**外部委託業者の募集**

References: IO/MS/25/YSA/MM

**“Market Survey for Milling Machines for Machining of Splice plates & Biscuits of ITER Vacuum Vessel Ports”**

（ITER 真空容器のスプライスプレートとビスケットのフライス盤の市場調査）

IO 締め切り 2025 年 6 月 27 日(金)

**〇目的**

ITER 機構は、2026 年 7 月に開始されるスプライスプレートおよびビスケットの加工のため、フランス南部のサンポール・レ・デュランス近郊にある ITER サイトに 3 台または 4 台のフライス盤を用意する予定です。

この文書は、スプライスプレートおよびビスケットを紹介し、フライス盤の技術要件と納期要件を定義するための市場調査のみを目的として作成されています。ここに記載されている内容は暫定的なものであり、変更される可能性があります。

**〇調査対象の供給とサービスの範囲**

| No. | 説明 | 暫定数量 | 納期/期間（予定） | 要件/その他 |
|---|---|---|---|---|
| 1 | フライス盤の供給 | 3 または 4 台 | 2026 年 6 月末までに納入および設置・試運転完了 | 下記セクションフライス盤仕様の項を参照 |
| 2 | CNC コントローラーの供給 | | | |
| 3 | ITER サイトでの機械の設置および試運転サービス | | | |

**〇 ITER 真空容器およびポートシステム、スプライスプレートおよびビスケット加工の概要**

**1. ITER**

ITER は、核融合発電の科学的および技術的実現可能性を実証することを目的とした共同国際研究開発プロジェクトです。このプロジェクトのパートナー（ITER 参加極）は、欧州連合、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 は、フランス南部カダラッシュの欧州で建設が進められています。

**2. 真空容器システム**

真空容器（VV）システムは、トーラス状の二重壁構造で、内側と外側のシェル間に遮蔽材と冷却水が配置されています。VV はトカマク装置の一部であり、クライオスタットの内部に配置され、地下室

からの容器重力支持によって支持されています。

VV の主な機能は、プラズマに高品質な真空を提供すること、および放射性物質の一次閉じ込めバリアとなることです。VV は、多数のモジュールからなるブランケットや、54 個のカセットからなるダイバータなど、容器内部の機器を支持します。

VV を構成する主要機器は、主容器、ポート構造、壁内遮蔽、および VV 重力支持です。VV は工場で、それぞれ 40° の 9 つのセクターとして製作されます。各セクターには、セクターのトロイダル中心にポートスタブとエクステンションのセットがあり、両側には半ポートスタブ（ポート中心で分割）のセットがあります。

トカマクのポロイダル断面図は図 1 に、VV セクターの基本構成は図 2 に示されています。

VV システムには、機械の上部レベルに 18 個のポート、水平レベルに 14 個の通常ポートと 3 個の中性粒子ビームポート、下部レベルに 9 個のポートと 18 グループの局所的な貫通部が図 3 に示すように配置されています。ポートは、機器の設置、ユーティリティの供給、真空排気、加熱システム、およびメンテナンス（ブランケットモジュールとダイバータカセットの組み立てを含む）のための容器内部へのアクセスに使用されます。

ポートは VV 主容器およびクライオスタットに溶接され、閉じ込め空間を提供します。主容器とポートの主要な構造材料は、オーステナイト系ステンレス鋼 316L(N)-IG です。

**図 1 VV システムのポロイダル断面図**
**図 2 VV セクターの基本構成**
**図 3 VV システムのポート**
**（詳細は技術仕様書を参照下さい）**

クライオスタット内には、VV システムだけでなく、磁石や電線も設置されています。建設手順を考慮し、ポートは図 4 のようにいくつかの部分に分割され、VV セクターに設置および溶接されます。

図 4 の長方形の部分は、機器間の溶接開先偏差を補償するために、一つ一つカスタマイズされるスプライスプレートです。

長方形の部分は、原材料の経済性、部品の取り扱い、および非破壊検査装置へのアクセス性を考慮し、図 4 の右に示すようにいくつかのピースに分割されます。

まずスプライスプレートが機器に溶接され、次にスプライスプレート間の隙間は、「ビスケット」と呼ばれる円形の部分で埋められます。

スプライスプレートとビスケットの材料も、オーステナイト系ステンレス鋼 316L(N)-IG です。

**図 4 ポート溶接のスプライスプレートとビスケット（例：セクター2）**
**（詳細は技術仕様書を参照下さい）**

スプライスプレートの一般組み立て図は、フライス盤を選定する際に考慮される参考寸法とともに、添付資料に添付されています。

注）この文書におけるスプライスプレートおよびビスケットの数と寸法は暫定的なものであり、後日最終決定されます。

**〇技術的インプット**

**1 材料特性**

オーステナイト系ステンレス鋼 316L(N)-IG の機械的および化学的特性は以下の通りです。
（詳細な特性情報は原文に記載されていませんが、この文脈では「以下の通り」とされています。）

**2 フィールドジョイントの形状**

典型的なフィールドジョイントを図 5 に示します。二重壁構造の接続には、内側および外側のスプライスプレートが使用されます。通常、外側プレートの溶接のためのアクセスは、内側プレートの開口部を通して行われます。初期フィールドジョイントのスプライスプレートの公称幅は、外側シェルジョイントで通常 100mm、内側シェルジョイントで 160mm です。
スプライスプレートとビスケットは、最大約 20mm 移動する可能性のあるポート機器のベベルに合うように加工されます。ポート機器が最初に設置・固定され、次にベベルの形状がスキャンされます。スキャンされた形状に基づいて、必要な公差内で両方のベベルに適合する 3D プロファイルが作成され、それに応じてスプライスプレートが加工されます。下の図 6 は、カスタム加工されたスプライスプレートとビスケットの例です。断面寸法はスプライスプレートに沿って変化します。
スプライスプレートとビスケットの加工は ITER サイト内で行われるため、加工された部品はタイムリーに提供されます。

**3 フライス盤（既存機械）**

IO は、スプライスプレートとビスケットの加工作業のために Zayer ARION 4000 を既に導入しています。一部のスプライスプレートとビスケットは、試作加工の一部として加工されました。試作加工の結果は寸法公差を完全に満たすものではありませんでしたが、フライス盤の能力がカスタム加工に十分であることが確認されました。この試作経験に基づき、IO は今後調達するフライス盤の要件を規定します。

**〇 フライス盤の仕様**

以下の章は、試作加工を行った会社が提案したいくつかのタイプの機械の仕様です。これらの仕様は、同等またはそれ以上であれば変更可能です。

**1 ガントリー型またはシングルコラム型機械：2000 x 1700**

- 長手方向移動量（X 軸）：2000 mm
- 横方向移動量（Y 軸）：1700 mm
- 垂直方向移動量（Z 軸）：900 mm
- 連続回転 2 軸 CNC 制御ヘッド - 360°回転および-10°アプローチ
- 早送り速度（X、Y、Z 軸）：25000 mm/min
- 最大加工送り速度：15000 mm/min
- ダイレクト出力ヘッドテーパー：HSK 100
- 自動ヘッドツイストテーパー：HSK 100
- ダイレクト出力ヘッド速度：6000 rpm
- 自動 45°ヘッド速度：6000 rpm
- 主軸モーター出力：37 kW
- 速度範囲：2 レンジ
- 位置決め精度：0.010mm
- 繰り返し精度：0.005mm
- ポータブルハンドホイール：Bluetooth 接続
- テーブル積載荷重：5000 kg
- CNC コントローラー：SIEMENS または FANUC

**2 ガントリー型またはコラム型機械：3000 x 1700**

- 長手方向移動量（X 軸）：3000 mm
- 横方向移動量（Y 軸）：1700 mm
- 垂直方向移動量（Z 軸）：1600 mm
- コラム間距離：2300 mm
- 連続回転 2 軸 CNC 制御ヘッド - 360°回転および-10°アプローチ
- 早送り速度（X、Y、Z 軸）：25000 mm/min
- 最大加工送り速度：15000 mm/min
- ダイレクト出力ヘッドテーパー：HSK 100
- 自動ヘッドツイストテーパー：HSK 100
- ダイレクト出力ヘッド速度：6000 rpm
- 自動 45°ヘッド速度：6000 rpm
- 主軸モーター出力：37 kW
- 速度範囲：2 レンジ
- 位置決め精度：0.010mm
- 繰り返し精度：0.005mm
- ポータブルハンドホイール：Bluetooth 接続
- テーブル積載荷重：5000 kg
- CNC コントローラー：SIEMENS または FANUC

