Status of ECAL-P mechanics for Test Beam 2025

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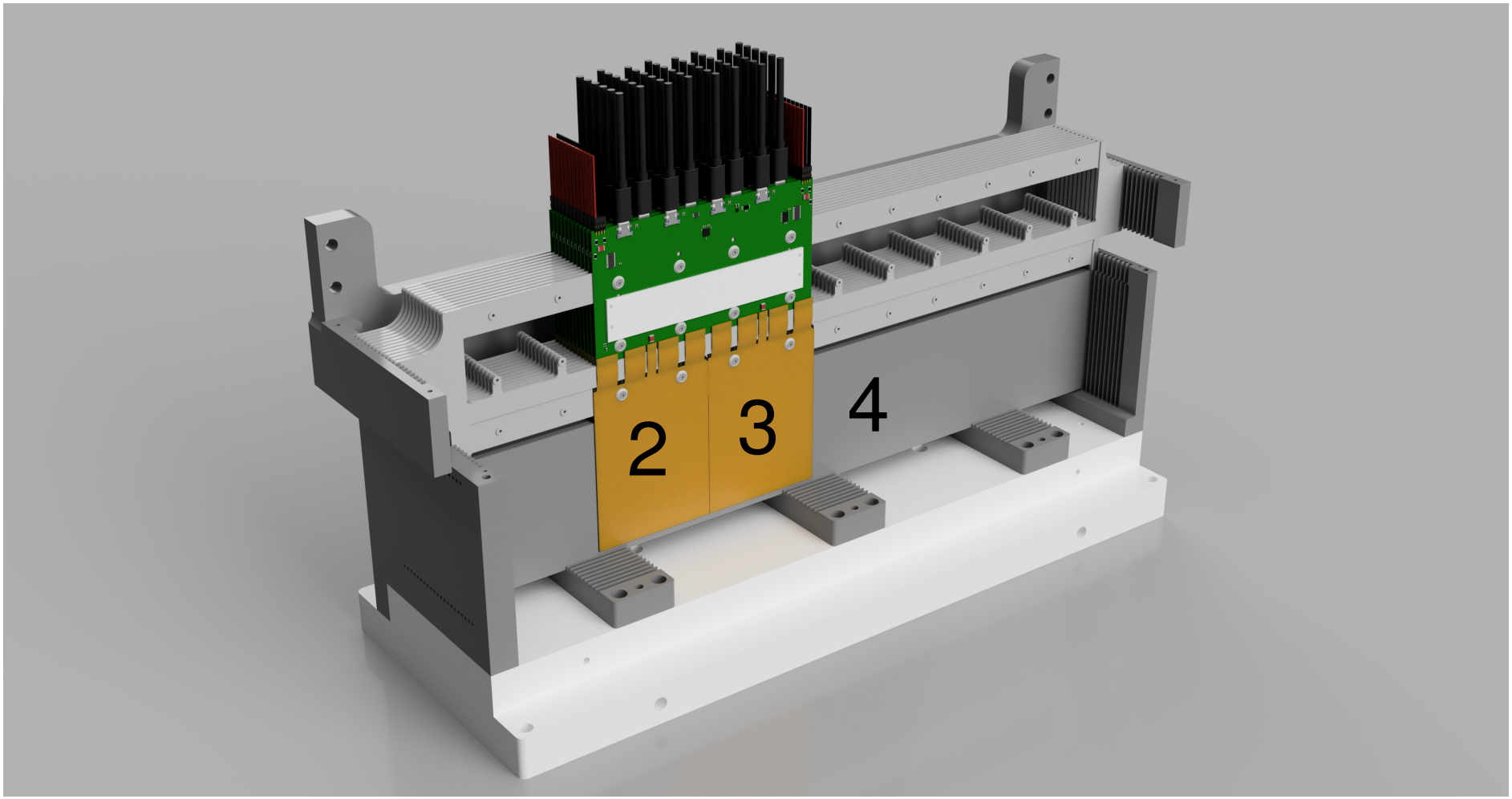
Rotary Table

- load $>$ 50 kg, resolution $\sim$ 0.5 [deg] (manual wrt the scale), better with laser pointer wrt the mirror $\rightarrow$ work in progress

