



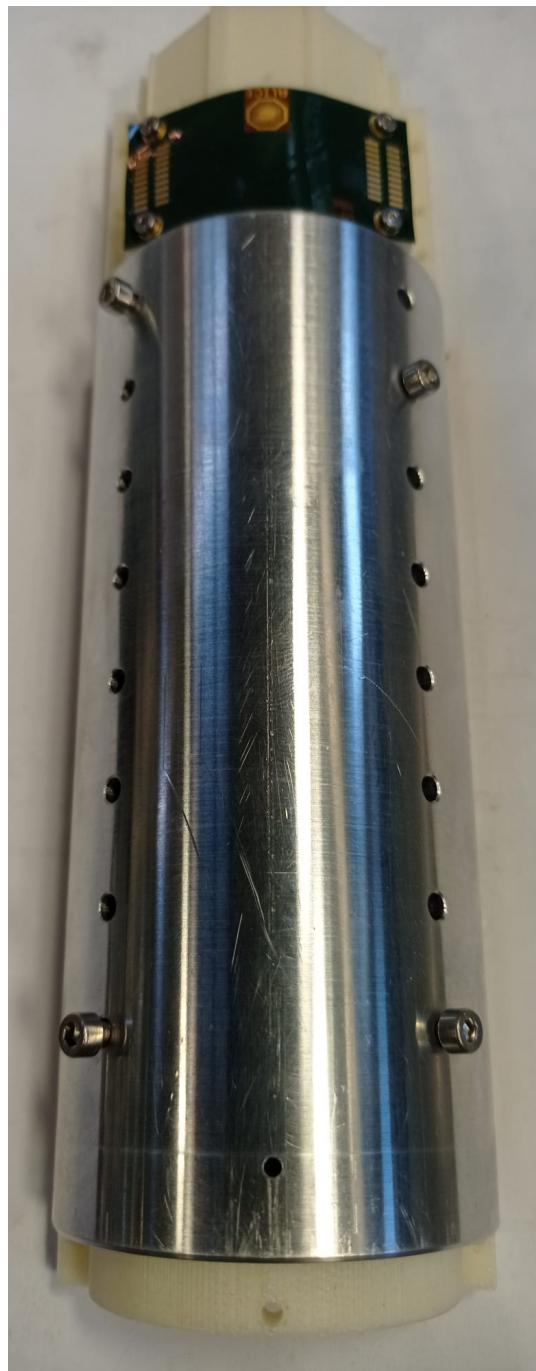
ITS3 activities in Bari

Super-ALPIDE mockup assembly

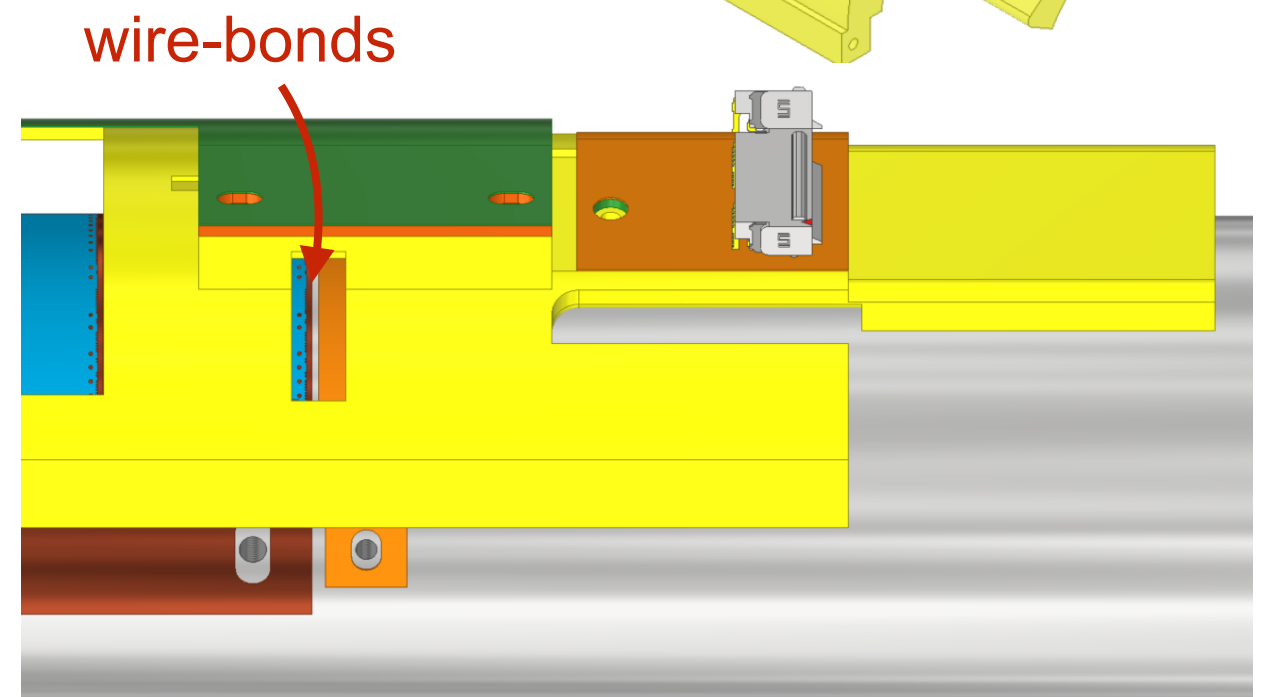
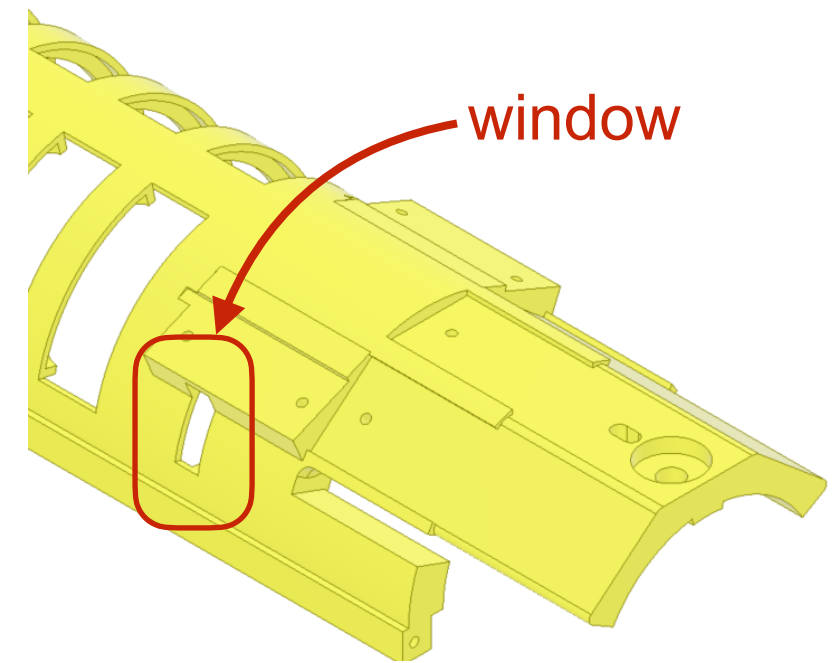
Dummy-super-ALPIDE	AVAILABLE	
Exoskeleton (V3)	UNDER RE-PRODUCTION	Re-production reception next week Printing in house ongoing
Mandrel (compatible with exo V3)	AVAILABLE	Old one modified, shorter
Wedges/Longerons/Half-rings	AVAILABLE	Produced in plastic
Tools for W/L/HR posit./gluing	AVAILABLE	Waiting for drawing from CERN
Edge-FPC	AVAILABLE	
Exo-FPC (V1)	AVAILABLE	Last available from first butch
Exo-FPC gluing procedure/tools	UNDER COMPLETION	First metallic version worked-out Top transparent part under working

→ **Full assembly exercise by end of week 45 (Friday 12 Nov.)**

exo-FPC gluing tools



exoskeleton modification look at the bonds





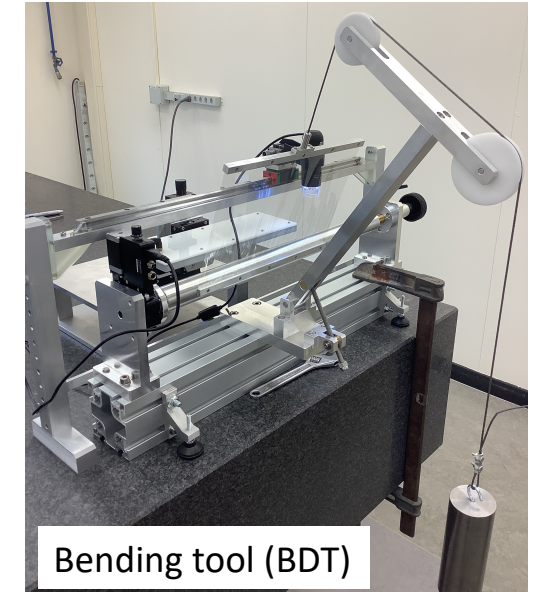
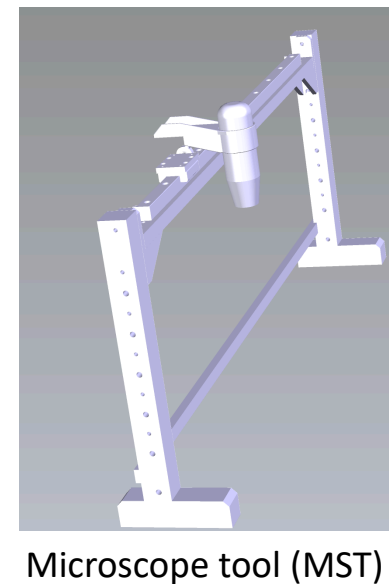
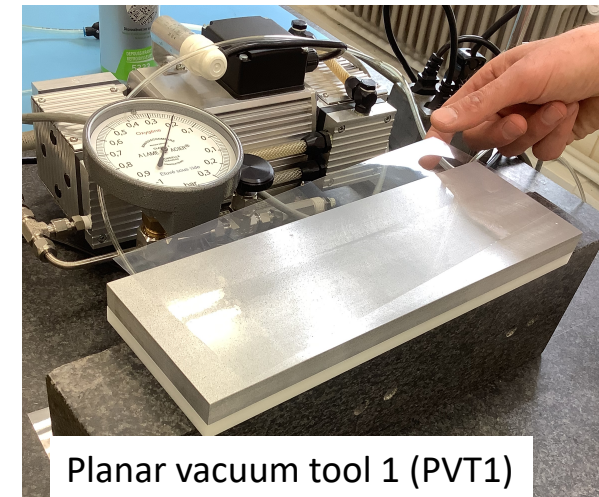
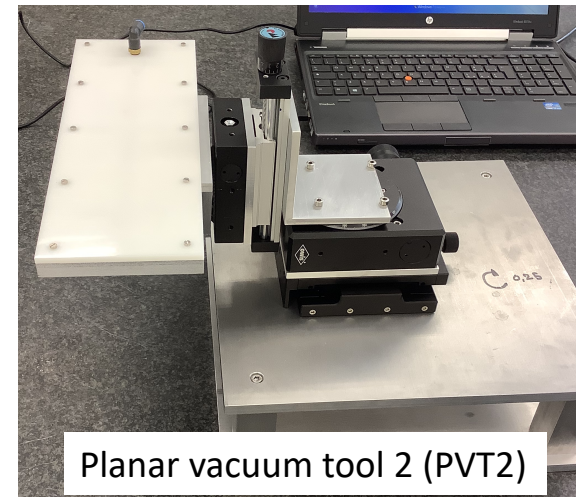
Super-ALPIDE assembly

