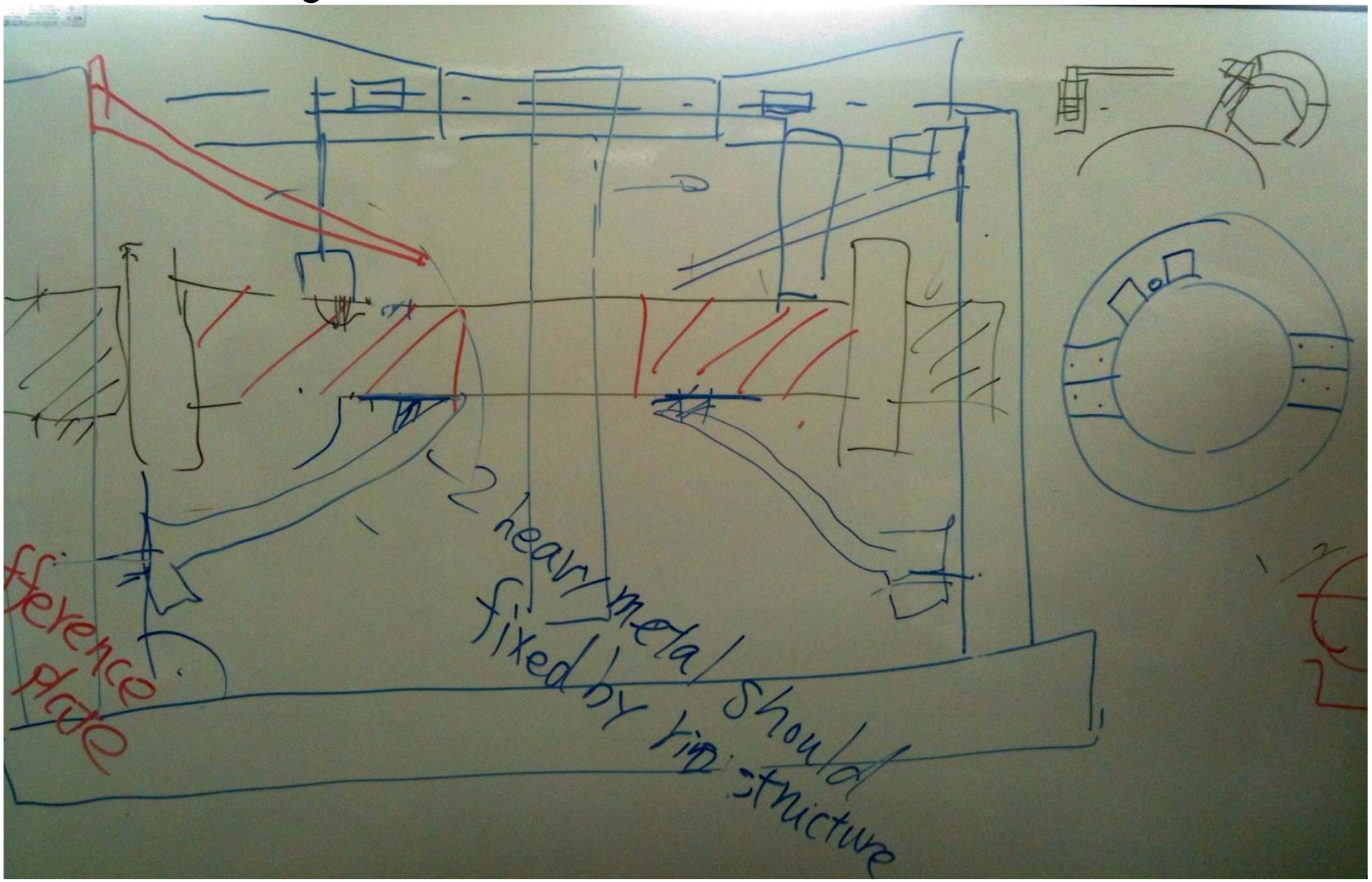
Report on May KEK Meeting

Schedule:

May 13	Visit to Taiyo Company (see Stefan's talk)
May 14	M: Brain Storming VXD assembly A: Meeting with Photon Factory Crew
May 15	M: Belle roll out (watching) A: SVD / PXD assembly procedures
May 16	M: SVD Mechanics / origami, RVC Status A: VXD assembly (KEK ideas), CO2 piping
May 17	M: PXD mechanics, VXD DAQ Meeting („Beast II“) A: RVC discussion and plans

VXD Assembly

Brain storming on the B1 level of Tsukuba hall: some first ideas …



PXD Mechanics

What we (MPI) had promised for the May Meeting:

