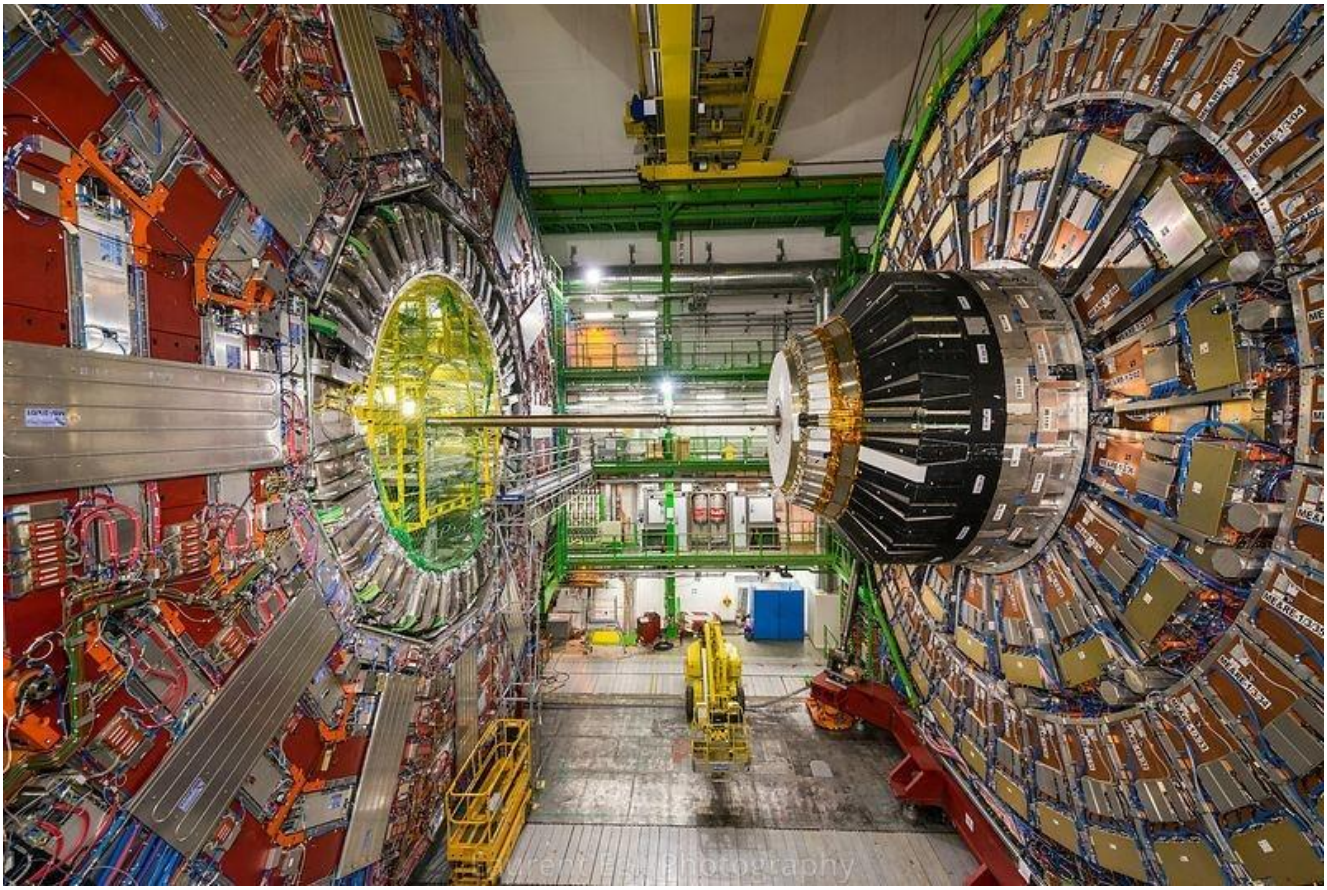
CMS 2024



GAS SYSTEM ACTIVITIES 2024

IMPROVEMENT AND NEW SYSTEMS

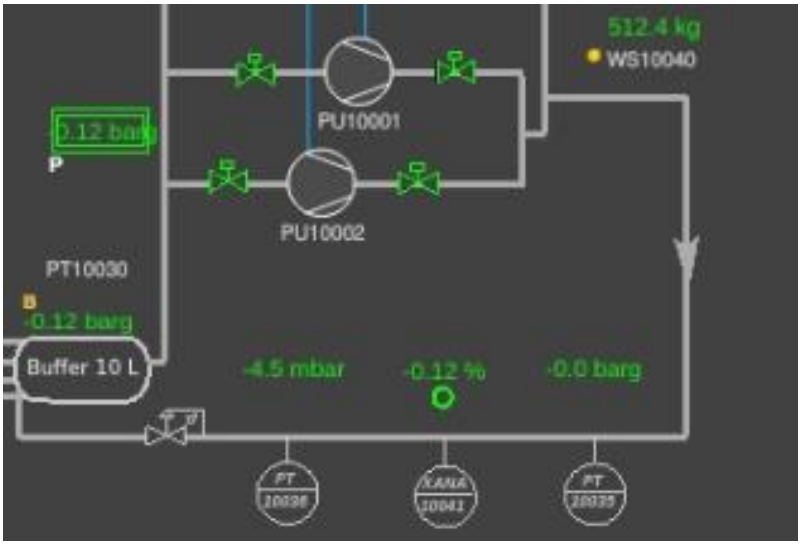
❖ RPC 134a recuperation consolidation

- Installation second MFC to increase the flow from exhaust module until 1000l/h

- Modification software on going

- Installation of 4 valves and 4 rotameters to adjust the flow for each column
  - ❖ New pipes done for integration
  - ❖ Construction new support for pump
  - ❖ New analysis module added with rotative valve

- New pneumatics valve installed, to swap remotely the pump.
- New piping with flexible installed
- Modification software done



❖ RPC Sf6 recuperation

Sf6 recuperation test on going, a lot of new components have been installed:

new Lauda, rotametres buffer etc

Many leaks test performed.

System tested in few modes.

