

CMS Gas System Status meeting

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Gas System Activities 2025 Improvement And New Systems



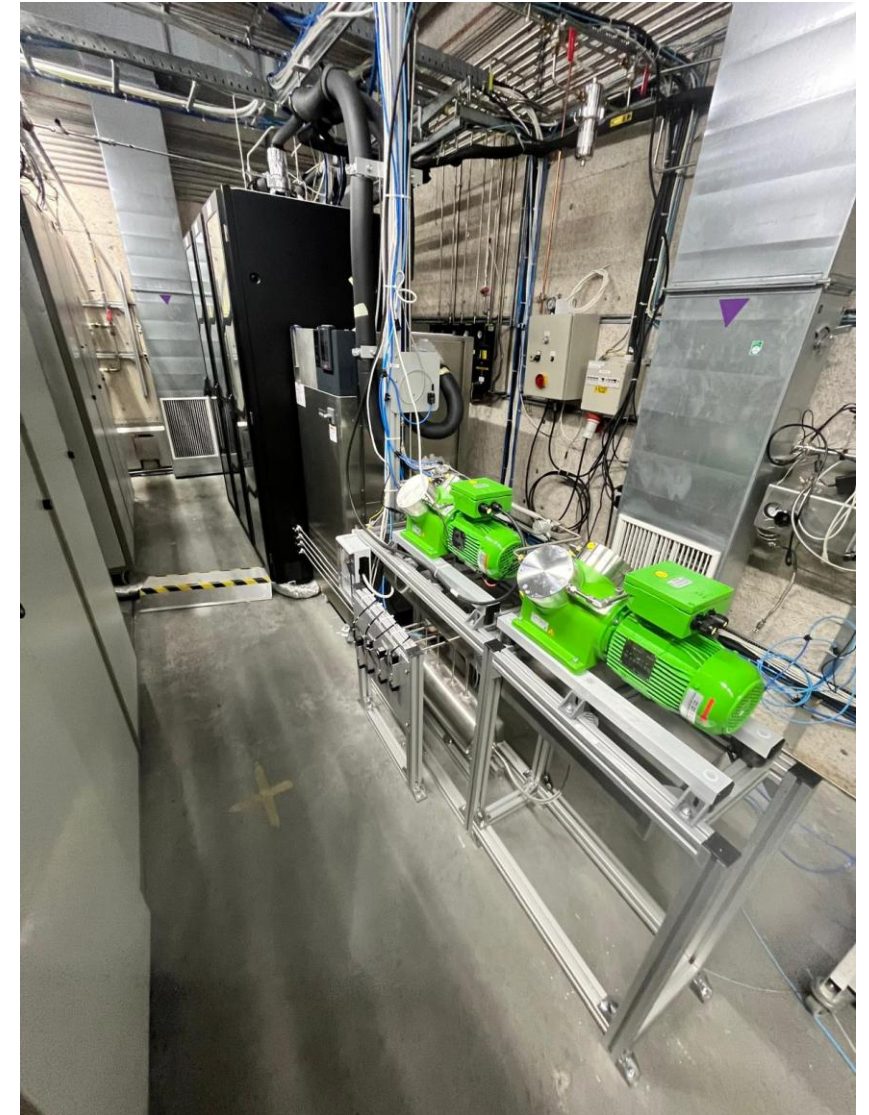
RPC 134a recuperation consolidation

OVERVIEW

- ❖ Installation of 2 new pumps, the first pump used had too many maintenance constraints.
- ❖ We decided to change the type of pump and therefore redesign the setup for a new integration.



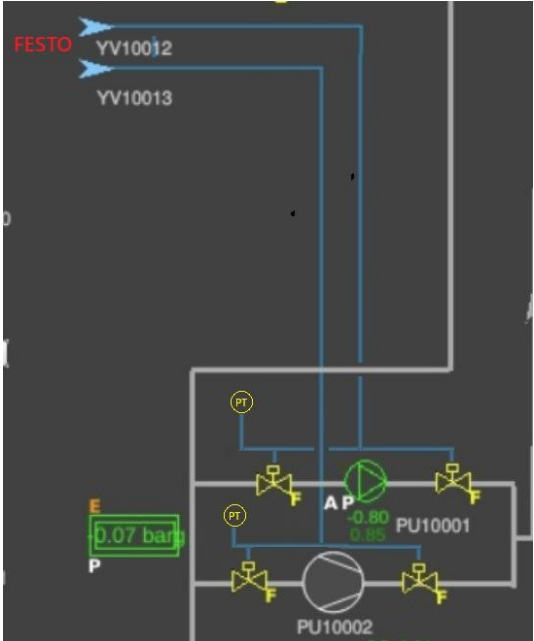
- ❖ New pipes done for integration
- ❖ Construction new support for pump