Test Beam configuration as discussed at DESY in Feb'25

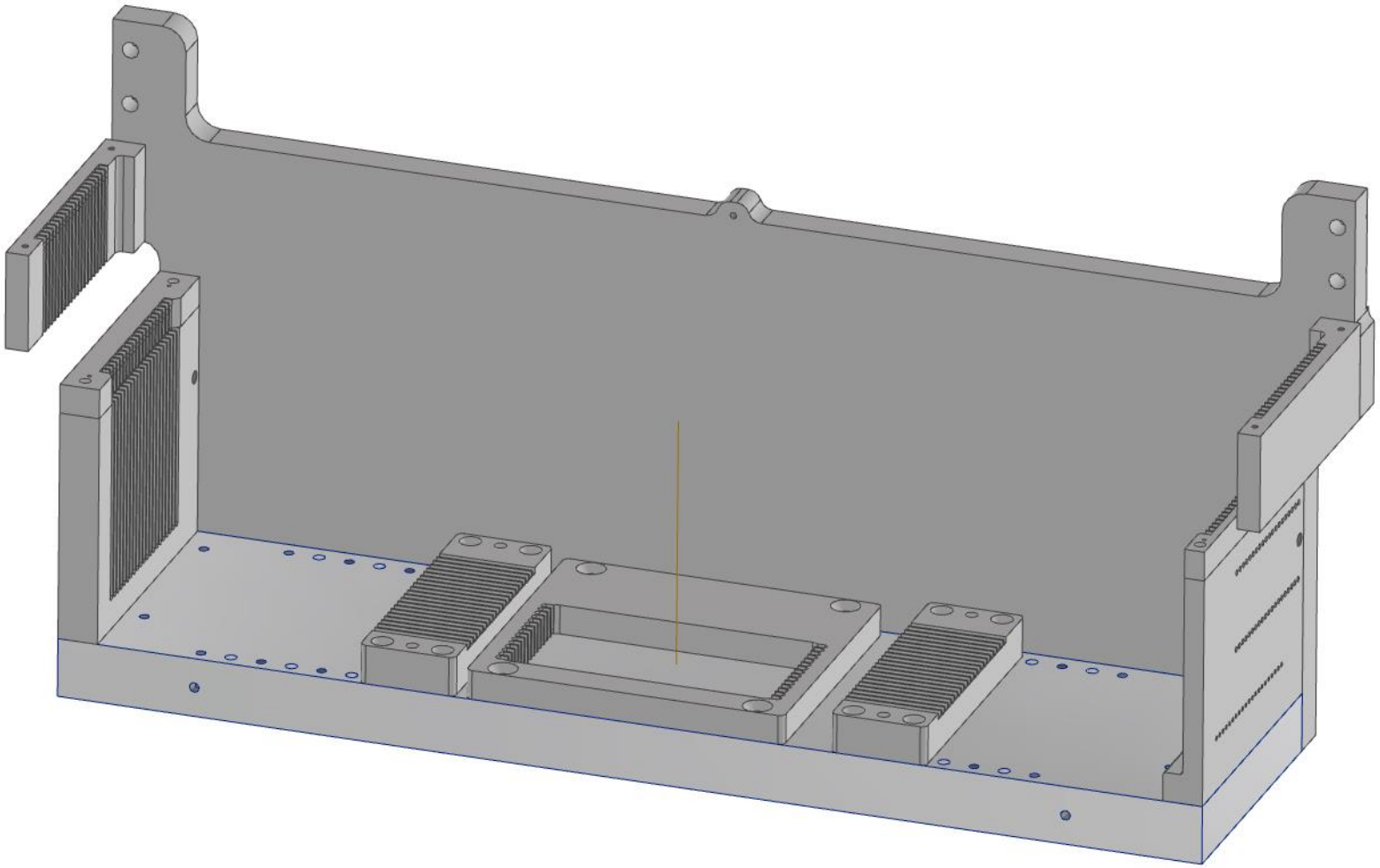


- Sensors at positions (2,3) to be shifted to (3,4) at the center on rotation axis (accepted by Jakub)

Old FCAL Tungsten Plates (14×14 cm^2)

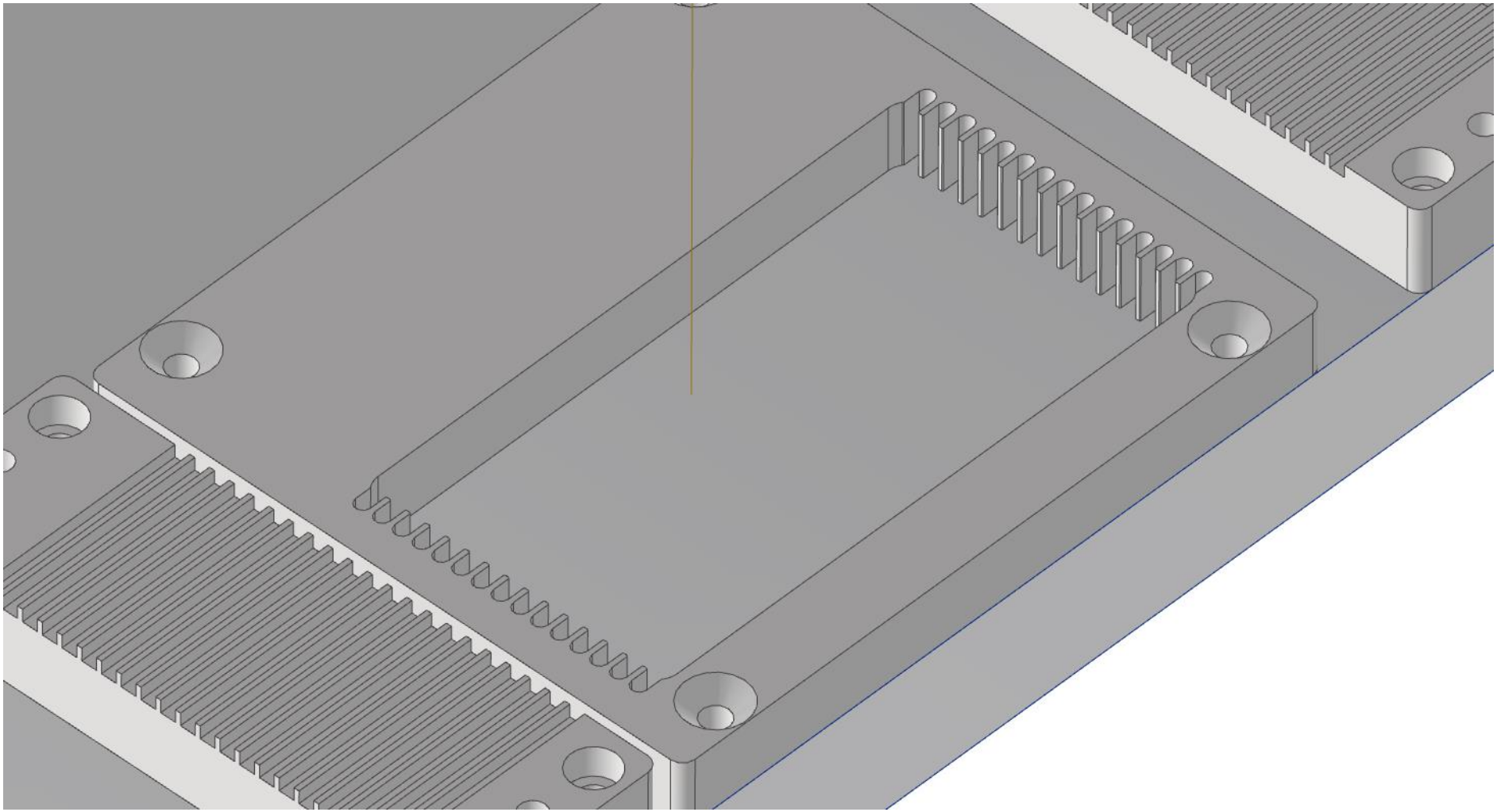
- 6 plates removed from permaglass frames and cleaned (Z=3.52 mm)
- still pending cutting test to 100 mm Y-height

