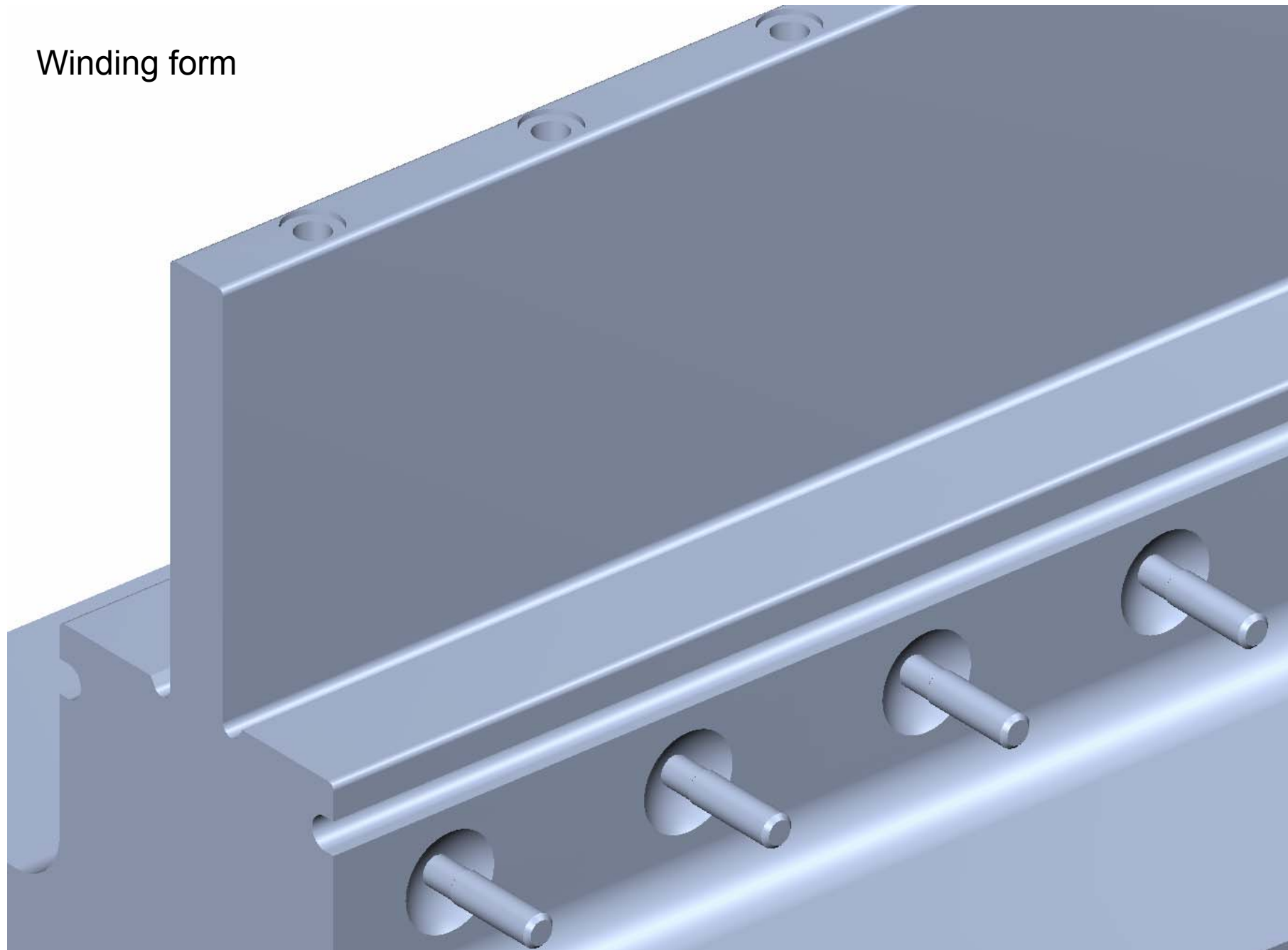
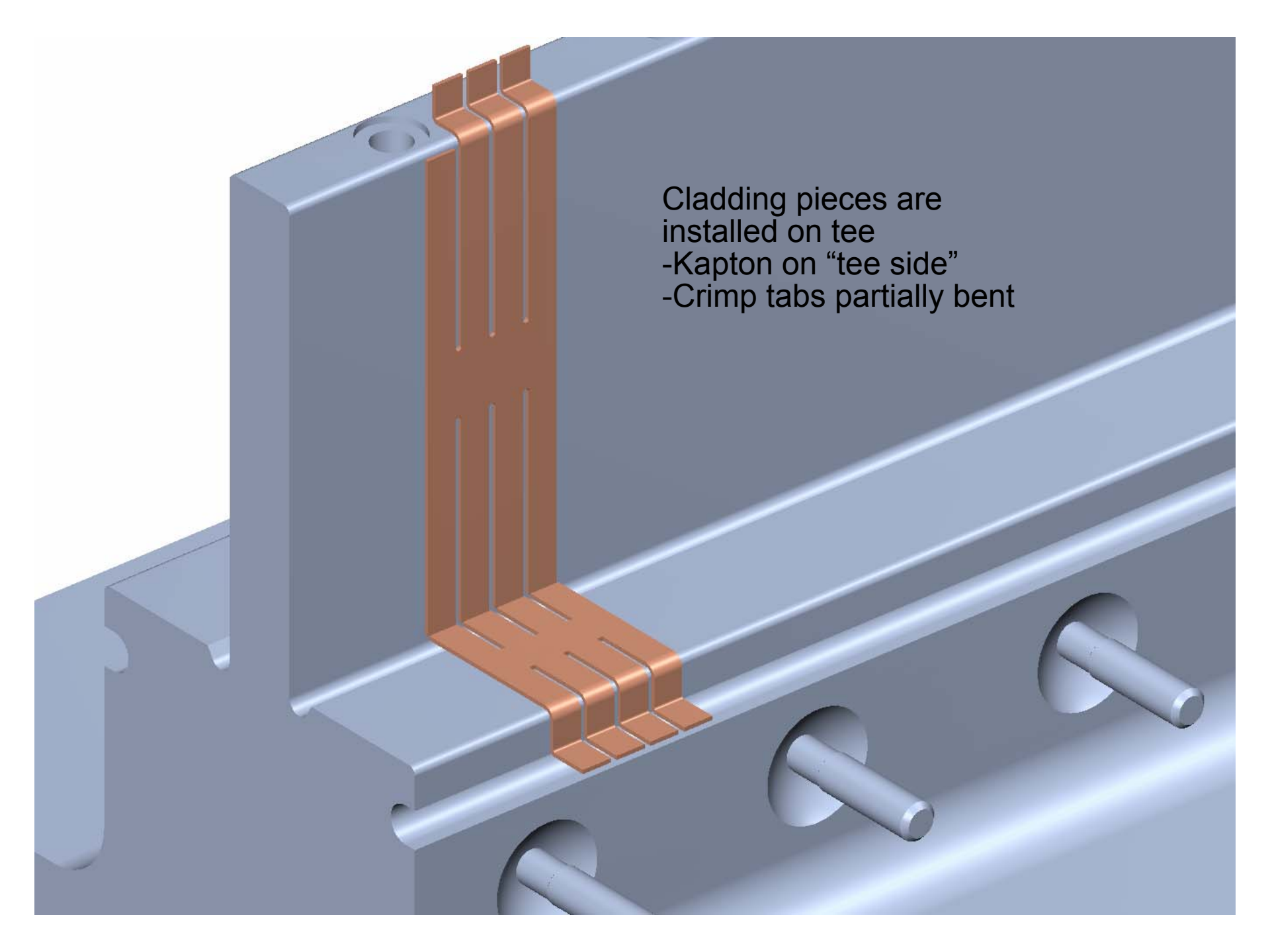


Cladding / winding sequence

- Workshop held at PPPL June 10,11
- Results of workshop incorporated into design
 - “crimped” design instead of rivets
 - “fringe” pre-brazed to tubing, attached to chill plates, held on with clamps and french toast during VPI, imbedded in winding pack after VPI
 - Chill plate electrical break via b-stage layer
- Variation of cladding proposed

Winding form

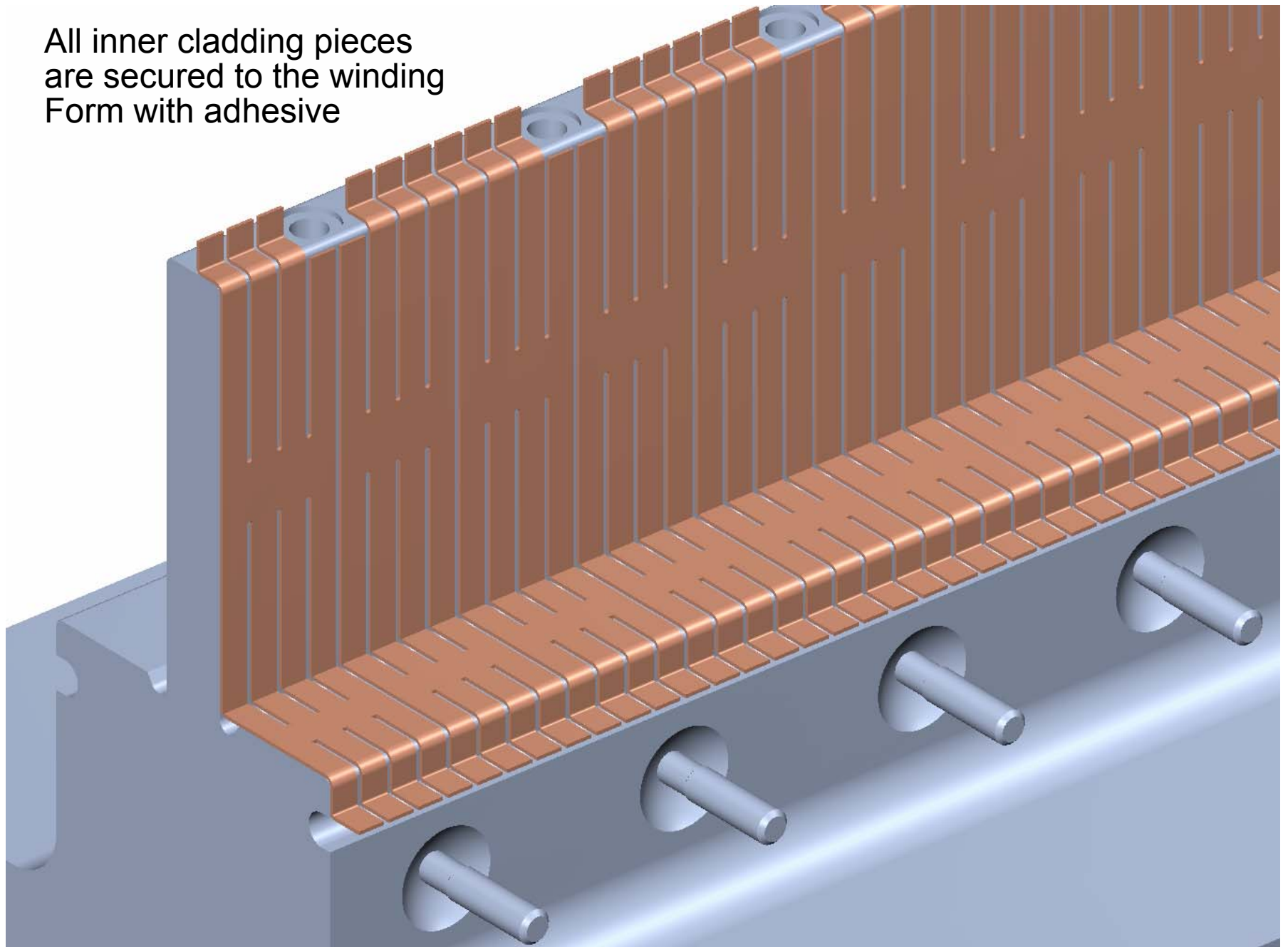


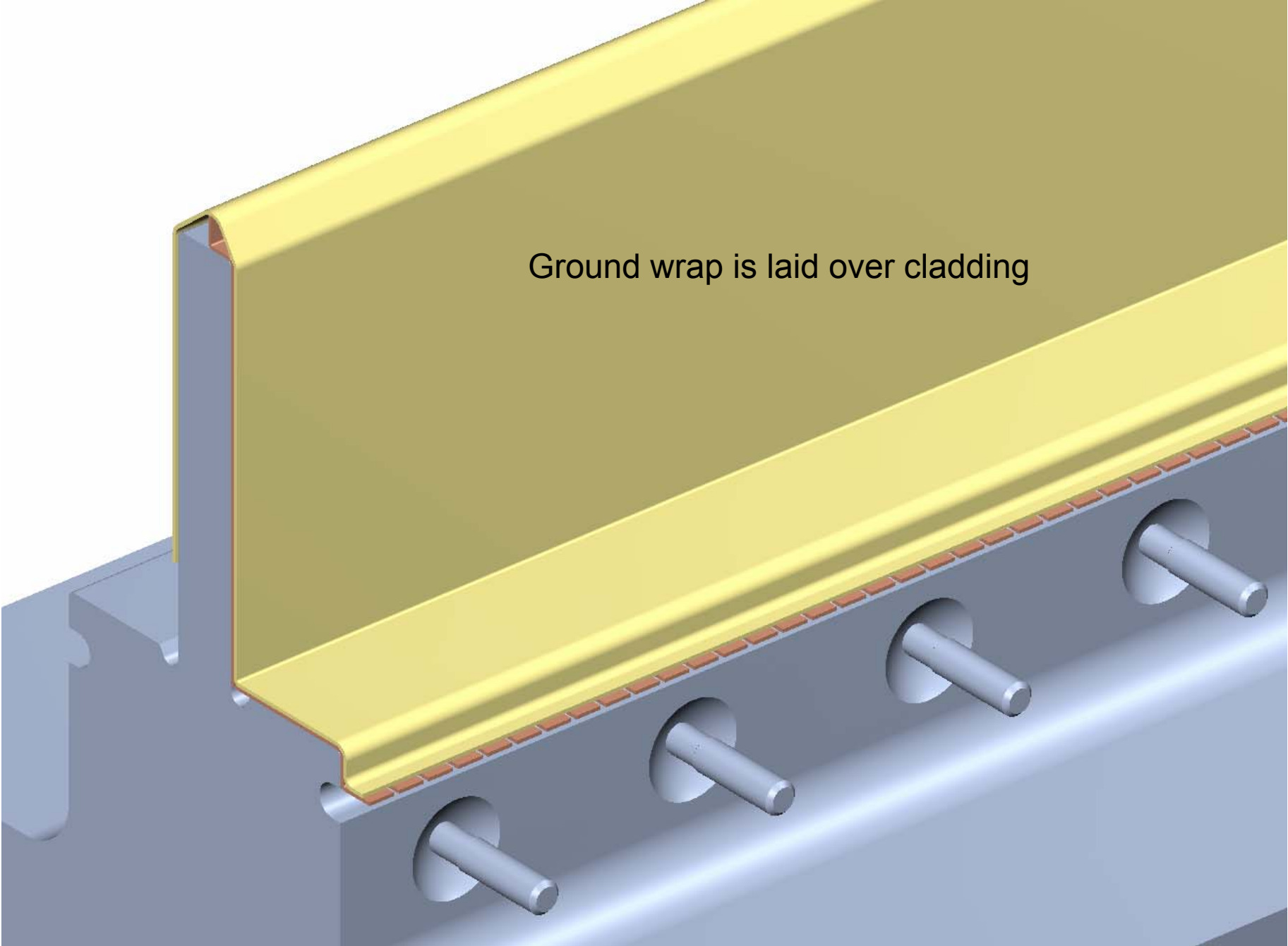


Cladding pieces are installed on tee
-Kapton on "tee side"
-Crimp tabs partially bent

The image is a 3D CAD model of a PCB assembly. It shows a grey T-shaped structure. On the vertical stem of the 'tee', three copper-colored cladding strips are attached. These strips extend downwards and then bend over the horizontal base of the 'tee'. The strips have a central slot and are secured to the base with crimp tabs. The base of the 'tee' has three cylindrical pins protruding from it. The text in the upper right corner provides instructions: 'Cladding pieces are installed on tee', '-Kapton on "tee side"', and '-Crimp tabs partially bent'.

