

Seminar

Institute for Plasma Research

Title: Design and Manufacturing of an Auxiliary Cold Box for the ITER Cryo-distribution System

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Abstract

The ITER project represents a global effort to advance nuclear fusion technology, with critical reliance on large-scale cryogenic systems to maintain superconducting magnets and other temperature-sensitive components at operational cryogenic temperatures. This paper presents the design, manufacturing, and testing of the auxiliary cold boxes and their associated subsystems. Key aspects include system architecture, material selection, thermal performance optimisation, safety considerations, instrumentation integration, and quality control, will be discussed.

The present paper will detail the design specifications chosen to meet the requirements of the clients, e.g. superconducting magnets, cryopumps, etc., while ensuring the reliability, efficiency, and safety of cryogenic operations. The paper will also give special attention to challenges encountered during the design, fabrication, testing, as well as the protective packing and controlled delivery of components. The lessons learnt and the methodologies described here may contribute to achieving the broader goals of the ITER program.
