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# C2Or3D-02: Overview and status of the PIP-II cryogenic system

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The Proton Improvement Plan-II (PIP-II) is a major upgrade to the Fermilab accelerator complex, featuring a new 800-MeV Superconducting Radio-Frequency (SRF) linear accelerator (LINAC) powering the accelerator complex to provide the world's most intense high-energy neutrino beam. The PIP-II Linac consists of 23 SRF cryomodules operating at 2K, 5K, and 40K temperature levels supplied by a single helium cryoplant providing 2.5 kW of cooling capacity at 2.0 K. The PIP-II cryogenic system consists of two major systems: a helium cryogenic plant and cryogenic distribution system. The cryogenic plant includes a refrigerator cold box, a warm compressor system, and helium storage, recovery, and purification systems. The cryogenic distribution system includes a distribution box, intermediate transfer line, and a tunnel transfer line consisting of modular bayonet cans which feed the cryomodules. A turnaround can is located at the end of the Linac to turnaround cryogenic flows. This paper describes the layout, design, and current status of the PIP-II cryogenic system.

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