

CrushGrind® 260mm/10.2" grinding mechanism

CRUSH-25

william wood-write
penblanks.ca

Recommended Supplies:

7/8" Forstner Drill Bit
1-1/16" Forstner Drill Bit
1-1/2" Forstner Drill Bit
1-3/4" Forstner Drill Bit
Forstner bit extension
Turning blank: minimum 2-3/4" square

***NOTE:** The grind mechanism is designed with two "snap hooks" which expand to hold the mechanism in place without the need for screws. To use the hooks, you need to cut a groove with a recess tool for the hooks to expand into. Some turners choose to remove the snap hooks and fix the mechanism in place with epoxy instead.

Preparing the Blanks:

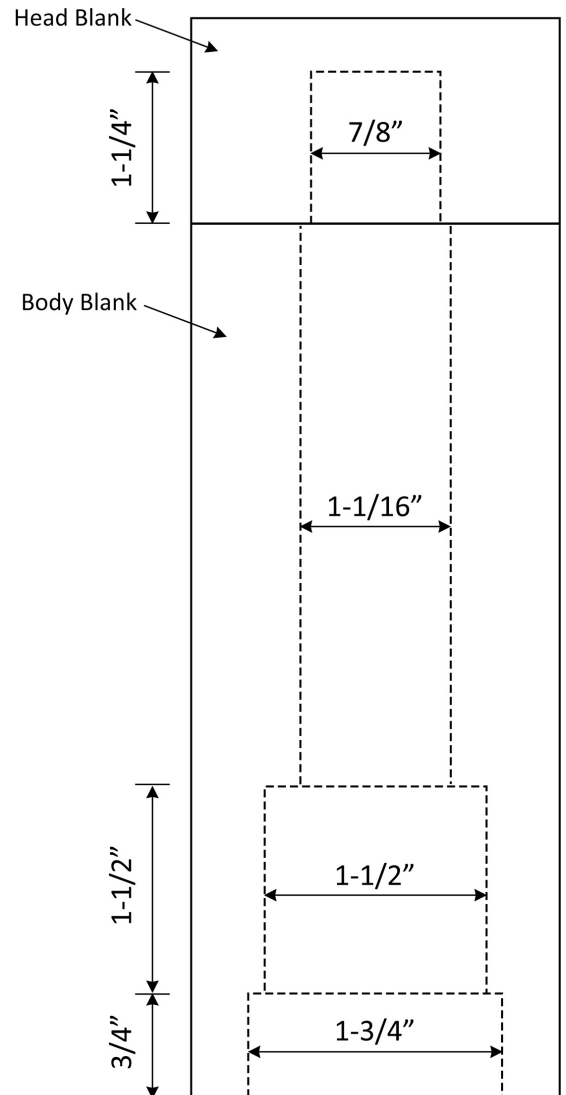
1. Sketch out your design.
2. Select a blank that is approximately 1" longer than your design and a minimum of 2-3/4" square.
3. Mount the blank between centers and rough turn it round.
4. Mark a line on the blank where the head and body of the mill will meet. Cut a 1/2" deep groove on this line with a parting tool.
5. Cut tenons to allow the blanks to be mounted into a chuck. Cut one at the top of the head blank, and one on each end of the body blank.
6. Label each end of the mill body "top" and "bottom". Part the mill head from the body.

Drill the Mill Head Blank:

1. Mount the head blank in a chuck and use a live center in the tailstock to support the other end.
2. Square up the end of the blank. You can undercut it slightly to ensure the parts fit together nicely later.
3. Drill a 7/8" diameter hole, 1-1/4" deep into the blank.
4. Remove the blank from the chuck.

Drill the Mill Body Blank:

1. Mount the body blank in a chuck using the bottom tenon and use a live center in the tailstock to support the other end.
2. Square up the end of the blank. You can undercut it slightly to ensure the parts fit together nicely later.
3. Drill a 1-1/16" diameter hole halfway through the blank.
4. Remove the blank from the chuck and flip it, mounting the top tenon in the chuck.
5. Square up the end of the blank, removing the bottom tenon. Again, undercut slightly.



6. Drill a 1-3/4" diameter hole, 5/8" deep.
7. Drill a 1-1/2" diameter hole, 1-1/2" deep (that's 2-1/8" from the bottom of the blank). *If you're using the snap hooks, use a recess tool to cut a 5 mm groove at the top of this 1-1/2" diameter hole.
8. Drill a 1-1/16" diameter hole through the remainder of the blank.

