

# Megacell testing setup at CERN

Status and plans

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# Test Overview:

Testing each X-Arapuca with the front-end electronic integrated right before the installation in NP02 (Module-0).

- A total of 16 megacells have to be tested and installed.
- The main test purpose is to check for electronic integration integrity (connections, bias, PoF, SoF... )

Test will be performed in EHN1, using a big dewar with Liquid Argon

(Dichroic filters will not be in place to avoid damaging during test).

# Setup Overview:

## Structure setup:

- Location at EHN1
- Support to hold and move the lid with megacell
- Structure to cover and maintains the working area clean

## Dewra setup:

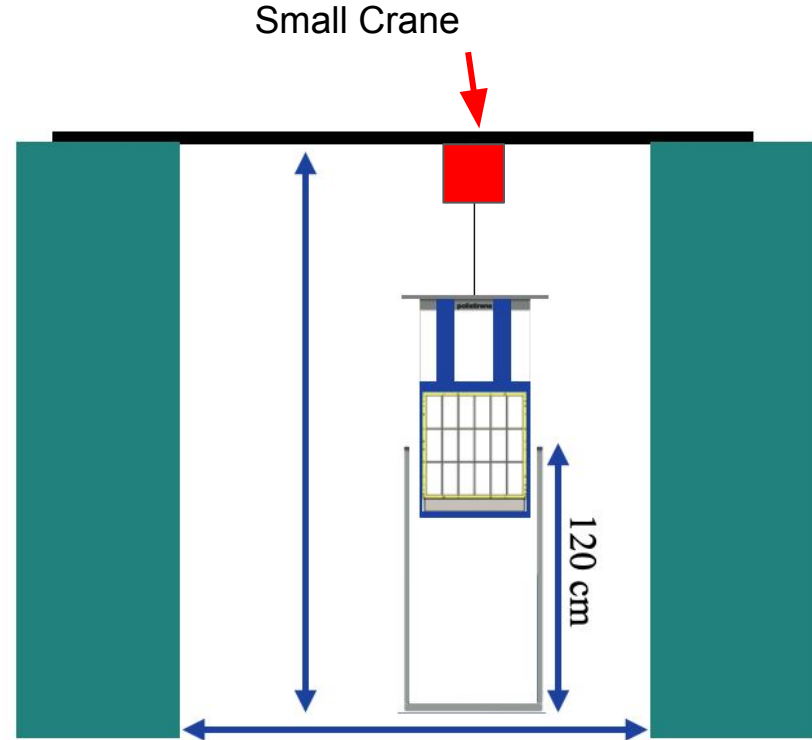
- Dewar
- Inner box
- Lid
- Megacell support
- "Skirt" for N2 flushing and N2

## Readout setup:

- Calibration LED
- Electronics
- PoF setup

## Operations:

- Protocol for testing procedure



# Structure setup

Delimited space in front of the PDS room in EHN1 have been found.

Two concrete blocks have been moved in place and a steel beam fixed on top.  
259 cm height 205 cm wide

Small commercial crane would work for us, need to buy it.

**Decision on the structure to cover and maintains the working area clean have to be taken.**



# Dewar setup

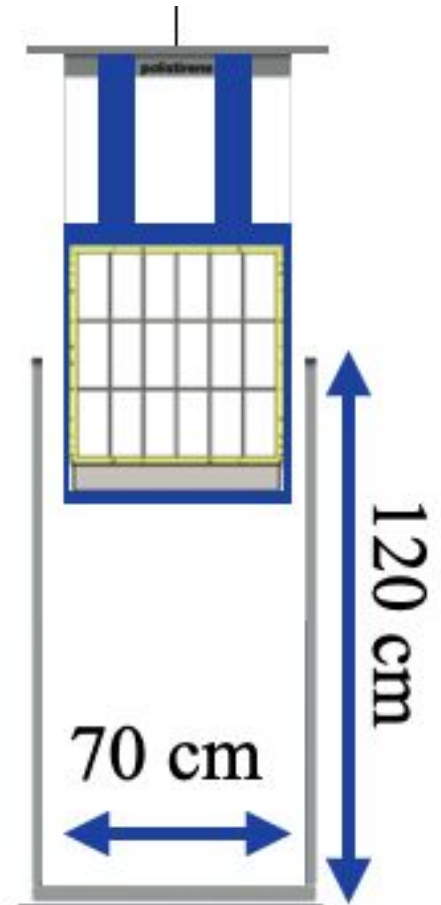
Dewra (D=70cm, H=122 cm) will be moved from 182 to EHN1 next week.

Megacell support design almost done,  
The holder frame is fixed to the lid.

The lid have been ordered, be at CERN Dec 16th.  
Electrical and optical feedthrough.

Internal box sent to CERN.  
To reduce the volume of Liquid Argon used.

To avoid condensation megacell will be covered with a sheet and flushed  
with Gas Nitrogen/Argon, to be define.



# Readout setup

## Calibration LED

- Fiber, LED driver.

