#### 外部委託業者の募集

References: IO/24/OT/10028548/JGO

#### "Supply Contract for A3 In-Cryostat Platforms"

(A3 クライオスタット内プラットフォームの供給契約)

IO 締め切り 2024 年 5 月 15 日(水)

#### ○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。 国内機関は本情報を入札に先立って、以下のサービスを提供できる企業、研究機関その他の法人に入 札プロセスの詳細について周知をお願いします。

#### 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

現在の入札プロセスは、A3クライオスタット内プラットフォームの供給契約を設立することを目指しています。

作業範囲には、ピットの清浄環境で使用される3つの鋼構造プラットフォームの設計、製造、事前組立ておよ びテスト、IO現場への配送が含まれます。これらのプラットフォームは、組み立てフェーズでのみ使用さ れ、常設されません。

契約者は、完全な設計、製造、およびすべての適用可能なフランスの健康安全規制および正確な最新の適用 可能なコードと基準を満たすために必要な対応する文書を持つ適切なテスト後のすべての機器の設計、製 造、および供給を行う責任があります。したがって、以下のリストは、契約者の義務を免除するものではあ りません。

これには、次のことが含まれますが、これらに限定されません:

- 1. エンジニアリングPDRおよびFDR、それぞれ2時間のミーティングを含む。
- 2. 製造準備の準備とレビュー(MRR)(レビューに約2時間)。
- 3. プラットフォームおよびアクセサリーの製造および供給。
- 4. 配送準備の準備とレビュー (DRR) (約1時間)。
- 5. 月次進捗会議(電話会議)。

- 6. 隔週の技術会議(電話会議)。
- 7. 情報の転送: CAD交換、文書交換、IO現場への出席。
- 8. 契約者の施設での工場受け入れテスト。
- 9. 製造文書の供給。
- 10. ユーザーマニュアル。
- 11. すべての機器のフランスのIOサイトへの配送。

詳細については、附則Ⅱの技術仕様を参照してください。

#### ○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。

<u>特に注意:</u>

<u>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。</u>

## 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

関心のある候補企業の完全登録後、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。

#### <u>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。</u>

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。

#### ○概略日程

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4月29日   |
| 関心表明フォームの提出      | 2024年5月15日   |
| 入札発行             | 2024年5月17日   |
| 明確化のための質問(もしあれば) | 入札提出締め切りの5日前 |
| 入札提出             | 2024年6月28日   |
| 入札評価と契約授与        | 2024年Q3      |
| 契約調印             | 2024年Q3      |

#### ○契約期間と実行

IOより契約は2024年の第3四半期に授与されます。契約期間は1年を予定しています。

#### ○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。

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。

コンソーシアムのすべての構成員(すなわち、リーダーと他のすべてのメンバー)は、ITER 機構に対し て連帯して責任を負います。

コンソーシアムとして許可されるために、その点で含まれる法人はコンソーシアムの各メンバーをま とめる権限をもつリーダーをもたなければなりません。このリーダーはコンソーシアムの各目メンバ ーのために責任を負わなければなりません。

指名されたコンソーシアムのリーダーは、入札段階で、コンソーシアムのメンバーの構成を説明する 予定です。その後、候補者の構成は、いかなる変更も ITER 機構に通知することなく変更してはなり ません。かかる認可の証拠は、すべてのコンソーシアムメンバーの法的に授権された署名者が署名し た委任状の形式で、しかるべき時期に IO に提出しなければなりません。 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「Supply Contract for A3 In-Cryostat Platforms」をご参照ください。】

ITER 公式ウェブ <u>http://www.iter.org/org/team/adm/proc/overview</u>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。



# **PRIOR INFORMATION NOTICE (PIN)**

## **OPEN TENDER SUMMARY**

## IO/24/OT/10028548/JGO

### for

# Supply Contract for A3 In-Cryostat Platforms

Prior Indicative Notice annexes:

- Annex I: Expression of Interest
- Annex II: Technical Specification

#### **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 Information 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 present tender process is aiming to set up a Supply Contract for A3 In-Cryostat Platforms.

The scope of work includes the design, manufacturing, pre assembly and test, delivery to IO site of 3 steel structure platforms used in the clean environment of the pit for access of personnel and support to heavy tools at height. These platforms will only be used for the assembly phase and will not stay permanently in the machine.

The Contractor is responsible to perform the complete design, manufacture and supply of all equipment after proper tests with corresponding documentation necessary to meet this technical specification and all applicable French regulation for health and safety and the correct latest applicable codes and standards. As such, the following list shall not relieve The Contractor from his obligations.

This comprises, but is not limited to:

- 1. Engineering PDR and FDR, with meeting of 2h each,
- 2. Manufacturing Readiness preparation and Review (MRR) (~2 hour for the review),
- 3. Manufacturing and supply of the platforms and accessories,
- 4. Delivery Readiness preparation and Review (DRR) (~1 hour),
- 5. Monthly progress meetings (conference call),
- 6. Biweekly technical meetings (conference call),
- 7. Information transfer: CAD exchange, document exchange, presence on IO site,
- 8. Factory acceptance tests at the contractor premises,
- 9. Supply of the Manufacturing Dossier,
- 10. User manual,
- 11. Delivery of all equipment, to the IO site in France.

