



The MSC-CMI Section:

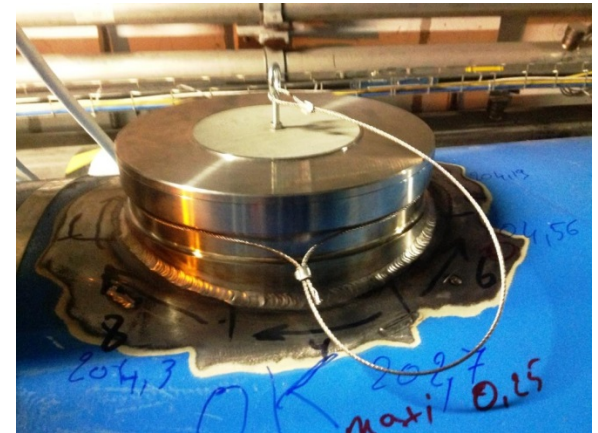
Plans and Goals 2014

V.Parma,
CERN, TE-MS-C

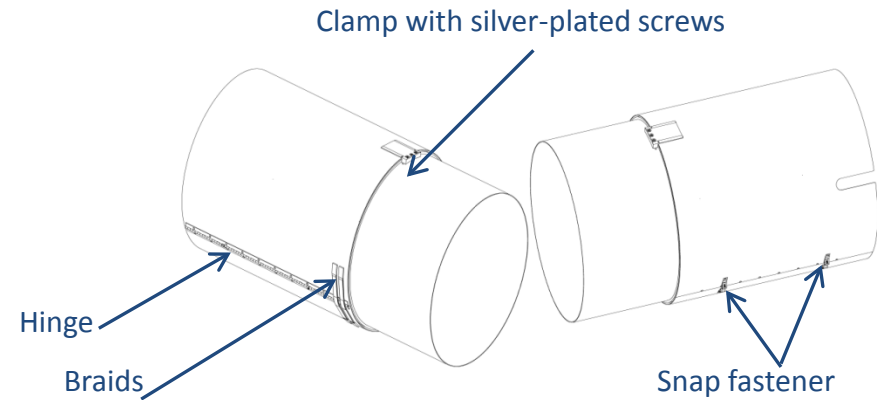
4th February 2014

Alfa-Omega team (figures Dec.2013)

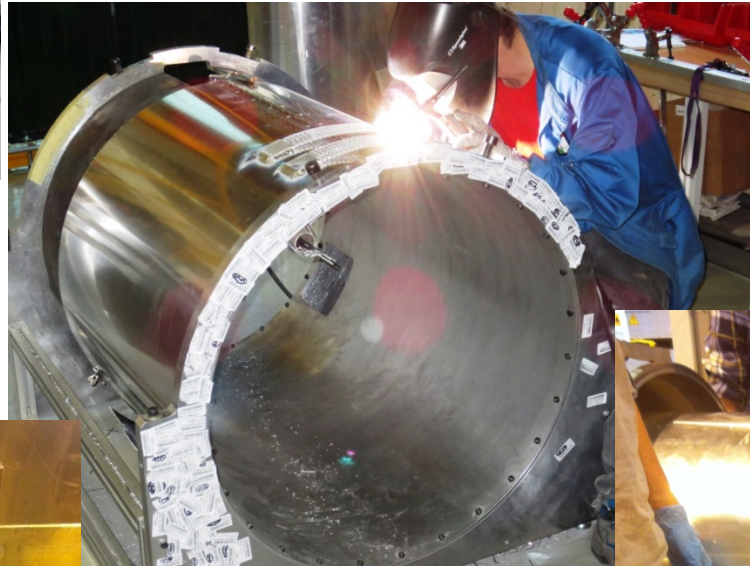
- Open/Close IC
 - Opened: 1'593, (93%, 7.5 sectors)
 - Closed:
 - 389 interconnections were closed (22.9%);
 - only 2 leaks !
 - Closing IC this year **June 2014**
- Installation of DN200 Safety relief devices
 - Activity finished in **October last**
- Refurbishment of IC screens (next slide):
 - ~ 50% done



LHC: new thermal screens



~1'180 screens ready (~66%)



