

# Updates

WEIZMANN  
INSTITUTE  
OF SCIENCE



Oct 26 2021

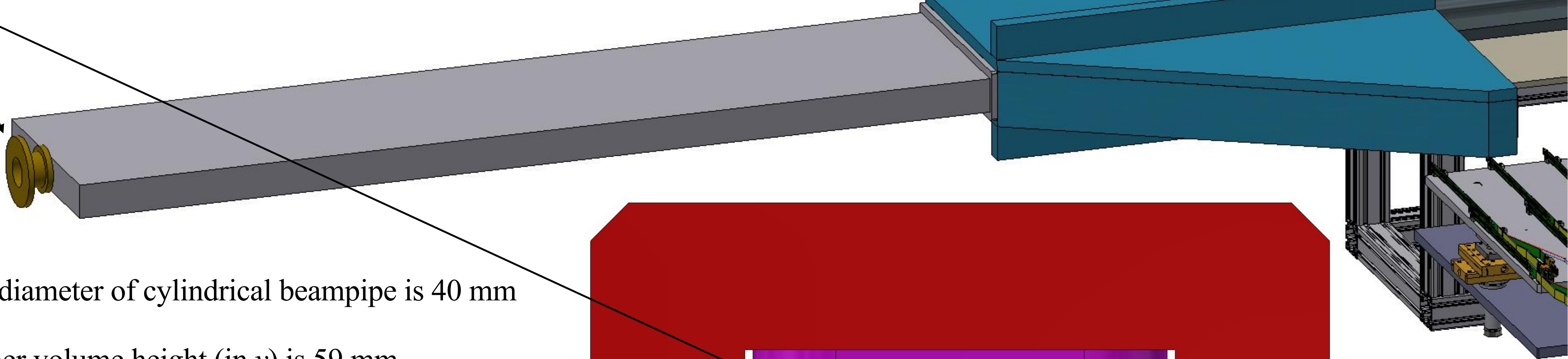
# Reminders / News

- ◉ Simulation
  - ◉ Complete round of e+laser background studies per system
  - ◉ Start looking at the g+laser background
  - ◉ Need g+needle runs
  - ◉ **Kyle** is taking care of dose map with FLUKA (based on the G4 export)
  
- ◉ Technical notes (TDRs) are due to next week, by Nov 4 (first drafts)
  - ◉ preliminary “resource loaded schedule” and installation schedule
  - ◉ planing to review that in a dedicated meeting during the workshop
  
