

## 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: RNDr. Michael Prouza, PhD. – director

("Buyer"); and

- (2) **MIT, spol. s r.o.**

with its registered office at: Klánova 71/56, 147 00 Praha 4

registration no.: 46348395

represented by: Martin Moser – managing director

("Supplier")

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

### WHEREAS

- (A) For the successful implementation of the Project it is necessary to purchase the Object of Purchase (as defined below).
- (B) The Supplier's bid for the public procurement entitled "High-precision high-load vacuum compatible stepper actuators" \_TP17\_091", 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 Supplier shall deliver to the Buyer high – precision high-load vacuum compatible electrical actuators driven by stepper motors including motor controllers and provide the Buyer with related services and requested documentation

as stipulated in Annex 1 (Technical Specification) to this Contract (“**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 Supplier the Purchase Price (as defined below), all under the terms and conditions stipulated in this Contract.

- 1.2 The Supplier promises to the Buyer that if for the fulfillment of the requirements of the Buyer under this Contract or the proper operation of the Object of Purchase are necessary other deliveries and activities not expressly mentioned in this Contract, the Supplier shall procure such deliveries or shall carry out such activities at its own expense without any effect on the Purchase Price.

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

The place of delivery is: Fyzikální ústav AVČR, v.v.i / ELI-Beamlines, Za Radnicí 836, 252 41 Dolní Břežany, Czech Republic.

## 3. **THE TIME OF DELIVERY**

- 3.1 The Supplier shall deliver the Object of Purchase and shall carry out related activities within 7 weeks from the signature of this Contract. The delivery can be split into individual delivery of each the Object of Purchase.

## 4. **THE OWNERSHIP RIGHT**

The ownership right to the Object of Purchase shall pass to the Buyer upon signature of the Acceptance Protocol (as defined below) by both Parties.

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

- 5.1 The purchase price for the Object of Purchase is **69.800,- EUR** (“**Purchase Price**”) without value added tax (“**VAT**”). VAT will be paid in accordance with the applicable legal regulations.
- 5.2 The Purchase Price cannot be exceeded and includes all costs and expenses of the Supplier 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 on the basis of a tax document – invoice, to the account of the Supplier specified in the invoice. The Supplier is entitled to issue the invoice after signature of the Acceptance Protocol. Copy of the Acceptance Protocol must be attached to the invoice. The invoice must be delivered to the Buyer without undue delay after the signature of the Acceptance Protocol. The

invoice shall have only the electronic form and shall be submitted to the email address: [efaktury@fzu.cz](mailto:efaktury@fzu.cz).

- 5.4 The Buyer shall realize the payment on the basis of duly issued invoice within 30 days from its receipt. If the Supplier stipulates any shorter due period of the invoiced amount in the invoice such different due period shall not be deemed relevant and the due period stipulated herein applies. 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 Supplier's account.
- 5.5 The invoice issued by the Supplier as a tax document must contain all information required by the applicable laws of the Czech Republic. Invoices issued by the Supplier 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 Supplier,
  - d) tax identification number of the Supplier,
  - 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 Supplier based on Supplier's request before the issuance of the invoice,

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 Supplier 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. SUPPLIER'S DUTIES

- 6.1 The Supplier shall ensure that the Object of Purchase is in compliance with this Contract including all its annexes
- 6.2 During performance of this Contract the Supplier proceeds independently. If the Supplier receives instructions from the Buyer, the Supplier shall follow such instructions unless these are against the law or in contradiction to this Contract. If the Supplier 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 Supplier must notify the Buyer.

7. **HANDOVER OF THE OBJECT OF PURCHASE**

7.1 Handover and takeover of the Object of Purchase shall be realized on the basis of an acceptance protocol ("**Acceptance Protocol**") after all conditions for issuing it are met (see mainly sec. 5 of Annex No 1 hereto).

7.2 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 Supplier shall remedy the deficiencies within ten (10) working days, unless Parties agree otherwise. The Buyer is entitled (but not obliged) to take over the Object of Purchase despite the above mentioned deficiencies, in particular if such deficiencies do not prevent the Buyer from the proper operation of the Object of Purchase. In such a case the Supplier and the Buyer shall list the deficiencies in the Acceptance Protocol, including the manner and the date of their removal (remedy). If the Parties do not reach agreement in the Acceptance Protocol regarding the date of the removal, the Supplier shall remove the deficiencies within ten (10) working days.

