

Call for Nomination

Assembly Processes, Equipment and Machining Contracts

Procurement Summary

1. Background

The ITER project is based in St Paul Lez Durance in the south of France. The ITER Machine has entered the construction phase and the assembly of the system shall commence. Further information can be found on the ITER website (<http://www.iter.org>) and the individual ITER Members websites accessible via the ITER site.

Multiple tools, equipment and assembly materials will be required early during construction of the ITER machine and associated plant systems. Some of the required equipment is under supply by Domestic Agencies or via ITER contracts. The remainder will be procured under multiple ITER contracts.

2 Purpose

The purpose of this first stage of the tendering process, the Call for Nomination (CfN) and the subsequent Pre-qualification stage is to establish a list of pre-qualified Contractors for each of seven (7) contract categories. Work scope broadly includes the design, manufacture, and supply of assembly solutions, customisation, qualification of assembly processes and associated mock-ups as well as related equipment and services to support the construction of the ITER Organization (IO) Tokamak Machine Assembly under the responsibility of the Tokamak Assembly Division (TAD).

Contractors will be pre-qualified based on their ability to meet the financial and technical criteria defined in the Pre-Qualification Stage. Suppliers are eligible to pre-qualify for any or all categories.

During last phase of this tendering process, the Call for Tender stage, IO will provide detailed, conceptual or functional specifications for the specific tooling, equipment or services required at ITER to suppliers pre-qualified for the relevant Contract Category. Multiple Tenders will be issued and some contracts may include on-site work. Tenderers are expected to be compliant with technical and financial requirements for the proposed work scope. Offers will be evaluated based on technical and financial criteria specific to each tender.

The following are the main categories under which multiple contracts will be placed:

1. Assembly Process Development, Qualification and Mock-ups
2. Customisation of Shims, Supports and Interfaces
3. Machine Control Systems
4. Specialist Joining, Testing and Coating
5. Access, Lighting and Safety Equipment
6. Lifting Equipment and Related Accessories
7. Assembly Equipment

3 Procurement Schedule

The tentative timetable is as follows:

Call for Nomination	23 October 2018
Invitation for Pre-Qualification Application by Category	15 November 2018
Deadline for Receipt of Pre-Qualification Application	January 2019
Publish Pre-qualified Supplier List by Category	February 2019
First of Several Call for Tenders under one or more Category	February 2019
First Contracts Award	2Q 2019

4 Experience

The Contractor and its personnel shall have adequate experience relevant to the scope of supply of each foreseen contract. Broadly, this includes, but is not limited to, experience in the following:

- French regulations regarding lifting equipment, personnel access equipment, and machinery. This includes testing, certification, and CE marking of equipment as required;
- European design codes for lifting equipment, personnel access equipment, steel structures, and machinery;
- Design of access platforms for nuclear environments;
- Design of fixed access equipment (platforms, ladders);
- Design of lifting equipment (slings, spreader beams, lifting fixtures) to EN13115 (alternatively experience of supplying equipment similar to above with CE marking);
- Design of handling fixtures with moving parts for positioning and precise alignment of heavy components up to 50 tons weight;
- Mechanical and structural analysis, seismic analysis may be required for some of the items;
- CAD software (CATIA);
- On site machining/ drilling (only for very specific applications).

5 Indicative Experience per Contract Category

The indicative experience required under each contract category is described below. This will be expanded at the Pre-qualification stage.

5.1 Assembly process development, qualification and mock-ups

- The development of assembly processes, including the design, manufacture of the associated mock-ups and tools and the process qualification. Mock-ups are likely to be < 20 ton;
- Experience in reverse engineering;
- Repair and maintenance of tools and equipment;
- The design, manufacture, test and commissioning shall comply with the European machinery directive and applicable French regulations, as well as IO internal requirements such as the Vacuum and Metrology Handbooks. This includes testing, certification, and CE marking of equipment as required;
- Mechanical and structural analysis, seismic analysis may be required;
- Use of CATIA v5 will be necessary;
- May involve work at IO premises;
- Training of personnel shall be included where necessary.

Proposed date of first contract under this lot: Q2 2019

5.2 Customisation of shims, supports and interfaces

- Compound (i.e. likely to include machining of several planes) custom-machining to data supplied by IO of shims, supports, interfaces in a range of materials including stainless steels (mainly 304 and 316), nickel-chrome alloys (inconel 600, 625, 718) aluminium bronze;
- Custom-machining processes would include milling, grinding, drilling, wire erosion and similar techniques;
- Precision required may range from 0.05mm to 0.25mm;
- 3D metrology will be required on all components;
- Machining and metrology shall be performed in compliance with the IO Vacuum Handbook and the IO Metrology Handbook.
- Use of CATIA v5 will be necessary;
- Heat treatment and / or the application of insulating or other coatings may need to be applied after custom-machining.
- There may be high volumes of some components and demanding deadlines requiring multiple work stations in addition to shift and weekend work;
- On-site machining may be required for specific applications;
- The possibility to perform work at or near IO premises may be beneficial.

