

APPROVED
at the Procurement Commission meeting
January 14, 2013
Minutes No. LU CFI 2013/2/ERDF_1

Open Tender of the
Institute of Solid State Physics University of Latvia

**“Delivery of the Multifunctional Cluster Plant for
Deposition of Vacuum Coatings”**

REGULATION

Procurement ID No.: LU CFI 2013/2/ERDF

Procurement will be performed within the ERDF Project
“Development of Scientific Infrastructure for the National Research
Centre of Nanostructured and Multifunctional Materials, Constructions
and Technologies”
(Project No.: 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004)

Riga, 2013

Contents

I	GENERAL INFORMATION	3
II	THE OFFER DOCUMENTS AND SUBMISSION AND OPENING OF OFFERS	4
III	INFORMATION ON THE SUBJECT OF THE PROCUREMENT	5
IV	THE REQUIREMENTS PUT TO THE TENDERERS AND THE TENDERERS' SELECTION	5
V	EVALUATION OF THE OFFERS AND THE REQUIREMENTS PUT TO THE TENDERERS	8
VI	RIGHTS AND OBLIGATIONS OF THE COMMISSION	9
VII	RIGHTS AND OBLIGATIONS OF THE TENDERERS	9
VIII	CONTRACT CONDITIONS	10
	ANNEX NO. 1 TECHNICAL SPECIFICATIONS	11
	ANNEX NO. 2. CONTRACT (DRAFT)	28
	ANNEX NO. 3 APPLICATION (FORMS)	38
	ANNEX NO. 4 TECHNICAL BID (FORM)	41
	ANNEX NO. 5 FINANCIAL BID (FORM)	66

I GENERAL INFORMATION

1.1. Procurement Identification Number: **LU CFI 2013/2/ERDF**

1.2. Contracting Authority

Name	Institute of Solid State Physics University of Latvia (hereinafter - the ISSP)
Address	Kengaraga street 8, Riga, LV-1063, Latvia
VAT Reg. No.	LV90002124925
Telephone	+371 67187816
Fax	+371 67132778
e-mail	ISSP@cfi.lu.lv
Internet address	www.cfi.lu.lv
Contact person	Janis Pinnis, Secretary of the Procurement Commission
Telephone	+371 67260545
Fax	+371 67132778
e-mail	Janis.Pinnis@cfi.lu.lv
Working hours	8:30-17:00

1.3. Subject of the procurement –

Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings.

CPV reference number: 31712000-0.

1.4. **The place of the Contract performance:** the premises of the ISSP, Kengaraga street 8, Riga, Latvia.

1.5. Schedule

Activity	Date	Time**
Requests for additional information regarding the Regulation shall be submitted by*	*	
Deadline for providing clarifications to the interested persons	26.02.2013	
Deadline for the submission of bids	04.03.2013	10:00
Meeting of Bids opening	14.03.2013	10:00
Sending a notice of tender results	22.01.2013 (tentative)	
Entering into the Contract	26.03.2013 (tentative)	
Time of delivery as of the day entering into the Contract	9 (nine) months (time of delivery can be extended, but not more than for 3 (three) months)	

* Request is deemed to be submitted if written request is received from the Tenderer (a letter, fax or e-mail). The requests for additional information in relation to the Regulation should be submitted to the Commission in due time, considering that the Commission is not entitled to furnish additional information later than 6 (six) days prior to the deadline for the submission of bids.

** Latvian time

1.6. The present method of the procurement is an open tender regulated by the Republic of Latvia Law “On Public Procurement”. The Tender is organised by the Procurement Commission (hereinafter - the Commission) of the Institute of Solid State Physics University of Latvia (hereinafter - the ISSP), established by the Director of ISSP Order No. 5-v dd. 20.02.2012 (Paragraph 2).

II THE OFFER DOCUMENTS AND SUBMISSION AND OPENING OF OFFERS

2.1 The requirements regarding the contents of the Offer documents.

2.1.1 The Offer shall be submitted in the full amount. The Tenderer may submit only one Offer. The Offer shall not comprise several versions of the Technical Bid or the Financial Bid.

2.1.2 The Offer documents shall comply with the requirements included in the present Regulation and shall comprise the following:

- 1) application for participation in the present Tender to be filled in on the form enclosed as Annex 3.1 to the present Regulation;
- 2) documents certifying the qualifications of the Tenderer (see Section IV herein);
- 3) the Technical Bid, that shall be prepared considering all the requirements of the Technical Specification (Annex 1 to the present Regulation); the Technical Bid shall be filled in on the form enclosed as Annex 4 to the present Regulation; the Technical Bid shall be signed;
- 4) the Financial Bid, that shall be filled in on the form of enclosed as Annex 5 to the present Regulation; the Financial Bid shall be signed;
- 5) a bank's or another credit institution's or insurance company's letter of intent stating that it undertakes to issue the Advance Payment Guarantee to the Tenderer.

2.1.3 The application for participation in the Tender shall be signed. If the Offer documents are submitted by a group of persons, the application for participation in the Tender shall be signed by all persons of the group.

2.1.4 The Offer documents shall be signed by the signatory or the Tenderer's authorised person. Where the Offer documents are signed by an authorised person, the authorisation or a copy of the authorisation certified in accordance with the procedure stipulated by the laws and regulations shall be annexed to the Offer documents.

2.1.5 The Offer documents shall be permanently bound together in such a way that pages may not be replaced or removed; the pages shall be numbered. If the Tenderer encloses the promotional materials, brochures, catalogues, etc., which are not bound together, the Tenderer's name shall be indicated on every document enclosed thereto.

2.1.6 The Offer documents shall be drawn up in the Latvian or English language subject to the requirements of the record-keeping, in 3 (three) paper copies:

- 1) an original (marked “Original”),
- 2) 2 (two) copies (marked “Copy”),

The Offer shall be annexed with the Technical Bid and Financial Bid in electronic form (if possible – in the format of MS Word or MS Excel) on CD/DVD. The electronic version of the documents is provided for the processing of information only and shall be not signed. The Tenderer's name and the mark “LU CFI 2013/2/ERDF” shall be indicated on the respective CD/DVD.

2.2 The place and procedure of submitting the Offer: the Offer shall be submitted to the Secretariat of the ISSP, Room 204, 2nd floor, Kengaraga street 8, Riga, LV-1063 until the time and the date specified in Item 1.5 of this Regulation. The Offer shall be submitted on business days from 8:30 to 17:00.

The Offer may be sent in a registered letter, by courier service or delivered in person.

All samples of the Offer shall be submitted (sent) in one closed and sealed envelope. The following information shall be indicated on the envelope:

- 1) Institute of Solid State Physics University of Latvia, Kengaraga street 8, Riga, LV-1063, Latvia.
- 2) The Tenderer's name and address,
- 3) The mark: “For the Tender “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings” (LU CFI 2013/2/ERDF)”.

2.3 The Offer validity term: 3 (three) months from the day of opening the Offer. The Offer shall not stipulate bid bond.

2.4 The place and date of opening the Bids: The Bids will be opened in the premises of the ISSP: in the Deputy Director's office, 2nd floor, Kengaraga street 8, Riga, and will begin at the time and on the date stated in Item 1.5. The meeting of opening the Bids is open and all the interested persons may participate therein.

III INFORMATION ON THE SUBJECT OF THE PROCUREMENT

3.1 The subject of the procurement: The Multifunctional Cluster Plant for Deposition of Vacuum Coatings, 1 set.

Delivery shall be made in accordance with the requirements stated in the Technical Specifications (enclosed as Annex 1 hereto) and the draft Contract (enclosed as Annex 2 hereto).

3.2 Procurement will be performed within the ERDF Project “Development of Scientific Infrastructure for the National Research Centre of Nanostructured and Multifunctional Materials, Constructions and Technologies” (Project No.: 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004).

IV THE QUALIFICATION REQUIREMENTS AND THE TENDERERS' SELECTION

4.1 The Contracting Authority shall examine Offers submitted by the Tenderers, who conform to the requirements stipulated by this Section and have been selected in accordance with the procedures indicated in the present Regulation.

4.2 Conditions for Excluding a Tenderer.

A Contracting Authority shall exclude a Tenderer from further participation in a procurement procedure and shall refuse to consider the said Tenderer's bid if:

4.2.1 the Tenderer has not been registered in accordance with the requirements of laws and regulations;

4.2.2 pursuant to a court judgement or an injunction of a public prosecutor regarding a penalty, which has come into effect and become incontestable and non-appealable, the Tenderer or the Tenderer's official has been found guilty of having links to criminal offences of corruptive character, fraudulent activities in financial matters, laundering of proceeds derived from crime or implication in a criminal organisation (except as provided by Clause 1, Paragraph 4, Section 39 of the Public Procurement Law);

4.2.3 pursuant to a decision made by a competent institution or a court judgement, which has come into effect and become incontestable and non-appealable, the Tenderer has been found guilty of significantly violating the employment rights related to: 1) employment of one or several citizen(s) or subject(s) other than citizens or subjects of the Member States of the European Union, where they stay illegally in the territory of the Member States of the European Union; 2) employment of

one person without entering into the employment contract in writing, where such a violation is established repeatedly in the course of a year, or employment of two or several persons without entering into the employment contract in writing (except as provided by Clauses 1 and 2, Paragraph 4, Section 39 of the Public Procurement Law);

4.2.4 pursuant to a decision made by a competent institution or a court judgement, which has come into effect and become incontestable and non-appealable, the Tenderer has been found guilty of violating the competition rights related to the vertical agreement aimed at limiting a buyer's opportunity to fix a resale price or the horizontal cartel agreement except for the case when the respective institution, upon establishing a violation of the competition rights, has exempted the Tenderer from a penalty (except as provided by Clause 3, Paragraph 4, Section 39 of the Public Procurement Law);

4.2.5 an insolvency process of the Tenderer has been declared or the Tenderer's business activity has been suspended or terminated, a case has been brought against the Tenderer to declare it bankrupt or it is established that the Tenderer will be liquidated until the expected expiry date of the agreement performance (the Contracting Authority may decide on not excluding the Tenderer from the procurement procedure pursuant to this Paragraph in cases as provided by Paragraph 3, Section 39 of the Public Procurement Law);

4.2.6 the Tenderer has tax arrears, including compulsory social security contribution arrears (exceeding 100 lats in total in each country) in Latvia and in the country, where the Tenderer is registered or where it has its residence (in case if the Tenderer is not registered in Latvia or Latvia is not its residence country);

4.2.7 the Tenderer has provided false information with respect to its qualifications or has not submitted the required information at all;

4.2.8 as otherwise provided by the Public Procurement Law;

4.2.9 the conditions referred to in Paragraphs 4.2.2-4.2.7 are applicable to the member of the partnership if the Tenderer is the partnership and to the person indicated by Tenderer, on whose abilities the Tenderer is relying on in order to confirm that the qualification thereof conforms with the requirements specified in the procurement procedure documents.

4.3. In order to evaluate a Tenderer in accordance with Item 4.2., the Tenderer shall submit the following information along with the Offer:

4.3.1 a copy of the Tenderer's registration certificate;

4.3.2 a statement by the Tenderer that the circumstances referred to in Paragraphs 4.2.2 – 4.2.6 of the Regulation do not apply to the Tenderer;

4.4. The Contracting Authority shall be entitled to request a Tenderer to submit the following documents within 15 (fifteen) business days:

4.4.1 a certificate issued by the Competent Authority no earlier than one month prior to the submission day to the effect that an insolvency process of the Tenderer has not been declared and that the Tenderer is not undergoing liquidation (in cases as provided by Paragraph 8, Section 39 of the Public Procurement Law);

4.4.2 a certificate issued by the State Revenue Service no earlier than one month prior to the submission day to the effect that the Tenderer (regardless of whether the Tenderer is registered in Latvia or Latvia is Tenderer's residence country) and the person mentioned in Paragraph 4.2.9 of the Regulation has no tax arrears, including social security contribution arrears, exceeding 100 lats in total in Latvia (in cases as provided by Paragraph 8, Section 39 of the Public Procurement Law);

4.4.3 a certificate issued no earlier than one month prior to the submission day to the effect that the Tenderer registered in foreign country or having that country as residence country and the person (in the respective country) mentioned in Paragraph 4.2.9 of the Regulation has no tax arrears, including social security contribution arrears, exceeding 100 lats in total in the respective country (in cases as provided by Paragraph 8, Section 39 of the Public Procurement Law);

4.4.4 latest financial statements (including the balance sheet, profit and loss statement, cash flow statement, report on changes in equity and appendices) submitted to the State Revenue Service or an equivalent tax administration authority in any other country by the Tenderer, and the relevant auditors' opinion (if any).

4.5. Information Regarding the Economic and Financial Status of a Tenderer

4.5.1 The economic and financial status of a Tenderer shall comply with the following conditions: the annual average financial turnover of similar (in this Regulation the vacuum technological equipment and equal goods are regarded as similar to the subject of the procurement) goods of the Tenderer for the previous 3 (three) years shall exceed the bid amount.

4.5.2 For the purpose of evaluating the Tenderer's economic and financial status, the Tenderer shall submit the following along with the Offer: a statement regarding the Tenderer's average annual financial turnover of similar goods during the previous 3 (three) years. Tenderer, whose period of operation is less than 3 (three) years, shall submit a statement regarding the Tenderer's financial turnover during the period of its operation.

4.5.3 The Tenderer may rely on the capabilities of other undertakers, if necessary for the performance of the particular contract, independent of the legal nature of their relationship. In such a case the Tenderer shall provide explicit proof to the Contracting Authority of the necessary resources at its disposal by submitting the respective undertaker's certification or arrangement for the cooperation regarding the performance of the particular contract.

4.6. Information on the Tenderer's Capabilities

4.6.1 The Tenderer's capability to delivery the research equipment shall conform to the following terms and conditions:

4.6.1.1 The Tenderer shall have the experience in the delivery of similar goods; the contract sum of at least one contract shall exceed the sum offered here;

4.6.1.2 The Tenderer shall have qualified personnel to be employed in the installation of the offered equipment and warranty repair work;

4.6.1.3 The manufacturer or an authorized distributor of the offered equipment shall assume a warranty or ensure it through a partner, where the Tenderer fails to provide it (e.g., in case of insolvency/ bankruptcy).

