



Status of VXD Thermal Mock-up

Hua.YE

on behalf of DESY Belle II group

2015.12.8, bi-weekly PXD Seevogh Meeting

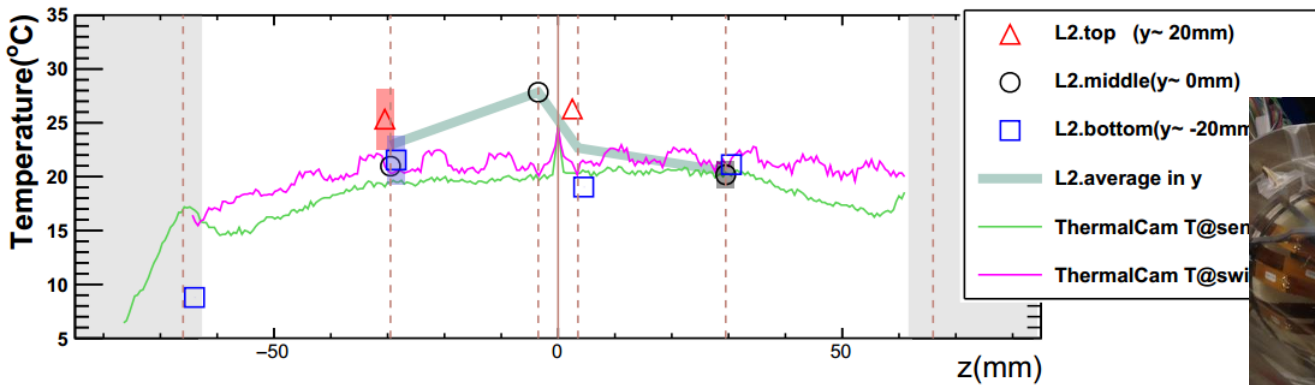
[\(hua.ye@desy.de\)](mailto:hua.ye@desy.de)

Results shown in last B2GM

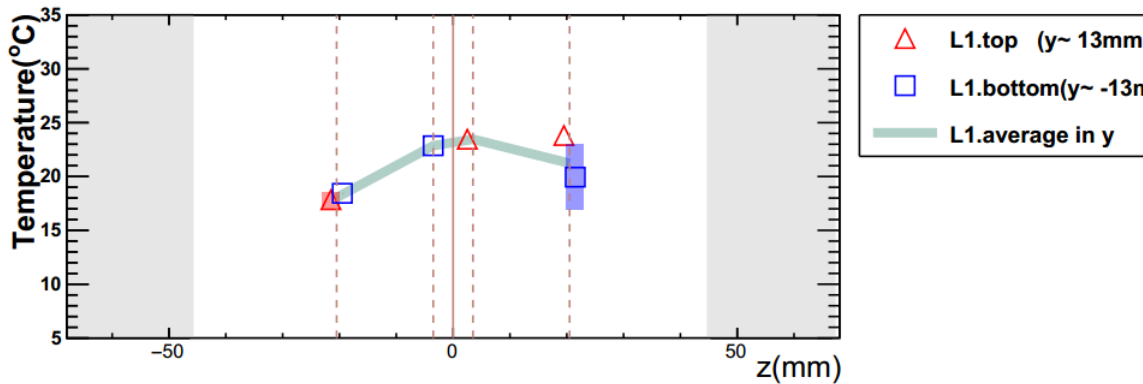
N₂ flow 23L/min, 0°C; CO₂@-30°C; power on.



