Tuesday 10th February 2022

ITS3 WP5 Contribution to WP4
Assembly step (baseline)

Focus on the front edge connection

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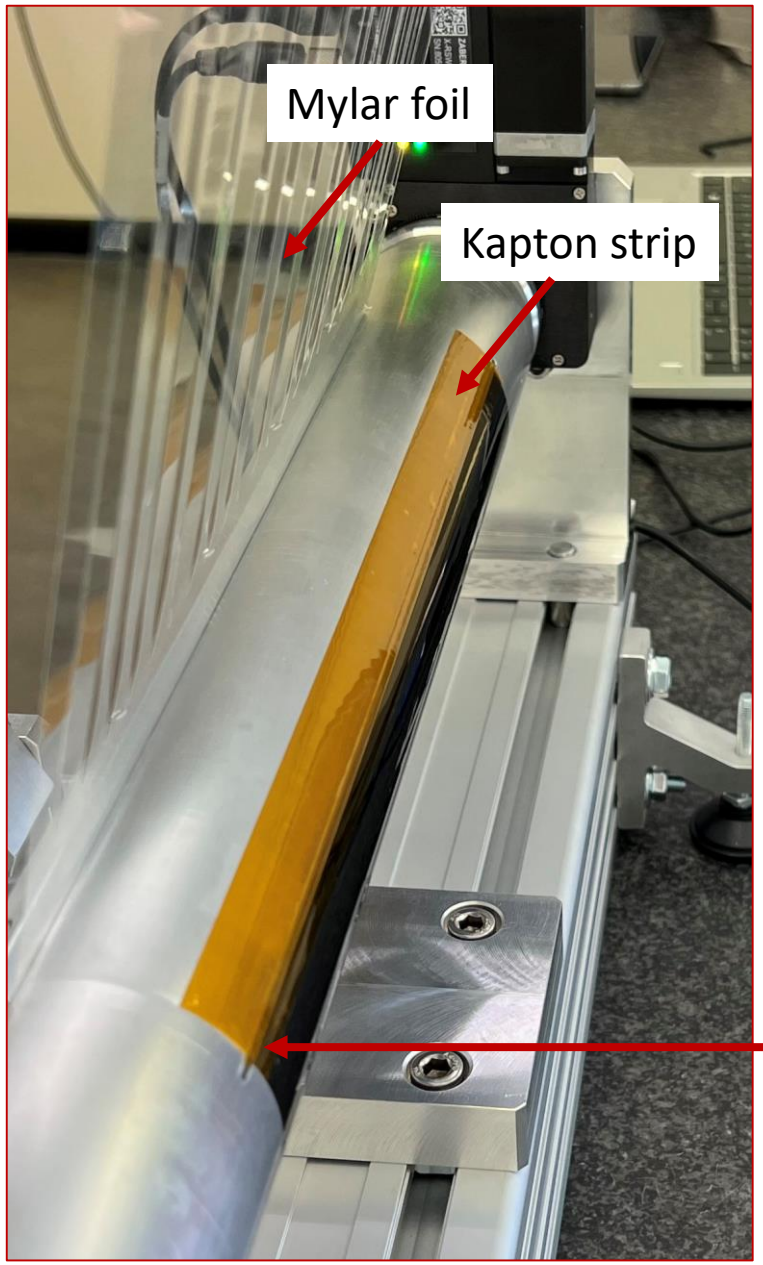
…. After discussion with Antoine, Corrado, Domenico, Gael, Giacomo and Giuseppe…