1. Final design for the end flange
2. Mockup of the PXD for the VXD mockup

Point 1: not finished

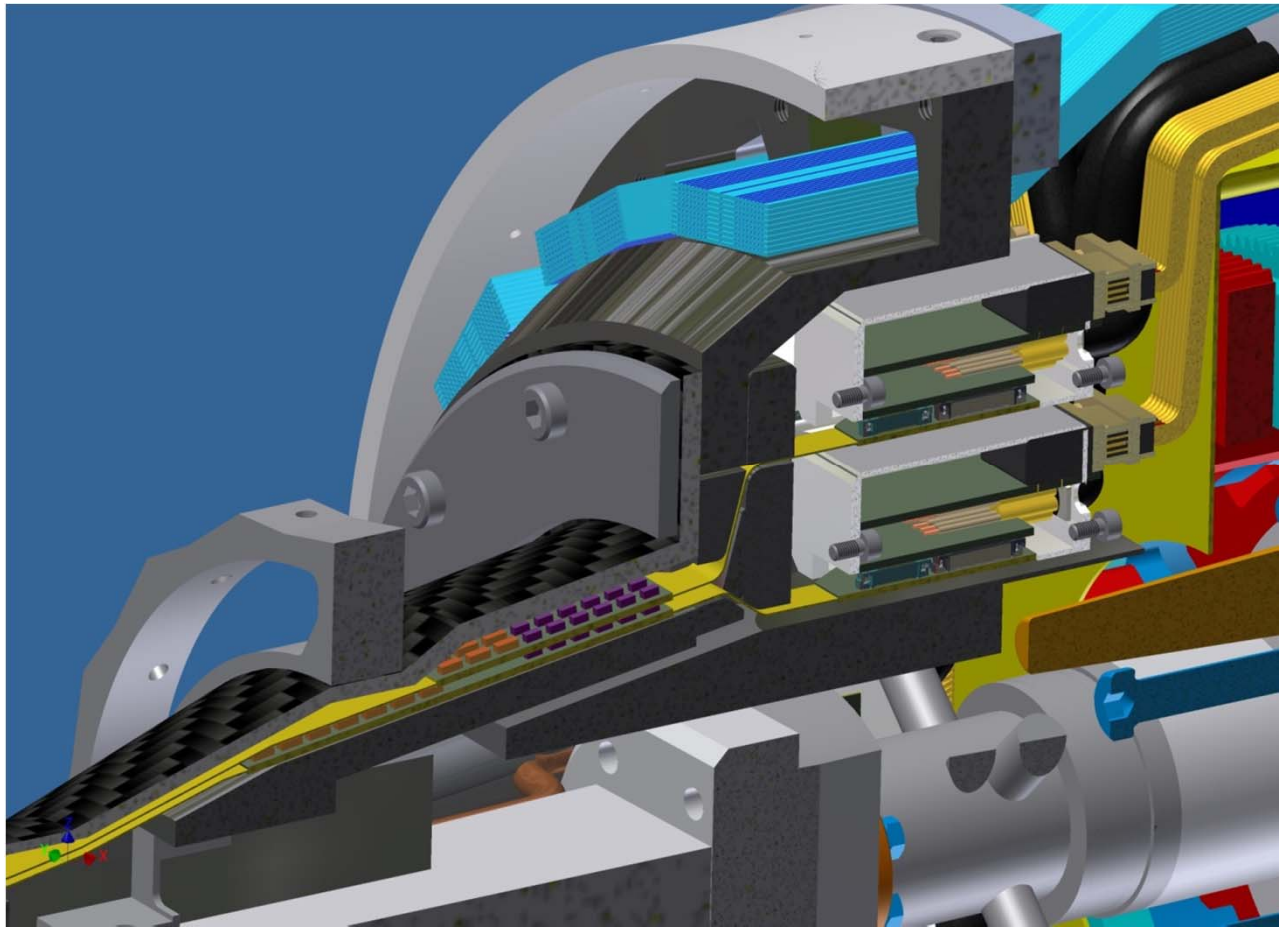
Point 2: we successfully recycled the MPI model