**3 ロータリーインデックス型機械（1）**

- 長手方向移動量（X 軸）：1500 mm
- 横方向移動量（Y 軸）：800 mm
- 垂直方向移動量（Z 軸）：806 mm
- 作業テーブルサイズ：1700 mm x 850 mm
- ロータリーテーブル直径：800 mm
- 連続回転 2 軸 CNC 制御ヘッド - 360°回転および-10°アプローチ
- テーパー：SK 40
- 主軸モーター出力：30 kW (サービス S1, 100%), 46kW (サービス S6, 40%), 12000rpm
- 速度範囲：2 レンジ（早送り：40000 mm/min, 最大加工送り：30000 mm/min）
- 位置決め精度：0.010mm
- 繰り返し精度：0.005mm
- テーブル積載荷重：1500 kg
- CNC コントローラー：SIEMENS または FANUC

**4 ロータリーインデックス型機械（2）**

- 長手方向移動量（X 軸）：1000 mm
- 横方向移動量（Y 軸）：600 mm
- 垂直方向移動量（Z 軸）：600 mm
- ロータリーテーブル直径：500 mm
- その他はロータリーインデックス型機械（1）と同様

（以下詳細は技術仕様書を参照下さい）

**【※ 詳しくは添付の英語版技術仕様書「Technical Specification for Market Survey of Milling machines for VV Ports Splice plate & Biscuits machining」**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

To: Potential Suppliers

Date: 06 June 2025

Ref: IO/MS/25/YSA/MM

**Subject:** Letter of Invitation for the Market Survey on **"*Milling Machines for Machining of Splice plates & Biscuits of ITER Vacuum Vessel Ports*"**

Dear Madam/Sir,

The ITER Organization (IO) launches a Market Survey and requests information from companies having the interest, knowledge, and capacity related to **supply of Milling Machines.** With this letter, we invite all potential companies, institutions, or entities from ITER Member States to participate to this Market Survey.

The main purposes of this Market Survey are to incorporate the recent market situation into the procurement conditions as well as into the technical specifications and to prepare the budget baseline for the contract(s).

china
eu
india
japan
korea
russia
usa

Please note that this is not a Call for Nomination request, and all information including cost estimation to be collected are considered only as referential and non-binding basis. Therefore, we would greatly appreciate your feedback, which will help the IO to better understand the real situation of the industry.

You will find enclosed:

Annex I: Technical Specifications for Market Survey

Annex II: Request for Information (RFI) Questionnaire

Please return a completed questionnaire using Annex II, **no later than 27 June 2025**, to the following email address Yuki.Suyama@iter.org

Thanks in advance for your participation and co-operation.

Yours faithfully,

iter china eu india japan korea russia usa
William DE CAT
Procurement Division

William De Cat
Operations Manager
Procurement Division

**Notices**

- Please send any questions regarding the survey to the contact given in the cover letter via email. The received questions and their answers may be published in a manner that does not identify the questioner.

- If there will be any additional information and modifications to this Market Survey, they will be published at the same web page.

- All information provided in this Market Survey is tentative and subject to change.

- All intellectual property rights and other rights related to the information provided in this survey belong to the IO. Participants in the survey and viewers of the information are permitted to use the obtained information solely for the purpose of preparing responses to the survey and must not use it for any other purposes.

- Participation in this survey does not automatically grant eligibility for future procurement processes. Eligibility for future procurement procedures remains undetermined.

IDM UID
**E58MGG**

VERSION CREATED ON / VERSION / STATUS
**03 Jun 2025 / 1.2 / Approved**

EXTERNAL REFERENCE / VERSION

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

# Technical Specification for Market Survey of Milling machines for VV Ports Splice plate & Biscuits machining

This specification is prepared for market survey to find milling machines suppliers, including background of ITER VV system, purpose of milling machines, and technical information of Splice plates & Biscuits of VV ports.

# Technical Requirements of Milling Machines for Machining of Splice plates & Biscuits of ITER Vacuum Vessel Ports

***Abstract:***

This document defines the technical requirements of the milling machines to be used for Splice plates and biscuits machining of ITER Vacuum Vessel Ports welding.

# Table of Contents

# 1 Purpose

The ITER Organization is going to prepare three or four milling machines at ITER site, located near Saint Paul-lez-Durance, southern France, to do Splice plates machining and biscuits machining which shall start in July 2026.
This document is prepared solely for the purpose of conducting a Market Survey, in order to introduce Splice plate & Biscuit and to define the technical and schedule requirements of the milling machines. The contents described herein are tentative and subject to change.

# 2 Scope of Supply & Service in the Survey

| No. | Description | Tentative Quantity | Expected Time of Delivery / Duration | Requirements / Others |
|---|---|---|---|---|
| 1 | Supply of milling machines | 3 or 4 units | To be delivered and completed installation and commissioning by the end of June 2026 | See Section 5 below |
| 2 | Supply of CNC controllers | | | |
| 3 | Service of machines installation and commissioning at ITER site | | | |

# 3 Presentation of ITER Vacuum Vessel and Ports system, Splice plate & Biscuit machining

## 3.1 ITER

ITER is a joint international research and development project that aims to demonstrate the scientific and technical feasibility of the fusion power. The partners in the project - the ITER Parties - are the European Union, Japan, Republic of China, India, the Republic of Korea, the Russian Federation and the USA. ITER is being constructed in Europe, at Cadarache in the South of France.

## 3.2 Vacuum Vessel system

The Vacuum Vessel (VV) system is a torus-shaped, double wall structure with shielding and cooling water between the inner and outer shells. The VV is a part of the Tokamak machine and located inside the cryostat and supported by the vessel gravity supports from the basement.
The primary functions of the VV are to provide a high quality vacuum for the plasma, as well as the first confinement barrier of radioactive materials. The VV is supporting the in-vessel components – such as the Blanket which consists of numerous modules, and the Divertor which consists of 54 cassettes.
The main components that make up the VV are the main vessel, the port structures, the inwall shielding and the VV gravity supports. The VV is to be fabricated in the factory as 9 sectors each spanning 40°. Each sector includes a set of the port stubs and extensions at the toroidal centre of the sector and a set of half port stubs (split on the port centre) on each side.
The poloidal cross-section of the Tokamak is shown in Fig.1 and the basic configuration of the VV Sector in Fig.2.

The VV system has 18 ports at the upper level of the machine, 14 regular and 3 Neutral Beam ports at the equatorial level, and 9 ports and 18 groups of local penetrations at the lower level as shown in Fig.3. The ports are used for equipment installation, utility feedthroughs, vacuum pumping, heating system, and access inside the vessel for maintenance (including assembly of the Blanket modules and Divertor cassettes).

The ports are welded to the VV main vessel and the cryostat to provide confinement space. The main structural material of the main vessel and ports is the austenitic stainless steel type 316L(N)-IG.

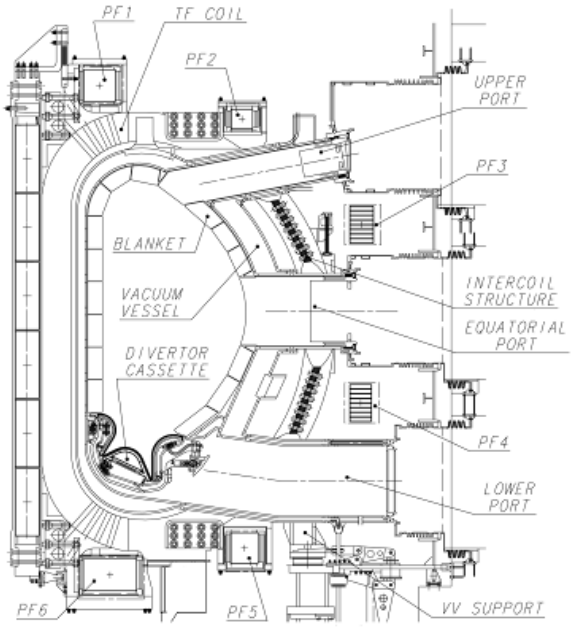



Fig.1 Poloidal cross-section of VV system

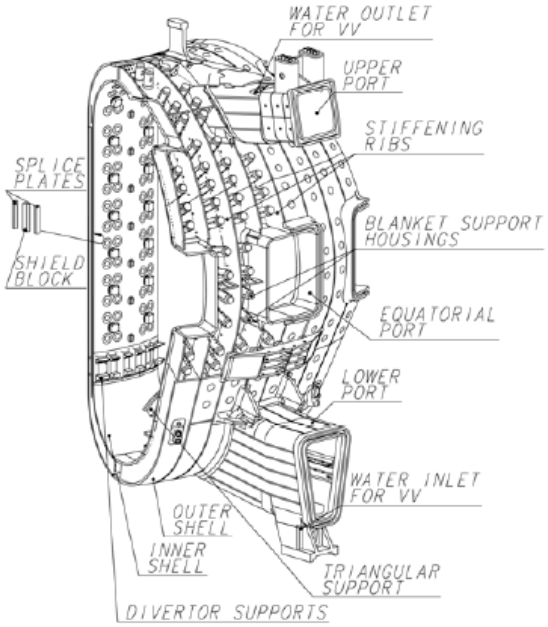



Fig.2Basic configuration of the VV sector

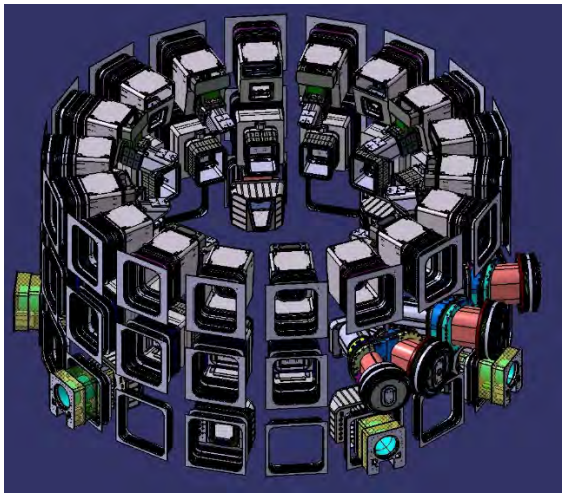


Fig.3 Ports of VV system

In the cryostat, not only VV system but magnets and electrical cables are installed. Considering construction sequences, the ports are divided into several parts to be installed and welded in the VV sectors in Fig.4.

