

## 外部委託業者の募集

References: IO/23/OT/10026115/YLI

### "Design, Installation and commissioning of 14 Bar CA Units in B33"

(B33 における 14Bar 圧縮空気システム生産ユニットの設計、据付と試運転)

IO 締め切り 2024 年 1 月 10 日(水)

#### 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小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

この作業では、契約者が IO 指定の場所に 14 bar 圧縮空気システムの生産ユニットを設計、設置、試運転をする必要があります。

この作業には 3 つのステップがあります。

- 1) 14 bar (g) 圧縮空気システム生産ユニット(コンプレッサー、フィルター、ドライヤー、リザーバーなどの主要コンポーネントがすでに IO によって調達されていることを考慮すること)の設計、システム性能の検証および不足項目の特定;
- 2) 不足項目の供給を伴う CAS の設置(機械、I&C、電気系統);
- 3) 14 bar (g) 圧縮空気生産ユニットのテストおよび試運転。

B 33-L 2-12 に設置される CAS (Compressed Air System) 生産ユニットは、B 32 および 33 に配置された PBS 41 DC スイッチ (PBS 65 の CA パイプネットワークを介して) をサポートするように動作することを意図しています。

CAS ネットワークの設計目標は、次の要件を満たすことです。

最終消費システムに適切な流量で 14 bar (g) の空気圧を供給します。

ISO-8573-1 ISO 2.2.1 に準拠した正しい品質で、プロジェクトのライフサイクル全体にわたって CAS を提供します。

- 粒子状物質: (ISO 8573-1 表 1 による)
  - $-0.1 \mu m < d \leq 0.5 \mu m \leq 400\ 000$

- $-0.5\ \mu\text{m} < d \leq 1.5\ \mu\text{m} \leq 6000$
- $-1.0\ \mu\text{m} < d \leq 5.0\ \mu\text{m} \leq 100$
- 湿度および液体水: (ISO 8573-1表2による)
  - $-40^{\circ}\text{C}$ 以下
- オイル: (ISO 8573-1表3による)
  - $-0.01\ \text{mg}/\text{m}^3$ 以下

#### 表1:システム分類

(詳細は英文技術仕様書を参照ください)

当該作業範囲は安全上重要な項目ではありません。

この技術仕様の範囲内のすべてのコンポーネントは、品質クラス3です。

本技術仕様の適用範囲内のすべての構成部品は、関連する基準に適合し、適合宣言がなされていなければなりません。

詳細については、添付の技術仕様7 UL 6 YT\_v 2\_0を参照下さい。

#### ○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 10 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。

## ○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	2023 年 12 月 19 日
関心表明フォームの提出	2024 年 1 月 10 日
iPROC での入札への招待 (ITT) の発行	2024 年 1 月 11 日
明確化のための質問の締め切り	2024 年 2 月 8 日
明確化のための質問への回答締め切り	2024 年 2 月 15 日
入札提出	2024 年 2 月 22 日
契約授与	2024 年 3 月
契約調印	2024 年 3 月

## ○契約期間と実行

ITER 機構は 2024 年の 3 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。

## ○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。

## ○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。

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「**Procurement of: Design, Installation and commissioning of 14 Bar CA Units in B33**」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/23/OT/10026115/YLI**

for

**Procurement of: Design, Installation and commissioning of 14 Bar CA  
Units in B33**

#### **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 for the procurement of Design, Installation and commissioning of 14 Bar CA Units in B33.

## 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 Service 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](http://www.iter.org).

## 3 Scope of Work

This work requires the contractor to design, install and commissioning a 14 bar Compressed Air System production unit in IO designated location.

**There are three steps of this work:**

- 1) Design of 14 bar(g) Compressed Air System production unit (taking into account that the key components like compressors, filters, driers and reservoir are already procured by IO), verifying the system performance and identifying the missing items;
- 2) Installation of the CAS with supply of missing items (mechanical, I&C & electrical);
- 3) Testing & commissioning of the 14 bar(g) compressed air production units.