fitted perfectly on the KEK mockup of the beampipe

PXD Mechanics

Tscharlie discussed his ideas for the final end flange design

Needs to be cross checked with the Vienna colleagues

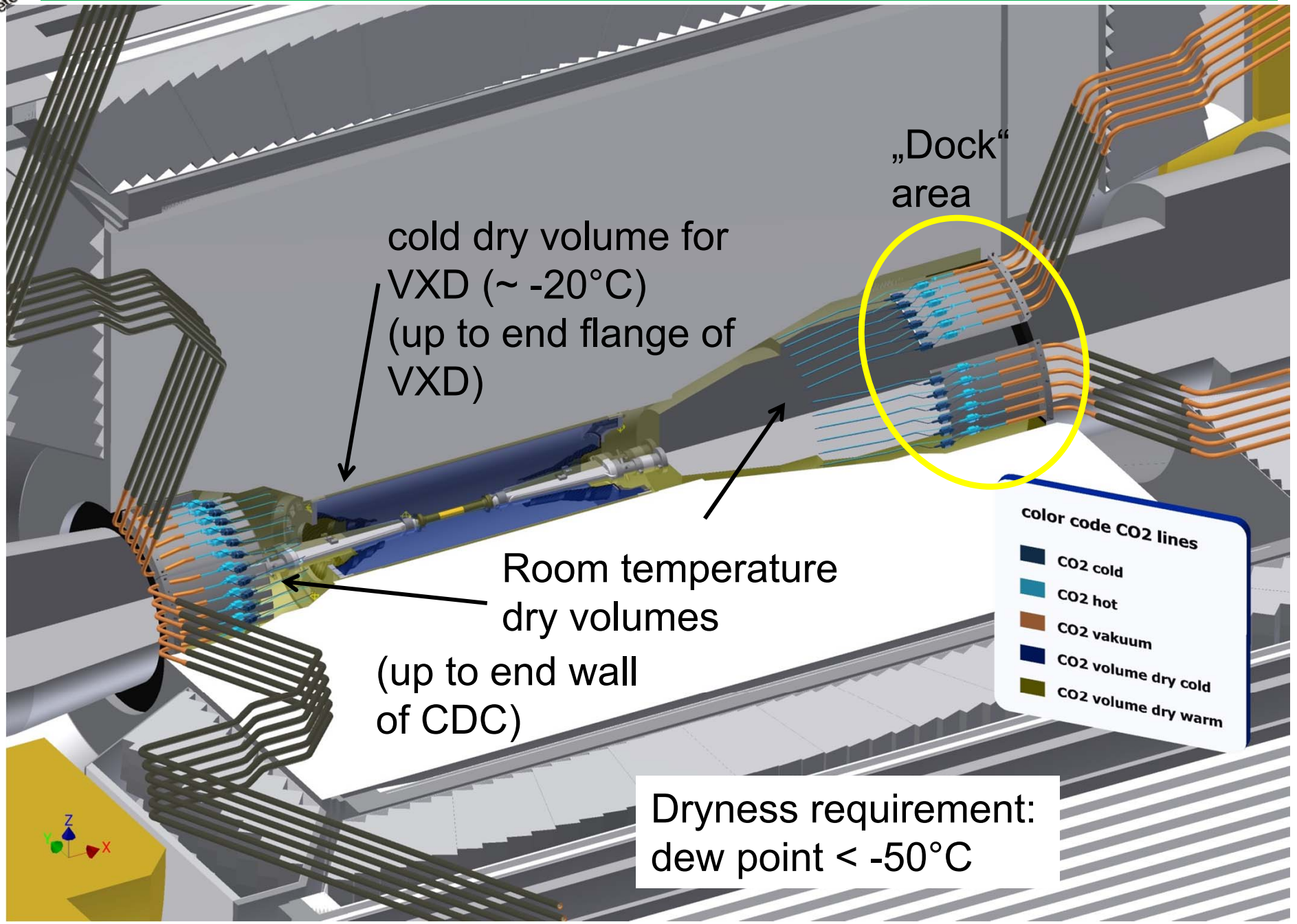


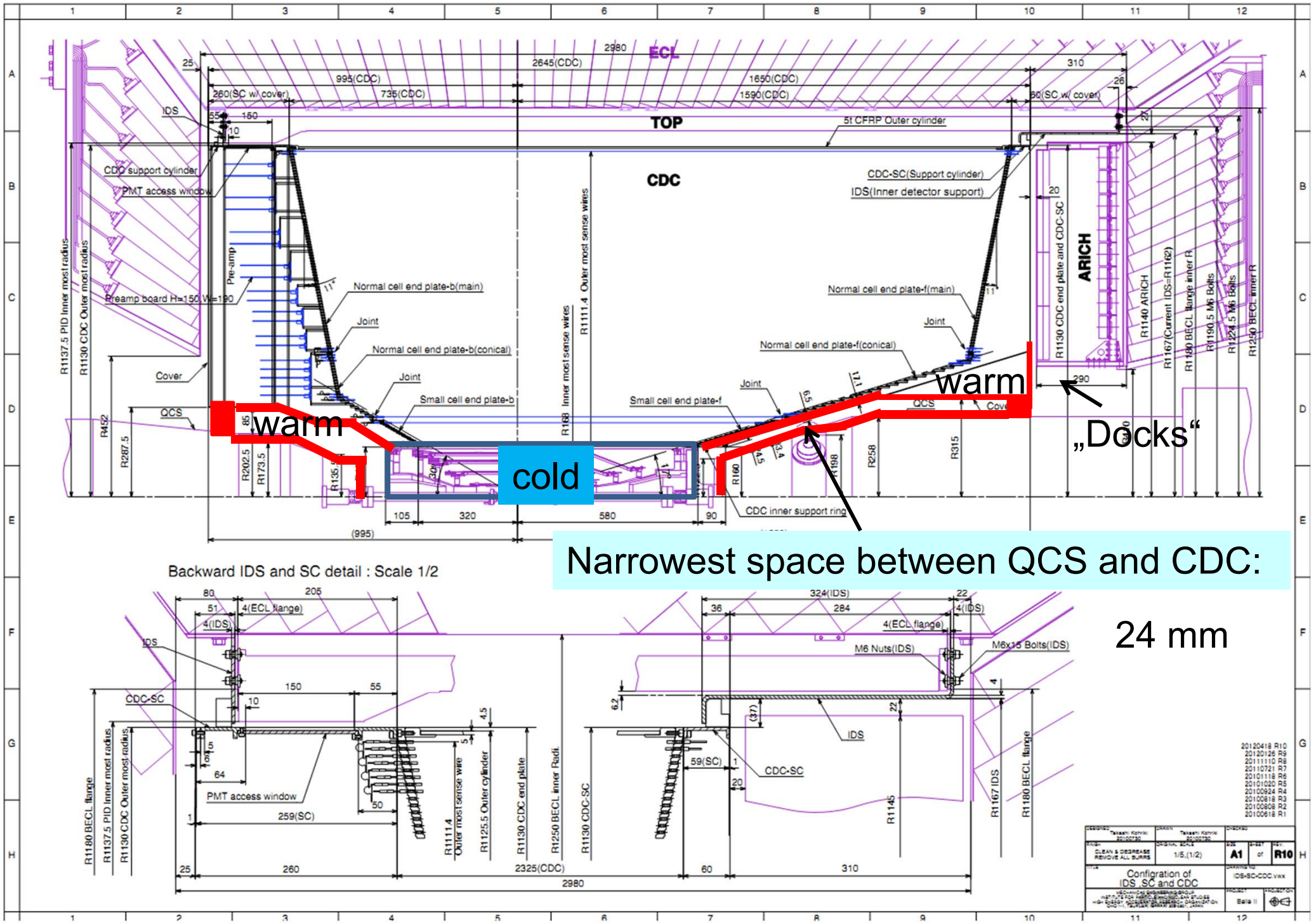
Patch panels will probably be a bit slimmer

