Status of detector design integration

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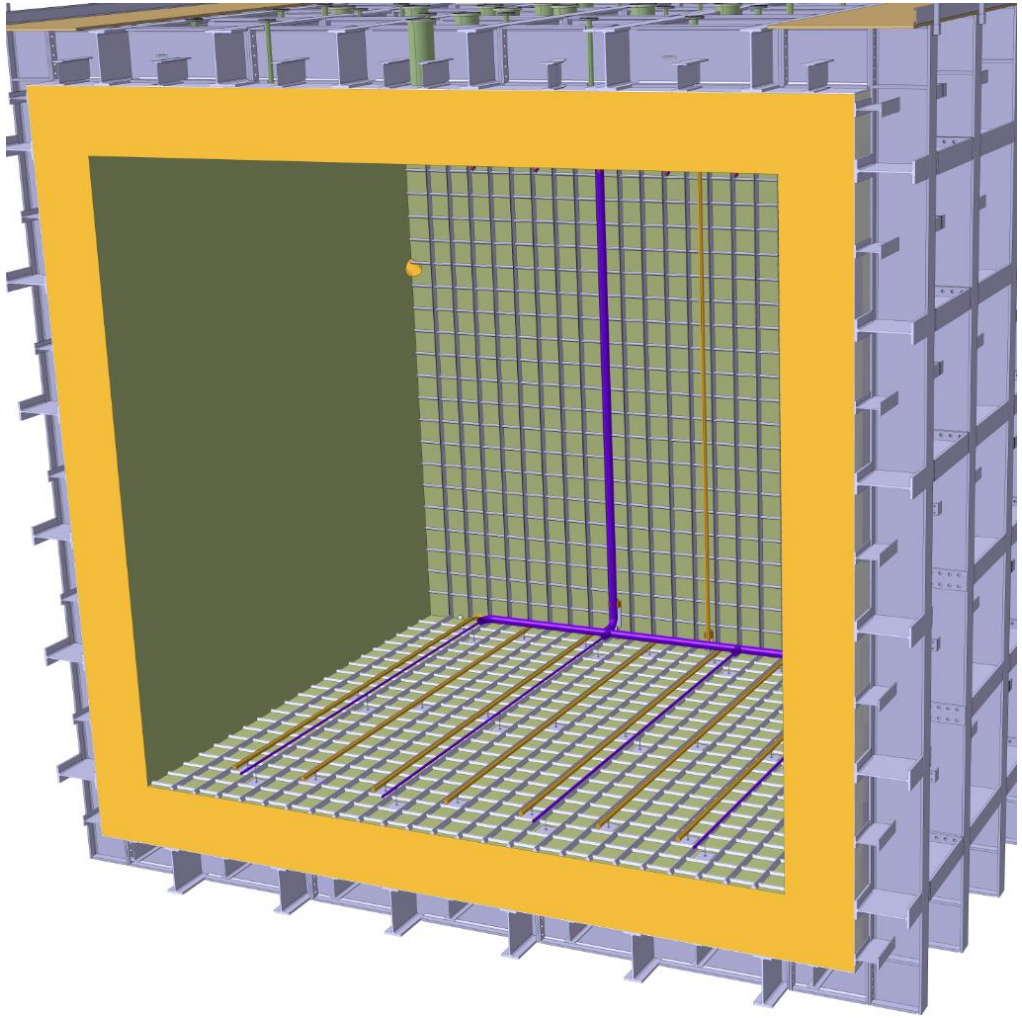
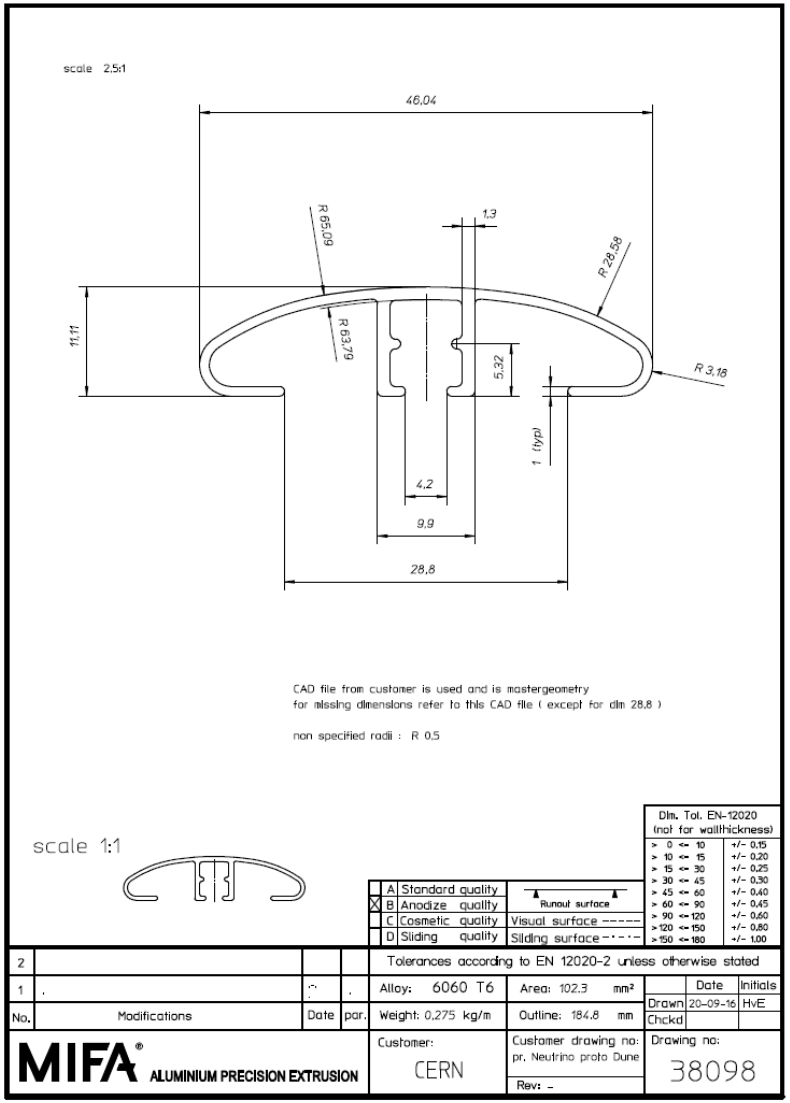
- Last integration updates
  - Membrane layout at Cryostat Floor
  - Last update of the Cryogenic Internal Piping
  - Clipping Alu profile at the Field Cage
- TO-DO LIST of remaining design details for detector integration subdivided for all detector items
  - Top Fts
  - CRP
  - DP- Field Cage
  - Cathode
  - Groundgrid
  - PMts
  - Internal Instrumentation
  - Cryostat Interfaces
- Conclusion