Clamp

End foreseen:
May 2014

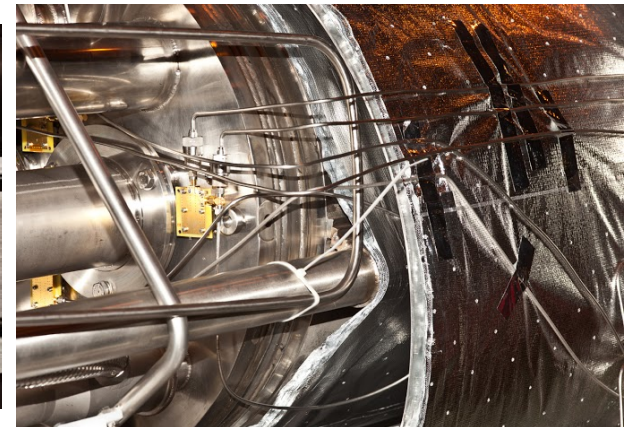
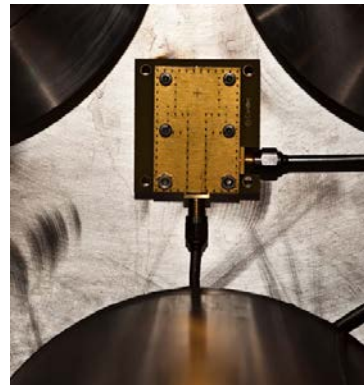
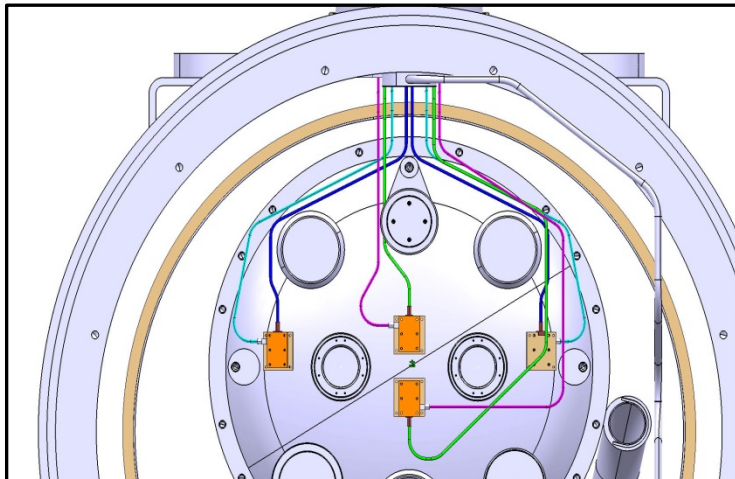
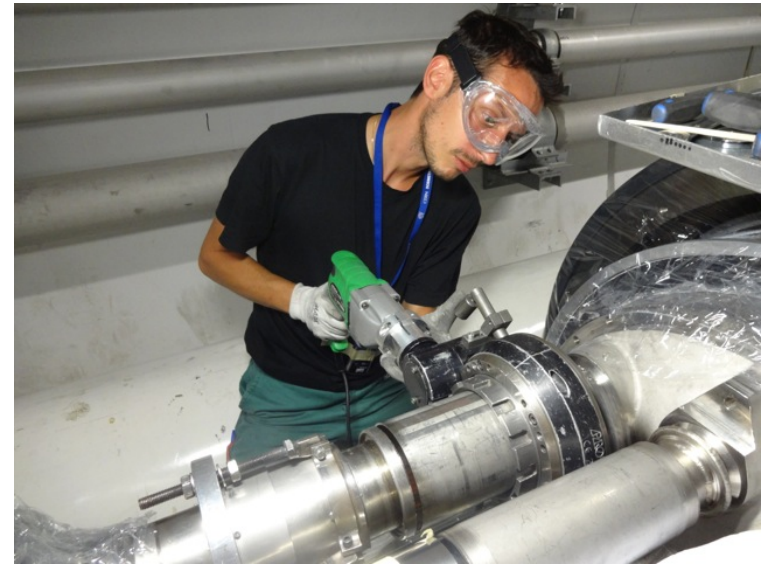
Outer side view

LSI: participation to Special Intervention Team (SIT)

- Disconnecting magnets
- Delicate replacement of PIMs (cutting of 40 out of 120 units)
- Integration and installation of cryo BLMs (point 7 in progress, point 5 in 2014)
- Now participation to DFB repairs

End foreseen: end February 2014

- Integration and installation of cryo BLMs (point 7 in progress, point 5 in 2014)



