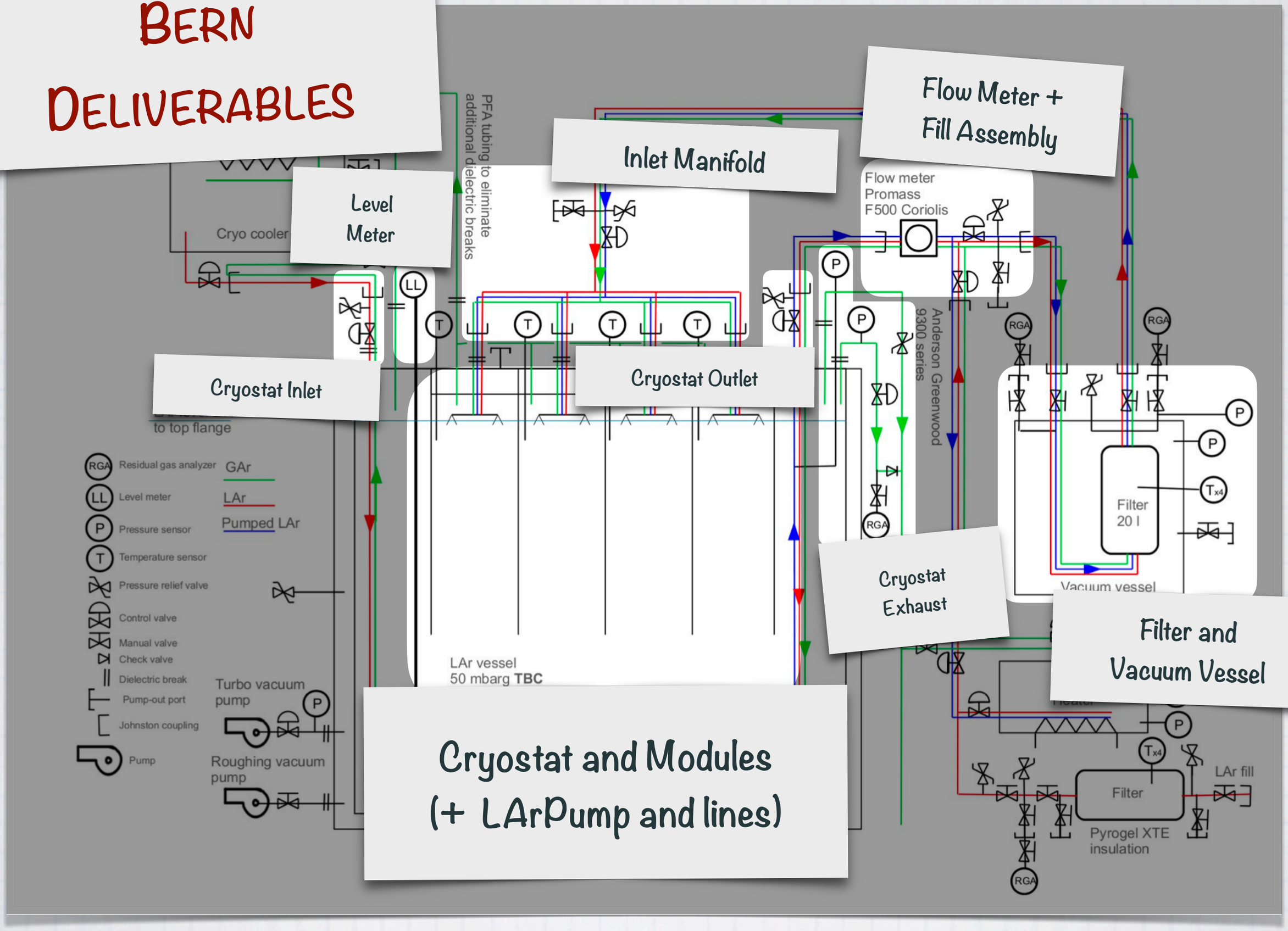
Update on Cryogenic System Design for ArgonCube 2x2

