

Status of the cryogen-free cryogenic system for the CUORE experiment

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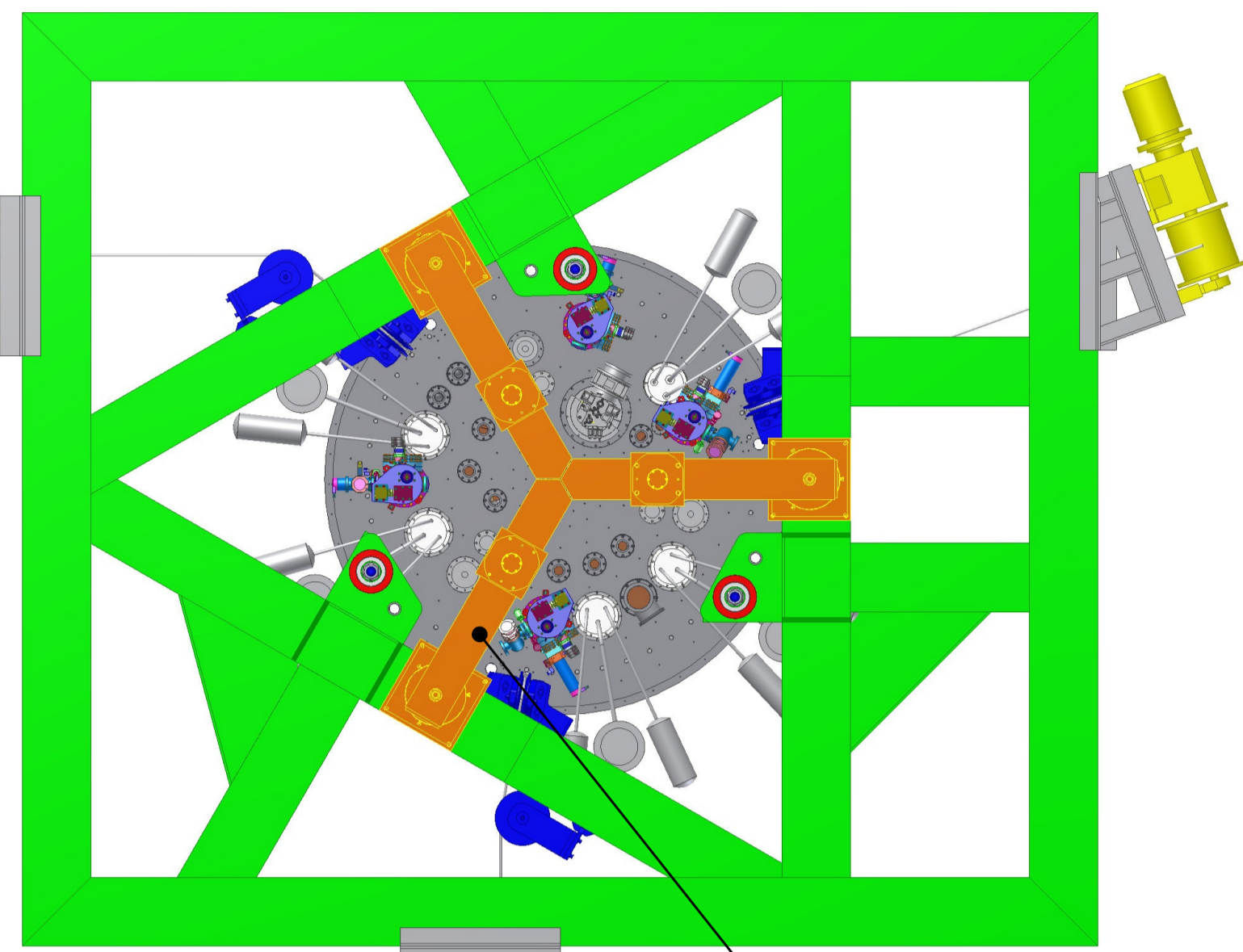
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Main Support Plate (MSP)