Old FCAL Tungsten Support



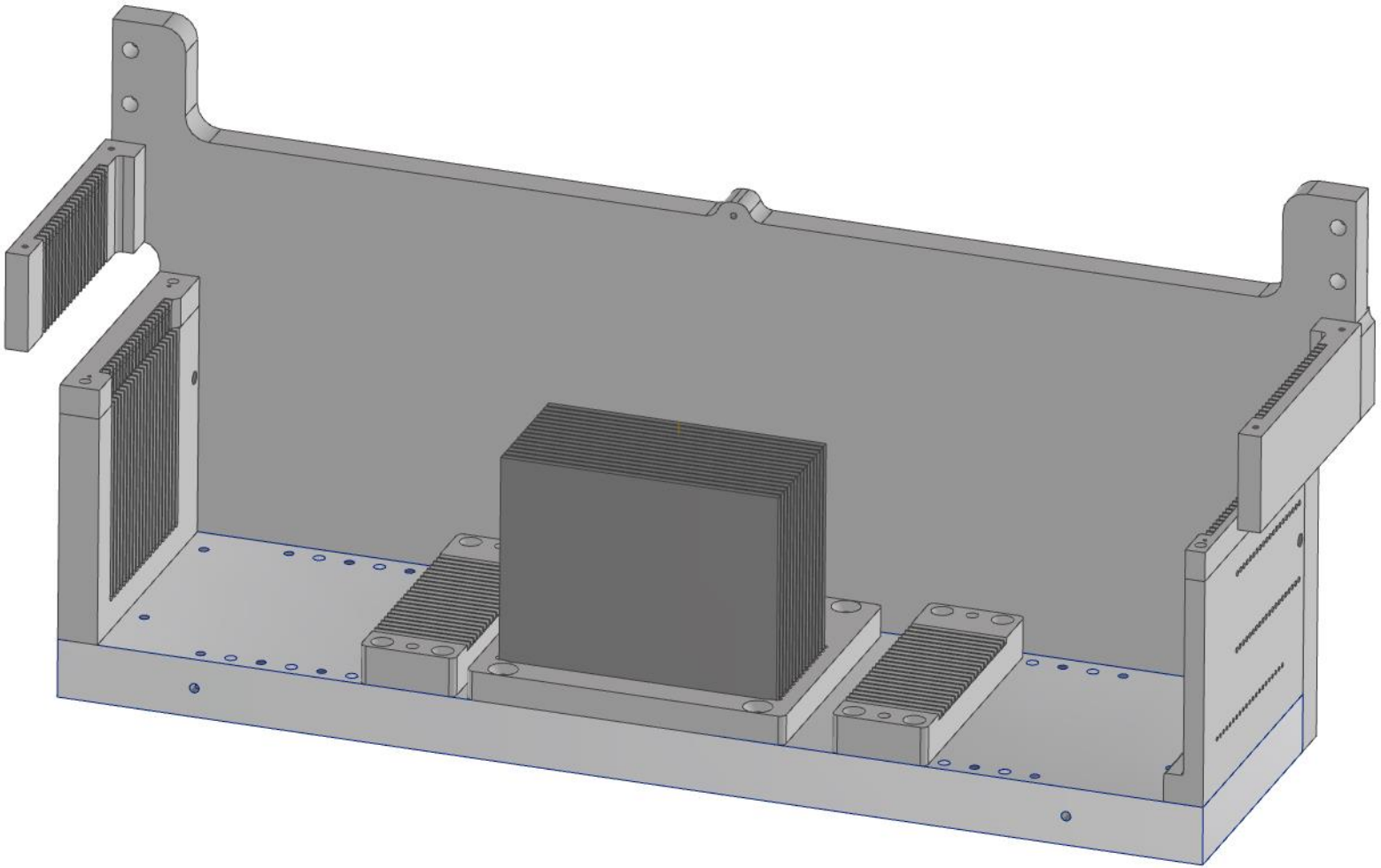
- for TB setup nominal combs shifted towards ECAL-P center
- new combs for OLD FCAL tungsten added in the middle (14 slots)
- more mounting holes on the new ECAL-P bottom plate (1.0 $\rightarrow$ 1.2mm spacing)

Old FCAL Tungsten Support (zoom)