Super-ALPIDE		Will be shipped from CERN
Exoskeleton (V3)	UNDER VERIFICATION	More to be produced
Mandrel (compatible with exo V3)	TO BE PRODUCED	To be produced by external company (same as CERN)
Tools for chip bending	TO BE PRODUCED	Drawings available To be produce in local workshop
Large dimension silicon (for test)		Will be shipped from CERN
W/L/HR shaping	UNDER VERIFICATION	Verifying if possible to do at CERN
Carbon foam for W/L/HR	AVAILABLE	At CERN
Tools for W/L/HR posit./gluing	TO BE PARTIALLY RE-PRODUCED	With a longer mandrel some components need re-production
Edge-FPC	UNDER VERIFICATION	Connectors under procurement (RS order set)
Exo-FPC (V2)	UNDER PRODUCTION	Connectors under procurement (RS order set)
Exo-FPC gluing procedure/tools	UNDER COMPLETION	First metallic version worked-out Top transparent part under working

- **Tools available by end of November (week 47)**
 - Only doubt about mandrel (to be produced with CERN)
- **Bending test before the Christmas closure**
 - New mandrel is required
- **Actual assembly in January**
 - Using functional super-ALPIDE

Large size chip bending training this week

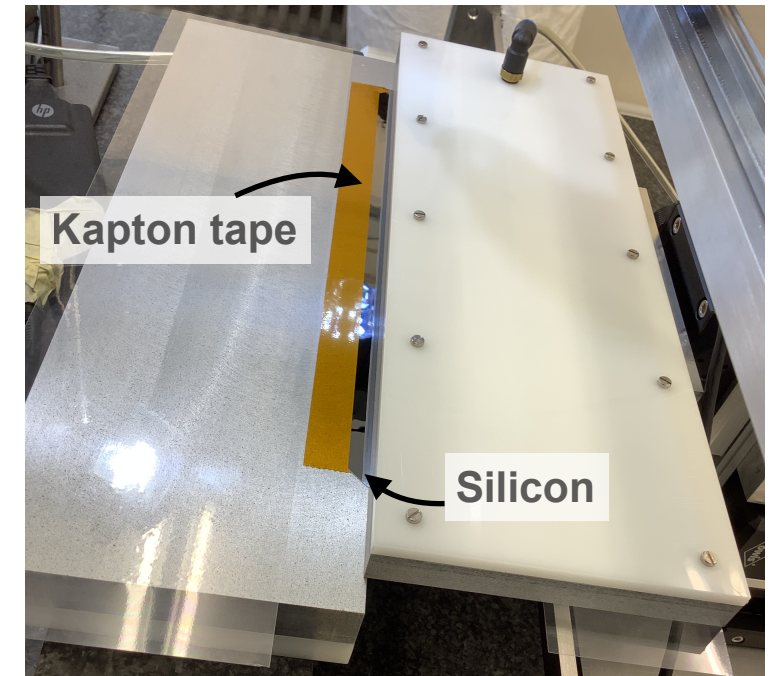
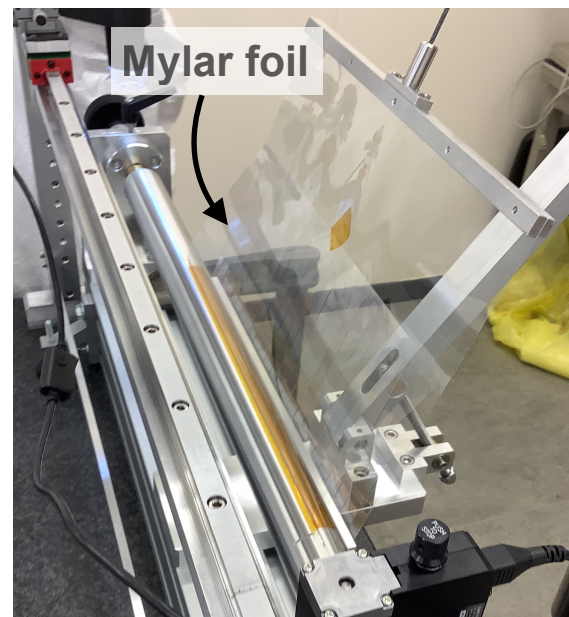
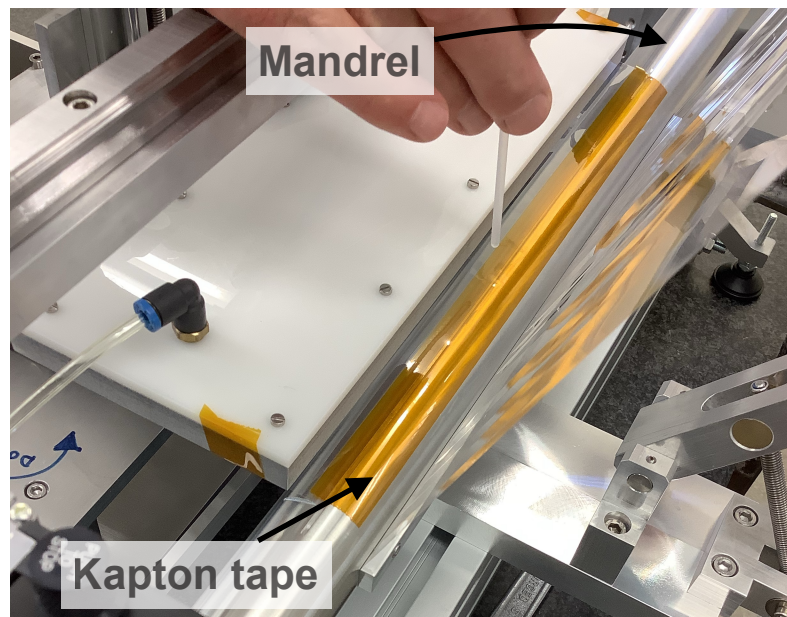
1. Three new tools introduced in the procedure
 - few specifications still to be clarified
2. Two attempts done; second successful, probable explanation for the failure during the first attempt
3. Two hours procedure with many precision alignment
4. Tools occupy some room
 - for bending test ALICE CR is fine
 - during actual assembly is better to work close to the bonding machine (CSM CR) - to be arranged



Link to the procedure documentation:

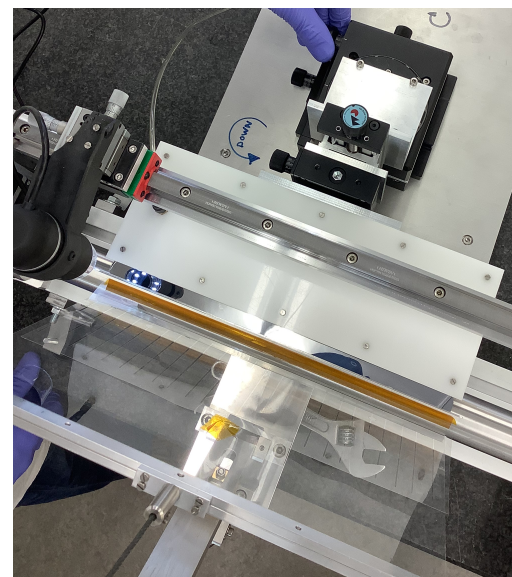
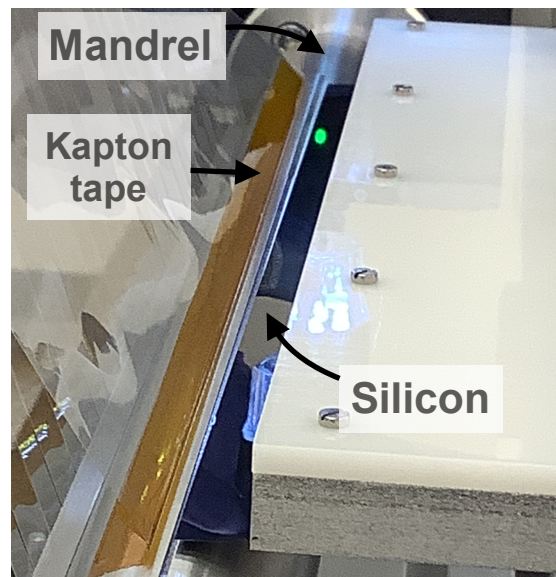
<https://cernbox.cern.ch/index.php/s/QGB0eHOQUApVuON>