The CAS (Compressed Air System) production unit to be installed in B33-L2-12 is intended to operate to support the PBS41 DC switches (through CA pipe network of PBS 65) located in B32 and 33.

The CAS network design target is to meet the following:

Deliver air pressure at 14 bar(g) & at correct flow rate for final consumers.

Provide CAS during entire project life cycle at correct quality as per ISO-8573-1 ISO 2.2.1.

- Particulate: (Per ISO 8573-1 Table 1)
  - $0.1 \mu\text{m} < d \leq 0.5 \mu\text{m} : \leq 400\,000$
  - $0.5 \mu\text{m} < d \leq 1.5 \mu\text{m} : \leq 6000$
  - $1.0 \mu\text{m} < d \leq 5.0 \mu\text{m} : \leq 100$
- Humidity and Liquid water: (Per ISO 8573-1 Table 2)
  - Less than or equal to  $-40^{\circ}\text{C}$
- Oil: (Per ISO 8573-1 Table 3)
  - Less than or equal to  $0.01 \text{ mg/m}^3$

*Table 1: System Classification*

Components	Seismic Class	Safety Class	Quality Class
All	NSC	NSR	QC3

The concerned work scope is not safety important.

All the components in the scope of this technical specification are of quality class 3.

All the components in the scope of this technical specification should be meeting relevant standards and with declaration of conformity.

For more details, please see attached Technical Specifications 7UL6YT\_v2\_0

## 4 Procurement Process & Objective

The objective is to award a Service 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” 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

After the deadline of expression of interest (as shown in the Procurement Time table) following 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 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 Service 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

The tentative timetable is as follows:

Milestone	Date
Publication of the Prior Indicative Notice (PIN)	19/12/2023
Submission of expression of interest form	10/01/2024
Invitation to Tender (ITT) launched on iPROC	11/01/2024
Clarification Questions Deadline	08/02/2024
Clarification Response Deadline	15/02/2024
Tender Submission	22/02/2024
Contract Award	March 2024
Contract Signature	March 2024

## 5 Quality Assurance Requirements

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

## 6 Contract Duration and Execution

The ITER Organization shall award the Services Contract around March 2024. The contract duration shall 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.



china eu india japan korea russia usa

Route de Vinon-sur-Verdon - CS 90 046 - 13067 St Paul Lez Durance Cedex - France

To: Domestic Agencies (DAs)

**IO Tender Reference: IO/23/OT/10026115/YLI**

**Title: Design, Installation and commissioning of 14 Bar CA Units in B33**

**Subject: Prior Indicative Notice (PIN)**

Dear colleagues,

The ITER Organization intends to launch an Open Tender process in the coming weeks as indicated above and in accordance with the details in the attached Prior Indicative Notice (PIN). In this regard, and to provide some introductory information about the forth-coming tender, we kindly request the attached PIN and Technical Specification (7UL6YT\_v2\_0) to be published on your DA website with immediate effect until 10/01/2024.

The advance notification is to alert companies, institutions or other eligible entities to the forth-coming tender, and provide information to promote healthy competition, allowing interested parties time to decide whether to participate in the tender or not.

Please could you kindly acknowledge receipt of this e-mail and confirm once the PIN is published on your website.

Yours sincerely

Ye Li

Assistant Buyer  
Construction, Assembly & Logistics Section  
Procurement Division

# ANNEX I

## EXPRESSION OF INTEREST & PIN ACKNOWLEDGEMENT

To be returned by e-mail to: [Ye.Li@iter.org](mailto:Ye.Li@iter.org) with copy to [Andrew.Brown@iter.org](mailto:Andrew.Brown@iter.org)

TENDER No. **IO/23/OT/10026115/YLI**

DESIGNATION of SERVICES: **Design, Installation and commissioning of 14 Bar CA Units in B33**

OFFICER IN CHARGE: **Ye LI – 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

☐ NO, but we shall register before the tender launch

.....