Shown in Oct. B2GM



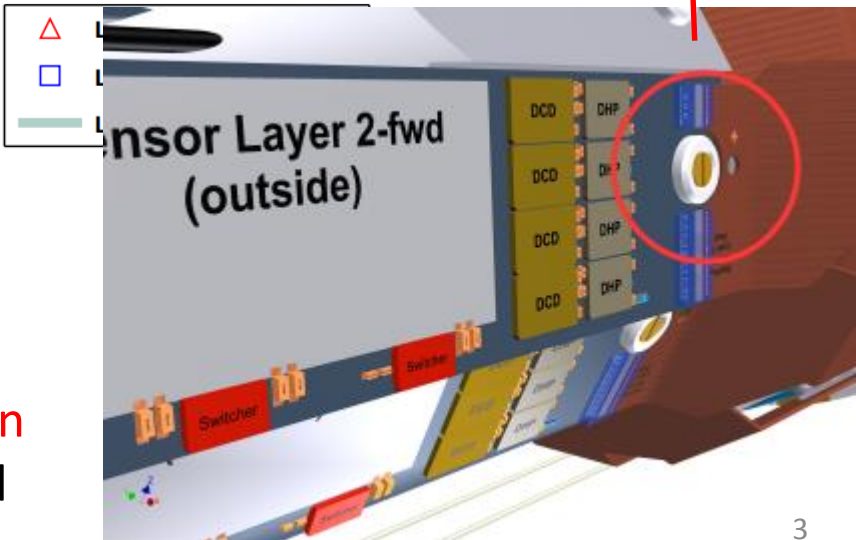
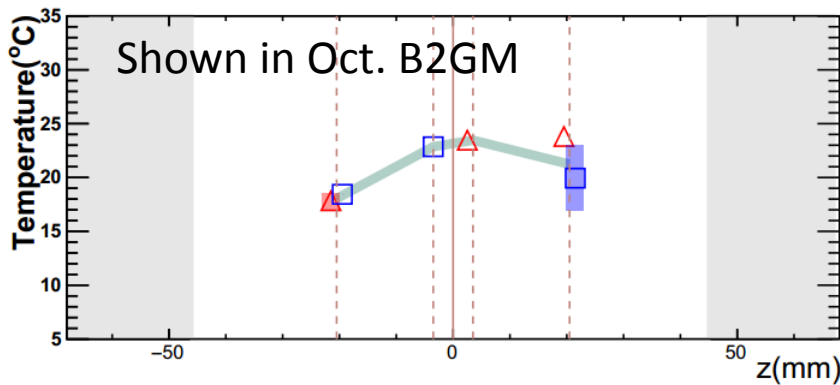
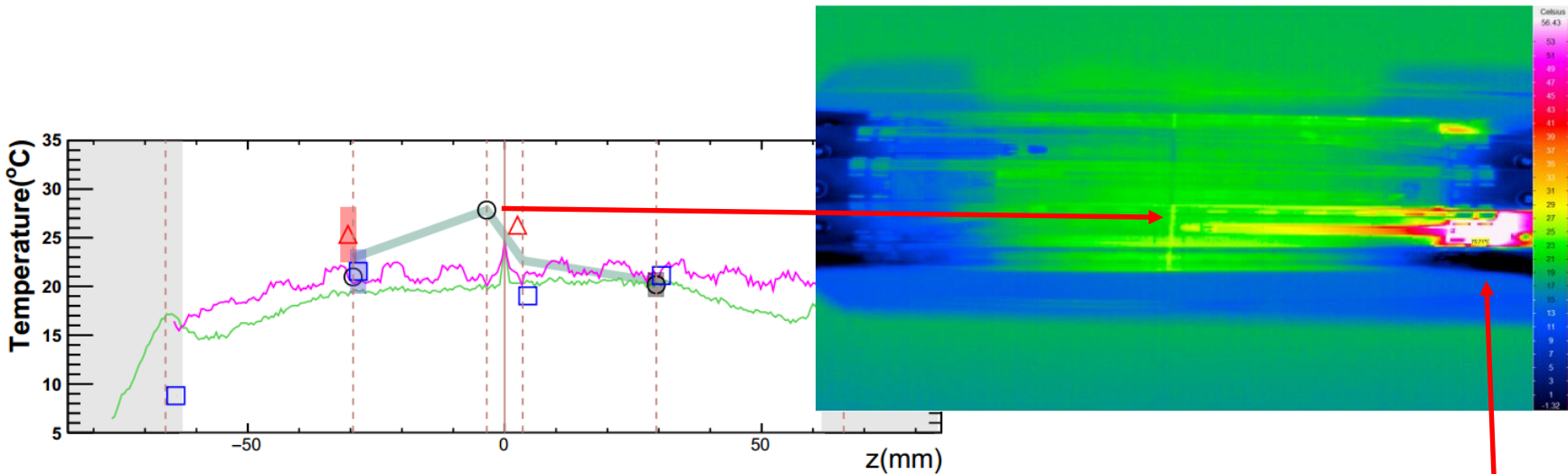
Thermal Camera



Inconsistent temperature got from Pt100s and Thermal camera

Loosen screws cause hot ASICs

N₂ flow 23L/min, 0°C; CO₂@-30°C; power on.

