外部委託業者の募集

References: IO/24/OT/10028750 /JPA

“VV Lifting Frames"

（真空容器リフティングフレーム）

IO 締め切り 2024 年 5 月 23 日(木)

〇はじめに

本事前情報通知（PIN）は、作業契約の入札授与および実行につながる公開入札調達プロセスの最初のステップです。

本文書の目的は作業範囲と入札プロセスに関する技術的な内容の基本的な要約を提供することです。

〇背景

ITER は平和利用の核融合発電の科学的および技術的な実現可能性の実証を目的とした、国際共同研究開発プロジェクトです。ITER 機構の 7 つのメンバーは、;欧州連合（EURATOM が代表）、日本、中華人民共和国、インド、大韓民国、ロシア連邦、および米国です。

ITER の敷地はフランス南東部のブーシュデュローヌ地区にあり、ITER 本社（HQ）もあるフランス CEA サン・ポール・レ・デュランス に近いところに位置しています。詳細については、ITER のウェブサイト http://www.iter.org を参照して下さい。

〇作業範囲

本作業の契約者の作業範囲には真空容器リフティングフレームが含まれます。

契約には真空容器リフティングフレームの製造および搬入が含まれます。

詳細については、付属書Ⅱの技術仕様書を参照してください。

〇調達プロセスと目的

目的は、競争入札プロセスを通じて供給契約を落札することです。

この入札のために選択された調達手続きは公開入札手続きと呼ばれます。

オープン入札手順は、次の 4 つの主要なステップで構成されています。

- ステップ 1-事前情報通知（PIN）

  事前情報通知は公開入札プロセスの第一段階です。IO は、関心のある候補企業に対し、以下の概略日程に示された期日までに担当調達担当官に添付の関心表明フォームで以下の情報を提出し、競争プロセスへの関心を示すよう正式に要請します。

  - 会社名
  - 登録の国名
  - 担当者名、email アドレス、肩書および電話番号

特に注意:
関心のある候補企業は、IO Ariba の電子調達ツール 「IPROC」 に登録してください（まだ登録していない場合）。手順については、
https://www.iter.org/fr/proc/overview
を参照してください。

Ariba (IPROC) に登録する際には、お取引先様に最低 1 名の担当者の登録をお願いします。この連絡担当者は、提案依頼書の発行通知を受け取り、必要と思われる場合は入札書類を同僚に転送することができます。

- ステップ 2-入札への招待
  PIN の発行から 7 作業日経過後、提案依頼書（RFP）を 「IPROC」 に掲載します。この段階では、担当の調達担当者に関心を示し、かつ IPROC に登録している関心のある候補企業は、RFP が公表された旨の通知を受けることができます。その後、RFP に詳述されている入札説明書に従って提案書を作成し、提出します。

  このツールに登録されている企業のみが入札に招待されます。

- ステップ 3-入札評価プロセス
  入札者の提案は、IO の公平な評価委員会によって評価されます。入札者は、技術的範囲に沿って、かつ、RFP に記載された特定の基準に従って作業を実施するために、技術的遵守を証明する詳細を提供しなければなりません。

- ステップ 4-落札
  認定は、公開されている RFP に記載されている、コストに見合った最適な価格または技術的に準拠した最低価格に基づいて行われます。

〇概略日程

提出のタイムラインが３カレンダーウィークに短縮されていることに注意下さい。
概略日程は以下の通りです：

マイルストーン	暫定日程
事前指示書（PIN）の発行	2024 年 5 月 17 日
関心表明フォームの提出	2024 年 5 月 23 日（PIN 発行の 7 日後）
iPROC での入札への招待（ITT）の発行	2024 年 5 月 23 日
明確化のための質問の締め切り	2024 年 6 月 7 日
明確化のための質問への回答締め切り	2024 年 6 月 10 日
入札提出	2024 年 6 月 13 日