Integration Updates: Membrane Layout

- Position of the corrugation is correct
- Last model of the internal pipe
  - Horizontal pipes can be still adjusted if required



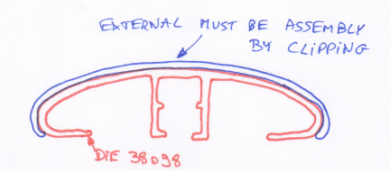
Integration Updates: Alu Profile Clip



- Design of the Alu profile (from F.Pietropaolo)
- Offer for the Straight Clipping Profile received (3 Oct)
- MIFA still investigating for the Corner Connection

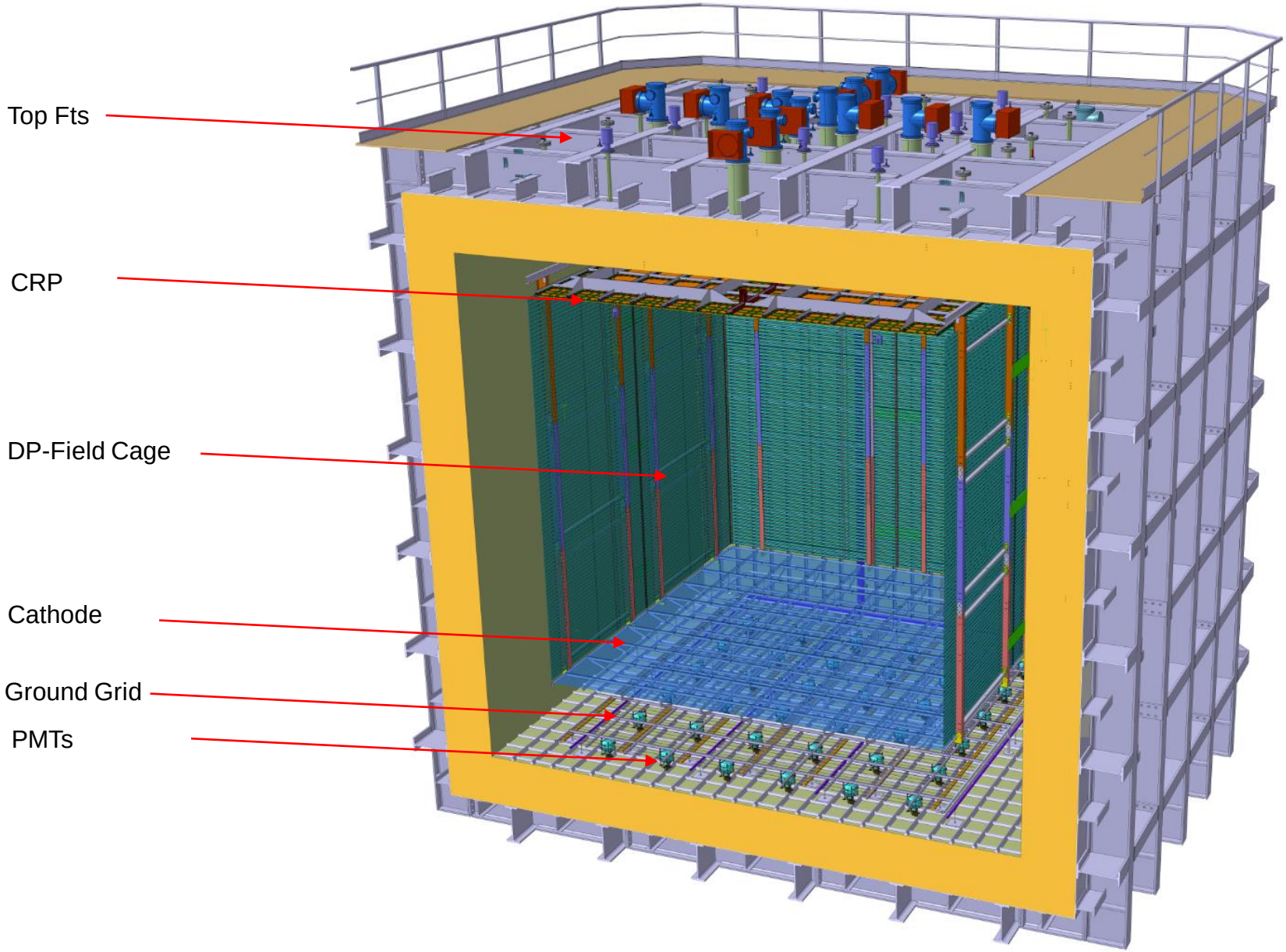
Thank you for your recent enquiry. We are pleased to offer the following quotation.

