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Technical Specifications (In-Cash Procurement)

Technical Specifications for Supply of VV Lifting and Transport Frames

This technical specification provides requirements for the supply of VV Lifting and Transport Frame

1 Table of Contents

1. Terms and Definitions

Term	Acronym
Assembly Hall	AH
Centre of Gravity	CoG
Self-Propelled Modular Transporter	SPMT
Vacuum Vessel	VV
Lifting Frame	LF
Transport Frame	TF
Stability Blocks	SB

2. Introduction

The purpose of this document is to provide the high-level requirements for Supply of Transport Frames and Lifting Frames for Vacuum Vessel Sectors. This document is intended to provide summary specifications only, the detailed requirements will be provided at the time of full tender package issuance.

Lifting frame (LF) is designed to be able to lift up and keep the structural integrity of the VV it interface VV Sector by means of support pads and Stability blocks and with the Transport Frame, as shown on the picture below.

The Transport Frame (TF) is a different set of sub-frame designed to be able to support and maintain the integrity of the entire lifting frame and vacuum vessel in its full structure during transport operations.

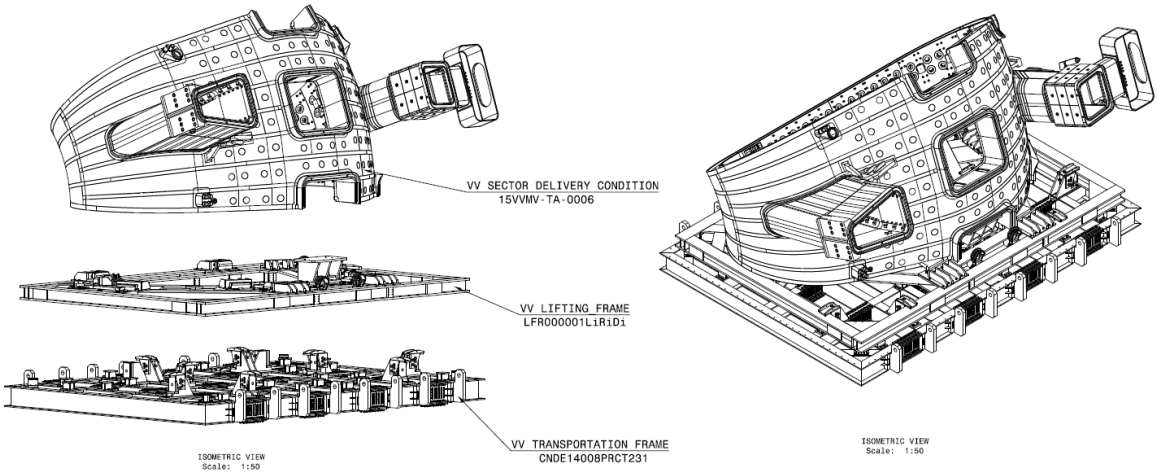


Figure 1: Assembly configuration of VV, LF and TF.

3. Scope of supply

The scope of supply of this contract is:

- Manufacture and deliver of one symmetric Lifting Frame

Contractor shall be capable to produce its own manufacturing drawings of the symmetric LF based on the existing drawings [1], [2], [3], [4], [5].

Optional:
- Manufacture and deliver of an additional Lifting Frame on its original configuration as per [5]
- Manufacture and deliver of an additional Transport Frame on its original configuration as per [5]

Exclusions:
Lifting Frame Equatorial Pad (LFR_11400 (PAD07) as per [1]) and associated hydraulic jacks are out of the scope of this supply.

4. Design Description

The LF (Figure 2) is a set of different sub frame designed to be able to lift up and keep the structural integrity of the vacuum vessel. The material selected for all components is carbon steel (S355JR or SM490YB). All treatments applied to selected materials are described in “Material Specification” section.

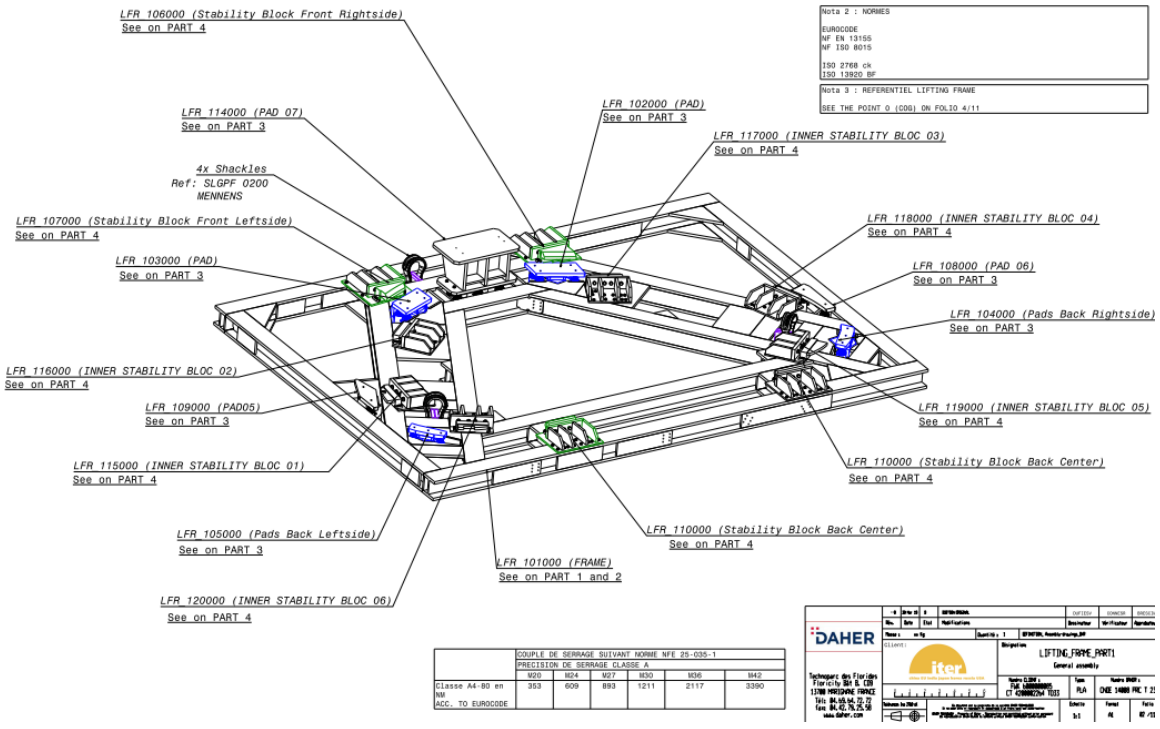


Figure 2: Lifting Frame

The TF constitutes the interface between the lifting frame and the transport means such as the boat, the trailer or stillage’s for storage. The material selected for all components is carbon steel (S355JR or SM490YB)