8. **WARRANTY**

8.1 The Supplier 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 Acceptance Protocol by both Parties. If the Acceptance 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 Supplier 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 the Supplier such defect without undue delay. 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 Supplier shall confirm within 2 working days 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 Buyer has the right to:

- a) ask for the removal of the defect by the delivery of new Object of Purchase or its individual parts, or
- b) ask for the removal of the defect by repair, or
- c) ask for the adequate reduction of the Purchase Price.

The choice among the above mentioned rights belongs to the Buyer. However, the Buyer is not entitled to request delivery of a new Object of Purchase or its parts in case of removable defects unless the same defect occurs repeatedly. The Buyer is also entitled to withdraw from this Contract, if by delivering the Object of Purchase with defects this Contract is substantially breached.

- 8.7 The Supplier shall remove the defect within 21 calendar days from its notification, unless Parties agree otherwise.
- 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 and its removal if the Buyer was prevented from using the Object of Purchase for the intended use due to the defect removal.
- 8.9 In case that the Supplier does not remove the defect within stipulated time or if the Supplier refuses to remove the defect for which it is responsible, then the Buyer is entitled to remove the defect at his own costs and the Supplier shall reimburse these costs within 10 days after the Buyer's request to do so.
- 8.10 The warranty does not cover defects caused by unprofessional manipulation or by failure to follow Supplier's instructions for the operation and maintenance of the Object of Purchase.

## 9. **PENALTIES**

- 9.1 If the Supplier is in delay regarding the delivery of the Object of Purchase, i.e. the Supplier breaches its duty to perform this Contract in time and due manner, the Supplier shall pay to the Buyer a contractual penalty in the amount of 0.05% from the Purchase Price (excl. VAT) for each (even commenced) day of delay.
- 9.2 If the Supplier is in delay with removal of a defect of the Object of Purchase, the Supplier shall pay to the Buyer a contractual penalty in the amount of 0.02% of the Purchase Price of the Object of Purchase for each (even commenced) day of delay.
- 9.3 The Supplier 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 in the amount in which such damages exceed the contractual penalty.

9.4 Total amount of contractual penalty that the Buyer is entitled to claim for late delivery of the Object of Purchase shall not exceed 20 % of the Purchase Price.

9.5 The Buyer is entitled to unilaterally set off claims arising from the contractual penalties against the claim of the Supplier for the payment of the Purchase Price.

## 10. **RIGHT OF WITHDRAWAL**

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

d) the Supplier is in delay with the fulfilment of this Contract and such delay lasts more than two (2) months

e) The Object of Purchase does not repeatedly fulfil the requirements stipulated in this Contract, in particular in Annex 1 (Technical Specification)

f) the insolvency proceeding is initiated against the Supplier; or

g) the Buyer ascertains that the Supplier 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 Supplier becomes a person obliged to cooperate during financial controls 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 Managing Body of the Research, Development and Education Operational Program 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 protection in accordance with other acts (business secrets, secret information, etc.) provided that control bodies fulfil requirements stipulated by these acts.

## 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 a 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 Supplier is not entitled to set off any of its claims or his debtor's claims against the Buyer's claims. The Supplier is not entitled to transfer its claims against Buyer that arose

on the basis of or in connection with this Contract on third parties. The Supplier is not entitled to transfer rights and duties from this Contract on third parties.

- 12.4 All modifications and supplements of this Contract must be in writing.
- 12.5 If any provision of this Contract is invalid or ineffective, the Parties are bound to modify 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 corresponds to the original invalid or ineffective provision.
- 12.6 This Contract is executed in four (4) counterparts and every Party shall receive two (2) counterparts.
- 12.7 Integral parts of this Contract is Annex 1 (*Technical Specification*). In case of any discrepancy between provisions of this Contract and provisions of Annex 1 provisions of this Contract shall prevail.
- 12.8 This Contract shall become valid on the date of the signature of both Parties and affective on the day of its publication in the register of contracts according to the respective legal regulation.

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

**Buyer**

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

Name: RNDr. Michael Prouza, PhD.