For more details, please refer to Annex II – Technical Specification.

#### 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". You can find all links to proceed along with instruction going to: https://www.iter.org/fr/proc/overview.

When registering in Ariba (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

The Request for Proposals (RFP) will be published on our digital tool "Iproc" after the submission of Expression of Interest. This stage allows interested bidders who have indicated their interest to the Procurement Officers 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 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 or lowest price technically compliant method, according to the evaluation criteria and methodology described in the RFP.

#### **Procurement Timetable**

The tentative timetable is as follows:

| Milestone  | Date                              |
|--|-----------------------------------|
| Publication of the Prior Indicative Notice (PIN) | 29 April 2024                     |
| Submission of Expression of Interest form        | No later than 15 May 2024         |
| Tender launch                                    | 17 May 2024                       |
| Clarification Questions (if any) and Answers     | 5 days before submission deadline |
| Tender Submission                                | 28 June 2024                      |
| Tender Evaluation & Contract Award               | Q3 2024                           |
| Contract Signature                               | Q3 2024                           |

#### 5 Quality Assurance Requirements

Prior to commencement of any work under this Contract(s), a "Quality Plan" shall be produced by the Supplier and Subcontractors and submitted to the IO for approval, describing how they will implement the ITER Procurement Quality Requirements.

#### 6 Contract Duration and Execution

The ITER Organization shall award the Supply Contract in Q3 2024. The estimated contract duration should be 1 year.

#### 7 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. Any consortium member shall be registered in IPROC.

#### 8 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). Bules on

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.

# ANNEX I

## EXPRESSION OF INTEREST & PIN ACKNOWLEDGEMENT

To be returned by e-mail to: jingyu.gao@iter.org and cc: aurelie.dubuc@iter.org

| Tender reference:    | IO/24/OT/10028548/JGO                        |
|----------------------|--|
| Description:         | Supply Contract for A3 In-Cryostat Platforms |
| Procurement Officer: | Jingyu Gao                                   |

Company Name: .....

Country of Origin: .....

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

WE INTEND TO SUBMIT A TENDER

WE ARE ALREADY REGISTERED IN IPROC

WE INTEND TO REGISTER IN IPROC

.....

| Signature: |
|------------|
| Name:      |
| Position:  |
| Tel:       |
| E-mail     |
| Date:      |

COMPANY STAMP



# IDM UID

version created on / version / status 19 Apr 2024 / 2.1 / Approved

EXTERNAL REFERENCE / VERSION

## **Technical Specifications (In-Cash Procurement)**

# 22.SU.CA A3 in cryostat platform-Technical specification

This document is a technical specification for the design, manufacturing, pre assembly and test, delivery to IO site of 2 steel structure platforms used in the clean environment of the pit for access of personnel and support to heavy tools at height inside the cryostat.

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# 1 Preamble

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) - Ref[1] that constitutes a full part of the technical requirements.

In case of conflict, the content of the Technical Specification supersedes the content of Ref [1].

# 2 Purpose

This document is a technical specification for the design, manufacturing, pre assembly and test, delivery to IO site of 3 steel structure platforms used in the clean environment of the pit for access of personnel and support to heavy tools at height.

These platforms will only be used for the assembly phase and will not stay permanently in the machine.

The items to be delivered by this procurement are specified in Section 5.2.

# **3** Acronyms & Definitions

#### 3.1 Acronyms

General acronyms may be found in section 2.2 of the GM3S Ref [1].

| Abbreviation | Description   |  |
|--------------|---|--|
| DRR          | Delivery Readiness Review: 1 hour meeting to be planned before delivery to confirm that the documents are complete  |  |
| FAT          | Factory Acceptance Test   |  |
| FDR          | Final design review: At FDR phase all issues raised during the previous steps of design have been addressed. The design is complete, properly documented and interfaces are all defined and agreed.   |  |
| IDM          | ITER Document Management system used for exchange and storage of deliverables refer to section 6.2 of the GM3S Ref [1].   |  |
| MIP          | <ul> <li>Manufacturing and Inspection Plan: This is a document that lists the main steps of the manufacturing and test process that could affect the quality. For each particular operation, in the MIP, the following is identified: <ul> <li>Requirements and instructions applicable to those operations,</li> <li>Operations to be inspected or witnessed by DA, IO, PT and (Agreed) Notify Body ((A)NB), etc.</li> <li>Reference documents providing traceability and recording of the verification and completion of these operations.</li> </ul> </li> </ul> |  |
| MRR          | Manufacturing Readiness Review: At this stage the contractor has developed all the applicable documents for manufacturing and is ready to start manufacturing.  |  |
| NCR          | Non-Conformance Report  |  |
| PDR          | Preliminary design review: Meeting where the Design Developer (The Contractor) presents the design developed and seeks for IO approval. On  |  |

|      | the basis of the technical documents submitted the IO authorize or not<br>the Contractor to proceed with the next phase of design.  |
|------|---|
| QA   | Quality Assurance   |
| SMDD | System for the Management of Diagrams and Drawings: System where<br>the drawings and single line diagrams are uploaded. A dedicated tool exist<br>to upload large amount of drawings (when applicable). |
| VQC  | Vacuum Quality Class  |
| WPQR | Welding Procedure Qualification   |
| WPS  | Welding Procedure Specification   |

