Micro Vertex Detector of PANDA
Strip Detector

PANDA Mechanics Meeting
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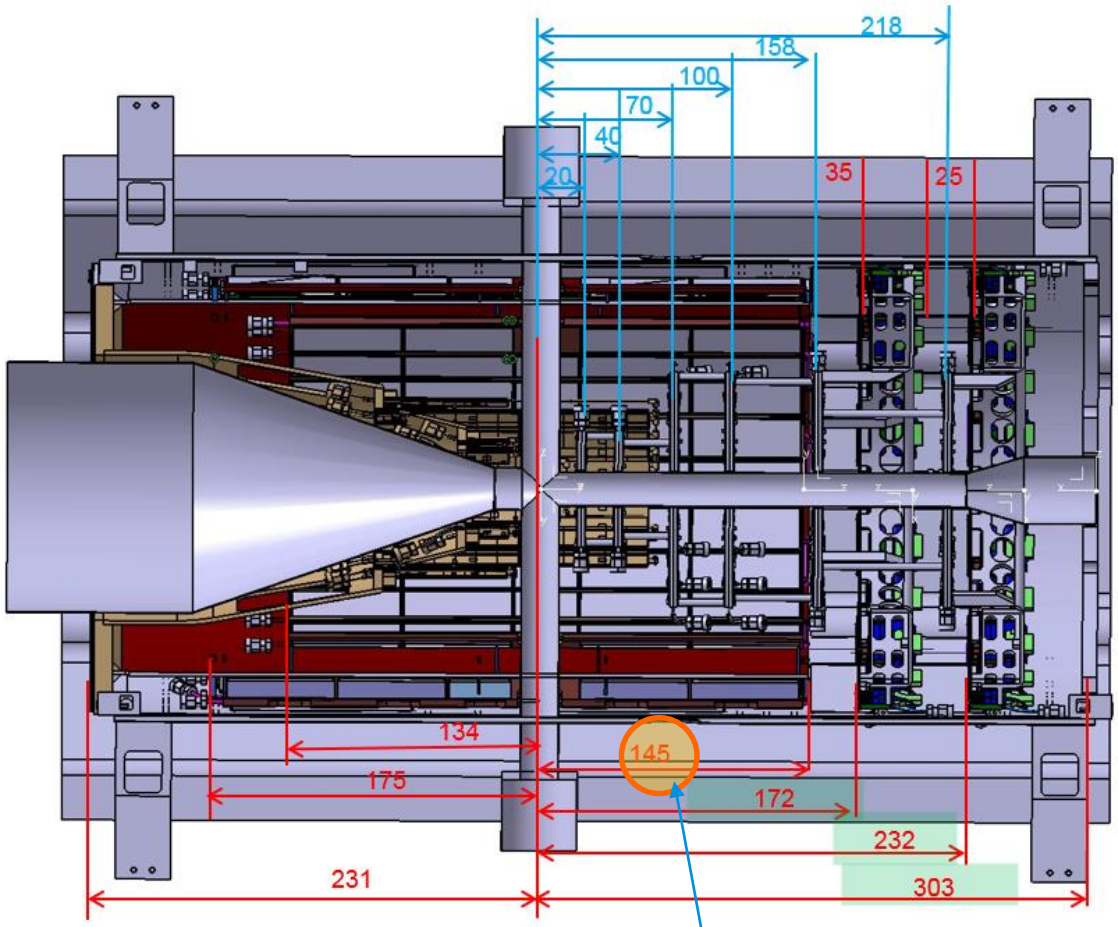
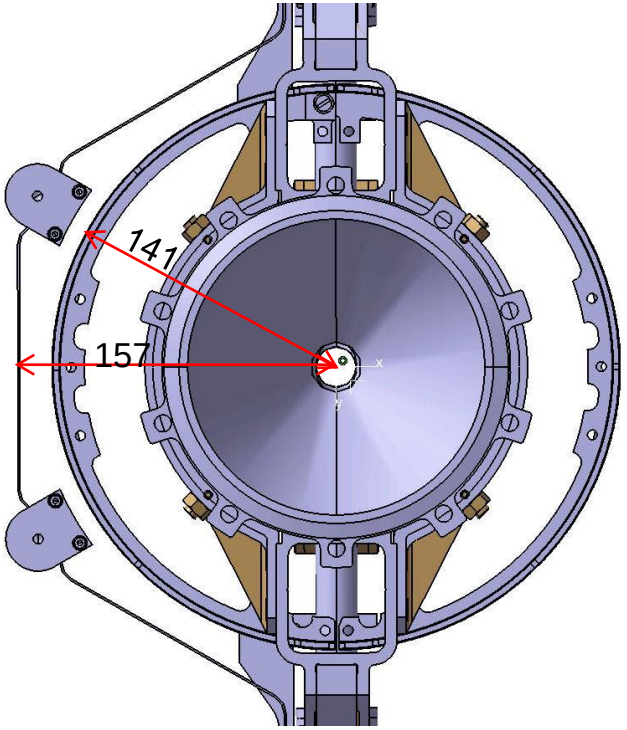
Work in Progress

