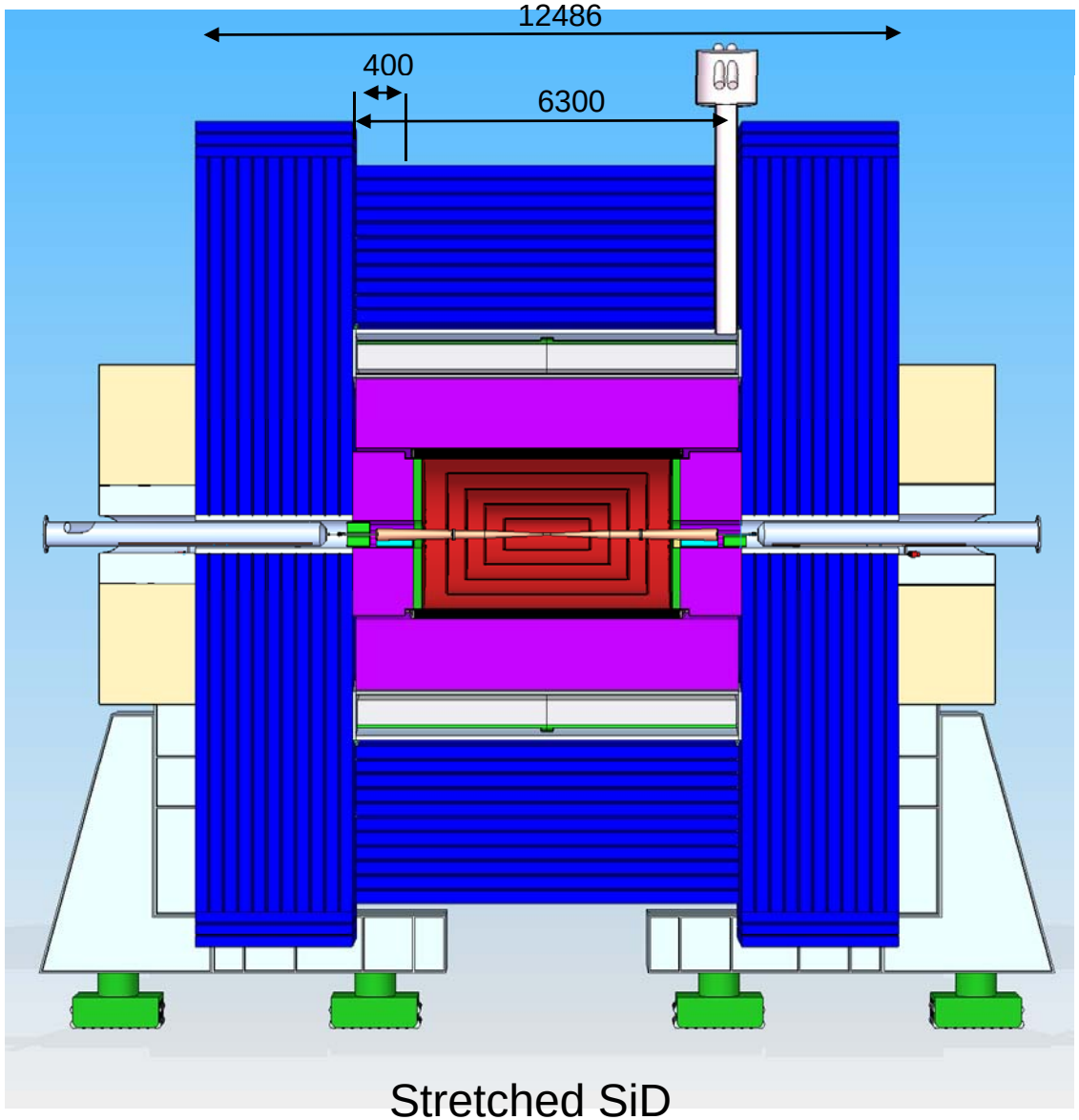


Stretched SiD

Assumptions :

