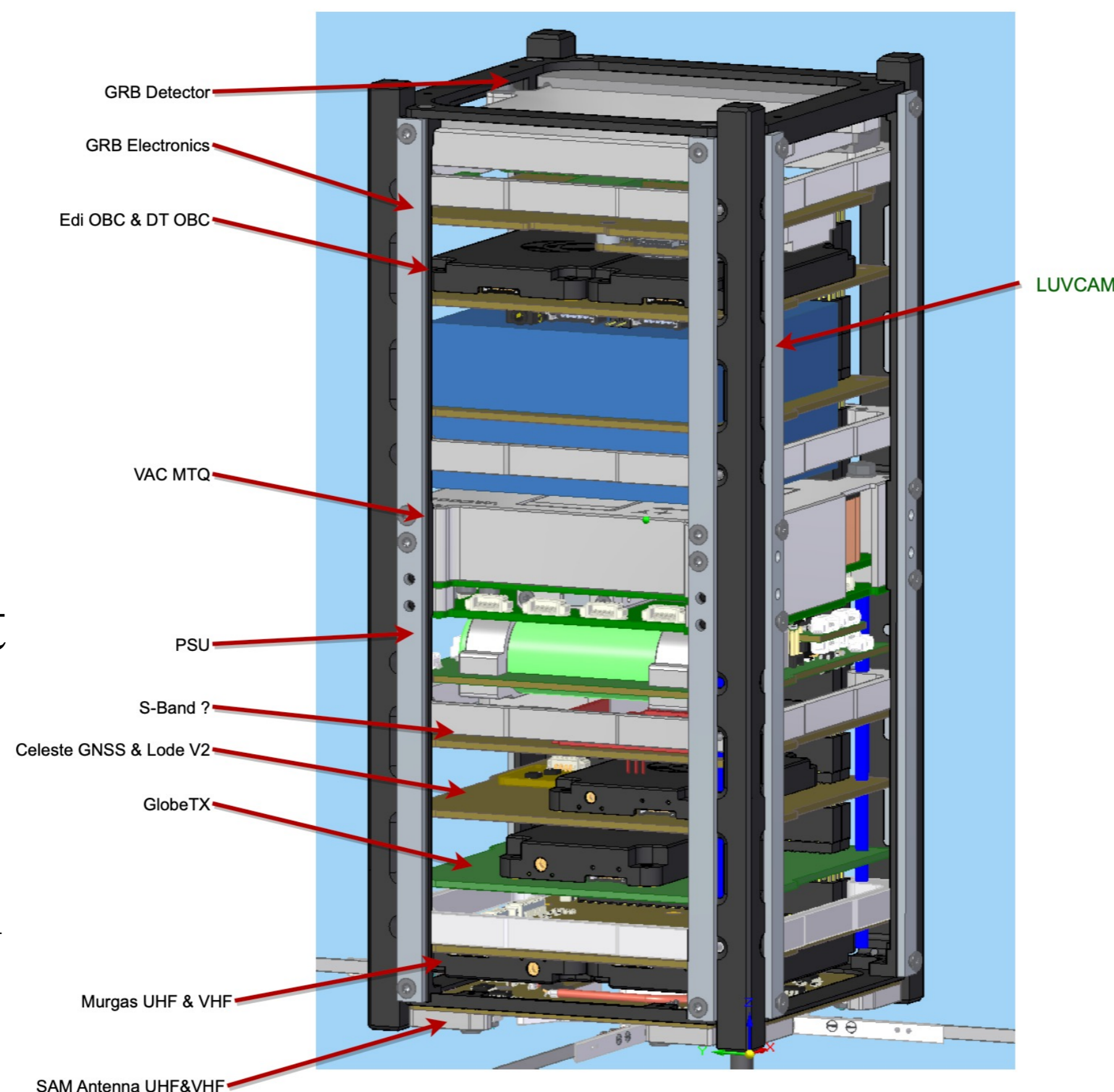




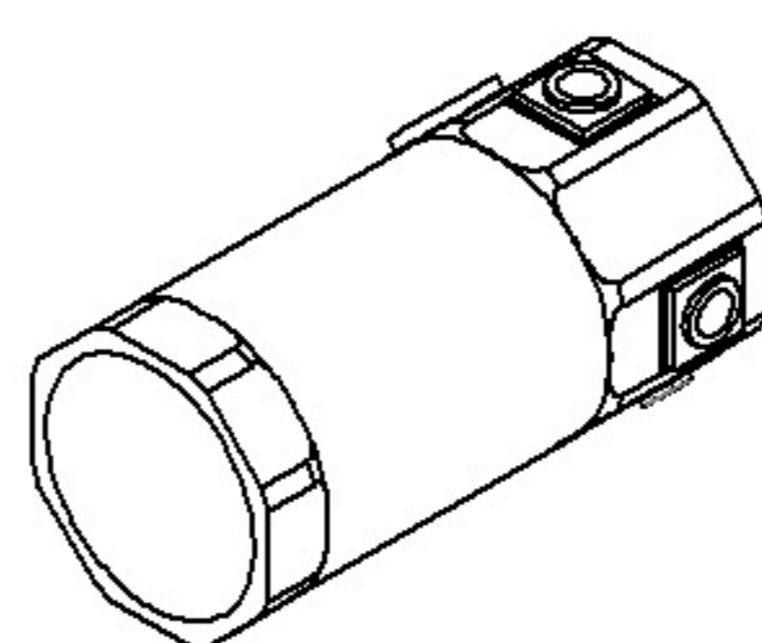
What is LUVCam?

Little UV Camera.
A UV to near IR (200 – 900 nm) camera capable of large format, low noise, high sensitivity, space-grade camera system to enable low-cost ultraviolet and visible astronomy missions and broaden our astrophysical horizons.

