News on CO2 Cooling and other Business

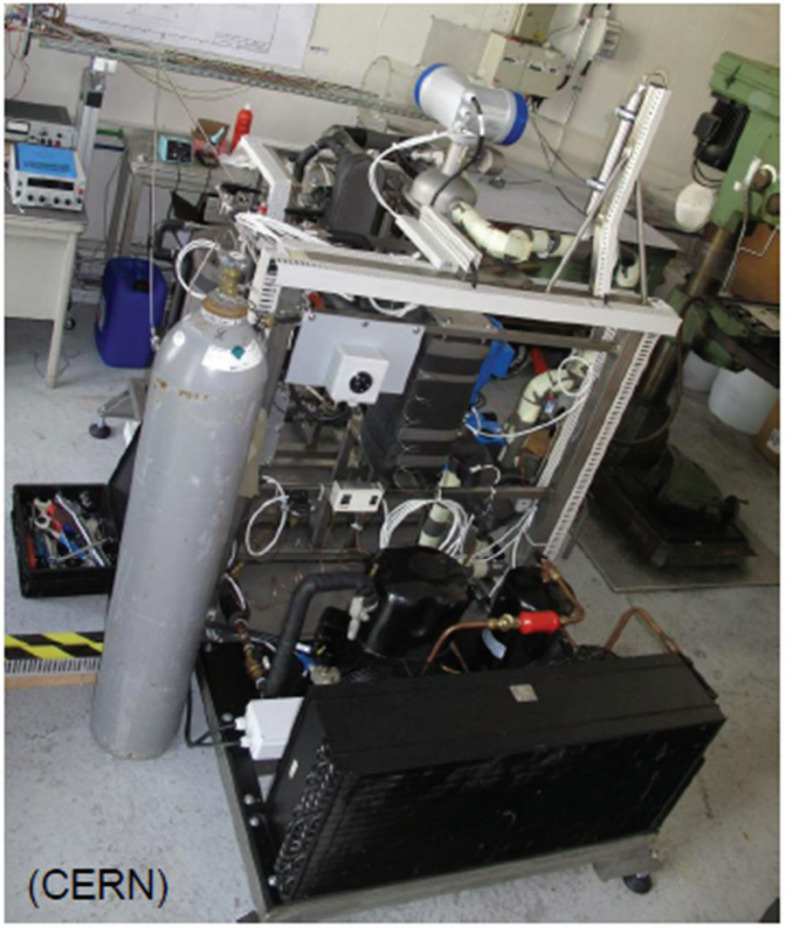
- Plan for the construction of a closed CO2 System for the PXD and the SVD
- Trip to ITA (Finalizing the contract for PXD grounding scheme)
- Discussion (and decision):
  Position of the screw hole on the end-of-stave

CO2 Cooling Tests (cont.) Next Steps

Closed CO2 system at CERN

- Closed CO2 system built by the group of B. Verlaat and H. Postema
- Based on experience with AMS and LHCb systems
- Available to IEKP Karlsruhe for tests, slot booked for

April 4-8, 2011



This system is not available continuously for us
(tests also for other exps.)

CO2 System needed for long-term PXD/SVD test

Models for Building the CO2 Plant

- Proposal by H. Postema et al.:

  build plant at CERN under supervision by Postema et al.

  required: 1 practically oriented (multi-talented) person for 1 year at CERN

- Alternative scheme:

  build the plant at MPI, with help from Vienna and CERN

  work closely together with Postema‘s team for a limited amount of time to learn/document, several people (spread expertise) to CERN

Phases of the Plant Construction

- **Learning Phase (1):**

  Duration ~ 2 months **location: CERN**

  Documentation of the System by

  I. Gfall (Vienna) + experienced technician (MPI)

  Support by physicists (trips to CERN, 1-2 weeks)
  CK, S. Koblitz

  Support by construction / technicians (MPI)
  (trips to CERN, 1-2 weeks)

  Consultation of KEK cryogenics engineers
  (fulfill savety standards in Japan)

Phases of the Plant Construction (cont.)