GC installed

First measurement of SF6 distillate at -40 C

NEW SYSTEMS 2024

❖ New flushing phase2 systems for SX5 and SXA5

➢ 7 RACKS installed and commissioned

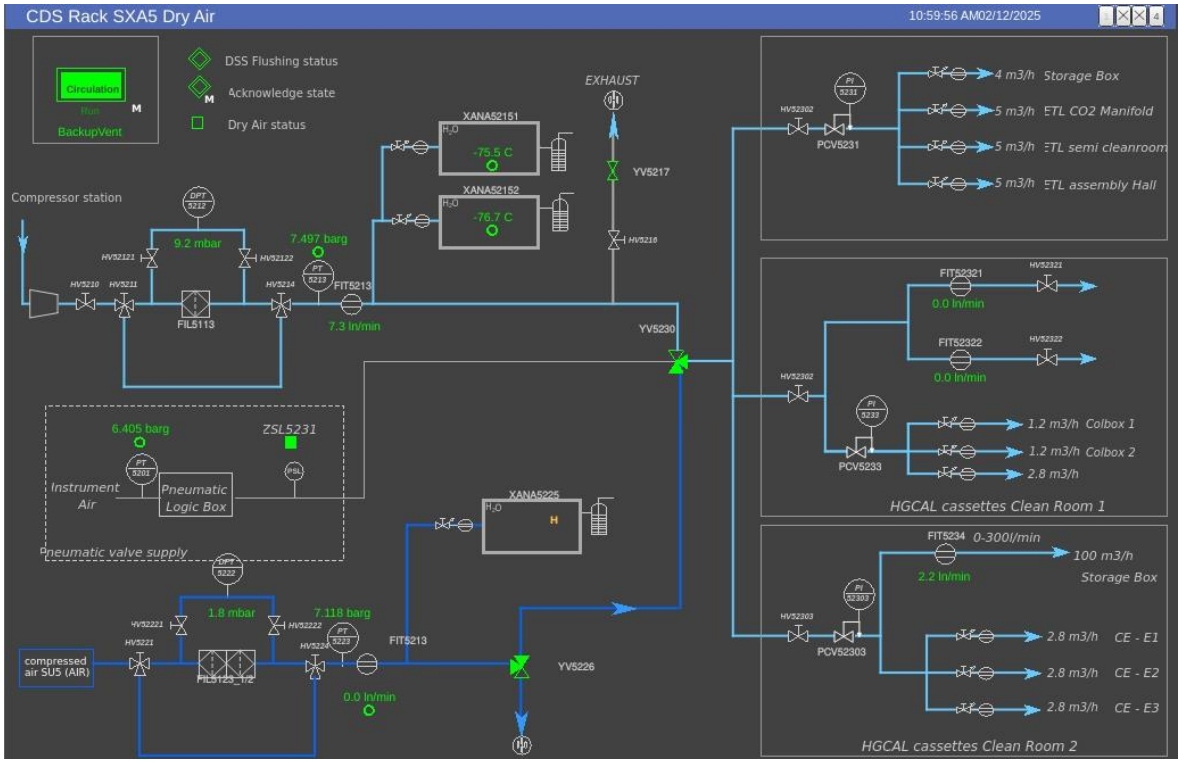
1 SXA5 action panel

3 Distributions racks for Labs

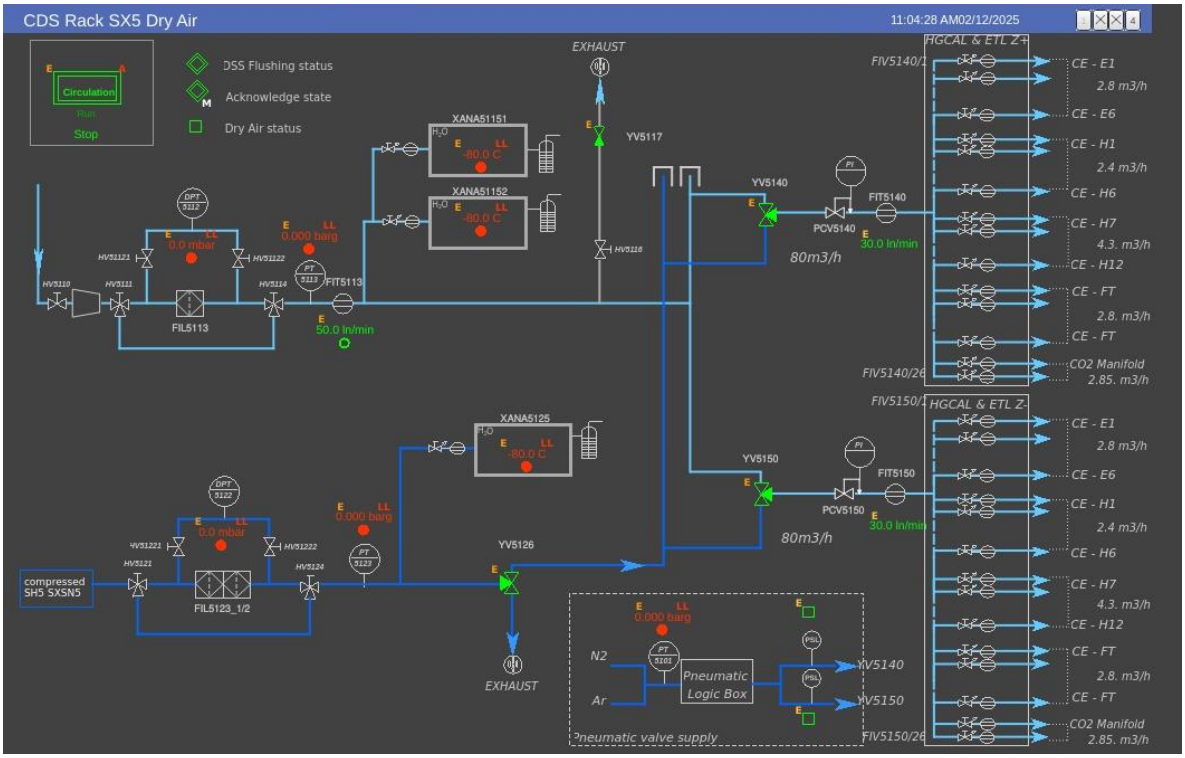
2 Distributions racks and

1 Action panel rack in SX5

❖ New flushing phase2 software for SXA5 in RUN



❖ New flushing phase2 software for SX5 not yet commissioned



❖NEW SYSTEM FOR FLUSHING USC PHASE2

❖6 new racks built

- **2 actions racks**
- **1 Backup rack**
- **2 distributions racks in X0**
- **1 distribution rack CO2 cooling**

