



## Purchase Contract

entered into pursuant to Section 2079 et seq. of Act No. 89/2012 Coll., the Civil Code (hereinafter the "Civil Code")

### I. CONTRACTUAL PARTIES:

#### 1. Buyer:

**Fyzikální ústav AV ČR, v. v. i.**

*(Institute of Physics of the Czech Academy of Sciences, public research institution)*

with its registered office at Na Slovance 2, ZIP 182 21 Praha 8

represented by: RNDr. Michael Prouza, Ph.D. - Director

registered in the register of public research institutions of the Ministry of Education, Youth and Sports of the Czech Republic

Id. No.: 68378271

(hereinafter the "Buyer")

and

#### 2. **STREICHER, spol. s r.o. Plzeň**

with its registered office at Plzeňská 565, 332 09 Štěnovice

represented by: Dr. Jiří Lopata - CEO

Id. No.: 14706768

enrolled in the commercial register kept by the Regional Court in Plzeň, item C, File No. 301

(Hereinafter the "Seller"; the Buyer and the Seller are hereinafter jointly referred to as the "Parties" and each of them individually as a "Party").

enter, on the present day, month and year, into this Purchase Contract (hereinafter the "Contract").

### II. INTRODUCTORY PROVISIONS:

The Seller has been selected as the winner of a public contract awarding procedure announced by the Buyer for the public contract called "**Vacuum chamber of the chirped mirror compressor TP22\_012**" (hereafter the "**Tender Procedure**").

The public contract is funded from the Operational Programme Research, Development and Education managed by the Czech Ministry of Education, Youth and Sports.

### III. SUBJECT-MATTER OF THE CONTRACT:

The Seller shall in return for the purchase price stipulated below design (the final production design based on the advanced conceptual design provided by the Buyer), manufacture, final clean, test and deliver to the Buyer the chirped mirror compressor chamber specified in detail herein (including all relating required services) (hereafter the "**Chamber**") and the Buyer shall take over the Chamber, all in accordance with the terms and conditions hereof. The Chamber and related services shall comply with the Annex No 1 hereto Technical Specification.



Furthermore, the Seller shall properly take into account Operating Instructions of the ATH 1603 DN250 Y2662100 turbomolecular pump in order to secure full compatibility of the Chamber with this pump already owned by the Buyer. The Operating Instructions have already been provided to the Seller within the Tender Procedure.

#### **IV. OWNERSHIP TITLE:**

The ownership right to the Chamber passes to the Buyer upon execution of the Acceptance protocol by the Buyer.

#### **V. PHASING OF THE DELIVERY, DEADLINES, PARTIES' DUTIES:**

1. Phasing of the delivery is described in Annex No 1 hereto Technical Specification.
2. The Seller shall **design, manufacture and deliver the Chamber to the place of delivery (including relating activities) within the time schedule stipulated in Art. 7.2.2.** of Annex No 1 hereto Technical Specification.
3. Where anything in this Contract is subject to approval of the Buyer, the Buyer shall not refuse its approval without stipulating technically justified grounds for the refusal. No approval provided by the Buyer under this Contract releases the Seller from the liability for compliance of the Chamber with this Contract.

#### **VI. PURCHASE PRICE AND PAYMENT TERMS**

1. The purchase price for the Chamber is **3 580 000 CZK** without value added tax (hereinafter the "**Purchase Price**").
2. The value added tax shall be paid according to the applicable law or international agreements.
3. The Purchase Price is the maximum price for performing this Contract that cannot be exceeded. The Purchase Price includes all costs related to the performance of the Contract, including the cost of transport of the Chamber to the place of delivery, customs (if applicable), licenses and fees, etc. The Purchase Price is fixed and shall not be changed regardless of the changes of subsupplier prices or changes in the foreign exchange rates. The Purchase price may be modified only in compliance with the public procurement legal rules.
4. The Purchase Price shall be paid by the Buyer in the following instalments:
  - a) The Seller is entitled to invoice 25% of the Purchase Price after approval by the Buyer of the manufacturing drawings (Deliverable T3);
  - b) The Seller is entitled to invoice 75% of the Purchase Price after execution of the Acceptance protocol (as defined below) by the Buyer.
5. The Purchase Price for the Chamber shall be paid on the basis of tax documents – invoices, to the account of the Seller specified in the invoice. The invoices shall have only the electronic form and shall be submitted to the email address: [efaktury@fzu.cz](mailto:efaktury@fzu.cz).
6. The invoiced amount is due in thirty (30) days of the date of delivery of the invoice to the Buyer. If the invoice stipulates different due period such period is deemed irrelevant and the period stipulated herein applies. Payment of the invoiced amount means the date of its remitting to the



Seller's account. Any invoice shall have the properties of a tax document under the applicable Czech laws. The Buyer shall advise the Seller on the proper contents of the invoice in advance if needed. Furthermore, the invoice shall state the following:

- the registration number of this Contract, which the Buyer shall communicate to the Seller at his request before the invoice is issued
- declaration that the taxable performance was provided for the purposes of "Advanced Research Using High Intensity Laser Produced Photons and Particles" project, reg. No. CZ.02.1.01/0.0/0.0/16\_019/0000789 or any other project in accordance with instructions provided by the Buyer in advance

and must also comply with any double taxation treaties applicable to the given case.

#### **VII. PLACE OF DELIVERY**

The place of delivery is the ELI Beamlines research centre, Za Radnicí 836, ZIP 252 41, Dolní Břežany, the Czech Republic.

#### **VIII. ACCEPTANCE OF THE CHAMBER**

1. The Chamber shall be accepted by the Buyer in the place of delivery on the basis of an acceptance protocol if the Chamber complies with this Contract, all required activities are completed and all required documentation and information is provided by the Seller.
2. The acceptance protocol shall contain the following information:
  - identification of the Seller
  - identification of the Chamber
  - a list of defects and deficiencies of the Chamber, if there are any, and the deadlines for their removal, if the Buyer decides to accept the Chamber despite having defects
  - the signature of the Buyer and the date of acceptance(hereinafter the "**Acceptance protocol**").
3. The Buyer may but is not obliged to accept the Chamber with defects or deficiencies, particularly if the defects or deficiencies do not prevent the Buyer from using the Chamber for intended use. Should the Buyer accept the Chamber with defects or deficiencies, the Buyer shall list these in the Acceptance protocol, including the manner and agreed deadline for their removal. Should the Parties not agree on the deadline for the removal of any defect or deficiency in the Acceptance protocol, then those must be removed within 30 days from the date of the acceptance.

#### **IX. WARRANTY**

1. The Seller hereby provides the warranty of quality for the Chamber of 2 years from the date of acceptance of the Chamber. Should any documentation related to the Chamber provided by the Seller indicate any longer warranty of the Chamber or any its part, such longer warranty applies.
2. The warranty period shall commence on the date of the execution of the Acceptance protocol. However, if the Chamber is taken over with defects or deficiencies, the warranty period shall



commence on the date of the removal of the last defect or deficiency by the Seller.

3. The Buyer shall raise a claim for removal of a defect of the Chamber without undue delay after detecting the defect, but not later than on the last day of the warranty period, by means of a written notice to the Seller's email address for claims notification set out herein (hereinafter the „**Warranty claim**“). Warranty Claim sent by the Buyer on the last day of the warranty period shall be deemed to have been made in time.
4. In the Warranty claim, the Buyer shall describe the defect and suggest the manner in which the defect is to be removed. The Buyer is entitled to decide on the manner of removal of the defect by the following means:
  - the removal of a defect by the delivery of a substitute Chamber or any its part, or
  - the repair of the defect, or
  - provision of an appropriate discount on the Purchase Price (especially in case of minor or irremovable defects).

The Buyer shall not require the removal of a defect by the delivery of a substitute Chamber or any its part in case of defects removable by repair unless the same defect occurs more than once.

5. The Seller agrees to remove the defects of the Chamber free of charge. If the removal of a defect of the Chamber requires transport of the Chamber to the Seller's place, the Seller shall pay the transport costs there and back.
6. Defects must be removed within the period of 30 days from the date, on which the Warranty claim was notified to the Seller unless the Buyer and the Seller agree on another term. The Buyer shall agree on a longer term if the Seller proves that the period of 30 days is unfeasible for reasons not given on the side of the Seller (e.g. the subsuppliers' delivery terms).
7. The Seller shall remove defects of the Chamber within periods stated in the Contract also in the instances when the Seller is of the opinion that it is not liable for such defects. In case the Seller will not accept the defect and the Buyer will not agree with such conclusion, the validity of the Warranty claim shall be ascertained by an expert, which is to be selected by the Buyer but on which the Seller also must agree. In the event the expert declares the Warranty claim as justified, the Seller shall bear the costs of the expert's assessment. If the Warranty claim is raised unjustly (according to expert's assessment), the Buyer shall reimburse the Seller all reasonably incurred costs associated with removing the defect.
8. The Parties shall execute a record on the removal of any defect, in which they shall confirm that the defect was removed. The warranty period of the Chamber shall extend by the time that expires from the date of exercising the Warranty claim until a defect is removed if the defect prevented the Buyer from using the Chamber for intended use.
9. In case the Seller fails to remove the defect within the time period set out in the Contract, or within other period as may be agreed by the Parties, or in case the Seller refuses to remedy the defect, the



Buyer shall be entitled to have the defect removed at its own cost by a third party, and the Seller shall be obliged to compensate the Buyer for all reasonably incurred costs associated with removing the defect within 30 days of the Buyer's request to do so. Under the condition that the repair was professionally done, the scope and length of the warranty remains unaffected by the defect removal by the third party.

10. The warranty shall not cover defects caused by unprofessional handling, non-compliance with the Seller's written instructions for operation and maintenance of the Chamber. The warranty shall also not apply to defects caused by intentional conduct.
11. This email address [krch@streicher-machinery.cz](mailto:krch@streicher-machinery.cz) serves as a defect notification address.

#### **X. CONTRACTUAL PENALTIES**

1. If the Seller is in delay with due completion of the Deliverable T6 (Final issue of the VCD and TR), the Seller shall pay to the Buyer the contractual penalty in the amount of 0.1% of the Purchase Price without VAT for each, even commenced day of delay.
2. Total amount of the contractual penalty for delay with the completion of Deliverable T6 shall not exceed 5% of the Purchase Price.
3. If the Seller fails to remove a defect within the periods stipulated in the Contract, the Seller shall pay to the Buyer a contractual penalty in the amount of 15 EUR for each defect and for each day of delay.
4. No delay penalty may be requested by the Buyer if a delay on the side of the Seller is caused by documented impact(s) of the covid-19 pandemic or of the war in Ukraine on the Seller and the respective obstacle could have been overcome only with unreasonable costs or efforts.
5. If the Buyer fails to pay the Purchase Price within the deadlines set out in this Contract, the Buyer shall pay the Seller interest on delay in the amount set forth by the applicable law for each day of delay.
6. The obliged Party must pay any contractual penalties/ interests to the entitled Party not later than within 15 calendar days of the date of receipt of the relevant claim from the entitled party.

#### **XI. TERMINATION OF THE CONTRACT, VIS MAJOR**

1. This Contract may be terminated by agreement of the Parties or by withdrawal from the Contract on the grounds stipulated by law or by the Contract.
2. The Buyer is entitled to withdraw from the Contract without any penalty if any of the following events occur:
  - i) the Seller has materially breached the obligations imposed on it by the Contract, especially a) by being in delay with meeting any deadline hereof for more than 2 months, b) the Chamber is defective and such defect is not removed within 3 months from notifying the Seller of such fact, or c) the same defect that prevents the Buyer from using the Chamber for



- intended use occurs more than two times;
- ii) insolvency proceedings are initiated against the Seller's assets,
  - iii) should it become apparent that the Seller provided information or documents in the Seller's bid, which are not true and which could have influenced the award of this Contract to the Seller.
3. The Seller is entitled to withdraw from the Contract in the event of material breach of the Contract by the Buyer, especially by delay with due payment of any instalment of the Purchase Price longer than 3 months.

#### Vis major circumstances

4. Circumstances constituting vis major shall be constituted by such circumstances / obstacles which arose independently of the will of the obliged Party, and which prevent fulfilment of that Party's obligation, provided that it could not be reasonably expected that the obliged Party could overcome or avert this obstacle or its consequences, and furthermore that such Party could foresee such obstacle when it entered into the respective covenants. Vis major shall not be constituted by obstacles that arose only after the obliged Party was in default with fulfilment of its obligations, or which arose in connection with its economic situation.

Any particular effects or impacts on the Seller or his performance under this Contract of the Covid-19 epidemic or of the war in Ukraine that meet the conditions above will be considered as a vis major cases despite the fact of the existence of the epidemic and the war on the date of the signature of this Contract.

5. Should a situation occur, which a Party could reasonably consider to constitute vis major, and which could affect fulfilment of its obligations hereunder, such Party shall as soon as possible notify the other Party and attempt to continue in its performance hereunder in a reasonable degree. Simultaneously, such Party shall inform the other of any and all its proposals, including alternative modes of performance, however, without consent of the other Party, it shall not proceed to effect such alternative performance.
6. If a situation constituting vis major occurs, the deadlines imposed hereunder shall be extended by the period of the documented duration of the said vis major. The obliged Party shall properly document to the other Party the start and the finish of the vis major period.

#### **XII. REPRESENTATIVES OF THE PARTIES**

1. The Buyer has appointed the following authorised representative for communication with the Seller in relation to this Contract:

Ing. Pavel Bakule, DPhil., email: [Pavel.Bakule@eli-beams.eu](mailto:Pavel.Bakule@eli-beams.eu), +420 266 051 340

2. The Seller has appointed the following authorised representative for communication with the Buyer



in relation to this Contract:

Ing. Václav Krch, email: [krch@streicher-machinery.cz](mailto:krch@streicher-machinery.cz), Phone: + 420 377 150 177

### **XIII. CHOICE OF LAW**

1. This Contract and all the legal relationships arising out of it shall be governed by the laws of the Czech Republic.
2. Any disputes arising out of this Contract or legal relationships connected with the Contract shall be resolved by the Parties amicably. In the event that a dispute cannot be resolved amicably within sixty (60) days, the dispute shall be resolved by the competent court in the Czech Republic based on an action filed by any of the Parties.