- **Planning Phase (2):**

  Duration ~ 2 months **location: MPI**

  Detailed construction of a 2kW plant,
  procurement of components

  during this phase:
  consultation and support by
  H. Postema / B. Verlaat / MPI technician from phase 1

Phases of the Plant Construction (cont.)

- **Building Phase (3):**

  Duration ~ 4 months **location: MPI**

  build two instances of a 2 kW

  one for long-term tests at MPI

  one for CERN (as test system)
  could also be exported to Japan

Phases of the Plant Construction (cont.)

- **Commissioning (4):**

  Duration ~ 4 months **location: MPI**

  Control of CO2 plant via industrial system (PLC),
  user interface via PVSS (CERN Standard)

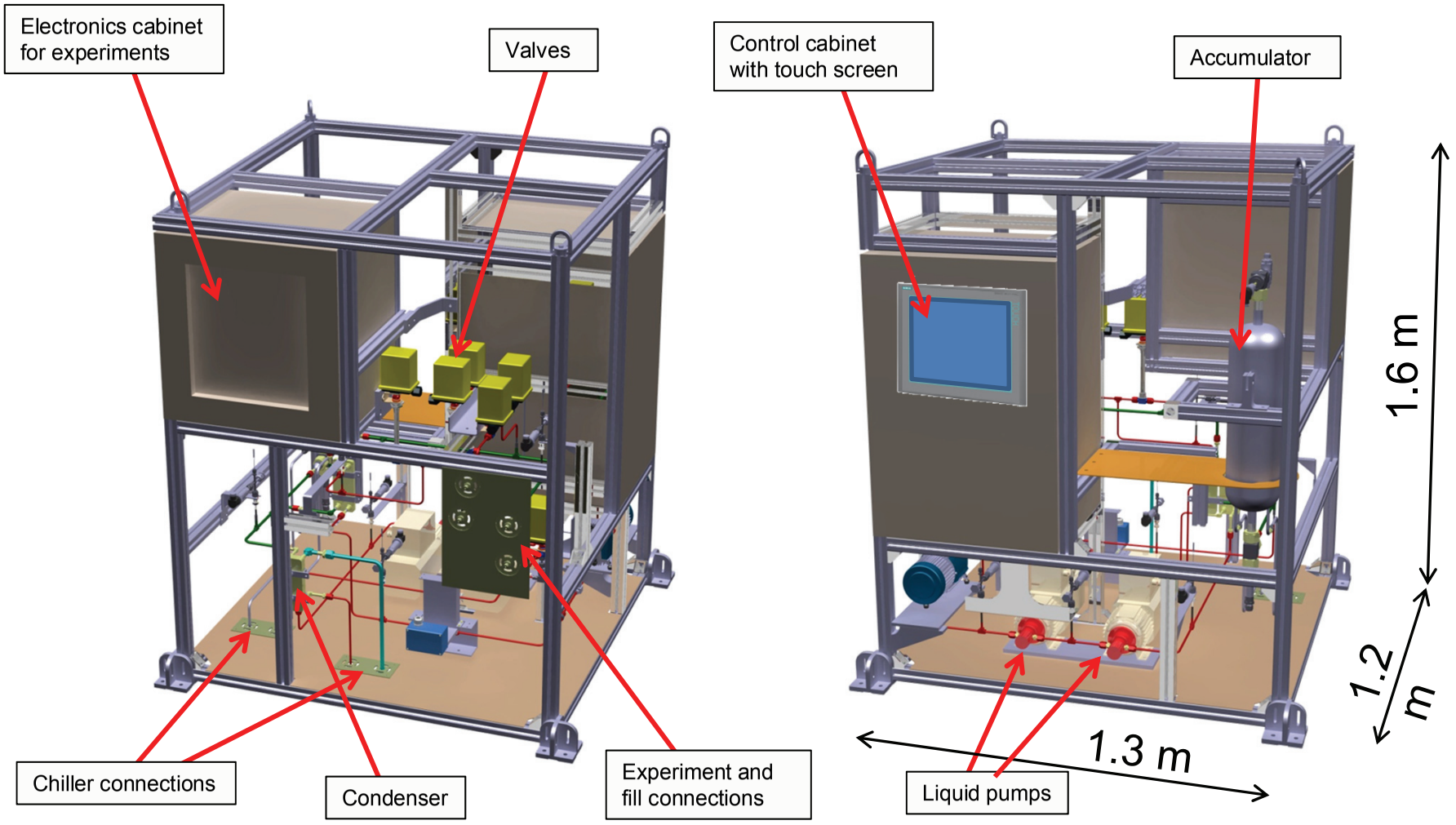
  Reponsible physicist at MPI: S. Koblitz (CK)