Rectangular parts in Fig.4 are the splice plates which are customized one by one to compensate welding bevels deviation between the components.

The rectangular parts are also divided into several pieces as shown in the right of Fig.4 considering raw materials economy, handling of parts, and accessibility of NDT devices.

Firstly splice plates are welded to components, then gaps between splice plates are plugged with circular parts, saying “biscuits”.

The material of the splice plates & the biscuits is also the austenitic stainless steel type 316L(N)-IG.

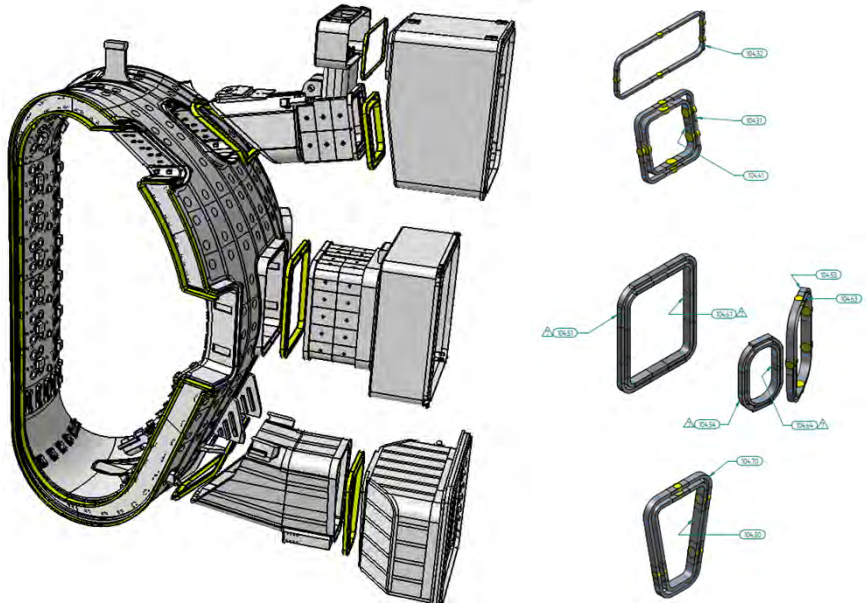


Fig.4 Splice plates and Biscuits of Port welding (Ex. Sector 2)

General assembly drawings of Splice plates are attached in **Annex** with dimensions as reference, which are taken into account when select milling machines.

*Note) Number & dimensions of Splice plates/Biscuits in this document are tentative ones, which will be finalized later*

.

# 4 Technical inputs

## 4.1 Material properties

The mechanical and chemical characteristics of the the austenitic stainless steel type 316L(N)-IG are the following:

| | |
|---|---|
| Rm (MPa) | 525-700 |
| $Rp_{0,2\%}$ min. (MPa) | 220 |
| A% min. | 45 |

*Figure 2 : Mechanical characteristics of 316 L (N) grade ITER*

| $\%C_{max}$ | $\%P_{max}$ | %Ni | $\%B_{max}$ | $\%Nb_{max}$ | %Mn | $\%S_{max}$ | %Mo |
|---|---|---|---|---|---|---|---|
| 0,03 | 0,025 | 12,00 – 12,50 | 0,001 | 0,01 | 1,60 – 2,00 | 0,01 | 2,30 – 2,70 |
| $\%Cu_{max}$ | $\%Ti_{max}$ | $\%Si_{max}$ | %Cr | %Ni | $\%Co_{max}$ | $\%Ta_{max}$ | |
| 0,3 | 0,1 | 0,5 | 17,00 – 18,00 | 0,06 – 0,08 | 0,05 | 0,01 | |

*Figure 3 : Chemical characteristics of 316 L (N) grade ITER*

## 4.2 Field joint geometry

A typical field joint is shown in the Fig.5. For connecting of the double-wall structures, the inner and outer splice plates are used – normally, an access for welding of the outer plate is achieved through the opening for the inner one. Nominal width of the splice plate for the initial field joint is typically 100 mm for the outer shell joint and 160 mm for the inner shell joint.

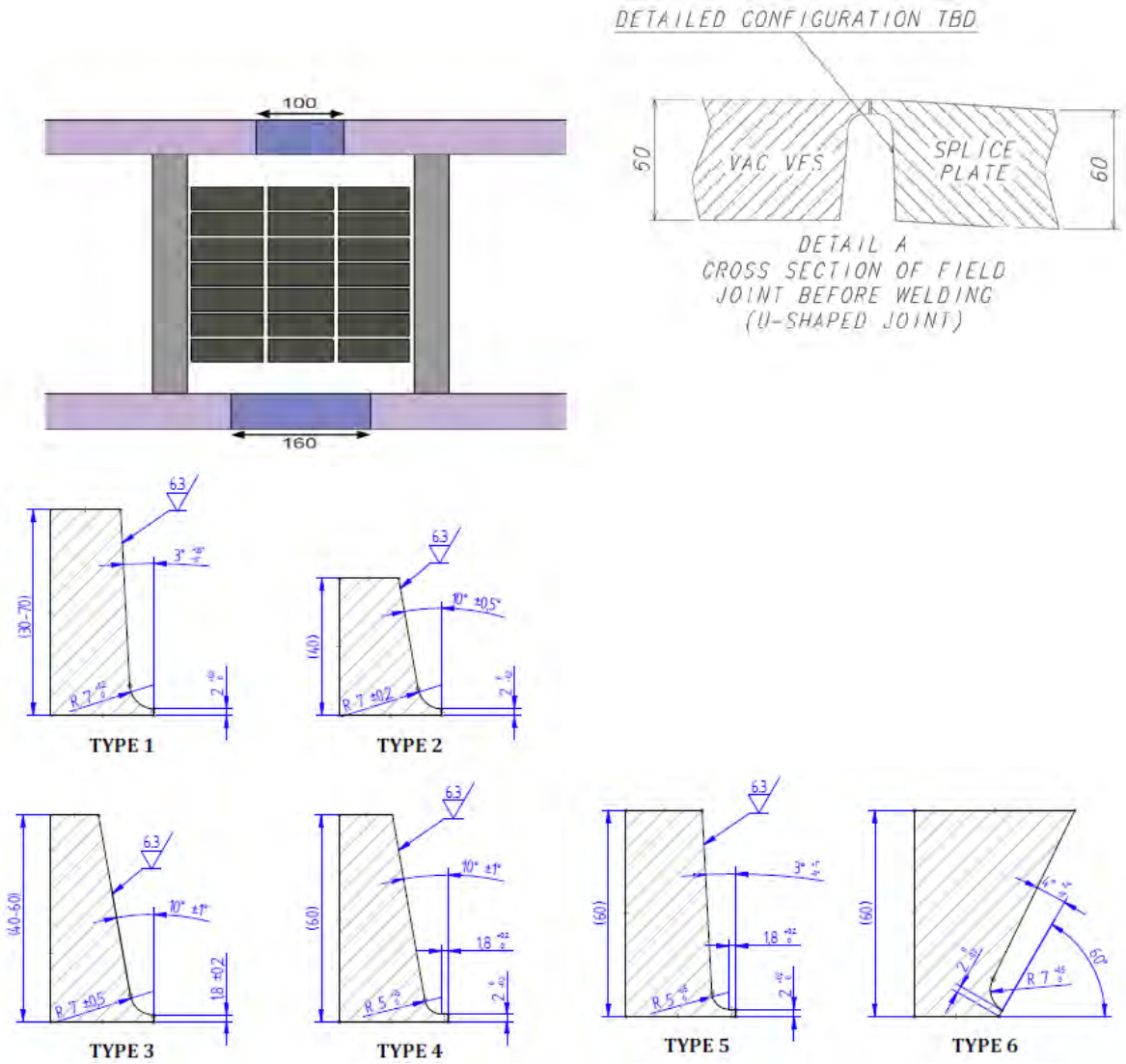


Fig.5 Typical field joints configuration of Port welding

The splice plates & the biscuits are be machined to be fitted to bevels of the ports components which may be shifted by ~20mm maximum. The ports components are installed and fixed at first, then the bevels geometries are scanned. Based on scanned geometry, 3D profile is created to fit both bevels within required tolerance and the splice plates are machined accordingly. Fig.6 below is a sample of a customized splice plate and a biscuit. The cross-section dimensions changed along the splice plate.

