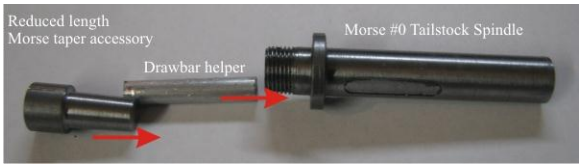
Morse #0 Arbor for UNIMAT SL DB 200 Tailstock

Current prices are on our website.

Size: The new (steel) tailstock spindle for UNIMAT SL DB looks basically the same as the old spindle except that it has a Morse #0 arbor cut in the front end. The new spindle is cut from steel and still has a M12-1.0 threaded head, a ring plate, 12 mm outer diameter, and works with the standard (old) M8-1.0 LH feed screw. The UNIMAT standard spindle and our design have about the same length.

Purpose of that tool: Use professional and standard Morse type accessories on your UNIMAT. 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.

Procedure: Extend the tailstock spindle by about ¼". For best fit, *slightly* (and carefully) slam the taper adapter in the spindle *by hand*. To remove the taper, pull back the spindle. Taper arbors/spindles have an internal "draw bar" (the old M8-1.0 LH), which will push out the taper. If you use reduced length Morse accessories insert first the draw bar pin (included).



Mounting the new spindle: Disassemble your old tailstock (and remember how you do it - ☺, don't lose parts -☺ -☺). Proceed in reversed order to mount the new spindle – that's it.

A few hints: In so doing, notice that the tailstock spindle is a combination of a M8-1.0 left hand (LH) and M5-0.8 right hand threaded rod. 0.8 mm pitch is pretty much standard for a metric thread, 1.0 mm left hand is a quite uncommon fine thread bolt. (Don't damage that

spindle.) Anyway, when assembling the tailstock spindle, screw the M8 end into the tailstock quill. Next, insert this piece into the tailstock spindle housing. Then, screw the hand wheel on the M5 bolt end such that it has just a hair clearance to the quill housing. Use the M5 nut and screw it against the hand wheel. That nut acts as a lock not for the hand wheel. Don't screw the hand wheel tight onto the quill housing, or you cannot rotate the hand wheel anymore. That procedure may be somewhat tidies when using it the first time; most people are not used the LH screws. Rotating the hand wheel clockwise (when looking towards the tailstock) will move out the quill (and the spindle backwards). Therefore, for pushing a Morse taper accessory out of the Morse arbor, move the hand wheel counter clock wise. That will move the quill towards the tailstock and the spindle towards the headstock. Remember, for reduced length Morse accessories, you need to insert a short pin into the arbor (or get a longer spindle). One can get taper also out by rotating them. If one got really stuck: remove the hand wheel, remove tailstock spindle, stick a spindle bar through the spindle and tap it.

Technical notes & FAQ

What is Morse..? For the novice: If you read descriptions (specs) of lathes than you may come across the term Morse taper #2 .. 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 sloped boring (Morse arbor). 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 is it 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, for example. Most Chinese imported lathes have Morse #2 spindles. Some other benchtop systems just have a straight through hole as an arbor, such as the UNIMAT lathes (7.2 mm boring).

Why not using a M12-to-Morse #0 adapter? One could also machine a screw-on M12 adapter that holds a Morse arbor. However, that would probably not be smart. Morse accessories in a Morse arbor are pushed out by the tailstock feed screw. That would not work with a screw-on accessory – you would not get the accessory out of the arbor anymore (not without un-screwing it etc…). Thus, that would be a slow-tool-change system. We may offer it anyway for customers who just want to use Morse accessories occasionally.

Do full length Morse #0 accessories fit? Yes, full length Morse #0 taper are 2" long and fit in your new tailstock spindle. The fed screw will push them out correctly. However, you need to use Morse #0 accessories without a tang. (I have never seen a mini Morse #0 with a tang, but larger sizes Morse #2 often have a tang on it which prevents that the Morse taper may start to rotate.)

Can I use reduced length (Sherline type) Morse #0 accessories? Yes, you can. In

order to push these half-length or reduced length Morse #0 accessories out of the tailstock (using the tailstock feed screw), insert a ¼" aluminum round first, then insert the Morse accessory. That is simple and does not affect the performance of the machining operation. The spindle comes with that pin that you can use e.g. Sherline or LatheCity reduced length Morse accessories.

Do all Morse accessories fit in the tailstock? All Morse #0 tailstock accessories will fit, full length and reduced length (without a tang).

Can I still use my old UNIMAT accessories? Yes, you can. The new spindle comes with a M12-1.0 mm threaded end at the spindle head. Thus all screw-on type accessories can be used. In addition, LatheCity offers an adapter for using straight pin UNIMAT accessories such as life centers. That adapter is a Morse #0 to ~7.2 mm straight hole adapter. We do also offer Morse #0 blanks if you want to machine yourself tailstock gizmos. Look for package offers.

How does the arbor really look like? The Morse #0 arbor is cut to a depth of about one inch. In order to allow for using full-length Morse taper the arbor has a straight hole beyond that first inch. Thus, full length Morse accessories fit, but these will be supported "only" at the first inch by a Morse shape arbor. We machined it that way since you may want to use the old tailstock feed screw which is a M8-1.0 LH rod. Now, an M8 has a larger diameter than the small end O.D. of a full length Morse #0. Therefore, we had to machine it that way.

Do I need a new feed screw, hand wheel etc.? No, you don't, you can save the costs for that. Your old tailstock feed screw and tailstock hand wheel will fit and need to be used. Our spindle does NOT come with a new feed screw or hand wheel, since it's not required. (We don't offer this at LatheCity, yet.)

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 spindle 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.

Returns in resalable condition accepted within 30 days, no questions asked. However, we do NOT reimburse shipping costs (Priority mail $5.20), 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 2%.

Design details (diameter of stock rod used) may deviate from the image shown which does not affect the function of the accessory.

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