

2x2 pressure test Bern, June 2021

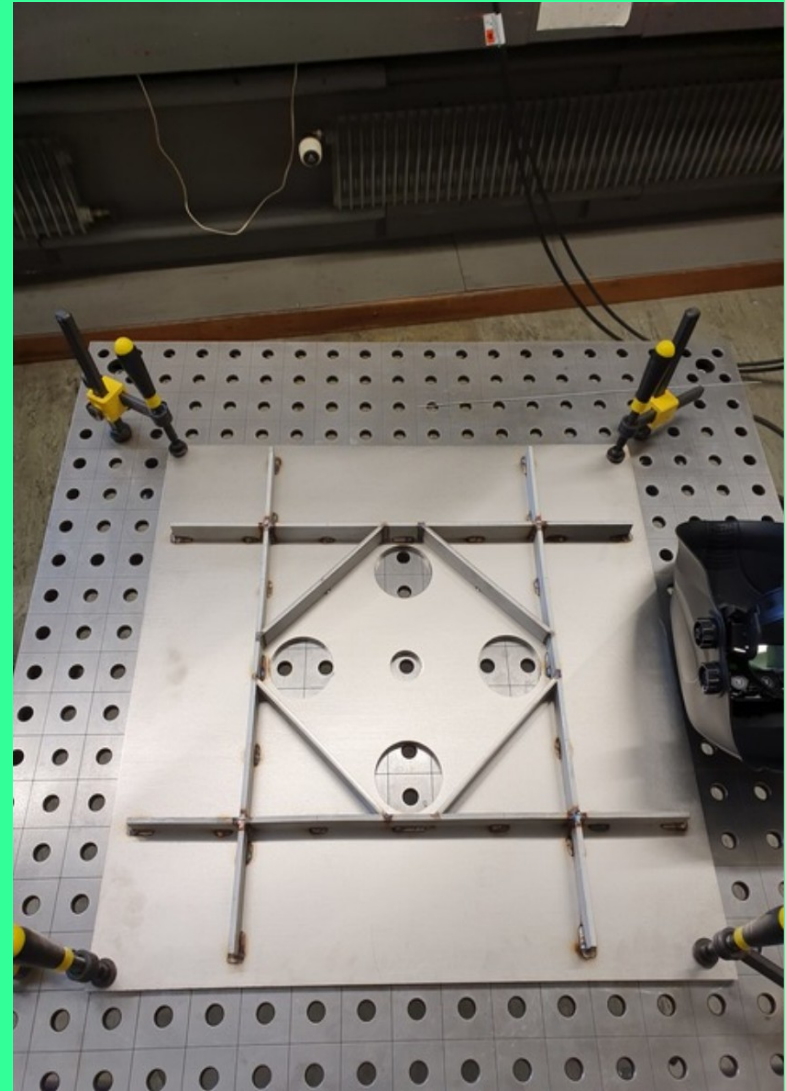
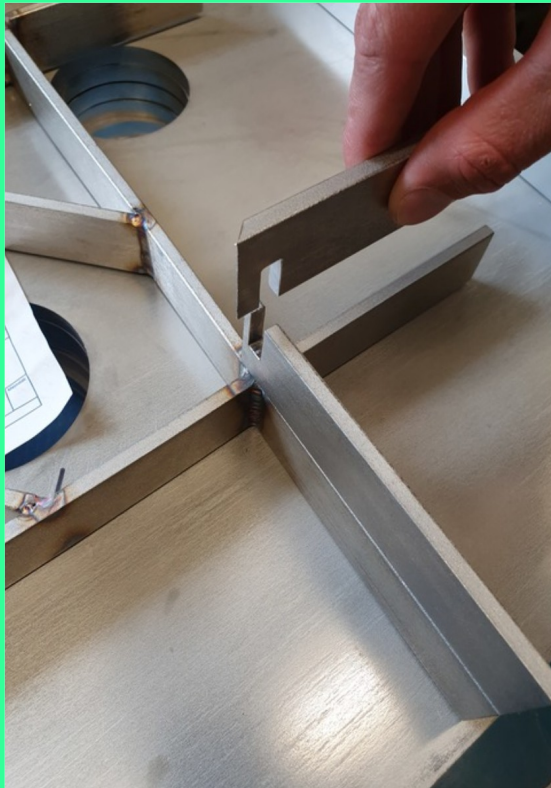


