

## Ballpoint Twist Pen Kit

88K70.02

Requires standard “A” mandrel, pen/pencil bushings (88K71.08), 7mm drill bit, and minimum 1/2” square by 5” long blank.

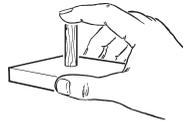
### General Instructions

Cut the turning squares to length, center-drill each piece to accept a brass sleeve, and glue the brass sleeve into the turning blank. Mount the bushings and blanks on the mandrel and turn the blanks to size, using the bushings to gauge the proper diameter of the components to be turned.

### Cutting the Blanks to Length

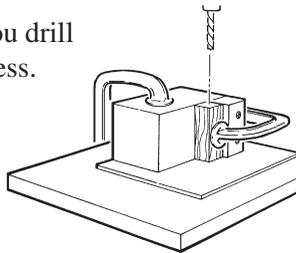
When cutting the turning squares to length, cut the blank 1/32” longer than the brass tubing. Once turned, the length can be sanded flush and square at either end, ensuring a seamless fit between the wood and the pen hardware.

You can make a small sanding jig from a 1 1/2”x1 1/2”x3/4” square piece of wood with an accurately drilled hole matching the outside diameter of the wood components to ensure that the end is sanded squarely. You can also use a 7mm pen mill to square and trim the blank after gluing in the sleeve.



### Drilling the Stock

It is strongly recommended that you drill your turning blanks on a drill press. Narrow squares do not leave a lot of room for error. A drill press vise or homemade jig to help keep your blanks centered and vertical is also a necessity.



You can use a standard twist bit; however, there is a chance that you will split the blank when the bit breaks through the bottom. You will not have this problem if you use a HSS lipped brad-point bit or a HSS parabolic-flute bit (which is ideal for use in dense hardwoods, epoxy-stabilized woods, acrylic acetate, or other challenging materials). Whichever bit you choose, withdraw the drill frequently to clear chips from the flutes.

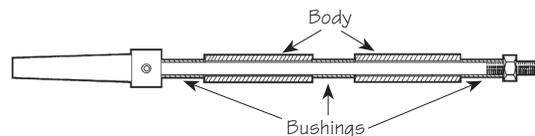
For exotic woods that have a more unstable moisture content, you can prevent cracking by first drilling a 1/8” diameter hole. Let the wood blanks dry for about a week, then redrill with the size of drill required for the sleeves. Other turners prefer to drill the wood and insert the sleeves immediately on bringing the wood in the shop, since the thin walls are less likely to crack.

### Gluing the Sleeves

Use quick-setting epoxy, polyurethane or cyanoacrylate to glue the brass sleeves into the wood blanks. Spread a small amount of glue onto the outside of the brass sleeve and slide the sleeve into the wood. **Do not** put the glue into the hole in the wood because you will inevitably end up with glue inside the brass sleeve.

### Turning the Bodies

Mount the correct end bushing on the mandrel, then the first wood blank, the center bushing, the second blank, and finally the other end bushing. Be sure that the bushings are a snug fit on the mandrel. If they have a bit of play, it could cause the brass sleeve to be slightly off center in the turned wood body. The fit can be corrected by shimming the mandrel. A full turn of cellophane tape (mending tape) will add just over 0.005” to the mandrel diameter. This should be adequate, but if not, try two turns. (Full turns are necessary, as partial turns will cause eccentricity.) If the bushing will not go on over a single turn of tape, the fit is close enough. Aluminum foil makes finer shims, but is more difficult to use.



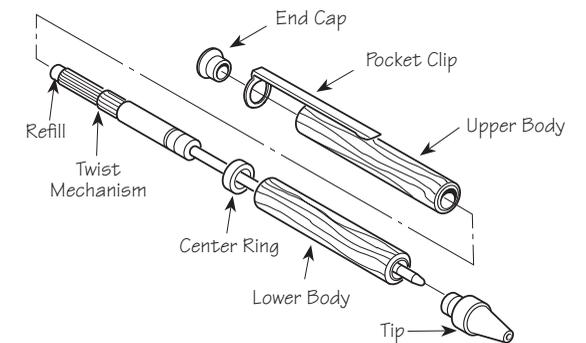
Clamp the wood in place by threading the nut onto the end of the mandrel only finger tight. Slide the tailstock in place and support the mandrel with light pressure of a live center.

Turn the blanks with any tool and at any speed you are comfortable with. Use the bushings as guides for the exact diameter that each end of the wood components should be. Sand and finish the wood on the lathe.

### Assembly

The components press-fit together. Once the components are pressed together, it is almost impossible to take them apart. **Do not** try to dry fit the assembly before the wood is completely finished.

Assemble the pen as shown in the diagram. Press the tip into the lower body. Press the twist mechanism into the other end. Insert the refill and extend it (turn clockwise). If the refill does not extend far enough, remove the refill and press the twist mechanism in a little further. Keep testing the refill for projection until it extends the proper amount. Slip the center ring over the end of the refill and the twist mechanism and set aside. Insert the narrow end of the end cap (or finial) through the ring of the pocket clip. Place this assembly onto the upper body and press together. Press the lower end of the upper body over the refill until it fits snugly to the center ring, making sure to align the grain of the upper and lower bodies as you proceed.



Standard refills are available at a stationery store or from us. Order product number 88K70.09.

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www.leevalley.com

1090 Morrison Drive Ottawa ON K2H 1C2 Canada  
814 Proctor Avenue Ogdensburg NY 13669-2205 United States  
1-800-267-8761 1-800-267-8735  
customerservice@leevalley.com