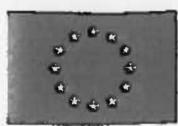


Kom



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



smlouva č. S16/159E

## PURCHASE CONTRACT

This purchase contract ("Contract") was concluded pursuant to section 2079 *et seq.* of the act no. 89/2012 Coll., Civil Code ("Civil Code"), on the day, month and year stated below by and between:

(1) **Institute of Physics of the Academy of Sciences of the Czech Republic, a public research institution,**  
with its registered office at: Na Slovance 2, Praha 8, PSČ: 182 21,  
registration no.: 68378271,  
represented by: prof. Jan Řídký, DrSc. – director  
("Buyer"); and

(2) **MIT, spol. s r. o.,**  
with its registered office at: Praha 4, Klánova 71/56, PSČ 14700,  
registration no.: 46348395,  
represented by: Martin Moser, managing director  
("Seller").

(The Buyer and the Seller are hereinafter jointly referred to as "Parties" and individually as "Party".)

### WHEREAS

(A) The Buyer is a public contracting authority and the beneficiary of a grant of the Ministry of Education, Youth and Sports of the Czech Republic for a project „ELI: EXTREME LIGHT INFRASTRUCTURE – Phase 2“, reg. number: CZ.02.1.01/0.0/0.0/15\_008/0000162 ("Project"), within the Operational Programme Research, Development and Education.

(B) For the successful realization of the Project it is necessary to purchase the Object of Purchase (as defined below) in accordance with the Rules for the Selection of Suppliers within the Operational Programme Research, Development and Education.

(C) The Seller wishes to provide the Object of Purchase to the Buyer for consideration.

(D) The Seller's bid for the public procurement entitled "*Positioning Systems for ELI Endstations- reissue*", whose purpose was to procure the Object of Purchase ("Public Procurement"), was selected by the Buyer as the most suitable.

### IT WAS AGREED AS FOLLOWS:



## 1. BASIC PROVISIONS

- 1.1 Under this Contract the Seller shall hand over to the Buyer devices that are described in Annex 1 (Technical Specification) to this Contract in the quantity and quality stipulated therein and with the properties described therein ("Object of Purchase") and shall transfer to the Buyer ownership right to the Object of Purchase, and the Buyer shall take over the Object of Purchase and shall pay the Seller the Purchase Price (as defined below), all under the terms and conditions stipulated in this Contract.
- 1.2 Under this Contract the Seller shall also carry out following activities ("Related Activities"):
  - a) to transport the Object of Purchase to the place of delivery;
  - b) to elaborate and hand over to the Buyer operational and maintenance manuals of the Object of Purchase in the extent specified in Annex 1 (Technical Specification) and other documents that are necessary for the proper takeover and use of the Object of Purchase in Czech or English language; and
  - c) cooperate with the Buyer during the performance of this Contract.

## 2. THE PLACE OF DELIVERY

The place of delivery is at the address: Fyzikální ústav AV ČR v.v.i/ELI beamlines, Průmyslová 836, 252 41 Dolní Břežany, Czech Republic or any other address in Dolní Břežany, Czech Republic, which the Buyer communicated to the Seller prior to the delivery of the Object of Purchase.

## 3. THE TIME OF DELIVERY

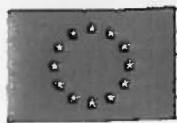
- 3.1 The Seller shall deliver the Object of Purchase and shall carry out Related Activities within 4 months from the effectiveness of this Contract. The Buyer is entitled to postpone at its own discretion the time of delivery by up to 12 weeks.

## 4. THE OWNERSHIP RIGHT

The ownership right to the Object of Purchase shall be transferred to the Buyer upon the signature of the handover protocol by both Parties.

## 5. PRICE AND PAYMENT TERMS

- 5.1 The purchase price for the Object of Purchase is 1.416.000,- CZK ("Purchase Price") without value added tax ("VAT"). VAT will be paid in accordance with the applicable legal regulations. If the Seller pays the VAT (this is applicable to domestic suppliers only), then the Purchase Price with VAT 21 % is 1.713.360,- CZK.
- 5.2 The Purchase Price cannot be exceeded and includes all costs and expenses of the Seller related to the performance of this Contract. The Purchase Price includes, among others,



all expenses related to the handover of the Object of Purchase and execution of Related Activities, costs of copyright, insurance, customs, warranty service and any other costs and expenses connected with the performance of this Contract.

