Turning an Apprentice European Pen

Supplies Needed

- 7mm Drill Bit
- 3/4" x 3/4" x 5" Pen Blank
- Pen Mandrel
- Apprentice European Pen Bushings
- Glue (Thick CA or Epoxy)
- Sandpaper/Finish
- Drill or Drill Press
- Barrel Trimmer/Disc Sander
- Pen Press or Clamp
- Eye and Ear Protection

Cutting and Drilling the Pen Blank

1. Draw a 1" line lengthwise across the center of the blank to help maintain proper grain alignment when turning.
2. Cut each blank 1/4" longer than the brass tube.
3. Using a drill press with the blank secured in a vise or clamp, drill a hole through the center of the blank stopping an 1/8" short of the bit exiting the blank. Drill at 2,000–3,000 rpm backing the drill bit partially out of the hole every 1/2" to clear chips. When using larger bits or drilling plastics drill at 250–500 rpm.
4. Trim away a small amount of wood from the end of the blank to expose the hole. The blank should be slightly longer than the brass tube. This technique prevents cracking caused when the bit exits the blank.

Gluing the Brass Tubes Into the Blanks

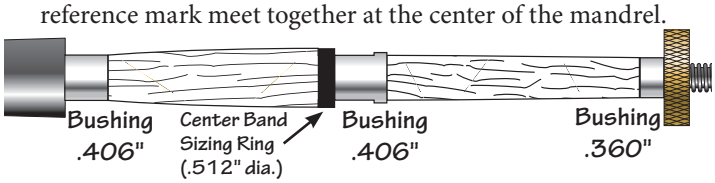
1. Lightly scuff the exterior of the brass tube with 220 grit sand paper to prepare it for gluing.
2. For a fast bond, use thick cyanoacrylate adhesive (super glue) or 5 minute epoxy. For additional working time and more thorough bond, use expanding polyurethane (Gorilla or Sumo Glue). Apply a thin layer of glue to the tube and inside the wood blank. Insert the tube into the blank rotating it as you go to spread the glue evenly. Position the brass tube in the blank so that the wood extends beyond the tube on both ends to allow for trimming.

Trimming/Truing the Blanks

1. Square the ends of the wood blank with the tube using either a barrel trimmer or disc sander. This step is critical for the pen components to fit together properly. ***Do Not*** trim the brass tube as this may result in an improper fit when the pen is assembled.

Mandrel Setup and Turning

1. Assemble the bushings and blanks on the pen mandrel as shown below. Be sure that the ends of the blanks with the reference mark meet together at the center of the mandrel.



2. Advance a 60˚ revolving cone center into the dimpled end of the mandrel and tighten using light pressure. ***Do Not*** over tighten the tailstock or mandrel nut as this may cause the mandrel to flex resulting in off-center barrels.
3. Cut a 1/8" wide tenon on the end of the short blank. Size the tenon so that the center band sizing ring will slide snugly onto the tenon. When a proper fit is obtained, increase the width of the tenon to 1/4" (3/16" if using a plain center band). DO NOT cut into brass tube.
4. Turn both blanks to the desired shape leaving the blanks slightly larger than the bushings.
5. Sand the blanks using progressively finer grits of sand paper, then apply the finish.

Assemble the Parts

Layout the parts as shown paying careful attention to keep the pen tubes in the same orientation as when on the mandrel. Use a vise or clamp with wood or plastic jaws to prevent damaging parts during assembly.

Hint: *While removing the tubes from the mandrel, mark the inside of each brass tube where they join to maintain grain alignment during assembly.*

1. Press the writing tip into the end of the lower tube.
2. Press the twist mechanism, brass end first, into the opposite end of the same tube 1/4" past where the chrome section meets the end of the tube. Install the refill and actuate the twist mechanism to determine how far the refill point extends beyond the writing tip. If necessary, press the twist mechanism slightly further into the brass tube to expose more refill. **Be careful not to press the twist mechanism too far into the tube as it cannot be pulled out.**
3. Press the cap nut, stepped end first into the small end of the upper tube.
4. Slide the clip over the threaded stud on the cap, then screw the cap into the cap nut.
5. Place a few small drops of glue inside the center band, then carefully slide the center band onto the tenon and let the glue cure.
6. Press the upper tube over the exposed twist mechanism in the lower tube to complete the pen.