Overpressure test

Planned WAWP - 350 mbar

Test requirement: 4 x MAWP -> 1.4 bar

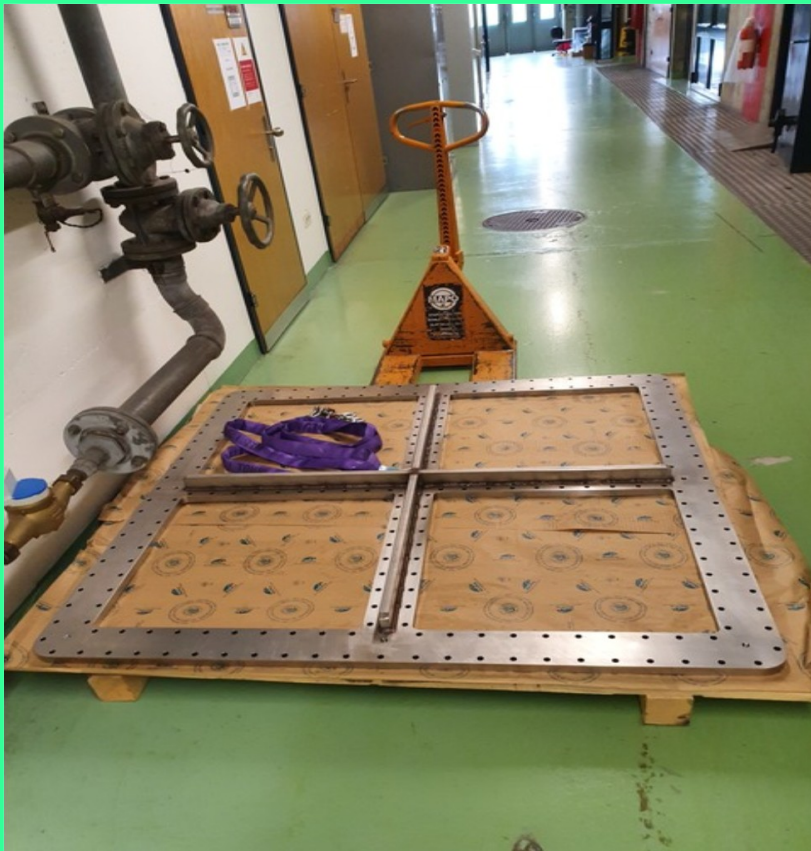
FEA by A.Lambert: vacuum pillows need reinforcement.



Weld:
continuous, full penetration
(welding in progress shown in figure)

Overpressure test

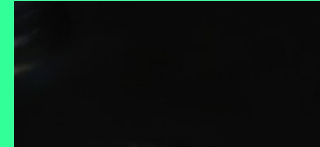
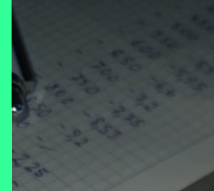
Top frame is reinforced too.



Overpressure test

Top flange is assembled
and placed to the cryostat.

Sealed with indium wire.



Overpressure test

Cryostat is filled with water,
pumping in water by hand pump.

Center deflection is measured by
10-micron precision gauge.