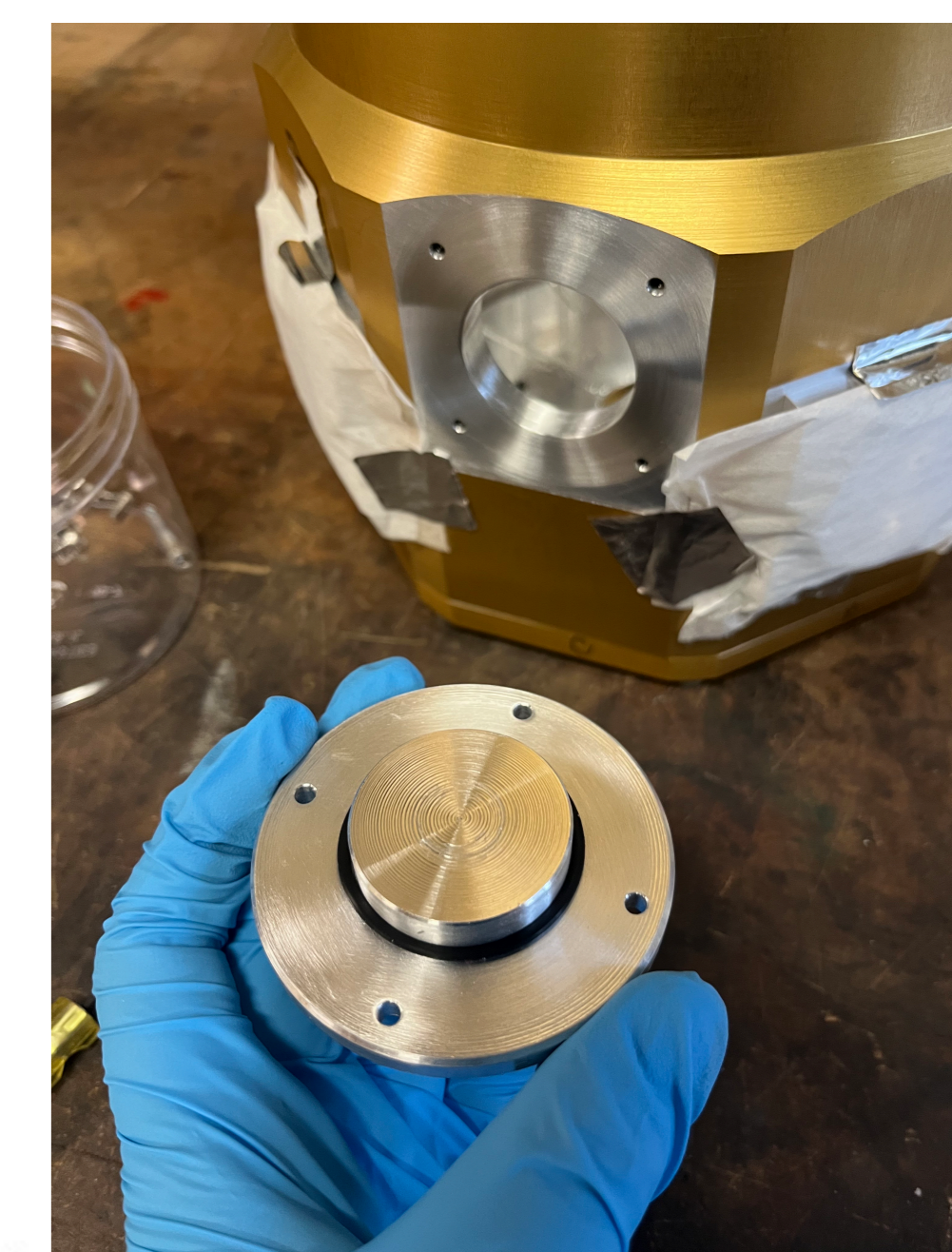
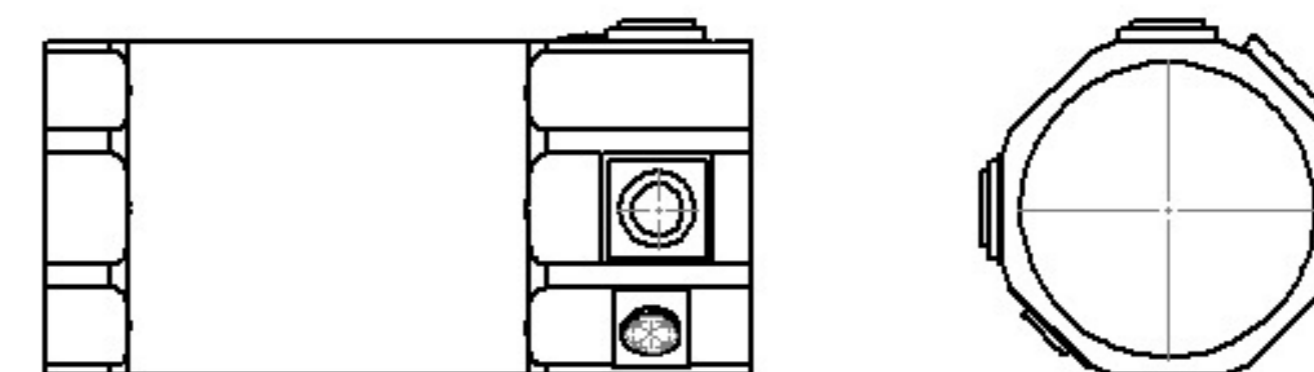


Planning to fly on a 2U cubesat in 2024 with the Ariane-6 launch. We have developed a mechanical design for the camera package and have carried out a detailed thermal design. The camera system will undergo TVAC and vibration tests prior to integration. An engineering-grade sensor will be used for this mission. A successful flight will bring our instrument package to TRL-7.