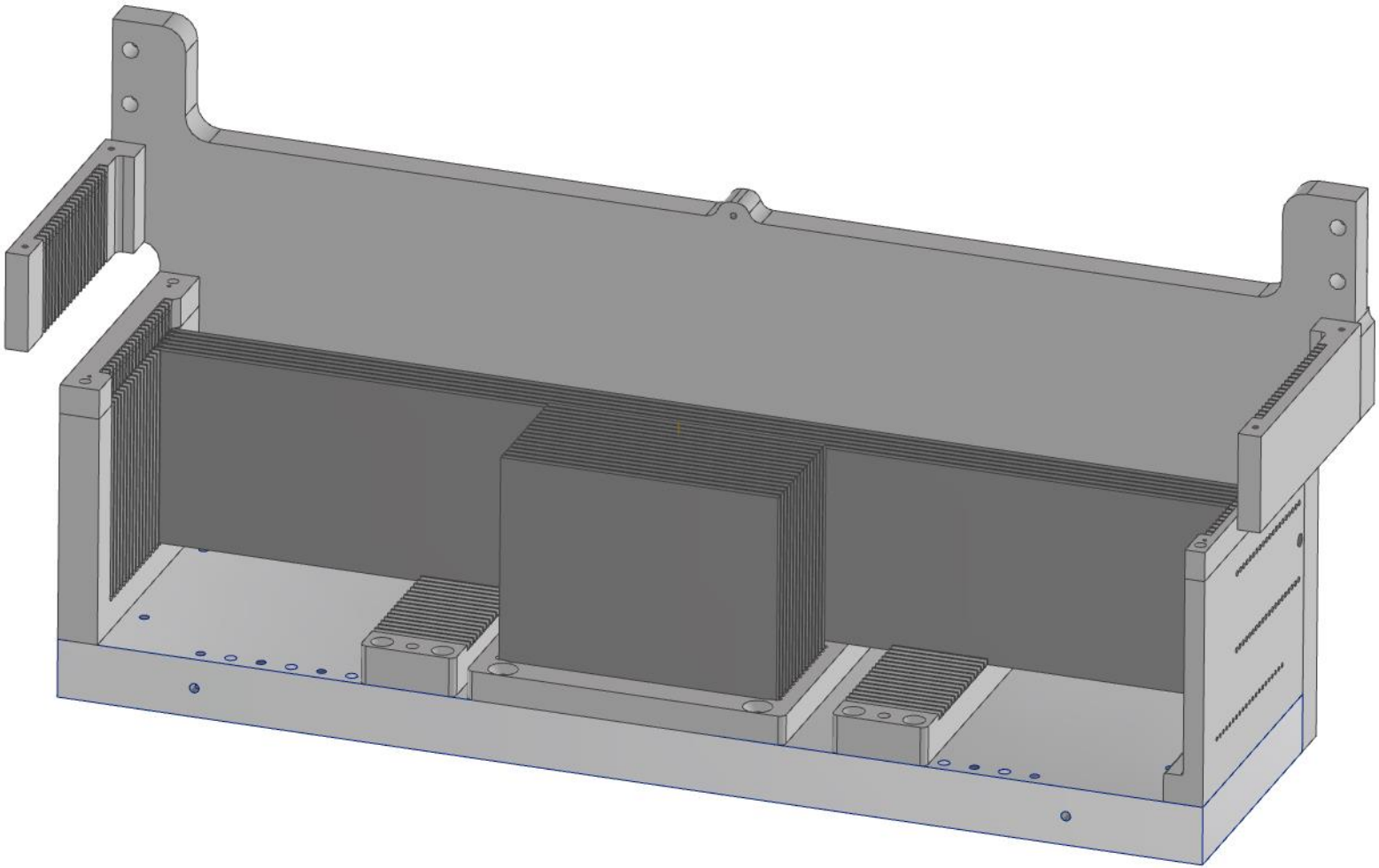
- for TB setup nominal combs shifted towards ECAL-P center
- new combs for OLD FCAL tungsten added in the middle (14 slots for backup)
- longer ribs - no extra side support needed

Old FCAL Tungsten Support



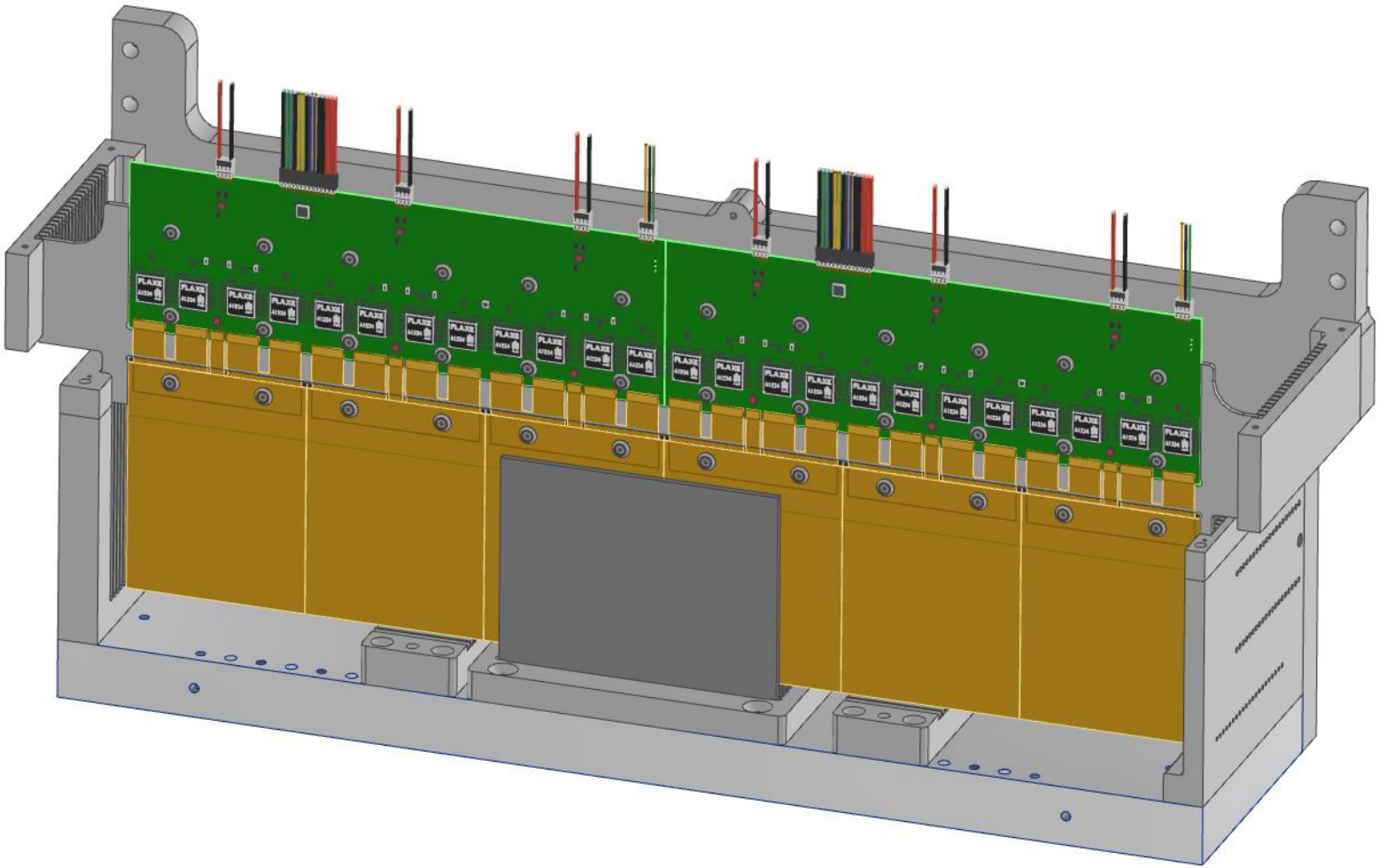
- for TB setup nominal combs shifted towards ECAL-P center
- **OLD tungsten shifted by** 11 **mm left** $\rightarrow$ **Si sensor coverage**
- NOTE: on the drawing all old tungsten plates are cut to 100 mm height