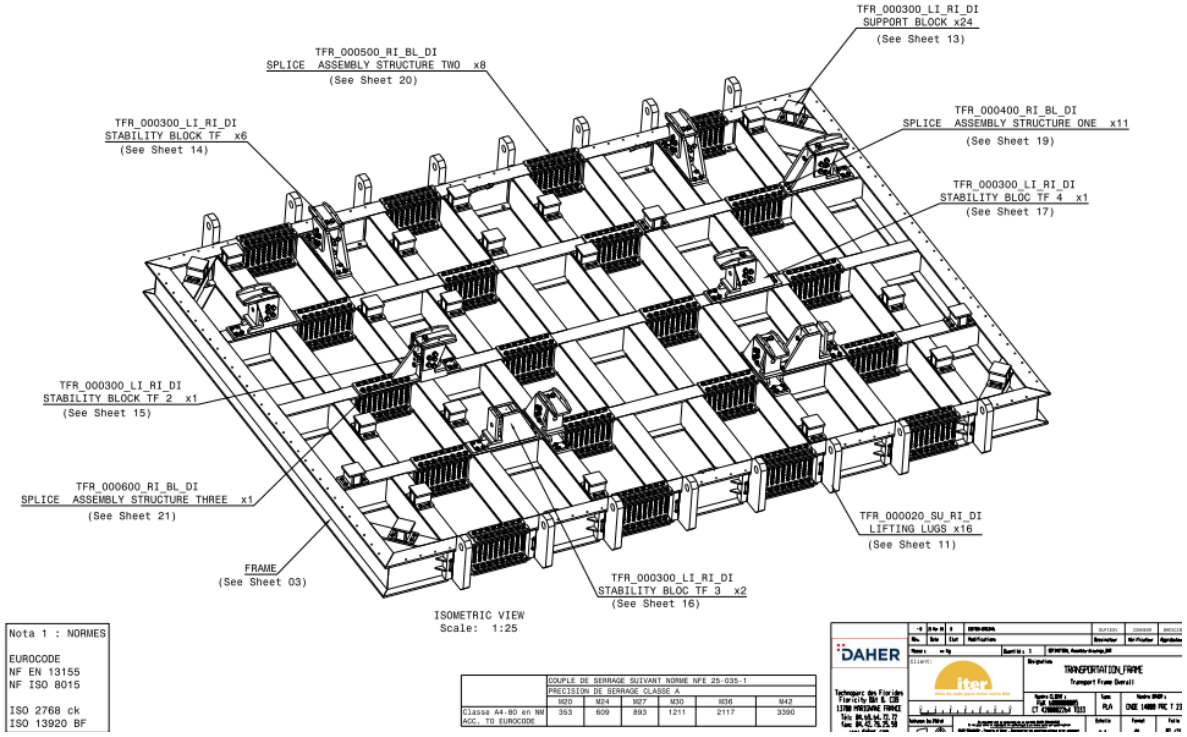


Figure 3: Transport Frame

To see the complete manufacturing drawing of the TF and LF, see Ref [5].

4.1. TF Structure

The TF structure is composed of five beams in one direction and 10 in the other divided into five transversal structures.

- Three identical structures in the centre, spliced by plates and multiple bolts.
- Two identical structures: one at each end.
- other equipment such as support block, stability block and lifting lugs

Each one of the centre structures in detail:

- Length 9000 mm
- Width 2700 mm.

Each one of the side structures in detail:

- Length 9000 mm
- Width 2200 mm.

Subsets are made in standard H-type profiles. Here, the standard beam HE650B was chosen.
Detailed profiles:

- height 650 mm
- width 300 mm
- Sections in 16 mm
- Blade thickness 31 mm

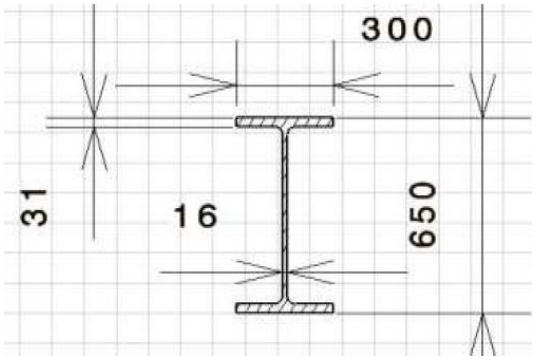


Figure 4: Section of the beam

4.2. TF Dimension

Transport frame dimensions are (with lifting lugs):

- Length: 12 500 mm
- Width: 9816 mm
- Height: 650 mm (only the beam) and 1543 mm (overall).

