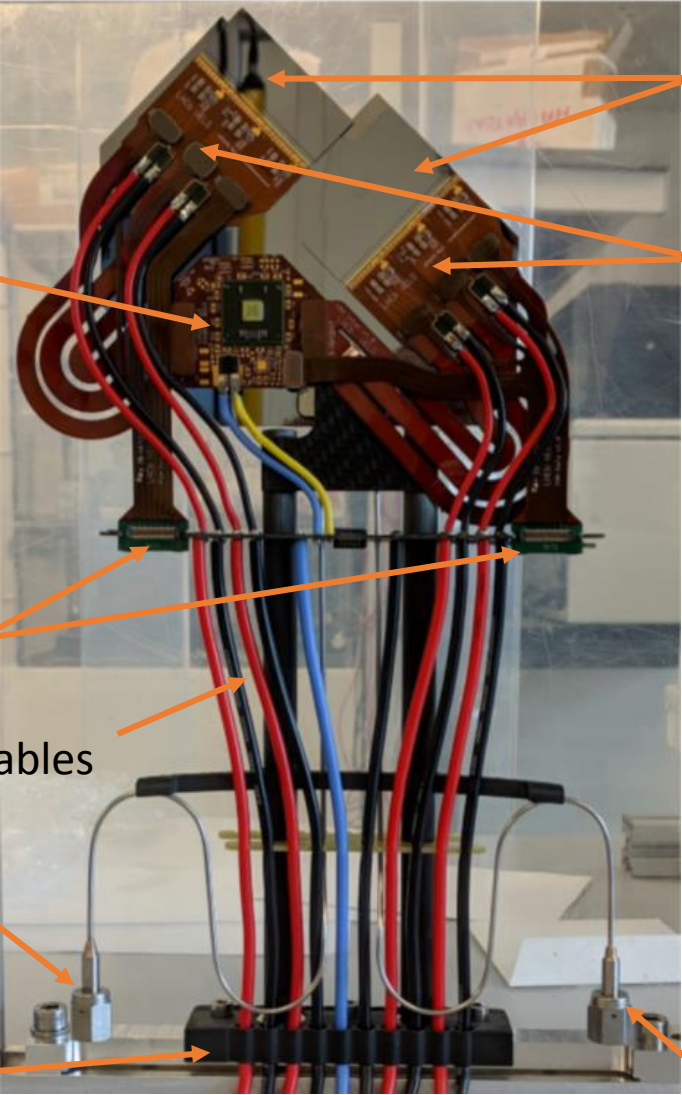


Contribution to the LHCb VELO

R. Dumps

LHCb VELO 2018 achievements



GBTx

Data cables

Low voltage cables

CO₂ output

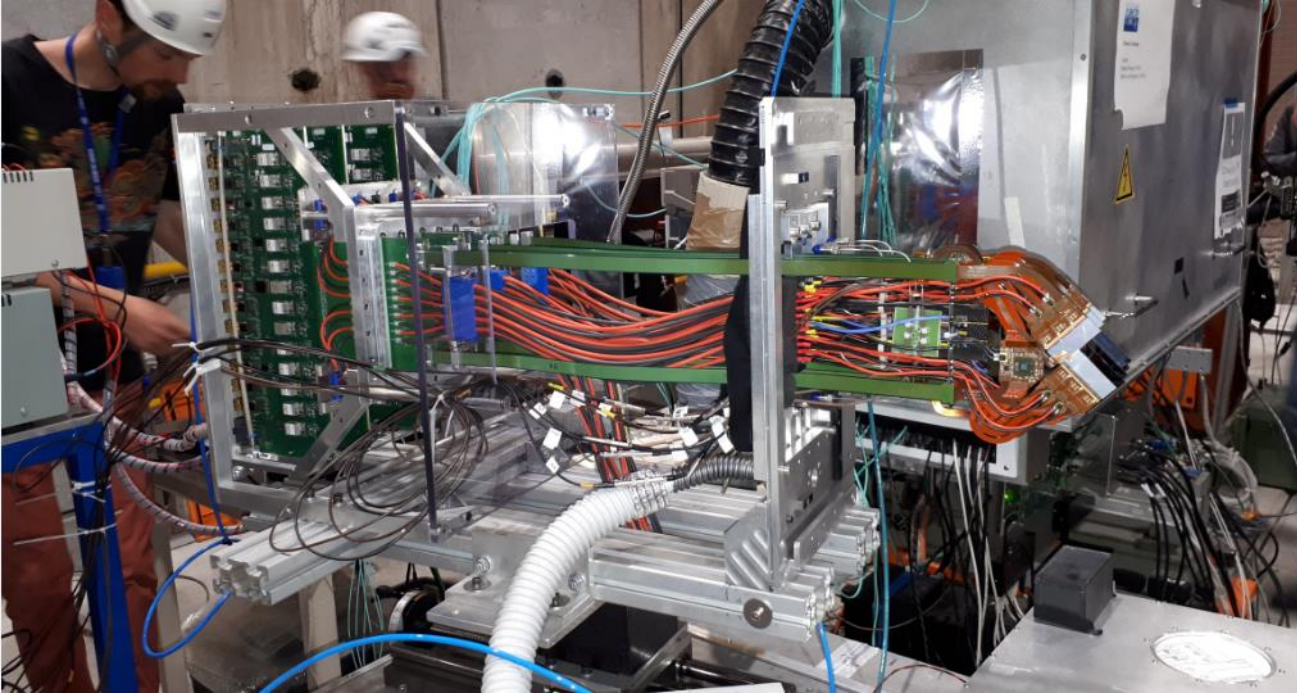
Custom connector

Tiles

Hybrids

CO₂ input

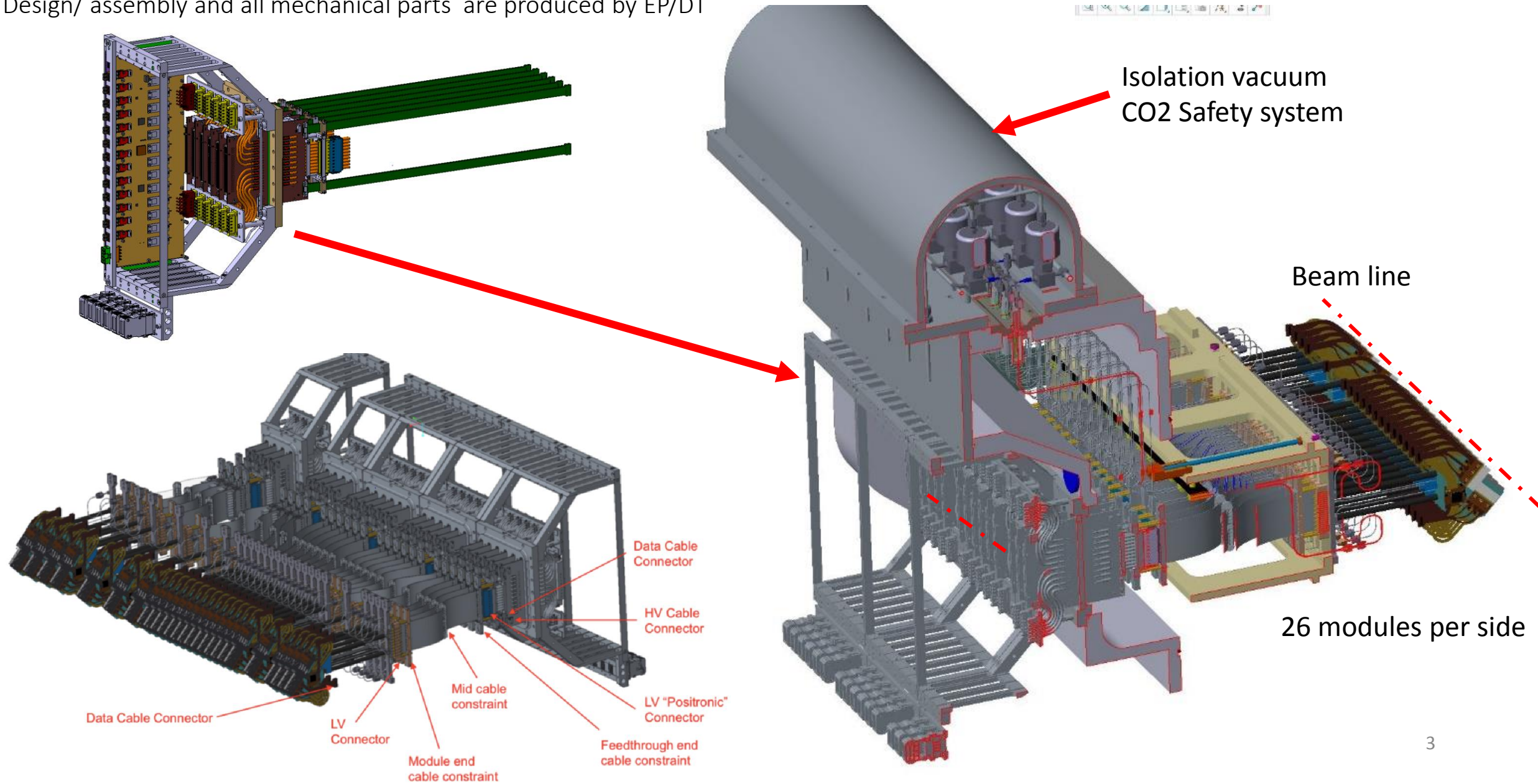
Successful testbeam with three modules