Old FCAL Tungsten (14 plates) plus nominal plates (6)



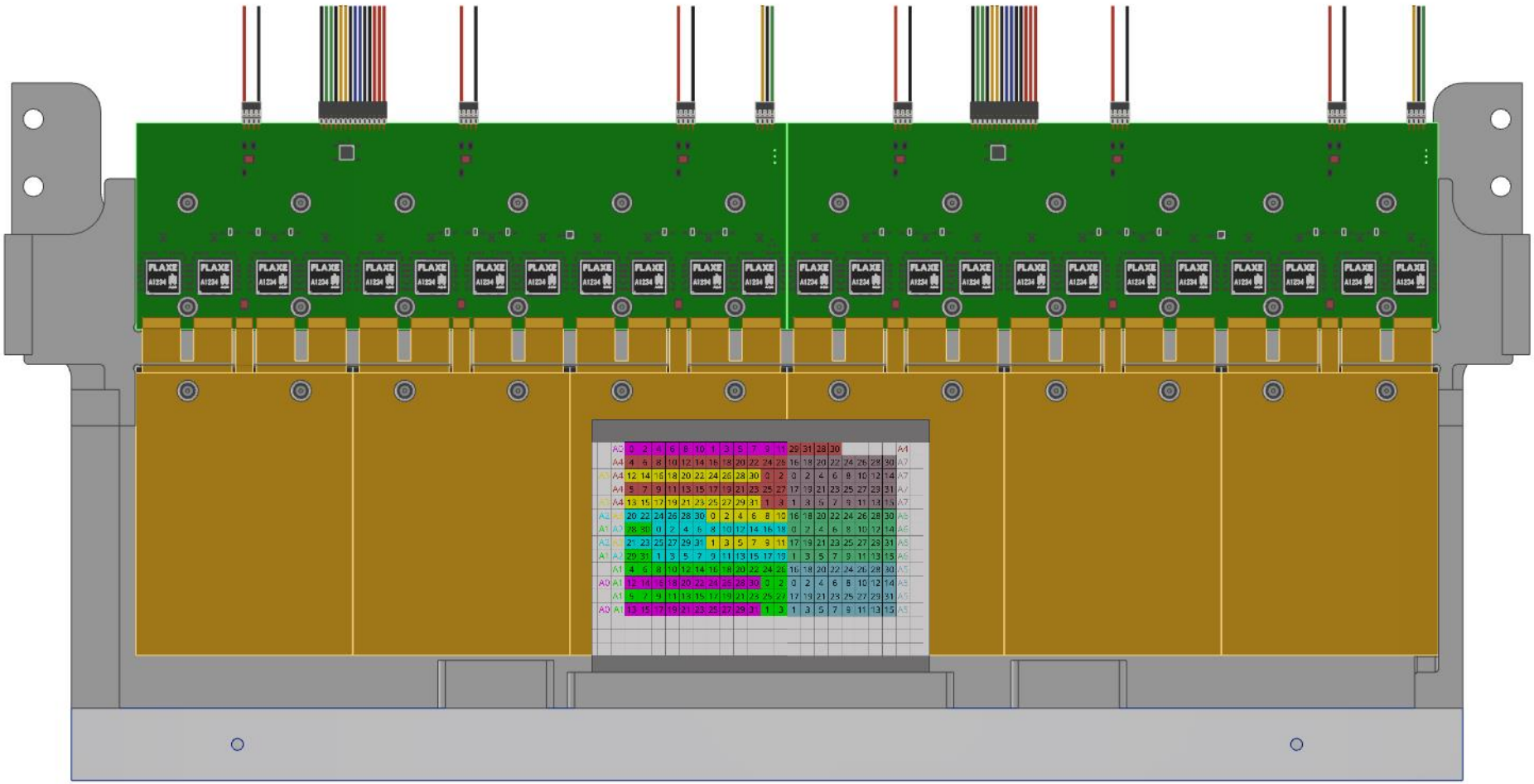
- for TB setup nominal combs shifted towards ECAL-P center
- **OLD tungsten shifted by** 11 **mm left** $\rightarrow$ **Si sensor coverage**
- NOTE: on the drawing all old tungsten plates are cut to 100 mm height

