

Megacell testing setup at CERN

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The dewar at building 182

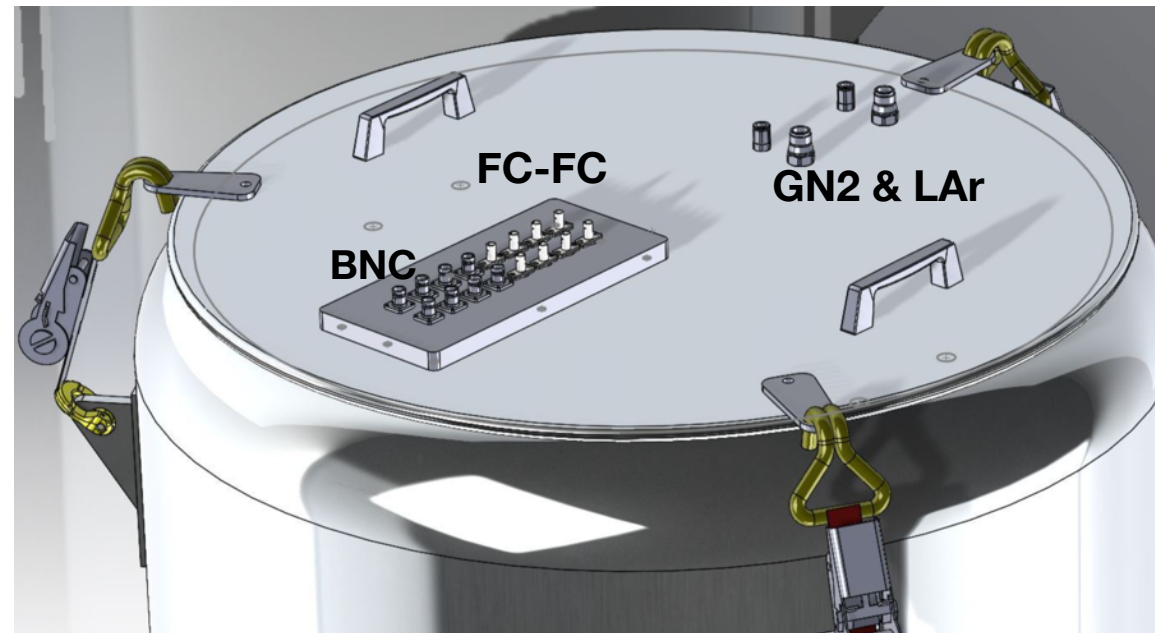
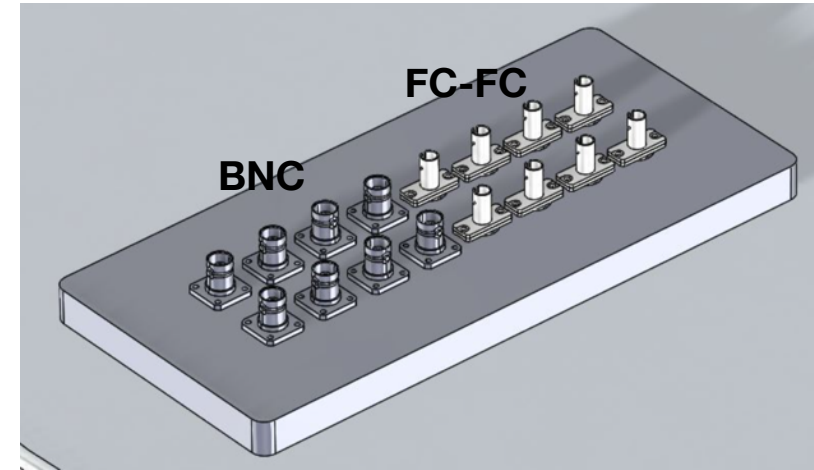
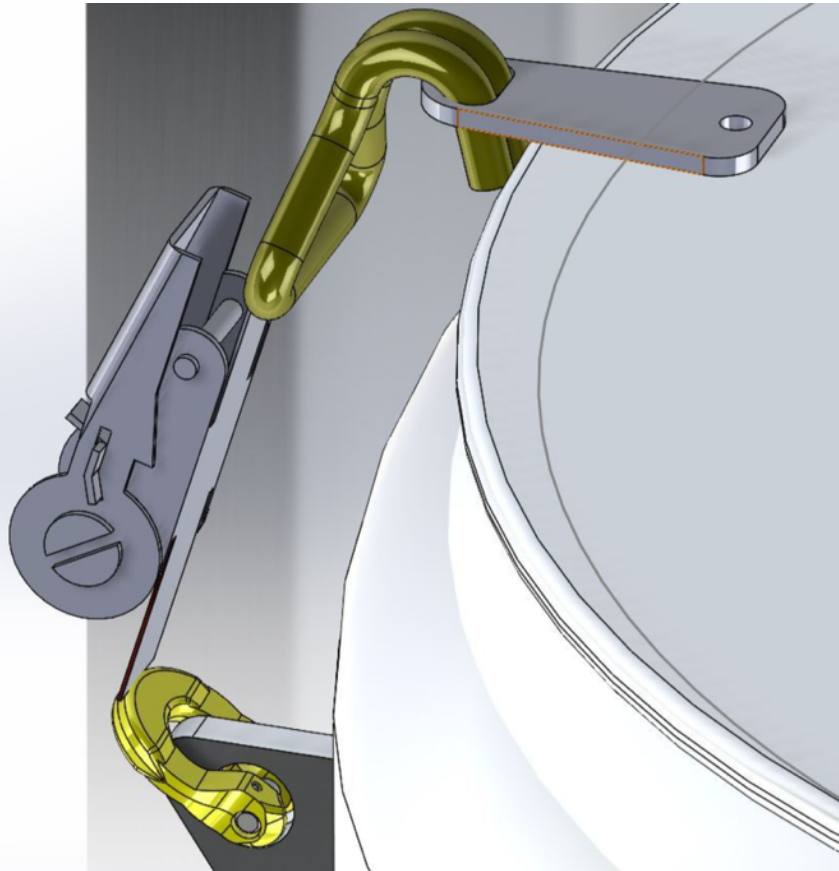
- The dewar has inner dimensions: 70-71 cm diameter and 1220-1210 cm height
- It has been used regularly, so it should have no leaks
- Needs to be cleaned and transported to ENH1
- Francesco is the contact person for that