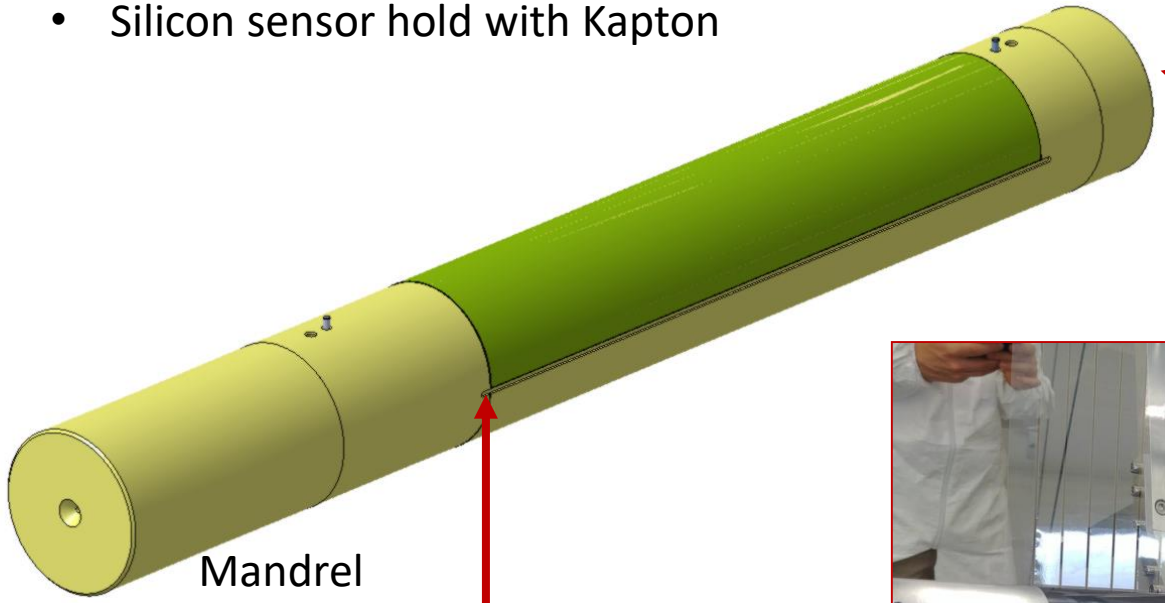
Assembly: L2

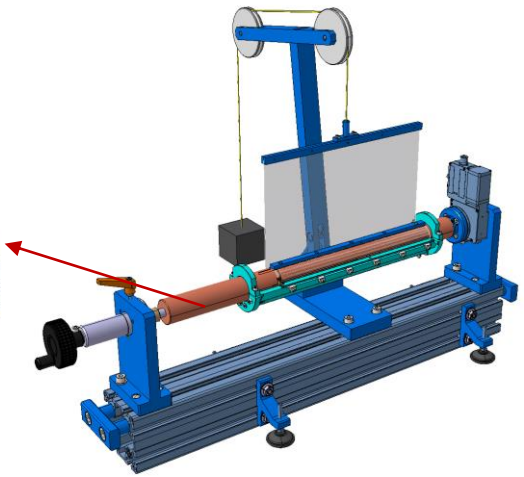


All the assembly performed in the cleanroom by using **Multi Purpose Jig (MPJ)**

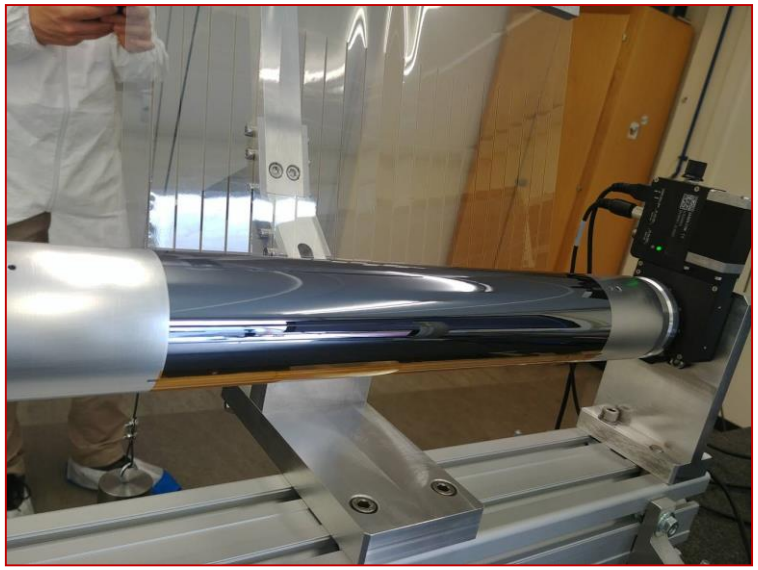
Silicon sensor

- Silicon sensor bent with Mylar foil
- Silicon sensor hold with Kapton





- Kapton cut at the end of the Layer assembly

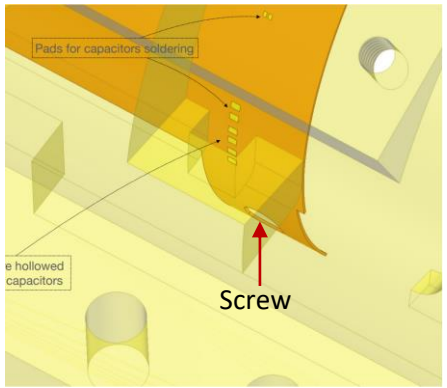


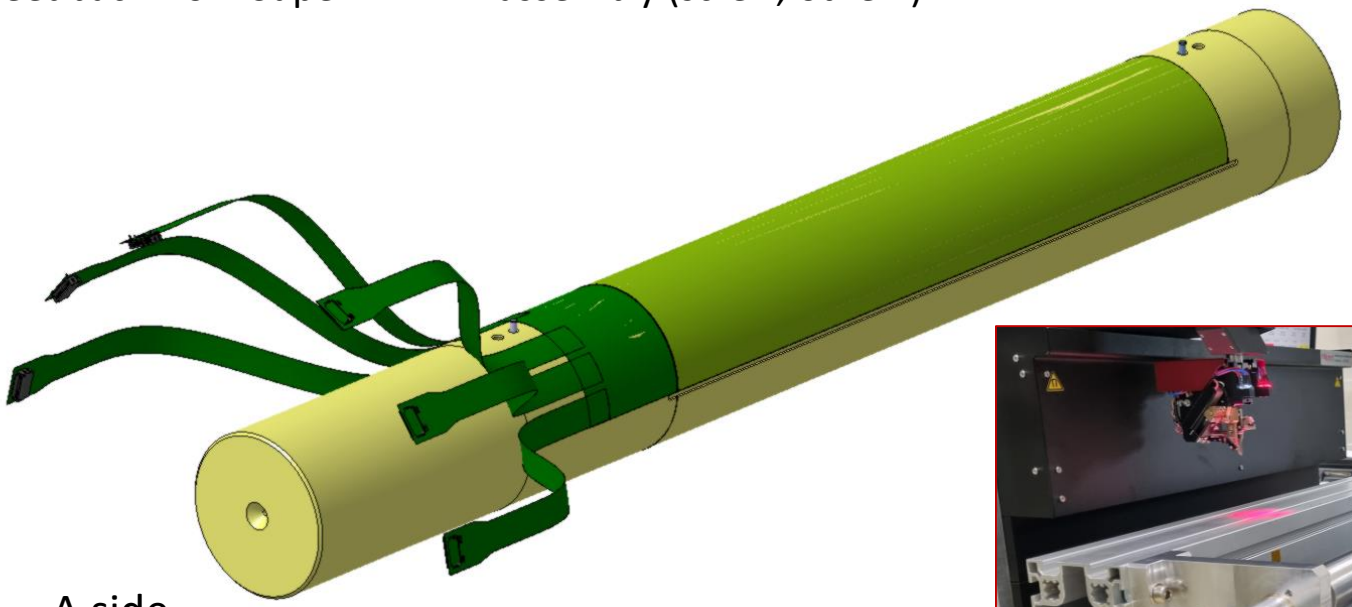
Assembly: L2

Front edge FPC (A-side)

- Single FPC from wire bonding to connectors (Baseline)
- Connectors and electrical component already soldered (preferred)
- FPC metal stack layers (Unknown): #numbers, material (Copper/Nickel/aluminum)
- FPC holding on the mandrel: Feedback from Super-ALPIDE assembly (screw, other..)

Front-edge FPC (super-ALPIDE)





B side

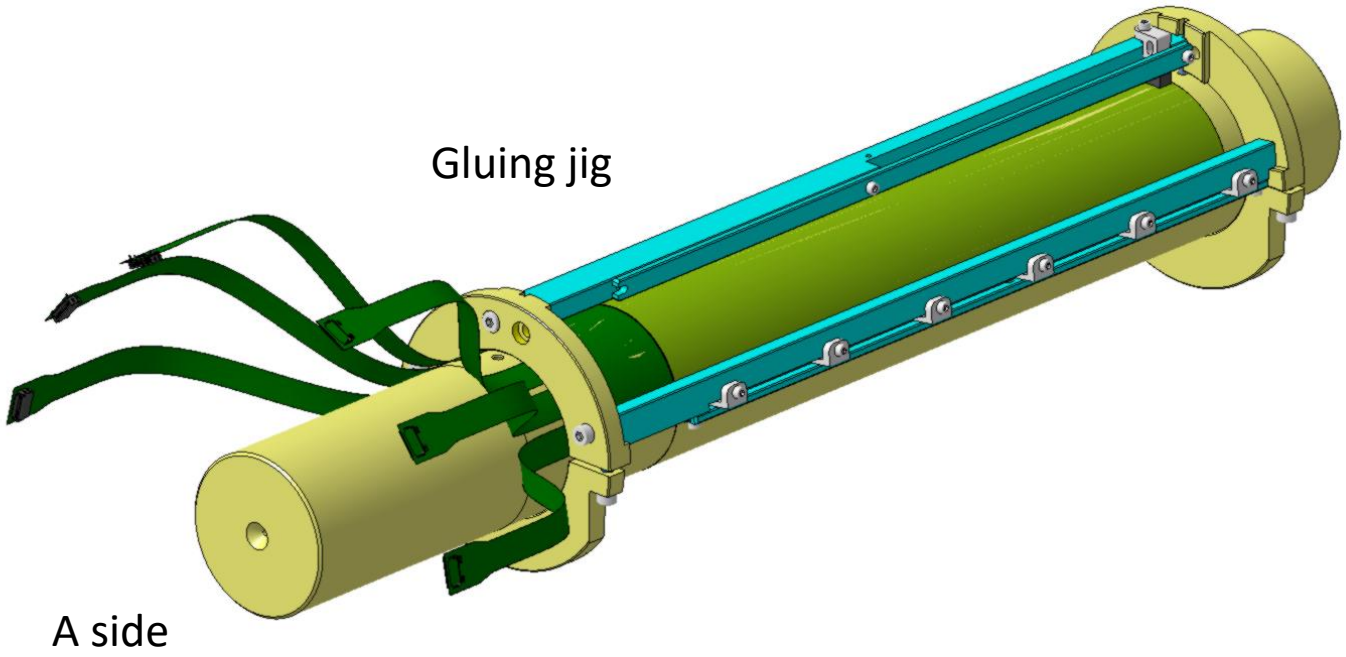
A side

Wire bonding

- Connectors hold by a jig or directly by a patch panel (depending on constrains of the wire bonding step)