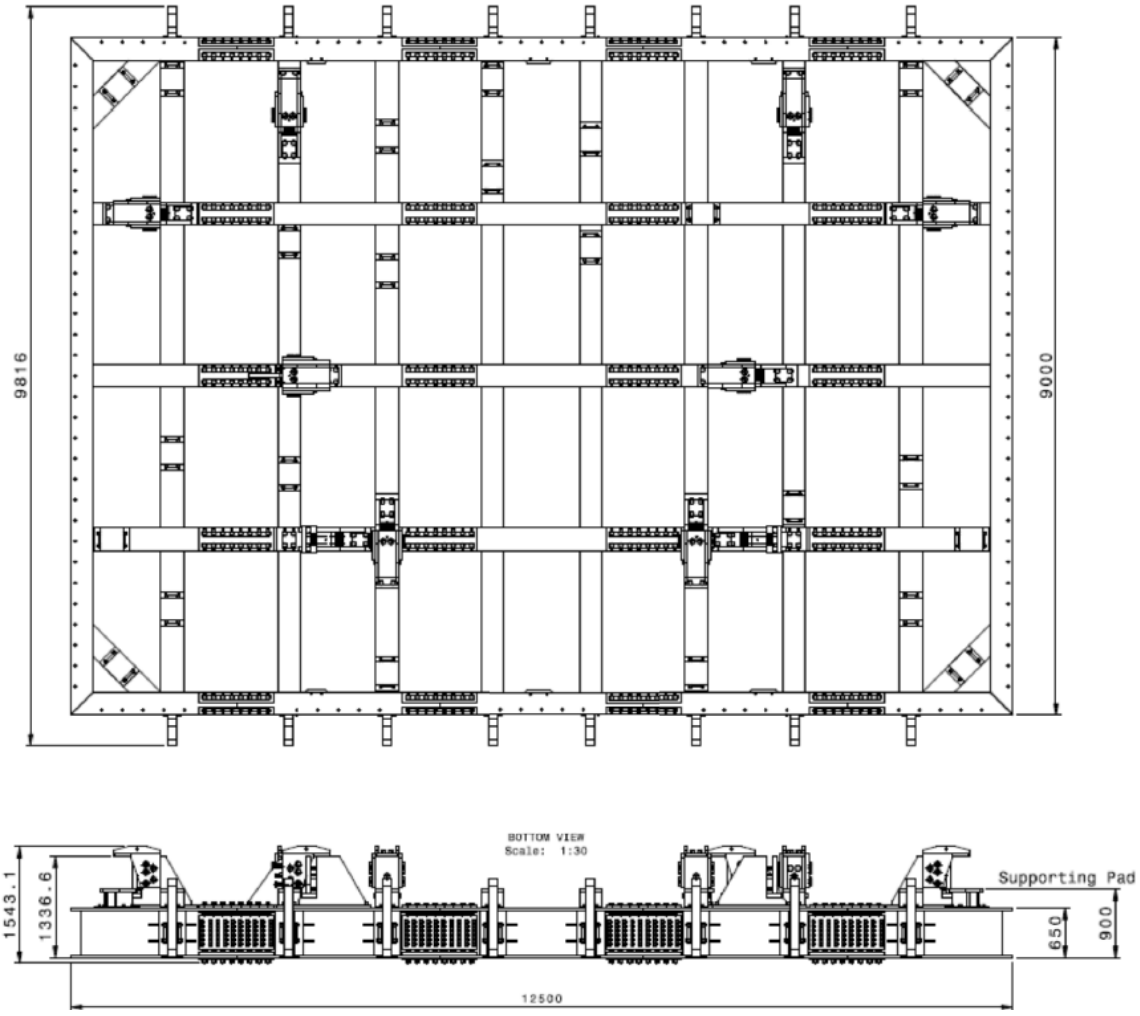


Figure 5: Overall dimension of the TF

The entire subassembly structure beam is welded by full penetration

4.3. TF Mass

The mass of the complete transport frame is: 160 tonnes*

*Note: masses are indicative.

4.4. LF Structure

The LF structure is composed of:

- Four longitudinal structures
- Two transverse beams structures,
- Other equipment such as Pads, Stability blocks, Lifting lugs
- Hydraulic jacks (defined by IO)

Subsets are made in standard H-type profiles:

- Height: 436.6mm
- Width: 412.2mm
- Sections: 35.8mm
- Blade thickness 58 mm

The Figure 6 represents a section of the beam.

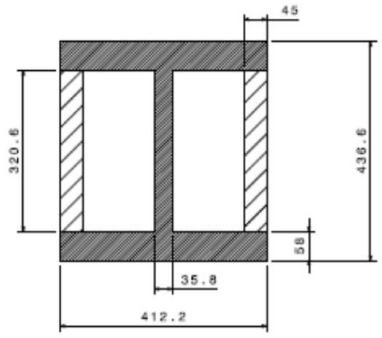


Figure 6: Beam structure

The entire subassembly structure beam is welded by full penetration.

Each one of the main structure in detail:
Main Structure :

- L=11800 mm length and H beam 436.6x412.2mm section
- L=7480 mm length and H beam 436.6x412.2mm section

Each subset is made of welded profiles reconstituted (PRS in French)
Some welded profiles reconstituted of the front and back structure are reinforced.
The reinforcement has been done around the pad position and the surface where the load is applied.

4.5. LF Dimension

The overall dimensions of the lifting frame are (without lifting lugs):

- Length: 11800 mm
- Width: 8300 mm
- Height: 436.6 mm (only the beam) and 1324 mm (overall).

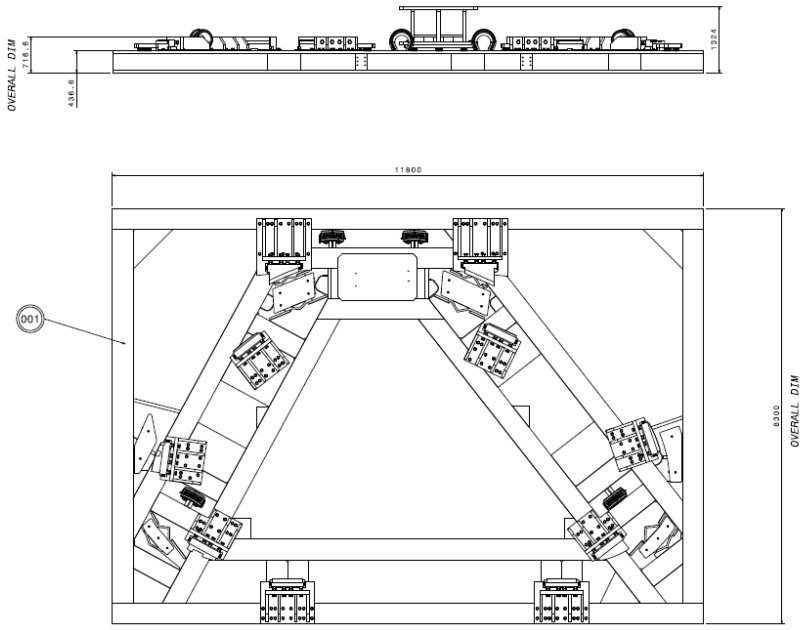


Figure 7: Overall Dimension of the LF

Given the dimension of the LF, the manufacturing completion of the main structure shall be envisaged to be finalized at IO site. This is to avoid a Highly Exceptional Load transport. It is up to the supplier to define the subassemblies to be welded at factory and transported via normal Conventional Exceptional Load or Conventional Truck Load.

