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Jérémie A. Merlin, PhD

CERN EP-NU

Mail: jeremie.alexandre.merlin@cern.ch

Tel: +41 75 411 26 04

Office: CERN-892/2-B13

CRP Anode weekly meeting

→ **CRP Consortium meeting yesterday:** <https://indico.fnal.gov/event/71763/>

- Discussed all tests performed with various options
- Conclusions:
 - Option A with 3M tape dropped because of technical concerns
 - Option C dropped because of incompatible schedule
 - **Option A' with prepreg is the new baseline**
 - Maintain the possibility of splitting between A' and B in case of concern with hole alignment between segments
 - Proposal to meet again in 2 weeks to discuss past studies on transparency vs. hole alignment and recent CRP8 results

Proposal 1

Option A'
(100%)

→ Last validation tests with company still required (7-8 weeks)

Proposal 2

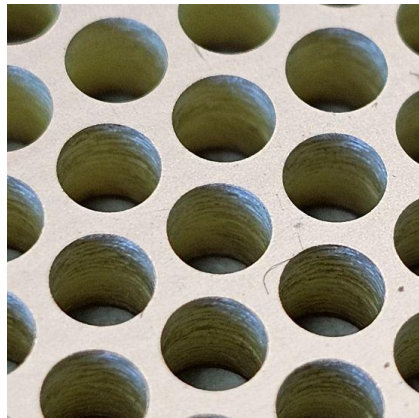
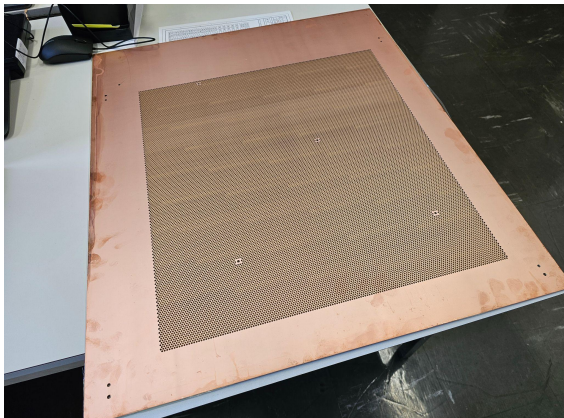
Option A' (collection) + Option B (Shield)
(50%/50%)

→ To ensure electron transparency (hole alignment)

Option A with prepreg:

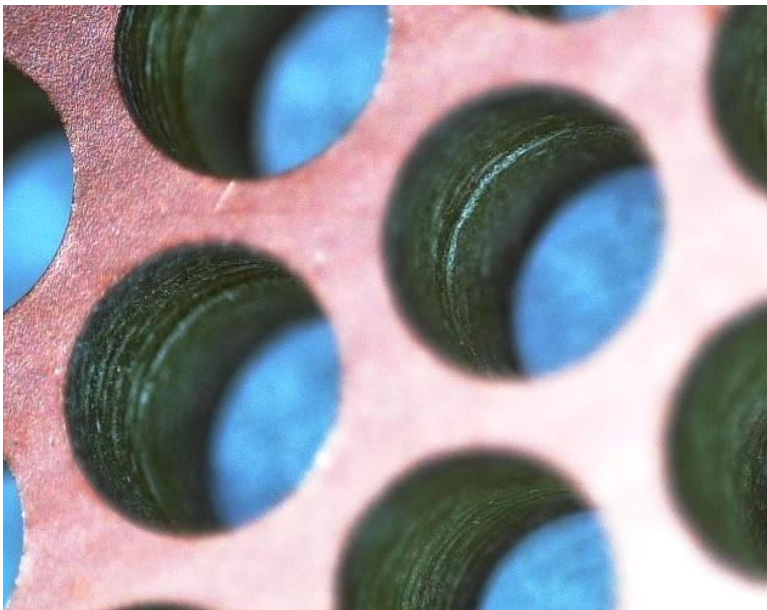
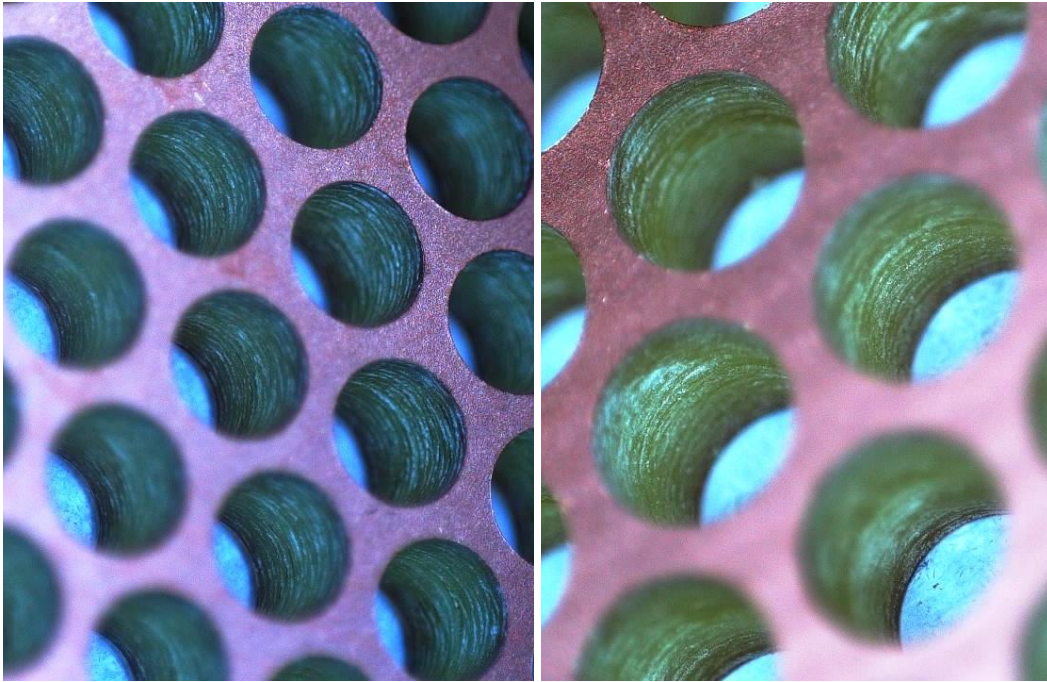
New 60x60 prototype produced

