How To Make An Inertia Sander

This explains how to make an inertia sander, from a roller blade wheel, to use when sanding on your wood lathe. I made five of them and put five different grits of sandpaper on them. That way I don't have to keep changing the sandpaper when progressing from one grit to another. You could use Velcro hook & loop and just make one but I'm using pressure sensitive adhesive sandpaper so it works better to just make one for each grit. I use #80; 150; 220; 320; & 400 grit.

Picture #1

The parts needed are:

1. A complete roller blade wheel with the bearing and axle. They can be found at thrift stores or laying around the house.

Picture #2

2. A 5/16” bolt (Length will be determined by the width of the bearing and the amount of threads needed to mount the sanding disc), washers and hex nuts.

3. A 5/16”-18 x 3/8” T-Nut.

Picture #3

4. A 3/4” Schedule 40 PVC 45 degree elbow that slips over 3/4” PVC pipe on both ends. This elbow has a ID of about 1 1/16” and is about 7/8” deep. Or use whatever size of PVC fitting that your bearing will fit into.

5. A piece of wood for the handle.

6. A piece of maple or cherry for the sanding disc.

7. Some soft EVA sheet foam for the sanding disc pad.

Making the sanding disc:

1. This is to make a sanding disc 2 or 3 inches in diameter.

2. Cut a 2 ½” or 3 ½” circle out of a piece of ¾” thick maple or cherry with a Bandsaw. Mark the center and drill a hole in the middle for the T-nut. Use a forstner bit first to recess the face of the disc so the flange on the T-Nut will sit below the surface of the disc. Then drill a hole through the wood for the bolt. Drive the T-Nut into the wood from the face of the disc. You might want to epoxy the T-Nut into the wood, or if you don’t have a T-Nut you can use double hex nuts and epoxy them into the wood. Mount the piece in a Jacobs chuck using the T-Nut with a bolt in it. You might have to use a jam nut on the bolt to keep the disc from slipping.

3. Turn the wood on the lathe making the face slightly convex and the back angled from a thicker center to a thinner edge. Make it about ½” to 5/8” thick.(See picture #4)

Picture #4

4. Finish with sanding sealer or finish of your choice.

5. Use contact cement to attach 1 or 2 pieces of EVA sheet foam to the face of the disc. It's sometimes called "Krazy Foam" or "Funky Foam" at craft stores.

Making the handle:

1. Take a piece of wood large enough for a handle and turn one end to fit into the 45 degree PVC elbow fitting. Shape the rest of the handle to your liking and finish with your choice of finish.

Making the bearing:

1. Take the roller blade wheel and cut between the spokes around the center with a coping saw. Cut just inside of the rim which will leave the center plastic hub with short spokes sticking out. Put a 5/16" bolt through the hub and mount it on the lathe in a Jacobs chuck. Turn the plastic hub down to the diameter that will fit into the 45 degree PVC elbow. It should look similar to the one on the right in picture #5 below.

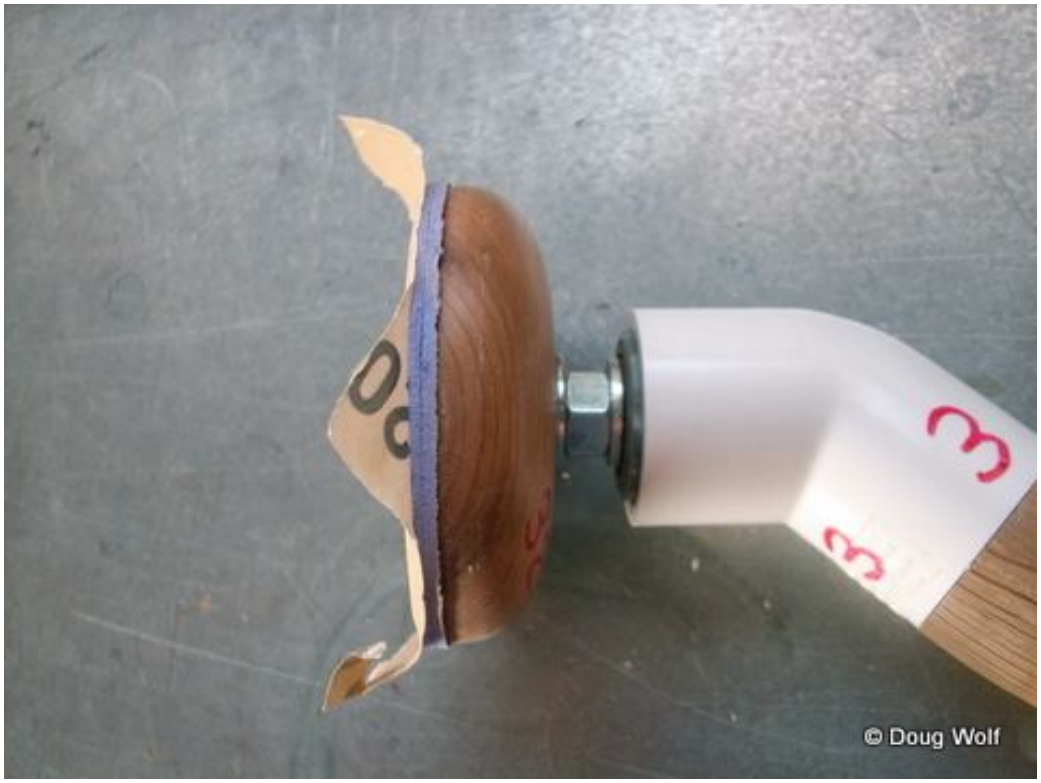
Picture #5

Putting it all together:

1. Put the 5/16” Bolt through the bearing and the nut on the end of the bolt. You may need to put washers on the bolt if necessary to allow it to turn freely when the nut is tightened down. There should be enough threads protruding past the nut to screw the sanding disc onto the bolt. You may have to use washers between the nut and the sanding disc so the bolt doesn’t stick out past the T-Nut and the surface of the disc.

Picture #6

2. Press this assembly into one end of the 45-degree PVC elbow. It should seat on the bottom of the fitting and the bearing should be flush with the edge of the fitting.



Picture #7

3. Press the handle in the other end of the 45-degree PVC elbow and you're done.

4. If the bearing or handle fit too loose in the PVC fitting then just use silicone glue or epoxy to secure them. Otherwise don't glue them in and you will be able to take them apart later if you need too.