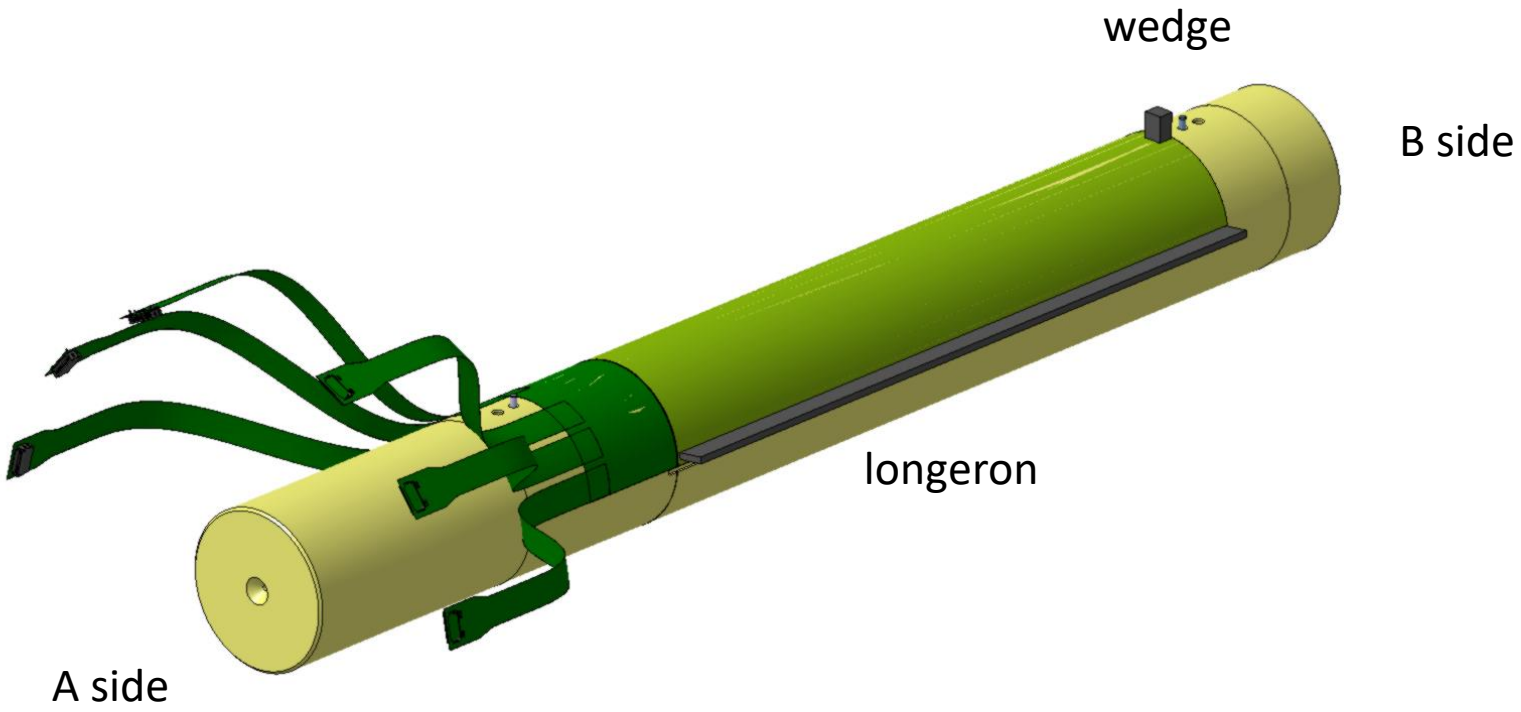
Assembly: L2

Gluing of longerons and Wedge



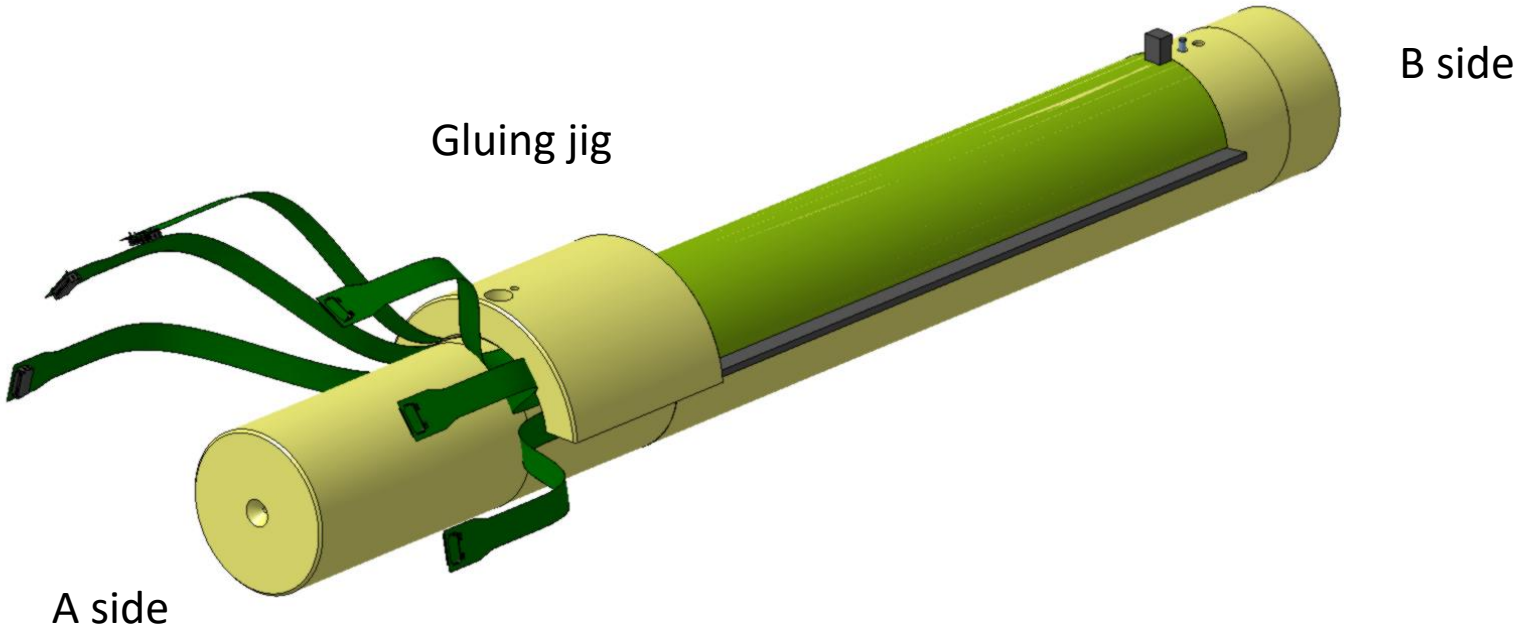
Assembly: L2

Gluing of carbon foam longerons and Wedge



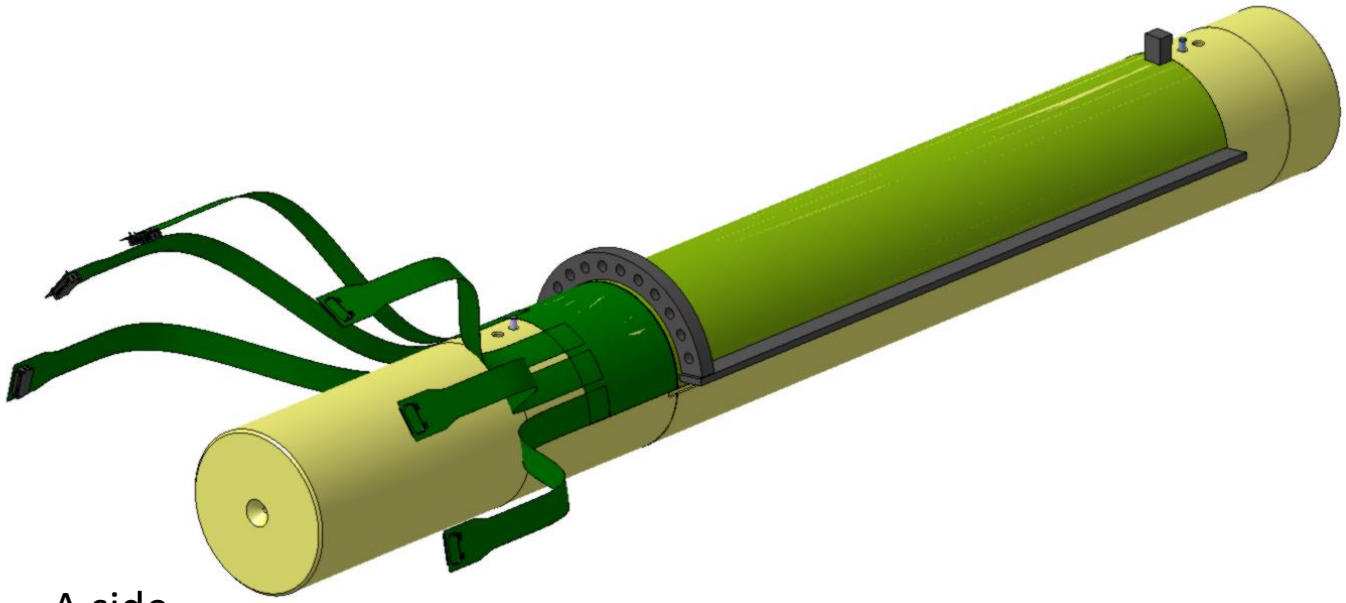
Assembly: L2

Gluing of carbon foam H-ring