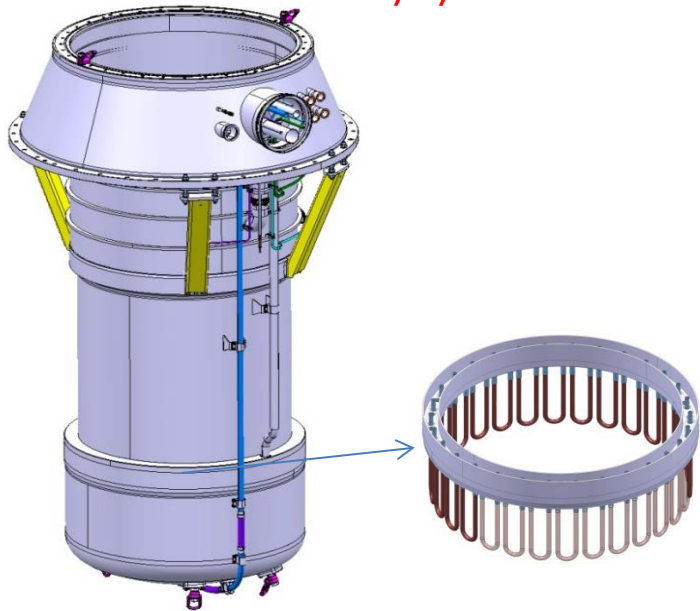
End foreseen: April 2014



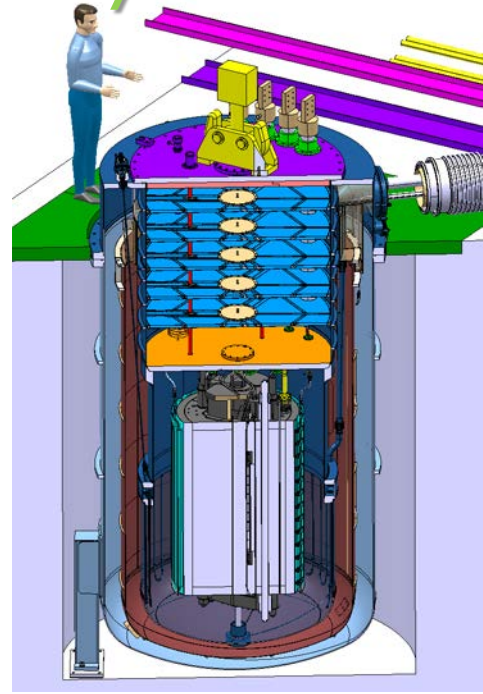
High-Field Magnet (HFM) vertical test station:

Goal: all components at CERN by end 2014

- Manufacturing in progress:
 - Vacuum vessel: delivered and accepted
 - Helium vessel: in manufacture:
 - Delivery by August 2014.
 - Thermal shield: design finished. PE in preparation,
 - Delivery by end 2014
 - MLI PE to be prepared.
 - Delivery by end 2014



He vessel with integrated heat exchanger



Vacuum vessel in SM18

LHC superconducting magnet cryostats facilities (SMI2)



Post LSI activity:

- De-cryostating of LSI cryo-dipoles (13 units)
 - De-cryostating of 2 special SSS, Q5 & Q7 (1 from tunnel)
- Work on (lowly) radioactive equipment:
- Supervised area, use of ad-hoc working procedures
 - Personnel protection measures
 - Development of new cutting machines (no grinding allowed!)

Goals of this year:

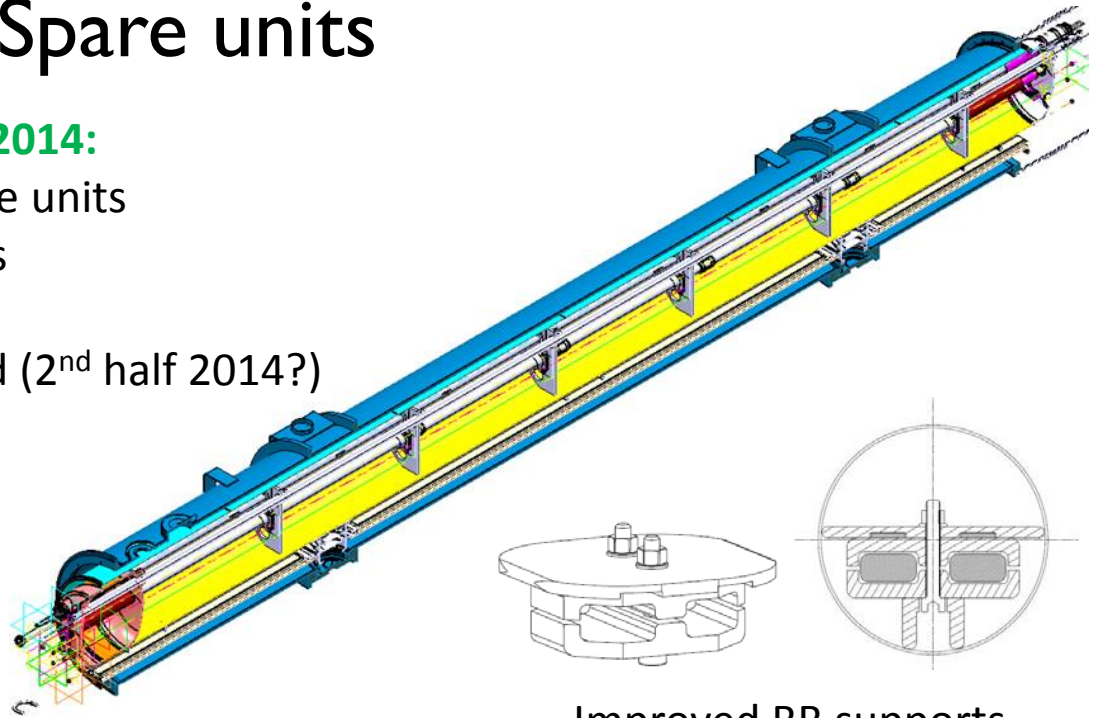
- De-cryostat all dipoles (cutting machines for IFS)
- De-cryostating of non-activated Q7 SSS, training for radioactive ones)
- Re-organisation of SMI2/189 storage
- Cryo-magnet coordination: analysis of available spares
- Study of SMI2 for radioactive facility, defend project
- Replacement of radioactive triplets: propose a strategy (Group & Dept. level)



