

Making a Disc Vase

Craig Timmerman – craig@armadillowoodworks.com – www.armadillowoodworks.com

Tools needed

- Bowl gouge, my preference is a 3/8" bowl gouge
- Parting tool, prefer thin kerf
- Skew
- Four-jaw chuck
- Drum chuck of some kind, approximately 5" in diameter
 - Can be piece of waste block material
- Optional tools
 - Bedan
 - Vacuum chuck

Stock selection and prep

- Dry stock-making a pretty solid piece so don't want to have wood that moves
- Pick contrasting or figured wood as inlay
- Size blank based on glass tube insert, but can be any size
 - Typical size is 1" shorter in height than width
- Blank for main vase
 - 7 x 6 x 2 – if doing inlay
 - 7 x 6 x 2.5 – if no inlay
- Blank for inlay
 - 3-4" square, 3/4 - 1" thick
- Blanks for jig
 - 3" x 3" or smaller block
 - Size is based on diameter of curved opening on vase
 - 1" x 7" spindle blank
 - Size is based on diameter of hole drilled in vase
 - I use mesquite for both, want something stable that you can re-use

Turning inlay blank - optional

- Mount blank between center or on waste block
 - If thin stock mount on waste block
 - If using thicker blank mount between centers
- Turn to cylinder form
 - Add tenon to on end if thicker blank and then mount in chuck
- Flatten end – this will be glue surface so use straight edge to test
- Using parting tool, part off first piece, 1/2" thick
 - Can be 3/8" thick if using vacuum chuck
- Flatten end of remaining blank
- Using parting tool, part off second piece, 3/8" thick
 - Once you've done a few and tried different designs, you'll find inlay doesn't have to be this thick

Turning the jig

- Jig is used for two things
 - Judging proper curve at vase opening
 - "Jam" chuck for turning off tenon on bottom of vase
- Mount spindle jig blank between centers
- Turn blank to a cylinder, diameter must match diameter of hole you are drilling into the vase
 - For my standard size vase I use a 3/4" hole
- Mount larger jig blank between centers
- Turn to cylinder, diameter should match diameter of curve vase opening
- Add tenon to one end of the blank, and mount blank in chuck

- Turn semi-circle on end of blank—curve of semi-circle should be close to what you want the curve of the vase opening to be.
- Mount drill chuck into tailstock and drill hole large enough for spindle
 - Drill hole at least 2” deep—want good support of spindle
- Glue spindle into the hole using CA or yellow carpenters glue

Marking and layout

- Mark centers on face sides
 - Remember, while blank is 7 x 6, center based on 7 x 7 blank
- Need blank to be flat on face sides
 - If not, flat mount between centers on the lathe and flatten both faces
 - If not using inlay, turn a tenon on each side when you are flattening the blank
- Mark centers on top and bottom of blank
 - If using an inlay, the center is just the center of the thickness
 - However, if **not** using an inlay you must account for extra space on both sides
 - Both sides will have an tenon - make sure you account for these tenons when you mark the center
- Trim blank to circle on the bandsaw, but don’t saw off the center mark on the top

Mounting and turning vase on first axis

- Mount vase blank between top/bottom centers, with bottom toward tailstock
- Turn tenon for chuck on bottom
- Reverse blank and mount in chuck on this tenon
- Begin forming the curved opening using your bowl gouge
 - Don’t turn to final form, just get basic shape started
- Mount drill chuck into tailstock and drill hole large enough for glass insert
 - NOTE: some glass tube inserts use metric diameters
- Now test curve shape by inserting jig into vase hole
 - Refine vase opening as needed to get shape you want
- If using flared vase tubes, cut recess in opening for the flared edge using a bedan or skew
- Double check vase hole depth by inserting vase tube and drill deeper if needed
- Sand opening curve—NOTE sanding non-round form so watch your fingers!
 - Power sand with lathe on or off
 - Or hand sand with lathe OFF

Mounting and turning vase on second axis

- Mount blank between the side centers
- Round the blank into a “circle”
 - Not needed, but makes blank more balanced and easier to see the sides meet
- Mark center line around outside
 - Again, not needed, but helps in judging where side meet
- If turning vase **without** an inlay
 - Turn tenon on one side if you haven’t already done so
 - Make sure this is done on the side you allotted for it when you marked the top/bottom centers
- If turning **with** an inlay
 - Cut a **recess** in one side as either a tenon or expansion point for your chuck
 - I like to cut this with a bedan with an angled tip and cut an expansion point
 - Try to keep recess depth to 1/8 – 3/16 deep—any deeper and you will need a thicker inlay
- Mount blank on chuck using the tenon/recess