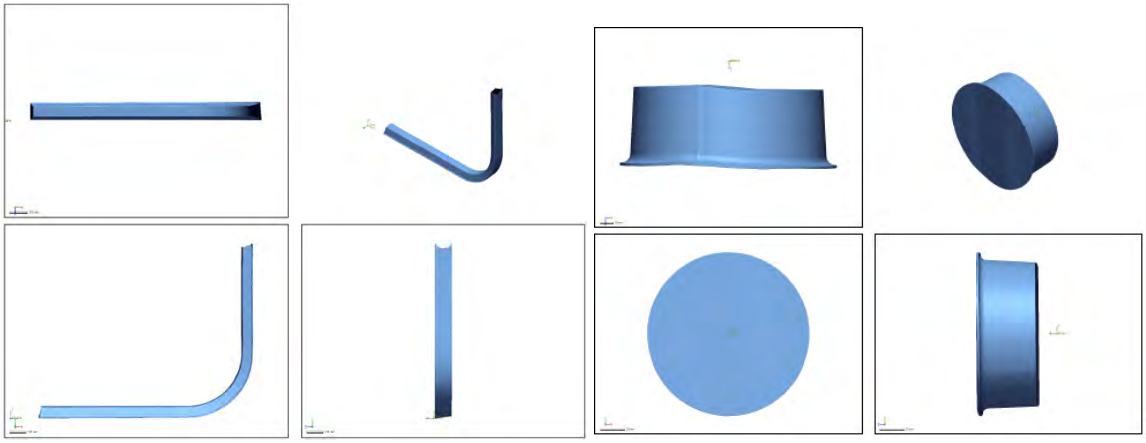


Fig.6 Sample of customized Splice plate & Biscuit

The machining of the splice plates & the biscuits will be performed in ITER site so that the machined parts can be provided in timely manner.

### 4.3 Milling machines (Existing machines)

The IO has already installed Zayer ARION 4000 for the machining work of the splice plates & the biscuits. Some splice plates and biscuits were machined as a part of the test machining.

Although the test machining results were not fully satisfied with dimension tolerances, the capacity of the milling machine was confirmed to be enough for custom machining. Based on the experience of the test, the IO specifies the requirement of milling machines to be procured from now.

| Zayer: ARION 4000 | |
|---|---|
| Travel X | 4000mm |
| Travel Y | 3100mm |
| Travel Z | 1100mm |
| Column | 2500mm |
| Table size | 4000 x 2000 mm, Max head pos. 1440mm |
| CNC | HEIDENHAIN TNC-640 |
| Head | 30° automatic head 360°, 43 kW |


Fig.6 Zayer ARION 4000 (Existing machine)

# 5 Milling machines specification

Following chapters are the machines specification for several types of machines, which are suggested by the company who did the test machining. Please noted that these specifications can be modified if they are equivalent or better.

## 5.1 Gantry type or Single column machine: 2000 x 1700

- Longitudinal Travel (X Axis): 2000 mm
- Cross Travel (Y Axis): 1700 mm
- Vertical Travel (Z Axis): 900 mm
- Continuous rotation Two CNC axis controlled head - 360° rotation and -10° approach
- Rapid Traverse Axis (X , Y, Z): 25000 mm/min
- Max. Working Feed: 15000 mm/min
- Direct Output Head Taper: HSK 100
- Automatic Head Twist Taper: HSK 100
- Direct Output Head Speed: 6000 rpm
- Automatic Head 45º Speed: 6000 rpm
- Main Motor Power: 37 kW
- Speed Ranges: 2 Ranges
- Positioning Accuracy: 0.010mm
- Repetitive Accuracy: 0.005mm
- Portable Handwheel: Bluetooth connection
- Carrying Load Table: 5000 kg
- CNC controller : SIMENS or FANUC

## 5.2 Gantry type or Column type machine: 3000 x 1700

- Longitudinal Travel (X Axis): 3000 mm
- Cross Travel (Y Axis): 1700 mm
- Vertical Travel (Z Axis): 1600 mm
- Distance between Columns: 2300 mm
- Continuous rotation Two CNC axis controlled head - 360° rotation and -10° approach
- Rapid Traverse Axis (X , Y, Z): 25000 mm/min

- Max. Working Feed: 15000 mm/min
- Direct Output Head Taper: HSK 100
- Automatic Head Twist Taper: HSK 100
- Direct Output Head Speed: 6000 rpm
- Automatic Head 45º Speed: 6000 rpm
- Main Motor Power: 37 kW
- Speed Ranges: 2 Ranges
- Positioning Accuracy: 0.010mm
- Repetitive Accuracy: 0.005mm
- Portable Handwheel: Bluetooth connection
- Carrying Load Table: 5000 kg
- CNC controller : SIMENS or FANUC

### 5.3 Rotary index machine (1)

- Longitudinal Travel (X Axis): 1500 mm
- Cross Travel (Y Axis): 800 mm
- Vertical Travel (Z Axis): 806 mm
- Working table size: 1700 mm x 850 mm
- Rotary table diameter: 800 mm
- Continuous rotation Two CNC axis controlled head - 360° rotation and -10° approach
- Taper: SK 40
- Main Motor Power: 30 kW (service S1, 100%), 46kW (service S6, 40%), 12000rpm
- Speed Ranges: 2 Ranges (Rapid feed: 40000 mm/min, Maximum working feed: 30000 mm/min)
- Positioning Accuracy: 0.010mm
- Repetitive Accuracy: 0.005mm
- Carrying Load Table: 1500 kg
- CNC controller : SIMENS or FANUC

### 5.4 Rotary index machine (2)

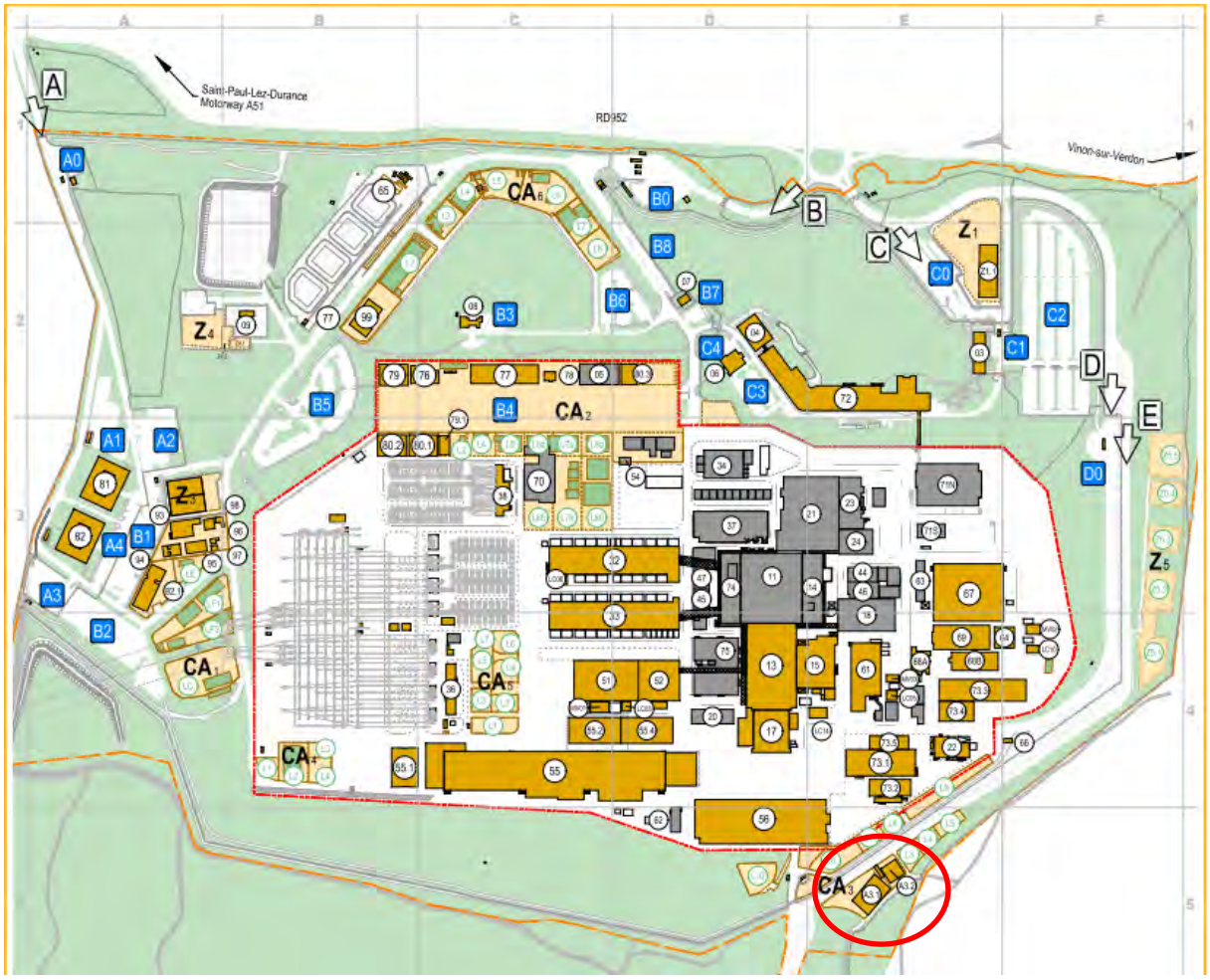
- Longitudinal Travel (X Axis): 1000 mm
- Cross Travel (Y Axis): 600 mm
- Vertical Travel (Z Axis): 600 mm
- Rotary table diameter: 500 mm
- Others are same as Rotary index machine (1)