5.3 The Purchase Price for the Object of Purchase shall be paid in CZK on the basis of a tax document – invoice, to the account of the Seller designated in the invoice. The Purchase Price shall be paid after the signature of the handover protocol. The copy of the handover protocol must be attached to the invoice.

5.4 The Buyer shall realize payments on the basis of duly issued invoices within 30 days from their receipt. The invoice shall be considered to be paid for on the day when the invoiced amount is deducted from the Buyer's account on behalf of the Seller's account.

5.5 The invoice issued by the Seller as a tax document must contain all information required by the applicable laws of the Czech Republic. Invoices issued by the Seller in accordance with this Contract shall contain in particular following information:

- a) name and registered office of the Buyer,
- b) tax identification number of the Buyer,
- c) name and registered office of the Seller,
- d) tax identification number of the Seller,
- 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,
- i) Purchase Price,
- j) registration number of this Contract, which the Buyer shall communicate to the Seller based on Seller's request before the issuance of the invoice,
- k) declaration that the performance of the Contract is for the purposes of a project „ELI: EXTREME LIGHT INFRASTRUCTURE – Phase 2“, reg. number: CZ.02.1.01/0.0/0.0/15\_008/0000162,

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

5.6 In case that the invoice shall not contain the above mentioned information, the Buyer is entitled to return it to the Seller 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 Buyer.

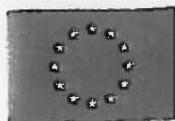


## 6. SELLER'S DUTIES

- 6.1 The Seller shall ensure that the Object of Purchase and Related Activities are in compliance with this Contract including all its annexes and applicable legal (e.g. safety), technical and quality norms.
- 6.2 During the performance of this Contract the Seller proceeds independently. If the Seller receives instructions from the Buyer, the Seller shall follow such instructions unless these are against the law or in contradiction to this Contract. If the Seller 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 Seller must notify the Buyer.
- 6.3 All things necessary for the performance of this Contract shall procure the Seller, unless this Contract stipulates otherwise.
- 6.4 The Seller is aware that the Buyer does not have at its disposal premises for the storage of packaging and, therefore, shall not store packaging of the Object of Purchase. The absence of original packaging cannot be an excuse for refusal of elimination of defects of the Object of Purchase.

## 7. HANNOVER OF THE OBJECT OF PURCHASE

- 7.1 Handover and takeover of the Object of Purchase shall be realized on the basis of a handover protocol. The handover protocol may be signed only after all the Related Activities are carried out.
- 7.2 If the Seller fails to duly carry out all Related Activities or if the Object of Purchase does not meet requirements of this Contract, the Buyer is entitled to refuse the takeover of the Object of Purchase. In such a case the Seller shall remedy the deficiencies within ten (10) working days, unless Parties agree otherwise. If the Seller cannot remove the defect within the time period stated in the previous sentence due to objective reasons (e.g. due to the unavailability of the spare parts or long manufacturing time of spare parts), then the defect shall be removed within 4 months.
- 7.3 The Buyer is entitled (but not obliged) takeover the Object of Purchase despite the deficiencies, in particular, if such deficiencies do not prevent the Buyer in the proper operation of the Object of Purchase. In such a case the Seller and the Buyer shall list the deficiencies in the handover protocol, including the manner and the date of their removal (remedy). If the Parties do not reach agreement in the handover protocol regarding the date of the removal, the Seller shall remove the deficiencies within ten (10) working days. If the Seller cannot remove the defect within the time period stated in the previous sentence due to objective reasons (e.g. due to the unavailability of the spare parts or long manufacturing time of spare parts), then the defect shall be removed within 4 months.
- 7.4 Parties exclude the application of the Section 2126 of the Civil Code.

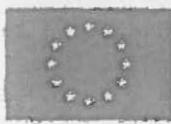


## 8. WARRANTY

- 8.1 The Seller shall provide a warranty of quality of the Object of Purchase for the period of 12 months. If on the warranty list or other document is the warranty period of longer duration, then this longer warranty period shall have priority over the period stated in this Contract.
- 8.2 The warranty period shall begin on the day of the signature of the handover protocol by both Parties. If the handover protocol lists any deficiencies, the warranty period shall begin on the day, which follows the day, in which the last deficiency was removed.
- 8.3 The Seller shall remove defects that occur during the warranty period free of charge and in the terms stipulated in this Contract.
- 8.4 If the Buyer ascertains a defect of the Object of Purchase during the warranty period, the Buyer shall notify such defect without undue delay to the Seller. Defects may be notified on the last day of warranty period, at the latest.
- 8.5 The Buyer notifies defects in writing via e-mail. The Seller shall accept notifications of defects on the following e-mail address: [servis@mit-laser.cz](mailto:servis@mit-laser.cz). The Seller shall confirm within 24 hours from the receipt of the notification.
- 8.6 In the notification the Buyer shall describe the defect and the manner of removal of the defect. The Seller shall:
  - a) remove the defect by the delivery of new Object of Purchase or its individual parts, or
  - b) remove the defect by repair, or
  - c) provide reasonable reduction of the Purchase Price.