### **XIV. SOCIAL, ECOLOGICAL AND INNOVATIVE ASPECTS**

The Buyer aims to conclude contracts with Sellers that take into account and implement the principles of social responsibility, ecological sustainability and innovation. Therefore, the Seller shall ensure that:

- a) this Contract is performed only by persons that are employed in accordance with the applicable legal regulations (no illegal or child workers);
- b) while performing this Contract, all applicable health and safety regulations and rules at work place are observed;
- c) all persons performing this Contract are employed under fair and non-discriminatory working conditions;
- d) if presented with different manners of fulfilling this Contract, the Seller shall select the solution/process that is in accordance with the principles governing nature conservation and nature protection, ecological sustainability and ecological waste management; and
- e) if presented with different manners of fulfilling this Contract, the Seller shall select the solution/process that is the most innovative.

### **XV. ASSIGNMENT**

1. The Seller shall not be entitled to assign any rights or obligations arising in connection herewith to a third party.
2. The Buyer makes the Seller aware that the Buyer is going with anticipated effect as of 1.1.2023 to transfer the ELI Beamlines research facility (now owned and operated by the Buyer) for construction and operation of which is the supply under this Contract being agreed to to the Extreme Light Infrastructure ERIC (ELI ERIC). The ELI ERIC is a legal person set up under the Regulation (EC) No 723/2009 and it is the future long term owner and operator of the ELI Beamlines facility. The Seller by entering this Contract agrees to the assignment of all rights and obligations from this Contract to ELI ERIC. The Buyer shall inform the Seller on the completed assignment without undue delay and the assignment shall become effective at the moment of its notification to the Seller. The supply supplied under this Contract will be used exclusively in the ELI Beamlines facility.



## **XVI. RESERVED CHANGES IN OBLIGATION**

### **Material costs development**

Should the actual price of the identified categories of the raw material needed to manufacture the Chamber at the moment of purchase increase or decrease by more than 10 % with respect to their price considered in the bid of the Seller submitted within the Tender Procedure (hereinafter the “**Bid**”), the Seller and the Buyer shall proceed in compliance with the below-stated rules.

The Seller shall make all reasonable efforts to secure as low as possible price made possible by the overall behaviour of the market for designated raw material.

Regarding the categories of stainless steel as specified in the Bid, the Seller shall inform the Buyer, without undue delay, on selection of the suppliers (sub-contractors) for each purchase, with justification of the selection. The justification shall be based on a competitive tender (documented especially by relevant price enquiries sent to more suppliers), and shall use the criterion of the most economically advantageous tender to select the supplier (sub-contractor).

### **Price increase**

Should the actual unit price of the identified categories of raw materials, as mentioned above and for the maximum total extent specified in the Bid, at the moment of purchase for fulfilment of this Contract increase by more than 10 % with respect to their price considered in the Bid, the Seller is entitled to ask the Buyer for compensation of the extra costs incurred, in the amount above the price level considered in the Bid.

Should the following conditions:

- a) the increased price is documented by the outputs of the competitive tender;
- and
- b) the difference between the unit price in the Bid and the actual purchase price is consistent with the overall behaviour of the market for the respective material in the relevant timeframe (using the indexes published by the London Metal Exchange (<https://www.lme.com/>));

be met, the Buyer shall agree with the Seller on corresponding increase of the prices of the raw material.

Due to the budgetary limitations of the Buyer, the total permitted price increase of the raw materials under this clause is limited to 500 000 CZK (or to an equivalent of this amount in the currency of the actual purchase).

Should the Client have doubts regarding the cost figures of the raw materials presented by the Seller, it is entitled to refuse any such price increase.

### **Price decrease**

Should, based on the competitive tender, the actual unit price of the identified categories of raw materials, as mentioned above and for the total expected extent specified in the Bid, decrease by more





than 10 % with respect to their price considered in the Bid, the Purchase Price shall be decreased by the corresponding amount (in the amount with respect to the price level considered in the bid).

The Purchase Price invoiced by the Supplier shall in such case be decreased by the financial amount saved.

### **Joint provisions**

Agreements or understandings between the Parties needed to implement the reserved changes in obligation above shall be made in written, however, they do not need to take the form of an amendment to this Contract.

### **XVII. FINAL PROVISIONS**

1. The Contract with all annexes represents the entire and complete agreement between the Buyer and the Seller.
2. The Buyer is entitled to set off any even yet undue of its financial claims towards the Seller against any financial claim of the Seller (e.g. the claim for the Purchase Price payment).
3. In the event that any of the provisions of this contract shall later be shown or determined to be invalid, putative, ineffective or unenforceable, then such invalidity, putativeness, ineffectiveness or unenforceability shall not cause invalidity, putativeness, ineffectiveness or unenforceability of the Contract as a whole. In such event the Parties undertake without undue delay to subsequently clarify any such provision or to replace after mutual agreement such invalid, putative, ineffective or unenforceable provision of the Contract by a new provision, that in the extent permitted by the laws and regulations of the Czech Republic, relates as closely as possible to the intentions of the Parties to the Contract at the time of entering hereto.
4. This Contract is subject to mandatory publication according to the applicable Czech law.
5. This Contract becomes valid as of the day of its execution by the authorised persons of both Parties.
6. This Contract may be changed or supplemented solely in writing.
7. The following Annexes form an integral part of the Contract:
  - Annex No. 1: Technical Specification
  - Annex No. 2: Qualification PrerequisitesIn case of any discrepancies between this Contract and its Annex 1, the provisions of this Contract shall prevail.
8. The Parties, manifesting their consent with the entire the Contract, affix their signatures below.



EUROPEAN UNION  
European Structural and Investing Funds  
Operational Programme Research,  
Development and Education



MINISTRY OF EDUCATION,  
YOUTH AND SPORTS

Seller:

Buyer:

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Name: Dr. Jiří Lopata

Position: CEO

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Name: RNDr. Michael Prouza, Ph.D.

Position: Director



EUROPEAN UNION  
European Structural and Investing Funds  
Operational Programme Research,  
Development and Education



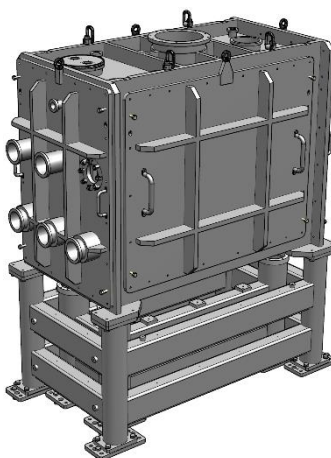
MINISTRY OF EDUCATION,  
YOUTH AND SPORTS

## Annex 1 Technical Specification

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[RSD for the category "C" of the product]

## ***Vacuum chamber of the chirped mirror compressor TP22\_012***



### **Keywords**

vacuum chamber, L1, CMC

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## 1. Introduction

### 1.1. Purpose

The CA is undertaking the ELI project with the objective of building a facility using cutting-edge laser technologies and to implement research and application projects in the field of laser-matter interaction using ultra-short laser pulses at high repetition rates and/or with high energy. Part of the project realization is the construction of the chirped mirror compressor (CMC) for L1-FSYNC laser system. The compressor is housed in the vacuum chamber that is the subject of this public tender procedure.

### 1.2. Scope of Work

The scope of work includes final production design (manufacturing drawings), manufacturing, final cleaning, leak testing, packaging and delivery to ELI Beamlines of the following:

- **CMC vacuum chamber with blank flanges**
- **CMC chamber support frame assembly with baseplates**
- **Optomechanics support frame assembly with baseplates**
- **Door Weldment for injector vacuum chamber**

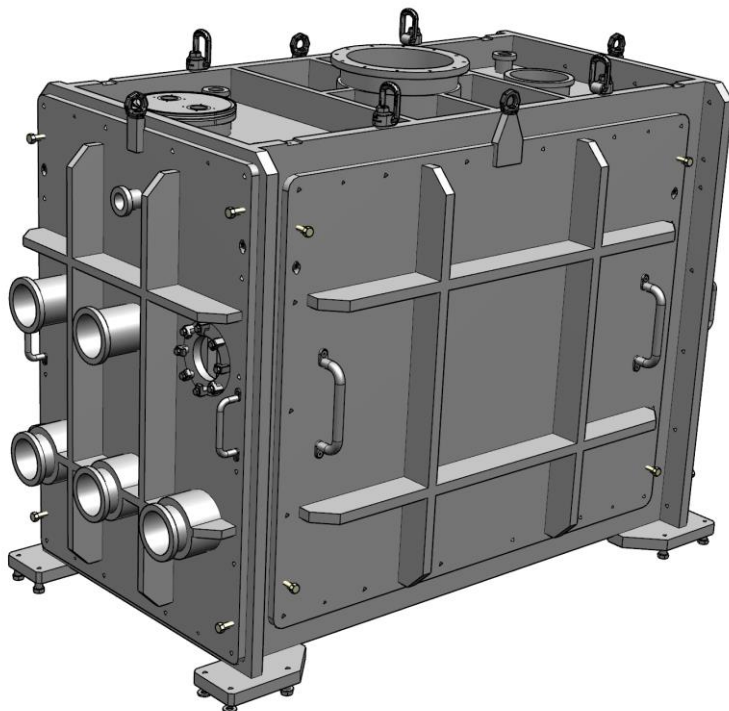
Included in the scope of work and delivery are the blank flanges, fluoroelastomer O-rings, centring rings and clamps necessary for vacuum testing of the CMC chamber.

*NOTE: The turbomolecular vacuum pump and anchoring rods for support frames are not part of the delivery.* On-site installation is not required with this delivery.

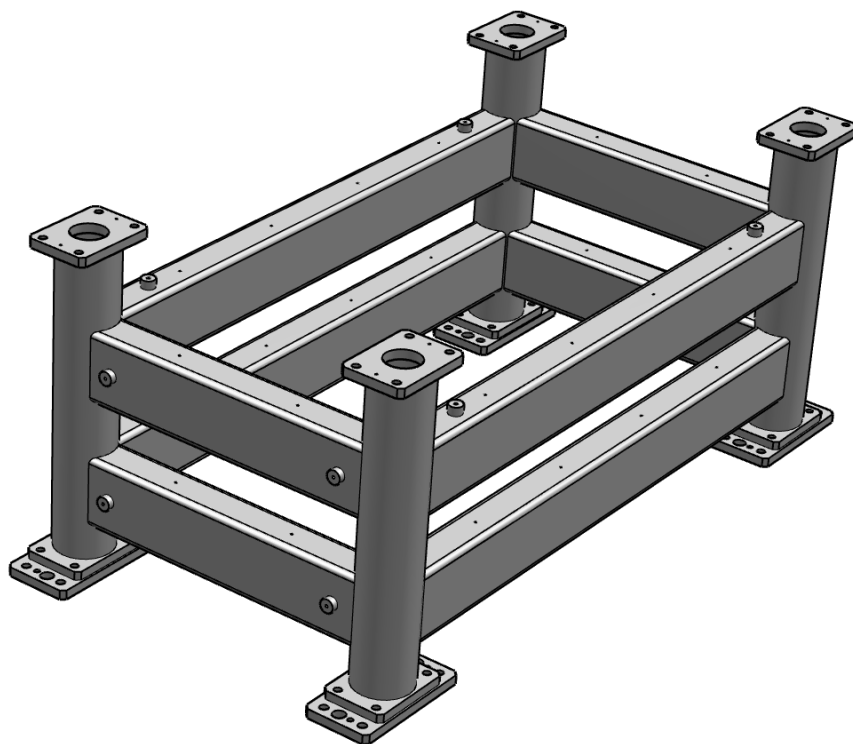
The Supplier shall develop the advanced conceptual design provided by CA into detail design and subsequently prepare manufacture documentation. The CA will provide detailed 3D model with the conceptual design to the Supplier after the contract signature.

The CMC chamber will be mounted on the CMC chamber support that will be anchored to the concrete floor with M16 rods as shown in the drawing 00326644/00 (see Chapter 8). Turbomolecular pump (PFEIFFER ATH 1603 DN250 Y2662100 - already owned by the CA) will be mounted on central top flange of the chamber. The Supplier will analyze the stiffness of the assembly and its capability to safely withstand torques from the pump in case of pump failure. The manual of the pump is attached.

The conceptual 3D models of the assemblies to be manufactured are shown in Figure 1, Figure 2, Figure 3 and Figure 4 respectively.