Large size chip bending training this week

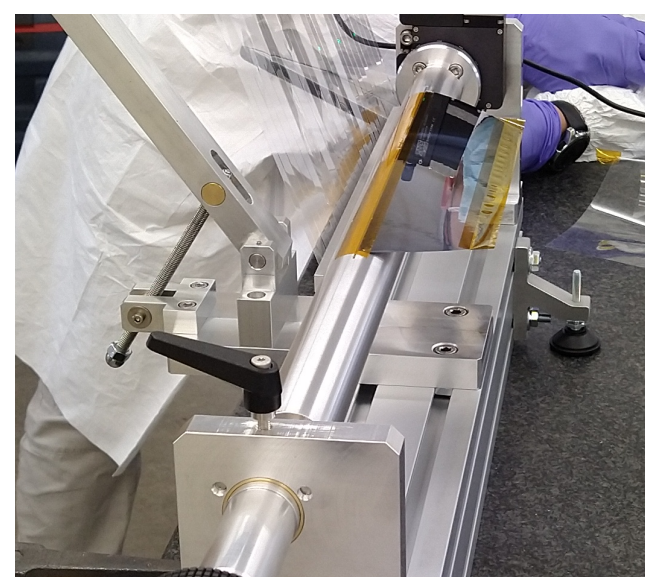


Precisely place mylar foil with kapton tape on the mandrel

Precisely place kapton tape on the chip



Silicon alignment to the mandrel



Chip in position for bending



The bending

BACKUP



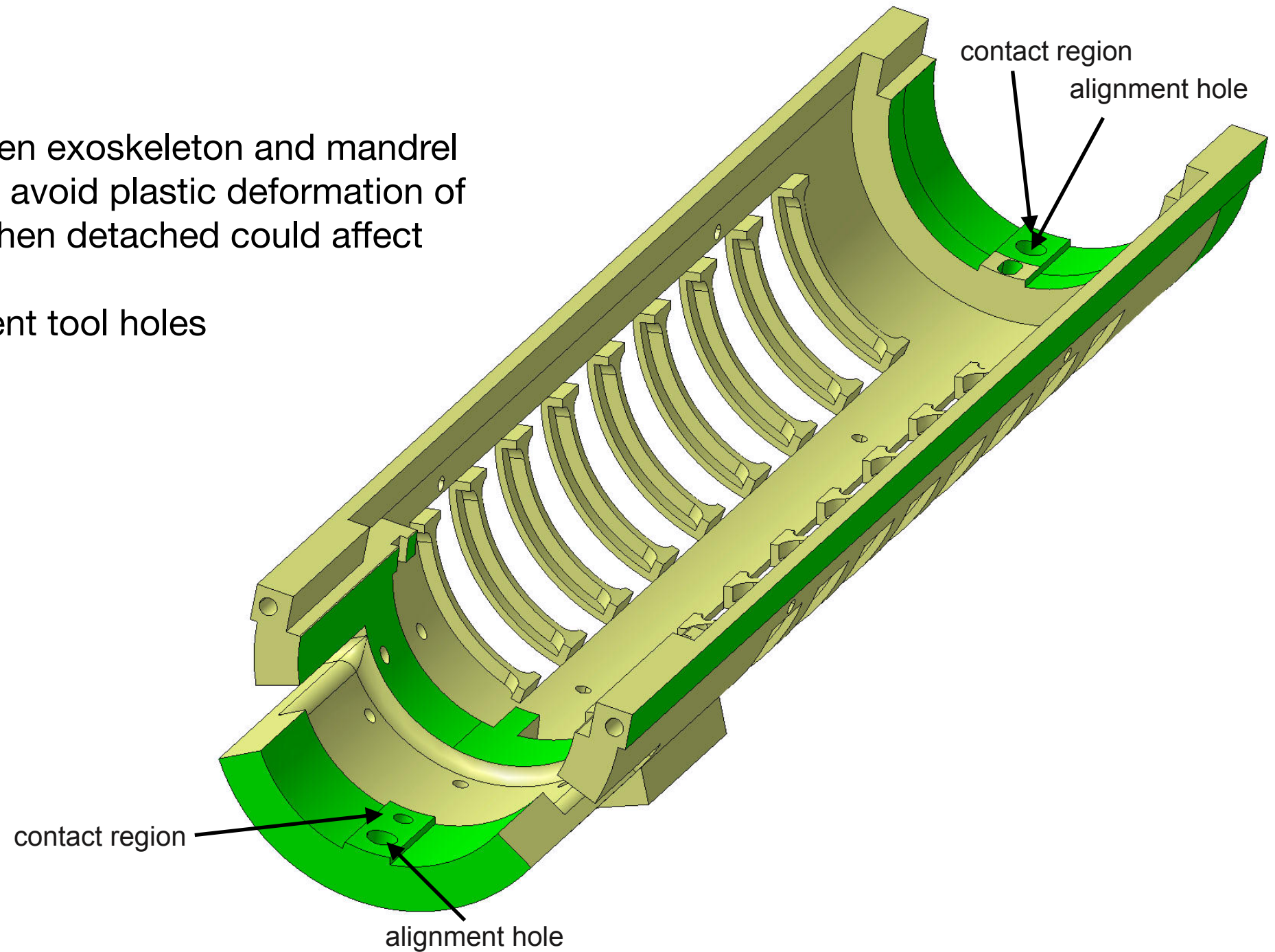
ALICE



ExoskeletonV3

Main modifications

1. Contact regions between exoskeleton and mandrel reduced to minimum → avoid plastic deformation of the exoskeleton that, when detached could affect wire-bonds
2. Carbon wedge alignment tool holes



ExoskeletonV3

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Problem in this design

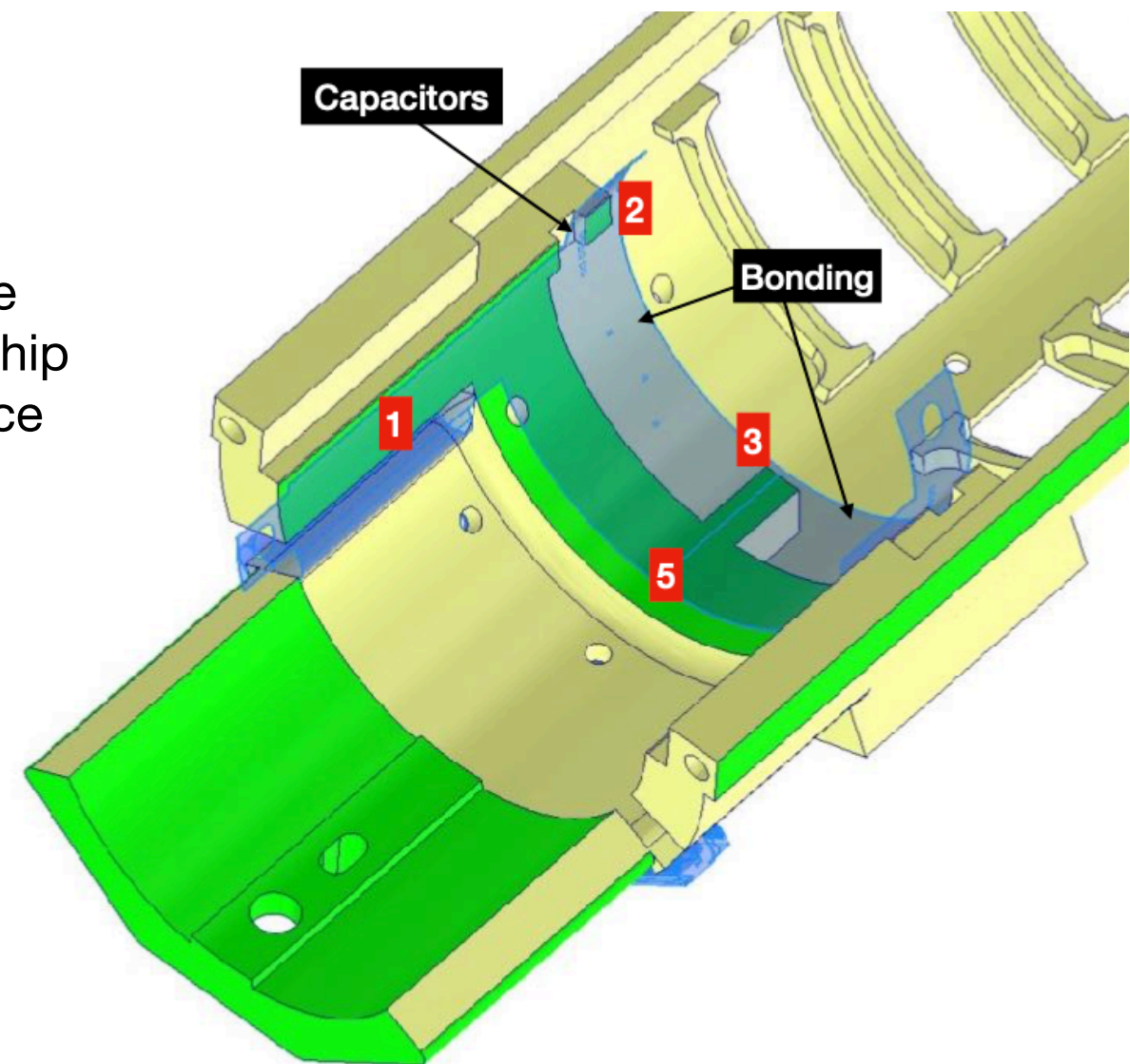
1. Edge-FPC gluing region: needs to be reset to the original thickness to grand edge-FPC and bent-chip to be at the same radius (and consequently reduce wire-bonds stress) → Notified to Gael