  need additional support by phd student for
  programming support (to be discussed)

  PLC / PVSS experience by CERN crew will be important
  (transfer of knowledge by experts to DEPFET Coll.)

  Support by MPI engineers (knowledgeable in PLC/PVSS)
  will help during phase 1.

CO_2 Cooling unit mechanical design



1.2x1.3x1.6

Next Steps

- A concrete model exists for building a closed CO2 system at MPI, fully using the expertise of the CERN/NIKHEF crew, help from Vienna (I.Gfall) is crucial and was offered
- Need to address very early the safety requirements at KEK by integrating cryogenics engineer from KEK
- Open issues in manpower during the commissioning phase (later this year), mainly computing system
- project should start after Easter (last week in April)

  Need to discuss the model with H. Postema et al. on coming Thursday (April 7).

Grounding Scheme for PXD

- Bonn-Meeting:

  We have decided to get external help from grounding experts with proven track record:
  (Fernando Arteche et al., Instituto Tecnologico de Aragon)

- Detailed work plan (contract) exists

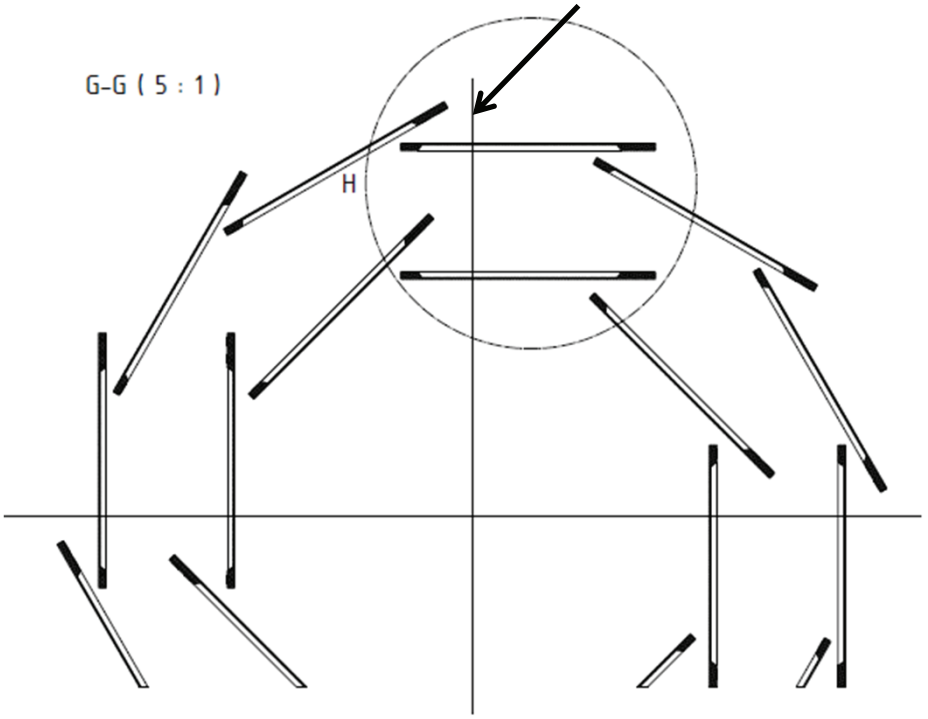
- Contract will be disussed on April 6 in Zaragoza

- Potential to get Fernando involved in the grounding for the entire Belle II detector