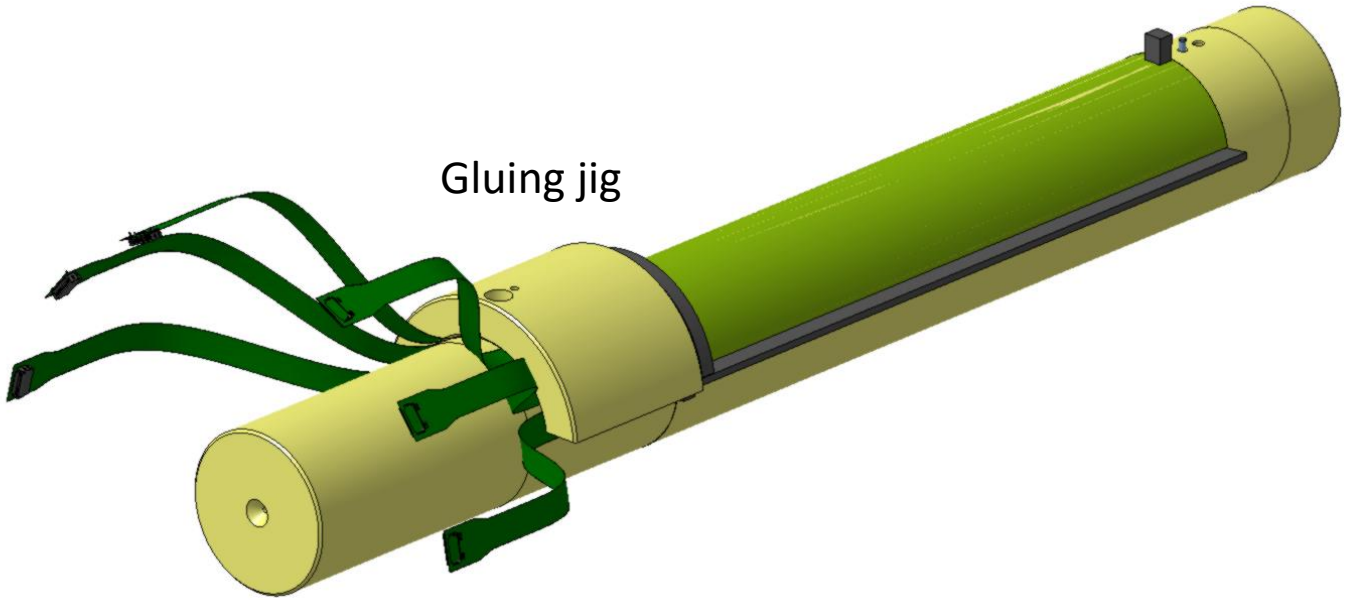
Assembly: L2

Gluing of carbon foam H-ring



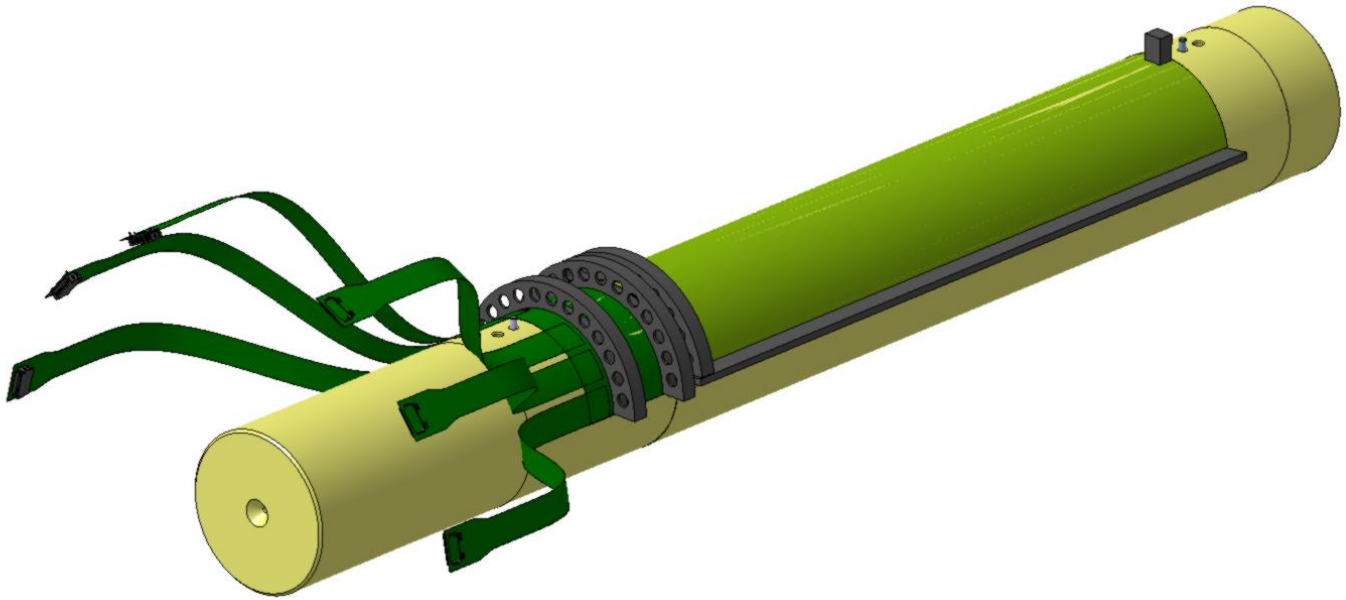
Assembly: L2

Gluing of CFRP H-ring for FPC

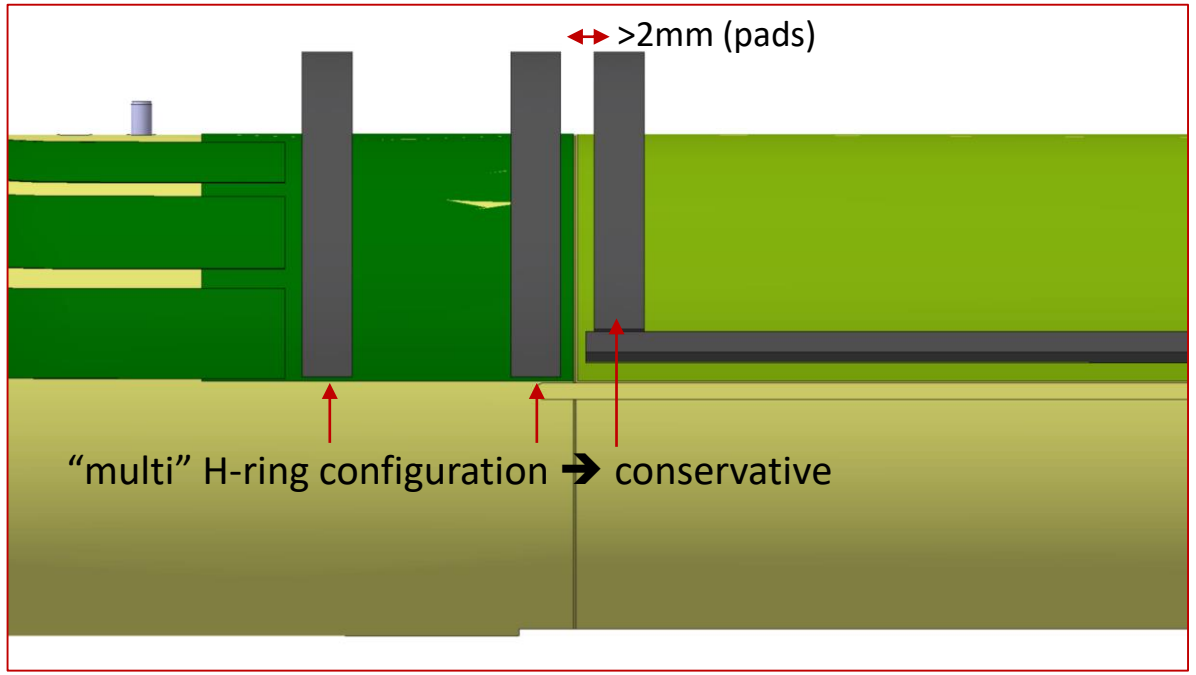


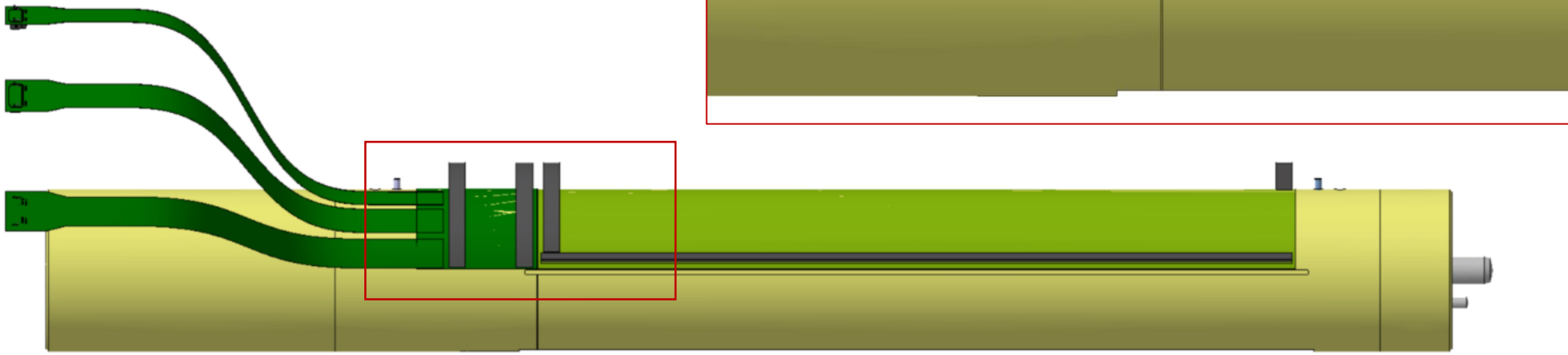