4.6. LF Mass

The mass of the complete lifting frame is 75 tonnes*.

*Note: masses are indicative.

5. Technical Requirements

These manufacturing requirements are specifying the details of requirements in manufacturing of Lifting Frame & Transportation Frame for VV sector to ensure the quality of the products mechanical integrity.

This document contains the requirements of the manufacturing procedure including materials preparation, welding, machining, painting, inspection and testing with guidelines to produce steel structures.

5.1. Design requirements

The Supplier shall prepare manufacturing drawings based on the approved/accepted IO 3D and 2D Models.

The Supplier shall start manufacturing based on these manufacturing drawings, following a Manufacturing Readiness Review.

To build symmetric manufacturing drawing for the symmetric LF. It shall be taken the longest axis of the LF to build the symmetry plan. See picture below for clarity.

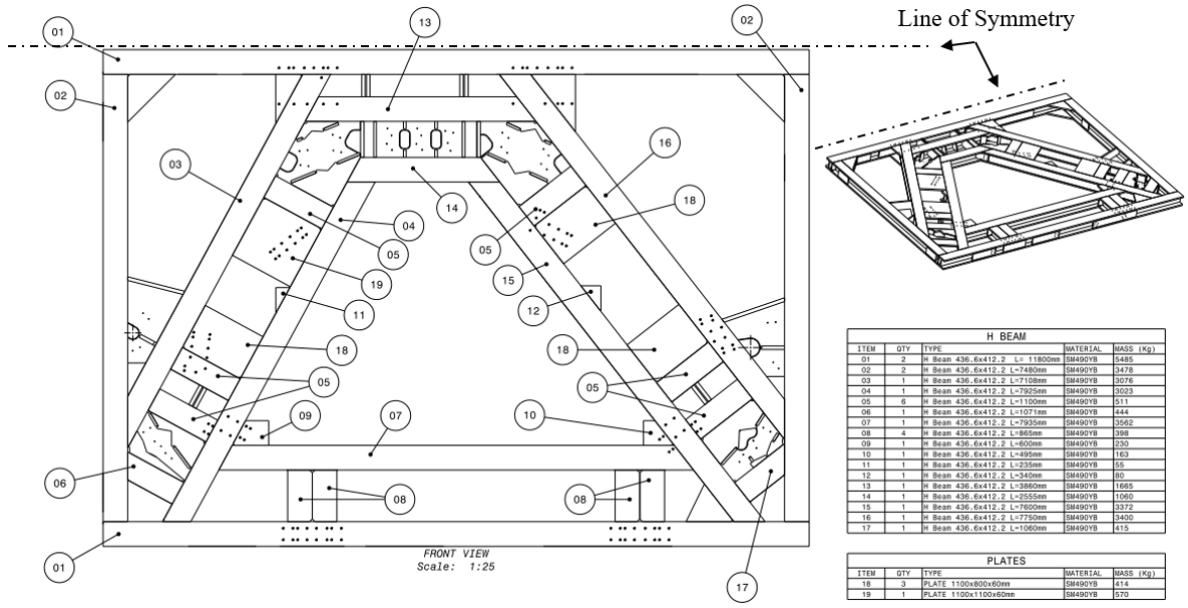


Figure 8: Line of symmetry for Lifting Frame

5.2. Material specification

The manufacturer must be certified ISO9001: 2008 or have a quality system compliant with ISO 9001 approved by IO.

All the requirements described below must be done and respected for the SM490YB (JIS) or steel equivalent grades procurement EU, EN (i.e. S355K2 (+N) (1.0595)).

The material chosen must respect the norms and standards:

- Of the rolled products
- Of the different standard profiles.

Component	Part	Material	Treatment
Transport Frame	Structure (Build-up beam)	SM490YB/S355K2(+N) (1.0595)	Painting (1)
	Support blocks	SM490YB/S355K2(+N) (1.0595)	Painting (1)
	Stability Blocks (Clamps)	SM490YB/S355K2(+N) (1.0595)	Painting (1)
	Fastening	Carbon Steel/SS (Grade 10.9)	Coating to prevent corrosion. e.g. GEOMET 720
Lifting Frame	Structure (Build-up beam)	SM490YB/S355K2(+N) (1.0595)	Painting (1)

	Pads	SM490YB/S355K2(+N) (1.0595)	Painting (1)
	Stability Blocks	SM490YB/S355K2(+N) (1.0595)	Painting (1)
	Part in contact on VV	Ertalon 6SA	
	Lugs for Lashing	RUD type ABA20	
	Fastening	Carbon Steel/SS (Grade 10.9)	Coating to prevent corrosion. e.g. GEOMET 720
	Hydraulic Jacks	Euro Press Pack MODEL: COG100N144FX	

(1) Painting will be applied as shown below or similar.
- Shot blast: sweep blast (shop primer)
- 1st: EP170-1105 (blue gray) 50µm
- 2nd: LT313-1128 (gray) 50µm

5.3. SM490YB steel material properties

The material which has been selected for main components of LF & TF is Carbon Steel (SM490YB). The material properties of SM490YB steel shall be in accordance with industrial standards as “JIS G 3106 Rolled steels for welded structure”. “MILL sheet (MILL test certificate)” shall be prepared and submitted for information.

Symbol	Thickness a)	C	Si	Mn	P	S
SM490YB	≤ 100mm	≤ 0.20%	≤ 0.55%	≤ 1.65%	≤ 0.035%	≤ 0.035%
	Yield point or proof stressN/mm2				Tensile strength N/mm2	
	Thickness a) mm				Thickness a) mm	
	≤ 16	> 16 ≤ 40	> 40 ≤ 75	> 75 ≤ 100	≤ 100	
	⩾365	⩾355	⩾335	⩾325	490 to 610	

a) Upon agreement between the purchaser and the manufacturer, the applicable thickness of steel plate/sheet may be follows. (SM490YB ≤ 150)

5.4. Cutting & Fit-up

5.4.1. Cutting

Cutting shall be performed as stated in the cutting plans, and edge preparation shall be processed with the cutting machine, or the gas cutting machine.