- ◉ LUXE workshop, Nov 15-17: <https://indico.desy.de/indico/event/24055/>

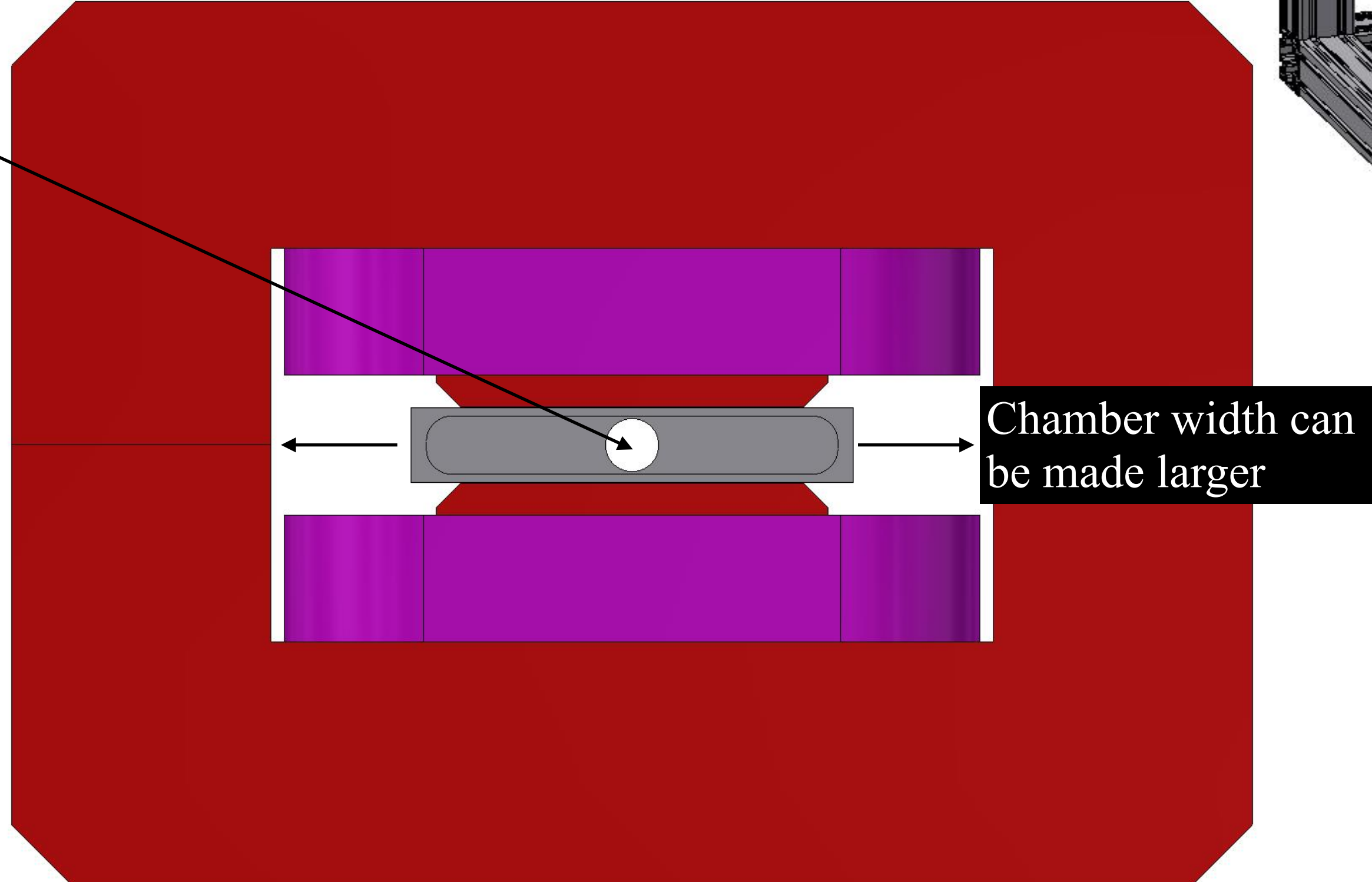
# Updates in view of the TDR

- ◉ Reworking the CAD design around the IP to be more TDR-compatible and to re-estimate the costs
  - ◉ synchronising models with Sasha and Louis
  - ◉ adding cooling to the window
  - ◉ etc.
- ◉ Potential problem with the dipole chamber
- ◉ “Column lift” for the electron tracker (+calice calo) tray
- ◉ Alignment plans