Kapton cable will be below 490 mm (good news for the production at Taiyo)

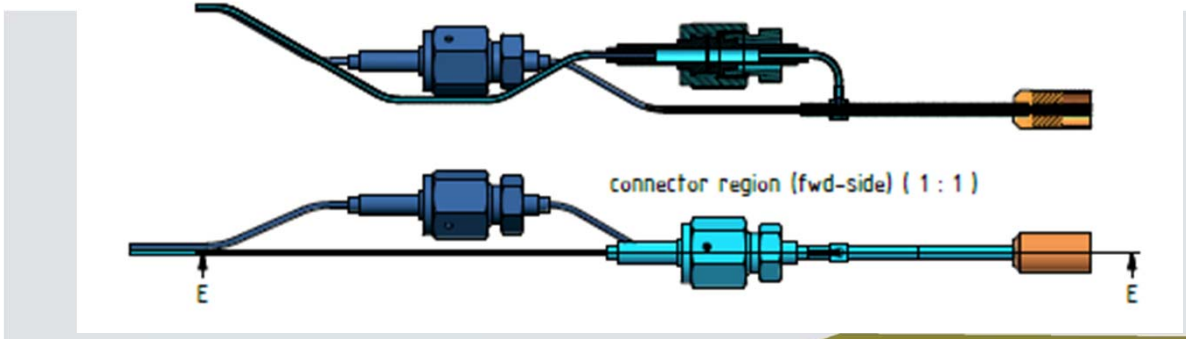
Goal: finalize by the summer (end of July)

CO2 Piping

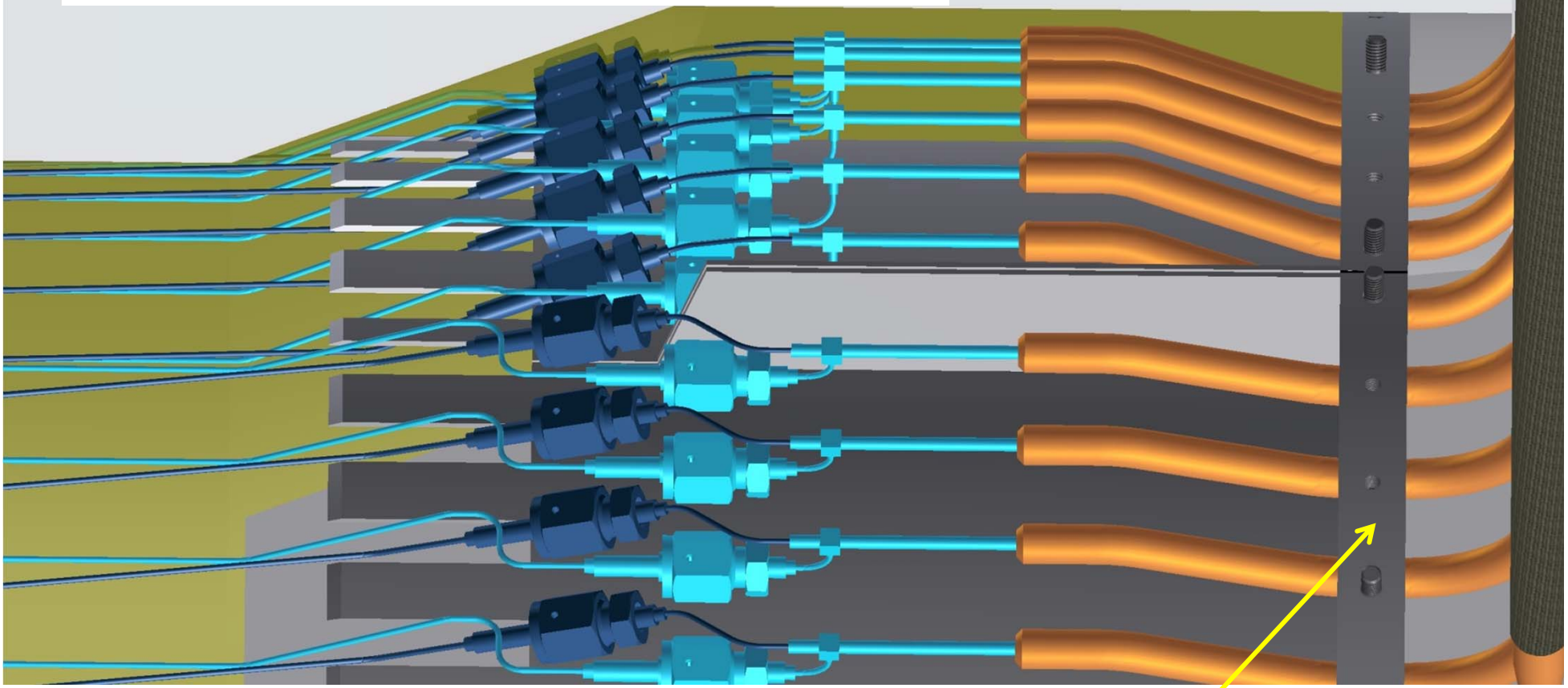

„Dock“ area
cold dry volume for VXD (~ -20°C) (up to end flange of VXD)
Room temperature dry volumes
(up to end wall of CDC)
color code CO2 lines
CO2 cold
CO2 hot
CO2 vakuum
CO2 volume dry cold
CO2 volume dry warm
Dryness requirement: dew point < -50°C