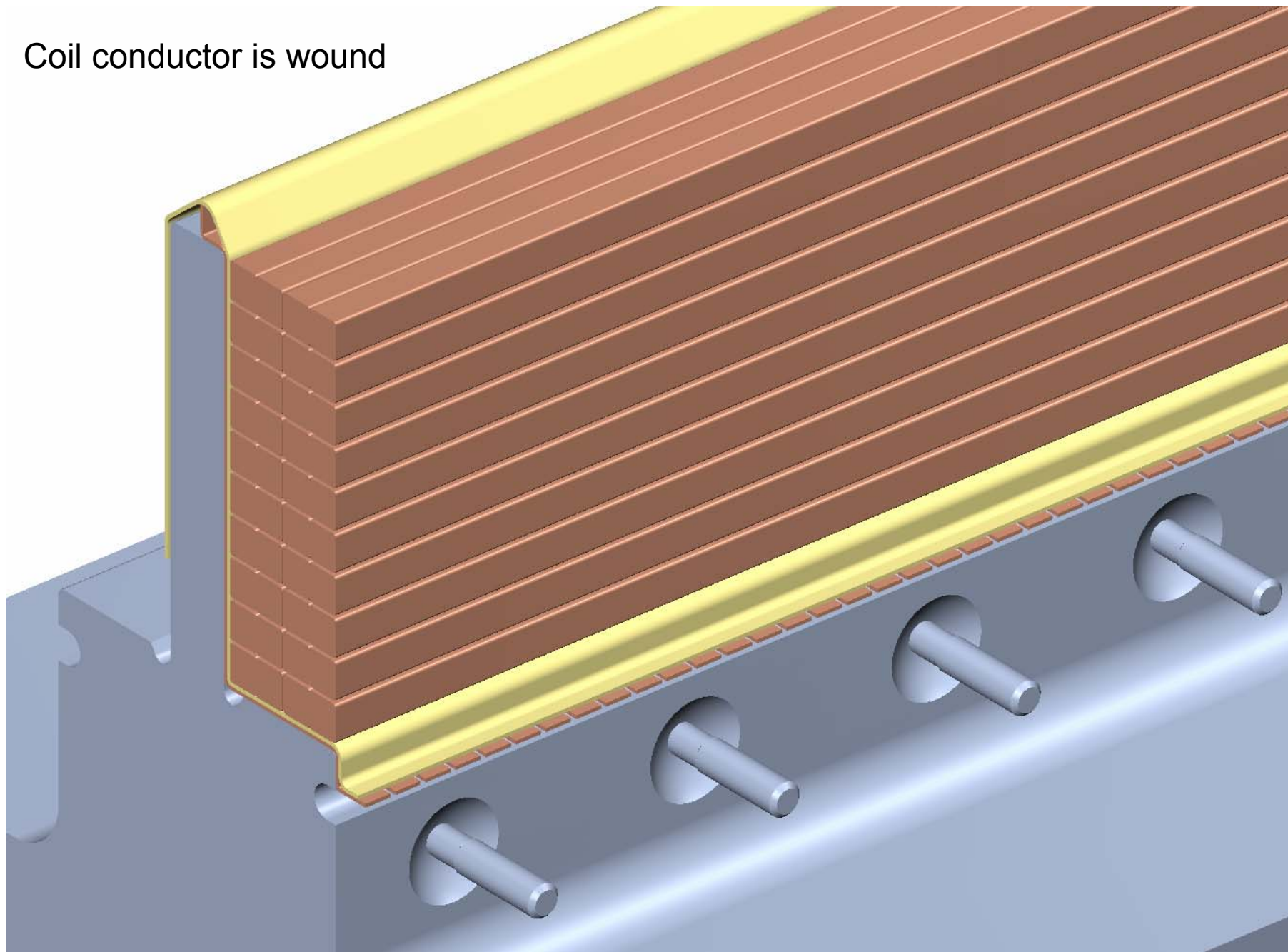
All inner cladding pieces are secured to the winding Form with adhesive