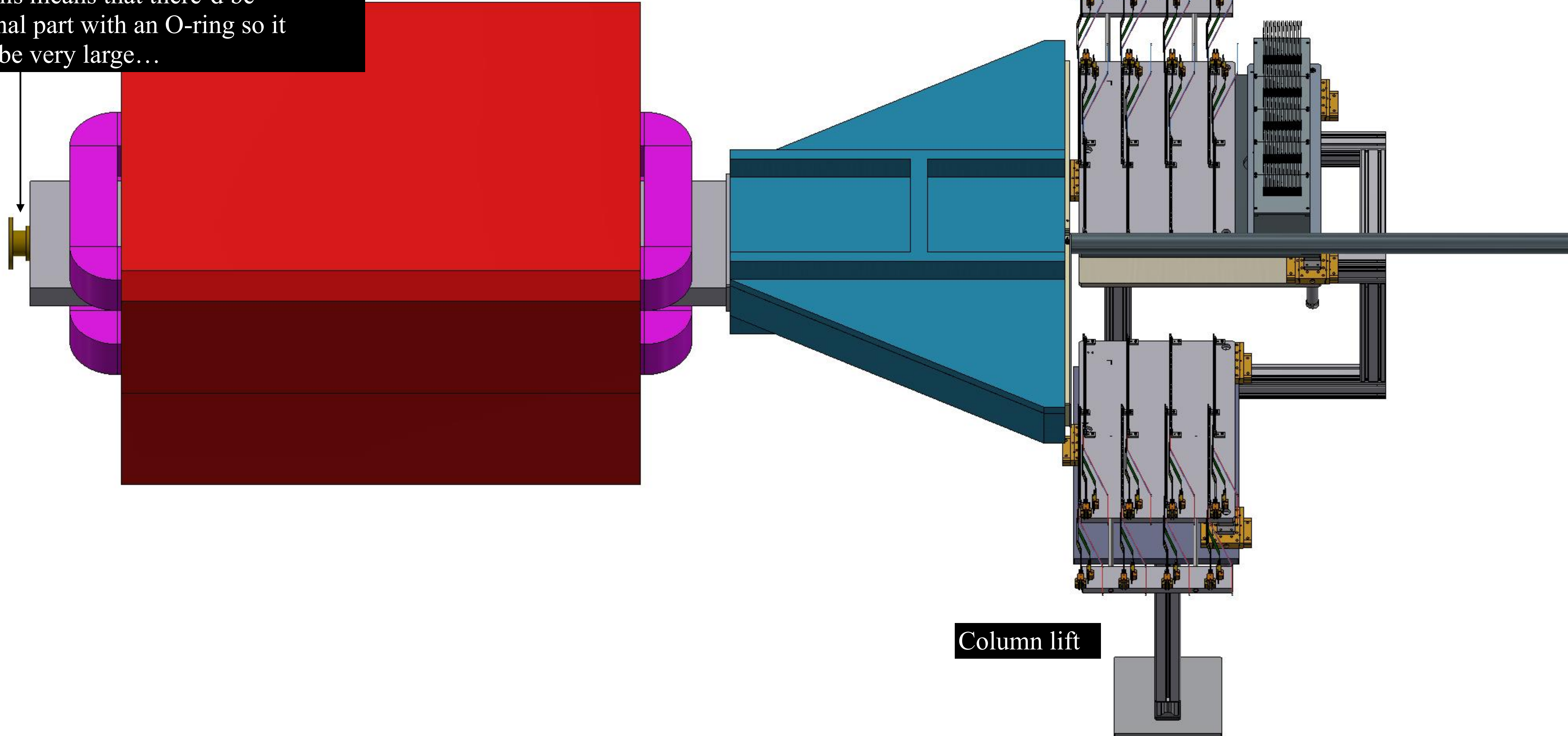
This will be changed to something larger but we must keep this end “thin” so we can slide it in the magnet from the other side. This means that there’d be additional part with an O-ring so it cannot be very large...