Signature:

COMPANY STAMP

Name: .....

Position: .....

Tel: .....

E-mail .....

Date: .....

## Technical Specifications (In-Cash Procurement)

### Technical Specifications for installation and commissioning of 14 Bar CA Units in B33

Specify the scope and requirement for engineering work of: 14 bar compressor unit installation and integration: auxiliary connecting pipes supply and whole unit installation; Compressor unit I&C integration and commissioning. The 14 bar compressor unit is part of the ITER plant system: 14 bar compressor unit (with necessary auxiliaries) in B33-L2-12 is to provide compressed air at 14 bar to the PBS41 DC switches (through CA pipe network of PBS 65) located in B32 and 33. The concerned work scope is ...

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# 1 Purpose

This technical specification specifies the scope and requirement in three parts:

- 1) Engineering services for installation design of 14 bar(g) compressed air production units.
- 2) Installation with supply of missing items (mechanical, I&C & electrical) for system completion.
- 3) Testing & commissioning of the 14 bar(g) compressed air production units.

This specification defines the design, material, fabrication, inspection, installation, safety, examination and testing requirements for the three work scopes.

In this document, the term Contractor is assigned to the company that has been hired by the Employer to procure, fabricate and install the components.

The Contractor shall bring to the attention of the Employer any discrepancy between the approved drawings, procedures or specifications and the referenced codes and standards. Any possible differences of opinion concerning the interpretation of the requirements shall be considered by the Employer and his interpretation shall be final.

None of the requirements of this specification shall exempt the Contractor from his responsibility to carry out, in addition to that stipulated herein, other analyses, tests, inspections or other activities that he considers necessary to ensure that the materials, design and workmanship are suitable for the intended service.

**“The IO”** means the operator owner of the Site and acts as the Employer under the Contract.

**“The CMA”** shall mean the Construction Manager as Advisor. They are responsible for site coordination.

**“The Contractor”** means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

**“The Contract”** means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

**“The Works”** mean the Permanent Works and the Temporary Works, or either of them as appropriate.

**“The Permanent Works”** means the permanent works to be executed by the Contractor under the Contract.

**“The Temporary Works”** means all temporary works of every kind (other than Contractor’s Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

**“Site”** means the places where the Permanent Works are to be executed and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.



## 2 Scope

The CAS (Compressed Air System) production unit located in B33-L2-12 is intended to operate to support the PBS41 DC switches (through CA pipe network of PBS 65) located in B32 and 33.

The CAS network design target is to meet the following:

Deliver air pressure at 14 bar(g) & at correct flow rate for final consumers.

Provide CAS during entire project life cycle at correct quality as per ISO-8573-1 ISO 2.2.1.

- Particulate: (Per ISO 8573-1 Table 1)
  - $0.1 \mu\text{m} < d \leq 0.5 \mu\text{m} : \leq 400\,000$
  - $0.5 \mu\text{m} < d \leq 1.5 \mu\text{m} : \leq 6000$
  - $1.0 \mu\text{m} < d \leq 5.0 \mu\text{m} : \leq 100$
- Humidity and Liquid water: (Per ISO 8573-1 Table 2)
  - Less than or equal to  $-40^{\circ}\text{C}$
- Oil: (Per ISO 8573-1 Table 3)
  - Less than or equal to  $0.01 \text{ mg/m}^3$

*Table 1: System Classification*

Components	Seismic Class	Safety Class	Quality Class
All	NSC	NSR	QC3

The concerned work scope is not safety important.

All the components in the scope of this technical specification are of quality class 3.

All the components in the scope of this technical specification should be meeting relevant standards and with declaration of conformity.

## 3 Definitions

For a complete list of ITER abbreviations see: [ITER Abbreviations \(ITER\\_D\\_2MU6W5\)](#).

