



## Request for Quotation

### **Development and configuration of the MXCube software for the TREX End Station TP24\_026\_REISSUE**

This procurement is to be carried out in accordance with Article 21 of The Extreme Light Infrastructure ERIC Procurement Rules (hereinafter referred to as the “**Rules**”).

(hereinafter the “**Request**”, “**Procurement**” or “**Procurement Procedure**”)

#### **Organisation:**

**The Extreme Light Infrastructure ERIC**

with its registered office at

Za Radnicí 835, 252 41 Dolní Břežany, Czech Republic

identification No.: 109 74 938

(hereinafter the “**Organisation**”)

**Table of contents**

- 1. BASIC DATA ON THE ORGANISATION AND THE PROCUREMENT PROCEDURE .....3
  - 1.1. BASIC DATA ON THE ORGANISATION.....3
  - 1.2. PROCUREMENT PROCEDURE .....3
- 2. SUBJECT-MATTER OF THE PROCUREMENT .....3
  - 2.1. SPECIFICATION OF THE SUBJECT-MATTER OF THE PROCUREMENT.....3
  - 2.2. TECHNICAL SPECIFICATION.....4
  - 2.3. BUSINESS CONDITIONS .....4
  - 2.4. SOCIAL, ECOLOGICAL AND INNOVATIVE ASPECTS .....4
- 3. REQUIREMENTS FOR PROCESSING THE BID PRICE .....4
- 4. EVALUATION .....4
  - 4.1. EVALUATION CRITERIA.....4
  - 4.2. PRIORITY OF EVALUATION.....5
- 5. QUOTATION PROCESSING CONDITIONS AND REQUIREMENTS.....5
- 6. OTHER CONDITIONS .....6
  - 6.1. RIGHTS OF THE ORGANISATION .....6
  - 6.2. EXPLANATION OF THE REQUEST .....6
  - 6.3. INTERNATIONAL SANCTIONS.....6
- 7. FINAL PROVISIONS.....6
- ANNEX 1 .....8
- ANNEX 2 .....9
- ANNEX 3 .....10
- ANNEX 4 .....11
- ANNEX 5 .....12

## 1. Basic data on the Organisation and the Procurement Procedure

### 1.1. Basic data on the Organisation

Organisation	<b>The Extreme Light Infrastructure ERIC</b>
Registered Office:	Za Radnicí 835, 252 41 Dolní Břežany, Czech Republic
Identification No.:	109 74 938
Person authorised to act on behalf of the Organisation:	Roman Hvězda, ELI Beamlines Facility Director
Contact person:	David Pokorný tel. +420 601555 056 e-mail: <a href="mailto:david.pokorny@eli-beams.eu">david.pokorny@eli-beams.eu</a>

### 1.2. Procurement Procedure

This Procurement Procedure is carried out solely under the Rules available at <https://eli-laser.eu/procurement/rules/>.

## 2. Subject-matter of the Procurement

### 2.1. Specification of the subject-matter of the Procurement

The subject-matter of this Procurement is development, configuration and integration of the MXCube within the TREX End Station. The goal is to achieve seamless coordination and control between the software, goniometer, SmarAct stage, and microscope for precise sample positioning during crystallographic experiments. Annex no. 2 Technical Specification details all functional, performance, safety, operational, design, quality, and installation requirements.

It outlines the requirements for installing and integrating the MXCube crystallographic program (MXCube) within the TREX End Station at the Extreme Light Infrastructure ERIC in Dolní Břežany, Czech Republic. This includes integrating MXCube with:

- STOE StadiVari goniometer;
- XYZ axis SmarAct stage for fine sample positioning;
- Arinax OAV B-ZOOM microscope.

Annex no. 2 Technical Specification is a part of tender documentation and also acts as a parent document for technical requirements that need to be addressed in lower-level design description documents (e.g. STOE StadiVari goniometer and Arinax OAV B-ZOOM microscope manuals, etc.).

The information and data listed in this Request and its Annexes define the minimum technical and other mandatory requirements of the Organisation. Suppliers are obliged to respect these requirements in their Quotation.

## 2.2. Technical specification

Technical specification for the subject-matter of this Procurement is given in **Annex No. 2 Technical Specification**.

The technical parameters stated in **Annex No. 2 Technical Specification** are defined as maximal/minimal requirements, i.e. suppliers are entitled to offer more advantageous products/solution.

If the technical specification is set by a direct or indirect reference to particular economic operators or products, or patents for inventions, utility models, industrial designs, trademarks or designations of origin, suppliers may offer another equivalent solution. The Organisation reserves the right to ask for the explanation and/or evidence that the proposed solution satisfies in an equivalent manner the requirements defined by the Organisation.

## 2.3. Business conditions

Business conditions for the performance of this Procurement are specified in **Annex No. 1 Purchase Contract**.

**Suppliers are obliged to fill in only the blanks highlighted in yellow within the Purchase Contract.**

**Suppliers are not entitled to make any other changes in the Purchase Contract.**

Suppliers particularly shall not refer in their Quotations to their business conditions and terms. If a supplier includes his own business terms and conditions in the Quotation, such terms and conditions shall be irrelevant and the supplier will be requested to conclude the Purchase Contract as is attached to this Request.

## 2.4. Social, ecological and innovative aspects

The Organisation will award this Procurement in accordance with the principles of socially and environmentally responsible procurement. Socially and environmentally responsible procurement also takes into account the related impacts, especially in the areas of employment, social and labour rights and the environment.

## 3. Requirements for processing the bid price

Suppliers are required to state **the bid price in EUR excluding VAT** in the Annex No. 4 Price table.

VAT shall be paid in accordance with the applicable legal regulations.

The bid price is the maximum price that cannot be exceeded and shall include all costs incurred by the supplier in connection with the performance hereof.

The bid price must also include costs not explicitly specified but about which the supplier knew or should and could have known considering his professional knowledge, exercising all professional care.

In the event of a discrepancy between the data on the bid price stated in the various parts of the Quotation, the Organisation will rely on the bid price excluding VAT specified in the Purchase Contract for the purposes of evaluation and conclusion of the Purchase Contract.

