



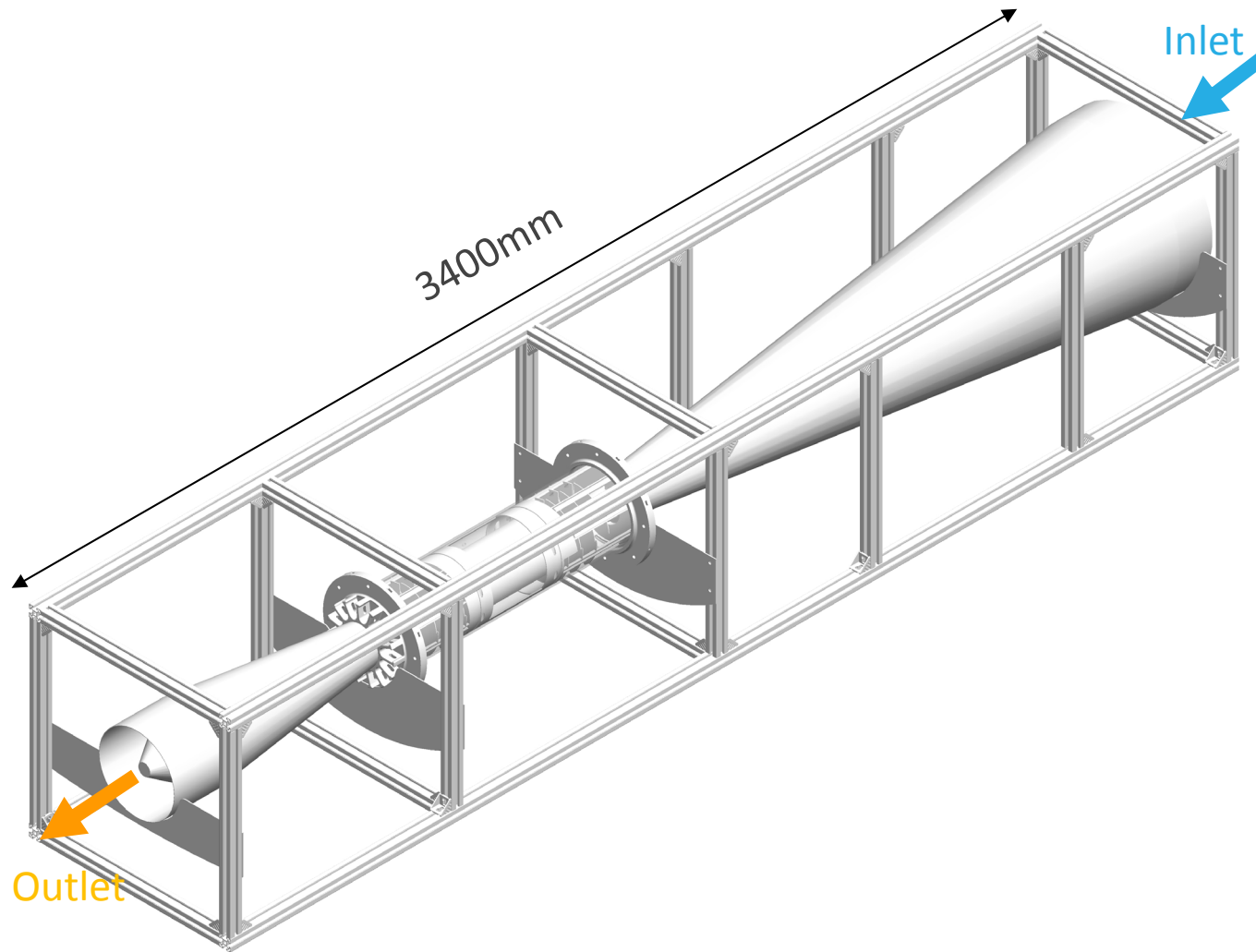
WG4 meeting

Update on the new thermal mockup