- Design: changes.
  - Stave
  - Sawtooth hybrid on the half shell (goings on)
  - Staves attachments (positioning units) (goings on)
  - Half shell attachment point and positioning points (goings on)
  - Disc attachment and Structure (goings on)
- Manufacture implementation
  - Manufacturing of the cooling module two cooling units available
  - Quality controls No activities at the momentt
  - Manufacturing of Stave structure with Cooling (optimisation on going)
  - Manufacturing of Disc support structure (optimisation on going)
- Thermal investigation and tests
  - Thermal hydraulic tests with equipped Stave presentation by Tommaso
  - Test rig upgrading (no significant progress)
  - Investigation of cooling pipes (on going)
- FEM Validation
  - Disc deformation behaviour (additional calculation)
  - Half shell deformation behaviour (no significant progress)

MVD Current Drawing





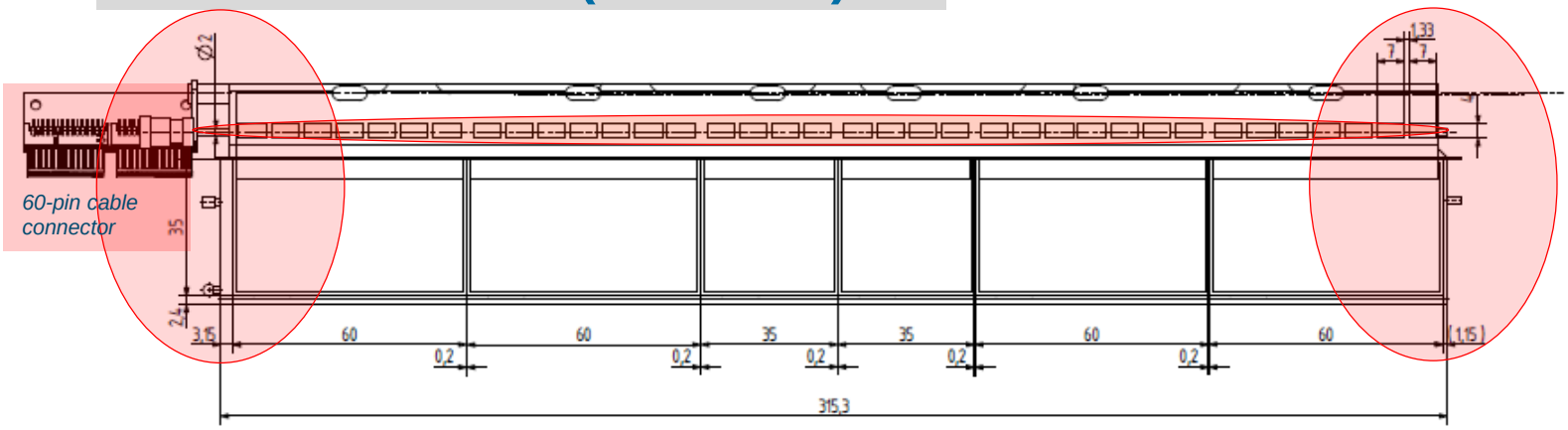
The dimension increased by 2 mm from 145 to 147 mm

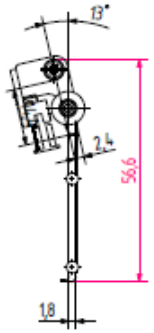
Frame Do/Di =282/274 mm
Disc Do/Di =265/144 mm
Barrel Do/Di =259/259 mm

