

News from the cryostat cleaning
&
cryogenic infrastructure

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Motivation & Cleaning method

cryostat ^{222}Rn emanation before the copper plate mounting = 13.7 ± 1.9 mBq

after = 34 ± 6 mBq

acceptable typically 10 mBq --> need cleaning

- Method:
1. spray ball cleaning with acid / alcohol / water
 2. CO_2 cleaning
 3. mechanical cleaning with wipes + propanol

after discussions at the last meeting and in Heidelberg --> option 3

after long preparation time cleaning occurred last week
& exchange of some small copper pieces

next emanation measurement in preparation

Nameplate installed & stamped by TÜV on 5 Nov 08

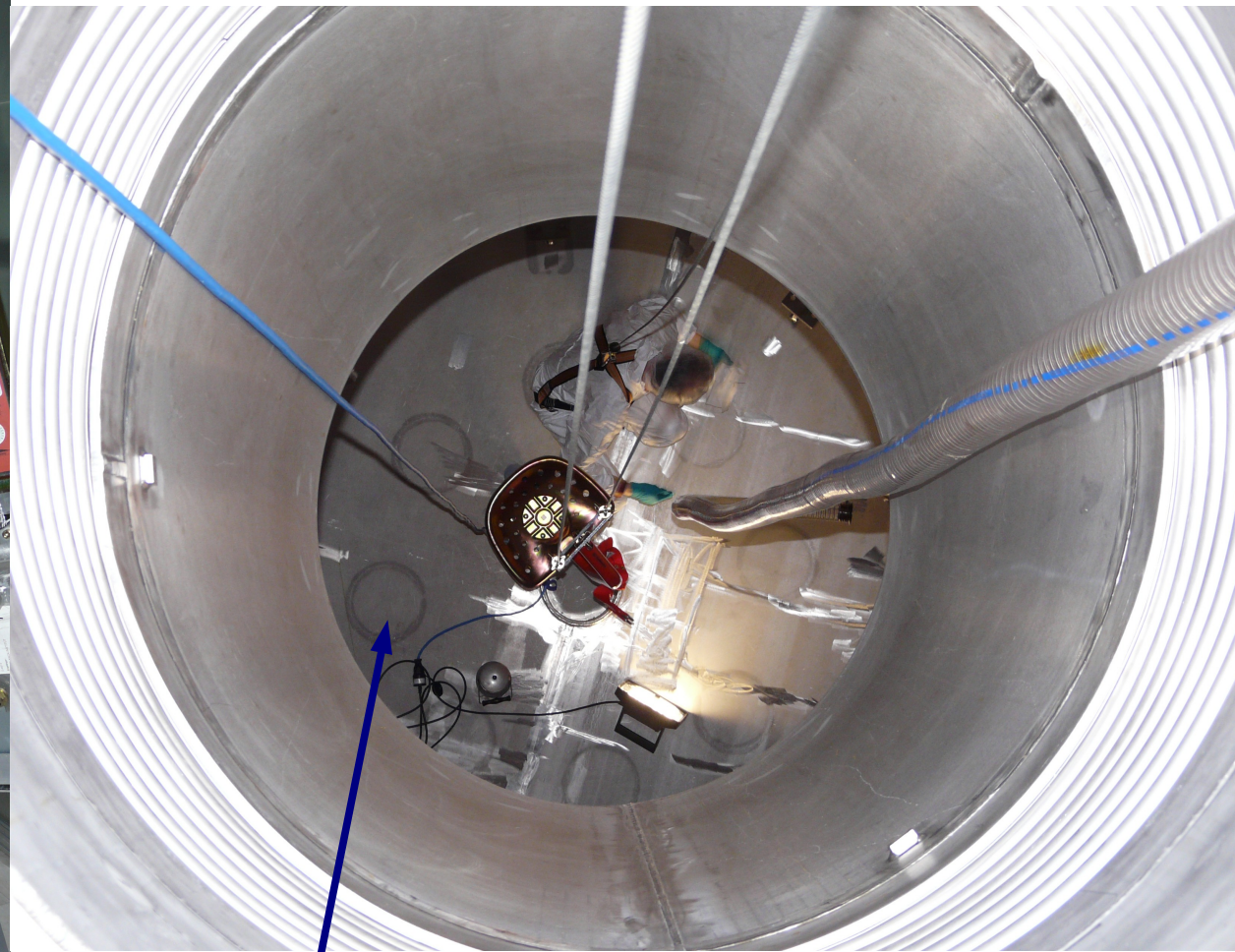


Tent with HEPA filter for ventilation above cryostat



Tripod for access





Position of support pads: head is deformed (flattened) by approx 5 mm at these position, check with TÜV if this is a problem