Assembly: L2

Gluing of CFRP H-ring for FPC



Assembly: L2





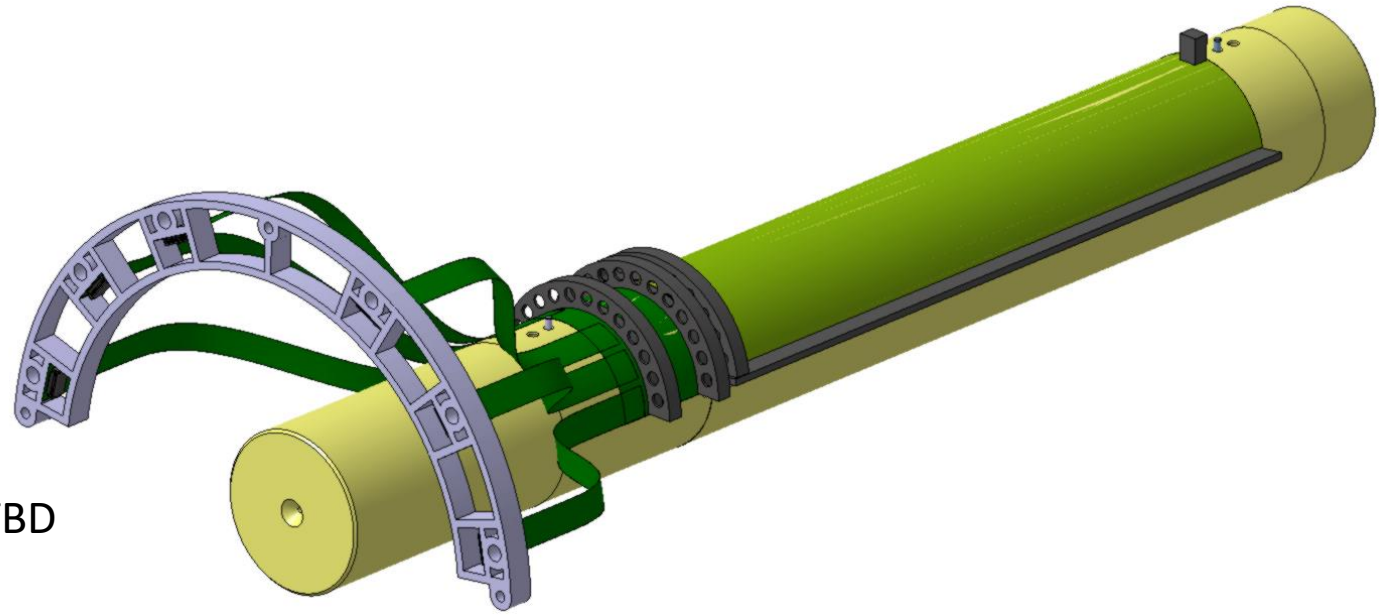
A side

B side

Assembly: L2

Patch Panel assembly

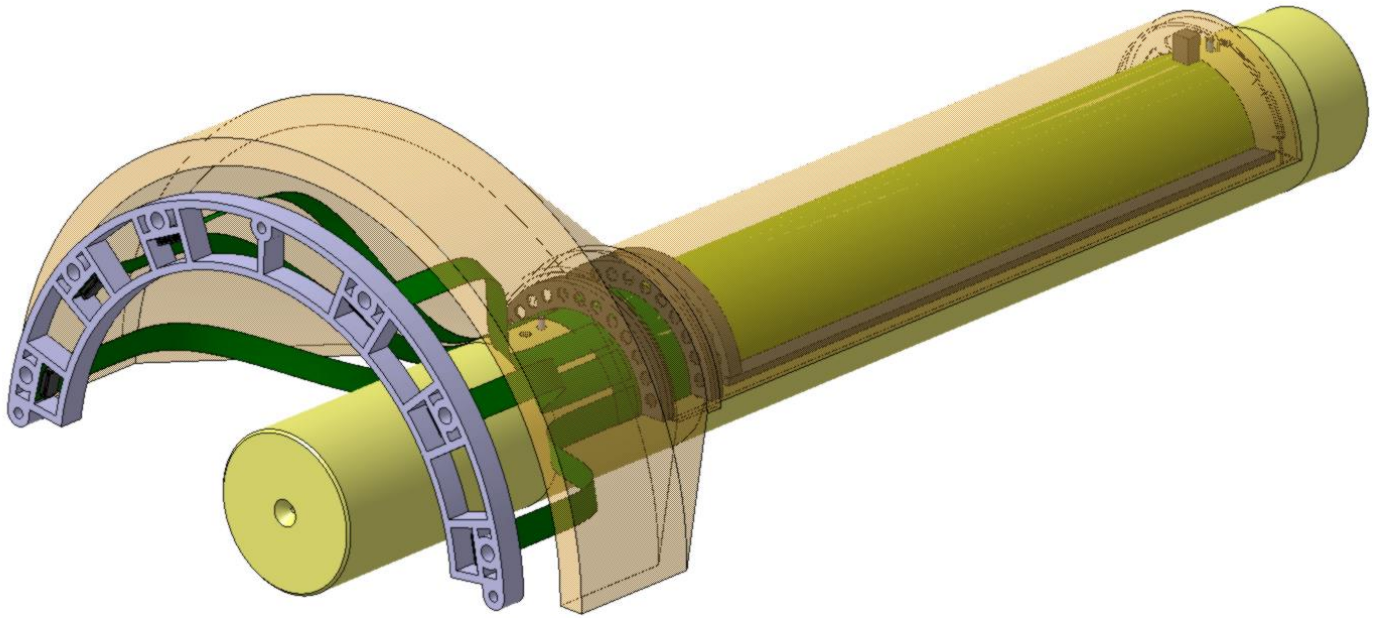
Assembly Jig TBD



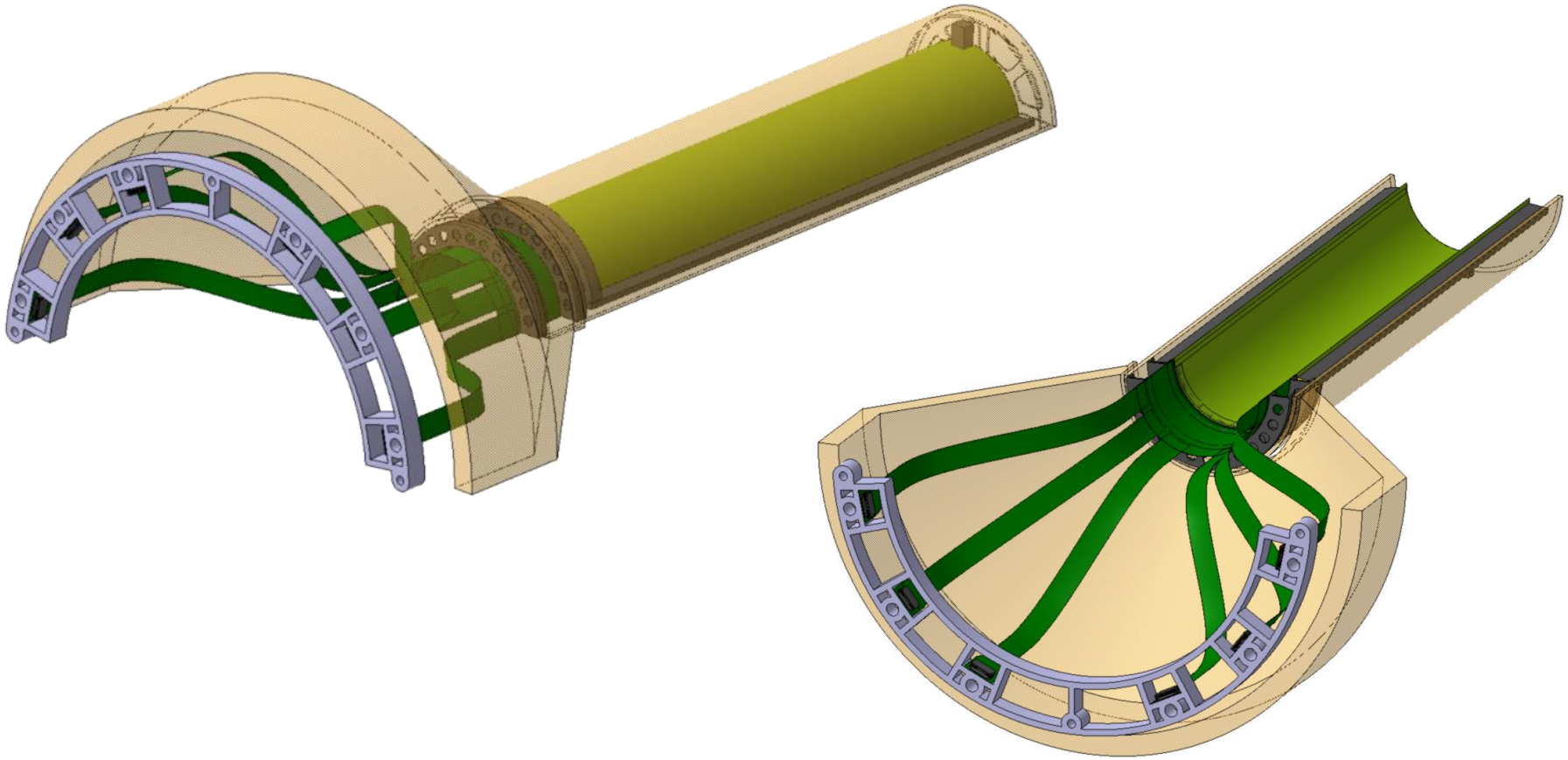
Assembly: L2