VELO Vacuum feedthroughs

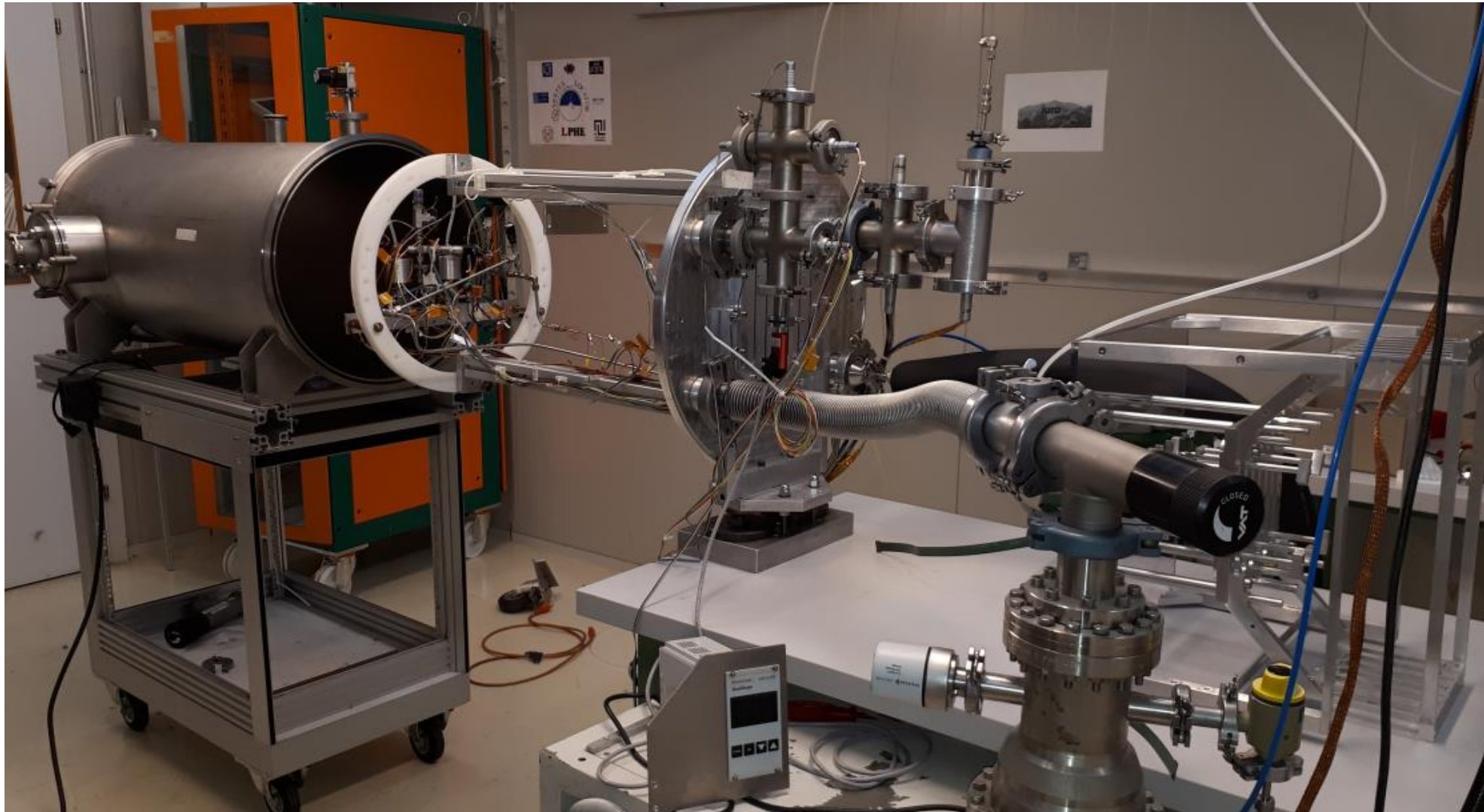
They consist of different complex assembly parts in a tight area that will allow the powering and the readout system to go out of the secondary vacuum volume of the VELO detector

Design/ assembly and all mechanical parts are produced by EP/DT



New mini VELO stand under construction (max. 2 modules in parallel)

- testing the full chain readout characterization using radioactive source (high speed rate) under vacuum at -25C.
- vacuum feedthrough quality control stand (electrical test , leak test)
- testing the well behaviour of the CO2 safety system.



