

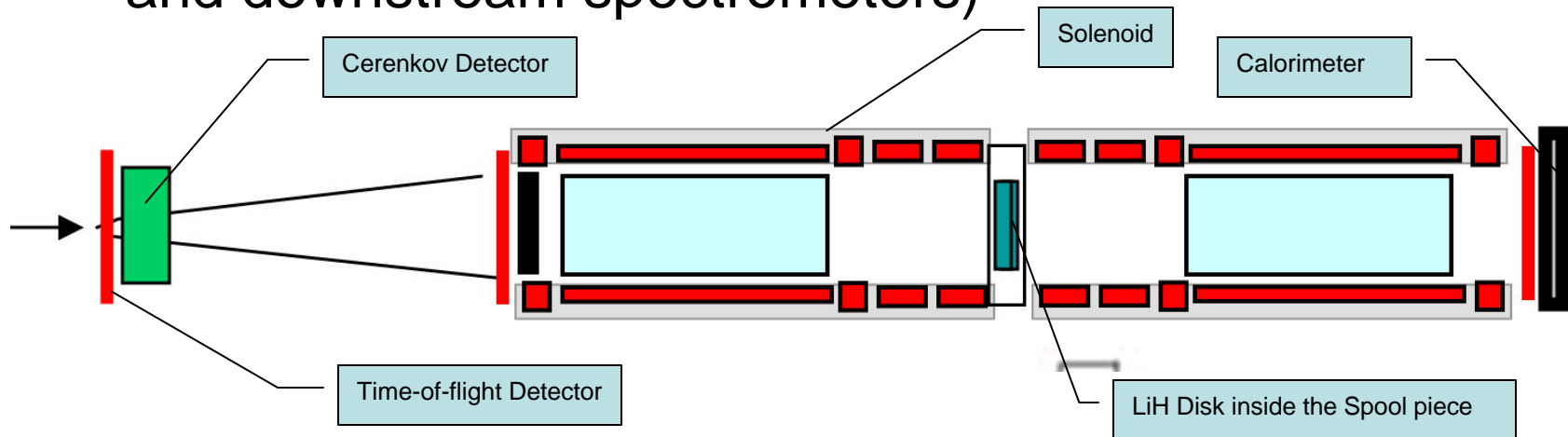
Lithium Hydride Absorber Program

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LiH Discs

- An instrumented LiH disc (30 cm diameter, 4 cm thick) for measuring the thermal conductivity will be made.
- Two LiH discs (50 cm diameter, 6.5 cm thick) will be made as absorbers for use in MICE Step III.1 (first cooling measurement – no RF, 1 disk between upstream and downstream spectrometers)