1. Description : PROFILE Neutrino external clip
Drawing : See below Rev. : -



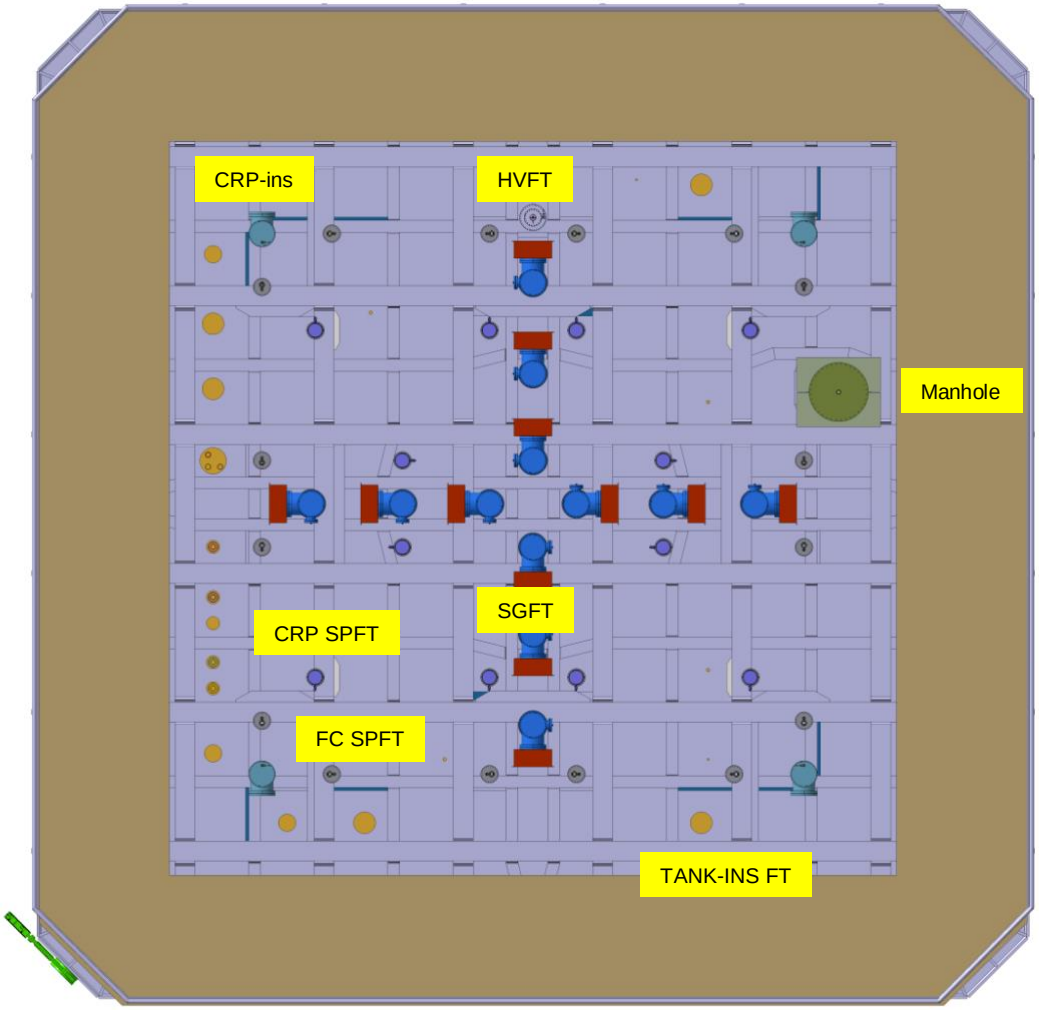
Material	:	EN 573-3 AW **6060-T6** acc. EN 755-2
Surface	:	SURTEC 650
Length	:	3000±5 mm
Extrusion tolerances	:	EN12020-2 unless otherwise agreed

DP Detector Overview



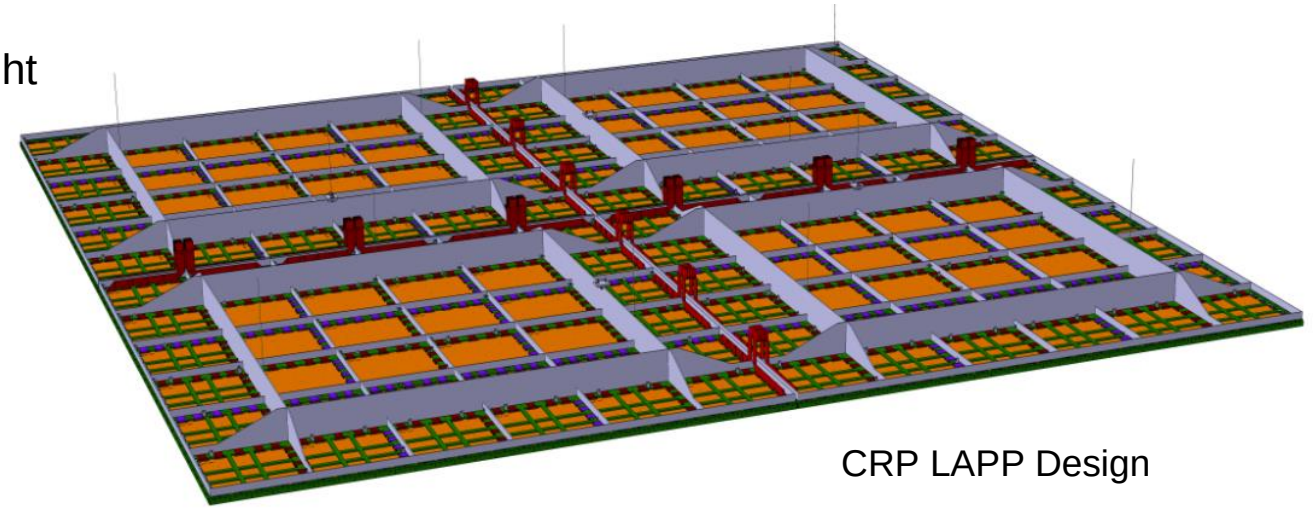
TOP FTs final design (nov 2016):