契約授与	2024 年 6 月
契約調印	2024 年 6 月

〇契約期間と実行

ITER機構は2024年の6月ごろ供給契約を授与する予定です。予想される契約期間は12か月の予定です。

〇経験

契約者は、IO の規則と安全性の要求に十分に準拠する能力と経験を持っていることを示す必要があります。

〇候補

参加は、個人またはグループ/コンソーシアムに参加するすべての法人に開放されます。法人とは、法的権利及び義務を有し、ITER 加盟国内に設立された個人、企業又は機構をいいます。ITER 加盟国は欧州連合(EURATOM メンバー)、日本、中華人民共和国、インド共和国、大韓民国、ロシア連邦、アメリカ合衆国です。

法人は、単独で、またはコンソーシアムパートナーとして、同じ契約の複数の申請または入札に参加することはできません。共同事業体は、恒久的な、法的に確立されたグループ又は特定の入札手続のために非公式に構成されたグループとすることができます。

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どのコンソーシアムメンバーも IPROC に登録する必要があります。

【※　詳しくは添付の英語版技術仕様書「**VV Lifting Frames**」をご参照ください。】

ITER 公式ウェブ　http://www.iter.org/org/team/adm/proc/overview からもアクセスが可能です。

「核融合エネルギー研究開発部門」の HP：　http://www.fusion.qst.go.jp/ITER/index.html では ITER 機構からの各募集（IO 職員募集、IO 外部委託、IO エキスパート募集）を逐次更新しています。ぜひご確認ください。

イーター国際核融合エネルギー機構からの外部委託
に関心ある企業及び研究機関の募集について

＜ITER 機構から参加極へのレター＞

以下に、外部委託の概要と要求事項が示されています。参加極には、提案された業務に要求される能力を有し、入札すべきと考える企業及び研究機関の連絡先の情報を ITER 機構へ伝えることが求められています。このため、本研究・業務に関心を持たれる企業及び研究機関におかれましては、応募書類の提出要領にしたがって連絡先情報をご提出下さい。

china eu india japan korea russia usa
Route de Vinon-sur-Verdon - CS 90 046 - 13067 St Paul Lez Durance Cedex - France

PRIOR INDICATIVE NOTICE (PIN)

OPEN TENDER SUMMARY

IO/24/OT/10028750/JPA

for

VV Lifting Frames

List of annexes:

- Annex I – Expression of Interest
- Annex II –Technical specification 8R8X7K v1.3 for information only. The purpose of this specification 8R8X7K v1.3 is to provide technical overview of IO requirements for VV lifting and transportation frames. New approved official technical specification will be sent later with the tender package.

Abstract

The purpose of this summary is to provide prior notification of the IO's intention to launch a competitive Open Tender process in the coming weeks. This summary provides some basic information about the ITER Organisation, the technical scope for this tender, and details of the tender process.

1 Introduction

This Prior Indicative Notice (PIN) is the first step of an Open Tender Procurement Process leading to the award and execution of a Supply Contract.

The purpose of this document is to provide a basic summary of the technical content in terms of the scope of work, and the tendering process.

2 Background

The ITER project is an international research and development project jointly funded by its seven Members being, the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA. ITER is being constructed in Europe at St. Paul–Lez-Durance in southern France, which is also the location of the headquarters (HQ) of the ITER Organization (IO).

For a complete description of the ITER Project, covering both organizational and technical aspects of the Project, visit www.iter.org.

3 Scope of Work

The scope of work for the Contractor would include Supply of VV Lifting Frames

The scope of the contract includes the Manufacturing, Delivery of the Vacuum Vessel Lifting Frames on the ITER site.

For more details, please refer to Annex II.

4 Procurement Process & Objective

The objective is to award a Supply Contract through a competitive bidding process.

The Procurement Procedure selected for this tender is called the **Open Tender** procedure.

The Open Tender procedure is comprised of the following four main steps:

- Step 1- Prior Information Notice (PIN)

  The Prior Information Notice is the first stage of the Open Tender process. The IO formally invites interested Suppliers to indicate their interest in the competitive process by returning to the Procurement officer in charge the attached "Expression of Interest and PIN Acknowledgement" (Annex I) by the date indicated under the procurement timetable.

  Special attention:

  Interested tenderers are kindly requested to register in the IO Ariba e-procurement tool called "iPROC", if they have not already done so. You can find all links to proceed along with instruction going to: https://www.iter.org/fr/proc/overview.

