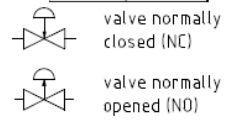




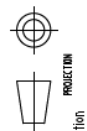
VELO On-detector cooling concept

Bart Verlaat, Raphael Dumps, Paola Tropea
15 February 2017

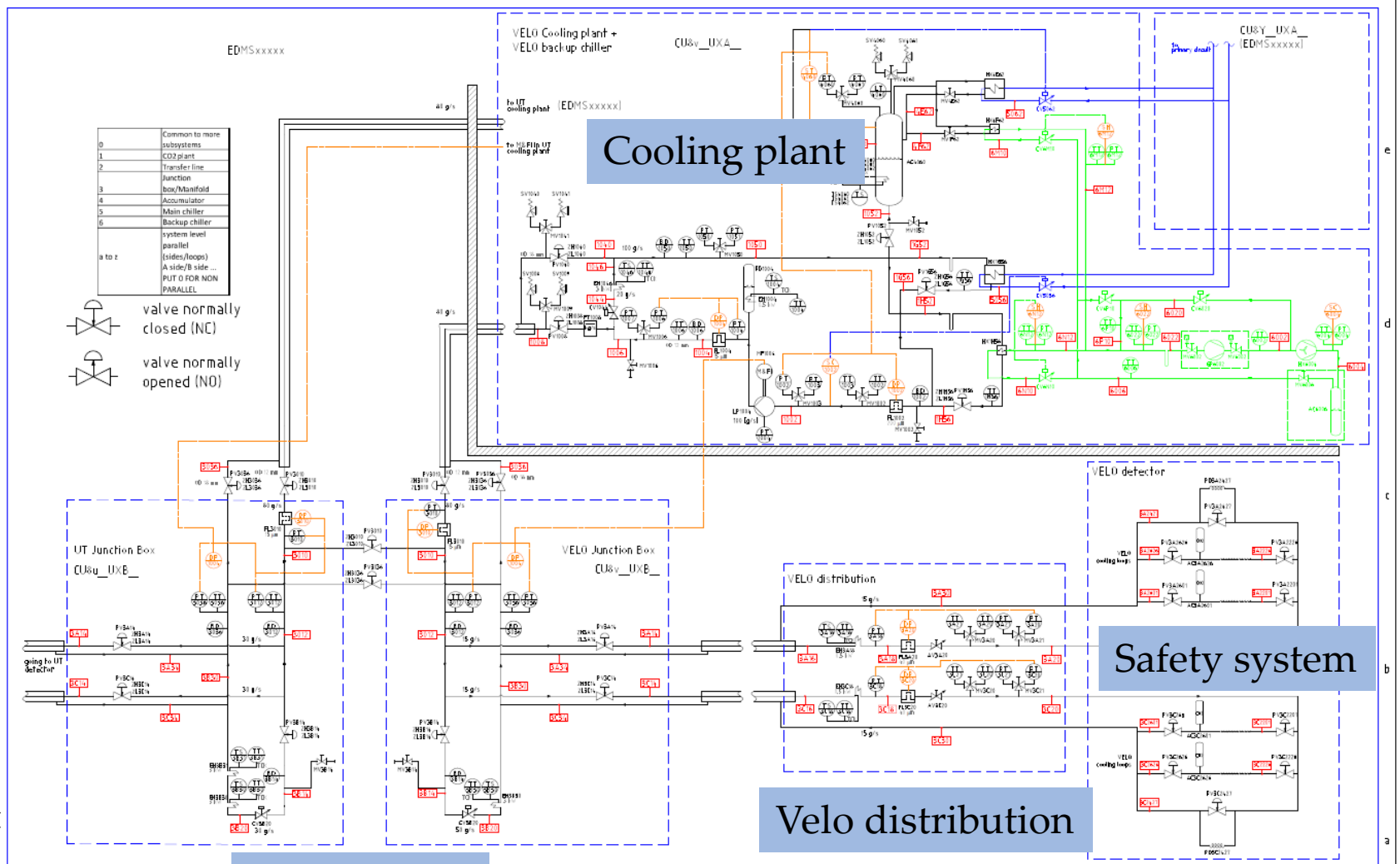
0	Common to more subsystems
1	CO2 plant
2	Transfer line
3	Junction
4	box/Manifold
5	Accumulator
6	Main chiller
7	Backup chiller
8	system level
9	parallel (sides/loops)
A	A side/B side ...
B	PUT O FOR NON PARALLEL