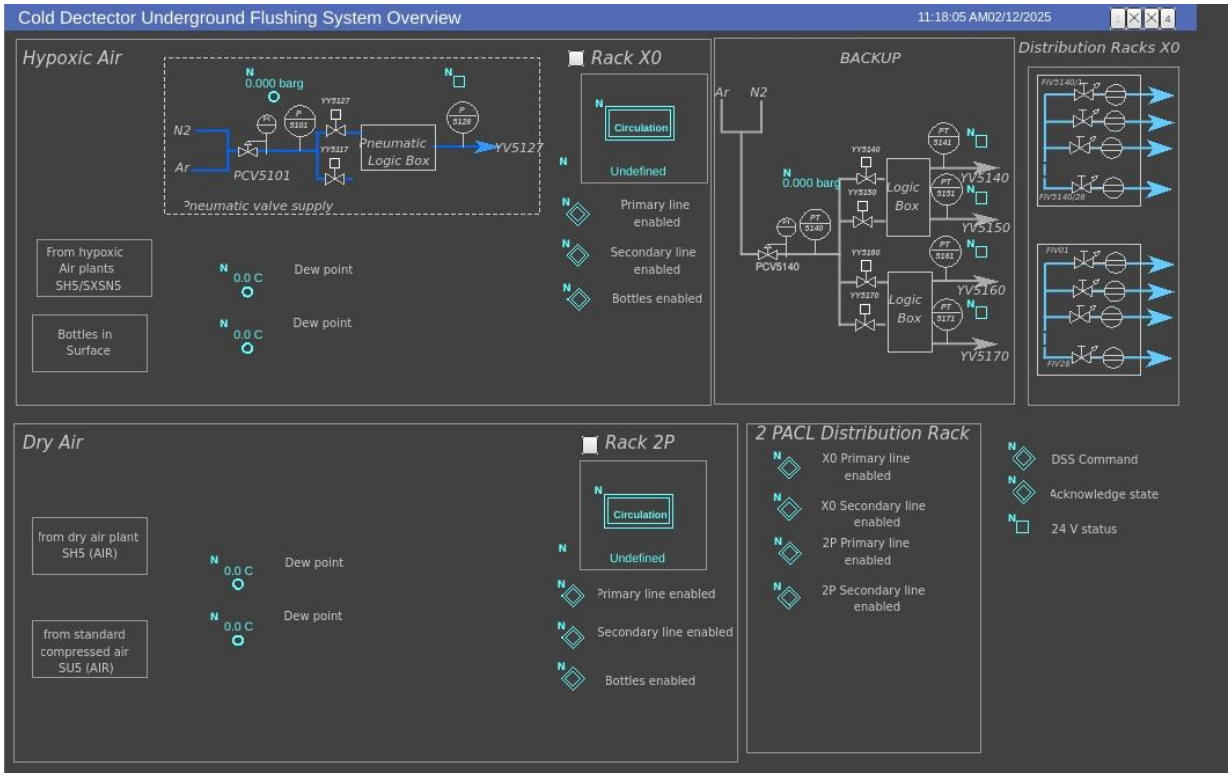
GENERAL RACKS VIEW

Actions Backup Distribution

2 distributions racks in X0

Already installed

New software



STANDARD MAINTENANCE

➢ Distribution racks

➢ RPC

- Control bubblers
- Calibration flowcells