Y-12 National Security Complex

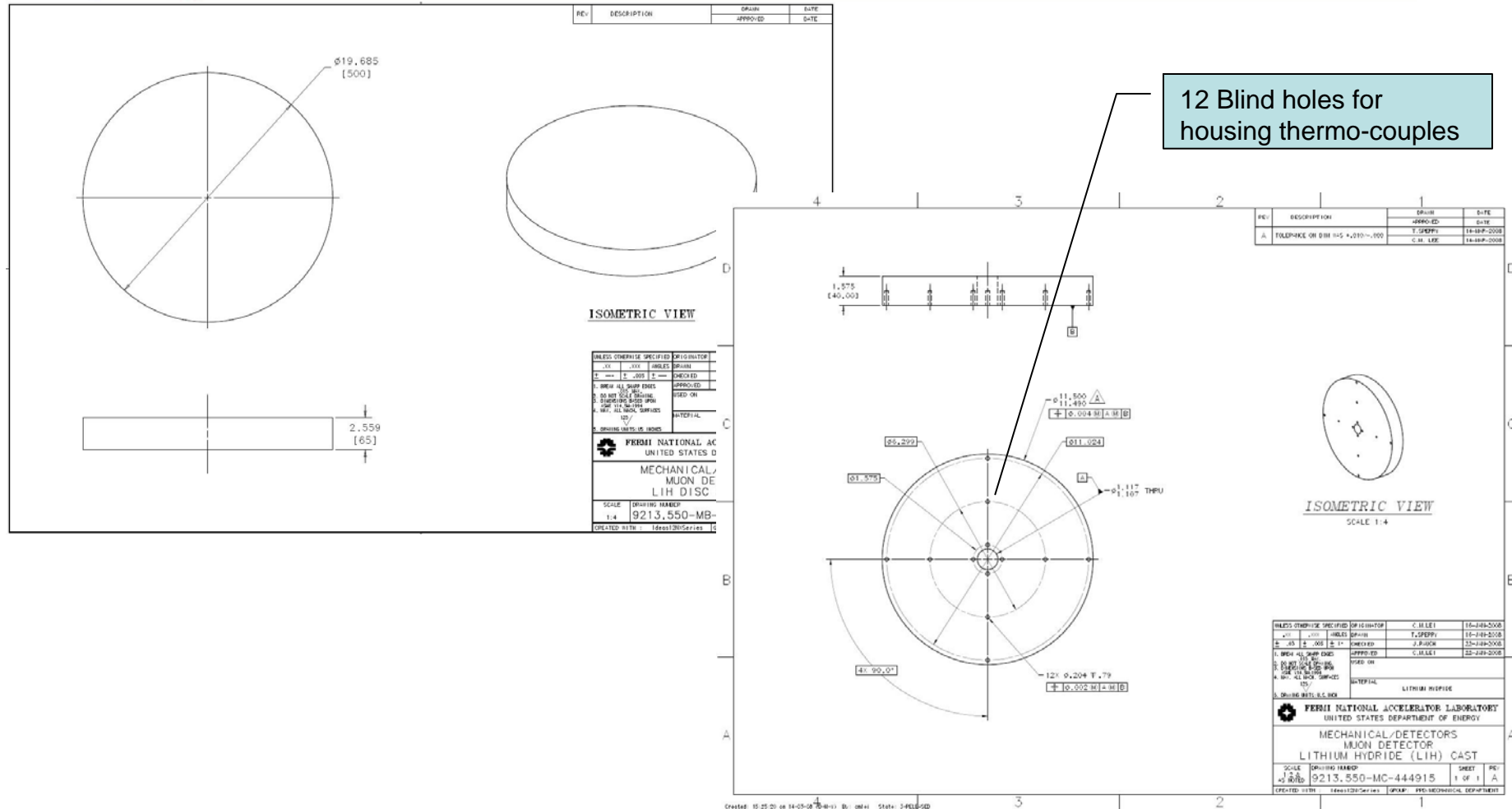
- Y-12 National Security Complex will be sub-contracted to fabricate these discs.
- It is located in East Tennessee, adjacent to Oak Ridge National Laboratory.
- A facility maintains the nation's uranium and lithium technology base.