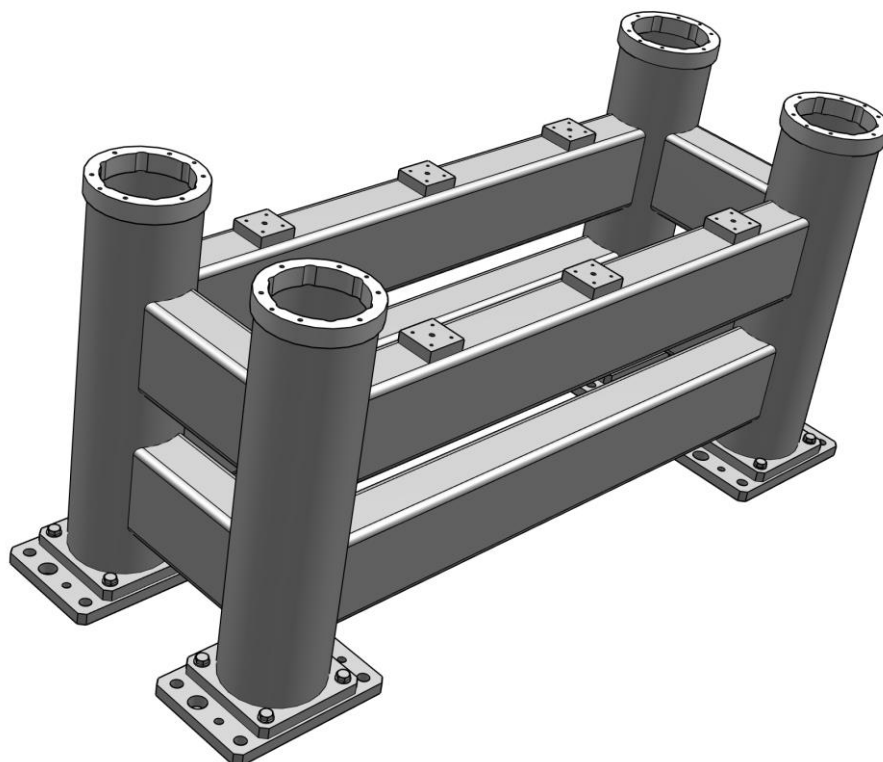


**Figure 1: Conceptual model of CMC vacuum chamber**

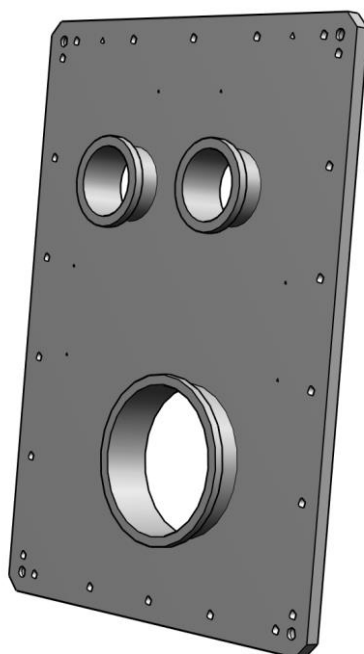


**Figure 2: Conceptual model of CMC chamber support frame assembly with baseplates**





**Figure 3: Conceptual model of the optomechanics support frame assembly**



**Figure 4: Model of the Door Weldment for injector vacuum chamber**

### 1.3. Terms, Definitions and Abbreviations

For the purpose of this document, the following abbreviated terms are applied:

Abbreviation	Meaning
A	Analysis (as a verification method)
AMU	Atomic mass unit
CA	Contracting Authority
CPR	Cleaning Procedure Report
CTR	Cleanliness test report
DIR	Delivery Inspection Report
DVR	Dimension Verification Report
ELI	Extreme Light Infrastructure
FEM	Final Element Method analysis
I	Inspection (as a verification method)
IMP	Inspection of manufacturer's premises (if requested by the CA)
MDR	Manufacturing Drawings Report
PBS	Product breakdown structure (code of ELI-Beamlines)
R	Review (as a verification method)
RSD	Requirements Specification Document
RGA	Residual gas analysis
T	Test (as a verification method)
TR	Technical report
ULO	Ultra-low outgassing
VCD	Verification Control Document
VTR	Vacuum Leak Test Report

### 1.4. References to standards

If this document includes references to standards or standardized/ standardizing technical documents the CA allows/permits also another equal solution to be offered. If the Supplier offers another equal solution the CA shall not reject its bid, once the Supplier by appropriate means in the bid proves that the offered supplies, services or works meet in an equivalent manner the requirements including references to standards or technical documents.

ISO number	Name of standard
EN ISO 9001	Quality management
ISO 1609:1986	Vacuum technology - Flange dimension
ISO 2861:2013	Vacuum technology - Dimensions of clamped - type quick-release couplings
ČSN EN ISO 5817	Welding - Welded joints of steel, nickel, titanium and their alloys made by fusion welding (excluding electron beam and laser welding)

ISO 9606-1 EN 287-1	Qualification test of welders
EN ISO 14 731	Welding supervision
EN ISO 14 732	Welding staff
EN 1779	Leak detection method classification
ČSN EN ISO 14644	Clean rooms and associated controlled environments

## 2. Flange schedule and tolerances

The vacuum flanges are classified in the following way:

**AA.nn**

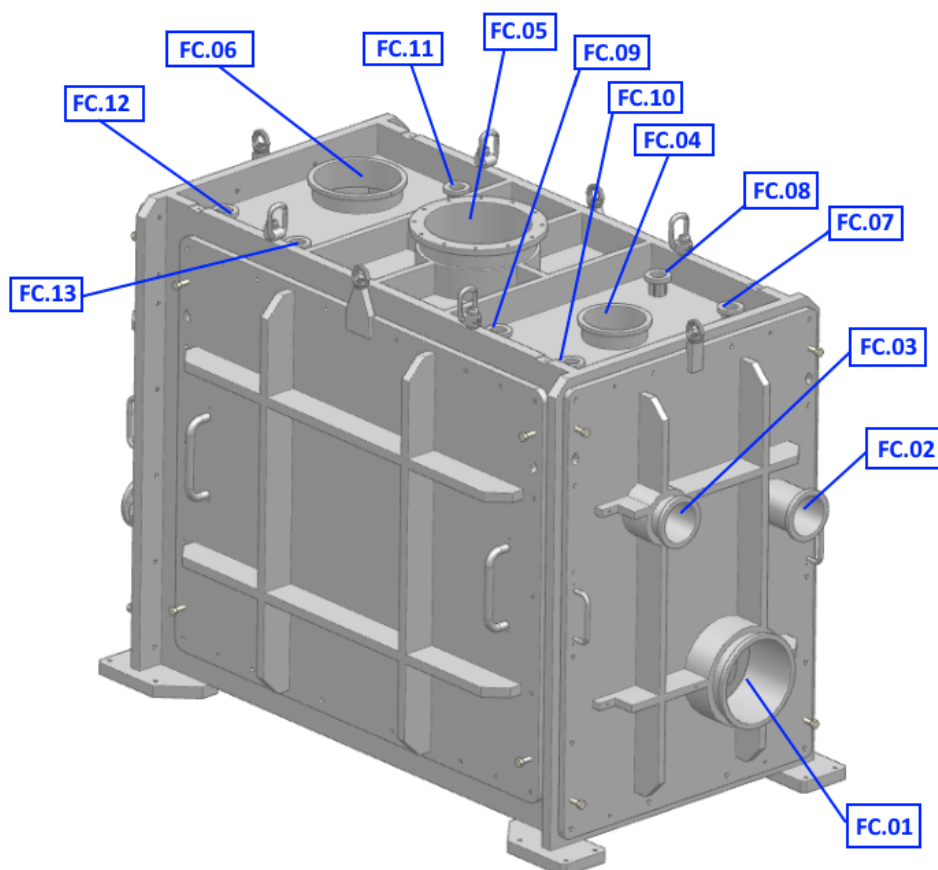
where

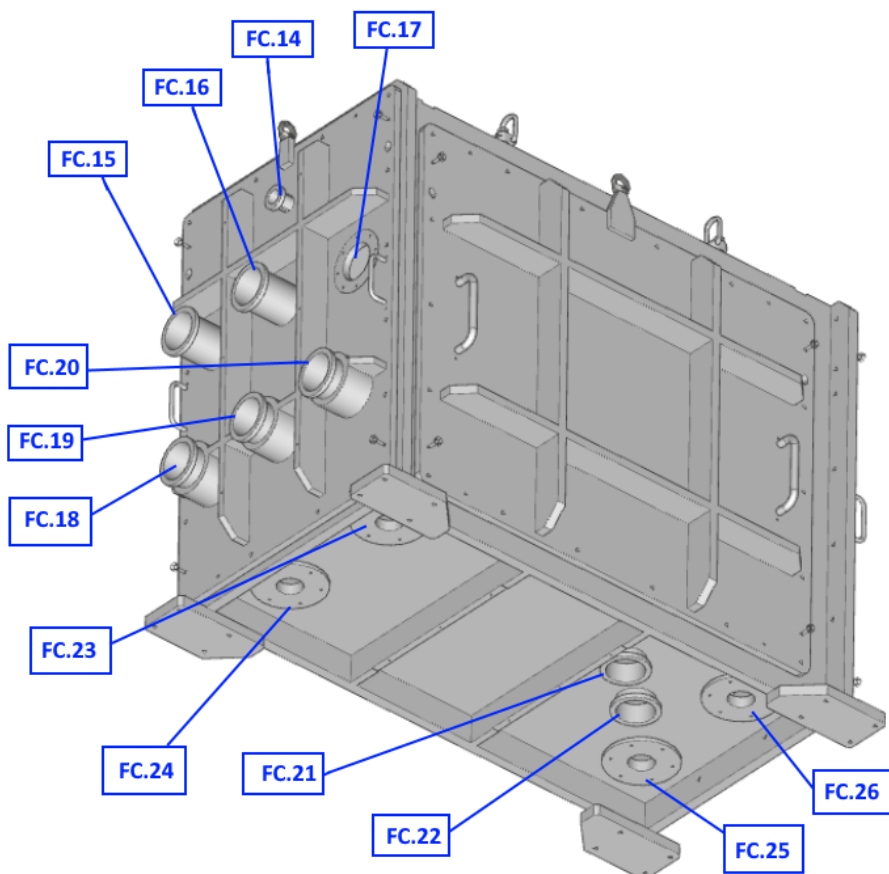
**AA** ..... Chamber reference:

FC – Fsync compressor chamber

IN – Injector (Injector door)

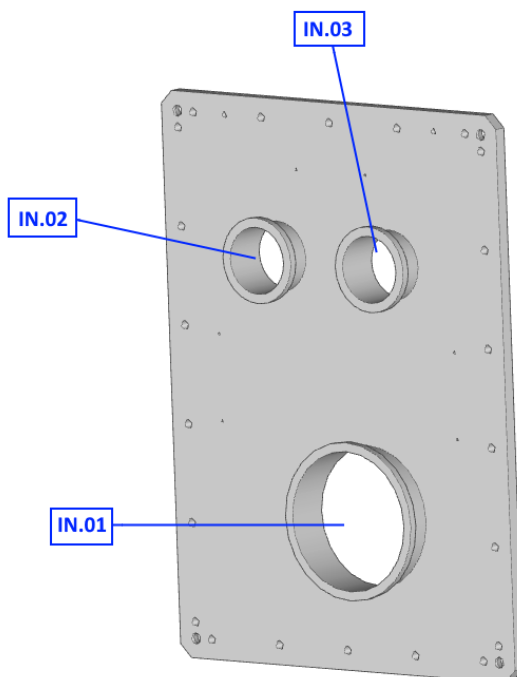
**nn** ..... Flange number





Flange	Size	Position / Purpose	Minimum number of clamps supplied	Note
FC.01	DN200 ISO-K	Pipe connection to IN.01	8	Cover with blank
FC.02	DN100 ISO-K	Pipe connection to IN.02	4	Cover with blank
FC.03	DN100 ISO-K		4	Cover with blank
FC.04	DN160 ISO-K		6	Cover with blank
FC.05	DN250 ISO-F	Turbopump Pfeiffer ATH 1603 DN250	NA	Cover with blank
FC.06	DN200 ISO-K		8	Cover with blank
FC.07	DN40 ISO-KF		1	Cover with blank
FC.08	DN40 ISO-KF		1	Cover with blank
FC.09	DN40 ISO-KF		1	Cover with blank
FC.10	DN40 ISO-KF		1	Cover with blank
FC.11	DN40 ISO-KF		1	Cover with blank
FC.12	DN40 ISO-KF		1	Cover with blank
FC.13	DN40 ISO-KF		1	Cover with blank
FC.14	DN40 ISO-KF		1	Cover with blank
FC.15	DN100 ISO-K		4	Cover with blank
FC.16	DN100 ISO-K		4	Cover with blank

FC.17	DN100 ISO-K		4	Cover with blank
FC.18	DN100 ISO-K		4	Cover with blank
FC.19	DN100 ISO-K		4	Cover with blank
FC.20	DN100 ISO-K		4	Cover with blank
FC.21	DN100 ISO-K		4	Cover with blank
FC.22	DN100 ISO-K		4	Cover with blank
FC.23	Special (see drawings)	Support leg feedthrough	6	Cover with blank
FC.24	Special (see drawings)	Support leg feedthrough	6	Cover with blank
FC.25	Special (see drawings)	Support leg feedthrough	6	Cover with blank
FC.26	Special (see drawings)	Support leg feedthrough	6	Cover with blank



Flange	Size	Position / Purpose	Note
IN.01	DN200 ISO-K	Pipe connection to FC.01	No blank flange
IN.02	DN100 ISO-K	Pipe connection to FC.02	No blank flange
IN.03	DN100 ISO-K		No blank flange

## 3. Functional, Performance and Design requirements

### 3.1. General Requirements

#### REQ-033990/A

The Supplier shall manufacture and deliver to ELI Beamlines all assemblies and components listed in **the Scope of Work** (Chapter 1.2.) with dimensions and parameters defined in this RSD and in the associated drawings and 3D models.

*NOTE: The detailed 3D models of the chambers will be given to the Supplier after the contract signature.*

---

Verification method: I – inspection (tracked in Delivery Inspection Report)

#### REQ-033991/A

As part of the preparation of manufacturing drawings the Supplier shall perform FEM analysis of the chamber deformations due to atmospheric pressure differential and show that the design is consistent with REQ-034002/A. The Supplier shall provide **FEM analysis summary report (FEM)** – see REQ-034050/A.

---

Verification method: R - review of report (FEM)

#### REQ-033992/A

All parts heavier than 15 kg shall be supplied with lifting eyes to aid safe installation.