DESSIN, RUGOSITE, TOLERANCES SELON NORMES ISO
DRAWING, RUGOSITY, TOLERANCES ACCORDING TO ISO STANDARDS



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Junction box

Velo distribution

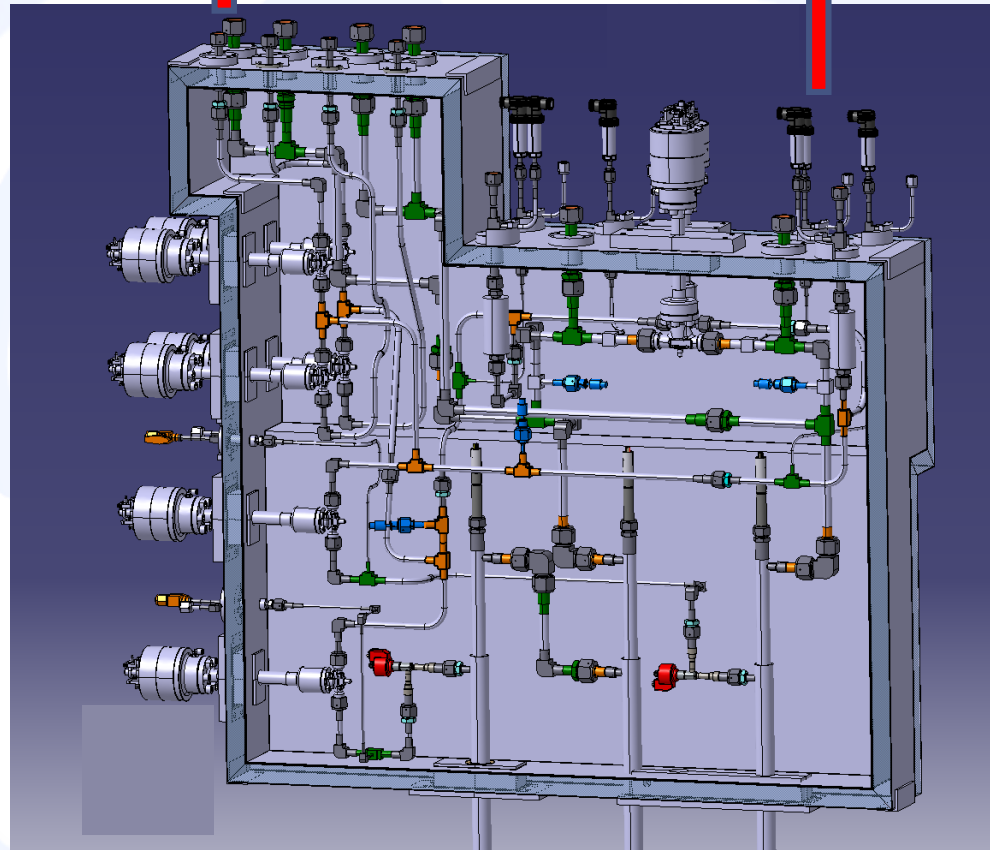
Safety system

Velo CO2 Cooling Plant Scheme		ECHELLE SCALE	DES/DRA	Edyta Pilarz	2017-02-04					
			CONTROLLED							
			RELEASED							
			APPROVED							
		REPLACE/REPLACES								
IND.	DATE	NOM/NAME	ZONE	MODIFICATION		NON VALABLE POUR EXECUTION NOT VALID FOR EXECUTION	DAC		SIZE	IND.
								3		

The junction box

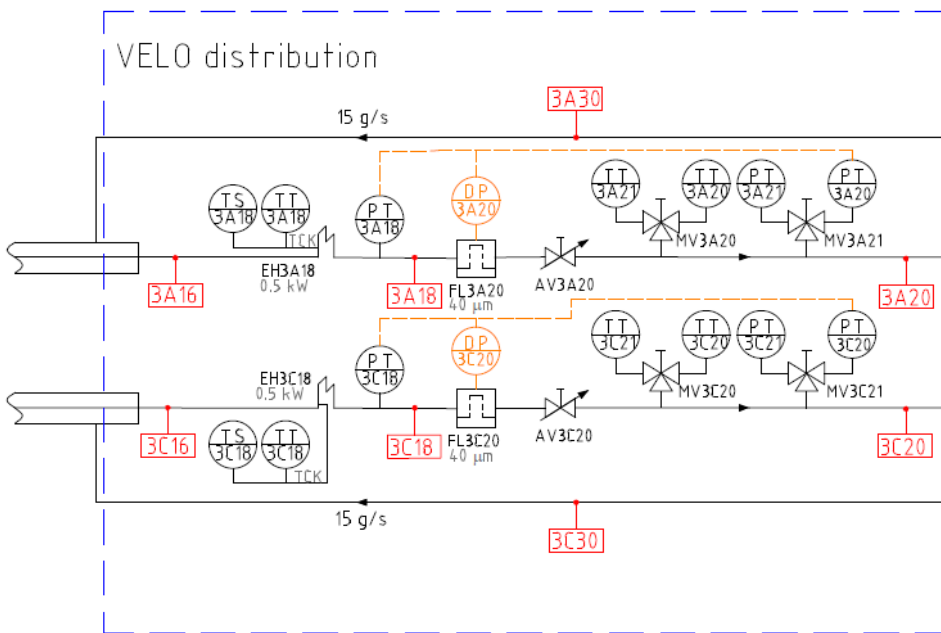
Transfer lines to detector

Transfer lines to plant

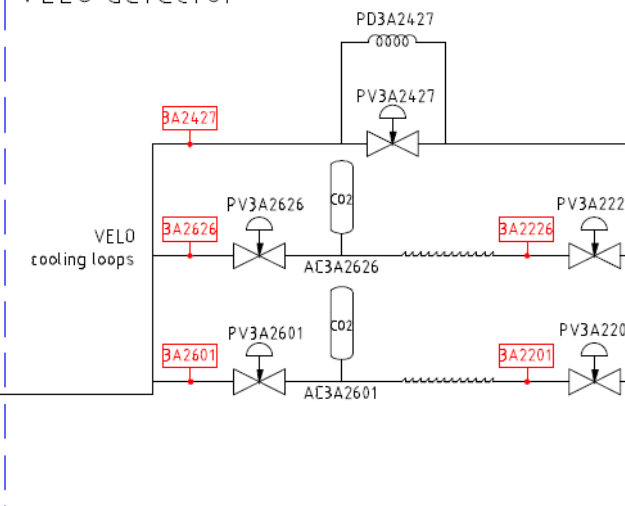


Cooling infrastructure at VELO

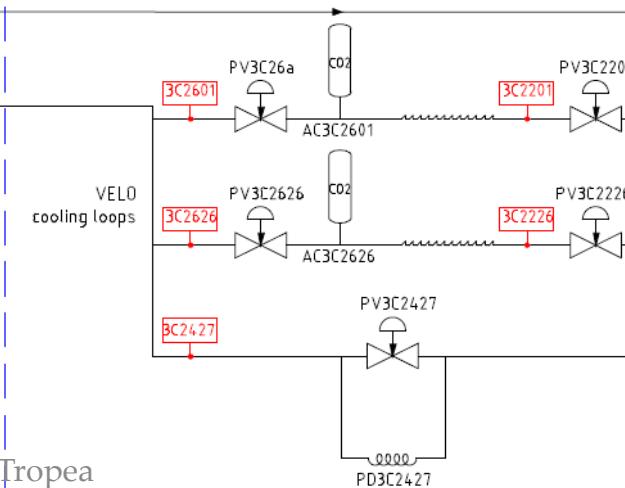
On top of VELO, cooling system responsibility



VELO detector

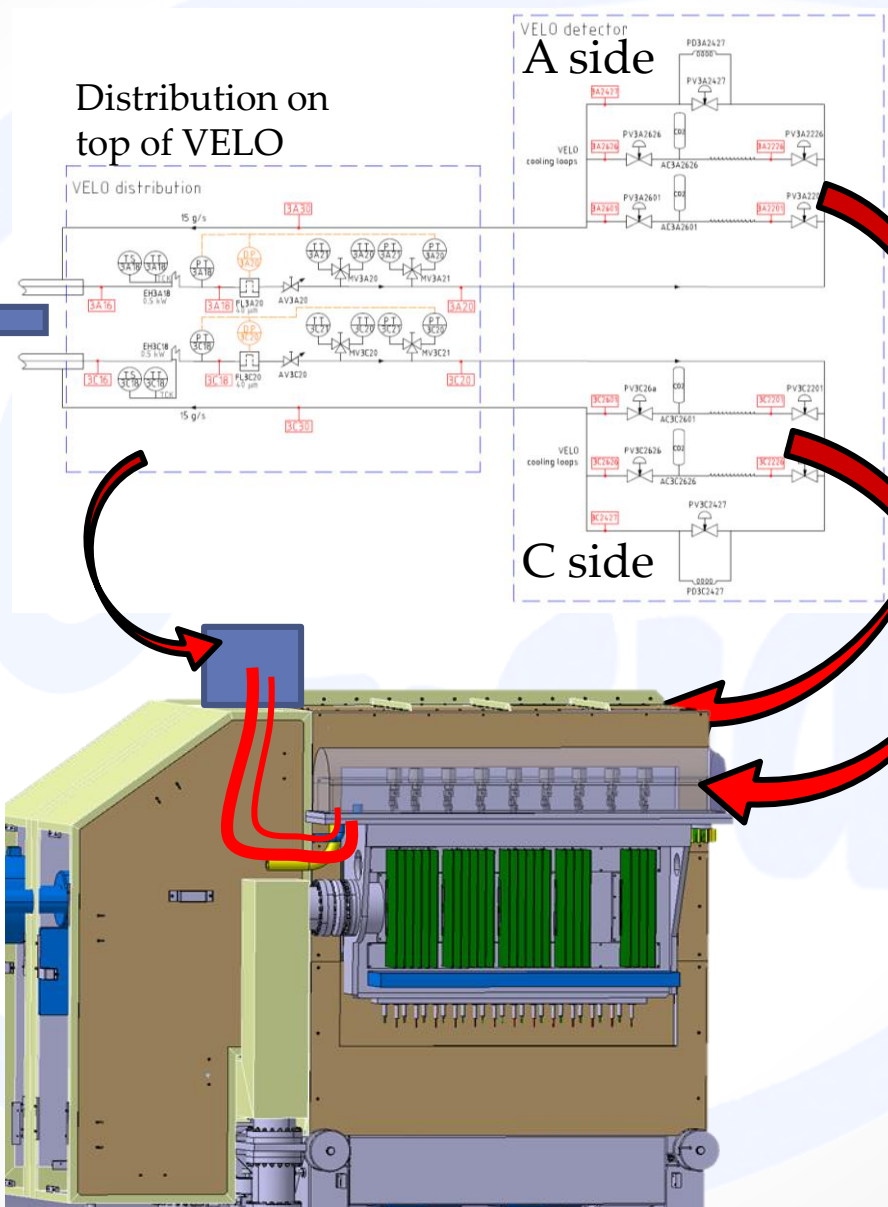


Inside tertiary vacuum (Safety system Velo responsibility)



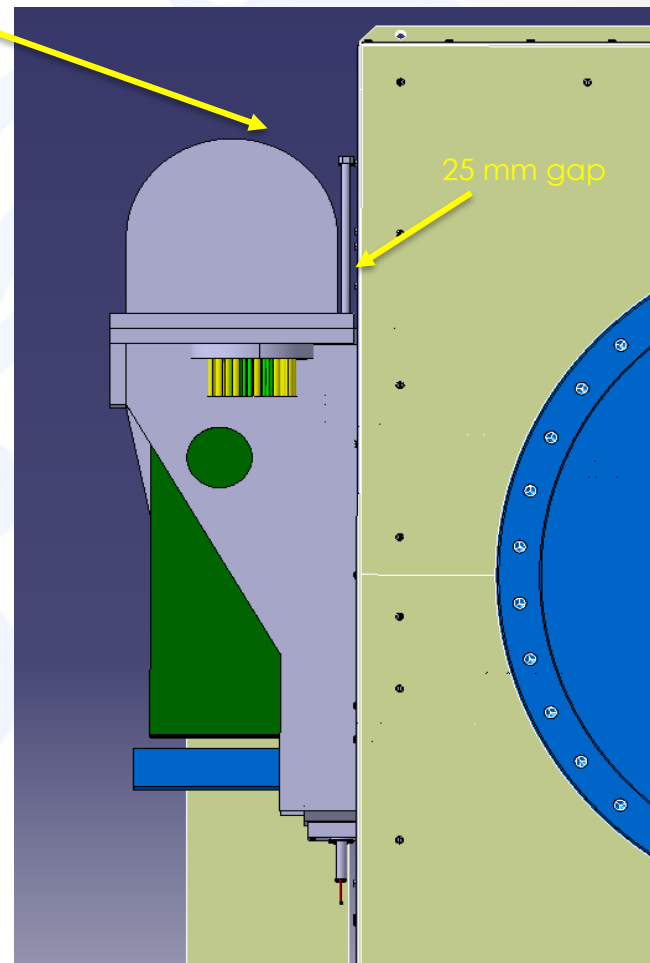
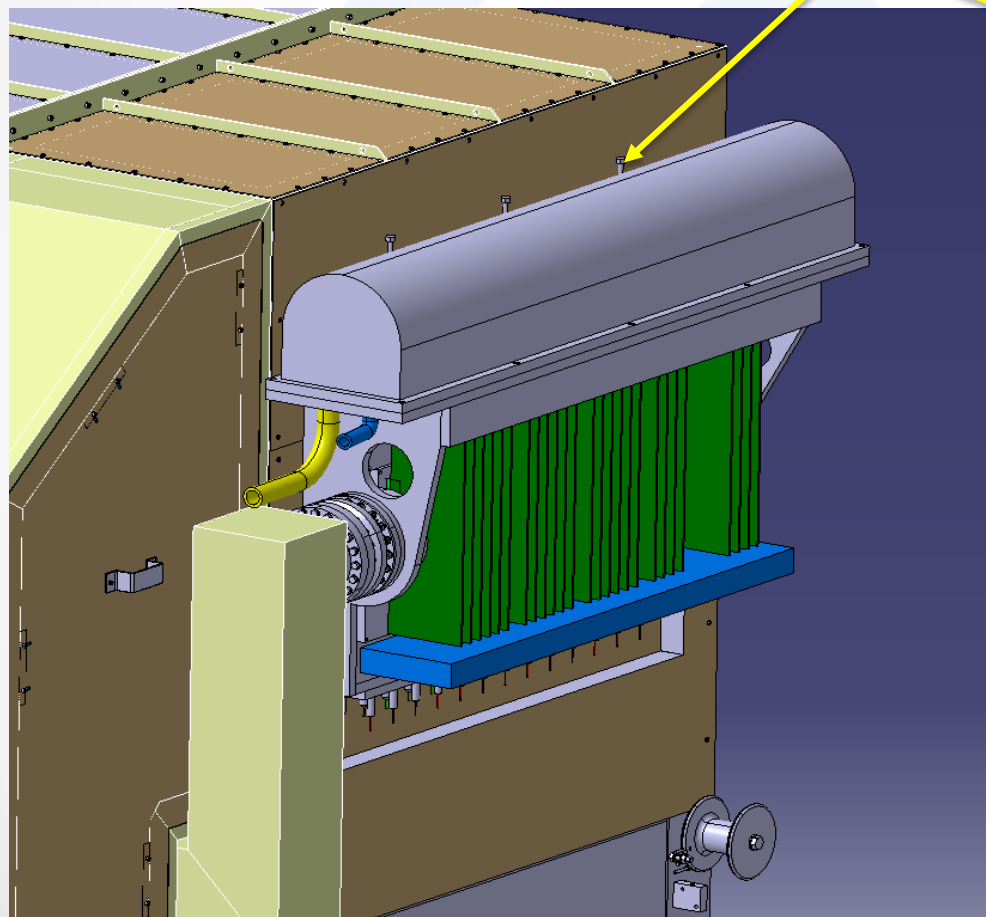
Cooling infrastructure at VELO

To Junction Box

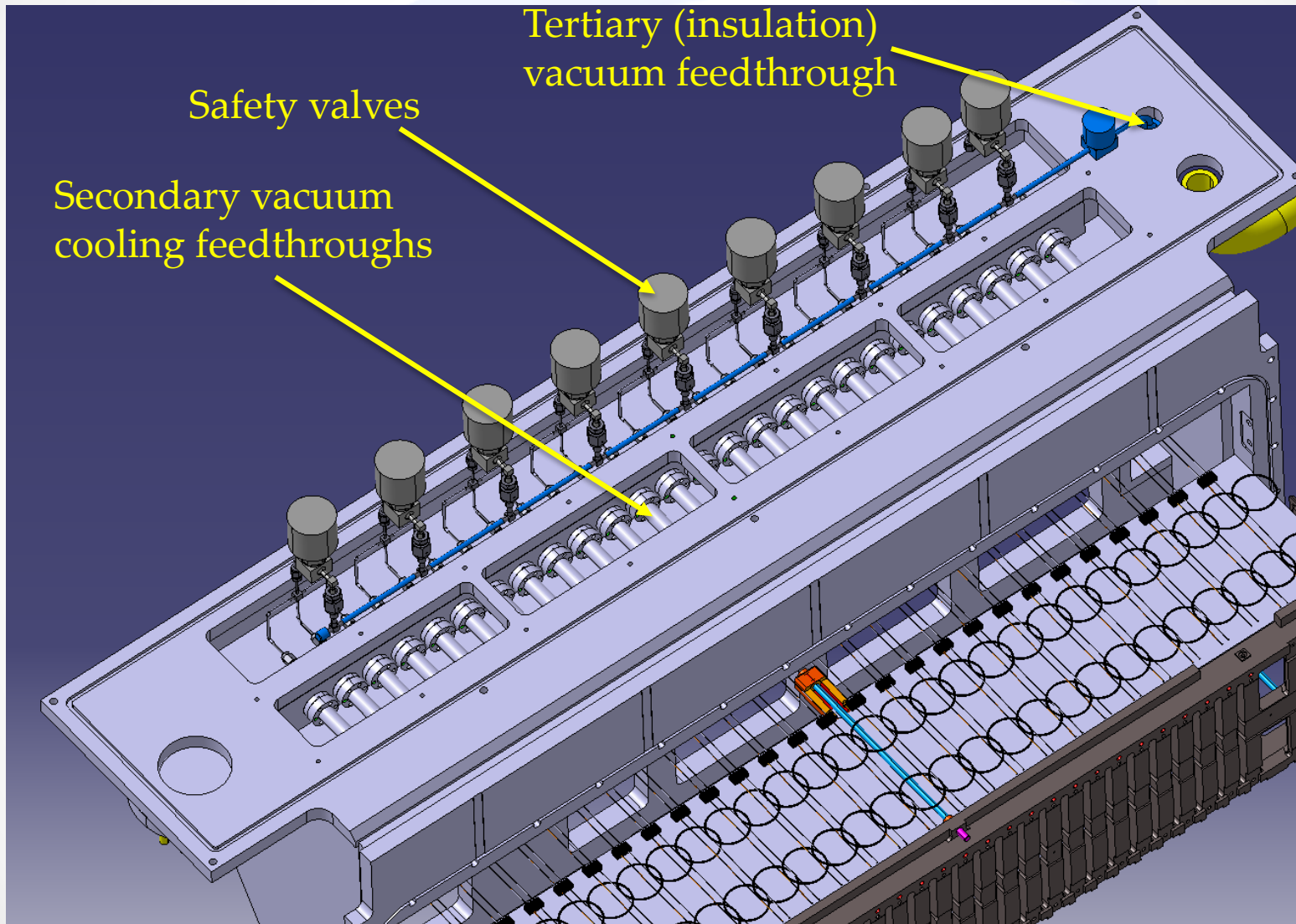


Detector half installed with tertiary vacuum

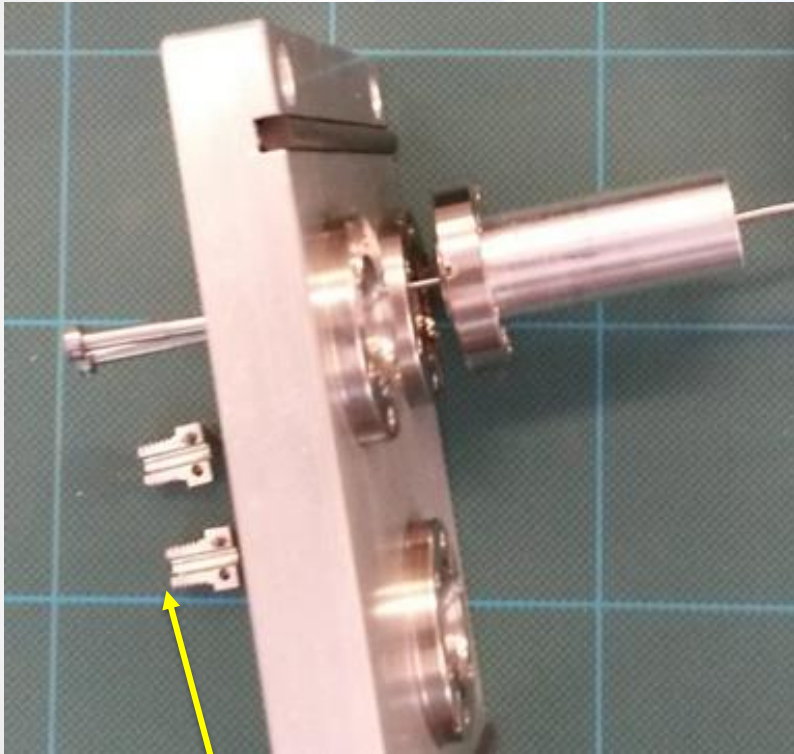
Tertiary cover is fasten on the back side with long screws



