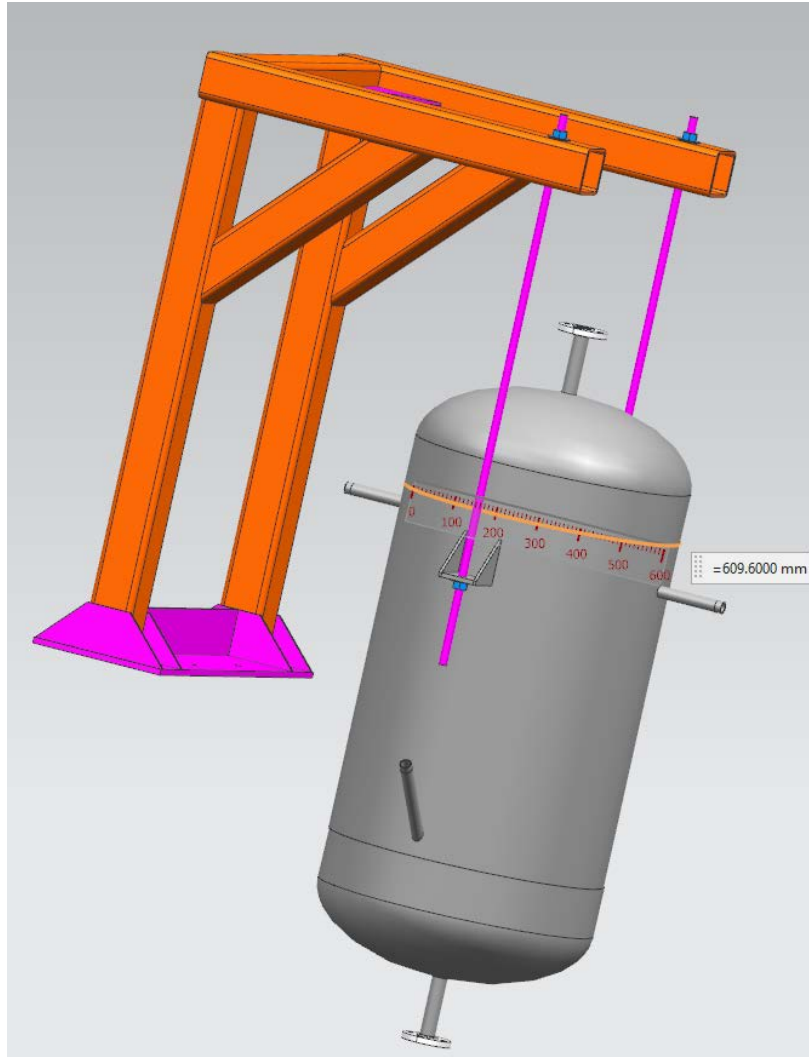
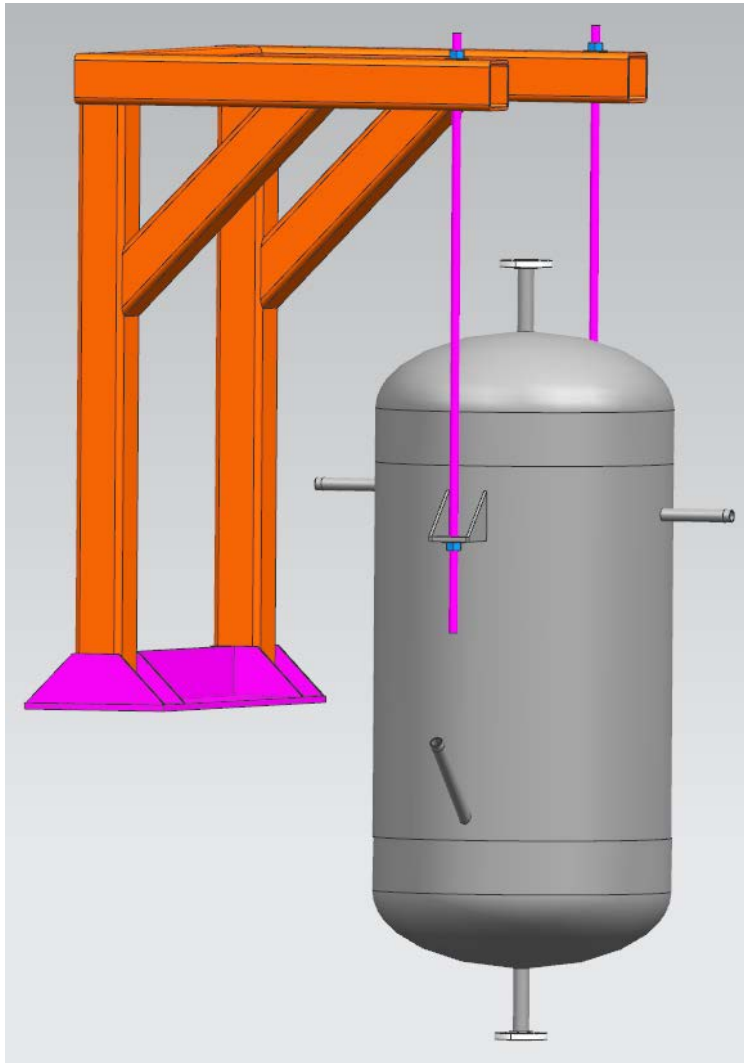


Cryogenic Equipment