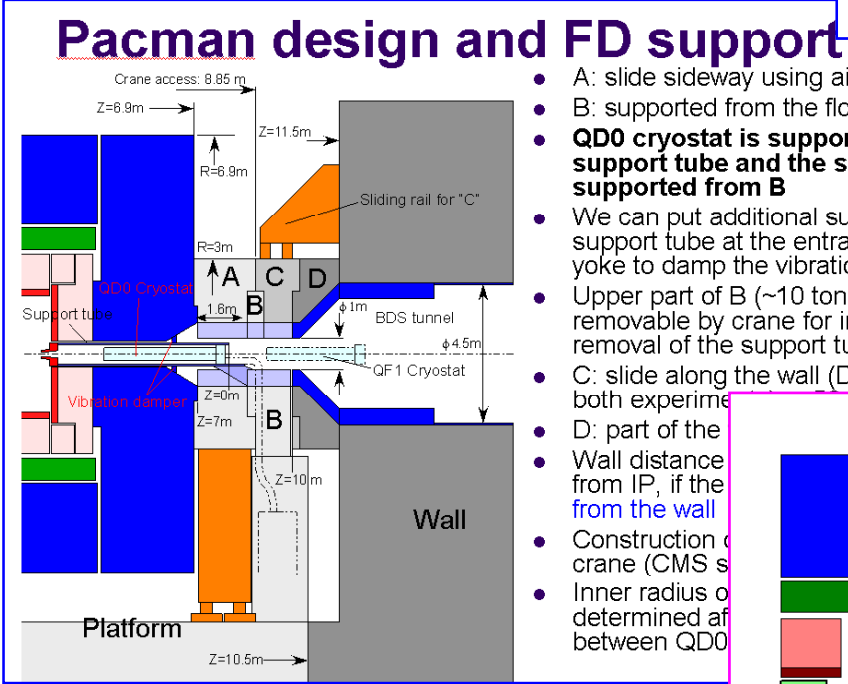# Installation scheme

'MDI at GLD' by Y. Sugimoto
ILD Workshop at DESY, Zeuthen
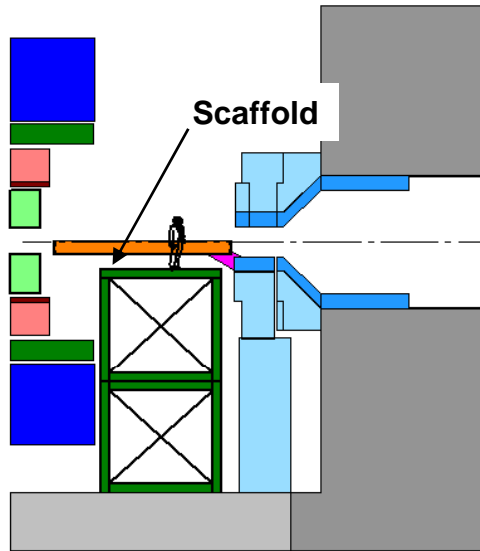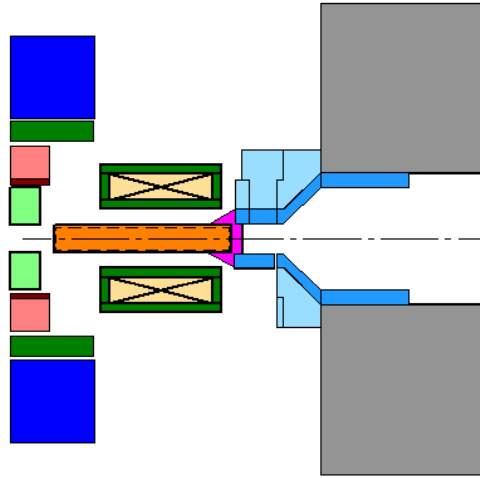
Pacman design and FD support

