &= 0.16" \end{aligned}$$

or about 3.5 rotations of the hand wheel.

In order to find the zero degree position, clamp the dead center in the lathe chuck or collet chuck. Next, adjust the position of the hand wheel such that the pin fits into the mount of the adjustable tailstock.



A small life center can be mounted using the MT0 arbor mount

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>). We do not warrant that any accessories can be used for any particular application. Damage on equipment (particularly damage on the spindles and feed screws by over tightened screws) caused by usage of accessories is the customer's responsibility. Hobby machinists tend to stick their nose too close to the machinery. Use safety glasses and protective clothing. This manual does not replace books about metal working and/or proper training. Morse adapter/accessories may start to rotate when, for example, a drill bit 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. Using a dead center can result in over-heating the work piece and the adapter. Switch the lathe off, and cool down the pieces. Don't overdo it with the size of and accessories used on a mini lathe such as Sherline's lathe. Too large accessories can result in unstable machining operations. Read the safety notes and follow these and other relevant safety procedures. Neither LatheCity nor its owner shall be liable for damage arising from unprofessional use or misuse of LatheCity accessories. Max RPM 1800 for most accessories, some accessories have max RPM of

100! Replace set screws with Nyclock screws in case that heavy vibration can be expected. Any legal action brought against LatheCity/Uwe Burghaus shall be tried in the State of North Dakota in Fargo, USA. WARRANTY: we do not provide any warranty for our products. In no event shall LatheCity's liability exceed the purchase price paid for the product. We shall in no event be liable for death, injuries to persons or property or incidental, contingent, special or consequential damage arising from the use of our products.



A MT0 center can be mounted using the MT0 arbor mount

Returns in resalable condition accepted within 30 days (Factory direct) or 14 days (eBay), no questions asked. However, we do NOT reimburse shipping costs, credit card fees, broker fees, taxes, etc. We will charge the respective shipping costs to customers for products that were offered as free shipping when returned. Customer covers all shipping costs and credit card fees (2-3%) raised by e.g. PayPal also when reimbursing payments. **Note that the return rate of LatheCity products is below 1%.**



Taper turning with a drive dog. Try this out with an aluminum round. See latheCity vol. 1t

Design details may deviate from the image shown which does not affect the function of the accessory.

Some of the images show a SIEG lathe. However, lathe city is not associated with the manufacturer or distributor of that lathe.

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