---

Verification method: I – inspection (tracked in Delivery Inspection Report)

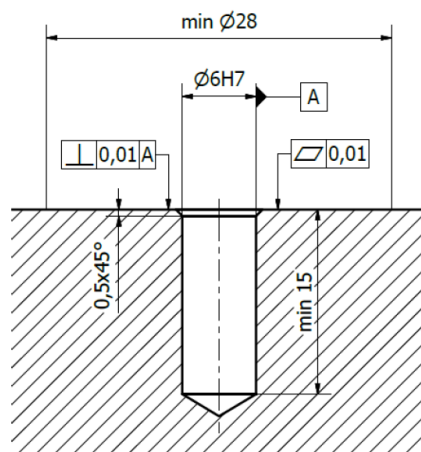
#### REQ-033993/A

The support frames and the CMC vacuum chamber body shall each be delivered with alignment reference holes - see Reference drawings 00326345/00, 00326350/00 and 00317925/00.

*NOTE 1: Flat contact surface of 28 mm diameter shall be available around the hole.*

---

Verification method: I – inspection



**Figure 4: Reference hole: Diameter 6H7 hole, 28 mm contact surface, 15 mm depth.**

**REQ-033994/A**

The surface finish of all components shall be as specified in the drawings supplied by the CA. Where this is not specified then surface finish of any vacuum side surfaces shall have roughness better than Ra 0,8  $\mu\text{m}$ .

**If grinding is used to achieve this finish**, the following rules shall apply:

- prior the grinding the cleaning procedure involving degreasing, rinsing and drying, described in REQ-034017/A (for stainless steel) shall be used.
- the grinding process shall not involve any abrasive paste or abrasive medium that can embed into the surface.

*NOTE: The cleaning procedure described in REQ-034017/A can be complemented by laser cleaning done before the grinding. Details shall be approved in writing by the CA before such procedure is applied.*

---

Verification method: R-review (of manufacturing drawings), I-inspection (on delivery of finished chamber)

## 3.2. Manufacturing drawings

### REQ-033995/A

The Supplier shall prepare and supply manufacturing drawings in \*.pdf format and one of the following file formats:

- Native data \*.prt for NX version 1934 or older;
- Native data \*.idw for Autodesk Inventor version 2020 or older;
- \*.dwg.

---

Verification method: R – review (*of manufacturing drawings*)

### REQ-033996/A

The Supplier shall prepare and supply an updated 3D model of the supplied parts and assemblies in one of the following formats:

- Native data NX \*.prt for NX version 1934 or older.
- Native data \*.ipt, \*.iam for Autodesk Inventor version 2020 or older;
- Universal format: Parasolid \*.x\_t, or step \*.STP

---

Verification method: R – review (tracked in Delivery Inspection Report)

### REQ-033997/A

The manufacturing drawings shall be based on the 3D model supplied by the CA within the time limit specified in Table 1 (see section 6.2.2).

*NOTE: The conceptual design will be provided in CAD .stp file format, or if requested by the Supplier, it can be provided in Native Autodesk Inventor file formats (\*.ipt, \*.iam).*

---

Verification method: R - review (*of manufacturing drawings*)

### REQ-033998/A

Any dimensional or design modifications that may arise as part of detailed manufacturing design shall be consulted with and approved by the CA.

---

Verification method: R - review (*of manufacturing drawings*)

### REQ-033999/A

The final manufacturing drawings shall be approved by the CA before commencement of manufacturing.

---

Verification method: R - review (*of manufacturing drawings*)



**REQ-034000/A**

If at any stage of the design or manufacturing it is clear to the Supplier that an advantage could be gained by a modification of the original design then the Supplier shall bring it to the attention of the CA.

---

Verification method: R - review (*of manufacturing drawings*)

**REQ-034001/A**

Precautions shall be taken in design of vacuum components to avoid trapped volumes in vacuum spaces which could result in virtual leaks and these spaces shall be suitably vented.

---

Verification method: R – review (*of manufacturing drawings*)

### 3.3. Vacuum components manufacturing

**REQ-034002/A**

Maximal deformations of the chamber's walls under vacuum shall be lower than 1 mm in comparison to the vented status.

---

Verification method: A – analysis, R – review (*of manufacturing drawings*)

**REQ-034003/A**

The assembly shall be designed and manufactured for operation at vacuum level better than 1E-6 mbar.

---

Verification method: R – review

**REQ-034004/A**

The materials used for manufacture shall be as specified on the drawings.

*NOTE: Material change is possible if agreed by the CA.*

---

Verification method: R – review, TR - Technical report for the manufactured products

**REQ-034005/A**

Assembly and packaging of vacuum parts shall take place under controlled conditions in a cleanroom environment of at least Class 8 according to ČSN EN ISO 14644 (certification is not required).

---

Verification method: I – inspection (site visit of manufacturing premises if deemed necessary by the CA - IMP)

**REQ-034006/A**

All chemicals and solvents (such as cutting fluids, greases etc.) used during manufacture shall be capable of being removed entirely by subsequent cleaning operations.

---

Verification method: R – review (these materials to be listed in the final technical report)

### 3.4. Vacuum flanges and seals

**REQ-034156/A**

The Supplier shall dimension the vacuum flanges DN320 ISO-F assigned to turbomolecular pumps to be able to withstand the torque 75 kNm in the event of a crash of the pump.

**REQ-034007/A**

The flanges shall be compatible with “ISO 1609:1986 - Vacuum technology - Flange dimension” and “ISO 2861:2013 - Vacuum technology - Dimensions of clamped - type quick-release couplings”.

---

Verification method: R – review

**REQ-034008/A**

The surface finish of seal faces shall be compatible with the requirements of the ISO-F, ISO-K and ISO-KF seals used.

---

Verification method: R – review

**REQ-034009/A**

Sealing surfaces shall be in particular free of scratches or dents.

---

Verification method: I - inspection

**REQ-034010/A**

Seal faces shall be suitably protected (e.g. with plastic caps) immediately after final machining to minimise the risk of damage.

*NOTE: This protection should only be removed for the purposes of cleaning and inspection, prior to final assembly.*

---

Verification method: I - inspection

**REQ-034011/A**

Sealing shall be made of fluoroelastomer polymer material.

---

Verification method: R – review (specification sheet and part number of sealing included in final technical report)

**REQ-034012/A**

Hardness of O-rings shall be 60 or 70 Shore A unless agreed otherwise with the CA.

---

Verification method: R – review (specification sheet and part number of sealing included in final technical report)

**REQ-034013/A**

Cleanliness of all O-rings shall be verified prior to their installation on the CMC vacuum chamber in order to satisfy the overall requirement REQ-034021/A. In case the Supplier does not have means of verifying the O-ring cleanliness, the CA will carry out the verification with turnover time of less than 2 weeks.

---

Verification method: R – review, T – test (tracked in the Cleanliness test report)

### 3.5. Cleaning of vacuum components

**REQ-034014/A**

Prior to cleaning, all swarf, burrs, etc. from the machined surfaces shall be physically removed. The procedures may include high pressure air blasting, water jet, scraping, swabbing etc.

---

Verification method: I – inspection (Cleaning procedure report – CPR)

**REQ-034015/A**

All vacuum components must be cleaned separately. Cleaning of assembled components and systems is not allowed.

---

**REQ-034016/A**

The cleaning procedure shall remove contaminants that adhere to the surface such as oils, greases, dirt, corrosion products, or finger prints.

---

Verification method: I – inspection

**REQ-034017/A**

All finished stainless steel vacuum components shall be degreased by thorough cleaning with high pressure hot water jet (>120 bar), using appropriate high-performance detergent (e.g. 2% solution of General Purpose Cleaner/Degreaser mixture of Sodium Tripolyphosphate - 3 - < 5%, Modified Polyether Anionic Surfactant - 1 - < 3%, Non-ionic surfactant 1 - < 3%; pH >11; (5 - 15% - Non-Ionic Surfactants, 1 - 5% - Phosphates, 1 - 5% - Anionic Surfactants or equivalent), at a temperature between 70°C and 75°C, for no less than 5 minutes /m<sup>2</sup>. The water jet strokes shall form a cross pattern on the cleaned surface. Subsequently, the parts shall be immediately, without letting the surface to dry, rinsed with hot demineralised water with at least 75°C.

The previous step, i.e. thorough cleaning with high-pressure water with appropriate high-performance detergent, followed by rinsing in demineralised water without letting the surface to dry, shall be repeated.

Subsequently, the parts shall be dried by clean pressure gas (e.g. nitrogen) in a way not leaving traces of residues from water drops. It is not allowed to use wipes wetted with isopropanol or acetone after completion of the above procedure.

Spraying or flushing of parts of vacuum surfaces by ultraclean acetone (<5ppm evaporation residue) is allowed, provided it does not come into contact with any plastic parts such as squirt bottles or O-rings.

Dry wiping of smooth surfaces with polyester wipes to minimize particle contamination is allowed.

*NOTE 1: Use of specific degreasing solution shall be approved in writing by CA. The CA also permits another equivalent cleaning procedure to be offered, however this shall be approved in writing by the CA.*

*NOTE 2: A possible additional step may involve cleaning by laser or by manual electro-polishing with 10% solution of H<sub>3</sub>PO<sub>4</sub>. If any of these techniques is used, detailed steps of the procedure shall be agreed in writing with CA.*

---

Verification method: R – Review, I – Inspection

**REQ-034018/A**

Clean components shall be handled wearing clean, dry, lint-free gloves.

**REQ-034019/A**

Chemicals used in the cleaning process shall not affect the material properties or cause colour change, corrosion or other damage.

---

Verification method: R – review

**REQ-034020/A**

Any use of solvents in cleaning O-rings shall be avoided. The allowed technique for cleaning O-rings from hydrocarbons is baking in vacuum oven at temperatures <180°C.

---

Verification method: R – review

**REQ-034021/A**

The Supplier shall perform RGA tests of the chamber assemblies. The measured amplitude of any peak in the interval between 45 AMU and 200 AMU shall be no higher than 1/50 of the 44 AMU peak and the peak at 43 AMU shall be no higher than 1/10 of the 44 AMU peak.

---

Verification method: R – review, T – test (tracked in the Cleanliness test report)

### 3.6. Welding

**REQ-034022/A**

Vacuum sealing welds made externally shall have full penetration leaving a smooth surface on the vacuum side and shall meet acceptance criteria ČSN EN ISO 5817, class B.

---

Verification method: I – inspection (tracked in Delivery Inspection Report)

**REQ-034023/A**

The parts to be welded shall be thoroughly cleaned and degreased.

---

Verification method: I - inspection

**REQ-034024/A**

Inert shielding and backing gases shall be used during welding to minimise oxidation.

---

Verification method: R – review of the welding technology

**REQ-034025/A**

Only qualified welders according EN ISO 9606-1 or EN 287-1 or EN ISO 14 732 shall execute the welding.

---

Verification method: R – review (qualification certificates to be supplied to the CA)

**REQ-034026/A**

Qualified welding supervision according EN ISO 14 731 and qualified welding procedures shall be present and used for manufacturing.

---

Verification method: R – review

### 3.7. Vacuum leak tests

#### REQ-034027/A

The Supplier shall perform leak test of the chamber assembly and provide to the CA the results of this test in the VTR.

*NOTE 1: Single leak test (spray test) shall be performed according to ČSN EN 1779, method A.3 (equivalent to EN 1779).*

*NOTE 2: Total leak test shall be performed according to ČSN EN 1779, method D.2 (equivalent to EN 1779). If this is not possible, other methods may be proposed by the Supplier.*

---

Verification method: T - test

#### REQ-034028/A

The measured single leak rate using He detector shall be less than **1.0E-9 mbar l/sec.**

---

Verification method: T - test

#### REQ-034029/A

The total leakage rate measured shall be better than **5.0E-4 mbar l/sec.**

---

Verification method: T – test

## 4. Delivery Requirements

### 4.1. General Requirements

#### REQ-034030/A

The transportation to the final destination at the ELI Beamlines in Dolní Břežany shall be conducted by the Supplier.

### 4.2. Packaging for transport

#### REQ-034031/A

Cleaned assemblies shall be double packaged in ULO foil.

*NOTE: Specifications of ULO foil can be supplied by CA upon request.*

---

Verification method: R – review, I - inspection

**REQ-034032/A**

All delivered components (or assemblies) shall be packaged for transport in a way that prevents any damage or contamination (including water contamination).

*NOTE: Where practical, components should be entirely enclosed*

---

Verification method: I – inspection

**REQ-034033/A**

Each separate crate or package shall be labelled on the outer packaging with the contents, i.e. with all part numbers of the contained components.

---

Verification method: I - inspection

## 5. Safety Requirements

**REQ-034034/A**

The Supplier shall supply a Declaration of Conformity for each product type if the appropriate legislation determines the Supplier's obligation to have a Declaration of Conformity for the purposes of a Device sale in the Czech Republic. In such a case the Declaration of Conformity shall comply with:

- Act No. 90/2016 Coll., as amended
- Act No. 20/1997 Coll., as amended
- The equivalent legal regulation of another EU member state so that the conditions for the sale of the product in the Czech Republic are met, and/or
- the relevant EU/EC regulation

*NOTE: The compliance with these obligations will be demonstrated by the (EU/EC) Declaration of conformity, other relevant documents and the CE/CCZ marking, if required by the relevant regulations. If a delivered product is not required to assess conformity according to specific legislation, the Supplier declares by concluding the contract that the product complies with the general safety requirement of EU Directive 2001/95 / EC on general product safety and that the Supplier duly complies their obligations under this Regulation.*

---

Verification method: R – review

## 6. Quality Requirements

### 6.1. General Quality Requirements

#### REQ-034035/A

The Supplier shall carry out dimension verification measurements for all manufactured weldments and include the results in the **Dimension verification report (DVR)**.

*NOTE: The dimensions that are to be verified in this way will be mutually agreed during the review of manufacturing drawings.*

---

Verification method: R – review (*review of technical reports*)

### 6.2. Documentation

#### REQ-034036/A

All documentation shall be supplied in either English or Czech language in both hardcopy and electronic format.