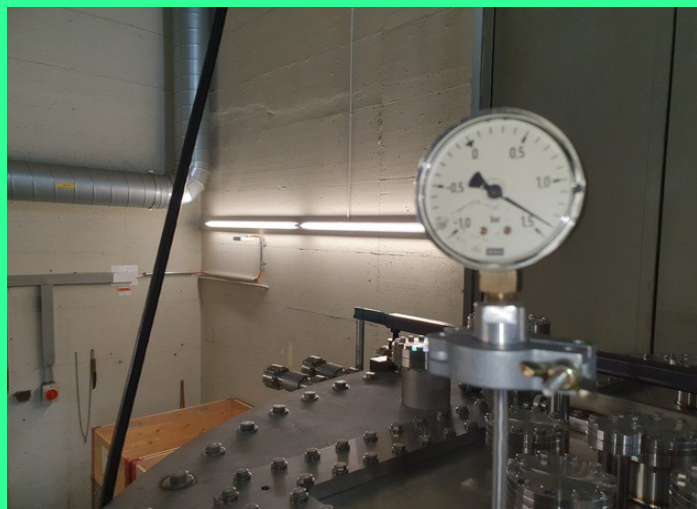
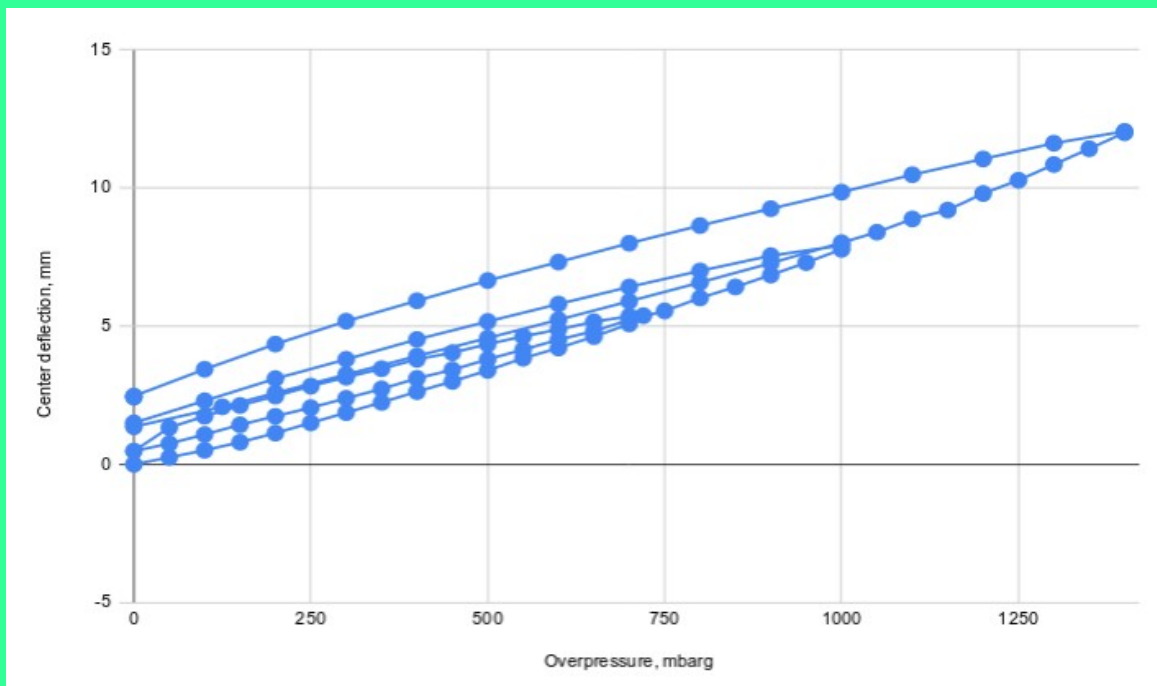
Overpressure test

- 1 st round - reached 0.7 barg
- 2nd round - 1.0 barg
- 3rd round - **1.4 barg (~10 mins)**

Going down to 0 after each round,
logging deflection

Residual deflection -
due to indium flow.

Retightened bolts
after each round.