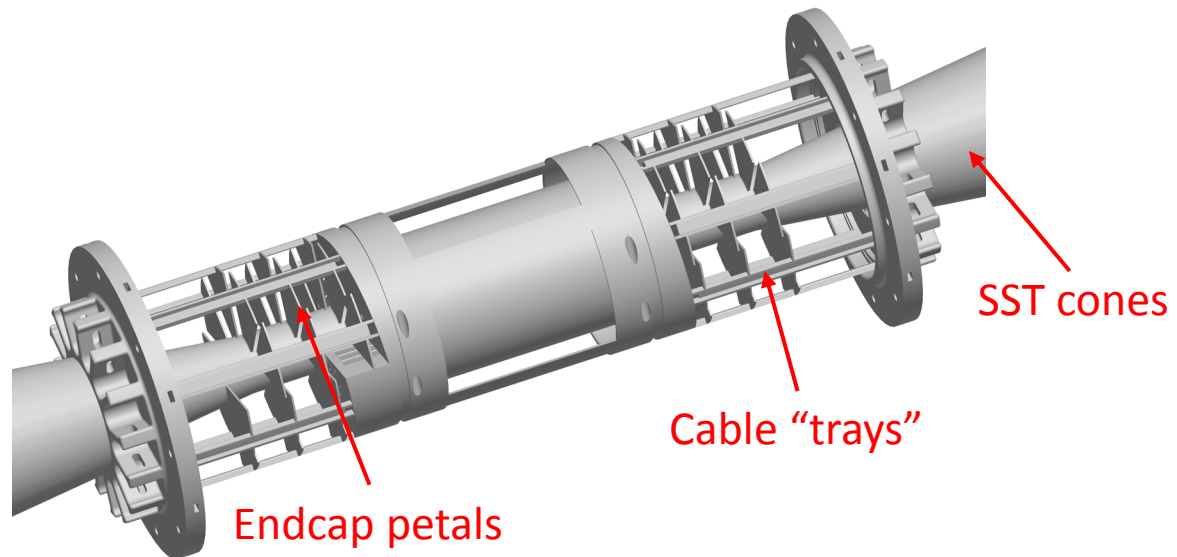
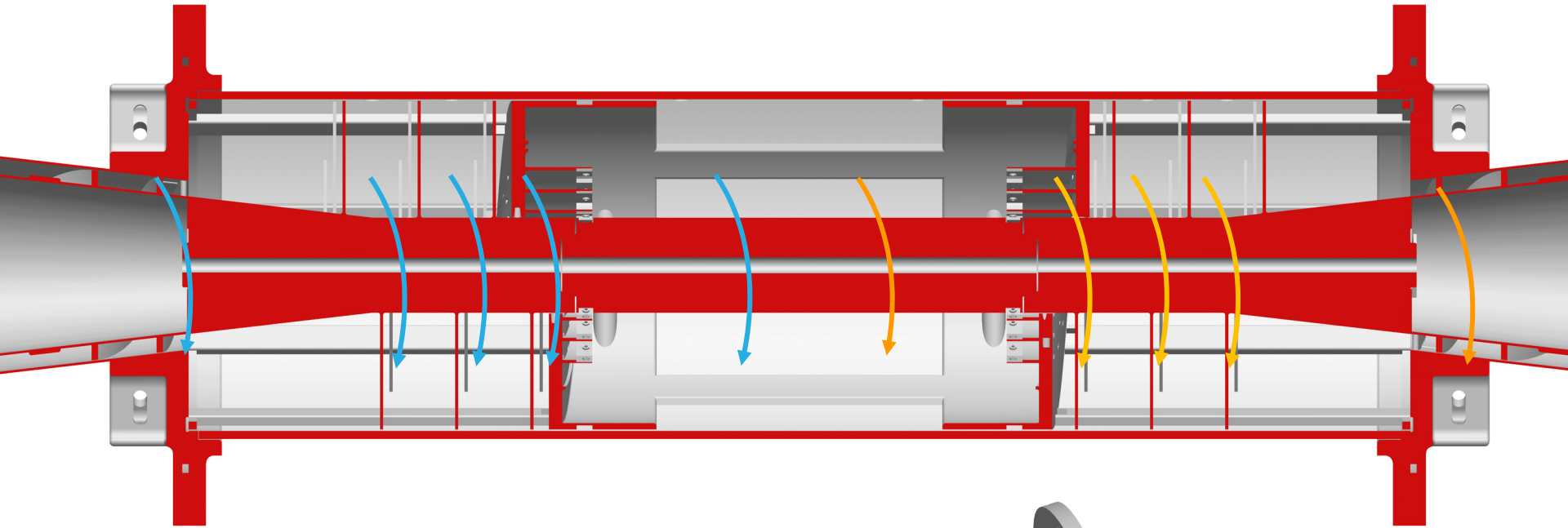
F. Duarte Ramos, F-X Nuiiry, W. Klempt