- Plastic pipes installed on bubblers to avoid oil on electronics chassis
- Safety valves 2025

➢ CSC

- Control bubblers
- Adjust backup

➢ DT

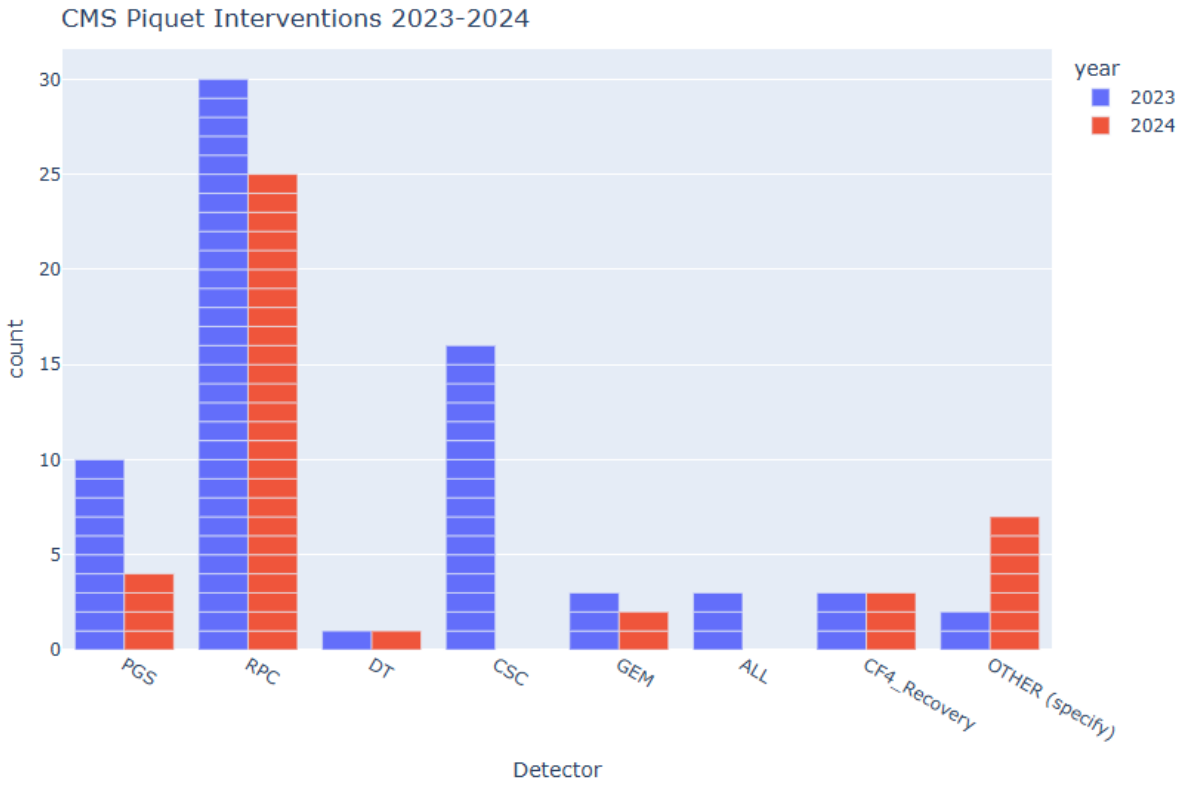
- Control bubblers in single line
- Safety valves in 2025

➢ Mixers, exhausts, purifiers, humidifier.