Mechanics of End-of-Stave

Fixation of sensor to cooling support via screw

original design: center the hole for screw
on symmetry axis

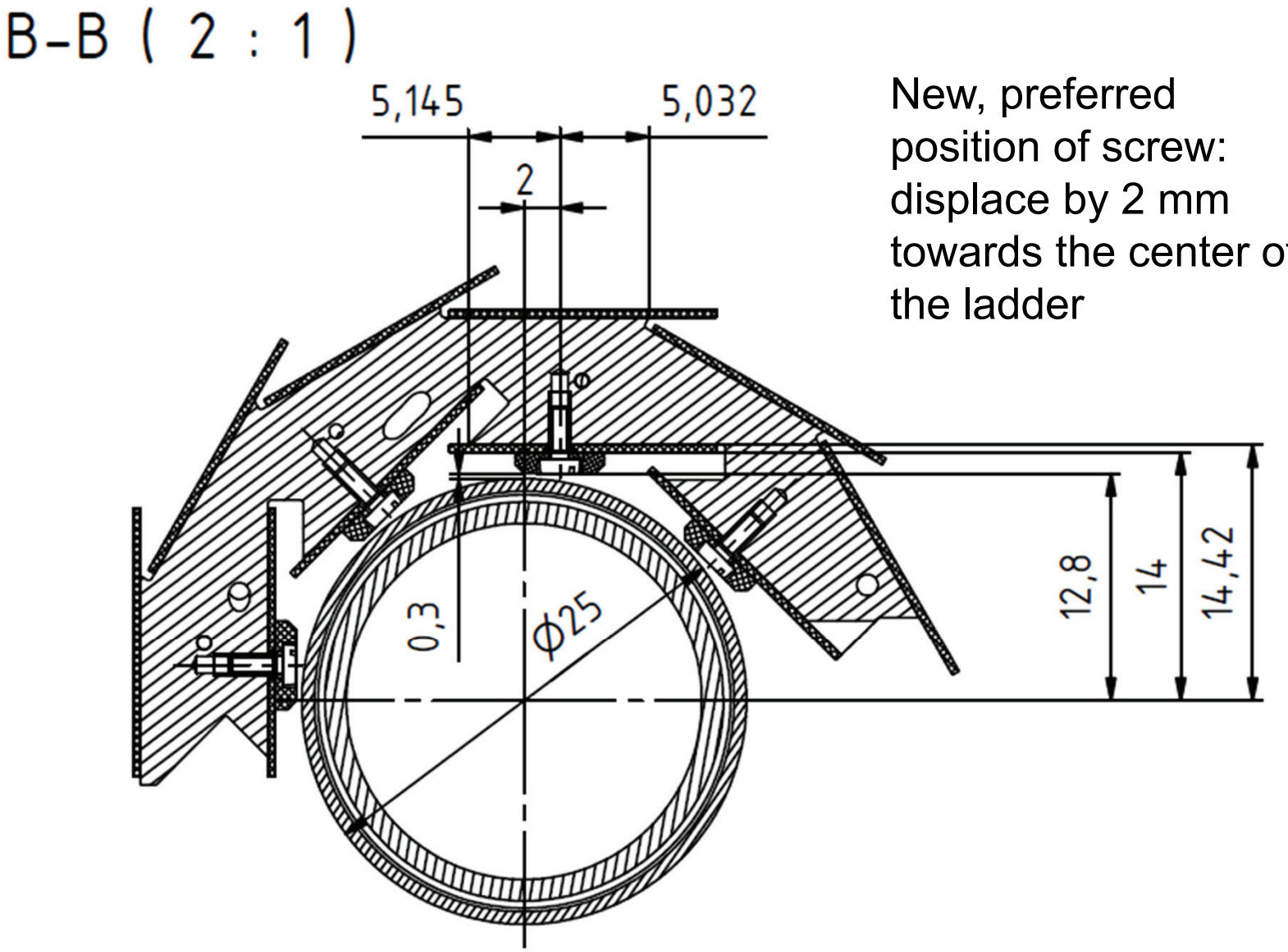


Pro:
clear geometrical design
(point of reference)

