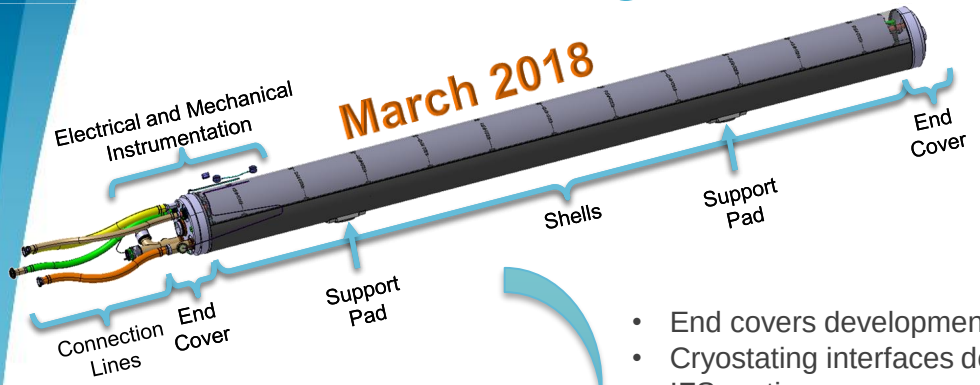
Status and plans of MQXFBP1 prototype cold mass LMQXFBT

H. Prin

Design evolution and status



- End covers development
- Cryostating interfaces definition
- IFS routing
- Connection lines to the CFB optimization
- Ancillary lines definition
- Instrumentation pots redesign et reorientation

Design completed

On going

Target completion 15/10

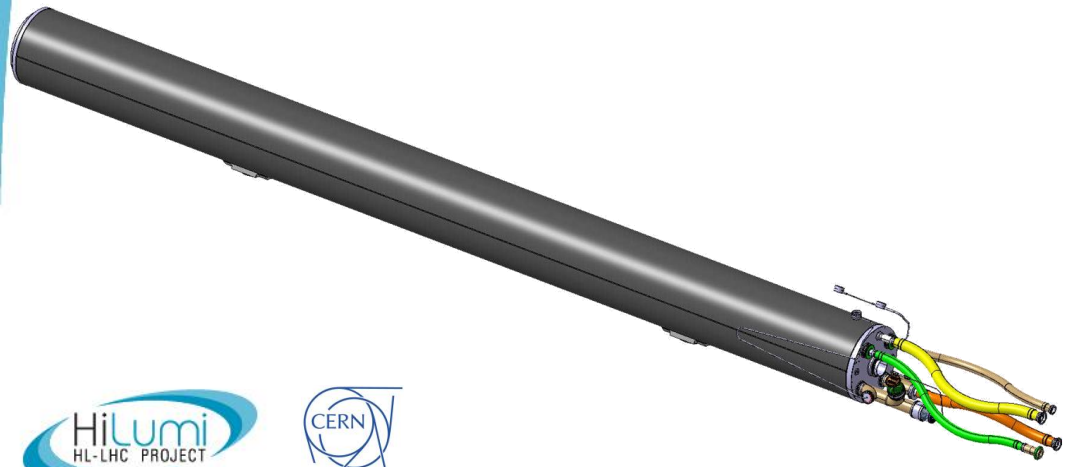
Fabrication drawings for subcomponents:

- flares
- flanges
- IFS system
- Centring pieces for filling and heat exchanger lines
- Specific extensions
- Instrumentation pots components to be standardised
- Connection box (inspired from the short model)

Components status

Ordered/Delivered

Shells:	2 for w38 (+6 in w42)
End covers:	w44
Supports:	Delivered and accepted
Heat exchanger tube:	tested and accepted
Filling pipe:	recovered from existing N-Line(s)
IFS flexible:	identical to 11T item
Cold bore tube:	insulation type under discussion
CLIQ leads:	600A cables through CFB



To be ordered

Optic fiber connectors:	off-the-shelf (M. Guinchard)
D-Sub connectors:	off-the-shelf (LMF)
Elbows:	off-the-shelf (LMF)
Pots pumping connectors:	off-the-shelf (LMF)
Flexible lines:	× (SM18)
Splice stabilization:	MQXFS design (LMF/MDT)

Tooling

Alignment bench:	✓
Rotation bench:	✓
Lifting beam:	✓
Welding press:	✓ but welding process still under development
Welding cradles:	× Feb 19, negotiations ongoing, for mid Jan or partial delivery
Laser tracker:	✓
Magnetic mole:	✓
Geomagnetic mole:	× Dec 18
Finishing bench:	✓
Pressure/test bench:	✓ on going studies for connection

Schedule

About **4 month** are necessary to assemble the cold mass from the magnet delivery to the pressure/leak tests. It could be faster.