Cold Pb shieldings

300K, 40K and 4K vessel production



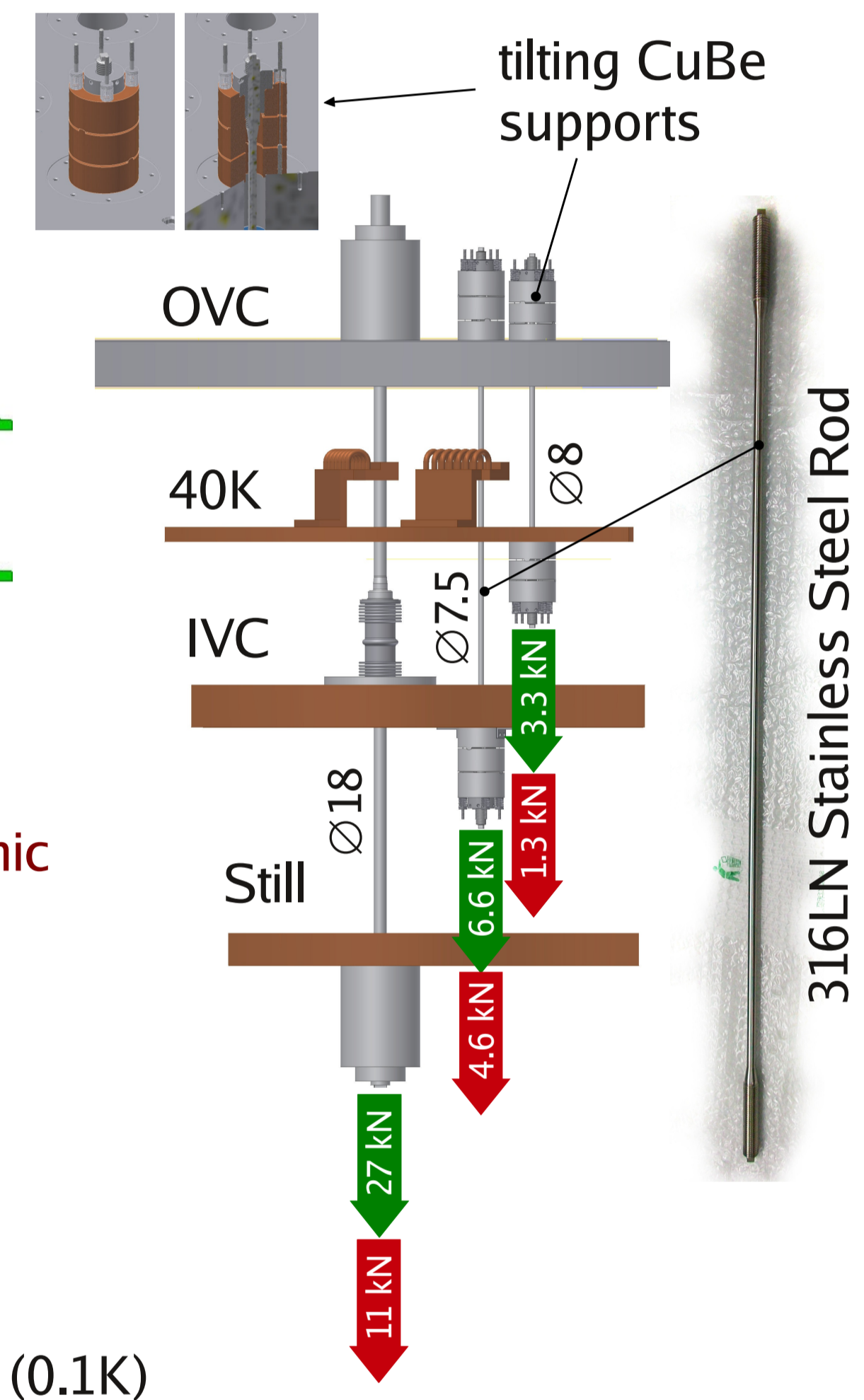
Lateral Pb shield
 $T = 4K$
 Roman Pb 60 thick
 $M = 7$ tons

Top Pb shield
 $T = 0.1K$
 modern Pb 240 thick
 Roman Pb 60 thick
 $M = 3.3$ tons