Spare units

Spare Connection Cryostat: **Goals for 2014:**

- Design improvements wrt to machine units
- Finalize documentation/drawing files
- Launch procurement of CC parts
- Study of assembly tooling → delayed (2nd half 2014?)
- Assembly in 2015 (2nd half, TBC)

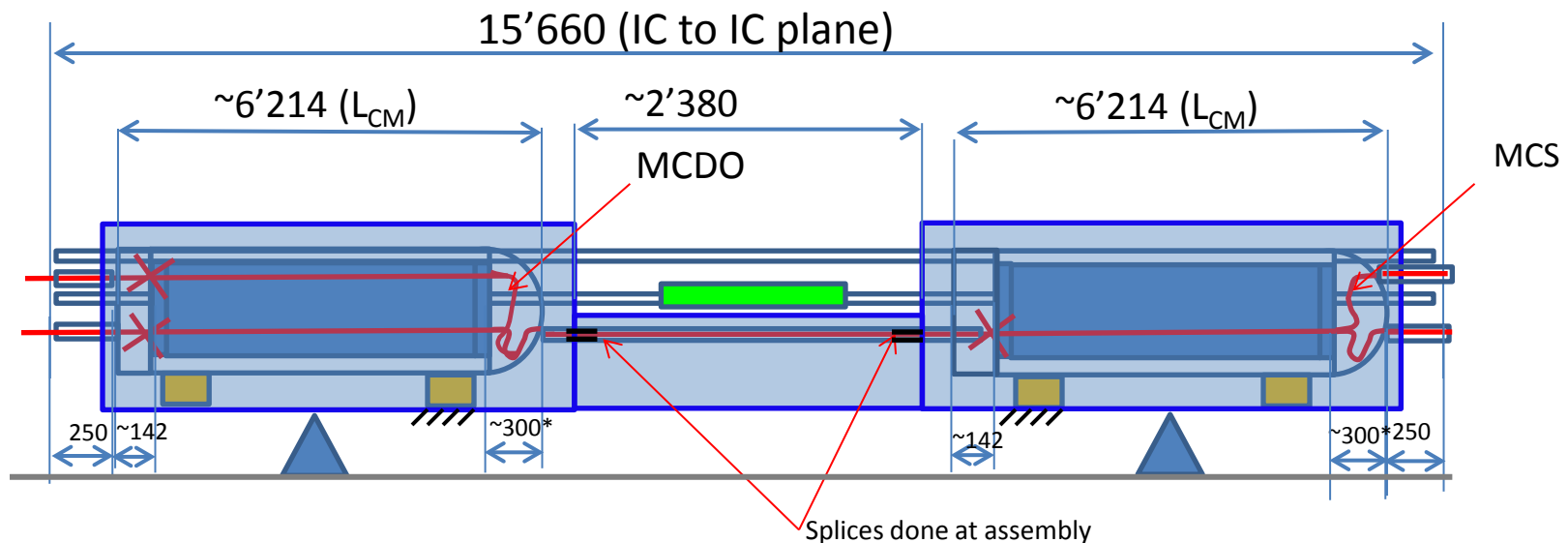


Improved BB supports

Line N: **Goals for 2014:**

- Re-insource in CMI, line N plugs technology
- Qualification on samples
- Design improvements wrt to machine units
- Manufacture of spare Line N by end 2014

IIT + collimator cryo-assembly



Goals for 2014:

- Freeze conceptual design (bbars routing, splicing technology, cryostats design, etc.)
- Construction of mock-ups, depending on need. → Set-up a prototypes facility in SMI2
- Prepare move to construction phase for 2015

