

# IO1361 Vacuum Cryo-pumping Engineer CEP-022

## General information

Job category	Standard
Status	Confirmed
Department	DIP/Directorate for Central Engineering & Plant
Division	CEP / Fuel Cycle Engineering Division
Section	CEP / FCE / Vacuum Section

## Job description

Main job	Engineering - Vacuum technologies
Title of the position	Vacuum Cryo-pumping Engineer CEP-022
Job family	Engineer - 2
Grade	P3
Direct employment	Required
Purpose	<p>To develop the interfaces between the ITER cryo pumps and their supplies. To develop the installation, test and commissioning plans for the cryo pumping systems. To develop the low temperature helium supplies for the ITER roughing pumping system.</p> <p>The key facts and figures of the Vacuum Systems are: ITER will be the largest and most complex vacuum system yet to be built. Large system volumes such as the Cryostat (8500 m3), the Vacuum Vessel (1400 m3) or the Neutral Beam injectors (860 m3) need to be evacuated and kept under high vacuum conditions; Custom made cryo pumps are employed to allow high speed pumping in a harsh environment (radiation, magnetic fields); A wide-ranging Service Vacuum System provides evacuation of volumes containing different gases including tritium; Leak detection and leak localization is challenging due to complexity and size of Tokamak installations.</p> <p>Designs, and specifies the feeds connecting the torus, cryostat and neutral beam cryo-pumps to their respective cold valve boxes, including assembly interfaces of the cryo-transfer lines; Develops Process and Instrumentation Diagram (P&amp;ID) layouts for cryo pump distribution; Designs and integrates overpressure protection for all cryo pumping vacuum equipment with overpressure potential;</p> <p>Participates in the writing of procurement specifications for the procurement of cryo pump distribution which are the responsibility of the Vacuum Section and assists in the same task for other client systems using cryo-pumps; Responsible for the design, layout and integration of the torus, cryostat, neutral beam and pellet injector cold valve boxes, including the interface with the cryo plant and cryo distribution; Responsible for the Vacuum interface to super-conducting magnet; Supports vacuum leak localization research and development as it relates to cold leaks into vacuum; Determines and recommends leak testing methods and procedures minimizing worker radiation dosage during leak detection, localization, and measurement under the magnetic and radiological environmental conditions;</p>
Main duties / Responsibilities	<p>Responsible for the high temperature regeneration system and supplies for cryo pumps; Follows-up procurement arrangements for cryo pump services and procurement of the front end cryogenic distribution under the responsibility of the Vacuum Section; Ensures the implementation of Quality Assurance procedures for design, manufacturing, testing and commissioning and Quality Control implementation during the whole process of the supply completion , from the design up to the commissioning moving through procurement and fabrication / assembly; Updates when required the Project Schedule associated with the fabrication, installation, testing and commissioning related to Instrumentation &amp; Control and electrical engineering; Performs other duties in support of the project schedule as described in the Detailed Work Schedule or Strategic Management Plan;</p>

	<p>Performs other duties linked to the above purpose upon management request, as necessary; Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, values and ethics.</p> <p>Reports to the Vacuum Section Leader; Acts as a Vacuum interface to all technical divisions and supports integration with ITERs cryo plant and ITERs assembly and integration team; In response to requests from the Director-General and/or Director of Central Engineering &amp; Plant (CEP) Directorate, or proactively, informs the DG/ Director of CEP Directorate of any important and urgent issues that cannot be handled by the concerned line management and may jeopardize the achievement of the Project's objectives.</p>
Measures of effectiveness	<p>Work Products: Completes assignments as specified, on time and within budget; particular attention will be given to design progress, contract management, document preparation and project management; progress will be measured by quality and quantity of work products;</p> <p>Team Contributions: Provides and receives contributions from fellow team members, and contributes to an overall productive work environment;</p> <p>Safety and Security: Performs work, generates designs and oversees the work of others with proper attention to safety and security; Interfaces successfully and communicates efficiently with other ITER Directorates, Domestic Agencies, maintaining good relationships.</p>
	Project Construction Phase

## Applicant criteria

Level of study	Bachelor or higher degree
Diploma	Engineering or equivalent
Level of experience	At least 10 years
Technical experience	<p>At least 10 years of engineering experience in industry or on large construction projects; At least 3 years of engineering experience in the vacuum/cryogenic field, preferably in a fusion or nuclear context;</p> <p>Good practical knowledge in vacuum and cryogenics; Experience of thermal hydraulic calculations and gas dynamics; Experience working to codes and performing structural analysis; Experience working with draftsmen to develop designs on Computer Aided Design systems; Experience manufacturing contracts for complex fabrications; Basic experience in managing procurements and projects.</p>
Social skills	Ability to work effectively in a multi-cultural environment , Ability to work in a team and to promote team spirit
Languages	English (Working)
Specific skills	Computer Aided Design, MS Office standard (Word, Excel, PowerPoint, Outlook)