## 6 Work at ITER site

The Contractor shall prepare and execute the herein described Works to comply with the applicable norms & standards, French Labour Codes and applicable DTU as well as follow the best industry

practice to ensure their safe operation. The Works shall be compliant with the relevant health and safety regulations applicable in France.
The Contractor shall undertake its activities in accordance with good industry practice relevant the technical nature of the Works and to the location of the Site. Its performance shall include all supplies and services necessary for the Works (including specialized plant, tools, qualified labour, power supply, transportation and handling mean, temporary works, etc.). All installations delivered under the Contract shall be undertaken in accordance with the manufacturers' recommendations and shall comply with the applicable norms & standards.
The Contractor shall obtain IO's approval of its Method statement before commencing the Works on the ITER Site.
The Contractor shall be responsible for cleaning its working area in CA3 workshop. In due course, the Contractor shall provide the IO with the required control tests reports and results for the deliverables under the Works. All statutory initial inspections shall be performed by a 3rd party (independent checker) validated in advance by the IO. In particular, an electrical calculation note shall be done by the Contractor and an electrical initial regulatory inspection will have to be done by a 3rd party ("Visite Initiale Electrique" in French).
These records shall also form a part of the as-built documentation submitted on completion of the Works.

Work location (ITER site) is located in Route de Vinon de Verdon, 13115 Saint-Paul-les-Durance




The machines are installed at CA3 workshop (see Ref. [1])

## 7 Reference Documents

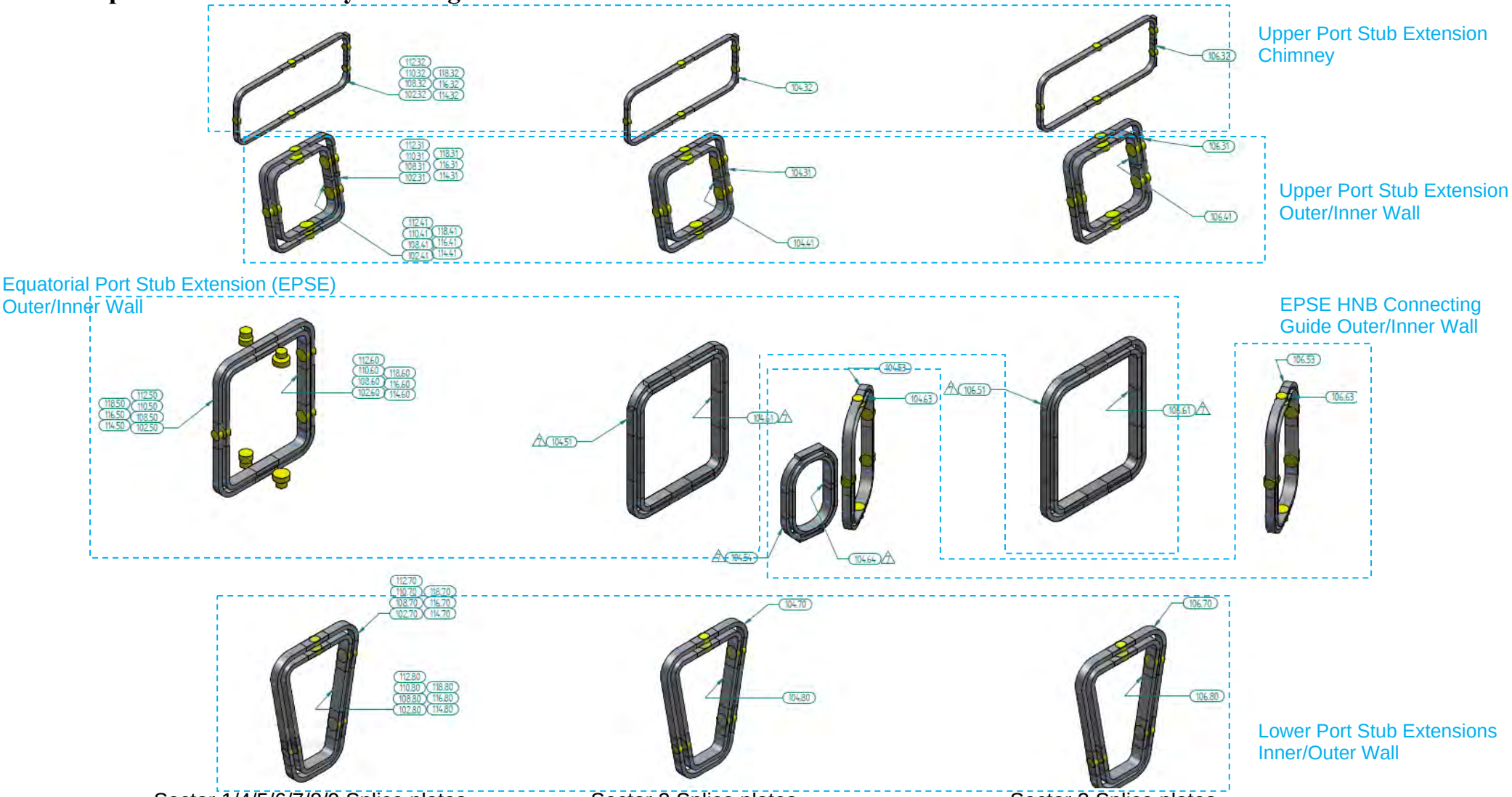
This list contains documents for information:

[1] Drawing of CA3 workshop (A54MJR v1.0)