All thebarrel detectors stretches +/- 400 mm in z

- •Tracker (disks shift)
- •Ecal
- •Hcal
- •Solenoid
- •Iron yoke

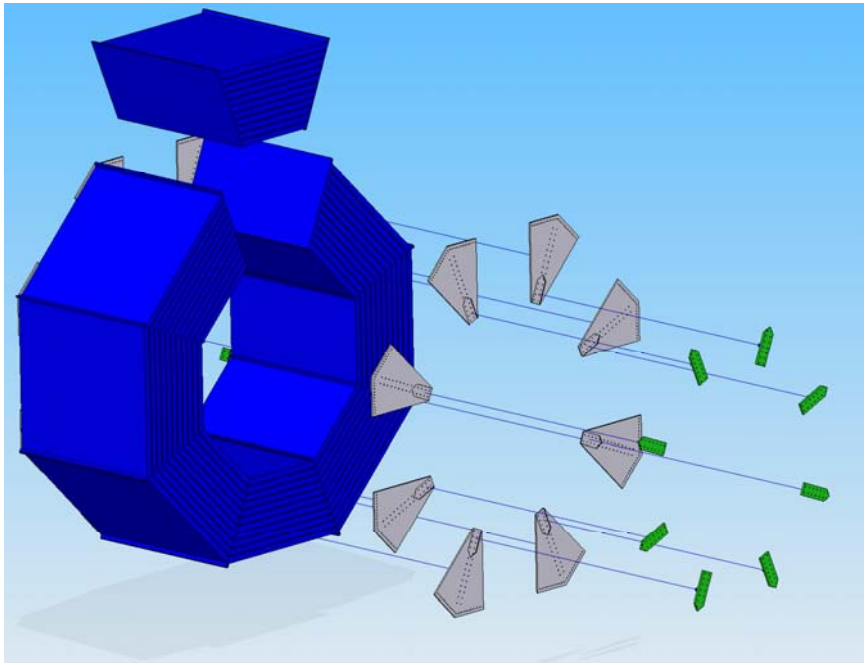
Doors moves out along z +/- 400 accordingly

Immediate effects

1. The barrel region increases 15% in weight -
   > a push-pull platform may start to be useful
2. The single iron yoke wedge oversteps the 400 tons threshold, i.e. the maximum crane capacity -> o.k. with the size of the iron slab but it is mandatory to split the wedge radially
3. The solenoid parameters scale linearly
   1. Longer SC cable, more winding
   2. Higher stored energy (~1800 MJ)
   3. Higher inductance

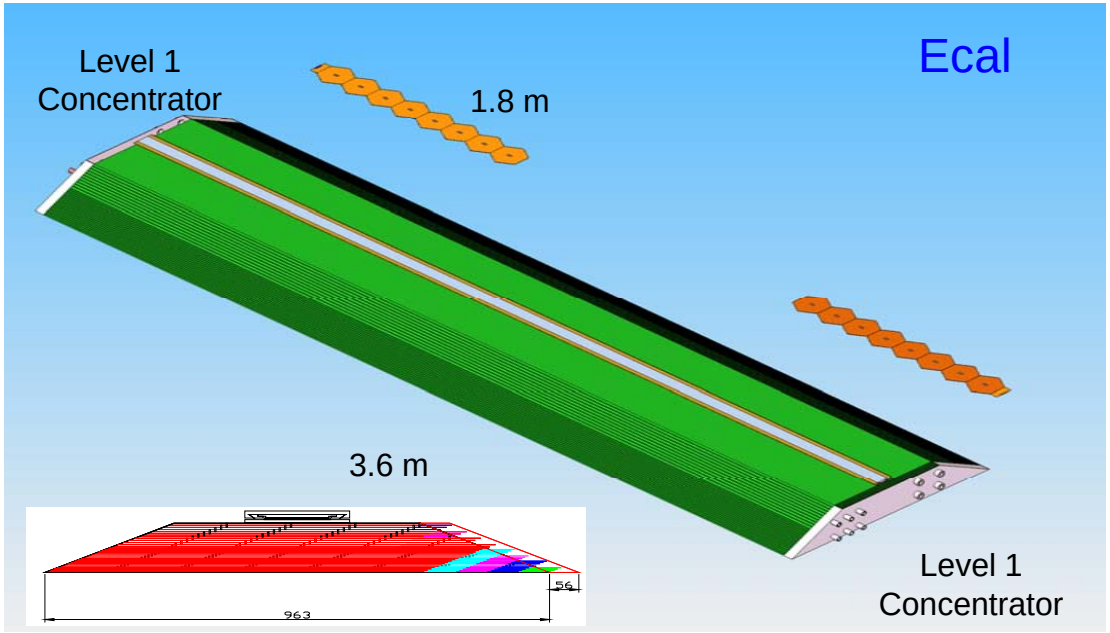
   -> it is still almost half than CMS, but @ 5T