4.6.2 For the purposes of evaluating the Tenderer's capabilities, the Tenderer shall submit the following along with the Offer:

4.6.2.1 A list of the performed 3 to 5 main contracts on the delivery of similar goods during the previous 3 (three) years and current year pursuant to Annex 3.2 to the Regulation;

4.6.2.2 At least 3 (three) positive customer references on the above mentioned (item 4.6.2.1) main contracts performed during the previous 3 (three) years and current year;

4.6.2.3 A list of the Tenderer’s technical personnel to be employed in the installation of the equipment and warranty repair work pursuant to Annex 3.3 to the Regulation (a list shall be annexed with copies of documents certifying the qualifications);

4.6.2.4 The document issued by the manufacturer or the authorized distributor of the offered equipment (if the Tenderer isn’t a manufacturer or an authorized distributor), where the manufacturer or the authorized distributor shall specify an alternative for providing a warranty (the manufacturer or the authorized distributor shall assume a warranty or ensure it through a partner), where the Tenderer fails to provide it (e.g., in case of insolvency/ bankruptcy).

4.6.2.5 The Tenderer may rely on the capabilities of other undertakers, if necessary for the performance of the particular contract, independent of the legal nature of their relationship. In such a case the Tenderer shall provide explicit proof to the Contracting Authority of the necessary resources at its disposal by submitting the respective undertaker’s certification or arrangement for the cooperation regarding the performance of the particular contract.

4.7. Additional Information

4.7.1 If the information submitted by the Tenderer in accordance with Items 4.3, 4.4, 4.5 and 4.6 of this Regulation, is insufficient to determine whether the conditions referred to in Item 4.2 herein, are applicable to the Tenderer, or in order to evaluate the economic and financial status and capability of the Tenderer, the Contracting Authority shall be entitled to request the Tenderer to explain the information submitted or submit additional information within the scope specified in the above referred Items.

4.7.2 In order to determine whether the cost of a Offer received is unreasonably low, the Contracting Authority can request the Tenderer, who has submitted the Offer with the lowest price, to submit a description of the specific market conditions available only to this Tenderer, that substantiates the price reduction.

4.8. Exclusion from Participation in the Procurement Process

4.8.1 If the conditions referred to in Item 4.2 herein, apply to the Tenderer or the Tenderer’s economic and financial status and capabilities do not conform to the conditions of Item 4.5 and Item 4.6 herein, the Contracting Authority shall take a decision not to examine the Tenderer’s Bid and to exclude the Tenderer from further participation in the procurement procedure.

4.8.2 If a Tenderer has submitted an Offer of unreasonably low cost, the Contracting Authority shall exclude the Tenderer from further participation in the procurement process.

4.8.3 If a Tenderer requests the Contracting Authority to explain the decision that has been taken in accordance with Item 4.8.1 and Item 4.8.2 herein, the Contracting Authority shall, within a period of three days from the receipt of the request, provide a written substantiation of the decision.

V EVALUATION OF THE OFFERS AND THE REQUIREMENTS SET FOR THE TENDERERS

5.1. The submitted Offers that have passed the qualification test (Tenderer’s selection; Section IV) and conform to the requested technical specification (Annex 1) shall be evaluated according to the sole criterion – **the lowest price. The prices in lats (LVL), VAT excluded, will be compared.** The price set in euros, USD or GBP will be converted in lats according to the exchange rate fixed by the Bank of Latvia on the day of opening the bids.

5.2. The winner of the competition shall be acknowledged the Tenderer who has submitted the Offer with the lowest price, which is determined by taking into consideration Item 5.1 herein.

5.3. The Tenderer shall provide for the permanence of the price tendered at the Tender during the entire compliance with the Procurement Contract. The potential inflation, alteration of the market conditions or any other conditions shall not be the basis for the increase of the prices and the consequences caused by the above processes shall be projected and estimated by the Tenderer when compiling the Financial Bid.

VI RIGHTS AND OBLIGATIONS OF THE COMMISSION

6.1. The Offer shall be evaluated and the selected Tenderer shall be determined by the Commission established subject to the instructions by the Director of the Institute of Solid State Physics University of Latvia.

6.2. The Commission shall have the rights to decline a further evaluation of any Offer, if it is identified that the Offer is incompliant with any requirement stipulated by the present Regulation or the regulatory enactments of the Republic of Latvia, or contains false information.

6.3. If the Commission shall have doubts about the authenticity of the submitted copy of the document, it shall request the Tenderer to present the original document or submit a verified copy of the document.

6.4. The Commission shall be entitled to invite specialists or experts with advisory rights for the performance of its work. An expert shall provide a written evaluation. The evaluation shall be enclosed to the Minutes of the Commission meeting. The expert’s evaluation shall not be binding on the Commission.

6.5. The Commission may make amendments to the Regulation or extend the term for submission of the Tender. Such information shall be published on the Contracting Authority’s website (www.cfi.lu.lv/iepirkumi).

6.6. If the information of the documents submitted by the Tenderer is insufficient, the Commission may request an additional information, thereby stipulating the term and place for the submission of an additional information.

6.7. If the Tenderer fails to submit the information or clarifications requested by the Commission, the Commission shall evaluate the Offer according to the documents included in the Offer.

6.8. The Commission shall reserve the rights to terminate the procedure without selecting any Offer.

6.9. After the performance of all the checks, thereby applying the criteria of the Offer evaluation and the comparison indicated in Section V, the Commission shall have the right to take one of the following decisions:

- to enter into the Procurement Contract with the Tenderer;
- to terminate the Tender without selecting any Bid;

6.10. The Commission shall publish its decision (Item 6.9) on the Contracting Authority’s website (www.cfi.lu.lv/iepirkumi) and send a written notification of its decision to all Tenderers and Procurement Monitoring Bureau within three business days.

6.11. If the Procurement Monitoring Bureau or the Contracting Authority receives no complaint from the Tenderer about the activities of the Contracting Authority with respect to the legality of the Tender within 10 (ten) days and 1 (one) weekday from the day of publishing the notification about the decision-taking on the Procurement Monitoring Bureau’s website, the Contracting Authority shall enter into the Procurement Contract with the selected Tenderer.

VII RIGHTS AND OBLIGATIONS OF THE TENDERERS

- 7.1. The participation in the Tender shall be the Tenderer’s free will.
- 7.2. The Tenderer shall have the rights to challenge the requirements of the Tender Regulation by submitting a complaint to Procurement Monitoring Bureau pursuant to the procedure stipulated by Section 83 of the Republic of Latvia Public Procurement Law no later than 10 days before the deadline for the submission of bids.
- 7.3. Submitting the Offer for participation in the Tender, the Tenderer shall accept in full and shall be prepared to comply with the requirements of the present Regulation and the regulatory enactments on the state or local government procurement.
- 7.4. The Tenderer shall have the rights to appeal against the decision taken by the Commission subject to the procedure stipulated by the Law “On Public Procurement”.
- 7.5. The Tenderer may change or withdraw the Offer after its submission on condition that the Tenderer submits a written notification about the changes (or withdrawal) until the expiry of the Offer submission term.
- 7.6. The Offers shall not be amended or supplemented after the expiry of the Offer submission term.

VIII CONTRACT CONDITIONS

- 8.1. The aim of entering into a contract shall be the stipulation of all the legal, property, financial and other relationship that may arise upon the performance of the procurement for the needs of the Contracting Authority.
- 8.2. The draft Procurement Contract is enclosed in Annex 2 herein.
- 8.3. If the Tenderer has objections to the annexed draft Procurement Contract, the above shall be submitted as soon as possible to enable the Contracting Authority to make amendments to the Tender Regulation if necessary. The objections regarding the draft Procurement Contract specified in the Offer or submitted after the opening of the bids shall not be taken into account.
- 8.4 The aim of the Contracting Authority is to purchase the whole Multifunctional Cluster Plant for the Deposition of Vacuum Coatings as described in the Technical Specification. However, if the financing is insufficient, the Contracting Authority shall retain the right to buy the Plant in parts, depending on the availability of financing or to buy an incomplete set. The minimum initial set of the purchase shall be as follows (subject to Part 2 of the Technical Specification):
- 1 Central chamber – transfer of the sample;
 - 2 1st processing chamber – input/output of the sample and ion treatment;
 - 3 2nd processing chamber – thermal sublimation of organic substances;
 - 4 4th processing chamber – magnetron sputtering (with three (3) power sources);
 - 5 Electric and management systems lockers;
 - 6 Distilled water contour;
 - 7 Plant management/control working station;
 - 8 Complete set of spare parts.

Other chambers of the Cluster Plant: 3rd processing chamber – evaporation of metals and 5th processing chamber – magnetron sputtering (deposition of silicon PIN structures), if the above chambers are not purchased simultaneously with the Plant, will be purchased as soon as possible, depending on the availability of financing. If these chambers are not purchased all at once, the sequence of their purchase shall be subject to the above list.

MULTIFUNCTIONAL CLUSTER PLANT FOR DEPOSITION OF VACUUM COATINGS

TECHNICAL SPECIFICATION

CHAPTERS

0. GENERAL REQUIREMENTS

- 0.1. Undefined requirements
- 0.2. Technical condition of equipment to be delivered

1. TYPE and POSSIBILITIES OF APPLICATION

- 1.1. Type of application
- 1.2. Possibilities

2. COMPLETENESS

- 2.1. Central chamber – transfer of the sample
- 2.2. 1st processing chamber – input/output of the sample and ion treatment
- 2.3. 2nd processing chamber – thermal sublimation of organic substances
- 2.4. 3rd processing chamber – evaporation of metals
- 2.5. 4th processing chamber – magnetron sputtering
- 2.6. 5th processing chamber – magnetron sputtering (deposition of silicon PIN structures)
- 2.7. Electric and management systems lockers
- 2.8. Distilled water contour
- 2.9. Plant management/control working station
- 2.10. Complete set of spare parts

3. TECHNICAL DATA

- 3.1. Samples to be used in the plant (In present regulation „sample”means substrate with coating or without coating.)
- 3.2. Central chamber – transfer of the sample
- 3.3. 1st processing chamber – input/output of the sample, ion treatment
- 3.4. 2nd processing chamber – thermal sublimation of organic substances
- 3.5. 3rd processing chamber – metal evaporation
- 3.6. 4th processing chamber – magnetron sputtering
- 3.7. 5th processing chamber – magnetron sputtering (deposition of silicon PIN structures)
- 3.8. Pumping system, flow regulators and pressure sensors
- 3.9. Central chamber dimensions
- 3.10. 1st processing chamber dimensions
- 3.11. Dimensions of processing chambers Nos. 2, 3, 4, 5
- 3.12. Engineering communications
- 3.13. Conditions of the use

4. DESCRIPTION OF THE PLANT

- 4.1. General description
- 4.2. Carrier of the sample
- 4.3. Central chamber – transfer of the sample
- 4.4. 1st processing chamber – input/output of the sample, ion treatment
- 4.5. 2nd processing chamber – thermal sublimation of organic substances

- 4.6. 3rd processing chamber – metal evaporation
- 4.7. 4th processing chamber – magnetron sputtering
- 4.8. 5th processing chamber – magnetron sputtering (deposition of silicon PIN structures)
- 4.9. Pumping system
- 4.10. Engineering communications

5. ELECTRIC AND MANAGEMENT SYSTEM

6. PLANT ACCEPTANCE/DELIVERY AT THE TENDERER

(As a rule, such plants are delivered and installed by the producer of the plant. In case the Tenderer isn't the producer, in present Technical Specification somewhere with the term "Tenderer" one shall understand „producer or Tenderer”, as for some Items of Technical Specification a priori isn't clear will they be related with producer or with Tenderer. If the Tenderer is not the producer of the plant, it can in its offer substitute the term „Tenderer” with the term „producer” of necessity.)

7. PLANT ASSEMBLING, ADJUSTMENT AND DELIVERY AT THE CUSTOMER

8. TRAINING OF THE PERSONNEL

9. DRAWINGS AND TECHNICAL DOCUMENTATION

10. PACKING, TRANSPORTATION AND STORAGE

11. GUARANTEE

12. AFTER-SALE SERVICING

0. GENERAL REQUIREMENTS

0.1. Undefined requirements

Where any technical requirement referring to the present Contract is not defined in the Technical Specifications, it shall comply with the minimum generally accepted requirements or standards.

0.2 Technical condition of equipment to be delivered

The equipment to be delivered shall not be previously used, the used or the renovated parts shall not be built therein.

1. TYPE and POSSIBILITIES OF THE APPLICATION

1.1. Type of the application

The cluster plant for making of vacuum coatings (hereinafter - the plant) is an R&D plant for laying of various multifunctional coatings by use of 3 methods: substance evaporation, magnetron sputtering and sublimation. The sample is an up to 50x50 mm large, solid, flat material suitable for deposition of the coating in vacuum. The plant is envisaged for scientific research works.

1.2. Possibilities

- 1.2.1. The plant is a supplemental, modular and flexible system. In its base there is a central chamber to which it is possible to attach even up to 8 processing chambers of which one is foreseen for fulfilment of input/output functions.
- 1.2.2. Each processing chamber is equipped with a central chamber shutter and may be operated independently of the others.
- 1.2.3. Input of the sample may be performed through the input/output and further through the central chamber without access of air to the concrete processing chamber or either by using any processing chamber door by prior to it admitting air into the processing chamber. Input/output of the sample takes place without stopping vacuum pumps.
- 1.2.4. The plant is of a simple design, conveniently serviceable, with a flexible and adaptable construction.
- 1.2.5. Central chamber and processing chambers are equipped with windows.
- 1.2.6. Coating deposition processing chambers are elaborated according to a unified design and the process equipment (evaporators, sublimation cells and magnetrons) are located on equal shutting covers in order in case of necessity one and the same equipment could be used in another processing chamber or either to perform a quick replacement of the processing equipment.
- 1.2.7. Coating deposition processing chambers are equipped with 2 additional flanges to be used for mounting of additional equipment and measuring instruments.
- 1.2.8. Design of the chamber is elaborated so let the plant would be conveniently serviceable, visually clear, and easily manageable.
- 1.2.9. The plant is envisaged both for operation in ordinary interior space and in a cleanroom.
- 1.2.10. In order to ensure a more convenient, quicker and safer servicing of chambers, chambers are equipped with easily removable protection screens of interior surfaces.

2. COMPLETENESS

2.1. Central chamber – transfer of the sample

In producer’s technical specification indicated there are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of air for ventilation, viewing windows.

2.2. 1st processing chamber – input/output of the sample and ion treatment

In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, ion treatment, delivery of gases, delivery of air for ventilation, viewing windows.

2.3. 2nd processing chamber – thermal evaporation of organic compounds

In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, making of coatings and control of the making process, delivery of air for ventilation, viewing windows.

2.4. 3rd processing chamber – metal evaporation

In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, deposition of coatings and control of the deposition process, delivery of air for ventilation, viewing windows.

2.5. 4th processing chamber – magnetron sputtering

In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, deposition of coatings and control of the deposition process, delivery of air for ventilation, viewing windows.

2.6. 5th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures)

In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, deposition of coatings and control of the deposition process, delivery of air for ventilation, viewing windows.