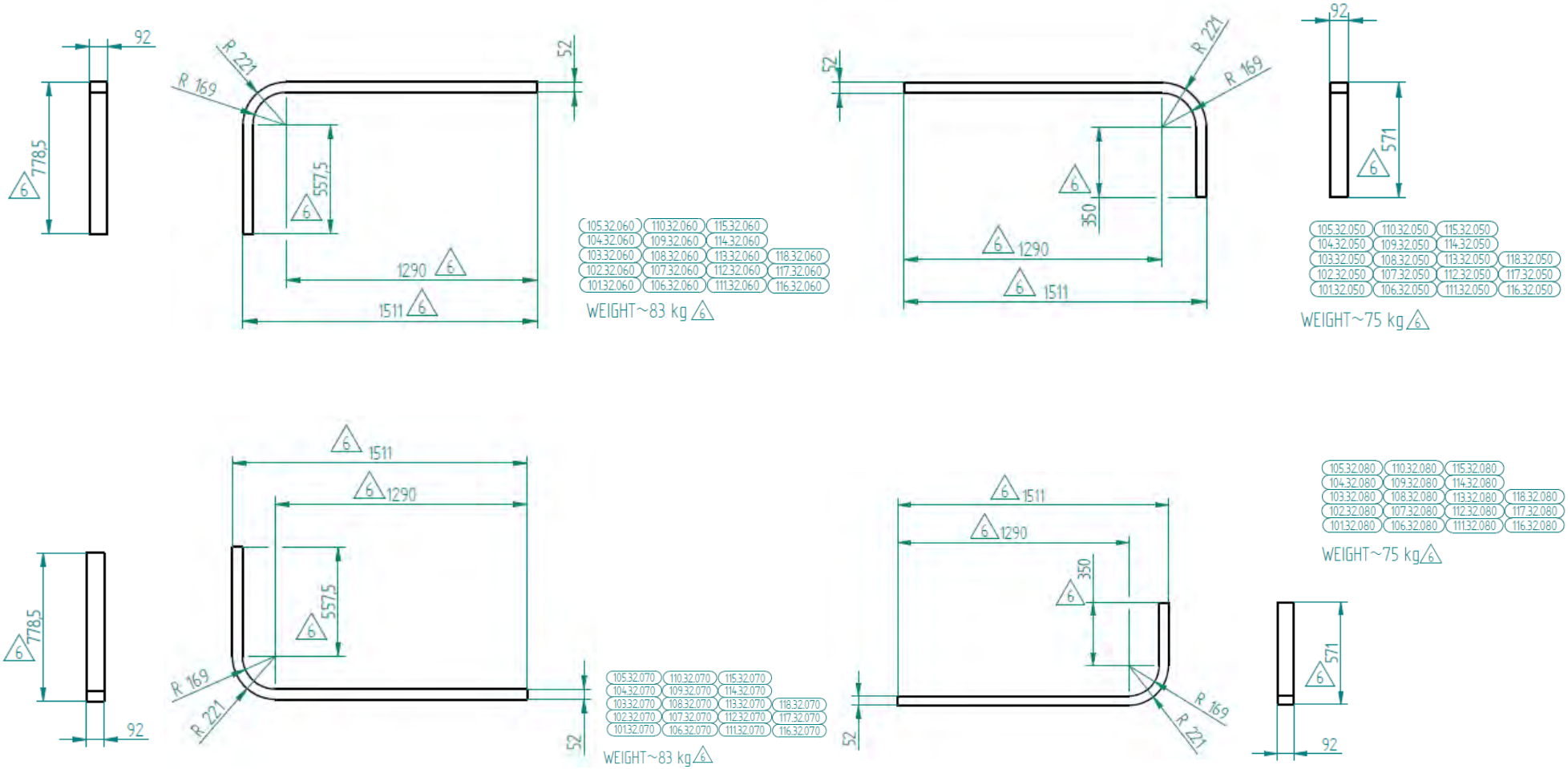
# Acronyms

| | |
|---|---|
| IO | ITER Organization |
| ISO | International Organization for Standardization |
| VV | Vacuum Vessel |

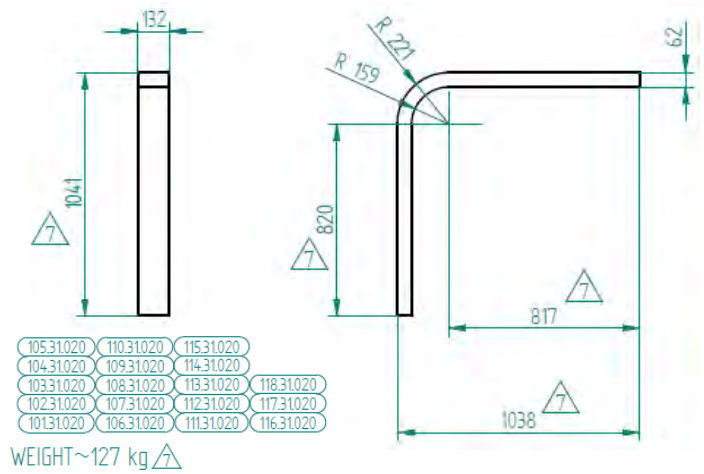
# Annex Splice Plates Assembly drawings

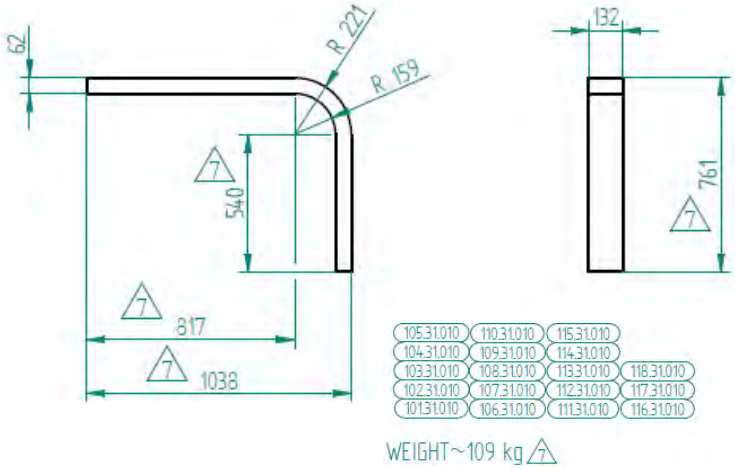


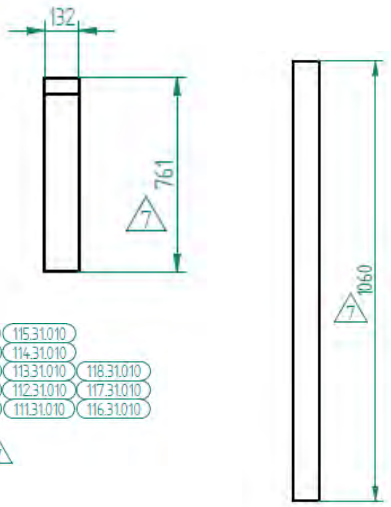
Typical Splice plates (Upper Port Stub Extension Chimney)

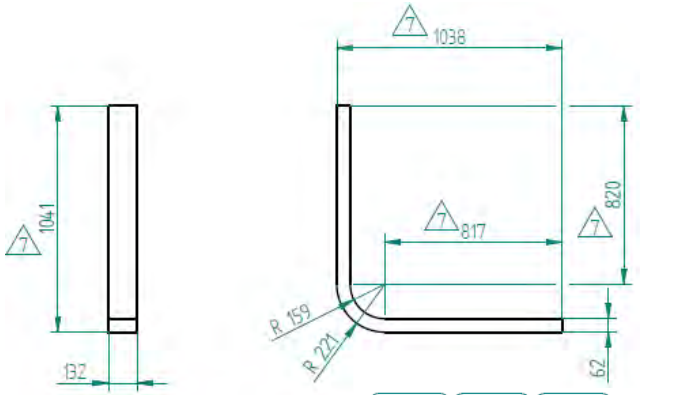


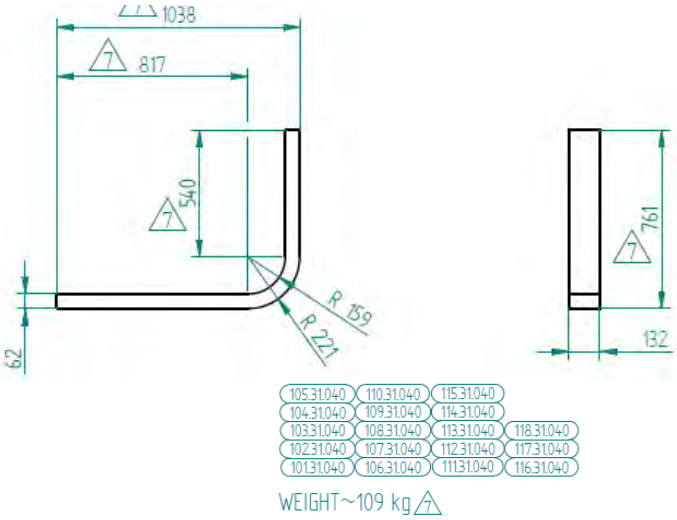
Typical Splice plates (For Upper Port Stub Extension Outer, Wall)

