



Crush Grind® Mill

Product #146928

1. Designing the Mill

The Crush Grind® mill contains several unique features that need to be considered before designing your mill.

- The minimum body height is 4" with a maximum body height of 9". With the ability to vary the height of your mill it will be necessary to cut the shaft to the desired length, which will be discussed in the assembly section.
- The minimum finished height of the mill head is 1 1/2". It is recommended that you create a simple sketch of your desired profile keeping in mind the diameter of the bores.
- Two reference drawings have been provided as examples of the two drilling options (Fig. 1 & 2).

2. Preparing the Blank

- Select your desired block of wood, we recommend a 3" x 3" that is at least 1" longer than the mechanism.
- Mount the blank between centers and turn the blank to a diameter of approximately 2 1/2" .
- Square the ends of the blank.
- Using your reference drawing, layout the housing and stopper locations on the blank.
- Using a parting tool, cut down between the housing and stopper line that you just created, stopping with about 3/4" of material left. Turn off the lathe and complete the cut with a handsaw.

3. Boring the Housing

In figures 1 & 2 two, boring options have been provided to accommodate various designs. Select one that best fits your needs. Whichever one that you choose, we recommend that you bore from both ends to help ensure the accuracy and straightness of the bore.

Figure 1

- Bore a 3/4" hole 5/8" deep into the base of the housing.
- Using the center mark from the previous bore, drill a 1 9/16" hole 1 3/8" deeper into the housing.
- Continuing to use the center mark from the previous bore, drill a 1" hole half way through the remaining portion of the housing. Using #151330 Pinnacle Cryogenic Pepper Mill Tool, create a notch 2" from the bottom of the housing where the locking tabs of the mechanism will attach. Remove the housing blank and re-chuck in order to continue the boring process from the opposite end.
- Bore a 1 9/16" hole 9/16" deep into the housing.
- Using the center mark from the previous bore, drill a 1" hole through the remaining portion of the housing.

Figure 2

- Bore a 1 3/4" hole 5/8" deep into the base of the housing.
- Using the center mark from the previous bore, drill a 1 9/16" hole through the remaining portion of the housing. It is recommended that you rotate the blank half way through the boring process and bore from the opposite end to ensure the accuracy and straightness of the hole. Using #151330 Pinnacle Cryogenic Pepper Mill Tool, create a notch 2" from the bottom of the housing where the locking tabs of the mechanism will attach. Remove the housing blank and re-chuck in order to continue the boring process from the opposite end.

4. Boring the Stopper

Figure 1

- Bore a 1 1/16" hole 1/2" deep into the base of the stopper.
- Using the center mark from the previous bore, drill a 1 5/16" hole 1 1/4" deeper into the base of the stopper.
- Using #151330 Pinnacle Cryogenic Pepper Mill Tool, create a notch 5 5/16" from the bottom of the stopper where the locking tabs of the mechanism will attach.

Figure 2

- Bore a 1 5/16" hole 1 1/4" deep into the base of the stopper.
- Using #151330 Pinnacle Cryogenic Pepper Mill Tool create a notch 1 3/16" from the bottom of the stopper where the locking tabs of the mechanism will attach.

5. Turning the Housing

Mount a scrap block of wood approximately 2" square, and at least 2" in length to a faceplate or 4-jaw chuck, and turn until just round. Next create a 3/8" tenon to fit snugly into the 1 3/4" hole making sure to leave a small shoulder around the tenon. Once completed, mount the housing blank to the lathe using the jamb chuck that was just created, along with a 60 degree cone live center. Next turn the housing to the desired profile, keeping in mind the internal bores, in order to maintain sufficient wall thickness. Once turned, sand and apply a finish of your choice.

6. Turning the Stopper

Mount a scrap block of wood approximately 2" square, and at least 2" in length, to a faceplate or 4-jaw chuck, and turn until just round. Next create a 1/2" tenon to fit snugly into the 1 1/16" hole or 1 3/16" depending on your choice of boring options, making sure to leave a small shoulder around the tenon. Once completed, mount the stopper blank to the lathe using the jamb chuck that was just created, along with a 60 degree cone live center. Next turn a 1 9/16" diameter by 1/2" long tenon, be sure to check the fit as this needs to rotate inside of the mill housing. Continue to turn the stopper to the desired profile. Once turned, sand and apply a finish of your choice.

7. Assembly

- Insert the mechanism into the housing first, the 1 9/16" bore may be too tight, so it may be necessary to shave the ribs of the mechanism slightly to allow the mechanism to slide into place.
- Using a hacksaw, cut the shaft to length leaving 1 1/8" extending beyond the length of the housing.
- Press the drive unit into the stopper and press the stopper onto the shaft of the mechanism.

Note: the use of fractional bits may require slight modifications of the mechanism. If desired the mechanism may be glued into place. We recommend the use of a 5-minute epoxy, and if used, that none of the glue comes in contact with any of the moving parts of the mechanism as this will alter its intended function. For oily wood, pre-treat the area to be glued with acetone and let dry, prior to applying any glue.



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