

Job Title: Mechanical Engineer IO0561_0649

Req ID **1842** - Posted **14/08/2020** - (France, 13067 St Paul Lez Durance Cedex) - **Construction and Installation - New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

Application deadline: 27/09/2020

Domain: Construction

Department: Plant Construction

Division: Electrical Implementation

Section: Coil Power Supply

Job Family: Project Engineering

Job Role: Engineer - 2

Job Grade: P3

Language requirements: Fluent in English (written & spoken)

Contract duration: Up to 5 years

Purpose

Two openings

As an Mechanical Engineer, you will perform and supervise the mechanical/structure/thermal/hydraulic activities related to the design, manufacturing, testing, assembly and on-site installation inside the Tokamak building, comprehensive of the management of in field engineering changes and non-conformities for the In-Vessel Coil (IVC) power supply system, which is composed of multiple power converters, power cables and water cooled busbars.

Background

The IVC power supply system consists of 35 (about 2km long) water cooled copper busbars, one 192 MW (pulsed) VS3 power supply and 27 sets of 3 MW ELM power supplies. The VS3 power supply will have a large energy storage system to provide the large peak power. This system will be installed in the 4th level of the Tokamak building.

Due to the high power rating of these power supplies, the mechanical structure of them is large. Limited installation space will require these systems be manufactured as multiple two-story structures (about 5.5 m in height). In the event of maintenance and repair of the components of the Tokamak machine, the power supply structures shall be designed such that they shall be easily dismantled for removal from the area, and easily reassembled and reinstalled, therefore modular design of the structures and smart layout is particular important. The structures shall also withstand the required electromechanical stress and seismic activity levels.

Due to the large amount of heat being produced in the power conversion, thermal and hydraulic design are another challenging area for this job post.

Major Duties/Roles & Responsibilities

- Performs and supervises the mechanical design, integration, prototype R&D, manufacturing and testing of main components of the IVC power supply system;
- Performs in-field engineering activities for resolution of design changes and design non-conformities during the installation and commissioning of the IVC power supply system;
- Executes the mechanical, thermal and hydraulic design and analysis of electrical components, including their connections, supports and penetrations for IVC power supply system;
- Contributes to the design/installation development of the assembly procedures, including joints, supports and penetrations;
- Performs engineering analyses for components and structures required to support or anchor electrical components, including designing post-drill plates and secondary beams to anchor the systems;
- Follows-up the design and production of Electrical & Hydraulic Diagrams: Process Flow Diagrams (PFD), Piping and Instrumentation Diagram (P&ID), Loop Diagrams, Wiring Diagrams and Pneumatic Diagrams;
- Contributes to the writing and reviews technical specifications required for the procurement of the IVC power supply system and its prototype's R&D to support the design qualification, in addition to following the entire procurement process of the IVC power supply system (design reviews, documents and drawings review, manufacturing inspection, testing etc.);
- Ensures satisfactory interfaces and integration of the IVC power supply with other systems, services and buildings;
- Follows up on Engineering Work Package for the installation of the IVC power supply system and its busbars system;
- Implements the Quality Assurance (QA) & Quality Control (QC) requirements and standards for components and systems, in close relation with the Quality Assurance & Assessment (QAA) Division;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

Measure of Effectiveness

- Effectively supervises the design, manufacture, construction and commissioning activities of the IVC power supply system to meet the defined cost, quality and schedule;
- Ensures the proper execution of Mechanical Engineering design and analyses required to support the design and installation of the electrical components to a high standard and within the defined schedule;
- Maintains effective communication with interfacing teams within ITER and with external contractors;
- Strives to ensure the installation and commissioning activities of the IVC power supply system are in line with safety and quality standards and requirements;
- Anticipates or resolves interface and integration issues related to the IVC power supply and its busbars system with other systems, services and buildings promptly to minimize disruption to the schedule.

Experience & Profile

If the applicant doesn't fulfil all job description's requirements (qualification, technical competencies and demonstrated experience), the appointment may be made at a lower grade of the selected applicant correspond to that grade; in this case, the duties and responsibilities assigned will be adjusted accordingly.

- **Professional Experience:**

- At least 8 years' experience in mechanical engineering design, procurement, manufacturing and installation, including analyses of civil and hydraulic engineering within an international environment.
- **Education:**
 - Master degree or equivalent in Mechanical, or Electro-mechanical engineering field or other relevant discipline;
 - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.
- **Language requirements:**
 - Fluent in English (written and spoken).
- **Technical Competencies and demonstrated experience in:**
 - Design, manufacture, installation and commissioning of large Electrical and/or Mechanical components and systems, comparable with those of the ITER power supply systems described in the purpose;
 - Technical procurement follow-up and quality control of electromechanical components with international industry suppliers;
 - Overseeing the manufacturing of electromechanical components which follow dedicated codes and standards, such as ISO/ASME and/or RCC-MR(x);
 - Reviewing CAD activities (familiarity with CAD oversight, P&I Diagrams and 2D manufacturing and assembly drawings);
 - International codes and standards such as IEC and IEC for construction of large electromechanical components;
 - Using 3D CAD tools would be an advantage.
- **Behavioral Competencies:**
 - Collaborate: Ability to conduct dialogue with a wide variety of contributors and stakeholders;
 - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
 - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
 - Manage Complexity: Ability to gather and analyze multiple and diverse sources of information to define problems accurately before moving to proposals/solutions;
 - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

The following important information shall apply to all jobs at ITER Organization:

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement

of the Project’s objectives.