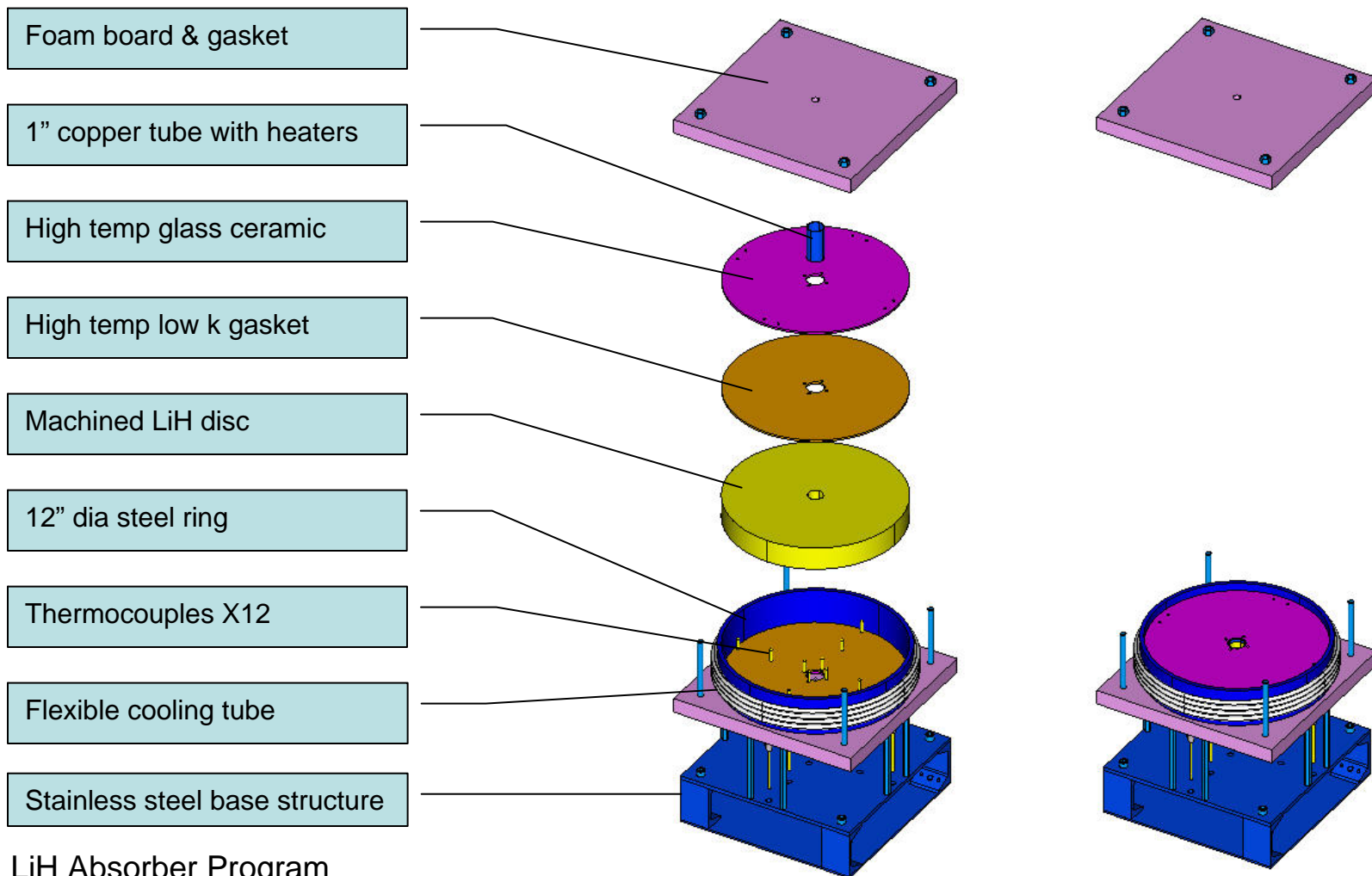
LiH Discs Fabrication

- Produced by Hot Isostatic Pressing
- Produced using existing mold design
- Tested by chemistry
- X-Rayed by Radiography to ensure no voids
- Machined to size
- Dimensional inspection
- Coated with epoxy completely (needed to be finalized)
- Packaged in drum type container
- Shipped to FermiLab by Fed-X