Item	Short (Tons)	Long (Tons)
Tracker + VTX	3	3
Ecal Barrel	59	67
Hcal Barrel	367	418
Total Inner Detectors	429	489
Cold mass	104	119
Vacuum Tank	117	133
Yoke Barrel	2700	3078
Muon detectors Barrel	50	57
Infrastructure	50	50
Feet x 6	180	180
Barrel subtotal	**4059**	**4595**
One Door		
Ecal Fwd	20	20
Hcal Fwd	46	46
Yoke Forward	4400	4400
Muon Forward	60	60
Feet x 2	120	120
BDS	10	10
Two endcap subtotal	**4656**	**4656**
Gran Total	**8715**	**9251**

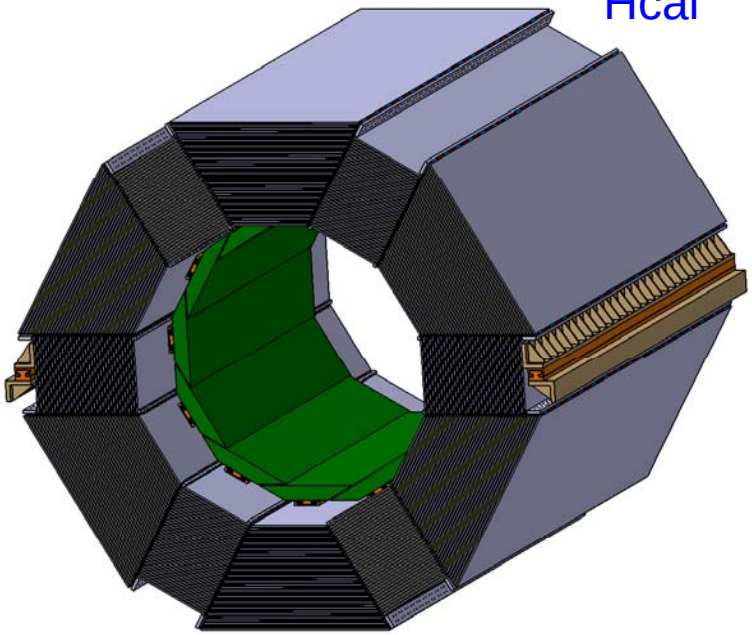


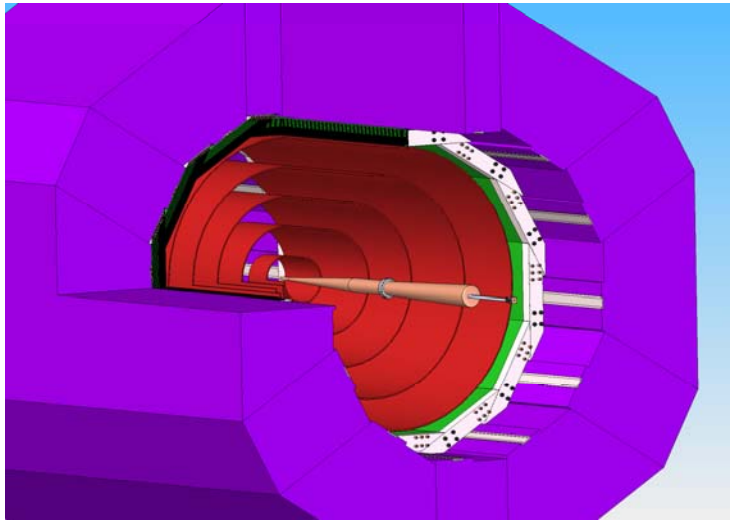
Ecal and Hcal : mechanical design straightforward scales for a longer barrel