situation before cleaning



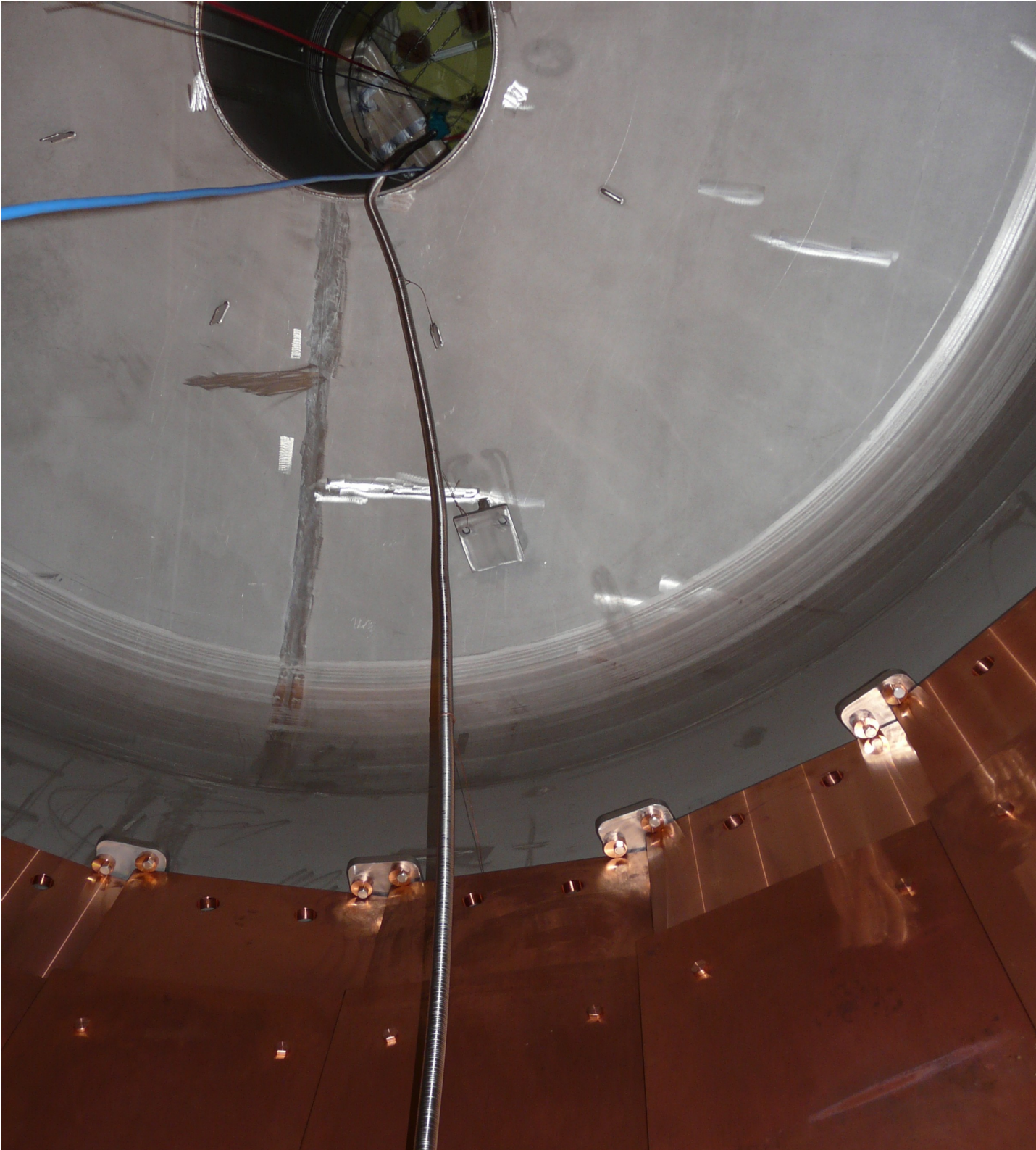
after cleaning



sticky dust on top head

pen writing + sticky dust/oxide on copper

loose fibers on bottom head



flexible tube
with internal Pt100

used for

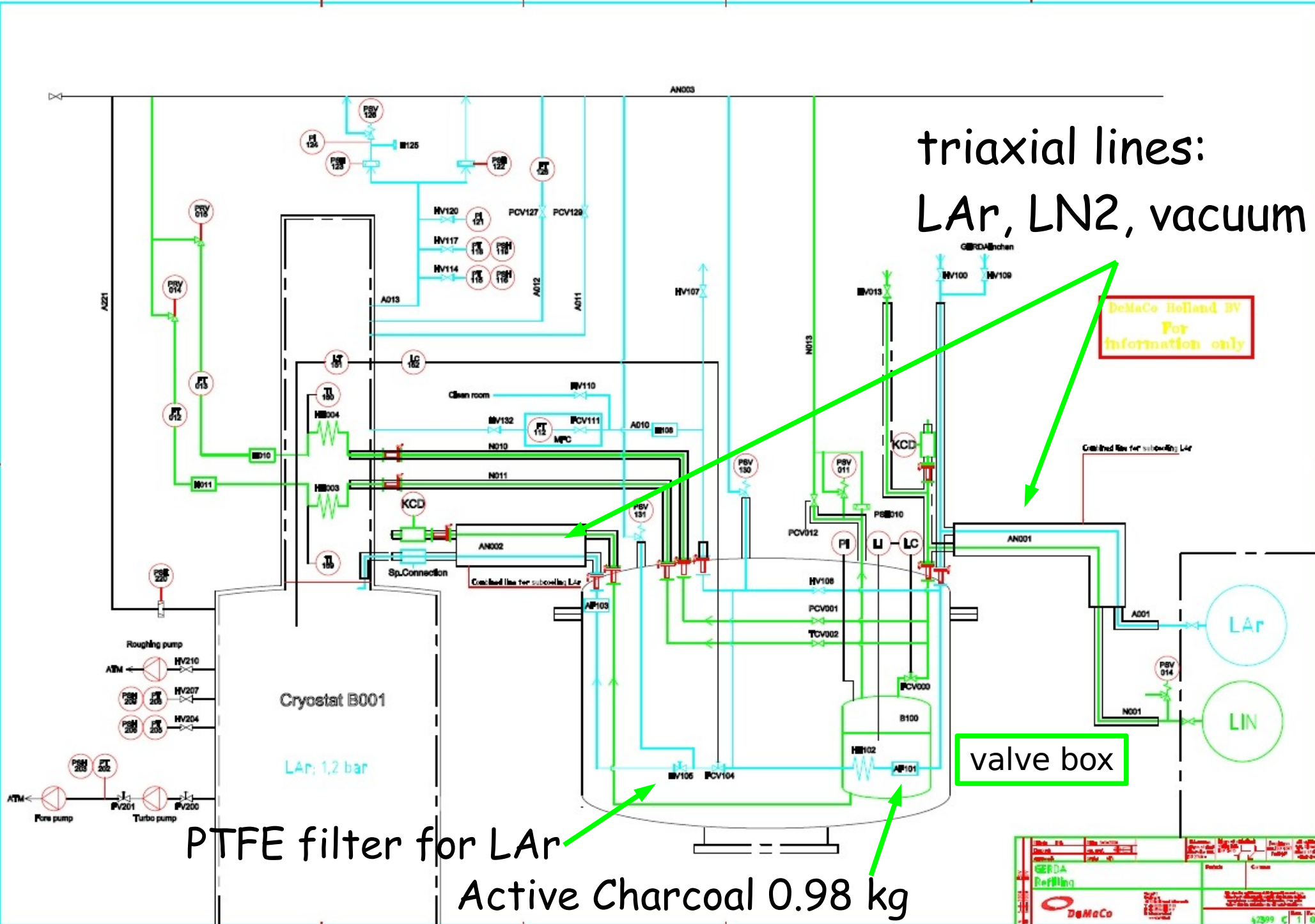
- LAr temperature
- fill level
- LAr drainage

The exhausted cleaning crew



missing on the picture: Stefano Gazzana & Matthias Junker

Final PI&D by DeMaCo



PTFE filter for LAr: 50 nm pore size & 2 filters in series



Fluorogard® AT and ATX Cartridge Filters

Broad chemical compatibility in medium to high flow
microelectronics process chemical applications



ATX Cartridge

AT Cartridge

Cartridges shown with
optional Chemlock® Key.

Delivering Quality Performance

Fluorogard AT and ATX cartridge filters are fully constructed of fluoropolymer materials and are designed to efficiently remove particles from a broad range of acids, bases, solvents and other microelectronic process chemicals. These cartridges are recommended for medium to high flow applications. ATX cartridges are also ideal for high viscosity filtration applications.