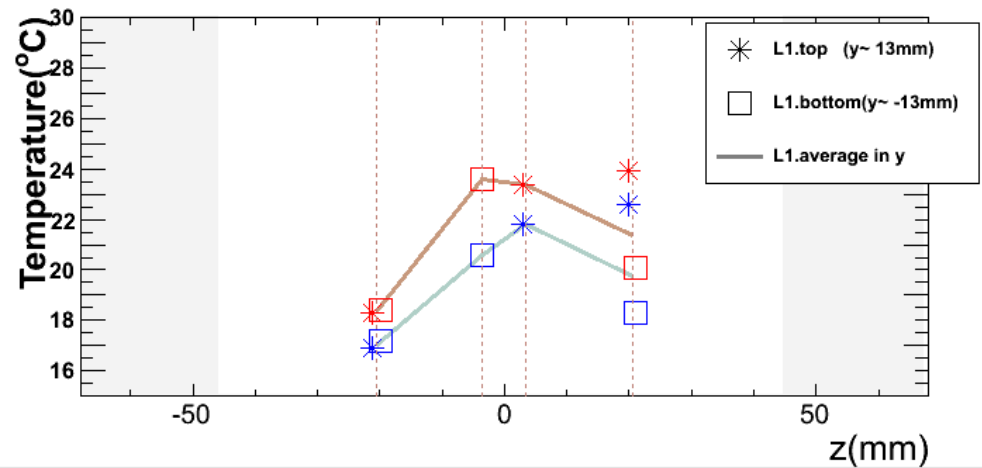
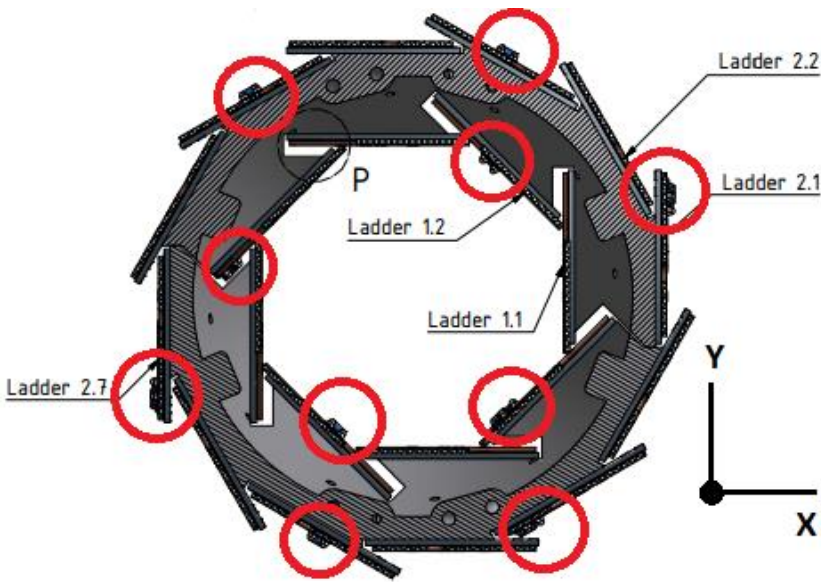
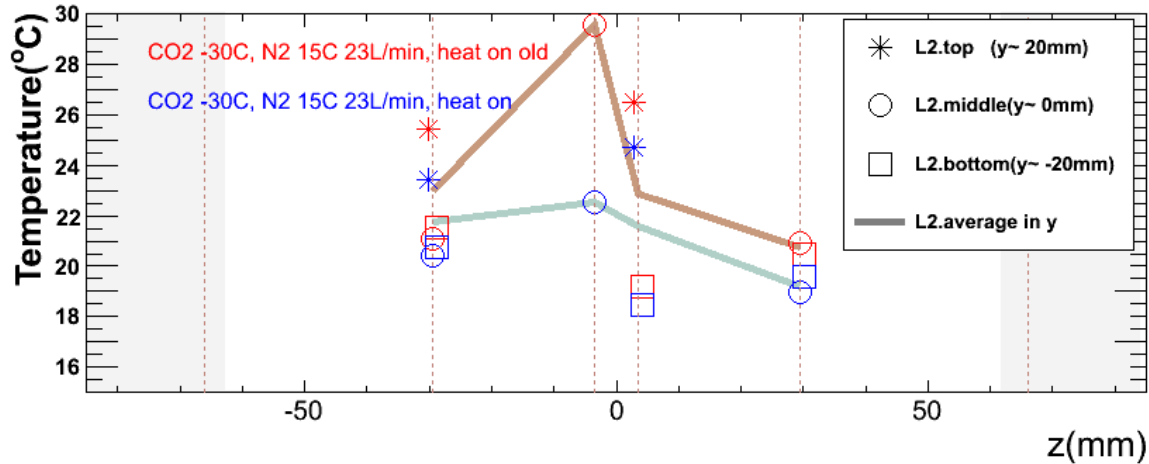


Several hot ASICs are found, due to **loosen** screws or **blocked** holes, should be tested before mounting sensors.