## **3.2 Definitions**

General definitions and acronyms may be found in section 2.1 and 2.2 of the GM3S Ref [1].

**Contractor:** shall mean an economic operator who have signed the Contract in which this document is referenced.

# 4 Applicable Documents & Codes and standards

### 4.1 Applicable Documents

<u>Generic requirement 1:</u> This is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

<u>Generic requirement 2:</u> This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the Contractor to seek clarification from IO.

<u>Generic requirement 3:</u> Upon notification of any revision of the applicable document transmitted officially to the Contractor, the Contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

| Ref | Title  | IDM Doc<br>ID | Version |
|-----|--|---------------|---------|
| [1] | General Management Specification for Service and Supply (GM3S) | <u>82MXQK</u> | 1.4     |
| [2] | Design Review Procedure  | <u>2832CF</u> | 6.4     |
| [3] | Working Instruction for Manufacturing Readiness<br>Review      | <u>44SZYP</u> | 5.0     |
| [4] | Drawing 070177   | <u>9DE6Z5</u> | V1      |
| [5] | ITER Vacuum Handbook 2EZ9UM                                    |               | 2.5     |
| [6] | Appendix 3 Materials   27Y4QC                                  |               | 1.20    |
| [7] | Instructions for Seismic Analyses <u>VT29D6</u>                |               | 2.0     |

| [8] | Instructions for Structural Analyses                    | <u>35BVV3</u> | 4.0 |
|-----|---|---------------|-----|
| [9] | Floor Response Spectra for Tokamak Sector Assembly Tool | <u>SPPXJ4</u> | 1.3 |

For information only:

| Ref  | Title   | IDM Doc ID    | Version |
|------|---|---------------|---------|
| [10] | Zero G Arm Operating Manual                       | <u>YHVA6H</u> | 1.0     |
| [11] | Operation Manual for IOIS Plate Installation Tool | <u>24L6TS</u> | 1.1     |
| [12] | Design Description- A3 access platforms           | AV7CXE        | 1.0     |

### 4.2 Applicable Codes and Standards

This is the responsibility of the Contractor to procure the relevant Codes and Standards applicable to that scope of work.

**Specific requirement 1:** The execution class selected for the platforms is EXC2 as per NF EN 1090.

**Specific requirement 2:** Construction products used shall be provided with CE Marking certificates in accordance with the requirements set in the European Regulation No 305/2011.

**Specific requirement 3:** The Contractor shall provide the list of the applied codes and standards used and demonstrate the compliance of the platforms against the applicable requirements.

# 5 Scope of Work

This section defines the specific scope of work, in addition to the contract execution requirement as defined in Ref [1].

### 5.1 Introduction

The current design of the steel structure platforms called "A3 in cryostat platforms" has been developed to fit the shape of the environment in pit. The platform at this stage has not gone through any structural analysis calculation. This will have to be done by The Contractor.

The current design of these 2 platforms has been developed to be suitable for the assembly process of the different systems detailed in presentation [12].

The platforms will be manufactured from standard steel profiles and steel plate, with welded or bolted joints for the main assemblies. With exception to the top plate and interfaces to any IO component that will be in stainless steel.

<u>Note:</u> All pictures are shown for illustration only, the model will be provided by IO to The Contractor as input data through the IO cad exchange process at the start of the Contract.

ITER\_D\_AFRG45 v2.1

| Frame Classifications     | Class  |
|---------------------------|--|
| Safety Classification     | Non-Safety Importance Class                            |
| Protection Classification | Non-Protection Importance Class                        |
| Vacuum Classification     | Interfaces to the environment: Vacuum Quality Class 1B |
|                           | All other parts; Vacuum Quality Class N/A              |
| Quality Classification    | Quality Class-3  |
| Seismic Classification    | Non Seismic Category*                                  |

#### Table 1 – A3 in cryostat platforms Classifications

\*(*SL1* will be applied for investment protection)

## 5.2 Included in the Scope of Work

The Contractor is responsible to perform the complete design, manufacture and supply of all equipment after proper tests with corresponding documentation necessary to meet this technical specification and all applicable French regulation for health and safety and the correct latest applicable codes and standards. As such, the following list shall not relieve The Contractor from his obligations.