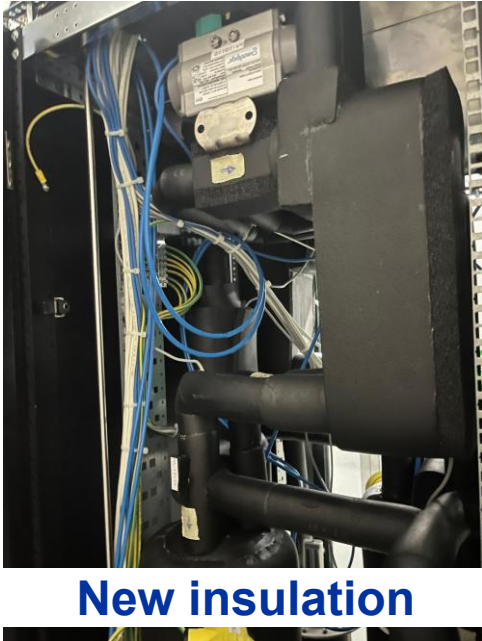
Few Details

- ❖ New pneumatics valve installed, to swap remotely the pump.
- ❖ New piping with flexible installed
- ❖ Modification software on going
- ❖ New isolation

Software modification



New valves and piping



New insulation

RPC SF6 recuperation

- ❖ SF6 recuperation test on going, a lot of new components have been installed and tested
- ❖ First measurement of SF6 distillate at -40 C done
- ❖ Awaiting new resources to continue the project



CSC CF4 recuperation

- ❖ Installation third batterie for recuperation.
- ❖ New injection line added



Injection line



Main panel



Batteries room



New software control panel

2025 Standard Maintenance

❖ Distribution racks

❖ RPC

- ❖ Control bubblers
- ❖ Calibration flowcells + motherboard
- ❖ Safety valves

❖ CSC

- ❖ Control bubblers
- ❖ Calibration flowcells
- ❖ Adjust backup

❖ DT

- ❖ Control bubblers in single line
- ❖ Safety valves

❖ Mixers, exhausts, purifiers, humidifier, pump.