Sizing and Locations

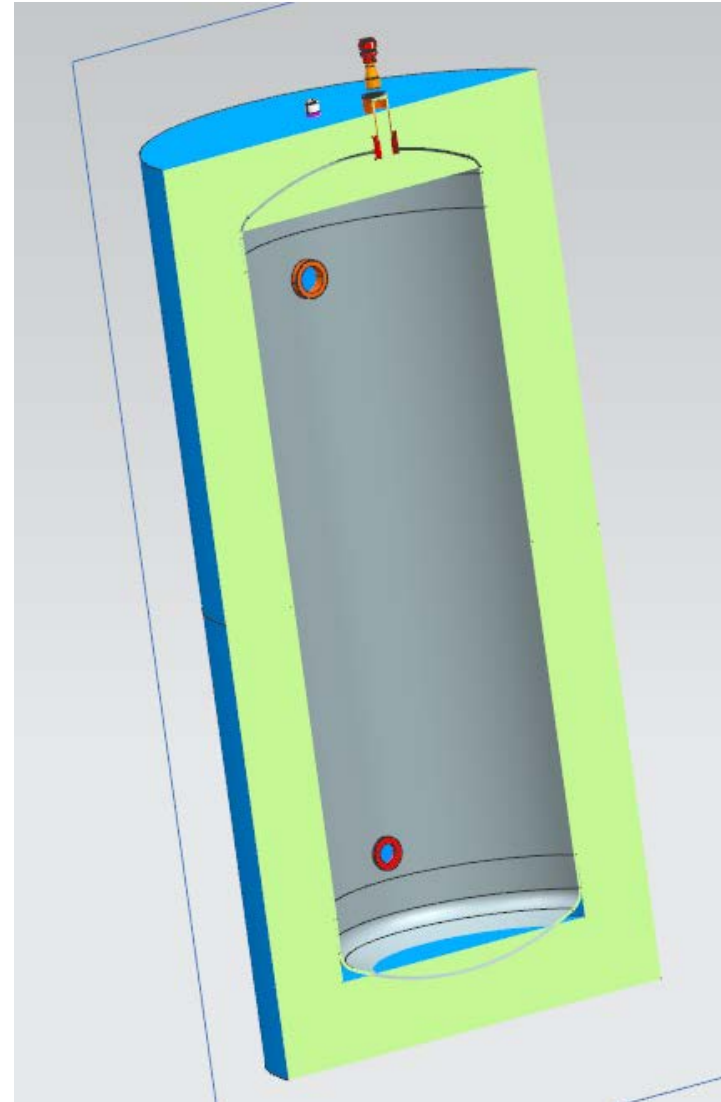
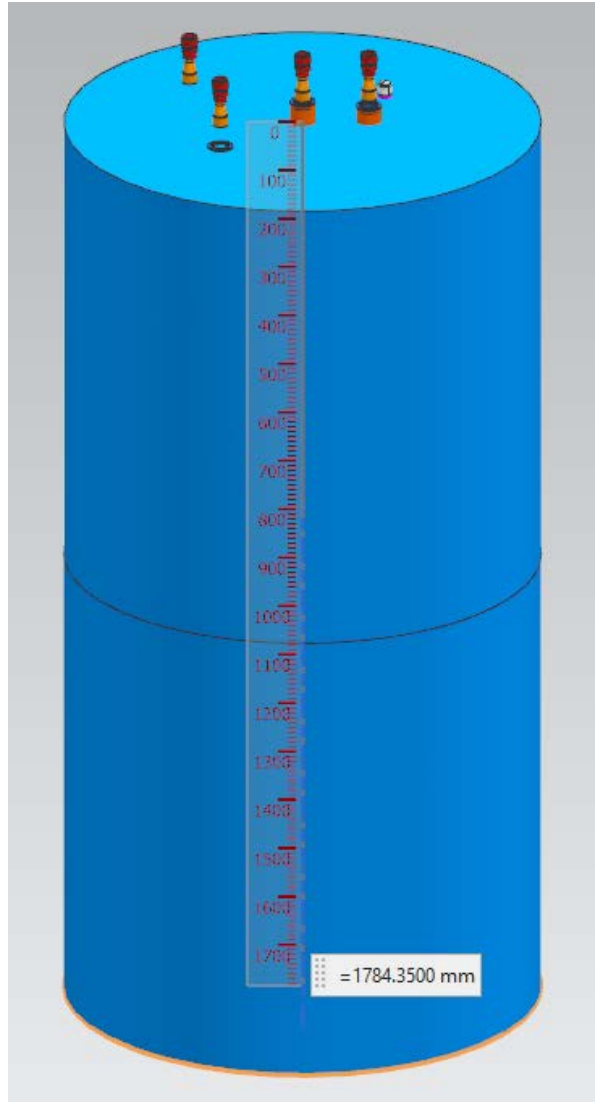
