



IDM UID
8S333J

VERSION CREATED ON / VERSION / STATUS
03 May 2023 / 1.0 / Approved

EXTERNAL REFERENCE / VERSION

Technical Specifications (In-Cash Procurement)

**Summary Technical Specifications for ITER Upending
Tool Modification Services**

Summary Technical Specifications

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1. Purpose

The purpose of this document is to provide a high level summary of the contractor scope and responsibility relating to Upending Tool modification services. The present document will be used at bidder expression-of-interest consideration, a document outlining the detailed technical specifications will be provided to bidders for tender.

2. Background

The current configuration of the Vacuum Vessel (VV) Upending Tool (UT) allows for upending in one orientation only (with the right-hand field joint facing upwards).

Modification aims to enable upending in both orientations of the VV. To achieve this, interface plates need to be added to the Upending Tool by welding, and new threaded holes need to be drilled on the existing plates. And new parts shall be manufactured.

3. Scope of work

The scope of this contract includes the supply of all parts needed for Upending Tool modification and services to execute the Upending Tool modifications.

Parts manufacturing will be done in the contractor's workshop and modifications to the tool (assembly, welding, NDE, etc) will be done at ITER site Building 13.

- ✓ Manufacturing Readiness Review including manufacturing design and development manufacturing procedure
- ✓ Manufacturing interface plates and welding the plates on UT
 - Number of the plates : 20
 - Total weight of the plates : About 7 ton
 - Thickness of the plates : 80 mm
- ✓ Machining threaded holes in the existing plates on UT
 - Number of the holes : 100 (M33 x 80L : 85ea, M30 x 80L : 5ea, M30 x 40L : 10ea)
- ✓ Manufacturing new parts
 - Number of the new parts : 6
 - Total weight of the new parts : About 3.3 ton
- ✓ Cutting grates which has interface due to the welding of interface plates
 - Number of grates to be cut : 10

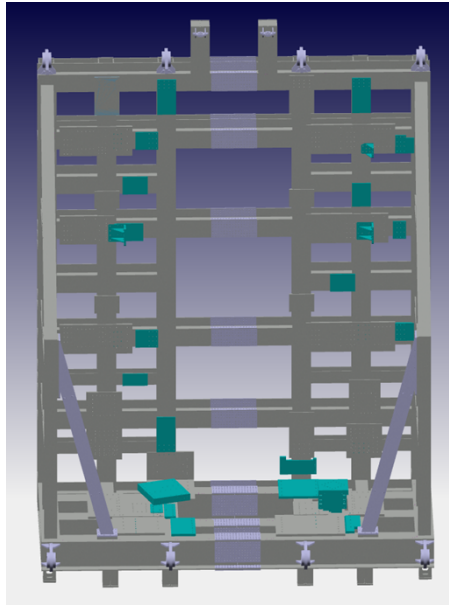


Figure 1 Green color shows the items to be supplied

4. Summary of requirements

- ✓ Main material: SM490YB (or S355JR)
- ✓ Welding
 - Interface plates: fillet welding with minimum 60% of material thickness
 - New parts: fillet welding with minimum 60% of material thickness and full penetration welding.
- ✓ NDE
 - 100% Visual test and Magnetic test (or Penetrant test) is mandatory for the fillet welding.
 - 100% Visual test and Magnetic test (or Penetrant test) and volumetric test is mandatory for the full penetration welding.
- ✓ Tolerance
 - General : ISO-2768-1 (medium) and ISO-2768-2 (H)
 - Flatness: within ± 0.5 mm
 - Alignment of the threaded hole: within ± 0.5 mm including existing plates
- ✓ Code and standard
 - EN 15614 - Specification and qualification of welding procedures for metallic materials, welding procedure test, arc and gas welding of steels and arc welding of nickel and nickel alloys
 - EN 287 - Qualification test of welders. Fusion welding. Steels
 - EN ISO 9712 - Non-destructive testing - Qualification and certification of NDT personnel General principles
 - EN ISO 5817 - Level of imperfections in welded joints (equal or superior to level B)
 - ISO 17640 – Non-destructive testing – Ultrasonic testing
 - EN ISO 11666 – Acceptance criteria for UT (level 2)
 - ISO 3452 - Non-destructive testing — Penetrant testing
 - ISO 23278 – Non-destructive testing – Magnetic testing (level 2)
 - ISO 17637 - Non-destructive testing of welds — Visual testing of fusion-welded joints

5. Timetable

It is estimated that the contract duration will be 25weeks, a summary of deliverables and due dates is provided below..

Item	Deliverable	Deliverable due date
1	Kick-off Meeting; including minutes, Quality Plan, detailed schedule, compliance matrix	$T_0 + 2$ weeks
2	Completion of checking interface in IO site	$T_0 + 3$ weeks
3	MRR documentation approved, and MRR successfully completed, material ordered, workshop resources/time scheduled according to MIP	$T_0 + 4$ weeks
4	Completion of manufacturing interface plates, new parts and threaded hole machining	$T_0 + 16$ weeks
5	Completion of modification on site (Welding, NDE, painting, etc.)	$T_0 + 24$ weeks
6	Inspection Report approved in IDM	$T_0 + 25$ weeks

Note: T_0 = Contract signature date

6. Quality Assurance requirements

The organisation conducting these activities should have an ITER approved QA Program or an ISO 9001 accredited quality system.

7. Experience

The candidates shall need to demonstrate that they have the capabilities to supply the required goods and services in full compliance with the applicable standards as well as with the ITER quality and safety requirements.

8. Reference Documents

[1] 2-D drawing for the UT modification “Changes on the UT for the LF SYM” ITER_D_8W9HTB

[2] As-Built Drawing for the UT ITER_D_YKVV4N v-B

[3] CATIA Model “Changes on the UT For LF SYM” ITER_Enovia_8W9DLP