Top lid design

Jesus Álvarez (IFIC)

- With polystyrene panels below
- Need a FT for temperature sensors
- Need FT for cryogenic pump



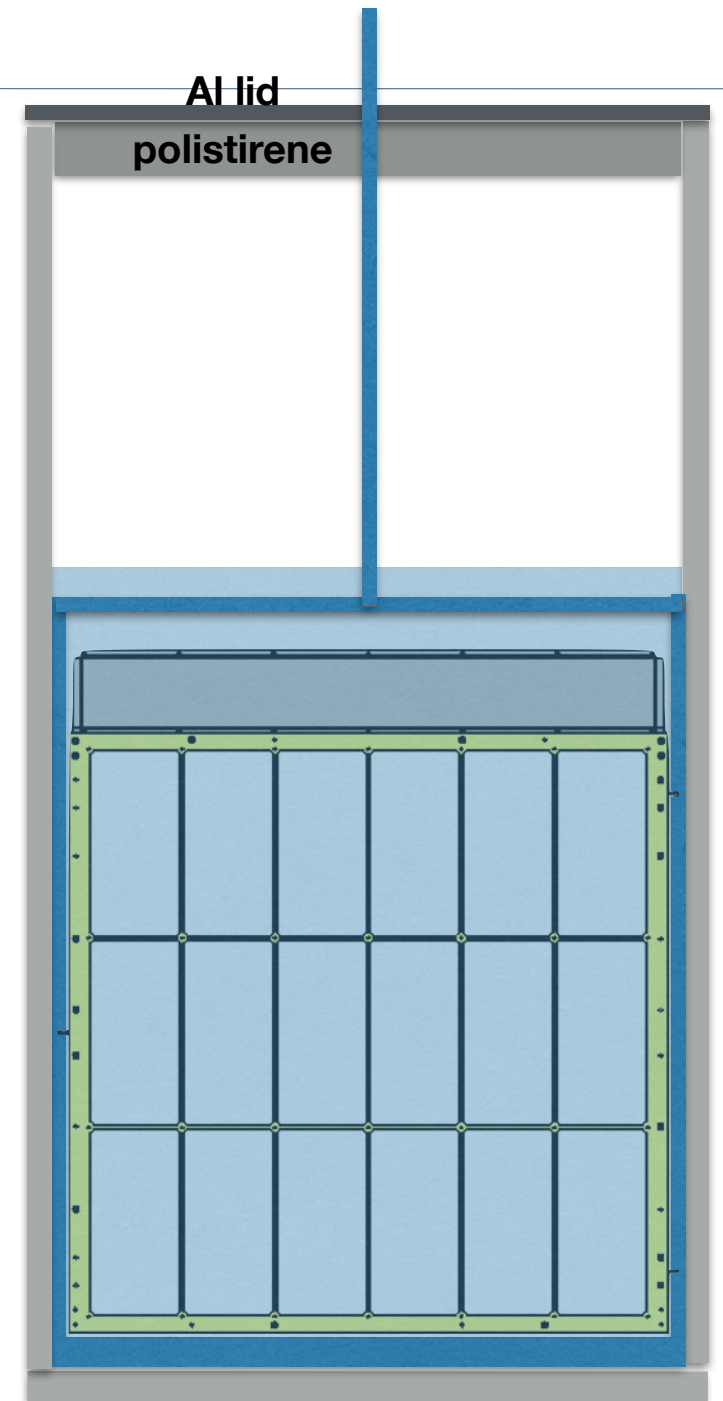
Cryogenic pump

- Pump available at 182
- 118 cm height
- 4 cm diameter tube



Support for arapuca

- Support for x-arapuca (blue)
- To be designed by module designers

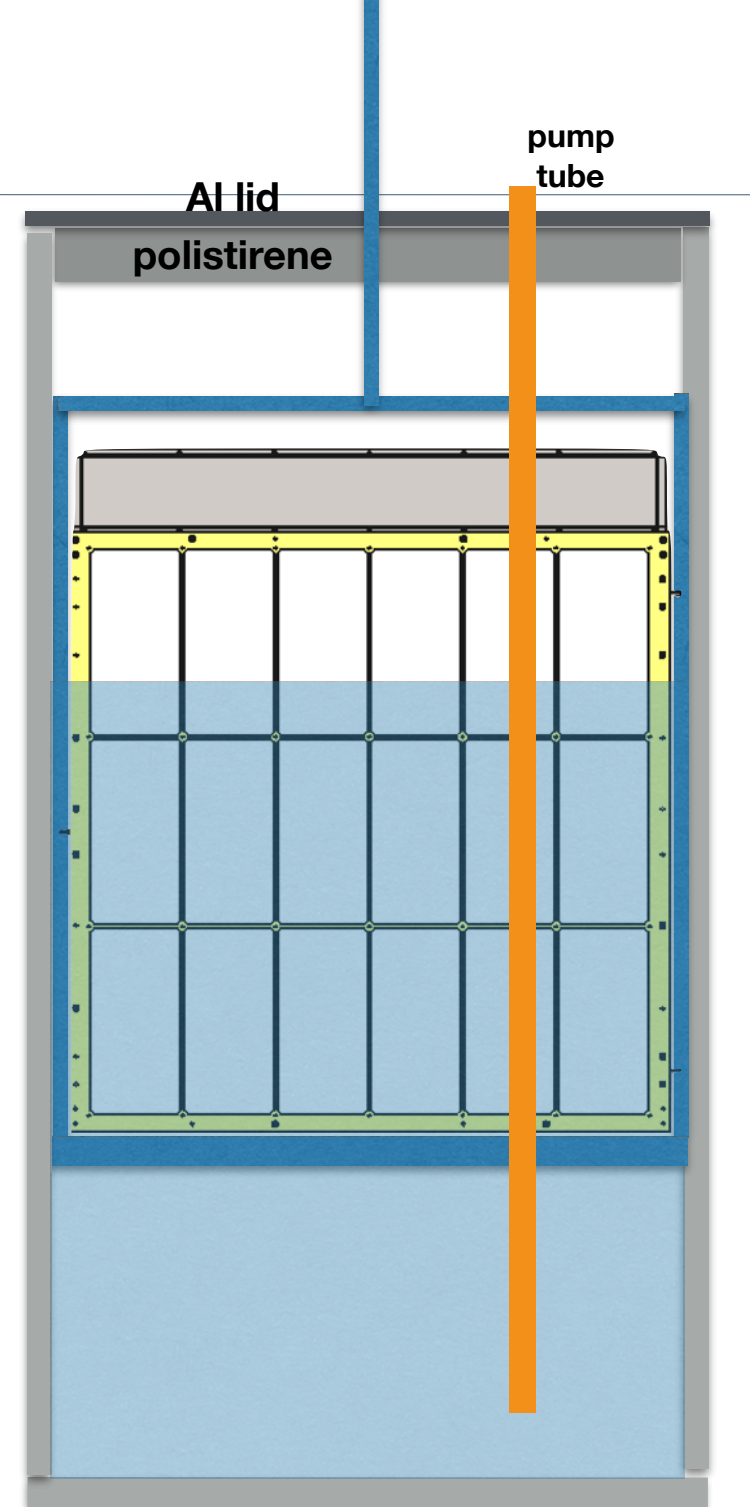


LAr needs

- CERN can provide LAr in a ~300 l ranger (need exact capacity)
- We need ~80 cm height LAr column
