



FRAMEWORK PURCHASE AGREEMENT

pursuant to § 2079 et seq of the Act No. 89/2012 Coll., Civil Code, as amended

Contractual parties:

- 1.** **Fyzikální ústav AV ČR, v. v. i.**
Seat: Na Slovance 2, 182 21 Praha 8
Authorized representatives:
- in contractual matters: RNDr. Michael Prouza, PhD., Director
- in technical matters: Ing. Pavel Bakule
e-mail: pavel.bakule@eli-beams.eu
ID No.: 683 78 271

Registered in the Registry of public research institutions kept by the Ministry of education, youth and sports

(hereinafter the “**Buyer**”), and

- 2.** **RAVEO s.r.o.**
Seat: tř. Tomáše Bati 1851, 765 02 Otrokovice
Authorized representatives:
- in contractual matters: Ing. Radek Kaňovský, CEO
- in technical matters: Jan Vyskočil
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(hereinafter the “**Seller**”);

the parties jointly may be referred to as the “**Parties.**”

The Parties have agreed, on the day, month and year specified below, and on the basis of a completed public contract awarding procedure for the public contract entitled “**TP21_037 Motion Drives**” (hereinafter the “**Procurement procedure**”), to conclude the following Framework Purchase Agreement (hereinafter the “**Contract**”):

I. Subject of the contract and general provisions

1. Under this contract, the Seller shall deliver to the Buyer motion drives specified in this Contract (hereinafter the “**Motion drives**”), under the terms and conditions hereof. The Buyer shall pay the purchase price for the Motion drives agreed upon between the Parties in Art. III. hereof.
2. Detailed specifications of the Motion drives are provided in the following Annex hereof:



Annex 1: Technical Specifications (Requirements Specification Document)

3. The type of Motion drives to be delivered under this Contract is:

Manufacturer: Phytron GmbH

Type: MCD* 93-70 MINI-H

The Seller is entitled to deliver other type of Motion drives that conform with Annex 1 hereto only in case of temporal or final impossibility to deliver the type stated above and only if the Buyer in advance in written agrees to the delivery of other type of Motion drives. Should the Buyer not agree to another type of Motion drives and should it be no more possible to deliver the type stated above, both Parties are entitled to withdraw from this contract with effectiveness as of the day of delivery of the withdrawal notice to the other party.

4. The Motion drives shall be new (unused).

II. Place of Delivery and deadlines

1. Place of Delivery shall be the Buyer's ELI Beamlines research facility: Průmyslová 836, 252 41 Dolní Břežany, Czech Republic.
2. This Contract is a framework contract under which the Buyer will order Motion drives in accordance with its actual needs based on individual written purchase orders. The Buyer is entitled to execute individual purchase orders within the entire term of validity of this Contract.

The Buyer will execute reasonable effort to minimize the number of partial orders to be made within the term of validity of this Contract. However, the Buyer is entitled to make any number of orders with any number of ordered Motion drives based on its actual needs.
3. The Buyer does not promise to buy any minimum number of Motion drives.
4. The deadline for the delivery of the Motion drives to the Place of Delivery under the individual purchase orders shall be 10 weeks from the date when the Seller received a written order from the Buyer.
5. Should the delivery deadline stated above be impossible for the reasons independent of the will of the Seller (e.g. longer suppliers' delivery deadlines), the Parties shall agree on a longer delivery deadline if the Seller documents the impossibility to meet the basic delivery deadline. The Seller must inform the Buyer on the impossibility to meet the basic deadline and document it without undue delay after ascertaining the fact.

III. Price and payment terms

1. The price for one Motion drive is **CZK excl. VAT.**

VAT shall be added on top of the unit price in accordance with valid legislation.
2. The unit prices have been agreed as the highest acceptable (maximum) prices including any and all associated costs, fees and payments (e.g. costs of transport, warranty, intellectual



- property rights, customs etc.) and reflect any and all costs of the Seller associated with the performance of the Seller hereunder.
3. The price for the Motion drives shall be paid to the Seller on the basis of invoices – tax receipts, by bank transfers to the Seller’s account provided in individual invoices. The Seller shall be authorized to issue invoices after handover of the Motion drives in the Place of Delivery. All invoices must be accompanied with copies of delivery notes (as defined below). The Buyer accepts only electronic invoices delivered to the email address efaktury@fzu.cz.
 4. The invoices shall be due in 30 days of their receipt by the Buyer. If an invoice states any other due period such period is deemed irrelevant and the due period stipulated here applies.
 5. Invoices issued by the Seller shall comply with all applicable legislature for tax receipts. The Buyer shall advise the Buyer on proper contents of the invoice. Should any invoice fail to meet the requirements, the Buyer shall be authorized to return such invoice before the due date to the Seller for correction. The due period starts to run from the beginning upon receipt of the corrected invoice.
 6. The Buyer is entitled to request that any invoice contains identification of a dotation project/ grant from which the respective purchase is funded.