- 12 x CRP Lifting and Suspension Fts
  - Design from LAPP
- 16 x FC Lifting and Suspension Fts
  - Baseline design integrated
- 4 x CRP-INSTRUMENTATION FT
  - Cable list almost final → needs flange design
- 12 x SGFT
  - Extension of 3x1x1 design
- 2 x TANK-INSTRUMENTATION FT
  - Cable list almost final → needs flange design
- 1 x HVFT
  - Inner extension of the HVFT to the Cathode
- 1 x MANHOLE
  - 3x1x1 Design to Dimitar



CRP (nov 2016) LAPP:

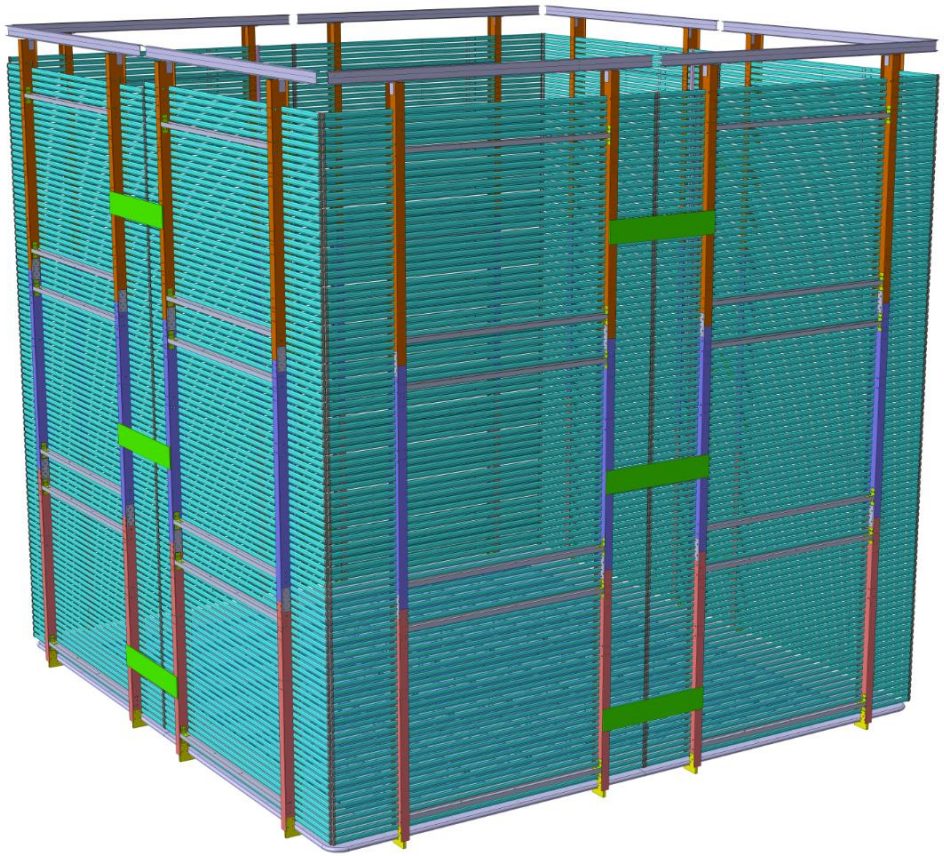
- Complete 3D design
- CRP cabling
- Transportation Box
  - Definition of Connection points on CRP
- Structural Analysis
- Assembly and Installation Procedure
- 3x3 Module Total Weight