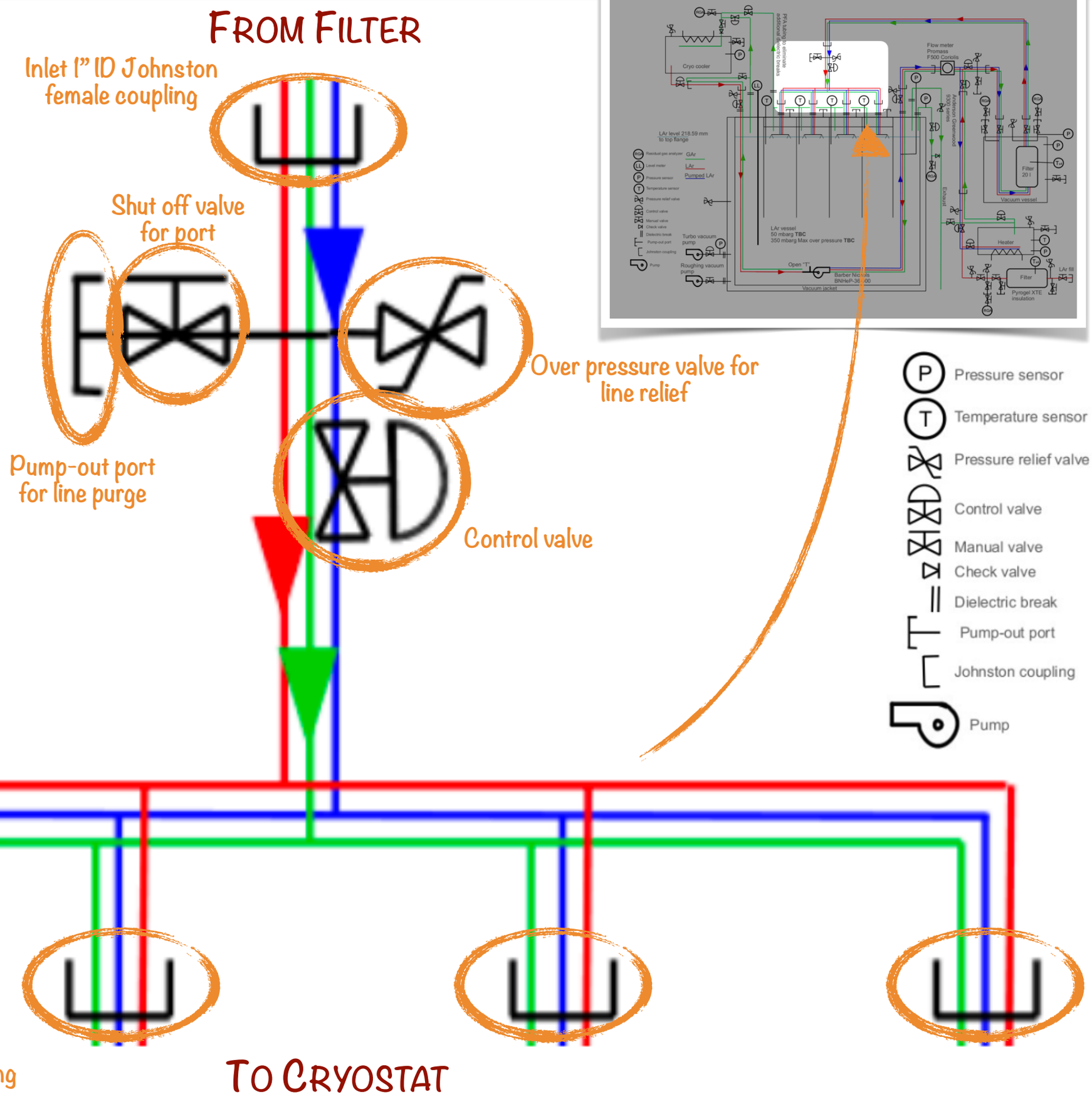
Davide Porzio
LHEP - University of Bern

Jul 26, 2021

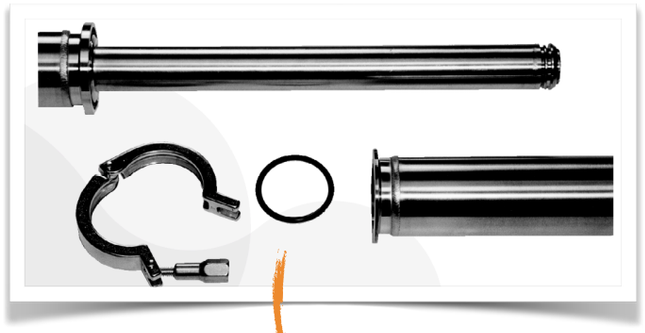
Bern Deliverables