→ **this time with proper alignment of the two layers**





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→ In some places: very slight excess of resin (probably $<20\text{ }\mu\text{m}$), could be mitigated by slightly reducing the lamination pressure.



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Used parameters:

- Prepreg : **EM-37B(L) 106 RC72/FL20-60**
- Temperature/pressure for the pre-glueing:
 - 100 °C @ 10 bar for 5 minutes
 - 105 °C @ 10 bar for 15 minutes
- Temperature/pressure for the final lamination:
 - 105 °C @ 5 bar 20 minutes
 - 198 °C @ 10 bar 110 minutes

→ These parameters together with the 60x60 design files will be shared with PCB companies to get their feedback and start making test panels.

Option B:

Prototype production

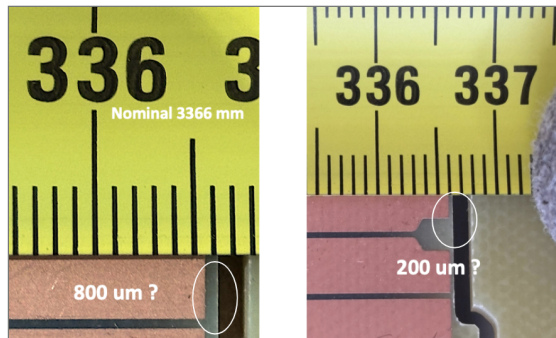
→ Pressing and milling (MDT):

- Completed, both anodes are ready for shipment to Impex
 - Some issues with the preparation of the segments for lamination and with the milling step (see previous report) → should not be a problem for the drilling company
 - Still waiting for the approval of the orders to both Impex and MDT before making the special transport request (to be resolved before end of this week)

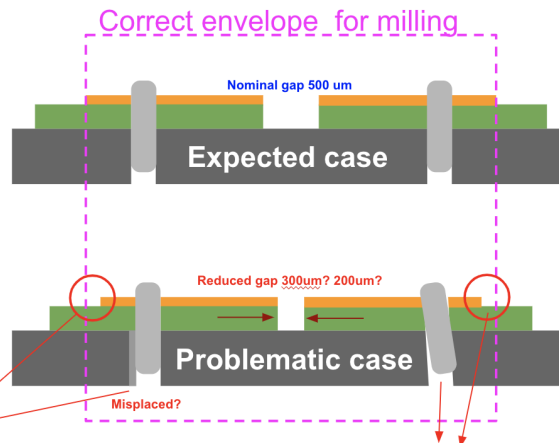
→ Autoclave and milling:

- Full-size tests:
 - German Composite sent an updated quote including the milling at subcontractor
 - Milling quite expensive (5.1 kEUR per panel) and might not be necessary
 - Full size mold still at MDT → asked German Composite if they can produce the new version in carbon fiber

Interesting improvement solutions



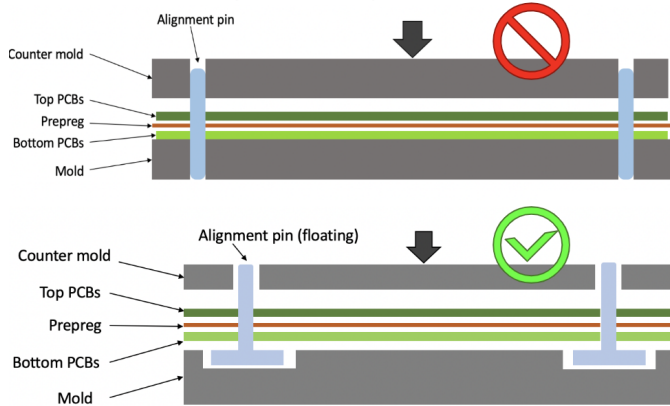
Shifted Segments because of misplaced alignment holes in the molds



Shifted Segments because of deformed/bent/tilted guiding pins

Improve the Lamination

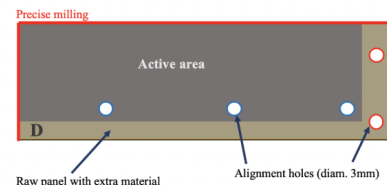
Change of mold concept to have floating alignment pins → PCB segments align with each others



New mold/pins designs ready and in production

Improve the Milling

Removal of the technical edge (same as option A), no more milling required on the full-size anodes



Bonus: implement pre-glued prepreg at the PCB production step (to speed up the lamination step)

→ **High speed drilling (Impex):**

- Revised cost (-22%) → total for 700 panels 1.75M EUR

Anode QC at CERN:

→ QC table components delivered to CERN on Monday, now waiting for the special transport to 185 (large dimensions)



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Others:

- ⊕ Anode shipment to CRP factories :
 - [Design work has started](#)
 - Factories and compliance office will be consulted during the design process
- ⊕ Mass production (draft) schedule:
 - Current schedule : [link](#)
- ⊕ Labelling and DB : **no news**

Other actions items: