



TITLE

STEPS FOR TURNING A PEN

By

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## STEPS FOR TURNING A PEN

Note: The following thoughts are the steps I use to select and turn pens. Other pen turners may vary from these steps, but we all seem to arrive at similar outcomes and have just as much fun!!

Select the material (wood or acrylic) and pen kit. One affects the other so it is necessary to match them for appearance and type of pen desired.

1. Print out a copy of the kit instructions to be used for turning and assembly of the pen. It includes the necessary bushing sizes, drill sizes, and other planning suggestions.
2. Using the brass tubes from the kit, determine how long each section of the pen will be. Allow an extra 1/8" on each of the blanks when cutting the blanks to be trimmed off later. The extra length will help in case of blowout while drilling. Keep the blanks aligned by grain if multiple sections to the pen.
3. Find the center on each end of the blanks and mark.
4. Drill the blanks. If multiple section pen, always drill from matching center ends of the blanks for best grain alignment. Use the drill size suggested in the pen instructions for each section. Drill slowly at a speed of 400-700 rpm to keep heat at a minimum and prevent cracking of blank. Drilling can be done using a drill press or a lathe. Lathe drilling is best because it provides the best chance for accuracy.
5. After drilling the blanks, clean out any dust from the hole drilled to give better adhesion when gluing in the brass tubes. Using sandpaper of about 120 grit, rough up the outside of the brass

tubes to clean off any residue on the tube and to give a rougher surface for the adhesive.

6. Using an adhesive of your choice, CA or epoxy, glue the tubes into the blanks, centering the tubes inside the blanks. The extra area at each end of the blank without tube surface will be removed by sanding or use of an end mill when squaring the blank ends to the tube. This assures a proper fit at assembly time.
7. When the glue has cured, square the blank ends.
8. Now it is time to turn the blanks. This can be done using a pen mandrel or be turned between centers. When using a mandrel, both blanks or a single blank can be turned, using the appropriate bushings for the pen kit. Position the blanks on the mandrel as they were cut, using the bushings as shown in the kit instructions.
9. Put the mandrel on the lathe with the MT2 end in the headstock. With a live center in the tailstock, bring up the tailstock so that the 60 degree point is in the end of the mandrel. Do not tighten, or put too much pressure on the mandrel to prevent bending the mandrel shaft. Bending the shaft can result in an out of round pen blank.
10. SAFETY NOTE: ALWAYS use safety glasses/shield when turning to prevent chips from damaging your eyes, and a filter mask when sanding to keep sanding dust away from your lungs!!!
11. At lathe speed of about 3000 rpm, start to turn off the corners of the blank, using a spindle roughing gouge, spindle gouge, or skew.

12. Continue rounding the blank, bringing it down close to the bushing sizes.
13. Once you are very close to the bushing sizes, it is time to sand the blanks to final size. Use sandpaper starting at 180 grit, continuing up to 400/600 grit, sanding with the lathe spinning and then with the lathe stopped, sanding length wise to remove the rings left with spinning sanding. Wipe away, or better, blow all the sanding residue between each of the sanding steps.
14. When finished sanding wooden blanks, wipe the blank(s) down with Denatured Alcohol (DNA) to raise the grain. Resand the blanks with fine sandpaper to knock down the raised grain for a smoother finish.
15. If using acrylic blanks, sand them with grits, generally from 120-400, to smooth the surface and remove circular rings, sanding laterally on the blank creating as smooth a final blank as possible.
16. Finally, using Micromesh pads, continue polishing the blank using pads of 1500 thru 12000. I use water on the pads to create a slurry to polish the blank. I use the pads while the lathe is turning around 500 rpm to keep the heat down. I sand with the lathe on and then sand laterally with the lathe off, again to smooth over the rings. If you want a better and shinier look you can use a buffer to further polish the blank. On occasion, I also use Novus 2 polish and McGuires or Plastix polishes also.
17. Now it is time to finish the blanks, using a finish of your choice.

CA

Friction finish

Lacquer

## Wipe on Polyurethane (WOP)

18. After the finish has cured, the blanks can be buffed and waxed for final finish.
  
19. Now it is time to assemble the pen using the kit instruction sheet, usually at the end of the instructions. The easiest and safest assembly is using a pen press to press the parts into the tube.

TA-DA!! Your pen is done.....

Note: If you note anything questionable and incorrect, please let me know so that this document can be updated to make it a usable document. Also, I welcome any suggestions that will add to its usefulness.