October 23, 2014

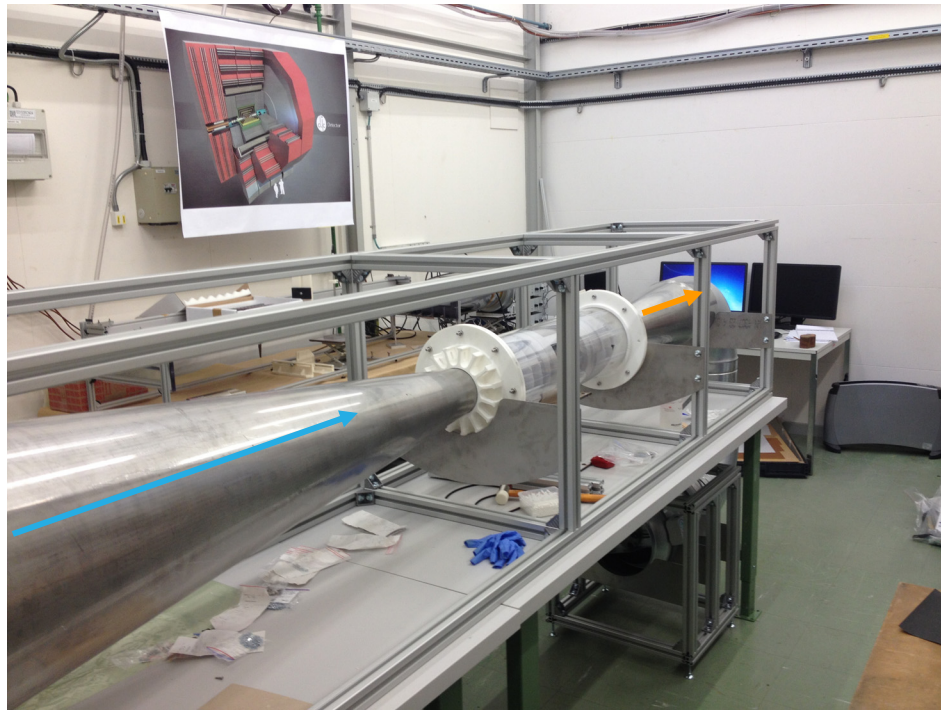
1:1 scale thermal test bench



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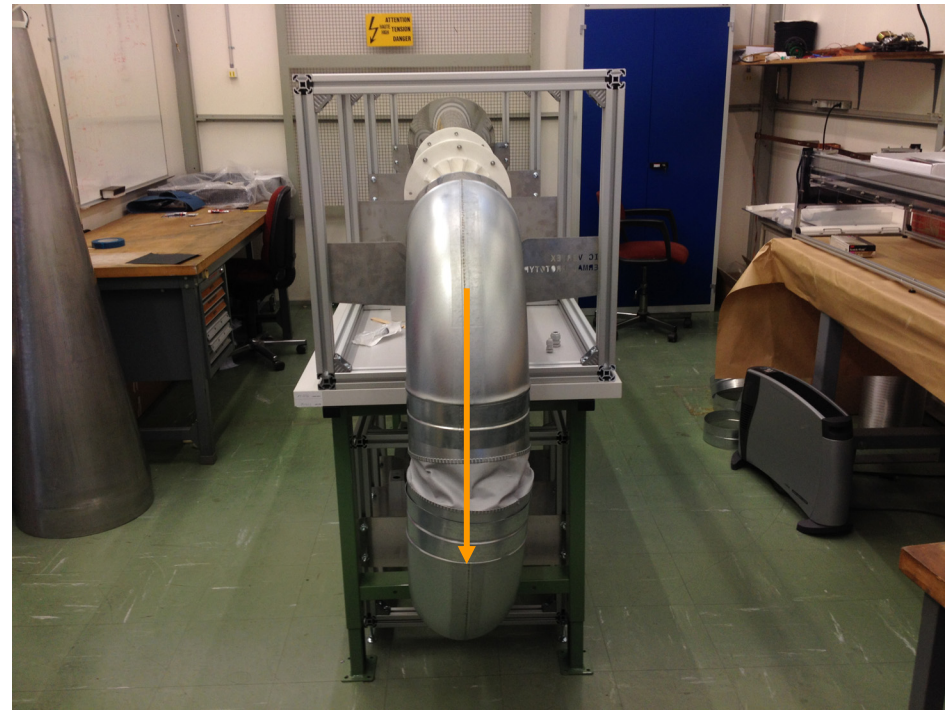


Status



Received:

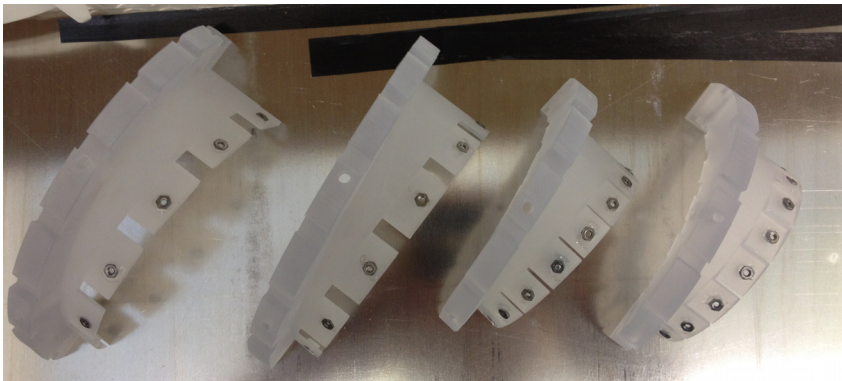
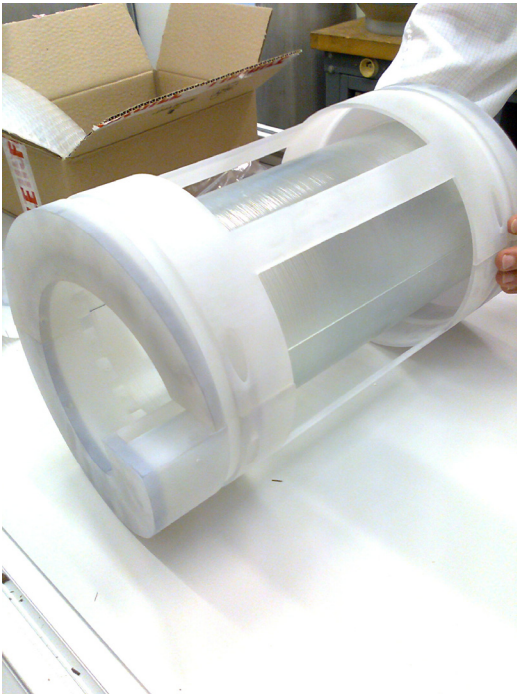
- Support frame
- SST cones
- Waterjet cut plates
- PMMA tube
- 3D printed parts
- Dummy staves
- Ventilators & ductwork



Still missing:

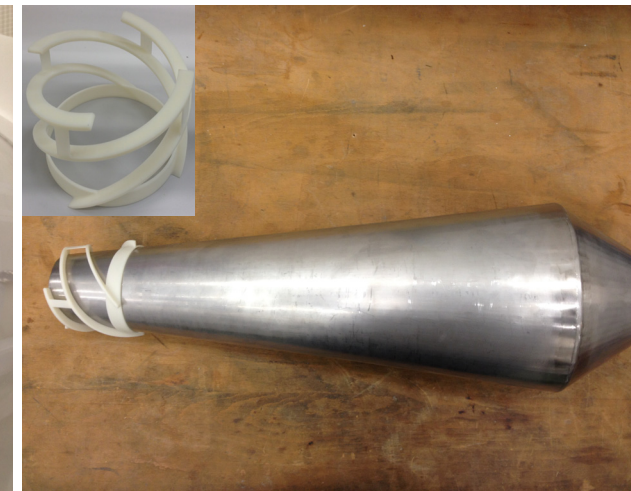
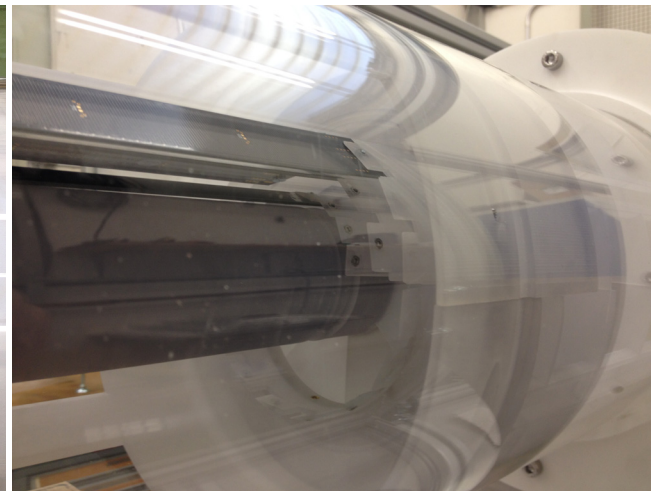
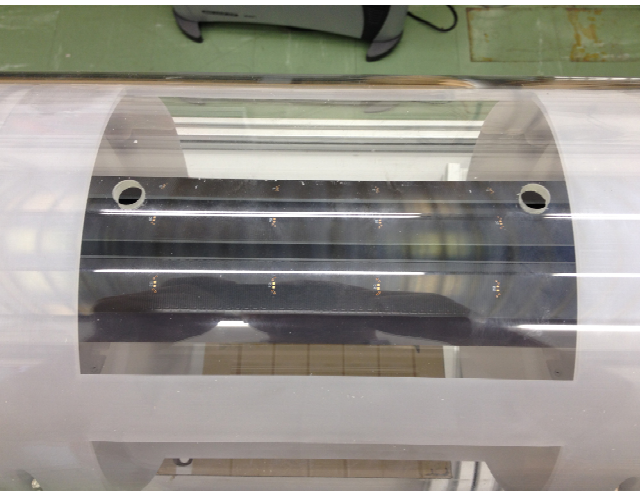
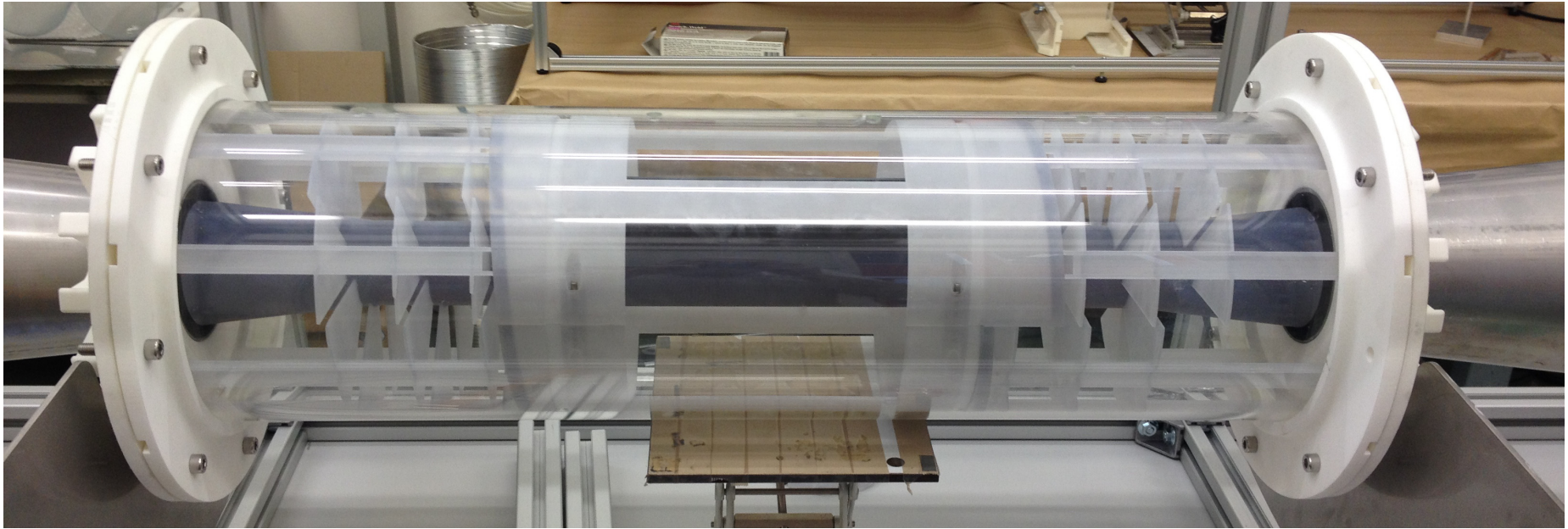
- DAQ

3D printed parts



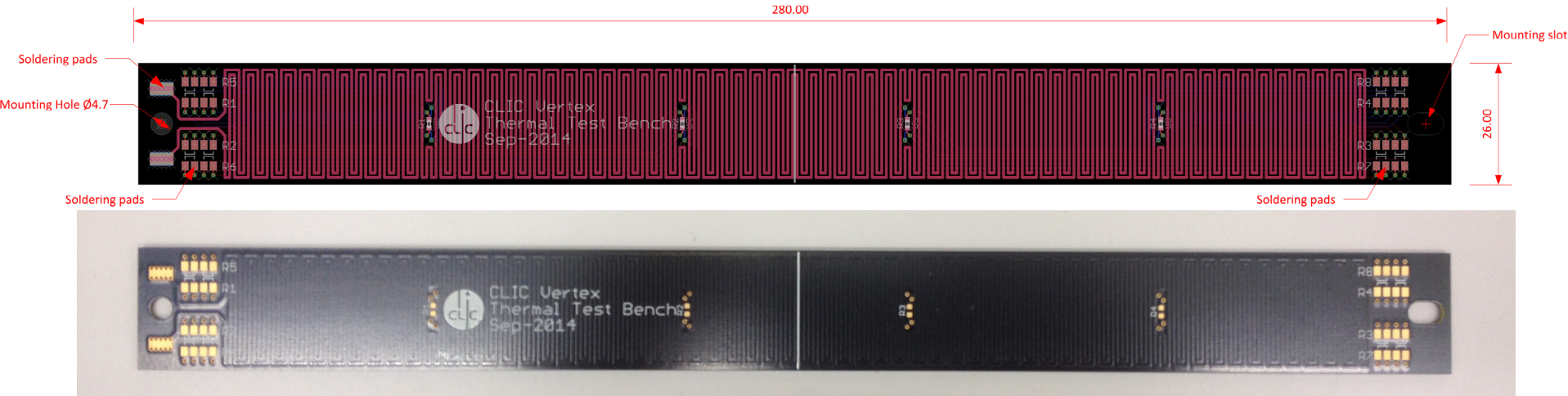
- The endcap blocks arrived broken (new ones are on their way);
- **Everything fits!**