Abbreviation	Definition
ANB	Authorized Notified Body
BOM	Bill Of Materials
BOQ	Bill of Quantities
CAS	Compressed Air System
CBD	Cabling Diagram
CMA	Construction Management-as-Agent
CRO	Contact Responsible Officer
CRR	Construction Readiness Review
CWP	Construction Work Package
CotS	Commercial off the Shelf
DA	Domestic Agency
DN	Nominal Diameter
E&IC	Electrical, Instrumentation and Control

Abbreviation	Definition
EP	Embedded Plate
EWP	Engineering Work Package
FIDIC	Fédération Internationale des Ingénieurs-Conseils (International Federation of Consulting Engineers)
GMS	General and Management Specification
HOP	Hand Over Package
HP	Hold Point
I&C	Instrumentation and Control
ITP	Inspection and Test Plan
ITR	Inspection and Test Record
ITER	ITER Project
ITT	Instruction to Tenderers
IO	ITER Organization
IWP	Installation Work Package
LAD	List of Applicable Documents (incl. Documents applicability, for Tender, for Construction, for Information)
MCS	Material Certificate Summary
MIP	Manufacturing Inspection Plan
NB	Notified Body
NDE	Non Destructive Examination
NDT	Non Destructive Test
NP	Notification Point
PBS	Plant Breakdown Structure
PDS	Post Drilled Structure
PE / PED	Pressure Equipment / European Directive for Pressure Equipment
PFD	Process Flow Diagram
P&ID	Process & Instrumentation Diagram
PMI	Positive Material Identification
QAP	Quality Assurance Plan
QA	Quality Assurance
QC	Quality Control
QCR	Quality Compliance Record
SIC	Safety Important Class
SoW	Start of Work
SSC	Structures, Systems and Components
TS	Technical Specification
WPQR	Welding Procedure Qualification Record
WPS	Welding Procedure Specification

Abbreviation	Definition
Primary Supports	Piping support in direct contact with the pipe (e.g. U-bolt, pipe clamp base, insulated Pipe Clamp Base, Pipe Shoe and Pipe Strap) and related accessories (e.g. lift-off restraints, lug, axial Stoppers).
Secondary Supports	Steel structures (e.g. beam, plates) supporting the pipe or the primary support up to the interface (e.g. PDS, another steel structure).

## 4 References

### 4.1 Applicable Codes & Standards

- [1] EN 13480: Metallic Industrial Piping
- [2] Eurocode 0 NF EN 1990: Eurocode - Basis of structural design
- [3] Eurocode 3 Part 1-1 NF EN 1993-1-1: Design of steel structures Part 1-1: General rules and rules for buildings
- [4] Eurocode 3 Part 1-2 NF EN 1993-1-2: Design of steel structures Part 1-2: General rules – Structural fire design
- [5] Eurocode 3 Part 1-8 NF EN 1993-1-8: Design of steel structures Part 1-8: Design of Joints
- [6] NF EN 10162: Cold rolled steel sections. Technical delivery conditions. Dimensional and cross-sectional tolerances
- [7] NF EN 10088 Part 1, 2, 3 Stainless steels.: Part 1 - List of stainless steel/ Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes/ Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire sections and bright products of corrosion resisting steels for general purposes
- [8] EN ISO 7089: Plain washers – Normal series – Product grade A
- [9] NF EN 1090 Parts 1,2: Execution of steel structures and aluminium structures. Part 1 - Requirements for conformity assessment of structural components. Part 2 - Technical requirements for steel structures.
- [10] NF EN 10160: Ultrasonic testing of steel flat product of thickness equal or greater than 6 mm
- [11] NF EN 10306: Iron and steel. Ultrasonic testing of H beams with parallel flanges and IPE beams
- [12] NF EN 10308: Non-destructive testing. Ultrasonic testing of steel bars
- [13] NF EN ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods
- [14] NF EN ISO 8503-2: Preparation of steel substrates before application of paints and related products. Surface roughness characteristics of blast-cleaned steel substrates. Part 2 - Method for the grading of surface profile of abrasive blast-cleaned steel. Comparator procedure
- [15] NF EN ISO 12944: Paints and varnishes. Corrosion protection of steel structures by protective paint systems
- [16] NF EN ISO 2808: Paints and varnishes. Determination of film thickness

