

## How do you measure to determine what size Morse Taper is needed for your Woodworking Lathe?

To determine the Morse Taper (abbreviated as **MT**) size of your lathe's head stock spindle or tail stock ram, you can measure the shank diameter of an existing drive center or tail center you may have that fits. If you don't have an existing center or drive to measure, then measure the opening of the Morse taper hollow socket on the head stock spindle and or tail stock ram of the lathe.

Most lathes use the same MT in both the head stock and tail stock. However, some lathes will use one size of MT in the head stock and another size MT for the tail stock, so be sure to check both in order to get the right MT size accessories you need for your lathe.

**Measure the tapered shank at the large end.** Because of the tapering shank, a measurement will vary when using calipers depending on where you measure along the shank. **Measure the large diameter of the tapered shank.**

**Your measurement should be close enough to the figures that show down below the photos to reveal the actual Morse Taper of the shank**

Measure at the largest diameter of the taper.





*Measure at the outer opening on the hollow socket of the headstock or tailstock.*

### Measuring at the large end of the taper:

**#2 MT:** Measures approximately  $45/64''$  (about  $3/4''$ ) ~ 18mm

**#1 MT:** Measures approximately  $31/64''$  (about  $1/2''$ ) ~ 12mm

**#3 MT:** Measures approximately  $15/16''$  (about  $1''$ ) ~ 24mm

There are lathes with other sizes of Morse Tapers, but the sizes 1, 2 & 3 are the most typical sizes for common woodworking lathes. Machining and industrial lathes can have even larger sizes.

The Morse taper is a very useful method for keeping tooling in place with a high degree of holding power, while allowing for easy removal. (A simple knock out bar that applies a quick “shock blow” to the end of the shaft of the spur drive or live center allows it to come free.) Morse tapers are also found on the shanks of drill chucks used in lathes and drill presses.

It’s important to keep both the socket (a.k.a. the bore) and the spindle (a.k.a. the trunnion) of any Morse taper tooling clean and in good condition. Keep them free of wood debris, gummy pitch, rust and tarnish. Smooth any nicks, dents or burrs you see or feel. You don’t have to lubricate or wax a Morse taper (unless perhaps for storing long term to lessen chances of rusting). You just want to keep mating surfaces clean and smooth. If you drop a drive center or tail center on a concrete floor, inspect the shank immediately for dings, dents and

peen overs and dress them out BEFORE you insert it back into the lathe's socket. If not, you could have a hard time removing that slightly damaged center. Or it may be the rough spots impede a good solid connection of the tapered shank to the socket.

If you live in a humid environment, store drive and tail centers out of their respective sockets of the lathe. Even a tiny amount of surface rust on the mating surfaces forming in periods of inactivity can make a drive or tail center difficult to remove.

Check out our selection of [Drive Centers](#), [Live Centers](#)  
and [Lathe Drill Chucks](#).

Happiness is a squeaky clean Morse Taper shank



If you like history and mechanical stuff, consider doing a Google search on “Stephen Morse Taper”. The enterprising Mr. Morse created this machine tool holding method over 150 years ago. Today, you can find Morse Taper technology utilized in hip joint replacement hardware.