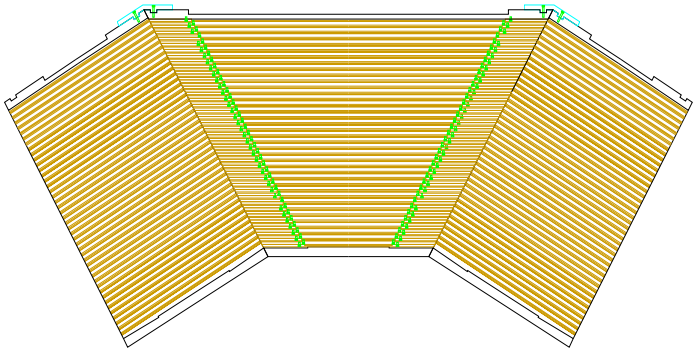
Longer Ecal Kapton cable, larger GEM-µMega-scintillators



Hcal





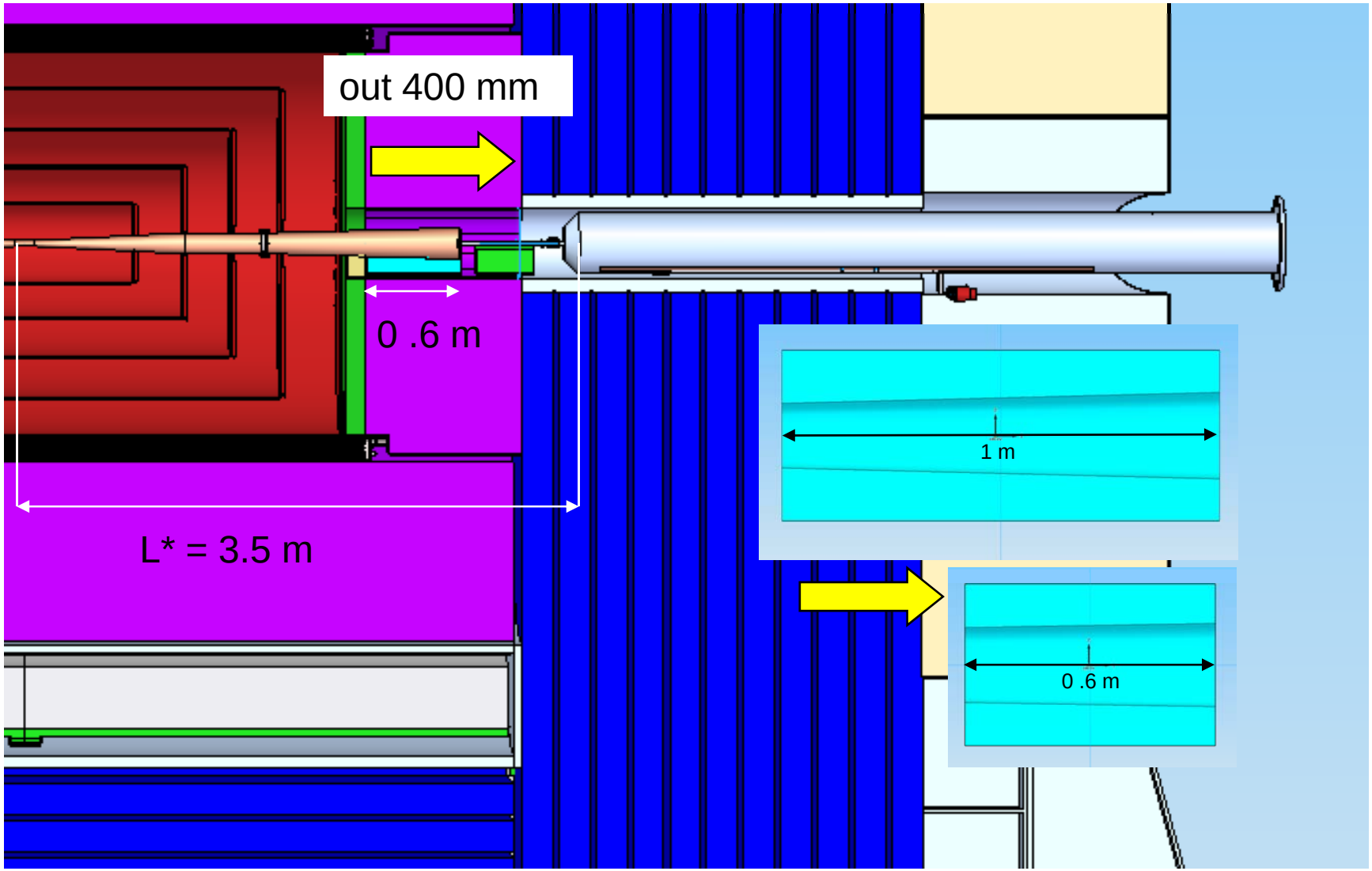


L*, i.e. 3.5 m can be kept the same with a longer barrel

QD0 can stay at the same z if we stretch the mask and move out Lumical and Beamcal