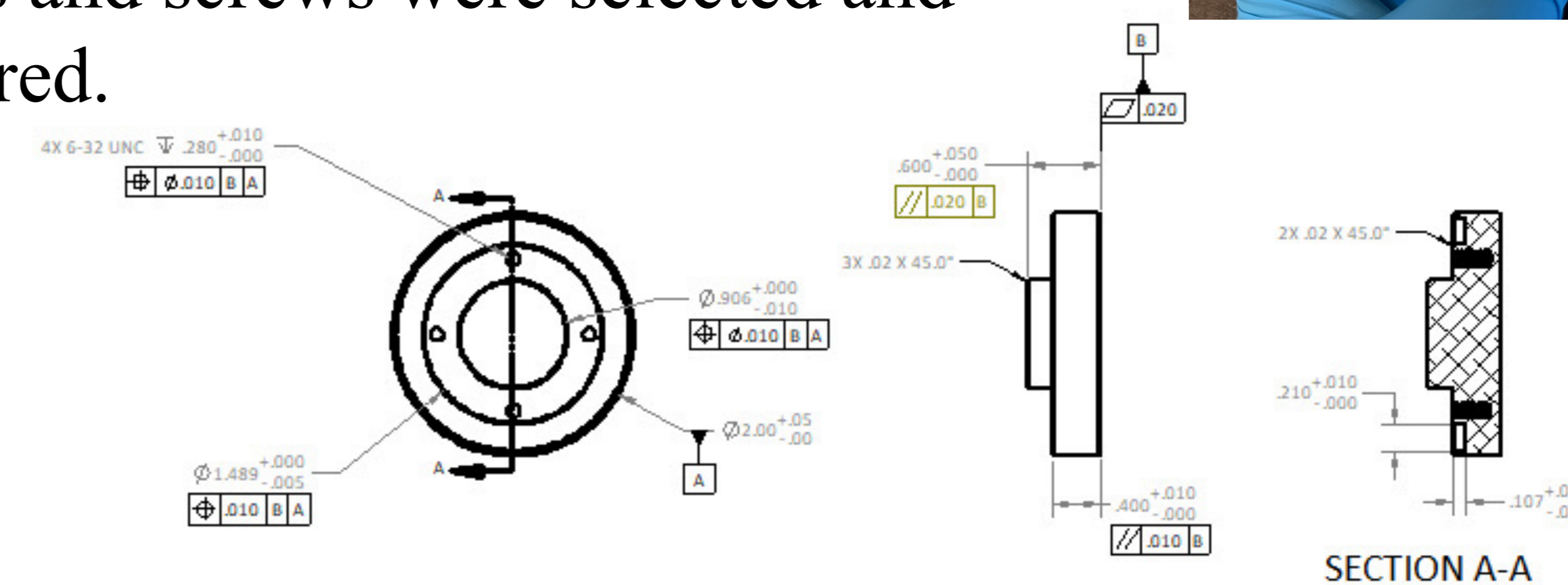
Vacuum Chamber – BabyVac



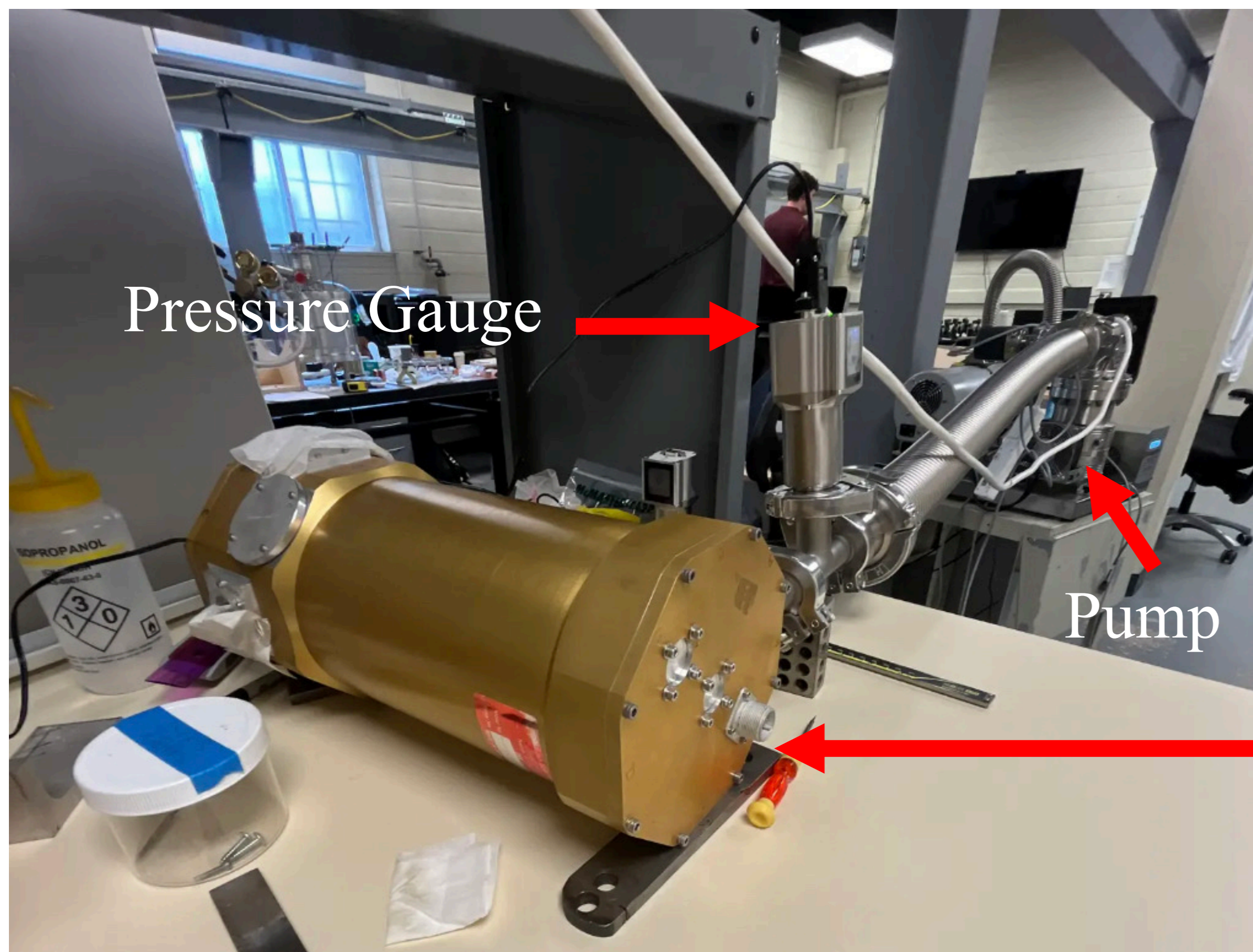
The chamber is made up of 3 components; the lid, the base and the main frame. The frame includes 3 windows and 4 additional pass-through holes, of mixed sizes.



Step 1: Assess the openings and manufacture stoppers for the lid. These were originally made in soldworks, 3D printed then machined. In parallel, O-rings and screws were selected and ordered.