  When registering in iPROC, suppliers are kindly requested to nominate at least one contact person. This contact person will be receiving the notification of publication of the Request for

Proposal and will then be able to forward the tender documents to colleagues if deemed necessary.

- Step 2 - Invitation to Tender

  After 7 calendar days of the publication of the PIN, the Request for Proposals (RFP) will be published on our digital tool "iPROC". This stage allows interested bidders who have indicated their interest to the Procurement Officer in charge AND who have registered in iPROC to receive the notification that the RFP is published. They will then prepare and submit their proposals in accordance with the tender instructions detailed in the RFP.

  Only companies registered in this tool (iPROC) will be invited to the tender.

- Step 3 – Tender Evaluation Process

  Tenderers proposals will be evaluated by an impartial evaluation committee of the IO. Tenderers must provide details demonstrating their technical compliance to perform the work in line with the technical scope and in accordance with the particular criteria listed in the RFP.

- Step 4 – Contract Award

  A Supply contract will be awarded on the basis of Best Value for Money, according to the evaluation criteria and methodology described in the RFP.

Procurement Timetable

Please pay attention that for this tender, the submission timeline should be reduced to 3 calendar weeks.

The tentative timetable is as follows:

Milestone	Date
Publication of the Prior Indicative Notice (PIN)	17/05/2024
Submission of expression of interest form	**23/05/2024** (7 days after PIN publication)
Invitation to Tender (ITT) launched on iPROC	23/05/2024
Clarification Questions Deadline	07/06/2024
Clarification Response Deadline	10/06/2024
Tender Submission	13/06/2024
Contract Award	June 2024
Contract Signature	June 2024

5 Quality Assurance Requirements

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

6 Contract Duration and Execution

The ITER Organization should award the Supply Contract around June 2024. The maximum contract duration should be 12 months.

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 Candidature

Participation is open to all legal entities participating either individually or in a grouping/consortium. A legal entity is an individual, company, or organization that has legal rights and obligations and is established within an ITER Member State, being, the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

Legal entities cannot participate individually or as a consortium partner in more than one application or tender of the same contract. 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.

In order for a consortium to be acceptable, the individual legal entities included therein shall have nominated a leader with authority to bind each member of the consortium, and this leader shall be authorised to incur liabilities and receive instructions for and on behalf of each member of the consortium.

It is expected that the designated consortium leader will explain the composition of the consortium members in its offer. Following this, the Candidate's composition must not be modified without notifying the ITER Organization of any changes. Evidence of any such authorisation shall be submitted to the IO in due course in the form of a power of attorney signed by legally authorised signatories of all the consortium members.

All consortium members shall be registered in IPROC.

9 Sub-contracting Rules

All sub-contractors who will be taken on by the Contractor shall be declared with the tender submission in iPROC. Each sub-contractor will be required to complete and sign forms including technical and administrative information which shall be submitted to the IO by the tenderer as part of its tender.

All declared sub-contractors must be established within an ITER Member State in order to participate.

The IO reserves the right to approve (or disapprove) any sub-contractor which was not notified in the tender and request a copy of the sub-contracting agreement between the tenderer and its subcontractor(s). Rules on sub-contracting are indicated in the RFP itself.

Subcontracting is limited to 30% of the contract value and is allowed up to level 1.

ANNEX I

EXPRESSION OF INTEREST & PIN ACKNOWLEDGEMENT

To be returned by e-mail to: jessica.pilla@iter.org copy aurelie.dubuc@iter.org

TENDER No.	**IO/24/OT/10028750/JPA**
DESIGNATION of SERVICES:	**VV Lifting Frame**
OFFICER IN CHARGE:	**Jessica PILLA – Procurement Division ITER Organization**

☐ WE ACKNOWLEDGE HAVING READ THE PIN NOTICE FOR THE ABOVE MENTIONED TENDER

☐ WE INTEND TO SUBMIT A TENDER

Are you registered in Iproc (only entities registered in iPROC will be invited to tender):

☐ YES

Please indicate your registration number: ……

☐ NO, but we shall register before the indicated tender launch date

……

Signature:

COMPANY STAMP

Name: .....

Position: .....