coordinated with INFN in febr. 2015

Detail changes

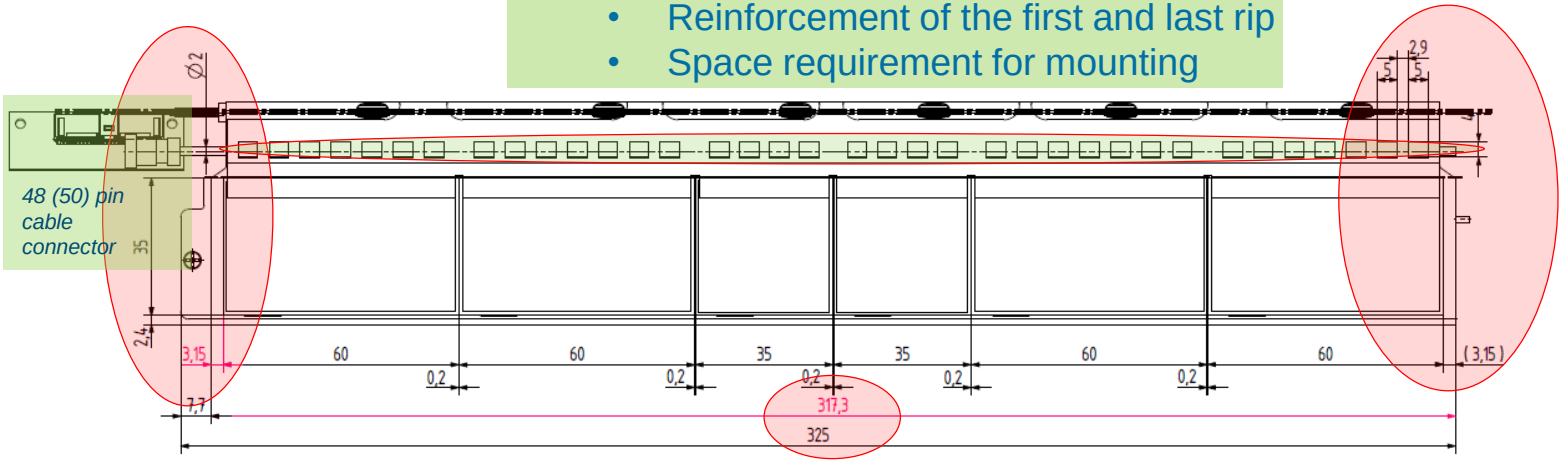
Stave Barrel 4 (Oct. 2014)

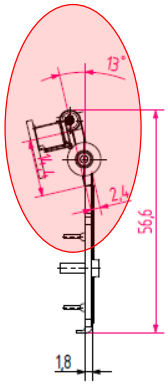




Stave Barrel 4 (Jan. 2015)