This comprises, but is not limited to:

- 1. Engineering PDR and FDR, with meeting of 2h each.
- 2. Manufacturing Readiness preparation and Review (MRR) (~2 hour for the review)
- 3. Manufacturing and supply of the platforms and accessories,
- 4. Delivery Readiness preparation and Review (DRR) (~1 hour)
- 5. Monthly progress meetings (conference call)
- 6. Biweekly technical meetings (conference call)
- 7. Information transfer: CAD exchange, document exchange, presence on IO site
- 8. Factory acceptance tests at the contractor premises,
- 9. Supply of the Manufacturing Dossier,
- 10. User manual,
- 11. Delivery of all equipment, to the IO site in France,

## 5.3 Out of the Scope of Work

Unloading on IO site

# 5.4 Description of the supplied items

The following components are in the scope of supply of this contract:

Note: As applicable the accessories implemented in order to limit the movements under seismic solicitation are not shown on the picture below, nor the necessary adjustments in the feet to provide a good contact.

| Tool             | quantity | Illustration | Overall size         | Weight  | ENOVIA<br>ID |
|------------------|----------|--------------|----------------------|---------|--------------|
| IOIS<br>platform | 2        | 2            | Platform A2:         | 2400 kg | #97KGDL      |
|                  |          |              | 4596<br>Platform A1: | 2900 kg | #96G2AR      |

 Table 2 – Illustration of the scope of supply

| Tool                        | quantity | Illustration   | Overall size                                 | Weight  | ENOVIA<br>ID |
|-----------------------------|----------|--|--|---------|--------------|
| Bracing<br>tool<br>platform | 1        | Platform B2<br>Bracing tools<br>Platform B1<br>Bracing tools | Platform B2:                                 | 2300 kg | #97G4DT      |
|                             |          |  | 4596<br>4596<br>4596<br>4596<br>4596<br>4596 | 2800 kg | #9AC99T      |

## 5.5 **Design requirements**

**Specific requirement 4:** The design of all platforms and processes in this contract shall consider the assembly workers' safety as the first priority.

**Specific requirement 5:** The platforms are designed to receive heavy loads at height while ensuring the access of people. The contractor shall ensure that all equipment and tools manufactured and tested as part of this contract, meet or exceed all the French regulatory requirements for health and safety and access at height.

**Specific requirement 6:** As far as technically achievable, the Contractor shall demonstrate accessibility is ensured in each configuration, including when IOIS and Zero-G arm are installed.

**Specific requirement 7:** These platforms are going to be used in pit in a clean environment (VQC2B classed), so no forbidden material shall be used and the design shall ease the cleaning and avoid trapping the dust e.g. to avoid crevices, blind holes, trapped volumes etc, such as using no-tapped through holes instead of tapped blind holes. Refer to [5], [6].

**Specific requirement 8:** The platform will require some in pit assembly due to the space constraints, as far as practically achievable, the design shall consider using captive bolts in order to avoid the fall of object at height and to lose parts inside the cryostat boundary.

**Specific requirement 9:** At the end of the contract, The Contractor shall submit the completed compliance matrix giving the final status of compliance to the specification.

## 5.6 Design Criteria

**Specific requirement 10:** Based on the applicable codes and standards established at the PDR stage, The contractor shall establish the design criteria applicable to each part of the platform, this will be recorded in the structural calculation note.

**Specific requirement 11:** The platforms shall be made of several parts that will be preassembled prior to be lifted in pit, then the connections of the assemblies shall ease the installation and removal in pit and be compliant with the space available to lower the parts in pit.



Figure 1 Top view of the free area to lower equipment with overhead crane 1.5m\*2.75m

**Specific requirement 12:** The platforms may be used in different locations in pit so no permanent welded interfaces are allowed and the adjustment feet shall enable a quick and easy setting of the platform.

**Specific requirement 13:** The design shall consider a quick installation or removal of the second level of platform.

**Specific requirement 14:** The Contractor shall consider a capacity of adjustment of the platform feet at installation stage compatible with the seismic load case. The cryostat base has been deformed during the manufacturing process due to welding, a tolerance of +/-30mm in vertical shall be considered at each feet.

**Specific requirement 15:** Should bracings be necessary to be compatible with the seismic solicitation, a tolerance of +/-30mm in each direction on the position of the cryostat lower cylinder ribs shall be considered.

**Specific requirement 16:** At the interface to the IO components, no metal to metal contact shall be considered, the use of allowed material such as nylon shim shall be considered to avoid damaging the interfaces during installation and use of the platform.

#### 5.6.1 Operating requirements

**Specific requirement 17:** The design shall integrate standard features in order to start erecting scaffolding from the platform. For that, the handrails shall be easy to remove and the structure shall integrate harness points on both levels.

**Specific requirement 18:** The handrails shall be removable to enable a good compatibility with the IOIS tool as shown in Figure 3.