Small missing modifications

1. Exo-FPC alignment holes
2. Housing region for Exo-FPC connector stiffeners

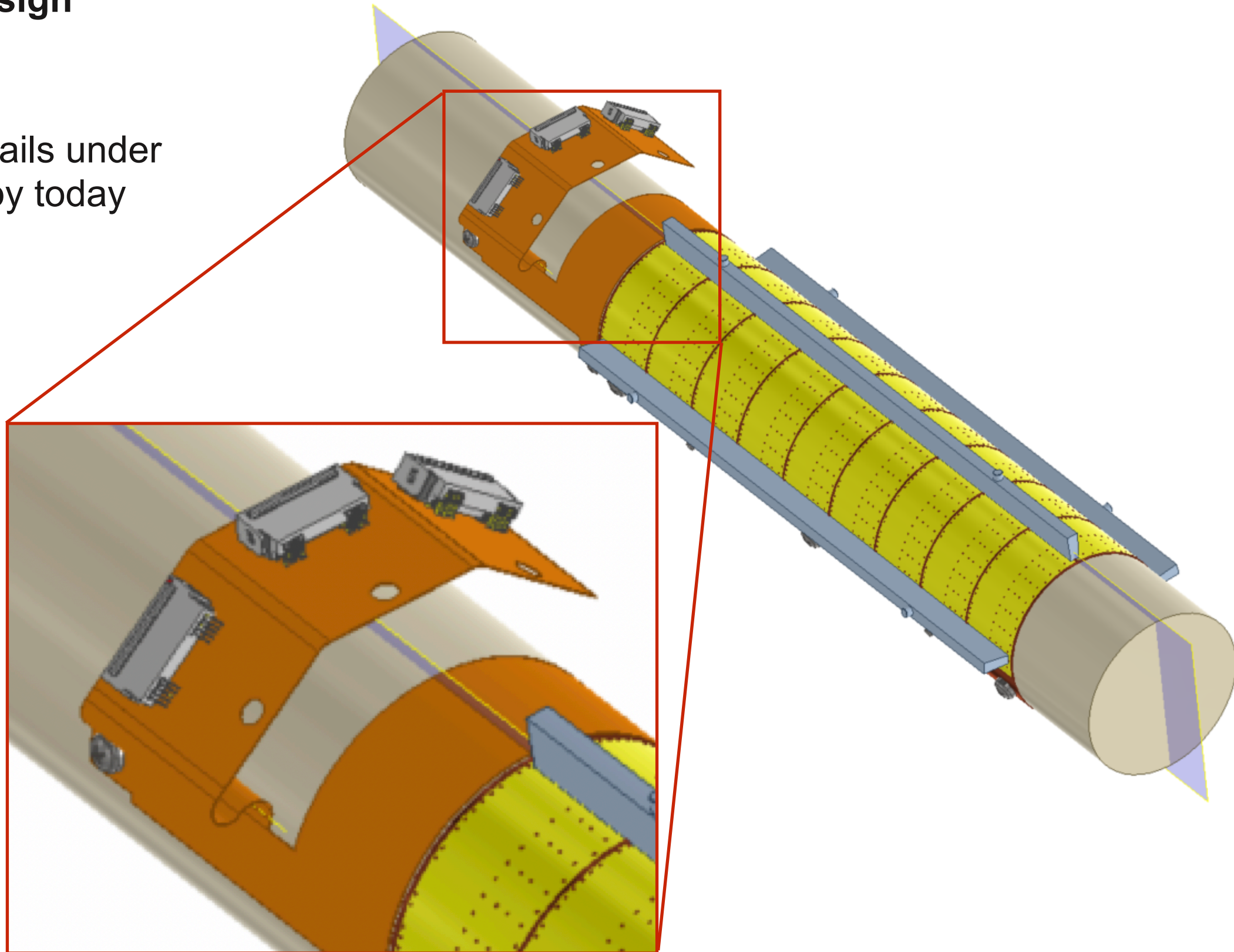
To be verified

1. Edge-FPC insertion neatness and simplicity

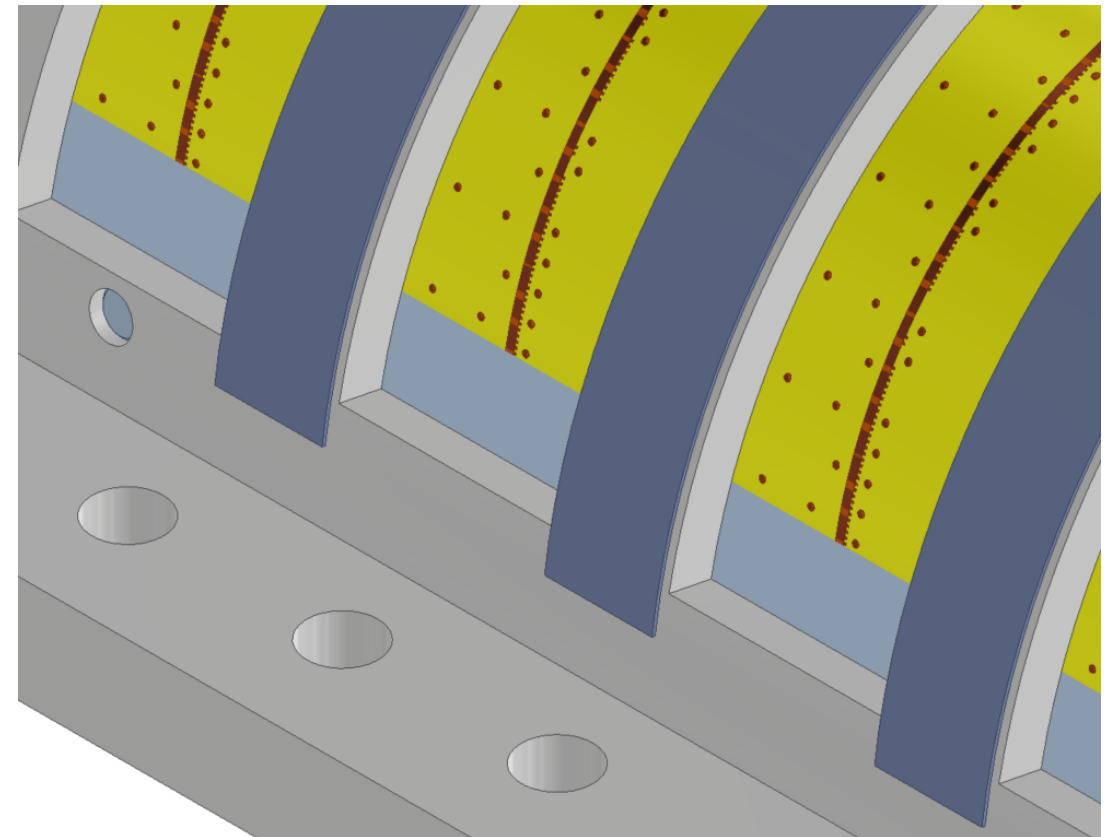