## 4. Evaluation

### 4.1. Evaluation criteria

Quotations shall be evaluated on the basis of best-value-for-money.

The Organisation evaluates the **bid price in EUR excluding VAT**.

The Organisation shall evaluate the best-value-for-money solely on the basis of the lowest bid price. The winning Quotation will be the Quotation with the lowest bid price.

Suppliers shall not be authorised to make the Quotation subject to any conditions. Any such conditions or provision of several different values in the Quotation parts that are subject to the evaluation shall constitute a reason to exclude the supplier from the Procurement Procedure.

#### **4.2. Priority of evaluation**

Similarly to Article 27(8) of the Rules, the Organisation shall assess compliance of the Quotation with this Request upon finalisation of the evaluation and shall carry out the assessment in relation to the Quotation of the supplier recommended for award only.

### **5. Quotation processing conditions and requirements**

The Organisation accepts Quotations in electronic form only, on the following e-mail address: [tenders@eli-laser.eu](mailto:tenders@eli-laser.eu)

**Quotations shall be submitted no later than on January 20<sup>th</sup>, 2025 at 1:00 PM.**

Subject-matter of the e-mail with the Quotation shall be marked 'DO NOT OPEN' and the title of the Procurement “ **Development and configuration of the MXCube software for the TREX End Station TP24\_026\_REISSUE**”

If the subject-matter of the e-mail is properly marked, the Organisation shall not open such e-mail before the end of the period during which the Quotations can be submitted. The Quotation must be prepared in **English or Czech**.

The documents constituting the Quotation may be provided in the form of scanned images.

If two or more suppliers submit a Quotation jointly (joint Quotation), they shall indicate in the Quotation the person who is authorised to represent these suppliers when communicating with the Organisation during the Procurement Procedure.

The supplier shall submit a Quotation containing the following documents and sections, the following structure is only recommended:

a) **Cover Note**

The Cover Note shall include the following details: Procurement title, basic identification details of the Organisation and the supplier (including persons empowered to be involved in further proceedings and stating an enterprise categorisation in accordance with the Recommendation 2003/361/EC), contact e-mail address of the supplier (for electronic communication with the Organisation during the Procurement Procedure), the bid price, date and signature of the person authorised to act on behalf of the supplier.

The supplier may use **Annex No. 3** hereto.

b) **Purchase Contract (Annex No. 1** hereto) with the highlighted blanks filled in.

c) **Price table (Annex No. 4)** - filled

d) **Affidavit regarding international sanctions**

Suppliers shall provide a solemn declaration (affidavit) that awarding the contract to them does not represent any violation of international sanctions according to Czech Act No. 69/2006 Coll., on Implementation of International Sanctions, as amended.

Suppliers may use **Annex No. 5** hereto.

## **6. Other conditions**

### **6.1. Rights of the Organisation**

The Organisation may request an explanation or supplement to any Quotation.

Supplementing the Quotation may not change the bid price or other data relevant to the evaluation.

If the Quotation contains data or information inconsistent with the Request (as it was submitted, or even after explanation/supplementation), the Organisation shall exclude it.

The Organisation may verify the credibility of the data, documents, samples or models provided by the supplier and may also acquire them itself.

### **6.2. Explanation of the Request**

The Organisation shall provide explanation of the Request based on the supplier's written request or on its own will. Requests for explanation must be submitted at least 3 working days prior to the deadline for Quotation submission to the e-mail address [david.pokorny@eli-beams.eu](mailto:david.pokorny@eli-beams.eu). The Organisation shall provide explanations without undue delay. The Organisation is not obliged to provide explanations for requests that were not submitted within the deadline stipulated in the second sentence of this paragraph.

### **6.3. International sanctions**

The Organisation shall not award the contract if such award would represent any violation of international sanctions according to Czech Act No 69/2006 Coll., on Implementation of International Sanctions, as amended. The Act implements mainly international sanctions adopted based on the membership of the Czech Republic in the United Nations organization and in the European Union (especially the EU Regulation No. 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, as amended).

Suppliers shall provide a solemn declaration (affidavit) that awarding the Purchase Contract to them does not represent any violation of international sanctions according to Czech Act No 69/2006 Coll., on Implementation of International Sanctions, as amended.

Should the provided declaration prove untrue or should the declaration not be provided by the supplier, the Organisation will exclude the supplier recommended for award based on the evaluation from the Procurement Procedure at any time until the conclusion of the Purchase Contract and may exclude any other supplier from the Procurement Procedure for that reason.

Should the international sanctions apply on a subcontractor of a supplier, the Organisation may require the supplier to replace the subcontractor so identified. Should the supplier recommended for award based on the evaluation not replace the subcontractor, the Organisation shall exclude the supplier from the Procurement Procedure at any time until the conclusion of the Purchase Contract.

## **7. Final provisions**

The Organisation does not allow variants of Quotation.

The Organisation shall not reimburse the suppliers for the costs incurred in connection with their participation in the Procurement Procedure, even if the Procurement Procedure has been cancelled by the Organisation.

**List of Annexes:**

- 1. Purchase Contract**
- 2. Technical Specification**
- 3. Cover Note**
- 4. Price table**
- 5. Affidavit regarding international sanctions**

On behalf of the Organisation:

.....  
Roman Hvězda, ELI Beamlines Facility Director

**Purchase Contract**



## CONTRACT ON THE DEVELOPMENT AND IMPLEMENTATION OF SOFTWARE

This contract on the development and implementation of software ("Contract") was concluded pursuant to section 1746(2) of the act no. 89/2012 Coll., Civil Code ("Civil Code"), on the day, month and year stated below by and between:

(1) **The Extreme Light Infrastructure ERIC**,  
with its registered office at:  
  
Za Radnicí 835, Dolní Břežany, post code: 252 41,  
  
registration no.: 10974938,  
  
represented by: Roman Hvězda, ELI Beamlines Facility Director  
  
("Client"); and

(2) \_\_\_\_\_,  
  
with its registered office at:  
  
\_\_\_\_\_,  
  
registration no.:  
  
\_\_\_\_\_,  
  
represented by:  
  
\_\_\_\_\_  
  
("Contractor").

