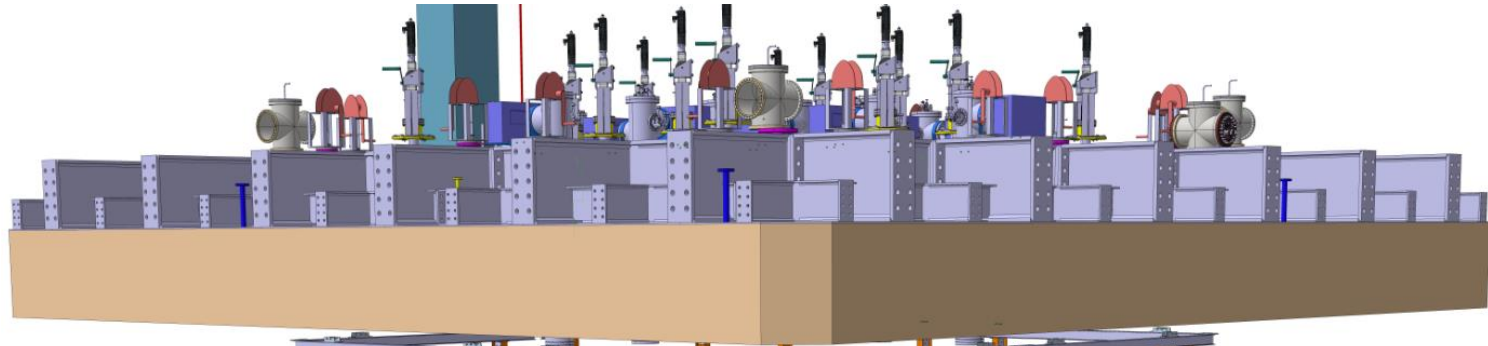


WA105 Detector and Cathode

A.Gendotti

ETH zürich

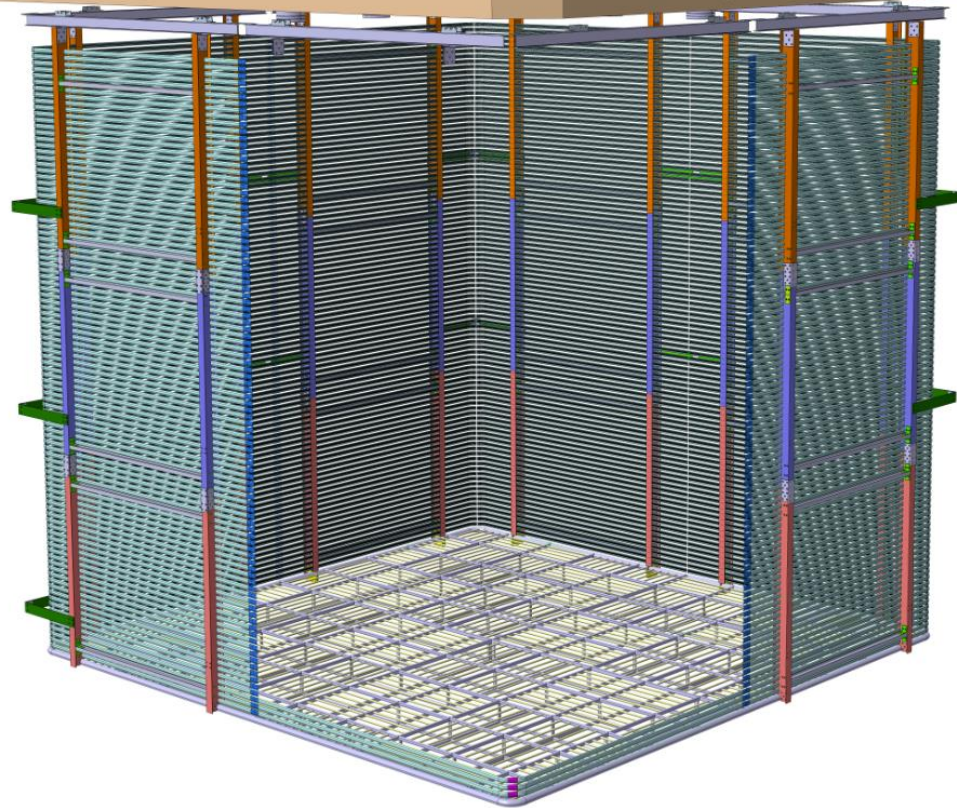
19.07.2017



Field cage hanging system:
- SS I-beam Ring

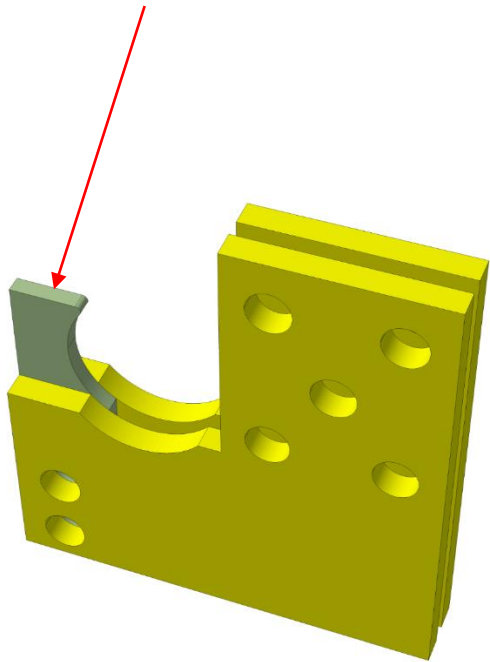
Field cage modules
- Vertical FRP I-Beam
- 8 Vertical Modules

