


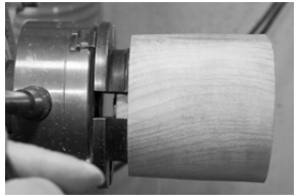
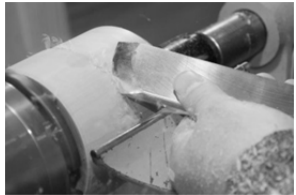


## Turning a Wooden Bangle Bracelet

### Materials:

- Wood blank for Bracelet—at least 3 ½" x 3 ½" (spindle project). Use a closed grain hardwood like Maple or Claro Walnut. Avoid brittle hardwoods like PurpleHeart.
- Wood blank for jamb-chuck—at least 3" x 3" x 3"

### Directions:

1. Find and mark the center in each wood blank. Remember this is a spindle project so the grain will be oriented along the direction of the bed of the lathe.
2. Mount wooden blank for bracelet between centers on the lathe and turn a tenon on the side nearest the tail stock. Take your time, make sure:
  - a. Shoulders of the tenon are square
  - b. Tenon is about ¼" larger than the minimum dimension of the jaws and slightly shorter than the depth of the chuck jaws.
  - c. Use caliper to measure the jaws and transfer the diameter to the end of the blank.
3. Rough turn blank to round. Take your time, make sure:
  - a. Everything is running true
  - b. Just take it to round – size it to final dimensions later.  
*Try using a skew chisel and doing a peeling cut to quickly and easily bring it to round.*
4. Mount roughed out blank into 4 jaw chuck, make sure
  - a. Blank is seated firmly in chuck
  - b. Tenon is not bottoming out
5. Clean-up surface and make sure blank is running true. *Try using a skew and doing a planing cut to leave a smooth surface that will hardly need any sanding.*

6. Clean-up the front surface of the blank to make sure it is flat and the end grain is not torn. *Try using a skew and doing a peeling cut-to leave a clean surface quickly and safely.*



7. Determine the key measurements for the bracelet:
- Width of Bracelet** -- Add about  $\frac{1}{4}$ " to accommodate width that will be lost when you part off the blank.
  - Inside Diameter** -- Easiest method is to measure the inside diameter of a bangle that already fits.  $2 \frac{1}{2}$ " will fit most women's hands, but my wife needs  $2 \frac{5}{8}$ ". *Tip, use a caliper to measure her hand at it's thickest part, usually by the base of the thumb.*
  - Outside Diameter** -- A good starting point is a  $\frac{3}{8}$ " thick bracelet so add  $\frac{3}{4}$ " to the *Inside Diameter*. The thinnest I would go is  $\frac{1}{4}$ ", which is  $\frac{1}{2}$ " + *Inside Diameter*.



8. Mark the width of your bracelet (plus  $\frac{1}{4}$ " for parting-off) on blank. Turn down this section to the desired Outside Diameter. You can fine tune the outside diameter after the blank is mounted on the jamb-chuck, so err on the side of too big and adjust downwards. *Try using a skew chisel and doing a peeling cut to quickly and easily bring it to round.*



9. Drill progressively larger holes using Forstner bits in the blank to the proper depth. Make sure:
- Lathe speed is about 500 rpm, start drilling with a 1" inch diameter bit.
  - Increase bit size by  $\frac{1}{4}$ " between bits
  - Advance the drill slowly and back it out occasionally to clear out the chips.
  - Unless you have some very large Forstner bits you will have to fine tune the *Inside Diameter* by hand (see next step)



10. Finalize the *Inside Diameter* making sure that the hole is running perfectly true and the diameter is consistent from front to back. Accuracy in this is critical to properly fitting the blank on a jamb chuck. *Try using a skew as a negative rake scraper to remove the wood.* Make sure to:
- Reset the lathe speed to about 2000 RPM.
  - Work slowly and carefully
  - Take off wood in  $\frac{1}{8}$ " increments
  - Make sure you go to the bottom of the hole.



- e. Line up the skew with the ways of the lathe and use the long point
- f. A straight edge should touch the entire length of the hole and align with the ways of the lathe
- g. Make sure there is a 90 degree angle between the wall and bottom of the hole.