Gluing of the cylindrical support structure (CYSS) gluing

Kapton cut



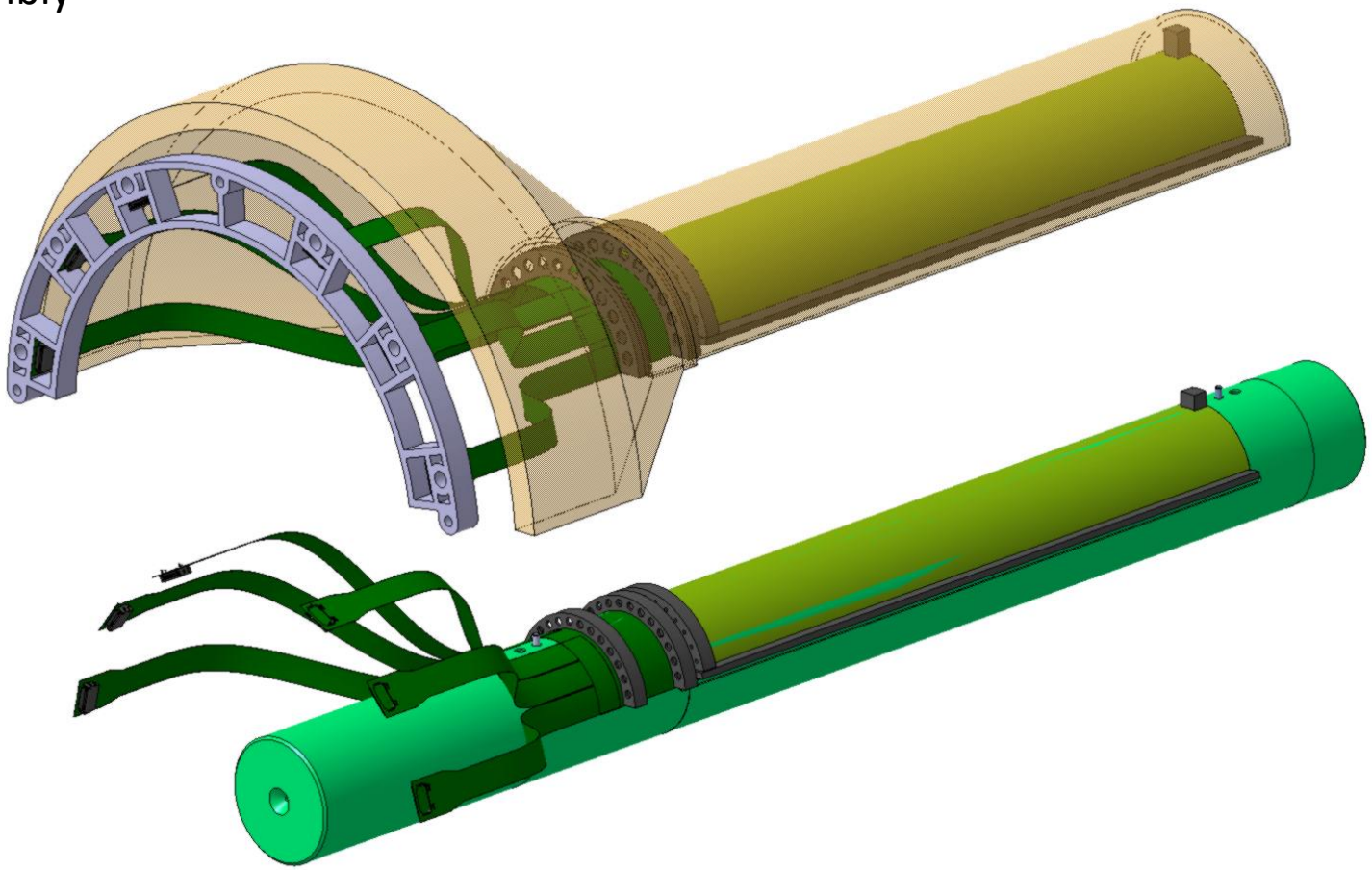
Assembly: L2



Assembly: L1 and L0

L1 Assembly

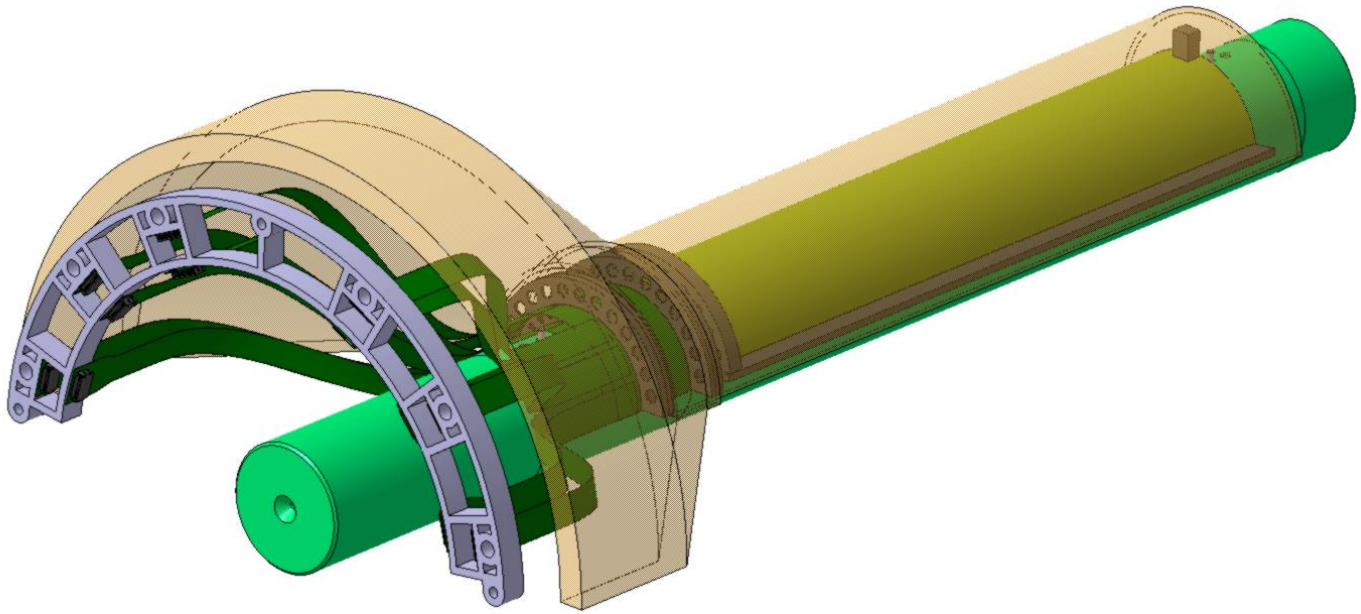
- Same procedure of L2 assembly
- Last step gluing of L2+CYSS