Cathode:
- SS self supporting structure

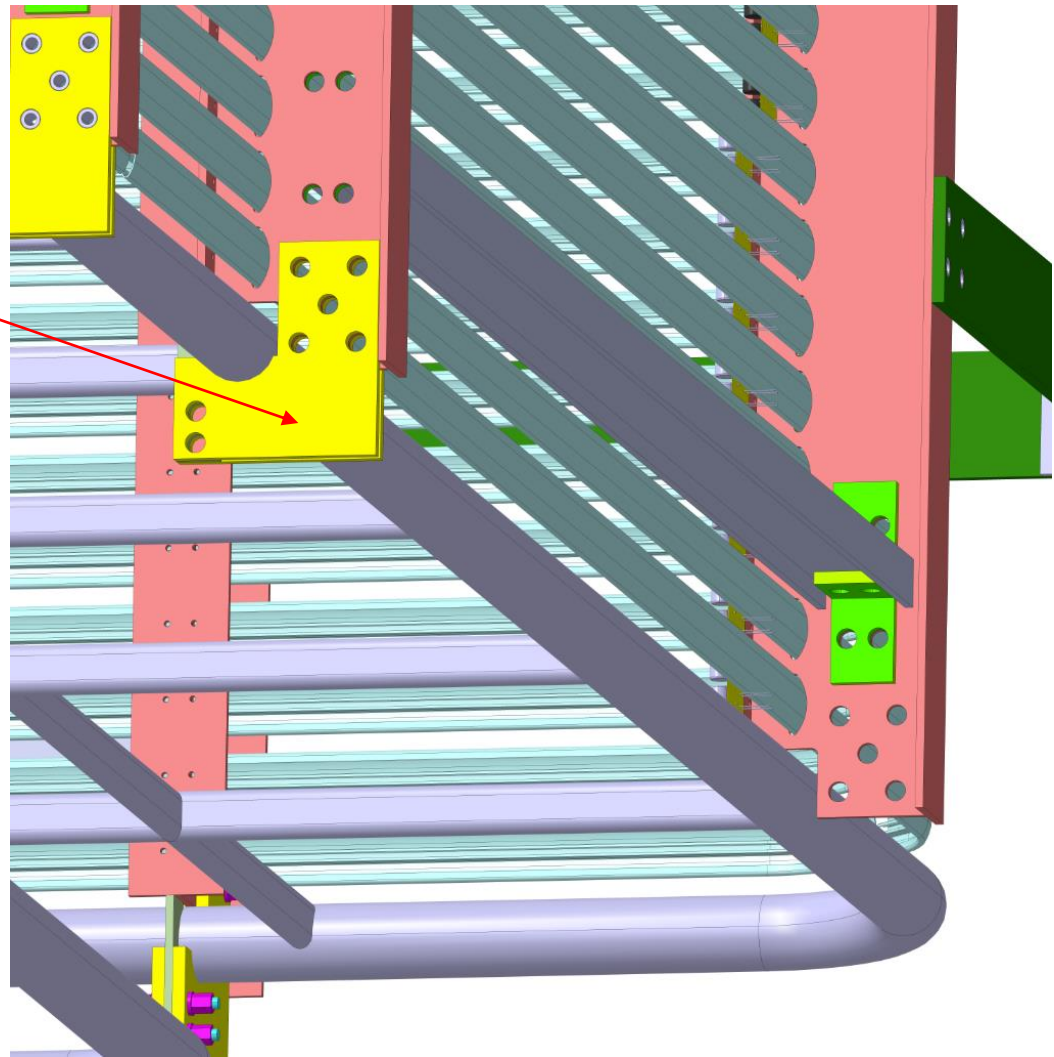


Cathode Holder

- 2 plates of G10 bolted at the 6 in Modules I-Beam
- G10 Vertical Blocking Plate