Assembly

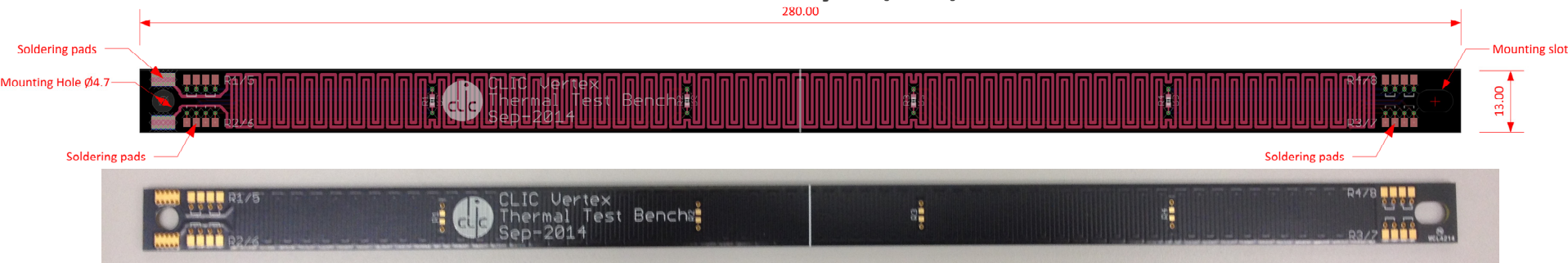


Dummy staves

Middle and outer barrel layers (x28)

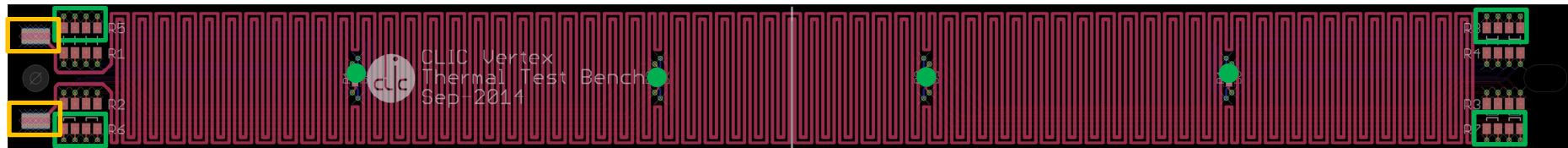


Inner barrel layer (x16)

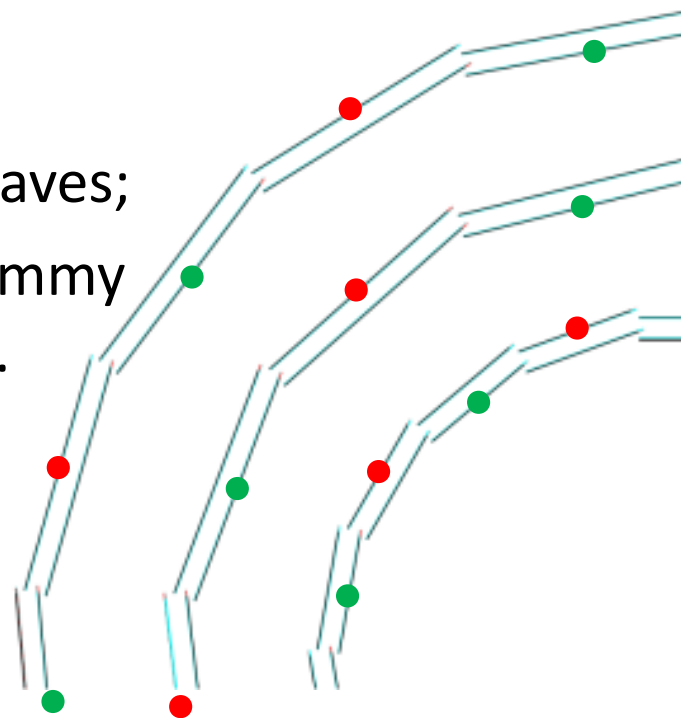


We ordered about twice as many staves in order to choose the ones with matching resistances