- **RPC, CSC, DT, GEM**
  - Change filters purifiers & exhaust
  - Change non-return
    - **Done for RPC, CSC all purifiers**
  - Calibration mixer
    - **Done for RPC: isobutane**
    - **Done for CSC: CF4, AR, CO2**
  - Change water pump humidifier (RPC)
  - Clean pressure regulator
  - Check status purifier pump
    - **Purifier CSC pump changed**
    - **Purifier1 RPC pump changed**

➢ PIQUET INTERVENTIONS 2024 BY SYSTEMS

- RPC 25 interventions:
  - Regulation valves, Purifiers
- DT 1 intervention:
  - ELMB readout
- CSC no interventions:
- GEM 2 interventions:
  - Pump, flowcells
- PGS 4 interventions:
  - Bottle pressure
  - Ventilation



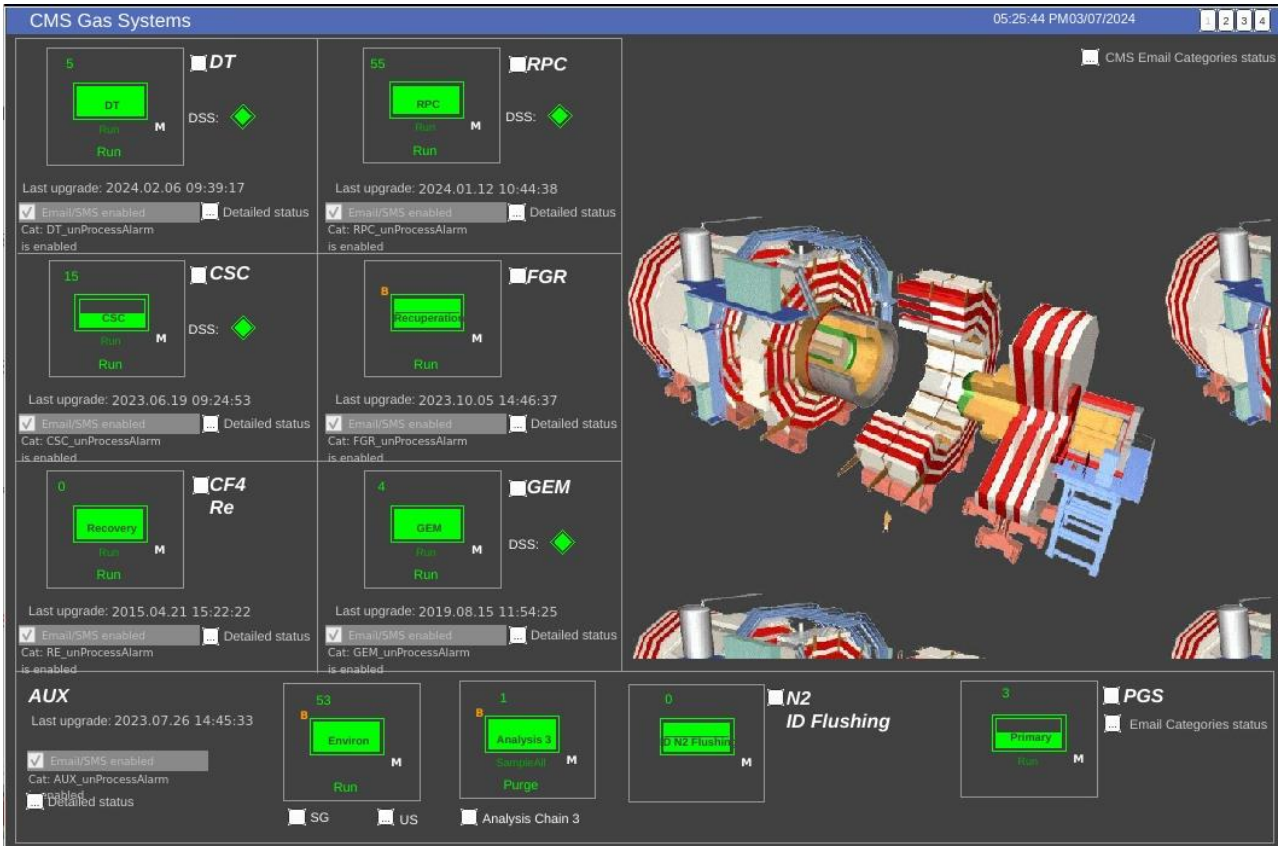
GAS SYSTEM STATUS

- **RPC**
  - **In RUN with standard mixture, without purifiers and 134a recuperation**