Update temperature distribution on PXD



N2 @room Temperature

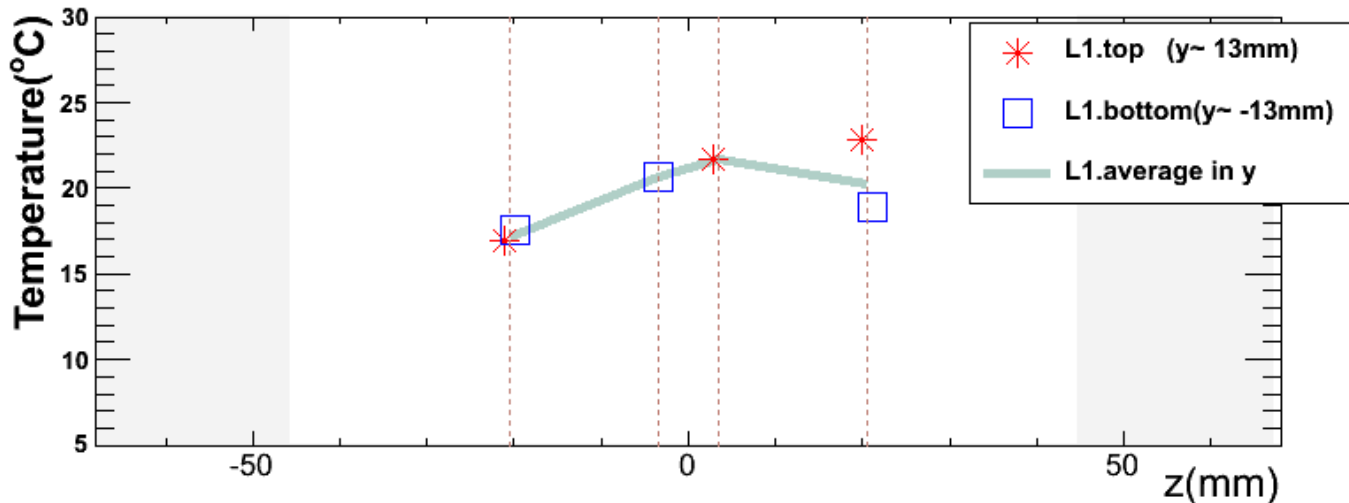
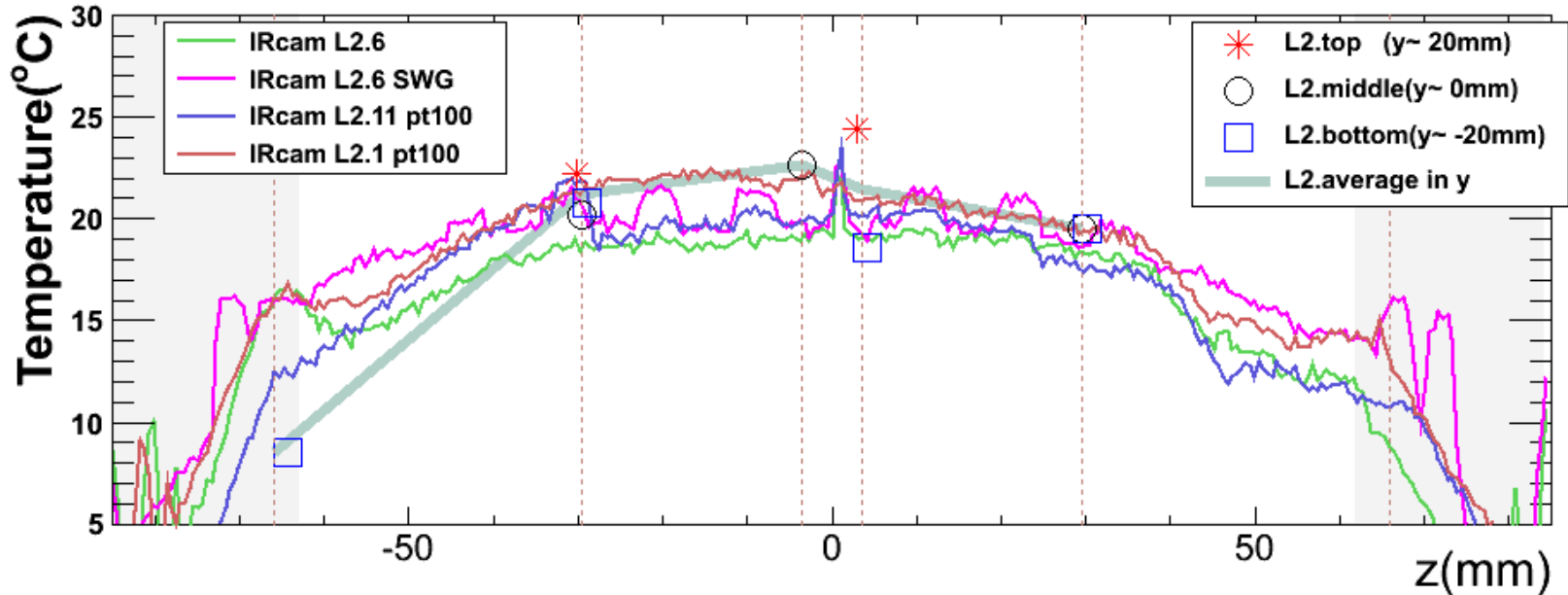