Mike Zuckerbrot, Kathrine Cipriano, Min Jeong Kim

LN2 Phase Separator



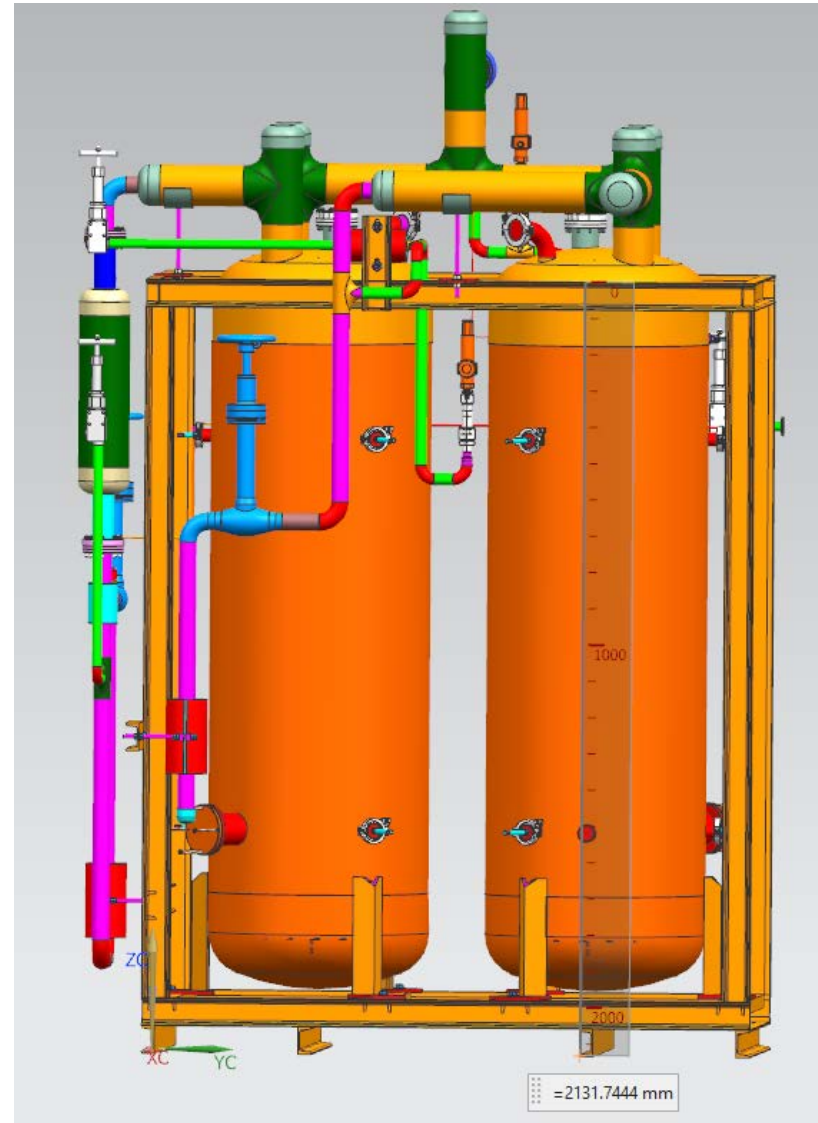