❖ RPC, CSC, DT, GEM

❖ Change filters purifiers & pump

- ❖ Done for RPC, CSC all purifiers

❖ Calibration mixer

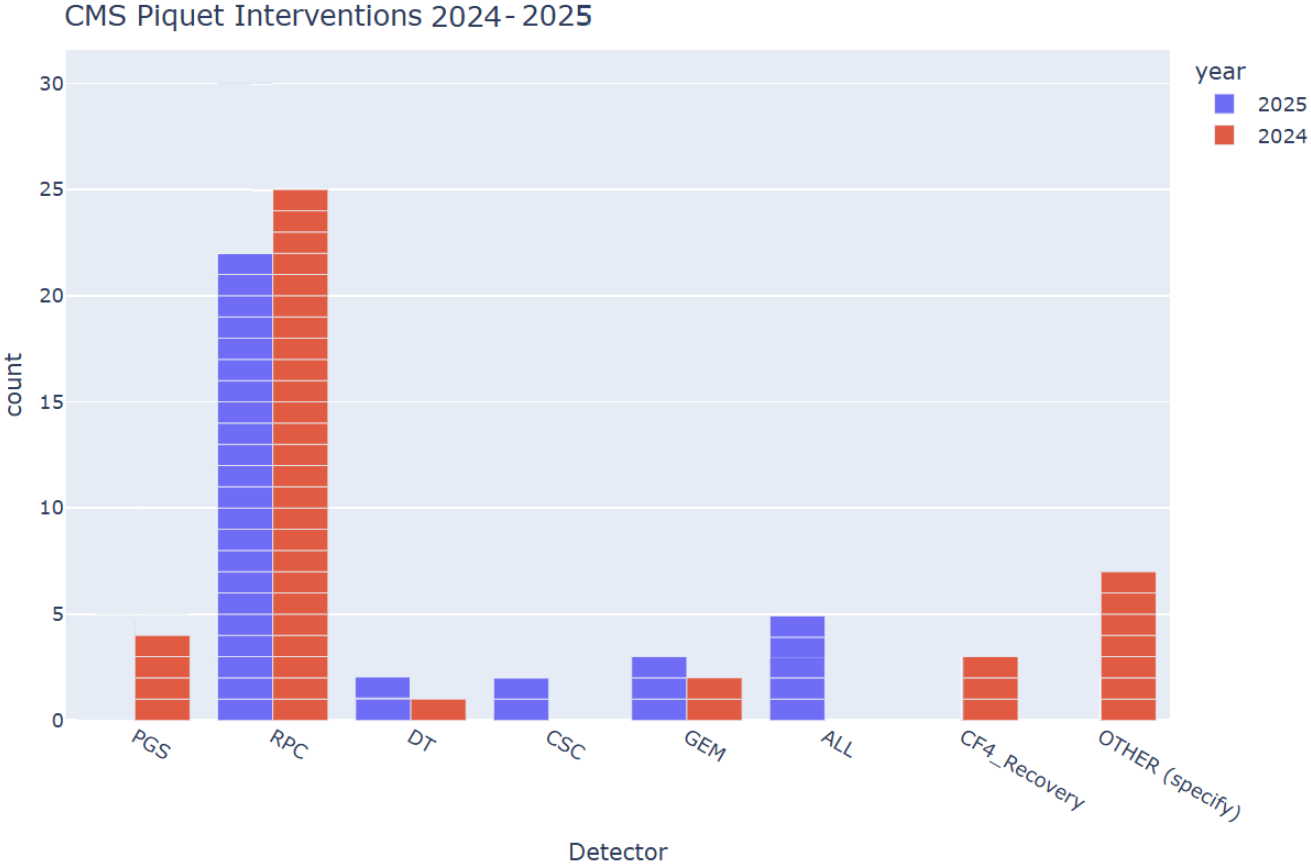
- ❖ Done for RPC: isobutane

❖ Check status purifier pump

- ❖ Purifier1 RPC pump changed

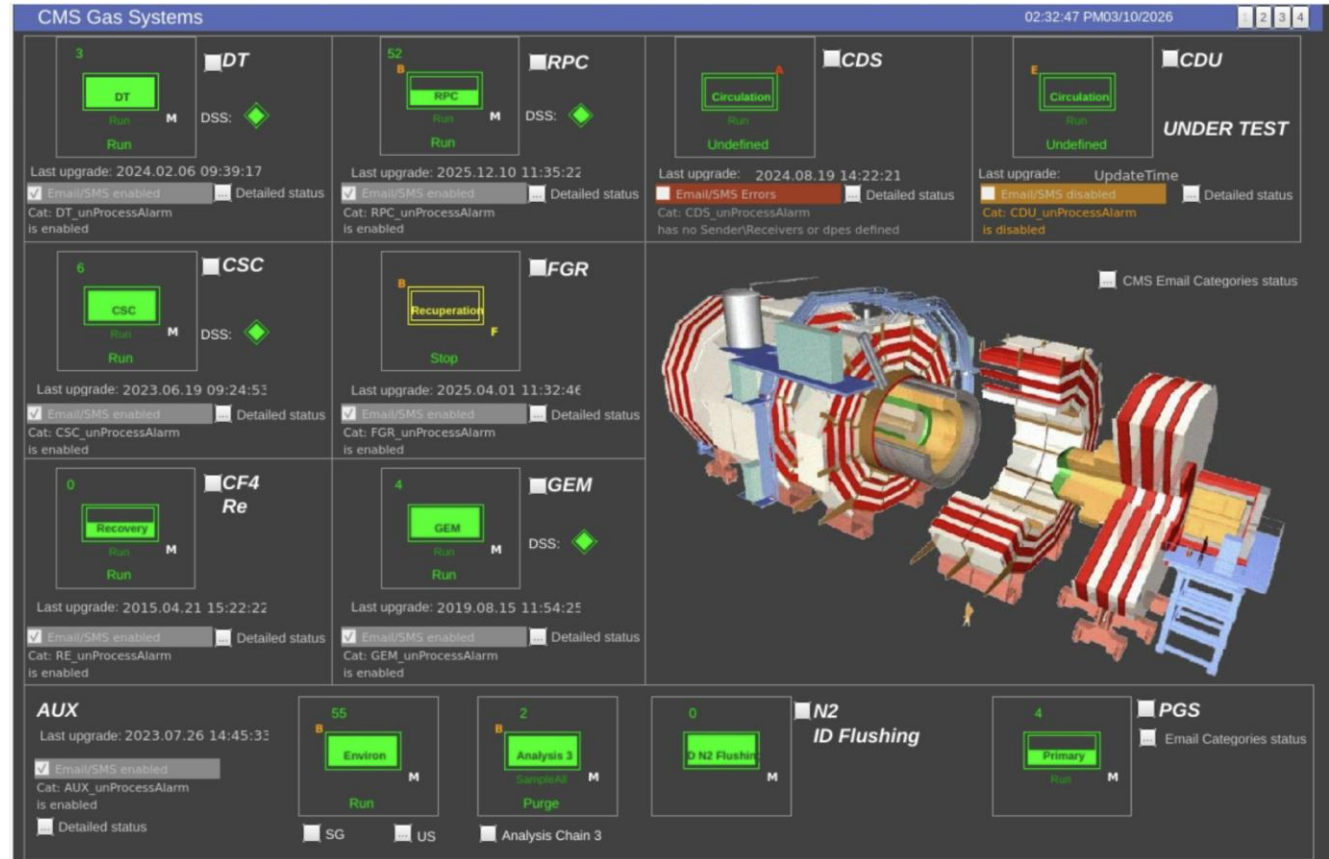
Piquet Interventions 2025 By Systems

- ❖ RPC 22 interventions:
 - Regulation valves, Purifiers
- ❖ DT 2 interventions:
 - Pump
 - Regulation valve
- ❖ CSC 2 interventions:
 - Operation request
 - Batterie level CF4 recovery
- ❖ GEM 2 interventions:
 - Communications,
 - Operation request
- ❖ PGS 0 intervention:
 - Not covered since 2025



Gas System Status

- ❖ **RPC**
 - ❖ In RUN with standard mixture nominal flow, with purifiers 2&3.
- ❖ **DT**
 - ❖ RUN in OPEN loop, standard mixture
- ❖ **CSC**
 - ❖ RUN standard mixture, and recovery CF4 in RUN
 - ❖ Mixture with fresh/recovered CF4 50/50
- ❖ **GEM**
 - ❖ RUN AR/CO2 70/30%