Con:
Non-optimal pressure
distribution on the
sensor, large holes
problematic

Several iterations of beampipe radius in the past: impact of screw design

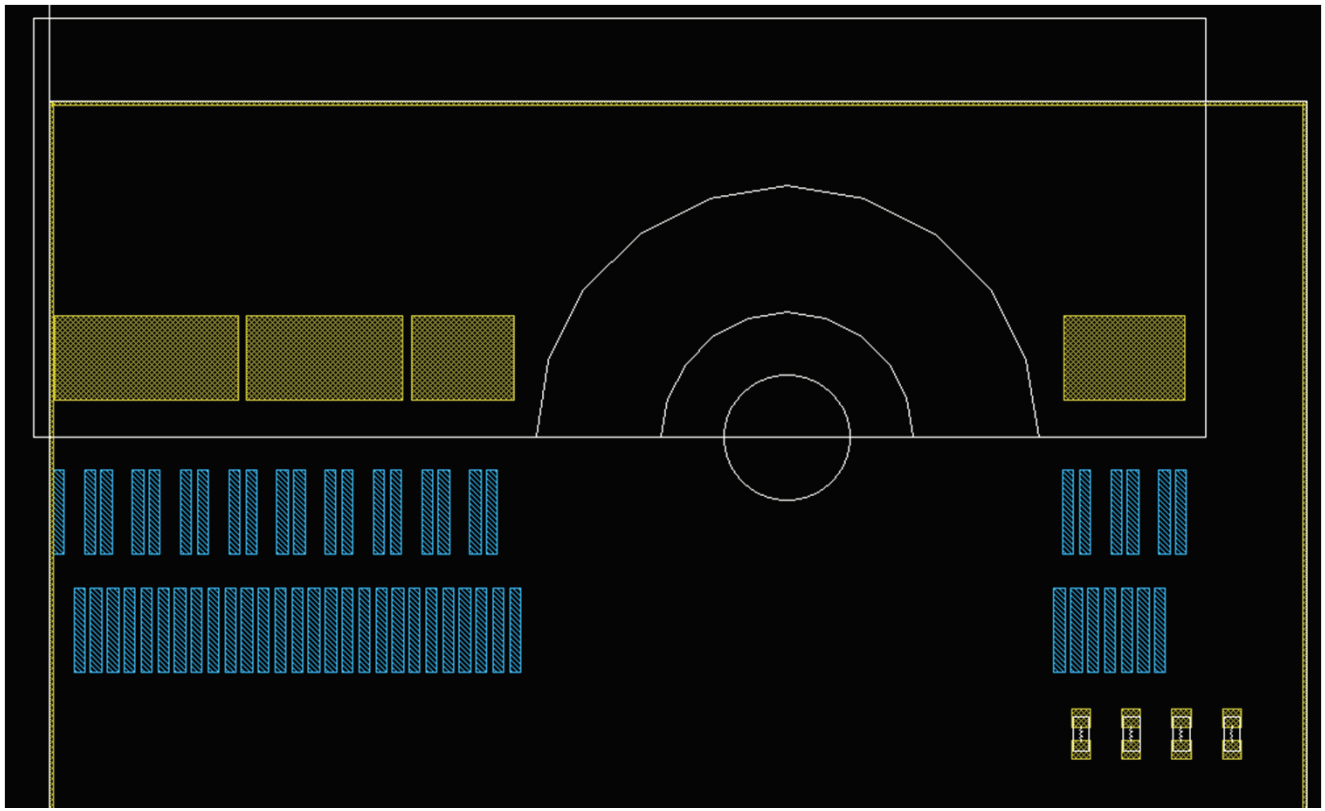
Mechanics of End-of-Stave (cont.)



New, preferred position of screw: displace by 2 mm towards the center of the ladder

Mechanics of End-of-Stave (cont.)

Layout of Kapton-cable with the new position of the hole (picture by Christian Kreidl).



