

Quadrupole prototype for the IR of SuperB



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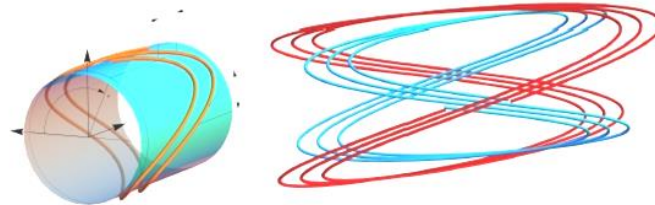


SERVICES & REPAIRS

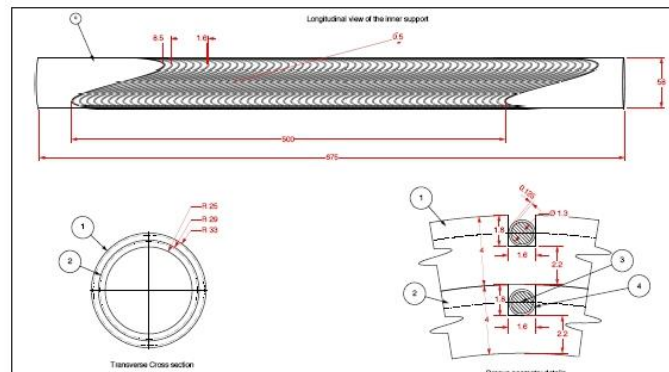
SuperB is an asymmetric (6.7 GeV HER, 4.18 GeV LER) e+ e- collider operating at the Y(4S) cross section peak (10.58 GeV) with an unprecedented design peak luminosity of 1036 cm-2s-1 to be built in an area close to Rome.

In order to get the required high luminosity, a novel collision scheme, the so called "large Piwinski angle and crab waist" has been designed. This scheme requires that superconducting quadrupoles doublets QD0/QF1 are placed as close as possible to the interaction point. The advanced design of the quadrupoles is based on the so called helical coil concept (method patented by Advanced Magnet Lab).

ASG Superconductors has manufactured the cold mass of a model of the superconducting quadrupole for the Interaction Region of SuperB, already successfully tested at INFN Genoa. Further developments are foreseen in the period 2012-14.

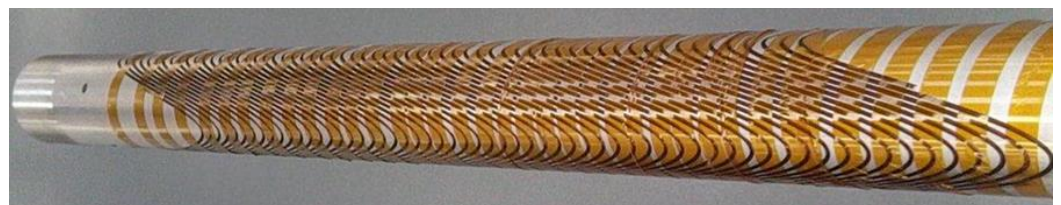


The shape of the winding is represented on the left side. On the right side three windings of the quadrupole are shown: the inner layer in cyan and the outer one in red.



The mechanical design of the support mandrels and their relevant dimensions.

Items: 1 is the outer windings support mandrel, 2 is the inner windings support mandrel, 3 is the SC wire and 4 its insulations. Dimensions are expressed in mm.



Winding of the helical quadrupole on the mandrel