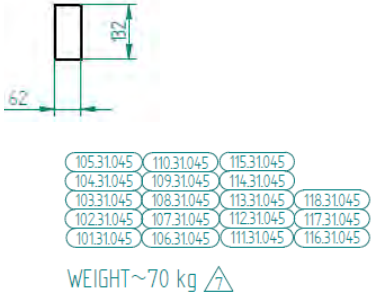


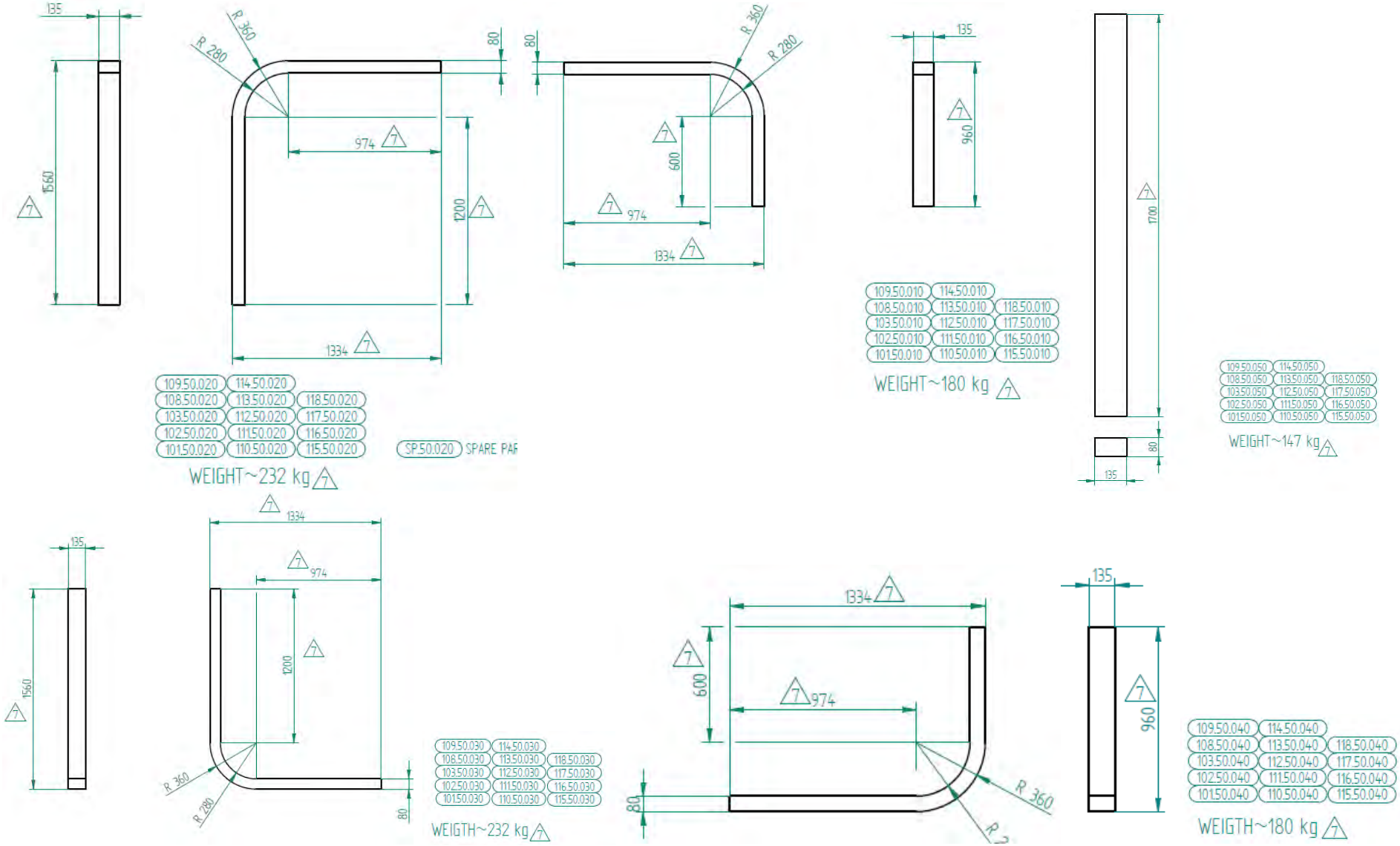



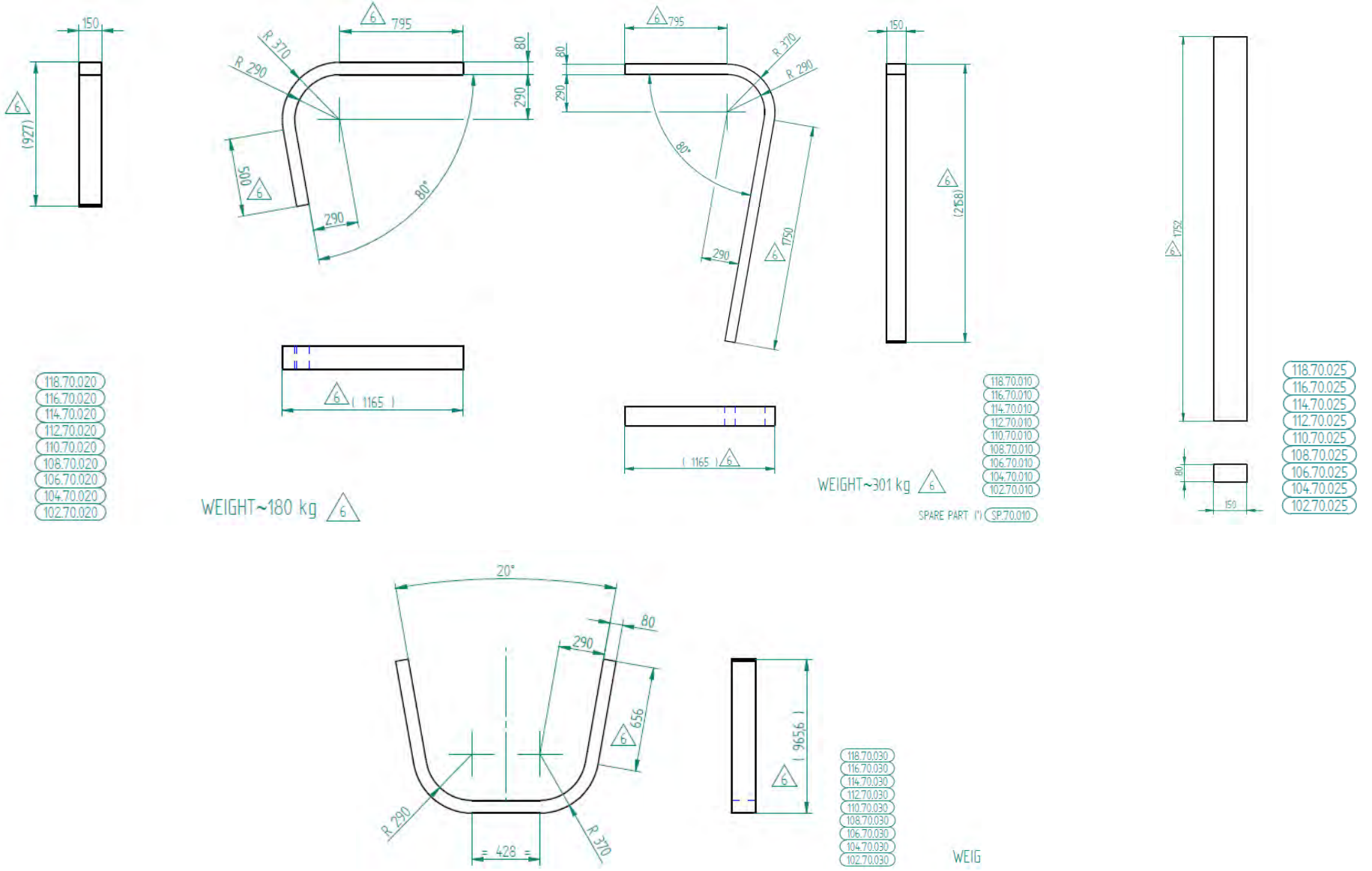



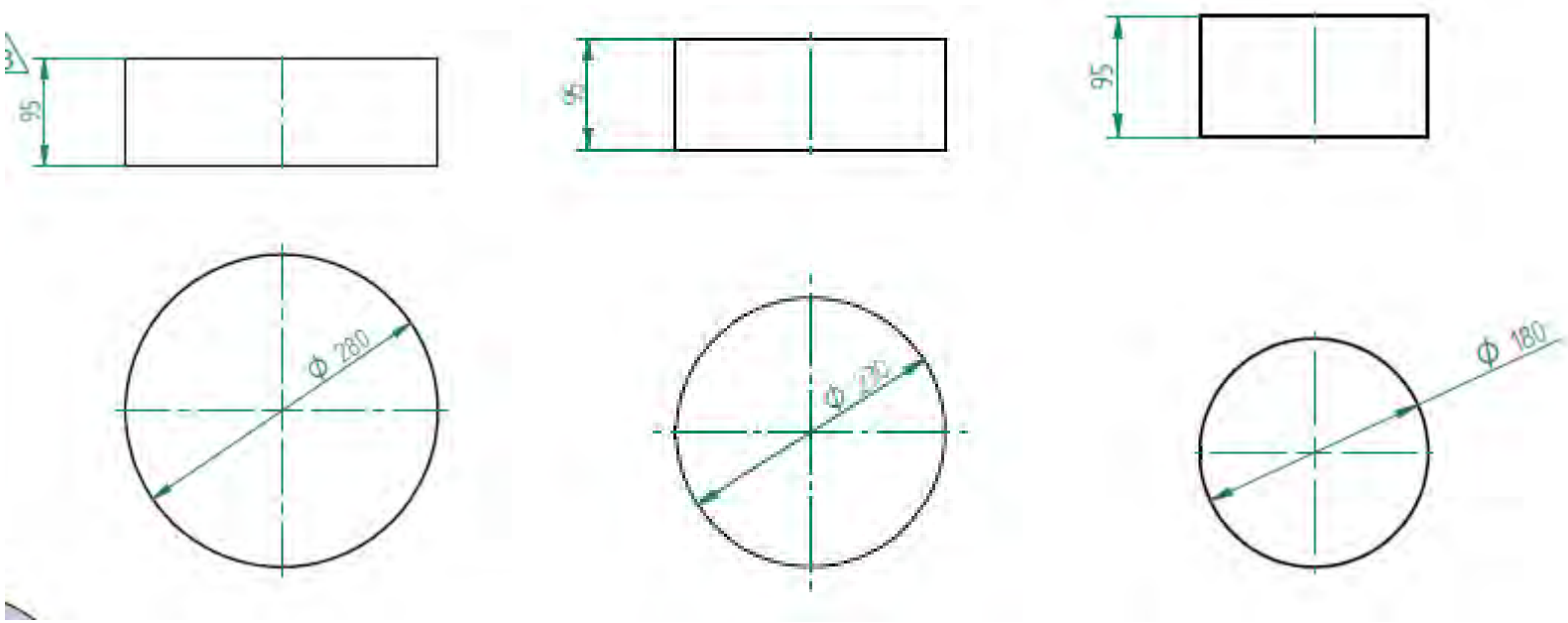
Typical Splice plates (For Equatorial Port Stub Extension, Outer Wall)