Assembly: L1 and L0

L1 Assembly

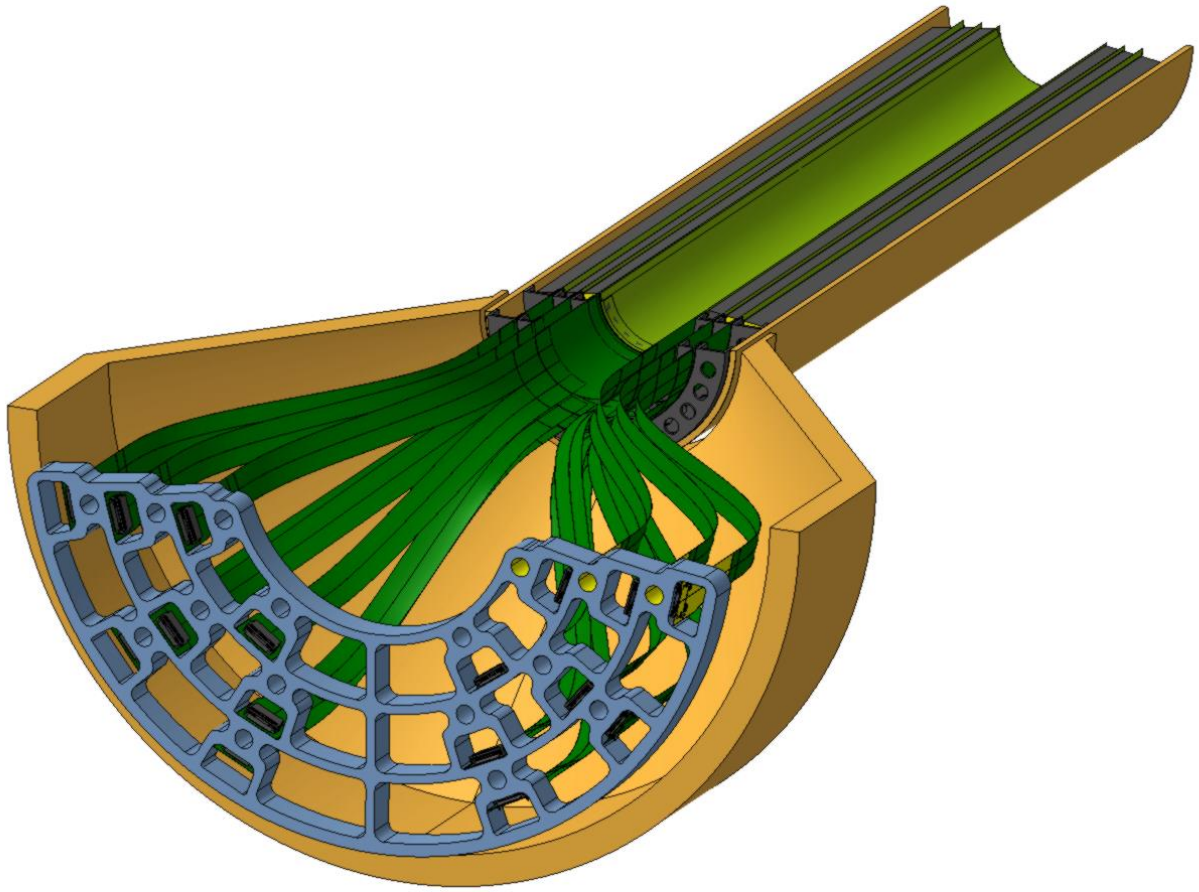
- Same procedure of L2 assembly
- Last step gluing of L2+CYSS

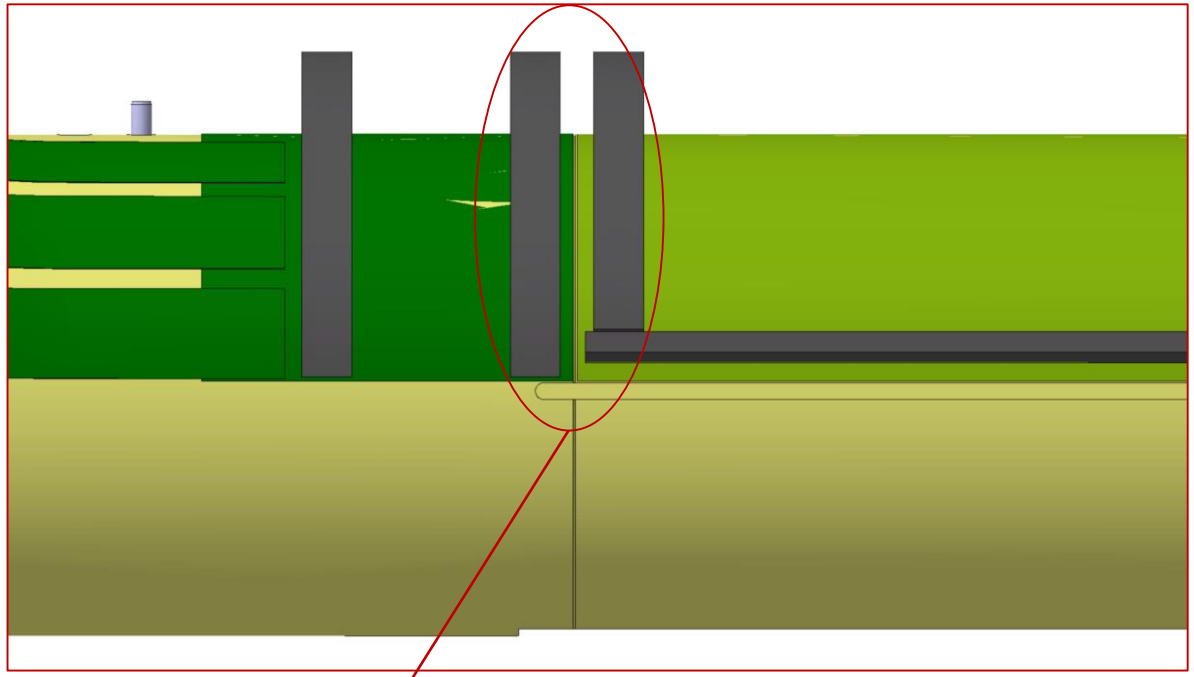


L2 Assembly

- Same procedure of L2,L1 assembly
- Last step gluing of L1+L2+CYSS

Assembly:

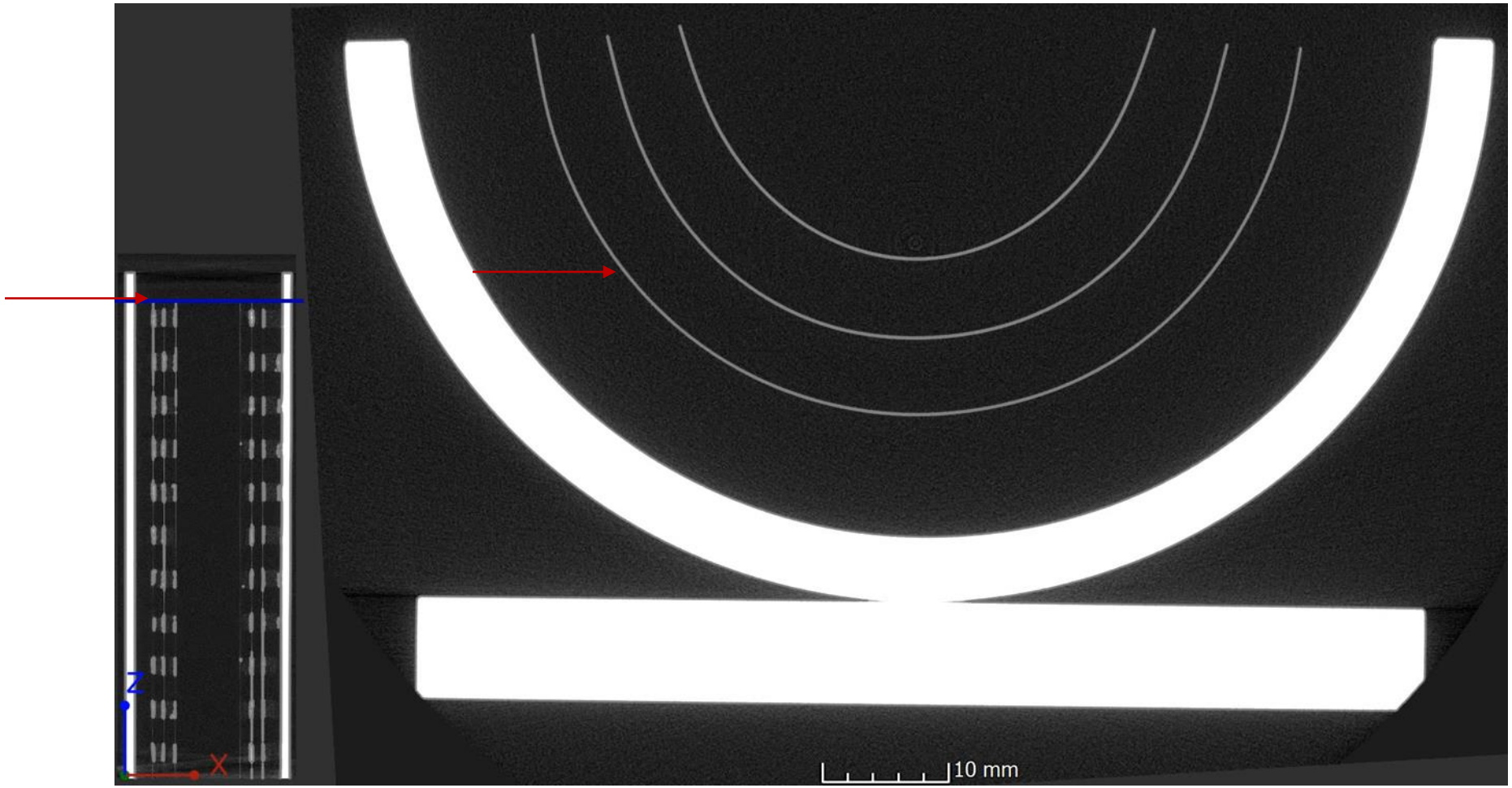


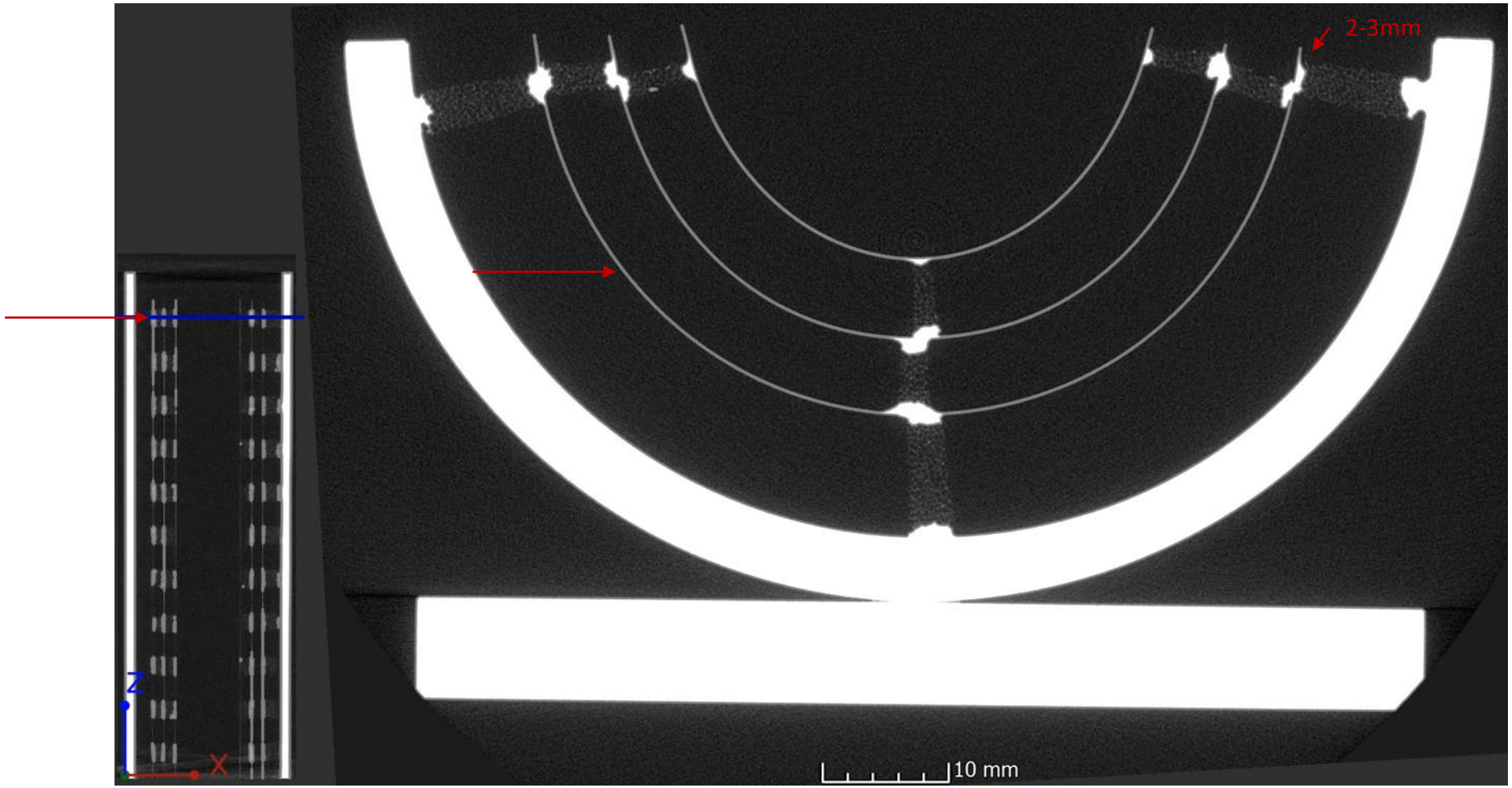


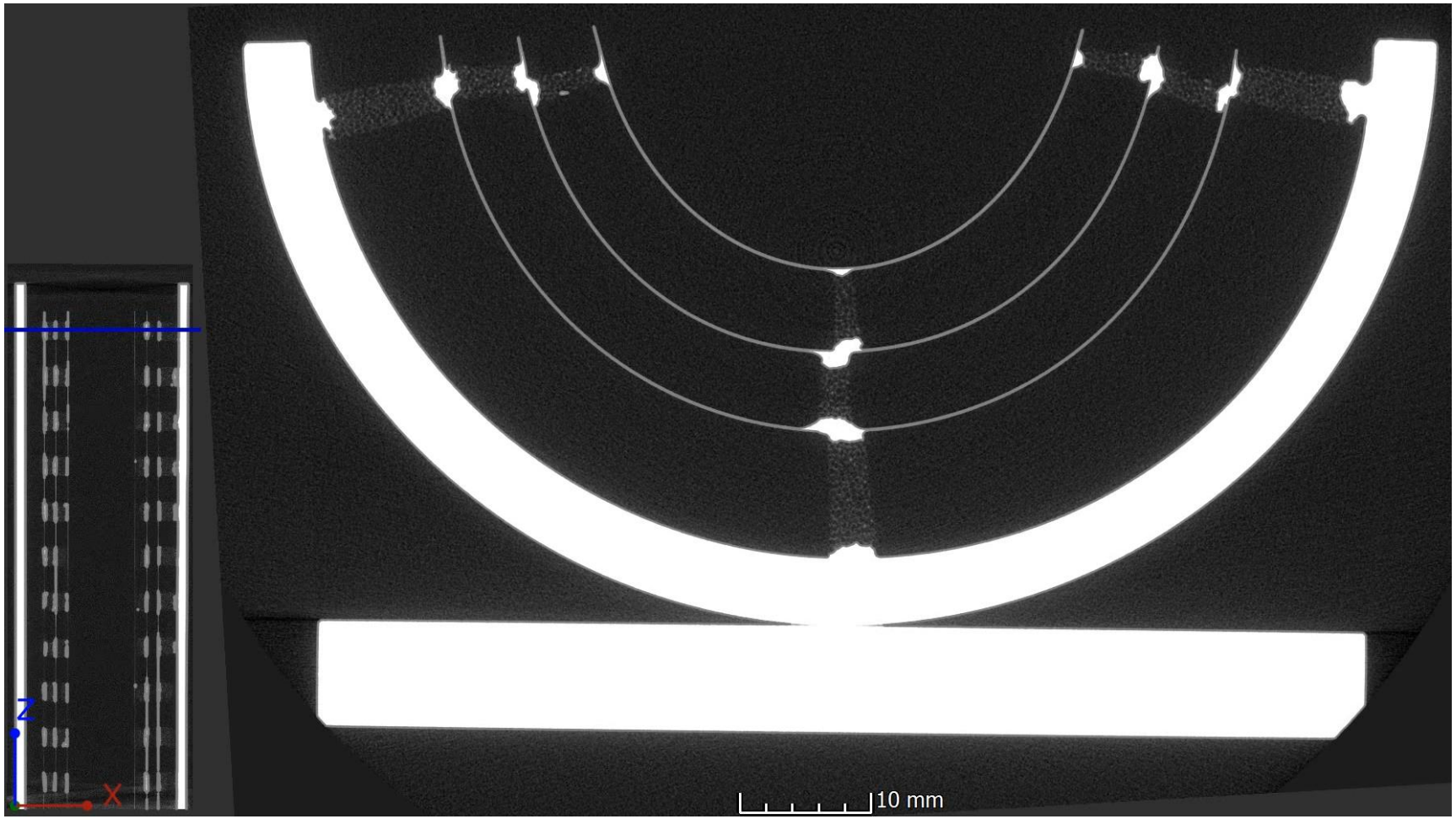
Open point

- 2 H-rings Vs single H-ring?
  Assembly tolerances of the 2 H-rings could stress the wire bonding

Based on the EM1, the chip deformation, after it was removed from the mandrel, is controlled


Z
X
10 mm


2-3mm
Z
X
10 mm


Z
X
10 mm