IV. Ownership right and risk of loss or damage

The risk of loss or damage to the delivered Motion drives and the ownership title to the Motion Drives shall pass to the Buyer upon the takeover of the Motion drives in the Place of Delivery based on a confirmed delivery note.

V. Delivery of the Motion drives

The Buyer shall confirm delivery of the Motion drives to the Place of Delivery to the Seller (or to a carrier) after their takeover and after the inspection of absence of transport damage or another obvious defects with a delivery note.

VI. Defects of the Motion drives and warranty claims

1. A Motion drive shall be deemed defective if it does not conform to the requirements stipulated herein. The Seller shall be liable for (i) any defects in the Motion drives at the time of their takeover in the Place of Delivery (non-conformity with requirements of this Contract or transport damage) and (ii) for defects that occur in the Motion drives during the entire warranty period (quality guarantee).

Defects detected by incoming inspection

2. If a defect is detected by inspection of the Motion drives in the Place of Delivery, the defect shall be documented and immediately reported to the Seller. Articles 6.5 – 6.7. hereof apply on the defect removal.

The Buyer is also entitled based on its discretion:



- a) to take over the defective Motion drive with providing an additional time to remove the defects; articles 6.5 – 6.7. hereof apply on the defect removal
- b) to take over the defective Motion drive as is without removing the defects if the Parties agree on an adequate price discount.

Hidden defects

3. Takeover of the Motion drives in the Place of Delivery does not prevent the Buyer from making a later claim for removal of a hidden defect (that was present in an Motion drive at the time of takeover but could not have been detected during inspection at the Buyer's site due to the nature of the inspection methods). In such a case, Art. 6.5 – 6.7. hereof apply.

Warranty (Quality Guarantee)

4. The Seller provides the warranty of quality for each Motion drive for the period of 1 year from the date of takeover of the Motion drive (or from the date of removal of the last defect listed in the delivery note). The Buyer shall raise a warranty claim against the Seller without undue delay after detecting a defect, but not later than on the last day of the warranty period, by means of a written notice sent to the Seller's authorised representative for technical matters set out herein.
5. The Seller shall remove the defect for which it is responsible free of charge.
6. The Seller undertakes to remove any defect within a deadline agreed with the Buyer. If the Parties do not reach an agreement, the Seller shall remove the defect within 15 working days from raising the warranty claim.
7. The Parties shall execute a record on removal of the defect, in which they shall confirm that the defect has been removed. Should the Buyer be prevented from using the Motion drive for the intended use, the warranty period extends by the time of the removal of the defect.
8. The warranty shall not apply to defects caused by non-compliance with written rules of operation and maintenance of the Motion drives provided by the Seller, manipulation errors or by normal wear and tear.

VII. Delays, penalties

1. In case the Seller is in delay with due delivery of any Motion drive to the Place of Delivery within the deadline stipulated in Art. II.4, the Buyer shall be entitled to claim a contractual penalty against the Seller in the amount of 0.2% of the price of the undelivered Motion drive for each commenced day of delay; such contractual penalty shall not exceed 10% of the price of the undelivered Motion drive. If a Motion drive is delivered within the deadline stipulated in Art. II.4 hereof defective but is taken over despite defects in it (Art. 6.2), the contractual penalty does not apply if the defects are removed in time.
2. In case the Seller is in delay with removing a defect, the Seller shall pay a contractual penalty in the amount of 0.1% of the price of the defective Motion drive for each commenced day of delay; such contractual penalty shall not exceed 3% of the price of the defective Motion drive.



3. In case the Buyer is in delay with any payment due, the Buyer shall be obliged to pay late interest to the Seller in the amount specified by applicable legislation (Government Resolution No. 351/2013 Coll., as amended, or law replacing this resolution).
4. Contractual penalties shall be payable within 15 days from receipt of their enumeration by the other Party. Payment of contractual penalty does not prejudice the right to damages in the extent such damages exceed the amount of the contractual penalty.
5. The Buyer shall be entitled to unilaterally set off any contractual penalty against any payments invoiced by the Seller, even against those which have not become due yet.