The choice among the above mentioned rights belongs to the Seller. The Buyer is entitled to withdraw from this Contract, if by delivering the Object of Purchase with defects this Contract is substantially breached.

- 8.7 The Seller shall remove the defect within 8 weeks from its notification, unless Parties agree otherwise. If the Seller cannot remove the defect within the time period stated in the previous sentence due to objective reasons (e.g. due to the unavailability of the spare parts or long manufacturing time of spare parts), then the defect shall be removed within 4 months from its notification.
- 8.8 Parties shall execute a protocol on the removal of the defect, which shall contain the description of the defect and the confirmation that the defect was removed. The warranty period shall be extended by a period of time that elapses between the notification of the defect until its removal.



8.9 The warranty does not cover defects caused by unprofessional manipulation or by the failure to follow Seller's instructions for the operation and maintenance of the Object of Purchase.

8.10 Parties exclude the application of Section 1925 of the Civil Code.

## 9. PENALTIES

9.1 If the Seller is in delay regarding the delivery of the Object of Purchase, i.e. the Seller breaches its duty to perform this Contract in time and such delay lasts for more than 1 month, the Seller shall pay to the Buyer a contractual penalty in the amount of 0,1% of the Purchase Price for every (even commenced) day of default.

9.2 If the Seller is in default with the removal of the defect, the Seller shall pay to the Buyer a contractual penalty in the amount of 0,05% of the Purchase Price for every (even commenced) day of default.

9.3 The Seller shall pay contractual penalties within fifteen (15) days from the day, on which the Buyer enumerated its claims. The payment of contractual penalties shall not affect the right of the Buyer to damages even to the extent to which such damages exceeds the contractual penalty. The total amount of damages shall not exceed 100 % of the Purchase Price.

9.4 Total amount of contractual penalties that the Buyer is entitled to claim shall not exceed 5 % of the Purchase Price.

9.5 Parties exclude the Section 2050 of the Civil Code.

## 10. RIGHT OF WITHDRAWAL

10.1 The Buyer is entitled to withdraw from this Contract without any penalties, if any of the following circumstances occur:

- a) the expenses or the part of the expenses that will arise on the basis of this Contract will be found by the provider of the grant or other control body as ineligible;
- b) the Seller shall be in delay with the fulfilment of this Contract and such delay lasts more than one (1) month;
- c) The Object of Purchase during testing at the Buyer's premises does not fulfil the requirements stipulated in this Contract, in particular in Annex 1 (Technical Specification) and the deficiencies cannot be remedied;
- d) the Buyer shall lose a grant for the realization of the Project;
- e) the insolvency proceeding is initiated against the Seller; or



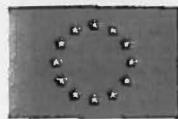
- f) the Buyer ascertains that the Seller provided in its bid for the Public Procurement information or documents that do not correspond to the reality and that had or could have had impact on the result of the tendering procedure, which preceded the conclusion of this Contract.

## 11. SPECIAL PROVISIONS

By signing this Contract, the Seller becomes a person that must cooperate during the finance control within the meaning of Section 2 letter e) of the act no. 320/2001 Coll., on finance control in the public administration, and shall provide to the Directing Body of the Operational Programme Research and Development for Innovations or other control bodies access to all parts of the bid, Contract or other documents that are related to the legal relationship formed by this Contract. This duty also covers documents that are subject to the protection in accordance with other acts (business secrets, secret information, etc.) provided that control bodies fulfil requirements stipulated by these acts. The Seller shall secure that all its subcontractors are also obliged to cooperate with control bodies in the above stipulated extent. The possibility of effective control must be preserved until the year 2026.