- Reinforcement of the first and last rip
- Space requirement for mounting

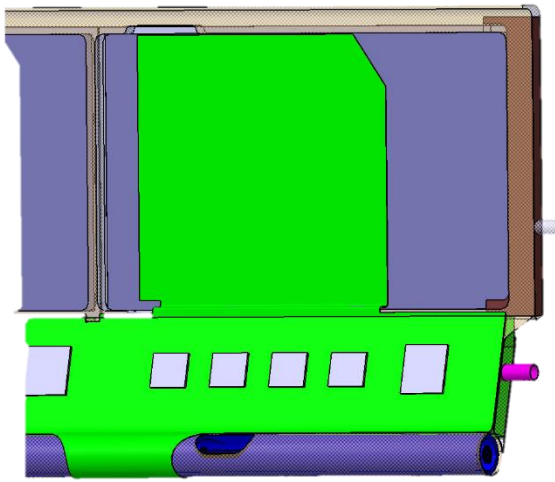




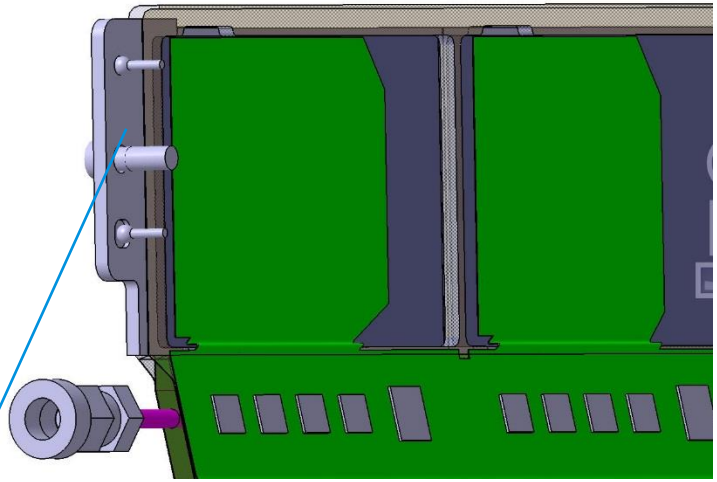
Detail changes

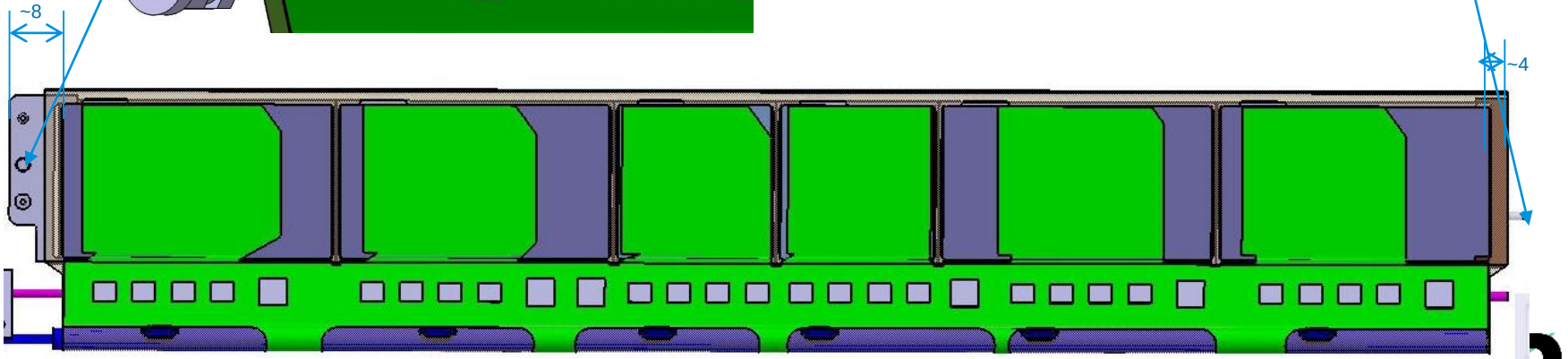
- **Stave B4**
- Reinforcement, plate
- positioning with pin, ball, fixing screw

forward fixing point



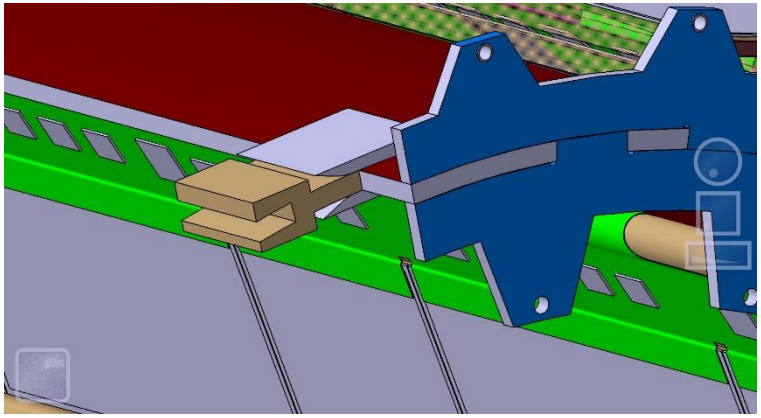
backward fixing point

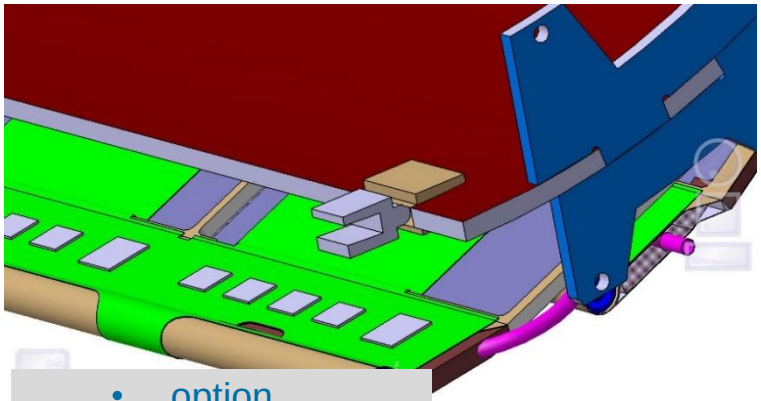




Detail changes

- **Half shell**
- positioning structure with distant plate (Forward, top)
- Half shell increase 2 mm forward