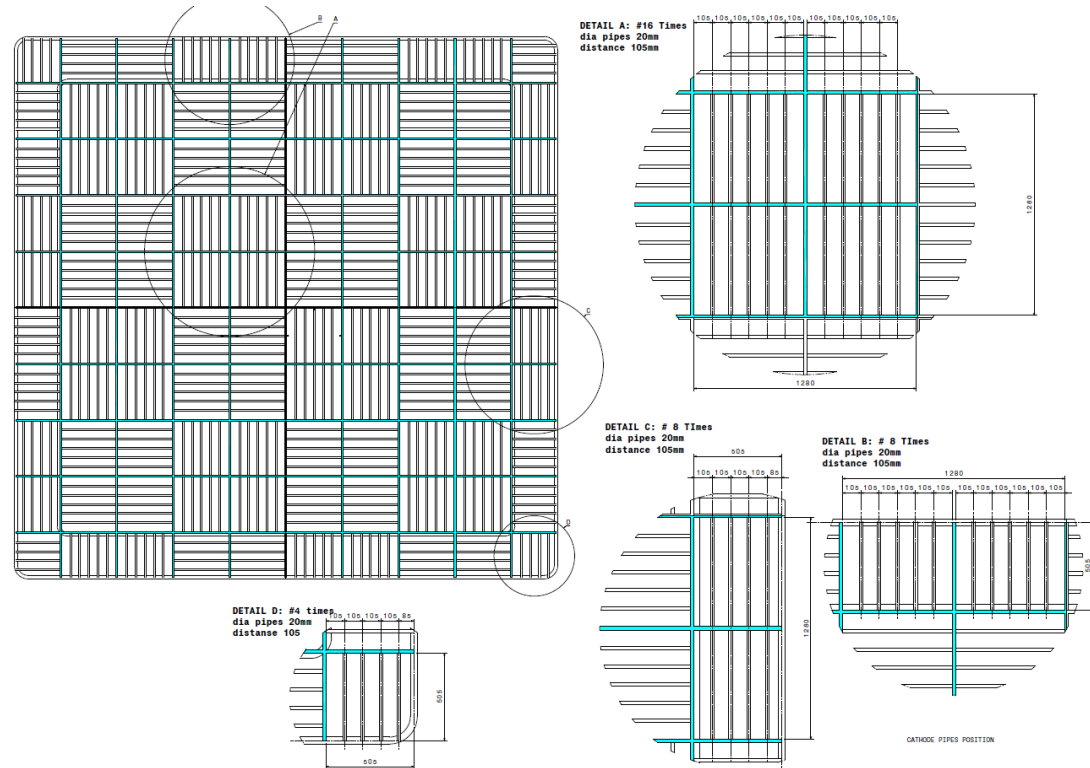
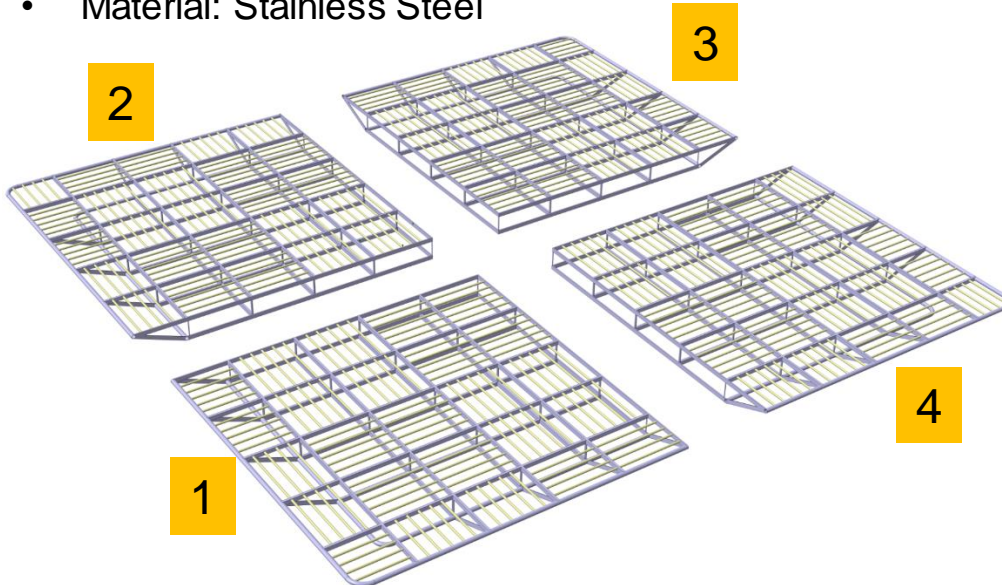