(The Client and the Contractor are hereinafter jointly referred to as "**Parties**" and individually as "**Party**".)

### WHEREAS

- (A) The Client owns and operate an ELI Beamlines research infrastructure located at the address: Za Radnicí 835, Dolní Břežany, post code: 252 41 ("**ELI Beamlines Facility**").
- (B) In order to fulfil operational needs of the ELI Beamlines Facility the Client has to procure the Software (as defined below).
- (C) The Contractor wishes to provide the Software to the Client for consideration.
- (D) The Contractor's bid for the public procurement entitled "*Development and configuration of the MXCube software for the TREX End Station TP24\_026*", whose purpose was to procure the Software ("**Public Procurement**"), was selected by the Client as the most suitable.

### IT WAS AGREED AS FOLLOWS:

## 1. BASIC PROVISIONS

- 1.1 Under this Contract the Contractor shall at its own cost and risk develop and implement for the Client software, which shall meet requirements listed in Annex 1 (*Technical Specification*) to this Contract (“**Software**”) and the Client shall take over the Software and shall pay the Price (as defined below) to the Contractor, all under the terms and conditions stipulated in this Contract.
- 1.2 Under this Contract the Contractor shall carry out following works and activities (“**Related Activities**”):
- a) to develop Software in accordance with the requirements listed in Annex 1 (*Technical Specification*);
  - b) to specify requirements on hardware (if such additional hardware is needed), on which Software shall be installed and operated to such extent and in such detail that the Client is able to procure such hardware on the market; the Contractor takes into account that it has the duty to implement Software on hardware procured by the Client and, therefore, is solely responsible for the proper, complete, clear and unambiguous specification of hardware;
  - c) to deliver Software to the place of delivery;
  - d) to install and implement Software in the place of delivery and carry out other activities that are necessary for the Client to start fully using the Software;
  - e) to carry out all other activities that are stipulated in Annex 1 (*Technical Specification*) to this Contract;
  - f) to verify that the Software meets all requirements stipulated in this Contract (and to carry out adjustments, if necessary);
  - g) to verify, that Software is fully functional;
  - h) to demonstrate the functionality of Software;
  - i) to allow the Client to test Software for two (2) weeks (user acceptance testing);
  - j) to elaborate and hand over to the Client (i) all documentation related to testing of Software and all protocols on such tests, (ii) user, operational and maintenance manuals of the Software and (iii) other documents that are necessary for the proper takeover and use of the Software; all the above mentioned documents shall be in Czech or English language and in electronic (in editable form) and paper form;
  - k) to hand over to the Client the source code to the Software prior to the signature of the Handover Protocol (as defined below);
  - l) to train up to 8 persons selected by the Client to such extent that after the training the trained persons will be able to safely and effectively operate and maintain the Software and shall know information that every owner and operator of the Software should know;

- m) to handover the declaration of conformity of the Software with the approved standards, if there are any; and
  - n) to cooperate with the Client during the performance of this Contract (e.g. to control the readiness of premises for the implementation of the Software, etc.).
- 1.3 If for the fulfilment of this Contract or for the proper operation of the Software are necessary other deliveries, works or activities not mentioned in this Contract, the Contractor shall procure such deliveries or shall carry out such works and activities at its own expense without any effect on the Price.

## 2. **THE PLACE OF DELIVERY**

- 2.1 The place of delivery is ELI Beamlines Facility in Dolní Břežany town, Central Bohemian Region, Czech Republic. The Client shall determine the exact premises for delivery and shall communicate it to the Contractor as soon as the Contractor is prepared to deliver the Software and carry out Related Activities and shall provide such information to the Client.

## 3. **COOPERATION DURING THE DEVELOPMENT OF THE SOFTWARE**

- 3.1 The Client is aware that Software does not exist at the time of the signature of this Contract and that the Contractor must develop Software.
- 3.2 The Client is entitled to exercise control over the development of the Software. For this purpose, the Contractor shall provide to the Client all information regarding the status of the development of the Software, at the request of the Client. Such request must be answered by the Contractor within 3 working days.

## 4. **THE TIME OF DELIVERY AND IMPLEMENTATION**

- 4.1 The Contractor shall deliver the Software and shall carry out Related Activities within 6 months from the effectiveness of this Contract. The Client reserves the right to unilaterally postpone the term of the delivery at its own discretion (even repeatedly), but such postponement shall not exceed 6 months in total.
- 4.2 The Contractor is entitled to handover the Software and to carry out Related Activities during working days between 8:30 and 17:00 hours, unless otherwise agreed by the Parties. Precise working days shall be determined on the basis of mutual agreement. If the agreement is not reached, the Contractor shall perform during the last thirty (30) days, within which it is possible to fulfill this Contract in time and the Client shall provide to the Contractor for this purpose necessary cooperation.

## 5. **PRICE AND PAYMENT TERMS**

- 5.1 The price for the fulfilment of the Contract is listed in Annex 2 (*Price Table*) without value added tax (“VAT”). The VAT shall be paid in accordance with the applicable legal regulations and international agreements.
- 5.2 The price cannot be exceeded and includes all costs and expenses of the Contractor related to the performance of this Contract. The price includes, among others, all expenses related to the development of Software, handover of the Software and the execution of Related

Activities, costs of copyright, insurance, support service and any other costs and expenses connected with the fulfilment of this Contract.

