AST I Drilling and Tapping Lab

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_

**Objective: Use standard taps and to cut threads in a piece of metal**.

**Instructions:**

1. Wear PPE and follow all safety procedures.

2. Pick up the 2” x 3” material from instructor.

4. Using the Letter Stamps put your last name on the top of your block.

3. Grind the edges of the metal smooth and straight (right angles) using a bench grinder, Hand Grinder and file. (use grinder on 2 sides and a file on the other 2)

 4. Use a ruler and center punch to mark the location of each hole for drilling (2 holes 1 1/2” from each other in the center of the material) see example

5. Using a drill press and appropriate drill bit, drill a pilot hole according to the tap chart below.

6. Using a drill press and the appropriate drill bit, drill a hole for each tap according to the tap chart below.

7. Tap threads on the hole you just drilled according to the template below; turn the tap one-quarter to one-half turn clockwise then turn the tap one turn counter clockwise, continue this procedure until the entire hole is tap. This process enables the metal shavings to fall away from the material and prevent damage to the threads.

|  |  |  |
| --- | --- | --- |
| Tap size | Drill pilot hole with this drill | Drill hole with this drill |
| 3/8”, 16 thread per inch | 13/64” | 5/16” |
| 8mm, 1.25mm between threads  | 13/64” | H |

Hole location Example

|  |
| --- |
| ----X-----------X---- |

Assessment Rubric

|  |  |  |
| --- | --- | --- |
| Task | Points Possible | Points earned |
| Metal plate square to within 1/8” with no sharp edges | 5 |  |
| Holes drilled in proper location (1 1/2” from the other) | 5 |  |
| Holes tapped correctly  | 10 |  |
| Total points | 20 |  |