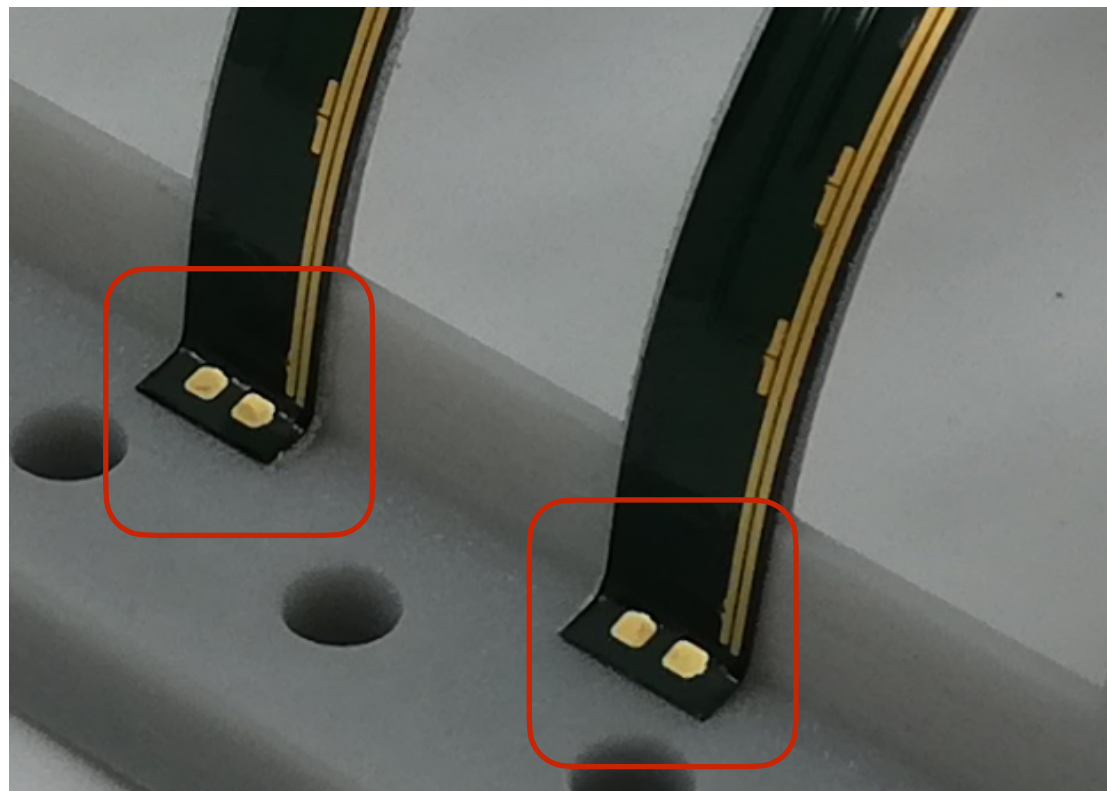
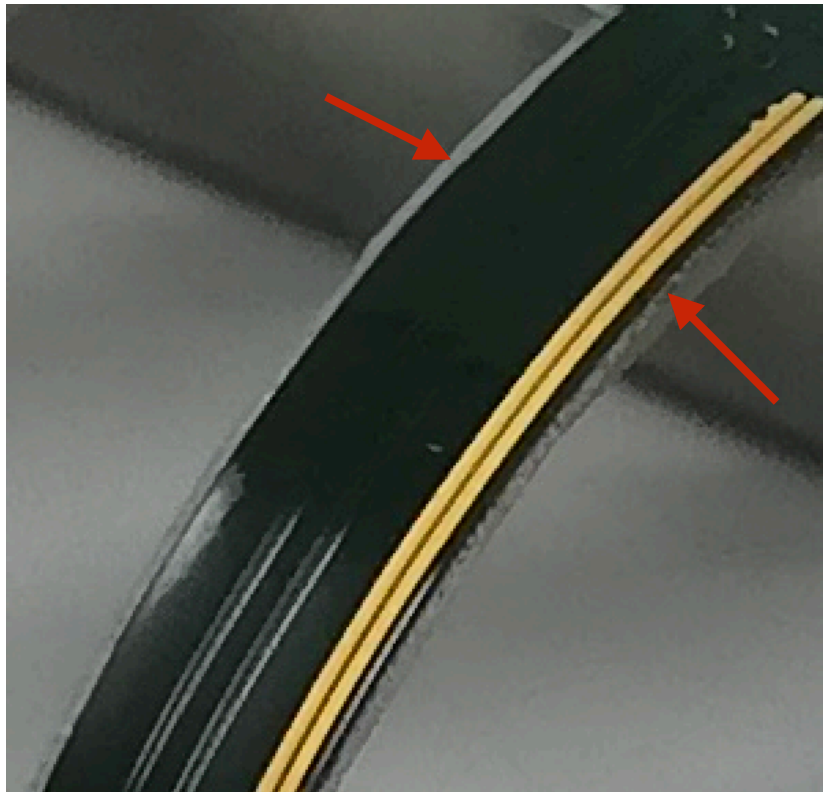


Edge-FPC design

Very last details under completion by today



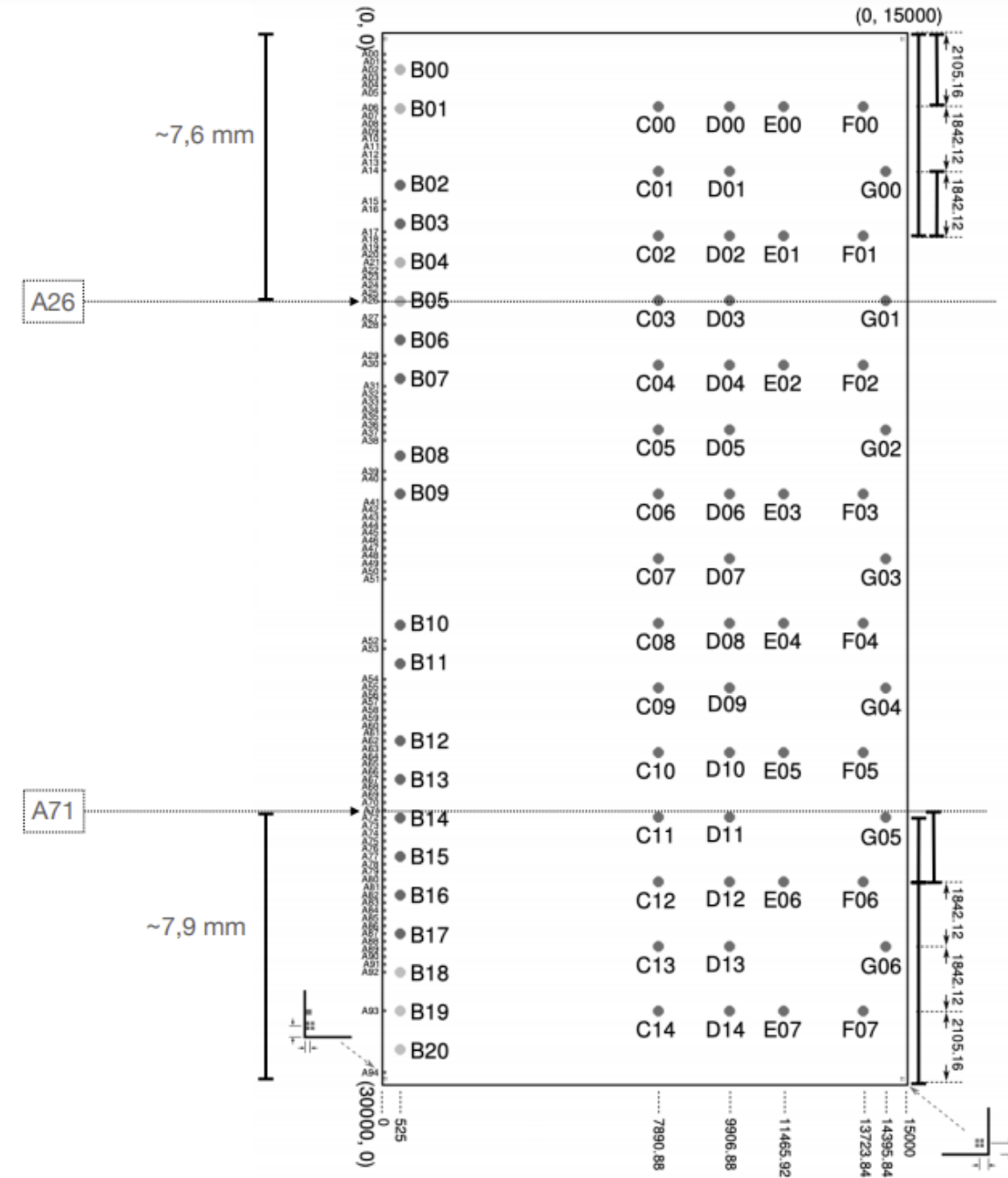
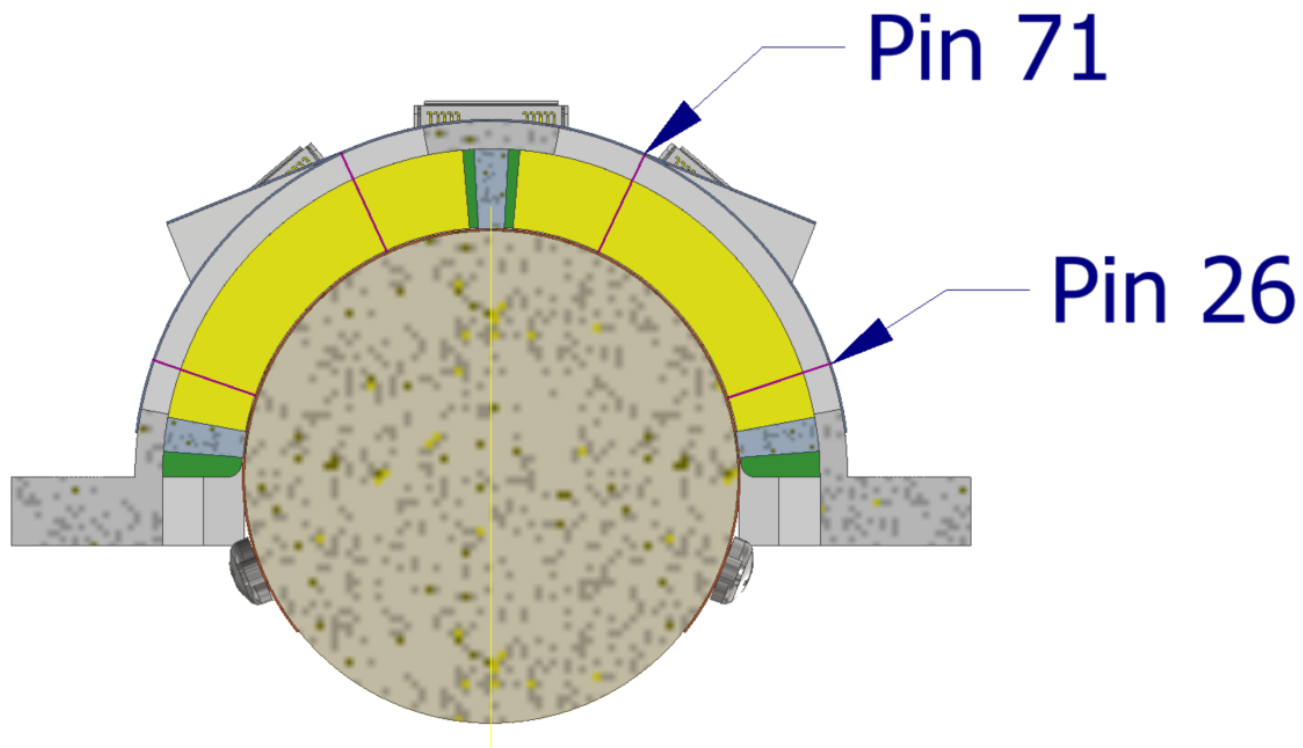
Super-ALPIDE FPCs support mechanics integration