If needed, the machining can be done, and cutting machine shall be grounded before the cutting, or welding.

All the materials that are used in the parallel welding shall be cut with the auto cutter. The slag, scale, oxide, and rust shall be removed in order not to affect the welding.

5.4.2. Alignment and Fit-up

The visual inspection shall be performed to check the tolerance, surface defects, root gap and bevelling shape before the welding.

The fit-up shall be performed by using fixing equipment such as clamps, and magnets to fix the materials that will be welded, and tack weld the parts that are not going to be welded.

The preparation of alignment and fit-up for the welding assembly shall consider the weld distortion and deformation in case that the materials' bevels are crossing each other.

5.5. Weld

5.5.1. General

All welds shall be performed based on the requirements of EN 1993 Eurocode3 and EN 1090 (Execution class 2). The welding procedures, qualification of welders, welding and welding defects shall be evaluated by the EN ISO standards.

The manufacturer shall prepare the WPS base on the associated section of the EN ISO standards. The bevel shape of welds zones shall be prepared beforehand according to WPS and approved manufacturing drawings. The bevel angle shall be in the range that is not affecting the welding quality by lack of penetrations.

5.5.2. Welder Qualification

The quality manager shall keep the documents that maintain, and track of all the welders' qualification as well as approved date and expiration date of the qualification.

5.5.3. Welding procedures

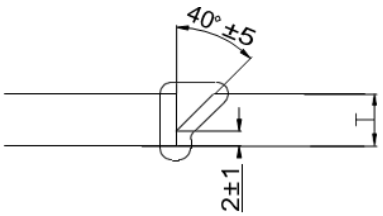
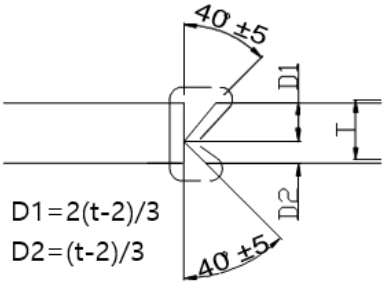
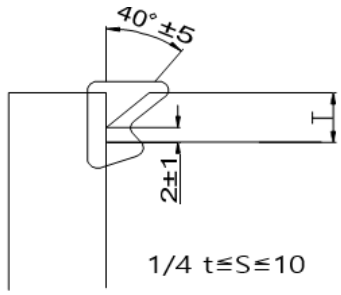
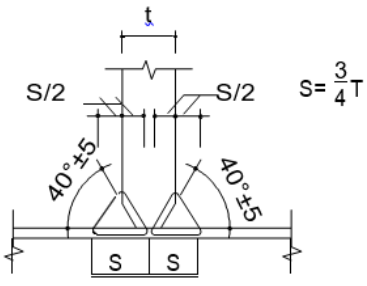
The manufacturer shall prepare the WPS based on the associated section of the EN ISO Standards.

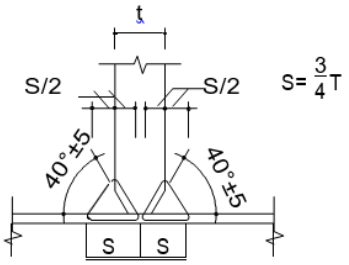
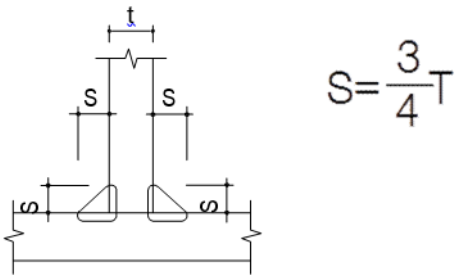
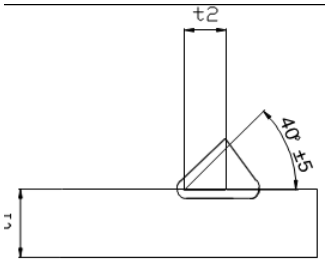
5.5.4. Welding Consumables

The manufacturer shall check and confirm that the welding materials' properties meet the requirements of WPS. The welding rods shall be stored in the welding rod storage with dry condition.

5.5.5. Weld Joint

The bevel shape of weld zones shall be prepared beforehand according to the WPS and approved manufacturing drawings. The bevel angle shall be in the range that is not affecting the welding quality by the lack of penetration.

Material thickness (mm)	Type of Joint	Cross-Section
19<T≤40	BUTT WELDING	
40<T≤70	BUTT WELDING	
19<T≤40	CORNER TYPE WELDING	
40<T≤70	CORNER TYPE WELDING	

10<T≤120	T-Type WELDING	
15<T≤40	FILLET WELDING	
15<T≤60	PARTIL WELDING	

5.5.6. Environment

The welding workshop shall be managed to maintain a suitable condition that could not affect the welding quality and if the welding is performed outside, the proper protection against wind shall be installed. If the weather is extreme, outdoor welding operation shall be prohibited. Contractor is encourage to complete the welding of the main Lifting Frames at ITER site premises as delivery shall not exceed CEL configuration, see below:

Acronym	Definition	Maximum Length (cm):	Maximum Width (cm):	Maximum Height (cm):	Maximum Weight (kg):
CEL	Conventional Exceptional Load	1900	500	500	60000
CTL	Conventional Truck Load	1200	250	250	26000

Any kind of flammables shall not be stored in the welding workshop.

5.5.7. Welding Machine

The welding machine must be checked for calibration and the calibration period is once every two

years. The quality managers shall manage and record the calibration date of the welding machine on the welding machine management document. The manufacture shall compare the welding machine with the welding machine management document during the weld.

5.5.8. Welding Cleaning

All the slags shall be removed, and the weld zone, the parent metal and other materials shall be brushed clean before welding. The slags shall be removed after weld completion.
No welding bead shall be left, flush grinding of the welds is required, special attention on the areas of interface with Upending Tool Clamps and stoppers.