- 5.3 The price shall be paid in EUR on the basis of a tax document – invoice, to the account of the Contractor designated in the invoice.
- 5.4 The price for the development and integration of the Software shall be paid in the following manner:
- a) 50 % of the price shall be paid after the Client approves final design; and
  - b) 50 % of the price shall be paid after the signature of the acceptance protocol by both Parties. The acceptance signed by both Parties must be attached to the invoice.
- 5.5 The price for Post Delivery Support is specified in Annex 2 (*Price Table*) as hourly rate. The quantity of hours is indicative only. Post Delivery Support shall be realized by the Contractor only at the request by the Client, i.e. the quantity of expected hours is not binding (the Client is not bound to order any minimum quantity of Post Delivery Support).
- 5.6 The Client shall realize payments on the basis of duly issued invoice within 30 days from its receipt. The invoice shall be considered to be paid for on the day when the invoiced amount is deducted from the Client's account on behalf of the Contractor's account.
- 5.7 The invoice issued by the Contractor as a tax document must contain all information required by the applicable laws of the Czech Republic. Invoices issued by the Contractor in accordance with this Contract shall contain, in particular, following information:
- a) name and registered office of the Client,
  - b) tax identification number of the Client,
  - c) name and registered office of the Contractor,
  - d) tax identification number of the Contractor,
  - e) registration number of the tax document,
  - f) scope of the performance (including the reference to this Contract),
  - g) the date of the issue of the tax document,
  - h) the date of the fulfilment of the Contract (if applicable),
  - i) Price,
  - j) VAT base,
  - k) VAT rate,
  - l) amount of VAT in Czech currency,
  - m) registration number of this Contract, which the Client shall communicate to the Contractor based on Contractor's request before the issuance of the invoice,

and must comply with the double tax avoidance agreements, if applicable.

- 5.8 In case that the invoice shall not contain the above mentioned information, the Client is entitled to return it to the Contractor during its maturity period and this shall not be considered as a default. The new maturity period shall begin from the receipt of the supplemented or corrected invoice to the Client.
- 5.9 Last invoice of every calendar year must be delivered to the Client on December 15 of that calendar year, at the latest.
- 5.10 The Client prefers electronic invoicing that will be sent to: e-billing@eli-laser.eu.

## 6. **CONTRACTOR'S DUTIES**

- 6.1 The Contractor shall fulfil this Contract with professional care.
- 6.2 The Contractor shall ensure that the Software and Related Activities are in compliance with this Contract (including all its annexes), Contractor's Bid, and applicable legal (e.g. safety), technical and quality norms.
- 6.3 During the performance of this Contract the Contractor proceeds independently. If the Contractor receives instructions from the Client, the Contractor shall follow such instructions unless these are against the law or in contradiction to this Contract. If the Contractor finds out or should have found out (if professional care was exercised) that the instructions are for any reason inappropriate or illegal or in contradiction to this Contract, then the Contractor must notify the Client.
- 6.4 All things or material necessary for the performance of this Contract shall procure the Contractor, unless this Contract stipulates otherwise.

## 7. **HANDOVER AND TAKEOVER OF THE WORK**

- 7.1 Related Activities must be performed in the presence of representative of both Parties prior to the handover and takeover of Software, unless Parties agree otherwise.
- 7.2 Handover and takeover of the Software shall be realized on the basis of an acceptance protocol.
- 7.3 If the Contractor fails to duly carry out all Related Activities or if Software does not meet all requirements of this Contract, the Client is entitled to refuse the takeover of Software. In such a case the Contractor shall remedy the deficiencies within 10 working days, unless Parties agree otherwise. The Client is entitled (but not obliged) to take over Software despite the above mentioned deficiencies, in particular if such deficiencies do not prevent the Client in the proper operation of Software. In such a case the Contractor and the Client shall list the deficiencies in the acceptance protocol, including the manner and the date of their removal (remedy). If the Parties do not reach the agreement in the acceptance protocol regarding the date of the removal, the Contractor shall remove all the deficiencies within 10 working days.

8. **SOFTWARE WARRANTY AND POST DELIVERY SUPPORT SERVICES**
- 8.1 The Contractor shall provide Software with 2 years warranty ensuring that the delivered Software is free from critical and major defects. The warranty period shall begin on the day of the signature of the acceptance protocol by both Parties. If the acceptance protocol lists any defects or deficiencies, the warranty shall begin on the day, which follows the day, in which the last defect or deficiency was remedied.
- 8.2 Critical defect affects critical functionality or critical data and it does not have a workaround.
- 8.3 Major defect affects major functionality or major data. It has a workaround but is not obvious and is difficult to apply.
- 8.4 For Software which was developed by someone else and was only adapted by the Contractor (e.g. open source software), the warranty covers only the parts modified by the Contractor.
- 8.5 For Software that was delivered to the Client in source code, this warranty applies only in case that the Client has not modified the code after it had been delivered.
- 8.6 Subject to the warranty are software defects of critical or major severity which are discovered during the normal operation of the system that is controlled by this Software and can be reproduced in the same environment that was used for the Software acceptance.
- 8.7 Warranty claims must be notified by the Client. To be able to claim the warranty, the Client shall provide:
- a) code snippet which causes the reported defect in Software, so that the Contractor can reproduce the defect,
  - b) in case the code snippet can't be provided, a detailed description of steps the Contractor's personnel can execute to reproduce the reported Software defect,
  - c) access to the machine for the Contractor's personnel, if it is not possible to reproduce the defect at the Contractor,
  - d) all relevant logfiles and configuration files.
- 8.8 This warranty does not apply to the following types of defects:
- a) This warranty does not apply to the defects which can't be reproduced.
  - b) This warranty does not apply to the defects, caused by the malfunction of the platform software (i.e. LabView, EPICS, Tango Controls or operating system, VMs, and containers environment) or software that is interfacing the Software.
  - c) This warranty does not apply to the defects, detected in the Software when operated on the versions of the platform software and infrastructure (i.e. LabView, EPICS, Tango Controls, operating system, VMs and containers environment, network configurations) other than the ones stated in the specification provided to the Client by The Contractor or

accepted by The Contractor for deployment when a deployment has been done by The Contractor.

d) This warranty does not apply if the defect is caused by improper installation or configuration of the Software on the target system.

8.9 Based on the defect report the Contractor and the Client shall jointly classify and agree on the severity of the defect. In case the defect severity is subject to the warranty, the Contractor shall remove the defect in a reasonable period of time, but no later than 10 working days from its notification

8.10 Client In case the submitted defect is not subject to the warranty the Client shall pay for its identification and removal/repair as part of the Post Delivery Support. For calculation of the costs of the removal of non-warranty defects or any additional support connected with delivered Software, the Contractor shall use the hourly rate stated in Annex 2 (Price Table).