Typical Splice plates (For Lower Port Stub Extension, Outer Wall)



Typical Biscuits



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

# Annex II – Request for Information (RFI) Questionnaire

## Ref. IO/MS/25/YSA/MM

## Milling Machine - Market Survey

***Please return a completed questionnaire, no later than 27 June 2025, to the following email address Yuki.Suyama@iter.org .***
***Due to mailing system reason, when attaching a large file such as the company's brochure exceeding 20MB, please use a cloud service or other means.***

### 1. *General information about the Company / Institute compiling the questionnaire*

***General information***

| | |
|---|---|
| ***Company / Institute Name*** | |
| ***Nationality**** | |
| ***Principle Adress*** | |
| ***Years in Operation*** | |
| ***Web site URL*** | |

* Companies/Institutions/Entities established within an ITER Member State (the European Union, Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA) are eligible for participating this procurement.

china
eu
india
japan
korea
russia
usa

***Contact Information***

| ***Contact person*** | ***Name + Title*** | ***Email address*** | ***Telephone*** |
|---|---|---|---|
| ***Commercial Matters:*** | | | + |
| | | | |
| ***Technical Matters:*** | | | + |
| | | | |

***Primary Industrial Focus***

| ***Main activities*** | ***Description*** |
|---|---|
| 1. ..... | |
| 2. ..... | |
| 3. ..... | |
| ..... | |

***Turnover of recent three years and Workforce***

| ***Please indicate the year*** | ***Turnover 202X*** | ***Turnover 202X*** | ***Turnover 202X*** | ***Number of employees*** |
|---|---|---|---|---|
| **All activities** | | | | |
| ***In the field of manufacture of milling machine*** | | | | |

## 2. Survey - Milling machines

***Do you have milling machines fulfilling the specification in the technical specification (UID: E58MGG). If Yes, please fill below table and attach their data sheets or brochures.***

***2.1***

| ***Gantry type or Single column machine: 2000mm x 1700mm (Section 5.1)*** | |
|---|---|
| Is this type available? | **YES** ☐ Model name/No.:<br>**NO** ☐ |
| Standard price per unit | €<br>Pricing Condition (choose one)<br>☐ Turnkey basis, inclusive of all below<br>☐ Other (please specify, e.g. INCOTERMS EXW, etc) |
| Price Breakdown | **Please attach the quotation in your company's standard form where necessary.* |
| Machine | €<br>(Including packing for shipment) |
| Transport | €<br>(INCOTERMS2020-DAP ITER site basis) |
| Installation + Commissioning | € |
| Any other costs | €<br>(Please specify, if any) |
| Manufacture place | |
| Standard lead time | Machine manufacturing : months / weeks<br>Transport to ITER site : months / weeks (if available)<br>Installation at France : months / weeks<br>Commissioning : months / weeks |
| Data sheet or brochure | **YES** ☐ (Document number: )<br>**NO** ☐ please describe the specification of the machine by comparing section 5.1 of the technical specification.<br>- Longitudinal Travel (X Axis):<br>- Cross Travel (Y Axis):<br>- Vertical Travel (Z Axis):<br>- Machining head:<br>- Rapid Traverse Axis (X , Y, Z):<br>- Max. Working Feed:<br>- Direct Output Head Taper:<br>- Automatic Head Twist Taper: |

| | |
|---|---|
| | - Direct Output Head Speed:<br>- Automatic Head 45º Speed<br>- Main Motor Power:<br>- Speed Ranges:<br>- Positioning Accuracy:<br>- Repetitive Accuracy:<br>- Portable Handwheel:<br>- Carrying Load Table:<br>- CNC controller : |
| Standard / optional accessories or attachment, if any | |
| Warranty | Standard: years<br>Optional: years (if any, please specify) |
| Remarks / Others (if any) | |

***2.2***

| ***Gantry type or Column machine: 3000mm x 1700mm (Section 5.2)*** | |
|---|---|
| Is this type available? | **YES** ☐ Model name/No.:<br>**NO** ☐ |
| Standard price per unit | €<br>Pricing Condition (choose one)<br>☐ Turnkey basis, inclusive of all below<br>☐ Other (please specify, e.g. INCOTERMS EXW, etc) |
| Price Breakdown | **Please attach the quotation in your company's standard form where necessary.* |
| Machine | €<br>(Including packing for shipment) |
| Transport | €<br>(INCOTERMS2020-DAP ITER site basis) |
| Installation + Commissioning | € |
| Any other costs | €<br>(Please specify, if any) |
| Manufacture place | |
| Standard lead time | Machine manufacturing : months / weeks<br>Transport to ITER site : months / weeks (if available)<br>Installation at France : months / weeks<br>Commissioning : months / weeks |
| Data sheet or brochure | **YES** ☐ (Document number: )<br>**NO** ☐ please describe the specification of the machine by comparing section 5.2 of the technical specification. |
| Standard / optional accessories or attachment | (Please specify, if any) |
| Warranty | Standard: years<br>Optional: years (if any, please specify) |
| Remarks / Others (if any) | |

***2.3***

| ***Rotary index machine (1) (Section 5.3)*** | |
|---|---|
| Is this type available? | **YES** ☐ Model name/No.:<br>**NO** ☐ |
| Standard price per unit | €<br>Pricing Condition (choose one)<br>☐ Turnkey basis, inclusive of all below<br>☐ Other (please specify, e.g. INCOTERMS EXW, etc) |
| Price Breakdown | **Please attach the quotation in your company's standard form where necessary.* |
| Machine | €<br>(Including packing for shipment) |
| Transport | €<br>(INCOTERMS2020-DAP ITER site basis) |
| Installation + Commissioning | € |
| Any other costs | €<br>(Please specify, if any) |
| Manufacture place | |
| Standard lead time | Machine manufacturing : months / weeks<br>Transport to ITER site : months / weeks (if available)<br>Installation at France : months / weeks<br>Commissioning : months / weeks |
| Data sheet or brochure | **YES** ☐ (Document number: )<br>**NO** ☐ please describe the specification of the machine by comparing section 5.3 of the technical specification. |
| Standard / optional accessories or attachment | (Please specify, if any) |
| Warranty | Standard: years<br>Optional: years (if any, please specify) |
| Remarks / Others (if any) | |

*2.4*

| ***Rotary index machine (2) (Section 5.4)*** | |
|---|---|
| Is this type available? | **YES** ☐ Model name/No.:<br>**NO** ☐ |
| Standard price per unit | €<br>Pricing Condition (choose one)<br>☐ Turnkey basis, inclusive of all below<br>☐ Other (please specify, e.g. INCOTERMS EXW, etc) |
| Price Breakdown | **Please attach the quotation in your company's standard form where necessary.* |
| Machine | €<br>(Including packing for shipment) |
| Transport | €<br>(INCOTERMS2020-DAP ITER site basis) |
| Installation + Commissioning | € |
| Any other costs | €<br>(Please specify, if any) |
| Manufacture place | |
| Standard price per unit | €<br>Pricing Condition (choose one)<br>☐ Turnkey basis, inclusive of all below<br>☐ Other (please specify, e.g. INCOTERMS EXW, etc) |
| Data sheet or brochure | **YES** ☐ (Document number: )<br>**NO** ☐ please describe the specification of the machine by comparing section 5.4 of the technical specification. |
| Standard / optional accessories or attachment | (Please specify, if any) |
| Warranty | Standard: years<br>Optional: years (if any, please specify) |
| Remarks / Others (if any) | |

## 3. Survey – Commercial Conditions

***3.1 The work process requiring the milling machines subject to this Market Survey is scheduled to commence in July 2026. Please inform us the latest possible date for placing the purchase order to meet this schedule.***

| |
|---|
| |

***3.2 The IO is planning to purchase multiple numbers/types of machines (three or four). Will there be any prospective benefits or advantages in case of multiple purchase? Please specify.***

| |
|---|
| ***Commercial:***<br>*(e.g. Discount, Optional services for free of charge, etc.)* |
| ***Schedule:***<br>*(e.g. Manufacture in priority, short lead time, etc.)* |
| ***Other:*** |

## 4. General Comments

***If you have any comments, questions, or technical/commercial concerns about this procurement, please specify.***

| |
|---|
| |

=End=

Thank you very much for your cooperation!