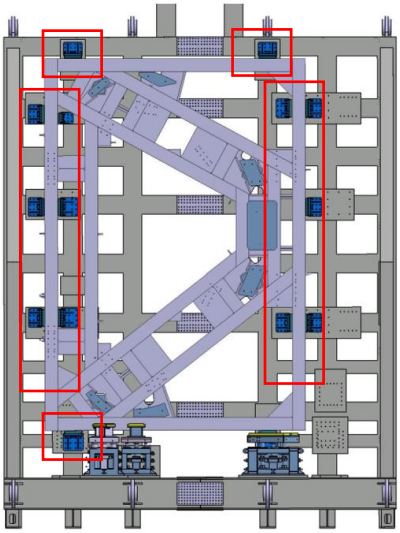


Figure 9: Lifting Frame on Upending Tool

5.5.9. Pre-heating and inter-pass temperature

The pre-heating shall be performed if it is noted in the WPS and during the weld, preheating is also applied to the tack welds and other temporal welded structures.
The surface of the materials shall be dried, and during the winter, the surface shall be maintaining the temperature of at least 10℃ before the operation.
The minimum inter-pass temperature shall be higher than the minimum pre-heating temperature, and if it is not mentioned in the WPS, the maximum inter-pass temperature shall not exceed 300℃.

5.5.10. Welding Process

All the slags shall be removed from the surface of welds after welding, and the surface defects, such as blow hole, under-cut, overlap and etc. are needed to be removed properly before the next process.
It the weld zones' surfaces are covered by snow or the rain, and if proper protections are not provided to the welders, welding machine, and workshop, any of the welding process cannot be performed.

5.5.11. Repair

The weld zones' surface defects can be repaired by grinding. The grinding thickness shall be less

than 7% of the material thickness.
The defective part shall be grinded smoothly, and Magnetic Particle Test (MT) shall be performed as well.
If the defects' depth is 7% of the material, or thicker than 3mm, the repair welding shall be conducted.
Before the repair welding, operator shall mark the exact depth and location of the defective region on the material.
The defective materials' repair welding zone shall be cleaned, removing the debris by machining, gauging or grinding.
All repair welding operations on welds, on parts or products shall meet the same requirements as those applied to production welds.

5.6. Non-Destructive Testing

All welds shall be inspected by visual test (also at the inter-pass) and surface examination according to EN ISO 5817-level C. Most loaded welds defined around the jack plates shall be volumetrically inspected, as described in drawing [5] Magnetic Particle Testing (MT) shall be done conducted on all joints unless specified.
Personnel who perform NDE shall be certified and qualified in accordance NDE Level 2 or 3. All NDE procedures shall be written at minimum by a NDE level 2 and approved by a NDE level 3 with a good knowledge of the selected techniques.
Standards to be use for personal qualifications shall be ISO 9712 or similar (SNT-TC-1A).
Detail of NDE method to be performed on the welds to be defined at final Technical Specification.

5.6.1. General

Personnel who perform the NDE shall be certified and qualified in accordance with one of the following document;

(1) SNT-TC-1A, Personnel qualification and certification in non-destructive testing; or
(2) ISO9712, Qualification and certification of NDT personnel

All NDE shall be performed by the qualified and certified NDE level 2 or 3.
All NDE procedure shall be written at minimum by a NDE level 2 and approved by a NDE level 3 with a good knowledge of the selected techniques.

5.6.2. Inspection status

The quality control manager shall build the system that can identify the status, evaluate suitability or non-conformity, and check current state and final state of the non-destructive test.

5.6.3. Reporting

All the final NDT report shall include tracking of test result, reproducibility, and actual standard specification, and shall be able to identify the NDT tested welds.
All NDE reports shall comply with conditions specified in the dedicated ISO standard for each NDE methods.

5.6.4. Acceptance criteria

The acceptance criteria shall be in conformance with the EN ISO 5817-level C.

5.6.5. Ultrasonic Examination on the base metal

The Ultrasonic controls have been made of 100% of the surface to be full penetration welded (T type angle joints) of the sheet plate (base metal).

But manual UT for base metal will be limited to central plate of build-up beam excluding side plate of build-up beam and other weld joints.

The test must be performed following the norms NF EN 10160 or equivalent, sheet to 6 mm to 200 mm.

5.7. Factory / Site Acceptance Test

For Factory Acceptance Test and given that is requested to the supplier to complete the assembly of the frame on site, the manufacturer shall ensure that all sub assembly part to be shipped to IO are compliant with the requirements stated in this speciation and that this check is properly traced on the MIP.

Before delivery of subassemblies to IO, the supplier is responsible to ensure that:

- All welded subassemblies are conform to the welding and NDT requirements described in this specification. NDT reports shall be made available to IO for review before shipping any component.
- Dimensional control of the sub assembly parts to ensure that assembly at IO is feasible and can meet final required dimensions.
- Partial painting of finished areas of the subassemblies and preservation (Supplier to propose best temporary protection) to minimize oxidation.
- A packing control document shall be prepared to define the packing conditions, number of packages and labelling to ensure a proper arrival and cataloguing and storage at the IO site.

At arrival of sub assembly parts at IO the supplier shall perform and inform IO, as per identified control points defined at Pre-inspection Meeting in the MIP, the following:

- Documentation checking
- State of subassemblies by visual inspection
- Complete weld assemblies, NDT, dimensional control, painting of the frame and installation of Hydraulic Jacks and functional test, provide final End of Manufacturing Report.

The Supplier shall bear the risk of loss or damages to the components during the execution of this Contract up to delivery and keep control of the subassemblies during the completion of the work at IO premises.

Supplier is responsible of defining any utilities necessaries and lifting means to perform the work on site.

Supplier is responsible of defining lifting plans and coordinate the activity. The IO with available crane means will support offloading of subassemblies.

IO is responsible to find a suitable space at the IO premises to perform the work allowing meeting the requirements of this specification.

As defined in 6 prior final acceptance, IO takes responsibility on the load test at 1.5 of the load, supplier shall kept responsibility upon load teste results, in case load test is confirmed not necessary, IO will inform contractor.

5.8. Technical File for Machinery

According to the Article 2 of the Machinery Directive, lifting accessory means a component or equipment not attached to the lifting machinery, allowing the load to be held, which is placed between the machinery and the load or on the load itself, or which is intended to constitute an integral part of the load and which is independently placed on the market.

As such the LF is considered a Lifting Accessory. Thus the LF provided by the Manufacturer is subject to CE Marking according to the Machinery Directive.