CMS Planning 2026

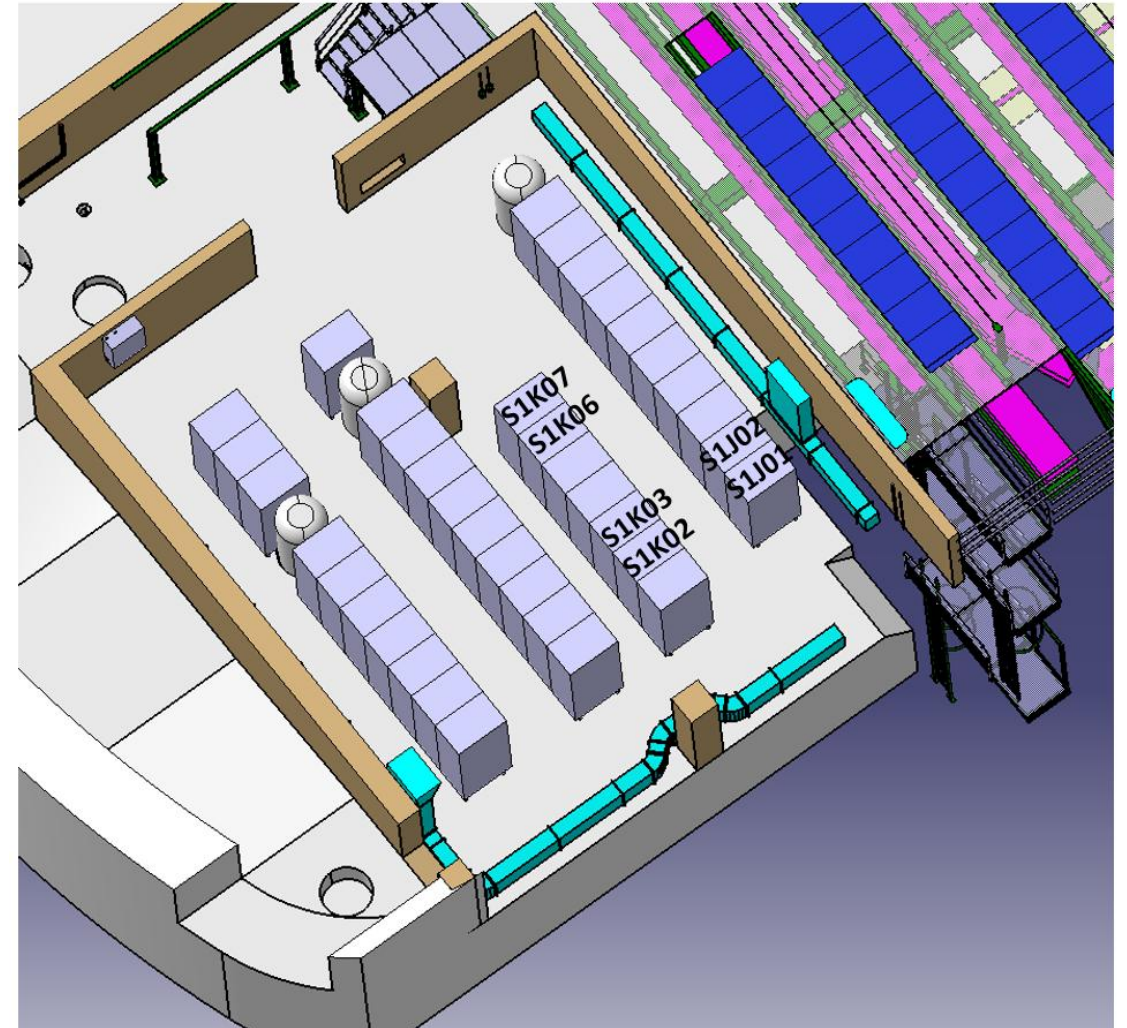


New System For Flushing USC

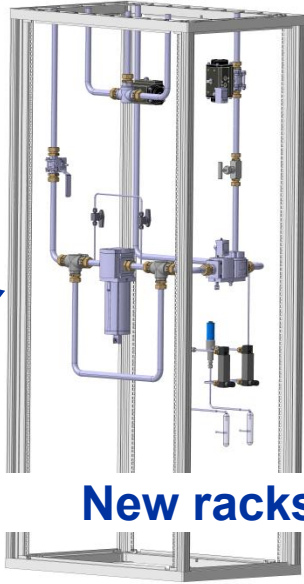
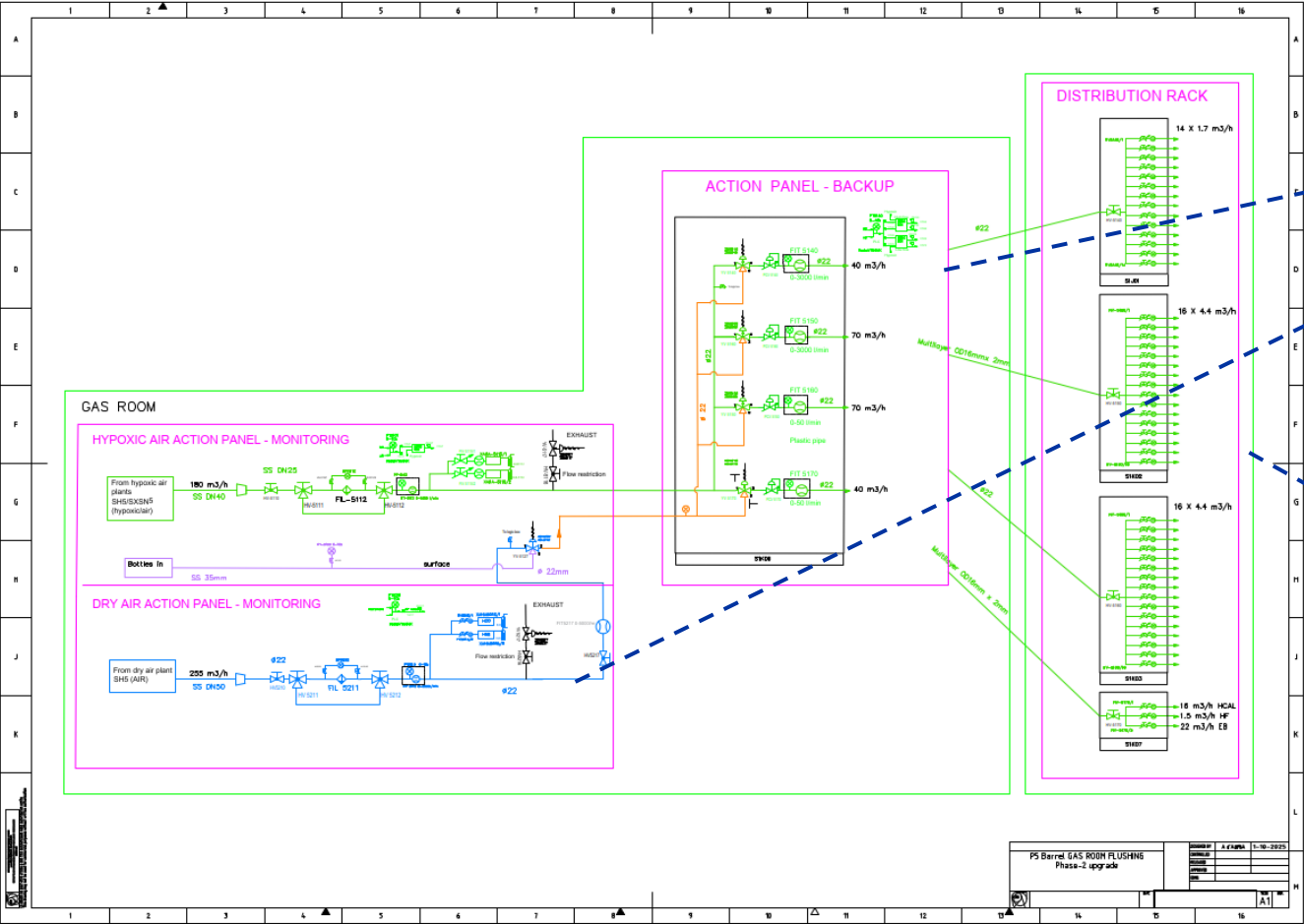
- **GAS ROOM PHASE2**

- ❖ **3 new racks built**

- 2 actions rack S1K06&S1K07
- 1 Backup rack S1K01
- 2 distributions racks modified: S1J01, S1K03