Position: Director

Date:

**Supplier**

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

Name: Martin Moser

Position: Managing Director

Date:



**ANNEX 1**

**TECHNICAL SPECIFICATION**

**(REQUIREMENTS SPECIFICATION DOCUMENT FOR THE PUBLIC PROCUREMENT)**

*NOTE: ANNEX NO 2 to the invitation to submit a bid issued within this public procurement procedure to be attached here after conclusion of the procedure before signing the contract with the selected bidder.*

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**[RSD product category A]**

## **High-precision high-load vacuum compatible stepper actuators**

**TP17\_091**



### **Keywords**

N/a

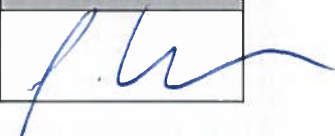
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<i>Name (Approver)</i>	<i>Position</i>	<i>Date</i>	<i>Signature</i>
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### Revision History / Change Log

<i>Change No.</i>	<i>Made by</i>	<i>Date</i>	<i>Change description, Pages, Chapters</i>	<i>TC rev.</i>
1	M. Laub	20.07.2018	RSD draft creation	A
2	M. Laub, A. Kuzmenko	10.08.2018	RSD update, version for internal review	B
3	A. Kuzmenko	15.08.2018	RSD update, final version for approval	C

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## 1. Introduction

### 1.1. Purpose

This Requirements Specification Document (RSD) lists the technical requirements and constraints on vacuum compatible high-precision and high-load electrical actuators for the RA3 experimental group at the ELI Beamlines facility. This can lead to the identification of product interfaces with the ELI Beamlines science based technology and ELI Beamlines building facility.

### 1.2. Scope

This RSD contains all of the technical requirements: functional, performance and design, delivery, safety, and quality requirements for the following products (*tender code - TP17\_091*): **High-precision high-load vacuum compatible electrical actuators driven by stepper motors including motor controllers** (further "Actuator" or "Actuators" in plural).

The Actuators are integral part of the "ELIMAIA plasma mirror and interaction" and "HELL auxiliary and interaction" experimental chambers and will be used in the E4 and E5 experimental halls at the ELI Beamlines facility. The products are registered in the PBS software under the following PBS codes: *E.E4.ELMA.4.2.3.1 (10 pcs for E4) and E.E5.HELL.3.2.15.1 (8 pcs for E5)*.

These Actuators are **products Category A** according to the ELI Beamlines RSD categories. The category A is an Off-the-shelf Product without necessity of modifications and necessity to be subjected to a verification programme (review of design, inspection and testing) for ELI Beamlines applications by the actual project specifications. All verification activities performing by a supplier shall be executed in accordance with the supplier's plan of outgoing inspection and tests. The verification of all specified parameters listed in this RSD shall be undertaken by the supplier before delivery to the ELI Beamlines facility. Internal Acceptance Procedure of the product Category A will be established and applied before the product implementation (operation phase).

### 1.3. Summary of purchase requirements

The actuators must be designed and manufactured specifically for use in a high vacuum environment (vacuum pressure  $10^{-6}$  mbar or better). Motor controllers and software are required within this scope of supply. The stepper motor electrical characteristics and wiring connections must be fully detailed described in accompanying technical documentation.

## 1.4. Terms, Definitions and Abbreviations

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

Abbreviation	Meaning
CA	Contracting Authority (Institute of Physics AV CR, v. v. i.)
E4, E5	Experimental hall 4 and 5
ELI	Extreme Light Infrastructure
L x W x H	Length x Width x Height
PBS	Product Breakdown Structure
PC	Personal Computer
RA3	Research activity 3
RD	Reference document
RGA	Residual Gas Analyzers
RSD	Requirements Specification Document
UHV	Ultra-High Vacuum
USB	Universal Serial Bus

## 1.5. Reference documents

Number of document	Title of Document/ File
<b>RD-01</b>	<i>00189825-A_5.2_ES_DW_Drawing-Dimensions_of_actuator_TP17_091.pdf</i>
<b>RD-02</b>	<i>00163567-B_1.2_Q_M_Guide_for_Instructions_for_Use_Ver-9_EN_fully_signed.pdf</i>

## 1.6. 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 a 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.

## 2. Functional, Performance and Design requirements

### 2.1. Actuator and gear

REQ-023940/A

All the actuators shall provide single axis linear motion driven by stepper motor.

REQ-023941/A

All the actuators shall be equipped with vacuum compatible reduction gear converting rotational movement of the stepper motor into linear motion.

### 2.2. Performance parameters

REQ-023942/A

Each of the actuators shall provide at least 25 mm of linear motorized travel.