$\Delta T \sim 5^\circ\text{C}$

Update temperature distribution on PXD

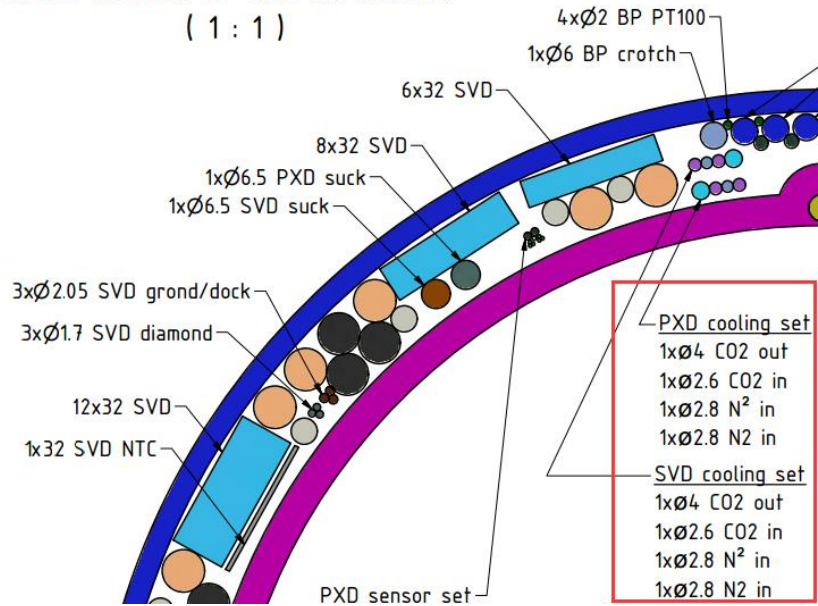


CO₂@-30°C; N₂ 23L/min @room Temperature

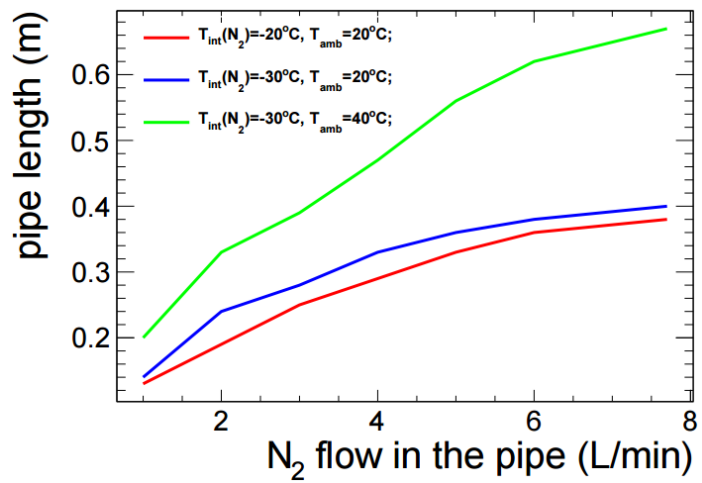
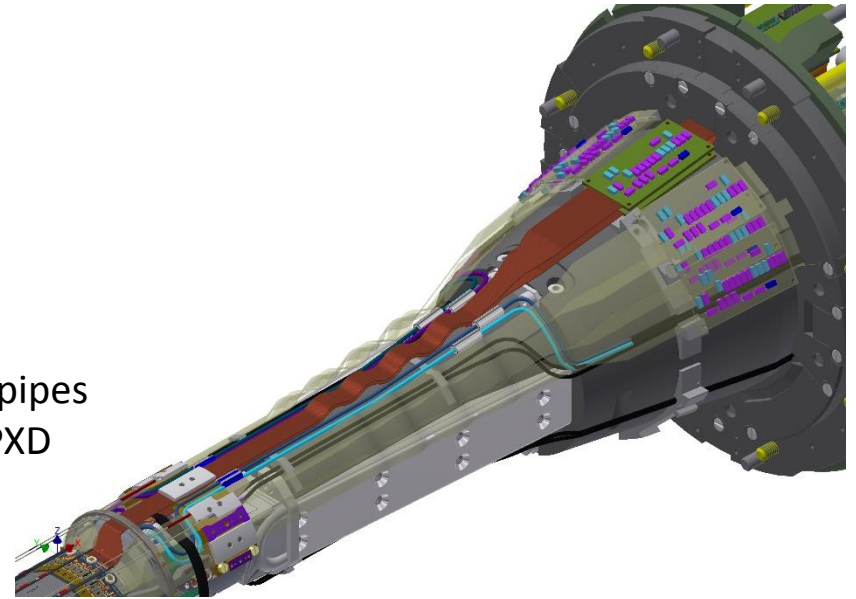


