

# Job Title: Mechanical Engineer IO1012

Requisition ID **3641** - Posted **12/02/2021** - (France, 13067 St Paul Lez Durance Cedex) - **Engineering of Systems - 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:** 26/03/2021

**Domain:** Engineering

**Department:** Engineering Design

**Division:** Heating & Current Drive

**Section:** Electron Cyclotron

**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**

---

As a Mechanical Engineer, you will be responsible for the integration of the Electron Cyclotron (EC) system in the Tokamak Building and specific components related to the integration of mm-wave systems such as building penetrations, nuclear shielding or specific auxiliaries. Your tasks will include the design finalization, preparation of technical specifications for external contracts, installation and metrology follow up, system requirements and subsequent oversight of the activities leading to installation and operation of the EC system.

## **Background**

The EC system will be used at ITER for Heating and Current Drive (H&CD) in a number of plasma operating scenarios. The EC system aims to deliver up to 20MW for plasma H&CD applications, with a potential upgrade for an additional 20MW (40MW in total) of delivered power. In order to achieve 20MW of delivered power, the EC system has an installed power of 24MW (sources located outside of the ITER tokamak building). Transmission lines and EW are integrated in the tokamak building guiding the power to the launchers, mounted in the vacuum vessel.

The EC system is also a First Plasma system, where approx. 8MW of power needs to be installed to accommodate plasma breakdown.

## Major Duties/Roles & Responsibilities

---

- Represents the EC Section as Technical Responsible Officer (TRO) for the integration of EC system in the tokamak building;
- Performs design finalization (building penetrations, nuclear shielding or specific auxiliaries as needed) and oversight during the manufacturing, installation and commissioning phases followed by the EC operation;
- Contributes to the installation, operation and maintenance plans for the EC system;
- Co-ordinates the EC transverse activities and specifically required components, in collaboration with the relevant internal and external stakeholders;
- Documents the design requirements, load specifications, safety functions, requirements propagation and verification, and quality plans as required;
- Ensures design compliance of the EC system with ITER project requirements, other interfacing ITER systems and internal interfaces among the different EC subsystems;
- Monitors the final design development and prototype tests of the EC components;
- Manages the interface with the site metrology, defining the alignment and monitoring requirements associated with the microwave waveguide supports and components;
- Manages the interface documentation between the EC components and sub-assemblies with the building and services to the EC transmission Line and Ex-vessel waveguide;
- Assists in the monitoring of Quality Programs associated with the sub-system procurements;
- Performs the associated measurements (in collaboration with the other EC TROs of the installed EC equipment to ensure compliance for operation);
- 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, weekends and public holidays.

## Measure of Effectiveness

---

- Effectively supports the design, procurement, installation and commissioning activities related to EC subsystems (ancillary systems, transmission line and ex-vessel waveguide) to meet the defined quality, cost and schedule;
- Provides all necessary support for an efficient development of the transverse function systems related to the EC system integration and operation;
- Maintains properly the systems after delivery, implementing additional required control and protection functions, and accurately updating the documentation accordingly;
- Maintains effective communication with the interfacing teams within ITER, Domestic Agencies and with external contractors.

## Experience & Profile

---

- **Professional Experience:**
  - At least 8 years' experience in mechanical engineering for designing, procuring and installing complex mechanical system(s).
- **Education:**
  - Master equivalent in Mechanical Engineering 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:**
  - **Interface Management (identifying, resolving and maintaining technical and functional interfaces):**

- In the technical integration of complex mechanical systems;
- Ensuring design compliance of complex mechanical systems with other interfacing systems.
- **Design (create technical designs based on project requirements):**
  - Developing complex systems with nuclear safety functions is an advantage;
  - Designing and manufacturing as per codes and standards (for example: RCC-MR, SDC-IC, ASME, EN, ASTM) and regulations is an advantage;
  - Experience in Finite Element Analysis is an advantage.
- **Specialized domains of work and technical expertise (Complex Mechanical Systems):**
  - Mechanical engineering of complex systems in relevant areas (such as thermal-mechanical applications, cooling, tolerance analysis, assembly);
  - Following up metrology and defining the alignment and monitoring requirements associated with microwave waveguide supports and components is advantageous;
  - Participation in an EC components development program is an advantage.
- **Behavioral Competencies:**
  - Collaborate: Ability to facilitate 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 analyze multiple and diverse sources of information to understand problems accurately before moving to proposals;
  - 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.