

Development of the EuCARD

Sn Dipole Magnet FRESCA2

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Abstract - The key objective of the Superconducting High Field Magnet work package of the European Project EuCARD, and specifically of the High Field Model task, is to design and fabricate the Nb₃Sn dipole magnet FRESCA2. With an aperture of 100 mm and a target bore field of 13 T, the magnet is aimed at upgrading the FRESCA cable test facility at CERN. The design features four 1.5 m long double-layer coils wound with a 21 mm wide cable. The windings are contained in a support structure based on a 65 mm thick aluminum shell pre-tensioned with bladders. In order to qualify the assembly and loading procedure and to validate the finite element stress computations, the structure will be assembled around aluminum blocks, which replace the superconducting coils, and instrumented with strain gauges. In this paper, we report on the status of the assembly and we update on the progress on design and fabrication of tooling and coils.

Keywords - Dipole magnet, Nb₃Sn, superconducting magnet, EuCARD.

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