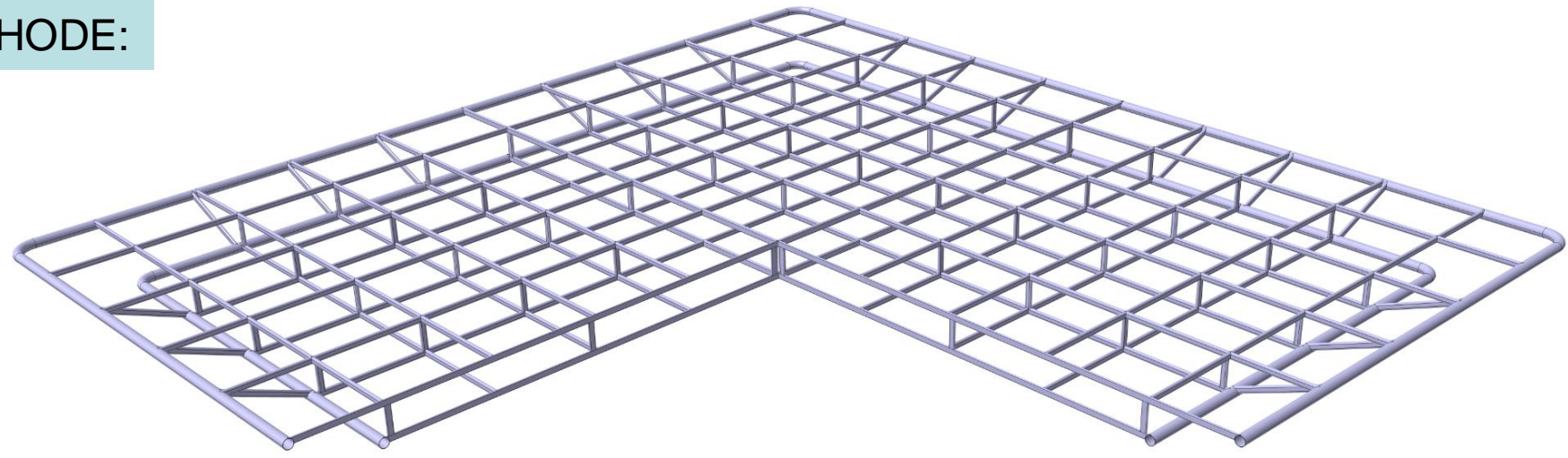
Cathode Holder



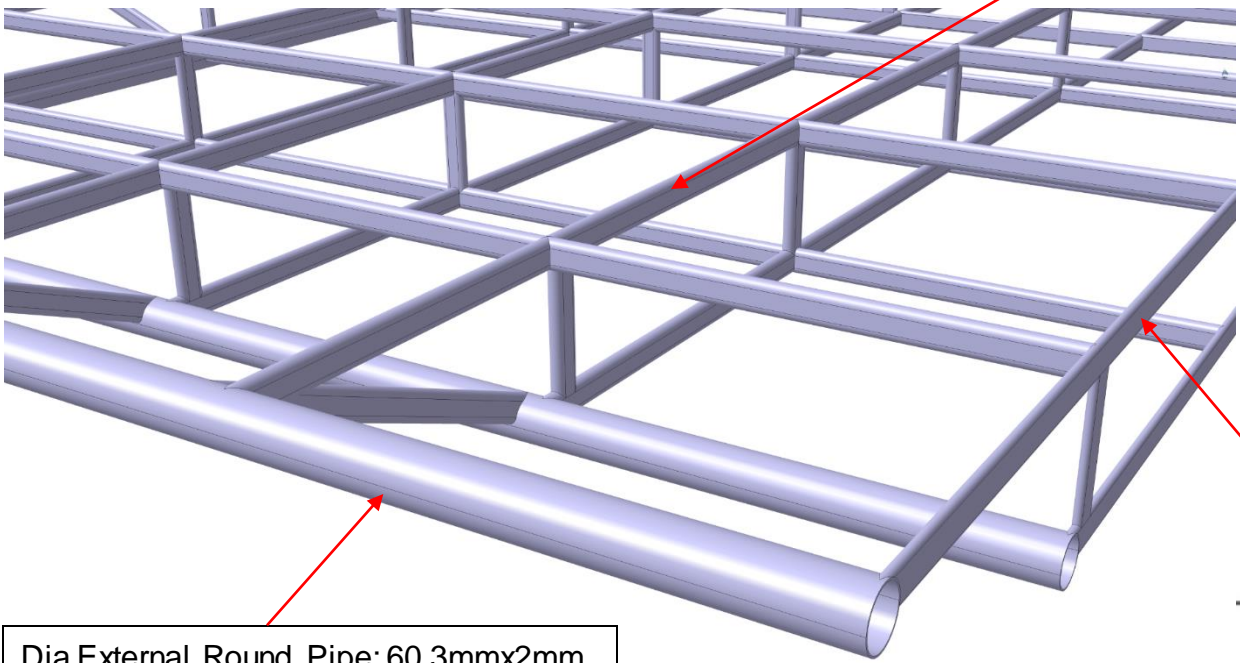
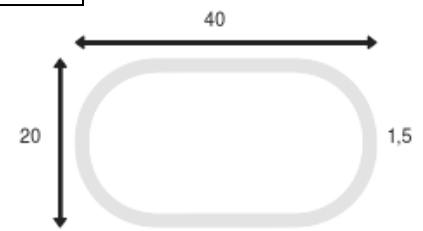
CATHODE

- 4 identical Modules bolted together
- Mechanical Structure consists in:
 - External Round Pipe of 60.3 mm Dia
 - Internal Rectangular pipes and vertical pillars 20x40x1.5 mm (With Oval end)
- Grid consist in 20 mm dia SS pipes with 105mm pitch
- Crossed pipes orientation
- Material: Stainless Steel