Dead weight reduction of the cantilevered fwrd dtectors

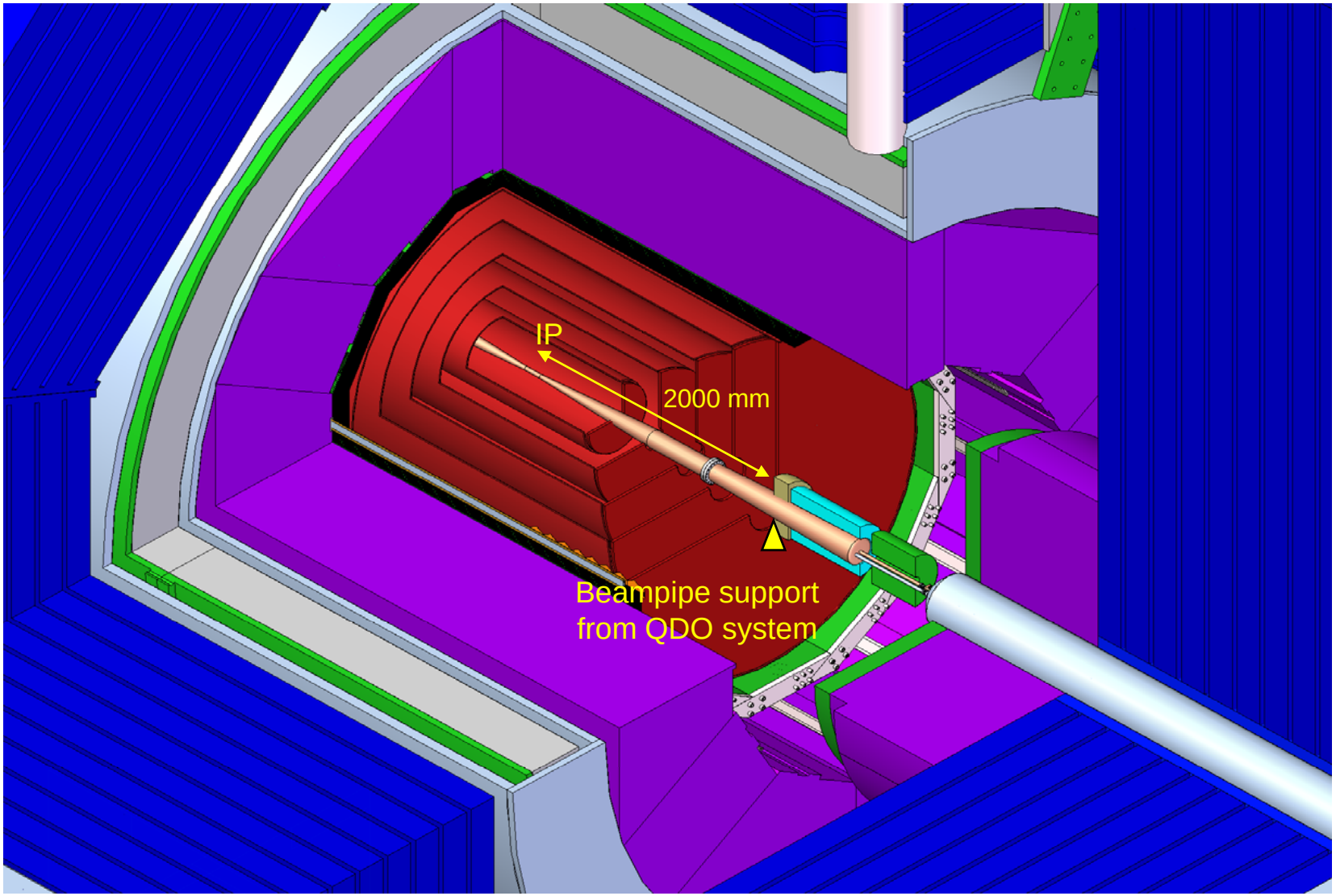
Perhaps a smaller acceptance



The beam pipe is cantilevered over a longer free length

Beryllium has excellent mechanical