Tel: .....

E-mail .....

Date: .....

IDM UID
8R8X7K

VERSION CREATED ON / VERSION / STATUS
21 Mar 2023 / 1.3 / Approved

EXTERNAL REFERENCE / VERSION

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.

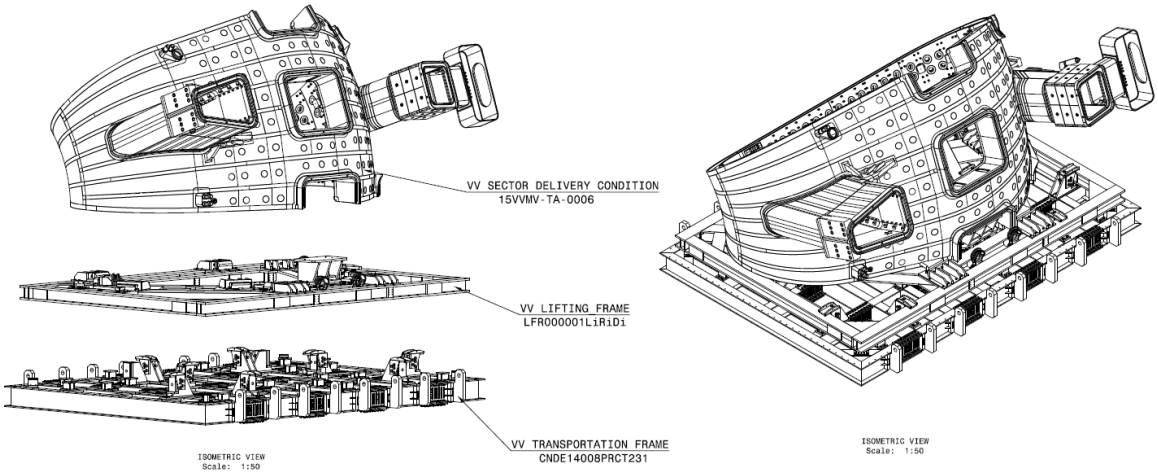


Figure 1: Assembly configuration of VV, LF and TF.

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.