Turning first side – Non-inlay vase

- Cut a series of inside-out push cuts with your bowl gouge to start rounding the side
 - Start on the corner with small cuts
 - With each successive cut, start closer to the side center and finish closer to the center of the edge
 - Once you get the corner knocked off, you can continue with push cuts or you can also use a shearing, pull cut
- Want a gentle curve from center of side to center of edge

- Keep and eye on the opening of the vase
 - Leave 1/16 – 1/8” distance from edge of curve to hole in vase
- Can also look at vase bottom to judge the shape of the curve you are making
- Decide on the shape of the edge
 - If ax-head, i.e. sharp, turn right to center line
 - If want a little curve, turn just shy of the edge center line
- Sand side—again watch your fingers! You are sanding a non-round object.

Turning first side – Inlay vase

- Start to cut a series of inside-out push cuts with your bowl gouge to start rounding the side
 - Start on the corner with small cuts
 - With each successive cut, start closer to the center and finish closer to the center of the edge
- In this case do NOT curve the entire side
 - Leave a flat approximately the same diameter as inlay disk
- Cut a recess for the inlay
 - Mark diameter using caliper
 - Cut approximately 1/8” deep
 - Sneak up on diameter, needs to be as tight as you can get
 - Recess must be flat
 - Test fit inlay to make sure you get the fit you need
- The inlay put in this first side must be a little thicker than the second side (approx 1/2” thick) as we need to cut a tenon in the inlay
- Glue inlay into recess using CA glue
 - Bring up the tailstock to use as a clamp
- Turn tenon into the inlay piece, length of the tenon needs to be at least the same length at the point in your live center

Turning second side – Non-inlay vase

- Mount your drum chuck on the lathe
 - You can turn a simple drum chuck out of waste material and mount it on your four-jaw chuck
- Mount the finished side of the vase next to the drum chuck and bring up the tailstock to center the piece
- Form a small tenon that is roughly the diameter of the live center and at least as long as the point on your live center
 - This should be the thickness you allotted for when you first marked out the top/bottom centers
- Now shape the second side like you did the first
 - Due to tail stock being in the way, you may not be able to use as many push cuts and may have to use primarily pull cuts
- You want to form the second side using same curve as you did on the first, you can use three reference points
 - Side edge
 - Vase opening – second side should be same distance to vase hole as first
 - Vase bottom – compare the curves
- Once curve is complete you can sand what you can in this position
 - Use sander to round over edge if desired
- Remove from lathe and use chisel or rotary tool to remove the small tenon that was left
- Sand remaining portions

Turning second side – Inlay vase

- Mount vase on tenon in the inlay
- Begin curving second side, same way you did the first side, leaving a flat for the inlay
- Cut the recess for the inlay, same way you did for the first side
- Glue inlay, this time take the point **out** of your live center before bringing it up as a clamp
 - If you can't take the point out of the live center, then the inlay must be thick enough to have waste material where the point will be
- Finish shaping the second side
- You want to form the second side using same curve as you did on the first, you can use three reference points
 - Side edge
 - Vase opening – second side should be same distance to vase hole as first

- Vase bottom – compare the curves
- Sand side—again watch your fingers! You are sanding a non-round object.

Finish turning the first side – Inlay vase

- Follow the steps for turning the second side of the non-inlay vase above, part of the curve is already done
- Remember that the tenon in the inlay is waste material—the outside of the vase starts at the **bottom** of the tenon

Turning off the bottom tenon

- Vase sides and top should be finished at this point
- Mount the jig in the chuck
- Slide vase onto jig spindle and bring up tailstock, re-entering live center point on original point
- Turn off bottom tenon using bowl gouge
 - Bottom **must** be flat
 - Use straight-edge to check
- Remove from lathe, use chisel or rotary tool to take off remains of tenon
- Sand and apply your finish

Other notes

- If have vacuum chuck, process is more like the non-inlay process, where you finish one side completely, then mount on vacuum chuck and finish second side
- If you have gaps around inlay, try adding a bead around the inlay to disguise the bad fit
 - Really easier to sand this if have vacuum chuck