The CO₂ and N₂ tubes will be separated before arriving SCB, this means we can not have cold N₂.

cross-section at CDC bottleneck
(1 : 1)

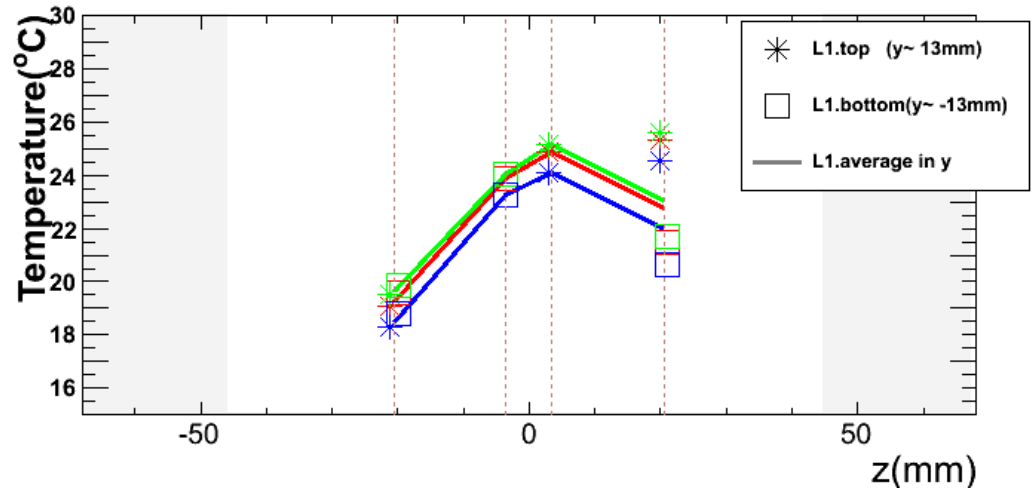
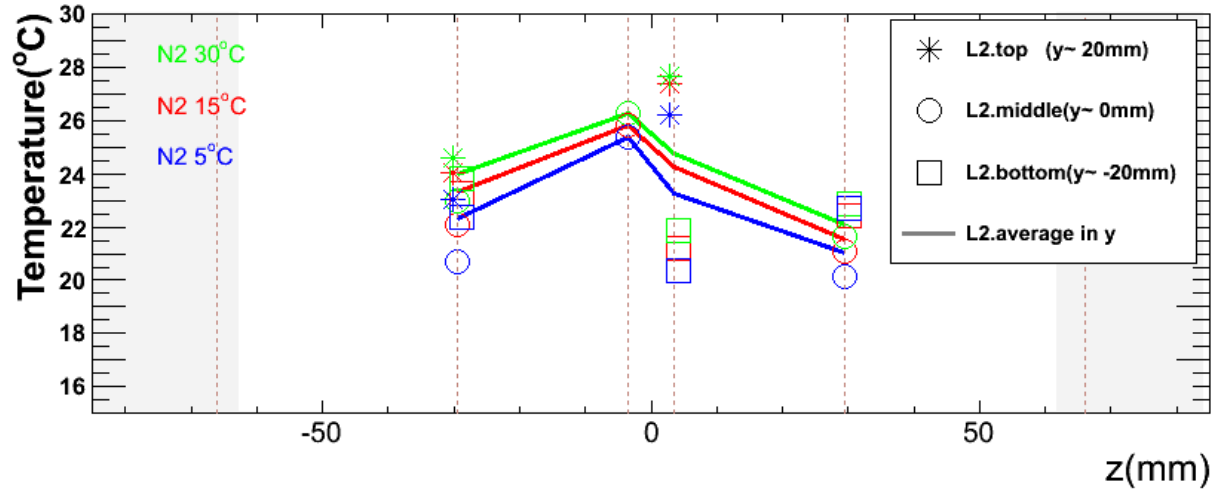
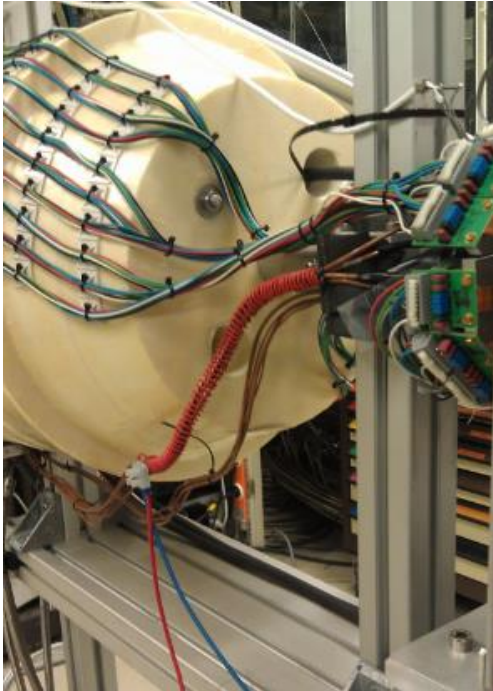