Barrel temperature measurement



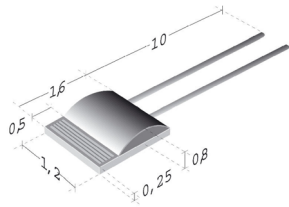
- 4 PT100 per stave (either on the top or bottom faces);
- Total of 176 PT100 to be installed;
- 704 30AWG wires;
- Currently looking into the assembly of the staves;
- We plan to include a few “more realistic” dummy staves – production will start soon (F. Boyer).



DAQ

NI cDAQ-9188

IST PT1000



Schmidt SS 20.400
anemometer



NI TB-4357
Front Mount
Terminal Block



20x
PT100

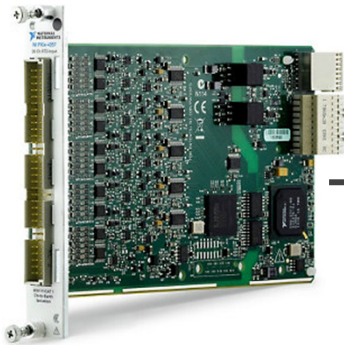
20x
PT100

20x
PT100

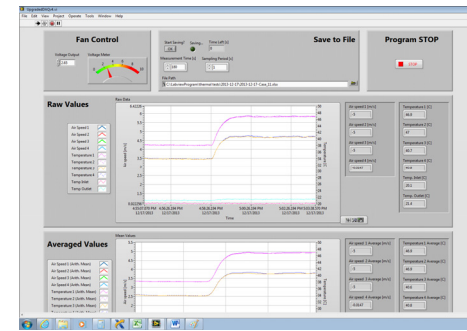
...

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NI PXIe-4357
20 Ch, 24-Bit, RTD
Input Module



NI PXIe-1073
5-Slot 3U PXI
Express Chassis



Ventilator

Systemair K 250 EC

Requirements (from the CFD models):

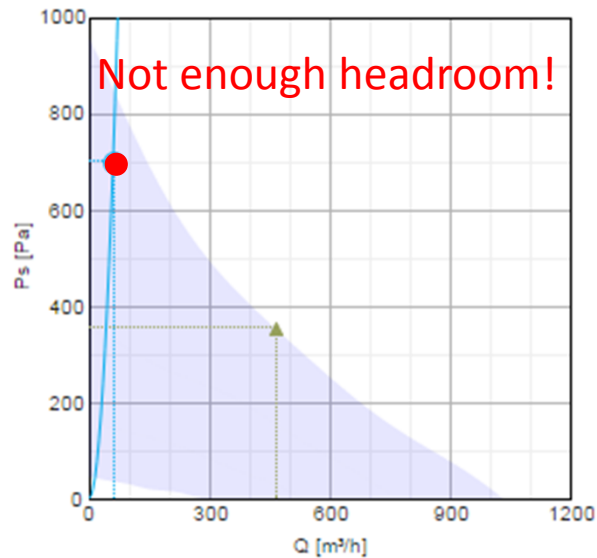
$$P_{\text{static}} \approx 700 \text{ Pa}$$

$$V \approx 60 \text{ m}^3/\text{h}$$

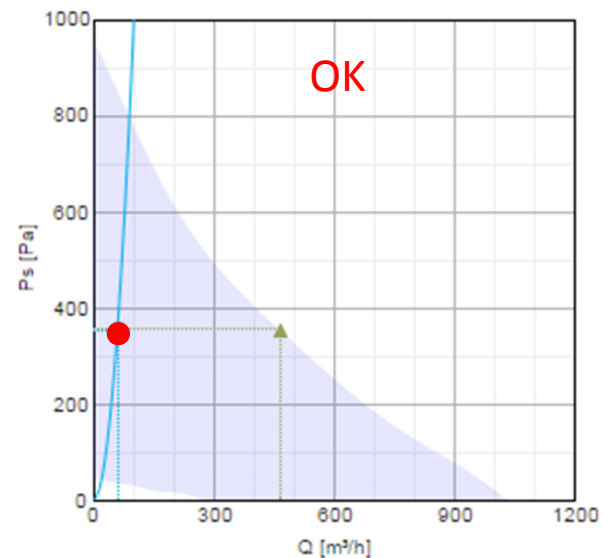
But very optimistic!!



