Reminder

	SLDO (°C)	Low Temp. (°C)	Interm. Temp. (°C)	High Temp. (°C)
Planar	−35	−15	20	30
3D	−35	−25	-	20

Table 1: Table of suggested testing temperatures.

N.B. Unpowered chip

To achieve low temperatures with chip ON we need:

1. Cold plate, kept cold by a chiller
2. A Peltier cell (or more, sandwiched)
3. A flow of **cold** dry air/nitrogen

How to get to cool down the gas? See next slide

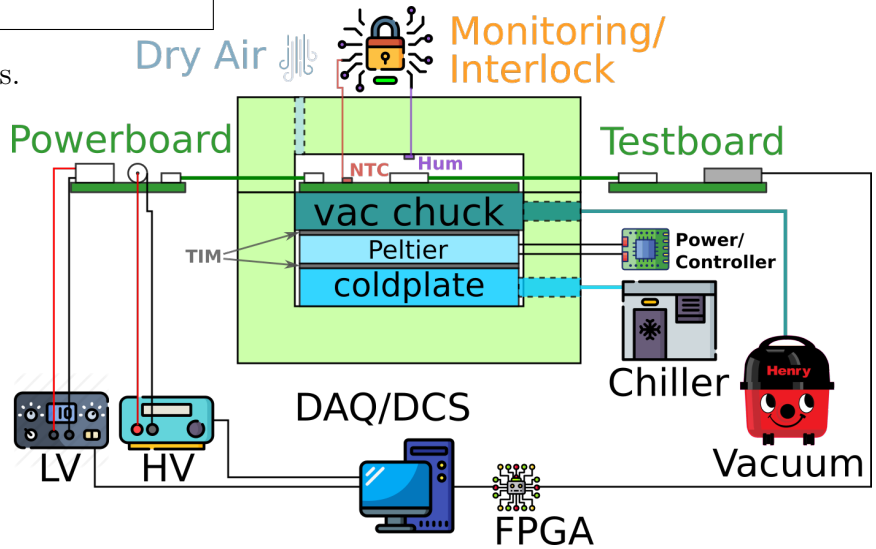


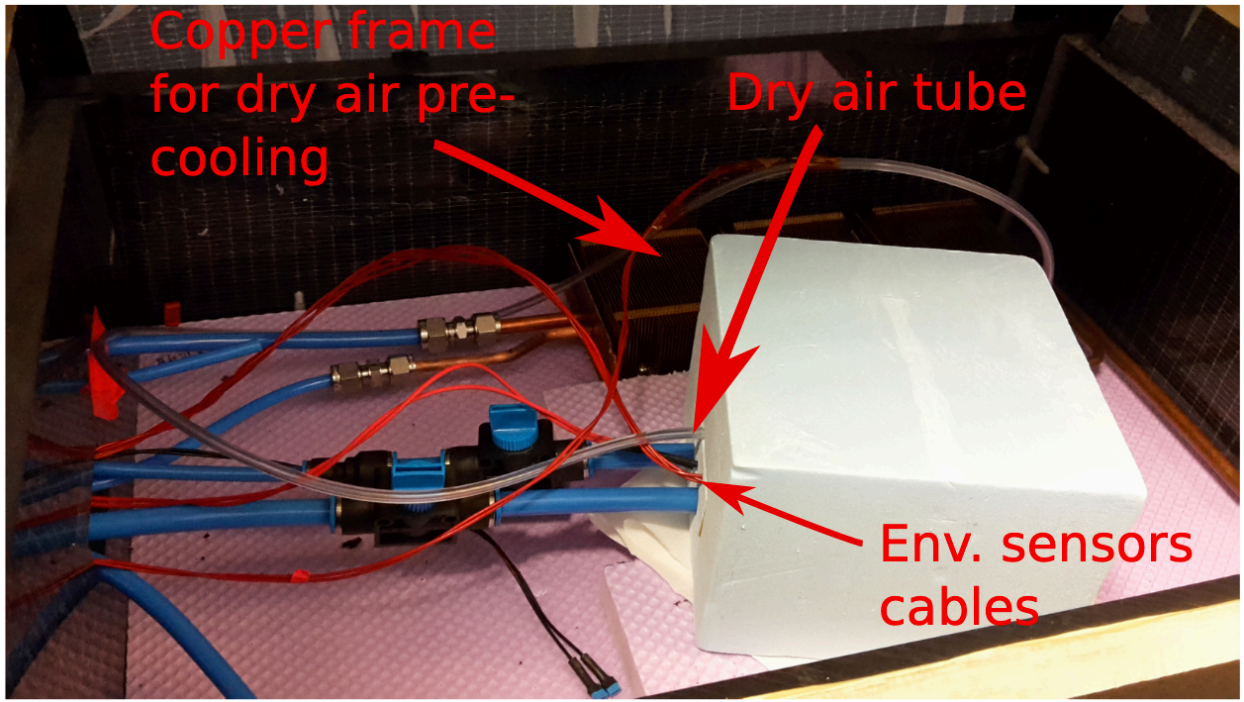
Diagram of an electrical test setup

(ex https://cds.cern.ch/record/2702738/)

CERN prototype

https://indico.cern.ch/event/900869/contributions/3794081/attachments/2008605/3355335/slides.pdf ← original presentation

- Use a copper plate to cool down the gas
- The cooling power is provided by the cooling fluid coming from the chiller
- The cooling “pipes” go first to the copper plate
- Then to the cold box



Cold plates

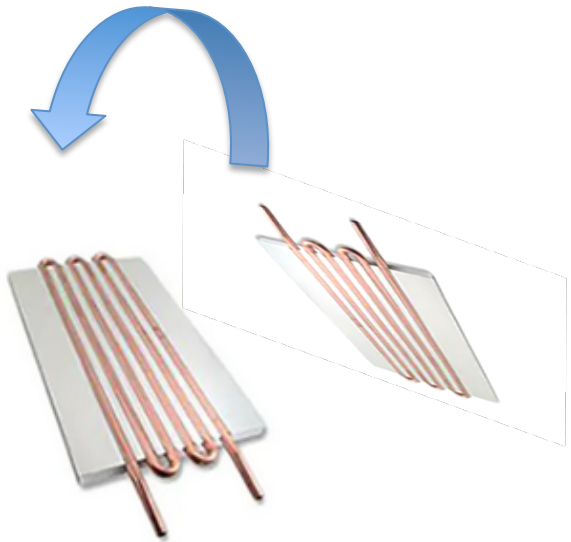
A quick search gave me these results (maybe already mentioned)

- RS -> AAVID thermalloy – code RS: 880-5881

- Farnell -> Wakefield-vette – code Farnell: 2785482

How to use them?

- Buy two, place one on top of the other, use one for gas and the other for coolant?



- Or in which other way would you use it?

Another idea: copper coils

Use a copper coil in which the gas flows
Immerse this in the cold fluid tank of the chiller

I have found several products like this on amazon.fr

e.g.
“Immersion Wort refroidisseur/ refroidisseur pour Home Café Bière”