2.7. Electric and management systems lockers

2.8. Distilled water cooling system, including a chiller

2.8.1. For magnetron cooling

2.8.2. For cooling of turbo molecular pumps

2.8.3. For cooling of quartz resonators for the measuring of the speed of deposition

2.9. Plant management/control working station

2.10. Complete set of spare parts

The customer shall ensure:

- Space (premises) suitable for installation
- Engineering communications
- Exhaust gases after treatment
- Evaporation and sputtering materials
- Gas/gases mixtures

3. TECHNICAL DATA

3.1. Substrate

3.1.1. Substrate properties and dimensions

Material	Glass, metal or another solid, flat, suitable for vacuum processes base
Dimensions, mm	25x25 and 50 x 50
Thickness, mm	Up to 2
The uncoated zone (if needed) mm	Is to be indicated in Producer’s specification

3.1.2. Substrate carrier (Sample holder)

Material	Is to be indicated in Producer’s specification
Dimensions, mm	Is to be indicated in Producer’s specification

3.2. Central chamber – transfer of the sample

Base pressure, Torr	Not higher than 1×10^{-6}
Transportation system	Is to be indicated in Producer’s specification
Storage of samples	Cassette for storage of 5 up to 10 samples

3.3. 1st processing chamber – input/output of the sample, ion treatment

3.3.1. Substrate surface treatment

Treatment type	Ion flow
Ion sources quantity, pcs	1
Distance between the source and the sample, mm	100...150
Ion beam energy, eV	Up to 230
Ion beam power, W	Up to 1500
Ion beam maximum spreading angle, degrees	Below 80
Base pressure, Torr	Not higher than 1×10^{-6}
Working pressure, Torr	1×10^{-4}
Process gases	Ar, O ₂
Gas flow, sccm	Ar - max 30 O ₂ - max 30
Mass flow controllers, pcs	2
The number of sample places, pc	1

3.4. 2nd processing chamber – thermal evaporation of organic compounds

3.4.1. Coating

Material	Organic compounds suitable for
----------	--------------------------------

evaporation
 Coating homogeneity, % ± 5

3.4.2. Evaporation

Evaporation element type	Crucible type evaporator with shutter
The number of evaporation elements with shutters, pcs	3
Crucible inner capacity, cm ³	not more than 1.2
The number of evaporators feeding sources, pcs	3 or 1 switchable
Form of the to-be-evaporated material	Powder, granules and other
Base pressure, Torr	Not higher than 1×10^{-6}
Working pressure, Torr	5×10^{-6} to 1×10^{-4}
Evaporation temperature, °C	Up to 600
Process gases	N ₂
Gas flow, sccm	Up to 20
Mass flow controllers, pc	1
Distance from the evaporator up to the sample, mm	100-200
The number of substrate places, pcs	3 with place of masks
Additional shutters	3 additional shutters, one in front of each substrate.
Distance between substrate and mask	Direct contact
Crucibles for evaporation of organic compounds, pcs	10

3.4.3. Sample heating/cooling

Sample temperature, °C	Maximum +60, minimum - 40
Heater/cooler type	Indicated in producer's specification
Quantity of thermocouples for measuring of heater/cooler and substrate temperature, pcs	2

3.4.4. Measuring instruments

Quartz crystal resonance deposition speed and thickness measuring instruments, pcs	3
Quartz crystals for resonator, pcs	15
Resolution of deposition speed, Å/s	≤ 0.1
	Provide start of deposition at the certain coating rate

3.5. 3rd processing chamber – metal evaporation

3.5.1. Coating

To-be-evaporated material	Au, Ag, Al, Pd, Cu, Ni u.c.
Coating homogeneity, %	± 5

3.5.2. Thermal evaporation

Evaporation element type	Resistive evaporators. At least two of them should be crucible type
Number of evaporators, pcs	4
Number of shutters, pc	1
Crucible inner capacity, cm ³	not more than 1.2
Base pressure, Torr	Not higher than 1×10^{-6}
Working pressure range, Torr	1×10^{-5} to 1×10^{-4}
Number of evaporator feeding sources, pcs	4
Evaporation temperature, °C	Up to 1500
Distance from the evaporator up to the sample centre, mm	100...150
Number of sample places, pc	1 with place of mask
Distance between substrate and mask	Direct contact
Boron nitride crucibles, pcs	5
Aluminum oxide crucible, pcs	5
Quartz crucible, pcs	5
Molybdenum boats, pcs (if boats resistive evaporators are included)	20
Tungsten boats, pcs (if boats resistive evaporators are included)	20

3.5.3. Sample heating

Sample temperature, °C	Maximum 200
Heater type	The substrate may not be exposed to direct IR irradiation
The number of thermocouples for temperature measuring, pc	1
Maximum heater capacity, W	Indicated in producer's specification
The number of heaters, pc	1

3.5.4. Measuring instruments

Quartz crystal resonance deposition speed measuring instruments, pcs	2 (1 on 2 sources with one power supply)
Quartz crystals for resonator, pcs	10

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”
 Resolution of deposition speed, ≤ 0.1
 Å/s

Provide start of sample deposition
 at the certain coating speed

3.6. 4th processing chamber – magnetron sputtering

3.6.1. Coating

Materials	ITO, AZO, TiO ₂ , SiO ₂ , Al, Ti, et al.
Coating homogeneity, %	± 5

3.6.2. Magnetron sputtering

Coating deposition type	Material sputtering in the atmosphere of inert or reactive gas or their mixture
Magnetron type	A round flat target, diameter not less than 2 inches
The number of magnetrons, pcs	3
The number of shutters over the sample, pc	1
Medium distance from the target up to the sample, mm	100, with adjustment range ± 50 mm
Magnetron target slope angle, degrees	5...30
Base pressure, Torr	Not higher than 1×10^{-6}
Working pressure range, Torr	$(0.2-4) \times 10^{-2}$
Process gases	Ar, O ₂ , H ₂ , N ₂
Mass flow controllers, pcs	4
Power source	2 pc pulsed DC, 1 pc RF (manually switchable, jointly with the 5 th processing chamber) 1 pc pulsed DC and 1 pc RF (codeposition from two synchronized DC and RF power supplies in one time)
Power, kW	As requested for the target size
The number of sample places, pc	1
Sample rotation speed, min ⁻¹	Up to 10

3.6.3. Sample heating

Sample temperature, °C	Maximum 400
Heater type	Indicated in producer's specification
The number of thermocouples for temperature measuring, pc	1
Maximum heater capacity, W	Indicated in producer's specification
The number of heaters, pc	1

3.6.4. Measuring instruments:

Hardware for Plasma optical	3 channels (1 channel at each
-----------------------------	-------------------------------

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”
 spectroscopy channels, magnetron)
 excluding the
 spectrophotometers, pcs

3.6.5. Gas delivery system

Gas flows range	Indicated in producer’s specification, corresponding to the used vacuum pumps and the necessary working pressure
Geometry of input of gases	Indicated in producer’s specification

3.7. 5th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures)

3.7.1. Coating

Materials	Alloyed or pure silicon
Coating homogeneity, %	± 10

3.7.2. Magnetron sputtering

Coating deposition type	Material sputtering in the atmosphere of inert or reactive gas or their mixture
Magnetron type	A round flat target, diameter not less than 2 inches
The number of magnetrons, pcs	3
The number of shutters over the sample, pc.	1
Medium distance from the target up to the sample, mm	100, with adjustment range ±50 mm
Magnetron target slope angle, degrees	5...30
Base pressure, Torr	Not higher than 1×10^{-6}
Working pressure, Torr	$(0.2-4) \times 10^{-2}$
Process gases	Ar, H ₂
Mass flow controllers, pcs	2
Power source	2 pc pulsed DC, 1 pc RF (manually switchable, jointly with the 4 th processing chamber) 1 pc pulsed DC and 1 pc RF (codeposition from two synchronized DC and RF power supplies in one time)
The number of sample places, pc	1
Sample rotation speed, min ⁻¹	Up to 10

3.7.3. Sample heating

Sample temperature, °C	Maximum 400
Heater type	Indicated in producer’s specification
The number of thermocouples	1

for temperature measuring, pc	
Maximum heater capacity, W	Indicated in producer’s specification
The number of heaters, pc	1

3.7.4. Gas delivery system

Gas flows range	Indicated in producer’s specification, corresponding to the used vacuum pumps and the necessary working pressure
Geometry of input of gases	Indicated in producer’s specification

3.8. Pumping system, flow regulators and pressure sensors

Base pressure in central and processing chambers	Not higher than 1×10^{-6}
Pumping time for the processing chamber (from atmosphere to 1×10^{-6} Torr)	< 45 min.

In producer’s technical specification there are indicated pumping system components (incl. names of models)

3.9. Plant dimensions

In producer’s technical specification indicated are dimensions of the plant and separate chambers

3.10. Engineering communications

3.10.1. Electric connection

Frequency, Hz	50 ± 0.2
Voltage, V	Indicated in producer’s specification
Connection type	Indicated in producer’s specification
Installed capacity of the plant , kW	Indicated in producer’s specification

3.10.2. Compressed air

Pressure, bar	Requirements indicated in producer’s specification
Dew point temperature, °C	Requirements indicated in producer’s specification
Properties	Free from oil vapour and dust

3.11. Conditions of the use

Temperature, °C	20 ± 5
Relative moisture, %	The range indicated in producer’s specification

4. PLANT DESCRIPTION

4.1. General description

- 4.1.1. The plant is elaborated in accordance with ergonomic principles ensuring access to all parts of the plant for their servicing and replacement. All parts and equipment of the plant are envisaged for the concrete processes by complying with the requirements of the specific temperature, pressure and reactive environment.
- 4.1.2. All chambers are made of stainless steel. They are supported on several support legs. The interior surfaces of the chamber are electrically polished. All chambers are ensured with windows and lighting for viewing of the process and transfer of the sample.
- 4.1.3. The plant is of a modular design. All chambers of the process are easily removable.
- 4.1.4. The plant design shall foresee an input/output chamber equipped with the ion source for treatment of the sample surface, 4 processing chambers and 3 free places which in future may be used for attachment of other processing chambers. The central chamber is separated from processing chambers with a shutter valve through which ensured is placement of the sample into the processing chamber. Coating deposition processing chambers are equipped with additional 2 closed flanges.
- 4.1.5. Each processing chamber may operate in an independent, the so-called solo mode. The input/output chamber can be operated simultaneously with other chambers. Placement of the sample is possible either through the input/output chamber and further through the central chamber shutter valve by means of the sample transfer mechanism or by opening the chamber door and manually placing the sample on the sample holding table.
- 4.1.6. All processing chambers are equipped with in hinges secured doors enabling a possibility to easily get an access to the equipment available inside the chamber to place the mask and/or the sample onto the sample holding table in its foreseen place, in case of necessity to replace, to add the to-be-evaporated, to-be-sputtered material.
- 4.1.7. In the interior of the coating deposition processing chamber envisaged there are fixtures for fixing of the steel or other material plate-type screens facilitating cleaning of the chamber after performance of the process.
- 4.1.8. The organic compound thermal evaporation chamber substrate holding table is equipped with 3 positions for placement of the sample. The sample holding table is turn-able in order to ensure the placement of the sample over the necessary evaporation cell or a necessary position for transfer of the sample by the manipulator hand. The turning is ensured by the step driver.
- 4.1.9. In the metal thermal evaporation chamber and in the both magnetron sputtering chambers the sample holding table is equipped with one position for placement of the sample.
- 4.1.10. Mechanical motion (e.g., rotation) of the substrate holder is used in the metal thermal evaporation chamber and in both magnetron sputtering chambers to ensure a homogeneous coating.
- 4.1.11. In the metal thermal evaporation chamber and in the both magnetron sputtering chambers for heating of the sample used is the infrared heater.
- 4.1.12. In the organic substance thermal sublimation chamber heating/cooling of the

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
“Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”
sample takes place by using heat transfer agent circulation tubes. The base of the sample is in direct contact with the temperature controlled surface. In the cooling mode the cooling agent is gaseous or liquid-type. Precaution shall be taken to avoid water condensation in the cooling system.

4.2. Sample holder

4.2.1. A special sample holder will be used for sample transfer from one processing chamber to another. The sample holder is envisaged for 25x25 mm and 50x50 mm large samples. The size of the uncoated area (needed for sample fixture) is indicated in Producer's specification.

4.3. Central chamber – transfer of the sample

4.3.1. The central chamber is equipped with 8 flanges to which secured there are processing chambers.

4.3.2. Transfer of the sample is carried out by means of the sample transfer mechanism. In the central chamber located there is a cassette for storage of 5-10 samples.

4.4. 1st processing chamber – sample input/output, ion treatment

4.4.1. The first processing chamber is envisaged for input/output of the sample from the plant, for treatment of the sample surface by ion flow and for delivery of the sample to the central chamber.

4.4.2. In the ion treatment time the used process gases (Ar un O₂) are delivered by using two mass flow controllers (MFC).

4.5. 2nd processing chamber – organic compound thermal evaporation

4.5.1. The second processing chamber is envisaged for deposition of the organic substances onto the sample by use of 3 thermal sublimation cells.

4.5.2. Each sublimation cell is equipped with an individual shutter. 3 quartz resonance heads are monitoring the rate of deposition. Additional central shutter being operated by a pneumatic drive is used to protect the sample before the rate is established.

4.5.3. In the chamber ensured is heating of the samples up to + 60⁰ degrees and cooling up to -40⁰ degrees by use of a plate-type heater/cooler with circulation tubes.

4.6. 3rd processing chamber – metal evaporation

4.6.1. The third processing chamber is envisaged for metal deposition by use of 4 evaporators.

4.6.2. In the chamber placed there are 4 evaporation sources and 4 quartz resonators. Between the resonators and the sample there is a shutter operated by a pneumatic drive.

4.6.3. In the chamber ensured is heating of the sample up to +200⁰ degrees.

4.7. 4th processing chamber – magnetron sputtering

4.7.1. The fourth processing chamber is envisaged for deposition of various materials by use of 3 magnetrons.

4.7.2. In the chamber placed there are 3 magnetrons of which one or any two may operate simultaneously. The distance of the magnetron and its angle in relation to the sample may be altered. For the processing chamber delivered are 4 gases (Ar, O₂, N₂, H₂) by use of four gas flow controllers (MFC). Each magnetron has a separate gas distributor.

- 4.7.3. For ensuring of the coating deposition the 4th and 5th chamber is equipped with a common set of two pulsed DC power sources and one RF power source.
- 4.7.4. In the chamber ensured is heating of the sample up to + 400⁰ degrees.
- 4.7.5. The chamber is equipped with 3 plasma optical emission spectroscopy channels (one for each magnetron).