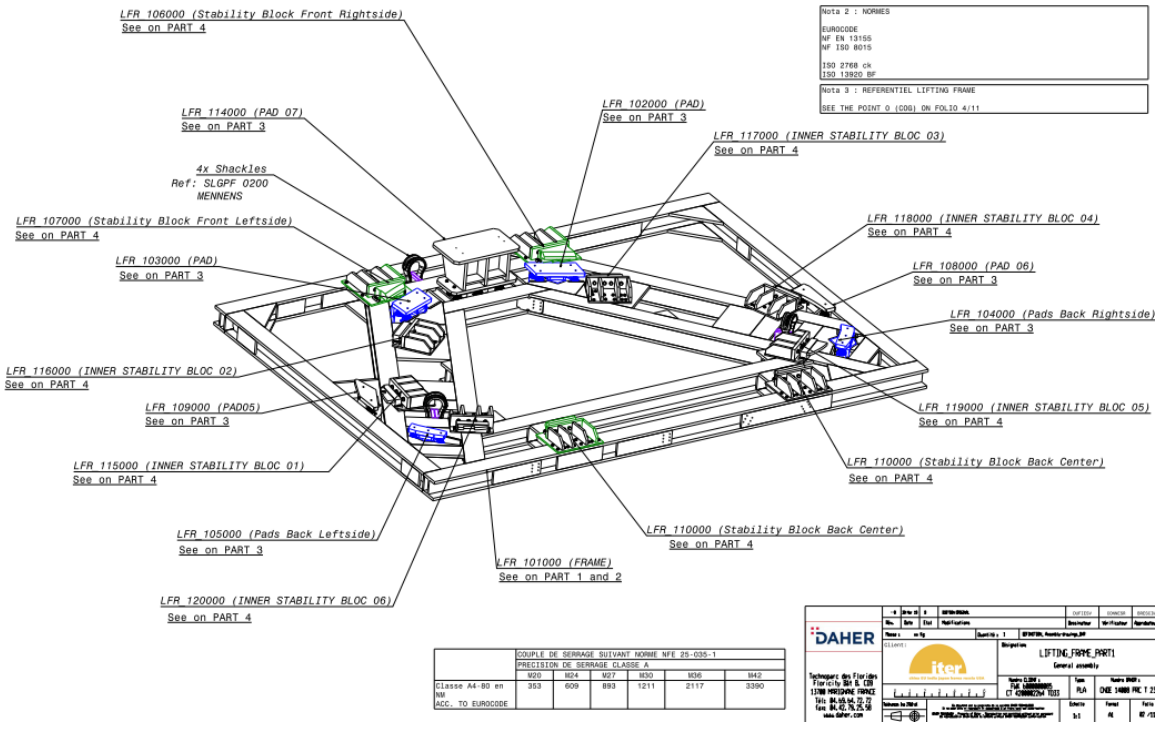


Figure 2: Lifting Frame

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)

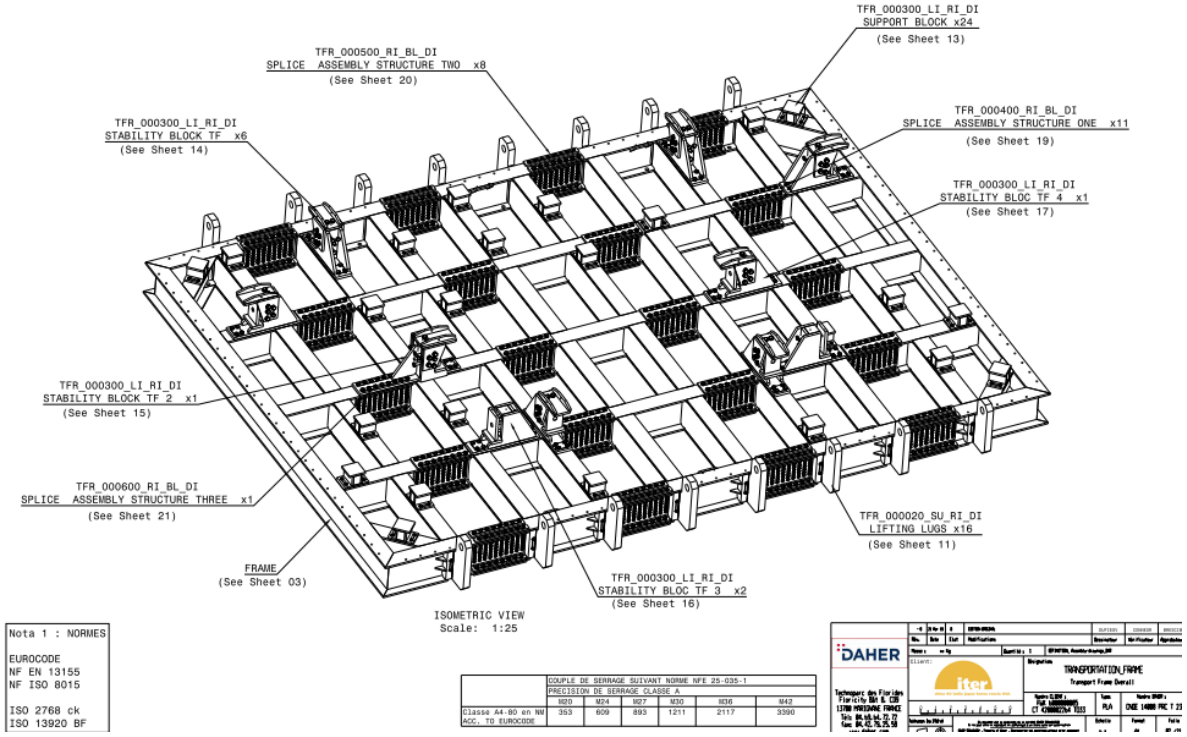


Figure 3: Transport Frame

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

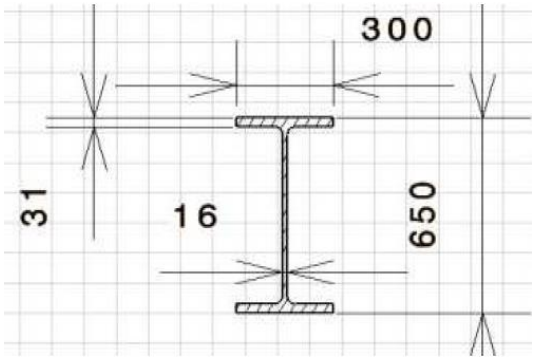


Figure 4: Section of the beam

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).