- A: slide sideway using air pad
- B: supported from the floor of platform
- **QD0 cryostat is supported by the support tube and the support tube is supported from B**
- We can put additional support for the support tube at the entrance of endcap yoke to damp the vibration, if necessary
- Upper part of B (~10 ton) must be removable by crane for installation and removal of the support tube
- C: slide along the wall (D) (both experiment
- D: part of the
- Wall distance from IP, if the from the wall
- Construction crane (CMS s
- Inner radius o determined af between QD0

Crane access: 8.85 m
Z=6.9m
Z=11.5m
R=6.9m
Sliding rail for "C"
R=3m
A   C   D
B
QD0 Cryostat
Support tube
1.6m
φ1m
BDS tunnel
φ4.5m
QF1 Cryostat
Vibration damper
Z=0m
Z=7m
B
Z=10 m
Wall
Platform
Z=10.5m

Initial condition

1
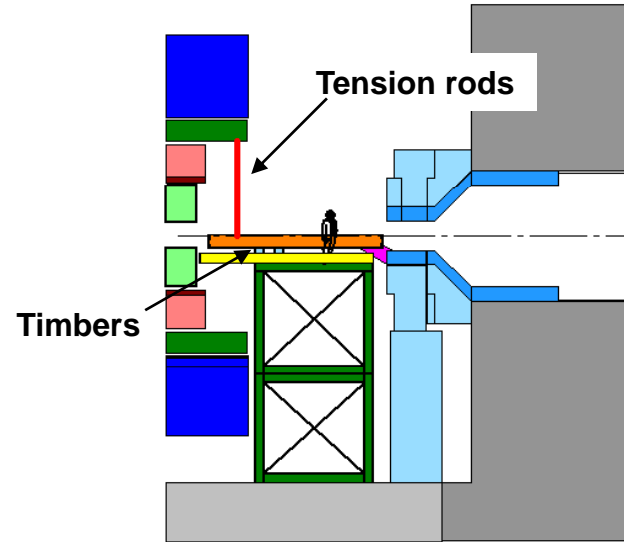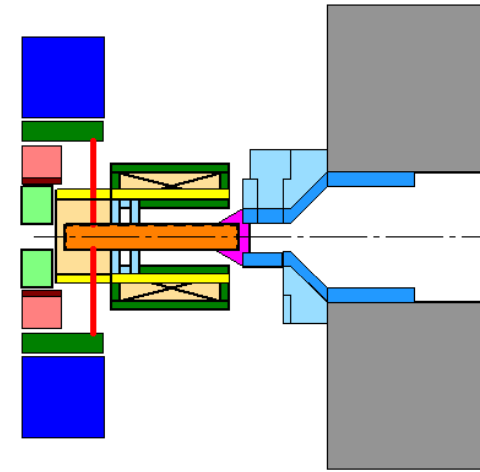
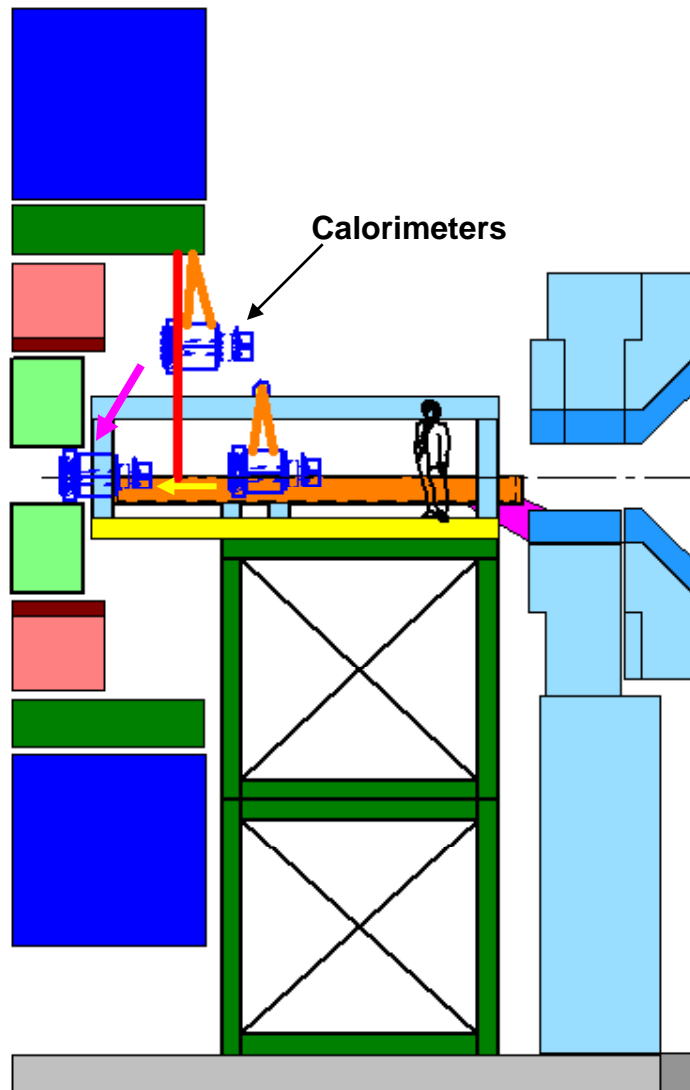**1.**