4.8. 5th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures)

- 4.8.1. The fifth processing chamber is envisaged for silicon based materials deposition onto the sample by use of 3 magnetrons. In the chamber it is envisaged deposition of coatings necessary for establishing of the PIN structure.
- 4.8.2. In the chamber placed are 3 magnetrons of which one or any two may operate simultaneously. The magnetron distance up to the sample and its angle in relation to the sample may be altered. To the processing chamber delivered are 2 gases (Ar, H₂) by use of two gas flow controllers (MFC). Each magnetron has a separate gas distributor.
- 4.8.3. For ensuring of the coating deposition process, the 4th and 5th chamber is equipped with joint two pulsing direct current power sources and one RF power source.
- 4.8.4. In the chamber ensured is heating of the sample up to + 400⁰ degrees.

4.9. Pumping system

- 4.9.1. The central chamber and each processing chamber is equipped with an individual pumping system consisting of one mechanical pump and one turbo-molecular pump.
- 4.9.2. For the coating deposition processing chambers (2nd, 3rd, 4th and 5th processing chambers) between the chamber and the turbo-molecular pump installed there is a throttling valve. The pumping system in each chamber ensures the base pressure not higher than 1×10^{-6} Torr.
- 4.9.3. The vacuum sensors in the coating deposition chambers and between the mechanical and turbo-molecular pumps are specified in the producer's specification.
- 4.9.4. For air admission into the chamber there is envisaged an air supply valve and electromagnetic shutter valve.

4.10. Engineering communications

- 4.10.1. Electric cables, electric lines and gas lines as well as water and compressed air system engineering communications are mainly placed in distribution panels located over the plant or on the floor in compliance with customer's requirements.
- 4.10.2. Engineering communications attachment points are coordinated with the customer during the plant elaboration time.

5. ELECTRIC AND MANAGEMENT SYSTEM

- 5.1. The electric system is elaborated in accordance with 73/23 EEC directives.
- 5.2. The plant management system is PLC based.
- 5.3. The plant management system shall ensure the technological process management and control.

- 5.4. The management system shall ensure:
- Pumping system management;
 - Manipulator management;
 - Magnetron sputtering management;
 - Heaters management;
 - Organic sublimation cells (Organic Molecular Evaporator) management;
 - Thermal evaporators management;
 - Gas delivery system management;
 - Ion source management;
 - Water cooling system management.
- 5.5. Each plant chamber has an individual pumping system. The management system ensures management of all pumps, valves and pumping system shutters by controlling pressure in each chamber and in the pumping system lines. The status of pumps, valves and shutters is reflected in the visualisation system.
- 5.6. The management system ensures management of the drive of the manipulator located in the central chamber by ensuring transfer of samples to any processing chamber. Placement of samples in chambers is reflected in the visualisation system. If the sample is removed/placed in the processing chamber through the chamber door, the operator shall introduce its management system.
- 5.7. The management system ensures management of the sample heaters in the processing chambers by ensuring stabilization of the heaters temperature. Setting and reflection of heaters temperature parameters is performed by using the visualisation system.
- 5.8. The management system ensures management of the magnetron power sources by ensuring a possibility to alter magnetron mode by stabilisation of the power, voltage or the current intensity. Setting and reflection of magnetron operation parameters is performed by use of the visualisation system.
- 5.9. The management system ensures management of 3 thermal sublimation cells for deposition of organic coatings on the sample in the second processing chamber. The management system regulates and stabilises temperature in each crucible evaporator. Thermal sublimation cells operation parameters (temperature, capacity) are reflected in the visualisation system. Thickness of the coating is measured by use of quartz resonators and the measurements obtained are reflected in the visualisation system.
- 5.10. The management system ensures management of thermal evaporators in the third processing chamber by control of the coating thickness by use of quartz resonators. Setting of parameters is performed by use of the visualisation system.
- 5.11. The management system performs management of the mass flow controllers (MFC) by ensuring delivery of working gases into processing chambers. Gas delivery systems parameters are set and reflected by use of the visualisation system.
- 5.12. To ensure a better adhesion of the coating, in the first processing chamber there is performed treatment of the sample with ion flow. The management system performs management of ion sources with parameters control and process gas (Ar and O₂) delivery. Setting and reflection of ion source electric parameters and gas delivery parameters is performed by use of the visualisation system.
- 5.13. The management system performs the plant cooling system monitoring and water flow

- 5.14. By performing a technological cycle, according to operator’s choice on the visualisation computer screen there is reflected information as follows:
- Pumping system status;
 - Pressure in chambers and pumps;
 - Working parameters for power sources, heaters, ion sources, organic sublimation cells and thermal evaporators;
 - Gas delivery systems parameters;
 - Water cooling system status.
- 5.15. In the visualisation computer monitor there will be reflected details as follows:
- Process;
 - Pumping system;
 - Water cooling system;
 - Water chiller status
 - Alarms and warnings.
- 5.16. Visualisation system ensures storage of process data and reflection of the data stored.
- 5.17. In the plant there are ensured blocking of the software and hardware, by ensuring safe operation of the personnel and by eliminating possible situations of averages related to falling out of executive devices or operator’s faulty activities.
- 5.18. The management system operates in the following modes:
- Manual management mode;
 - Semi-automatic management mode (automatic pumping-off in the central chamber and in each processing chamber).
- 5.19. In the complete set of the plant being delivered to customer there included are the management locker, all external cables, PC, management system prime codes, visualisation system license.

6. PLANT ACCEPTANCE/DELIVERY AT THE TENDERER

- 6.1. The plant initially is mounted at the Tenderer. The first turn delivery/acceptance is organised in accordance with Acceptance/delivery tests programme the both parties have agreed on, and is performed by Customer’s co-participation when met have been all requirements of the technical specification.
- 6.2. Customer shall ensure samples and coating materials for testing.
- 6.3. Testing results are included into the acceptance statement. The said documents certify readiness of the plant for delivery to the Customer.
- 6.4. Simultaneously with Acceptance/delivery tests there is organised training of the personnel.

7. PLANT MOUNTING, ADJUSTMENT AND DELIVERY AT THE CUSTOMER

- 7.1. The Customer shall prepare premises envisaged for the plant, ensure necessary lifting devices and equipment in accordance with mounting drawings and arrangement of the

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
“Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”
premises, the parties have agreed beforehand on.

- 7.2. Delivery of the plant up to the room for mounting shall be organised and performed by Tenderer or a third person contracted by Tenderer.
- 7.3. When Customer has received the plant, the supplier representative shall perform system installation. The Customer shall provide all facilities such as compressed air, process gases at low pressure, electrical power, exhaust line, all in a distance up to 3 meter from the system final position. there shall arrive Producer’s representatives (a team of engineers and employees) to mount and adjust the plant. Attachment, testing and control of electric devices shall take place by consulting with either Customer’s authorised and qualified representative or licensed specialist to have been invited by Customer.
- 7.4. After completion of all mounting works and commencement of the plant operation there is effected testing in order to set conformity to the technical specification. Testing is effected in accordance with the Acceptance/delivery tests programme to have been agreed upon by the parties. Customer shall ensure samples and coating materials for testing.
- 7.5. Testing results are reflected in the delivery statement. The statement itself shall be a basis for the final agreement payment. The guarantee time shall begin from the day when the delivery statement having been signed.
- 7.6. Customer shall ensure all lifting devices necessary for mounting of the plant, for operation, maintenance and repair works, as well as necessary support of the Customer’s personnel.

8. PERSONNEL TRAINING

- 8.1. For Customer’s employees ensured there shall be theoretical and practical training for the time when there is taking place testing of the plant at Producer’s. Such training programme and duration of the Customer’s team staying at the Producer’s shall be arranged with the Customer not later than one month prior to testing of the plant.
- 8.2. During the plant mounting, adjustment and putting into operation the personnel indicated by the Customer may be trained and may participate in all mounting, adjustment and commencement of operation stages.

9. DRAWINGS AND TECHNICAL DOCUMENTATION

- 9.1. Not later than a week after signing of the agreement Customer shall ensure Producer with the plant placement premises arrangement drawings (plans).
- 9.2. Not later than within one month time after signing of the agreement Producer shall ensure Customer with Planned works schedule.
- 9.3. Within 45 working days from the day when the advance payment has been received in the bank Producer shall ensure Client with documents as follows:
 - The proposal for mounting of the plant in accordance with the envisaged premises arrangement. All plant design alterations after signing of the accorded agreement having been performed upon Client’s request will be at Client’s account;
 - Electric and management system specification;
 - Mounting drawings for main plant parts;
 - Schematic diagrams (vacuum, electric, hydraulic, gas, pneumatic);

- Risks protocol;
 - Acceptance/delivery tests programme;
 - A list of the parts procured and suppliers;
 - A list of spare parts.
- 9.4. Within two weeks after sending of documents Customer’s and Producer’s representatives may discuss them in Customer’s office (upon Customer’s request).
- 9.5. Simultaneously with the plant the Producer shall supply Customer a full activities documentation package, by including therein:
- Operator’s technological card & Manual – 2 complete sets;
 - Maintenance technological card & Manual – 2 complete sets;
 - Electric and management schemes – 3 complete sets;
 - PLC and MMI prime code – 2 complete sets;
 - Suppliers’ Manuals – 1 complete set;
 - Certificate of origin.
- 9.6. Technical documentation on the plant shall be supplied in two volumes in Latvian or English. All documentation and requirements in drawings shall be in English. Drawings shall be in SolidWorks and/or ACAD formats. Ensured shall be also an electronic copy of all documents and drawings.

10. PACKING, TRANSPORTATION AND STORAGE

- 10.1. The plant shall be packed in containers ensuring its safety during transportation. Producer shall perform the plant preparation for transportation in compliance with the branch standards.
- 10.2. The plant shall be handed over to Transporters. Producer shall choose Transporters and coordinates it with Customer.
- 10.3. The plant shall be transported in containers suitable for the type of transportation. The number of containers shall be set after elaboration of the technical documentation.

11. GUARANTEE

- 11.1. Producer shall guarantee operation of the plant in pure premises, fulfilment of parameters in compliance with the technical specification.
- 11.2. Within 12 months’ time from the day when there is signed the delivery statement Producer shall ensure the plant repair and/or replacement of details having become invalid or threatening a proper operation of the plant if these defects have occurred not through fault of the Customer.

12. AFTER SALE SERVICING

- 12.1. After sale servicing within the after guarantee period may be effected in compliance to the separately signed agreement between Producer and Customer. In compliance with this agreement Producer shall provide necessary information, perform services, current of capital repair, prophylactic works and supply of details.

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

<p>Pielikums Nr.2</p> <p>atklāta konkursa „Daudzfunkcionālas klāstera iekārtas vakuuma pārklājumu izgatavošanai piegāde” nolikumam</p> <p>Iepirkums Nr.: LU CFI 2013/2/ERAF</p>	<p>ANNEX 2</p> <p>to the Regulation of the Open Tender “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”</p> <p>Procurement No.: LU CFI 2013/2/ERDF</p>
--	--

LĪGUMS (projekts)	CONTRACT (draft)
--------------------------	-------------------------

<p>Rīgā, 2013. gada ____.</p> <p>Latvijas Universitātes aģentūras – LU Cietvielu fizikas institūta līgumu uzskaites Nr. 2013/2/ERAF</p>	<p>Rīga, _____ 2013.</p> <p>Institute of Solid State Physics University of Latvia Contract registration No. 2013/2/ERDF</p>
<p>Latvijas Universitātes aģentūra – Latvijas Universitātes Cietvielu fizikas institūts (turpmāk tekstā – LU CFI), turpmāk tekstā – Pircējs, tā direktora Andra Šternberga personā, kas rīkojas saskaņā ar LU CFI nolikumu, no vienas puses,</p> <p>un _____, turpmāk tekstā – Pārdevējs, tās _____ personā, kas rīkojas saskaņā ar tās statūtiem, no otras puses,</p> <p>abi kopā turpmāk tekstā – Puses un katrs atsevišķi turpmāk tekstā arī Puse,</p> <p>pamatojoties uz Pārdevēja piedāvājumu un Pircēja iepirkumu komisijas lēmumu par atklāta konkursa LU CFI 2013/2/ERAF „Daudzfunkcionālas klāstera iekārtas vakuuma pārklājumu izgatavošanai piegāde” rezultātiem,</p> <p>ERAF līdzfinansēta projekta „Nanostrukturēto un daudzfunkcionālo materiālu, konstrukciju un tehnoloģiju Valsts nozīmes pētniecības centra zinātniskās infrastruktūras attīstīšana” (projekta Nr. 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004) izpildei</p> <p>noslēdz šādu līgumu, turpmāk tekstā saukts Līgums:</p>	<p>Institute of Solid State Physics University of Latvia (hereinafter – the ISSP), hereinafter – the Purchaser, in the person of Mr. Andris Sternbergs, its Director, acting pursuant to the Regulation of the ISSP on the one side,</p> <p>and _____, hereinafter – the Seller, in the person of _____, its _____, acting pursuant to the Articles of Association, on the other side,</p> <p>both hereinafter referred to as the Parties; each separately hereinafter referred to as the Party,</p> <p>on the basis of the Seller’s offer and decision by the Procurement Commission of the Purchaser on the results of the Open Tender “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings” (LU CFI 2013/2/ERDF)</p> <p>for fulfilment of the ERDF Project No.: 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004 “Development of Scientific Infrastructure for the National Research Centre of Nanostructured and Multifunctional Materials, Constructions and Technologies”</p> <p>shall conclude the following contract, hereinafter – the Contract:</p>
<p>1. LĪGUMA PRIEKŠMETS</p>	<p>1 SUBJECT OF THE CONTRACT</p>
<p>1.1. Pārdevējs pārdod, bet Pircējs pērk Daudzfunkcionālu klāstera iekārtu vakuuma pārklājumu izgatavošanai, kuras tehniskā specifikācija norādīta šā līguma pielikumā Nr.1. (turpmāk tekstā - Prece).</p>	<p>1.1 The Seller shall sell and the Purchaser shall buy the Multifunctional Cluster Plant for Deposition of Vacuum Coatings, the technical specification of which has been indicated in Annex 1 herein (hereinafter - the Goods).</p>
<p>1.2. Līguma summa, ieskaitot visus ar līguma izpildi saistītos izdevumus un nodokļus ir Ls _____ (_____), turpmāk šā līguma tekstā saukta Līgumcena.</p>	<p>1.2 The Contract price is _____ (_____), including all the expenses, taxes and duties related to the performance with the Contract.</p>

<p>2. PIEGĀDES IZPILDES - PIENĒMŠANAS NOSACĪJUMI UN APMAKSAS KĀRTĪBA</p>	<p>2 CONDITIONS OF THE PERFORMANCE AND APPROVAL OF THE DELIVERY AND THE PROCEDURE OF PAYMENT</p>
<p>2.1. Prece Pircējam tiek piegādāta Ķengaraga ielā 8, Rīgā, Latvijā, LU Cietvielu fizikas institūta telpās.</p>	<p>2.1 The Goods shall be delivered to the Purchaser at the address: Kengaraga street 8, Riga, Latvia, the premises of the ISSP.</p>
<p>2.2. Saskaņā ar Līgumu:</p> <p>2.2.1. piegādājamās Preces nodošanas Pircējam pirmā kārtā notiek Pārdevēja (Ražotāja) telpās ne vēlāk kā 8 (astoņu) mēnešu laikā skaitot no Līguma noslēgšanas. Nodotāna pirmā kārtā notiek atbilstoši Tehniskās specifikācijas 6.nodaļai.</p> <p>2.2.2. piegādājamā Prece tiek nodota Pircējam (akceptēta, abpusēji parakstot pieņemšanas – nodošanas aktu) Pircēja telpās ne vēlāk kā 9 (deviņu) mēnešu laikā skaitot no Līguma noslēgšanas. Nodotāna notiek atbilstoši Tehniskās specifikācijas 7.nodaļai.</p> <p>2.2.3. Līguma punktos 2.2.1. un 2.2.2. minētos termiņus ir iespējams pagarināt par laiku līdz 3 (trīs) mēnešiem.</p>	<p>2.2 Pursuant to the Contract:</p> <p>2.2.1 The first acceptance of the Goods by the Purchaser shall take place at the premises of the Seller (Producer) no later than within 8 (eight) months time as of the day of entering into the Contract. The first acceptance of the Goods shall take place in accordance with the Chapter 6 of the Technical Specifications.</p> <p>2.2.2 the Goods to be delivered shall be delivered to the Purchaser (accepted by the mutual signing of the Deed of Transfer) no later than within 9 (nine) months time as of the day of entering into the Contract. The acceptance of the Goods shall take place in accordance with the Chapter 7 of the Technical Specifications.</p> <p>2.2.3 The terms indicated in Items 2.2.1 and 2.2.2. of the Contract can be extended, but not more than for 3 (three) months.</p>
<p>2.3. Pircējs veic avansa maksājumu Ls_____ (_____) jeb 50% apmērā no Līgumcenas 30 (trīsdesmit) dienu laikā pēc Līguma abpusējas parakstīšanas un bankas avansa garantijas un avansa rēķina saņemšanas.</p> <p>Atlikušo Līguma summas daļu Pircējs apņemas apmaksāt 2 (divos) maksājumos: Ls_____ (_____) jeb 30% no līgumcenas Pircējs apmaksā 30 (trīsdesmit) dienu laikā pēc Preces pieņemšanas Pārdevēja (Ražotāja) telpās un pēc rēķina saņemšanas</p> <p>un Ls_____ (_____) jeb 20% no līgumcenas Pircējs apmaksā 30 (trīsdesmit) dienu laikā skaitot no abpusēji parakstīta pieņemšanas – nodošanas akta parakstīšanas un rēķina saņemšanas dienas.</p>	<p>2.3 The Purchaser shall make a prepayment in the amount of LVL_____ (_____) or 50% of the Contract price within 30 (thirty) days from mutual signing of the Contract and receiving of the advance payment bank warranty and advance payment invoice.</p> <p>The Purchaser hereby undertakes to make the payment of the remaining part of the Contract price in 2 (two) payments: LVL _____ (_____) or 30% of the Contract price shall be paid by the Purchaser within 30 (thirty) days from the day of the acceptance of the Goods at the premises of the Seller (Producer) and receipt of the invoice</p> <p>and LVL _____ (_____) or 20% of the Contract price shall be paid by the Purchaser within 30 (thirty) days from the day of the mutual signing of the Deed of Transfer and receipt of the invoice.</p>

<p>3. LĪGUMSLĒDZĒJU PUŠU ATBILDĪBA</p>	<p>3 LIABILITY OF THE CONTRACTING PARTIES</p>
<p>3.1. Līdz piegādātās Preces pilnas apmaksas izdarīšanai, piegādātā Prece ir Pārdevēja īpašums.</p> <p>Preces nejaušas bojāejas (bojājuma) risku sākot ar brīdi, kad Prece ir nogādāta Pircēja telpās, uzņemas Pircējs.</p> <p>Īpašumtiesības uz piegādāto Preci pāriet Pircējam ar brīdi, kad Pircēja banka ir akceptējusi maksājuma uzdevumu par piegādājamās Preces pilnu apmaksu.</p>	<p>3.1 The delivered Goods shall be the property of the Seller until making full payment for the delivered Goods.</p> <p>The risk for an unintentional destruction (damage) of the Goods shall be assumed by the Purchaser from the moment of delivery of the Goods to the premises of the Purchaser.</p> <p>The ownership rights to the Goods shall be transferred to Purchaser from the moment the Purchaser’s bank has approved the payment order on the full payment for the delivered Goods.</p>
<p>3.2. Par apmaksas termiņa neievērošanu Pircējs, pēc Pārdevēja pirmā pieprasījuma, maksā Pārdevējam līgumsodu 0,1% (procenta vienas desmitdaļas) apmērā no nokavētā maksājuma summas par katru nokavēto dienu, bet ne vairāk kā 10% (desmit procentus) no nokavētā maksājuma summas. Nokavējuma procentu samaksa neatbrīvo no Līguma saistību izpildes.</p>	<p>3.2 For the failure to comply with the payment term the Purchaser, upon the first request by the Seller, shall pay the contractual penalty to the Seller in the amount of 0.1% (one-tenths of one percent) from the sum of the delayed payment for each delayed day, but no more than 10% (ten percent) of the delayed payment. The payment of the contractual penalty shall not free from the compliance with the Contract commitments.</p>
<p>3.3. Par Preces piegādes kavējumu Pārdevējs, pēc Pircēja pirmā pieprasījuma, maksā Pircējam līgumsodu 0,1% (procenta vienas desmitdaļas) apmērā no līgumsummas par katru nokavēto dienu, bet ne vairāk kā 10% (desmit procentus) no Līguma summas.</p> <p>Līgumsoda samaksa neatbrīvo no Līguma saistību izpildes.</p>	<p>3.3 For the delay of the delivery of the Goods the Seller, upon the first request by the Purchaser, shall pay the contractual penalty to the Purchaser in the amount of 0.1% (one-tenths of one percent) from the Contract price for each delayed day, but no more than 10% of the Contract price.</p> <p>The payment of the contractual penalty shall not free from the compliance with the Contract obligations.</p>
<p>3.4. Katra līgumslēdzēja Puse atbild par Līguma neizpildi vai nepienācīgu izpildi, ja tās vainas dēļ nodarīts kaitējums otrai līgumslēdzēja Pusei.</p>	<p>3.4 Every Contracting Party shall be liable for the failure to comply with the Contract or for inadequate compliance, if the detriment is thus caused to the other Contracting Party.</p>
<p>3.5. Puses ir tiesīgas rīkoties caur saviem pārstāvjiem.</p>	<p>3.5 The Parties shall be entitled to act through their representatives.</p>

<p>3.6. Pārdevējs atbild par Pircējam piegādātās Preces kvalitāti, kādu noteicis attiecīgo preču ražotājs saskaņā ar Pārdevēja izsniegto garantijas sertifikātu. Preces garantijas remonts ir jāveic atbilstoši vispārpieņemtajai praksei šādām Precēm.</p> <p>Preces bojājumus Pircējs piesaka rakstiski pa faksu _____ vai ziņojot uz e-pasta adresi _____. Paraleli informācijas nodošanai var izmantot tālr. _____.</p> <p>Pārdevējs rakstiski pa faksu _____ vai e-pastu _____ apstiprina pieteikuma par Preces bojājumu saņemšanu.</p>	<p>3.6 The Seller shall be liable to the Purchaser for the quality of the delivered Goods, stated by the manufacturer of the respective Goods subject to the warranty certificate issued by the Seller. The warranty repair of the Goods shall be made subject to the common practice for the respective Goods.</p> <p>The Purchaser shall notify of the damaged Goods in writing by fax _____ or by sending an e-mail message to the address: _____. Information may at the same time be provided by telephone _____.</p> <p>The Seller shall confirm the receipt of the the notification of the damaged Goods in writing by fax or e-mail.</p>
<p>3.7. Pārdevēja reakcijas laiks (laiks no Preces bojājuma pieteikšanas līdz Pārdevēja speciālista ierašanās pie Pircēja brīdīm) ir ne vairāk kā 5 (piecas) darba dienas. Pretējā gadījumā Pārdevējs, pēc Pircēja pirmā pieprasījuma, maksā Pircējam sodu par līguma saistību nepildīšanu Ls 200 (divi simti latu) par katru reakcijas kavējuma darba dienu.</p>	<p>3.7 The Seller's reaction (the time from the notification of the damaged Goods until the arrival of the Seller's expert at the Purchaser's location) shall not exceed 5 (five) business days. Failing to do so, the Seller shall pay the Purchaser, upon the Purchaser's first request, the penalty for the failure to comply with the Contract obligations in the amount of LVL 200 (two hundred lats) for each business day of the above delayed reaction.</p>
<p>3.8. Pārdevējam ir pienākums novērst pieteiktos defektus nekavējoties un ne ilgāk kā 3 (trīs) nedēļu laikā. Ja bojājums nav novērsts norādītajā termiņā, tad par katru kavēto dienu Pircējs var pieprasīt Pārdevējam maksāt sodu 200 Ls (divi simti latu) apmērā par katru kavējuma dienu. Par aprēķinātu sodu piestāda rēķinu reizi mēnesī.</p>	<p>3.8 The Seller shall have an obligation to perform the repair work of the notified defects as soon as possible and no later than in 3 (three) weeks time. If such defect has not been repaired until specified time, the Seller shall pay the Purchaser, upon the Purchaser's first request, the penalty in the amount of LVL 200 (two hundred lats) for each delayed day. The invoice for the calculated penalty shall be issued once a month.</p>
<p>3.9. Ja bojājumu neizdodas novērst 3 (trīs) mēnešu laikā, tad nākamā 1 (viena) mēneša laikā Pārdevējs atgriež Pircējam summu iekārtas iegādes vērtībā.</p>	<p>3.9 If it is not possible to perform the repair work in 3 (three) months time, the Seller shall return the Purchaser the sum equal to the equipment purchase amount in 1 (one) month time.</p>
<p>3.10. Garantijas apkalpošanas perioda laikā notikuša bojājuma gadījumā Pārdevējs uz sava rēķina, nepazeminot Preces kvalitāti, veic bojātās daļas nomaiņu vai remontu. Garantijas saistības ir spēkā pie nosacījuma, ka nav iestājušies garantijas sertifikātā norādītie apstākļi, kas pārtrauc garantijas saistības.</p>	<p>3.10 In the event of a damage occurring during the warranty maintenance period, the Seller shall replace the faulty part or make the repair at his/her expense, without diminishing the quality of the Goods. The warranty commitments are valid on the condition that the circumstances stated in the warranty certificate and terminating the warranty commitments, have not set in.</p>
<p>3.11. Precei tiek noteikts garantijas laiks: 12 (divpadsmit) mēneši no Preces piegādes brīža.</p>	<p>3.11 The following warranty period shall be stipulated for the Goods: 12 (twelve) months from the performance of the delivery.</p>

<p>3.12. Visos dokumentos, kas saistīti ar šo Līgumu Pārdevējs obligāti norāda visus nepieciešamos rekvizītus un datus, tajā skaitā ERAF projekta nosaukumu un numuru (Projekts Nr.: 2011/0041/2DP/2.1.1.3.1/11/ IPIA/VIAA/004 „Nanostrukturēto un daudzfunkcionālo materiālu, konstrukciju un tehnoloģiju Valsts nozīmes pētniecības centra zinātniskās infrastruktūras attīstīšana”) un iepirkuma identifikācijas numuru (LU CFI 2013/2/ERAF).</p>	<p>3.12 The Seller on a mandatory basis shall indicate all the necessary banking data and information including the name and the number of ERDF project (Project No.: 2011/0041/2DP/ 2.1.1.3.1/11/IPIA/VIAA/004 “Development of Scientific Infrastructure for the National Research Centre of Nanostructured and Multifunctional Materials, Constructions and Technologies) and the procurement identification number (LUCFI 2013/2/ERDF) in all the documents regarding the present Contract.</p>
<p>3.13. Līguma 3.12.p. prasību neievērošanas gadījumā, Pircējs patur tiesības neapmaksāt rēķinus līdz minēto prasību izpildei.</p>	<p>3.13 In the event of non-compliance with the requirements of Item 3.12 of the Contract, the Purchaser shall reserve the rights to make no payment of the invoices until the compliance with the stated requirements.</p>
<p>4. NEPĀRVARAMA VARA</p>	<p>4 FORCE MAJEURE</p>
<p>4.1. Gadījumā, kad rodas nepārvaramas varas apstākļi, tādi kā dabas katastrofas, karš, jebkuras militāras akcijas, valsts pārvaldes institūciju rīkojumi, lēmumi vai aizliegumi un citi ārkārtēji apstākļi, kurus Puses nevarēja paredzēt un novērst ar saviem līdzekļiem, līgumsaistību izpildes laiks pagarinās par periodu, kurā pastāv nepārvaramas varas radītie apstākļi. Ja nepārvaramas varas apstākļi pastāv ilgāk kā 3 (trīs) mēnešus, Līguma darbība tiek izbeigta un Puses veic savstarpējo norēķinu atbilstoši faktiski piegādātajai Precei.</p>	<p>4.1 In the cases of the force majeure circumstances, such as the natural hazards, war, any military actions, orders by the state administration institutions, decisions or prohibitions and other extraordinary circumstances, which the Parties could not envisage and prevent with their own resources, the time period of compliance with the Contract obligations shall be extended by the period of the existence of the circumstances caused by the force majeure. If the force majeure circumstances exist for more than 3 (three) months, the Contract shall be terminated and the Parties shall make mutual settlement subject to the actually delivered Goods.</p>
<p>5. CITI NOTEIKUMI</p>	<p>5 OTHER CONDITIONS</p>
<p>5.1. Līgums stājas spēkā ar tā parakstīšanas brīdi un darbojas līdz pilnīgai abpusējai Līguma saistību izpildei. Līgums atspoguļo Pušu vienošanos attiecībā uz Līguma priekšmetu, apmaksas, piegādes u.c. nosacījumiem un atceļ visas iepriekšējās sarakstes un mutiskas vienošanās, kas pastāvējušas starp Pusēm līdz Līguma parakstīšanai.</p>	<p>5.1 The Contract shall take effect from the moment of signing and shall be valid until full mutual compliance with the Contract obligations. The Contract shall reveal the agreement of the Parties with respect to the subject of the Contract, conditions of the payment, delivery and other provisions, and shall revoke all the preceding written communication and oral arrangements existing among the Parties until the signing of the Contract.</p>

<p>5.2. Pārdevējs, slēdzot Līgumu, iesniedz Pircējam bankas izsniegtu avansa maksājuma garantiju 50% apmērā no Līgumcenas (ietverot PVN, ja piemērojams) ar derīguma termiņu līdz laikam, kad Pircējs aplicina Preces saņemšanu Pircēja telpās, bet ne īsāku kā 11 (vienpadsmit) mēneši no līguma noslēgšanas brīža.</p> <p>2.2.3. punktā minētā līguma pagarināšana stājas spēkā tikai tad, ja ir iesniegts bankas garantijas pagarinājums, nosakot tās derīguma gala termiņu ne īsāku, kā iekārtas pieņemšanas datums (saskaņā ar pagarināto 2.2.2. punkta termiņu) plus 2 (divi) mēneši.</p> <p>Pircējs atgriež avansa maksājuma garantiju Pārdevējam 2 (divu) nedēļu laikā pēc Preces saņemšanas Pircēja telpās.</p>	<p>5.2 The Seller, entering into the Contract, shall submit to the Purchaser the Advance Payment Guarantee issued by the bank in the amount of 50% of the Contract value (including VAT, if applicable) valid until the Purchaser confirms receipt of the Goods at the premises of the Purchaser. Validity term of the Advance Payment Guarantee shall be not less than 11 (eleven) months from the date of entering into the Contract.</p> <p>The prolongation of the Contract indicated in Item 2.2.3 of the Contract shall take effect if the prolongation of the Advance Payment Guarantee granted by the bank is submitted. The validity term of the prolonged Advance Payment Guarantee shall be up to the date of the acceptance of the Goods (in accordance with the prolonged term of Item 2.2.2 of the Contract) plus 2 (two) months.</p> <p>The Purchaser shall return the Advance Payment Guarantee to the Seller in 2 (two) weeks after receipt of the Goods at the premises of the Purchaser and receipt of the invoice.</p>
<p>5.3. Pasūtītājs vienpusēji ir tiesīgs lauzt Līgumu, ja Līguma termiņš nav likumīgi pagarināts un Preču piegāde kavējas vairāk par 1 (vienu) mēnesi pēc šī Līguma termiņa beigām.</p>	<p>5.3 The Purchaser shall be entitled to terminate the Contract unilaterally, if the Contract deadline is not legally extended and delivery of the Goods has been delayed by more than 1 (one) month following the expiry of the deadline of the present Contract.</p>
<p>5.4. Ja Prece netiek piegādāta un līgums tiek lauzts, bet Pārdevējs neatmaksā avansu 2 (divu) nedēļu laikā pēc Līguma laušanas, Pircējs pieprasa garantijas izdevējam nekavējoties atmaksāt samaksāto avansu.</p>	<p>5.4. If the Goods are not delivered and the Contract is terminated, but the Seller has failed to repay the advance payment in 2 (two) weeks time after the Contract has been terminated, the Purchaser shall request that the issuer of the above Guarantee repay the advance payment immediately.</p>

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

<p>5.5. Visi būtiskie paziņojumi, kas attiecas uz šā Līguma noteikumu izpildi, sūtāmi ierakstītā vēstulē uz šā Līguma 6.punktā norādītām adresēm, vai nododami Pusēm personīgi. Ja paziņojumi tiek sūtīti ierakstītā vēstulē, tie uzskatāmi par saņemtiem trešajā dienā pēc to nosūtīšanas Latvijas adresātiem vai 14. dienā pēc to nosūtīšanas ārvalstu adresātiem.</p> <p>AdreSES maiņa kļūst saistoša otrai Pusei, tad, kad Puse, kuras adrese tiek mainīta nosūta tai paziņojumu vai dokumentu, kas apstiprina šādas izmaiņas.</p> <p>Lai paātrinātu informācijas apriti, visi dokumenti adresātam vispirms jānosūta pa faksu vai uz oficiālo norādīto e-pasta adresi un saņēmējam jāatsūta apstiprinājums par saņemšanu.</p>	<p>5.5 All notifications related to the compliance with the conditions of the present Contract shall be sent in a registered letter to the addresses stated in Item 6 herein or delivered to the Parties in person. If the notifications are sent in a registered letter, they shall be deemed to be received on the third day after mailing, if the addressee is in Latvia, or on the fourteenth day after mailing, if the addressee is outside Latvia.</p> <p>The change of address shall be binding on the other Party, when the Party whose address is changed sends the other Party a notification or a document certifying such changes.</p> <p>To accelerate the information exchange, at first, all documents shall be sent to the addressee by fax or to the official e-mail address specified, and the recipient shall send a confirmation of such receipt.</p>
<p>5.6. Visi strīdi un domstarpības, kādas Pusēm radušās šā Līguma izpildes gaitā, un nav atrisināmas pārrunu ceļā 30 dienu laikā, tiek izskatītas Latvijas Republikas tiesu iestādēs, Latvijas Republikas normatīvajos aktos paredzētajā kārtībā.</p>	<p>5.6 All disputes and disagreements arising between the Parties in the course of compliance with the present Contract and cannot be resolved by way of negotiations in 30 days, shall be settled in the court institutions of the Republic of Latvia in the procedure stipulated by the regulatory enactments of the Republic of Latvia.</p>
<p>5.7. Puses ar savu parakstu apliecina, ka tām ir visas tiesības (pilnvaras) slēgt Līgumu un ar to iegūstot savu pārstāvam vārdā Līgumā minētās tiesības un pienākumus. Ja Pārdevēja pārstāvis līguma noslēgšanas brīdī nav bijis pilnvarots pārstāvēt Pārdevēju, tad viņš/viņa pats/pati, kā fiziska persona atbild par līgumsaistību izpildi ar visu savu mantu.</p>	<p>5.7 The Parties shall certify with their signatures that they have all the rights (authorisations) to enter into the Contract, thereby acquiring, in the name of the persons represented by them, the rights and obligations stated in the Contract. If the Seller's representative has not been authorised to represent the Seller at the moment of entering into the Contract, then he/she as a natural person shall be held liable for the compliance with the Contract obligations with all his/her property.</p>
<p>5.8. Puses pilnvaro veikt ar šā Līguma izpildi saistītās darbības (kontaktēties ar otru Pusi, parakstīt Preces pavadzīmes-rēķinus, nodot/saņemt Preci) šādas personas:</p>	<p>5.8 The Parties shall hereby authorise the following persons to perform the activities related to the compliance with the present Contract (to contact with the other Party, to sign the invoices of the Goods, to transfer, to accept the Goods):</p>
<p>5.8.1. no Pircēja puses: _____ _____;</p>	<p>5.8.1 on the Purchaser's side _____ _____;</p>
<p>5.8.2. no Pārdevēja puses _____</p>	<p>5.8.2 on the Seller's side _____</p>

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

<p>5.9. Šis Līgums ir uzrakstīts divos autentiskos eksemplāros latviešu un angļu valodā uz ____ (_____) lapām. Līguma 1. pielikums un citi Līguma iespējamie pielikumi ir tā neatņemamas sastāvdaļas.</p> <p>Pēc Līguma parakstīšanas viens eksemplārs tiek nodots Pircējam, bet otrs – Pārdevējam.</p>	<p>5.9 The present Contract shall be drawn up on ____ (_____) pages in Latvian and English in two authentic copies. Annex 1 to the Contract and other potential Annexes to the Contract are an integral part of the Contract.</p> <p>After signing of the Contract, one copy shall be delivered to the Purchaser, but the other – to the Seller.</p>
<p>6. LĪGUMSLĒDZĒJU PUŠU JURIDISKĀS ADRESES UN CITI REKVIZĪTI</p>	<p>6 THE LEGAL ADDRESSES AND OTHER DATA OF THE CONTRACTING PARTIES</p>
<p>Pircējs:</p>	<p>Purchaser:</p>
<p>Latvijas Universitātes aģentūra – Latvijas Universitātes Cietvielu fizikas institūts</p> <p>Juridiskā adrese: Ķengaraga iela 8, Rīga, LV-1063, Latvija</p> <p>PVN reģ.Nr. LV90002124925</p> <p>Norēķinu konts: LV45TREL9154361000000,</p> <p>Banka: Valsts Kase,</p> <p>Bankas kods: TREL LV22</p>	<p>Institute of Solid State Physics University of Latvia</p> <p>Legal address: Kengaraga street 8, Riga, LV-1063, Latvia</p> <p>VAT reg. No. LV90002124925</p> <p>Account number: LV45TREL9154361000000</p> <p>Bank: Riga Treasury Unit</p> <p>Code: TREL LV22</p>
<p>Pārdevējs:</p>	<p>Seller:</p>
<p>Nosaukums: _____</p> <p>Juridiskā adrese: _____</p> <p>Biroja adrese: _____</p> <p>PVN reģ.Nr. _____</p> <p>Norēķinu konts: _____</p> <p>Banka: _____</p> <p>Bankas kods: _____</p>	<p>Name: _____</p> <p>Legal address: _____</p> <p>Address of the office: _____</p> <p>VAT reg. No. _____</p> <p>Account number: _____</p> <p>Bank: _____</p> <p>Code: _____</p>
<p>Pircējs / Purchaser:</p>	<p>Pārdevējs / Seller:</p>
<p>_____</p> <p>Paraksts / Signature Z.v./ Seal</p>	<p>_____</p> <p>Paraksts / Signature Z.v./ Seal</p>

Līguma pielikums Nr.1

līgumam par iepirkumu Nr. LU CFI 2013/2/ERAF
 „Daudzfunkcionālas klāstera iekārtas vakuuma pārklājumu izgatavošanai piegāde”,
 noslēgtam starp LU Cietvielu fizikas institūtu, LU aģentūru
 un _____

Annex 1 to the Contract

on the Procurement No. LU CFI 2013/2/ERDF “Delivery of the Multifunctional Cluster Plant
 for Deposition of Vacuum Coatings” concluded between the Institute of Solid State Physics
 University of Latvia
 and _____

Rīgā, 201__ . gada ____ . _____ LU Cietvielu fizikas institūta līgumu uzskaites Nr. 2013/2/ERAF	Rīga, _____ 201__ . Institute of Solid State Physics University of Latvia Contract registration No. 2013/2/ERDF
Latvijas Universitātes Cietvielu fizikas institūts, Latvijas Universitātes aģentūra (turpmāk tekstā – LU CFI), turpmāk tekstā – Pircējs , tā direktora Andra Šternberga personā, kas rīkojas saskaņā ar LU CFI nolikumu, no vienas puses, un _____ _____, turpmāk tekstā – Pārdevējs , tās _____ personā, kas rīkojas saskaņā ar tās statūtiem, no otras puses, vienojas par šādu piegādājamo Preci , tās līgumcenu un garantijas laika termiņu:	Institute of Solid State Physics University of Latvia (hereinafter – the ISSP), hereinafter – the Purchaser , in the person of Mr. Andris Sternbergs, its Director, acting pursuant to the Regulation of the ISSP on the one side, and _____, hereinafter – the Seller , in the person of _____, its _____, acting pursuant to the Articles of Association, on the other side, agree on the following items constituting the Goods to be supplied, price and the deadlines of the warranty period:

Piegādājamā Prece (iekārtas nosaukums, ražotājs, modelis) / Goods to be supplied (equipment name, manufacturer, model)	Cena piegādes vietā / Price at the place of delivery	Garantijas laiks / Warranty period	Piegādes vieta / Place of delivery
		12 (divpadsmit) mēneši 12 (twelve) months	LU Cietvielu fizikas institūts, Ķengaraga iela 8, Rīga, Latvija / Institute of Solid State Physics University of Latvia, Kengaraga street 8, Riga, Latvia

Turpinājums nākamajā lappusē / Continued on next page

SHALL BE FILLED IN BY THE TENDERER

ANNEX 3.1
to the Regulation of the Open Tender LU CFI 2013/2/ERDF
“Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

APPLICATION FOR PARTICIPATION IN OPEN TENDER

Contracting Authority: Institute of Solid State Physics University of Latvia

Procurement ID No: LUCFI/2013/2/ERDF

/Date/

Subject of the procurement:

**Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings, 1 set.
(ERDF Project ID No: 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004)**

Having acquainted ourselves with the Tender Regulation, we, the undersigned, offer to provide the Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings pursuant to the requirements stipulated by the Tender Regulation and agreeing with all provisions of the Tender, in the amount as stated below:

(total Offer price in letters and figures)

Should our Offer be accepted, we undertake to provide the delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings within 9 (nine) months from entering into the Contract in line with the Technical Bid which is an integral part of our Offer.

We hereby acknowledge that the Offer validity term shall be 3 (three) months.

We hereby submit our Offer incorporating the Tenderer selection documents, Technical Bid and Financial Bid.

Name of the Tenderer:	
Registered address	
Actual address	
Registration number	
VAT payer's number	
Telephone	
Fax	
e-mail address	
Internet address	
Contact person	
Telephone and e-mail address of the Contact person	
Name, surname and position of the authorised representative	
Signature of the authorised representative	

SHALL BE FILLED IN BY THE TENDERER

ANNEX 3.2
to the Regulation of the Open Tender LU CFI 2013/2/ERDF
“Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

**A list of the delivery of similar* goods during the previous 3 (three) years and current year
(Give reference to 3 – 5 main Contracts)**

**(A list shall be annexed at least with 3 positive customer references on the main contracts
mentioned in list)**

No.	Brief description of the Contracts	Amount of the executed Contract	Name and address of the Client	Delivery date

* in this Regulation the vacuum-technological equipment and equal goods are regarded as similar to the subject of the procurement

The signature of the Tenderer's authorised person:

/Name, surname/ /Position/ /Signature/

_____, _____ 2013
(place) (date)

SHALL BE FILLED IN BY THE TENDERER

ANNEX 3.3
to the Regulation of the Open Tender LU CFI 2013/2/ERDF
“Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

A list of the Tenderer’s personnel to be employed in the installation and/or warranty repair work of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings in accordance with the terms and conditions of the Contract

(The list shall be annexed with copies of documents certifying the qualifications)

Name, Surname	Position	Speciality, qualification, experience

The signature of the Tenderer’s authorised person:

/Name, surname/ /Position/ /Signature/

_____, _____ 2013
(place) (date)

SHALL BE FILLED IN BY THE TENDERER

TECHNICAL BID

**For the Procurement LUCFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”**

(Procurement will be performed within the ERDF Project
 No.: 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004 “Development of Scientific Infrastructure for the National Research Centre of Nanostructured and
 Multifunctional Materials, Constructions and Technologies”)

Multifunctional Cluster Plant for Deposition of Vacuum Coatings

Contracting Authority’s requirements	Tenderer’s technical offer (The Tenderer shall provide a detailed description of the offered equipment herein or shall give the reference (indicating the document and the corresponding place therein) to the signed documents, which contain such detailed description)
<p>0. GENERAL REQUIREMENTS</p> <p>0.1. Undefined requirements Where any technical requirement referring to the present Contract is not defined in the Technical Specifications, it shall comply with the minimum generally accepted requirements or standards.</p> <p>0.2 Technical condition of equipment to be delivered The equipment to be delivered shall not be previously used, the used or the renovated parts shall not be built therein.</p>	
<p>1. TYPE and POSSIBILITIES OF THE APPLICATION</p> <p>1.1. Type of the application The cluster plant for making of vacuum coatings (hereinafter - the plant) is an R&D</p>	

plant for laying (deposition) of various multifunctional coatings by use of 3 methods: substance evaporation, magnetron sputtering and sublimation. The sample is an up to 50x50 mm large, solid, flat material suitable for deposition of the coating in vacuum. The plant is envisaged for scientific research works.