8.11 The Client is entitled to use Post Delivery Support, if the Client needs any additional support services, additional Software modification or development that is not covered as part of the delivery of the Software under this Contract. In such a case, the hourly rate in Annex 2 (Price Table) shall be used. However, prior to starting any work, the Contractor shall estimate the expected amount of work (hours) that will be necessary to carry out the assignment.

## 9. LICENSE

9.1 Under the received remuneration the Contractor grants to the Client a right to use the Software in the original or modified version, in connection with other work or independently under the conditions stated in the open source license LGPL-3.0 version <https://www.gnu.org/licenses/lgpl-3.0.html> or in any other similar open source, if applicable (“License”).

## 10. REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

10.1 The Contractor represents and warrants to the Client that

- a) the Contractor has all the professional prerequisites necessary for the proper fulfilment of this Contract,
- b) the Contractor is fully authorized to perform this Contract, and
- c) there are no obstacles on the Contractor’s side that would preclude him from the due performance of this Contract.

## 11. PENALTIES

11.1 If the Contractor breaches its duty to deliver the Software and carry out Related Activities within 1 year from the effectiveness of this Contract and such breach lasts for more than 1 month, the Contractor shall pay to the Client a contractual penalty in the amount of 0,05 % of the Price for every (even commenced) day of default (delay).

- 11.2 The Contractor shall pay contractual penalties within fifteen (15) days from the day, on which the Client informed the Contractor of the due amount. The payment of contractual penalties shall not affect the right of the Client to damages even to the extent to which such damages exceeds the contractual penalty.
- 11.3 Total amount of contractual penalties that the Buyer is entitled to claim shall not exceed 10 % of the Price.
- 11.4 The Client is entitled to unilaterally set off claims arising from the contractual penalties against the claim of the Contractor for the payment of the Price.

## 12. **RIGHT OF WITHDRAWAL**

- 12.1 The Client is entitled to withdraw from this Contract without any penalties, if any of the following circumstances occur:
- a) the Contractor breaches this Contract in a substantial manner;
  - b) the Contractor breaches the deadline stipulated in Article 4.1 of this Contract and such delay is longer than 2 weeks;
  - c) the insolvency proceedings or winding up proceedings are initiated against the Contractor; or
  - d) the Client ascertains that the Contractor provided in its bid for the Public Procurement information or documents that do not correspond to the reality and that had or could have had impact on the result of the award procedure, which preceded the conclusion of this Contract.

- 12.2 The Contractor is entitled to withdraw from this Contract if the Client breaches this Contract in a substantial manner.

## 13. **CONFIDENTIALITY**

- 13.1 Parties shall not disclose information that shall become available to them in connection with this Contract and its performance and whose disclosure could harm the other Party. Duties of the Client ensuing from the applicable legal regulations remain unaffected.

## 14. **REPRESENTATIVES OF THE PARTIES**

- 14.1 The Contractor appoints following representatives for the communication with the Client:

In technical matters:

Name:

E-mail:

Tel.:

In contractual matters:

Name:



E-mail: [REDACTED]

Tel.: [REDACTED]

14.2 The Client appoints following representatives for the communication with the Contractor:

In technical matters:

Jméno: Borislav Angelov

E-mail: [Borislav.Angelov@eli-beams.eu](mailto:Borislav.Angelov@eli-beams.eu)

The appointed representative of the Client is in particularly entitled to sign any and all protocols and other documents foreseen by this Contract, accept the Software, notify defects or deficiencies of the Software, extend the deadline for the performance of this Contract within the boundaries foreseen by this Contract, give instructions to the Contractor within the limits of this Contract and communicate with the Contractor regarding all aspects of the performance under this Contract. The appointed representative is not authorized to change or supplement this Contract.

## 15. FINAL PROVISIONS

15.1 This Contract is governed by the laws of the Czech Republic, especially by the Civil Code.

15.2 All disputes arising out of this Contract or out of legal relations connected with this Contract shall be preferable settled by a mutual negotiation. In case that the dispute is not settled within sixty (60) days, such dispute shall be decided by courts of the Czech Republic in the procedure initiated by one of the Parties.

15.3 The Contractor bears the risk of changed circumstances within the meaning of section 1765 of the Civil Code.

15.4 The Contractor takes into account that the Client is not in relation to this Contract an entrepreneur, nor the subject matter of this Contract is connected with the business activities of the Client.

15.5 The Contractor is not entitled to set off any of its claims or his debtor's claims against the Client's claims. The Contractor is not entitled to transfer its claims against the Client that arose on the basis or in connection with this Contract on third parties. The Contractor is not entitled to transfer rights and duties from this Contract or its part on third parties.

15.6 All changes, modifications and addenda to this Contract must be in writing.

15.7 If any of provisions of this Contract are invalid or ineffective, the Parties are bound to change this Contract in such a way that the invalid or ineffective provision is replaced by a new provision that is valid and effective and to the maximum possible extent correspond to the original invalid or ineffective provision.

15.8 If any Party breaches any duty under this Contract and knows or should have known about such breach, it shall notify it to the other Party and shall warn such Party of possible consequences of the breach.

- 15.9 An integral part of this Contract is Annex 1 (*Technical Specification*) and Annex 2 (*Price Table*). When Annex 1 (*Technical Specification*) uses the term “Contracting Authority”, it is meant the Client, by term “Supplier/supplier” is meant the Contractor.
- 15.10 This Contract shall be valid and effective on the date of the signature of both Parties.