Proposed date of first contract under this lot: Q2 2020

5.3 Machine control systems

- Development and supply of software, instrumentation, data acquisition and hardware solutions, including HMI, control panels and safety-related interlocks and control systems;
- Monitoring equipment similar and not limited to cameras and display panels;
- The design, manufacture, test and commissioning shall comply with the European machinery directive and applicable French regulations, as well as IO internal

requirements such as the Vacuum and Metrology Handbooks. This includes testing, certification, and CE marking of equipment as required;

- Mechanical and structural analysis, seismic analysis may be required;
- Use of CATIA v5 may be necessary for some applications;
- May involve work at IO premises;
- Training of personnel shall be included where necessary.

Proposed date of first contract under this lot: Q2 2019

5.4 Specialist joining, testing and coating

Development and qualification of specialist joining and testing techniques and supply of corresponding tools such as:

- Development and qualification of manual and automated welding (including manual and automated TIG / narrow gap TIG welding) and brazing processes and procedures for stainless steel, inconel, copper and similar materials;
- Development and qualification of related volumetric and surface NDE techniques (RT, UT, eddy current, PT etc) including ultra-high vacuum leak testing;
- Development of bonding techniques for stainless steel and inconel, copper, G10 and similar materials;
- Development of low-friction and / or insulation coatings for bolts, supports and shims;
- Knowledge of ESPN is required for some applications;
- Knowledge of RCC-MR or similar is required for some applications;
- Use of CATIA v5 may be necessary for some applications;
- The design, manufacture, test and commissioning shall comply with the European machinery directive and applicable French regulations, as well as IO internal requirements such as the Vacuum and Metrology Handbooks. This includes testing, certification, and CE marking of equipment as required;
- Training of personnel shall be included where necessary.

Proposed date of first contract under this lot: Q4 2019

5.5 Access, Lighting and Safety Equipment

- Design, supply, installation and testing of temporary and permanent, standard and specialized platforms to enable safe access for personnel and components during construction activities, including for use inside nuclear buildings. Some equipment may be installed in environments with extremes of temperature, vacuum etc during the operation of the tokamak.
- Design and supply of temporary and permanent ventilation, air-locks, lighting and other equipment to facilitate construction activities in the tokamak pit.
- The design, manufacture, test and commissioning shall comply with the European machinery directive and applicable French regulations, as well as IO internal requirements such as the Vacuum and Metrology Handbooks. This includes testing, certification, and CE marking of equipment as required;

- Mechanical and structural analysis, seismic analysis may be required;
- Use of CATIA v5 will be necessary;
- May involve work at IO premises;
- Training of personnel shall be included where necessary.

Proposed date of first contract under this lot: Q2 2019

5.6 Lifting equipment and related accessories

- Design, supply and testing of lifting equipment such as slings, spreader beams, lifting fixtures, hoists lifting beams, jacks, adaptors, load cells, cranes, test weights to EN13115 (alternatively experience of supplying equipment above with CE marking);
- Standard and purpose-built lifting attachments and adapters to components of a wide range of weights and sizes.
- The design, manufacture, test and commissioning of tools shall comply with European design codes, European machinery directive and applicable French regulations regarding lifting equipment, personnel access equipment, steel structures and machinery. This includes testing, certification, and CE marking of equipment as required;
- Mechanical and structural analysis, seismic analysis may be required;
- Use of CATIA v5 may be required for some applications;
- May involve work at IO premises;
- Training of personnel shall be included where necessary.

Proposed date of first contract under this lot: Q2 2019

5.7 Assembly Equipment

- Design, supply, test and commissioning of specific equipment and structures used for assembly, positioning and alignment and fine adjustment of components and equipment up to be used during machine assembly and / or testing;
- Design of handling fixtures with moving parts for positioning and precise alignment of heavy components up to 100 tons weight;
- Maintenance, repair, modification or upgrade of existing tools;
- The design, manufacture, test and commissioning of tools shall comply with European design codes, European machinery directive and applicable French regulations regarding lifting equipment, personnel access equipment, steel structures and machinery. This includes testing, certification, and CE marking of equipment as required;
- Mechanical and structural analysis, seismic analysis may be required;
- Use of CATIA v5 will be necessary;
- May involve work at IO premises;
- Training of personnel shall be included where necessary.

Proposed date of first contract under this lot: Q2 2019

6 Candidature

Participation is open to all legal persons participating either individually or in a grouping (consortium) which is established in an ITER Member State. A legal person cannot participate individually or as a consortium partner in more than one application or tender. A consortium may be a permanent, legally-established grouping or a grouping, which has been constituted informally for a specific tender procedure. All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the ITER Organization.

The consortium groupings shall be presented at the pre-qualification stage.

Legal entities belonging to the same legal grouping are allowed to participate separately if they are able to demonstrate independent technical and financial capacities. Candidates (individual or consortium) must comply with the selection criteria. The IO reserves the right to disregard duplicated reference projects and may exclude such legal entities from the pre-qualification procedure.