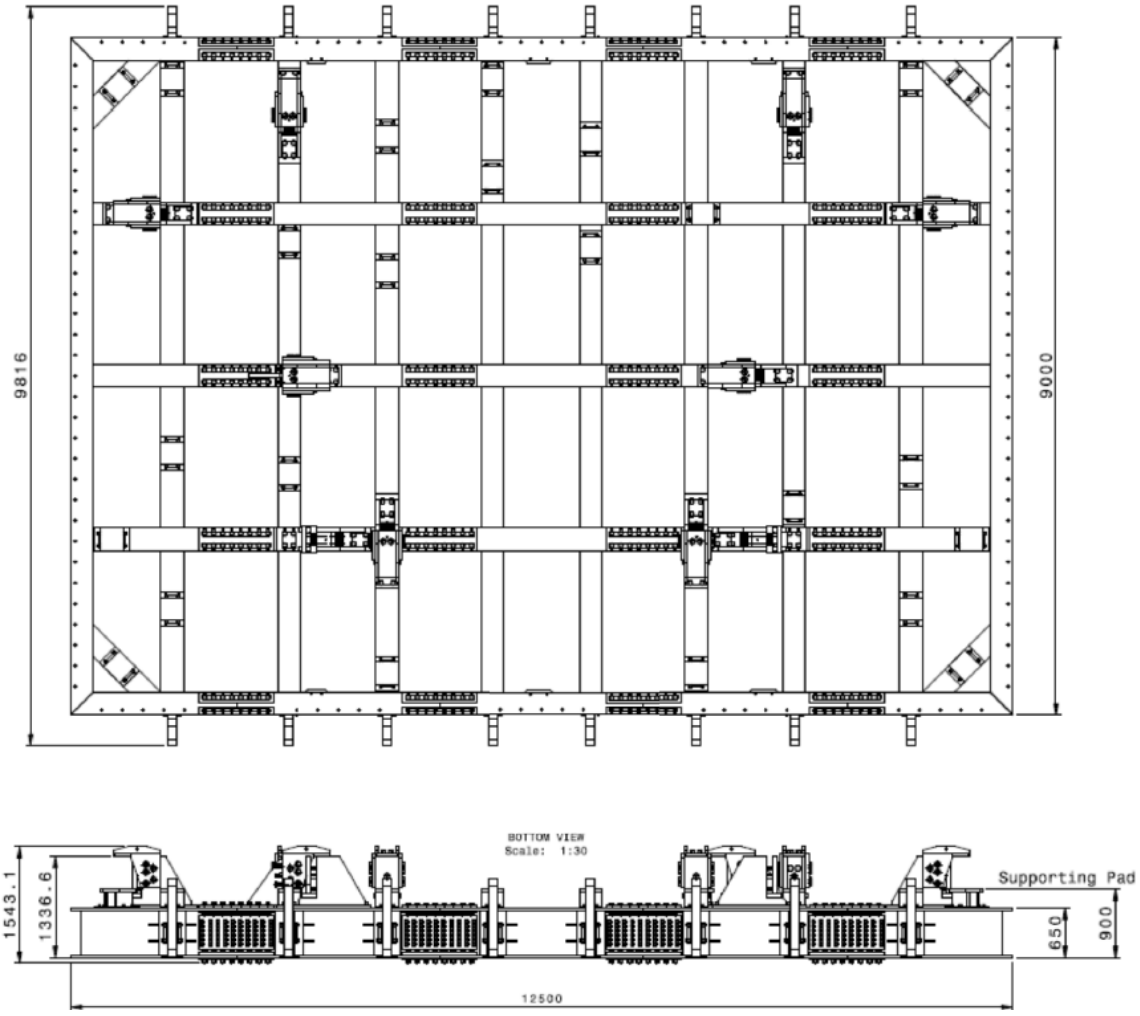


Figure 5: Overall dimension of the TF

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.