BACKUP Solution



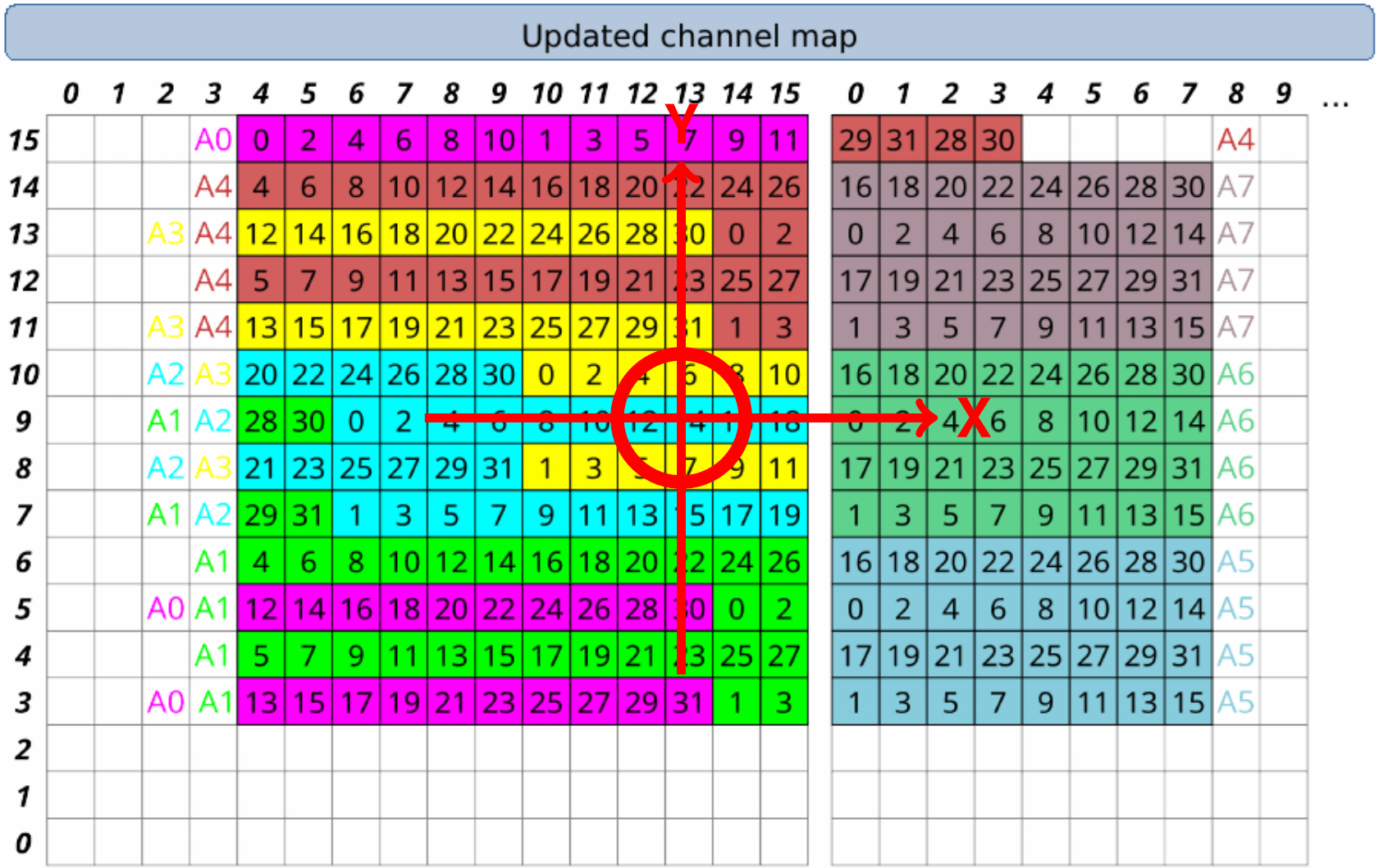
- BACKUP Solution: instrumented planes with old tungsten
- requires cutting more old tungsten plates to 100 mm Y-height

Position of Silicon Sensors



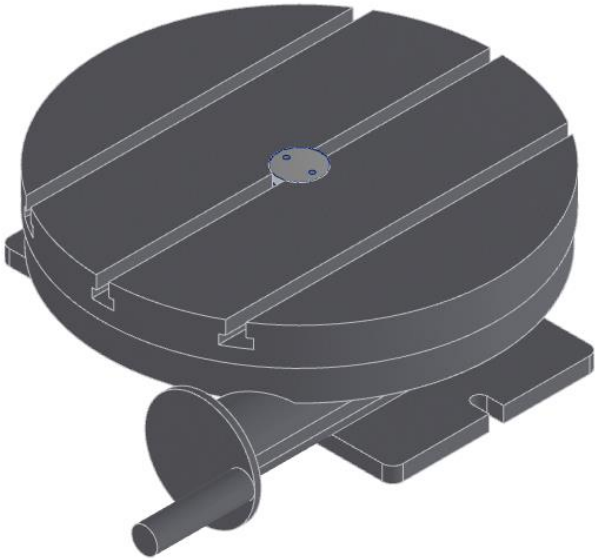
- instrumented part of the TB setup
- **OLD tungsten shifted by** 11 **mm left (by 2 cells)** $\rightarrow$ **symmetric Si sensor coverage**
- OLD tungsten: 14cm width : two Si sensors : 18cm width (only 20 columns for readout)

Channel map for TB 2025: expected nominal beam aperture



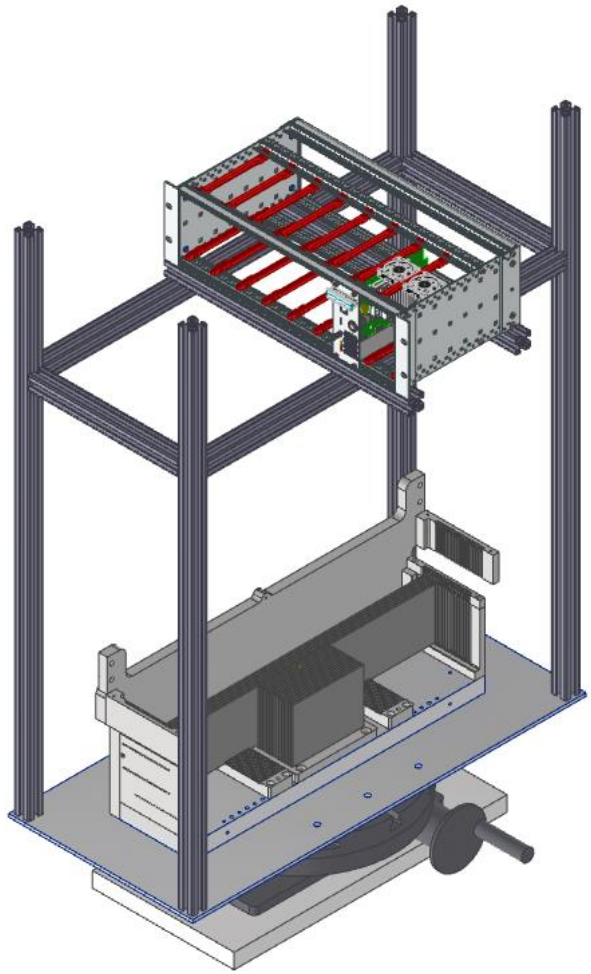
- rotation axis close to geometrical center (decoupling of rotation and translation)
- **rotation axis (||) at first instrumented tungsten plate**
- readout area: 20 columns × 5.5mm = 110 mm, (15mm OLD tungsten margin on both sides)