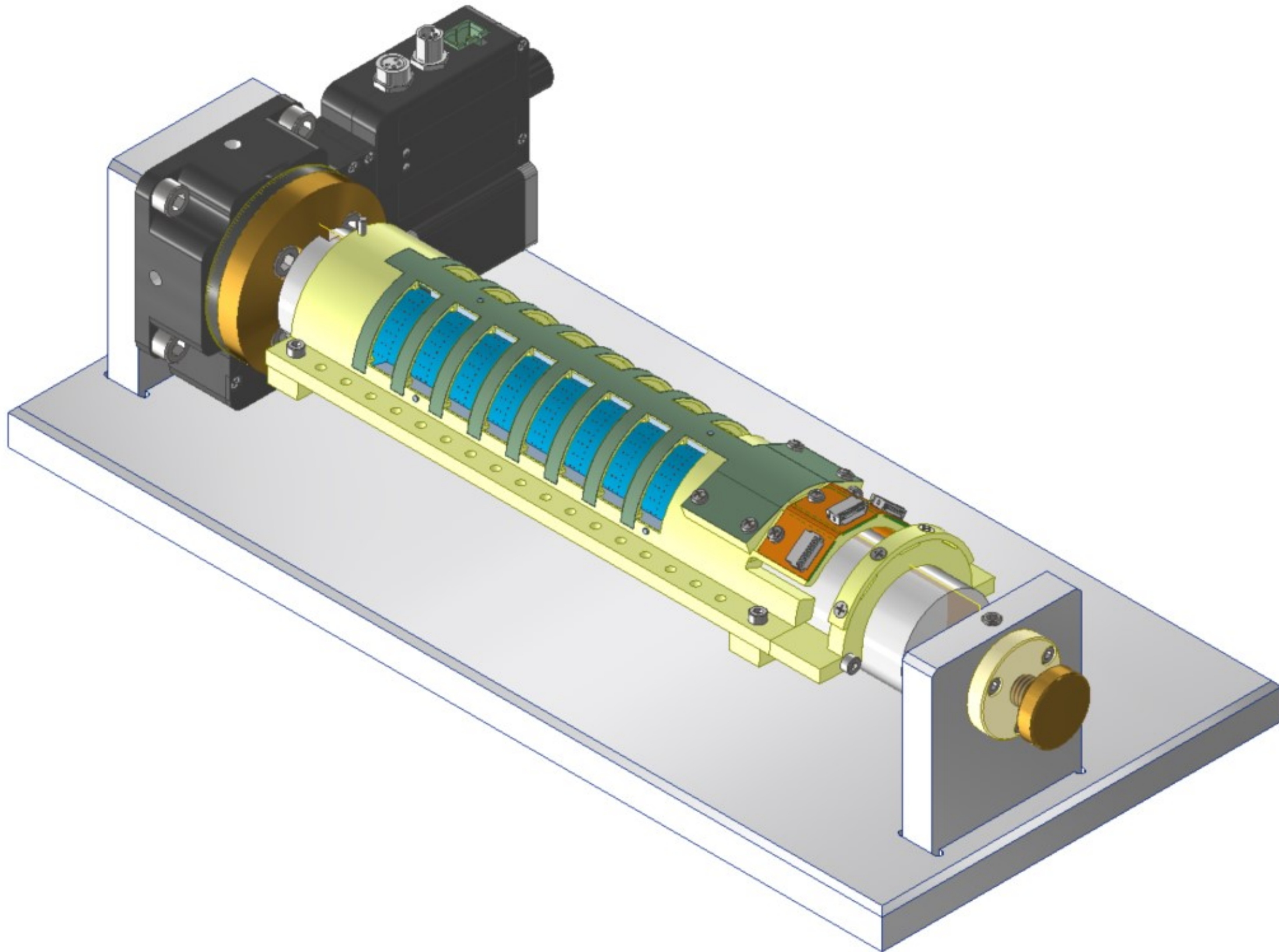


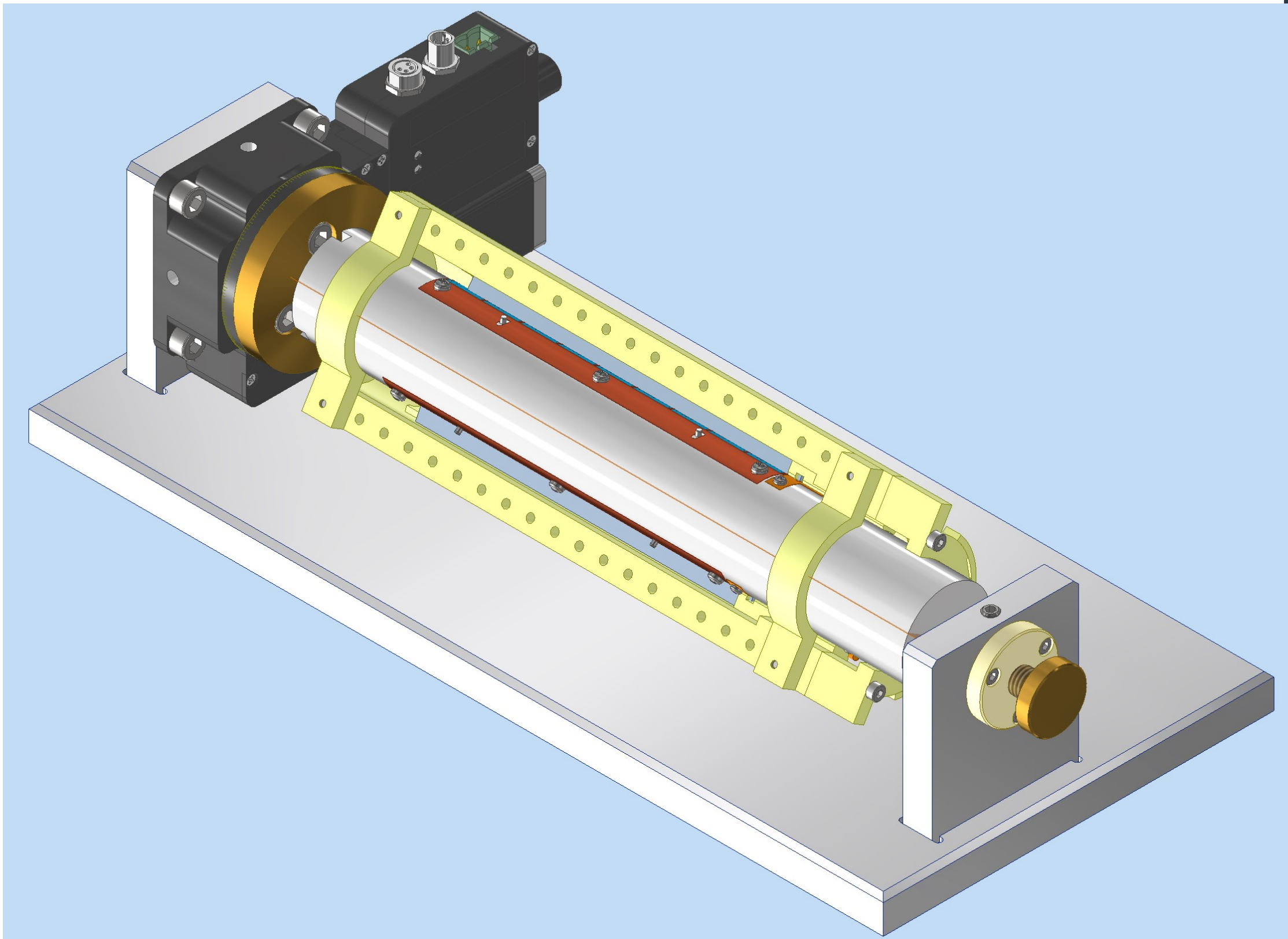
To be understood

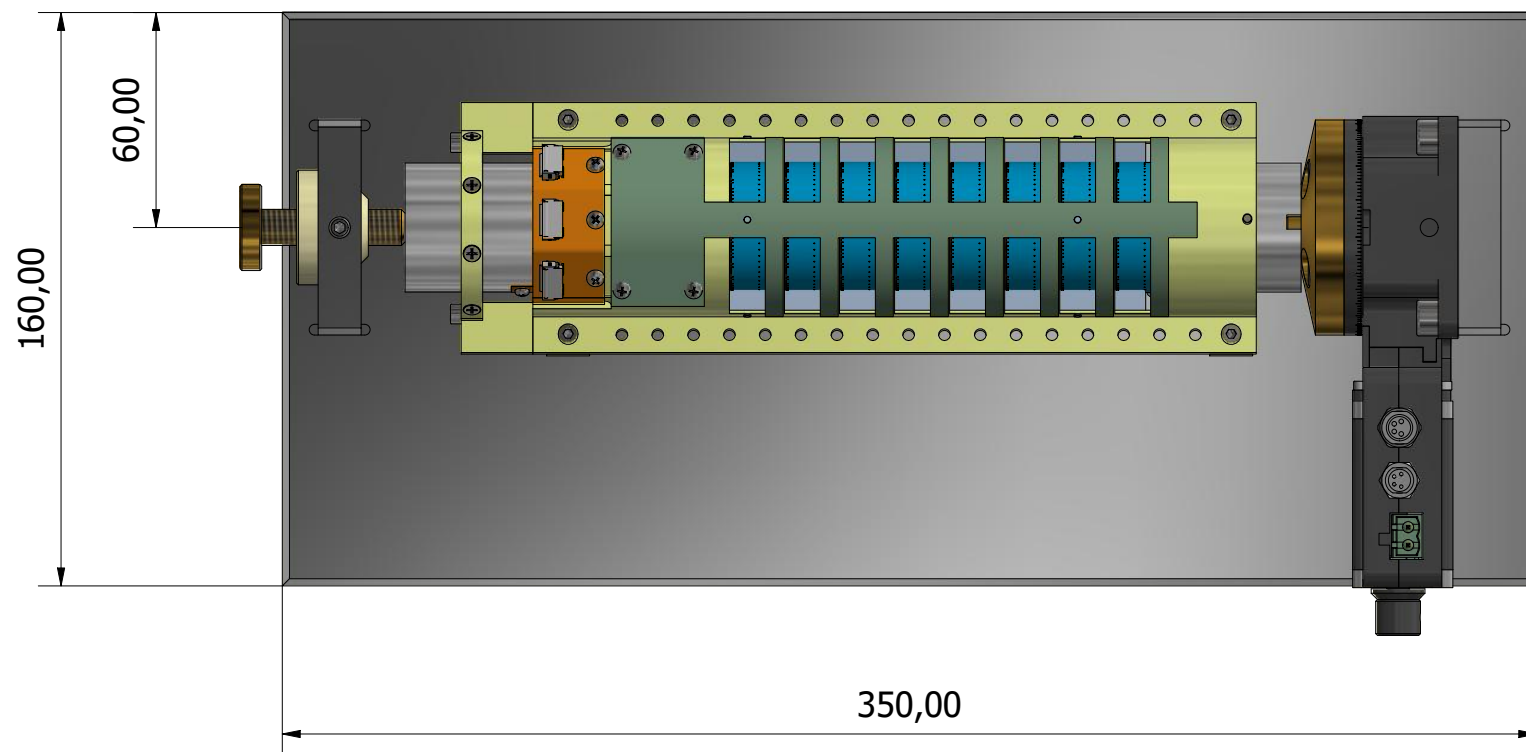
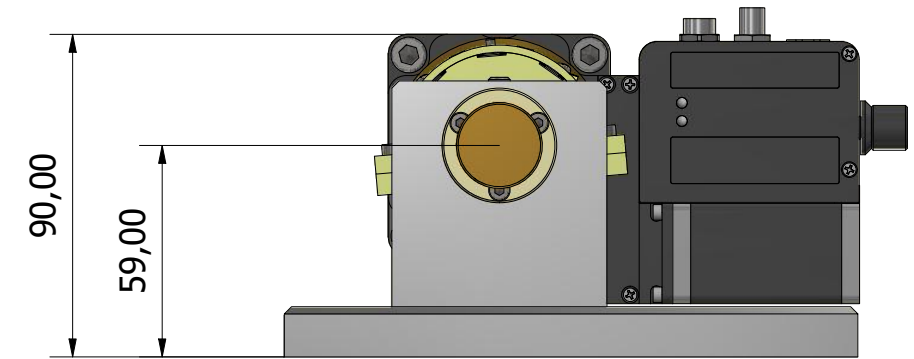
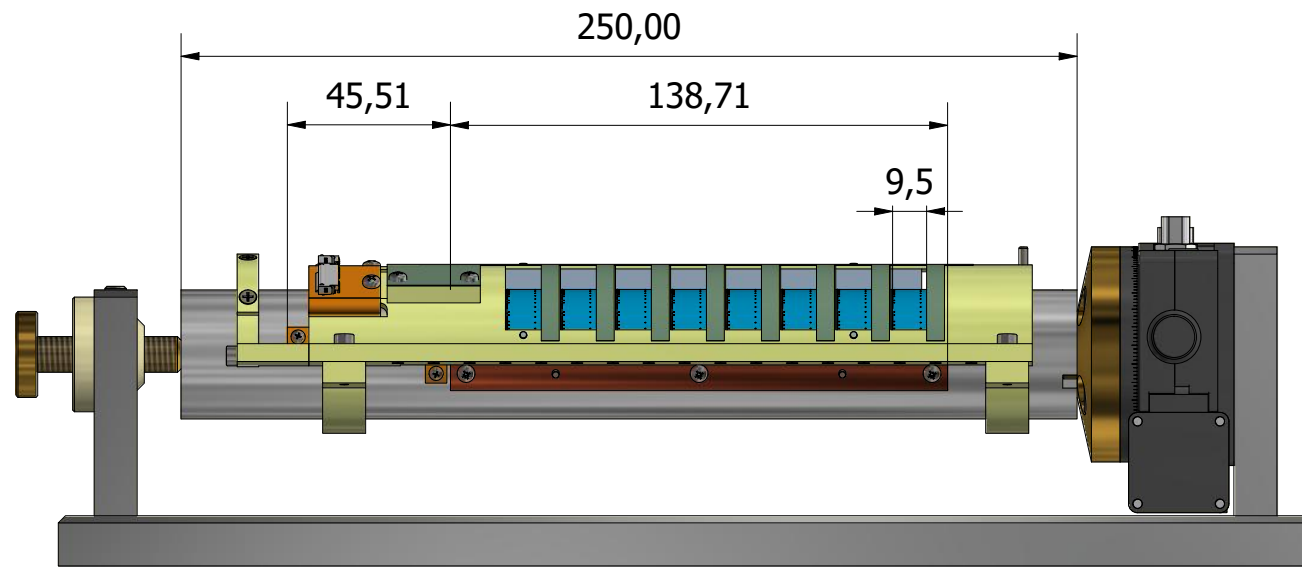
- One source: having used the 1mm thick exoskeleton (reduced radius) for an FPC designed for a 2 mm thick one

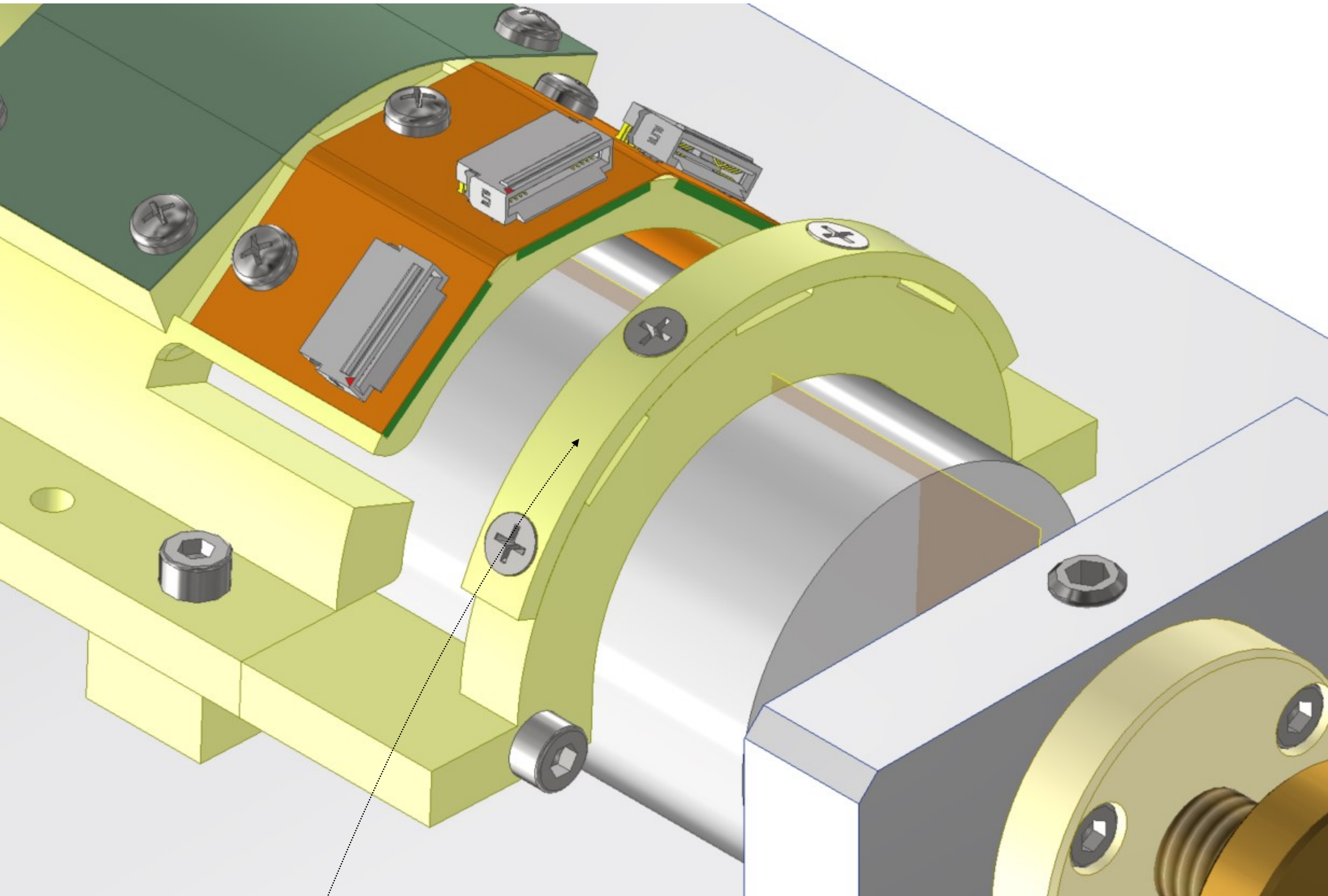
Super-ALPIDE FPCs support mechanics integration



