

## C2 Mini CNC Lathe Kit



Mini Lathe kit Rev. 1 installed.



Mini Lathe kit Rev. 2

This kit has been designed for the 7x10, 7x12, and 7x14 mini lathes available at many tool stores such as Grizzly, Homier, Harbor Freight and others. This kit is very easy to setup and take down as needed.

In this kit you will find the motor mounts and flexible couplers for the X and Z axes that mount directly to existing hardware without any modification to the lathe itself. All that you need to do is mount your motors (not included) to the mounts and slide it onto the end of the shaft on the lathe and tighten down.

The motion equipment that I suggest are stepper motors from Automationdirect.com or any other Nema 23 Stepper motors near or greater than 200oz-in. There are a wide variety of drives that could be used. The top quality drives are Gecko Drives which are about \$114 per motor. Xylotex has a 3 axis board that will work good with this kit as well. Both Xylotex and Hobbycnc have a 3-4 axis board that you can assemble yourself. There are also some DIY drive plans available on the web. You will also need a power supply that will be able to power both of these motors, I suggest nearly as high voltage as your drives will allow with respect to the motors too.

You will need a computer with software to control these motors. The most popular software is Turbocnc and Mach2. There are many different software packages with different requirements and capabilities.

Some adjustments that I suggest before installing the kit would be:

1. Adjust the gibs on the cross slide so they are snug but not too snug that it doesn't move smoothly.
2. The gibs under the carriage should also be adjusted so they run smooth but won't allow it to be lifted.
3. If you use the half nut, make sure it is aligned well with the screw
4. Adjust the right lead screw mount so that the screw will not move and cause backlash but will still turn well.

To install:

1. Remove the gear train cover
2. Remove the bottom two gears and the gear change adjustment plate.



3. Remove the key and debur if necessary.
4. Slide Z axis mount onto the left lead screw mount and tighten the two screws and tighten the coupler screw.



5. If you haven't already got the motor on, put that on, tighten down and then tighten the coupler screw, you can put the motor on the mount before you mount to the machine if you so choose.

6. Now remove the X axis handle and dial from the lead screw



7. Slide the X axis motor mount on and tighten down, tighten the coupler screw down too.



8. Then mount the motor same as you did with the Z axis.
9. Now connect to the drives.

If you're running the .040" per rev lead screw on the x-axis, there are 25 turns per inch, on the z-axis, it takes 16 turns to move 1 inch.  
Different software requires different inputs for the resolution.

Some suggestions for modification:

1. Remove the hand wheel on the carriage and gears; remove the rack if you want.
2. Change out the half-nut for a brass or acetal nut.
3. Remove compound slide and make tooling plate, makes the lathe a little more rigid and can give you more travel for multiple tool posts.
4. buy or make a spindle indexer for CNC threading