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Technical Specifications (In-Cash Procurement)

Common Components procurement - Technical summary

The purpose of this Contract is the procurement of components common to Equatorial, Upper and Lower Ports, for both in and ex-vessel areas.



Common Components Procurement

IO/24/CFT/PR#70001151/AJI

Technical Summary

1 Purpose

The purpose of this Contract is the procurement of components common to Equatorial, Upper and Lower Ports, for both in and ex-vessel areas.

The scope of work is detailed in Section 3 below.

2 Background

Diagnostics are a critical part of the operation of ITER. They provide the means to observe, control and sustain the plasma performance over long timescales. ITER will operate with a plasma current in the region of 15 MA and toroidal fields of 5 T. The pulse lengths will be in the region of 500s typically and will extend up to several thousand seconds during more advanced operation. A key objective of this device is Q=10 operation. This means that a typical fusion power of 500 MW will be provided for 50 MW input.

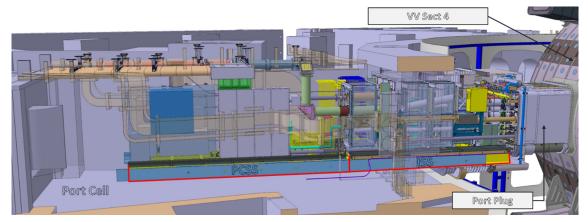


Figure 1. Integrated Equatorial Port #08 overall view.

A key aspect of the research program of ITER is the diagnosis of the plasma and the first-wall, e.g. the plasma temperature, density, radiative properties, first-wall resilience, etc. For this purpose:

- There are 25 diagnostic ports in ITER Tokamak hosting diagnostic systems.
- A large number of different types of diagnostic equipment peer into the ITER vacuum vessel from many different vantage points.

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This description of the system pertains to the procurement and manufacturing of Common Components for essential elements associated with the Port Plug system. The Port Plug comprises the Diagnostic First Wall (DFW) and Diagnostic Shielding Modules (DSM), both of which play vital roles in ensuring the proper functioning and protection of the ITER machine:

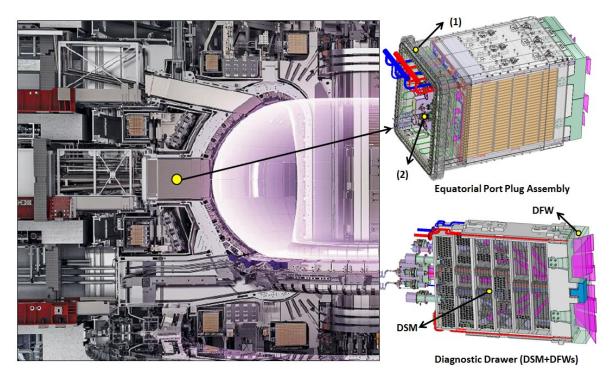


Figure 2: Location of Diagnostic Port Plug in the ITER Tokamak Machine

In addition, the Interspace Support Structure (ISS) and Port Cell Support Structure (PCSS) are integral parts of the overall system (see Figure 1), providing stability, structural support, and facilitating the integration of various components.

By assuring the correct procurement and manufacturing of the Common Components mentioned in section 1, it will facilitate the successful integration and operation of the Port Plug, along with the related support structures, contributing to the overall progress and success of the ITER project.

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3 Scope of work

The Contractor will be responsible for supplying products that meet the manufacturing, assembly, and integration requirements of these Port Plugs and ensuring that the products meet the acceptance criteria defined by IO in the Technical Specification.