CRP LAPP Design

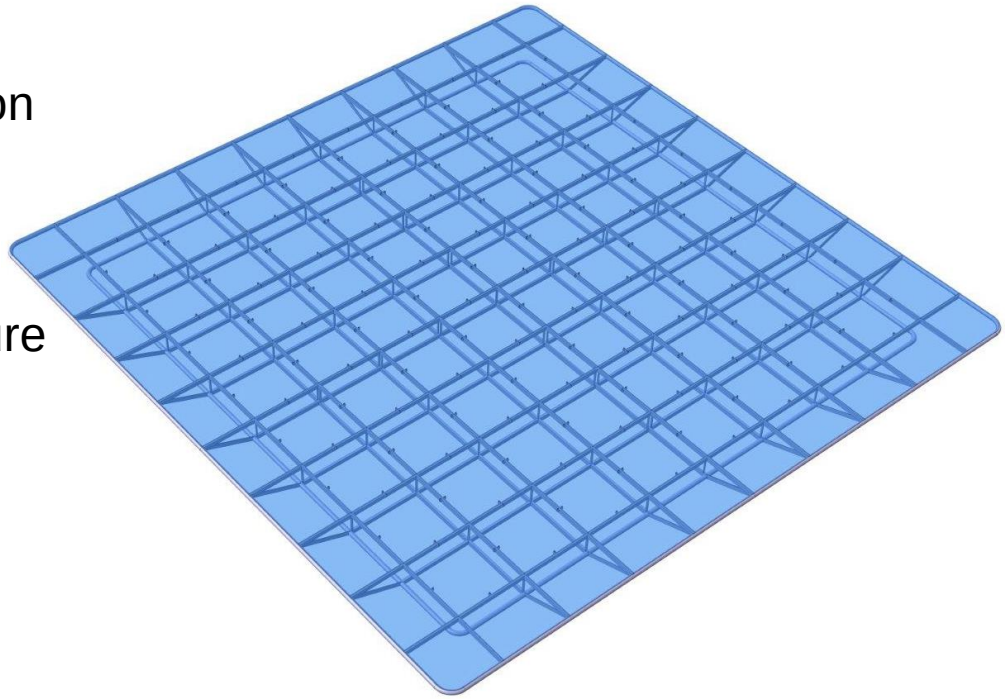
DP-FIELD CAGE (nov 2016):

- Complete 3D design
  - Baseline design
- Transportation box for modules
- Beam Plug interface
- Final Mechanical connection design
  - Alu Profile fixing
  - FC Reinforcements
  - Interface Field Cage - Cathode
- Hanging System
  - Baseline design
  - Interface with FC Lifting/Suspension Fts
- Electrical Components
- Voltage Divider for HVFT
  - Interface with HVFT design
- Total Weight, Assembly and Installation Procedure
- Final Stuctural Analysis