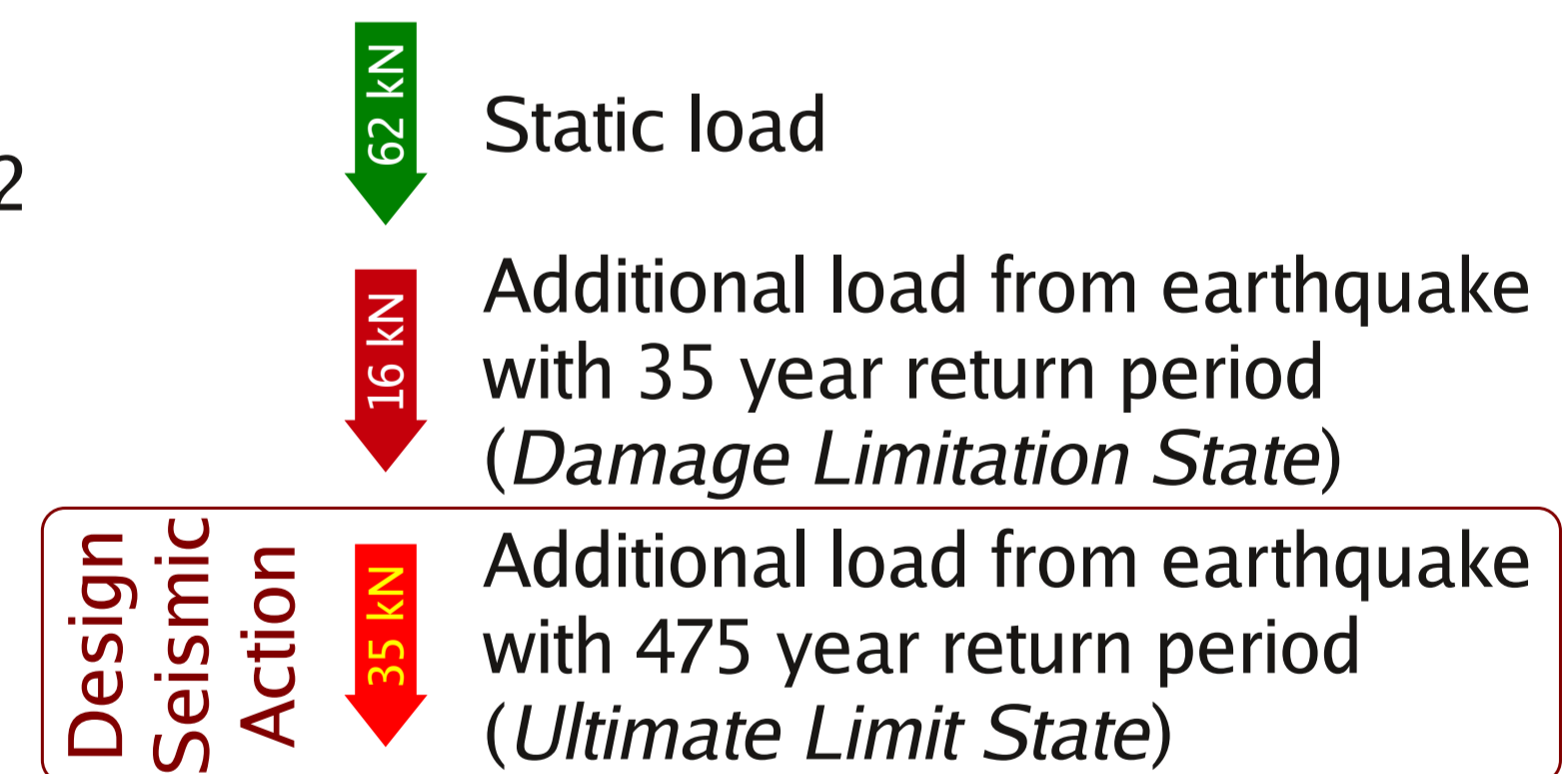


LNGS commissioning by end 2011

Cryostat main Tie Rods

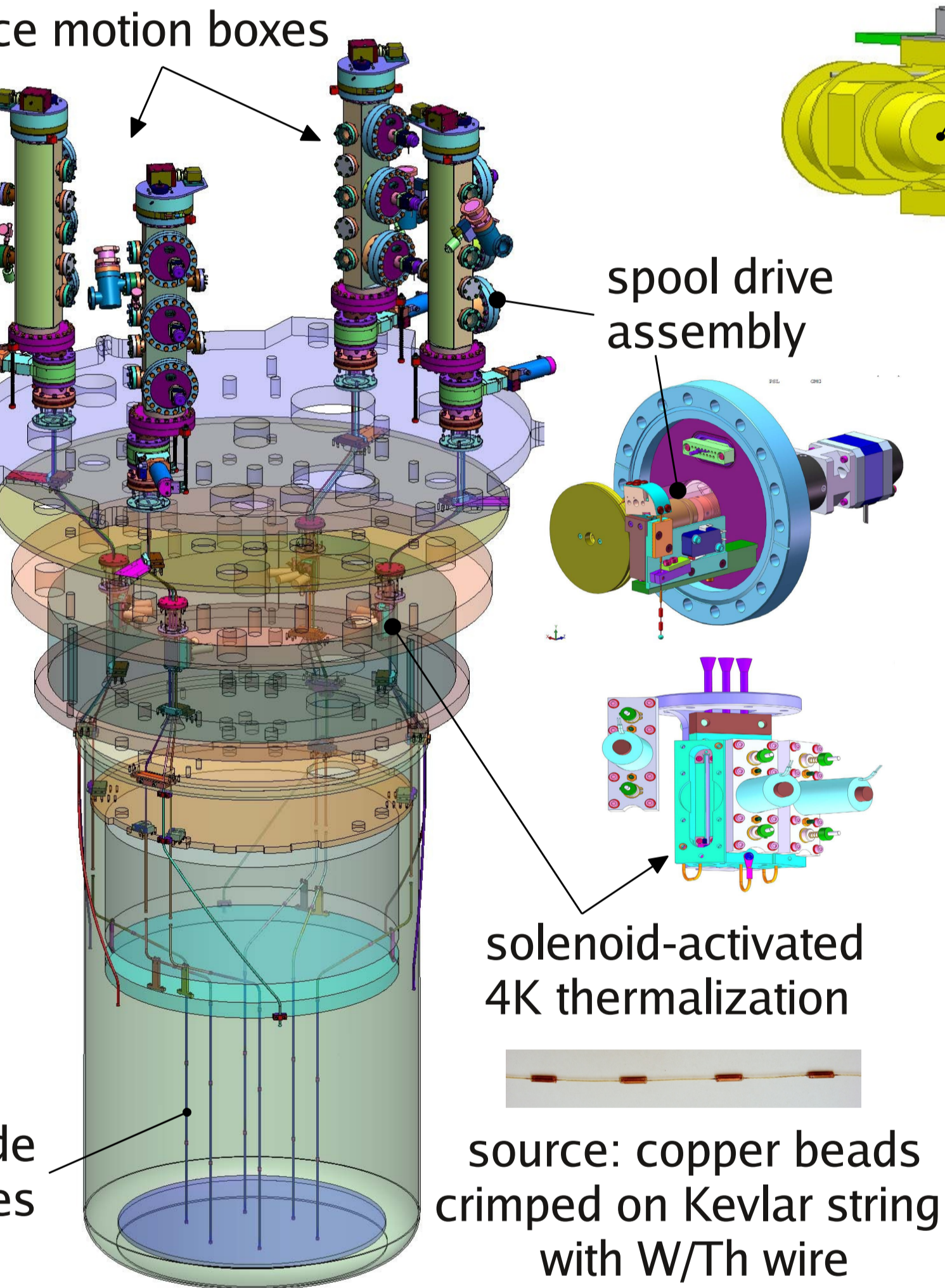