New Feedboxes and magnet connections

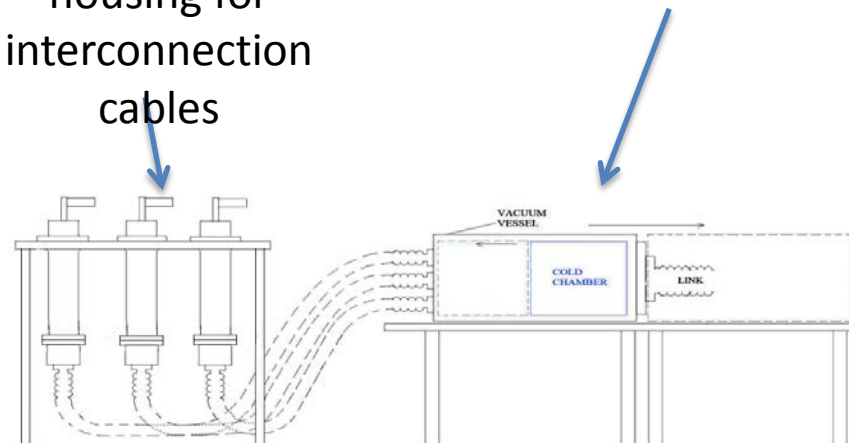
concepts so far

Study of new DFBs and magnet connection boxes for Point 7:

- Define a simplified test concept for testing cables in SM18

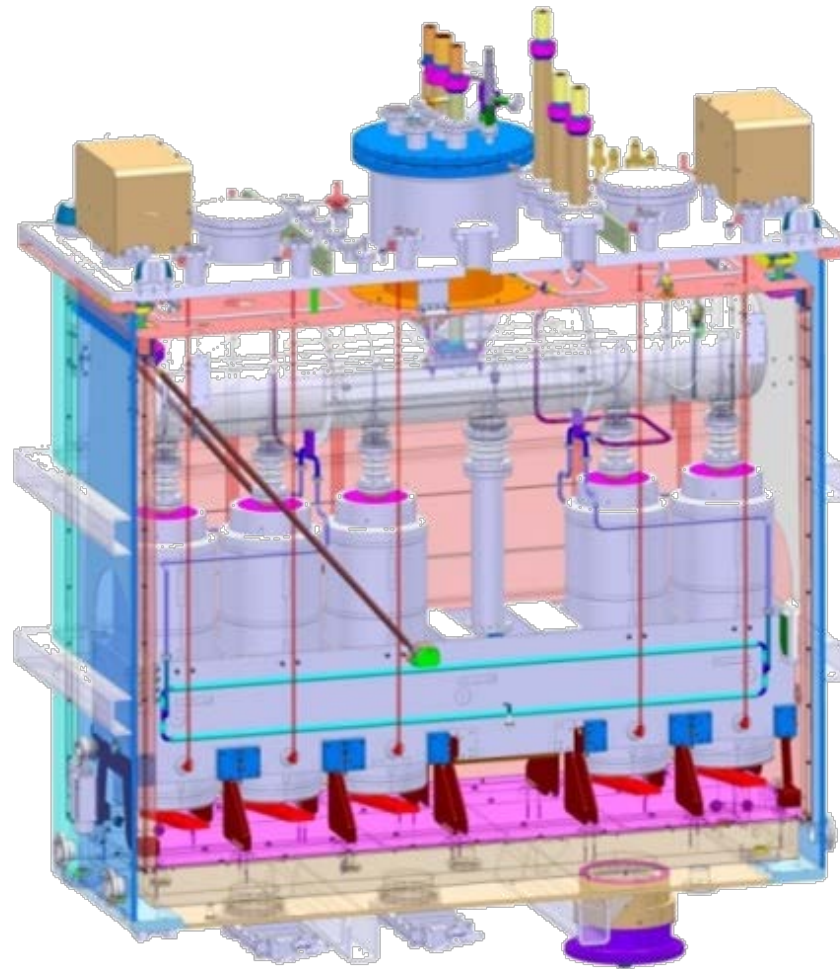
Individual current leads with flexible housing for interconnection cables