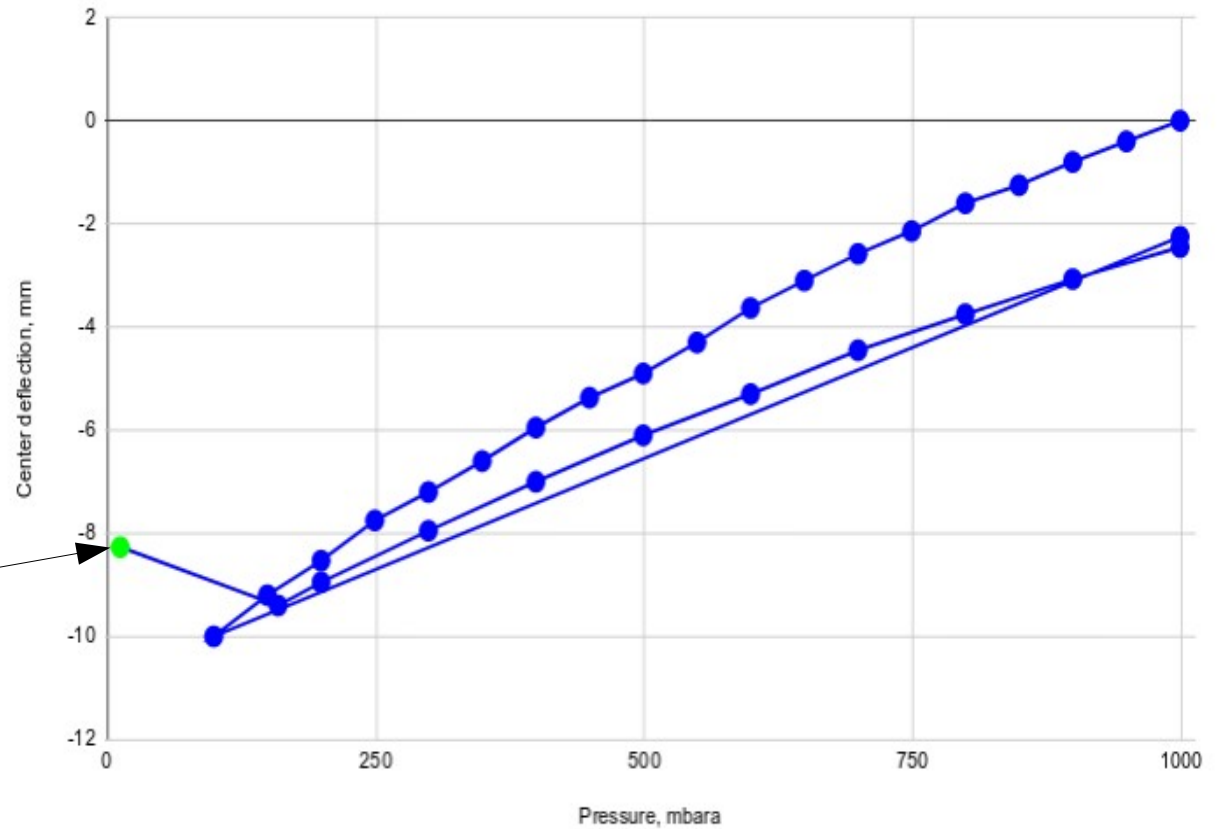
Vacuum test

Cryostat is still full with water
 to limit stored energy. Minimum reached residual pressure - ~ 10 mbar

Pumping out by forvacuum pump.



Bolts re-tightened



Conclusions

Both overpressure test to 1.4 barg and vacuum are successfully passed

Elastic deformation at the center approximately +9mm, -7.5mm

Plastic deformation due to indium seals: ~ 2-3 mm

Involved personnel:

R. Haenny - certified engineer

M. Weber - safety officer

L. Meier - technician

I. Kreslo - logger

Cryostat is on the way

Last Wednesday the cryostat was loaded on the truck and started its way to FNAL.