REQ-023943/A

All the actuators shall have axial load capacity of at least 10 kg (100 N) over the whole 25 mm travel range.

REQ-023944/A

Minimum step, i.e., minimum incremental motion, of the actuators in full step (not in micro-stepping regime) shall be 0.1  $\mu\text{m}$  or less.

REQ-023945/A

The actuators shall provide bi-directional repeatability, i.e. ability to achieve any commanded position with an accuracy of  $\pm 1.0 \mu\text{m}$  or less.

REQ-023946/A

The shaft (rod) of the actuators shall be equipped with feature of a non-rotating tip by a ball to ensure sufficient motion smoothness.

REQ-023947/A

Maximum speed of the actuators shall be 0.2 mm per second or higher.

### 2.3. Outer dimensions

REQ-023948/A

The outer dimensions of the body of the actuator, without the lead screw and without the connector, shall not exceed 150 x 20 x 45 mm (L x W x H), see drawing **RD-01** (chapter 1.5).

REQ-023949/A

The actuator shall be equipped with a mounting thread M12 / barrel diameter 12 mm to a design consistent with load capacity of at least 100 N, see drawing **RD-01** (chapter 1.5).



## 2.4. Connector and cables

REQ-023950/A

Each of the actuators shall be equipped with vacuum compatible cable. The cable shall be compatible with actuator, i.e. allow driving the motor and indication of status of the actuator, through PC connection.

REQ-023951/A

All the actuators shall be equipped with integrated limit (end) switches with signal available at the cable or connector.

REQ-023952/A

A description of cable wires and connector pins, including stepper motor electrical characteristics and time sequence of the stepper motor driving signals, shall be included in the accompanying technical documentation (see REQ-023968/A).

REQ-023953/A

Minimum length of vacuum compatible cable shall be 1.5 m.

## 2.5. Vacuum Suitability

REQ-023954/A

All the actuators shall be compatible with vacuum pressures of  $10^{-6}$  mbar or lower.

REQ-023955/A

The body of all the actuators shall be made from stainless steel.

REQ-023956/A

No part of the actuator shall have a surface finish of anodized aluminium.

REQ-023957/A

There shall be no blind holes or unvented voids in the actuators.

REQ-023958/A

The gear and any movable parts of the actuator shall be lubricated (if required) only with UHV compatible lubricant.

REQ-023959/A

All components of the actuators shall be constructed from proven and cleaned materials without (or with a low enough) outgassing rate when placed in a vacuum chamber under pressure of  $10^{-6}$  mbar.  
*NOTE 1: The verification of outgassing rate of materials/ actuators shall be performed with calibrated mass spectrometers (RGAs). The CA can provide the RGA scan on request by the Supplier. The CA may request the Supplier to provide results of verification of outgassing rate.*

*NOTE 2: The verification of outgassing rate shall prove that there are no "significant" high AMU components above the background or instrument noise floor (> 44 AMU).*



## 2.6. Motor controllers and control software

REQ-023961/A

Each motor controller shall enable to control at least 4 actuators.

REQ-023962/A

For all 18 actuators, the Supplier shall deliver at least 5 pcs of motor controllers.

REQ-023963/A

The motor controllers shall have USB and Ethernet communication interfaces.

REQ-023964/A

The motor controllers shall be compatible with Labview.

REQ-023965/A

The software shall allow to control simultaneously at least 10 motors.

## 3. Delivery Requirements

REQ-023966/A

The transportation to the final destination of the actuators shall be conducted by the Supplier.

*NOTE: The bid price will be considered by the CA as the final price.*

REQ-024003/A

All components shall be cleaned according to a protocol suitable for installation into clean high-vacuum environment before packing in contamination-free wrappings.

REQ-024004/A

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

REQ-024005/A

All the actuators and their components (connectors, cables, power supplies, and etc.) shall be cleaned and packaged in clean environment of class 5 according to ČSN EN ISO 14644 (or equivalent, e.g. EN ISO 14644) or cleaner.

## 4. Safety Requirements

REQ-023967/A

The Supplier shall supply a Declaration of Conformity or any other equivalent document legally recognized and accepted in the Czech Republic for each product type if the appropriate legislation determines the Supplier's obligation to have a Declaration of Conformity (or the equivalent document) for the purposes of a Product sale in the Czech Republic to fulfil the requirements of 2001/95/EC directive or applicable Czech law.