#### REQ-034037/A

The Supplier shall provide the following relevant manufacturing documents:

- Final updated manufacturing drawings in electronic form and updated 3D model – see REQ-033995/A, REQ-033996/A) including FEM reports
- All reports listed in VCD
- Factory test reports (VTR, CTR, DVR), Technical report (REQ-034038/A)
- Declaration of Conformity (REQ-034034/A)

---

Verification method: I – inspection

#### REQ-034038/A

The Supplier shall prepare a **technical report (TR)** that will contain:

- Full list of components delivered
- Material certificates
- Description of welding procedure specifications
- Fluoroelastomer polymer material specification for O-rings used.

---

Verification method: R – review



**REQ-034039/A**

The Supplier shall use following data formats:

- \*.JPG, \*.PNG and \*.PDF;
  - CAD 2D: \*.dwg;
  - CAD 3D: STEP type files (\*.stp;\*.ste;\*.step) and original supplier CAD data;
  - NX version 1934 or older: \*.prt;
  - Autodesk Inventor version 2021 or older: \*.ipt, \*.iam;
  - Parasolid 3D: \*.x\_t;
  - text processors \*.doc, \*.docx; OpenDocument Format;
  - spreadsheet processors \*.xls, \*.xlsx; OpenDocument Format;
  - presentations \*.ppt, \*.pptx; OpenDocument Format;
- 

### 6.3. Marking

**REQ-034040/A**

The CMC vacuum chamber shall be marked on the outside with the following information:

- L1 ALLEGRA FSYNC Compressor
  - Manufacturer;
  - Date of manufacture;
  - Manufacturer reference (e.g. serial number).
- 

Verification method: I – inspection

**REQ-034041/A**

The font size for the marking shall be between 8 mm and 16 mm.

---

Verification method: I – inspection (tracked in Delivery Inspection Report)

**REQ-034042/A**

If the manufacturer wishes to mark CMC chamber with their logo, then ELI Beamlines logo of same size shall the marked alongside the manufacturer's logo.

---

Verification method: I – inspection (tracked in Delivery Inspection Report)

**REQ-034043/A**

Location of any markings shall be agreed as part of the review of the manufacturing drawings.

---

Verification method: I – inspection

## 6.4. Non-Conformance Control System

### REQ-034044/A

The Supplier shall establish and maintain a non-conformance control system compatible with ČSN EN ISO 9001 (equivalent to EN ISO 9001).

---

## 7. Verification requirements for the Supplier

### 7.1. General

#### REQ-034045/A

The verification process shall demonstrate that the deliverable product meets the specified requirements of the CA through:

1. Verification reporting;
  2. Verification execution;
  3. Verification close-out (acceptance).
- 

### 7.2. Verification reporting

#### 7.2.1. Verification Control Document (VCD)

**The Verification Control Document (VCD)** lists for each requirement the selected method(s) of verification, overall verification result (pass/fail) and reference to relevant report where necessary. The VCD is a living (versioned) document and provides an overview of the mutually agreed verification methods during the project execution and overview of the results at the contract end to support the acceptance of the manufactured products.

#### REQ-034046/A

The technical consultation between the Supplier and the CA shall involve agreement on the methods, levels of verification, and verification tools to be used for verifying individual requirements (REQ-034037/A and REQ-034038/A).

---

Verification method: R - review

#### REQ-034047/A

The Supplier and the CA shall follow the time limits given in the Table 1 (see the Section 7.2.2) for supplying the information for the requirement verification into the VCD.

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**REQ-034048/A**

The Supplier shall carry out with support from the CA the final verification of requirements according to the VCD and record the results in the final VCD issue (VCD issue for the acceptance stage purposes).

---

Verification method: R – review

**7.2.2. TABLE 1: Time limits for supplying information and deliverables**

No.	Description of time limit	Requirement	Limit	Responsibility
T0	Contract signature			
T1	Detailed 3D models with the design	REQ-033997/A	T0 + 1 week	CA (ELI)
T2	Manufacturing drawings delivery	REQ-033995/A	T0 + 8 weeks	Supplier
T3	Manufacturing drawings review and final release of manufacturing drawings	REQ-033999/A	T0 + 10 weeks	Supplier + CA
T4	Factory test reports (VTR, CTR, DVR)	REQ-034049/A REQ-034035/A	T0 + 28 weeks	Supplier
T5	<b>Delivery to the CA completed / handover</b>	REQ-033990/A	<b>T0 + 30 weeks</b>	Supplier
T6	Final issue of the VCD and TR	REQ-034048/A	T0 + 34 weeks	Supplier
T7	Acceptance by CA		T0 + 35 weeks	CA (ELI)

**7.3. Verification execution (verification methods)**

**REQ-034049/A**

The verification execution process shall consist of following stages:

- Review of manufacturing drawings (MDR);
- Verification of technical documentation (TR, VTR, CTR);
- Acceptance by the CA at the ELI Beamlines premises.

*NOTE 1: Manufacturing drawings review is intended to verify that the design meets corresponding requirements (could be accepted) and/or identify required corrective actions needed to accept the design and start manufacturing phase of the contract.*

*NOTE 2: Verification of final product is executed at the end of manufacturing phase by inspection and tests (see REQ-034050/A). This verification stage is intended for the check of product readiness to shipment to the CA.*

---

**REQ-034050/A**

Verification shall be accomplished by the Supplier through one or more of the following verification methods:

1. **Review of design**; Verification by Review (**R**) shall consist of using approved records (examples of such approved records are design documents and reports, technical descriptions, and engineering drawings, manuals and accompanying operation documentation) or evidence that unambiguously shows that the requirement is met.
  2. **Inspection**; Verification by Inspection (**I**) shall consist of visual determination of physical characteristics.
  3. **Test**; Verification by Test (**T**) shall consist of measuring product performance and functions under realistic operating conditions.
  4. **Analysis**; Verification by Analysis (**A**) shall consist of performing theoretical or empirical evaluations using defined methods.
- 

**REQ-034051/A**

The results of the Review of design, Inspection, Test and Analysis shall be documented in the appropriate Reports and tracked in the VCD (see section 7.2.1).

---

Verification method: R - review

## 7.4. Acceptance (verification close-out)

In the acceptance stage the verification shall demonstrate that the product is free of fabrication errors and is ready for the intended operational use.

**REQ-034052/A**

The verification process shall be considered completed when the CA approves the VCD by confirming that:

1. Identified requirements have successfully been verified;
  2. All detected non-conformances have been solved according to REQ-034044/A;
  3. Documented evidence is recorded in the VCD (see the Section 7.2.1).
-

**REQ-034053/A**

The basis for acceptance shall be completed VCD summarizing the overall verification results together with relevant reports supporting the verification.

---

Verification method: R – review

**REQ-034054/A**

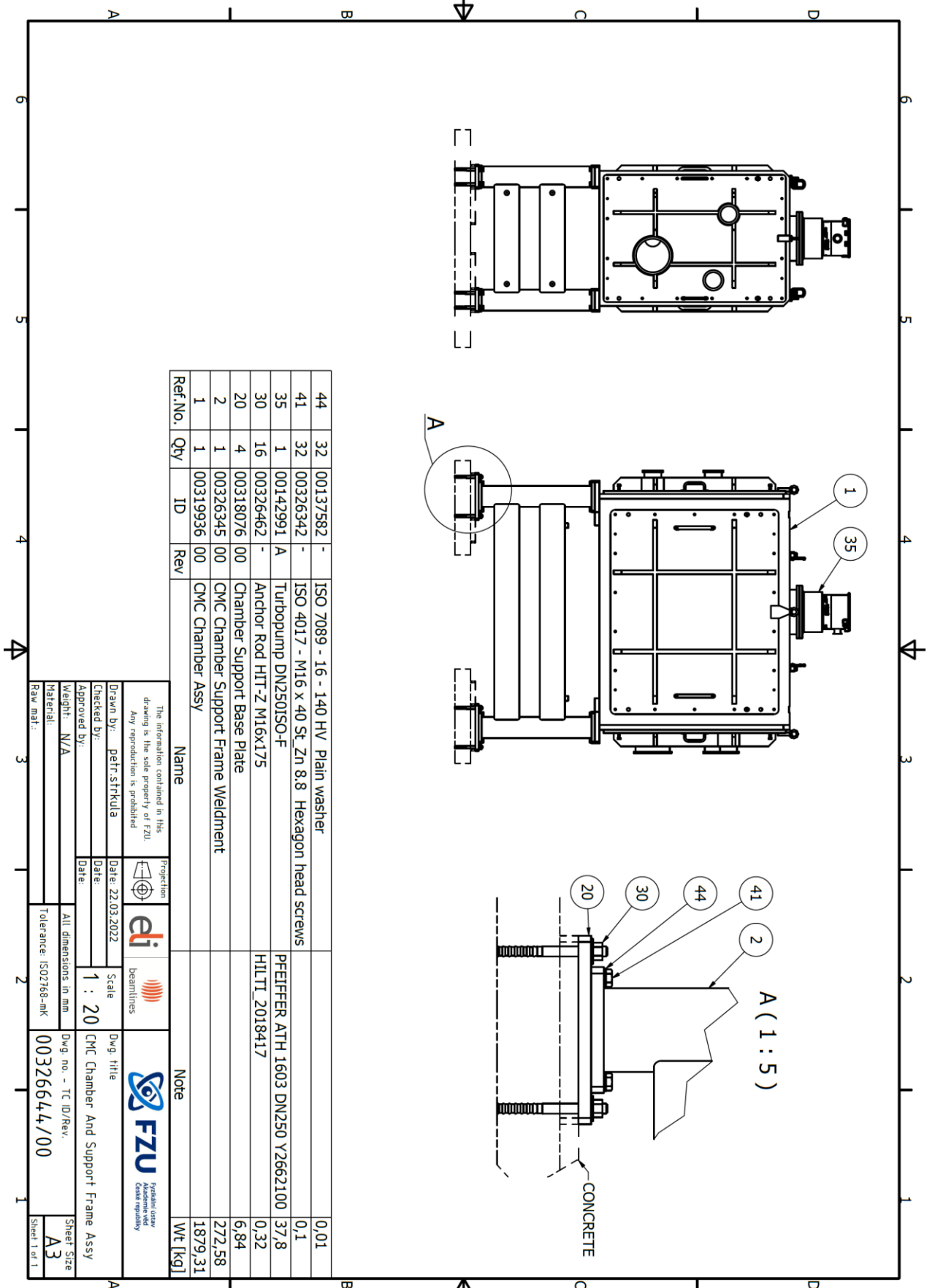
In case of unsuccessful acceptance stage the Supplier shall provide to the CA Non-Conformance Report (NCR) and ELI non-conformance control process shall be applied (see REQ-034044/A).

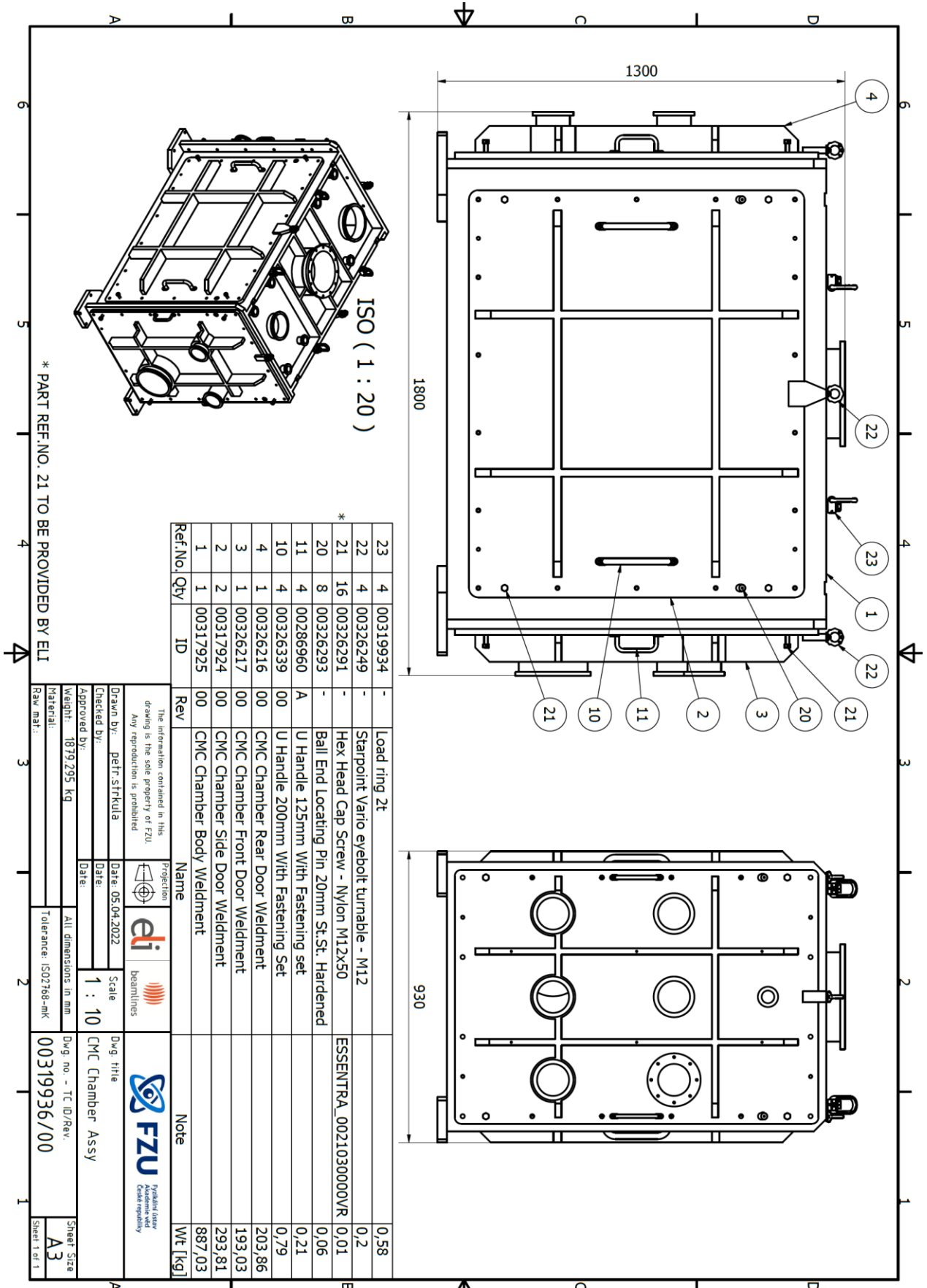
*NOTE: In case of successful acceptance stage (confirmation by Inspection, see REQ-034050/A) the CA shall provide to the Supplier signed acceptance protocol.*

