

"MT" BALL POINT PEN

INSTRUCTION AID SHEET

TIMPENM2.WPS

Part A – Design

1. Work in pairs, each student will manufacture a Pen
2. Create a minimum of 2 sketches of possible designs for the pen
3. Decide on the material that pen will be made of – Brass or Aluminum –Discuss why that material was chosen.
4. Choose one of these designs
5. Create a Working Drawing of the chosen design – include all exterior details and dimensions required to manufacture this pen

Part B -- Manufacturing

1. Cut stock of 1 / 2" aluminum or brass --- 5-1/8" LONG
2. Face and centre drill both ends to --- 5" LONG
3. Parallel turn the 1 / 2" dia. Material to the desired diameter (from your drawing)
4. Drill a 5/32" hole in both ends so that the holes meet, creating a hole the entire length of the pen.
5. Turn the desired TAPER on the writing end of the pen— taper determined from final design of pen
6. File the body of the pen, if necessary.
7. Polish and buff the pen.
8. Assemble a ball point refill into the pen.
9. Fill out the evaluation on the back of the hand-in sheet.

OPTIONS:

1. Create a design on the body of the pen .
2. Design and make a plug for the open end of the pen.
3. Design and make a cap for the writing end of the pen.
4. Knurl a segment of the body of the pen. Knurling is an operation which puts patterned indentations in the surface of a metal part to provide a better grip.

NOTE:

Pen must incorporate a MINIMUM of 4 Machining Operations

Machine Operations:

- Facing & Centre Drilling – MUST DO
- Parallel Turn
- Taper
- Radius (at end)
- Grooves
- Knurling