

CW Tip 7 — Modifying Your Lathe Chuck with Standoff Spacers/Roger Adams

Adding Standoff Spacers to Your Lathe Chuck

As part of my clock making hobby, I frequently have a need to accurately machine both faces of thin disks of brass or steel on my trusty Sherline lathe. This requires the second face to be proud of the end of the chuck jaws as I machine them – the first face is machined while still on the bar stock of course before it's cut off. After fiddling around trying to accurately place the disk, i.e., ensuring the first machined face is exactly parallel to the plane of rotation, or more practically, parallel to the outer face of the 3-jaw chuck, I searched the Internet for a foolproof solution that would make this accurate and foolproof. And of course, there are several solutions, but the one I chose was the use of sacrificial standoff spacers, which works as follows:

1. Drill and tap the outer face of the 3 (or 4)-jaw chuck, mid-way between the jaws. I drilled and tapped 2 sets of these, one at a 1-1/4" BCD, and the other at a 1-3/4" BCD but you can choose any spacing that best fits your needs.

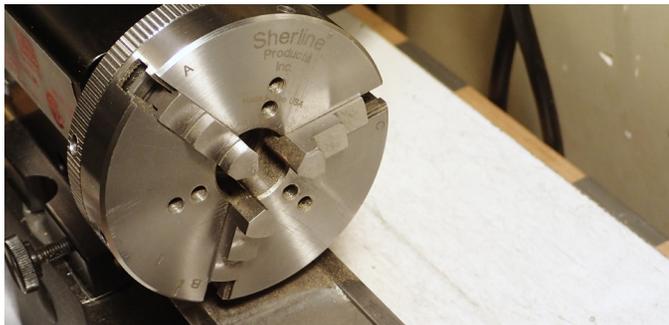


FIGURE 1—Shows drilled and tapped holes on the chuck face.

2. Ensure you don't drill and tap so deeply that the drill penetrates all the way through the face of the chuck and into the spiral, as not only will this damage the spiral, it will also result in swarf getting into the spirals via the holes when the standoff spacers are removed. FYI, I drilled and tapped 0.220" deep, which I found more than adequate to hold the standoff spacers. I used a 10/32 tap, working through from a taper tap, to a bottoming tap, and in fact I ground off the lead threads of the bottoming tap to ensure I had a full depth of usable threads.
3. As can be seen in the photos, I machined three (3) standoff spacers, which I made from 1/2" brass rod. I drilled through the rod with a 3/16" drill bit, which

is clearance for the 10/32" screws. I then cutoff three pieces of the rod at approx 0.300" long each.

4. Face all three pieces both sides and then bore each piece to 0.320" dia, and 0.250" deep, which is ideal for use with a 10/32 Allen Cap screw, which I cut off at a thread length of 0.175".
5. Remove the jaws from the chuck, then tightly install the three standoff spacers in whatever set of tapped holes you want to use.

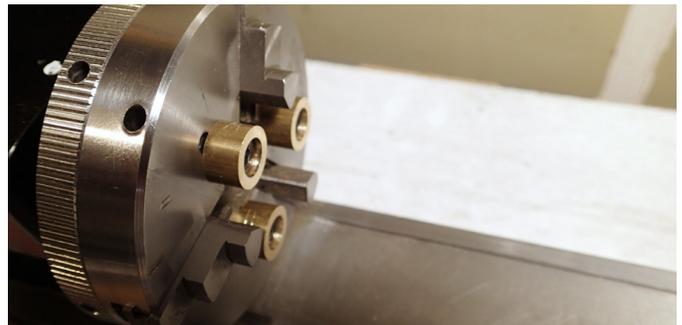


FIGURE 2—Shows brass standoffs mounted on the chuck face.

6. Make a skim cut across the full diameters of the standoff spacers to ensure that they are exactly the same length. If you require absolute accuracy each time you use them, you may want to re-skim them each time they are used but I don't find this necessary at all. I mark each one with the letter of the adjacent jaw, i.e., A, B, and C, and always reinstall them in those positions.
7. You will find by using this method, you can consistently face thin disks to an accuracy of about 0.002" or better.

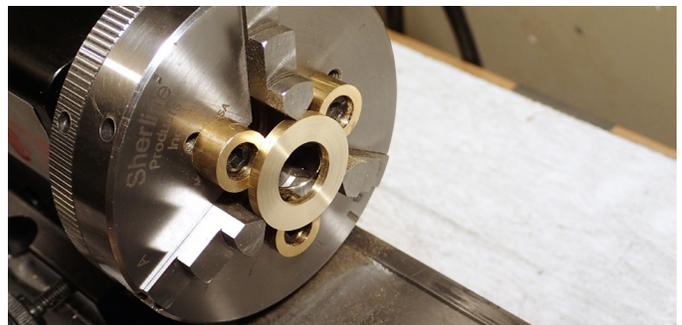


FIGURE 3—Shows brass disk mounted in the chuck with the standoff spacers.

Best Regards
Roger Adams