- 3.1 This Contract covers the manufacturing and supply of Common Components required for the assembly of the Port Plug Integration unit including Interspace Support Structure & Port Cell Services.
- 3.2 The scope of work includes as a minimum the following:
 - a. Manufacturing design of all the components, sub-assemblies and assemblies of the ISS and PCSS

Note: the details of all the parts and quantities are provided in the following documents:

- ITER D AB3ZDT Annexure 1 Catalog of Common Components to be Procured and Manufactured for Equatorial Ports
- ITER D AF6C37 Annexure 2 Catalog of Common Components to be Procured and Manufactured for Upper Ports
- ITER D AF7LS5 Annexure 3 Catalog of Ex-vessel Common Components to be Procured and Manufactured

In these documents, two types of quantities are provided as follows:

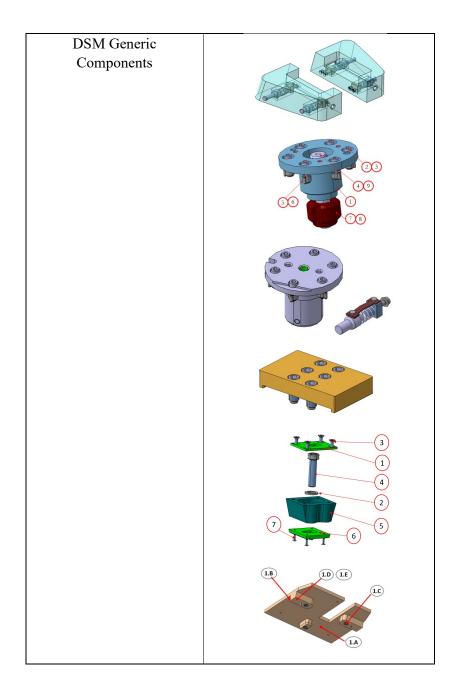
- "Baseline" quantities are the firm contract quantities
- "Options" quantities are additional tentative quantities
- b. Preparation of the Manufacturing Readiness Review (MRR)
- c. Material Procurement for all the components

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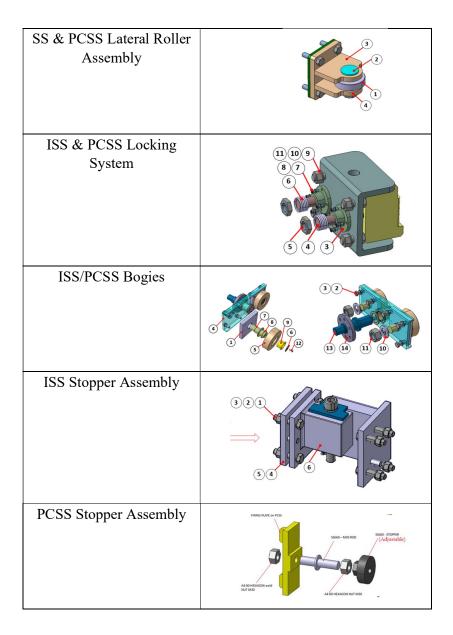
d. Manufacturing of the Common Components, that includes for example, but not limited to:

Water Feed Through assembly parts	4 1 2 3
Gas Feed Through assembly parts	2 1 3
Gripping Feature Assembly Parts	1 32
Serpentine pipe clamp	
Pipe supports	
TCWS and Bridge support bracket	

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- e. The Factory Acceptance Tests (FAT).
- f. Packing and Delivery to the Port Integration Sites as listed by IO

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4 Tentative Schedule Timetable

Issue Call for Nomination to DAs	July 2024
Issue Pre-Qualification Application	August 2024
Closing date for Pre-Qualification	September 2024
Issue Call for Tender	November 2024
Submission of tenders	January 2025
Contract Award	May 2025

5 Required Competences

Experience in Tokamaks is highly appreciated, and knowledge and experience in design for the following selected activities in nuclear environment is requested. The candidate's company and its personnel shall have adequate experience for the work as detailed below.

- Mechanical design engineering,
- Interface management in complex mechanical, fusion and/or nuclear systems,
- Expertise in manufacturing of nuclear components following international nuclear codes and standards,
- Capability of manufacturing in a clean environment,
- Capability of sub-millimetric level precision manufacturing,
- Non-Destructive Testing and Examination (Visual, die-penetrant, X-Ray and UT),
- Capability to conduct acceptance testing of final components.

6 Duration of services

The Contract will be carried out over an initial firm period of four (4) years and an optional period of two (2) years. The Contract is scheduled to come into force in May 2025.

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7 Candidature

- a. 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.
- b. 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.

8 Reference

Further information on the ITER Organization procurement can be found at: http://www.iter.org/org/team/adm/proc

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