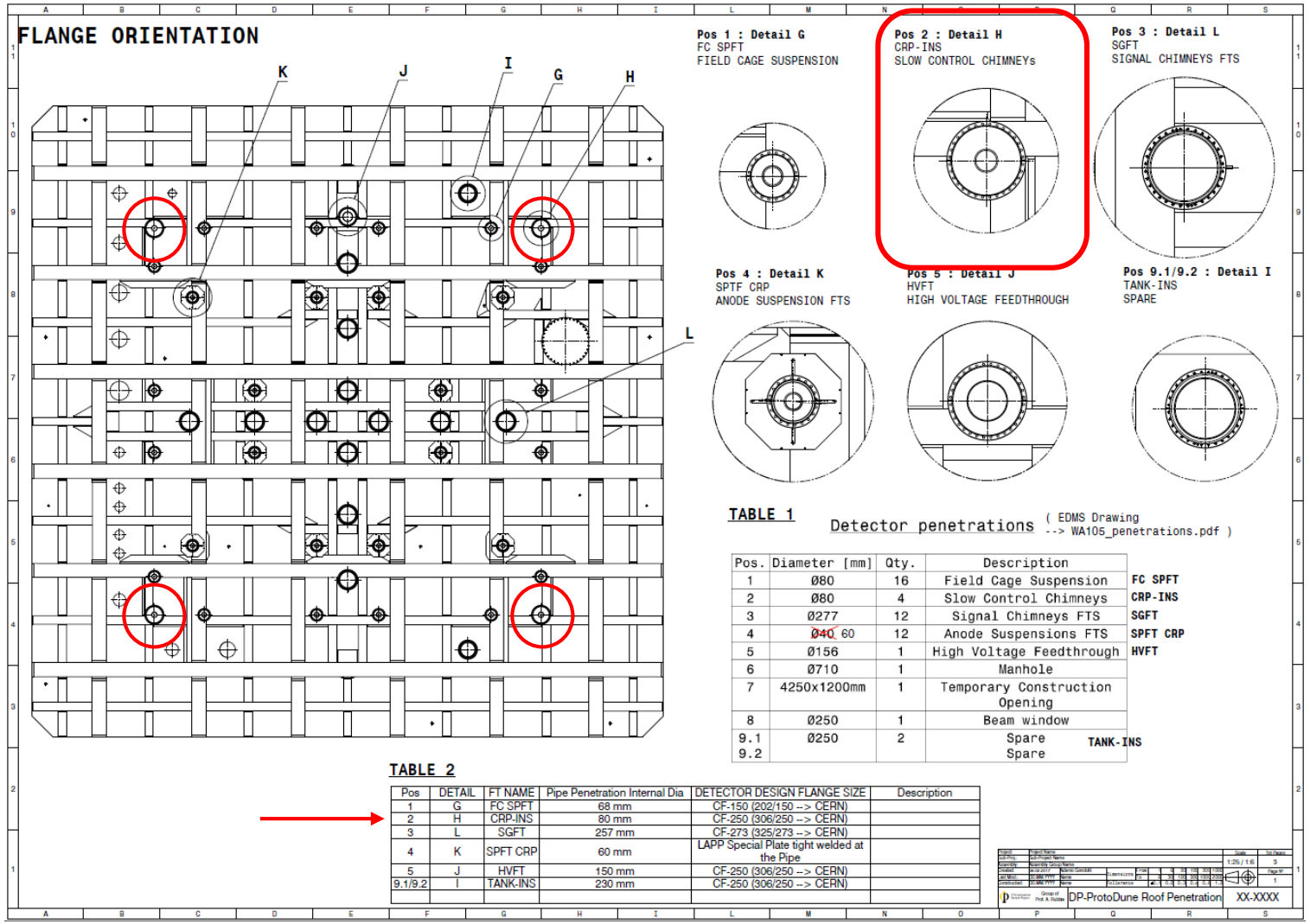
CRP INStrumentation FT



On behalf of ETHZ Group

4 x CRP INS:

- Slow control signals (temperatures, levelmeters…)
- High Voltage (10 kV rated channels)

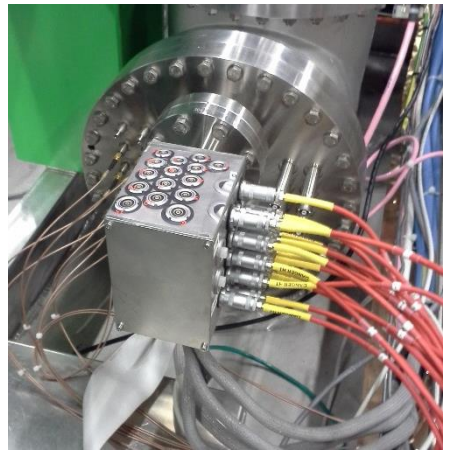
Penetrations already defined: 80 mm dia, CF250 flange.