- No additional considerations
 - 80 cm of LAr in a cylinder of 70 cm → 300 litres
 - We need two rangers per module
- Can use the cryogenic pump to move LAr from a dewar to another
 - The pump creates turbulences
 - If filters are not installed and electronics is taken out of LAr before connecting pump, this might be OK

Pump usage

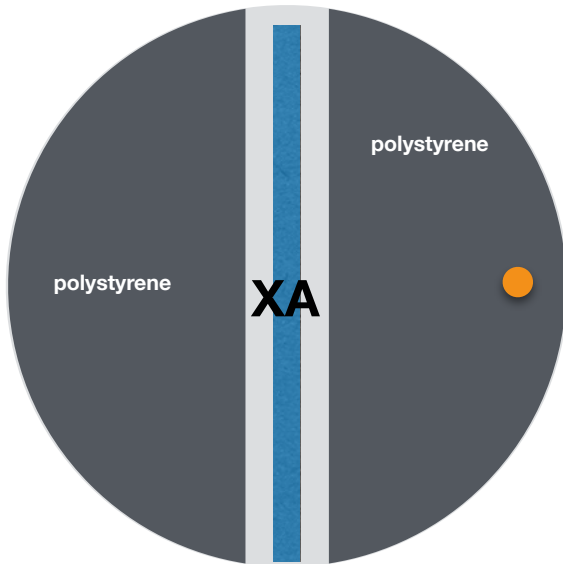
- Take out slowly from LAr
- Once electronic box outside LAr use the pump to transfer LAr to another dewar