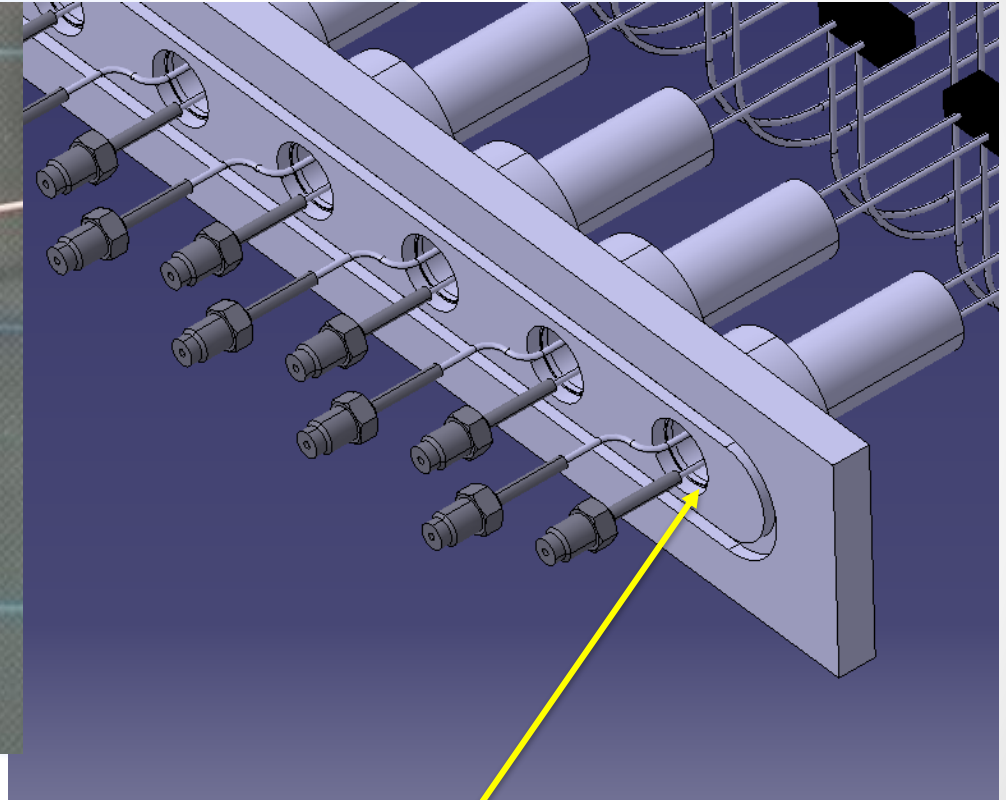
Tertiary vacuum & safety system



Secondary vacuum feedthrough



1/8" VCR split nut
mounted after tube insertion
(gain of space)