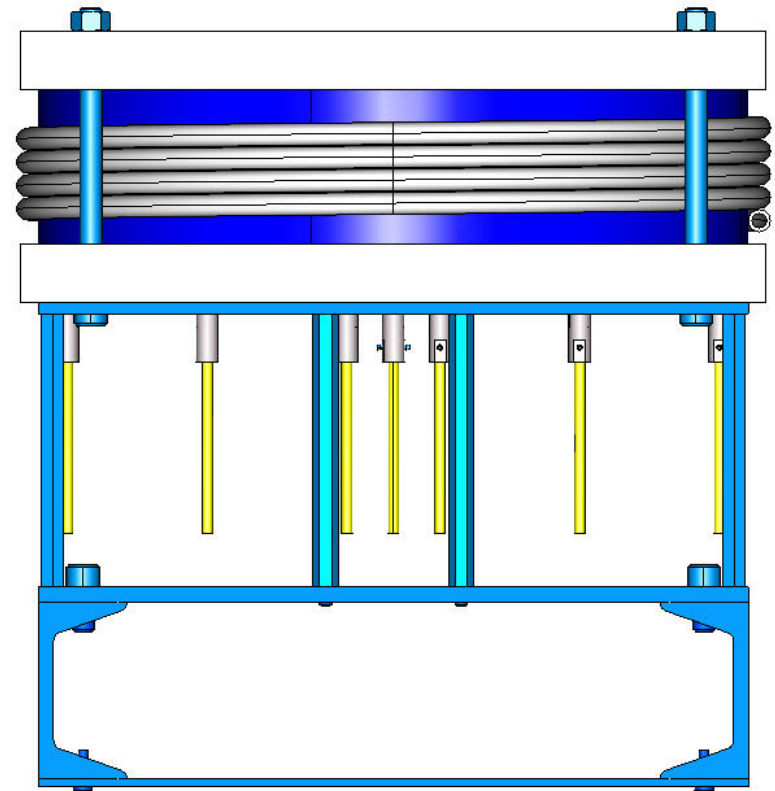
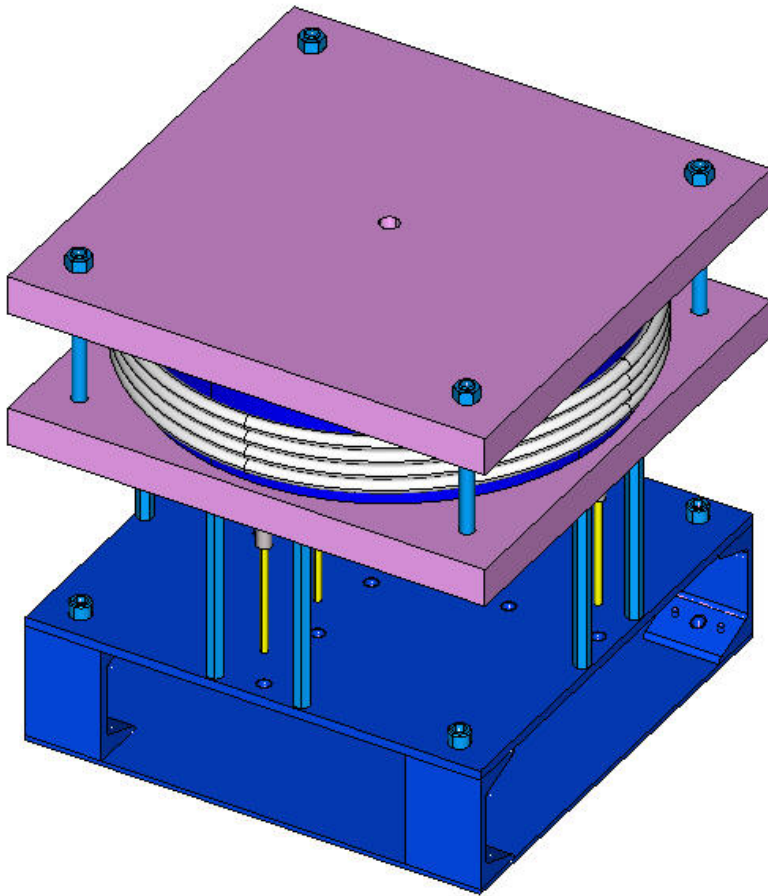
HIP: the simultaneous application of heat and high pressure. A high temperature furnace is enclosed in a pressure vessel. Work pieces are heated and an inert gas, generally argon, applies uniform pressure.