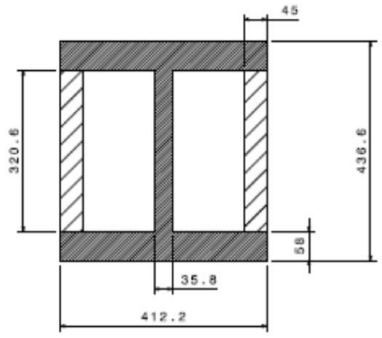


Figure 6: Beam structure

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).

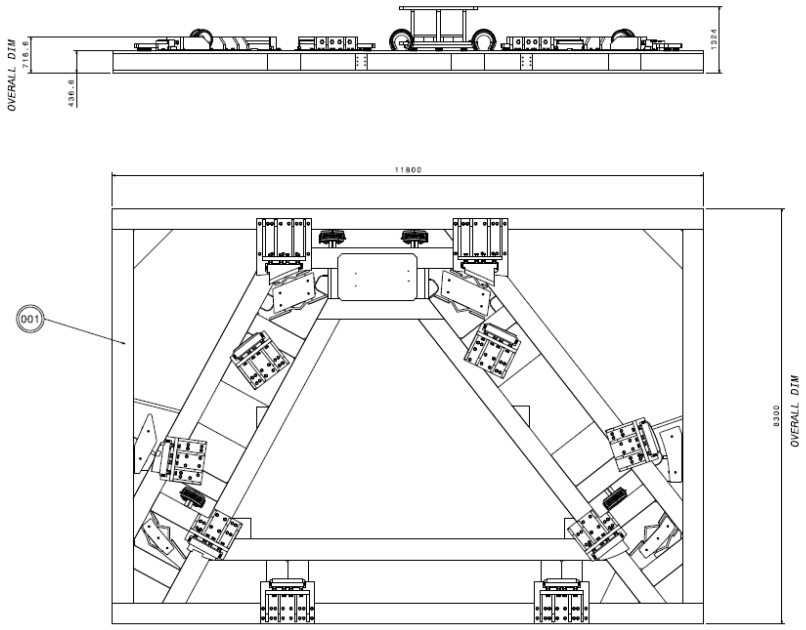


Figure 7: Overall Dimension of the LF

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.