## 12. FINAL PROVISIONS

- 12.1 This Contract is governed by the laws of the Czech Republic, especially by the Civil Code.
- 12.2 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.
- 12.3 The Seller bears the risk of changed circumstances within the meaning of Section 1765 of the Civil Code.
- 12.4 The Seller is not entitled to set off any of its claims or his debtor's claims against the Buyer's claims. The Seller is not entitled to transfer its claims against Buyer that arose on the basis or in connection with this Contract on third parties. The Seller is not entitled to transfer rights and duties from this Contract or its part on third parties.
- 12.5 All modifications and supplements of this Contract must be in writing.
- 12.6 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.
- 12.7 This Contract is executed in four (4) counterparts and every Party shall receive two (2) counterparts.



12.8 An integral part of this Contract is Annex 1 (Technical Specification). If Annex 1 (Technical Specification) uses the term "Contracting Authority" or "contracting authority" it means the Buyer. If Annex 1 (Technical Specification) uses the term "Supplier" or "supplier" it means the Seller.

12.9 This Contract shall be valid and effective on the date of the signature of both Parties.

IN WITNESS WHEREOF attach Parties their handwritten signatures:

Buyer

Signature:

- 6. 09. 2016

Name: prof. Jan Řídký, DrSc.

Position: director

Fyzikální ustav AV ČR

veřejná výzkumná instituce

182 21 Praha 8, Na Slovance 2

- 1 -

Seller

Signature:

Name: Martin Moser

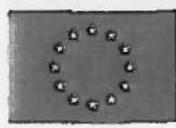
Position: managing director

Date: 31. 8. 2016



Lnsery, fotonika  
a jemná mechanika

MIT spol. s.r.o., Klášterka 56, 147 00 Praha 4



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



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



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Confidentiality Level	BL - Restricted for Internal use	TC ID / Revision	00119663 / C
Document Status	Document Released	Document No.	N/A
WBS code	5.3 - RP4 Applications in molecular, biomedical, and material sciences		
PBS code	E.E1.TxRD - (RA4) Time resolved X-ray diffraction		

### ***Requirements Specification Document (RSD)***

## ***Positioning Systems for E1 Endstations***

### ***Electromagnetic motor-driven stages, in air***

	Position	Name
Responsible person	Leader of research activities 4	Jakob Andreasson
Prepared by	Junior researcher	Petr Brůža

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# 1. Introduction

## 1.1. Purpose

This Requirements Specification Document (RSD) lists the technical requirements and constraints on the in-air, electromagnetic drive motion systems, including delay lines with femtosecond sensitivity, for the RA4 experimental group at the ELI Beamlines facility.

## 1.2. Scope

This RSD contains all of the technical requirements: functional, performance, operational and design, delivery, safety, and quality requirements for the motion system elements. These motion system elements shall be used in the premises of the ELI building for experimental end-stations in the E1 experimental hall.

These motion system elements are products of Category A according to the ELI Beamlines procurement categories. Category A items are off-the-shelf products that do not need to be modified. As such they are not subject to a verification programme (review of design, inspection and testing) before use ELI Beamlines applications by the ELI Beamlines project specifications.

## 1.3. Terms, Definitions and Abbreviations

For the purpose of this document, the following abbreviations apply:

Abbreviation	Meaning
ELI	Extreme Light Infrastructure
RA4	Research activity 4
E1	Experimental hall 1
L1	Laser Hall 1
ASCII	American Standard Code for Information Interchange
RSD	Requirements Specification Document
SDK	Software Development Kit
W x L x H	Width x Length x Height

## 2. General Functional, Performance and Design requirements

### 2.1. General requirements

REQ-013464/A

The parameters of the individual components of the motion systems shall be fully compliant with Annex I C. Technical requirements.

REQ-013465/A

Rapid scan linear stage (C7 in Annex I C) shall be frictionless and capable of generating fast wide scans (delay  $\geq 15$  ps at repetition rate up to 20Hz) without stick-slip effects. It shall be synchronized with an external clock (1 kHz) for a precise, phase-locked scanner movement. The actual position shall be measured in real time by an analog photo-electric system (position output signal: +/- 10V). This stage shall be equipped with low mass retro reflector with coating corresponding to reflectance  $R > 75\%$  in 250 - 1000 nm range and  $R > 90\%$  at 500 nm. Clear aperture of the retroreflector has to be at least 1 inch (25.4 mm) with tolerance of 1 mm.

REQ-013466/A

All the motion controllers (except C7 rapid scan linear stage, see REQ-013468/A) shall have RJ45 (for Ethernet) sockets that allow communication and control from a remote host computer. The control shall be possible by one of the following:

- ASCII based command protocol over the Ethernet (protocol shall be documented);
- Linux 64bit compatible C++ libraries (libraries shall be part of the delivery).