Feedthrough diameter Max. 16mm

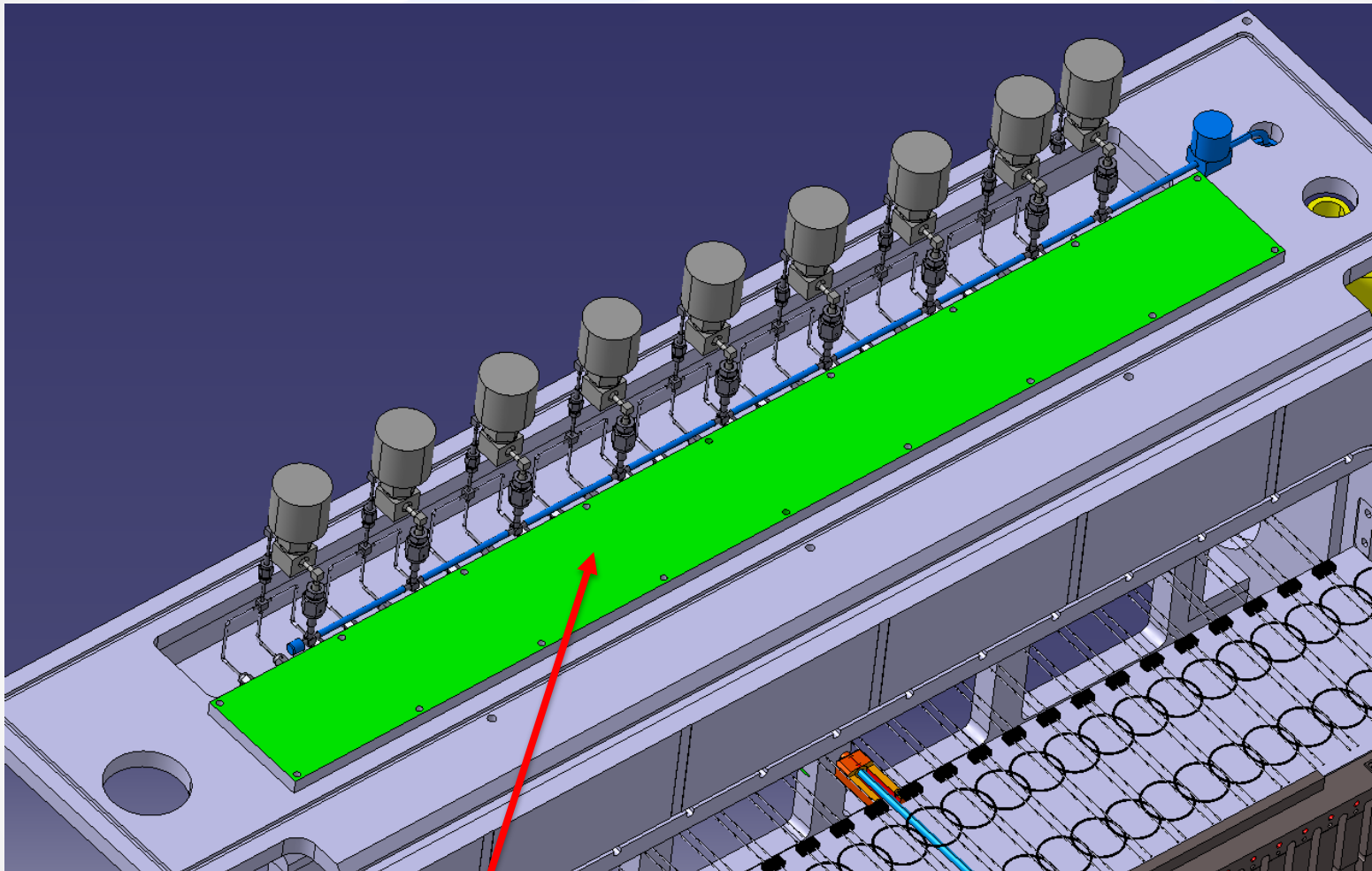
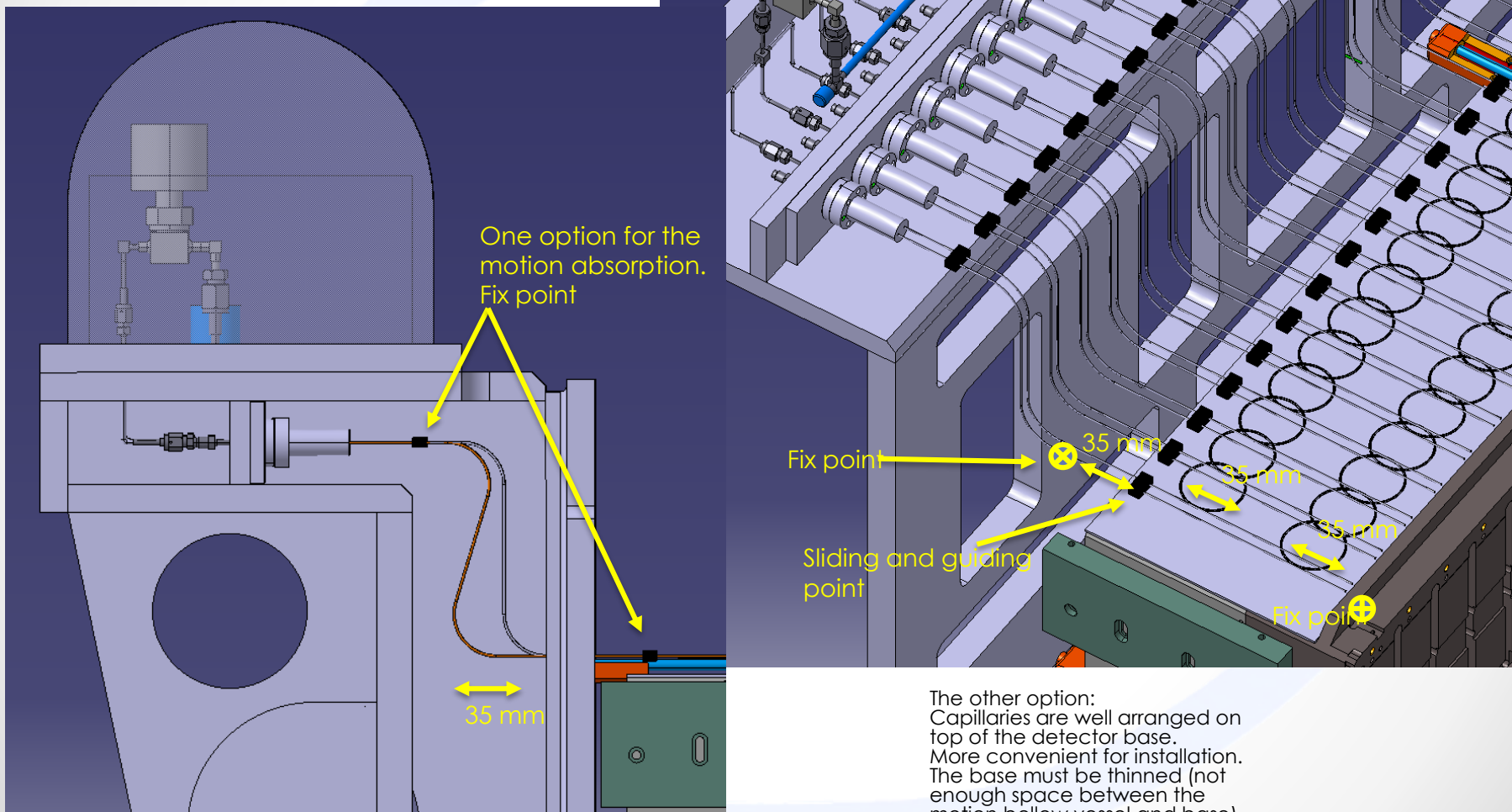
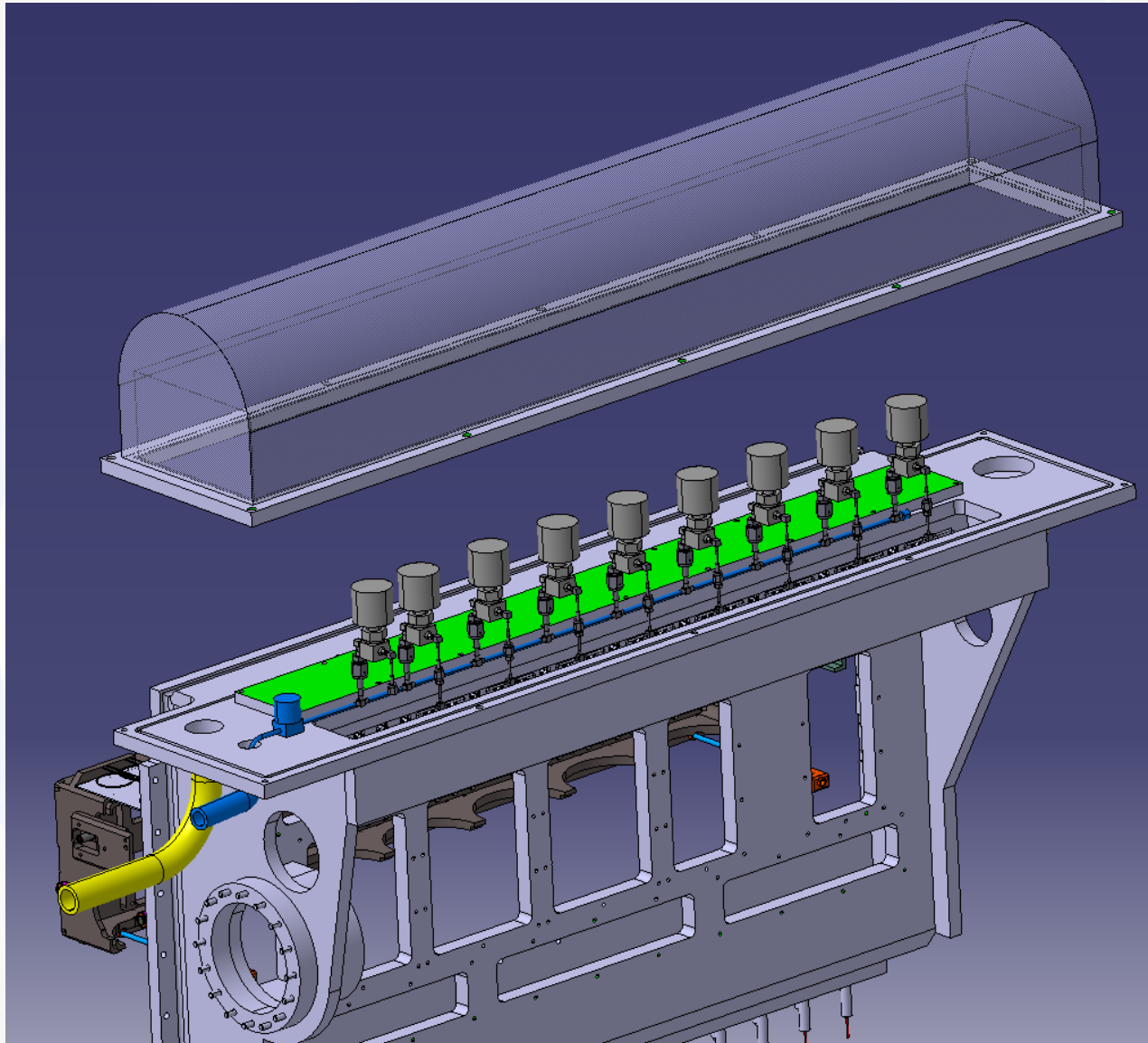