property, comparable or better than steel

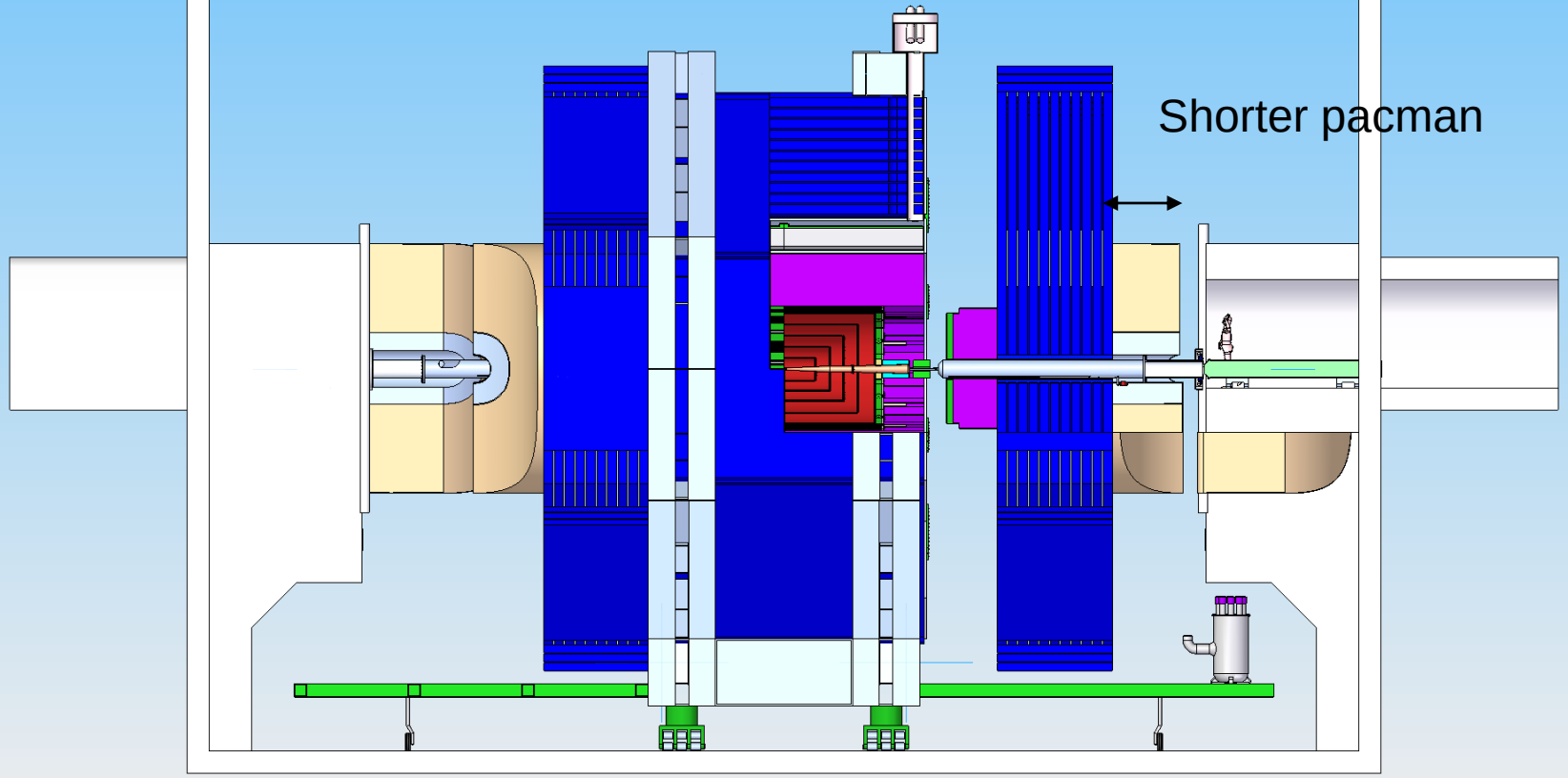
Stress and deformations scale with $l^3 / (R^3 \times t)$ -> one can compensate over the beam pipe diameter and thickness, new support points