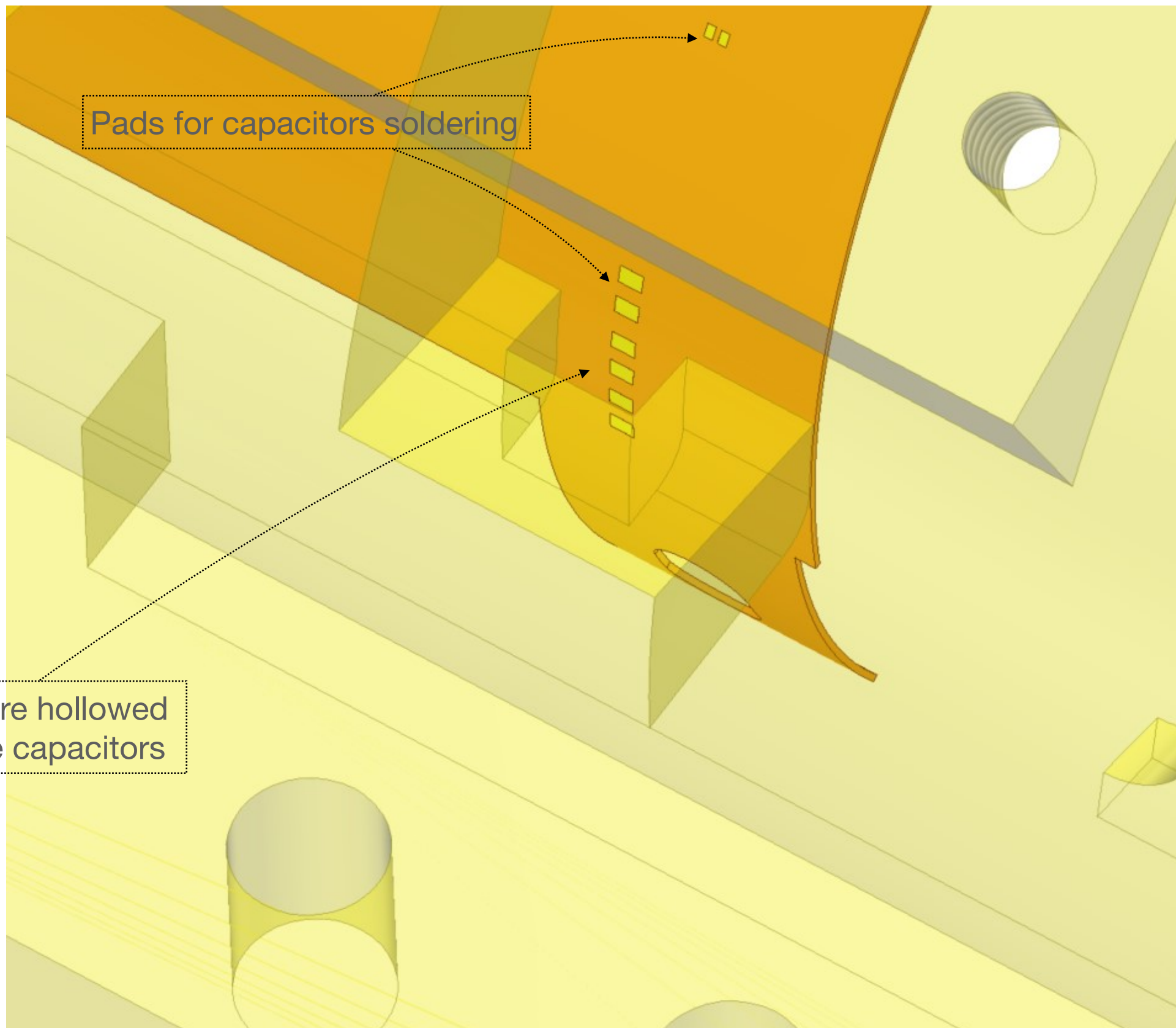








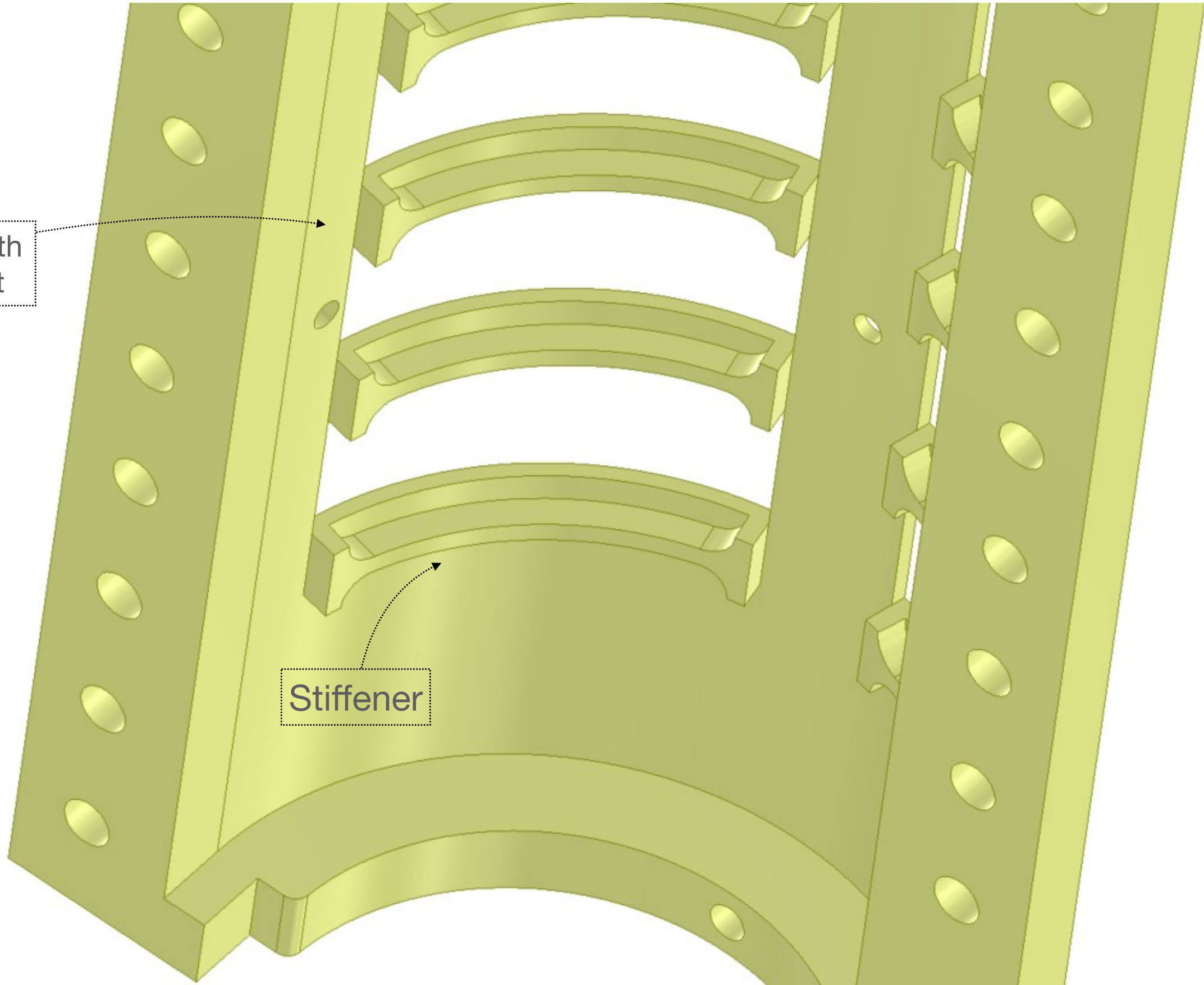
SAMTEC cables support and holder



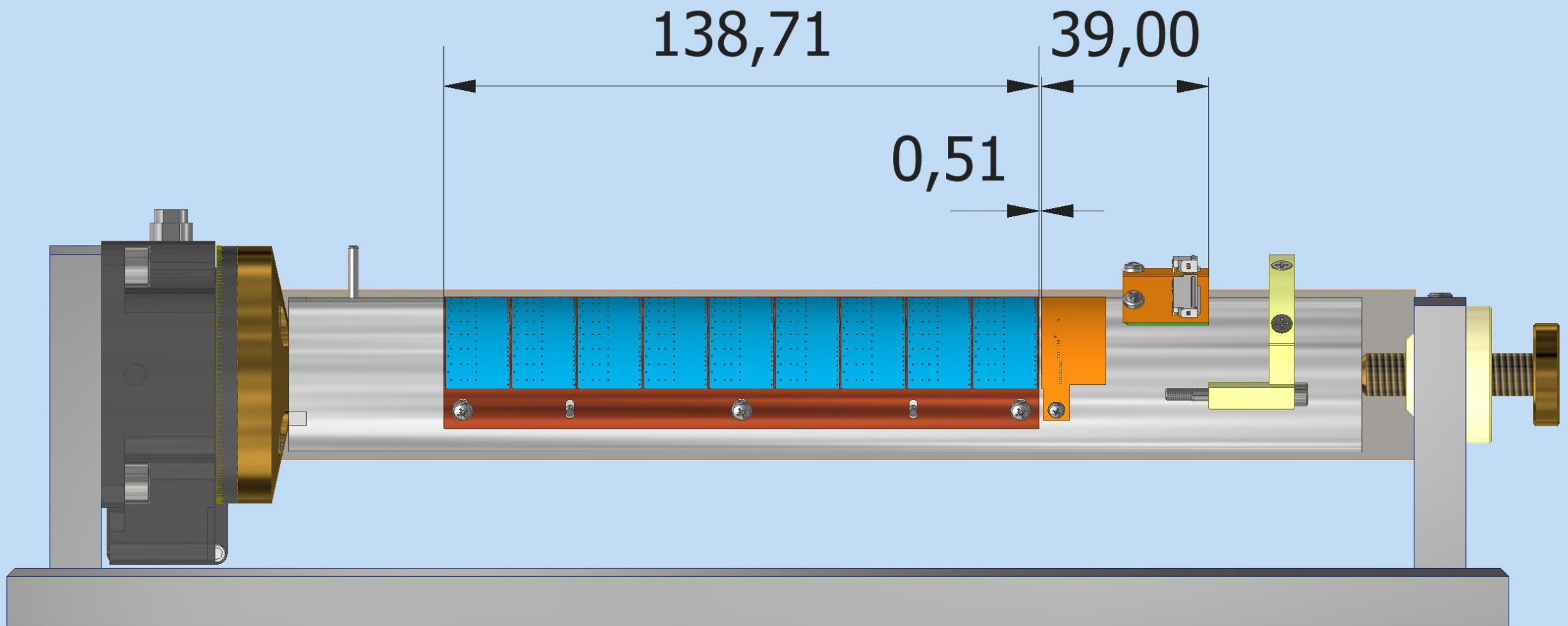
Pads for capacitors soldering

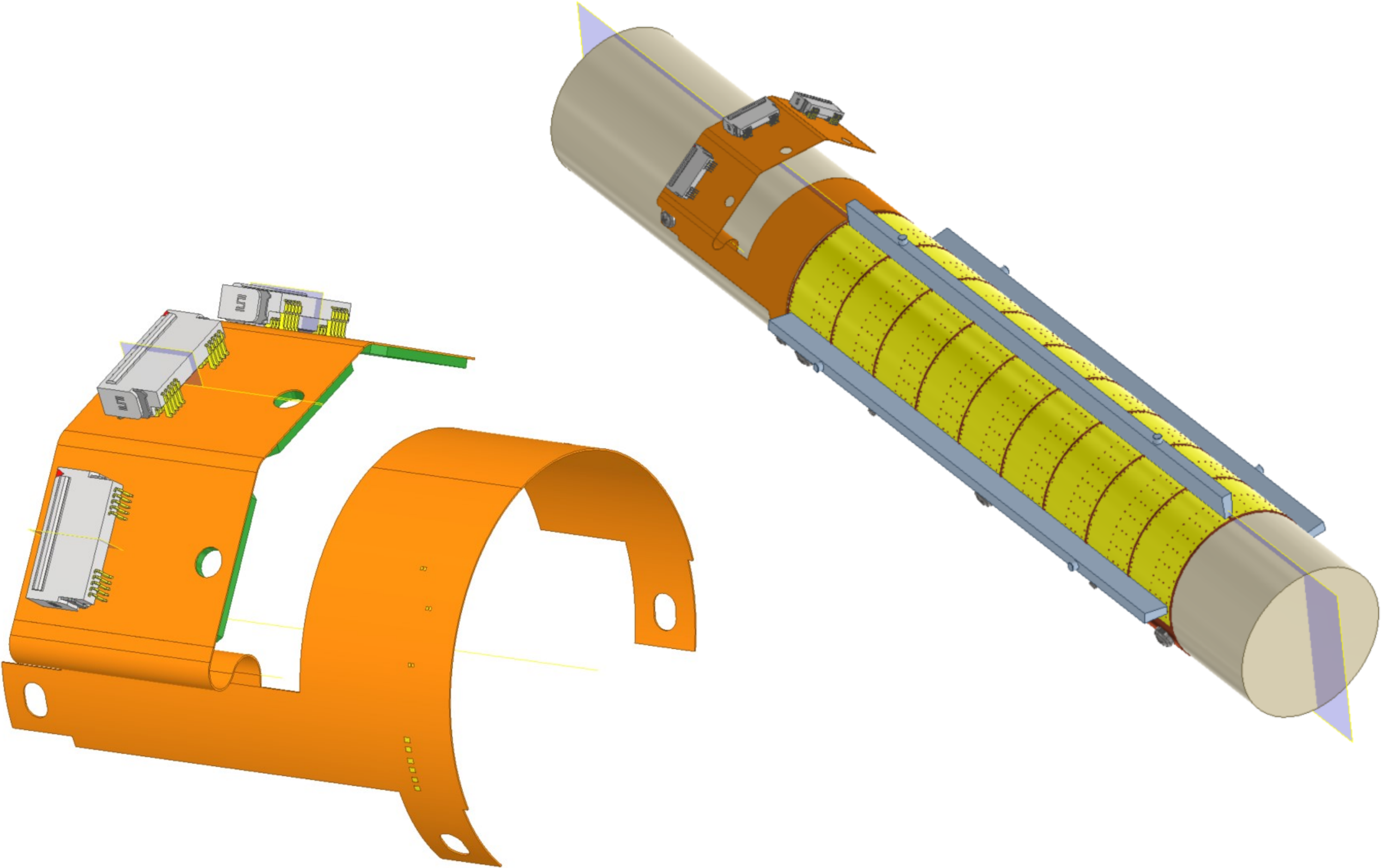
Support structure hollowed to not touch the capacitors