Based on new sensors list and previous experience with 311 Detector, preliminary design for Flanges hosting CRP INS.

CRP INStrumentation FT

- High Voltage Flange (10 kV rated channels) for 6x6x6 Detector
  - TOT 288
  - 72 per CRP INS FT (+ spare.. 80?)
- NO commercial available solutions
  - Experimented several..
- Collaboration with Allectra to develop a weldable connector, single sided, working (no discharge, no leak current) in GAr up to 10 kV

- Solution implemented for 311 Detector is custom made, filled with glue HV-Head
  - Tested in Gar, Air, vacuum
  - Perfect isolation (E-12 Atm*cm3/s)
  - Perfect dielectric performances, no leak current (less than 1 nA) above 10 kV
  - Reproducible results
  - Still a possibility



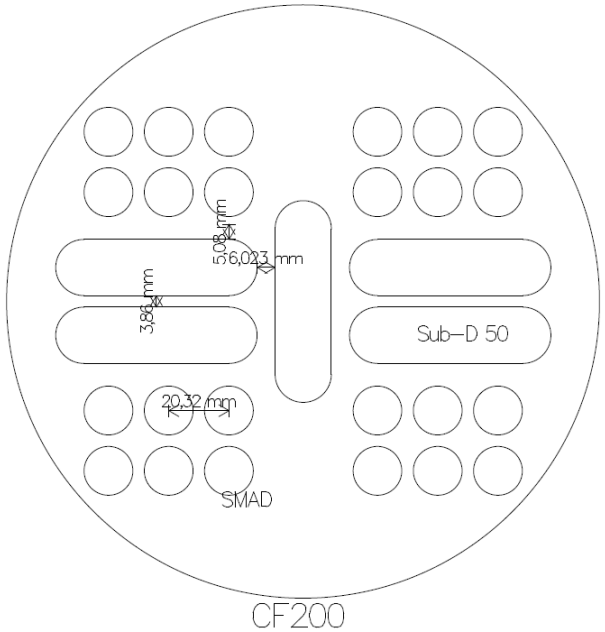
<u>Test flange, with 2 custom made single sided connectors</u>
Special silicon cable (”power glove”) which evacuates atmosphere around the live pin.
Only available for 20 kV version.
Success! Tested up to 20 kV in Air, GAr and Vacuum. No leak, no discharge. BUT: cable too thick for o(80) to fit Chimney.
Seeking for similar cable (same “power glove” approach) for 10 kV FT – smaller, hence higher density on flange.
Studying several options for the cable, multi pin approach would be preferable. Not yet conclusive. Timeline to decide: 1 month.

CRP INStrumentation FT

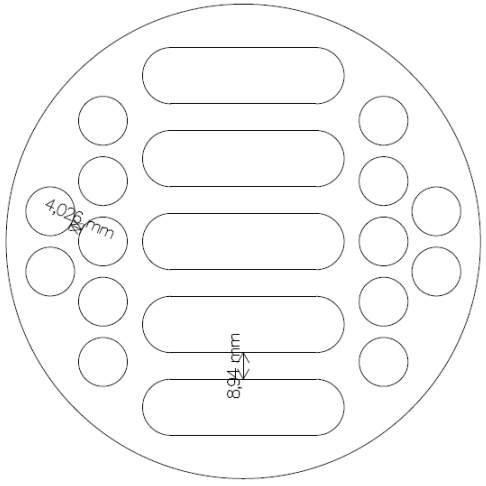
4 x CRP INS:

- Slow control signals Flange (temperatures, levelmeters…):
  - Combination of SUBD50 and SMA welded

Preliminary ideas, just to roughly check dimensions of flanges



CF200



CF160

Sketch of FTs CRP INS:

- 2 flanges
  - High voltage
  - Slow control
- Tee on CF250