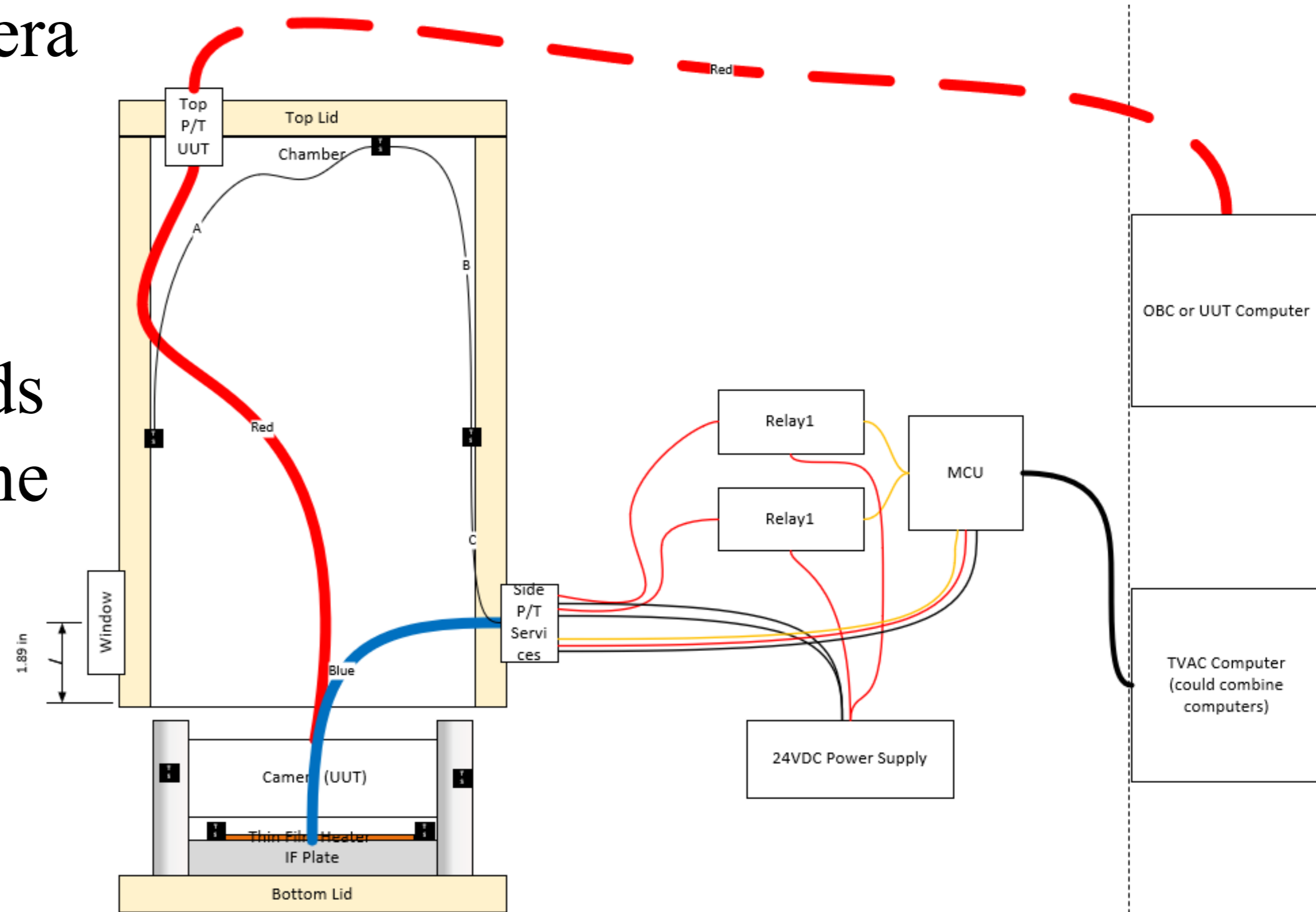


Step 2: Clean the chamber and pump down to E-5. Within this, the chamber was leak tested with hydrogen. This discovered that the lid and base O-rings are too big for the created groove. Therefore, not holding the outlined pressure.



In order to connect with the camera all data and power lines must go through vacuum pass throughs. When the test unit is bottom loaded, all temperature commands will come through the side and the camera wiring in the lid.