2.

Scaffold

Tension rods
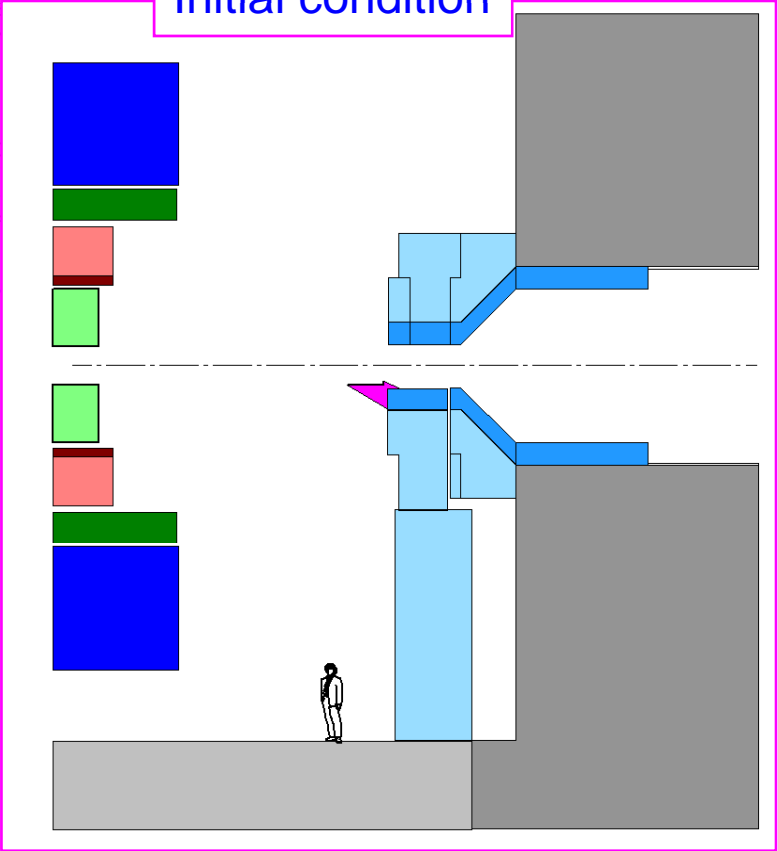
Timbers

- Temporal rigid scaffold is set on the floor.
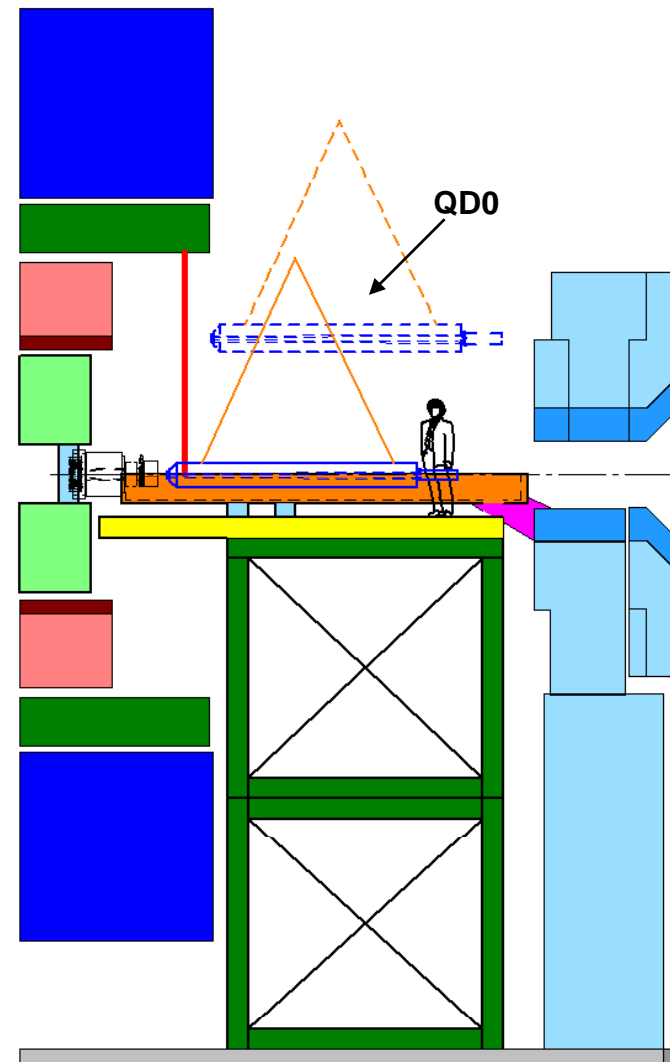- The bottom half-cylinder is connected.

