

# Job Title: Neutral Beam Mechanical Engineer IO0610

Requisition ID **4500** - 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:** 17/10/2021

**Domain:** Engineering

**Department:** Engineering Design

**Division:** Heating & Current Drive

**Section:** Neutral Beam

**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 Technical Responsible Officer (TRO) of Exist Scraper (ES), Drift Duct (DD), Fast Shutter (FS) and Absolute Valve (AV) for Diagnostic Neutral Beam (DNB) system, you will be responsible for:

- Design, interface and integration management of ES and DD.
- Adaption of Heating Neutral Beam (HNB) design of FS and AV to suit DNB beam line.
- Close follow up with activities of Domestic Agency (DA) and their contractors (through DAs) for qualification, manufacturing and testing of above items and for ensuring that ITER technical, quality and safety requirements are met.

Additionally, you will also be given technical responsibility of mechanical engineering support to other NB components.

## **Background**

Neutral Beams (NB) is one of three ITER Heating and Current Drive Systems (HCD) in ITER. ITER NB has two Heating Neutral Beam (HNB) systems capable of injecting 33MW of power with provision for a third HNB of 16.5MW. It also incorporates one Diagnostic Neutral Beam (DNB) system, which inject a neutral hydrogen beam of 100kV as a probe beam for active charge exchange spectroscopy. NB mechanical systems are to be installed in a large room called NB cell at Level 2. The installation of captive NB components will start from 2027 and further activities of installation and commissioning of remaining components will be under taken in a staged approach so as to make NB system ready by 2032 so that NB system is available for usage in Pre-Plasma Fusion Operation (PFPO)-2 phase.

Presently NB systems are in their advanced stage of their design and will enter into manufacturing phase in very near future. The DNB components as identified above, are to be followed up for their life cycles of design and manufacturing and then in their installation in staged approach from 2027.

### **Key Duties, Scope, and Level of Accountability**

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- Is responsible for technical advancement of design, interface, and integration of the DNB Drift Duct (DD), Exit Scraper (ES) and for technical adaption of DNB Fast Shutter (FS) and Absolute Valve (AV) from their Heating Neutral Beam(HNB) counterparts;
- Leads definition of physical and functional interfaces of the above mentioned components, and manages related interface documentation;
- Plans and manages design integration reviews and post-review actions so as to finalize the design;
- Prepares and finalizes, in collaboration with DA TROs, technical specifications of the Exit Scraper;
- Is responsible for ensuring Remote Handling (RH) compatibility of the above components;
- Follows up, in collaboration with DA TRO, on the technical progression of manufacturing activities (performed by DAs) of DD, ES, FS and AV that requirements set in Procurement Arrangement (PA) are met;
- Manages Deviation Requests (DRs) and Non-Conformance Reports (NCRs) during the execution of the PA/contracts as needed;
- Manages safety related activities of qualification of identified items/sub-components of the above;
- Performs, as and when required, tasks of mechanical engineering support to other NB components;
- Supports risk/opportunities management, identifying and implementing specific development tasks which may be needed;
- Provides reports on the progress of the design and procurement of components;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- 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**

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- Ensures successful finalization of design, interfaces and integration of DD, ES, FS and AV within 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 defined schedule;
- Collaborates with procuring DA and controls accurately technical progression of manufacture of DD, ES, FS and AV and handles effectively the non-conformances and deviations, proposing solutions as necessary;
- Ensures that deliverables meet technical standards, safety standards, and quality, schedule and cost requirements.

### **Experience & Profile**

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- **Professional Experience:**
  - Minimum 8 years' experience in mechanical engineering and/or design in the field of Heating and Current Drive system(s) within complex international environments or projects.
- **Education:**
  - Master's 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:**
  - Mechanical engineering of complex systems in relevant areas (such as thermal-mechanical applications, cooling, tolerance analysis, assembly);
  - Design and/or manufacturing as per codes and standards (for example: RCC- MR, SDC-IC, ASME, EN) and regulations (such as European Directives);
  - Interface management: identify, resolve, and maintain technical and functional interfaces;
  - Procurement: manages a specific agreement, program or initiative within the constraints of human and financial resources;
  - Reporting, writing and presentation: write and / or review technical documents, reports, procedures, and other documentation, transmitting data with precision and clarity;
  - Developing complex systems with nuclear safety functions is an advantage;
  - Participation in an NB 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.