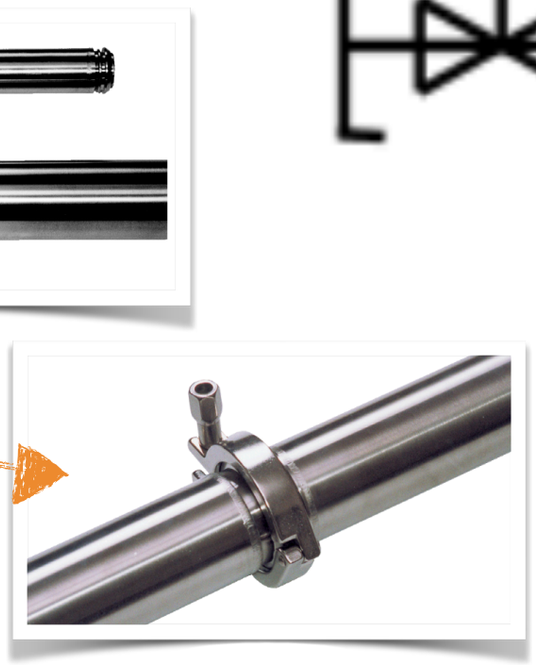


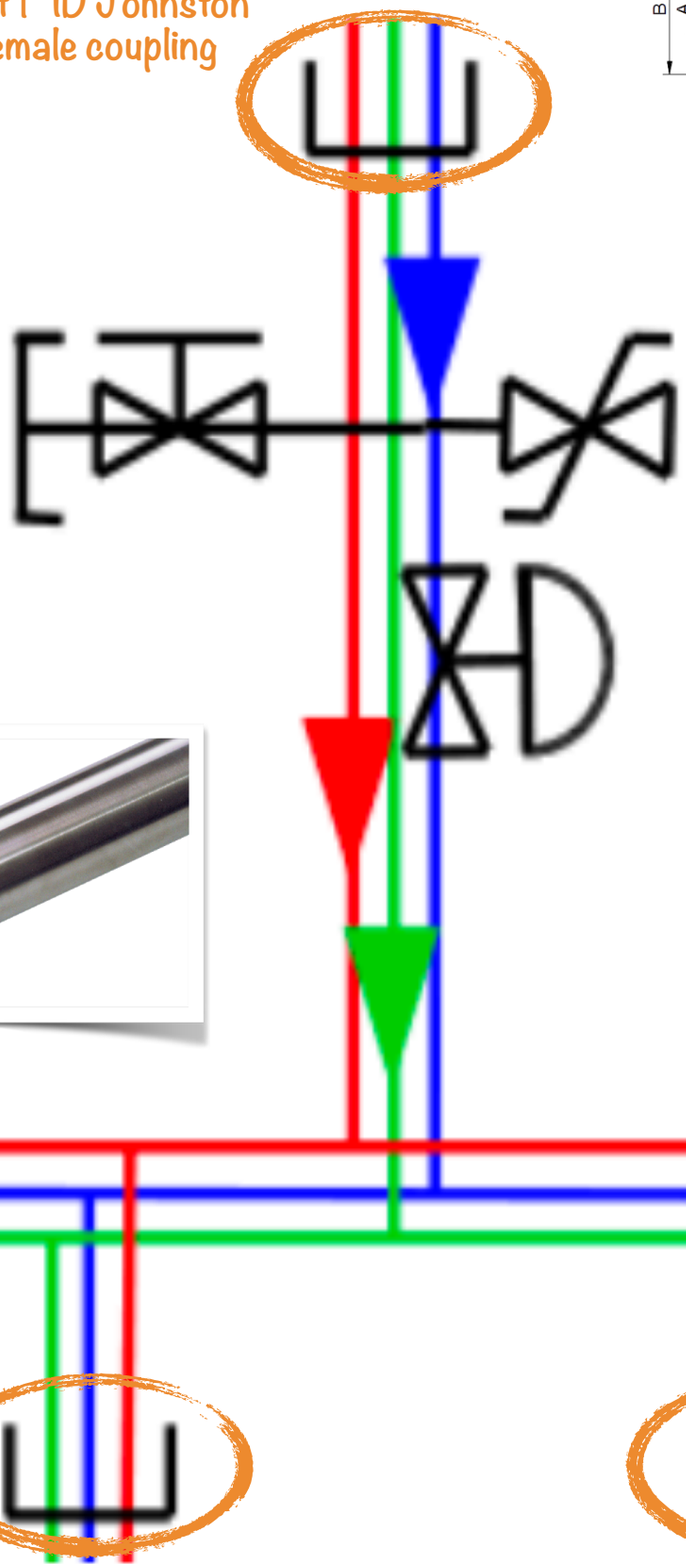
- **Inlet manifold**
- Rigid vacuum-jacketed manifold that distributes the filtered supply to the four modules.

