Model: **Ball Pen Kit**
Finish: Antique Brass
Code: 106100

AXMINSTER woodturning

Supplies Needed

- 9.5mm Drill Bit — Code 610295
- Pen Blank (3/4" x 3/4" x 5")
- Pen Mandrel
- Bushing Kit — Code 106110
- Z-Poxy Epoxy Resin — Code 990120
- Micro-Mesh Soft Touch Pad Abrasives — Code 211364
- PIllar Drill or Axminster Woodturning Chuck Pen Jaws — Code 103670
- Axminster Barrel Trimmer — Code 310478
- Axminster Pen Assembly Press — Code 106069
- Ear and Eye Protection

Cutting and Drilling the Pen Blank

1. Cut the blank 1/4" longer than the brass tube.
2. 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.
3. Trim away the small amount of wood from the end of the blank to expose the hole. The blank should remain slightly longer than the brass tube. This technique prevents cracking caused when the bit exits the blank.

Gluing the Brass Tube Into the Blank

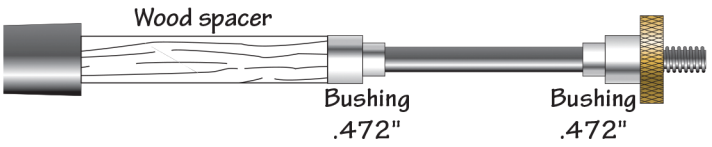
1. Lightly scuff the exterior of the brass tube with 220 grit sand paper to prepare it for gluing.
2. For a fast bond, use thick cyanoacrylate adhesive (super glue) or 5 minute epoxy. For additional working time and more thorough bond, use expanding polyurethane (Gorilla or Sumo Glue). Apply a thin layer 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 Blank

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.

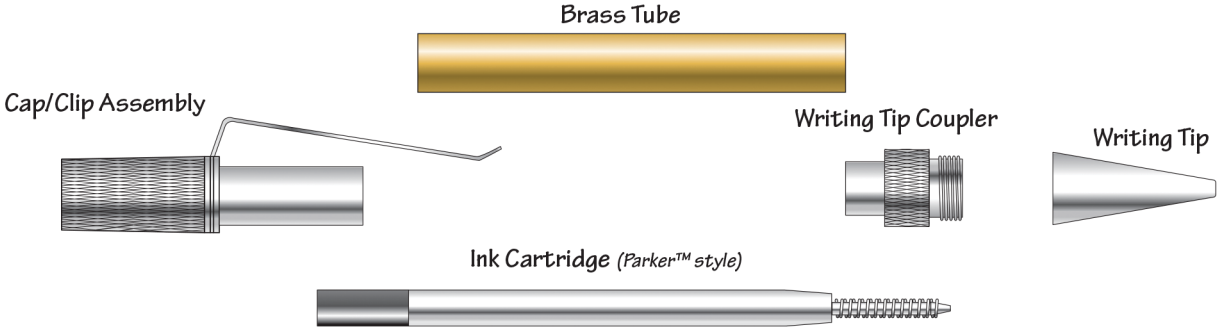
Mandrel Setup and Turning

1. Place the wood spacer, bushings and blank (not shown) on the pen mandrel following the diagram below.



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 an off-center barrel.
3. Turn the blank to the desired shape leaving the blank slightly larger than the bushings.
4. Sand the blank using progressively finer grits of sand paper, then apply your favorite finish.

Assemble the Parts

Layout the parts as shown. Use a vise or clamp with wood or plastic jaws to prevent damaging parts during assembly.

1. Press the cap/clip assembly into the top of the turned blank.
2. Press the writing tip assembly into the other end of the turned blank.
3. Unscrew the writing tip from the writing tip coupler and insert the refill into the body of the pen and screw the writing tip back into tip housing to complete the pen.
4. To advance the ink refill turn the cap clockwise, to retract the ink refill turn the cap counter clockwise.