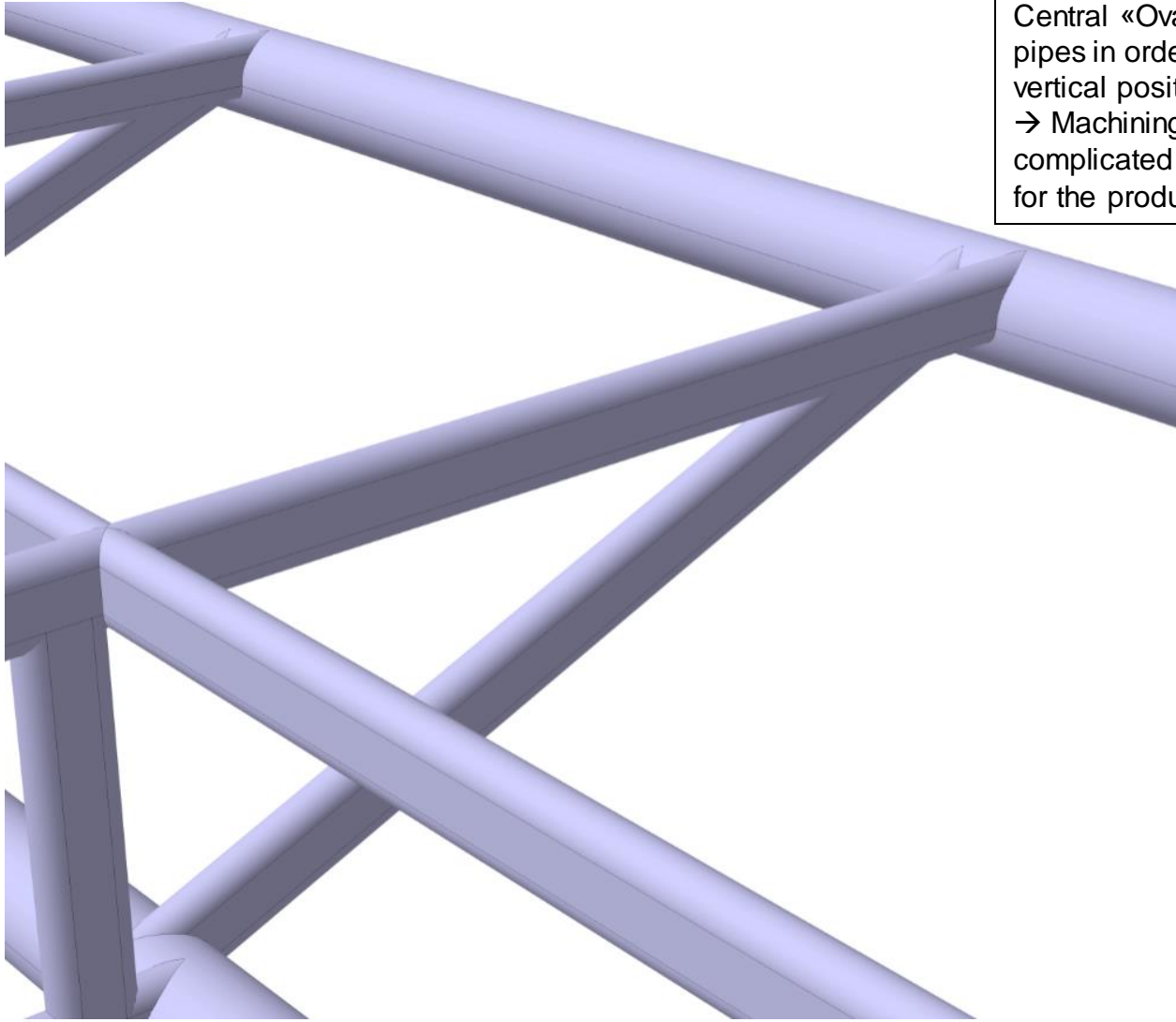


Central «Oval» pipe: 40x20x1.5mm



- Additional Oval Pipe 40x10x1.5:
- Under investigation from the company
 - Small qty
 - Alternative is to use plate 40x10

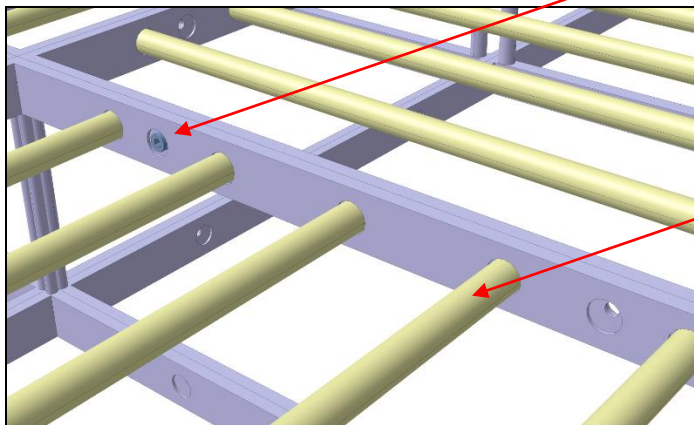
Dia External Round Pipe: 60.3mmx2mm



Central «Oval» pipe kept on the top of the Round pipes in order to keep the Cathode in the same vertical position as before.
→ Machining of the Pipes will be a bit more complicated and there will be more different parts for the production drawings.

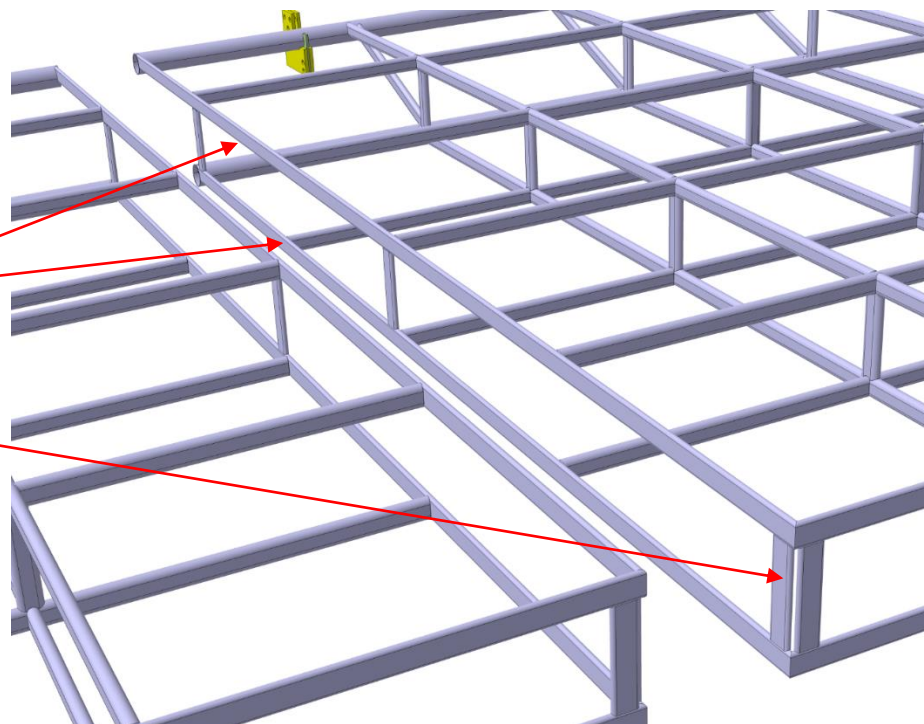
CATHODE:

- Connection between modules is with M8 Screws and Nuts



Pipes Grid is point welded at the structure

- Connection every ~300mm at top and bottom structure
- Connection in the vertical pillars as well

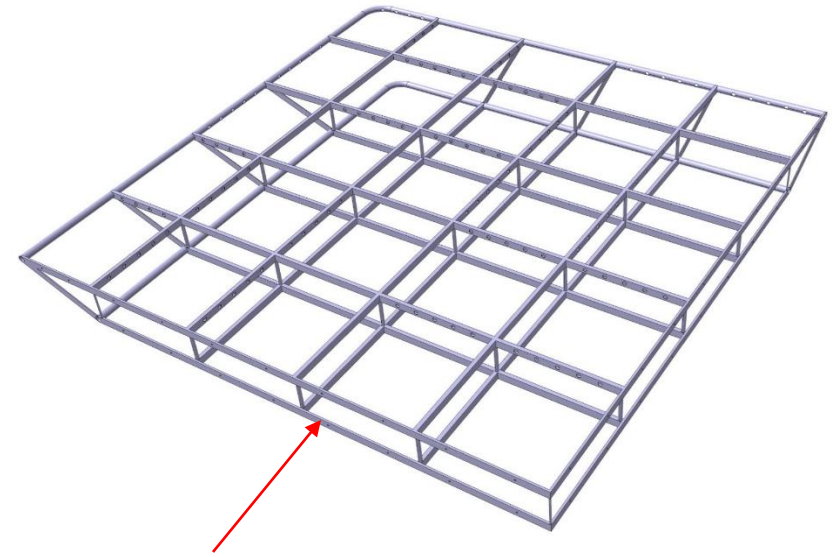


CATHODE MODULE

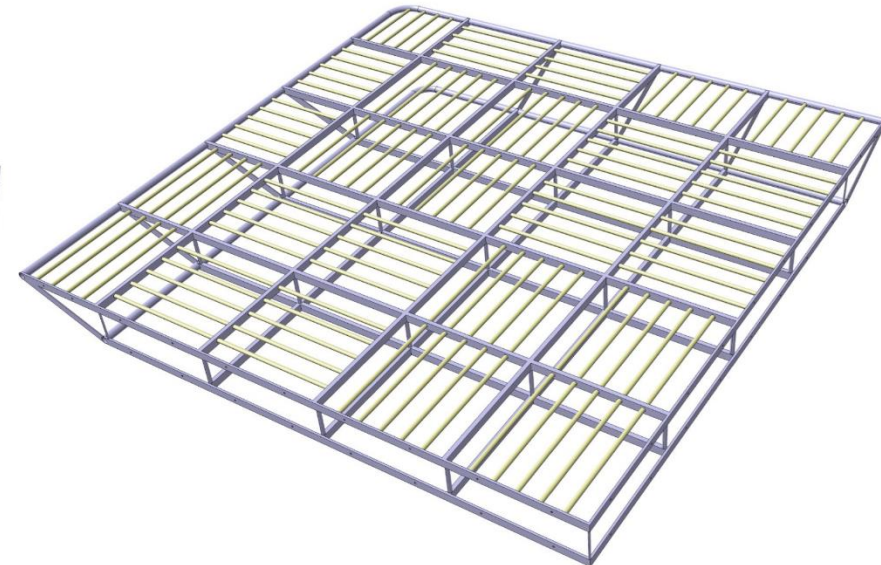
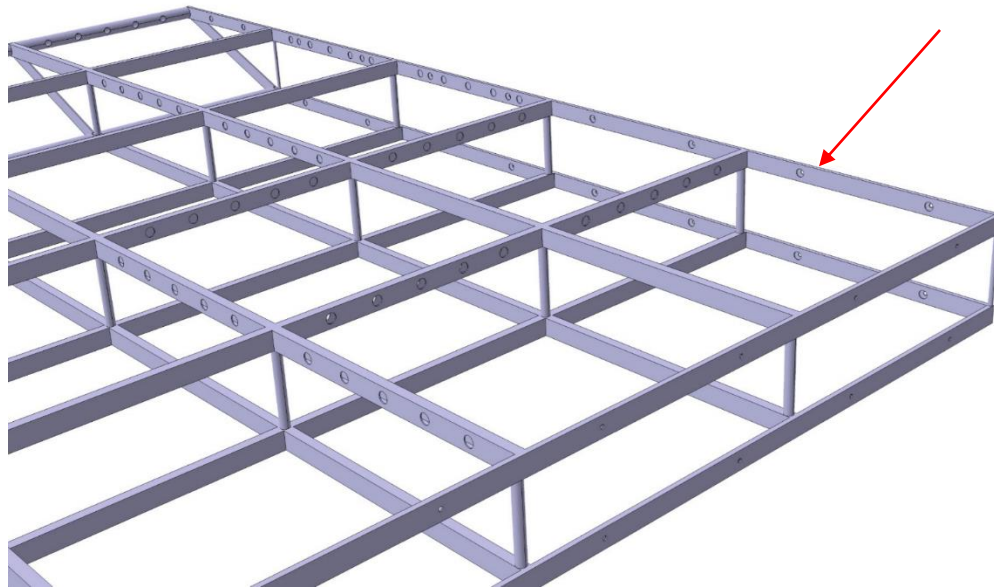
- Module is 3.140 x 3.140 x 0.26 m
- Holes everywhere in the profiles to allow Lar to go through (avoid stuck bubbles)