- Top of the support tube is supported by tension-rods.
- or, It is supported by timbers at the bottom.   2
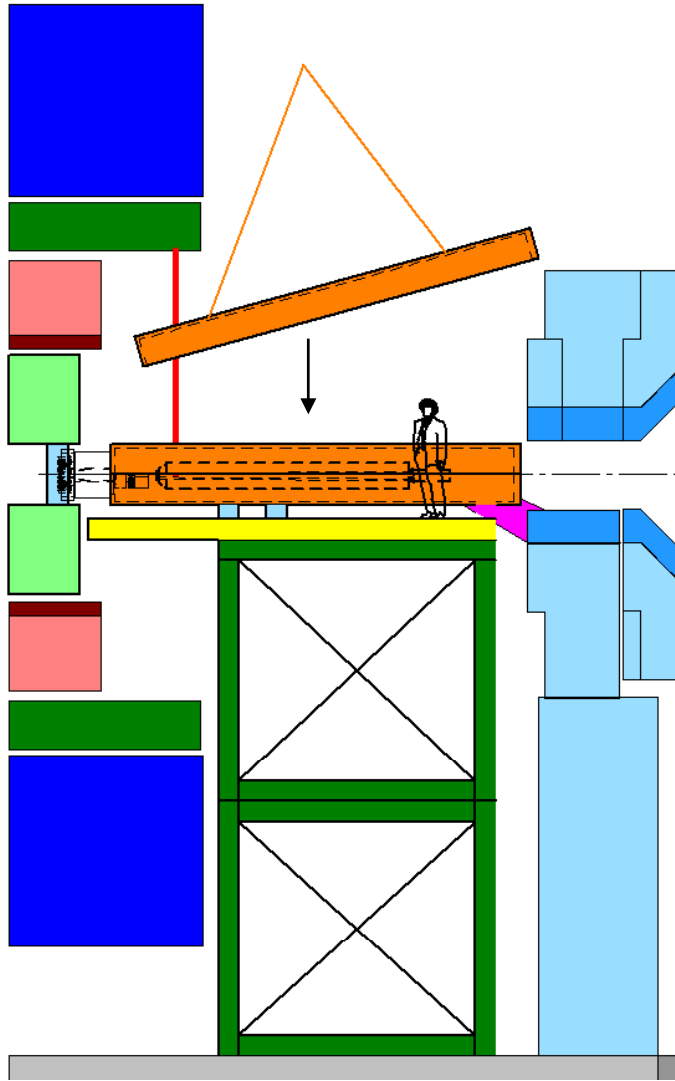 → 20mm sagged in case of the half-cylinder.