ECL
TOP
CDC
ARICH
warm
cold
warm
„Docks“
Narrowest space between QCS and CDC:
24 mm
Backward IDS and SC detail : Scale 1/2
Configration of IDS, SC and CDC

CO2 Lines: Connection to Vacuum Isolation

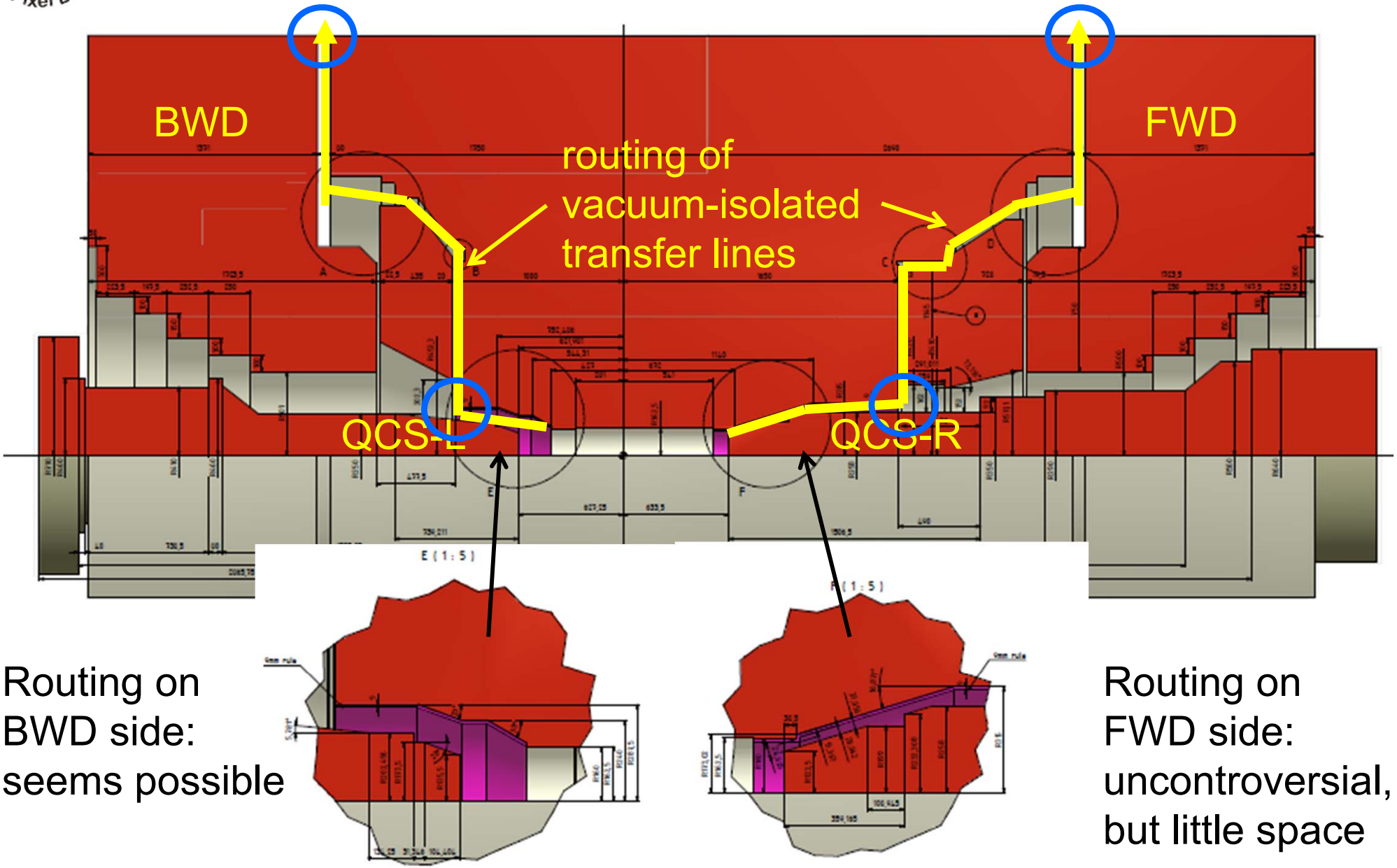


standard VCR connectors (space inside dock area)