## 5. Quality Requirements

REQ-023968/A

The Supplier shall provide Instructions for use (Product User Manual) as part of the delivered Product. The Instructions for use shall be written in accordance with standard ČSN EN 82079-1 (or equivalent, e.g. EN 82079-1) and shall include the instructions and descriptions regarding the following:

- transport, handling and storage;
- installation and cleaning;
- general use of provided control software;
- safe operation and maintenance procedures.

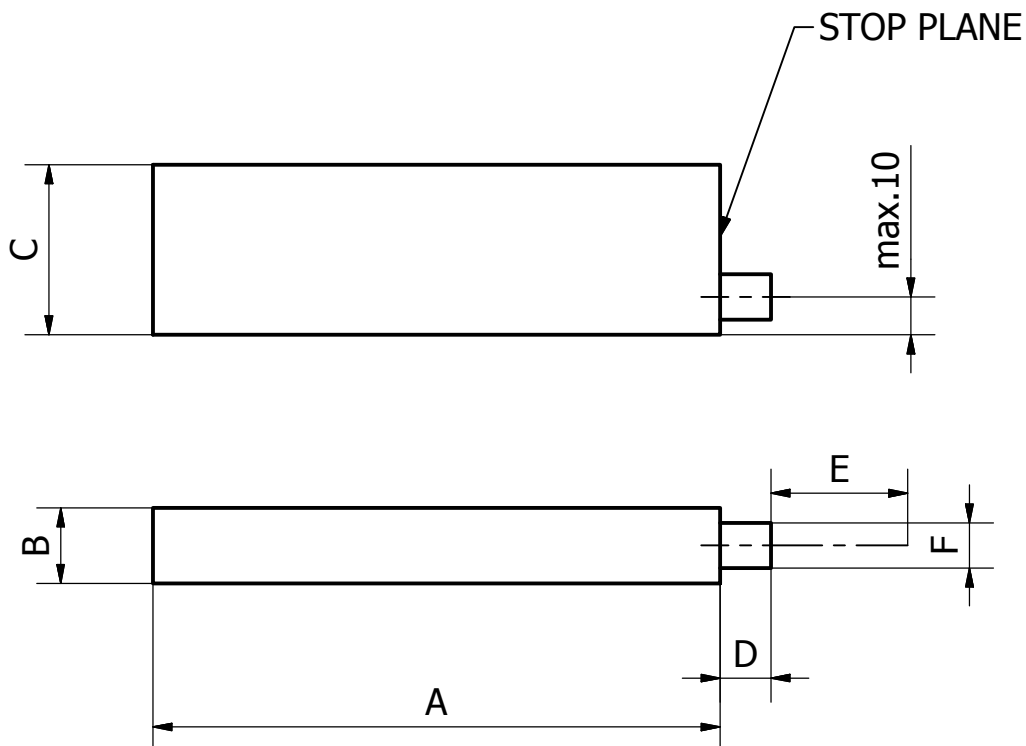
*NOTE: As an alternative to standard ČSN EN 82079-1 (equivalent to EN 82079-1) an internal ELI "Instructions for use" methodology can be used (see **RD-02**; chapter 1.5) which will be provided to the Supplier upon request.*

REQ-023969/A

The Supplier shall provide information on execution of outgoing check of the Product. At least this information shall comprise declaration about execution of outgoing check and declaration of conformity with technical requirements defined by the product RSD and completeness of the Product.

REQ-023970/A

The Supplier shall establish and maintain a nonconformity control system compatible with standard ČSN EN ISO 9001 (or equivalent, e.g. EN ISO 9001).



### DIMENSIONS WITHOUT CABLES

A	MAX. LENGTH	150
B	MAX. HEIGHT OR DIAMETER	20
C	MAX. WIDTH	45
D	MAX. LENGTH FROM STOP PLANE TO SLIDING SHAFT	14
E	MIN. LENGTH OF TRAVEL	25
F	MOUNTING THREAD/DIAMETER	M 12 / $\varnothing$ 12


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**Fyzikální ústav**  
Akademie věd ČR, v. v. i.

Drawn by: vaclav.orna	Projection 	Scale	Sheet size	Dwg. title
Chkd by:		1:2	A4	ACTUATOR
Date: 20.7.2018				
Material:		All dimensions in mm	Dwg. no./TC ID	Rev.
Raw mat.:		Tolerance: ISO2768-mK		00
Weight:		Note:	Eli no.:	Sheets 1 of 1