### 4.2 Applicable Documents

- [17] [ITER\\_D\\_YPPKW3 - Technical Specification for procurement of Compressors Units](#)
- [18] [ITER\\_D\\_22F53X - Procedure for Management of Nonconformities](#)
- [19] [ITER\\_D\\_2EFMKB - System Requirements Document SRD 65-00-CA Compressed Air \(from DOORS\)](#)

- [20] [ITER\\_D\\_V5N9RF - Construction Design - PBS 62, 63 and 65 - 04TSME - Specification for Design - Mechanical - Piping Material Classes Detail - OME\\_DH\\_SP\\_000004\\_ME](#)
- [21] [ITER\\_D\\_V5NHKE - Final Design - PBS 62.11-14-74 and 63.61 - 04TSME - Specification for Design - Mechanical - Fluids Design - Buildings 11-14-61-74-External - OME\\_DH\\_SP\\_0D0007\\_ME](#)
- [22] [ITER\\_D\\_VQ69HA - Technical Specification for the Pre-fabrication & Installation of Stainless Steel Pipework \(non-ESP, ESP,ESPN,PIC etc.\)](#)
- [23] [ITER\\_D\\_8XJ5JN - General Arrangement drawing of 14 bar compressed air unit components](#)
- [24] [ITER\\_D\\_8XHUU2 - Data sheet for 14 bar compressed air unit components](#)
- [25] [ITER\\_D\\_7VEC8R - ITER\\_6533CA\\_PFD\\_001 - Compressed Air Production Units 14bar\(g\) - Building 33](#)
- [26] [ITER\\_D\\_86SLG5 - ITER\\_6533CA\\_CBD\\_001 - Compressed Air Production Units 14bar\(g\) - Building 33](#)

### 4.3 Reference Documents

- [27] [ITER\\_D\\_YPPKW3 - Technical Specification for procurement of Compressors Units](#)
- [28] [ITER\\_D\\_33WL3N - CAD Manual 12-2 Piping Design](#)
- [29] [ITER\\_D\\_2NCULZ - Procedure for ITER CAD Data Exchanges](#)
- [30] [ITER\\_D\\_2F6FTX - Procedure for the Usage of the ITER CAD Manual](#)
- [31] [ITER\\_D\\_2DWU2M - Procedure for the CAD management plan](#)
- [32] [ITER\\_D\\_KFMK2B - Diagrams and Drawings Management System Working Instruction](#)
- [33] [ITER\\_D\\_JKT5KN - How to use the SMDD Application \(System for the Management of Diagrams and Drawings\)](#)
- [34] [ITER\\_D\\_35CY6V - CAD Manual 14 - Diagram Guidelines](#)
- [35] [ITER\\_D\\_P7Q3J7 - Specification for CAD data Production in ITER direct contracts](#)
- [36] [ITER\\_D\\_SLA7CJ - Technical Specification for Erection of Structural Steel](#)
- [37] [ITER\\_D\\_347SF3 - Safety Important Functions and Components Classification Criteria and Methodology](#)
- [38] [ITER\\_D\\_24VQES - Quality Classification Determination](#)
- [39] [ITER\\_D\\_S9YVVG - Technical specification for Coating and Tagging](#)
- [40] [ITER\\_D\\_vyj7u2 - Procedure for Labelling on Physical Items](#)
- [41] [ITER\\_D\\_TL25DK - System Component labelling procedure ITER Project](#)
- [42] [VNTEQX\\_FER\\_EH\\_DW\\_332096\\_ME - Construction Design - PBS 65.33/PW/DW/CA/NG - Construction Design. Building 33. Mechanical PW, DW, CA & NG details](#)

## 5 Work Description

The following table briefly provides the number, description, input/pre-requisite and expected deliverable(s) of each task.