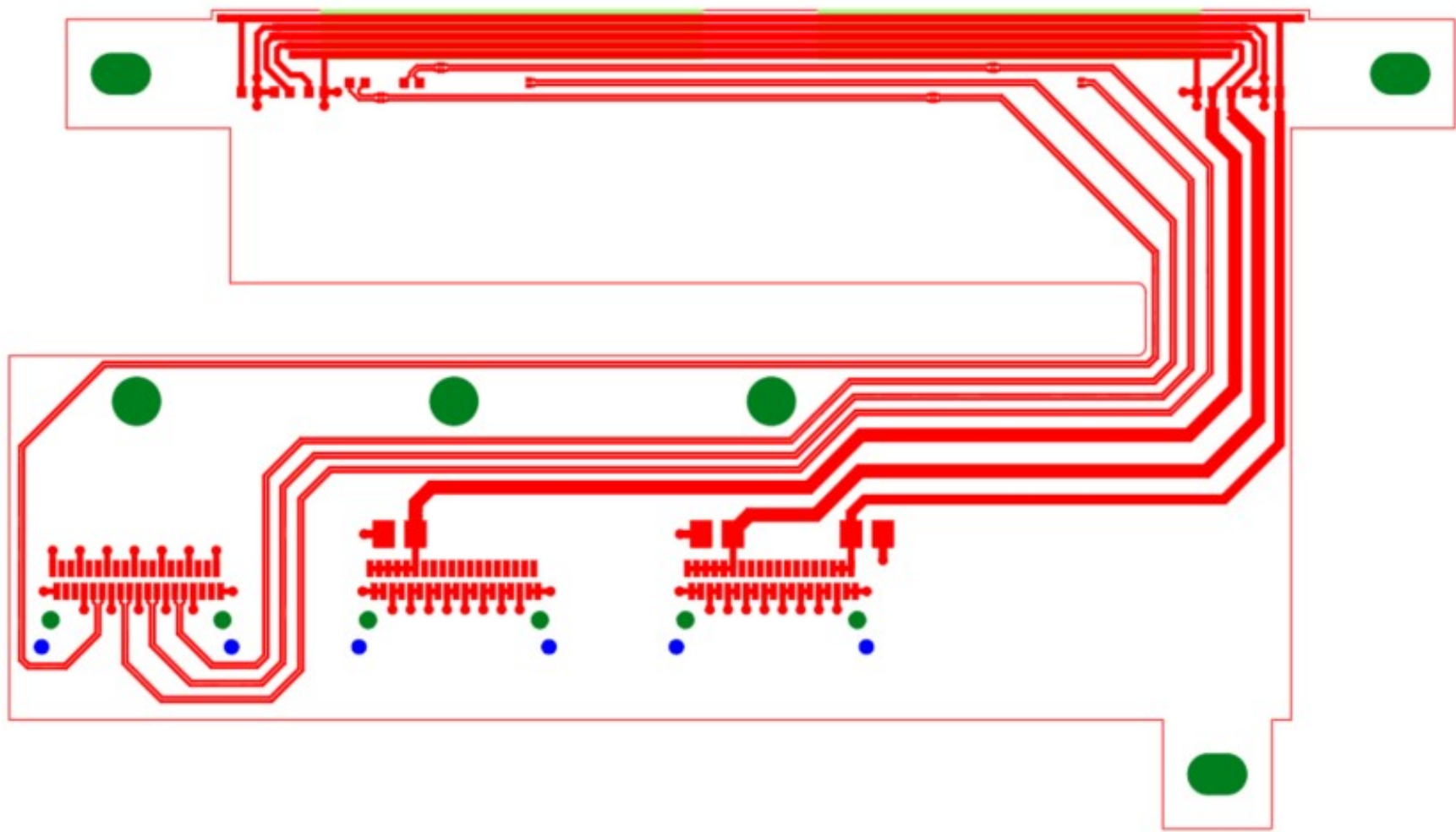
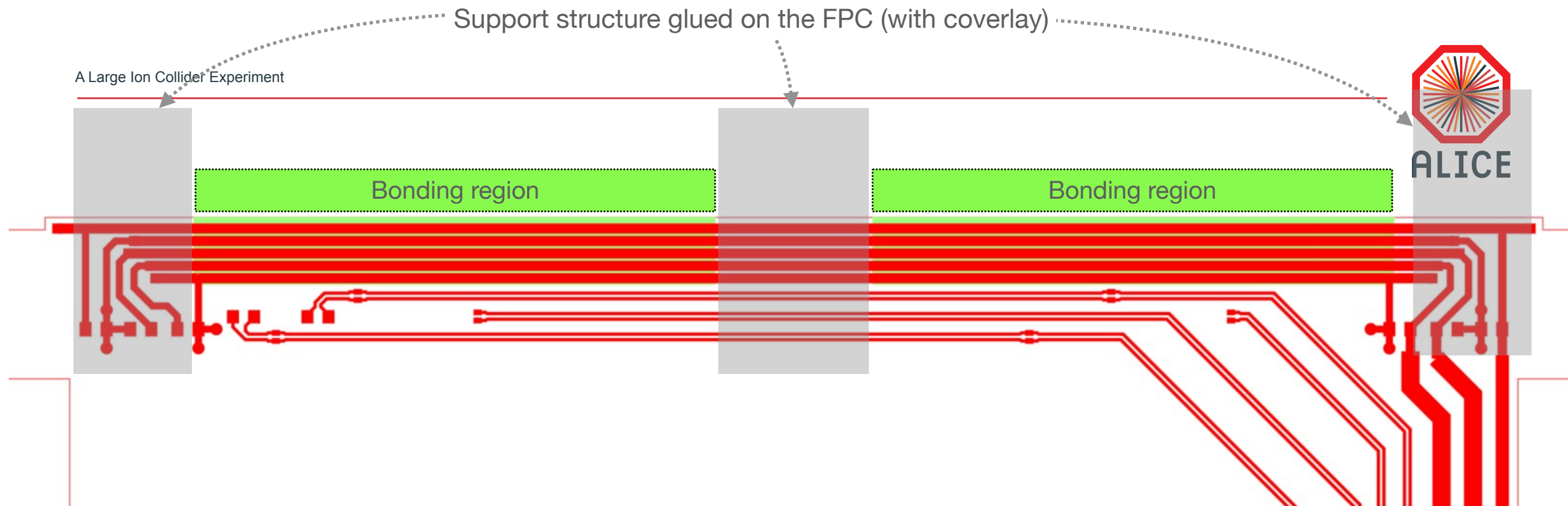
Do not interfere with wedges placement



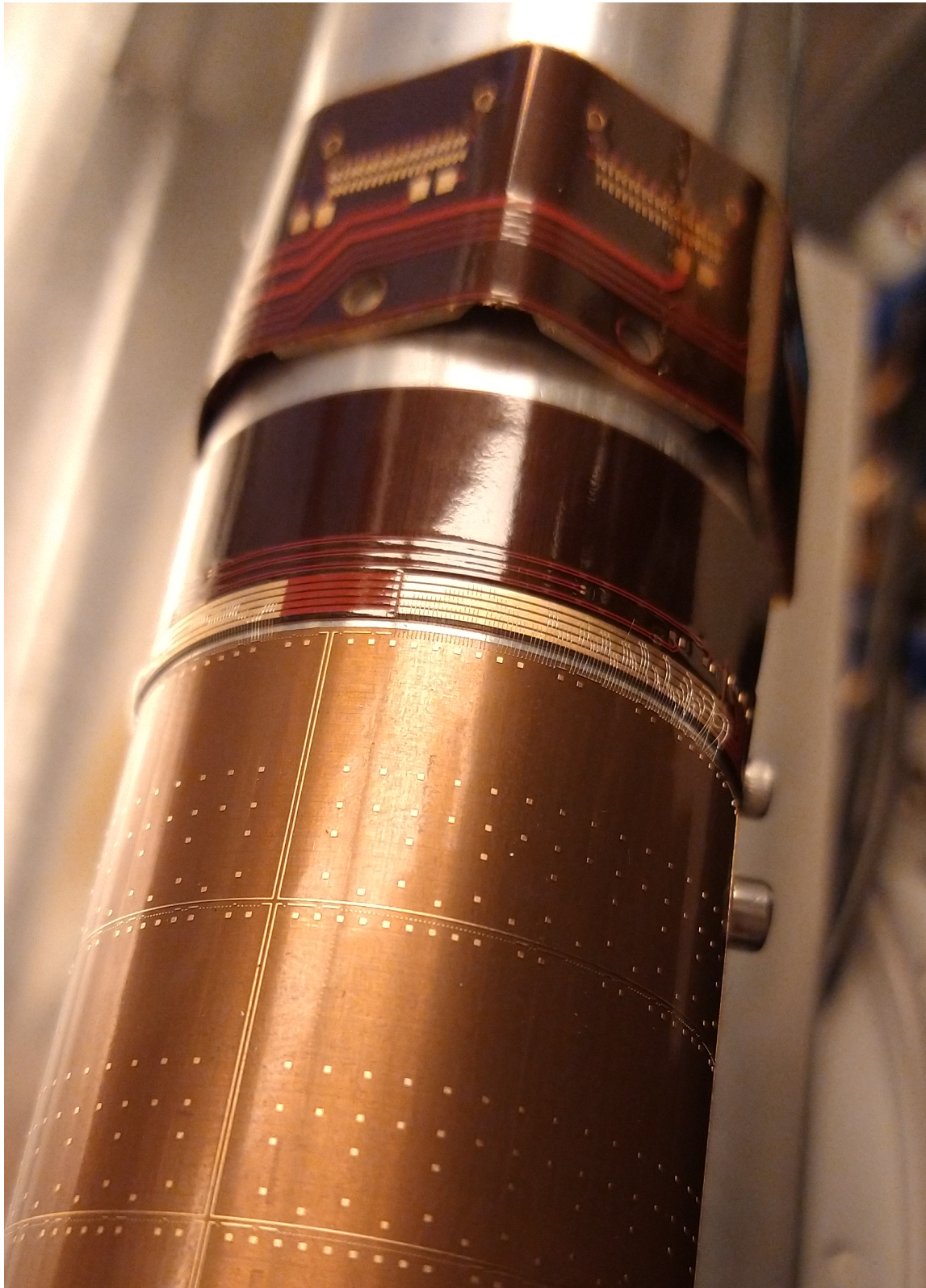
Stiffener







Exo-FPC to dummy-Super-ALPDE wire-bonding



Comments from Pasquale:

- Bend section well adherent to the mandrel
→ Good bonding surface
- Bonding on first (most external) FPC bonding line occasionally fails
→ Will try to clean with alcohol next time
- Random bonding scheme (all pad configurations covered)
→ Long process
→ Actual bonding scheme next time