Cost Effective Filtration

The Teflon® PTFE membrane and PFA pleated supports are compatible with a wide range of microelectronics process chemicals. These inert materials provide longer filter lifetime, thereby resulting in cost savings. The pleated filter design is recommended for systems where back pressure may occur.

Superior Filtration Efficiency

Increased filtration area is provided to minimize pressure drop and enhance particle removal performance. A variety of retention ratings are available to suit specific application needs.

Clean, Durable Construction

The Teflon fluoropolymer materials and thermally-bonded construction minimizes extractables. Additionally, no surfactants or adhesives are used, eliminating potentially harmful contaminants that can adversely impact device yield.

Superior Manufacturing

Fluorogard AT and ATX filters are manufactured in a world-class, ISO Quality Systems Standard facility. To ensure reliability, each cartridge is tested for integrity.

Product Features

Highly retentive hydrophobic PTFE membrane and PFA supports

Large membrane area

All-fluoropolymer materials of construction

Product Benefits

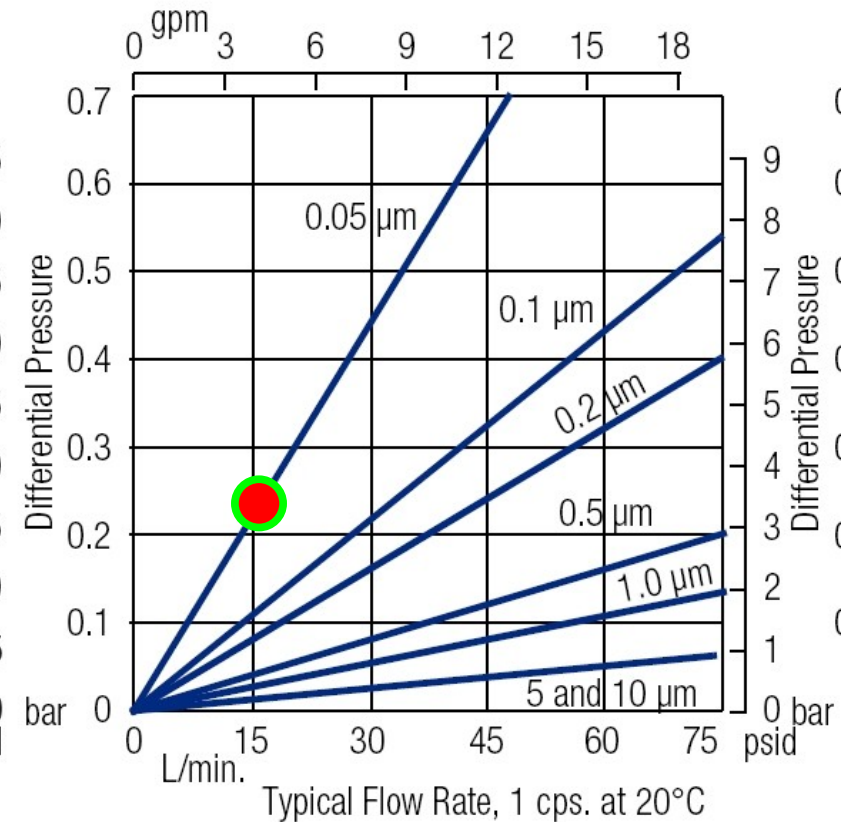
Rugged materials provide superior resistance in strong chemical processing, pulsing, and high pressure applications. PFA supports provide excellent downstream cleanliness.

Minimizes pressure drop, provides high flow, and delivers longer filter lifetime.

Provides a broad range of chemical compatibility. Suitable for a variety of chemicals and solvents.