VIII. Term, validity and effective date

1. This Contract becomes valid upon its signature and effective upon its publication in accordance with the applicable law.
2. This Contract shall terminate on 31.12.2022 (or on a later day if automatically extended in accordance with the following sentence) or on the date on which the financial limit of 1 600 000 CZK excl. VAT is exhausted, whichever comes first. If neither of the Parties states in written (also email) no later than 2 months before time expiration of this Contract that it does not wish the time extension of the term of this Contract, the term of the Contract is automatically extended by 12 months (maximum two times). However, the total financial limit of the Contract must not be exceeded.
3. This Contract may be terminated by:
 - a) agreement of the Parties in writing;
 - b) termination notice in writing subject to conditions described below;
 - c) withdrawal from the Contract by either Party due to reasons defined herein or by law.
4. The Buyer shall be entitled to terminate this Contract by a three-month termination notice in writing, without specifying the reason; the termination notice period starts to run on the first day of the month following the month in which the notice was delivered to the Seller.
5. The Parties are entitled to withdraw from the Contract in case of material breaches of contractual obligations by the other Party, if such material breaches affected the contractual rights of the withdrawing Party. Withdrawal must be made in writing and must be delivered to the other Party. The Buyer shall be entitled to withdraw from this Contract also partially in relation to an individual purchase order.
6. The following instances represent material breaches of the Contract, including but not limited to:
 - a) Seller's delay with delivery of any Motion drive exceeding 90 days;
 - b) Seller's delay with removal of defects exceeding three times the applicable period granted hereunder;



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- c) repeated delay on the Buyer's part with payment of invoiced amounts for the Motion drives exceeding 90 days.

IX. Final Provisions

1. This Contract shall be governed by the laws of the Czech Republic, in particular by the Civil Code.
2. This Contract constitutes the entire agreement between the Parties.
3. This Contract may be supplemented or amended solely by the way of written and numbered amendments.
4. The following annex forms an integral part of the Contract:
Annex No. 1: Technical Specifications (Requirements Specification Document)
5. The Parties confirm they have read the Contract before signing and they understand and agree to its contents. Both Parties confirm their agreement by signing.

On behalf of the Buyer:

Fyzikální ústav AV ČR, v. v. i.

On behalf of the Seller:

RAVEO s.r.o.

.....
RNDr. Michael Prouza, PhD.
Director

.....
Ing. Radek Kaňovský, CEO
CEO



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Operational Programme Research,
Development and Education



Annex No. 1 – Technical Specifications (Requirements Specification Document)

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[RSD Product Category A]

Motion Drives

TP21_037



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	Position	Name
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1. Introduction

1.1. Purpose

This Requirements Specification Document (RSD) lists the technical requirements and constraints for the selection of a supplier of compact stepper motor power stages to ELI Beamlines. This can lead to the identification of product interfaces with ELI Beamlines science-based technology.

1.2. Scope

This RSD contains all of the technical requirements: functional, performance and design, delivery, safety and quality requirements for the product **Motion Drives** with tender number: **TP21_037**.

Up to 150 motion drives are required as parts for building ELI designed custom 16-axis motion control units used primarily driving in-vacuum stepper motors in ELI facility lasers systems, experimental systems and beam distribution systems. The number of Motion Drives to be bought under this contract is stated by the purchase contract. The ELI PBS database code for this set of components is: **SE.CS.CSS.STO.MCTR.SDRV**.

These motion drives are Category A products according to the ELI Beamlines RSD categories. The category A is an Off-the-shelf Product without the necessity of modifications and necessity to be subjected to a verification program (review of design, inspection and testing) for ELI applications by the actual project specifications. All verification activities performed 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. The motion drives may be subject to testing and verification upon delivery to the ELI Beamlines facility by qualified personnel. All non-conformances (if any) must be addressed by the supplier in a timely manner.

1.3. Terms, Definitions and Abbreviations

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

Abbreviation	Meaning
CA	Contracting Authority (Fyzikální ústav AV ČR, v. v. i.)
DIN	Deutsches Institut für Normung
ELI Beamlines	Extreme Light Infrastructure Beamlines
EMC	Electromagnetic compatibility
EPROM	Erasable Programmable Read-Only Memory
MCD	Motion Control Device
PBS	Product Breakdown Structure
PC	personal computer

Abbreviation	Meaning
pcs	pieces
RSD	Requirements Specification Document
TP	Tender Plan
VDC	Virtual Design and Construction
WBS	Work Breakdown Structure

1.4. References to Standards

If this document includes references to standards or standardized/ standardizing technical documents the CA allows/permits also another equal solution to be offered.

2. Functional, Performance and Design Requirements

REQ-031933/A

The motion drives shall be designed for bipolar control of 2-phase stepper motors.

REQ-031934/A

The drives shall support motors with 4.6, and 8 lead wiring scheme. It shall be possible to connect stepper motors with 8 leads in parallel or serial mode.