- Cathode Module: ~100 Kg
- Pipe Grid 35 Kg

 Module weight ~135 Kg x 4 Modules = 540 Kg
 (without bolts and Inserts)

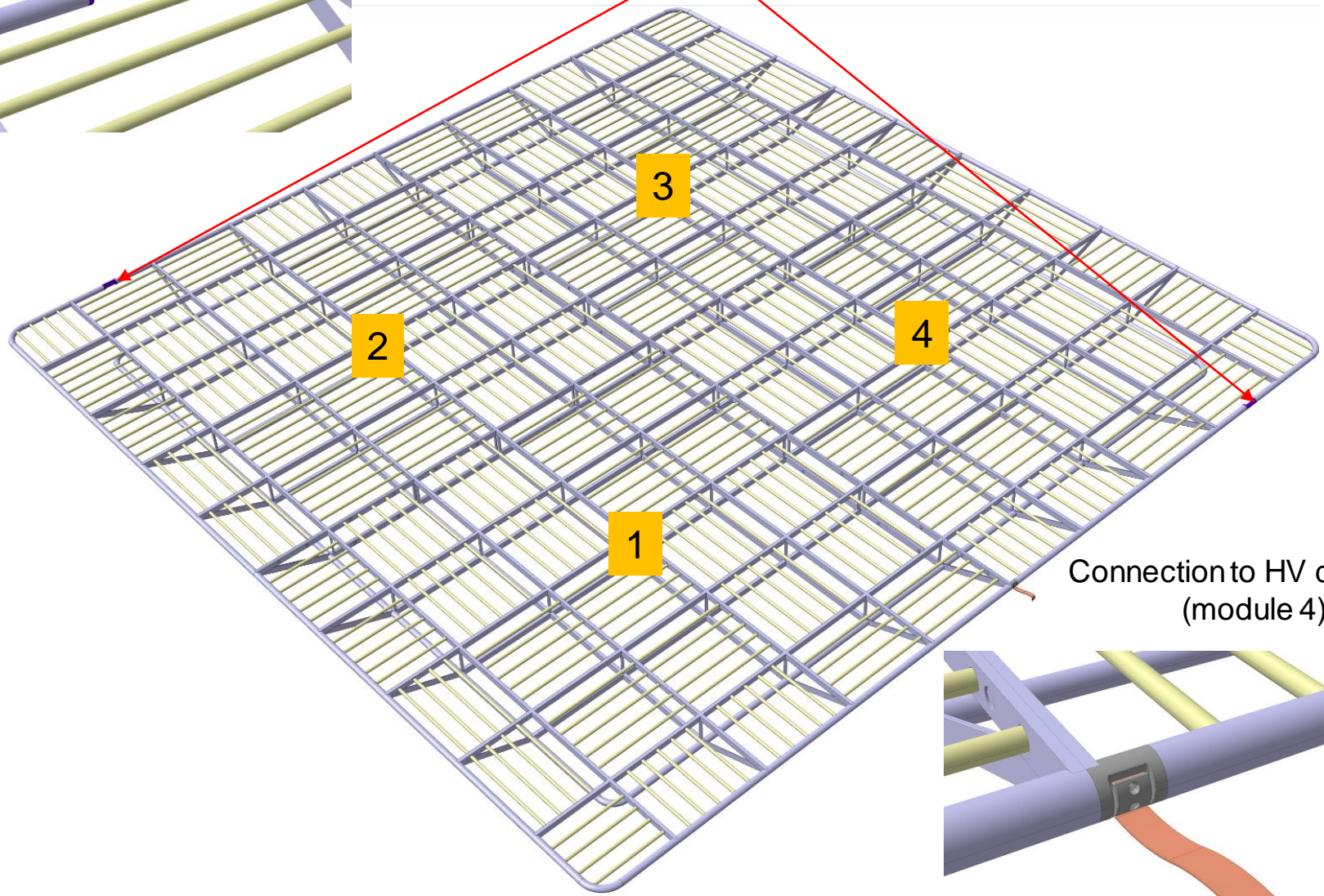
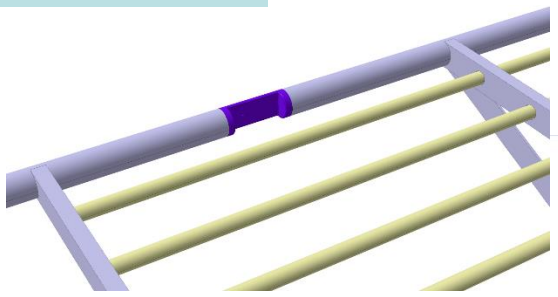


Bolt Connection to the others modules

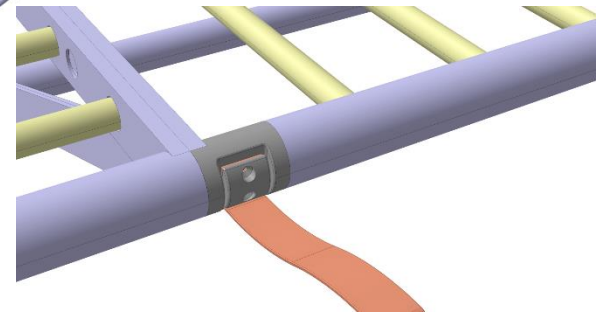


CATHODE:

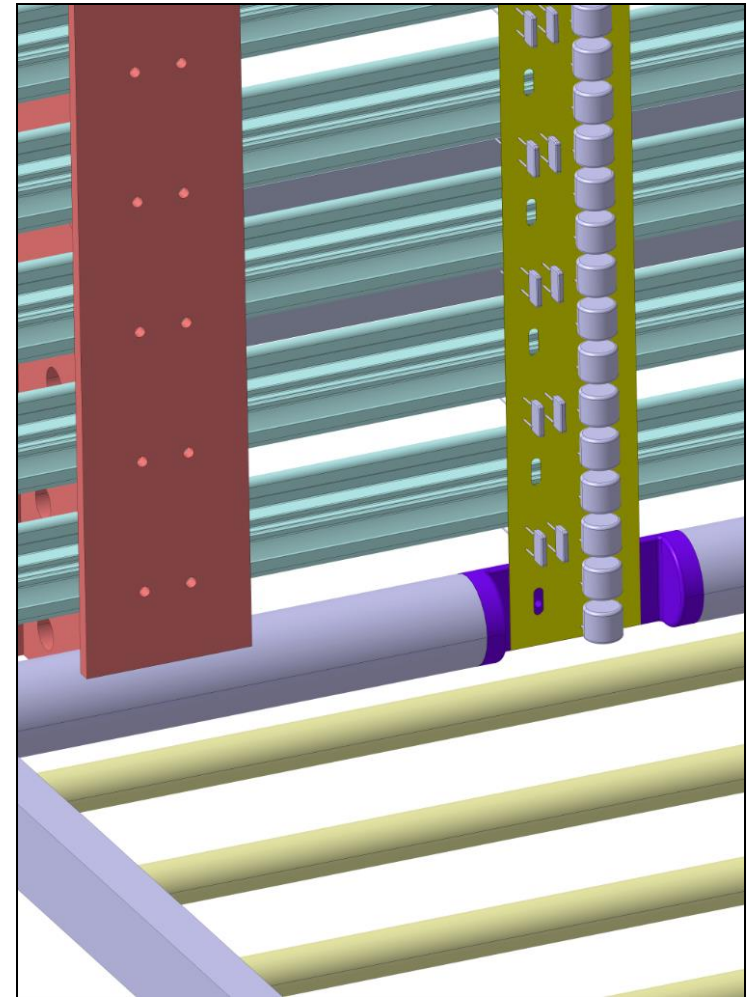
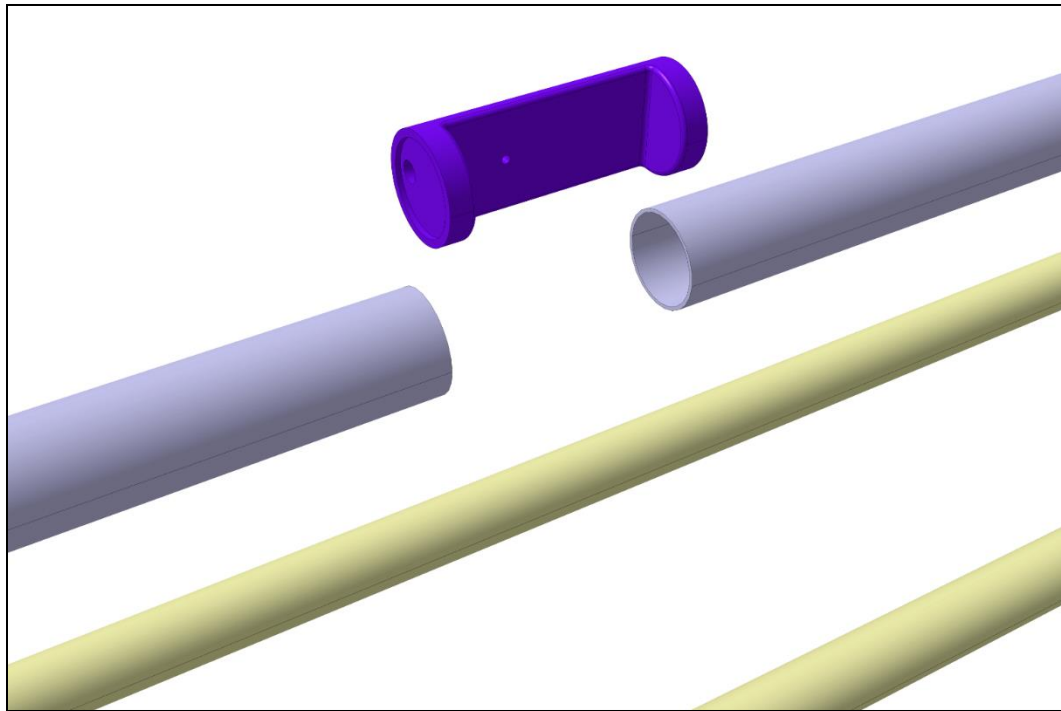
Connection to PCB Board HV divider
(modules) 2 and 4



Connection to HV degrader
(module 4)



- 2 modules have special connection for the PCB Board
- Full rod (dia 60.3 mm) insert of 100mm length machined in order to accommodate the PCB Board



- 1 Module have a special connection for the HV degrader
- Full rod (dia 60.3 mm) insert with «cap» of 50mm length machined for cable fixing