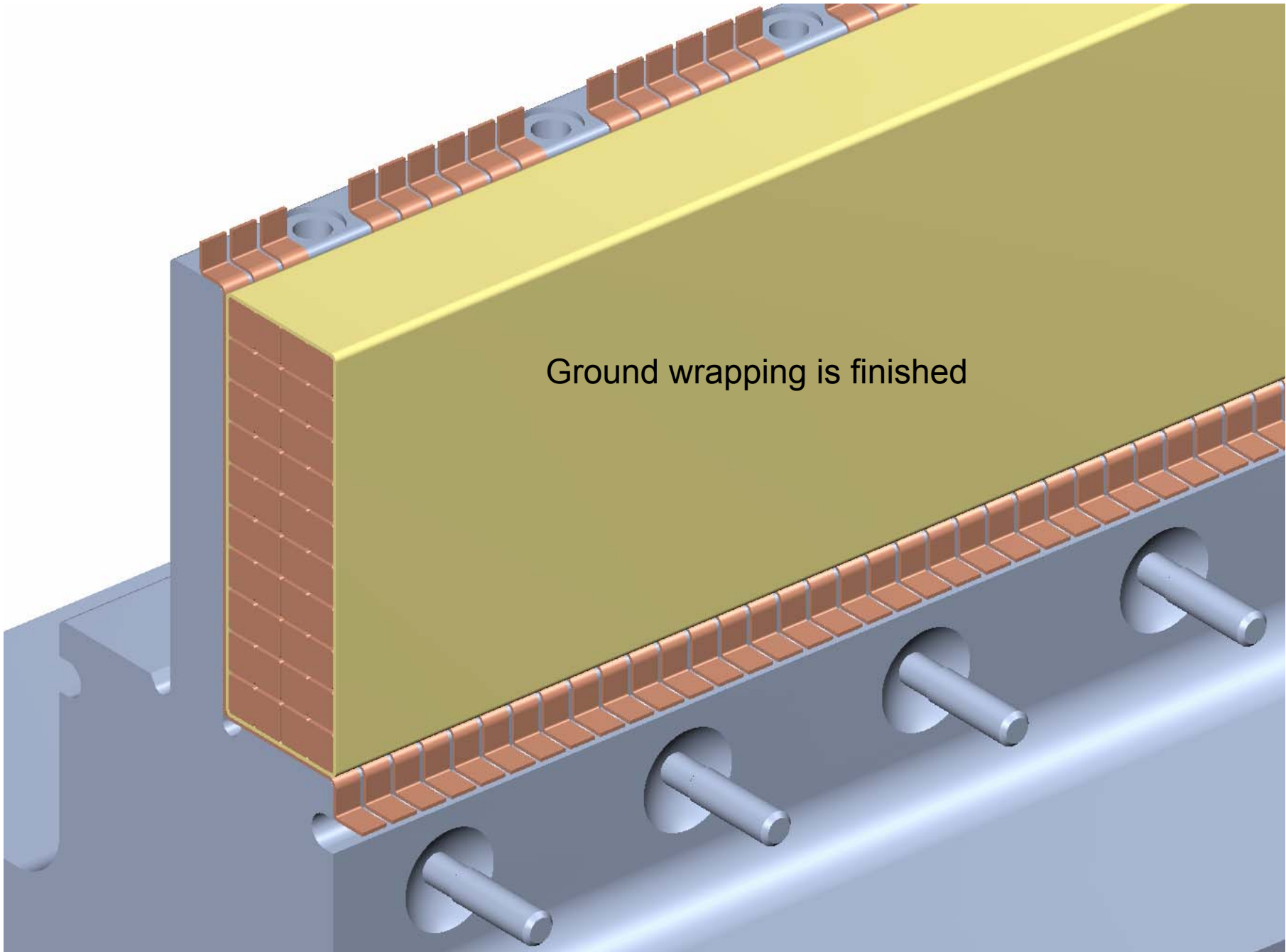




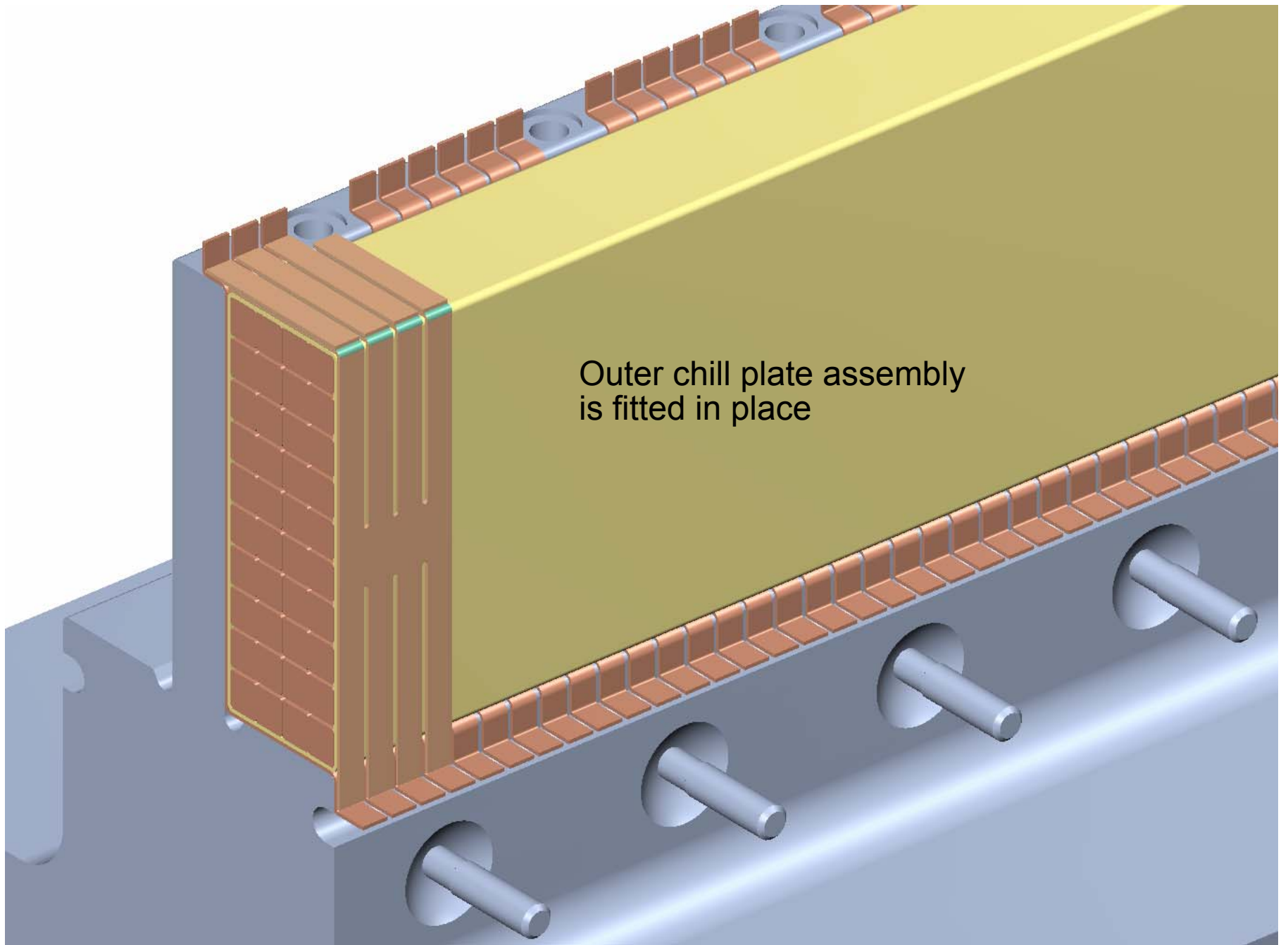
Ground wrap is laid over cladding

Coil conductor is wound



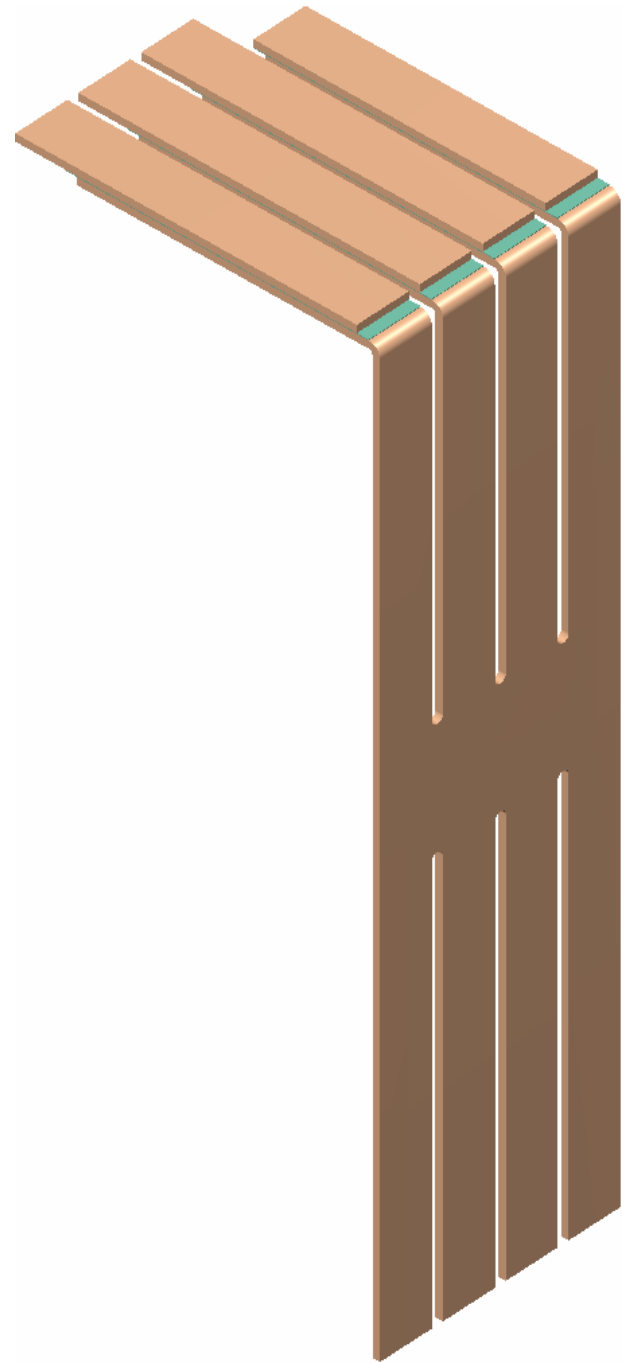
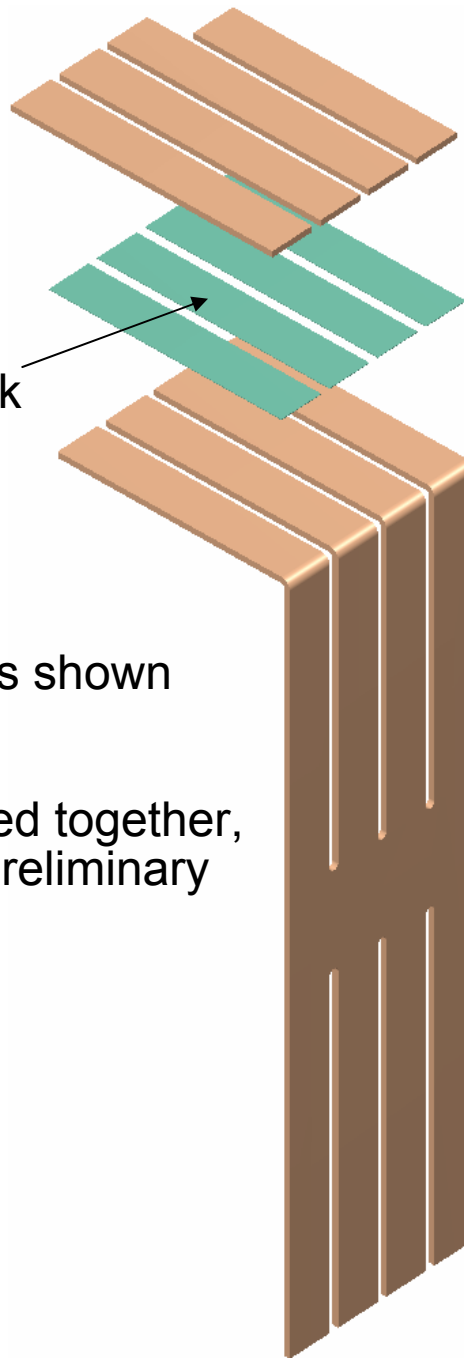


Ground wrapping is finished



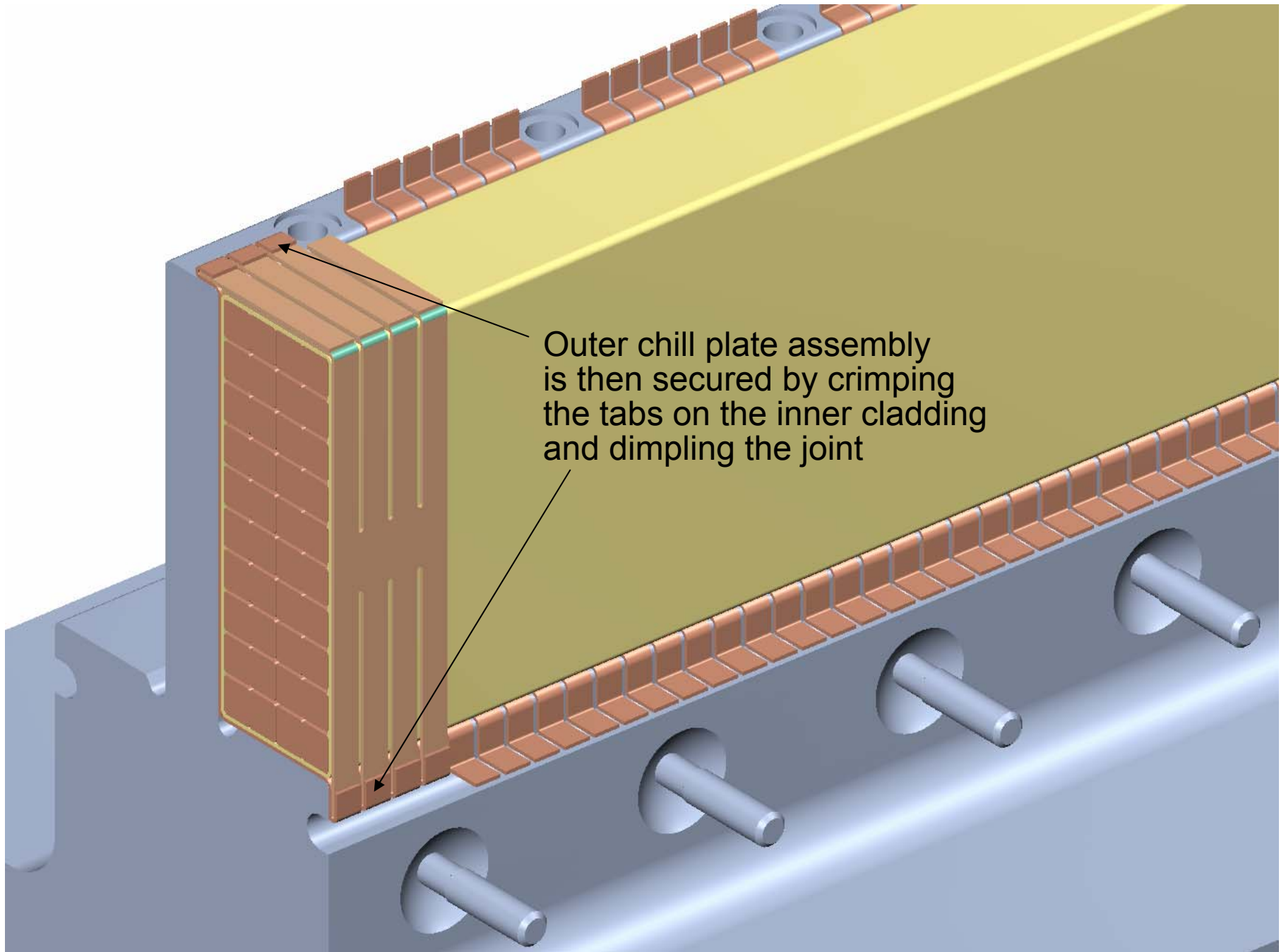
Outer chill plate assembly
is fitted in place

Electrical break



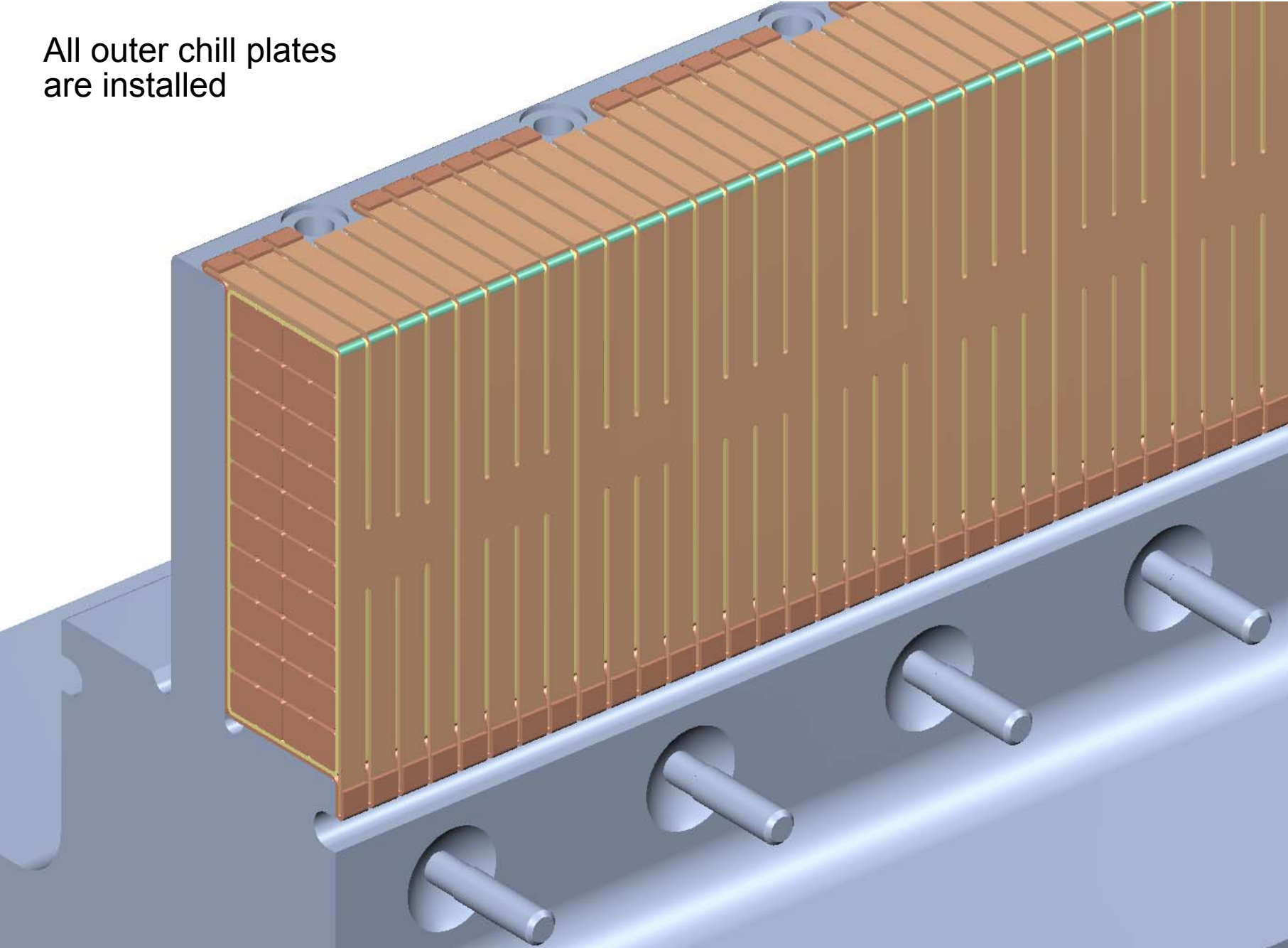
Outer chill plate assembly is shown in an exploded view.

Components are first bonded together, then the slots are cut and preliminary bend is made.

