

24mm Bearing Mount Machine Process

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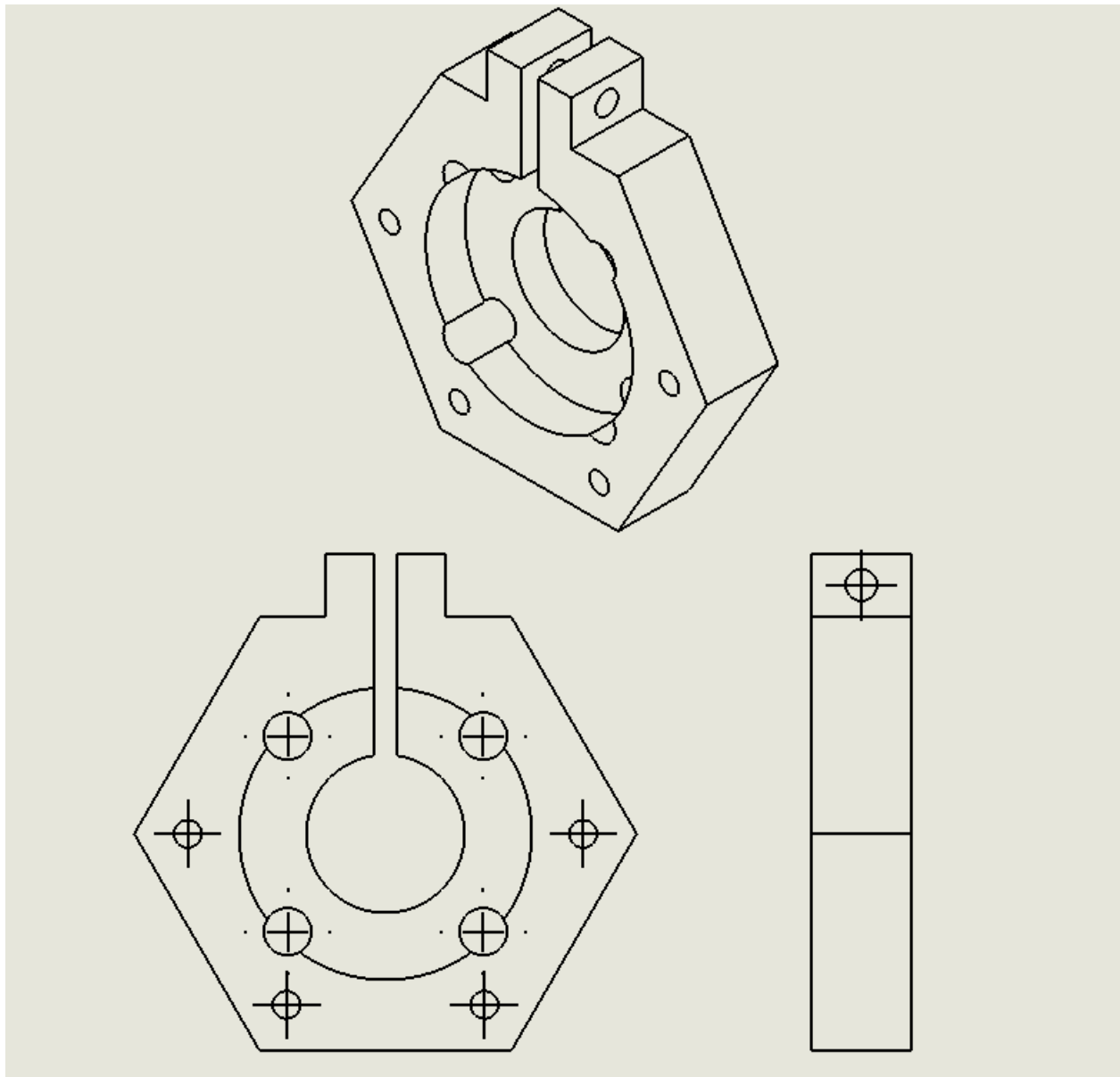


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[1] Abstract

The part will initially come in the form of the stock material resembling that of a large rectangle. A bandsaw will be used to cut up the stock material into a 3*3*1 inch cube (length, width, height). A CNC milling machine will then be used to cut out the remaining material to create this part. The CNC machine will need to be used twice per part because not all of the features are on the same surface.