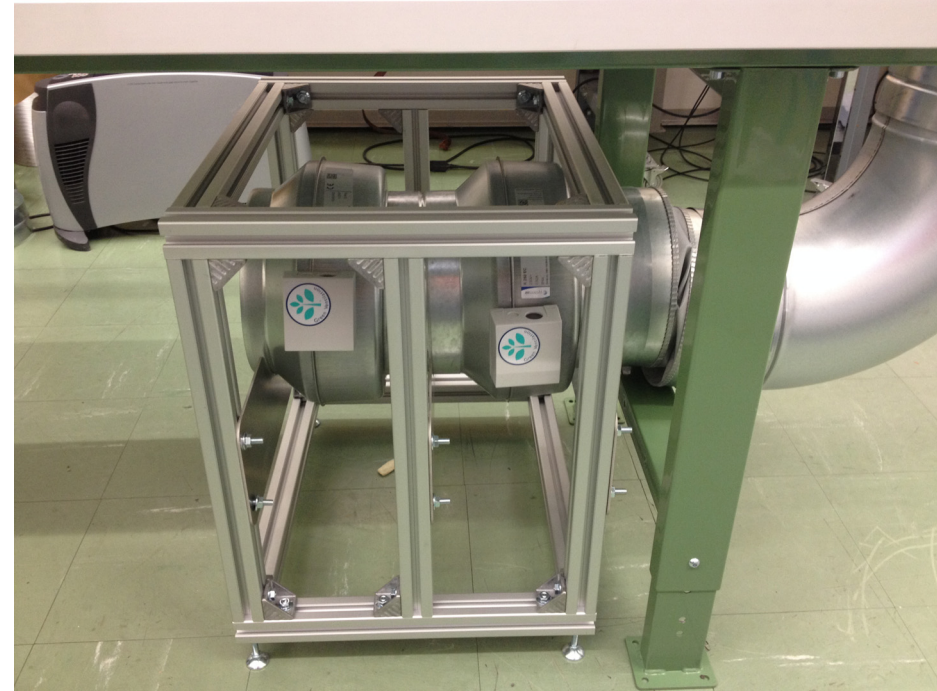
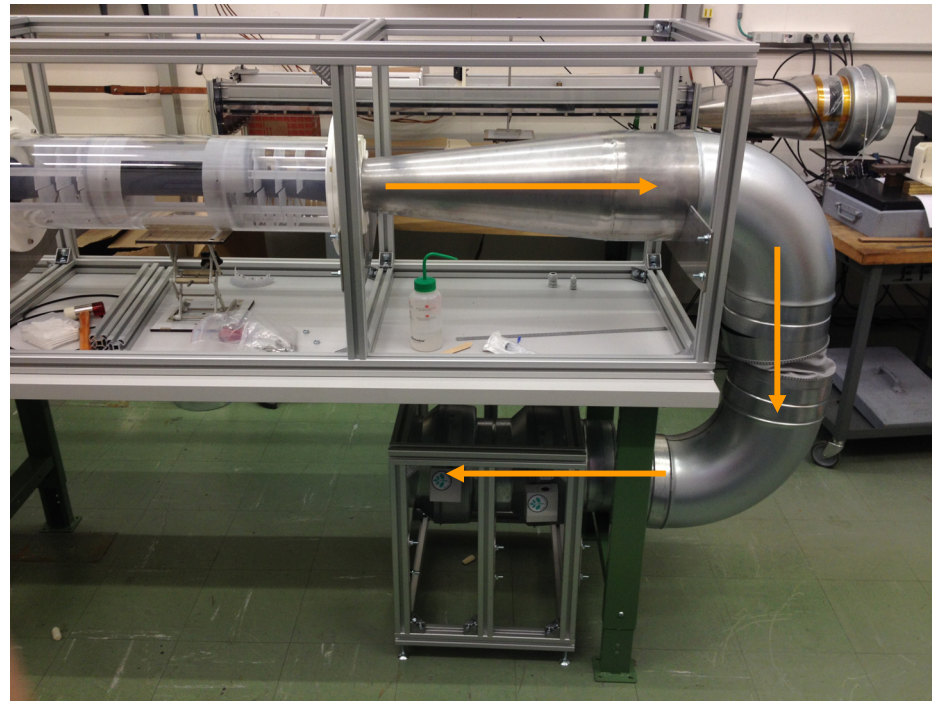
1 ventilator only



2 ventilators in series



Ventilators & ductwork



*Possible to add a third ventilator if needed