- **DT**
  - **RUN in CLOSE loop standard mixture**

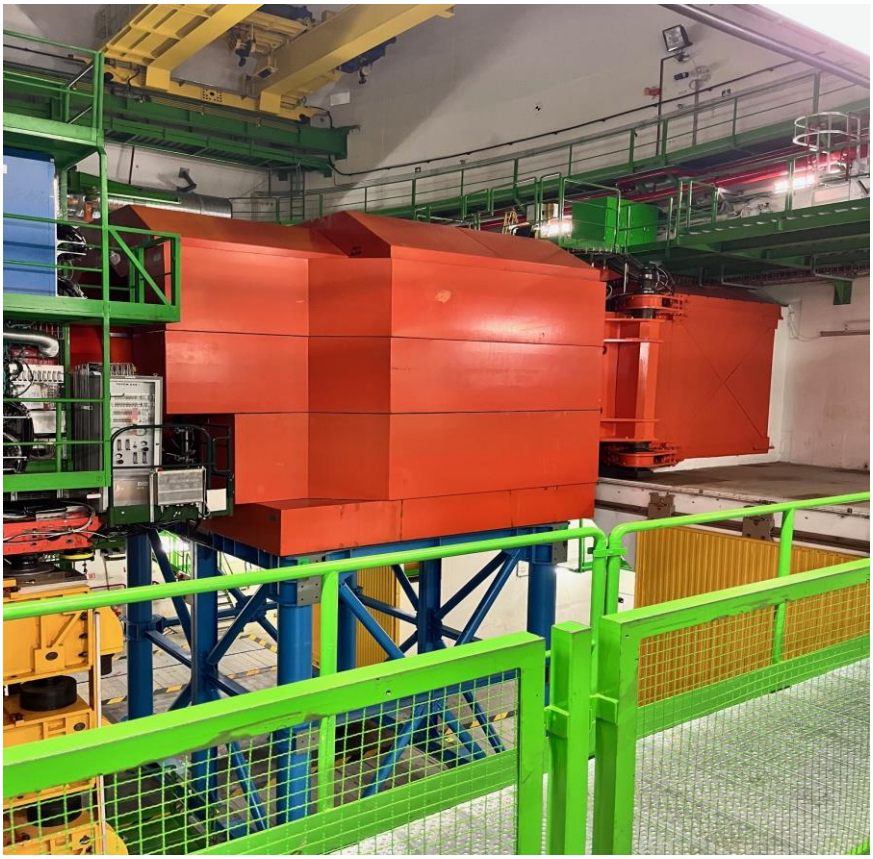
- **CSC**
  - **RUN standard mixture, and recovery CF4 in RUN**
  - **Mixture with fresh CF4 5%**

- **GEM**
  - **RUN CO2 100%**



A d'AURIA

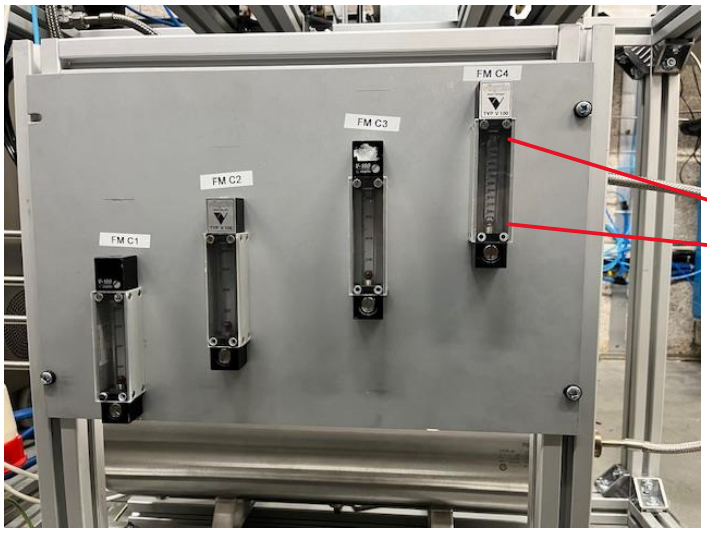
CMS 2025

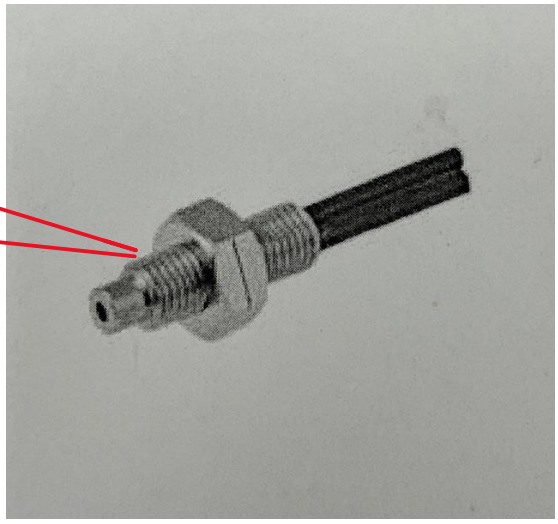


❖ RPC 134a recuperation consolidation

- Installation 134a detection head under the pump support
- Installation remote optic detection for the 4 rotameters for each column