Product Profile

pressure drop for water



Fluorogard AT 10" Filter

● operating point during
filling with 1 m³/h

Status & Schedule

contract signed with DeMaCo beginning of Oct 08
scheduled assembly at LNGS in Jan 09

possible delays:

- flat top for valve box
- cryogenic valves from Flowserve (responsibility of MPI)
expected delivery first batch shifted 18 Oct --> 11 Nov

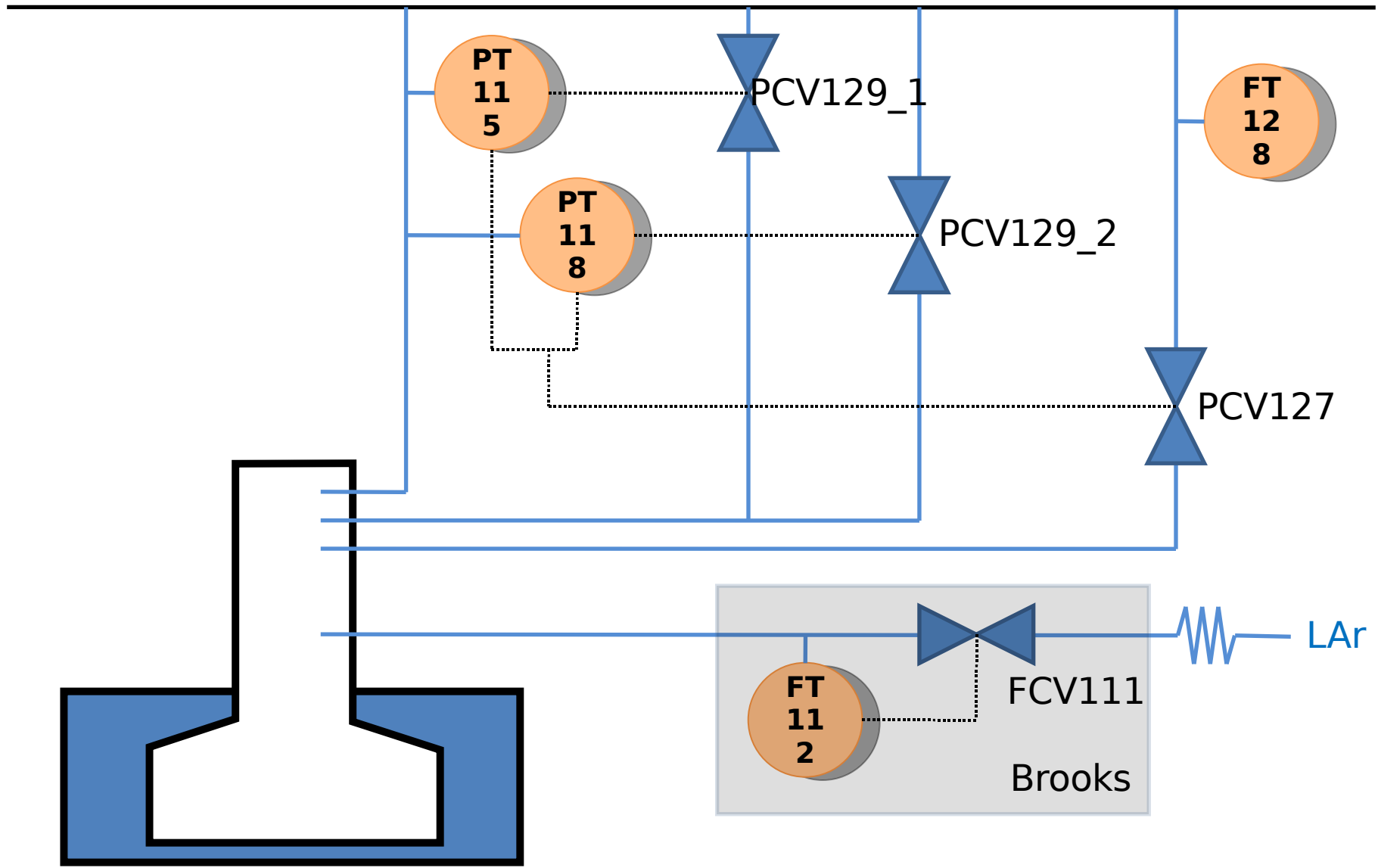
PLC

Simatic S7 and other components delivered
PLC cabinet in production, ready in a few days
programming has started (especially WEB interface,
FTP server + HART comm. to field devices)
have to finalize specification!! (e.g. emptying water tank)

Example of WEB page from PLC

Pressure Control

Exhaust
Gas
Heater



Summary

- mechanical cleaning of accessible surfaces finished
- waiting for emanation result
 - beta? KTK: below 14 mBq
 - BS: 25 mBq
- if emanation is too high: remove copper
- cryogenic infrastructure under production
 - main installation in Jan 09
- still a lot of items on the to-do-list
 - (explosion proof door, LN2 + LAr storage, holes, non-cryogenic pipes, vacuum, mounting, ...)
- PLC ready in time

ready for LAr filling in March 09 after cleanroom constr.