Only one “cylindrical” interconnection box



Concept SOTO Univ

HIE-ISOLDE High Beta Cryomodule

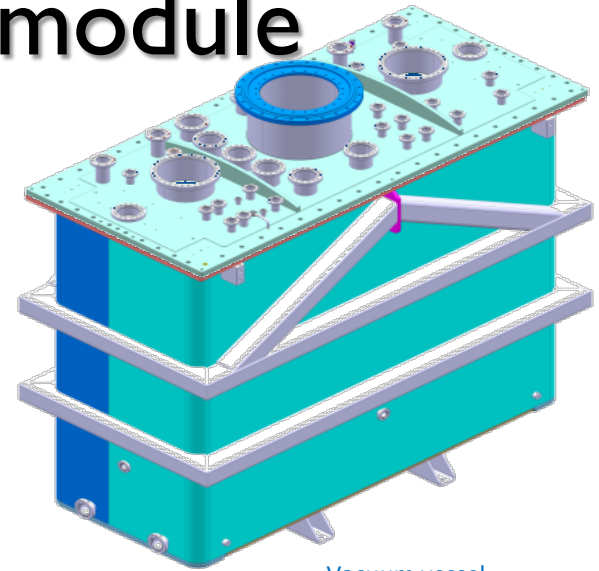


Full cryo-module

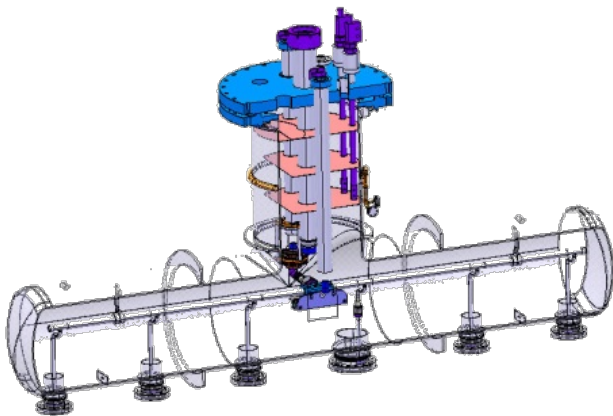
HIE-Isolde high-Beta cryomodule

Design and procurement for 2 units

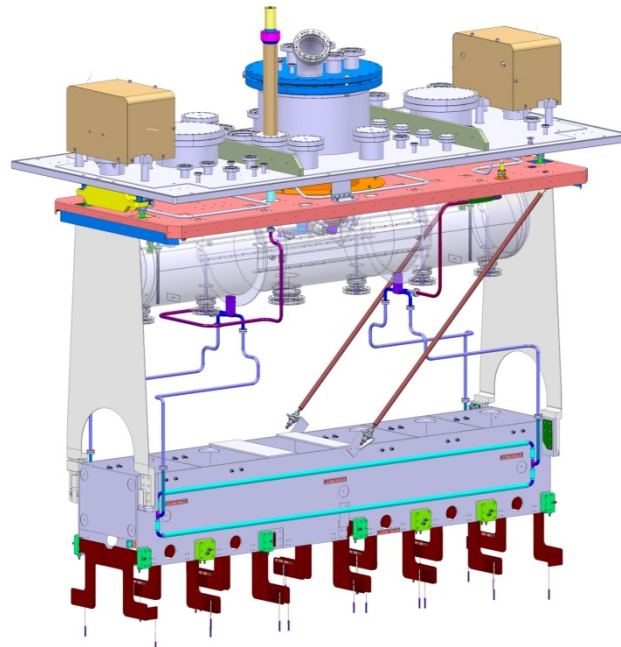
- Finalize design
- Launch procurement of remaining components
- Follow-up of production and QA
- Components ready to start assembly by mid 2014



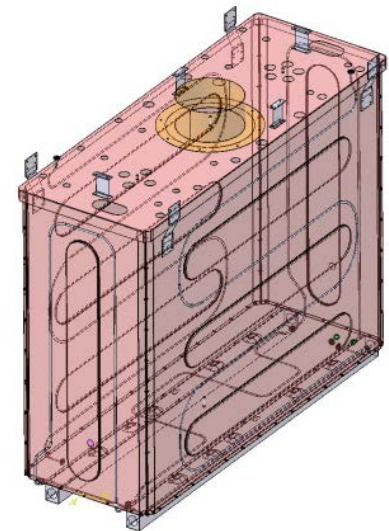
Vacuum vessel



Helium vessel assembly



Frame suspension system (under top plate)



Thermal shield

HIE-Isolde highB cryomodule

Assembly tooling/procedures

Clean-room assembly tooling:

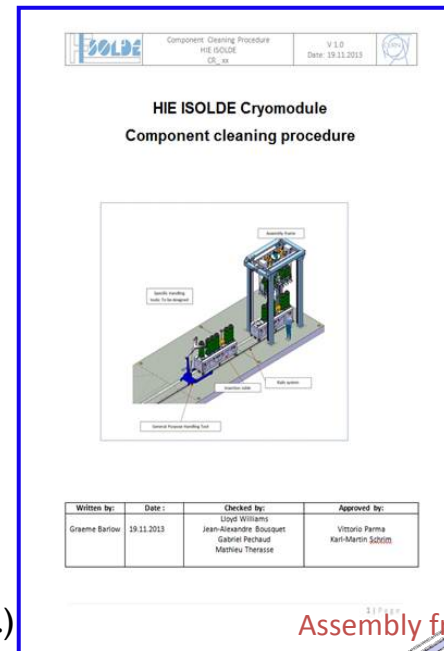
- Finalise design of clean-room tooling
- Launch procurement of remaining tooling
- Follow-up of manufacture of tooling
- Assembly and commissioning of tooling at CERN (SM18)

Assembly procedure/training:

- Preparation of procedures (in progress)
- Training of clean-room technicians (identifications also)

Components/assembly logistics platform (SMA18/SM18/offices):