Detection head

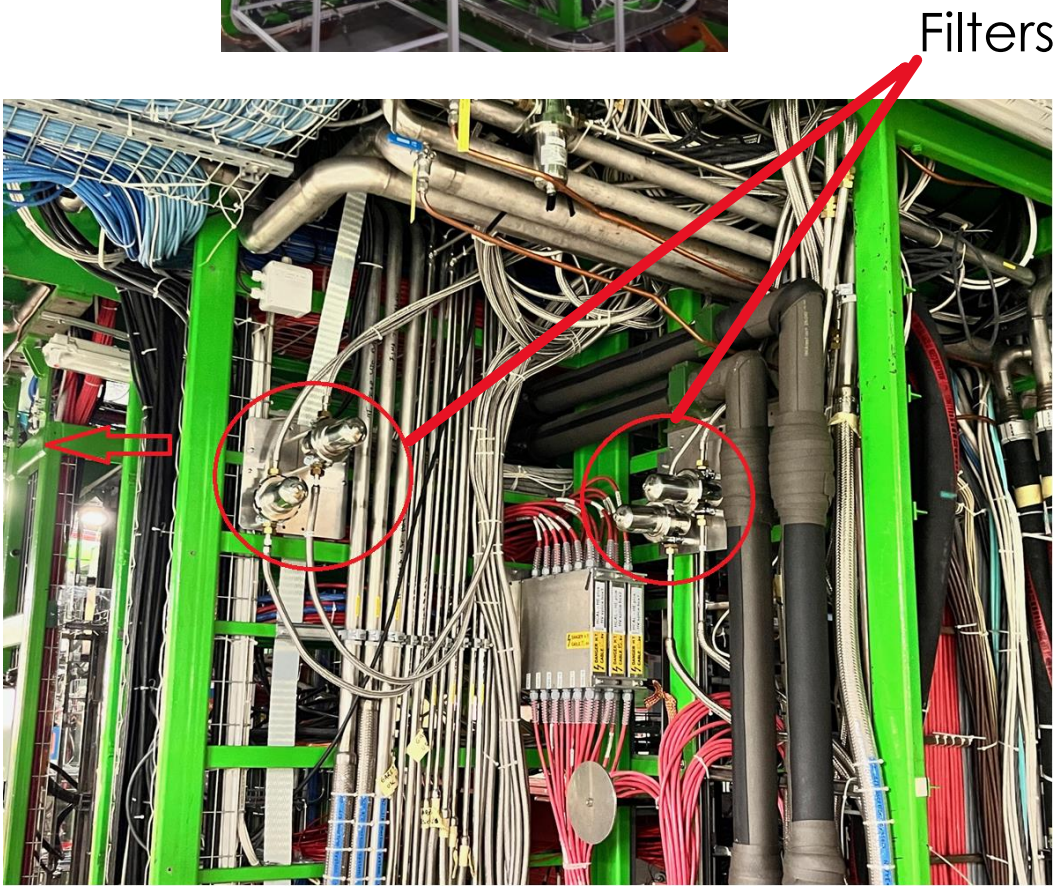




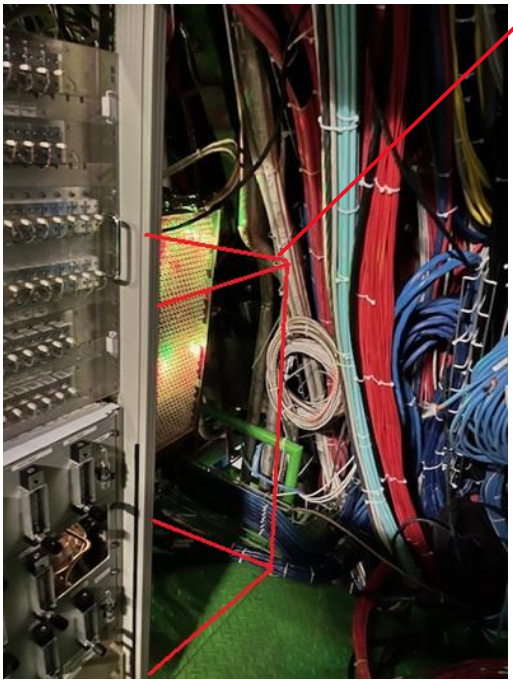
Optical flow detection

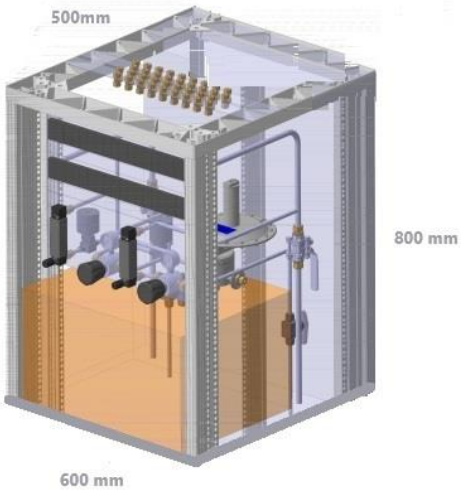
❖ Filters for distribution racks RPC and GEM