Turning the Mill Body:

1. Make a jam chuck for the mill body:
 - a. Mount a waste block in the chuck.
 - b. Turn a 3/4" long tenon to fit into the 1-3/4" diameter hole at the base of the body blank. Leave a small shoulder at the base of the tenon for the blank to butt up against. As you're turning, test fit the base on the tenon frequently. You want a very snug fit.
2. Mount the base of the mill body onto the jam chuck. Use a live center in the tailstock to support the other end.
3. Turn the body to your desired shape. A minimum of 6mm wall thickness is recommended.
4. Sand and finish.

Turning the Mill Head:

1. Make a jam chuck for the mill head:
 - a. Mount a waste block in the chuck.
 - b. Turn a 3/4" long tenon to fit into the 7/8" diameter hole in the head blank (you can repurpose the jam chuck you made for the body blank). Leave a small shoulder at the base of the tenon for the blank to butt up against. As you're turning, test fit the base on the tenon frequently. You want a very snug fit.
2. Mount the head blank onto the jam chuck. Use a live center in the tailstock to support the other end.
3. Turn the head to your desired shape. A minimum of 6 mm wall thickness is recommended.
4. Sand and finish.

Assembly:

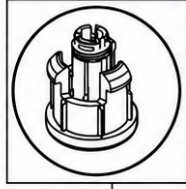
Note: Depending on the density of the material you used, you may find the mechanism fits very snugly into the holes. Some turners choose to remove the ribs on the outside of the grinding mechanism before assembly to reduce pressure on the inside of the hole and help prevent the from wood splitting.

1. Pull the stopper fixture off the top of the shaft.
2. Insert the shaft, with the mechanism attached, up through the base of the body. *If you created a recess for the snap hooks, the hooks will snap into place.
3. Make a mark on the shaft 1-1/8" from where it sticks out of the top of the body. Use a hacksaw to trim the shaft on this mark. File the cut smooth to remove metal burrs.
4. If you removed the snap hooks, carefully glue the mechanism in place using a small amount of epoxy on the ribbed portion of the mechanism.
5. Push the stopper fixture into the mill head, carefully using epoxy to secure it in place.
6. Once the epoxy is cured, fill the mill body with pepper or salt. The mechanism is ceramic, so salt will not cause it to corrode.
7. Push the mill head onto the exposed shaft.
8. Your grinder is ready to use!

Feature details

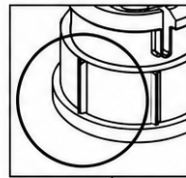
1. Stopper fixture

We developed this stopper fixture to avoid the need for a 'nut' on our mechanisms that use shafts. This stopper fixture easily integrates into the 'head' section of grinders. Simply pull off the 'head' to refill a mill - with no need to unscrew any bolt. The stopper fixture can securely hold 3Kg (min).



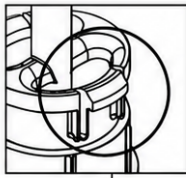
2. Ribs

These carefully designed ribs penetrate into wood in order to prevent rotation of the mechanism without the use of screws. When using this mechanism in plastic materials the purpose of the ribs is the same. However, the geometry of the ribs must be allowed for when designing the inner construction.



3. Snap-hooks

This mechanism uses snap hooks to mount inside the body easily without the need to use screws.

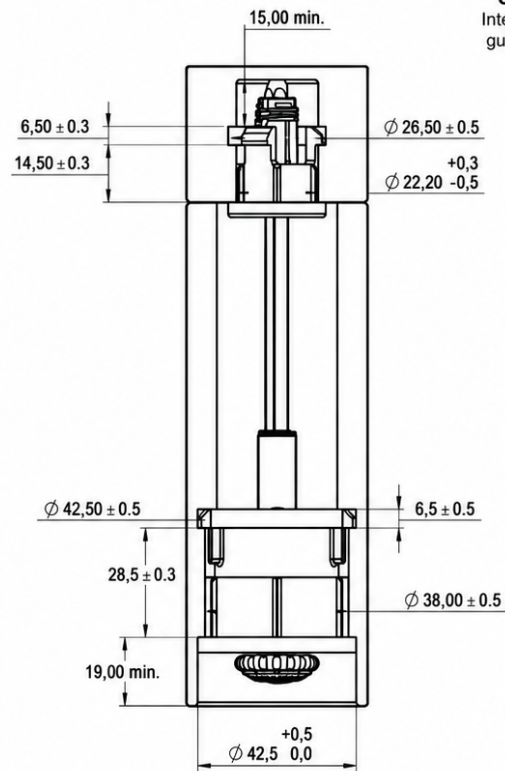


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SHAFT
Integration
guidelines



SHAFT - HOW TO MOUNT



All measurements in mm. Tolerances shown are for mounting into wooden products. Minimum 6mm wall thickness around ribs recommended for wooden products.

Stopper ☐

Regular

Warranty ☐

25 years

Patent ☐

Yes