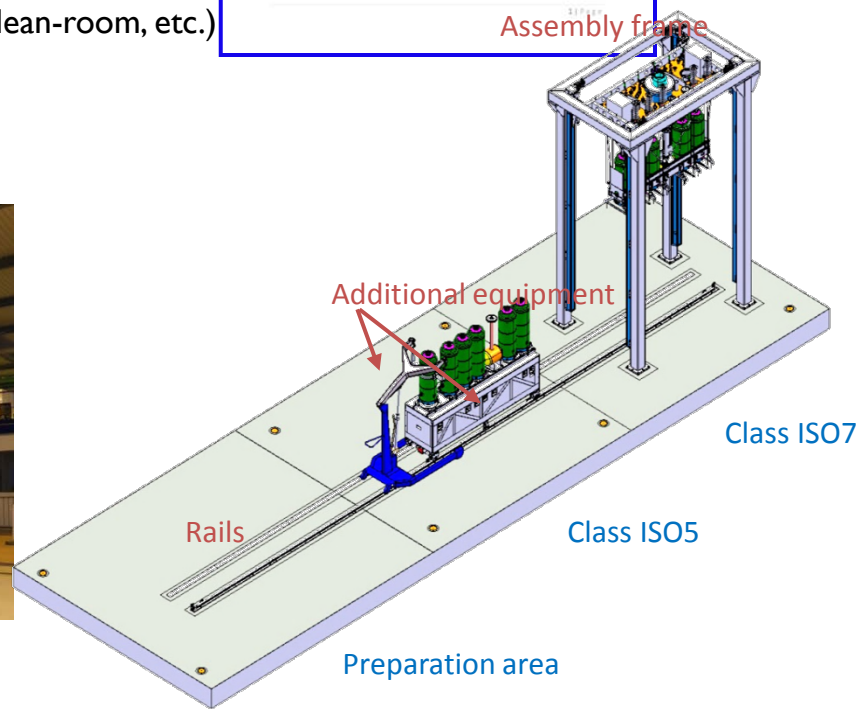
- Components storage center (few hundreds of components cryomodule!)
- Preparation of components (inspection, UHV cleaning, packing for clean-room, etc.)



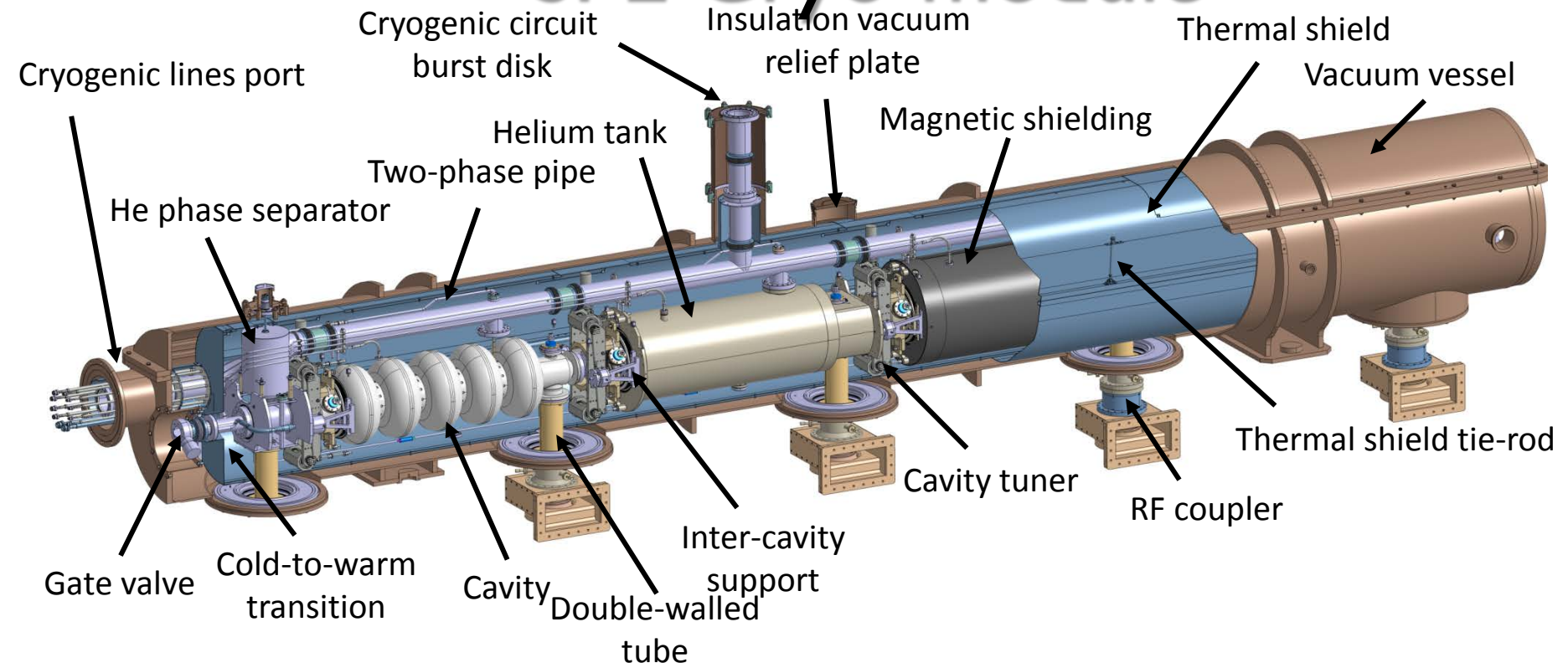
→ Planned start of assembly: mid July 2014