REQ-031935/A

The drives shall support motors with a winding resistance between 0.1 Ohm - 100Ohm and winding inductivity (per one phase) between 0.5 - 10mH.

REQ-031936/A

The drives shall support motors with drive currents between 0.3-9A (parameters given as peak current).

- It shall be possible to configure run and stop current individually; to reduce the heat load when used for example with motors in the CA's vacuum system. It shall be possible to configure a delay time between the last control pulse and activation of the stop current.
- It shall be possible to configure the currents in steps of 300mA or less.
- The drives shall be able to automatically compensate for decrease of phase currents.

REQ-031937/A

The motion drives shall allow configuration of step resolution; at least the following settings: 1/1; 1/2; 1/4; 1/8; 1/16; 1/32; 1/64; 1/128; 1/256; 1/512 of a full step.

2.1. Inputs requirements

REQ-031939/A

The drives shall have digital inputs for control pulses, motor direction, activation or deactivation; to be interfaced by the CA's control system infrastructure. This shall support a signal level of 24V.

- Control pulses: a step frequency of at least 100 kHz and a minimum pulse width of 2µs shall be supported.
- Motor direction: it shall be possible to reverse the direction of a motor by energizing this interface.
- Activation/Deactivation: it shall be possible to deactivate the drives without removing the supply voltage; allowing prevention of movement by the CA's infrastructure during certain operational modes.

REQ-031940/A

The drives shall have a configuration interface realized with a RS485-4 wire bus to be interfaced by the CA's control system infrastructure.

- This bus shall allow configuration of the following operating parameters: run current, stop current, step resolution, delay time (for the stop current, as specified above) and preferred motor direction.
- The supplier shall provide documentation of the interface protocol.
- This configuration shall also be possible via physical settings (for example using rotary or dip switches), but it has to be possible to configure the drives to ignore those settings (exclusively relying on the RS485 interfaces.) It is acceptable if the physical configuration allows lower resolution than specified above.
- Configuration parameters shall be storable permanently within the drive and retained in case of loss of power; for example using an EPROM.

REQ-031941/A

The motion drives shall work with different, unregulated supply voltages; ranging at least from 24VDC to 70VDC.

REQ-031942/A

The supplier shall provide documentation about electrical interfaces and connectors.

2.2. Outputs requirements

REQ-031950/A

The drives shall indicate their state, for example using LEDs or displays; at least: readiness for operation; error.

REQ-031951/A

The drives shall provide a digital output signal in case of an error, to be interfaced by the CA's control system infrastructure. This output signal shall support a signal level of 24V, preferred type is open-collector.

REQ-031952/A

In case of an error (for example supply voltage failure, overtemperature, short circuit), the drives shall automatically deactivate to avoid damage.

2.3. EMC requirements

REQ-031953/A

The drives shall have EMC compliant metal housing, using stainless steel and/or aluminium.

REQ-031954/A

The housing shall allow connection of shielding meshes and earthing.

REQ-031955/A

All digital inputs shall be optically insulated.

REQ-031956/A

All digital outputs shall be optically insulated from the motor voltage.

REQ-031957/A

The configuration interface shall be optically insulated from the motor voltage.

REQ-031958/A

The power supply integration shall be EMC compliant, for example using inbuilt filters.

2.4. Mechanical integration requirements

REQ-031959/A

The supplier shall specify mounting limitations; for example required minimal free spaces to other devices; as well as documentation about the mechanical dimensions.

REQ-031960/A

A **connector set** shall be provided for every motion drive.

REQ-031961/A

The motion drives shall be mountable on a **standard DIN Rail**. (Top Hat Din Rail according to IEC/EN 60715 - ČSN EN 60715).

REQ-031962/A

The motion drives shall support phase currents up to 9A Peak.

REQ-031963/A

The motion drives shall have a RS485 service interface with a 4-wire port.

3. Delivery Requirements

REQ-031964/A

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

NOTE: The bid price will be considered by the CA as the final price, including transportation cost.

4. Safety Requirements

REQ-031965/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 for the purposes of a Device sale in the Czech Republic to fulfil the requirements of 2001/95/EC directive, Czech law No. 118/2016 Coll. (2014/35/EU), or any other relevant legislation.

5. Quality Requirements

REQ-031966/A

The Supplier shall provide **Instructions for Use** (Product User Manual) as part of the delivered product. A completeness of the Manual shall be approved by the CA. The Manual shall include the instructions and descriptions regarding the following procedures:

- transport and installation;
- handling and storage;
- safe operation and maintenance procedures.

REQ-031967/A

The Supplier shall establish and maintain a **Nonconformity Control System** compatible with ČSN EN ISO 9001 (equivalent to EN ISO 9001).