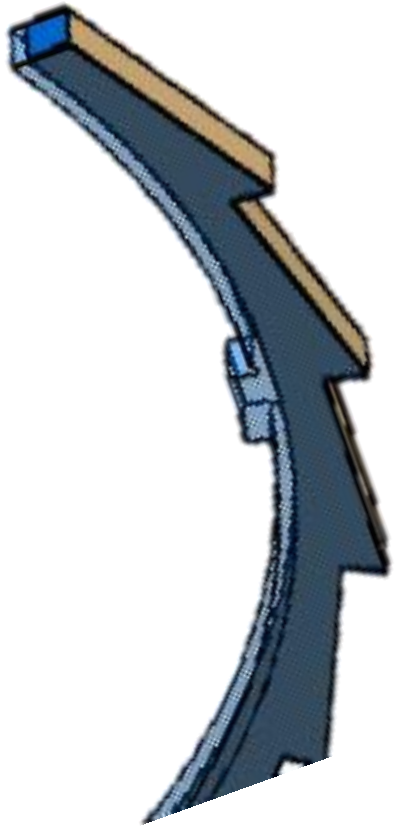




- option

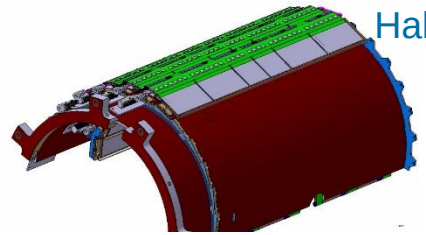
Sawtooth hybrid

- Peek or carbon fibre
- Rohacell
- CFRP Prepregs

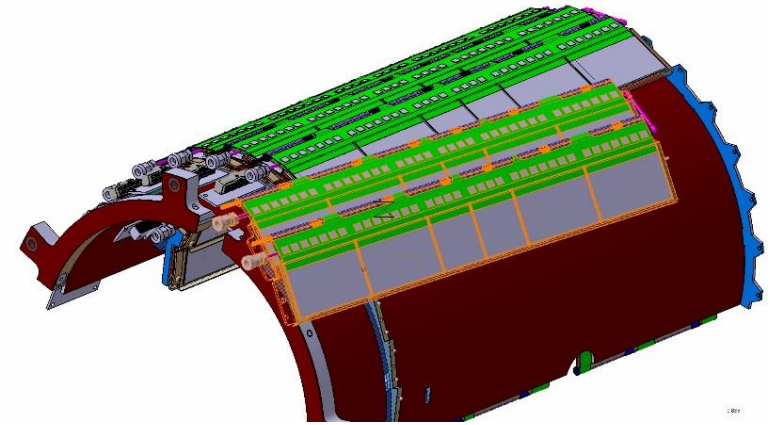


Detail changes

Stave Barrel 4 assembly

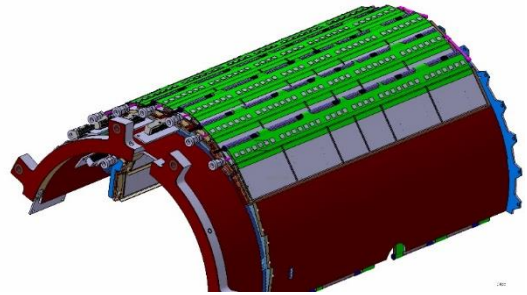


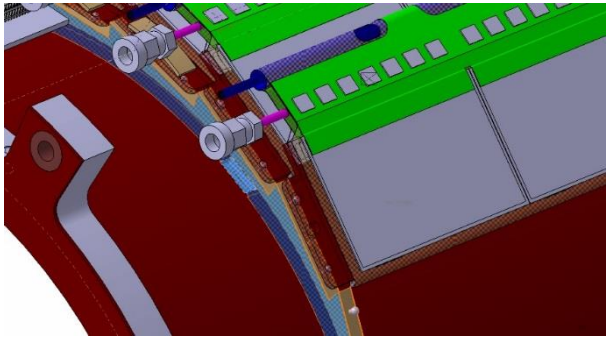
Half shell prepared for Assembly

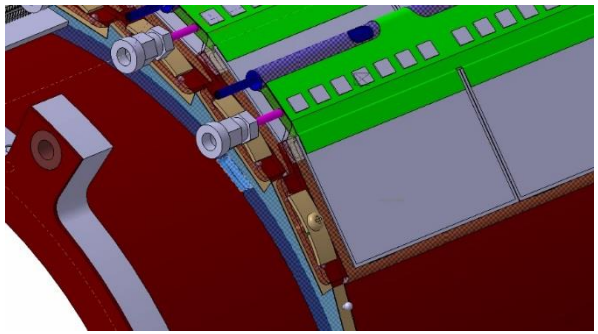


Two staves are connected to each other with the cooling pipes and a fastening flap.