1.2. Possibilities

- 1.2.1. The plant is a supplemental, modular and flexible system. In its base there is a central chamber to which it is possible to attach even up to 8 processing chambers of which one is foreseen for fulfilment of input/output functions.
- 1.2.2. Each processing chamber is equipped with a central chamber shutter and may be operated independently of the others.
- 1.2.3. Input of the sample may be performed through the input/output and further through the central chamber without access of air to the concrete processing chamber or either by using any processing chamber door by prior to it admitting air into the processing chamber. Input/output of the sample takes place without stopping vacuum pumps.
- 1.2.4. The plant is of a simple design, conveniently serviceable, with a flexible and adaptable construction.
- 1.2.5. Central chamber and processing chambers are equipped with windows.
- 1.2.6. Coating deposition processing chambers are elaborated according to a unified design and the process equipment (evaporators, sublimation cells and magnetrons) are located on equal shutting covers in order in case of necessity one and the same equipment could be used in another processing chamber or either to perform a quick replacement of the processing equipment.
- 1.2.7. Coating deposition processing chambers are equipped with 2 additional flanges to be used for mounting of additional equipment and measuring instruments.
- 1.2.8. Design of the chamber is elaborated so let the plant would be conveniently serviceable, visually clear, and easily manageable.
- 1.2.9. The plant is envisaged both for operation in ordinary interior space and in a

<p>cleanroom.</p> <p>1.2.10. In order to ensure a more convenient, quicker and safer servicing of chambers, chambers are equipped with easily removable protection screens of interior surfaces.</p>	
<p>2. COMPLETENESS</p> <p>2.1. Central chamber – transfer of the sample In producer’s technical specification indicated there are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of air for ventilation, viewing windows.</p> <p>2.2. 1st processing chamber – input/output of the sample and ion treatment In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, ion treatment, delivery of gases, delivery of air for ventilation, viewing windows.</p> <p>2.3. 2nd processing chamber – thermal evaporation of organic compounds In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, making of coatings and control of the making process, delivery of air for ventilation, viewing windows.</p> <p>2.4. 3rd processing chamber – metal evaporation In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, deposition of coatings and control of the deposition process, delivery of air for ventilation, viewing windows.</p> <p>2.5. 4th processing chamber – magnetron sputtering In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, deposition of coatings and control of the deposition process, delivery of air for ventilation, viewing windows.</p>	

<p>2.6. 5th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures) In producer’s technical specification indicated are all chamber components, incl. components ensuring transfer and placement of samples, obtaining and measurement of vacuum, delivery of gases, deposition of coatings and control of the deposition process, delivery of air for ventilation, viewing windows.</p> <p>2.7. Electric and management systems lockers</p> <p>2.8. Distilled water cooling system, including a chiller</p> <p style="margin-left: 20px;">2.8.1. For magnetron cooling 2.8.2. For cooling of turbo molecular pumps 2.8.3. For cooling of quartz resonators for the measuring of the speed of deposition</p> <p>2.9. Plant management/control working station</p> <p>2.10. Complete set of spare parts</p> <p><u>The customer shall ensure:</u></p> <ul style="list-style-type: none"> • Space (premises) suitable for installation • Engineering communications • Exhaust gases after treatment • Evaporation and sputtering materials • Gas/gases mixtures 									
<p>3. TECHNICAL DATA</p> <p>3.1. Substrate</p> <p style="margin-left: 20px;">3.1.1. Substrate properties and dimensions</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Material</td> <td>Glass, metal or another solid, flat, suitable for vacuum processes base</td> </tr> <tr> <td>Dimensions, mm</td> <td>25x25 and 50 x 50</td> </tr> <tr> <td>Thickness, mm</td> <td>Up to 2</td> </tr> <tr> <td>The uncoated zone (if needed)</td> <td>Is to be indicated in Producer’s</td> </tr> </table>	Material	Glass, metal or another solid, flat, suitable for vacuum processes base	Dimensions, mm	25x25 and 50 x 50	Thickness, mm	Up to 2	The uncoated zone (if needed)	Is to be indicated in Producer’s	
Material	Glass, metal or another solid, flat, suitable for vacuum processes base								
Dimensions, mm	25x25 and 50 x 50								
Thickness, mm	Up to 2								
The uncoated zone (if needed)	Is to be indicated in Producer’s								

mm	specification	
3.1.2. Substrate carrier (Sample holder)		
Material	Is to be indicated in Producer’s specification	
Dimensions, mm	Is to be indicated in Producer’s specification	
3.2. Central chamber – transfer of the sample		
Base pressure, Torr	Not higher than 1×10^{-6}	
Transportation system	Is to be indicated in Producer’s specification	
Storage of samples	Cassette for storage of 5 up to 10 samples	
3.3. 1st processing chamber – input/output of the sample, ion treatment		
3.3.1. Substrate surface treatment		
Treatment type	Ion flow	
Ion sources quantity, pcs	1	
Distance between the source and the sample, mm	100...150	
Ion beam energy, eV	Up to 230	
Ion beam power, W	Up to 1500	
Ion beam maximum spreading angle, degrees	Below 80	
Base pressure, Torr	Not higher than 1×10^{-6}	
Working pressure, Torr	1×10^{-4}	
Process gases	Ar, O ₂	
Gas flow, sccm	Ar - max 30	

	O ₂ - max 30	
Mass flow controllers, pcs	2	
The number of sample places, pc	1	
3.4. 2nd processing chamber – thermal evaporation of organic compounds		
3.4.1. Coating		
Material	Organic compounds suitable for evaporation	
Coating homogeneity, %	± 5	
3.4.2. Evaporation		
Evaporation element type	Crucible type evaporator with shutter	
The number of evaporation elements with shutters, pcs	3	
Crucible inner capacity, cm ³	not more than 1.2	
The number of evaporators feeding sources, pcs	3 or 1 switchable	
Form of the to-be-evaporated material	Powder, granules and other	
Base pressure, Torr	Not higher than 1×10^{-6}	
Working pressure, Torr	5×10^{-6} to 1×10^{-4}	
Evaporation temperature, °C	Up to 600	
Process gases	N ₂	
Gas flow, sccm	Up to 20	
Mass flow controllers, pc	1	
Distance from the evaporator up to the sample, mm	100-200	
The number of substrate places, pcs	3 with place of masks	

Additional shutters	3 additional shutters, one in front of each substrate.	
Distance between substrate and mask	Direct contact	
Crucibles for evaporation of organic compounds, pcs	10	
3.4.3. Sample heating/cooling		
Sample temperature, °C	Maximum +60, minimum - 40	
Heater/cooler type	Indicated in producer’s specification	
Quantity of thermocouples for measuring of heater/cooler and substrate temperature, pcs	2	
3.4.4. Measuring instruments		
Quartz crystal resonance deposition speed and thickness measuring instruments, pcs	3	
Quartz crystals for resonator, pcs	15	
Resolution of deposition speed, Å/s	≤ 0.1	
	Provide start of deposition at the certain coating rate	
3.5. 3rd processing chamber – metal evaporation		
3.5.1. Coating		
To-be-evaporated material	Au, Ag, Al, Pd, Cu, Ni u.c.	
Coating homogeneity, %	± 5	

3.5.2. Thermal evaporation	
Evaporation element type	Resistive evaporators. At least two of them should be crucible type
Number of evaporators, pcs	4
Number of shutters, pc	1
Crucible inner capacity, cm ³	not more than 1.2
Base pressure, Torr	Not higher than 1×10^{-6}
Working pressure range, Torr	1×10^{-5} to 1×10^{-4}
Number of evaporator feeding sources, pcs	4
Evaporation temperature, °C	Up to 1500
Distance from the evaporator up to the sample centre, mm	100...150
Number of sample places, pc	1 with place of mask
Distance between substrate and mask	Direct contact
Boron nitride crucibles, pcs	5
Aluminum oxide crucible, pcs	5
Quartz crucible, pcs	5
Molybdenum boats, pcs (if boats resistive evaporators are included)	20
Tungsten boats, pcs (if boats resistive evaporators are included)	20
3.5.3. Sample heating	
Sample temperature, °C	Maximum 200
Heater type	The substrate may not be exposed

	to direct IR irradiation	
The number of thermocouples for temperature measuring, pc	1	
Maximum heater capacity, W	Indicated in producer’s specification	
The number of heaters, pc	1	
3.5.4. Measuring instruments		
Quartz crystal resonance deposition speed measuring instruments, pcs	2 (1 on 2 sources with one power supply)	
Quartz crystals for resonator, pcs	10	
Resolution of deposition speed, Å/s	≤ 0.1	
	Provide start of sample deposition at the certain coating speed	
3.6. 4th processing chamber – magnetron sputtering		
3.6.1. Coating		
Materials	ITO, AZO, TiO ₂ , SiO ₂ , Al, Ti, et al.	
Coating homogeneity, %	± 5	
3.6.2. Magnetron sputtering		
Coating deposition type	Material sputtering in the atmosphere of inert or reactive gas or their mixture	
Magnetron type	A round flat target, diameter not less than 2 inches	
The number of magnetrons, pcs	3	

The number of shutters over the sample, pc Medium distance from the target up to the sample, mm Magnetron target slope angle, degrees Base pressure, Torr Working pressure range, Torr Process gases Mass flow controllers, pcs Power source Power, kW The number of sample places, pc Sample rotation speed, min ⁻¹	1 100, with adjustment range ±50 mm 5...30 Not higher than 1×10^{-6} (0.2-4) $\times 10^{-2}$ Ar, O ₂ , H ₂ , N ₂ 4 2 pc pulsed DC, 1 pc RF (manually switchable, jointly with the 5 th processing chamber) 1 pc pulsed DC and 1 pc RF (codeposition from two synchronized DC and RF power supplies in one time) As requested for the target size 1 Up to 10	
3.6.3. Sample heating		
Sample temperature, °C Heater type The number of thermocouples for temperature measuring, pc Maximum heater capacity, W The number of heaters, pc	Maximum 400 Indicated in producer's specification 1 Indicated in producer's specification 1	
3.6.4. Measuring instruments:		
Hardware for Plasma optical spectroscopy channels,	3 channels (1 channel at each magnetron)	

excluding the spectrophotometers, pcs 3.6.5. Gas delivery system Gas flows range Geometry of input of gases	Indicated in producer’s specification, corresponding to the used vacuum pumps and the necessary working pressure Indicated in producer’s specification	
3.7. 5th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures)		
3.7.1. Coating		
Materials	Alloyed or pure silicon	
Coating homogeneity, %	± 10	
3.7.2. Magnetron sputtering		
Coating deposition type	Material sputtering in the atmosphere of inert or reactive gas or their mixture	
Magnetron type	A round flat target, diameter not less than 2 inches	
The number of magnetrons, pcs	3	
The number of shutters over the sample, pc.	1	
Medium distance from the target up to the sample, mm	100, with adjustment range ±50 mm	
Magnetron target slope angle, degrees	5...30	

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

Base pressure, Torr	Not higher than 1×10^{-6}	
Working pressure, Torr	$(0.2-4) \times 10^{-2}$	
Process gases	Ar, H ₂	
Mass flow controllers, pcs	2	
Power source	2 pc pulsed DC, 1 pc RF (manually switchable, jointly with the 4 th processing chamber) 1 pc pulsed DC and 1 pc RF (codeposition from two synchronized DC and RF power supplies in one time)	
The number of sample places, pc	1	
Sample rotation speed, min ⁻¹	Up to 10	
3.7.3. Sample heating		
Sample temperature, °C	Maximum 400	
Heater type	Indicated in producer's specification	
The number of thermocouples for temperature measuring, pc	1	
Maximum heater capacity, W	Indicated in producer's specification	
The number of heaters, pc	1	
3.7.4. Gas delivery system		
Gas flows range	Indicated in producer's specification, corresponding to the used vacuum pumps and the necessary working pressure	
Geometry of input of gases	Indicated in producer's specification	

valve by means of the sample transfer mechanism or by opening the chamber door and manually placing the sample on the sample holding table.

- 4.1.6. All processing chambers are equipped with in hinges secured doors enabling a possibility to easily get an access to the equipment available inside the chamber to place the mask and/or the sample onto the sample holding table in its foreseen place, in case of necessity to replace, to add the to-be-evaporated, to-be-sputtered material.
- 4.1.7. In the interior of the coating deposition processing chamber envisaged there are fixtures for fixing of the steel or other material plate-type screens facilitating cleaning of the chamber after performance of the process.
- 4.1.8. The organic compound thermal evaporation chamber substrate holding table is equipped with 3 positions for placement of the sample. The sample holding table is turn-able in order to ensure the placement of the sample over the necessary evaporation cell or a necessary position for transfer of the sample by the manipulator hand. The turning is ensured by the step driver.
- 4.1.9. In the metal thermal evaporation chamber and in the both magnetron sputtering chambers the sample holding table is equipped with one position for placement of the sample.
- 4.1.10. Mechanical motion (e.g., rotation) of the substrate holder is used in the metal thermal evaporation chamber and in both magnetron sputtering chambers to ensure a homogeneous coating.
- 4.1.11. In the metal thermal evaporation chamber and in the both magnetron sputtering chambers for heating of the sample used is the infrared heater.
- 4.1.12. In the organic substance thermal sublimation chamber heating/cooling of the sample takes place by using heat transfer agent circulation tubes. The base of the sample is in direct contact with the temperature controlled surface. In the cooling mode the cooling agent is gaseous or liquid-type. Precaution shall be taken to avoid water condensation in the cooling

system.

4.2. Sample holder

4.2.1. A special sample holder will be used for sample transfer from one processing chamber to another. The sample holder is envisaged for 25x25 mm and 50x50 mm large samples. The size of the uncoated area (needed for sample fixture) is indicated in Producer’s specification.