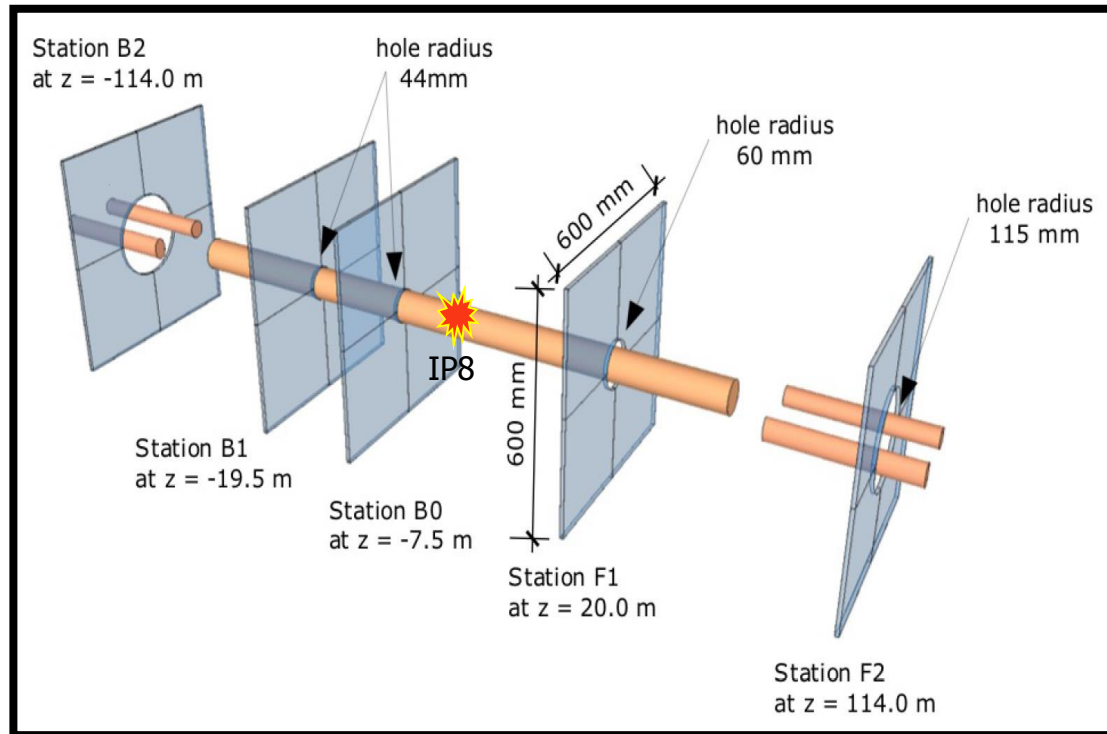
Task for the coming 2 years on the VELO

- Technical and engineering support to the VELO upgrade project.
- continued technical advice for planning the 2020 VELO Upgrade installation and de-installation procedures. (mostly in the cavern)
- helping students/fellows on hardware of the cooling system and the safety system, including the soldering of the connector to the micro channel substrates (production ongoing at CERN)
- Participation and advice to the LHCb designer team for service integration: cables, vacuum, cooling pipes, detectors installation, etc.
- launch the mass production in situ of the Vacuum feedthrough board including required test (3-4 months)
- completed the new Mini VELO testing readout chain stand (1month)

➤ **Resources: 0.85 FTE of Raphael Dumps**

Project: LHCb HERSHEL

- partial dismantlement of 5 stations (magnet survey) (1week)
- rebuilt 20 scintillators for LS2 under discussion ? (1-2month)
- reinstallation of the 5 stations including the test required (1month)

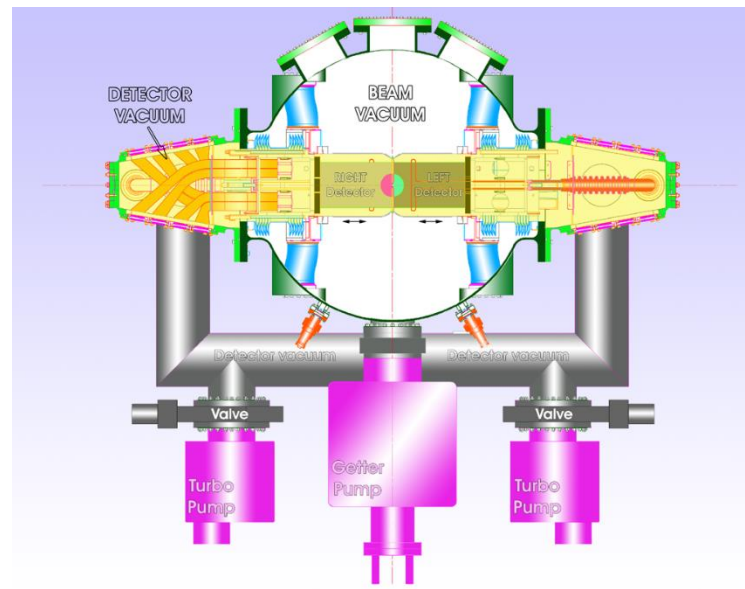


Project: LHCb VELO 2030 run5

Very high radiation level

Easy replaceable detector

Remove the foil



Wires instead of RF-foil ?

The wires should move out during beams injection !

