

Cindy Drozda

"The Fine Art of Woodturning"

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Sphere Box



Part 1: Prepare the Blanks:

For the Sphere Box: A piece of dry wood slightly oversize, to yield a 2 1/4"/57mm diameter trued up cylinder, 3 1/8"/79mm long. Other dimensions work equally well. Try making different sizes of Sphere Boxes!

Many different kinds of wood are good for a Sphere Box. It helps to use wood that can take detail well enough to make a mortise and tenon joint where the halves separate. Softer wood might ask for thicker walls

For the Jam Chuck: You will need a piece of compressible straight grain (endgrain) wood that is larger in diameter than the Sphere, and at least 2"/50mm long. It needs a tenon on one end to fit the scroll chuck, and a hole through it.

Part 2: The Template:

1. Use a piece of stiff paper, single wall cardboard, or thin plastic. I like 1/16"/1.5mm Styrene.
2. Draw a circle with a compass that is the size of the inside diameter of your box, accounting for your intended wall thickness. Mark the center point with an awl.
3. It is accurate enough to cut the circle out with scissors or a knife. For more precision, mount the piece of stock on a flat waste block in the lathe using double stick tape, and turn the disk to size.
4. Mark a diameter line on the template. This is the depth of the lid of the box.
5. Mark another line about 1/4" above, and parallel to, the center line. This is the depth of the inside of the bottom of the box.

Part 3: The Box

1. Mount the blank in a chuck, mark the separation point, and part off the bottom of the box.
2. Using your template as a guide, hollow the inside of the box lid to the diameter line on the template.

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3. Create a parallel recess at the opening.
4. Chamfer the outer corner where the joint line will be between the halves of the box. Make this deeper than you think you will need it to be, to allow for trueing up the sphere.
5. Mount the other half of the box (the bottom) in the chuck, and jam fit the lid's recess onto a tenon. Make this a tight fit for now, so the Sphere will stay together for the shaping process. Make a chamfer on the joint line that matches the chamfer on the lid.
6. Hollow the bottom half of the box to the line on the template that is above the center diameter line. Fit the 2 box halves together. If they are loose, use a piece of paper towel as a shim. The box needs to stay together for the Sphere operation.

Part 4: The Sphere

1. Mount the assembled box between centers, and true it up with a light cut.
2. Mark the diameter onto the blank, using the box joint line as the center of the sphere, and part in to make the length of the blank the same as the diameter.
3. Turn a sphere shape as closely as you can. It's better to remove less material than more.
4. Cut a groove about 1/32"/.5mm deep on the center line, and mark it with pencil
5. Create a jam chuck that looks like a bowl, with the inside diameter at the rim being the diameter of the sphere.
6. Put the rough sphere up against the jam chuck, with the pencil line parallel to the lathe bed, and bring up the tailstock with a cup chuck to hold the sphere in place.
7. Turn down almost to the pencil line on the one side, then flip the sphere in the jam chuck and do the other side.
8. Tune the fit of the jam chuck to the rough sphere, so that just over half of the sphere sticks out of the chuck, and it jams into the chuck well.
9. Turn the half of the sphere that's out of the chuck down to the pencil line, flip it in the chuck and do the other side.
10. Sand the Sphere by going through the grits, moving it around in the jam chuck to sand the whole Sphere with each grit.
11. Loosen up the jam fit between the box halves by either putting the bottom in the jam chuck and using sandpaper, or jam fitting the bottom on a waste block. The fit should be good enough to hold together with light handling, but loose enough to get the halves apart. If you initially messed up the fit and needed a piece of paper, your fit is good!

Part 5: Finishing:

1. An oil finish works well for a Sphere Box. They usually get some amount of handling, and penetrating oil can tolerate that. It is easy to renew the finish with more oil in the future.
2. A lacquer, shellac, or polyurethane film finish can be done by mounting the halves on jam chucks. Use the Sphere Chuck to do the insides, and a waste block to do the outsides.
3. Any finish should be done after pyrography, to avoid creating toxic fumes from burning the finish.

Congratulations on completing your Sphere Box!

For safety, Please wear eye and face protection at ALL TIMES

HAVE FUN !!