

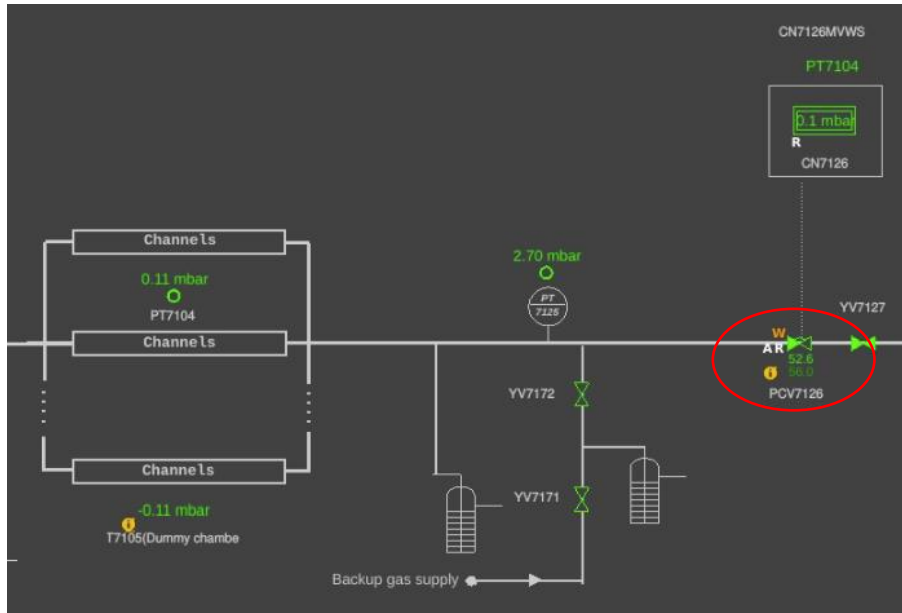
# Regulation valves studies

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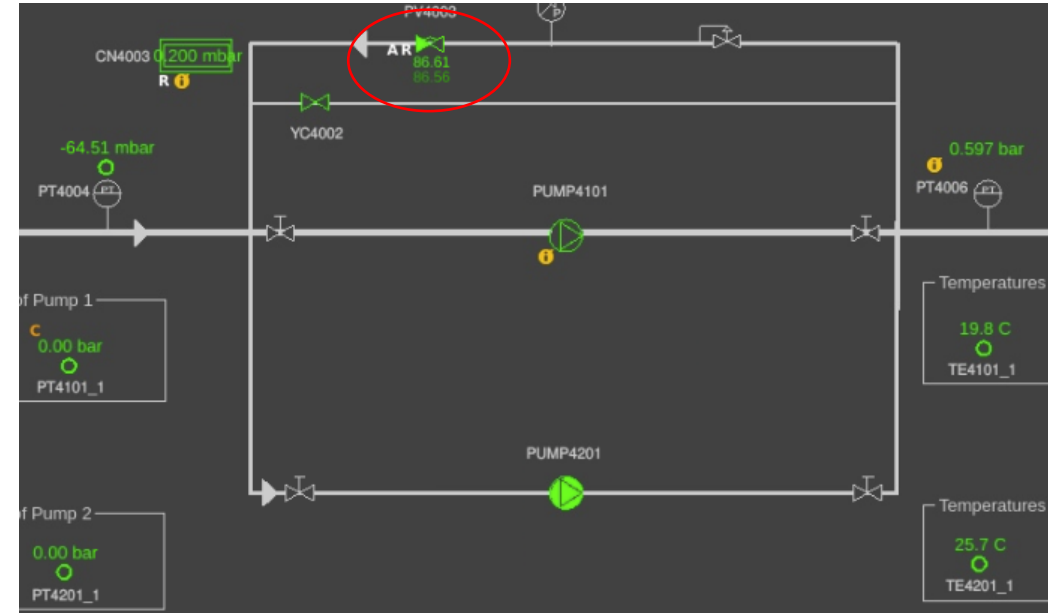
# Where do we have regulation valves?