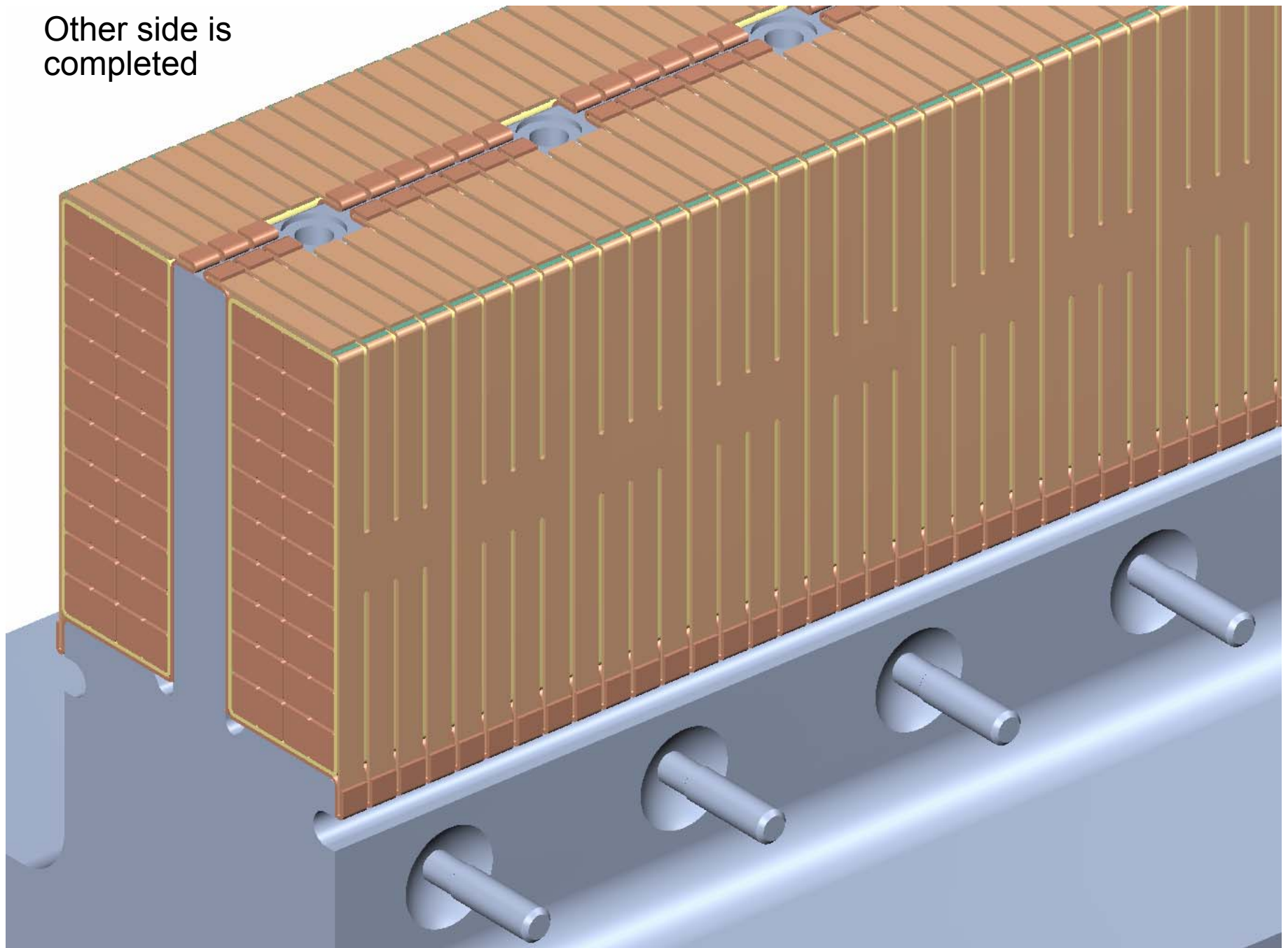


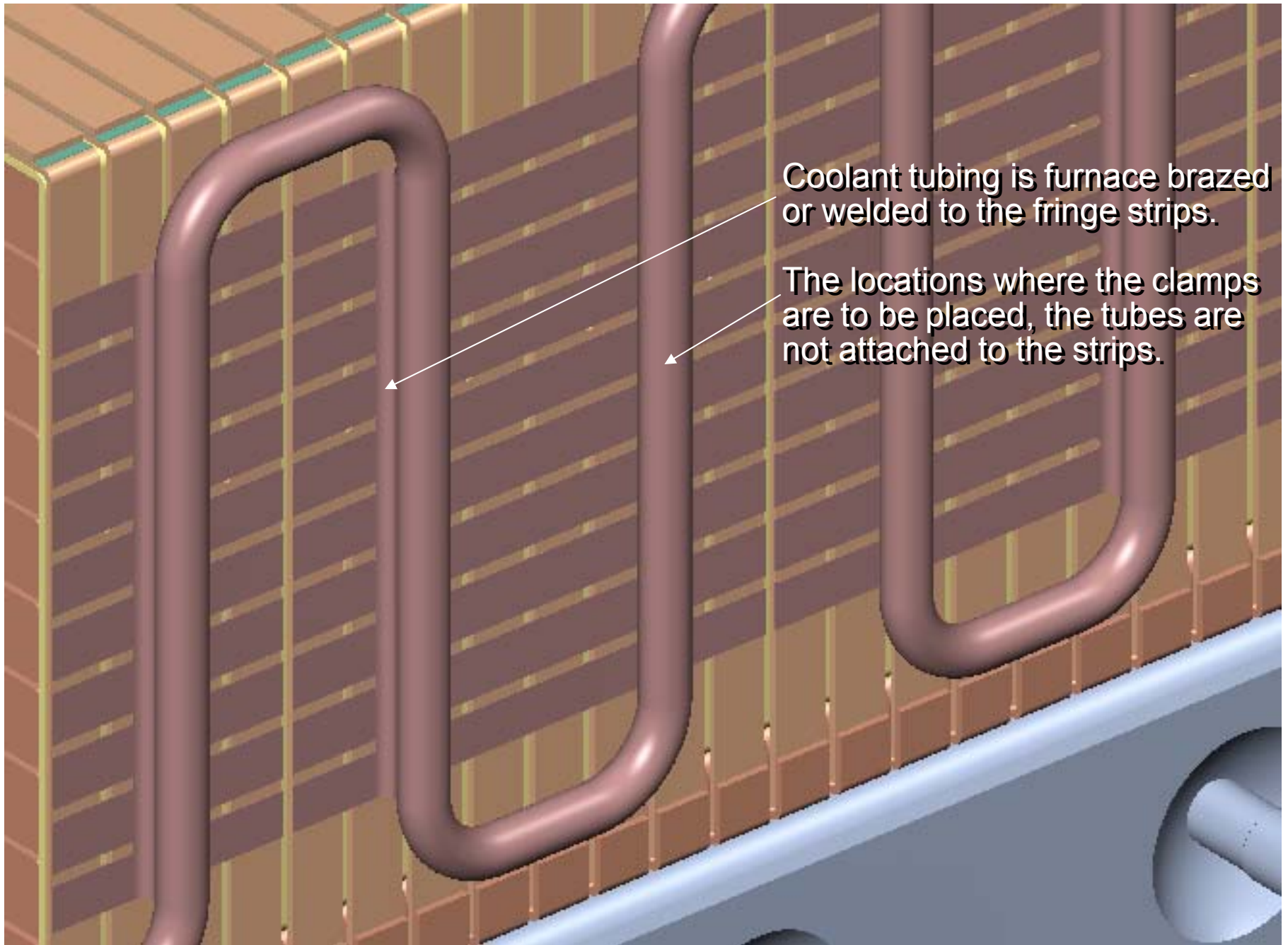
Outer chill plate assembly is then secured by crimping the tabs on the inner cladding and dimpling the joint

All outer chill plates
are installed



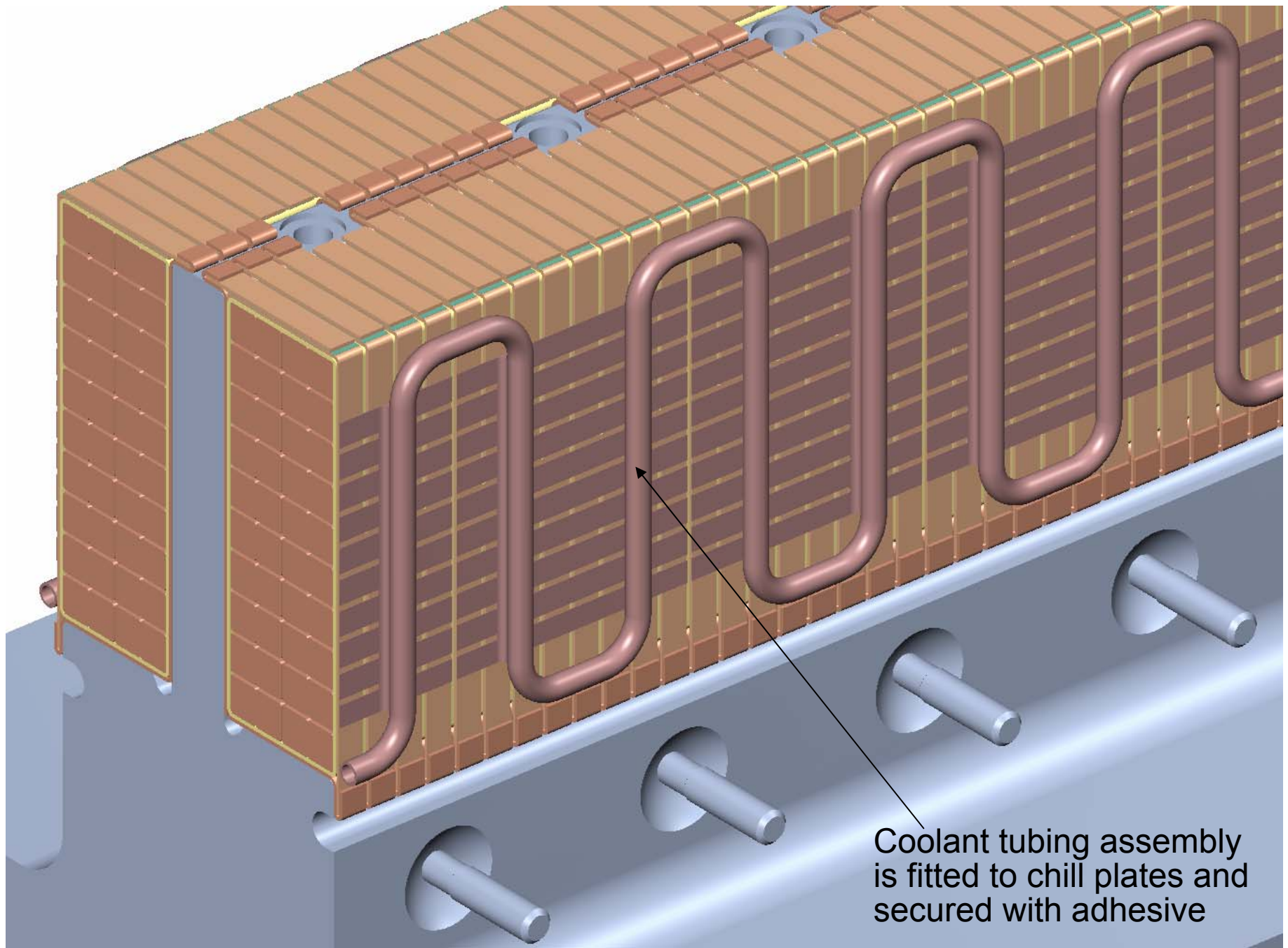
Other side is completed





Coolant tubing is furnace brazed or welded to the fringe strips.

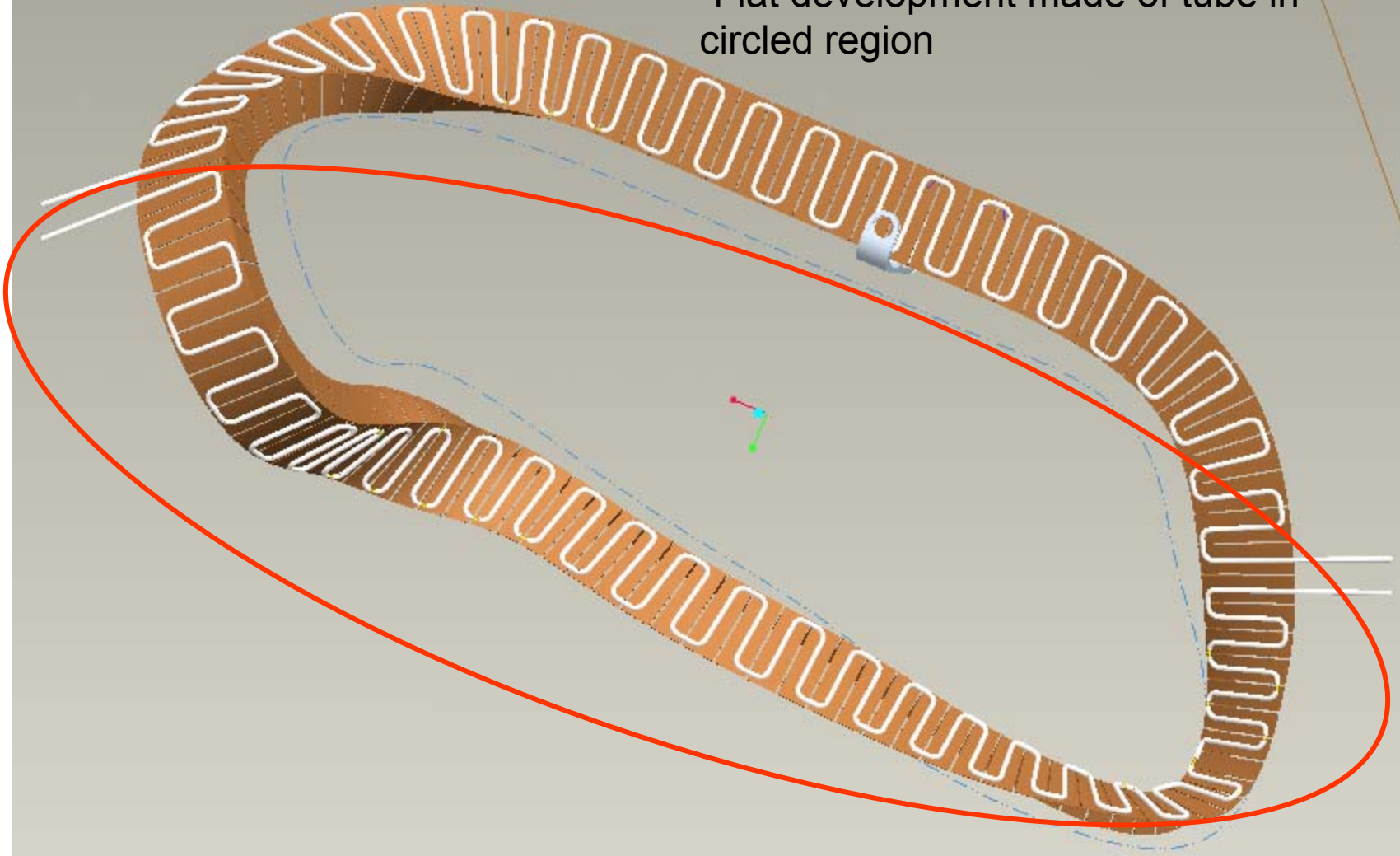
The locations where the clamps are to be placed, the tubes are not attached to the strips.