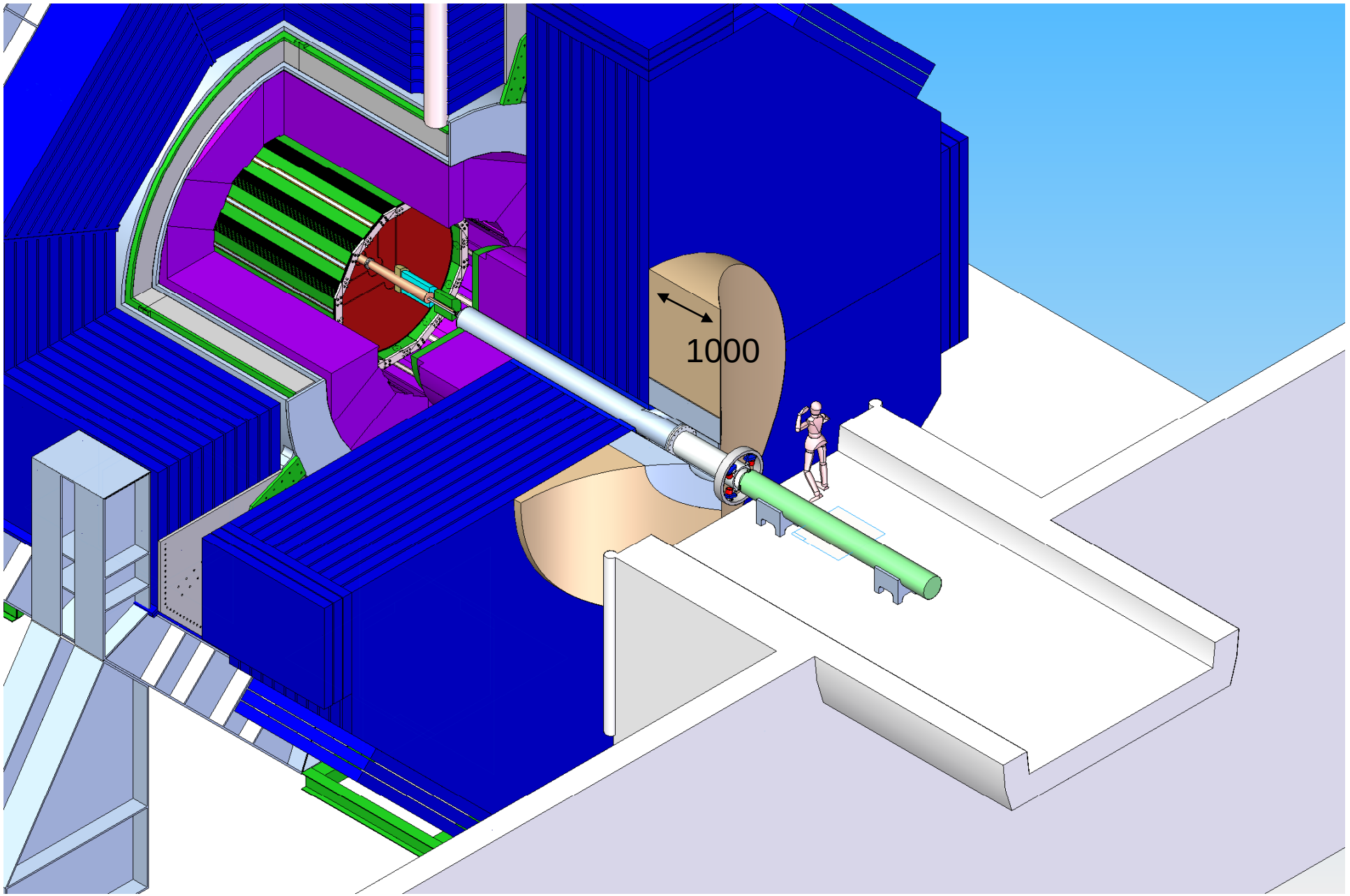


IR hall dimensions are also not affected

Moving Pacmen on the doors become shorter

1. They absorbs the 400mm in z but stay the same in R
2. Doors can still open 2m on the beam




1000