*Table 2 List of tasks*

Task number	Task	Description	Input/pre-requisite	Deliverable*
T1.1	Survey of the site, Detailed design.	5.1	This TS+ Site Survey	P&ID, CBD, Single line Diagrams, Piping Layout (3D), GA Drawings, Installation drawings, BOM, Line list and

				Installation procedures. Inspection and testing procedures.
T1.2	Installation works & Testing	5.2	T1.1+ CA compressors (already procured by IO)** + support from IO (interfacing I/O)	Procurement and supply of missing parts, Installation of the Units with auxiliary parts. Testing of the system in accordance with the relevant codes & standards.
T1.3	Integration and commissioning	5.3	Support from IO (interfacing I/O)	Successful integration and commissioning of the CA unit report, Operation and maintenance manual.

\* Requirements of each deliverable are specified in the task description (6.1-6.2).

\*\* The compressor unit (with filters + tank) is already procured by IO through [17].

## 5.1 T1.1: Survey of Site, Execution design of the system

### 5.1.1 Description of T1.1

The contractor is responsible for the survey of the site in order to start the detailed design of the system. The image below shows the site where existing installed 7 bar(g) compressors are located and the 14 bar(g) components procured by IO will be available to the contractor.

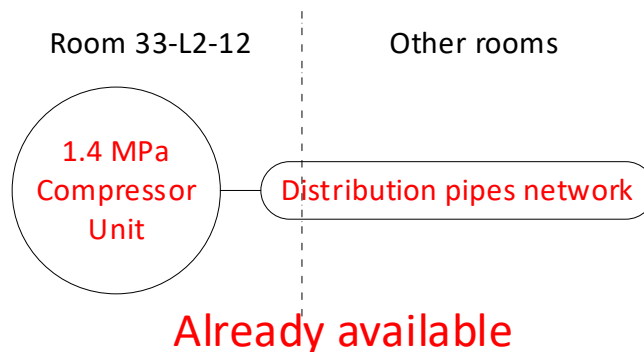
*Figure 1 Room 33-L2-12 Compressor unit room*



The items supplied by IO are in the document[24]. The contractor is responsible to identify the missing items that has to be procured by the contractor to integrate the system for it to operate at

the desired output & quality of air as mentioned in the SRD [19]. The contractor is responsible to develop the P&ID according in line with the PFD [25] and suggest changes to IO if required. The contractor shall follow codes and standards as mentioned in section 4.1 for the design of piping systems in accordance with pipe specification [20] & fluid design [21]. The supports shall be designed in order to comply with the system classification [Table 1: System Classification]. The task is to request the contractor to make necessary installation design, identifying and supply missing material and install the 14 bar(g) compressor units.

*Figure 2 scope of existing components*



### 5.1.2 Inputs for T1.1

- General arrangement drawings of procured items by IO [23]
- Data Sheets of procured items by IO [24]
- **Installation Manuals and notes of items procured by IO**
- Preliminary 2D diagrams prepared by IO [25][26]
- 2D mechanical drawings of existing 7 bar(g) compressor unit and the room 33-L2-12 [42]

### 5.1.3 Existing CODAC service and infrastructure for 7/14 bar compressor units [appendix 1] Deliverables for T1.1:

- Detailed P&ID.
- Detailed Cabling Diagrams, Single Line Diagrams.
- General arrangement drawings/3D of mechanical, I&C and electrical systems.
- Data Sheets of components.
- Piping Isometrics.
- Support design documents and drawings.
- Stress analysis report if required.
- Shop fabrication drawings for piping and supports.
- Detailed BOMs, Line Lists, Valve Lists and Equipment Lists.
- Installation procedures.
- Required controls and test reports.
- Manufacturing documentation.

IO shall approve all the documents required for manufacturing the components prior to manufacturing.