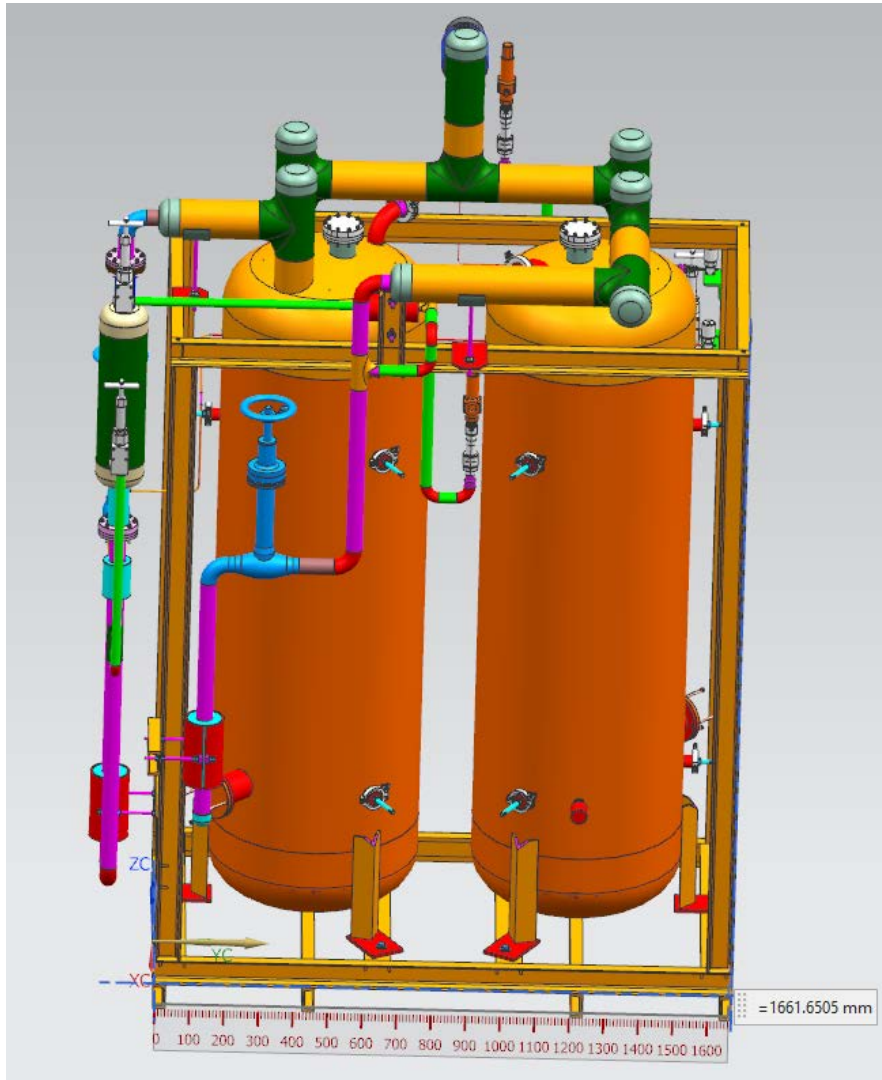
- Increase diameter to 48", increase height by ~1 foot.