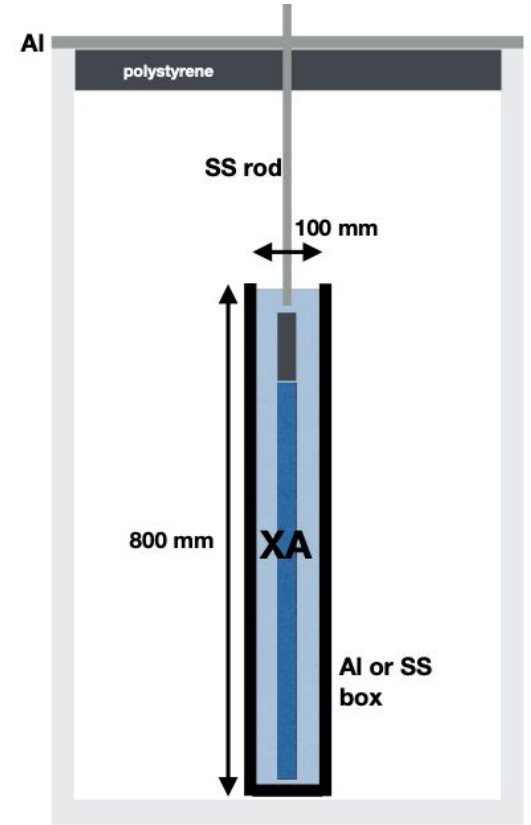
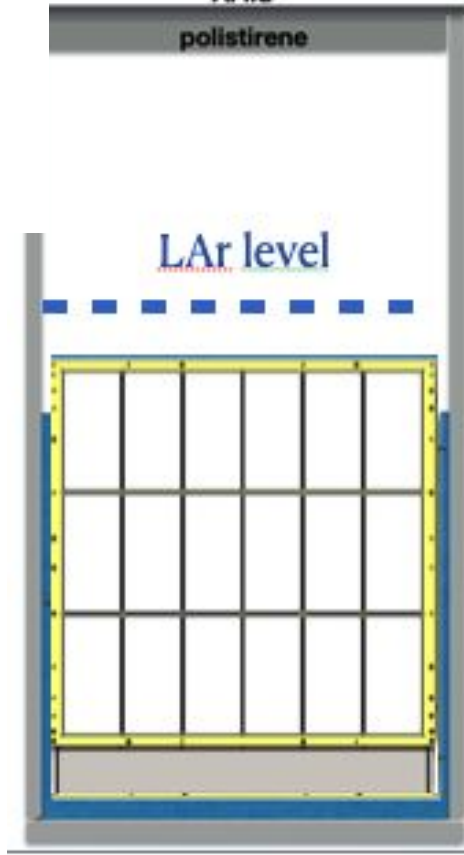
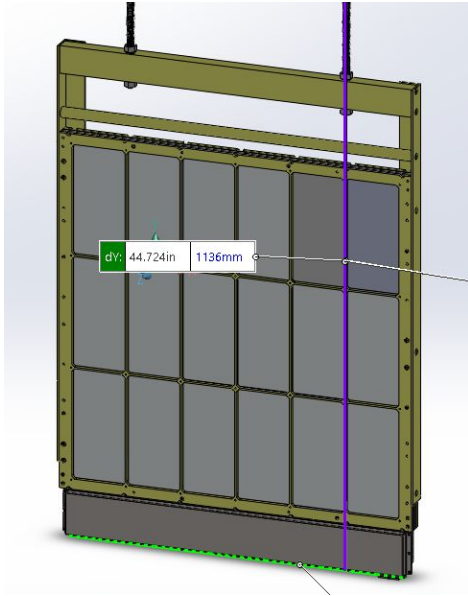
## Electronic tools, power supplies, cables oscilloscope, digitizer, fibers, etc .

- Most can be purchased from the CERN electronic pool.