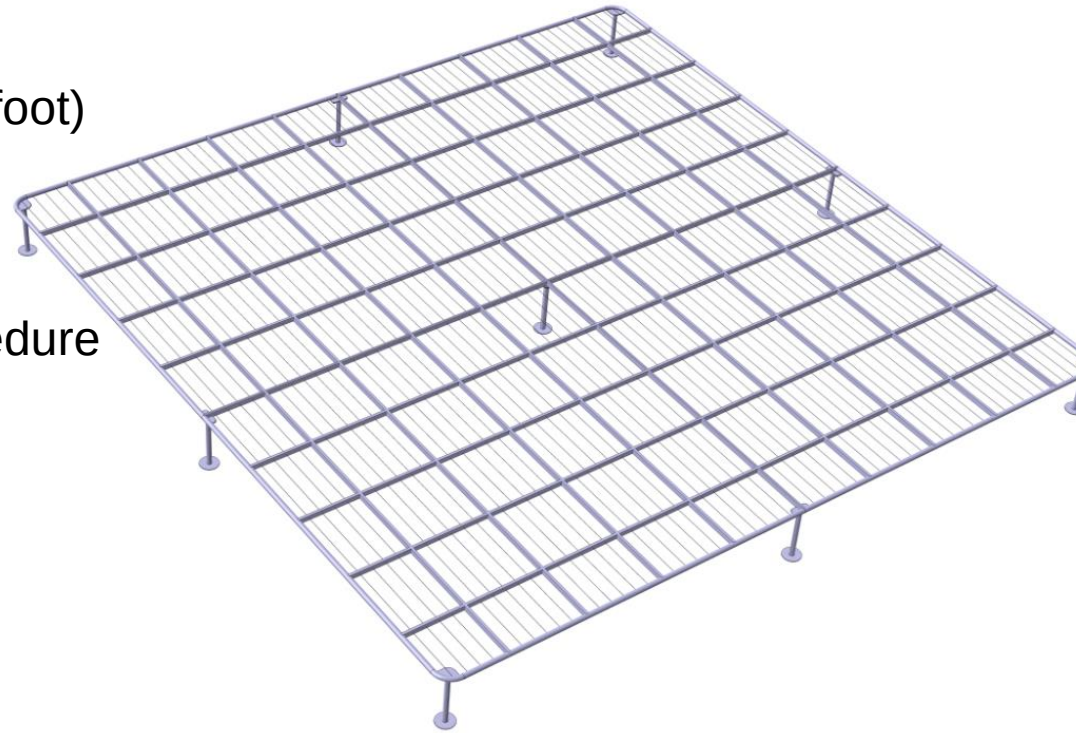
CATHODE (nov 2016):

- Complete 3D design
  - Main Geometry/Design is done
- Transportation Box for modules
- HVFT connection
- Electrical connection/PMMA fixation
- Final Structural Analysis
- Assembly and installation procedure



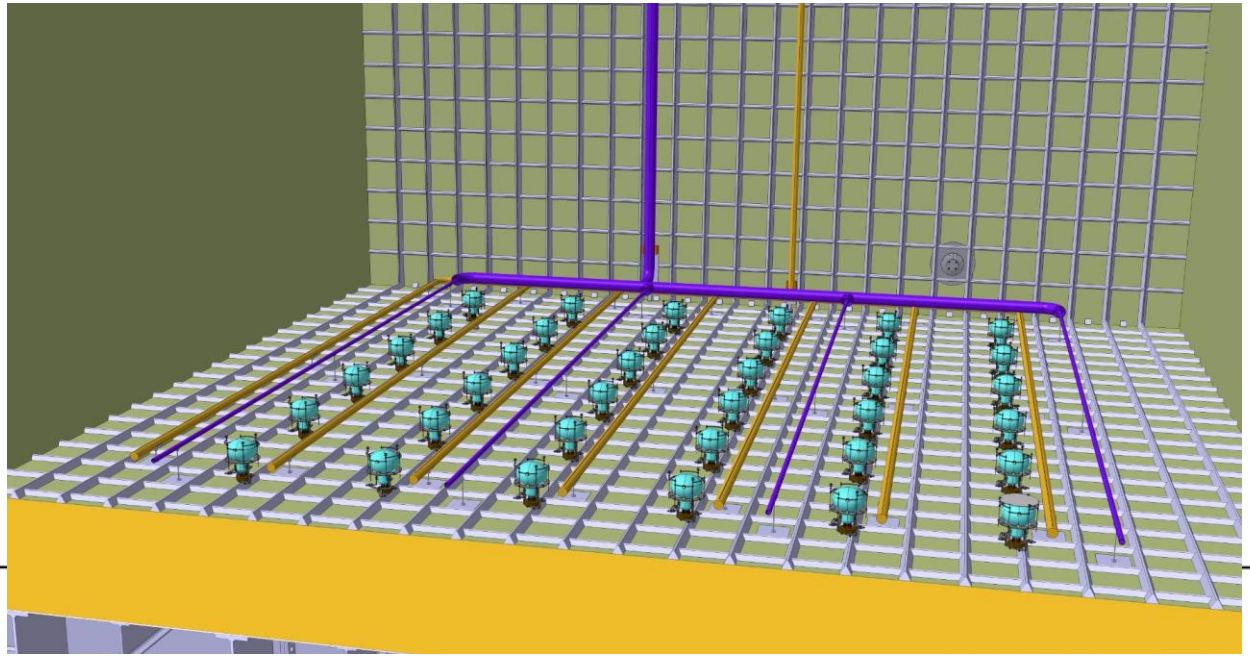
GROUND GRID (nov 2016):