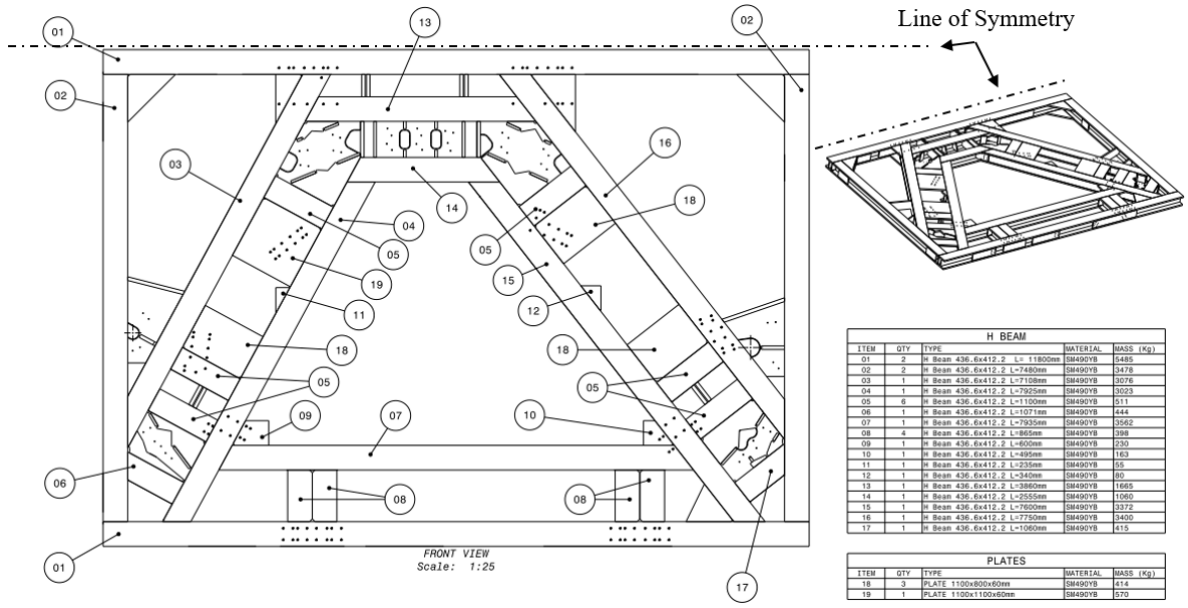


Figure 8: Line of symmetry for Lifting Frame

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

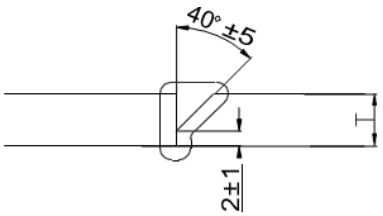
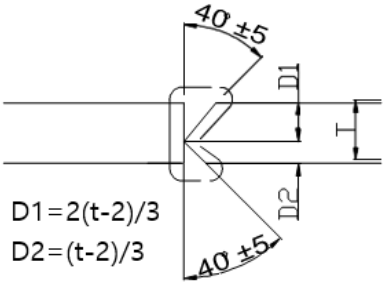
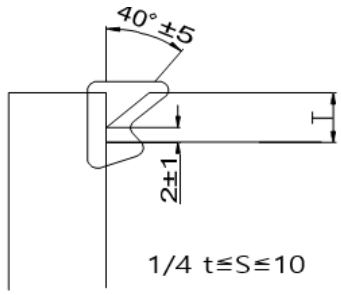
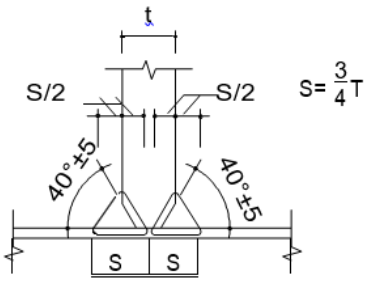
The manufacturer shall prepare the WPS based on the associated section of the EN ISO Standards.

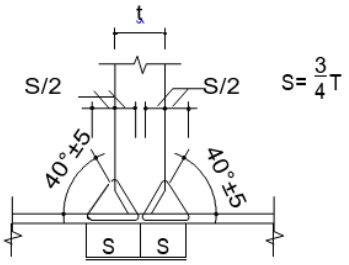
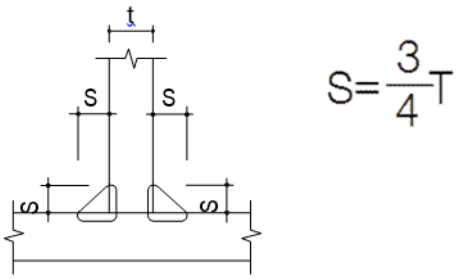
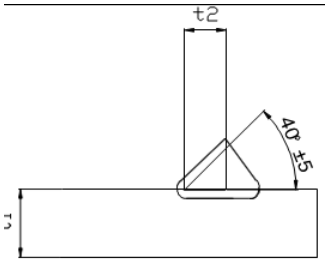
5.5.4. Welding Consumables

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.

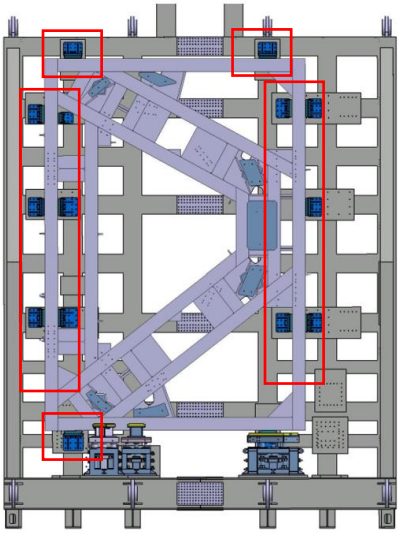


Figure 9: Lifting Frame on Upending Tool

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)