3.

Calorimeters

4.

QD0

- Set Calorimeters.
    (a) Set chain hoist on the inner cryostat.
or
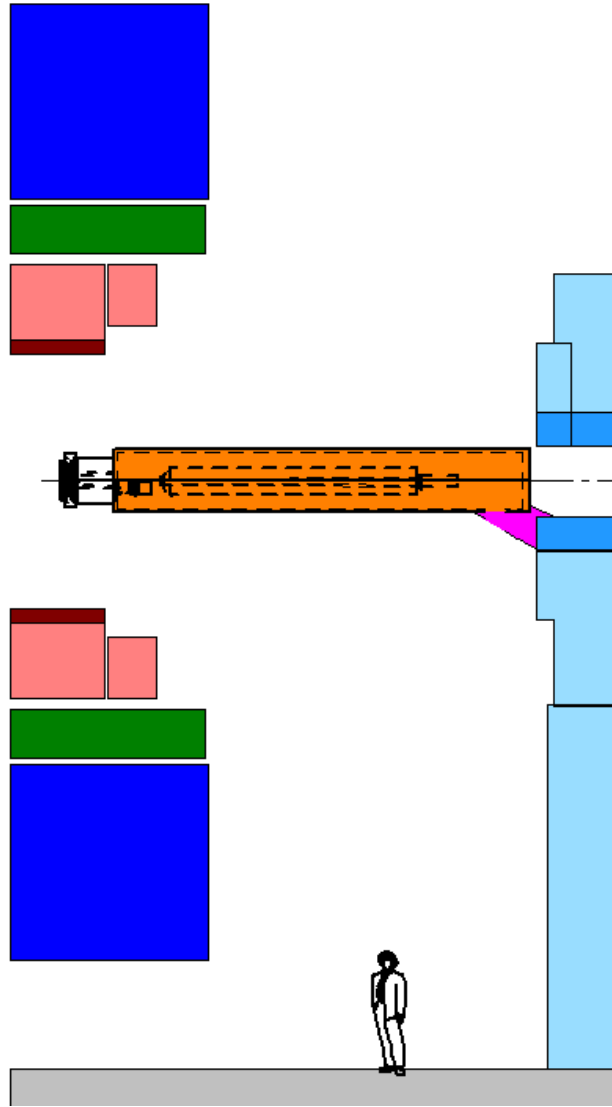   (b) Assemble support frame on the temporal scaffold.

- QD0 is lifted by crane.
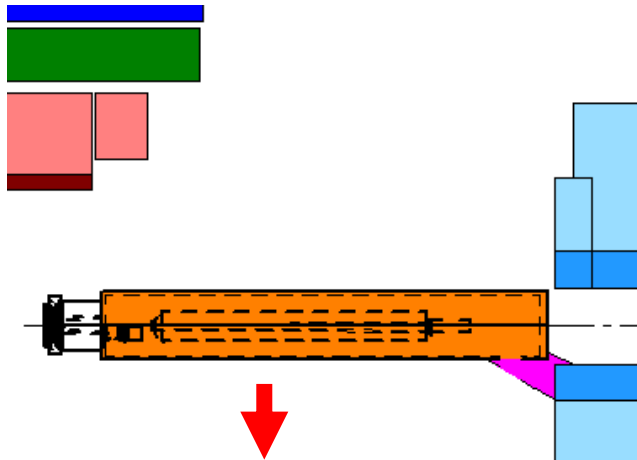- Set it to the correct position.

3

5.

6.