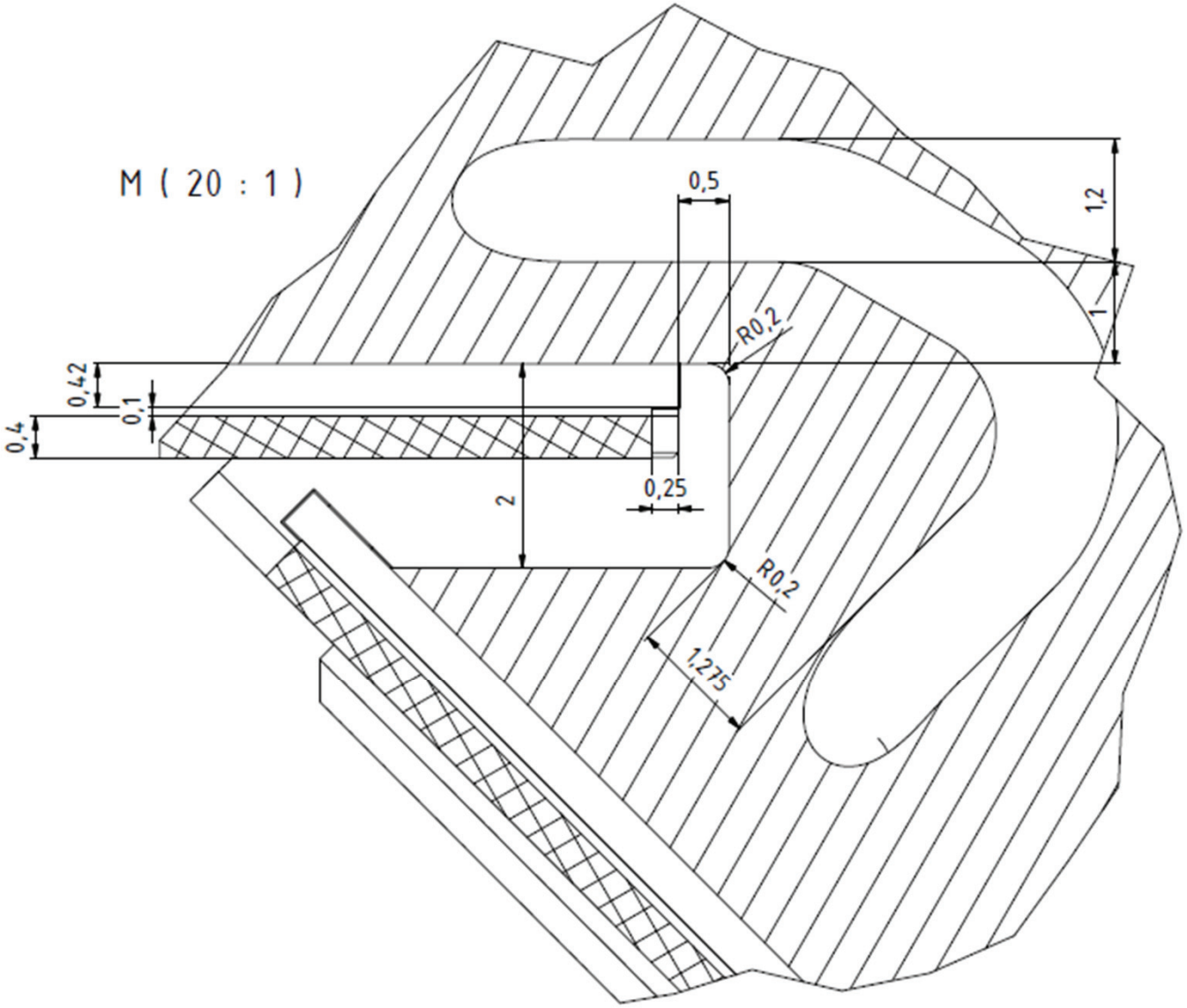
Still needs to be optimized

Question:

Can we decide on the position of the screw?

Would like to freeze the design (complication of the CO2 channels)

Width of Ladder: Tolerances in Support



If ladder width is under discussion, only the inner layer is problematic due to tolerances of support

Important question for the final design:

What is the required width of the balcony?