8N₂ pipes
for PXD



The N₂ will get the ambient temperature after about 0.3-0.4m.

Different temperature of the injected N_2

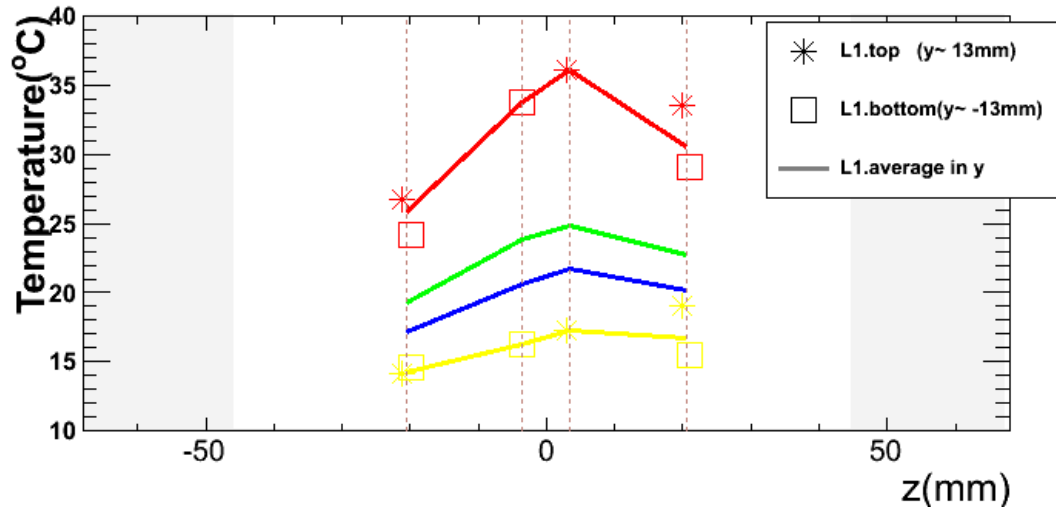
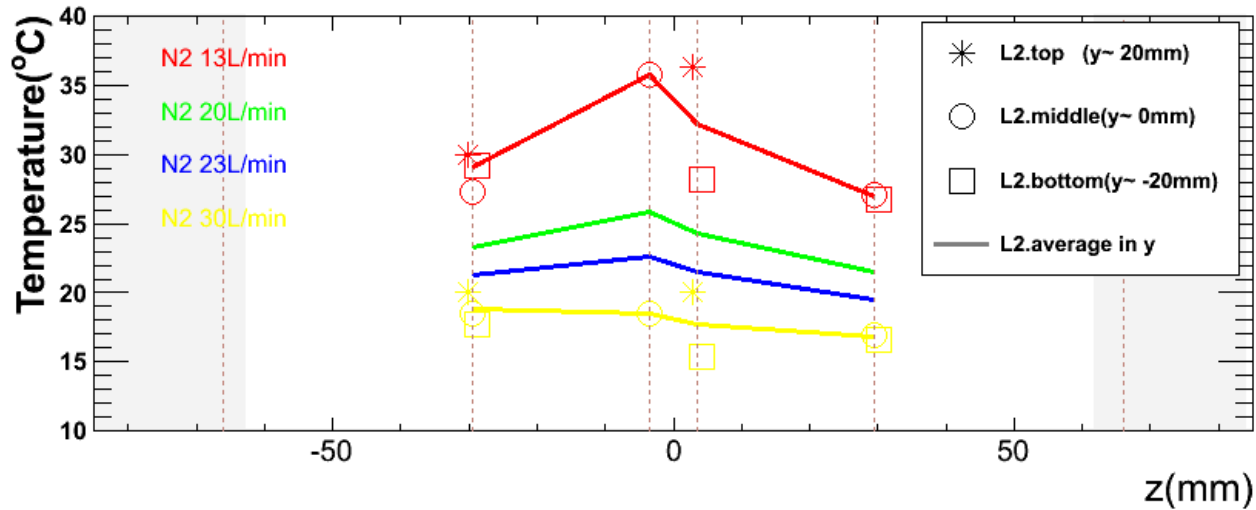


30W of power is given to heat N_2 , temperature on the wall of pipe will reach about 25-30°C before going into SCB.