- The height and diameter can be flexible, the total volume is what's important.
- The support structure in the model does not necessarily have to be duplicated if something else makes more sense.
- This needs to be located at an elevation higher than the cryostat, more specifically it must be above the condenser.

Condenser



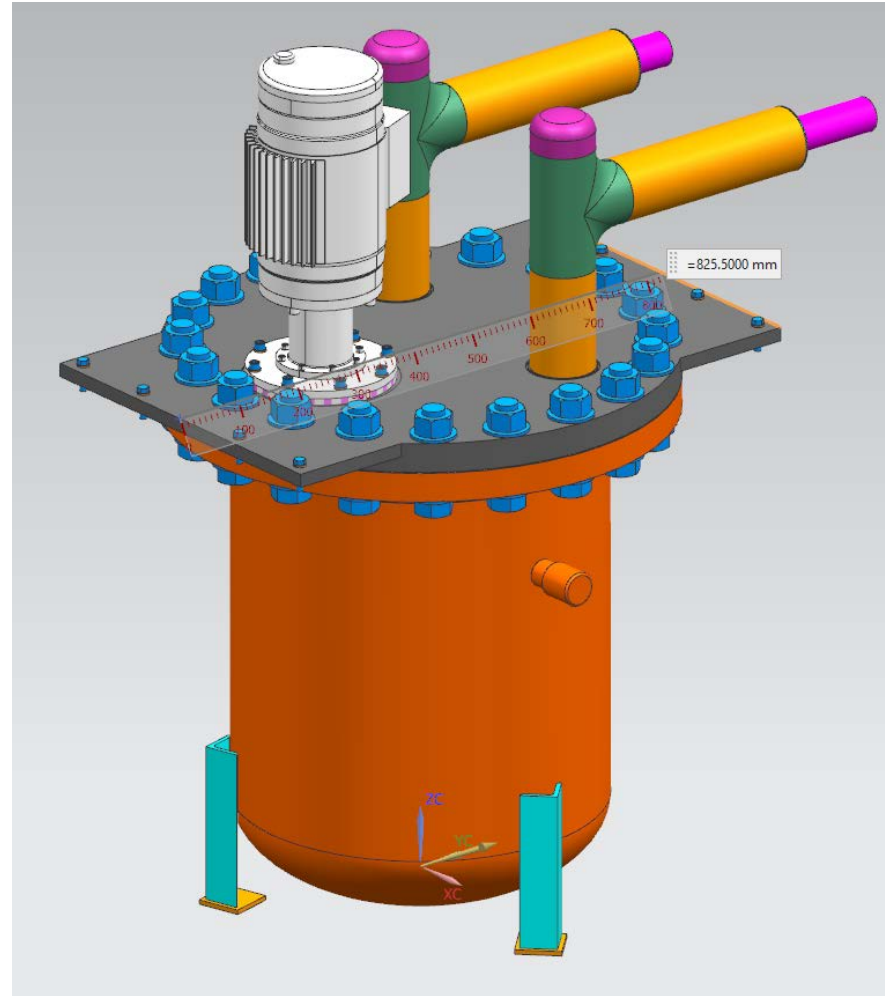
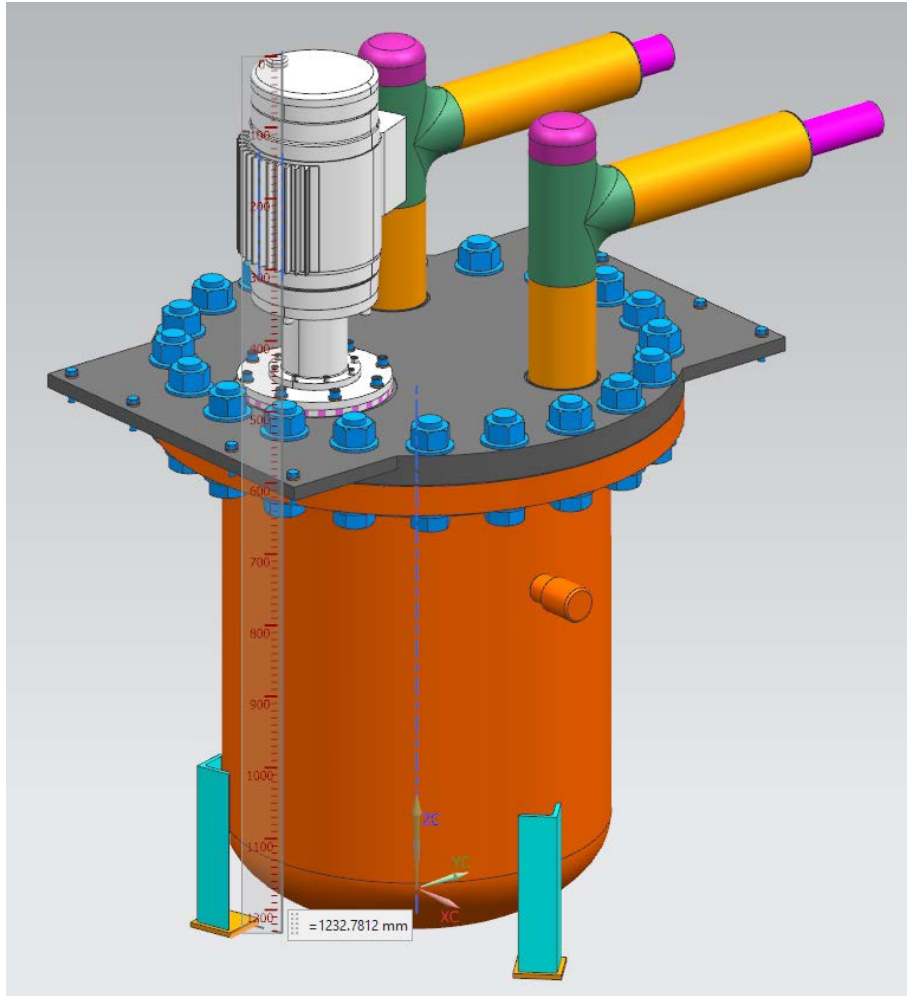
- Increase diameter to 48", increase height by ~ 1 foot.
- Again, dimensions can be flexible if volume is maintained.
- There is also the option to use multiple smaller vessels.
- Location needs to be above the cryostat, and under the phase separator

LAr Filter Skids



- Can remain the same.
- Location is not critical.
- Two of these skids for redundancy.

LAr Pumps



- Can remain the same.
- There should be two of these vessels, mounted on a skid (if there's room), with 3 feet of room between the bottom of it and the floor so the jacket can be dropped.
- Location should be as low as reasonably possible, at minimum half way down the cryostat but the lower it can be placed the better it will run.
- $\frac{3}{4}$ hp motors, 240V