

3. Baking setup

3.1 Frame

The bakeout frame should be assembled first. It has been cut into many pieces to aid installation, Davide knows how the frame goes together. It looks like you have all the pieces from the image you sent. The copper bottom section should be used on the turbo side and this has to rest on the bottom VAT valve. The regular aluminium bottom section should go on the interaction chamber section, the bottom should rest nicely between the rails. Make sure the vacuum pipe and turbo power cable are above the frame.

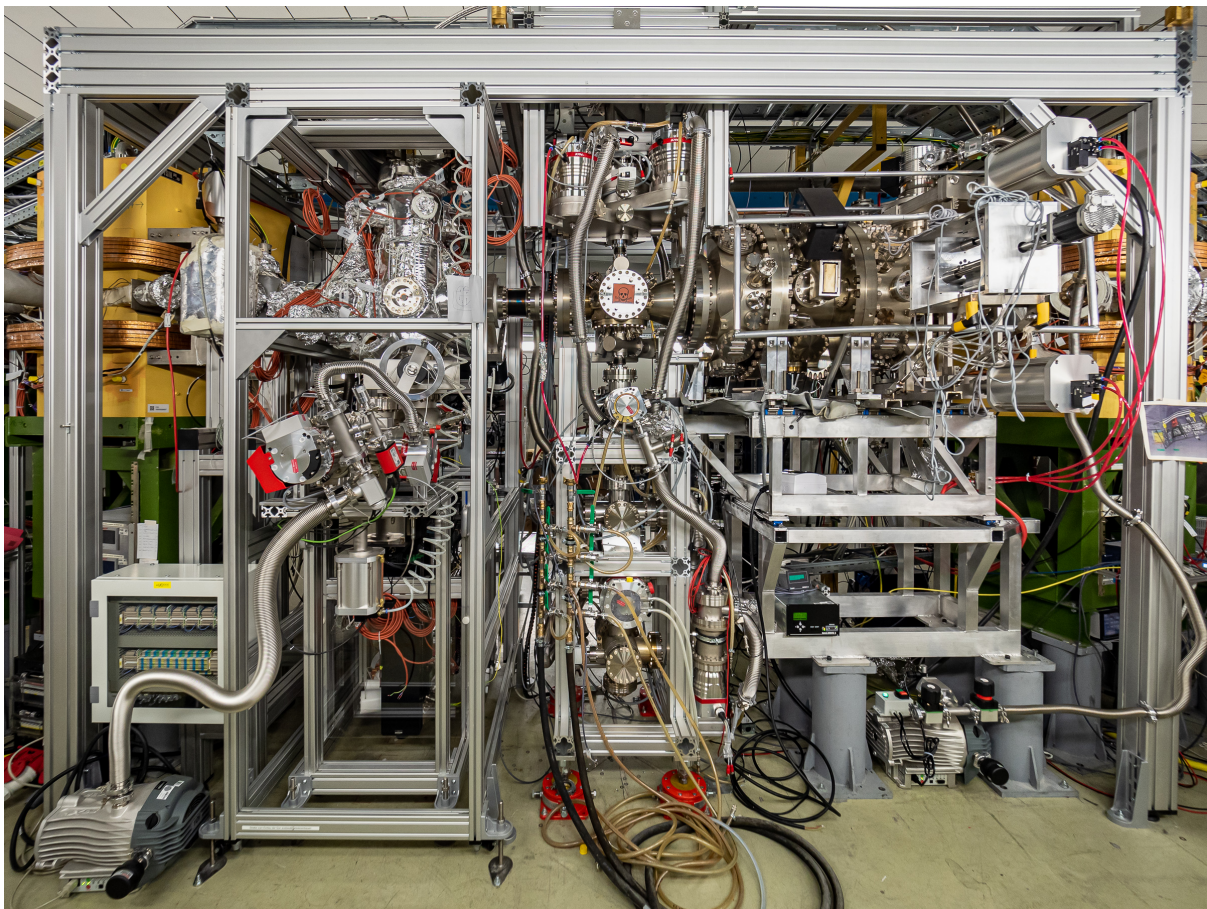


Figure 3.1

3.2 Shelf sections

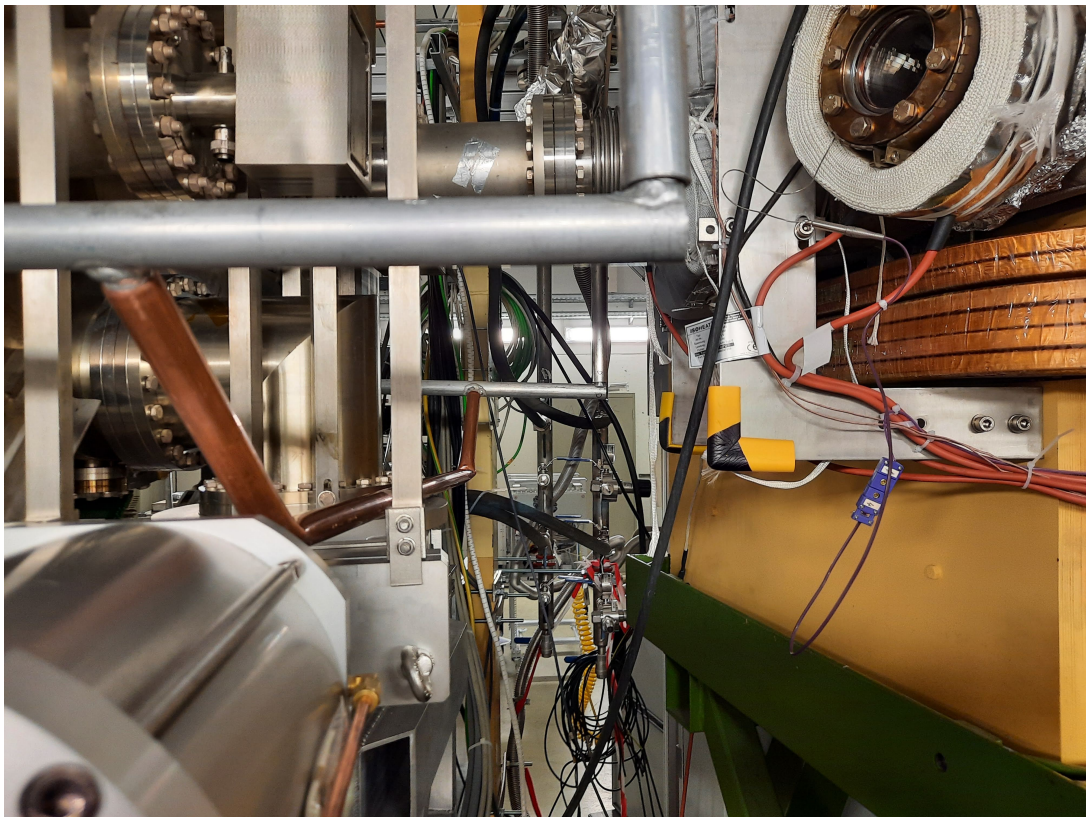
Shelf sections need to be mounted to support the heaters at the interaction chamber end and the turbo end. For the interaction chamber end, there should be two shelf sections made from dirty steel (it is the old shelf cut in two) with the bakeout frame. One shelf goes either side of the rail at the front of the chamber. At the turbo end, you need two plates. The first has to go under the bottom VAT valve (see 3.2 (a)) and can partially rest on the shelf sections already mounted. The second is to fill the space where the baking frame now extends further back than it should due to some new mechanical conflicts (see 3.2 (b)). This plate requires clamping to the valve support on the back of the frame. Davide helped me with this back plate so can help if needed, but unfortunately I don't have any photos.

Parts needed;

- 2 'dirty steel' shelf sections for int chamber end
- Shelf for under the VAT valve
- 2 metal clamps
- Shelf which clamps to VAT support section (turbo end)



(a)



(b)

Figure 3.2

3.3 Baking bits before the jacket

Before installing the jacket, the NEG and ion pump cables need to be installed, along with the thermocouples.

The NEG and ion cables are in the metal crate in the centre of the ring and are labelled. The NEG flanges on the chamber should also be labelled (see elog 145). I would also label on the controllers which input is connected to which group of NEG's and we need a note in the elog so we know which ones we are activating.

Thermocouples need to be connected around the chamber but also connected to the feed-through flange on top of the chamber. Only three of the feed-through thermocouples are connected internally, these are labelled in 3.3 and also in elog 406.