[2] Bandsaw


The stock material will be cut using the horizontal bandsaw into approximately 3*3*1 inch cubes (length, width, height). The minimum cube should be a 2.5*2.48*0.5 inch cube, the exact dimensions of a cube that could perfectly envelop the part.

[2.1] Potential Problems

- **Vice length:** the stock material might need to be cut up beforehand if the vice cannot hold the initial size.

[3] CNC Mill

The part will be machined using a CNC milling machine and the g-code will be created using Fusion 360. The part will need to go through the CNC mill twice because while most of the features are on the same face, there is a through hole on the side of the part, which cannot be drilled without reorienting the part. The machine shop has a document showing the steps of how to operate the machine (in References). For more specifics, reference

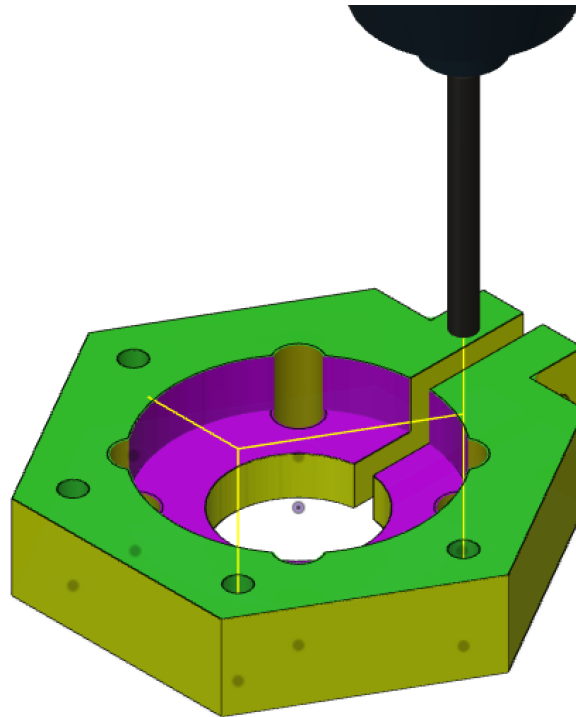
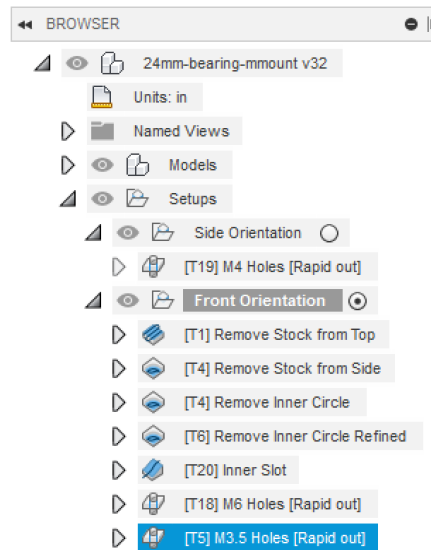
 [SW to CNC Machining the 24mm Bearing](#) .

[3.1] Current Problems

- **Slot:** the machine shop doesn't have the correct end mill diameter. It only has 1/4" (~6.35 mm) and 3/16" (~4.76 mm) flat end mill, while the slot needs a 0.118 in (~3 mm) diameter flat end mill with a flute length of 0.5 in. We will need to buy our own.

[3.2] Other Considerations

- **Which mill:** the machine shop has the [Tormach PCNC 440](#) (light-weight CNC mill) and the [Hass Mini Mill 2](#) (industrial CNC mill). If the material used is aluminum 1060 alloy, both mills can be used.



[4] References

- <https://sites.google.com/a/eng.ucsd.edu/mae-machine-shop/home?authuser=0>
- MAE CNC Machining
- SW to CNC Machining the 24mm Bearing
- <http://www.raygirling.com/dpspeed.htm>