- Complete 3D design
  - Main Geometry/Design is done
- Transportation Box for modules
- Fixing detail at the Membrane (foot)
- Final Structural Analysis
- Assembly and installation procedure



PMTs (nov 2016) CIEMAT and IFAE :

- Final Position of the PMts
  - All information are now available in order to define the PMTs Layout
- Fixing system at the membrane
- Cable Routing on Membrane Floor up to the Cable trays in the Cryostat
- Assembly and installation procedure
- Complete 3D design
  - PMTs
  - Cables
  - Support structure



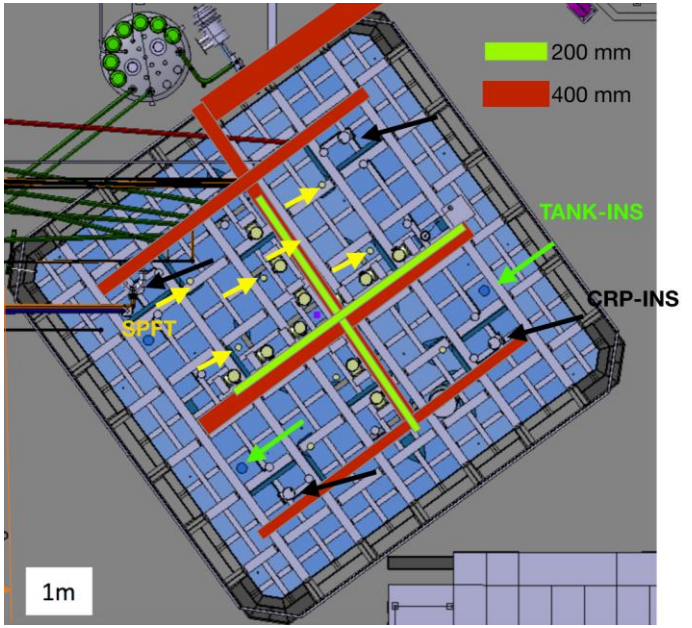
INTERNAL INSTRUMENTATION ASSEMBLY AND INSTALLATION PROCEDURE:

- Cryo Cameras
- LEDs
- Purity Monitors
- Temp mesurements
- Top and Bottom Heaters
- Internal cabling

CRYOSTAT INTERFACES:

- Cable trays on Top of the Cryostat (for Top FTs)
- Instrumentation Top of Cryostat
  - Micro TCA
  - Rasperry
  - Low voltage Distribution
  - Etc..
- Cable Trays inside the Cryostat
- Cable Route inside the Cryostat
  - From Fts to Cable tray to the Sensors/Instrumentation

Cable trays on top



In addition

- Compiling a TO-DO list in an EXCEL sheet (with assignement of remaining design work and deadlines). Some additional design manpower in order to finalize many details would be strongly appreciated

- Complete step file of the Cryostat and Detector is uploaded on the plone

http://lbnodemo.ethz.ch:8080/Plone/wa105/6x6x6m3-demonstrator/stp-files/dp-integration-step-files/WA105%206x6x6%20Complete%2005_10_2016.stp/viewhttp://lbnodemo.ethz.ch:8080/Plone/wa105/6x6x6m3-demonstrator/stp-files/dp-integration-step-files/WA105%206x6x6%20Complete%2005_10_2016.stp/view

- Simplified step file for PMT design is also uploaded on the Plone (with Membrane, internal piping, Cathode, Ground grid)

http://lbnodemo.ethz.ch:8080/Plone/wa105/6x6x6m3-demonstrator/stp-files/dp-integration-step-files/WA105%206x6x6_simplified%20for%20PMTs%20position%2005_10_2016.stp/view

CONCLUSION

- Have the TO-DO List ready by the next TB → 19 Oct 2016
- EXCEL sheet will be circulated in the coming days