Seismic Actions

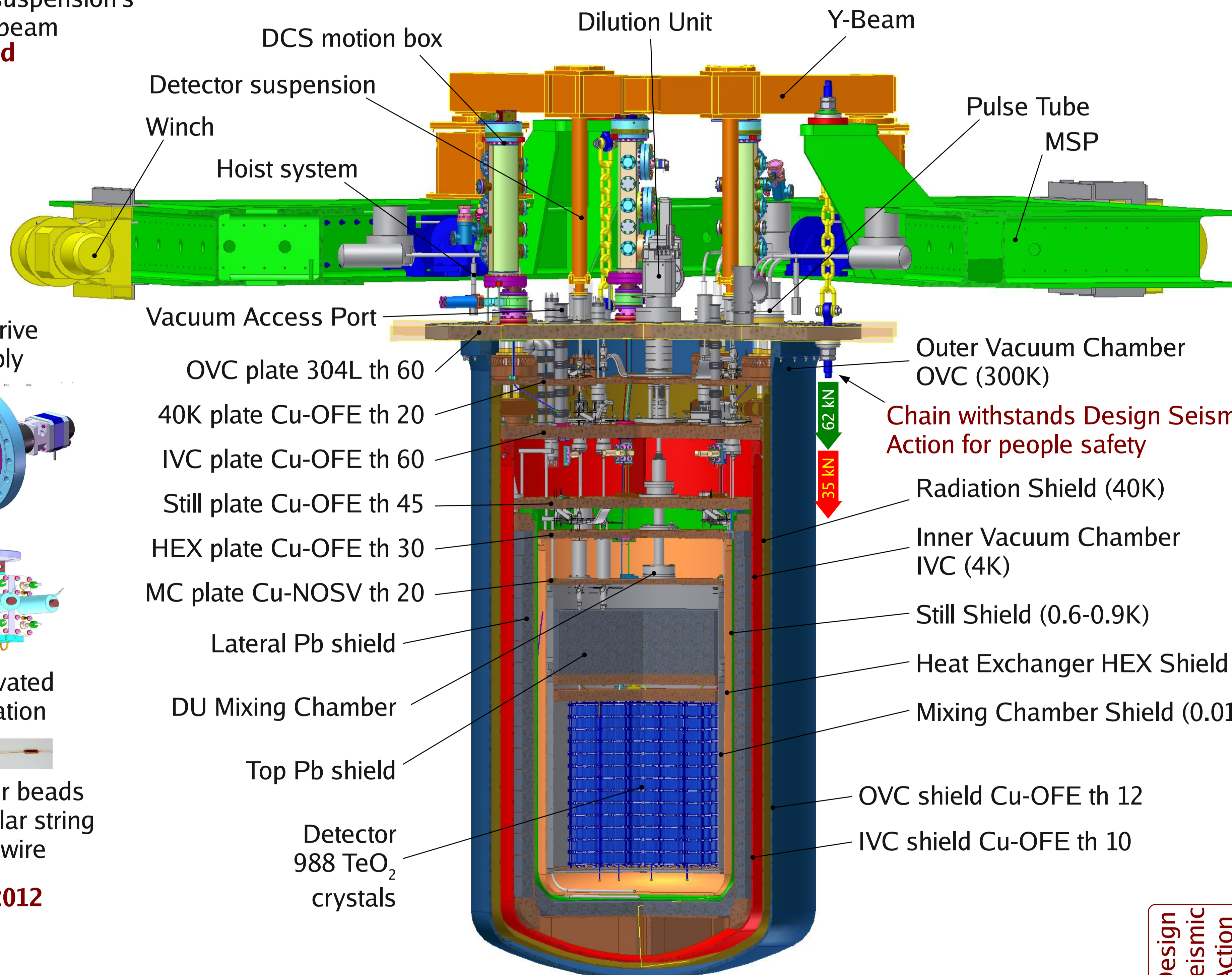


Hoist system's winch
 Detector suspension's Y-beam