**IN WITNESS WHEREOF** attach Parties their signatures:

**Client**

Signature: \_\_\_\_\_

Name: Roman Hvězda

Position: ELI Beamlines Facility Director

Date:

**Contractor**

Signature: \_\_\_\_\_

Name:

Position:

Date:

**ANNEX 1**  
**TECHNICAL SPECIFICATION**

**ANNEX 2**  
**PRICE TABLE**

**Technical Specification**

<b>Confidentiality Level</b>	<i>PU - Public</i>	<b>ELI BL ID / Revision</b>	<i>40210606/D</i>
<b>Document Status</b>	<i>Document Released</i>	<b>Document no.</b>	<i>N/A</i>
<b>OBS Code</b>	<i>88</i>		
<b>PBS Codes</b>	<i>E.E1.MXCube</i>		
<b>Document Branch</b>	<i>Engineering &amp; Scientific documents (E&amp;S)</i>		
<b>Document Type</b>	<i>Specification (SP)</i>		

*[RSD service category]*

## Development and configuration of the MXCube software for the TREX End Station

**TP24\_026**




**Key words:**

MXCube software configuration and development

	<b>Position</b>	<b>Name</b>
<b>Responsible person</b>	Senior Scientist	Borislav Angelov
<b>Prepared by</b>	Senior Scientist	Borislav Angelov

<i>RSS History</i>			
<i>RSS TC ID/revision</i>	<i>RSS – Date of Creation</i>	<i>RSS – Date of Last Modification</i>	<i>System Engineer</i>
24026.001	12.06.2024	12.06.2024	A. Kuzmenko
24026.002	27.06.2024	27.06.2024	A. Kuzmenko
24026.003	21.11.2024	21.11.2024	A. Kuzmenko

<i>Reviewed By</i>			
<i>Name (Reviewer)</i>	<i>Position</i>	<i>Date</i>	<i>Signature</i>
Aleš Černík	IT Group leader	NOTICE (see revision C)	
Birgit Plötzeneder	Central Control Systems Group Leader		
Martin Přeček	Scientist		
Jiří Kubricht	Lawyer		
Veronika Olšovcová	Group Leader of Safety		
Viktor Fedosov	Group Leader of Quality and Planning		
Vojtěch Gaman	Leader of Controls Hardware Integration Group		

<i>Approved By</i>			
<i>Name (Approver)</i>	<i>Position</i>	<i>Date</i>	<i>Signature</i>
Jakob Andreasson	Head of department of Structural Dynamics	25.11.2024	 VZ MARTIN PŘEČEK

<i>Revision History / Change Log</i>				
<i>Change no.</i>	<i>Made by</i>	<i>Date</i>	<i>Change description, Pages, Chapters</i>	<i>Rev.</i>
1	B. Angelov	29.05.2024	Draft	A
2	B. Angelov, A. Kuzmenko	21.06.2024	RSD update, version for internal review	B
3	B. Angelov, A. Kuzmenko	27.06.2024	RSD update, version for approval	C
4	B. Angelov, A. Kuzmenko	22.11.2024	RSD adjustment after negotiations, 2 <sup>nd</sup> release	D



## Table of Content

1. Introduction .....	4
1.1. Purpose .....	4
1.2. Scope .....	4
1.3. Description of the system .....	4
1.4. Abbreviations and Definitions .....	4
2. Functional and Performance Requirements .....	5
2.1. Goniometer Control .....	5
2.2. SmarAct Stage Control .....	5
2.3. Arinax OAV B-Zoom Microscope Integration .....	5
2.4. Specific functionalities .....	5
2.5. Materials cleanliness .....	5
3. Quality requirements .....	6
3.1. Documentation and data control .....	6
3.2. User Training .....	6
3.3. Maintenance and Post-delivery support .....	6
3.4. Nonconformity Control System .....	6
4. Verification requirements for the Supplier .....	6
4.1. General requirements .....	6
4.2. Phasing of the delivery .....	7
4.2.1. Design phase including project planning .....	7
4.2.2. Development .....	8
4.2.3. Final acceptance .....	8

## 1. Introduction

### 1.1. Purpose

This Requirements Specification Document (RSD) outlines the requirements for installing and partial integration the MXCube crystallographic program (MXCube) within the TREX End Station at the Extreme Light Infrastructure ERIC in Dolní Břežany, Czech Republic. This includes integrating MXCube with:

- STOE StadiVari goniometer;
- XYZ axis SmarAct stage for fine sample positioning;
- Arinax OAV B-ZOOM microscope.

The RSD is a part of tender documentation and also acts as a parent document for technical requirements that need to be addressed in lower-level design description documents (e.g. STOE StadiVari goniometer and Arinax OAV B-ZOOM microscope manuals, etc.).

### 1.2. Scope

This document encompasses the development, configuration and integration of the MXCube within the TREX End Station. The goal is to achieve seamless coordination and control between the software, goniometer, SmarAct stage, and microscope for precise sample positioning during crystallographic experiments. The RSD details all functional, performance, safety, operational, design, quality, and installation requirements.

### 1.3. Description of the system

The **MXCube** is a crystallographic program designed to facilitate and streamline the process of data collection and analysis at macromolecular crystallography beamlines. It is a user-friendly software that integrates various functionalities required for automated data acquisition, including sample mounting, alignment, centring, and data collection. The MXCube provides a graphical user interface (GUI) that allows researchers to easily control and monitor the experimental setup, visualize crystal diffraction patterns, and optimize data collection parameters. The program acts as the central control hub for the entire system and offers advanced features such as real-time visualization of diffraction data, automated data processing, and on-the-fly analysis of crystallographic data quality. With its intuitive interface and comprehensive capabilities, the mxCube aims to enhance the efficiency and productivity of macromolecular crystallography experiments, enabling researchers to quickly obtain high-quality data for structure determination.

The TREX end station is divided into three functional parts enabling the crystallographic experiments. These are X-ray optics, sample positioning, and X-ray detector. These parts are driven or supported with different automation (local control systems, central control system etc.), and safety, security and monitoring systems. Each particular component is located in a dedicated area.

The sample positioning is accomplished using an **STOE Stadivari goniometer**, which is controlled by Beckhoff controllers and TwinCAT 2 software. The precise positioning of the sample is achieved using a **Smaract XYZ stage** that is mounted on the Phi axis of the goniometer. The sample is observed through an **Arinax OAV B-ZOOM microscope**, which is a hybrid video microscope providing a wide zooming range and micrometric spatial resolution.