*NOTE: The RJ45 socket can be provided by extender/convertor or by mounting on a DIN rail.*

REQ-013467/A

Controller for short travel linear stage (C2) shall be able to control 8 independent motor drivers what allows to connect additional stages in the future.

REQ-013468/A

Controller for rapid scan linear stage (C7) shall be equipped with USB interface that allow communication and control from a remote host computer by ASCII based command protocol (protocol shall be documented).

REQ-013469/A

The unit system of the mounting holes, sizes and layout shall be metric.

REQ-013470/A

The motion controllers shall be delivered with EU compatible power supplies.

REQ-013471/A

Each in-air stage shall be delivered with required in-air cables.

## 3. Building and Environmental conditions



REQ-013483/A

All elements of the motion system shall be suitable for operation in the building and environmental conditions of the Contracting Authority.

REQ-013484/A

All elements of the motion system shall be delivered in protective package preventing damage and contamination. The package shall have a minimum of two plies separate clean packaging.

REQ-013485/A

Each item shall be cleaned and packaged in clean environment of class 7 according to ČSN EN ISO 14644 or cleaner. If the supplier cannot fulfil class 7 cleanliness requirements, the Supplier and Contracting Authority shall agree on the cleaning method to be used to clean devices without decreasing the devices' performance and to avoid contamination of the clean space of the Contracting Authority.

*NOTE: The cleaning methods of the Contracting Authority may include high temperatures (baking out), high gas flow (dry air) and specialised chemical cleaning liquids (alcohol, Isopropyl alcohol, demineralised water).*

## 4. Safety Requirements

REQ-013487/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. 22/1997 Coll., as amended.

## 5. Quality Requirements

REQ-013490/A

The supplier shall provide the Product User Manual for each product type as part of the delivered Device. The Manual shall include the instructions and descriptions regarding the following procedures:

- description of transport;
- handling;
- storage;
- installation and calibration (if required);
- safe operation and maintenance procedures;
- user manual for the software and for the SDKs or communication protocol documentation.

REQ-013491/A

Supplier shall provide information that an outgoing check has been performed. This information shall at least include a declaration of conformity with the technical requirements defined by the RSD and completeness of the product.



## 6. Annex I C

### 6.1. Table 1 - Technical requirements

Appendix I C - Positioning Systems for E1 Endstations - electromagnetic motor-driven stages, in air

Item No.	Type	Travel range mm	Axes of travel mm	Minimum incremental motion/step width μm	Directional repeatability or backlash μm	Absolute position accuracy μm	Reposition pos μm	Anti-shaking force N	LIS force N	Normal load force N	speed mm/s	encoder type	Item size (W x L x H) mm	Weight kg	Electronic controller (incl. drivers)	Special requirements	Qty
<b>Electromagnetic motor-driven stages, in air</b>																	
C1	Long-travel linear stage with direct-drive linear motor	1000	X	<0.02	<1	<50	NA	>50	N/A	>50	>400	yes, linear encoder	<200 x <1600 x <150	N/A	yes, C4	Including cable chains	2
C2	Short-travel linear stage with low friction ball screw drive	25	X	<0.02	<1	<3	NA	>30	N/A	>50	>20	yes	<150 x <150 x <50	N/A	yes, C5	n/a	1
C3	Fast microscope scanning stage	>90 x >50	XY	<0.5	<1	<5	NA	<1.5	N/A	>5	>200	N/A	N/A	N/A	yes, C5	n/a	1
C4	Motor controller + drivers	For C1 - Long-travel linear stages. Ethernet PC connection. Number of motor drivers and controller axes (greater than or equal to) ≥ 2. Separate for each stage. Including necessary cables.														1	
C5	Motor controller + drivers	For C2 - Short travel linear stage. Ethernet PC connection. Number of motor drivers (greater than or equal to) ≥ 1. Number of controller axes (greater than or equal to) ≥ 8. Including necessary cables.														1	
C6	Controller	For C3 - Fast scanning stage. Including necessary cables.														1	
C7	Rapid scan linear stage with low mass retrodirective and controller	>2.25	X	<0.3	<1	<3	NA	NA	N/A	NA	>100	N/A	N/A	N/A	Included	position analog signal +/- 10V scanning rate 1-20 Hz external trigger 1kHz	1