The Set Up of the Thermal Test



The Set Up Ready for the Thermal Test



A Couple of Quick Checks

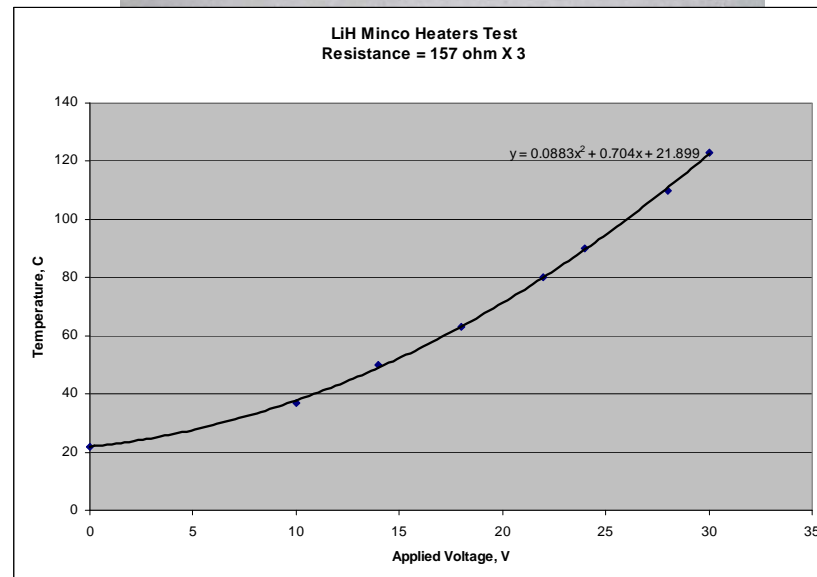
Heat Sink Check:

- A coil of Parflex flexible thermoplastic polyethylene tubing, ($\frac{1}{4}$ "OD, 0.04" wall) was wrapped around the steel ring;
- Chiller temperature was set at -10C;
- Steel ring temperature was at -1C.



Heat Source Check:

- 3 kapton flex heaters with $R=157$ ohms were glued to the inside of the copper sleeve evenly;
- +123C was achieved on sleeve surface at applied voltage of 30V