### 1.4. Abbreviations and Definitions

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

Abbrev.	Definition
CA	Contracting Authority (ELI ERIC)
ELI	Extreme Light Infrastructure
GUI	Graphical User Interface
ROI	Regions of Interest
RSD	Requirements Specification Document

## 2. Functional and Performance Requirements

### 2.1. Goniometer Control

REQ-402101/A

The MXCube software shall provide control over a goniometer axe (e.g. phi) with user-defined step sizes and scan ranges.

REQ-402104/A

The real-time feedback on goniometer position and status shall be displayed within the MXCube interface.

### 2.2. SmarAct Stage Control

REQ-402106/A

The MXCube software shall provide control and coordination of the XYZ axis SmarAct stage mounted on the Phi axis of the STOE StadiVari goniometer.

REQ-402107/A

The MXCube software shall enable 3-click centering of the crystal using the XYZ axes of the SmarAct stage, with available resolution and repeatability.

REQ-402108/A

Users shall be able to define movement parameters like complex trajectories (adding scan configurations to the queue), available in the mesh and continuous scan, for the SmarAct stage.

### 2.3. Arinax OAV B-Zoom Microscope Integration

REQ-402109/A

The MXCube software shall provide existing MXCube features, like ROI, exposure time and other available (<https://github.com/mxcube/mxcubecore>).

### 2.4. Specific functionalities

REQ-402114/A

The MXCube software shall provide:

1. Tracking mouse movement when hovering over the camera image,
2. Goniometer rotation of the phi axis and movement of Smaract X, Y, Z, using calibrated values,
3. Scans (Mesh and continuous scan),
4. ROI,
5. Exposure time,
6. Complex trajectories (adding scan configurations to the queue),
7. 3-click center calculation

### 2.5. Materials cleanliness

REQ-402126/A

The clothing and materials used by the Supplier during the MXCube software configuration at the CA's site shall be compatible with the ISO 7 class of the cleanrooms according to ČSN EN ISO 14644 international standards to prevent any contamination.

*NOTE 1: The clothing compatible with the ISO 7 class of cleanrooms will be provided by the CA.*

*NOTE 2: The Supplier's material used in clean rooms for the MXCube software configuration shall be agreed with the CA.*

### 3. Quality requirements

#### 3.1. Documentation and data control

REQ-402127/A

The Supplier shall provide the following documentation for the MXCube software:

1. Documentation in the docstrings included in the source code repository,
2. Readme of the software application included in the source code repository in a markdown format,
3. Relevant source code.

#### 3.2. User Training

REQ-402129/A

The Supplier shall provide 1 remote training session with a duration of 2-3 hours for the users of the CA on the proper operation of the integrated MXCube.

#### 3.3. Maintenance and Post-delivery support

REQ-402130/A

The Supplier shall provide an hourly rate for post-delivery support, which the CA can apply in case of a need for extra work. The post-delivery support shall be maintained for at least 5 years.

*NOTE 1: The price rate is fixed in the calendar year that the project will be delivered and in the following years the valorization index of the average inflation rate from the previous year will apply and increase the price per person-hour.*

*NOTE 2: In case of some issues that is not covered by the warranty, the CA should first ask the Supplier (as part of the post-delivery support) to roll back the application (MXCuBE) to the last stable and working version and after that start working on the reported issue.*

#### 3.4. Nonconformity Control System

REQ-402132/A

The Supplier shall have the nonconformity control process compatible to ISO 9001 or shall be ISO 9001 certified.

### 4. Verification requirements for the Supplier

The verification process will be performed by the Supplier to demonstrate that the MXCube software meets the requirements specified by the CA.

#### 4.1. General requirements

REQ-402133/A

The Supplier shall assign clear responsibility for the implementation of the verification process by using the Scrum management framework that focuses on delivering small, incremental pieces of a project in a structured, iterative process so-called sprints, which typically last 2 weeks.

*NOTE: The example of the project management framework can be:*

Key roles:

1. *Product Owner (Customer): Assigned person from the CA, that prioritizes work and maintains the product backlog.*
2. *Scrum Master (Accountable): Assigned person from the Supplier that ensures the Scrum process is followed, removes obstacles and facilitates team collaboration.*
3. *Task (activity) responsible: The Supplier's person or team assigned by the Accountable who executes the task or activity.*

Main artefacts:

1. *Product Backlog: A prioritized list of features, tasks, and technical work that serves as the project's to-do list.*
2. *Sprint Backlog: A subset of the product backlog selected for completion during a sprint.*
3. *Increment: The usable product output delivered at the end of each sprint, which must be potentially shippable.*

Major events:

1. *Sprint Planning: The team discusses what work will be done in the upcoming sprint including verification activities (tests).*
2. *Sprint Review: Held at the end of the sprint to demonstrate completed work and receive feedback from the CA (i.e. validation of the delivered work by the CA).*

## 4.2. Phasing of the delivery

This chapter is intended to briefly summarize the basic milestones of the contract phases. These milestones represent gates (checkpoints) where the quality of the delivered service for each contract phase is to be evaluated.

These milestones represent gates (checkpoints) where the quality of the delivery is to be evaluated. The delivery shall not proceed past these gates unless their satisfactory accomplishment is approved by the CA.

The delivery lifecycle shall contain at least the following phases (**quality gates**):

- **Design including project planning;**
- **Development including Verification** (Supplier's technical testing) and **Validation** (CA's user tests);
- **Final Acceptance** (performed by the CA).

### 4.2.1. Design phase including project planning

Summary of what has to be provided by the Supplier in terms of documentation (project documentation with high-level plan and milestones of deliverables, technical design documentation). The goal is to verify the **project and technical design documentation**. This quality gate concerns primarily:

- Project documentation with high-level plan and milestones of deliverables;
- Technical design documentation including specification of the software structure, interfaces between software and external systems, data flow, user interface and interaction.

The output of this phase is the **Final design and agreed scope of project documentation**.