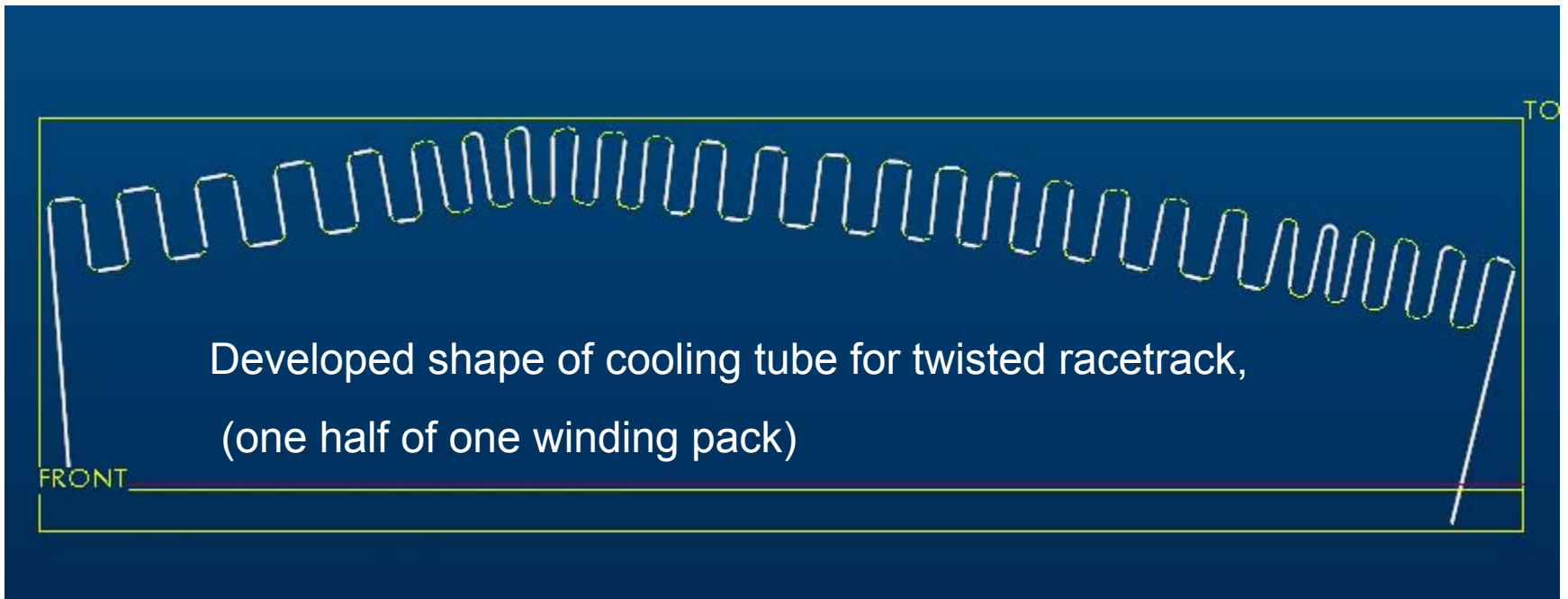
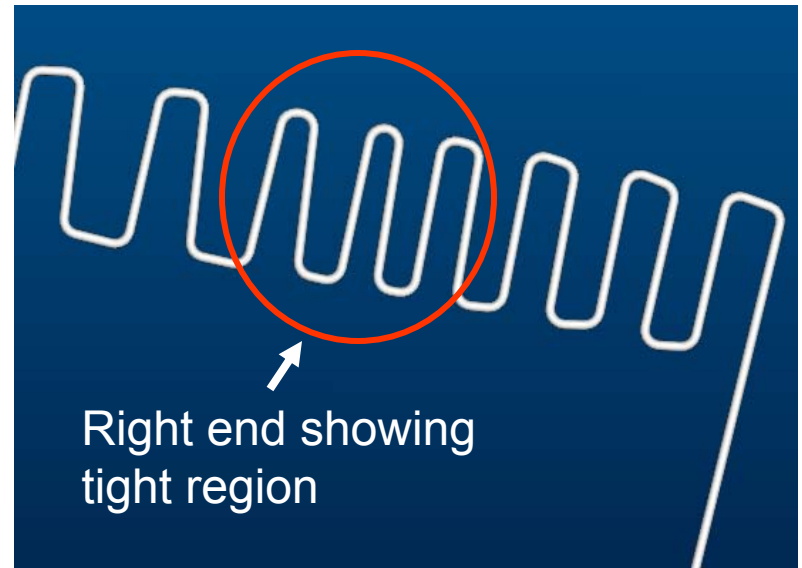
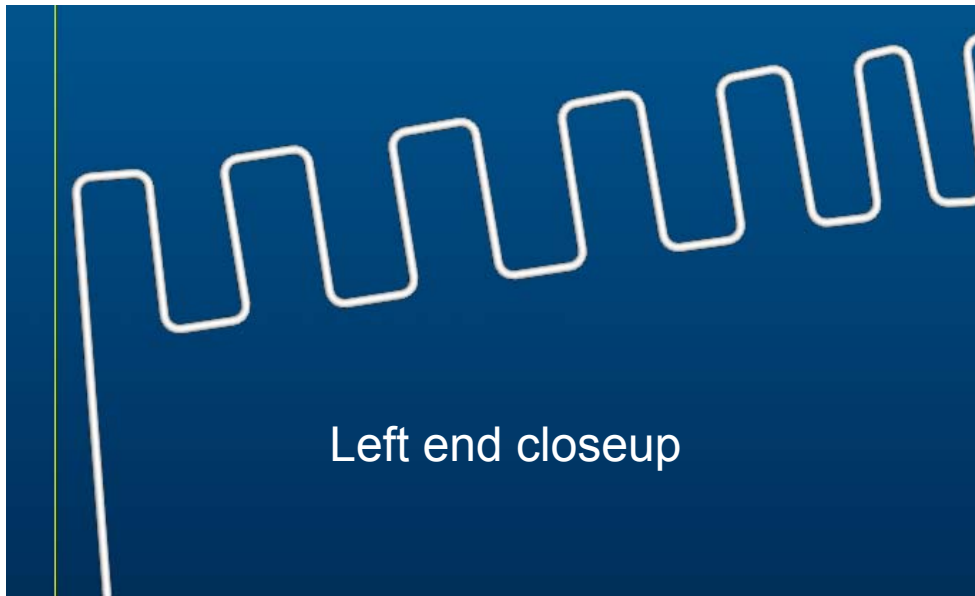


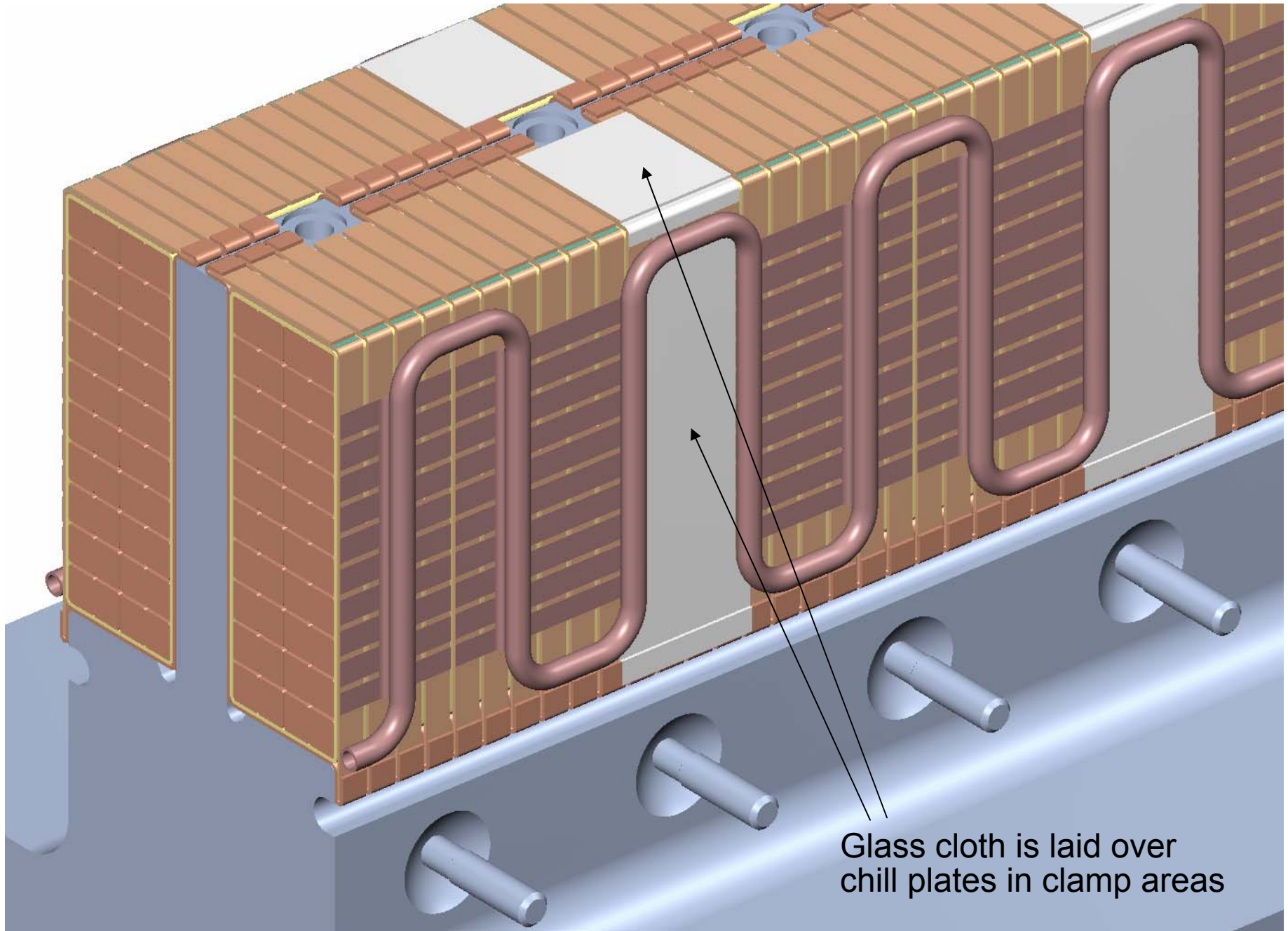
Coolant tubing assembly is fitted to chill plates and secured with adhesive

- Tube and chill plate layout for one side of twisted racetrack

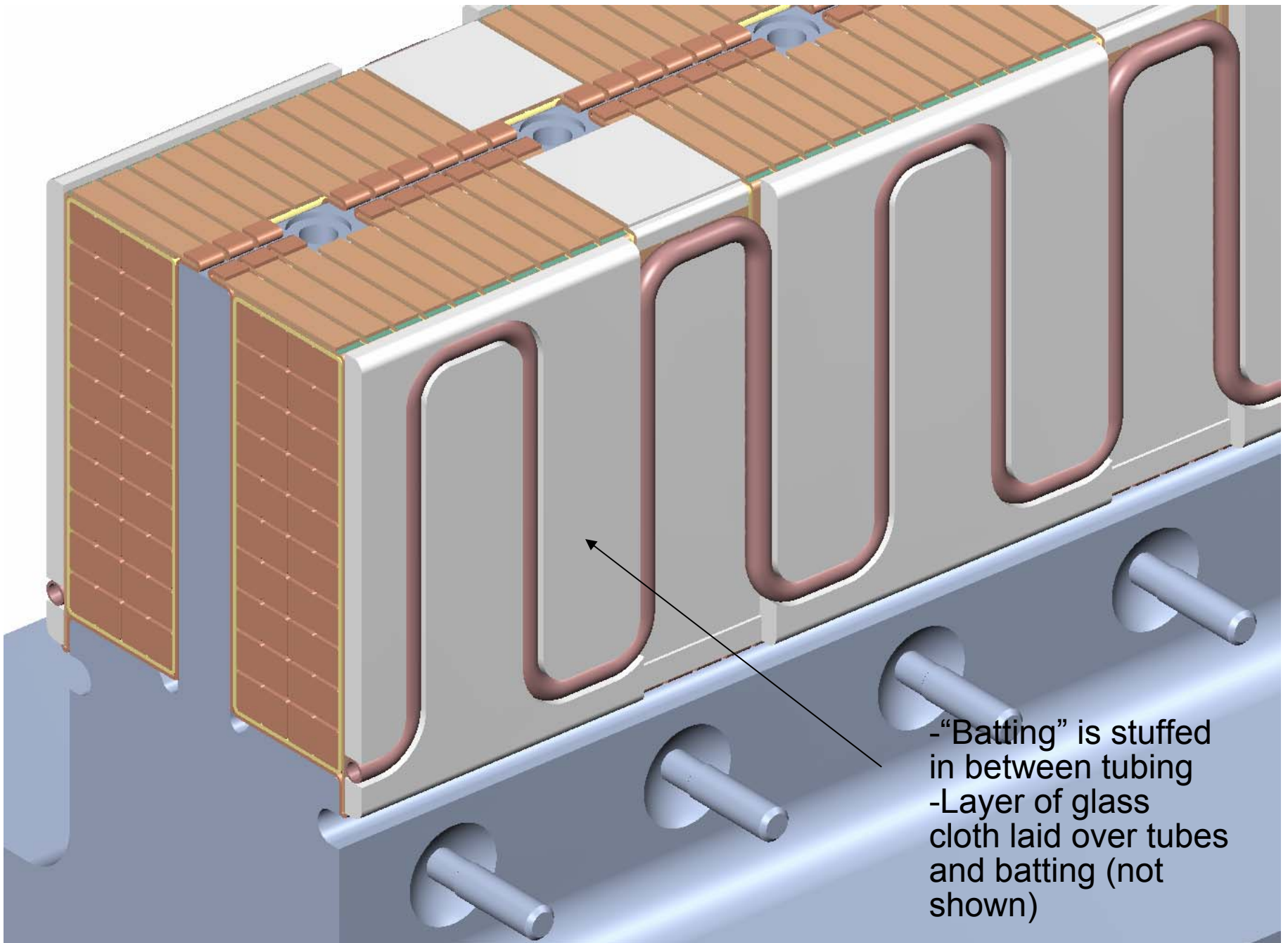
- Flat development made of tube in circled region