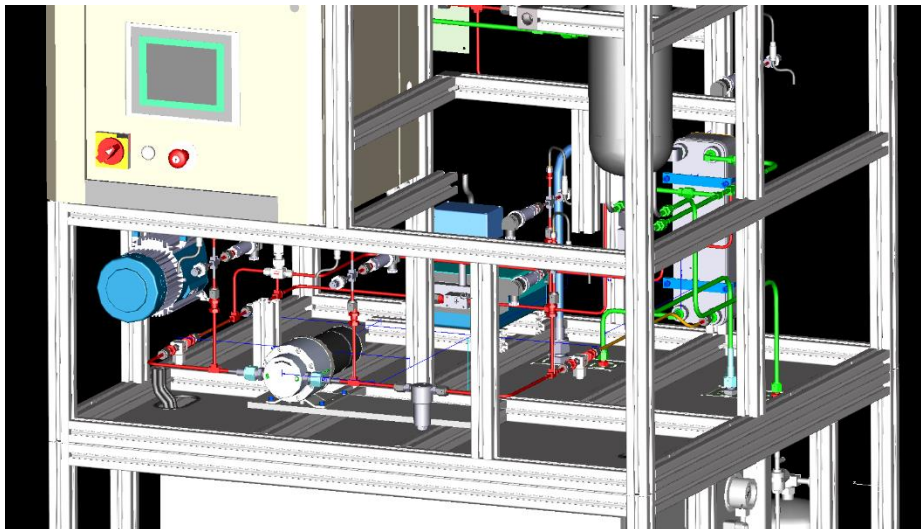
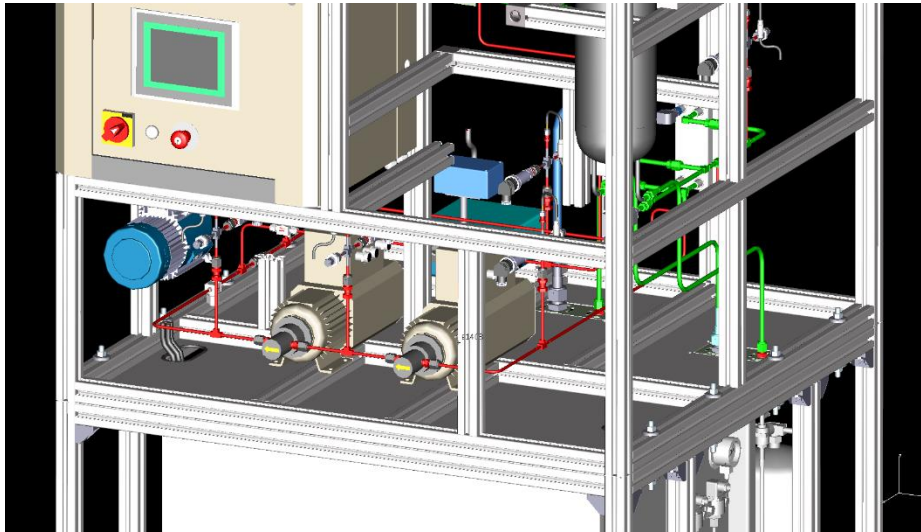
Different flow of the injected N_2



CO_2 @-30°C, room temperature N_2 injected.



Schedule for New Pump refit



Schedule

The week before Christmas:

- ❑ Dismount old pumps,
- ❑ Modify tubes,
- ❑ Weld work and test

The week after Christmas:

- ❑ Mount new pump,
- ❑ Pressure test,
- ❑ Adapt control system.

Preparation of SVD parts



Weld pipes to endring:

Two parts are ready.

We will finish the third one, and also the fourth one by chance before Christmas.

The pipes used here have thicker wall.

OD 1.9mm, ID 1.5mm;

The SVD ladders are prepared and tested,

Layer.3 will come after the endrings are ready.

- ❑ Tight the screws, no hot ASICs any more, the temperature distribution along the sensor is updated. Now the temperature is about 20°C, gradient is about 5°C.
- ❑ Comparison between different temperature of injected N₂, the influence to the temperature on PXD sensors is small.
- ❑ Larger N₂ flow will give better temperature distribution on PXD sensors.

- ❑ The refit of New Pump to Marco will start next week, and expected to finish in the middle of January.
- ❑ Weld of cooling pipes to endring is expected to finish before or soon after Christmas, Layer.3 will come following.