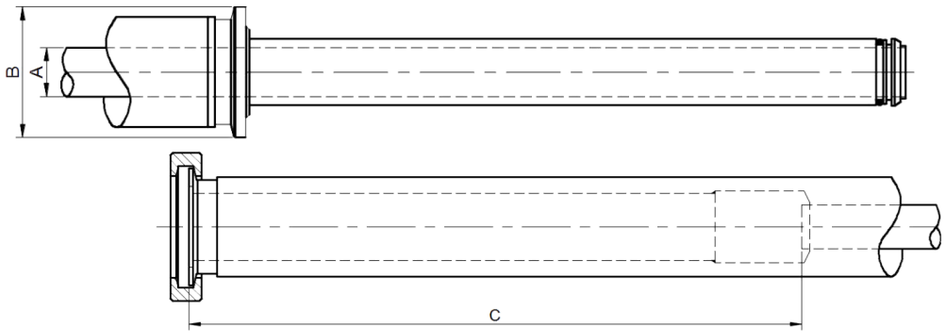


- **Johnston couplings**
- Stainless steel couplings used to connect vacuum insulated piping and vacuum insulated flexible spools.









DESIGN SPECIFICATIONS

According Pressure Equipment Directive (PED)

Applicable for AD2000, EN13480 or ASME B31.3

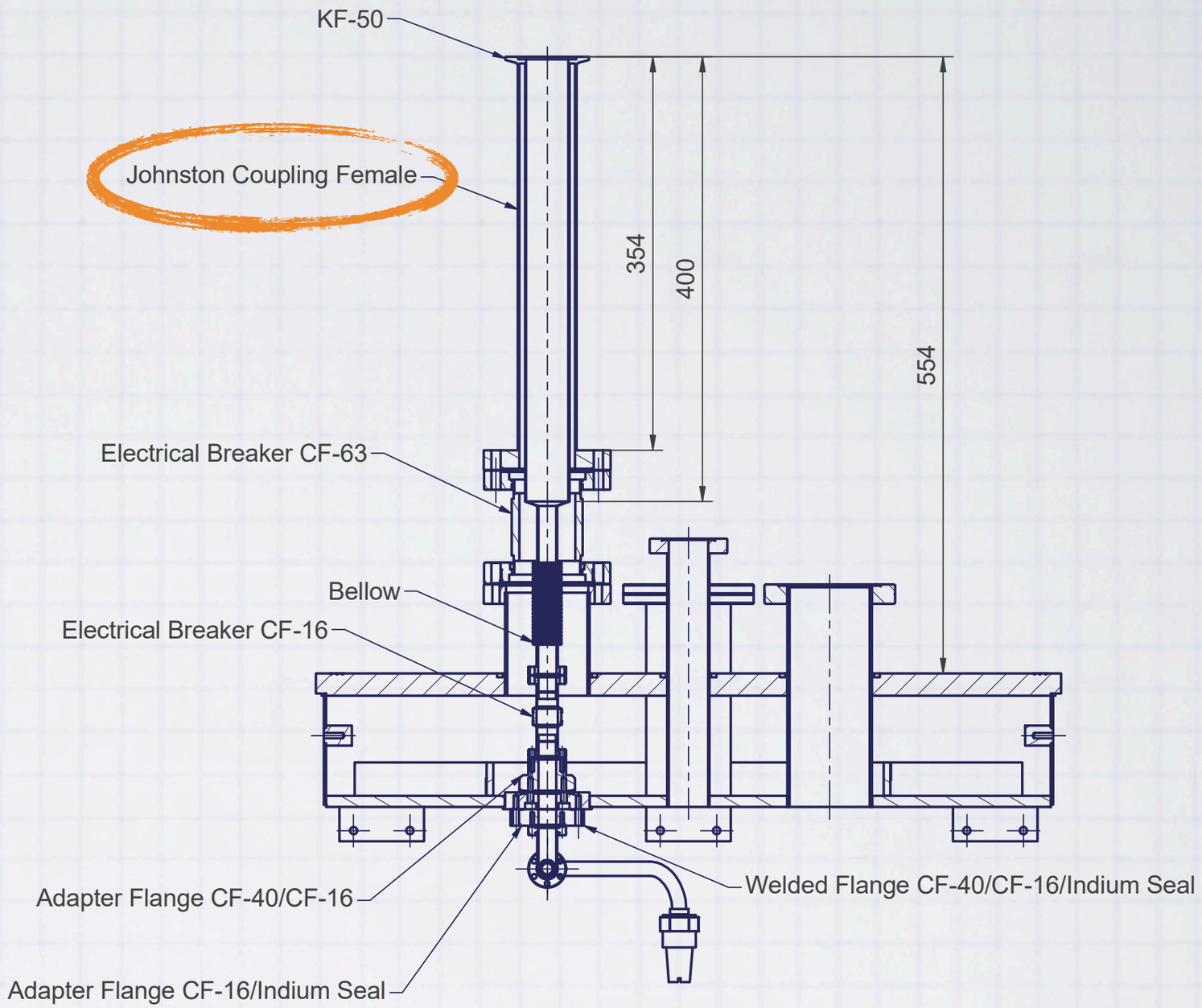
Suitable for N_2, O_2, Ar, LNG, H_2, He, CO_2