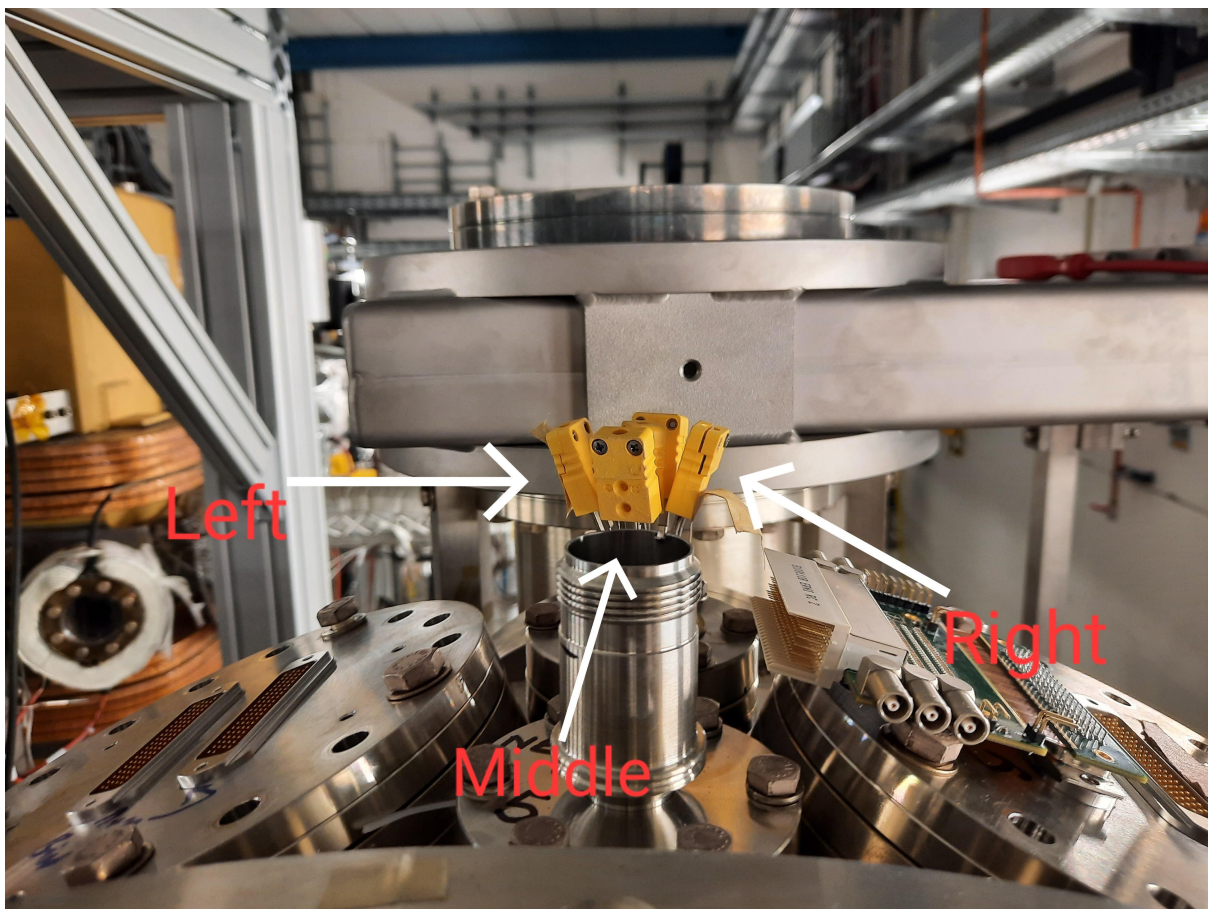


Figure 3.3

All the thermocouples should be plugged into the blue TC-08 modules. These are already connected to the raspberry pi and should be located at the back of our electronics rack. I would tape these somewhere steady on the side of the main CARME frame as the thermocouples don't extend that far. We have space for 16 thermocouples in total. We need some attached to the chamber using kapton tape (use lots so it won't fall off) and some around the inside of the baking volume. I'd say top, bottom, front and back floating in the baking volume and the rest attached to parts of the chamber. You can see the current assignment of thermocouples in elog 149. To test if the thermocouples are working and to label them in the code you need to go into the baking pi. The monitor next the electronics rack is setup and should be working. In the directory Programs/Monitor is the code Monitor.x. If you run this you can see which thermocouples are connected, there designated name and the temperature should update every second. To test the thermocouple plug it into the TC-08 and touch it, the monitor should show the increased temperature. Mount the thermocouple then go into the code to label it with a name, or put in the elog and we can edit the code remotely.

Also ask Michael if GSI want to connect the large black ion pump on the chamber. Lastly, check all the adaptor cards have been removed!

3.4 Baking jacket

The baking jacket is contained in the two metal boxes. One box contains the main fibreglass jacket sections and the other contains the aluminium-fibreglass sheets. Some moving round of pieces and seeing what fits best will be required as the frame is in a different position now the gas target has been fully installed.

On the shelf sections at the bottom, a first layer of the aluminium-fibreglass should be put down. On top of this are jackets sections for underneath the main CARME chamber and one which wraps around the front rails section near the interaction chamber. You will also need a square-ish jacket section for the shelf you are clamping are the back of the chamber. These jacket sections should be near the top in the boxes as I installed them last time I was in GSI. On top of these jacket sections you can put the heaters, which should be distributed evenly front, middle and back. Omer can mount the electrical boxes for the heaters onto the CARME frame.

