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C2Po2A-06 [20]: Cryogenic Upgrade of the Helium Central Liquefier and Superconducting Cable & Wire Test Facilities at CERN

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The demand for liquid helium (LHe) for users at CERN without dedicated infrastructure is set to increase due to future projects and experiments in the Antiproton Decelerator. LHe is supplied to the users by means of 500-l dewars filled in by the central liquefier (B165) that comprises a cryogenic plant of 100 W @ 4.5 K. In addition, the Superconducting Cable & Wire Test Facility (B163) located nearby will be upgraded to incorporate the forthcoming installation of the new test station FRESCA 2. B163 includes a second cryogenic plant of 100 W @ 4.5 K and a dedicated cryogenic distribution system. To maximize the production of the two cryogenic plants and their ancillary infrastructure, thus improving the subsequent distribution of LHe, a combined cryogenic distribution system has been developed. This system will increase the LHe storage capacity; allow the direct transfer of helium inventory between both facilities and the gravity filling of large capacity trailer dewars in addition to 500-l dewar fleet. This paper details the architecture of the new cryogenic distribution system, the analysis undertaken to define it, the design and specifications of the various components and the schedule of the realization of the project.

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