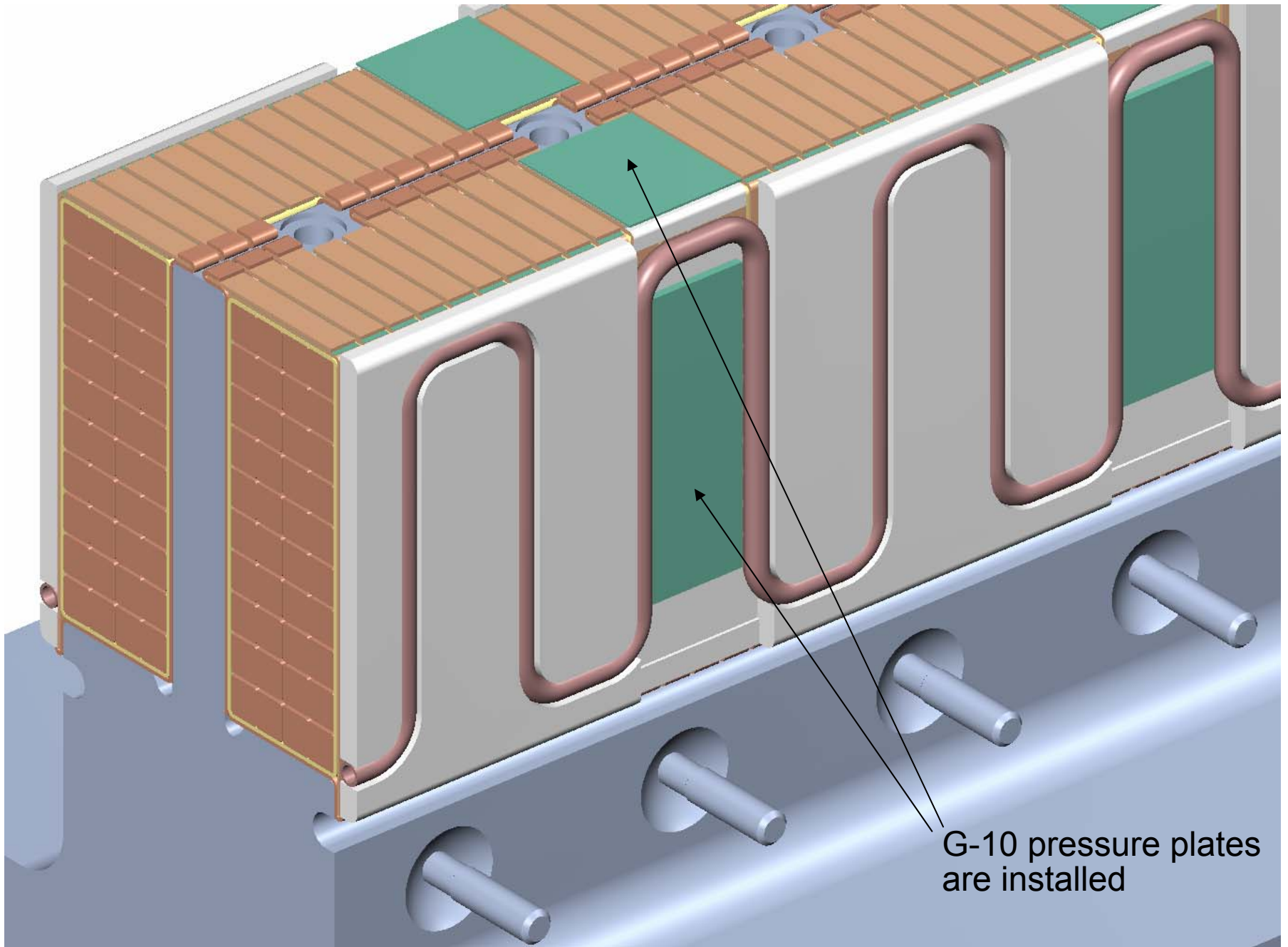




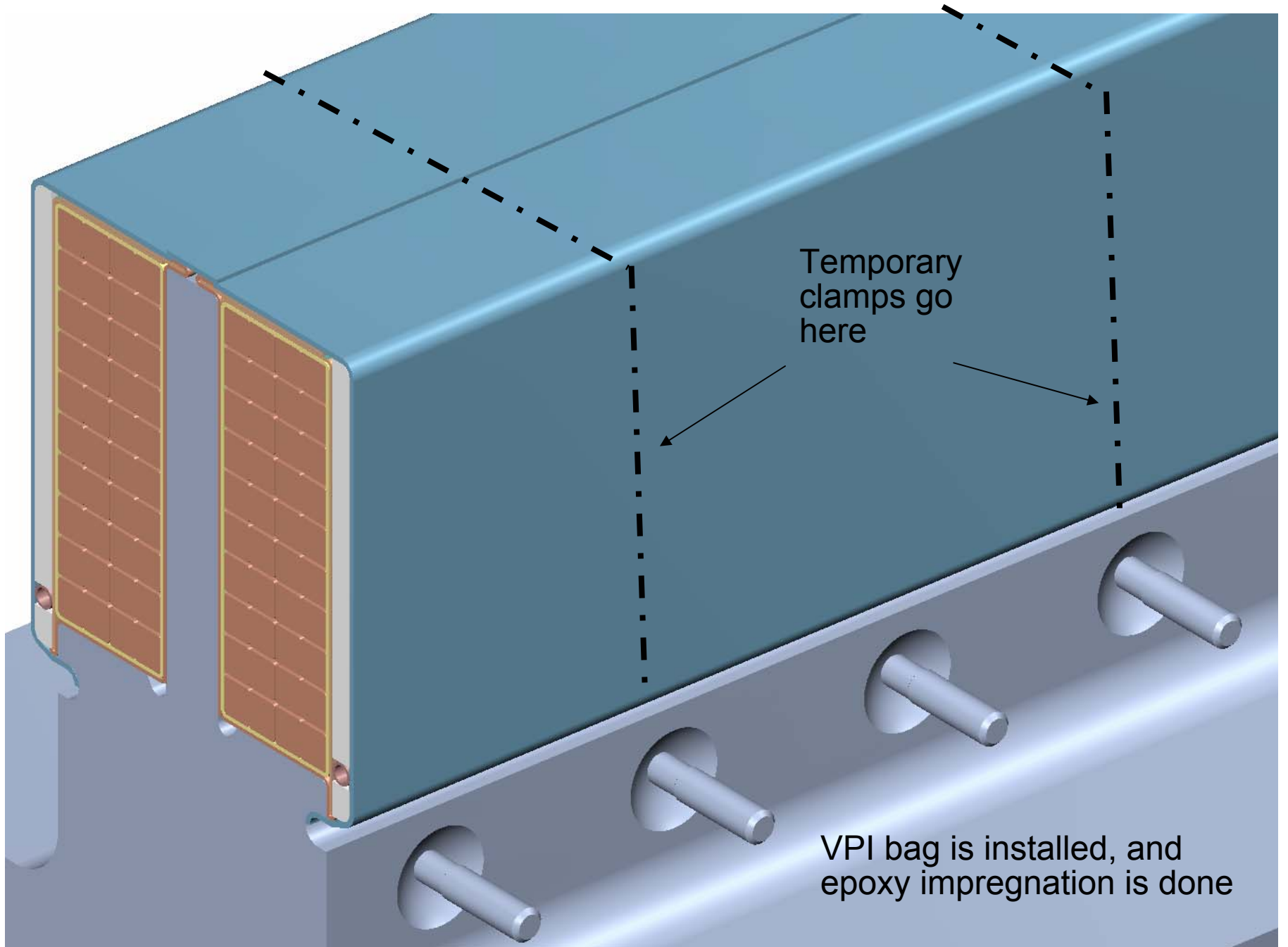
Glass cloth is laid over
chill plates in clamp areas



-“Batting” is stuffed
in between tubing
-Layer of glass
cloth laid over tubes
and batting (not
shown)