end of (warm) dry volume

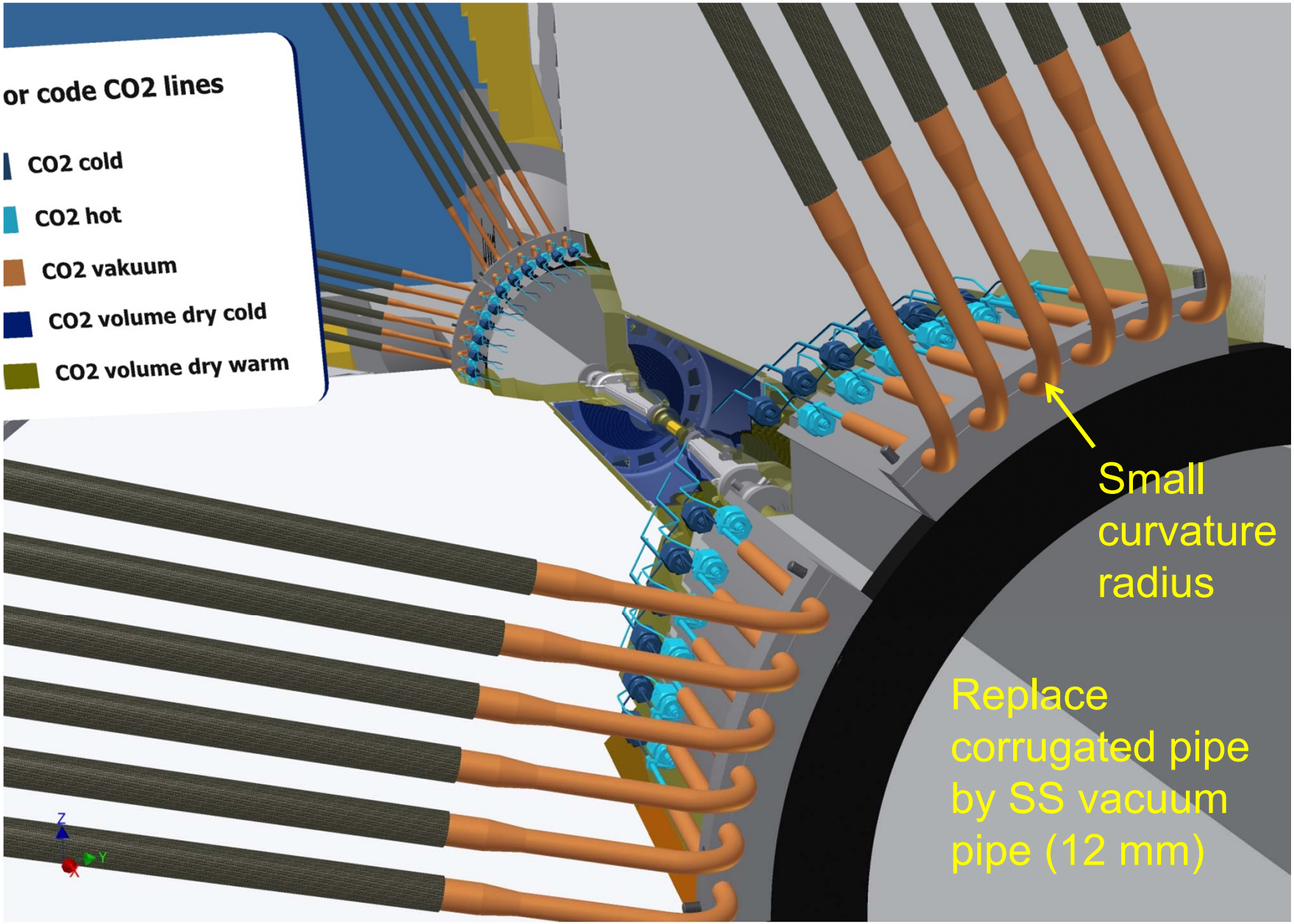
Transfer Line Routing to VXD (I)