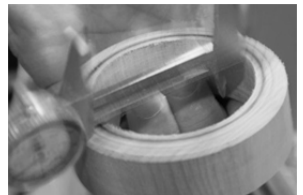
11. Consider investing in a large diameter Forstner bit if you are going to be doing many of these bracelets. This will certainly save time, but mastering the skill of manually sizing the hole will be invaluable as you make bracelets in different diameters. This is a 2 5/8" bit that matches my wife's hands.



12. Part off the bracelet blank to the desired width.



13. Measure the Inside Diameter on each side of the blank and see if one side is smaller than the other. Mark the larger side (if found) and use this diameter to size the jamb chuck, not the smaller. Even if you use a Forstner bit, it's not uncommon to have a slight difference in diameters.



14. Mount the blank for the jamb-chuck between centers and rough turn it to round and cleanup the face, (see Steps 2-6). Turn down a 1/4" section to a diameter about 1/16" larger than Interior Diameter (of the larger side) of the blank. Calipers should almost fit over the diameter. Work slowly and carefully, this step is very similar to making a tenon. *Try using a skew chisel and doing a peeling cut to quickly and easily bring it to round.* Make sure:



- a. Don't take off too much wood--the bracelet blank should not quite fit onto the jamb-chuck
- b. The diameter of the section is consistent (a straight edge should lay flat against the wood).
- c. Shoulder is clean and at a right angle
- d. Width of jamb-chuck should be less than 1/2 of the width of the bracelet. This will allow access to both sides of the bracelet interior as you shape, sand, and apply finish.

15. Test fit the blank to the jamb-chuck (remember to use side with the larger diameter). Carefully remove additional wood until the blank will just fit on. ***This needs to be a precision fit so take your time.*** Make sure:



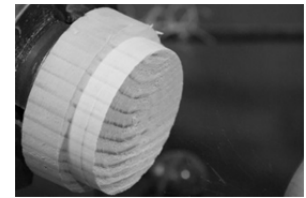
- a. The blank should be relatively easy to put on and take off.
- b. It should be solidly seated against the shoulder and run true on the lathe.
- c. You should be able to turn the blank and see the headstock clearly rotate.
- d. If you have to use more than light force, the fit is too tight and needs adjustment.

*Continue to remove small amounts of wood from the jamb-chuck and test fit the blank. Sneak up on it, it's easy to take off too much. If you are very close, try using some 80 grit sandpaper to fine tune the fit.*



- e. If there is any play or slippage your jamb-chuck diameter is too loose.

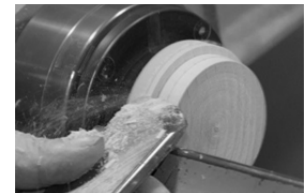
*Best bet is to leave the current portion of the jamb-chuck that is too loose and turn down another 1/4" section that is a little bit bigger. Then you can turn away the section that is too loose and continue test fitting the blank.*



*If you are very close, try wetting the jamb-chuck with some water. This will often force the wood to swell and this may perfect the fit. Be careful though, the wood will release its moisture over time and the fit may change.*

*Other tricks include using some tape or paper towel to act as a shim. Given that you will have to move the bracelet on and off the jamb-chuck numerous times, I suggest you avoid these stop-gap solutions.*

16. Give yourself some working room on the jamb-chuck. Reduce the shoulder to allow access to the left side of the blank. Make sure you don't touch the jamb-chuck tenon or reduce the shoulder below its diameter. The blank must rest securely against the shoulder and run true, you are just providing some access.



17. The bracelet blank should now be mounted on the jamb-chuck and running true. Clean up the right edge of the blank. *Try using a skew and doing a peeling cut-to leave a clean surface quickly and safely.*



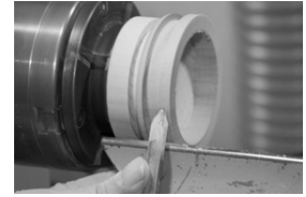
18. If there was a difference in the *Inner Diameter* (e.g. right side of blank has a smaller inner diameter than the left) now is the time to fix it. First, reverse the blank and double-check that this side doesn't fit on the jamb-chuck. Minor differences can normally be resolved with some 80 grit sandpaper. Significant differences can be resolved with a skew (see Step 10).

