

**Design and manufacturing of the Contract for DRS Auxiliary Drain Tank, Waste Collection Tank, VV PHTS Pressure Relief Tank**

**Call for Nomination**

**Purpose**

The purpose of this Contract is to design and manufacture the tanks of the Vacuum Vessel Primary Heat Transfer System, the Draining System.

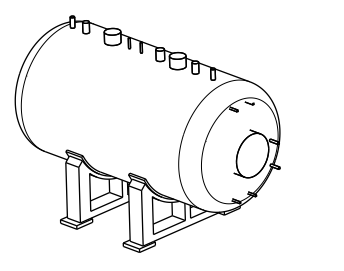
The tanks shall be compliant with the French Order dated 30 December 2015 on Nuclear Pressure Equipment (ESPN) and the 2014//68/EU Directive. All tanks are classified as an ESPN equipment level N3.

The tanks shall be made of 304L stainless steel.

The ITER Organization will act as Equipment Manufacturer as it pertains to the ESPN, which is the legal entity which assumes responsibility for the design, manufacture and inspection of a product to be marketed under its name as an item of pressure equipment, nuclear pressure equipment, or a nuclear pressure assembly. ITER will liaise with the Agreed Notified Body for the ESPN compliance assessment.

The Contractor will be responsible of the design and the manufacture of the Nuclear Pressure Equipment (ESPN) according to the 2014/068 EU Directive. The Contractor shall take all the necessary provisions to comply with the requirements arising from the Hazard and Risks Analysis and the Nuclear Particular Material Appraisal, defined by IO and imposed by the PED and ESPN Order.

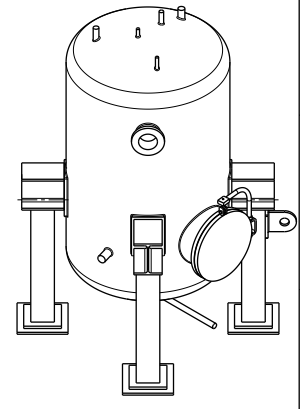
The main design parameters of the tanks are the following:

**VV-PHTS Pressure relief tank: TA-3001**

Volume 10.8 m3

Design pressure 1.2 MPa

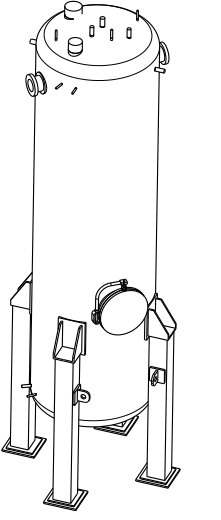
Design temperature 240ºC

**DRS Auxiliary Drain Tank: TA-0006**

Volume 5.9 m3

Design pressure 4.8 MPa

Design temperature 100ºC



**DRS Waste Collection Tank: TA-7850**

Volume 20.00 m3

Design pressure 1.0 MPa

Design temperature 270ºC

**Background**

The Tokamak Cooling Water System (TCWS) is the primary coolant system of ITER machine having the aim to remove the power generated by the plasma and transferred to dedicated components of the machine and to release it to the secondary coolant system.

The TCWS is based on three Primary Heat Transfer Systems (PHTSs): VV PHTS for cooling the Vacuum Vessel, IBED PHTS for cooling the in-vessel components and NBI PHTS for cooling the Neutral Beam Injectors.

The TCWS includes auxiliary systems as the Chemical and Volume Control System (CVCS), Draining and Refilling System (DRS), and Drying System (DYS).

The TCWS is designed to reject all the heat generated in the plasma and transmitted to the in-vessel components to the intermediate closed loop CCWS-1 (Component Cooling Water System 1) and then to the environment via the HRS (Heat Rejection System). TCWS release heat also to the Chilled Water System (CHWS).

In the ITER Plant Breakdown Structure (PBS), the Cooling Water System consisting of TCWS, CCWS, CHWS and HRS, is represented by the PBS 26. The level 2 and 3 of PBS 26 and the sub-systems belonging to TCWS are reported in Table 2.1.

The Vacuum Vessel Primary Heat Transfer System (VV PHTS) provides cooling and baking services by supplying demineralized water to the main channels of the vacuum vessel, field joints, port extensions and port stub extension field joints at the lower ports, and the neutral beam port extensions. The VV PHTS is designed to provide the primary confinement for Activated Corrosion Products and tritium entrained in the cooling water outside the Vacuum Vessel and maintains leak tight integrity during all operating modes.

The Draining and Refilling System (DRS) provides a means for draining the Primary Heat Transfer Systems (PHTSs), Tokamak Cooling Water System (TCWS) piping and in-vessel components such that maintenance and inspection can be performed and systems can be refilled after maintenance or inspection operations are completed. The DRS piping system is designed to provide primary confinement of TCWS fluids including Activated Corrosion Products and tritium entrained in the cooling water and maintains leak tight integrity during all operating modes.

**Scope of work**

The contract will include design, fabrication, inspection, examination, testing, certification, packaging, and shipping of the VV PHTS and DRS tanks.

**Timetable**

The tentative timetable is as follows:

Design and manufacturing of the contract for DRS Auxiliary Drain Tank, Waste Collection Tank, VV PHTS Pressure Relief Tank:

Tender submission August 2019

Contract placement December 2019

Completion of Contract February 2022

## Experience

The Contractor and its personnel shall have adequate experience in manufacturing stainless steel pressure vessels in compliance with the 2014/68/ EU directive and American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV) Section VIII, Division 2—2017 Edition or equivalent codes. The tanks are required to perform safety functions. The Contractor shall be able to set-up a Quality Assurance System and Supply Chain Management System required for manufacturing of nuclear pressure equipment.

**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. The tenderer’s composition cannot be modified without the approval of the ITER Organization after the pre-qualification.

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.