Isolde CM clean-room (class 100) in SM18



SPL Cryo-module



Goals for 2014:

- Manufacture of all components:
 - Vacuum vessel (CNRS-IPNO contribution): (delivery autumn 2014)
 - Other components to be manufactured by CERN (2014-15)
- Cryostat assembly tooling:
 - Finalize design (CNRS-IPNO contribution):
 - Launch manufacture at CERN
- Prepare for assembly at CERN in 2nd half 2015

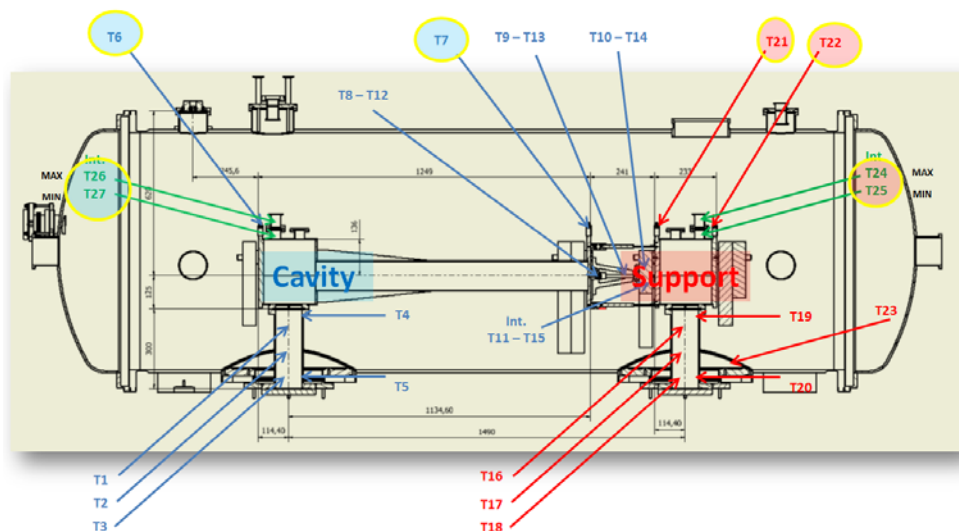
Supporting system thermo-mechanical model



Assembly of supporting system mock-up

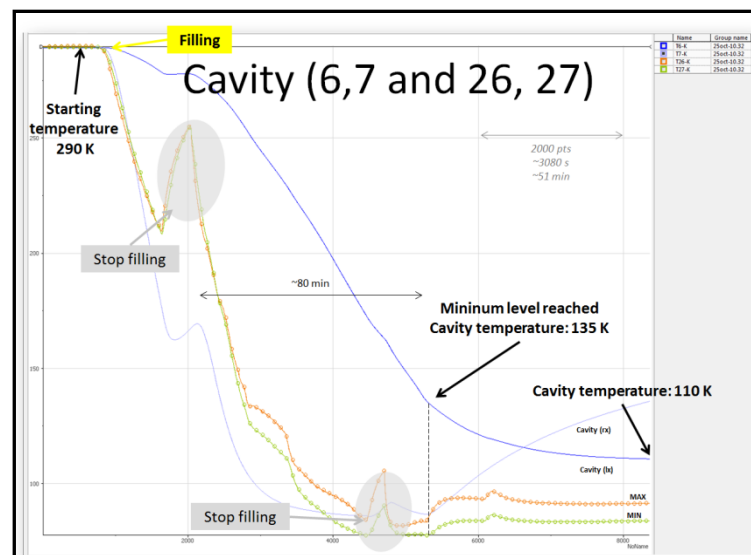


Inner part of supporting system mock-up



Goals for 2014:

- Execute all test campaigns as planned
- Reporting (thermal behavior coupler, thermo-mechanical measures, WPM)



Summary

- LSI related activities: terminate mid 2014 (but follow-up until end 2014)
- De-cryostating LSI
- Preparation for radioactive facility SMI2 and dismantling of triplets
- Preparation for commissioning and MP3
- HFM: components delivery by end of 2014
- CC spare: order components (tooling to follow)
- HIE Isolde: ready to start assembly mid 2014
- IIT +collimator cryo-assembly: finalize concepts
- HL LHC related studies: new IR cryostats layouts
- New DFBMs point 7 + magnet connection boxes
- SPL: procurement of components