**Specific requirement 19:** The Contractor shall study and propose at the PDR, the standard equipment allowing to load the platform using a pallet truck from the building side. The horizontal gap to be crossed is about 1m and the vertical difference between the building floor at L1 and the top of the platform is about 36cm. The Contractor shall make sure that the equipment proposed is not clashing with the stainless steel cryostat aperture located at 135mm lower than the top of the platform and placed approximately in the middle of the horizontal gap to be crossed.

**Specific requirement 20:** Man access shall be possible from the port cell side ( rear side of the platform).

**Specific requirement 21:** Some simple measures shall be implemented (such as removable handrails, harness points, floor continuity), in order to allow to pass from one platform to the adjacent one.

### 5.6.2 *Performance requirements*

Not applicable.

### 5.6.3 Interface requirements

**Specific requirement 22:** When the IOIS tool is operated, the COG of the platform + loading may be outside the area of stability of the platform, this shall be duly studied at the PDR and the Contractor shall propose a system to prop it against the building.

**Specific requirement 23:** The Contractor shall register in the user annual supplied that the IOIS tool shall not be operated before the stabilizers are in place.

**Specific requirement 24:** The Contractor shall supply at PDR stage the item 3 9J2UXM in sheet 7/8 of drawing [4]. This is necessary to obtain a correct height setting of the 0g arm.

**Specific requirement 25:** The Contractor shall define at PDR stage the maximum reactions at the interfaces (floor and braces) and have it approved by IO.

#### 5.6.4 Mechanical Requirements

#### 5.6.4.1 Loads and combination

The following loads are applicable to each of the platforms:

- Dead weight (DW) and inertial load: Gravity loads occur due to masses that are accelerated by gravity.
- Dynamic horizontal load (HL): Dynamic amplification factor for the inertia load in horizontal direction. At least 10%DW should be applied in both horizontal directions. Higher values may be applied if required by the selected design code.
- Payload (PL):
  - Minimum Service load: Uniformly distributed load as defined in chapter 4.2.5 of EN NF ISO 14122-2
    - 2 kN/m2 uniformly distributed load to account for the structure;
    - 1,5 kN concentrated load applied in the most unfavourable position over an area of 200 mm × 200 mm
  - Specific loads:
    - Scaffolding: Consider a scaffolding structure of 10t in interface to 4 points of 150mm\*150mm
    - Loading with IOIS
      - On top level
    - Loading with 0g arm
      - On top level
        - Centered with 1t of pin stored aside.
        - Offset right with 1t of pin stored aside.
        - Offset left with 1t of pin stored aside.
      - On lower level
        - Centered with 1t of pin stored aside.
        - Offset right with 1t of pin stored aside.
        - Offset left with 1t of pin stored aside.
  - Seismic load level 1 (SL1): the seismic spectra provided in [9] for point B shall be considered.

Notes: Lifting case and transport shall be considered and covered by the calculation report as applicable.

**Specific requirement 26:** The platforms shall be designed as a minimum for the loads and load combinations specified in Table 3. Conservatism may be increased based on the selected design code.

| Combination definition | Load Combination   | Design Criteria             |  |
|------------------------|--|-----------------------------|--|
| Standard use           | $\gamma_{G} \cdot DW + \gamma_{Q,1} \cdot (DFs) \cdot PL + \gamma_{Q,2} \cdot HLs$ | NF EN 1990 or equivalent    |  |
| Seismic unloaded       | DW + PL + SL1  | NF EN 1998 or<br>equivalent |  |

 Table 3 – Load Combinations

with:

 $DF_s = dynamic factor = 1.15$ 

 $y_G = 1.35$  if unfavourable, 1.0 if favourable.

 $\gamma_{Q,1} = \gamma_{Q,2} = 1.35$  if unfavourable, 1.0 if favourable.

**Specific requirement 27:** Under seismic solicitation, the platforms shall not collapse and damage nearby IO components, nor be able to detach from their attachments. It should be demonstrated that under any load combinations no uplift or sliding of the bottom plates will occur, with reasonable margin and considering a conservative value of friction coefficient between the baseplates and the Cryostat surface based on the surfaces material.

### 5.6.4.2 Specific loads: 0g arm load case

**Specific requirement 28:** The Contractor shall consider a load of 4.2t [4],[10] applied on a footprint for the 0g arm of 1.2m\*1.2m with a feet at each corner of 40mm\*40mm, at the most conservative locations of the actual centre of gravity of the load in horizontal and vertical directions.



Figure 2 Top Overview of the 0g arm placed on the IOIS platform on lower and upper platforms.

#### 5.6.4.3 Specific loads: IOIS

**Specific requirement 29:** The Contractor shall consider a load of 8t applied over 2 lines of contact on the upper level of the platform, at the most conservative locations of the actual centre of gravity of the load in horizontal and vertical directions. Refer to [4],[11]



Figure 3 Top Overview of the IOIS installation tool placed on the IOIS platform on lower and upper platforms.