Suitable for ambient temperatures till -35°C

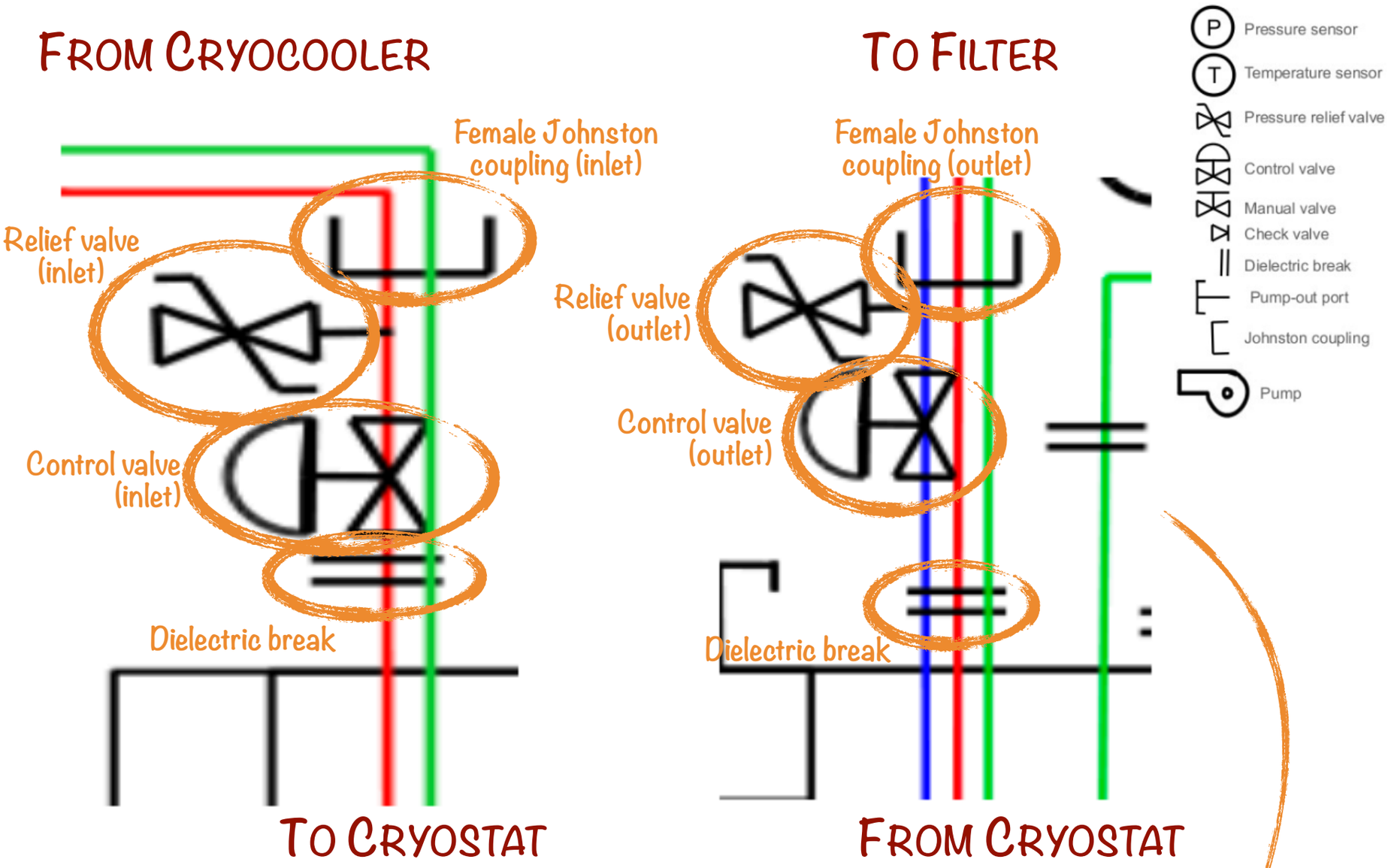
Static vacuum with Multi-Layer Insulation

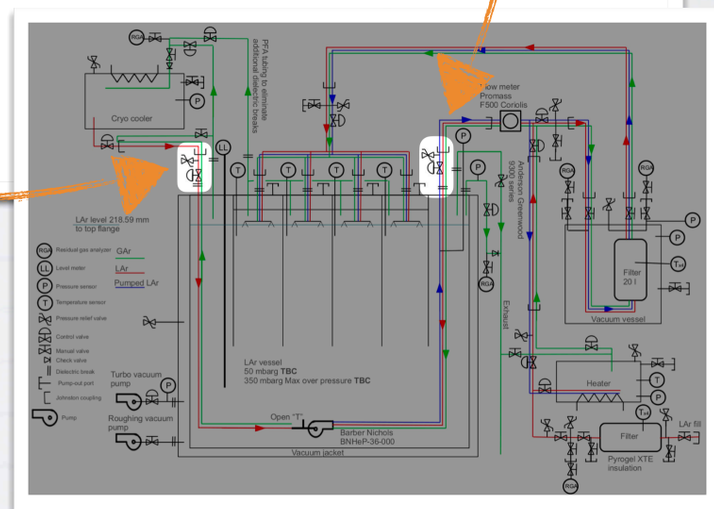
O-ring seal leakage $<1x10^{-8}$ mbarl/sec

- **Johnston couplings**
- Johnston couplings (Demaco) at each module will need to be custom-made.
- Meeting with Demaco set on **August 18**.
- Other valves in drawing not yet specified.