The forward fixing pin was inserted in the hole from the sawtooth hybrid



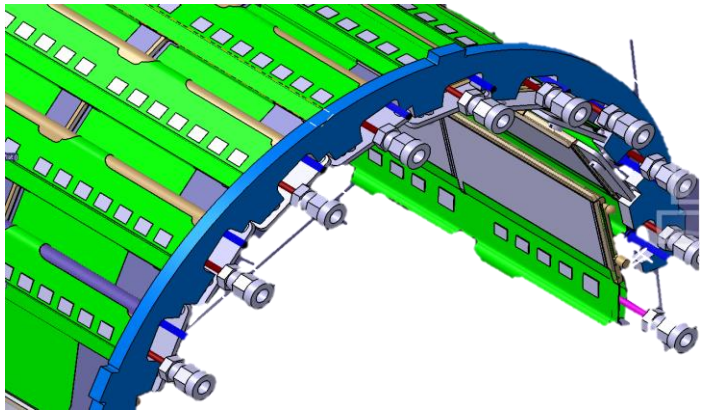


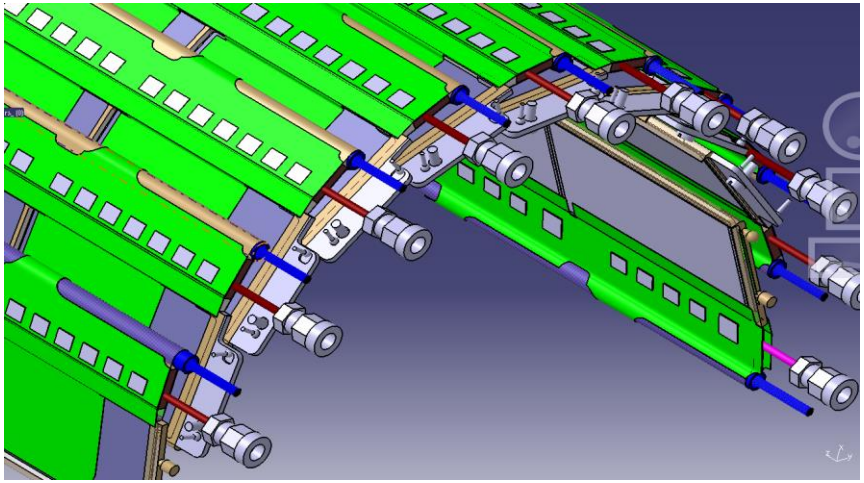


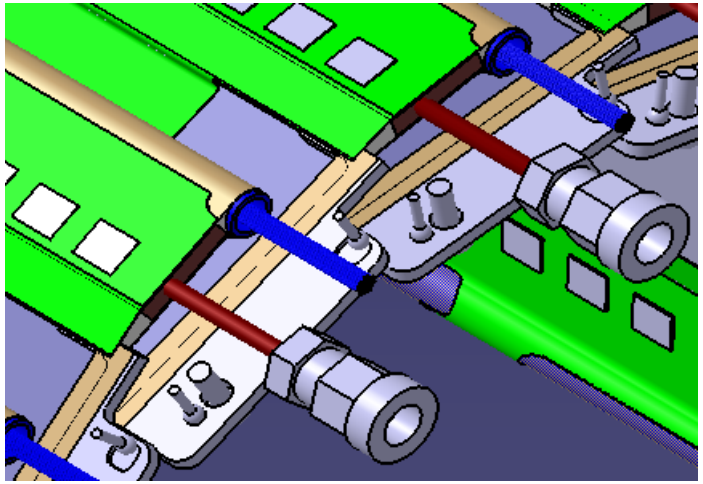
The backward part is placed on the two pins with ball on the sawtooth and then fixed with a screw.

Detail changes

- **Barrel 3**
- Reinforcement, plate
- positioning with pin, ball, fixing screw







Outlook

- Design
  - optimize the support and connections points.
  - Disc structure with cooling hybrid
  - Tube and cable routing
- Manufacture implementation
  - Manufacturing of the further cooling modules
  - Production controls
  - Manufacturing of father Stave hybrid structure with cooling
  - Development and manufacturing of disc support structure
  - Test hybrid of disc cooling module
- Hydraulic and Thermal investigation
  - Test rig automation
  - Extended pressure drop investigation
  - Thermal tests with complete Stave
- FEM Validation
  - Thermal investigation
  - Mechanical deformation behaviour

Thank you for your attention