LNGS installation completed

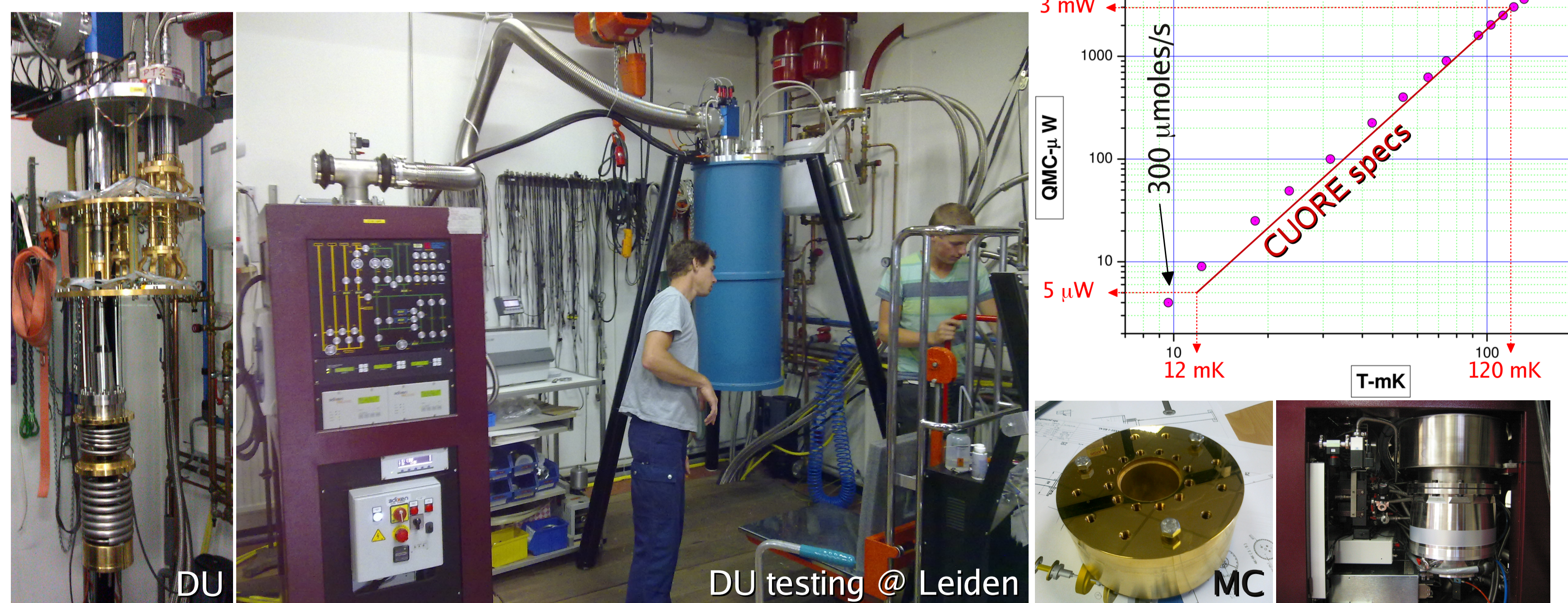
Detector Calibration System (DCS)