## 5.2 T1.2: Supply of materials, Installation of the Units & Testing

### 5.2.1 *Description and Requirement for T1.2*

The contractor is responsible for the installation of the compressor units in the room B33-L2-12 along with prefabrication of pipe spools, including the supply of raw bulk material (pipes, fittings, flanges, tapping, in line components, instrumentation etc.) which are required for the completion of the system for operation. Piping shall be manufactured as per the isometric drawings generated by the contractor during T1.1. Please refer to [22] for the main requirements for prefabrication of piping. This shall be read in conjunction with the piping classes as well as the applicable isometrics/drawings/bill of materials. The Contractor shall respect all codes and standards listed. The Contractor shall describe the manufacturing steps through a dedicated Manufacturing Inspection Plan submitted by the Contractor for approval by IO.

The contractor shall provide RIO cubicle to be connected to the existing cubicle 6533CA-CU-0007. Refer cabling diagram [26] for more information. The contractor is also responsible to select the proper cables for the power and I&C for the compressor units (I&C cables connecting to 6533CA-CU-0007 in room 33-L1-02; power cables connecting to 33-R1 roof: 6333ES-BD-0003).

A Construction Readiness Review shall be arranged by the contractor with the IO. Then, the contractor shall arrange the installation activities following ITER site construction rules, in particular the safety regulations. The required administrative and safety documentation for the installation activities shall be issued by the Contractor and approved by corresponding authorities in IO or its delegation. These types of documentation are not considered as deliverables of this TS. The installation activities shall be executed not to cause any damage to any existing components (the 7 bar compressor units).

IO TRO reserve the authority to inspect any of the installation activities. A construction completion inspection shall be arranged for the installation of the compressor unit. The contractor shall issue the corresponding inspection report with signatures from relevant authorities. The supplier shall arrange a third party initial legal inspection after the completion of the installation, and the identified non-conformity issues regarding installation shall be resolved by the contractor before integration. All the tests shall be according to the applicable codes & standards mentioned in this document.

### 5.2.2 *Input/pre-requisite for T1.2*

All in T1.1 & supply of missing items.

### 5.2.3 *Deliverable for T1.2*

After the installation, an installation completion report(s) shall be issued in IDM by the contractor as key indicator of the completion of this task. The completion report shall include:

- Construction completion inspection records;
- Successful test reports (including test procedure agreed by IO) & conformity certificates;
- Certificate and warranty of the installation.

Tagging of all the installed components, which are under this contract, is contractor's responsibility.

### **5.3 T1.3: 14 bar compressor unit integration**

#### *5.3.1 Input/pre-requisite for T1.3*

The following pre-requisite has to be ready for task 1.2:

- The successful installation and tests of the 14 bar(g) compressor units (completion of task T1.2);
- The successful third party legal inspection performed on the installed compressor units (arranged in the task T1.2);
- The CODAC and building service team is ready to provide integration support.

#### *5.3.2 Description and Requirement for T1.3*

The task requires the contractor to perform the commissioning (with CODAC and building service team) of the installed compressor units, including:

- Power-on the units and verify the performance.
- Switch and operate locally and remotely through CODAC service.

The contractor shall perform the integration and commissioning of the compressor units with inspection and witness of the IO-TRO and his delegation.

#### *5.3.3 Deliverable for T1.3*

The contractor shall deliver the test report (test procedure agreed by IO before the commissioning) to IO indicating the successful commissioning and integration of the compressor units (an example is provided for information in Appendix 2).

## **6 Responsibilities**

### **6.1 IO Responsibilities**

IO is responsible to appoint a technical responsible officer (TRO) for this contract.

IO is responsible to provide IDM access to the Contractor for issuing the deliverables.

### **6.2 Contractor's Responsibilities**

The Contractor is responsible to appoint a project manager/technical responsible officer (TRO) for this contract.

The contractor is responsible for removal of unwanted material from site, damage repair etc.