CMS RPC distribution return



Regulating the chambers pressure

General pump module



Regulation of pump input pressure

# Where do we need regulation valves?

## Problems

ATLAS RPC distribution → can't install the same ECONEX valves as CMS because of the magnetic field

LHCb RICH1 pump → during filling and emptying phases, due to change in gas density, regulation valve reaches limits

In general, anywhere we want to regulate pressure in the system or we want to upgrade the manual valve into an automatic one

## Possible solutions

ECONEX valve with pneumatic actuator

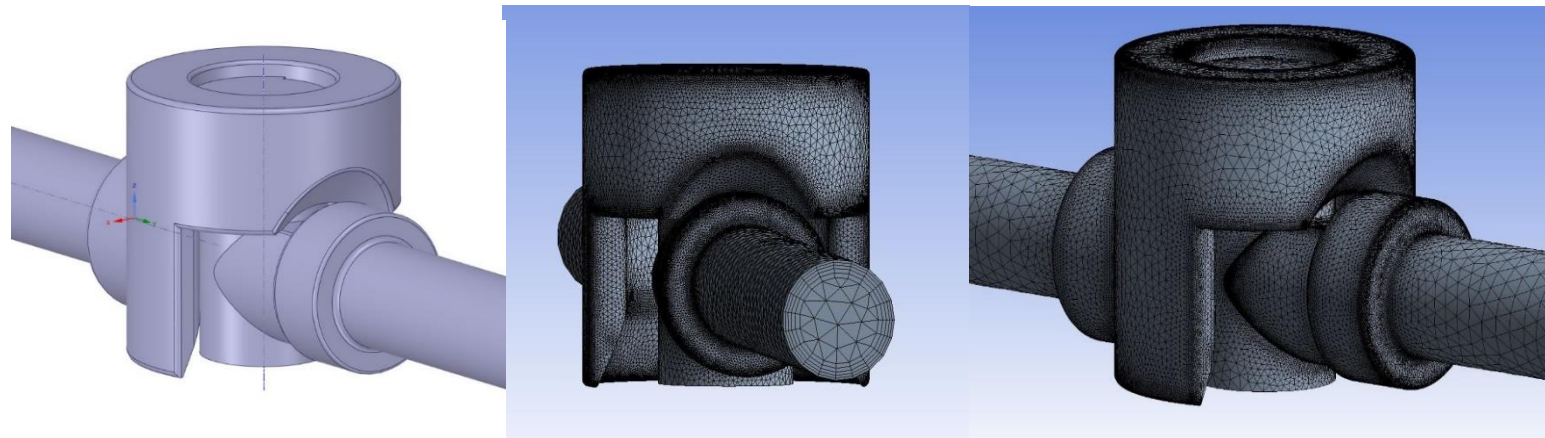
ECONEX valve with custom made seat

Stepper motor mounted on a manual valve

# ECONEX valves advantages



- Pneumatic actuator available, on-going discussion with the company
- Custom made seat from simulations and test bench in OT lab
- Reliable and cheap



# Stepper motor advantages

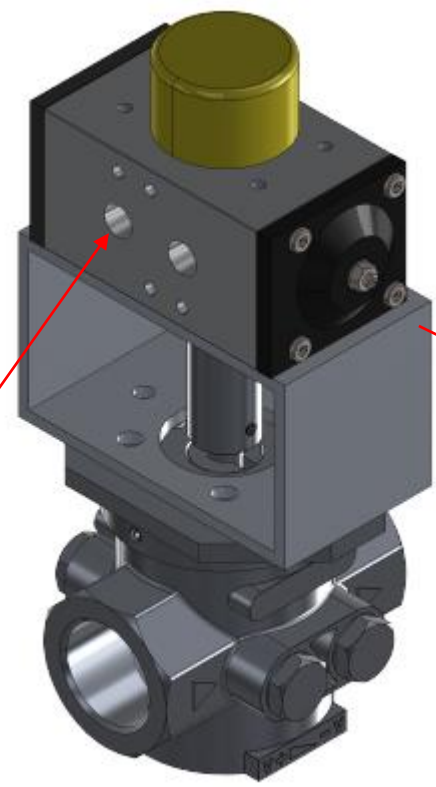
- Can be mounted on existing operating manual valves without opening or modifying the system
- Can be then extended on automatization of rotameters or whatever is currently manual and needs to be upgraded
- Pieter and I will start work on it in the OT lab soon

# Working principle

Electropneumatic positioner



Air supply from positioner



Pneumatic actuator