P&ID Gas Room Phase2



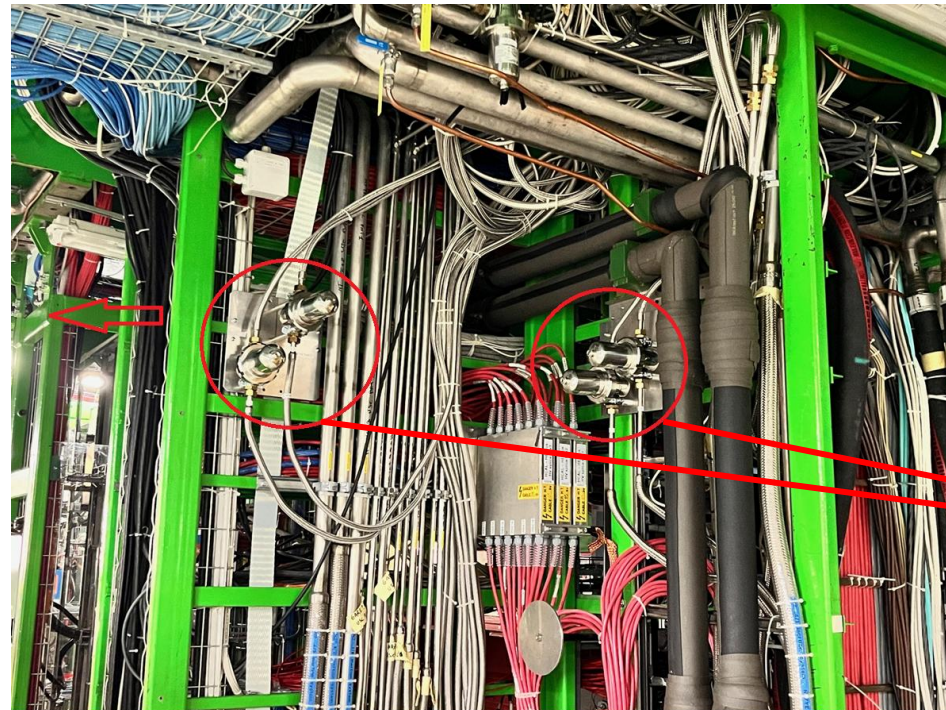
New racks



Modified racks

Filters for distribution racks RPC and GEM

- ❖ All filters should be relocated on the side of the detector and found new rooting pipe.
 - ❖ Due to the Installation of a CO2 cooling manifold at the X1 PP FAR and NEAR side

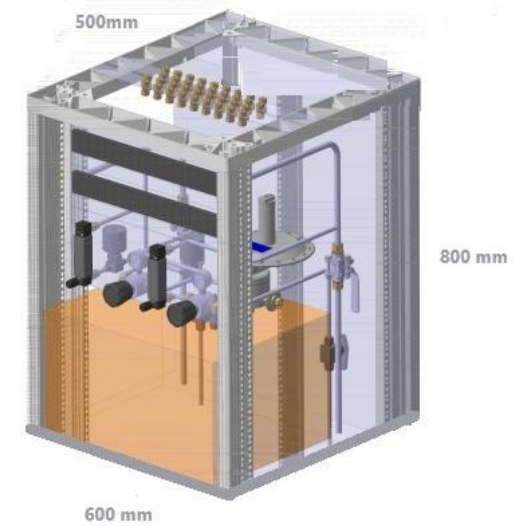


Filters

Construction new distribution rack for GEM ME0

- ❖ Special size for these 2 racks, no much place for the integration
- ❖ Position rack X2 right and left side of GEM2/1 and GEM-2/1

Rack construction ongoing



Rack Designed 800 x 60 x 50cm

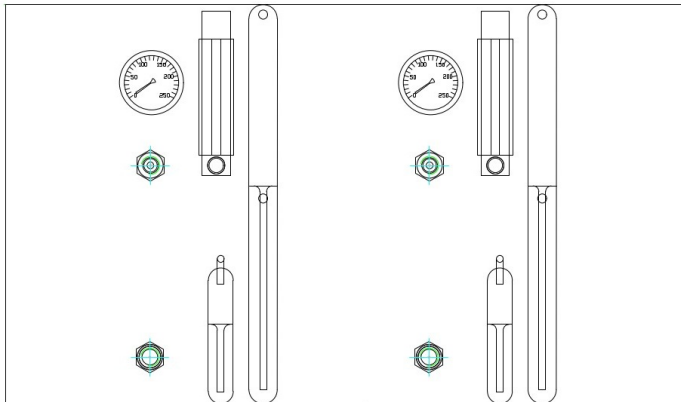
Others Future Tasks

- ❖ **NEW SYSTEM FOR SF6 recuperation in preparation, waiting for the current one**
 - ❖ Drawing 2D done
 - ❖ P&I in work
- ❖ **NEW system with new COOLING FOR 134a recuperation**
 - ❖ Increase the efficiency
 - ❖ P&I in work
- ❖ **Research of new component:**
 - ❖ Compressors, Valves, sensors etc...
- ❖ **LS3**
 - ❖ Next presentation

904

❖ CSC

- ❖ 4 NEW panels of distributions:
 - ❖ Material orders
 - ❖ Construction
 - ❖ Installation
- ❖ New MFC for 200l/h
 - ❖ Installation
 - ❖ Software upgrade



❖ RPC

- ❖ New humidifier for N2
 - ❖ Material orders
 - ❖ Construction
 - ❖ Installation
- ❖ Distributions Pipes modification
- ❖ addition of a new pressure regulator in the distribution system