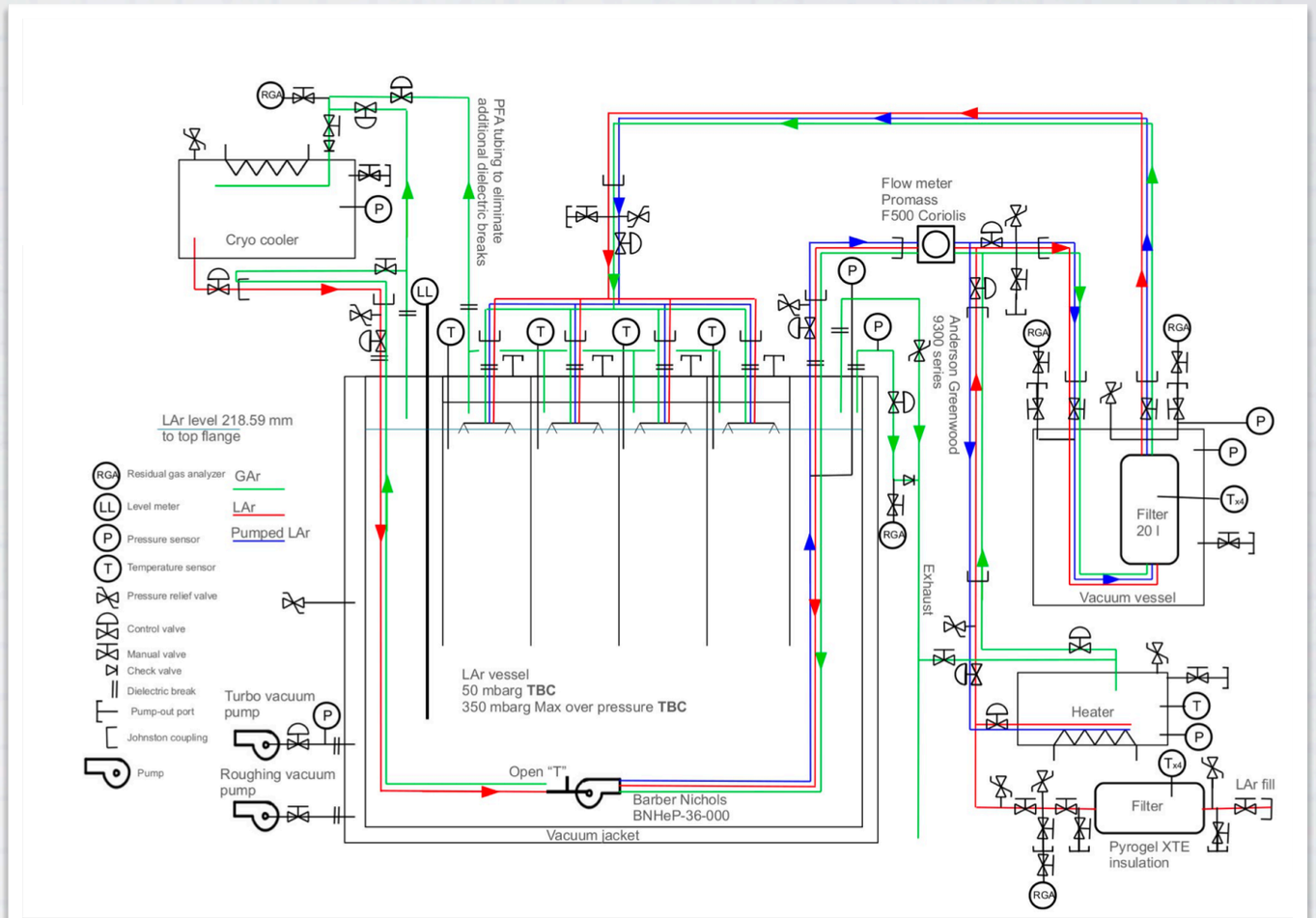
- **Cryostat liquid inlet/ outlet**
- Connection for inlet from cryocooler and pump outlet, including internal lines
- Identical setup





- **Valves** also for inlet/outlet not yet specified.

- Which valves do we need?
- We can discuss choice of valves with Demaco representative and possibly order them with them together with the Johnston coupling?



- Can valves be identical for all sub-components?
- E.g., pump out port. Any reason for it to change across any component?
- What about pressure relief valve?
- What about the rest?