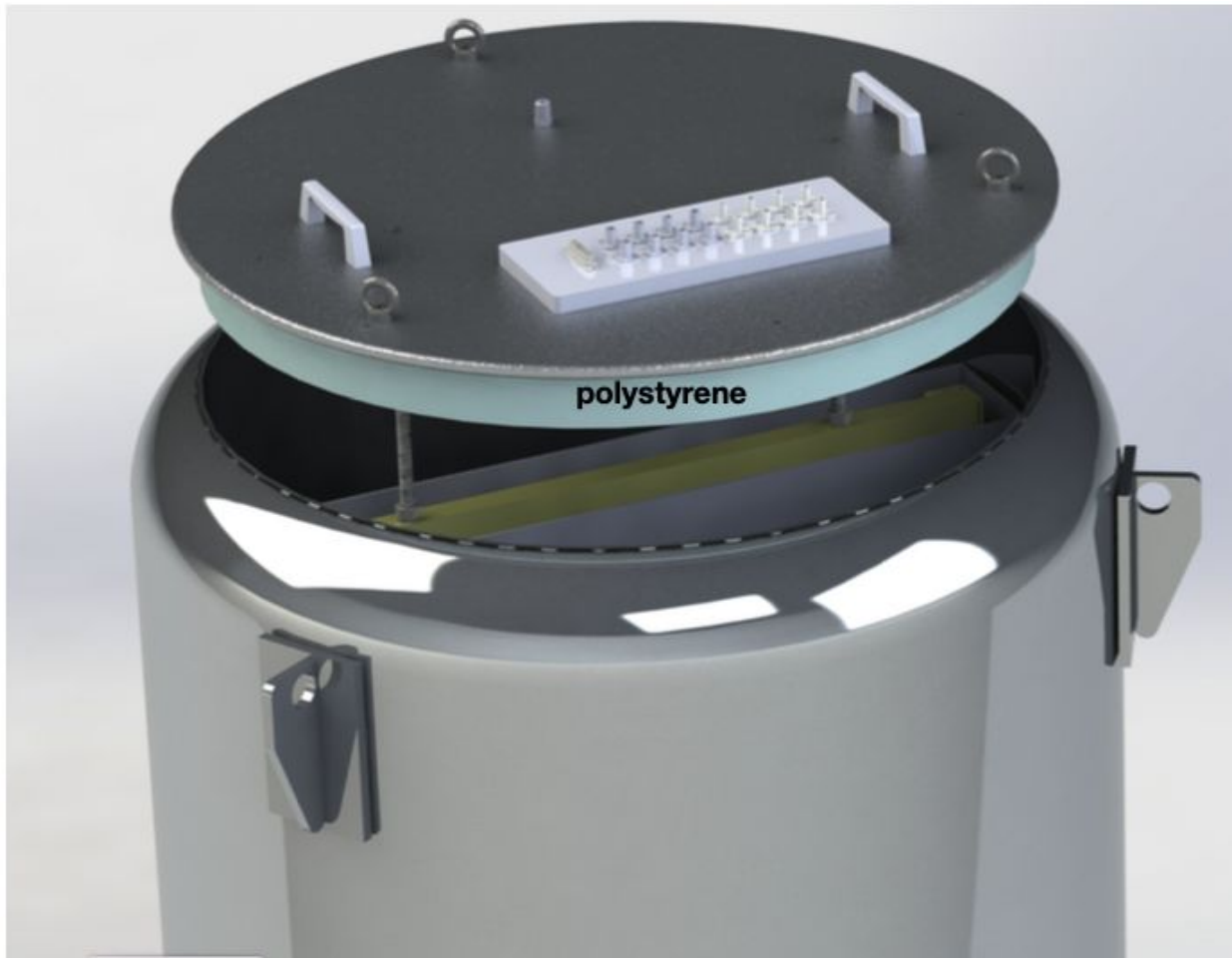
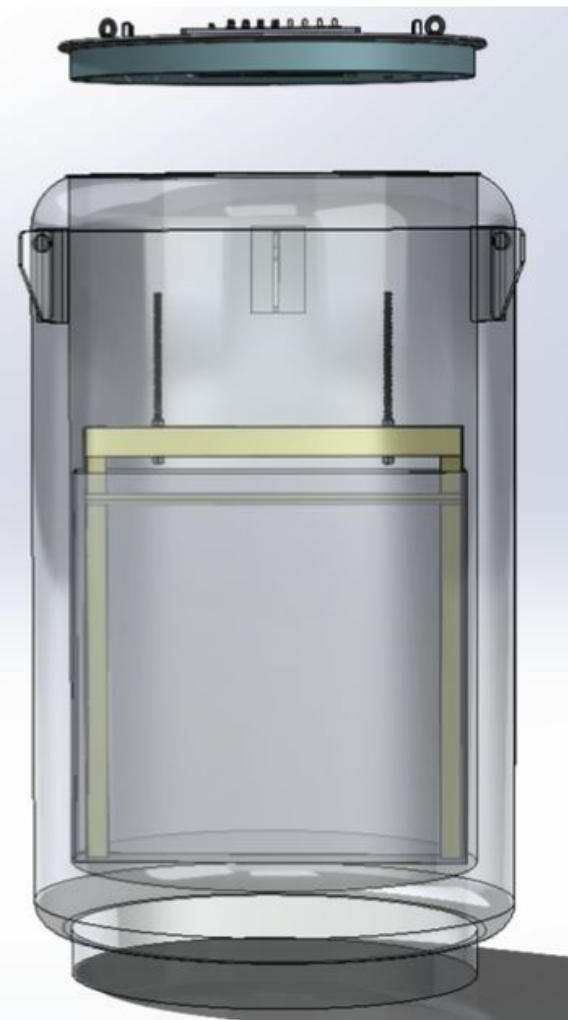
## Power over Fiber:

- Fibers ordered (4 4m and 2 10m)... out from the company on 11/29/22 Tue.
- PoF lasers box dedicated to megacell testing setup.
  - Current at CERN, need to be set.

**VD-PDS Megacell testing protocol in preparation.**



Lid: 12 mm thick AL plate with polystyrene panels below





## Feedthroughs:

- SUBD-25:

(for 6 temperature sensors)

- 8 BNC

- 8 FC-FC

- SWK 1/4" for GN2