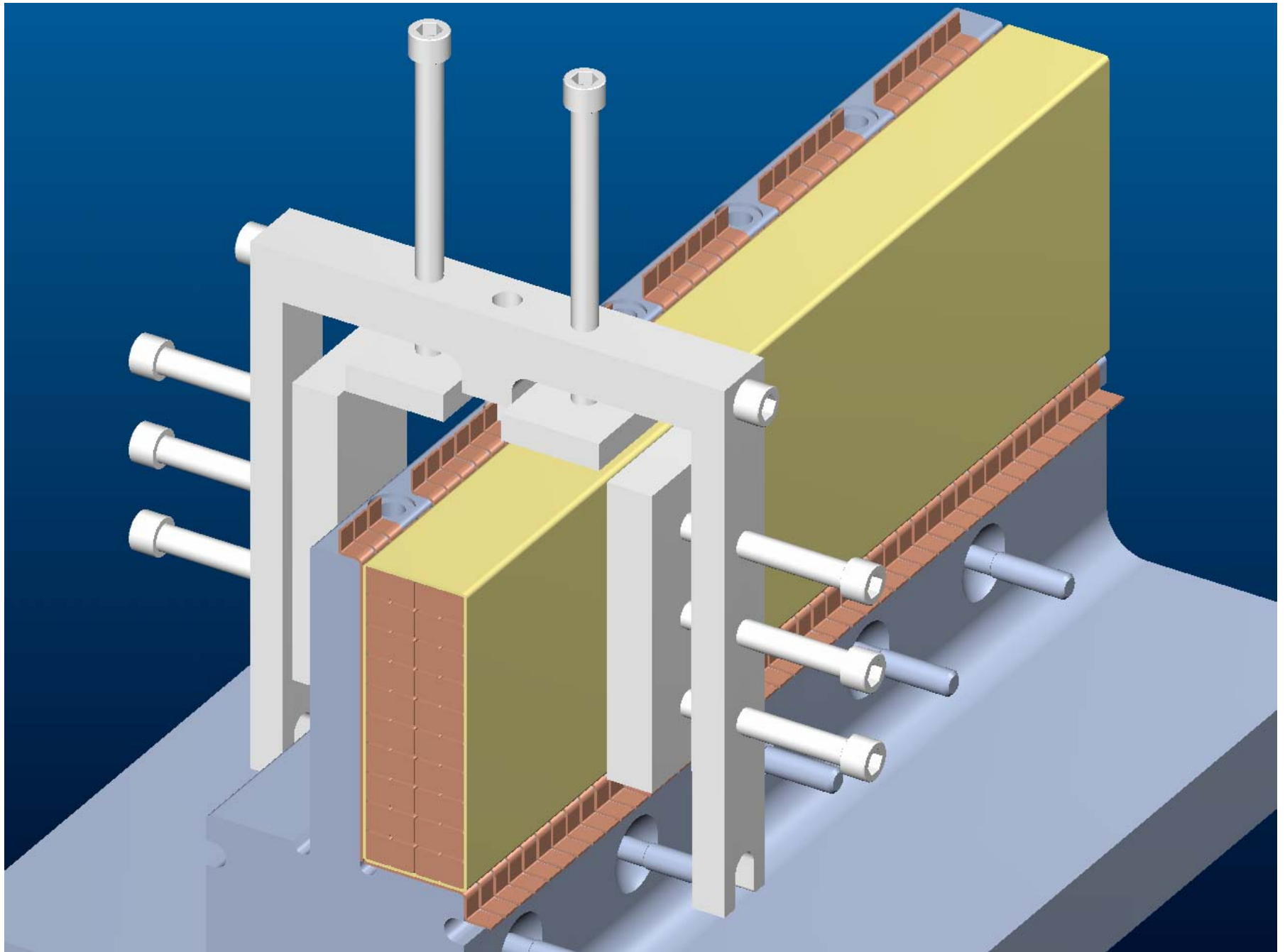


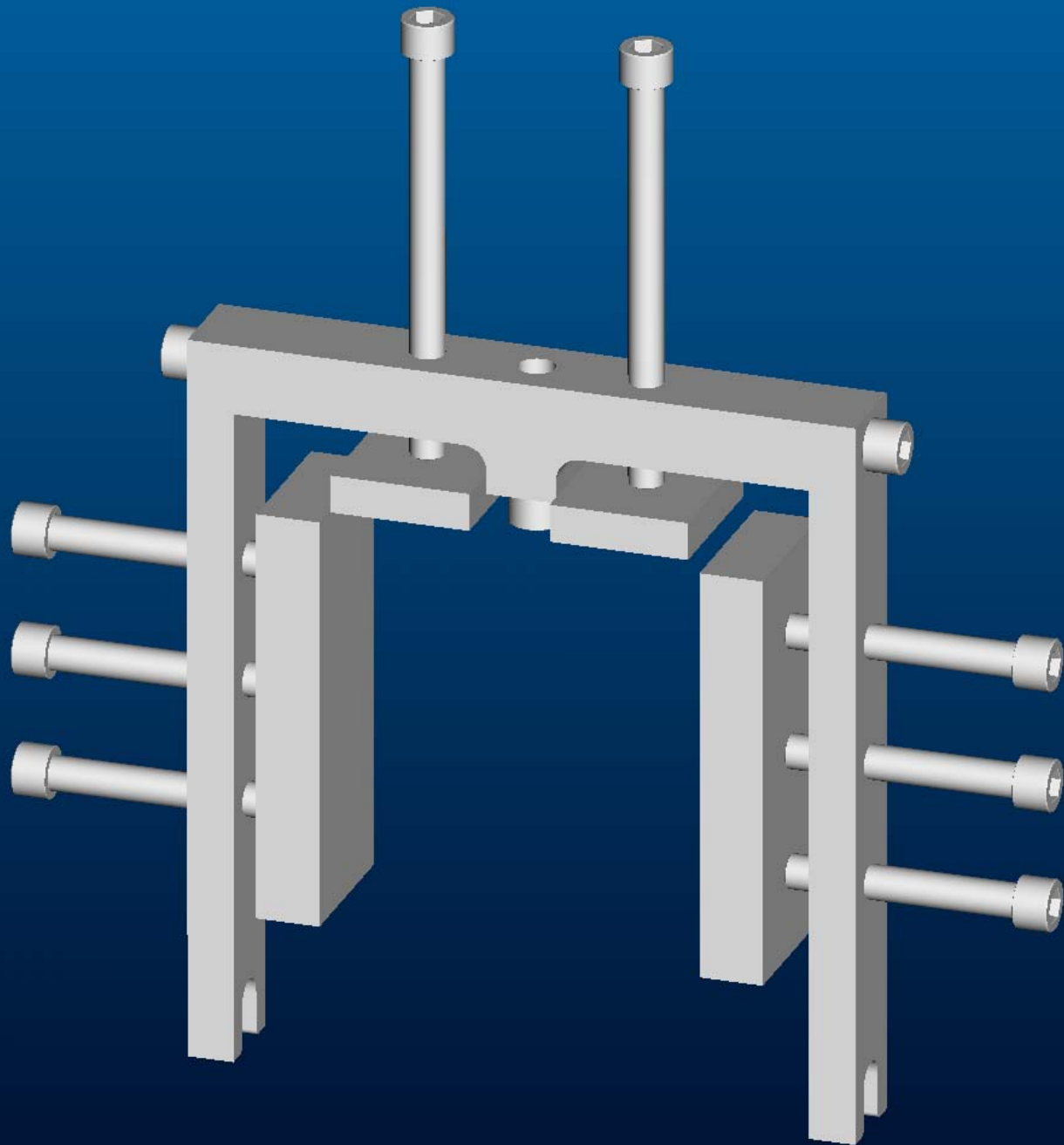
G-10 pressure plates
are installed

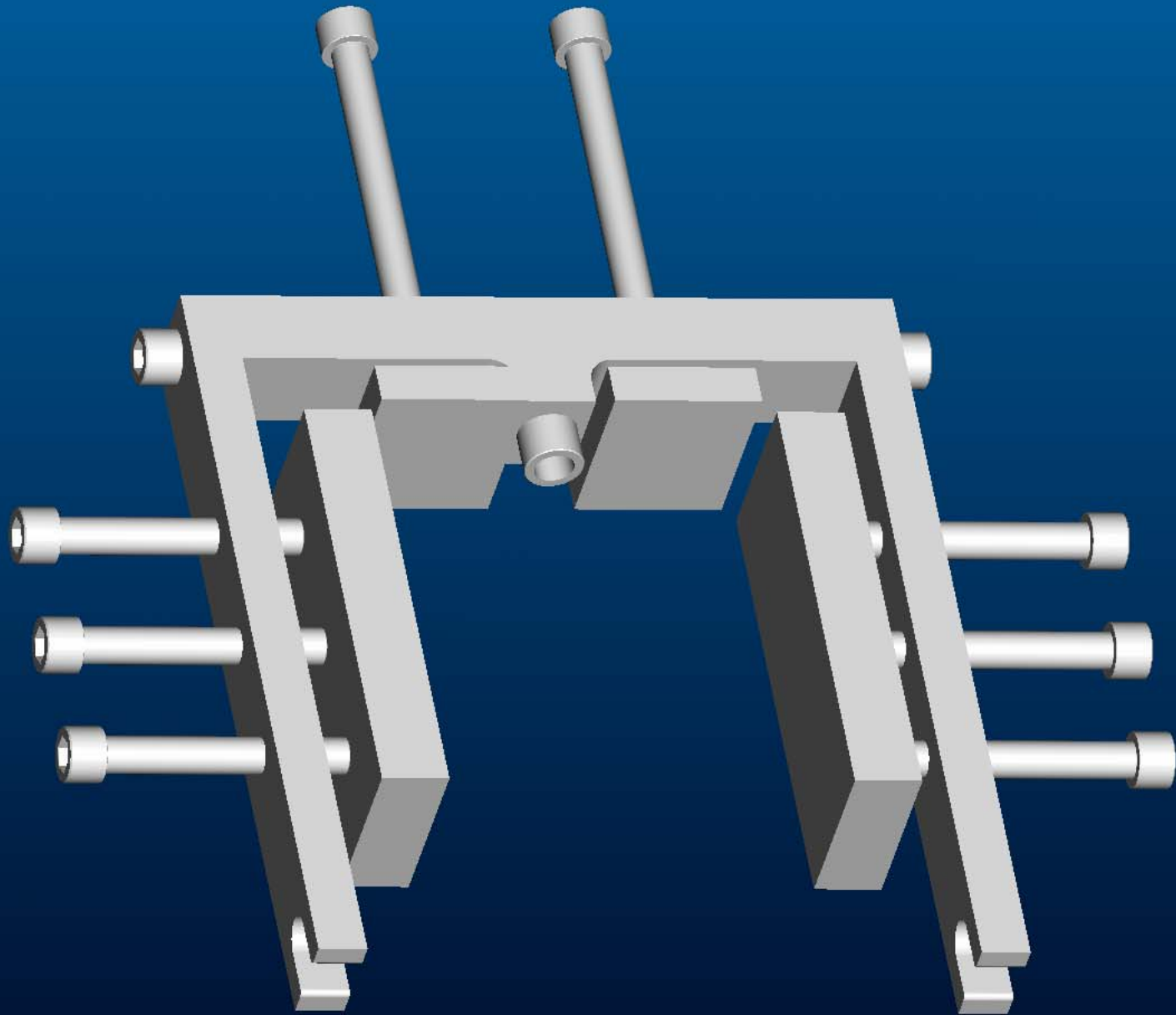


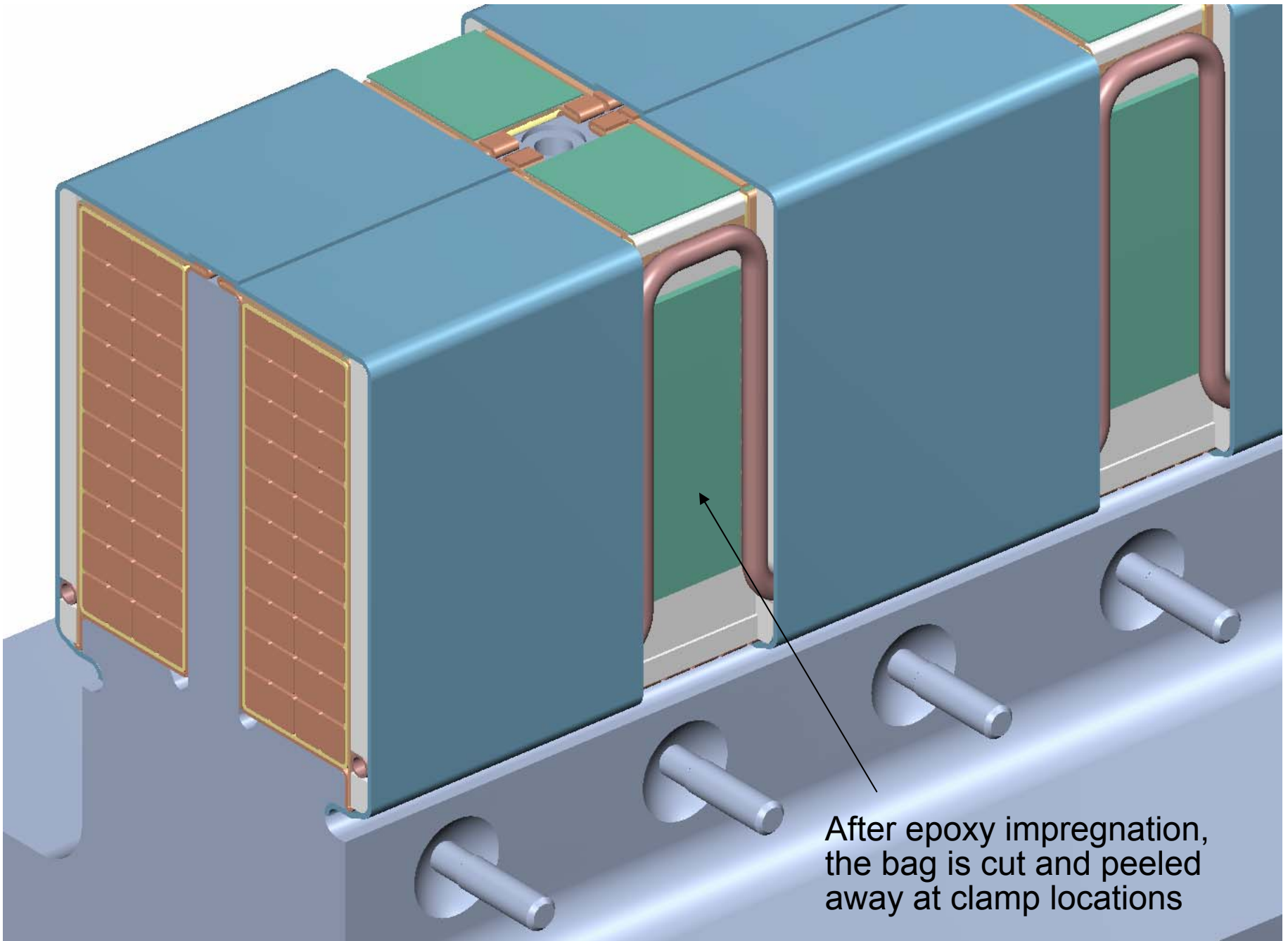
Temporary
clamps go
here

VPI bag is installed, and
epoxy impregnation is done



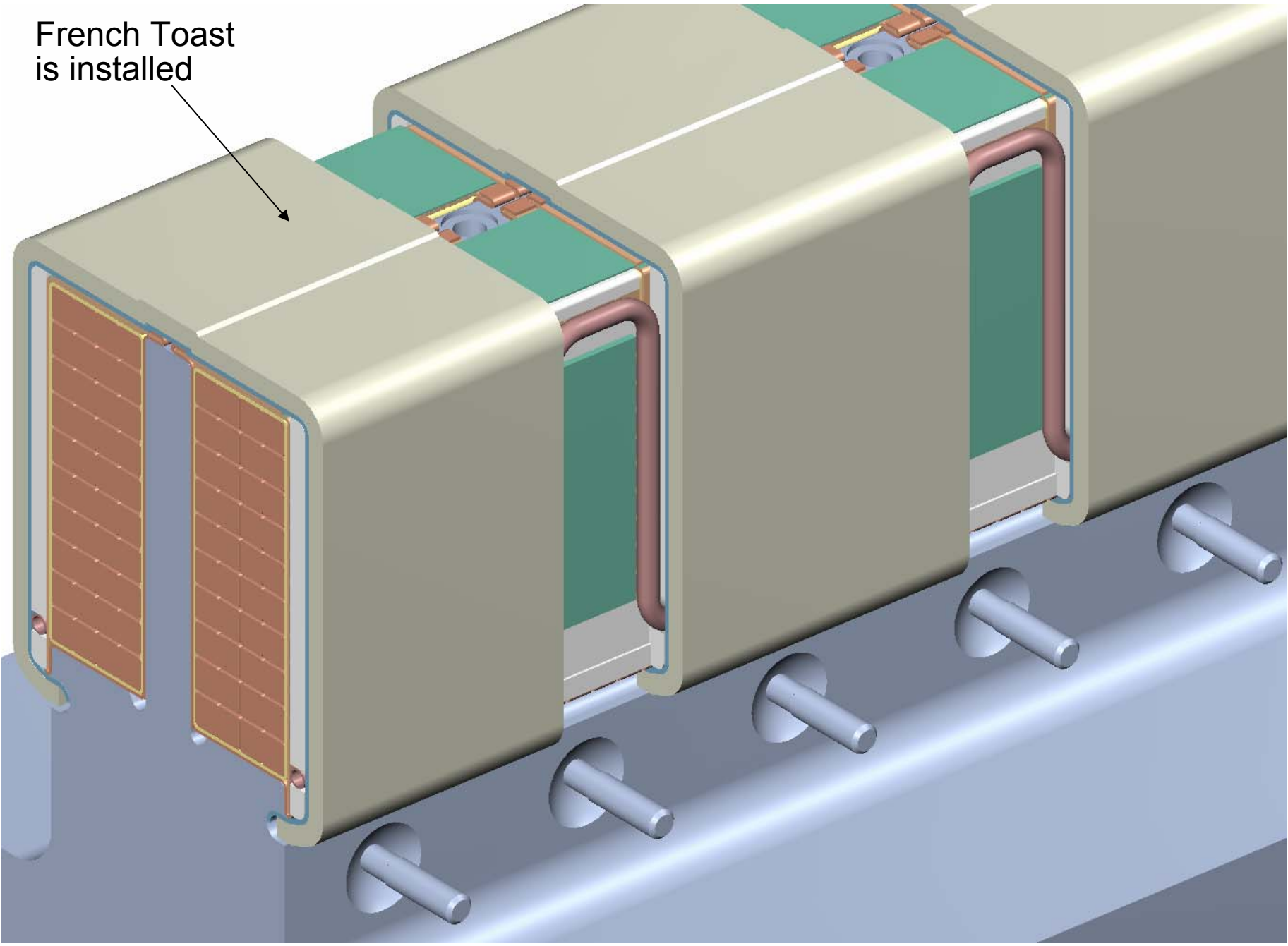




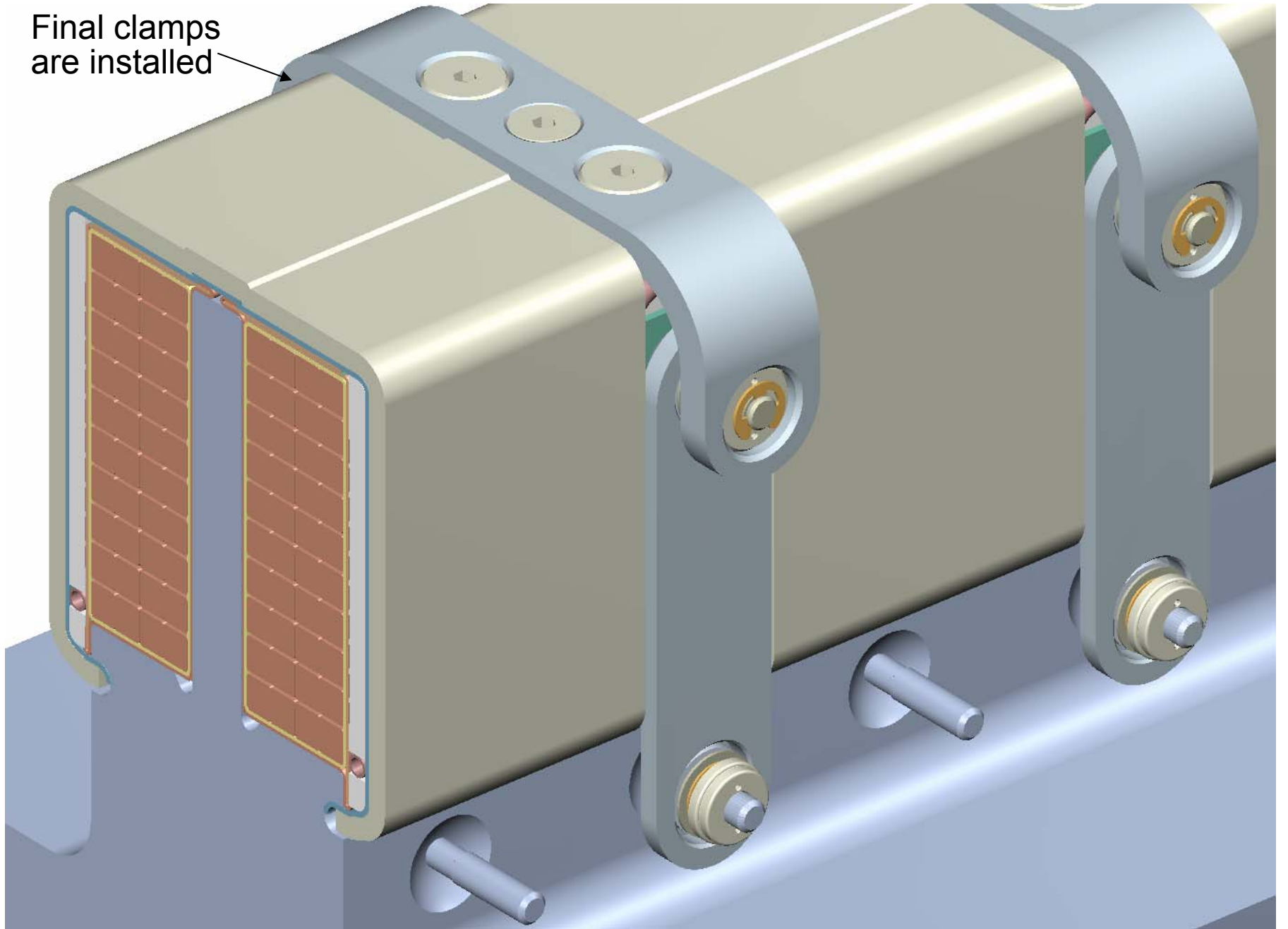


After epoxy impregnation, the bag is cut and peeled away at clamp locations

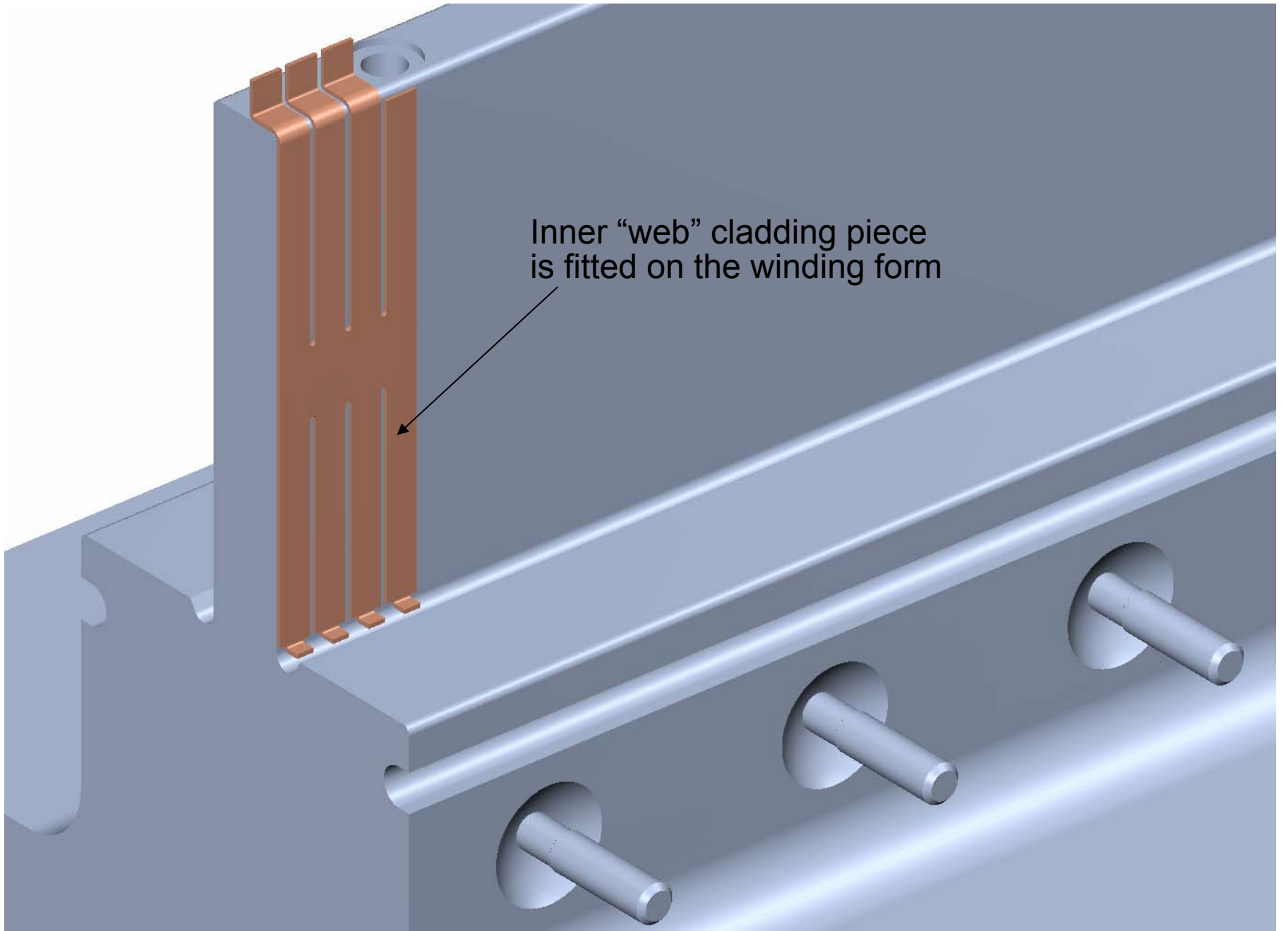
French Toast
is installed



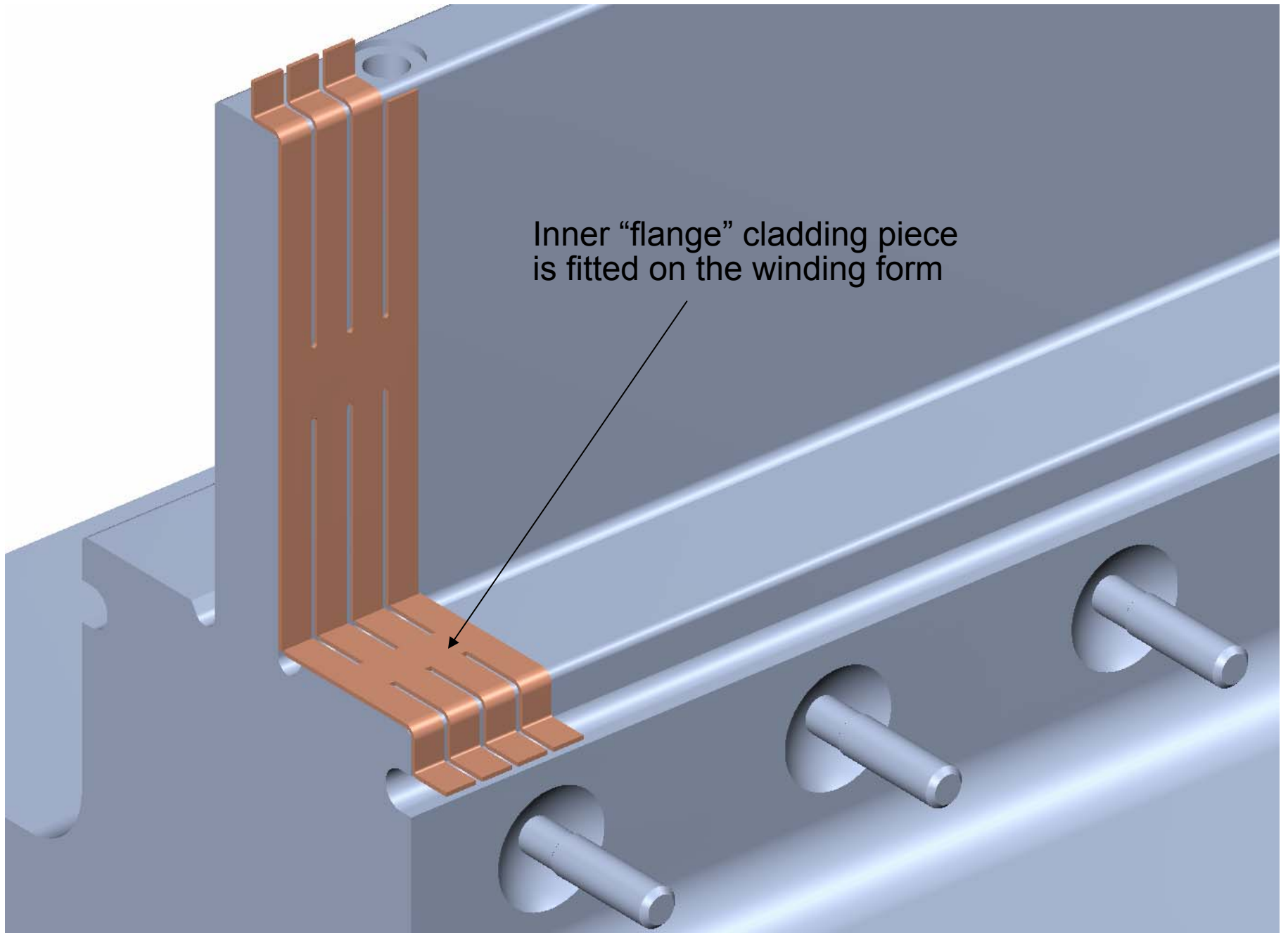
Final clamps are installed



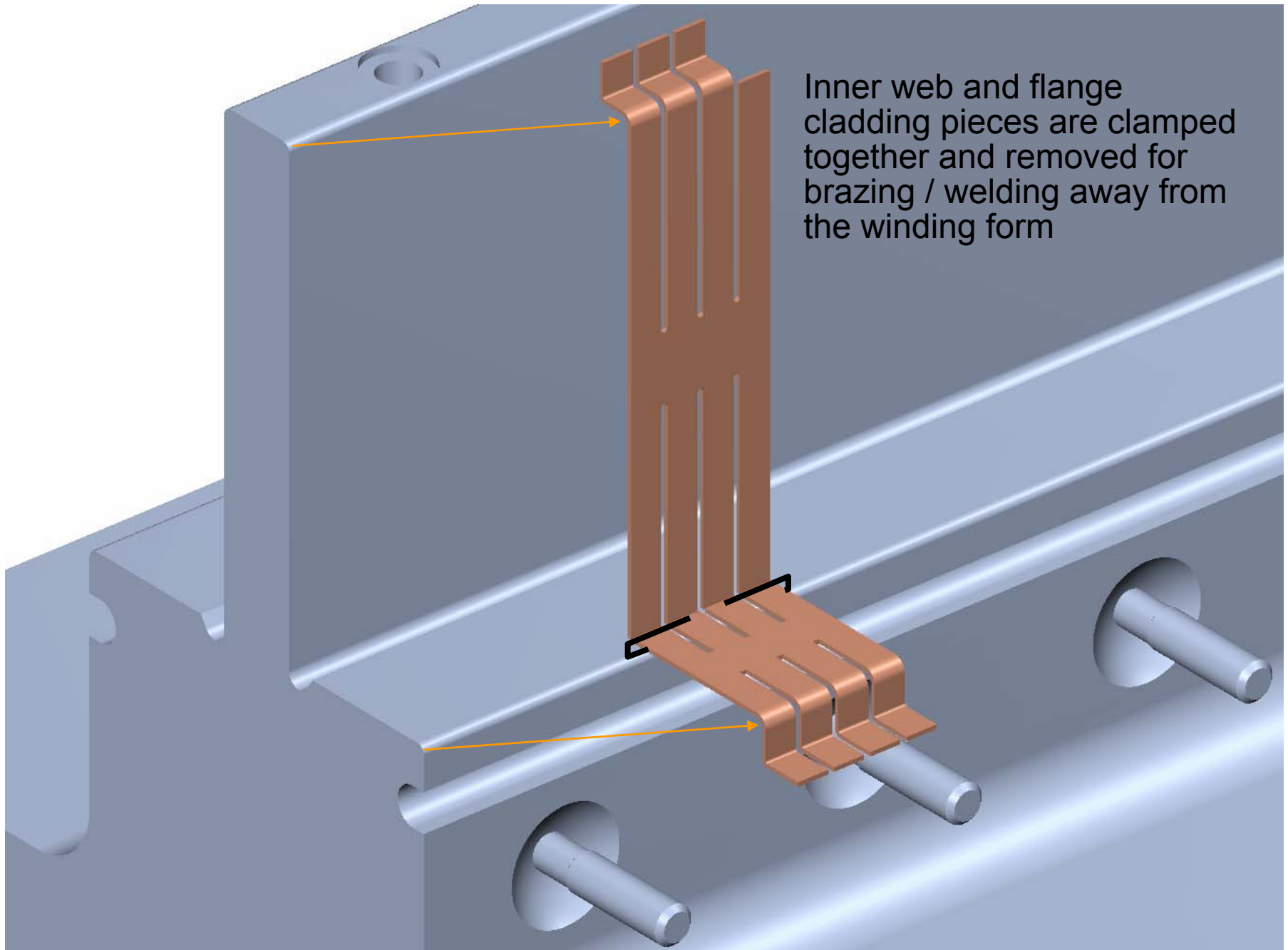
Alternate cladding



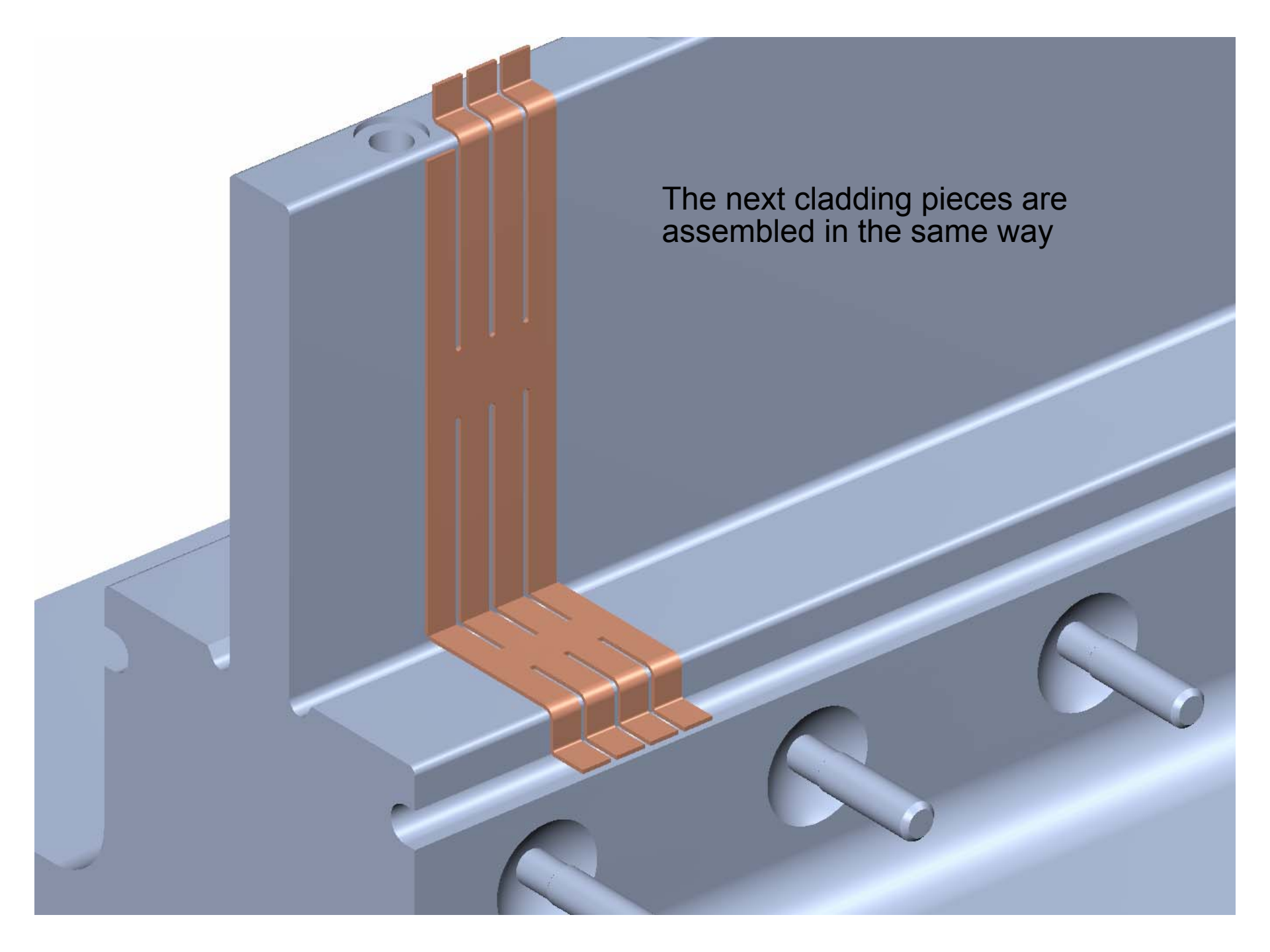
Inner "web" cladding piece
is fitted on the winding form



Inner "flange" cladding piece is fitted on the winding form



Inner web and flange cladding pieces are clamped together and removed for brazing / welding away from the winding form

A 3D CAD model showing a cross-section of a cladding assembly. The assembly consists of a grey metal base with several cylindrical pins protruding from its bottom surface. On top of the base, there are three vertical copper-colored strips. Each strip has a U-shaped cross-section and is held in place by a horizontal copper-colored strip that runs across the top of the three vertical strips. The text "The next cladding pieces are assembled in the same way" is positioned in the upper right area of the image.

The next cladding pieces are assembled in the same way