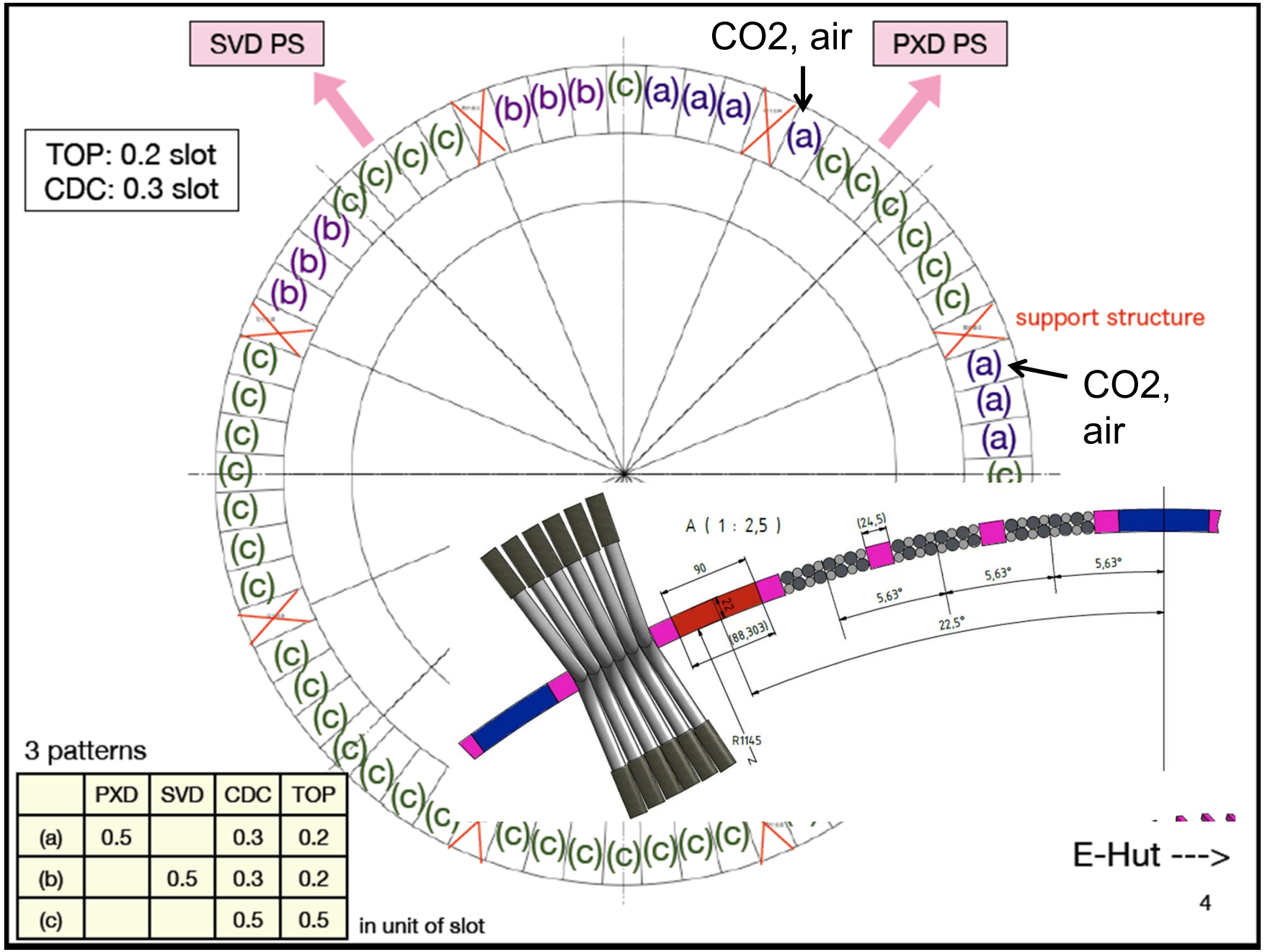
Routing on BWD side: seems possible

Routing on FWD side: uncontroversial, but little space

Transfer Line Routing to VXD (II)



Transfer Line Routing to VXD (III)



3 patterns

	PXD	SVD	CDC	TOP
(a)	0.5		0.3	0.2
(b)		0.5	0.3	0.2
(c)			0.5	0.5

in unit of slot

VXD-DAQ and BEAST II

Itoh-san proposed a first test of the ROI scheme with beam during the BEAST II phase:

“Sector” of the VXD (similar to the DESY Telescope Test (DTT)

Reconstruct tracks from the CDC (and SVD) in the HLT, determine ROIs from the track information.

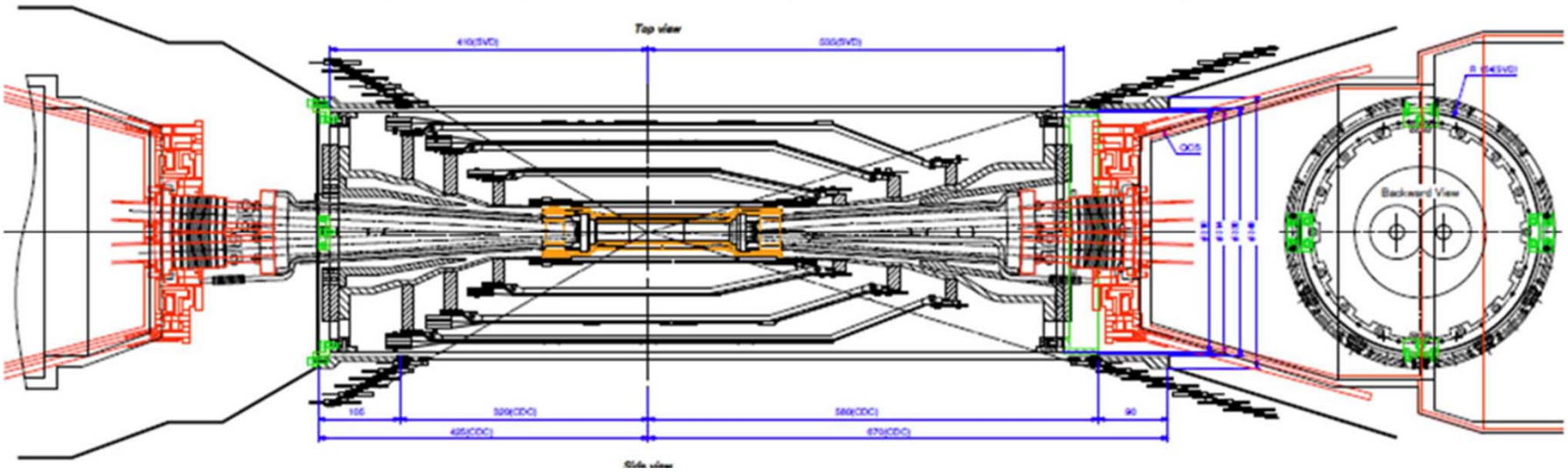
In principle a nice idea, but needs a lot of hardware preparation: “real” sensors, mechanics support, power , cooling, DAQ …

Need 2 phases for BEAST II: second phase after bg optimization (before the VXD is being installed on the beamline)

All this while the VXD is doing stand-alone cosmics commissioning outside of the beamline.