---

## 8. Reference drawings

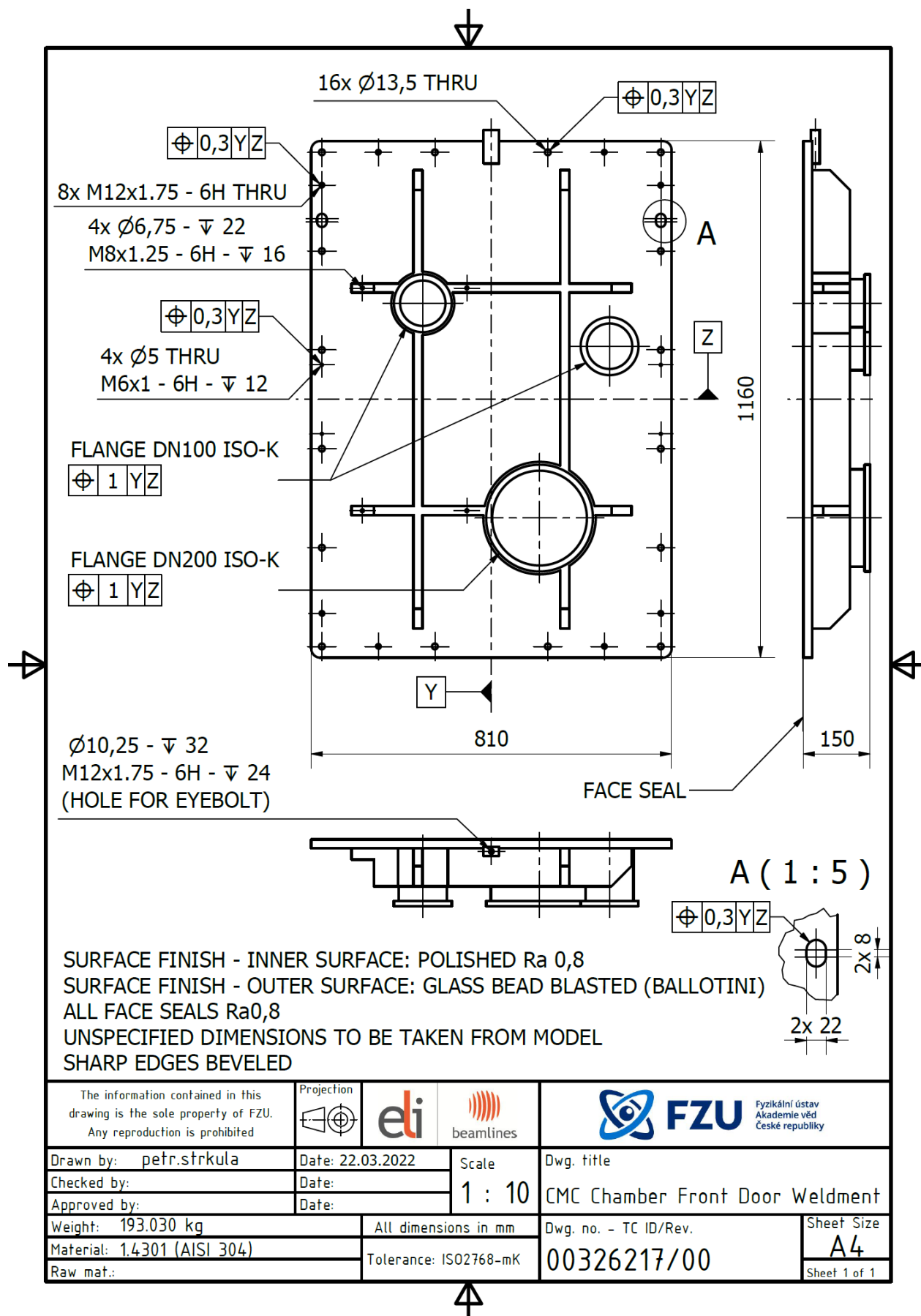
Below are given assembly drawings for the assemblies. Detailed drawing of individual components will be supplied to the manufacturer together with the 3D model after the contract signature.





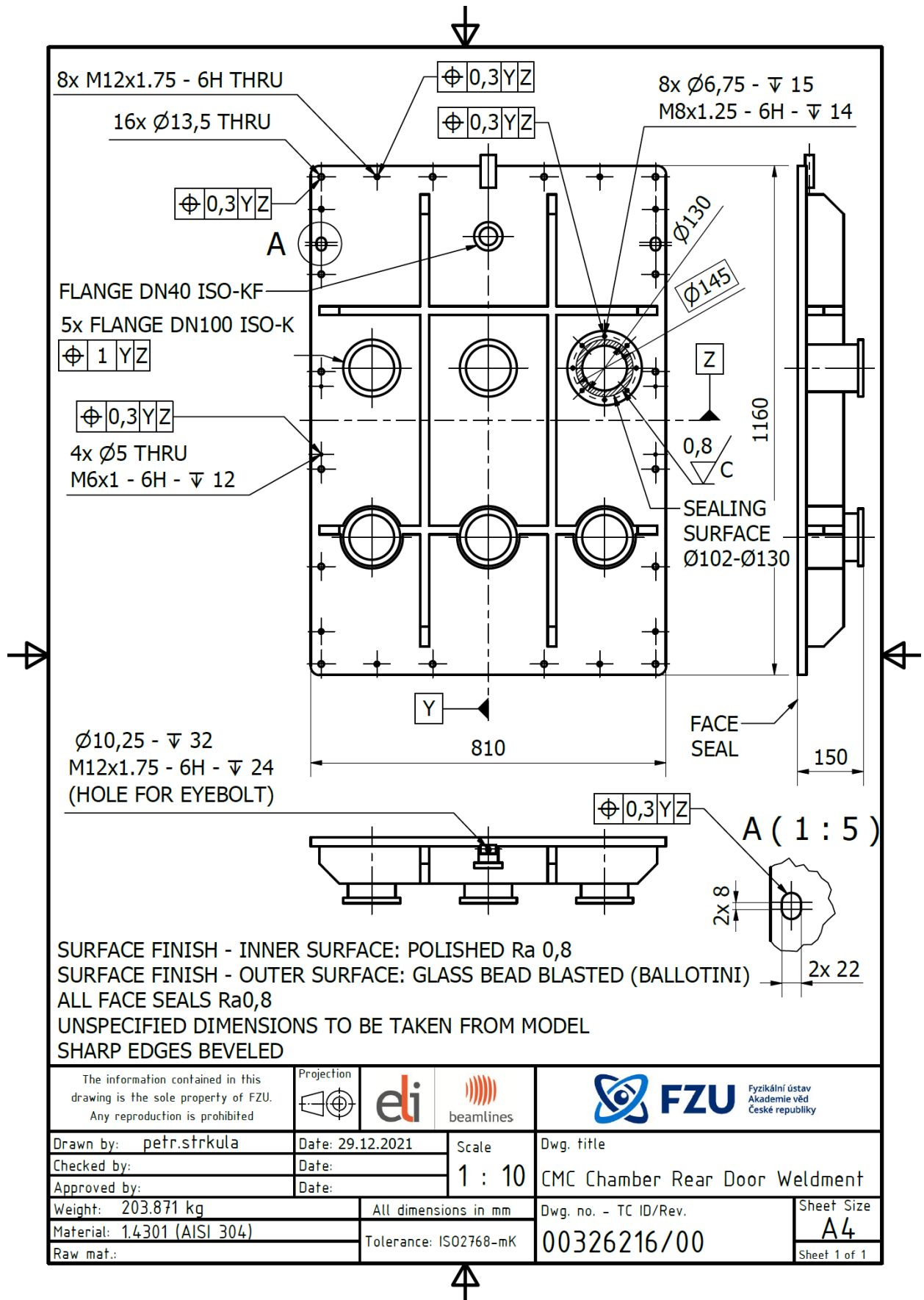




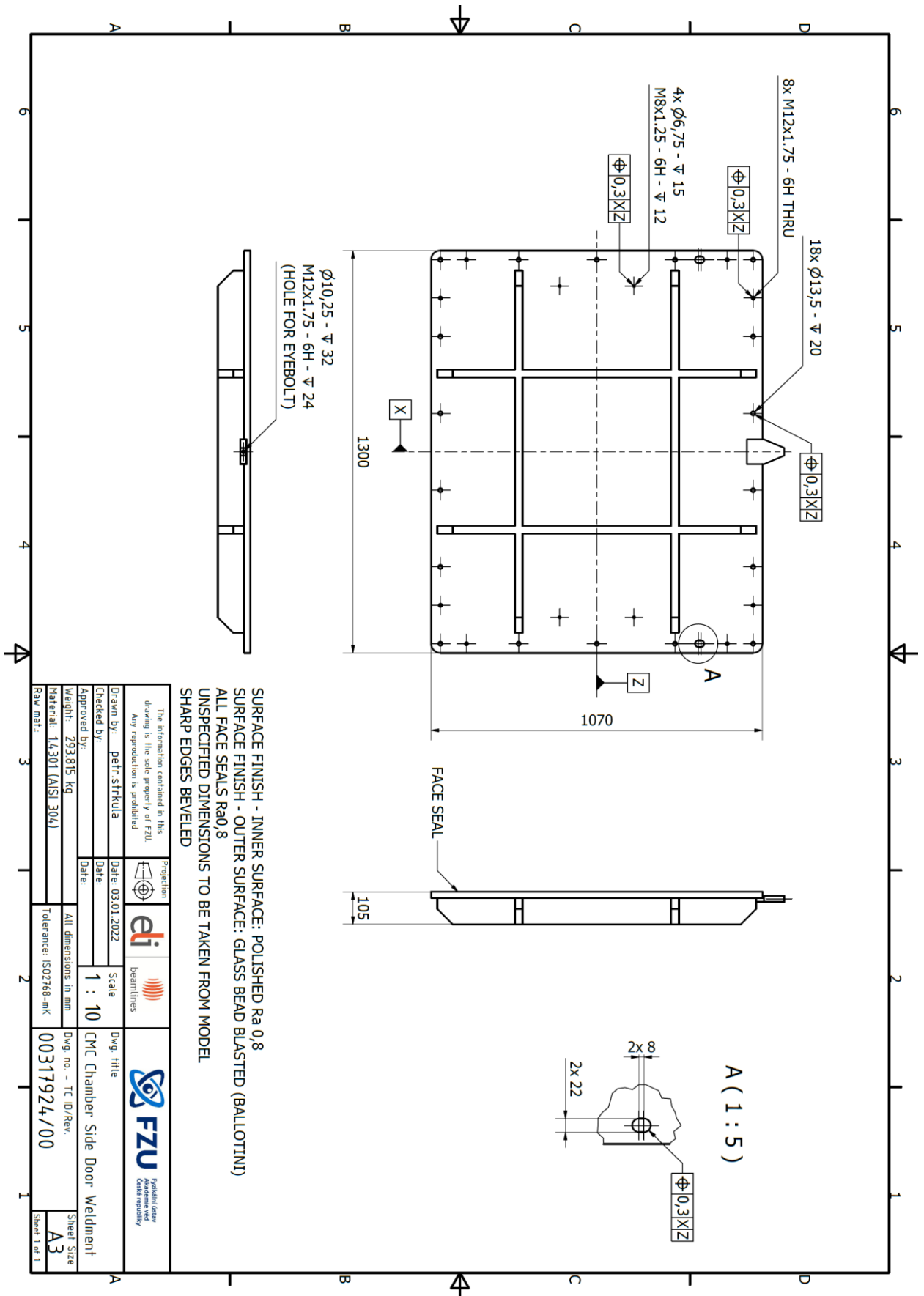


The information contained in this drawing is the sole property of FZU. Any reproduction is prohibited		Projection	beamlines	FZU Fyzikální ústav Akademie věd České republiky
Drawn by: petr.strkula	Date: 22.03.2022	Scale	Dwg. title	
Checked by:	Date:	1 : 10	CMC Chamber Front Door Weldment	
Approved by:	Date:		Dwg. no. - TC ID/Rev.	Sheet Size
Weight: 193.030 kg	All dimensions in mm		00326217/00	A4
Material: 1.4301 (AISI 304)	Tolerance: ISO2768-mK			Sheet 1 of 1
Raw mat.:				