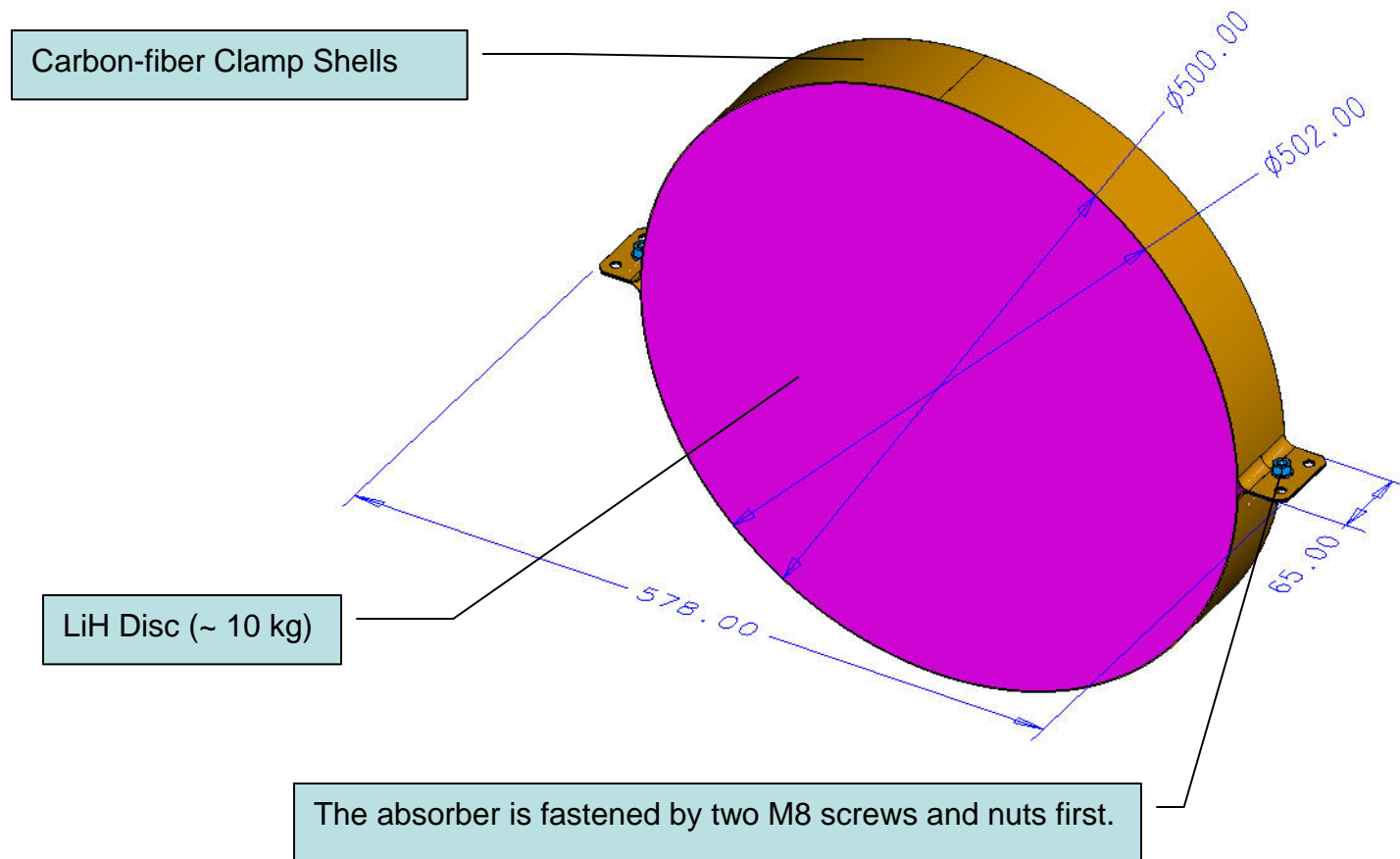
The Hardware Ready to take the Disc



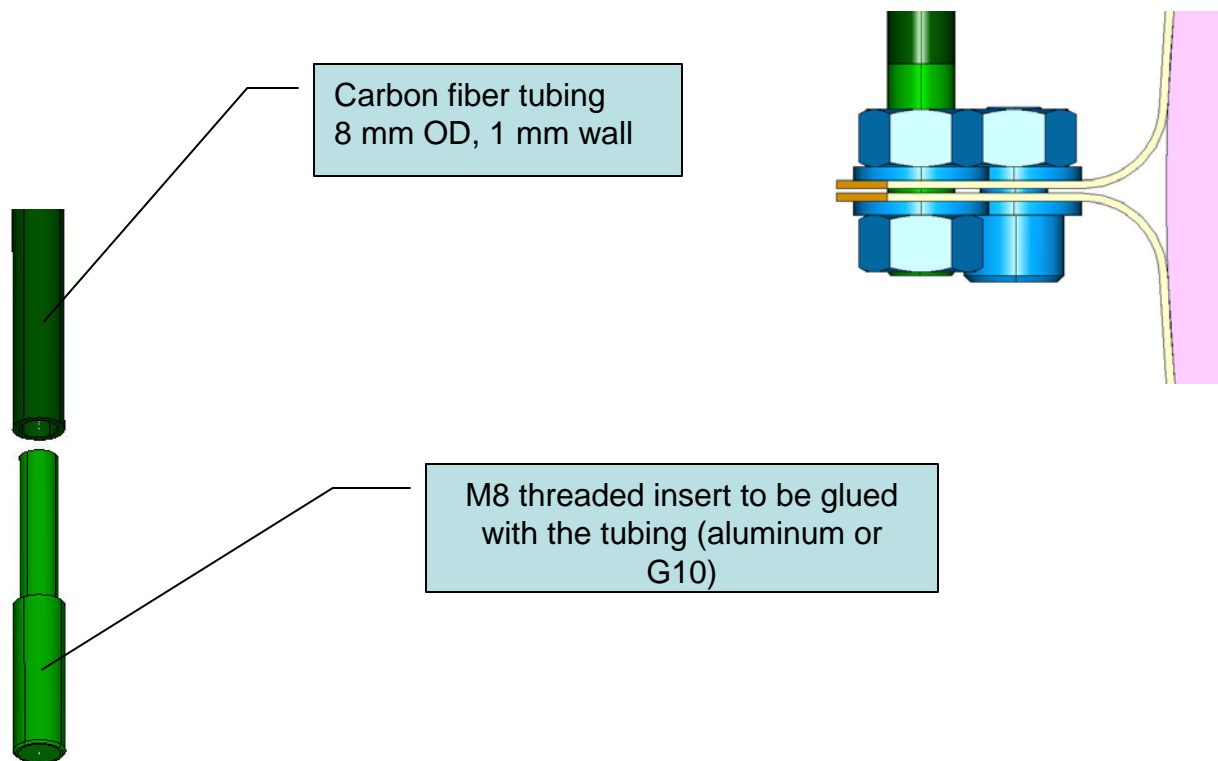
Glove bag with inert gas flowing during the handling and testing processes