BUT!!!

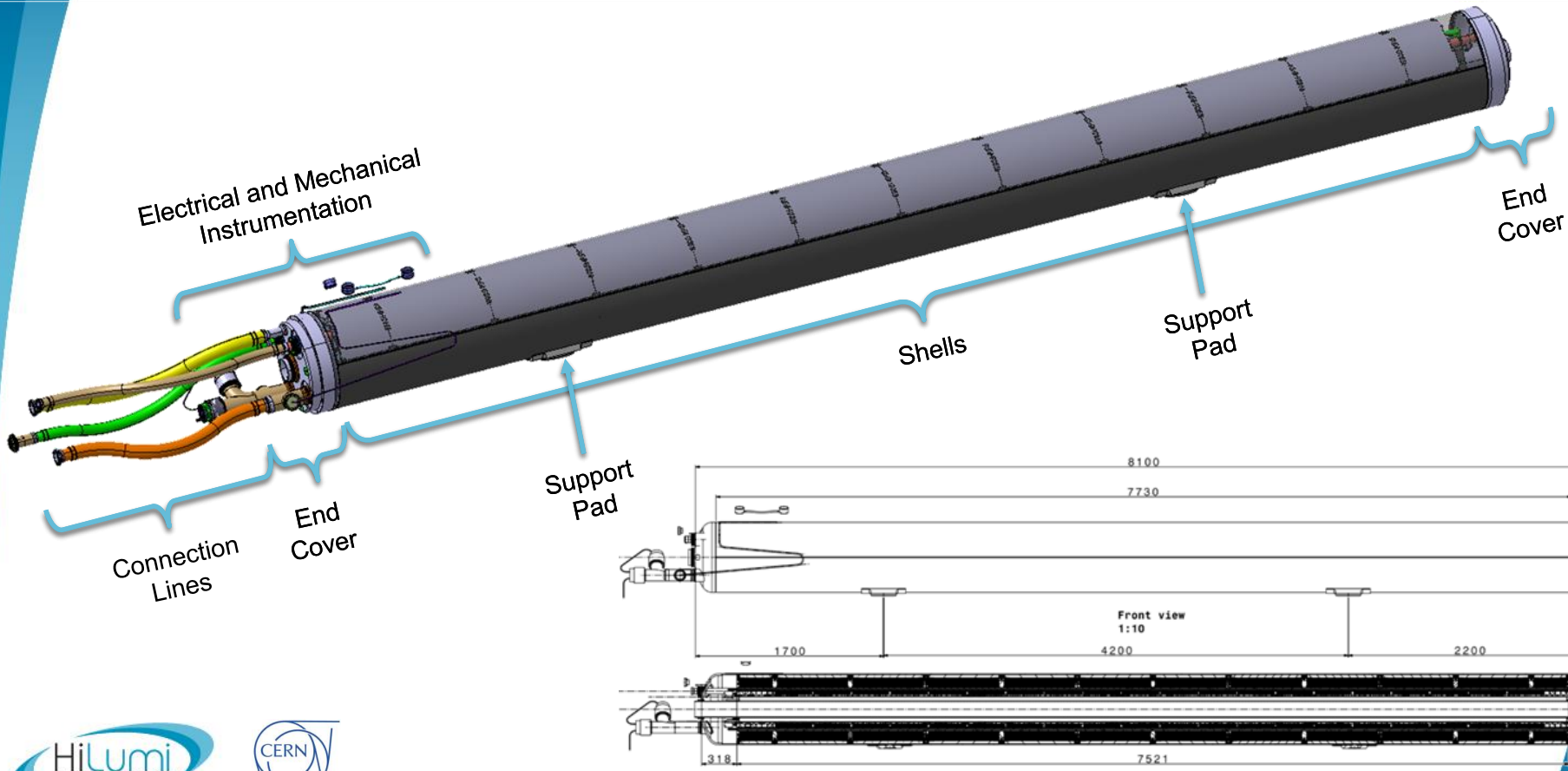
Prototypes assemblies are also used to

- Test several assembly options
- Write and document the procedures inline
- Train for NDT examination of the welds (Omniscan)
- Develop the geometric and geomagnetic measurements and related software