#### 5.6.4.4 The structural analysis

**Specific requirement 30:** The contractor shall perform the structural analysis or hand calculations of the platforms to validate the design assessing the structural integrity, the stresses, the maximum deformations, the stability and all aspects needed to assure the correct functionality of the platforms in the worst configurations.

**Specific requirement 31:** Structural analysis and reports shall be written in full agreement with documents 35BVV3 v4.0 [8] and VT29D6 v2.0 [7].

**Specific requirement 32:** Analyses will be based on geometry and material properties that is unambiguously traceable, whose references shall be reported in the report.

**Specific requirement 33:** All input loads used for the analysis shall be listed and described clearly and unambiguously in the report, and the shall be in line with this specification.

**Specific requirement 34:** The FE analyses shall be fully verified following the requirements in 35BVV3. Any software package used shall be validated. See 35BVV3 and VT29D6 for the full set of analysis requirements.

**Specific requirement 35:** Reports shall be written following the template in VQVTQW v1.0 as reported in 35BVV3.

**Specific requirement 36:** Reviewer and Technical check checklists as for 35BVV3 shall be attached to the reports, using the templates in RYATXV v2.0 and TK33SU v2.0. The scope of reviewers shall be reported in any analysis report including the minimum scopes required by 35BVV3.

**Specific requirement 37:** All the analysis files including FE models and spreadsheets shall be stored in the ITER analysis database following the instructions and requirements of U34WF3

v2.0 as specified in 35BVV3, i.e. they shall include all files necessary to get the reported results (e.g. including macros & spreadsheets), be linked to the analysis report, with their metadata filled properly, shall be stored in a sensible and organized folder of IO's Analysis Model Database, shall be in a ready-to-run state (the technical checker shall rerun the analyses to verify this), shall be commented/organized to be clearly and unambiguously understandable by a third party. Proper storage formats shall be used, i.e. that privileges robustness and exhaustiveness.

**Specific requirement 38:** See General Management Specification for Service and Supply (82MXQK v1.4) for the list of fully applicable documents.

**Specific requirement 39:** After full internal review, the contractor shall upload to IDM the results of the finite element analysis of the platforms, including internal checklists. This will clearly indicate if the platforms pass all the applicable criteria under the most unfavourable loading conditions for all the identified failure modes and with which margins, in line with 35BVV3.

#### 5.6.5 *Electrical Requirements*

Not applicable.

#### 5.6.6 Software requirements

Not applicable.

#### 5.6.7 Material, welding and fabrication requirements

The Supplier is responsible for the manufacturing of the platforms with their established processes and is responsible for ensuring that the equipment provided satisfies all requirements and is capable of performing its intended functions. If this requirement is not fully achievable, the contractor shall propose alternatives and carry out manufacturing to these alternatives after obtaining IO's agreement through the deviation request process.

#### 5.6.7.1 Manufacturing Readiness Review

**Specific requirement 40:** Prior to manufacturing, The contractor shall conduct one 2h Manufacturing Readiness Review (MRR) meeting according to the Reference[3]. The approval of the FDR panel report is an IO HP.

The contractor is encouraged to have more frequent interim reviews, which they may conduct to their own formal quality standards at their premises.

Note: The procurement of material can commence before the MRR with IO approval.

The documents to be produced for MRR shall contain but not be limited to the following;

- Manufacturing and Inspection Plans
- Traceability of Material Management
- Manufacturing Procedures (including welding, and surface treatment where necessary)
- Sub suppliers Quality Plan (if necessary)

- Test and Inspection Plan
- Test Procedures
- Manufacturing drawings

The MRR shall review the above documents in order to verify that the appropriate manufacturing activity requirements have been defined in order to ensure that:

- The technical criteria of the component to be manufactured are not impacted during the execution of their manufacturing activities;
- The manufactured component meets its technical criteria at delivery on site.

It shall verify that all manufacturing activities have been planned and prepared to ensure that the work can be accomplished as specified. The MRR will also check the studies on identification and preservation of the components that shall be achieved by the manufacturer with the support of IO.

Following the approval of MRR, the Contractor will manufacture, test, and trial assemble the platforms.

#### 5.6.7.2 Materials

**Specific requirement 41:** Structural steel shall be considered for the structure of the platforms.

**Specific requirement 42:** Any parts of the platform that contact a vacuum classed component such as the cryostat base (VQC2A) [5] or lower cylinder (VQC2A) shall be made from vacuum compatible material (for example, SS 304). The list of acceptable material is listed in [6].

**Specific requirement 43:** The top of the platform shall be equipped of non slippery **stainless steel** floor plates this is to avoid any rust creation on surfaces where constant friction will be created.

**Specific requirement 44:** Generally while working in pit, the equipment used should not cause transfer of the following materials:

- a) Sulphur and sulphur compounds
- b) Pb, Hg, P, Zn, Cd, Sn, Sb, Bi, As, Cu, rare earth elements.

