

10" Pepper Mill

Steve Cook

The directions for these pepper mills are based on Chef Specialties mechanisms, these are stainless steel and available in a variety of lengths. You can purchase these from Craft Supplies, Packard, and Woodcraft or on line. They also make a salt mill that follows the same steps. I like the 10" mill as it is a nice size for the table and your hands.

Material for a ten inch pepper mill you will need:

- one 10" chef specialties mechanism
- A piece of wood 3 x 3 x 12" of Cherry, maple, walnut, ash, etc. (I use a 3 x 3 billet or you can glue up what you like). Any hardwood will work.
- Poplar about 2 x 2 x 4" for a mandrel. (Poplar will work better because it will compress for tighter fit).

Lathe tools:

- four jaw scroll chuck

- four prong drive center
- live center and cone attachment
- drill chuck with morse taper
- three forstner bits, 1 5/8", 1 1/16" and 7/8", you will also need a bit extension to drill through the body of the mill
- 7mm or equal twist bit

Tools:

- Spindle roughing gouge
- Bedan tool
- 3/8" spindle gouge
- narrow parting tool
- calipers to size tenons
- sandpaper in progressive grits to 320
- your finish of choice (I use natural Tung oil or wipe on poly)

Directions:

- Determine the centers on the 3 x 3 blank on both ends
- Mark with center punch and mount between four prong drive

center and live center without cone.

- Using spindle roughing gouge turn to a cylinder.
- Using the Bedan make a tenon on each end to fit the scroll chuck (the tenon should fit the chuck with the jaws mostly closed for strength).
- Determine what you want to be the top and bottom
- Make a third tenon 8" up from what will be the bottom so you have 8" in between tenons.
- Use the thin parting tool to cut almost all the way through (the 8" part will have two tenons), remove from the lathe and twist or cut apart.
- Remove both centers from lathe and mount scroll chuck, fasten the 8" body in the scroll chuck so that the bottom of the mill is facing the tailstock.
- Put drill chuck in tailstock with 1 5/8" bit, drill 1 5/8" hole about 3/8" past the tenon, (when drilling always hold onto the drill chuck, especially when backing bit out)(drilling speed should be 400 to 600 rpm)
- using the 1 1/16" bit drill a little more than half way through (you may need the extension)
- reverse the blank in the chuck, using the tail stock for support remove the tenon from the top of the body
- take spindle gouge and make a cleanup cut across the face that is either flat or slightly concave

- Finish drilling the 1 1/16" hole through the body of the mill. Remove from chuck and set aside.
- Mount top portion in chuck
- make a cleanup cut across the face
- using the Bedan and calipers make a tenon 1 1/16" diameter about 1/4" long that fits the top of the mill body snugly
- Using the spindle gouge make a final cut across the face to the tenon that is either flat or slightly concave.
- Drill a 7/8" hole in the tenon the same depth as the drive plate (about an 1/8"), use parting tool to make larger if needed (this centers the drive plate very nicely, directions tell you to mount it to the tenon).
- Drill a 7mm hole through the top completely, taking care to clear the chips often so as to avoid having the bit wander
- With top still in chuck partially assemble the mechanism with the shaft, two pieces of the grinder and the u clip in the bottom of the body. Hold up next to the top and make a pencil mark on the top halfway up the threads.
- Use parting tool to cut off top to pencil mark.
- Mount 2 x 2 poplar block between drive center and live center and turn round
- using Bedan make a tenon on one end to fit chuck
- Remove drive center, mount chuck and 2 x 2 block in chuck.

- True up end of 2 x 2 block
- Make a tenon 1 5/8" diameter and about a 1 1/2" long. The tenon should fit the bottom of the mill snugly.
- Install cone center on tail center and mount both parts of mill together (I like to align the grain) between cone and poplar tenon.
- Remove tenon on bottom of mill with bedan tool
- Make a cleanup cut across bottom of mill with spindle gouge.
- True up the mill with the spindle roughing gouge and turn cylinder to desired maximum diameter.
- Shape the joint between the top and the bottom making sure the joint is clean (if this line is difficult to see use a piece of colored or contrasting paper or 3x 5 card in between the joint).
- Shape the top of the mill with the spindle gouge.
- Shape the body with the spindle gouge or roughing gouge.
- Sand the mill to desired grit, I usually go to 320. Start with the necessary grit and progress to 320 (ex. 80, 120, 150, 180, 220, 280, 320), this will give a nice finish.
- After the final grit sand by hand with the lathe off going with the grain to remove any sanding scratches.
- Apply finish by hand with lathe off.
- When finish is dry lightly sand the tenon on the top so it moves freely. A little wax also helps.

- Assemble mechanism as per mechanism directions and enjoy!