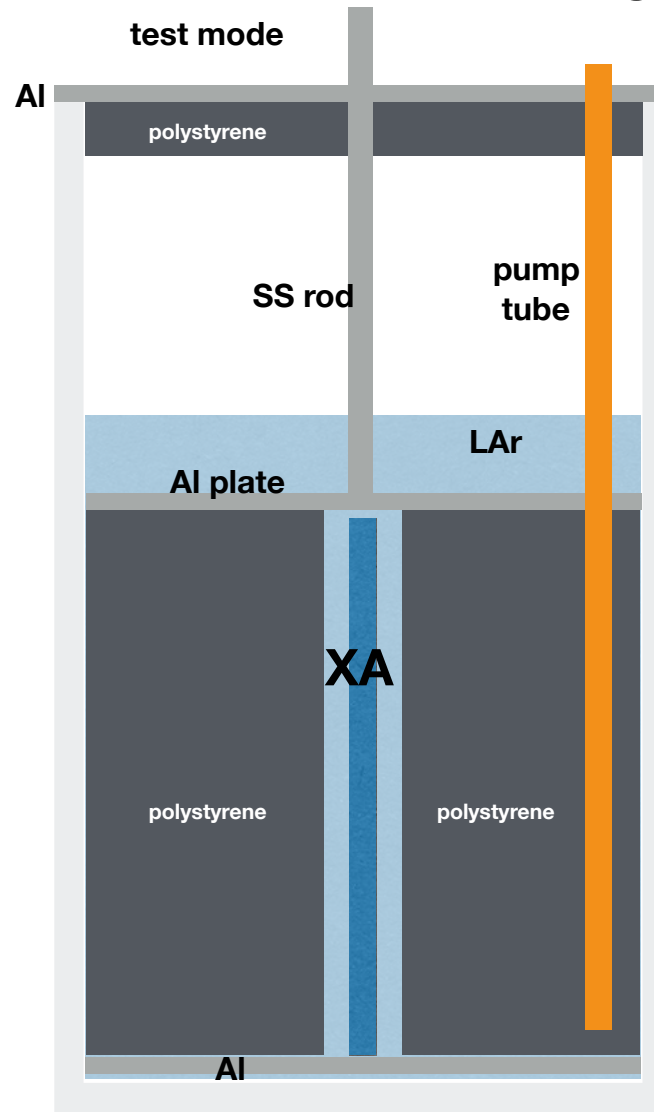
Other options I

- System with polystyrene volume to reduce LAr usage and allow XA outside LAr
- Buoyancy problem
- Complicated !!!