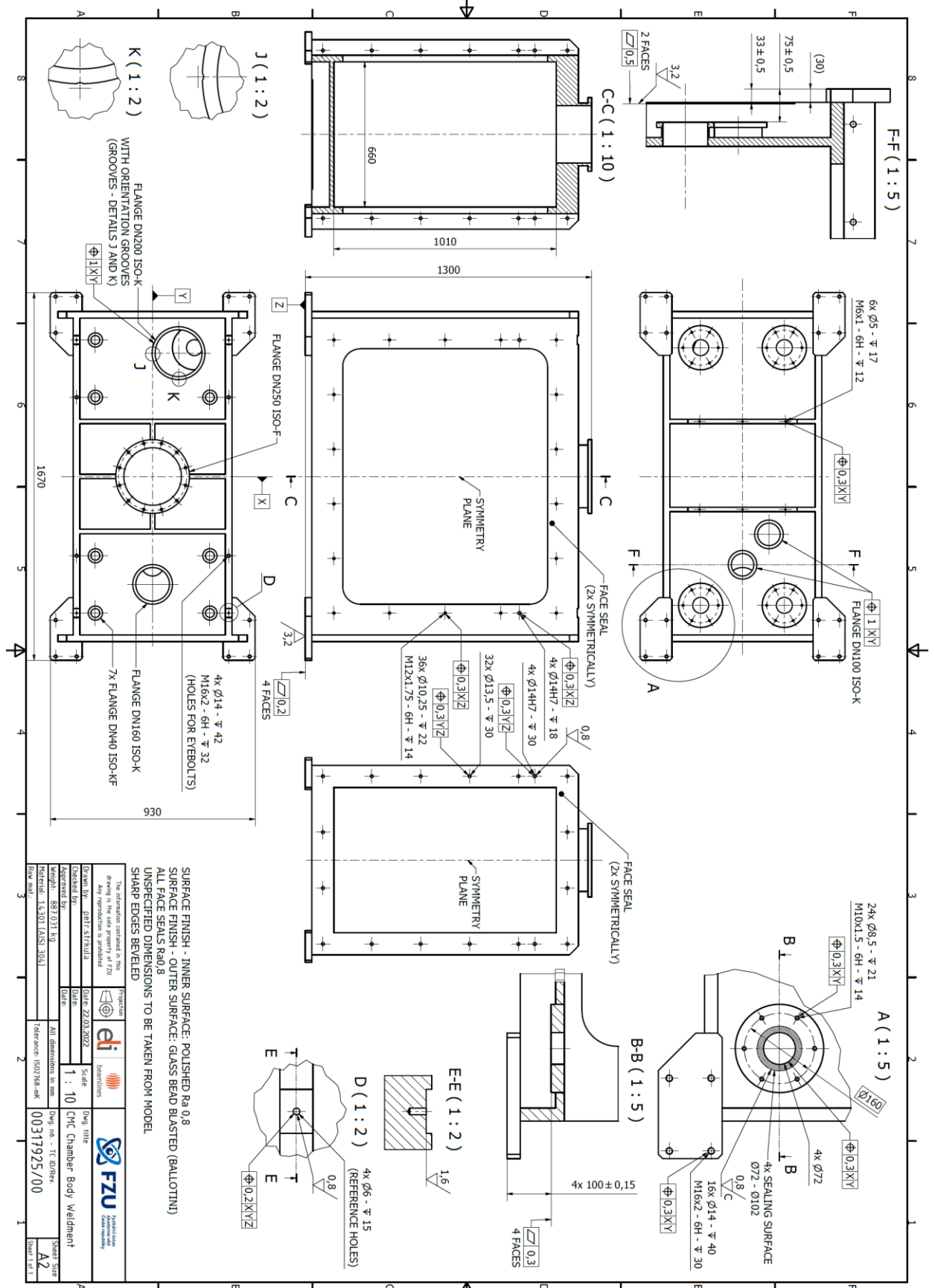


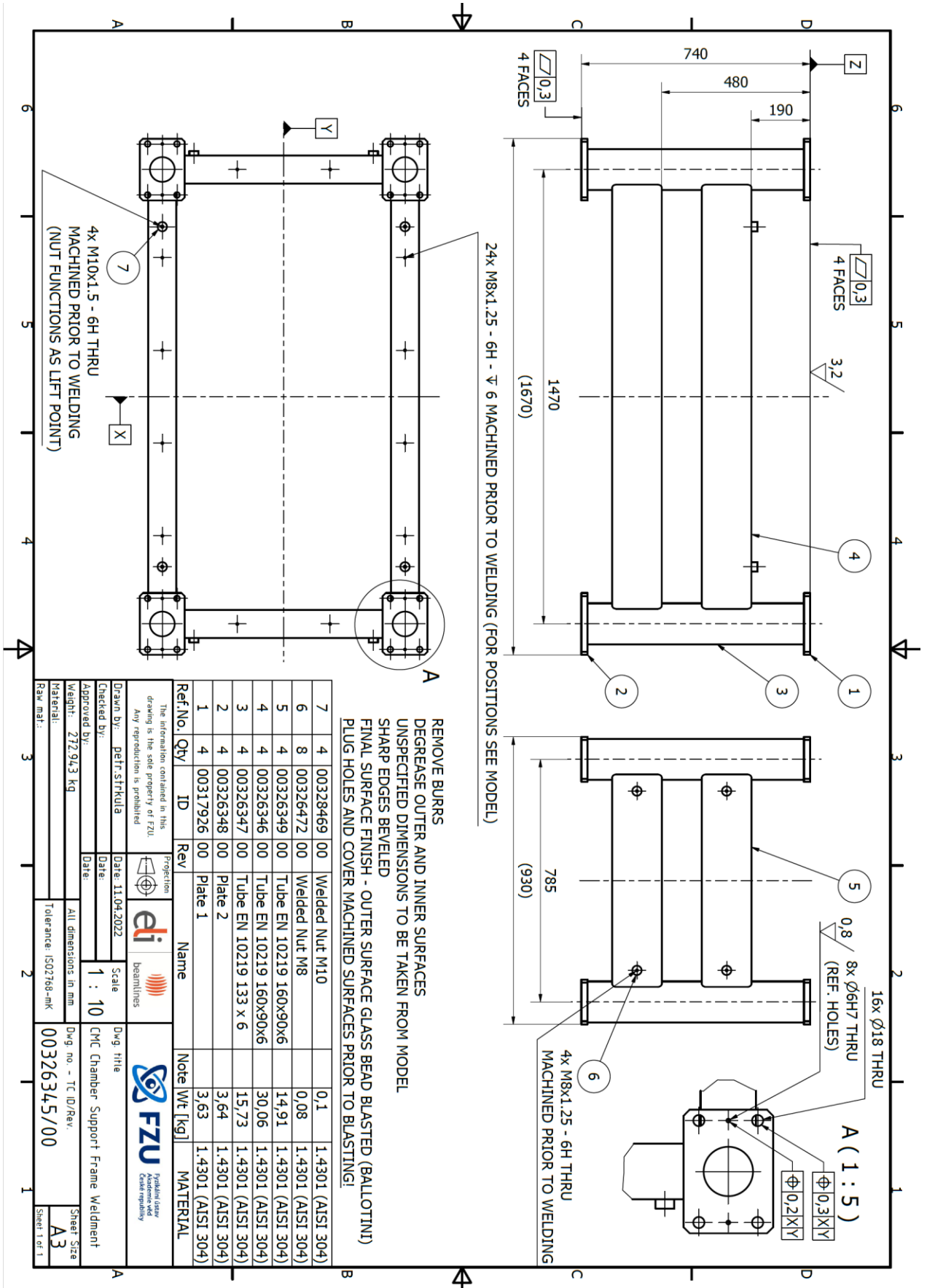




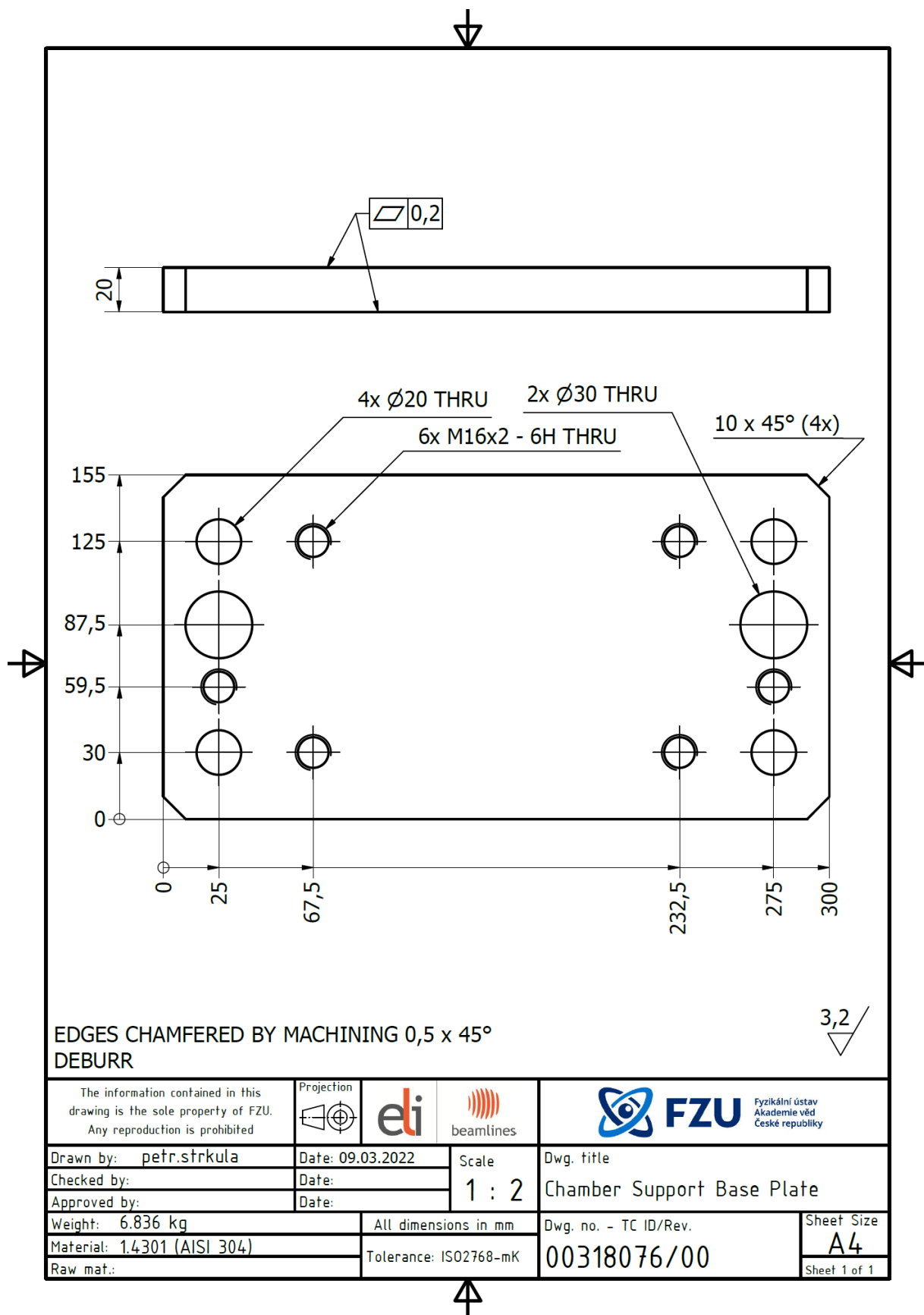


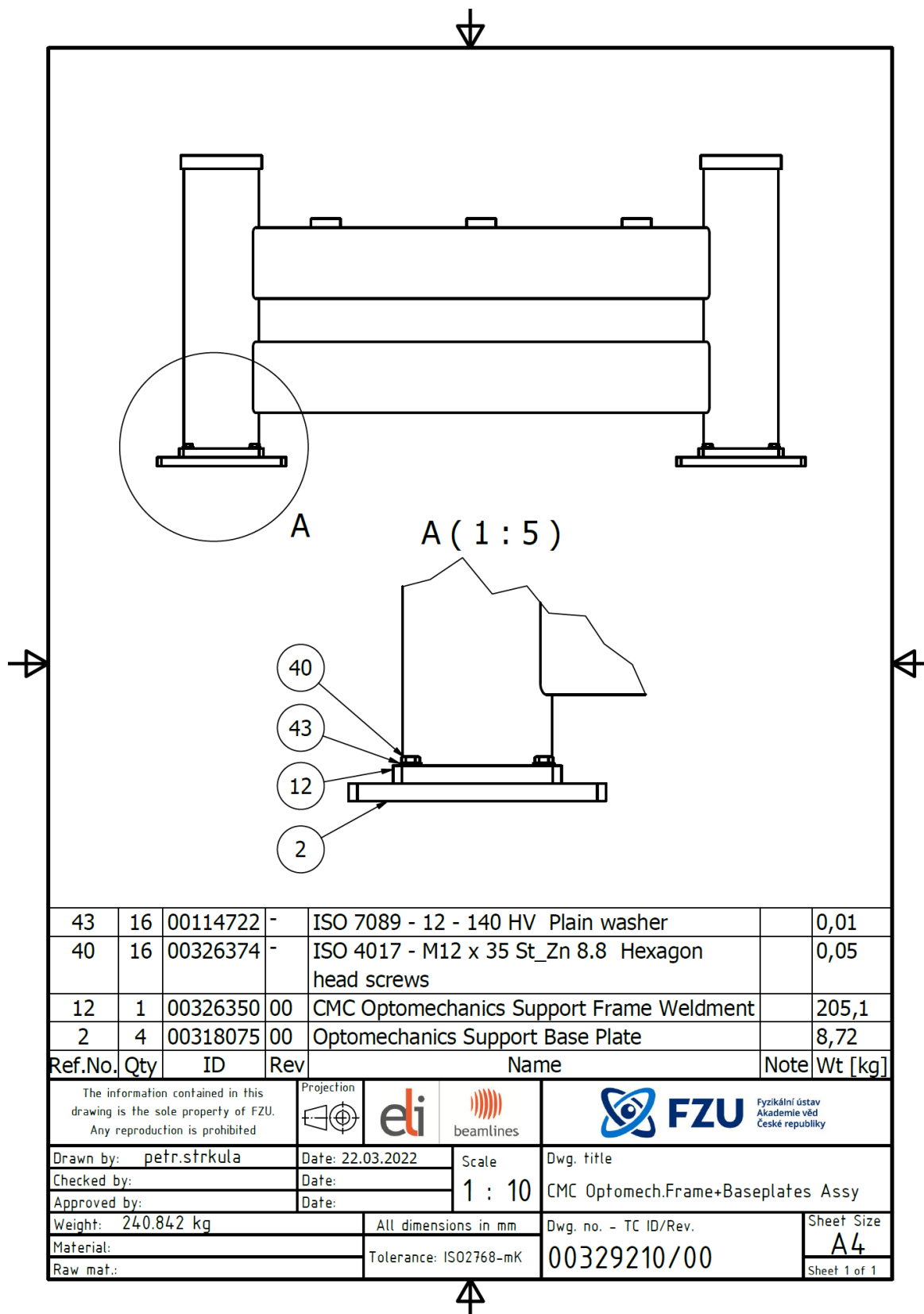


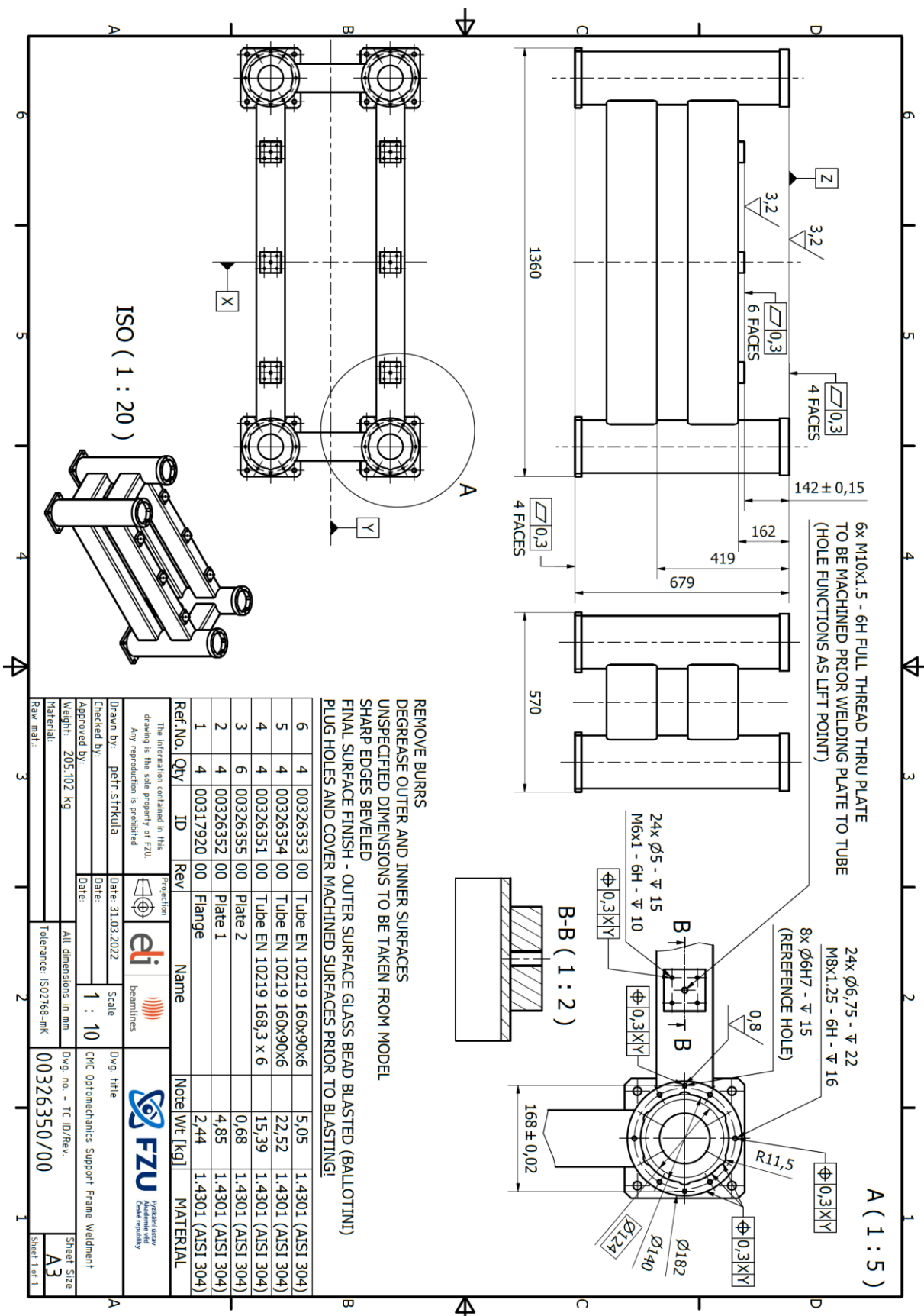


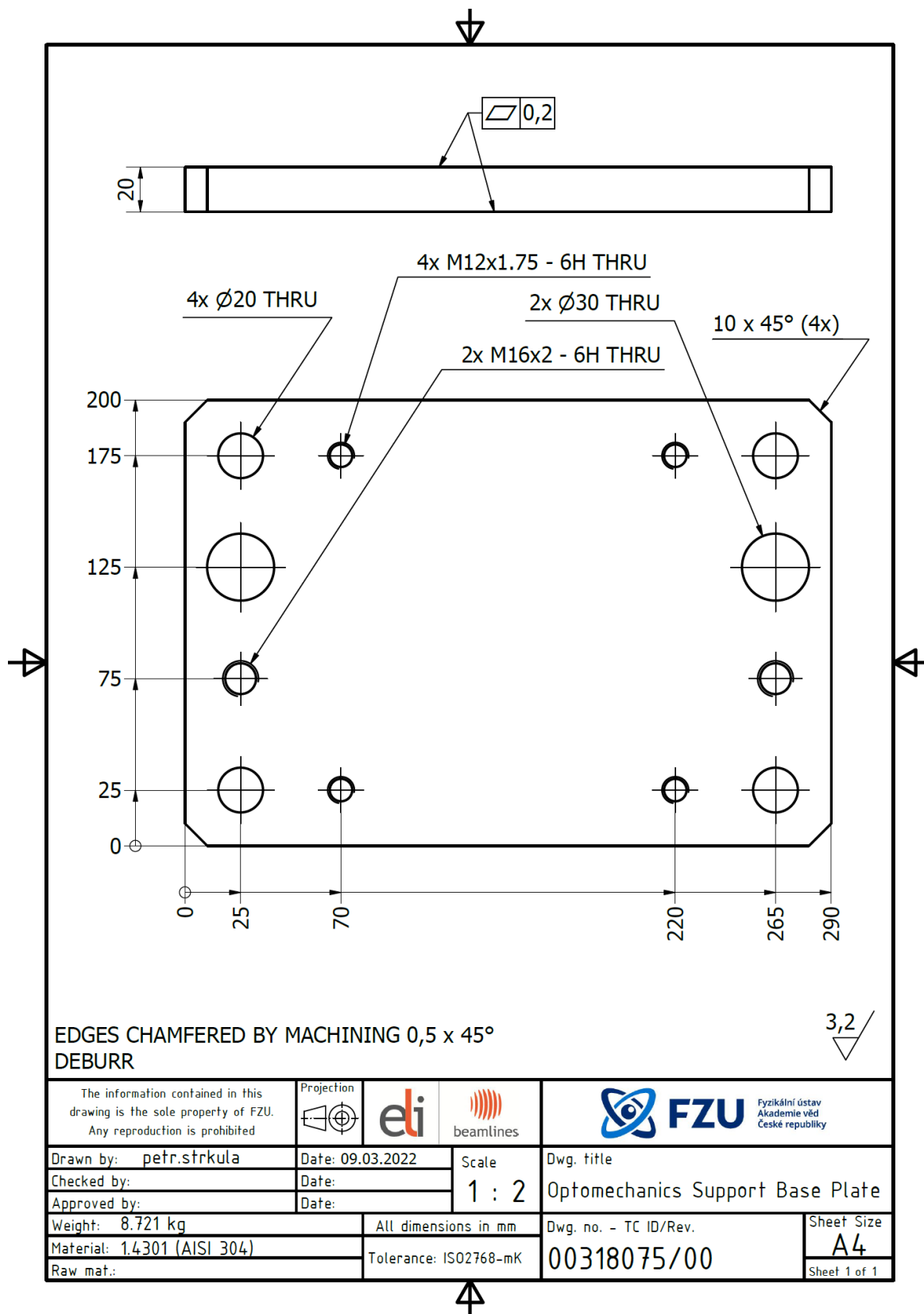


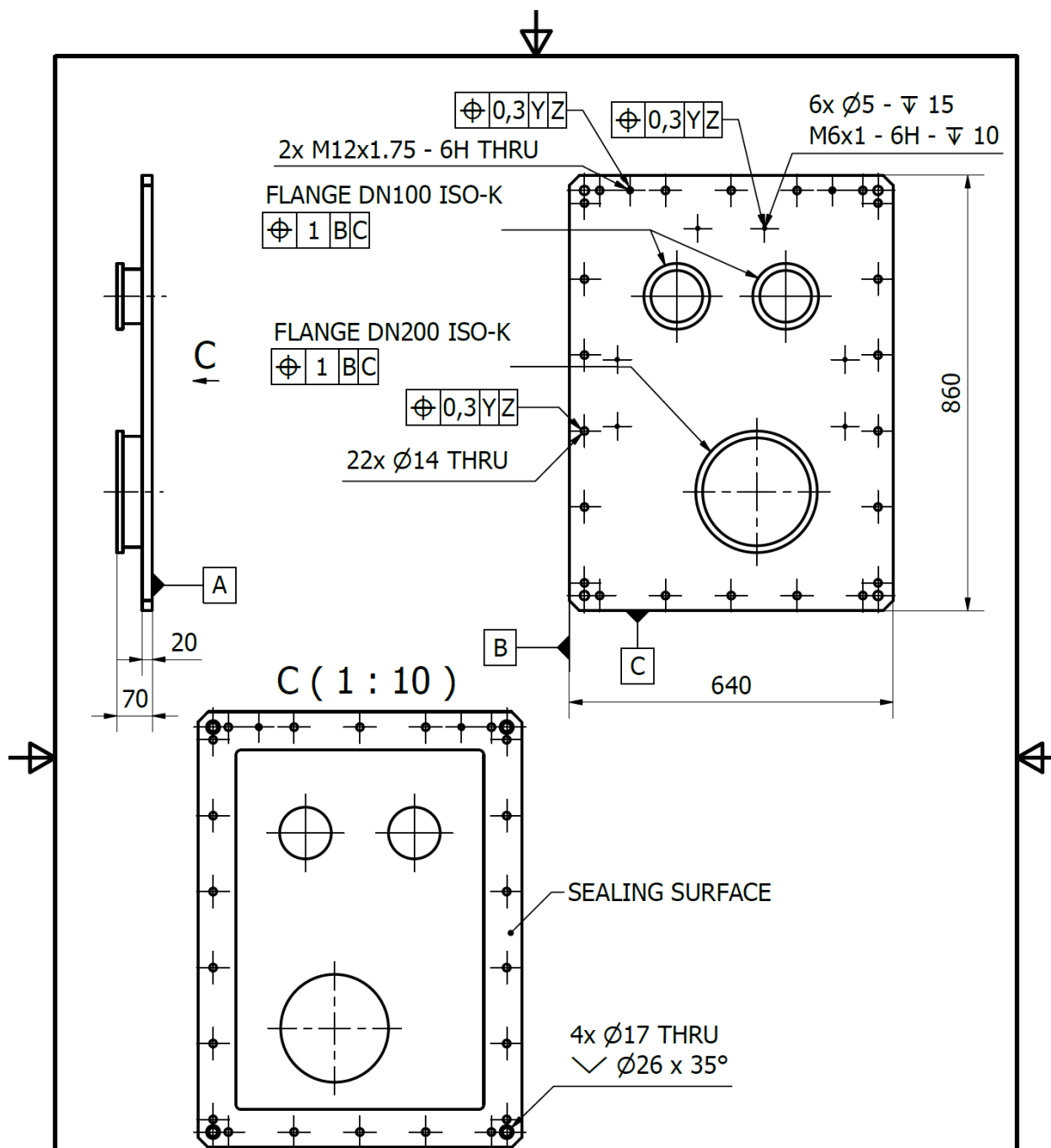












**REFER DRAWING 11-3018-0002-00026 FOR ORIGINAL SPECIFICATION  
 NEW DOOR DIFFERS BY SIZE AND POSITION OF FLANGES ISO-K**

The information contained in this drawing is the sole property of FZU. Any reproduction is prohibited		Projection	beamlines	FZU Fyzikální ústav Akademie věd České republiky
Drawn by: petr.strkula	Date: 09.03.2022	Scale	Dwg. title	
Checked by:	Date:	1 : 10	Injector Chamber New Door Weldment	
Approved by:	Date:		Dwg. no. - TC ID/Rev.	Sheet Size
Weight: N/A	All dimensions in mm		00319940/00	A4
Material: 1.4301 (AISI 304)	Tolerance: ISO2768-mK			Sheet 1 of 1
Raw mat.:				



## Annex 2 Qualification prerequisites

The Seller shall carry out assembly and testing works hereunder in the cleanroom space described within the Bid submitted within the Tender Procedure as follows:

**Brief description of the cleanroom space in terms of dimensions of the area and cleanliness class specification:**

STREICHER has around 1,700 m<sup>3</sup> of clean room of ISO Class 6 according to EN ISO 14644-1 with a vast **6.6 m ceiling height for final cleaning, assembling and testing of large vacuum units.** **The footprint** of ISO Class 6 clean room is **14,6 m x 9 m**. These dimensions allow to fit up assembly groups of up to 10 tons by using a gantry crane. The clean room comprises two separate rooms, grey room for pre-cleaning and a gowning area.

The Seller shall use the following persons it identified within its Bid submitted within the Tender Procedure while carrying out all the relevant activities hereunder:

- [REDACTED], senior optomechanical/ vacuum designer
- [REDACTED], welding coordination supervisor
- [REDACTED], qualified welder

The Seller is allowed to use another cleanroom space or another persons only if it proves that such spaces or persons meet the requirements for the cleanroom space or team members stated in the procurement documentation issued within the Tender Procedure.