#### 5.6.7.3 Tolerances

**Specific requirement 45:** Fabrication and assembly tolerances shall comply with EN 1090.

#### 5.6.7.4 Finishing

Coatings of the Platform shall be compatible with cleaning with isopropyl alcohol and be robust and not flake or chip. No specific surface roughness is required. The painted surfaces are not to contact directly any IO Vacuum classed components.

However care must be taken to ensure that paint thickness does not prevent assembly of items, and ensure the marking is preserved for traceability.

**Specific requirement 46:** The platforms shall be designed for use (indoors) and storage (outdoors) for up to 5 years at the IO site and therefore have appropriate corrosion protection for all components.

**Specific requirement 47:** Carbon steel fasteners are required to have a corrosion protection coating.

**Specific requirement 48:** A Surface Treatment Procedure shall be submitted for IO approval, to detail control of ambient conditions, method of application, quality control, repair processes, etc. Preference is for corrosion protection of carbon steel by painting, according to EN ISO 12944-3.

**Specific requirement 49:** For stainless steel parts methods to prevent surface contamination shall be taken.

**Specific requirement 50:** The coating chosen where there is a friction contact shall be carefully examined to avoid any peeling of material.

**Specific requirement 51:** Painting colour is Grey (RAL 7035 / Pantone 421) and to be in compliance with Table 4.

| Surface preparation   | Painting system                     | NDFT (µm) |
|---|-------------------------------------|-----------|
| All surface with scale, rust or other debris should be removed and washed with an | Epoxy Shop Primer                   | >40       |
| alkaline detergent.   | Epoxy Intermediate                  | >80       |
|   | Acrylic Urethane                    | >40       |
|   | Total Minimum Dry Film<br>Thickness | >160      |

#### Table 4 – Paint system

### 5.7 **Factory Acceptance Test Requirements**

**Specific requirement 52:** The Contractor shall develop the FAT procedure at the MRR stage for IO approval. This shall list the tests with criteria for acceptance.

**Specific requirement 53:** The Contractor shall perform the assembly of the platform and any applicable inspection and test.

**Specific requirement 54:** The Contractor shall test the on-site assembly strategy (for the position where no direct overhead crane access is available) during the FAT and upload the FAT report to IDM on completion of the tests.

### 5.7.1 Quality Control Provisions

**Specific requirement 55:** The contractor shall ensure that the design is safe for man access and heavy loading at height and propose the associated necessary controls.

**Specific requirement 56:** The necessary design and manufacturing quality controls shall be put in place to ensure that the second platform manufactured but not sub-assembled will require no on-site machining to be assembled.

## 5.7.2 Spare Parts

**Specific requirement 57:** The platforms will be assembled at the FAT, subsequent to that the Contractor shall supply the necessary set of new bolts for the final assembly on the IO site. **Specific requirement 58:** The Contractor shall propose the applicable list of spare parts allowing the IO to replace some damaged parts in a quick manner. This may cover but is not limited to ladders, handrails, toe plates, fasteners, anchor points for harnesses, top plates.

## 5.7.3 Packing, preservation & shipping

The platforms shall be designed or packed to allow transportation from supplier manufacturing facilities to IO site via standard road transport, therefore meeting requirements for road transportation for each of the countries it will pass through to arrive at IO site.

**Specific requirement 59:** The platforms shall be designed and packed to be transported to IO site via standard road transport.

**Specific requirement 60:** All components and assemblies packed for shipping shall have a unique identification that allows traceability.

**Specific requirement 61:** All components requiring re-assembly at the ITER Site shall be clearly labelled and tagged. Minimum reassembly is preferred.

**Specific requirement 62:** The supplier shall design and supply appropriate packaging, adequate to prevent damage during shipping. Where necessary, shock absorbing material shall be used. Measures shall be taken by the contractor to prevent corrosion of components when in storage prior to delivery, and during transportation.

**Specific requirement 63:** Packaging should allow for lashing and lifting.

**Specific requirement 64:** Packaging should be designed for all planned modes of transportation and for storage outside up to one month.

**Specific requirement 65:** All components and assemblies shall have a unique identification that allows traceability, format to be accepted by IO (see Reference Ref [1]). All components and the main subcomponents shall be clearly marked in a permanent way and in a visible place.

## 5.7.4 Delivery Time

The maximum expected duration from the contract signature to the supply of the scope of work is 10 months.

# 6 Location for Scope of Work Execution

The scope of work is not executed on the IO site.

# 7 IO Documents & IO Free issue items

No input nor free issue item is expected from IO

# 8 List of deliverables

<u>Generic requirement 1:</u> The Supplier shall provide IO with the documents and data required in the application of this technical specification, the GM3S Ref [1] and any other requirement derived from the application of the contract.