Next I would wrap the bellow section connecting CARME and the interaction chamber with aluminium foil. There is a gap which we don't cover with the jacket so this needs some foil layers (see elog 149), maybe we could also borrow some spare jackets not in use in the ring? Then install the largest jacket section on the top of the frame. This can be useful for weighing down other sections on the side of the frame. We have special sections for gaps in the jackets for the motors, the turbo and the front and back beam pipes. Install these sections, and then use any further jacket sections to fill in any gaps. We should have plenty of jacket pieces to fill all gaps. Particular gaps in the jacket near the motors should be filled as heat has been shown to escape here. If you have any spare jacket sections I would also recommend filling gaps under the heaters.

When the main jacket is installed, cover with the aluminium-fibreglass sheets and the sheet metal pieces. The metal pieces hold up the aluminium-fibreglass parts that want to fall off.

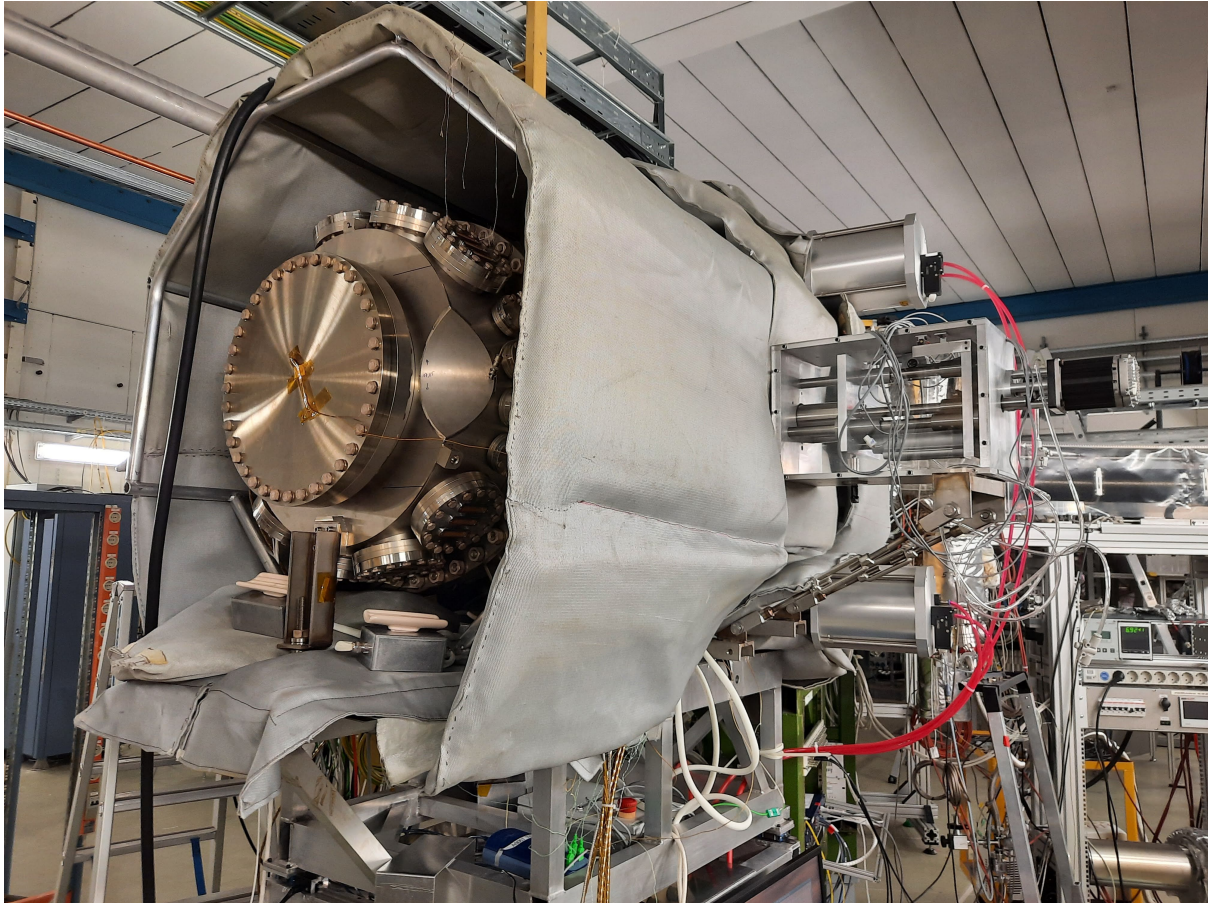


Figure 3.4