- 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

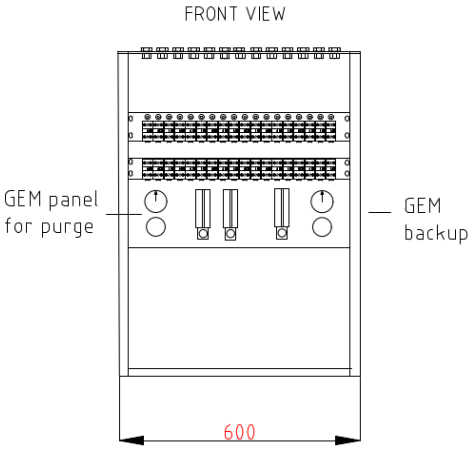


- **Construction new distribution rack for GEM ME0**
  - Special size for these 2 racks, no much place for the integration
  - Position rack X2 right side of GEM2/1



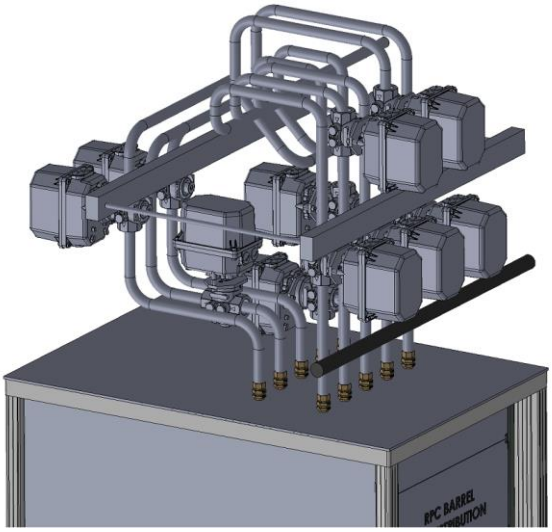


Rack installed 800 x 60 x 50cm

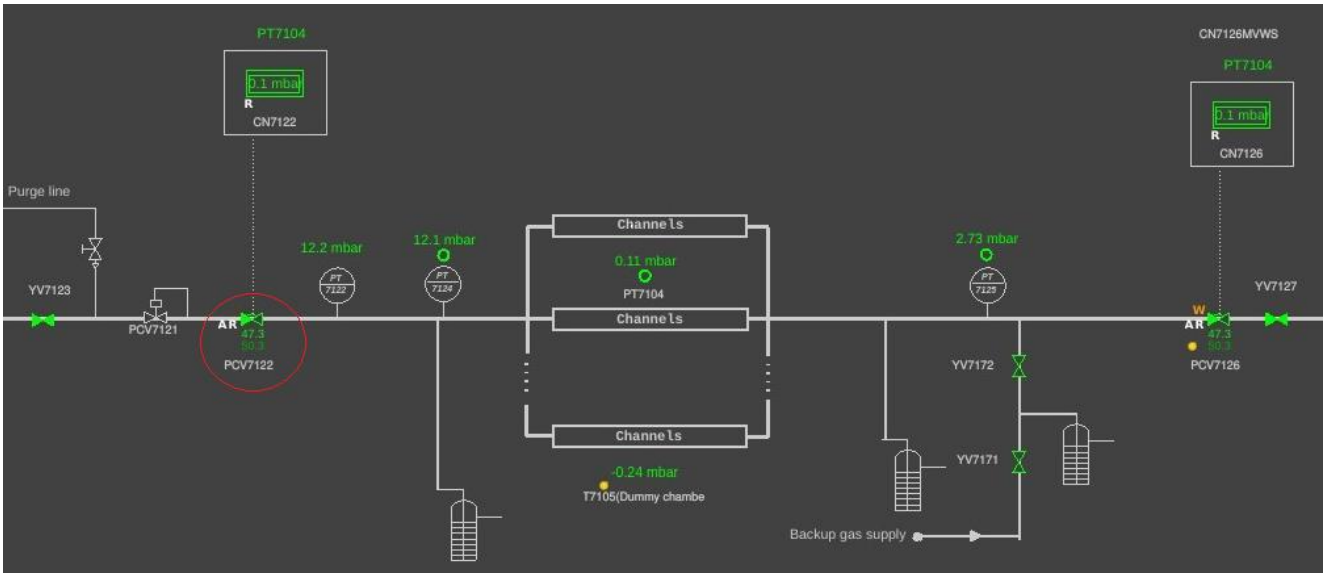


❖ Refine RPC restart to avoid pressure movements

- Installation new regulation valves ECONEX for each supply line of the Barrel in the pre-distribution racks USC gas room



- Pipes modifications needed, and special mechanical support.
- Software modification and commissioning



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 etc