

# PROJECT PEN KITS



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AXMINSTER

woodturning

## European Twist Pen Kit - Chrome Plated

Code: 700149



## WHAT'S REQUIRED



Bushing Set:  
**104708**

Drill Bit Size:  
**7 mm**

Minimum Blank Size:  
**16 mm x 16 mm x 120 mm**

## PREPARING THE BLANKS, HINTS & TIPS

Preparing a wooden or acrylic/polyester blank for a pen mandrel.

1. Cut a blank to the length of each tube plus approximately 2.5mm to allow for trimming and squaring off the ends.
2. Mark the centre on the end of the blank.
3. Using the recommended drill bit, drill a hole lengthwise through the blank.
4. Apply epoxy glue, Polyurethane glue or gap filling cyanoacrylate (super glue) to the tubes.
5. Insert the tube into the blank with a twisting motion to spread the glue evenly inside the hole.

6. Centre the tube lengthwise inside the blank.
7. Allow the adhesive to cure.
8. When cured, square the ends of the blank. Using a barrel trimmer with a guide matching the inner diameter of the tube or a universal pen blank squaring jig with a disc sander.
9. Take the excess material down flush with the ends of the brass tube. (do not trim beyond the length of the tube since this may interfere with operation of the mechanism and assembly).

### Tips/Hints

- If using a wooden blank, draw a short pencil line lengthwise across the centre of the blank. This will help maintain grain alignment when mounting the blanks onto a mandrel.
- Excessive pressure may cause the drill bit to wander and/or split the blank. Slow the feed rate and back the drill bit out repeatedly for chip removal.
- Roughen the brass tube slightly with abrasive for better adhesion.
- Certain acrylic blanks are more transparent than others, especially lighter colors or blanks with light colored swirls. To avoid the risk of the brass tube showing through the pen blank, paint the tubes white or black before gluing them in.
- The barrel trimmer guide also cleans any adhesive that may have gotten inside of the tube.

## TURNING THE BLANK, HINTS & TIPS

1. Assemble the bushes and blanks on the pen mandrel as shown in the diagram, with the Centre Band Bush's smaller diameter sitting against the Upper Pen Blank (53mm long tube). (If using a wooden blank, check the grain alignment).
- Note:** The Centre Band Bush includes a Dummy Centre Band.
2. Secure the bushings and blanks onto the mandrel.
  3. Slide the tailstock with a live centre into place against the mandrel and lock in position. This is for support; only slight pressure is required.

4. Using sharp tools, turn the blanks down to become the Upper Pen Barrel (53mm long tube) and Lower Pen Barrel (60mm long tube) with profiles of your choice.
5. Turn the lower end of the Upper Pen Barrel to match the outer diameter of Dummy Centre Band.
6. Remove the Dummy Centre Band and turn a 5.6mm (7/32") long shoulder on the lower end of the Upper Pen Barrel, the same diameter as the bush. ENSURE that the corner is SHARP.
7. Turn the blanks very slightly oversize, then sand and polish the ends down to the same diameter as the bushings.

### Tips/Hints

- Don't be afraid to sharpen frequently especially when turning acrylics.



Continues over...

## ASSEMBLY, HINTS & TIPS

**1.** Layout parts according to diagram A, ensuring the turned Pen Barrels are the same orientation as when mounted on the mandrel.

**Note:** When removing the blanks from the mandrel, use a felt tip pen to mark the inside of each tube where they join to maintain the grain or pattern alignment.

**2.** Put a couple of drops of glue (for added security) on the Centre Band and press it into the bottom end of the Upper Pen Barrel. Put aside to dry.

**3.** Line up the Lower Pen Barrel components.

**4.** Gently but firmly, press the Nib into the bottom end of the Lower Pen Barrel

**5.** Ensure the Twist Mechanism is correctly oriented and put a guide mark 21mm from the end see Diagram A.

**6.** Make sure the Lower Pen Barrel and the Twist Mechanism are aligned and gently, but firmly, press the Twist Mechanism into the top of the Lower Pen Barrel, brass end first, as far as the marked distance.

**Note:** The initial insertion should be 'short'. Screw the Pen Refill into the Mechanism, twist to fully extend and check how much further the pen tip needs to move to give optimum protrusion.

**7.** Line up the components for the Upper Pen Barrel. Ensure the Cap Threaded Anchor is correctly oriented (there is a small 'lead' on the 'insert' end), and aligned with the Upper Pen Barrel.

**8.** Gently but firmly press it home flush with the top of the Upper Pen Barrel.

**9.** Insert the Cap thread through the Clip, introduce the thread into the threaded anchor and screw home tight.

**10.** Refit the Pen Refill, ensure the two Pen Barrels are aligned. Press the Upper Pen Barrel over the Twist Mechanism, and continue pressing until the upper edge of the Lower Pen Barrel is housed in the recess formed by the Centre Band.

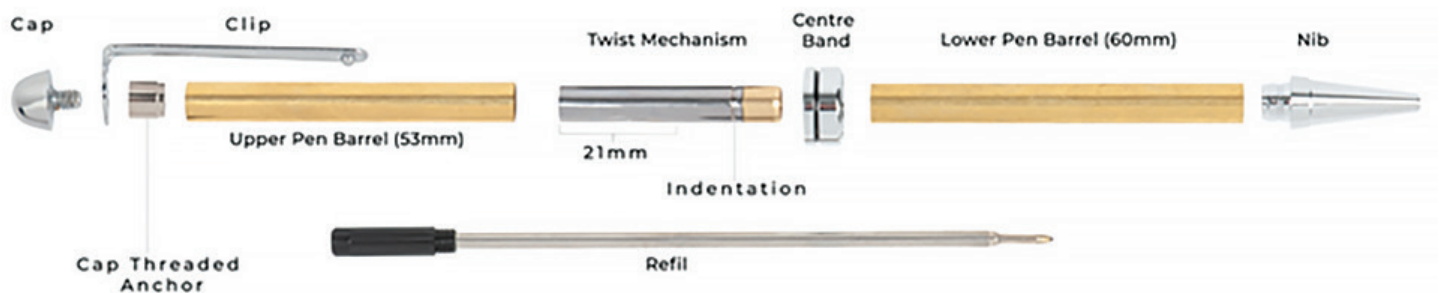
**11.** Leave sufficient clearance between the Pen Barrels to allow a smooth twisting action without them rubbing together.

**12.** Take extra care when fitting the Upper and Lower Pen Barrels together to ensure smooth and proper use of the pen.

### Tips/Hints

- Use a woodworking vice, one handed bar clamp, arbor press or a dedicated pen press.
- Press parts together slowly and steadily
- When pressing the parts together, CHECK the parts are correctly aligned with each other and straight. If the part is crooked or misaligned, it will result in a poor fit or render the pen unuseable.
- When laying out your pen barrel with the parts, pay careful attention to keep the pen barrels in the same orientation as when on the mandrel. i.e. a pen barrel may have a "top" and "bottom", now is the time to be certain of the orientation.

## DIAGRAM A



Visit the Knowledge blog 'How To Make A Pen' for hints, tips and videos  
[knowledge.axminstertools.com/pen-turning](http://knowledge.axminstertools.com/pen-turning)



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