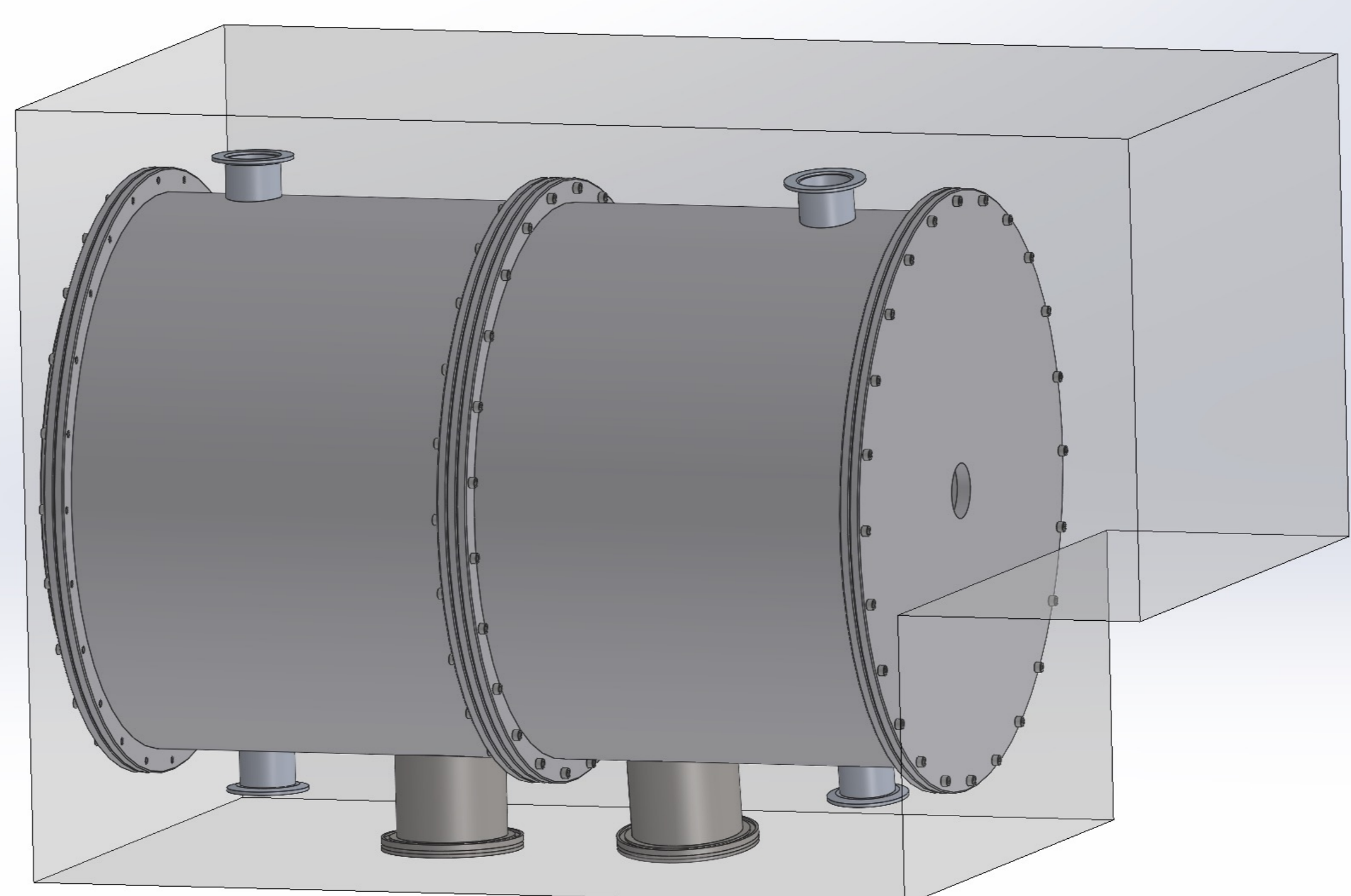
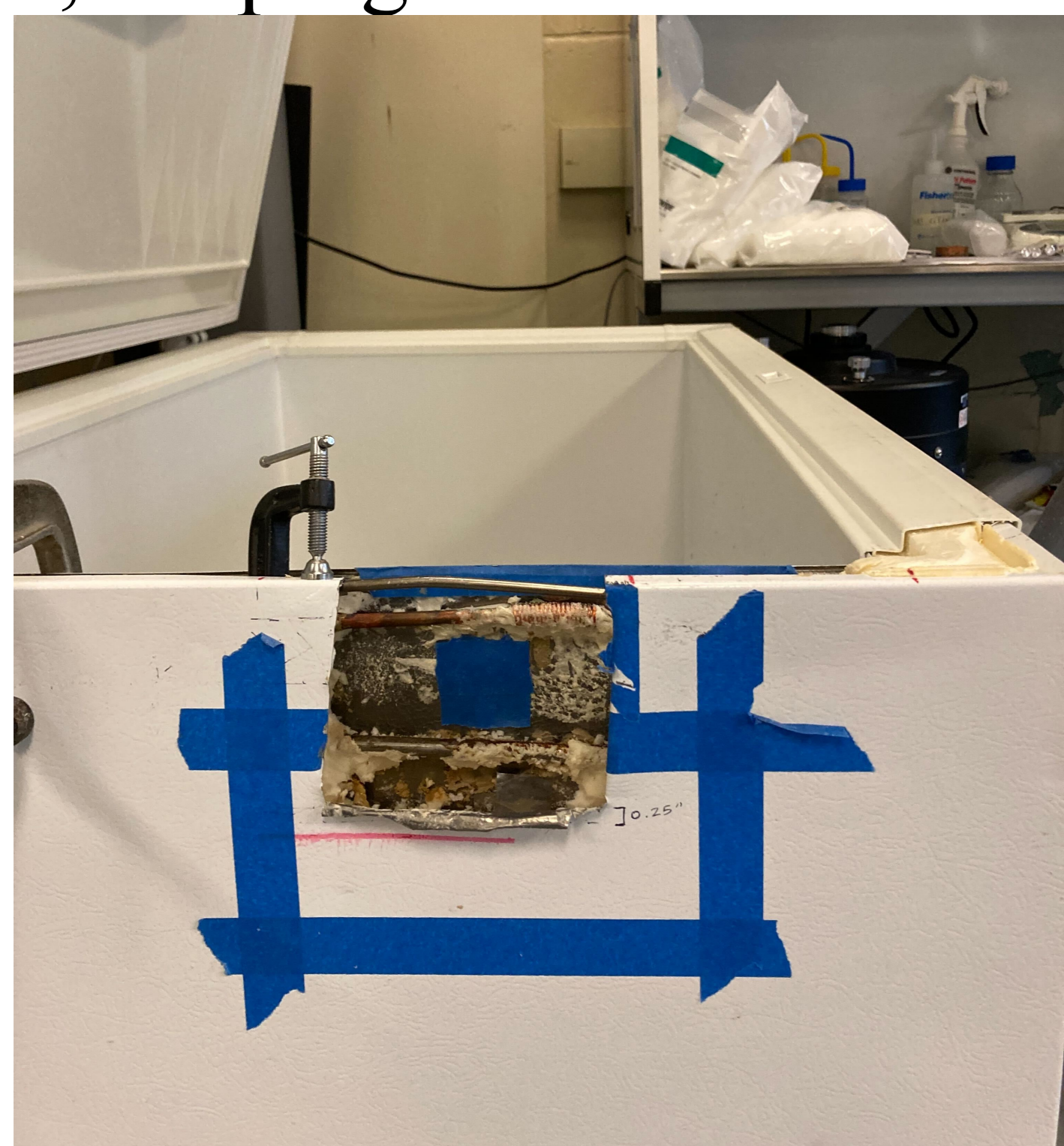
Available Pass-through & lid.



** Pass through layout.

Thermal Cycling

In order to maintain controlled external temperatures, the chamber will sit into a larger chest freezer. Then the team plans to add internal strip heaters. In order to create the intended set up, a hole had to be cut into the side of the chest freezer, keeping in mind where the coolant and return lines are.



** CAD of a larger chamber model.

About the Author

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