REQ-402134/A

At the beginning of the Design phase, the Supplier shall provide the CA with a detailed project scope, along with a high-level project plan outlining key milestones and deliverables. This project documentation (plan, milestones, deliverables, etc.) shall be agreed with the CA.

*NOTE: The project documentation can be presented by the Supplier and discussed with the CA during the project kick-off meeting.*

REQ-402135/A

The regular bi-weekly project status meetings (including functional demonstration - Sprint Review) shall be scheduled by the Supplier and agreed upon with the CA to track the progress of the accepted project (REQ-402134/A).

*NOTE: The schedule of bi-weekly project status meetings can be agreed upon with the CA during the kick-off meeting.*

REQ-402136/A

The Supplier and the CA shall mutually agree on the project acceptance criteria, which will be documented as part of the 'Delivery Protocol'. At each project milestone, the Supplier shall confirm progress during the Sprint Review by conducting manual functional tests, with results summarized in the 'Test Report'. The Test Report shall serve as the formal record for milestone validation, and the CA shall review and approve it for further acceptance (chapter 4.2.3).

#### 4.2.2. Development

The goal is to demonstrate that the developed and configured MXCube software meets the design and project documentation accepted by the CA. This quality gate concerns primarily:

- Implementation of the control system software modules in line with the final design documentation;
- Development of the user interface and control panels;
- Implementation of error handling, logging, and diagnostic capabilities;
- Verification to ensure the developed MXCube software meets all requirements;
- Validation to ensure the developed MXCube software meets the users' needs (acceptance criteria);
- Identification and addressing any bugs or issues discovered during testing.

The output of this phase is **the Developed, Verified and Validated MXCube software**.

REQ-402737/A

The results of the functional and performance tests executed on the MXCube software after the fulfilment of each milestone shall be documented by the Supplier in the appropriate Test Reports and provided to the CA for review and approval.

REQ-402138/A

During the validation, the Supplier shall provide the CA with all cooperation, assistance and information that the CA needs for a full evaluation of the status of the developed MXCube software.

REQ-402739/A

The overall verification results, which demonstrate fulfilment of the pre-agreed acceptance criteria, shall be provided by the Supplier in the appropriate Delivery Protocol (REQ-402136/A).

#### 4.2.3. Final acceptance

Acceptance will be carried out by the CA upon successful development and verification of the MXCube software, integrated with the STOE StadiVari goniometer, the XYZ axis SmarAct stage, and the Arinax BZoom microscope. The basis for acceptance will be the Delivery Protocol summarizing the acceptance criteria and overall verification results together with relevant documentation supporting the verification (test reports, interface documents, relevant source code with docstrings, readme of the software application, etc.).

In case of the successful acceptance phase (fulfilment of the REQ-402152/A), the CA will provide the Supplier signed acceptance protocol. In case of the unsuccessful acceptance stage, the CA will provide the Supplier Nonconformity Report (NCR) and the process following the REQ-402132/A shall be applied.

REQ-402152/A

The Acceptance phase shall demonstrate the following:

- The MXCube software has been successfully verified by the Supplier and the results of the verification process have been documented in an appropriate way through Test Reports;
- All project milestones and acceptance criteria defined in REQ-402133/A and REQ-402727/A are met;
- The documentation defined in Chapters 3.1 and 4.2.1 of this RDS has been provided;
- The maintenance and post-delivery support have been established as requested in Chapter 3.3;
- All detected nonconformities have been solved in accordance with REQ-402132/A;
- The developed MXCube software is free of bugs or issues and is ready for the intended operational use.

## Annex 3

### Cover Note

Procurement title:

#### “Development and configuration of the MXCube software for the TREX End Station TP24\_026\_REISSUE “

Organisation	The Extreme Light Infrastructure ERIC
Registered Office:	Za Radnicí 835, 252 41 Dolní Břežany, Czech Republic
Identification No.:	109 74 938
Tax Identification No.:	CZ10974938
Person authorised to act on behalf of the Organisation:	Roman Hvězda, ELI Beamlines Facility Director

**Supplier's Business Name incl. Legal Form:** [to be filled in by supplier]  
**Registered Office:** [to be filled in by supplier]  
**Identification No.:** [to be filled in by supplier]  
**Tax Id. No.:** [to be filled in by supplier]  
**Small / Medium-sized enterprise (in accordance with the Recommendation 2003/361/EC):** [YES/NO - to be filled in by supplier]  
**Person authorized to represent the supplier:** [to be filled in by supplier]  
**Contact person:** [to be filled in by supplier]  
**Contact address:** [to be filled in by supplier]  
**Tel:** [to be filled in by supplier]  
**E-mail of the Contact person:** [to be filled in by supplier]

The supplier hereby fully and without reservations accepts the business and technical conditions stated in the draft of the Purchase Contract and in the Technical Specification which were the integral parts of the Request for Quotation.

In [to be filled in by supplier] On [to be filled in by supplier]

.....  
[Signature - to be filled in by supplier]  
[Business Name - Authorized Representative to be filled in by supplier]

**Price table**



Development and configuration of the MXCube software for the TREX End Station TP24\_026 | Price Bid Table

Item No.	Item	Expected quantity of hours		Price (EUR excl. VAT)
1	Development and integration (configuration) of the MXCube software			- €
2	Post Delivery Support	50	- €	- €
<b>Total Bid Price (EUR excl. VAT)</b>				- €

## Affidavit regarding international sanctions

Procurement title:

**“Development and configuration of the MXCube software  
for the TREX End Station TP24\_026\_REISSUE“**

**Supplier’s Business Name incl. Legal Form:** [to be filled in by supplier]

**Registered Office:** [to be filled in by supplier]

**Identification No.:** [to be filled in by supplier]

**Authorized Representative:** [to be filled in by supplier]

The supplier hereby solemnly declares that the award of Purchase Contract to him does not represent any violation of international sanctions according to Czech Act No. 69/2006 Coll., on Implementation of International Sanctions, as amended.

In [to be filled in by supplier] On [to be filled in by supplier]

.....  
[Signature - to be filled in by supplier]  
[Business Name - Authorized Representative to be filled  
in by supplier]