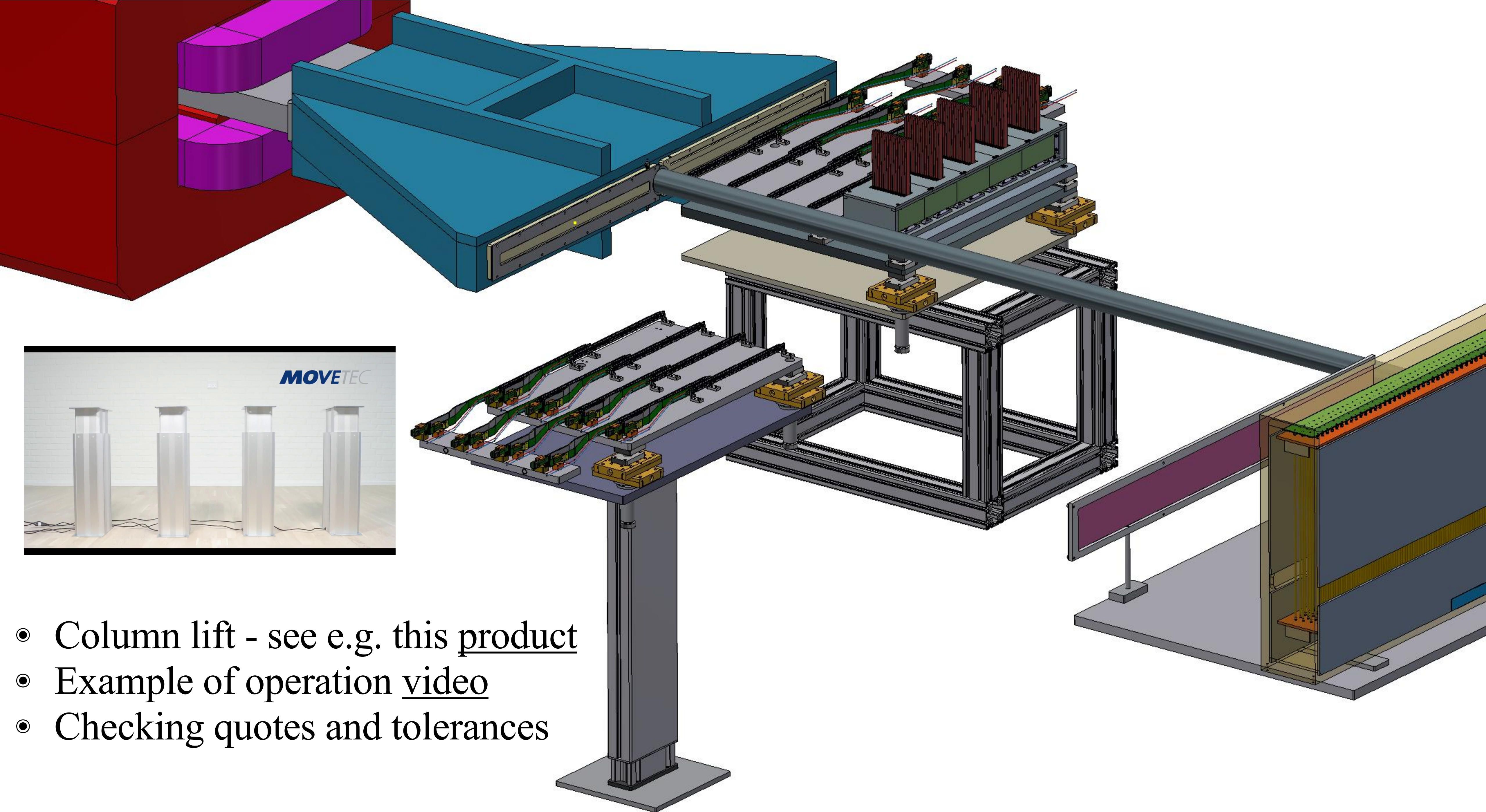
- Recall inner diameter of cylindrical beampipe is 40 mm (TBC)
- Magnet’s inner volume height (in  $y$ ) is 59 mm
- Chamber walls must be
  - thin from background perspective
  - thick from the vacuum perspective
  - with a 7 mm thickness we can expect a sagging of  $\sim 1$  mm and hence the inner height will be  $59 - 2 \times 7 - 2 \times 1 = 43$  mm
  - we can increase the chamber width in principle but then the sagging will be even larger, so overall height  $< 40$  mm
- There’s a tradeoff between the chamber wall thickness, width, and length (where we need the maximum clearance)



This will be changed to something larger but we must keep this end “thin” so we can slide it in the magnet from the other side. This means that there’d be additional part with an O-ring so it cannot be very large...



Column lift



MOVE TEC

- ◉ Column lift - see e.g. [this product](#)
- ◉ Example of operation [video](#)
- ◉ Checking quotes and tolerances

Alignment: need to minimise survey time and operation during installation and therefore we use the kinematic mounts concept, where each subsystem is pre-aligned on its dedicated tray and where the only thing which is surveyed is the base platform (kinematic mounts ensure that the trays are already aligned to the base platform by construction)

We need inputs from the XFEL surveying team what needs to be added on the base platform to position its plane in space.