Plate to close secondary vacuum. Access to feedthroughs

CO2 Capillaries enter in the secondary vacuum out of the way of any cables .



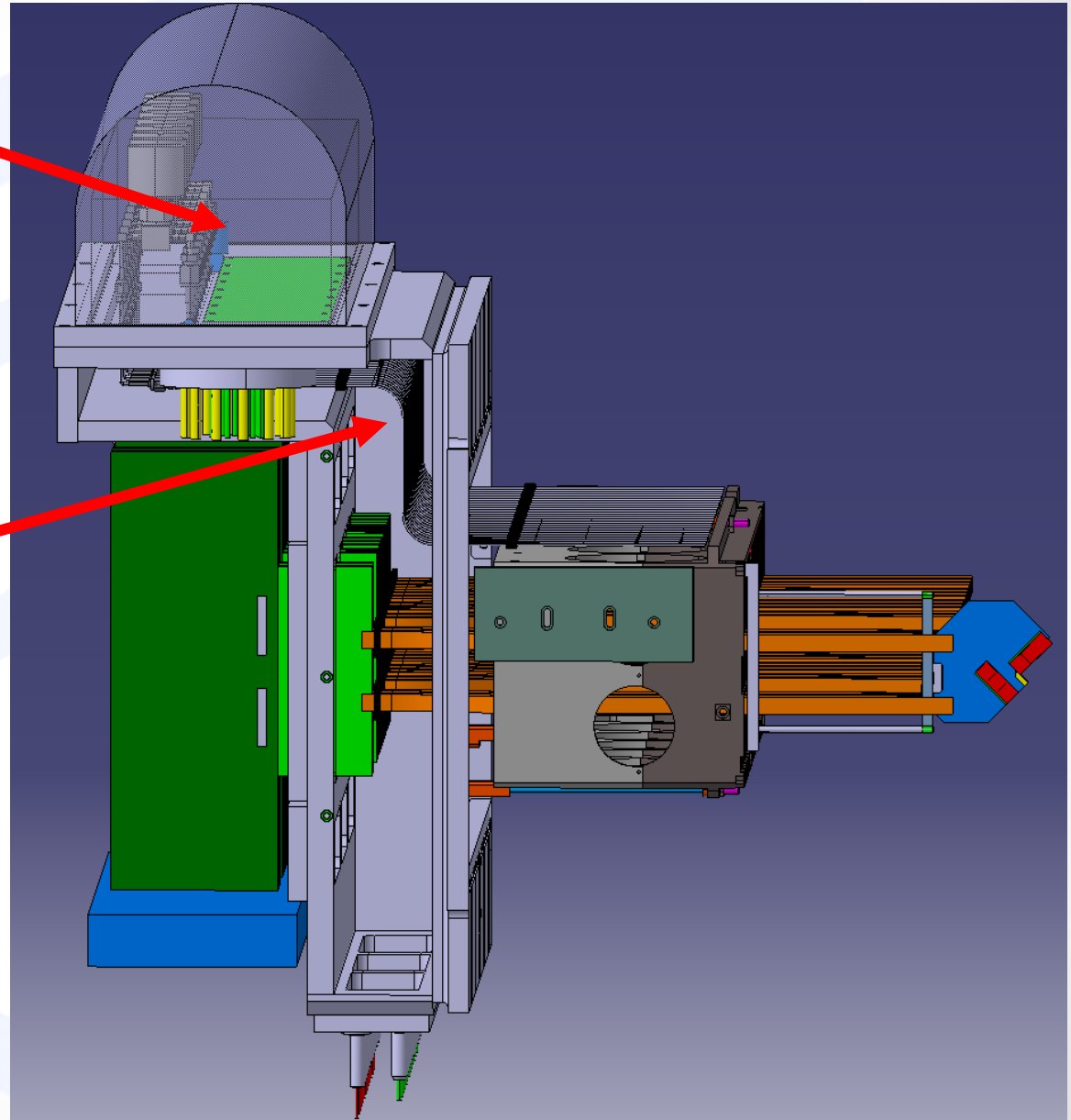
Tertiary vacuum hood



Velo detector half

Tertiary vacuum
(insulation vacuum)

Secondary vacuum
(Detector vacuum)



Tertiary vacuum feedthrough concept

