

memo

SPS Integration of the RFD cryomodule

Presents: K.Brodzinski, C.Pasquino, F.Galleazzi, T.Capelli, N.Peray, G.Cipolla, C.Julie, S.Calvo, K.Artoos, G.Vandoni

CC: Ofelia Capatina, S.Mehanneche, C.Boccard

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Meeting minutes

Integration model

The integration ST model contains also the top plate with fixation holes, but this is not appearing – as it should. Indeed, it will not be possible to drill additional holes in this top plate and adjustment intermediate plates may not withstand the torque due to differences in vacuum or pressure pipe diameters, if not fully bolted to the top plate. It is therefore required that this plate, 10mm in thickness, is always included in the integration studies. The hole's position impacts the fixations to the table of all elements: jacks, vacuum chamber supports, Service Box feet, charge and circulator's skids.

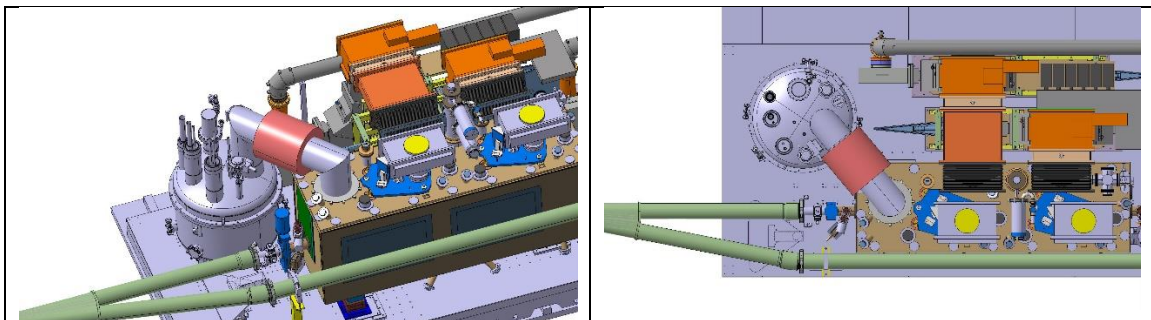
Second beam tube

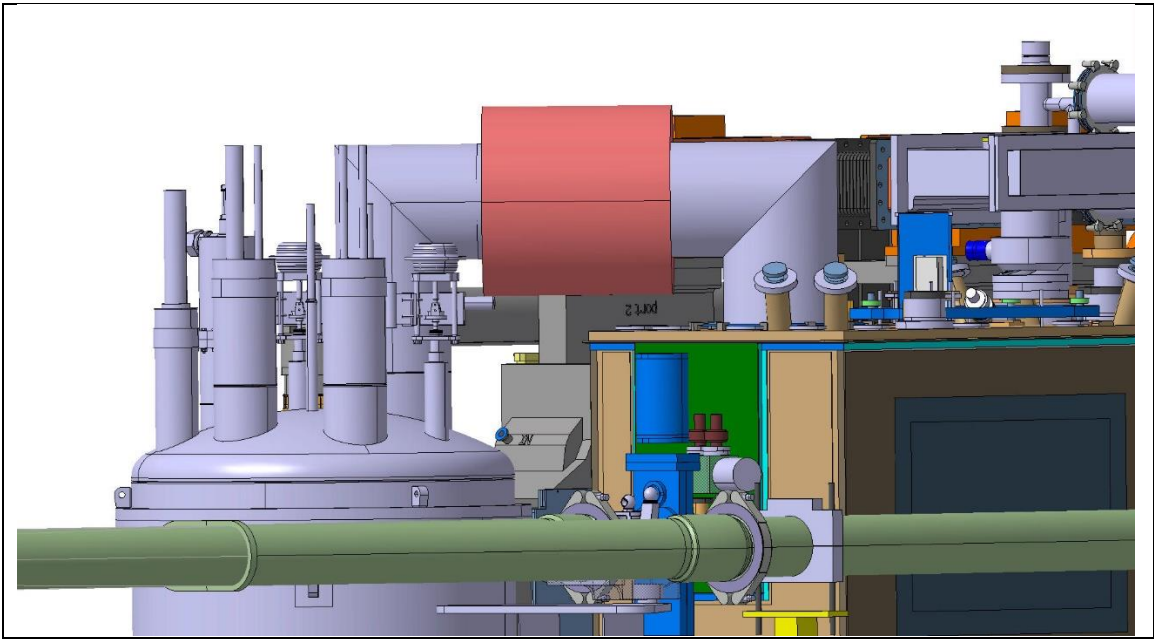
No sector valve (yellow on Scharif's presentation) will be installed in the SPS test. However, active pumping of the second beam pipe is under discussion. One minimal solution would be to pump down, then seal under static vacuum and equip the second beam pipe with a valve, gauge and burst disk + safety valve. A second solution would be to connect from outside the second beam pipe vacuum and the insulation vacuum equipment or volume.

Jumper

Interfacing the Service Box with the new, RFD cryomodule, implies modifying the jumper to accommodate the internal layout of lines – most probably via an enlarged section's vacuum envelope for the jumper, of ~500mm length.

A study by F.Galleazzi is shown below





The study of the new jumper has not started. Guideline will be to impact the least on the position and port-orientation of the Service Box, but it may be that a displacement towards upstream and backwards of the SB becomes necessary. If the Service Box is displaced, the three connecting flexibles may need modification.

Vacuum chamber supports

The model correctly shows the vacuum chamber supports, but not the integration of the sector valves supports. However, this is not relevant for the integration of the RFD cryomodule.

BPM chamber modification

Centering the cryomodule between the two Y-chambers allows for symmetric modification of the BPM chambers. Presumably, these will be entirely re-fabricated, and not removed and modified upon installation of the RFD. The 3D forged buttons of the BPMs are leading fabrication time. 1.5 years advance is largely sufficient for this new fabrication.

Charge & circulator skids

The charge & circulator skids were installed on the table via the overhead rails, outfitted with rollers then rolled into position. The rollers were then withdrawn. It is possible to reinstall the rollers in situ by lifting the skids on the lifting bolts, for displacement to the new position. The skids may need modification, a study will be started mid 2020 at earliest.

Jacks

The same remark on the fixation holes holds true here.

Conclusion

The leading element for the required modifications is the design of the new jumper box. Most other modifications cannot start, before having defined this and in turn, the new position of the Service Box.