Support plate



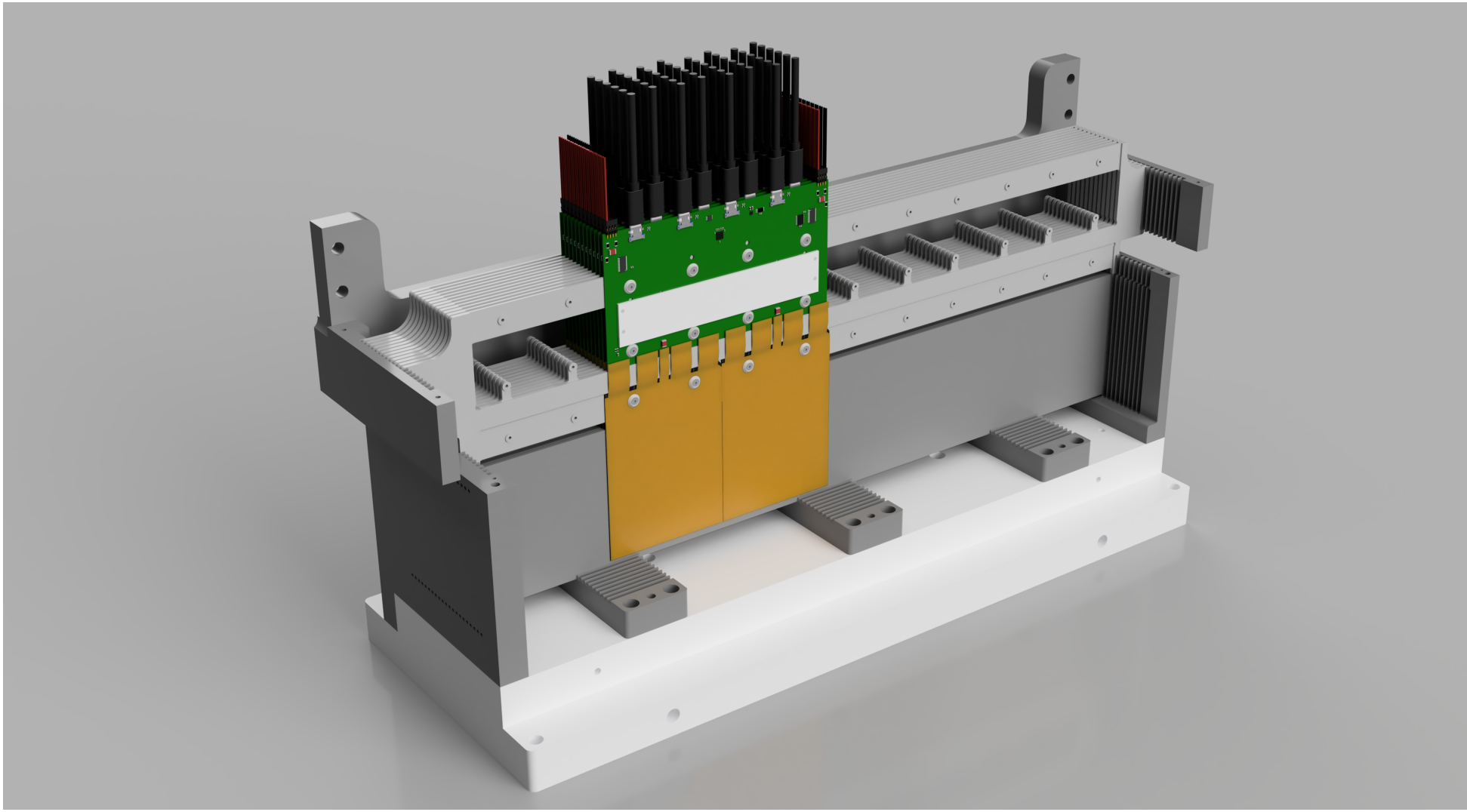
- Additional plate to host ECAL-P on rotary table
- dimensions bigger by $\sim$ 10 cm then ECAL-P footprint
- rotation axis at first instrumented plate (close to gravity center of the system)

