# Job Title: Vacuum Mechanical Engineer IO0579

Requisition ID **6630** - Posted - (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:** 13/11/2022
**Domain:** Construction Domain
**Department:** Machine Construction Department
**Division:** Tokamak Complex Division
**Section**: Vacuum Delivery & Installation Section
**Group**: Vacuum Delivery
**Job Family:** Construction
**Job Role:** Engineer – 2
**Job Grade:** P2
**Language requirements:** Fluent in English (written & spoken)
**Contract duration:** Up to 5 years

## Purpose

As a Vacuum Mechanical Engineer, you will finalize the mechanical design and integration of the ITER vacuum systems, providing structural, thermal and thermal hydraulic analyses on components and structures. You will also perform and manage analysis and validation programs to ensure design code, safety and performance requirements are satisfied.

## Background

The vacuums of ITER are achieved and sustained with more than 400 custom and commercial pumps. The vacuum system is first of a kind in terms of size and complexity and the successful construction of ITER is dependent on excellent vacuum engineering. Many of the vacuum components are under construction or have been delivered and installation of the said components has commenced. This position will support the vacuum system finalization, delivery, installation, commissioning and operation.

## Key Duties, Scope, and Level of Accountability

- Participates in the design, integration and preparations for installation and commissioning of the ITER vacuum systems including those integrated on the main vacuum plasma chamber, cryostat, neutral beam accelerators and diagnostic systems;

- Prepares technical specifications for vacuum components, manages the procurements and provides surveillance of the manufacturing progress;
- Responsible for performing, managing and reviewing structural, thermal and hydraulic analyses required for the design and throughout the project life cycle;
- Undertakes and/or supervises contracts for structural analyses using ANSYS to demonstrate that components, structures and systems function within codes (ASME etc.);
- Analyses and extracts loading data from structural analysis reports to determine loading conditions at interfaces with mechanical systems and buildings;
- Prepares and performs commissioning of the ITER vacuum systems;
- Supports the implementation of vacuum standards and vacuum component standardization across the project including performing bespoke component validation;
- 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.

Note: 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.

**Measure of Effectiveness**

- Provides clear and thorough engineering documents;
- Interfaces efficiently with the ITER divisions and Domestic Agencies, and maintains a good communication and relations;
- Works effectively in teams and contributes to the overall success of the ITER project;
- Completes the tasks assigned under “Main Duties / Responsibilities” above within the defined time frame and quality level;
- Performs work safely and with regard for safety in design.

**Experience & Profile**

- ***Professional Experience:***
  - Minimum 5 years’ mechanical engineering analysis, preferably related to vacuum, either in industry or on large, complex construction projects within complex international environments or projects.
- ***Education:***
  - Masters’ degree or 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:***
  - Specialized Domain of Expertise (mechanical engineering/vacuum): Using CAD and other software related to structural analysis and applying European and American Pressure Codes (eg. EN 13445, ASME 8) and Vacuum Standards;
  - Quality Control: Verifying the compliance of the procedures for the installation of vacuum and cryogenic components/systems with all applicable requirements;
  - Problem solving; assess problems, identify root causes, and reach solutions in a way to reach project objectives within time and cost;
  - Presentation writing: write, review, and present technical documents in the domain of expertise, transmitting knowledge and data with precision;
  - Structural Finite Element Analysis (linear and non-linear), and the analysis of nuclear components would be an advantage;

- Vacuum system design and cryogenics would be 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.

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***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.