

CEP-111

Cryogenic Instrumentation and Process Engineer

Reports to Line Manager:	Cryogenic System Section Leader,	Job Code:	CEP-111
	Plant Engineering Division,		
	Central Engineering and Plant Support Department		
Direct Employment:	Not required	Grade:	P4

Purpose

To define, integrate, procure and commission low temperature-specific instrumentation for the ITER cryogenic system;

To participate in the functional analysis and process control of cryoplants, cryolines and cryogenic distribution boxes installed inside the Tokamak building for the forced flow cooling of magnets and cryopumps;

To identify and detail the dedicated hardwired interlocks for the ITER cryogenic system's safe operation;

To determine the requirements and interfaces of the ITER-wide cryogenic process, instrumentation and controls.

india

usa

china

japan Major Duties/Responsibilities

- Establishes and/or reviews the Process and Instrumentation diagram in order to assess the required instrumentation;
 - Identifies the requirements and environmental constraints for cryogenic instrumentation;
 - Proposes engineering solutions for the measurement of cryogenic control and diagnostic parameters;
 - Writes the technical specifications for cryogenic instrumentation to measure temperatures, pressure, flow and liquid level of cryogenic fluids down to 3.5 K;
 - Specifies the technical requirements for cryogenic valves and heaters;
 - Carries-out the functional analysis and process control for the liquid helium, liquid nitrogen and cryogenic distribution systems;
 - Designs the dedicated hardwired interlocks necessary for ITER cryogenic system's safe operation and shutdown sequences;
 - Develops the required testing and commissioning program for the instrumentation and process control system;
 - Establishes the operation and maintenance procedures as well as spare requirements;
 - Supervises and monitors the procurement of cryogenic instrumentation and control components;
 - Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, values and ethics.



Qualifications and Experience

• Education:

- Degree at least equivalent to 5-8 years of study after the High School Diploma (ex. Masters), in Cryogenics, Instrumentation and Control, Process Engineering or other relevant discipline.
- Technical & Project Experience:
 - At least 10 years' experience in the development, design, procurement and commissioning of instrumentation and process controls for a large cryogenic system intended for fusion or accelerator applications;
 - Excellent knowledge in world market and associated R&D for specific applications of industrially proven cryogenic equipment, instrumentation and controls;
 - Good knowledge of the design code and standards;
 - Excellent knowledge of process engineering and the analysis of operating modes for large cryogenic distribution systems;
 - Significant practical knowledge of factory acceptance tests and the commissioning of complex equipment;
 - Basic Project Management experience is also required.
- Social Skills:
 - Ability to develop and maintain effective international relations so as to efficiently perform tasks in a multicultural environment, covering the international project;
 - Ability to work in a team and to promote team work.
- Language requirements:
 - Excellent communication skills in written and spoken English.

Direct Supervisor and Interfaces

- Reports to the Cryogenic System Section Leader;
- Interfaces with designers for magnets, the Tokamak 80 K thermal shields, the cryo-vacuum pumps, and the buildings to support integration.

Authority / Approval Levels

This position has authority and approval defined by the Section Leader for his/her work.

Measures of Effectiveness

- Successfully defines and implements the concept of instrumentation and process control;
- Successfully manages interfaces between the cryogenic system and cryogenic users;
- Successfully manages plans for procurement, installation, tests and commissioning;
- Successfully maintains effective communication with all parties delivering subsystems.