Support plate + racks scaffolding



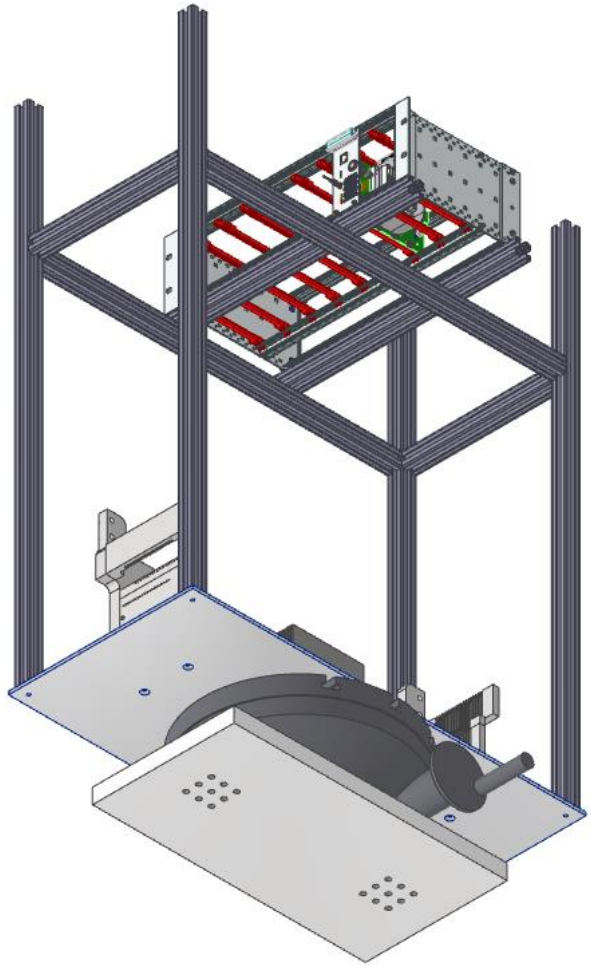
- Support plate with ECAL-P and racks scaffolding
- height of the scaffolding “tower” to be adjusted (according to cables length)
- **TBD: Faraday Cage and cables routing (light tight throughput) + beam window**

Cables: USB-C readout, LV, HV, ... (old CSIS positions !)



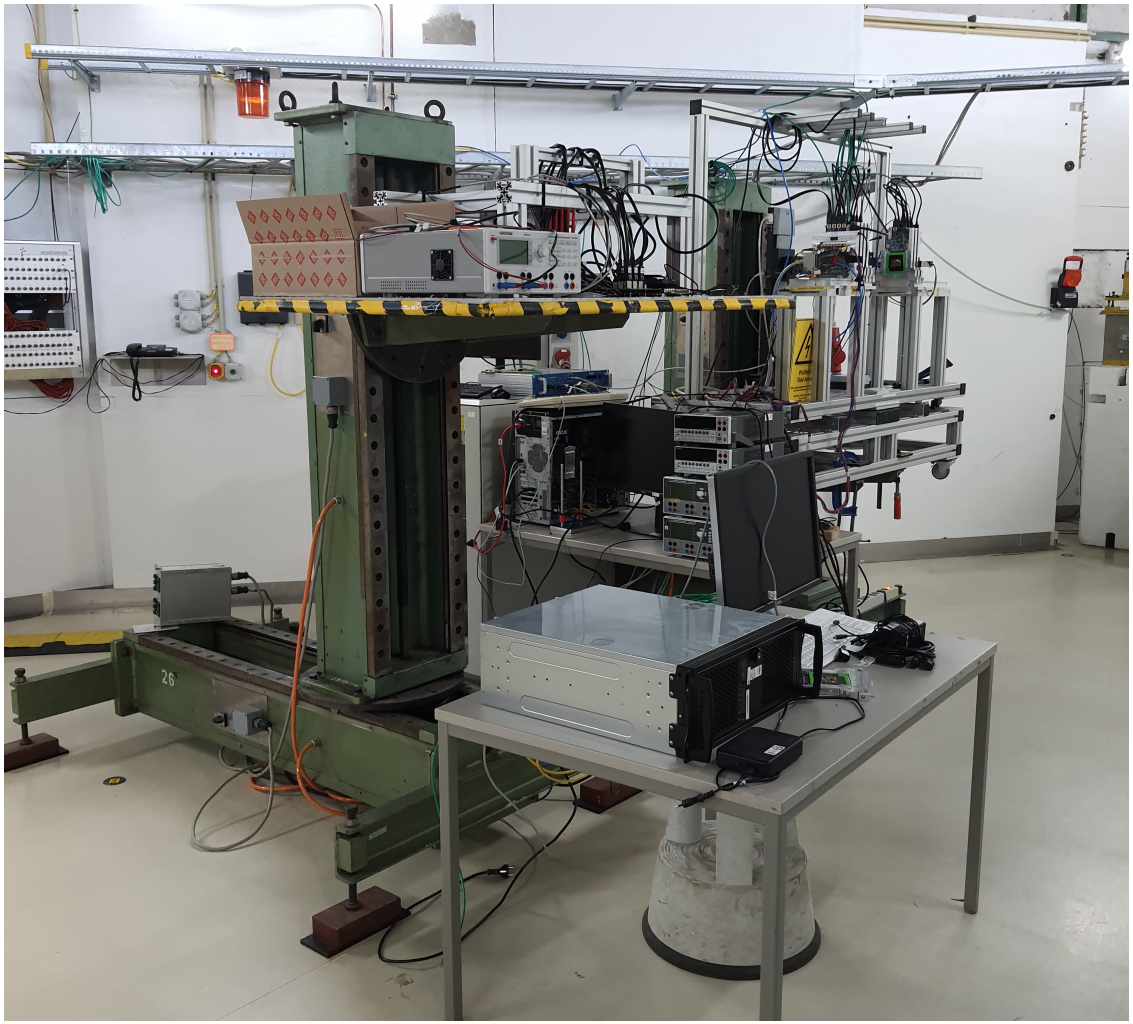
- **TBD: Faraday Cage and cables routing (light tight throughput) + beam window**
- **still TBD...**

Support plate + racks scaffolding (bottom view)



- Support plate with ECAL-P and racks scaffolding
- **additional insulating POM (plastic) plane at the bottom is also needed**
- **size still under discussion : depends on TB stage table size**

TB stage at TB22 area (Feb'25)



- table size 120 $\times$ 80 cm, longer side along beam direction
- our "scaffolding" may clash with stage column during rotation...

TB stage: preferred version

- table size 120 $\times$ 80 cm (??)
- different table orientation, more space for our setup
- under negotiation with TB crew to have it in TB22 area in June'25 (?)

TB stage: preferred version

- **QUESTION: how the X-direction scan was performed ?**
- can we rely on TB stage translation or should we shift our setup on table ?