Multi-axis Spout-off Vases

BLANK PREPARATION

- Start with a blank approximately 5” in diameter and 8-9” long. This is a shorter length than I normally use but easier to work with when trying this for the first time.
- Mount between centers and rough to a cylinder and add a tenon on the top end of the vase.
- Find the best grain pattern of the cylinder and rotate that face so it is facing straight up. With the tool rest at center, draw a line across the cylinder.

On each end, connect this line to the center point of the cylinder. Measure in from the outside edge to mark the center point for the second axis. I typically measure in 1” because that is the radius of the smallest diameter my chuck will clamp. With the best side facing up, the neck will be on the left when the finished piece is displayed. If you want the neck on the right side, the best side should be facing straight down when you draw the line.

INITIAL SHAPING

- Chuck the cylinder on the tenon and support the bottom with the tailstock.
- Form the basic shape of the vase.

At the top-end, just barely shape the outside curve of what will be the neck. Don’t cut this too deep because that will make it harder to blend into the second axis later. At the bottom end, leave at least 1-1/2” of material ... 1/2” of this will be the very bottom of the vase, and the other 1” will be used to plug the hollowing hole and used for other chucking locations. The material at the bottom and the very top must be kept at the original diameter of the cylinder.

- With the best grain pattern facing straight up, draw where the top of the vessel will be. This as this line will be your guide during the hollowing phase to show you how deep you can hollow.

PREP THE BOTTOM TENON

- Cut a recessed tenon in the bottom. Do not remove all of the wood around the tenon. Use a bedan or parting tool to make the cut. Remove only enough wood to let the jaws of your chuck slip around the tenon and make the tenon as small as possible for the chuck you are using.

- Draw two ledger lines across the remaining wood at the bottom. These lines will be used as reference lines when gluing the plug back in the bottom to get the grain to match up perfectly.
- Part off approximately 1” of the bottom. You need to leave enough material to form a plug and to give the tenon support. Leave at least 1/2” on the vase side. This will provide support when the piece is mounted on the second axis.
- Clean up the bottom face, ensuring it is perfectly flat.

HOLLOWING THE VESSEL

- Drill a pilot hole for the hollowing process. Base the depth on the line you drew for where the top of the vessel will be.
- Hollow the vessel with your hollowing tool of choice. A laser guide system works best when determining the hollowing depth. You can stop the lathe with the line indicating the vessel top facing straight up and use the laser to track along this line.

If you are worried about leaving enough material, error on the side of leaving too much the first couple of times. Normally it will be natural to do this, and you'll find you can remove more material than you think. You also will want to leave a little extra material at the top shoulder portion of the vase because that is where you will blend the two axes together and you might need a little more wood to work with there.

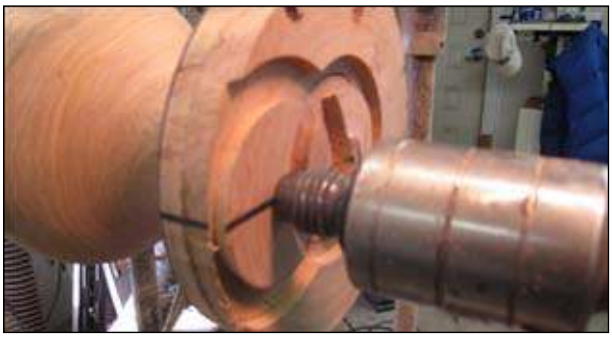
- When finished with the hollowing, remove the vase from the chuck.

FORMING THE PLUG

- Mount the waste piece you cut off from the bottom into the chuck.
- Form a tenon that will fit the hole in the bottom of the vessel.
- Glue the tenon into the hole, gluing not only the tenon but the entire face surface of the waste piece. The extra glue surface will provide extra strength when the vase is mounted on the second axis.
- Use the ledger lines you made to align the vase with the plug piece. Bring the tailstock up to use as your clamp.

SWITCHING TO THE SECOND AXIS

- Once the glue is dry, mount the piece between centers on the second axis with the bottom toward the tailstock.
- Cut a recessed tenon on this second axis and match the depth you made the first tenon.



This second tenon will be used to form the neck of the vase. It might be easier to start the recess with a small gouge and then finish it with a bedan or parting tool.

FORMING THE NECK

- Mount the vase in the chuck on the second axis tenon and bring up the tailstock for support.
- Cut the initial size of the neck area, but don't shape it.

- Now there is a lot of off-center material that needs to be removed. This can be turned off slowly. The piece is quite off-balance, so take your time. I prefer to carve off most of this using a 4" angle grinder with and Arbortech Industrial Woodcarver wheel.
- Once the bulk of the waste is removed, shape the outside of the neck to the desired shape.

BLEND THE TWO AXES

- You now will have parts of the vase turned on two different axes. There will be parts left that cannot be turned away.

- Use various carving tools to remove the excess material and blend the two axes. Larger burrs in air die grinders or rotary carvers work well.

Other useful tools are drum sanders and course sanding disks.

- Progress through increasingly finer sanding disks to finish the process. Foam backing pads underneath the disks help the disks conform to the shape instead of digging in.
- Through this process, continually rotate the piece to view it from all angles. A carving stand is very useful in this process because it allows you to view the piece vertically.

CREATE THE NECK OPENING

- Drill a hole through the neck to create the opening and shape with a gouge.
- It is very likely that the hollowing done previously will be a bit thick in this area.
- Carefully hollow the neck area on this second axis.

Use smaller tools. I highly suggest using a captured hollowing bar because you will be less likely to get a catch. You will be very close to the side of the vessel on one side but not on the other. Make sure you keep this in mind, or you will create a second opening in the vessel.

- Finish sanding the top and neck of the vessel.

REMOVING THE WASTE & BOTTOM TENON

- Remount the vessel using a chuck on the original axis tenon.
- Remove the bulk of the waste at the bottom, finish forming the base and the vessel's main axis.

- The simplest way to remove the remaining tenon area is to simply part it off. Use a parting tool, but don't part all the way off. Use a saw to cut the piece free. Then sand off the remaining bit off the bottom.
- For a cleaner bottom, use a drum chuck with a recess area that fits the neck.

This doesn't work for all vessel shapes. Put the top of the vessel in/on the drum chuck and bring up the tailstock for support.

Turn away the rest of the waste material.

- Finish with the finish of your choice.