***Each side of the blank must fit properly on the jamb-chuck before***



***proceeding.***

19. Now that the blank fits properly, it's time to shape the bracelet. At this point there are many designs and options that are possible. In this example, I cut a groove centered in the bracelet sized to fit a small string of beads. I then turned beads on either side of the groove to help streamline the profile.



20. It is also important to ease the shoulder on the inside of the blank. *Try using a skew chisel used as a negative rake scrape. Position the cutting edge height at the center and hold the skew horizontally. Slowly start removing wood and swinging the handle in a gentle arc. This will help shape a bead along the outside of the blank..*



21. Continue adjusting the look and feel of the bracelet until you are satisfied with the design. Double check the fit and finish before sanding. Surface should be clean, free from tool marks and torn grain.



22. Sand using quality sandpaper to 600 grit. Sanding can be done on the lathe at 500 rpm. Standard sequence is 150, 220, 320, 400, and 600. After each grit, sand with the direction of the grain to remove any circular marks. *Take your time; make sure the surface is clean, smooth and free from any sanding marks.*



23. Finish the bracelet using the finish of your choice. Suggestions include:  
a. Cyanoacrylate (CA)  
b. Wipe-on Poly – try using this as you would a friction polish.

## Tips for Sizing a Bangle Bracelet

1. Measure the Interior Diameter (ID) of a bangle that she currently wears.
2. Have the recipient scrunch their hand to achieve the smallest measurement, wrap a string or tape measure around the widest part of the knuckle area, the ID will be about the length/3.14.

2.32" ID = 7.28" perimeter (Size 7)

2.43" ID = 7.63" perimeter (Size 7.5)

2.55" ID = 8.01" perimeter (Size 8)

2.67" ID = 8.38" perimeter (Size 8.5)

3. A standard Kerr canning jar has an equivalent size that is between a size 7 and 7.5, so if you cannot slip your hand into a canning jar you are not a size 7
4. A 20 oz jar of Del Monte sliced peaches has an ID of 2.5"

## Interesting Links

1. [Turned Bracelet](#) *very similar to the technique we are doing in class*
2. [Wildwood Designs – BangleGuy](#) *for steel core bangle blanks*
3. [Easy Bracelet Chuck for Woodturning](#) *a very ingenious chucking mechanism*
4. [Of Wood and Vine Designs](#) *sample of some finely made bangles*
5. [Images](#) of turned bracelets *for your inspiration*

## Suggested Technique for Applying a CA Finish

### Materials:

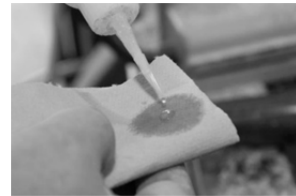
- Medium Thin CA Glue--Use fresh glue as older glue may take too long to catalyze.
- Boiled Linseed Oil (BLO) – for darker woods or Mineral Oil – for lighter woods
- Blue Shop Towel



### Safety Notes:

- **Never attempt this without eye protection! If too much CA glue is used it can splatter and cause serious injury.**
- **Have nail polish remover or Acetone handy—it can be used to de-glove yourself if necessary.**
- **To prevent this self-gluing, always wear protective gloves when applying CA finishes. (Available in the class room.)**
- **Make sure you have good ventilation. As the CA glue catalyzes it releases cyanide fumes which are hazardous.**
- **Put a towel on the ways underneath the piece to catch any stray drops.**

1. Set lathe speed at 500 rpm. Fold shop towel into eighths. Place 1 drop of Oil and 1 drop of thin CA glue on corner of towel. *Less is better in this situation; goal is to gradually build up the coats without spraying the glue around the shop.*



2. Apply thin coats of CA/Oil mixture and keep the towel moving to evenly spread out the glue across the surface. Keep the towel moving until the surface is clear, shiny and dry, around 2-3m. You may smell the acrid odor of the expelled cyanide fumes as the chemical reaction proceeds.



3. Complete a second coat and then flip the bracelet to access the other side. Apply 2 coats and then flip back. Continue until you are satisfied with the finish, usually 6-8 total coats. The finished product should be clear, bright and shiny.



### Notes:

- Make sure the previous coat is dry before moving to the next coat.

- Continue adding coats until satisfied—normally 6-9.