In order to obtain the CE marking, a technical file for machinery must be compiled by the manufacturer. This file must demonstrate that the LF is compliant with the Directive requirements. Even though the manufacturer is responsible for this file, the technical file covers design, manufacturing and operation of the LF. That's why, the elements of the technical file that cover design will also be provided by the ITER organization.

5.9. Codes and standards

- EN 10204 type 3.1 - for material inspection documents;
- EN1993 (Eurocode 3) - for design of steel structures;
- EN 1090 – for manufacturing.

In case if use of national standards other than mentioned above, manufacturer shall demonstrate in technical assessment, note the equivalence to harmonized European standards.

6. Responsibility

Main activities of the Supplier are:

- Preparation and submission for APPROVAL of a Manufacturing Dossier to ensure compliance with specifications and requirements
- Procurement and supply of structural steel and other material necessary to complete the Work
- Fabrication of Lifting Frame (and Transport Frame upon option release) and related parts (including NDT, labelling and painting)
- Factory Acceptance Test
- Delivery of the LF* to ITER site
- Contractor is responsible for all aspects of frame assembly at IO site.
- Final documentation

*Due to dimension of the frame a manufacturing plan that include completion of the main frame at IO shall be envisaged.

IO can take the responsibility to load test at 1.5 the load for CE marking, supplier shall kept responsibility upon load test results. Unless the IO CRO advises otherwise in writing to the Contractor.

7. Delivery

7.1. Requirements for Labelling, Cleaning, Packaging, Handling, Shipment and Storage

7.1.1. Scope of application

The following generic requirements apply both for the shipment of equipment, etc. from the manufacture/assembly site to the ITER Site or to any intermediate site.

Suitable precautions shall be taken to avoid damage to the equipment. The equipment shall be subject to control and inspection, as defined below.

7.1.2. Labelling and Traceability

All components and the main subcomponents shall be clearly marked in a permanent way and in a visible place with the IO official numbering system according to the document “ITER Numbering System for Components and Parts” [19].

7.1.3. Cleaning

All debris, such as swarf, should be removed by physical means such as blowing out with a high pressure air line, observing normal safety precautions. Gross contamination, e.g. greasesor cutting oils, etc., should be removed by washing.

Packing of the frames and hydraulic systems must include plastic bag protection to protect from dust and other pollution during transport.

7.1.4. Packaging and Handling

Any special IO or regulatory transportation requirements shall be documented and provided to the Supplier prior to shipment.

Subsequent to the Factory Acceptance Test, the components shall be partially disassembled to the maximum size that can be shipped. All components requiring re-assembly at the ITER Site shall be clearly labelled and tagged.

The supplier shall design and supply appropriate packaging, adequate to prevent damage during shipping lifting and handling operations.

Each shipment shall be accompanied by a Delivery Report shall be prepared by the Supplier, stating as a minimum:

- The packing date;
- The full address of the place of delivery and the name of the person responsible to receive the package, as well as of the Supplier’s name and full address;
- Bill of Materials
- Release Note [20];

- Packing List;
- Material Safety Sheet;
- The declaration of integrity of the package;
- The declaration of integrity of the components;
- Any additional relevant information on the status of the components.

The Delivery Report shall be signed by a representative of the IO and its Supplier. The signature by the IO of the Delivery Report prior to shipment represents a Hold Point (HP).

The Manufacturing Dossier is part of the List of Deliverables in Appendix 1.

An example of Manufacturing Dossier is listed below:

- As-Built Drawings, Documents, and Data (with signatures)
- Contractor Release Note
- Quality Plan
- Testing Procedures, Specifications and Reports
- Material Control Reports, incl. Certificates, Inspections, Concessions etc..,
- Manufacturing Documentation, incl. Manufacturing procedures, Non-Destructive Testing (NDT) Procedures, Process specifications etc..,
- Records of approved Non-Conformances (NCR) and Deviation Requests (DR)
- Certificates of conformance
- Control Reports (Visual Examination, Non-Destructive Tests, Leak Tests, Certificates of Cleanliness, Pressure Test, Geometric measurements, etc.)
- Codes and Standards conformity certificates
- Completed Manufacturing & Inspection Plans
- Manuals and Instructions for the handling, assembly and maintenance of all SSCs, Tools and Equipment within the supply

7.1.5. Shipment, Transportation and Delivery to the ITER Site

The Contractor shall be responsible for the packaging and delivery of the components to IO.

7.1.6. On-Site Activities

The IO policy applicable to all activities on the ITER Site is defined in “ITER Policy on Authority and Responsibilities during Assembly, Installation and Testing at the ITER Site” [21].

7.1.7. Environment, Safety and Health

The Supplier and Subcontractors shall observe all applicable environment, safety and health provisions for work on the ITER Site, as well as specific requirements set out in this Technical Specification.

Any activity by the Supplier and Subcontractors at the ITER Site shall be subject to the ”Internal Regulations” [22] and “Working Conditions on the ITER Organisation Site” [23].

Any activity by the Supplier and Subcontractors on the ITER Construction Site shall be subject to the "General Safety Rules – Volume 0" [24] and resulting procedures. Any additional applicable provisions regarding environment, safety and health shall be communicated by the IO to the Supplier at least 30 calendar days in advance of the activities to be performed at the ITER Site.

8. Delivery Schedule

The supplier shall develop a detailed schedule and a MIP (Manufacturing and Inspection Plan). A first issue of both documents will be provided at the tender stage and a consolidated version will be issued at the kick off meeting.

The deliverables and due dates are listed in Table below:

	Deliverables	Due Time
1	**Contract Signature and Schedule**	T0
2	**MRR** (see note) • Development of drawings for Symmetric LF • Presentation material for the MRR for symmetric LF including manufacturing plan at IO. • Schedule for the manufacturing phase	T0 + 4 weeks
3	**Manufacturing and assembly of the components** • Manufacture dossier of the LF and related components. • Non Conformity Request (if required) • Verification requirements and functionalities of the Frame are met (FAT/SAT)	T0 + 18 weeks
4	**Delivery to IO site** Completion of the LF Frame and Verification requirement and functionalities are met.	T0+20 Weeks

*Note: Same deliverables list shall be followed if option release for additional LF and TF is confirmed by the IO.