- Upper support tube is lifted by crane.
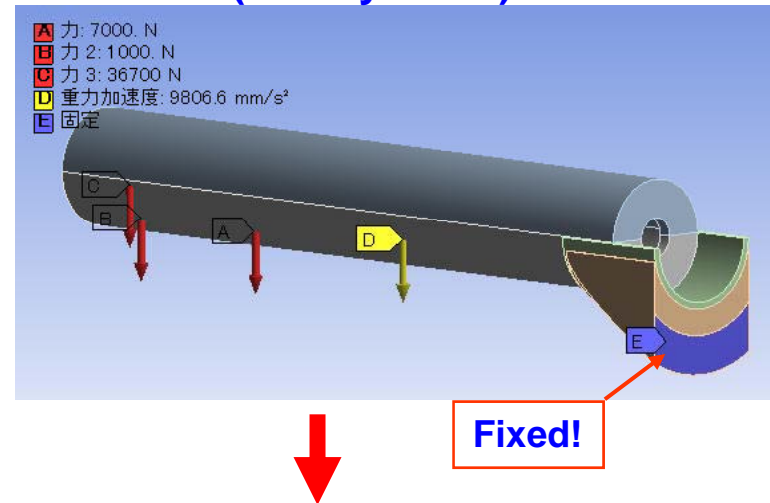- Set it to the correct position.

-Remove the temporal scaffold.
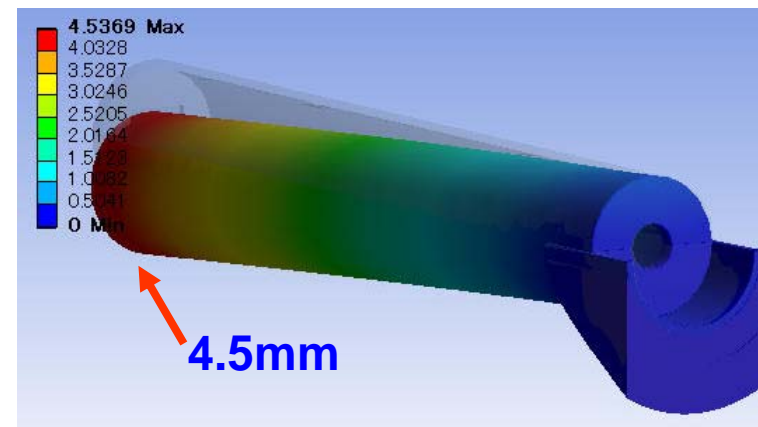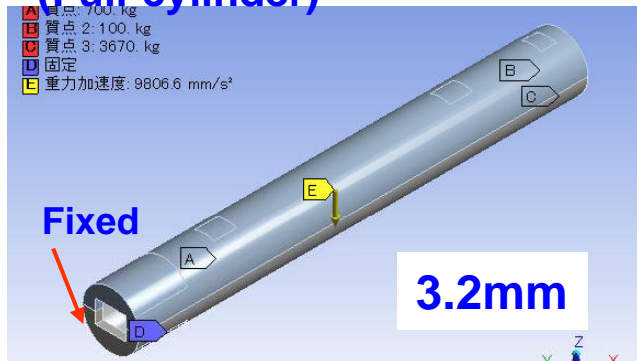-Finished.

4

Stiffness at the support position

(Full-cylinder)

力: 7000. N
力 2: 1000. N
力 3: 36700 N
重力加速度: 9806.6 mm/s²
固定

Fixed!

(Full-cylinder)

質点: 700. kg
質点 2: 100. kg
質点 3: 3670. kg
固定
重力加速度: 9806.6 mm/s²

Fixed

3.2mm

4.5369 Max
4.0328
3.5287
3.0246
2.5205
2.0164
1.5123
1.0082
0.50411
0 Min

4.5mm

➔**Deformation is 40% increased.**

    3.2mm ➔ 4.5mm(Full cylinder)

    6.0mm ➔ 8.4mm(Estimation: Bolts connection)

➔**There must be some ideas to increase the stiffness at the support position.**

END