

Job Title: High Voltage Engineer IO1066

Requisition ID **6322** - 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: 03/07/2022

Domain: Engineering Domain

Department: Engineering Design Department

Division: Heating & Current Drive Division

Section: Neutral Beam Section

Job Family: Engineering

Job Role: Engineer – 3

Job Grade: P3

Language requirements: Fluent in English (written & spoken)

Contract duration: Up to 5 years

Purpose

As a High Voltage Engineer, you will be the Technical Responsible Officer (TRO) of the Heating Neutral Beam (HNB) high voltage (HV) system, which includes, but is not limited to the DC Generators of the Accelerator Grid Power Supply (AGPS), 1MV insulating transformer, transmission lines (both indoor and outdoor) and indoor HV decks.

Your main responsibilities will be the:

- Design verification, interface and integration management of the aforementioned items
- Close follow up of the qualification, manufacturing and testing of above items and for ensuring that ITER technical, quality and safety requirements are met.

In addition, you will follow up activities related to similar components at the Neutral Beam Test Facility (NBTF), located in Padova, Italy.

Background

The Neutral Beams (NB) are one of three ITER Heating and Current Drive Systems (HCD) in ITER.

ITER NB comprises of two Heating Neutral Beam (HNB) systems capable of injecting 33MW of power and one Diagnostic Neutral Beam (DNB) system. There is also a provision for having a third HNB system capable of injecting 16.5MW of power. The HNB injector includes a 1MV power supply. All the HNB power supplies are to be designed, manufactured, tested and supplied by two designated ITER Domestic

Agencies (DAs). Presently these HNB power supplies are in the detailed design stage and will soon enter into manufacturing phase. Installation is planned to begin at the ITER site in 2024.

As ITER NB systems are first of a kind, a Neutral Beam Testing Facility (NBTF), has been constructed in Padova, Italy. At ITER NBTF, Padova, a 100kV Ion Source Facility called SPIDER (Source for Production of Ion of Deuterium Extracted from Radio Frequency) has been in operation since 2018 while a 1MV beam facility called MITICA (Multi Megavolt ITER Injector & Concept Advancement) is under construction (which is planned to be operation in 2023-2024). The facility is used to demonstrate the designs and pave the way for the ITER power supplies. Lessons learned in design, manufacturing, testing and operation from the facility are envisaged to be incorporated in the realisation of ITER NB systems.

Key Duties, Scope, and Level of Accountability

- Drives the design and integration of the HNB HV system which includes but not limited to DC Generators of Accelerator Grid Power Supply (AGPS), 1MV insulating transformer, transmission lines (both indoor and outdoor) and indoor HV decks;
- Leads definition of physical and functional interfaces of the above mentioned components, and manages related interface documentation;
- Acts as a key reference person in the design of the Neutral Beams (NB) Low Voltage (LV) power distribution System and manages the LV power loads, electrical enclosures, bonding of the electrical and mechanical components, and cable sizing and routing design activities in collaboration with IO TRO on NB Instrumentation & Control.
- Follows up the technical progress of the manufacturing activities (performed by DAs) of the above identified power supply components to ensure that requirements set in Procurement Arrangement (PA) are met;
- Manages the preparation of various design gate reviews for above mentioned items;
- Performs, after completion of design gate reviews, the activities towards resolution of formal technical comments raised during of the design reviews so as to arrive at closure of design gate review.
- Manages Deviation Requests (DRs) and Non-Conformance Reports (NCRs) as needed;
- Collaborates with NB TRO on the remaining NB power supply systems/sub-systems and performs all those actions which are required for achieving expected NB power supply performance.
- Coordinates the installation, commissioning of the above identified power supply components and contributes to the preparation for operation at IO site;
- 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.

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

- Ensures successful finalization of design, interfaces and integration of power supply systems within the defined schedule;
- Manages effectively and efficiently the physical and functional interfaces not only during the design phase but also in manufacturing phase;
- Ensures completion of technical documentation within the defined schedule;
- Effectively collaborates with procuring DAs as well as other NB TROs and ensures accurate technical progression of the manufacture of NB power supplies;
- Handles the non-conformances and deviations in a timely manner, proposing feasible solutions as necessary;
- Ensures that deliverables meet technical standards, safety standards, and quality, schedule and cost requirements;

- Effectively supports risk/opportunities management, identifying and implementing specific development tasks which may be needed;
- Provides accurate reports on the progress of the design and procurement of components.

Experience & Profile

- **Professional Experience:**
 - Minimum 8 years' experience in designing, installing and/or operating High Voltage systems in the field of Heating and Current Drive system(s) or any other similar systems within complex international environments or projects.
 - **Education:**
 - Master's degree or equivalent in High Voltage power supply field, Electrical 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 Domains of Expertise (High Voltage Engineering): Design, integration and commissioning of complex electrical systems in relevant areas as per relevant codes and standards (e.g IEC) and regulations (such as European Directives);
 - Interface management: identify, resolve, and maintain technical and functional interfaces;
 - Procurement and Contract Management: define needs and requirements, author technical specifications, evaluate tender submissions, monitor contract execution, costs, risks and reporting, and manage external resources to ensure implementation within contractual requirements;
 - Project management: planning, measuring progress, managing risks and costs, and reporting on progress of initiatives within defined human and financial constraints;
 - Experience in providing guidance and coordinating technicians in activities for high voltage electrical equipment is desirable;
 - Report Writing: Proficient at writing technical reports and design guidelines;
 - Developing complex electrical systems with nuclear safety functions is an advantage;
 - Participation in an NB electrical 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.
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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.