9. Quality Assurance

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

The general requirements are detailed in ITER Procurement Quality Requirements (ITER_D_22MFG4) [16].

Prior to commencement of the task, a Quality Plan must be submitted for IO approval giving evidence of the above and describing the organisation for this task; the skill of workers involved in the study; any

anticipated sub-contractors; and giving details of who will be the independent checker of the activities (see Procurement Requirements for Producing a Quality Plan (ITER_D_22MFMW) [17]).

Documentation developed as the result of this task shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO. The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with Quality Assurance for ITER Safety Codes (ITER_D_258LKL).[18]

10. Contract Management

10.1. Control Points

The IO shall ensure a close oversight of the production of its main Suppliers and Subcontractors in accordance with approved Manufacturing and Inspection Plans (MIP). This monitoring shall include Control Points at critical steps in the Suppliers' plans. The control points shall be integrated into the agreed schedule.

A Notification Point (NP) is a milestone where the Supplier is required to notify the IO, that it has completed a specific task or a specific deliverable and is proceeding to the next task or to the next action on the specific deliverable. A NP is meant to enable the IO personnel to follow the progress of the Contract and possibly to witness a critical manufacturing step at the Supplier's premises. The Notification shall be sent by the Supplier to the IO at least 10 working days prior to the scheduled manufacturing step. The IO shall decide whether or not they want to attend. A NP shall not affect the production flow of the Supplier that shall continue the work even without a reply from the IO.

A Hold Point (HP) is a milestone where the Supplier is required to notify the IO, that it has completed a specific task or a specific deliverable and must stop the associated processes until a HP Clearance is issued. The HP Clearance shall be issued on the basis of clearly identified Quality Control and data and Acceptance test results to be provided to the IO at the time of the request. The IO shall have a maximum of 5 working days to review the Suppliers data and to notify the Supplier of its decision. In case of clearance, the Supplier shall resume its activity. In case of rejection, the Supplier shall develop a recovery plan that shall be submitted and reviewed by the IO within 10 working days of submission.

A Witness Point (W) is a milestone which identifies an operation to be witnessed. Adequate notice shall be given to the IO, in order to allow the IO to participate to the operation.

A Surveillance Point (S1) identifies an operation that requires 100% inspection.

A Surveillance Point (S2) identifies an operation that requires random inspection or spot checks.

Review (R) identifies a document or report to be reviewed.

10.2. Data Management

The data generated during the execution of the present Contract shall be handled electronically and entered into the ITER IDM. The Supplier shall use this database to store information related to the Contract. All data entered in the database will be kept strictly confidential by the IO and, under no circumstances, shall be communicated or made accessible to other Suppliers. Data consistency checks shall be implemented to facilitate IO oversight. Relevant data shall be made available by the Supplier to the IO through IDM each time a control point is requested, or a deviation request, a non-conformance report, or any other document which is part of the Contract deliverables is issued by the Supplier, in accordance with the document "Procedure on Procurement Documentation Exchange between IO, DA, and contractors" [25]. This requirement does not apply for other documents and data files which are, for example, managed through specialized CAD software (e.g. CATIA, see System Design and others) and so undergo other requirements specified in separate documents.

10.3. Reviews

The Supplier will organise Manufacturing Readiness Review. These may be focused on particular areas of production.

The IO may decide to put a Hold Point on them.

10.4. Monitoring and Access Rights

The Supplier shall submit periodic reports to the IO, with a frequency depending on the progress of the works. Progress meetings shall be conducted at the IO or Supplier premises, as required by the IO.

The Supplier shall ensure that access rights are granted to IO personnel at all locations where ITER work is being performed.

In case of concerns regarding the quality of production, the IO reserves the right to perform unscheduled inspections in accordance with Par. 3.10 of the ITER Procurement Quality Requirements [16]. Planned and documented audits will be performed by the IO, and regulatory body representatives in France, to verify compliance with the technical and quality requirements of the Contract.

Moreover the IO reserves the right to take photographs of the ITER equipment during the contract life.

11. Reference Documents

[1] CNDE 14008 PRC T 230 - LIFTING_FRAME_PART1 ITER_D_ YDAG2U

[2] CNDE 14008 PRC T 230 - LIFTING_FRAME_PART2 ITER_D_ YDTFQH

[3] CNDE 14008 PRC T 230 - LIFTING_FRAME_PART3 ITER_D_ YDU4CQ

[4] CNDE 14008 PRC T 230 - LIFTING_FRAME_PART4 ITER_D_YEZ7YZ

[5] ITER-HHI-VM-0614-02 Manufacturing drawings of TF and LF. ITER_D_ YMEBNA v1.8

[6] EUROCODES 3 - NF EN 1993 - Design of steel structures

[7] 2006/42/CE Machinery directive 2006

[8] DET-04634-C: DET for the 3D and 2D model of the VV LF and TF

[9] EN 10204 Type 3.1 Metallic products – Types of inspection documents

[10] EN 10029 Tolerances on Dimensions, Shape and Mass

[11] SNT-TC-1A Personnel qualification and certification in non-destructive testing

[12] ISO9712 Qualification and certification of NDT personnel

[13] EN ISO 17638 Non-destructive testing of welds – Magnetic particle testing

[14] EN ISO 17640 Non-destructive testing of welds – Ultrasonic testing

[15] EN ISO 15614-1 Specification and qualification of welding procedures for metallic materials

[16] ITER Procurement Quality Requirements (ITER_D_22MFG4)

[17] Procurement Requirements for Producing a Quality Plan (ITER_D_22MFMW)

[18] ITER Safety Codes (ITER_D_258LKL).

[19] ITER Numbering System for Components and Parts (ITER_D_28QDBS)

[20] ITER Requirements Regarding Suppliers Release Note (ITER_D_22F52F)

[21] ITER Policy on Authority and Responsibilities during Assembly, Installation and Testing at the ITER Site (A5TUQN)

[22] Internal Regulations (ITER_D_27WDZW)

[23] Working conditions on the ITER Organization site (ITER_D_2EQ9JM)

[24] Health Protection and Safety General Coordination Plan - ITER Construction Site - Volume 0 - General Safety Rules (ITER_D_2NUEYG)

[25] Procedure on procurement documentation exchange between IO, DAs and contractors (35BVQR)