

SciFi Modules Longitudinal Position

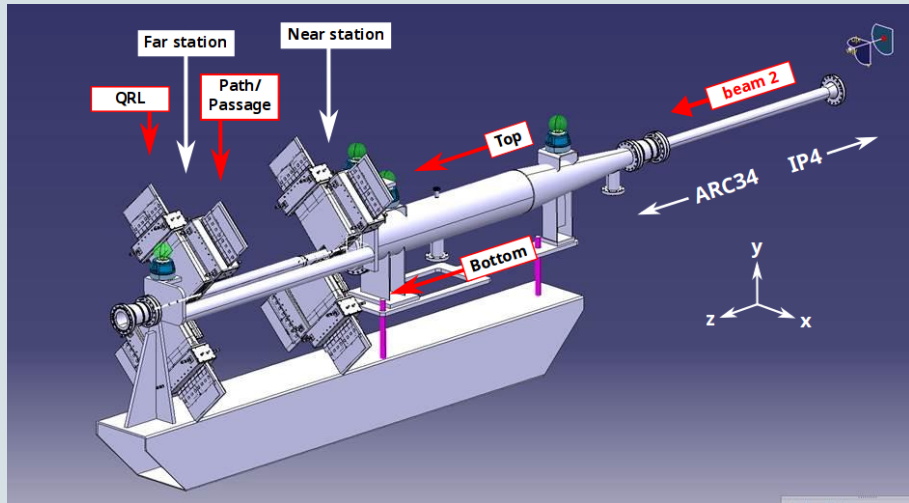
Plamen Hopchev

CERN BE-BI-BL

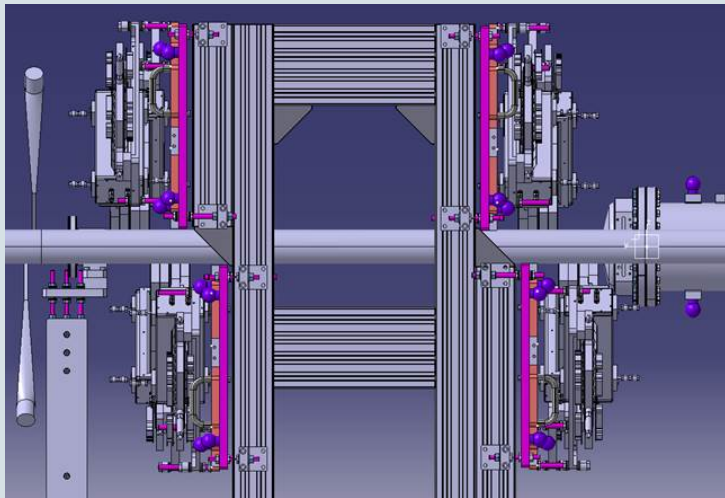
8 Sep 2014

Conventions

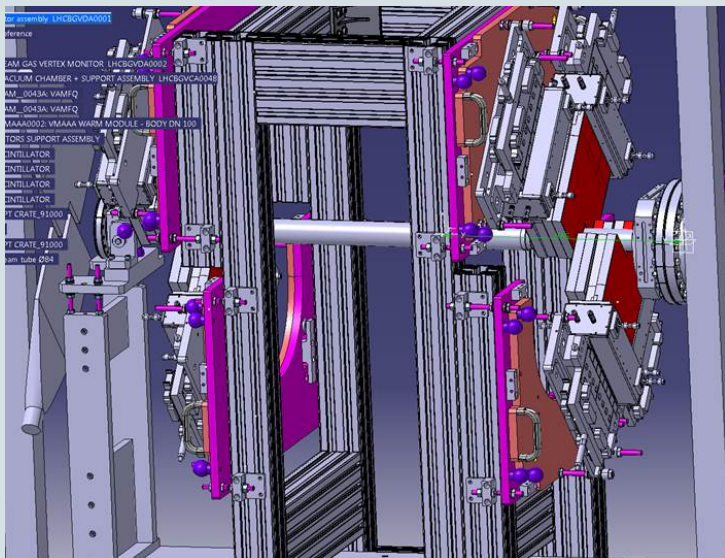
- Module naming convention (disregard the longitudinal order)
- The shown coordinate frame is not used later on



The modules arrangement (1)



The modules arrangement (2)

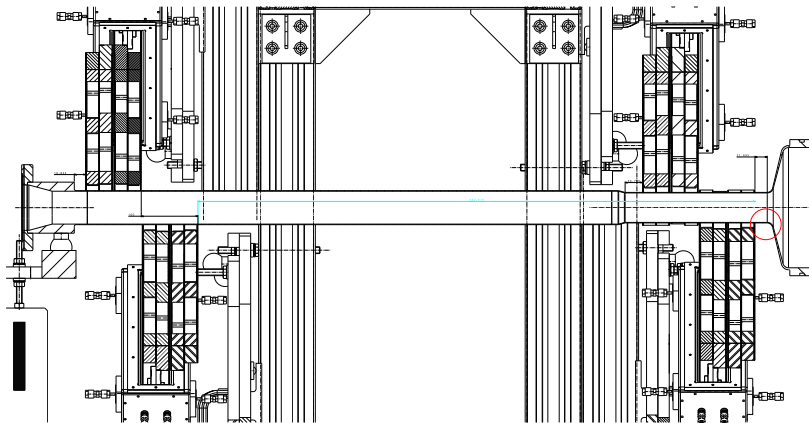


The modules longitudinal position (1)

The following information was used to determine the absolute longitudinal position of the 8 SciFi modules

- The drawing shown on the following page, also available [here](#)
- The following values (from a previous version of this drawing)
 - Module thickness (longitudinal length): 48.11 mm
 - Gaps between the 4 modules in a station: 2, 1.78, 2 mm
- Chamber drawings LHCBGVCA0004 and LHCBGVCA0009
 - Needed to determine the distance between the downstream end of the downstream chamber and the closest SciFi module
- The DCUM of the downstream end of the downstream chamber (9773.1662 m, as given in the BGV Demo ECR and the LayoutDB)

The modules longitudinal position (2)



The modules longitudinal position (3)

Module	Relative offset [mm]	DCUM [m]
Near Bottom Passage	1269.7 (F.B.P + 983)	9774.4359
Near Bottom QRL	1219.6 (F.B.Q + 983)	9774.3858
Near Top QRL	1169.7 (F.T.Q + 983)	9774.3359
Near Top Passage	1119.6 (F.T.P + 983)	9774.2858
Far Bottom Passage	286.7 (236.6 + 50.11)	9773.4529
Far Bottom QRL	236.6 (186.7 + 49.89)	9773.4028
Far Top QRL	186.7 (136.6 + 50.11)	9773.3529
Far Top Passage	136.6 (9.7 + 83 + 19.84 + 24.06)	9773.3028

- The given longitudinal positions (DCUM) refer to the center of the modules, i.e. to the position of the alignment targets
- “Relative offset” is the distance to the downstream end of the downstream chamber
- Two modules are fixed together, forming a two-module assembly (2MA), but the longitudinal position of each module can be adjusted separately (?)