LNGS pre-installation beginning of 2012

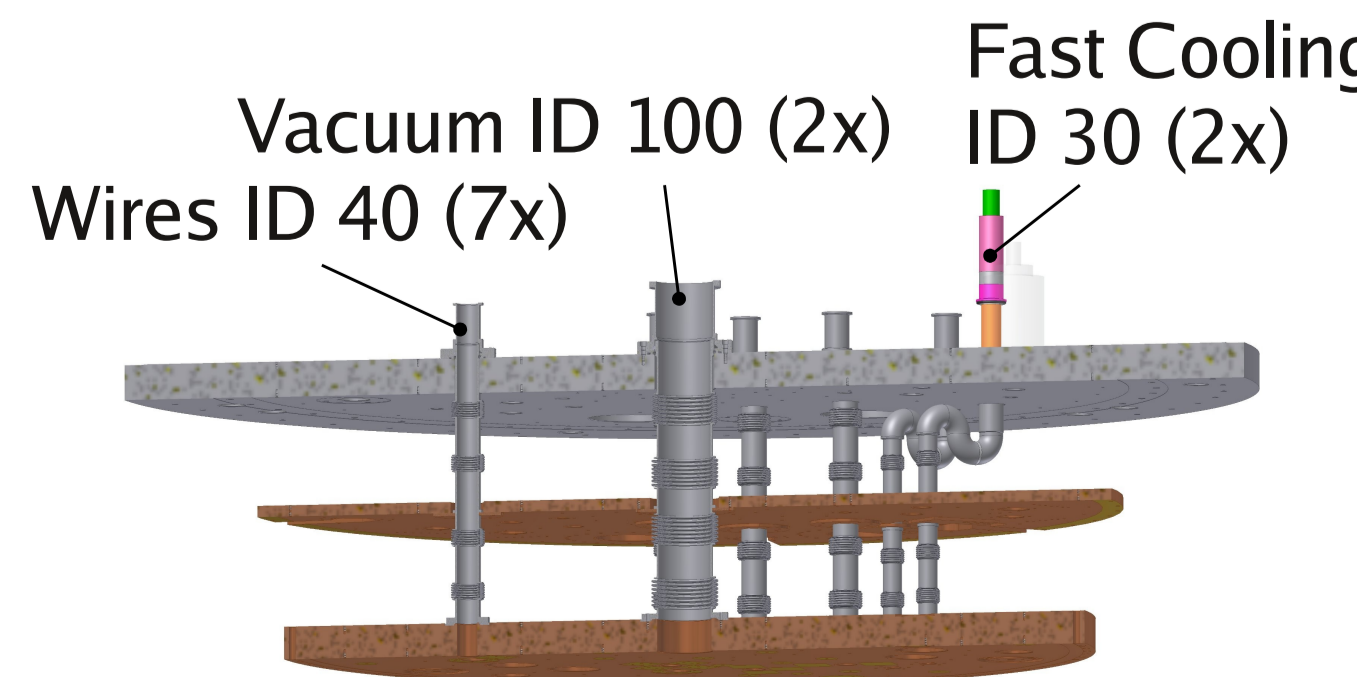


Dilution Unit and ³He Gas Handling

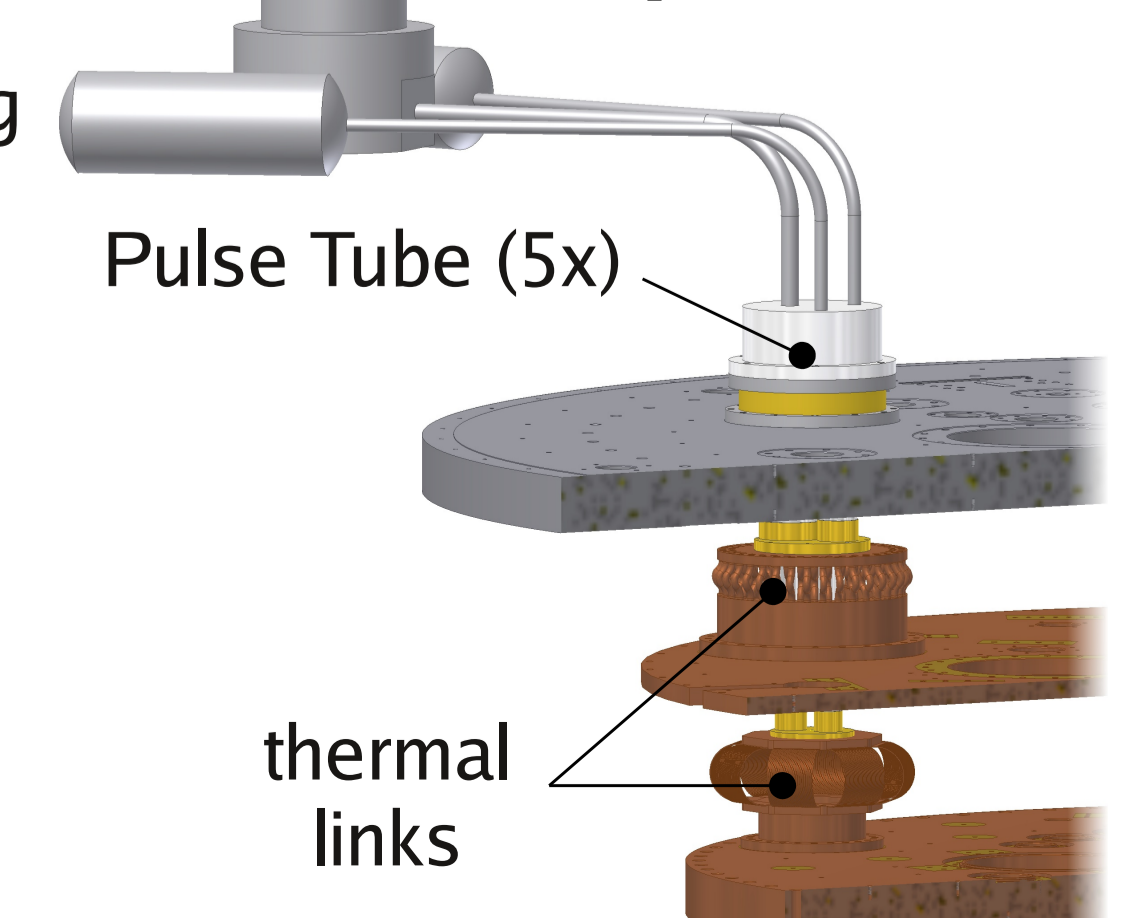


Other Cryostat components

IVC Vacuum Access Ports

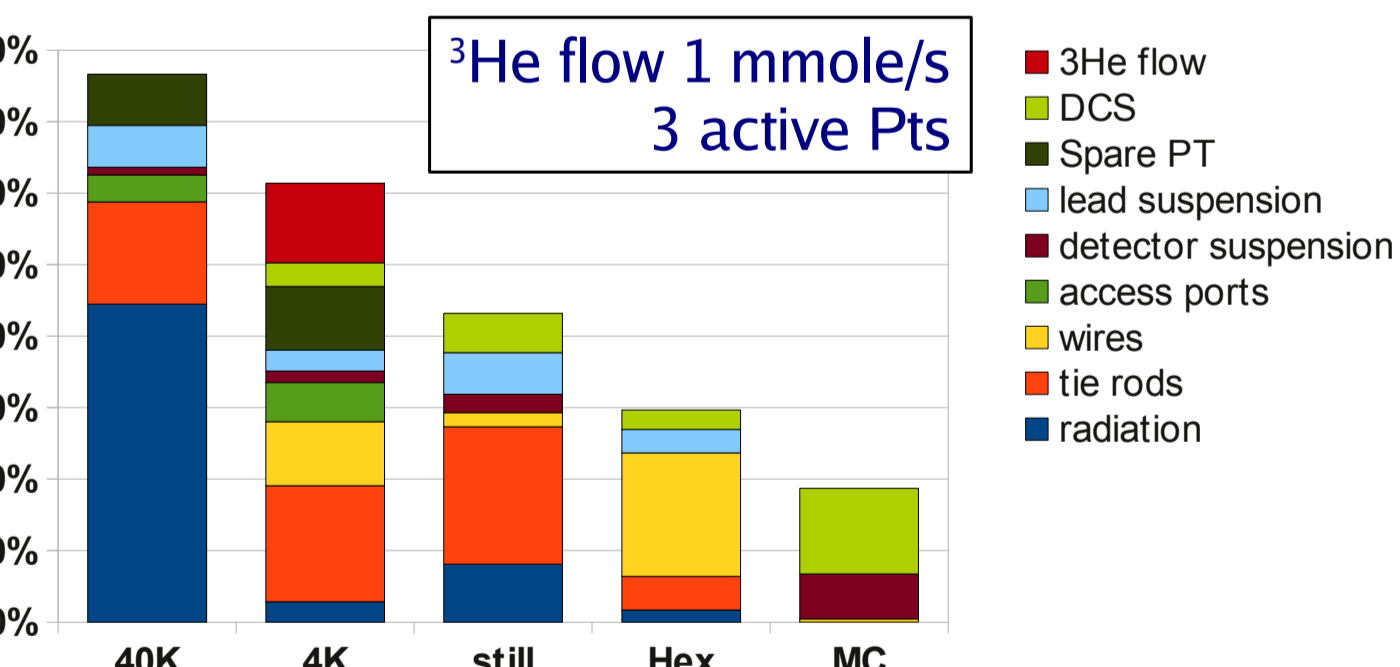


Cryo-coolers



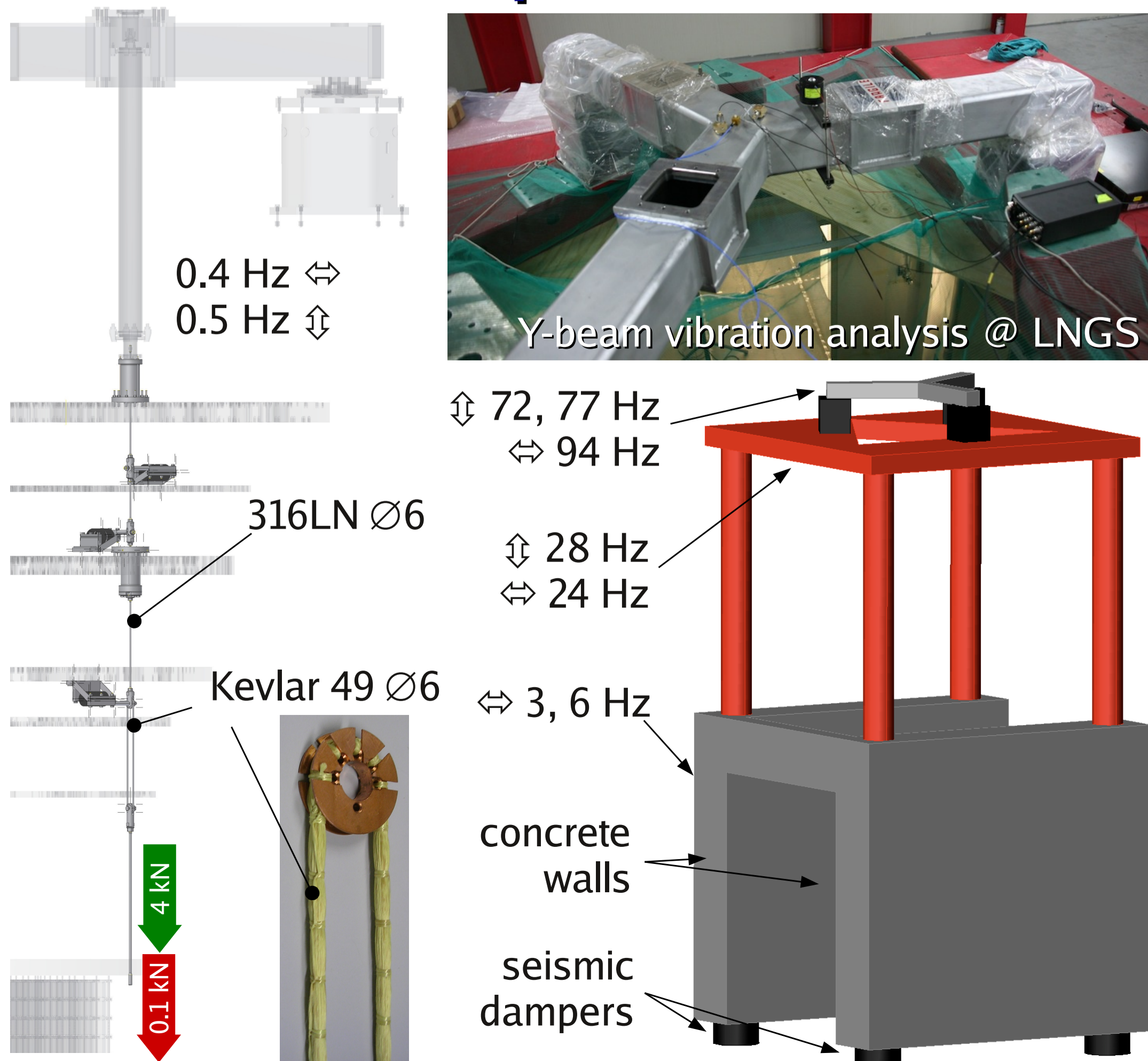
Thermal Analysis

Fraction of stage cooling power budget



Thermal Stage	Budget [W]	T [K]
40K	1.2E+02	53.1
4K	4.5E+00	4.9
still	5.0E-03	0.9
Hex	2.0E-05	0.1
MC	5.0E-06	0.01

Detector Suspension



LNGS pre-installation beginning of 2012

Schedule

2011	4, 40 & 300K fabrication completed
Q3	4 & 300K leak test @ 77K
	Wire port heat load test @ 4K with PT
	DCS thermalization test @ 4K with PT
Q4	MC, HEX & Still fabrication starts
	DU and test cryostat delivery @ LNGS
2012	4, 40 & 300K commissioned @ LNGS
Q1	Cryostat 4K cooldown
	Detector suspension 4K test @ LNGS
Q2	DCS 4K test @ LNGS
...	
2013	Cryostat ready for detector installation