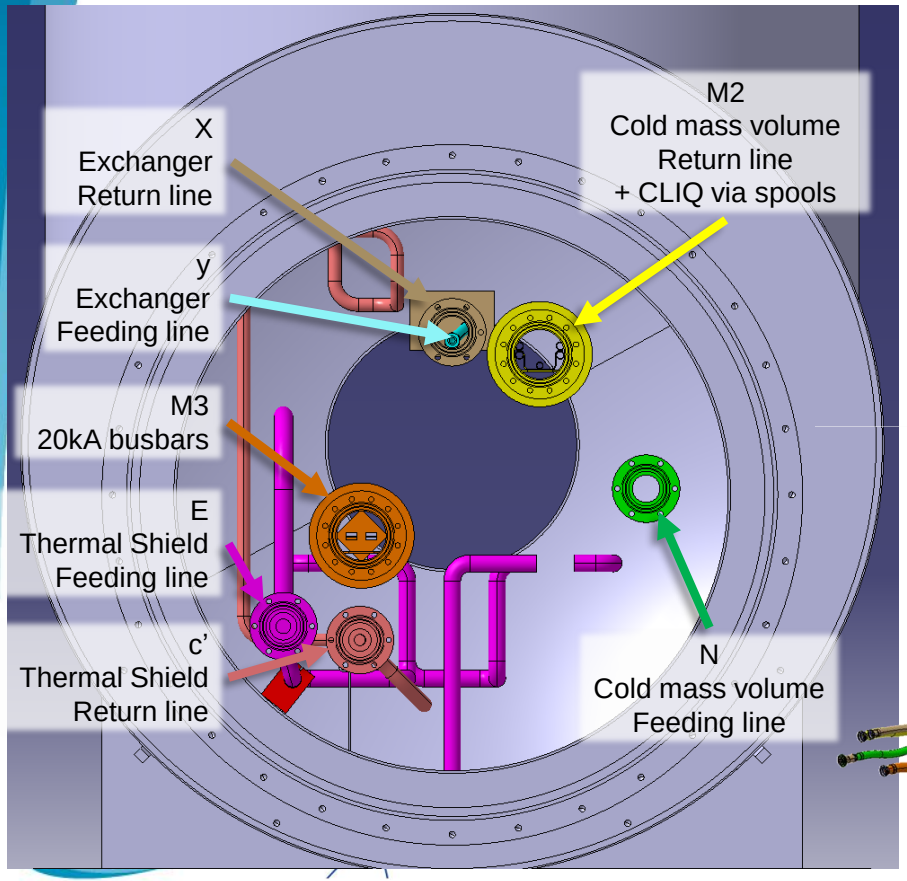
Thank you for your attention

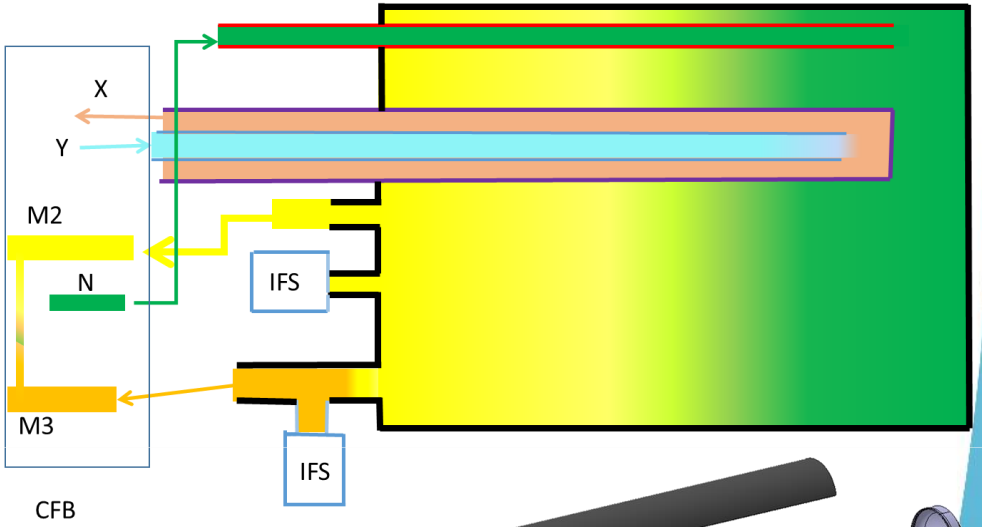
Spare slides

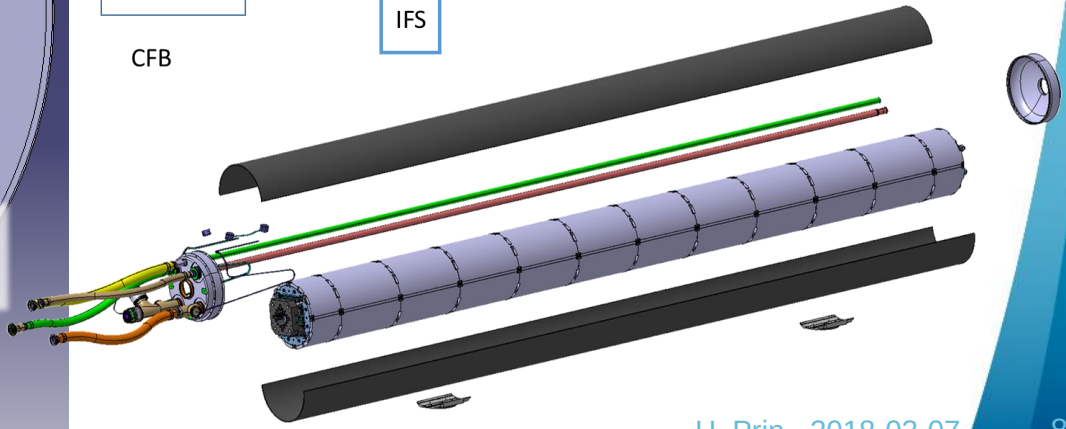
Cold Mass Envelope Layout



CFB Interfaces and Conceptual Cryo-Scheme





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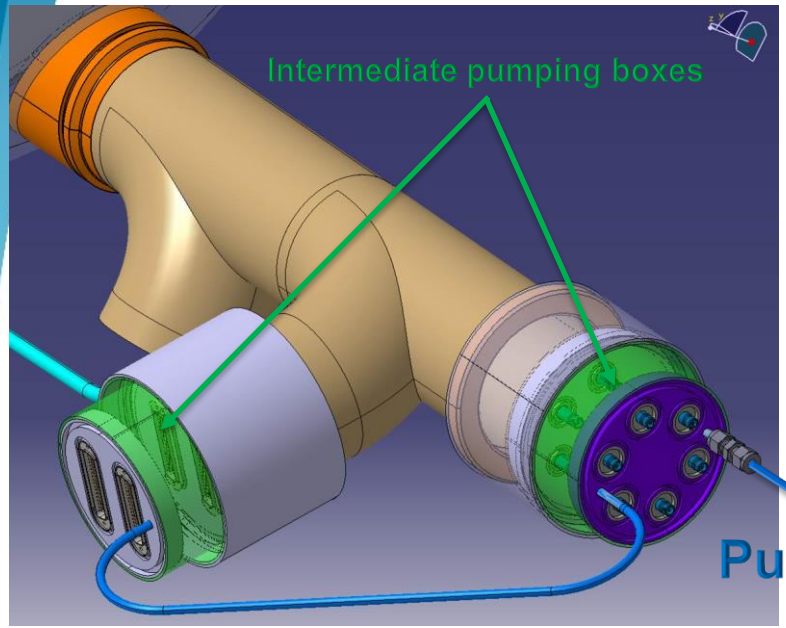
Mechanical Instrumentation inside the cold mass

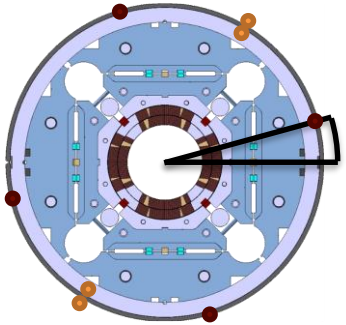


		wires
Inside the cold mass volume	• Cryo thermometer	4
	• 4 gauges for the rods (6 wires per gauge)	24
	• 6 gauges (3 sections - 4 wires)	24 (V plane)
		52
	• 1 fibre cable using 2 connectors measuring 6 locations per coil	8 connectors
Inside insulation vacuum	• 6 gauges (3 sections – 4 wires)	24 (V plane)
	• 12 gauges (3 sections – 4 wires)	64
		88

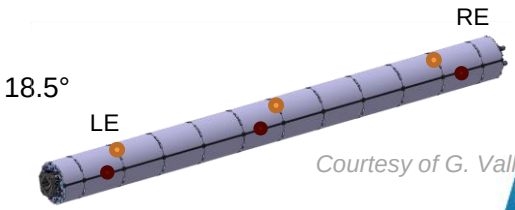
Sub-B connector weldable

Optical fibre feedthrough, weldable

SG Position Cross-Section



SG Position Longitudinal



Courtesy of G. Vallone