**<u>Generic requirement 2:</u>** The Supplier shall prepare their document schedule based on the below table and using the IO template.

| <b>Contract phase</b> | List of deliverables  | Deliverable due<br>date<br>( TO+ X weeks) |
|-----------------------|---|---|
| CONTRACT START        | <ol> <li>Quality Plan</li> <li>Document Schedule (list of deliverables with milestone and due date)</li> <li>Detailed schedule</li> </ol>   | 2   |
| DESIGN                | <ul> <li>FOR PDR:</li> <li>4. Bill of material</li> <li>5. General arrangement drawings</li> <li>6. 3D model</li> <li>7. Structural analysis calculation report also including the loads at the interfaces, and related analysis files and checklists</li> </ul>  | 6   |
|                       | <ul> <li>FOR FDR:</li> <li>5. v2 Updated General arrangement drawings</li> <li>8. Part drawings uploaded to SMDD</li> <li>6. v2 updated 3D model</li> <li>7. v2 Final Structural analysis calculation report also including the loads at the interfaces, and related analysis files and checklists</li> </ul>   | 14  |
| MRR DESIGN            | <ul> <li>Manufacturing drawings submitted to IO for information ( to be included in the Manufacturing Dossier)</li> <li>Welding book including WPQR and WPS submitted to IO for information ( to be included in the Manufacturing Dossier)</li> <li>Manufacturing Procedures submitted to IO for information (including welding, and surface treatment where necessary)</li> <li>1.1 Sub suppliers Quality Plan (if necessary)</li> <li>9. Test and Inspection Plan (FAT procedure)</li> <li>10. Test Reports template</li> <li>11. Manufacturing and Inspection Plan approved</li> </ul> | 18  |
| MANUFACTURING         | 12. Manufacturing Dossier   | 20  |

| Contract phase                   | List of deliverables  | Deliverable due<br>date<br>( TO+ X weeks) |
|----------------------------------|---|---|
|                                  | a) Material Cartificator 2.1, according to EN 10204   | 20  |
|                                  | <ul> <li>a) Material Certificates 3.1, according to EN 10204</li> <li>b) Manufacturing Documentation, incl. Manufacturing procedures, Non-Destructive Testing (NDT) Procedures, Process specifications etc.</li> <li>c) Completed MIP</li> <li>d) Completed Test Reports</li> <li>e) Records of approved Non-Conformances (NCR) and Deviation Requests (DR)</li> <li>f) Declarations of conformance</li> <li>g) 2-D Design drawings at as-built stage with as-built status</li> <li>h) Control Reports (Visual Examination, Non-Destructive Tests, Geometric measurements, etc.)</li> <li>i) for standard products: Technical specification of equipment ordered, with user manual and declaration of conformity</li> </ul> | 23  |
| FAT                              | <ul><li>13. FAT test report</li><li>14. cleaning procedure</li></ul>  | 30  |
| COATING, DISASSEMBLY,<br>PACKING | 12. v2 Manufacturing Dossier updated with coating record  | 32  |
| DELIVERY                         | <ul> <li>15. Delivery Report</li> <li>16. Packing List</li> <li>17. Contractor Release Note (see [6])</li> <li>18. On site inspection report</li> </ul>   | 33  |

(\*) T0 = Commencement Date of the contract

# 9 Quality Assurance requirements

**Specific requirement 66:** The main equipment (except off the shelf items classified QC4) provided under this contract is QC3. Ref [1] GM3S section 8 applies in line with the defined Quality Class.

# **10** Safety requirements

The scope under this contract doesn't contain PIC nor PIA nor PE/NPE components. [Ref 1] GM3S section 5.3 is not applicable.

## **10.1** Occupational Health and safety

The French regulation applies for occupational health and safety.

### **10.2** Nuclear class Safety

Not applicable

#### 10.3 Seismic class

SL1 acceleration will be applied for investment protection.

# **11 Specific General Management requirements**

The section 6 of Ref [1] is applicable.

### **11.1** Contract Gates

In addition to the contract gates as defined in Ref [1]. section 6.1.5, the scope of work call for a PDR and a FDR as defined in section 5 of this document.

The design review at IO is a meeting where a panel of selected people with different expertise will assess if the design developed by The Contractor is meeting the criteria established in the specification. A list of chits= issues raised during the meeting will be included in the panel report after the review and communicated to The Contractor for consideration.

Specific requirement 67:The Design reviews should last maximum 2hours and will be heldin English. All requirements shall be reviewed in sufficient detail to show how they are met.Specific requirement 68:the design review.

**Specific requirement 69:** The Contractor shall conduct the PDR and FDR according to the simplified process of the procedure [2]. The approval of the FDR panel report is an IO HP.

## 11.2 Work Monitoring

**Specific requirement 70:** The Contractor shall schedule and run a bi-weekly meeting detailing the status of progress on the overall plan, share difficulties and updates.

**Specific requirement 71:** The Contractor shall upload to IDM the revised schedule on a monthly basis should there be variations. The variations shall be explained at the progress meeting.

## **11.3** CAD design requirements

This contract requires CAD activities, Ref [1] GM3S section 6.2.2.2 applies.