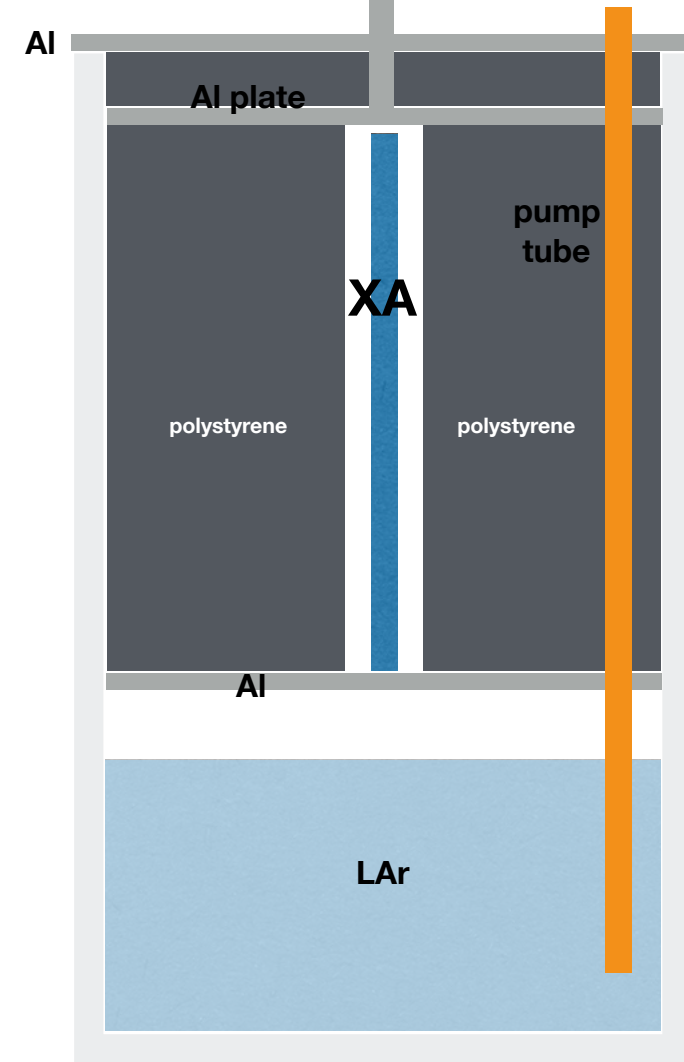
top view



side view

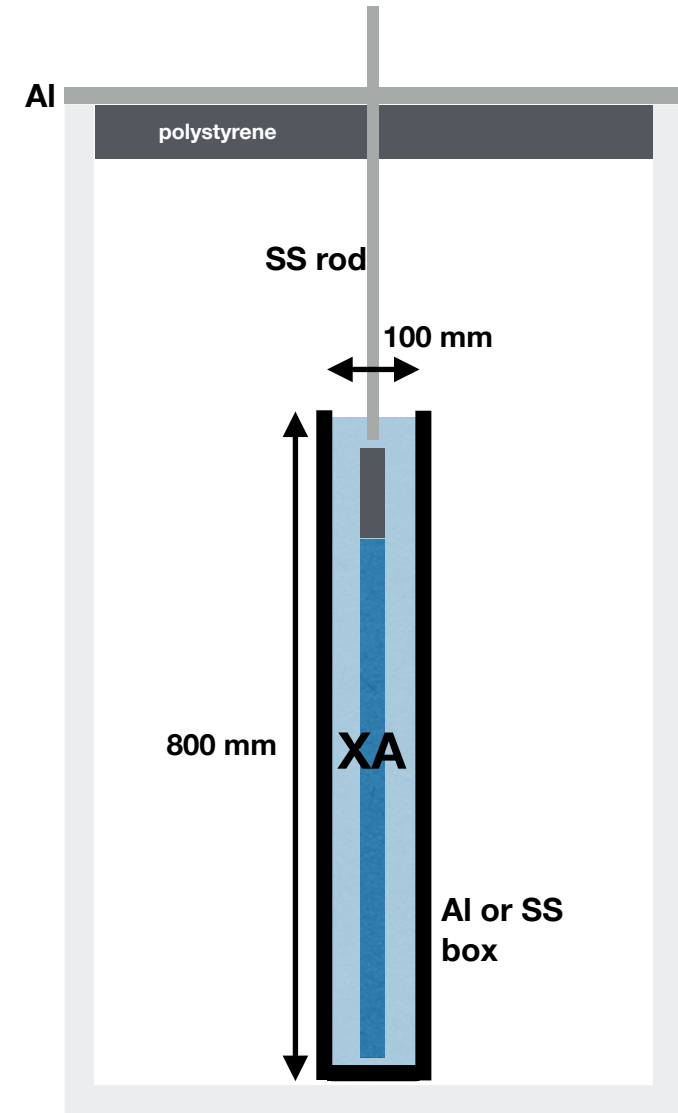


cooldown & warmup mode



Other options II

- Reduced volume: $10 \times 70 \times 90 \text{ cm}^3$
 - 63 litres
 - Use a heater to evaporate LAr
- Fabricating this box would imply welding
 - Do we have time to fabricate that ?
- How do we cool down slowly?
 - Some LAr in the main volume with empty box?



Timeline and action items

- The system must be at CERN early December
- IFIC can fabricate the lid
- Need responsible for ARAPUCA support
- What about the box if we decide to go that way ?