The contractor is responsible to follow the export control requirements of anything developed within this contract for IO. IO remains in any cases, the owner of the results of the execution of this contract.

## **7 Acceptance Criteria**

The approval of a deliverable in IDM indicates the acceptance of the work by IO. The deliverable should include the minimum contents listed in Chapter 11 deliverable table.



The approver of the deliverable is the IO-TRO and the approver may select a list of reviewers to review the deliverables.

## 8 Specific requirements and conditions

N/A

## 9 Estimated Duration

Shall not exceed 12 months. The duration requirement on each task is given in section 11.

## 10 Work Monitoring / Meeting Schedule

A kick-off meeting will be organized to initiate the activities when the contract is signed.

Biweekly or monthly progress meetings will be organized with mutual agreement of the both TROs.

## 11 Delivery Time Breakdown

The delivery schedule is proposed in the following table, taking into account the construction schedule of the concerned components. The Contractor may propose new durations needed for the work under this contract for the IO approval. The Contractor shall submit a detailed implementation schedule to the IO.

*Table 3 Delivery Schedule*

Task	Due date	Comment
<b>T1.1</b>	T0*+ 3 months	Survey of Site, Execution design of the system
<b>T1.2</b>	T0*+ 6 months	Supply of materials, Installation of the Units & Testing
<b>T1.3</b>	T0*+ 12 months	Commissioning and integration of 14 bar compressor unit system in B33

T0\*: contract signature date

## 12 Quality Assurance (QA) requirements

All the components in the scope of this technical specification are of quality class 3.

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 \(ITER\\_D\\_22MFG4\)](#).

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 \(ITER\\_D\\_22MFMW\)](#)).

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 \(ITER\\_D\\_258LKL\)](#).

## 13 CAD Design Requirements

The Exchange of CAD data shall comply with “Procedure for the design office activities related to CAD Data Exchange Task” [2NCULZ]

For the contracts where CAD design tasks are involved, the following shall apply:

The Contractor shall provide a Design Plan to be approved by the IO. Such plan shall identify all design activities and design deliverables to be provided by the Contractor as part of the contract.

The Contractor shall ensure that all designs, CAD data and drawings delivered to IO comply with the Procedure for the Usage of the ITER CAD Manual ([2F6FTX](#)).

The reference scheme is for the Contractor to work in a fully synchronous manner on the ITER CAD platform. This implies the usage of the CAD software versions as indicated in CAD Manual 07 - CAD Fact Sheet ([249WUL](#)) and the connection to one of the ITER project CAD data-bases. Any deviation against this requirement shall be defined in a Design Collaboration Implementation Form (DCIF) prepared and approved by DO and included in the call-for-tender package. Any cost or labour resulting from a deviation or non-conformance of the Contractor with regards to the CAD collaboration requirement shall be incurred by the Contractor.

Procedures of producing diagrams (Process Flow Diagrams, Piping & Instrumentation Diagrams, One Line Diagrams, Instrumentation and Control Diagrams, Cabling Diagrams, and Cable Routing Diagrams etc.) are included in the ITER CAD Manual. The software tool to produce the diagrams is SEE System Design.

## 14 Safety requirements

Not Applicable.

The concerned work scope is not safety important.

(Appendix files are also included in the attachment in IDM)

(Appendix files are also included in the attachment in IDM)

## Appendix 1: Additional input for Task 1.1

### 1. Existing CODAC service and infrastructure for 7/14 bar compressor units



FER\_EH\_DR\_333006\_C  
I\_v04.1.pdf

CBD of the I&c for 7 bar system (for information)



FER\_EH\_DR\_334191\_C  
I\_v08.1.pdf

SLD of the power distribution



ITER\_6333ES\_SLD\_001  
.pdf

## Appendix 2: Additional input for Task 1.3

### 1. Example of the commissioning report



FER\_EJ\_TE\_0X0021\_CA  
\_v02.0\_commissioning