4.3. Central chamber – transfer of the sample

4.3.1. The central chamber is equipped with 8 flanges to which secured there are processing chambers.

4.3.2. Transfer of the sample is carried out by means of the sample transfer mechanism. In the central chamber located there is a cassette for storage of 5-10 samples.

4.4. 1st processing chamber – sample input/output, ion treatment

4.4.1. The first processing chamber is envisaged for input/output of the sample from the plant, for treatment of the sample surface by ion flow and for delivery of the sample to the central chamber.

4.4.2. In the ion treatment time the used process gases (Ar un O₂) are delivered by using two mass flow controllers (MFC).

4.5. 2nd processing chamber – organic compound thermal evaporation

4.5.1. The second processing chamber is envisaged for deposition of the organic substances onto the sample by use of 3 thermal sublimation cells.

4.5.2. Each sublimation cell is equipped with an individual shutter. 3 quartz resonance heads are monitoring the rate of deposition. Additional central shutter being operated by a pneumatic drive is used to protect the sample before the rate is established.

4.5.3. In the chamber ensured is heating of the samples up to + 60⁰ degrees and cooling up to -40⁰ degrees by use of a plate-type heater/cooler with circulation tubes.

4.6. 3rd processing chamber – metal evaporation

- 4.6.1. The third processing chamber is envisaged for metal deposition by use of 4 evaporators.
- 4.6.2. In the chamber placed there are 4 evaporation sources and 4 quartz resonators. Between the resonators and the sample there is a shutter operated by a pneumatic drive.
- 4.6.3. In the chamber ensured is heating of the sample up to +200⁰ degrees.

4.7. 4th processing chamber – magnetron sputtering

- 4.7.1. The fourth processing chamber is envisaged for deposition of various materials by use of 3 magnetrons.
- 4.7.2. In the chamber placed there are 3 magnetrons of which one or any two may operate simultaneously. The distance of the magnetron and its angle in relation to the sample may be altered. For the processing chamber delivered are 4 gases (Ar, O₂, N₂, H₂) by use of four gas flow controllers (MFC). Each magnetron has a separate gas distributor.
- 4.7.3. For ensuring of the coating deposition the 4th and 5th chamber is equipped with a common set of two pulsed DC power sources and one RF power source.
- 4.7.4. In the chamber ensured is heating of the sample up to + 400⁰ degrees.
- 4.7.5. The chamber is equipped with 3 plasma optical emission spectroscopy channels (one for each magnetron).

4.8. 5th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures)

- 4.8.1. The fifth processing chamber is envisaged for silicon based materials deposition onto the sample by use of 3 magnetrons. In the chamber it is envisaged deposition of coatings necessary for establishing of the PIN structure.

4.8.2. In the chamber placed are 3 magnetrons of which one or any two may operate simultaneously. The magnetron distance up to the sample and its angle in relation to the sample may be altered. To the processing chamber delivered are 2 gases (Ar, H₂) by use of two gas flow controllers (MFC). Each magnetron has a separate gas distributor.

4.8.3. For ensuring of the coating deposition process, the 4th and 5th chamber is equipped with joint two pulsing direct current power sources and one RF power source.

4.8.4. In the chamber ensured is heating of the sample up to + 400⁰ degrees.

4.9. Pumping system

4.9.1. The central chamber and each processing chamber is equipped with an individual pumping system consisting of one mechanical pump and one turbo-molecular pump.

4.9.2. For the coating deposition processing chambers (2nd, 3rd, 4th and 5th processing chambers) between the chamber and the turbo-molecular pump installed there is a throttling valve. The pumping system in each chamber ensures the base pressure not higher than 1×10^{-6} Torr.

4.9.3. The vacuum sensors in the coating deposition chambers and between the mechanical and turbo-molecular pumps are specified in the producer's specification.

4.9.4. For air admission into the chamber there is envisaged an air supply valve and electromagnetic shutter valve.

4.10. Engineering communications

4.10.1. Electric cables, electric lines and gas lines as well as water and compressed air system engineering communications are mainly placed in distribution panels located over the plant or on the floor in compliance with customer's requirements.

4.10.2. Engineering communications attachment points are coordinated with the

<p>customer during the plant elaboration time.</p>	
<p>5. ELECTRIC AND MANAGEMENT SYSTEM</p> <p>5.1. The electric system is elaborated in accordance with 73/23 EEC directives.</p> <p>5.2. The plant management system is PLC based.</p> <p>5.3. The plant management system shall ensure the technological process management and control.</p> <p>5.4. The management system shall ensure:</p> <ul style="list-style-type: none">• Pumping system management;• Manipulator management;• Magnetron sputtering management;• Heaters management;• Organic sublimation cells (Organic Molecular Evaporator) management;• Thermal evaporators management;• Gas delivery system management;• Ion source management;• Water cooling system management. <p>5.5. Each plant chamber has an individual pumping system. The management system ensures management of all pumps, valves and pumping system shutters by controlling pressure in each chamber and in the pumping system lines. The status of pumps, valves and shutters is reflected in the visualisation system.</p> <p>5.6. The management system ensures management of the drive of the manipulator located in the central chamber by ensuring transfer of samples to any processing chamber. Placement of samples in chambers is reflected in the visualisation system. If the sample is removed/placed in the processing chamber through the chamber door, the operator shall introduce its management system.</p> <p>5.7. The management system ensures management of the sample heaters in the</p>	

processing chambers by ensuring stabilization of the heaters temperature. Setting and reflection of heaters temperature parameters is performed by using the visualisation system.

- 5.8. The management system ensures management of the magnetron power sources by ensuring a possibility to alter magnetron mode by stabilisation of the power, voltage or the current intensity. Setting and reflection of magnetron operation parameters is performed by use of the visualisation system.
- 5.9. The management system ensures management of 3 thermal sublimation cells for deposition of organic coatings on the sample in the second processing chamber. The management system regulates and stabilises temperature in each crucible evaporator. Thermal sublimation cells operation parameters (temperature, capacity) are reflected in the visualisation system. Thickness of the coating is measured by use of quartz resonators and the measurements obtained are reflected in the visualisation system.
- 5.10. The management system ensures management of thermal evaporators in the third processing chamber by control of the coating thickness by use of quartz resonators. Setting of parameters is performed by use of the visualisation system.
- 5.11. The management system performs management of the mass flow controllers (MFC) by ensuring delivery of working gases into processing chambers. Gas delivery systems parameters are set and reflected by use of the visualisation system.
- 5.12. To ensure a better adhesion of the coating, in the first processing chamber there is performed treatment of the sample with ion flow. The management system performs management of ion sources with parameters control and process gas (Ar and O₂) delivery. Setting and reflection of ion source electric parameters and gas delivery parameters is performed by use of the visualisation system.
- 5.13. The management system performs the plant cooling system monitoring and water flow control in cooling lines.

5.14. By performing a technological cycle, according to operator’s choice on the visualisation computer screen there is reflected information as follows:

- Pumping system status;
- Pressure in chambers and pumps;
- Working parameters for power sources, heaters, ion sources, organic sublimation cells and thermal evaporators;
- Gas delivery systems parameters;
- Water cooling system status.

5.15. In the visualisation computer monitor there will be reflected details as follows:

- Process;
- Pumping system;
- Water cooling system;
- Water chiller status
- Alarms and warnings.

5.16. Visualisation system ensures storage of process data and reflection of the data stored.

5.17. In the plant there are ensured blocking of the software and hardware, by ensuring safe operation of the personnel and by eliminating possible situations of averages related to falling out of executive devices or operator’s faulty activities.

5.18. The management system operates in the following modes:

- Manual management mode;
- Semi-automatic management mode (automatic pumping-off in the central chamber and in each processing chamber).

5.19. In the complete set of the plant being delivered to customer there included are the management locker, all external cables, PC, management system prime codes, visualisation system license.

6. PLANT ACCEPTANCE/DELIVERY AT THE TENDERER

- 6.1. The plant initially is mounted at the Tenderer. The first turn delivery/acceptance is organised in accordance with Acceptance/delivery tests programme the both parties have agreed on, and is performed by Customer’s co-participation when met have been all requirements of the technical specification.
- 6.2. Customer shall ensure samples and coating materials for testing.
- 6.3. Testing results are included into the acceptance statement. The said documents certify readiness of the plant for delivery to the Customer.
- 6.4. Simultaneously with Acceptance/delivery tests there is organised training of the personnel.

7. PLANT MOUNTING, ADJUSTMENT AND DELIVERY AT THE CUSTOMER

- 7.1. The Customer shall prepare premises envisaged for the plant, ensure necessary lifting devices and equipment in accordance with mounting drawings and arrangement of the premises, the parties have agreed beforehand on.
- 7.2. Delivery of the plant up to the room for mounting shall be organised and performed by Tenderer or a third person contracted by Tenderer.
- 7.3. When Customer has received the plant, the supplier representative shall perform system installation. The Customer shall provide all facilities such as compressed air, process gases at low pressure, electrical power, exhaust line, all in a distance up to 3 meter from the system final position. there shall arrive Producer’s representatives (a team of engineers and employees) to mount and adjust the plant. Attachment, testing and control of electric devices shall take place by consulting with either Customer’s authorised and qualified representative or licensed specialist to have been invited by Customer.
- 7.4. After completion of all mounting works and commencement of the plant operation there is effected testing in order to set conformity to the technical

<p>specification. Testing is effected in accordance with the Acceptance/delivery tests programme to have been agreed upon by the parties. Customer shall ensure samples and coating materials for testing.</p> <p>7.5. Testing results are reflected in the delivery statement. The statement itself shall be a basis for the final agreement payment. The guarantee time shall begin from the day when the delivery statement having been signed.</p> <p>7.6. Customer shall ensure all lifting devices necessary for mounting of the plant, for operation, maintenance and repair works, as well as necessary support of the Customer’s personnel.</p>	
<p>8. PERSONNEL TRAINING</p> <p>8.1. For Customer’s employees ensured there shall be theoretical and practical training for the time when there is taking place testing of the plant at Producer’s. Such training programme and duration of the Customer’s team staying at the Producer’s shall be arranged with the Customer not later than one month prior to testing of the plant.</p> <p>8.2. During the plant mounting, adjustment and putting into operation the personnel indicated by the Customer may be trained and may participate in all mounting, adjustment and commencement of operation stages.</p>	
<p>9. DRAWINGS AND TECHNICAL DOCUMENTATION</p> <p>9.1. Not later than a week after signing of the agreement Customer shall ensure Producer with the plant placement premises arrangement drawings (plans).</p> <p>9.2. Not later than within one month time after signing of the agreement Producer shall ensure Customer with Planned works schedule.</p> <p>9.3. Within 45 working days from the day when the advance payment has been received in the bank Producer shall ensure Client with documents as follows:</p> <ul style="list-style-type: none"> • The proposal for mounting of the plant in accordance with the envisaged premises arrangement. All plant design alterations after signing of the accorded agreement having been performed upon Client’s request will be at Client’s account; 	

<ul style="list-style-type: none"> • Electric and management system specification; • Mounting drawings for main plant parts; • Schematic diagrams (vacuum, electric, hydraulic, gas, pneumatic); • Risks protocol; • Acceptance/delivery tests programme; • A list of the parts procured and suppliers; • A list of spare parts. <p>9.4. Within two weeks after sending of documents Customer’s and Producer’s representatives may discuss them in Customer’s office (upon Customer’s request).</p> <p>9.5. Simultaneously with the plant the Producer shall supply Customer a full activities documentation package, by including therein:</p> <ul style="list-style-type: none"> • Operator’s technological card & Manual – 2 complete sets; • Maintenance technological card & Manual – 2 complete sets; • Electric and management schemes – 3 complete sets; • PLC and MMI prime code – 2 complete sets; • Suppliers’ Manuals – 1 complete set; • Certificate of origin. <p>9.6. Technical documentation on the plant shall be supplied in two volumes in Latvian or English. All documentation and requirements in drawings shall be in English. Drawings shall be in SolidWorks and/or ACAD formats. Ensured shall be also an electronic copy of all documents and drawings.</p>	
<p>10. PACKING, TRANSPORTATION AND STORAGE</p> <p>10.1. The plant shall be packed in containers ensuring its safety during transportation. Producer shall perform the plant preparation for transportation in compliance with the branch standards.</p> <p>10.2. The plant shall be handed over to Transporters. Producer shall choose</p>	

Tender Regulation for the Procurement No.LU CFI 2013/2/ERDF
 “Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

<p>Transporters and coordinates it with Customer.</p> <p>10.3. The plant shall be transported in containers suitable for the type of transportation. The number of containers shall be set after elaboration of the technical documentation.</p>	
<p>11. GUARANTEE</p> <p>11.1. Producer shall guarantee operation of the plant in pure premises, fulfilment of parameters in compliance with the technical specification.</p> <p>11.2. Within 12 months’ time from the day when there is signed the delivery statement Producer shall ensure the plant repair and/or replacement of details having become invalid or threatening a proper operation of the plant if these defects have occurred not through fault of the Customer.</p>	
<p>12. AFTER SALE SERVICING</p> <p>12.1. After sale servicing within the after guarantee period may be effected in compliance to the separately signed agreement between Producer and Customer. In compliance with this agreement Producer shall provide necessary information, perform services, current of capital repair, prophylactic works and supply of details.</p>	

Whereby we acknowledge that no circumstances exist preventing us from participation in the present Tender procedure and comply with the requirements stated in the technical specifications.

The signature of the Tenderer’s authorised person:

_____ /Name, surname/ _____ /Position/ _____ /Signature/
 _____ , _____ 2013
 (place) (date)

SHALL BE FILLED IN BY THE TENDERER

FINANCIAL BID*

For the Procurement

“Delivery of the Multifunctional Cluster Plant for Deposition of Vacuum Coatings”

(Procurement will be performed within the ERDF Project
No.: 2011/0041/2DP/2.1.1.3.1/11/IPIA/VIAA/004 “Development of Scientific Infrastructure
for the National Research Centre of Nanostructured and Multifunctional Materials,
Constructions and Technologies”)

No.	Position	Price*
1	The Plant without the 3 rd processing chamber – metal evaporation and the 5 th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures)	
2	3 rd processing chamber – metal evaporation **	
3	5 th processing chamber – magnetron sputtering (for obtaining of silicon PIN structures) **	
	Total price of the Plant	

* The prices of the Financial Bid shall be stated with all the discounts and all the taxes imposed on the order, the VAT excluded. If the price is given in currency different from LVL, it will be converted in LVL according to the exchange rate fixed by the Bank of Latvia on the day of opening the bids.

** The price shall be given for the chamber together with equipment related to respective chamber but not necessary for function of the plant, if respective chamber is not installed.

The signature of the Tenderer’s authorised person:

/Name, surname/ /Position/ /Signature/

_____, _____ 2013
(place) (date)