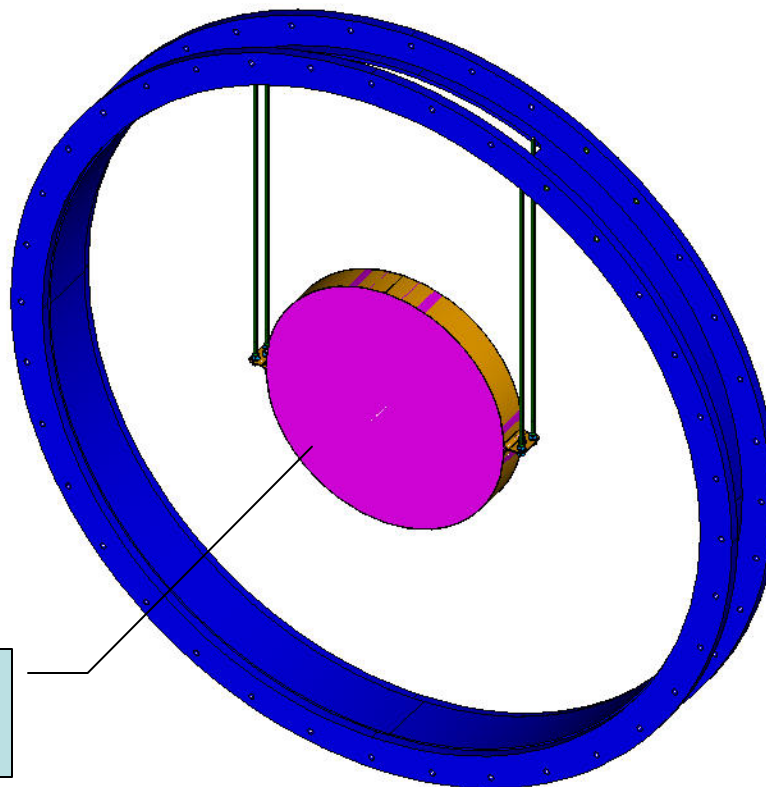
The MICE Energy Absorber



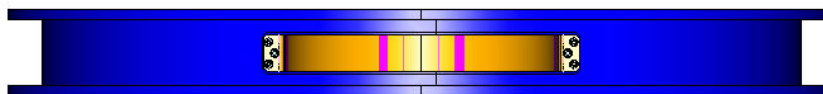
The Supporting Tube



Conceptual Installation



This absorber is lowered down through the slot of the ss spool piece



Conceptual Design of the End Cover