Need to think hard what is really involved …

VXD Installation

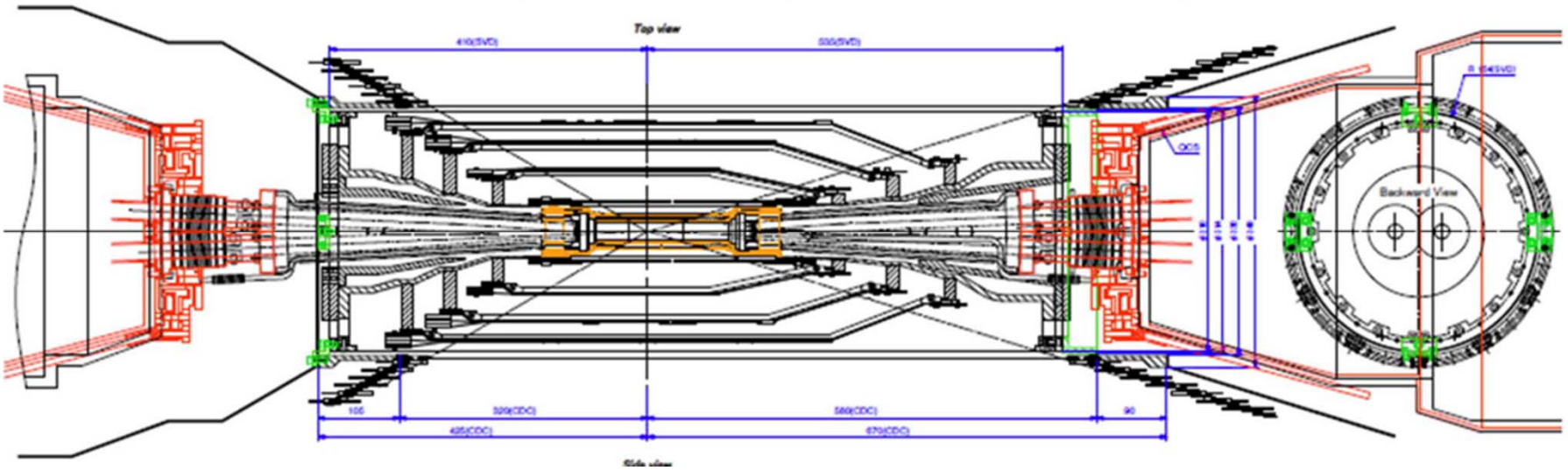


The Baseline-Installation scenario for the VXD (mounting on the fwd QCS) is well thought of by the KEK machine.

However, disadvantage of this method is the strong coupling between machine work and detector work
(e.g. accessing the bellows)

For work on the bellows need a complete de-installation of the VXD, including all the cables the 2 x 12 x 3 high pressure CO2 connections.

RVC Status (K. Gadow)

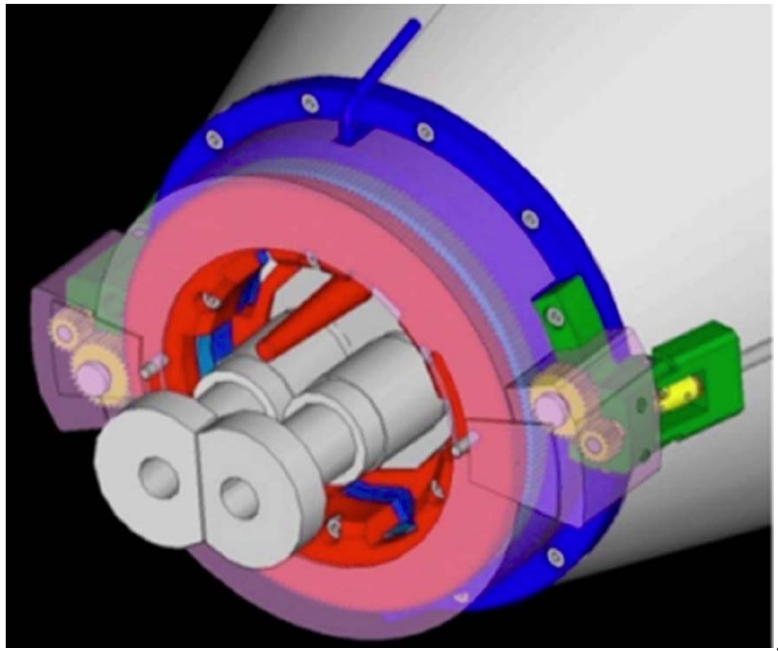


Space at Forward QCS too tight for manual vacuum connection Baseline installation: mount VXD on QCS and move together through CDC

Alternative approach by DESY:
remote vacuum connection (RVC)

Hydraulic system with special
locking mechanism,
Some redesign, mockup well tested now

RVC works !



Discussion on RVC, Schedule, Plans

RVC seriously considered for the BWD region by KEK

Main problem of alternative installation method (FWD):
How to recover when RVC fails ?

Tscharlie's solution: cut bellows → "completely unacceptable" (KEK)

After some thinking we believe that we can use the baseline method to recover from such an (unlikely) failure of the RVC

This scenario seems acceptable for KEK, but no decision yet.

Ship RVC to KEK soon for checks of the system by KEK

Construct and build mockup of alternative installation, ship to KEK before the November B2GM meeting

Decide on the VXD installation procedure at Nov. B2GM