

DKZ/134/2011

Date: Warsaw, 02.12.2011

Legal Grounds

This public tender is conducted according to Public Procurement Law of January 29, 2004 (position 759 in Polish Journal of Acts No 113 of 2010, with later changes), hereinafter referred to as the "Public Procurement Law"

INSTYTUT TECHNOLOGII ELEKTRONOWEJ

TERMS OF REFERENCE

for:

DELIVERY OF THE LPCVD FURNACE FOR Si₃N₄ AND PolySi LAYERS DEPOSITION

CPV 31700000

**Proceedings are conducted according to open procedure for assessed value
above EUR 193 000,00**

1. Name (company name) and address of the awarding entity.

This proceedings are conducted by Tender Committee of Instytut Technologii Elektronowej,
Al. Lotników 32/46, 02-668 Warsaw, Poland.

Web page: <http://www.ite.waw.pl>

2. Procedure for awarding the Contract.

These proceedings are conducted in mode of open procedure according to Article 39 of Public Procurement Law.

The tenders submitted will be opened and evaluated by the Tender Committee according to the evaluation criteria.

From all tenders which have not been rejected, the one will be selected which receives the highest number of points calculated according to the evaluation criteria.

3. Description of the object of the Contract.

The object of the order is a delivery, installation, start up and testing of the brand new **LPCVD furnace for Si₃N₄ and PolySi layers deposition**, hereinafter called "device".

Requirements and technical parameters of the object of the order are indicated in Appendix No. 1 of this Terms of Reference.

4. Partial and variant tenders:

The awarding entity does not allow submitting of the partial and variant tenders.

5. Time limit for the Contract performance.

Deadline for completion of the tender – maximally to 32 weeks after signing the Contract.

6. Conditions for participation in the procedure and description of the method used for the evaluation of the fulfilment of those conditions:

Eligible to compete for the Contract shall be contractors who:

- fulfil conditions defined in Article 22 paragraph 1 of the Public Procurement Law referred to:

- 1) authorizations to perform specific activities or actions, if such authorizations are required by the law;
- 2) knowledge and experience;
- 3) appropriate technical potential and personnel capable of performing a contract;
- 4) economic and financial standing

- and are not excluding from the proceeding under Article 24 paragraph 1 of Public Procurement Law.

In the proceeding the awarding entity requires from the contractors fulfilling of the condition of knowledge and experience.

The contractor should confirm the fulfilment of the condition by performing at least 1 delivery of the LPCVD furnace for layers deposition.

The contractor may rely on knowledge and experience of other entities, regardless of the legal nature of its relations with such entities, but on condition that this entity will participate in the order performance. In such case, the contractor is required to prove to the awarding entity that it will have at its disposal the resources necessary to performing the Contract, in particular by presenting to this end a written commitment of those entities whereby they undertake to put the necessary resources at the contractor's disposal for the time of their use in performance of the Contract.

If the contractor, proving the fulfilment of the conditions prescribed by the awarding entity, depends on other entities's resources in rules of Article 26 paragraph 2b of the Public Procurement Law, the awarding entity asks the contractor for submitting in relation to them document defined in item 7.1.2. or 7.2.2. of the Terms of Reference.

Evaluation of the above requirements will be performed according to the rule: "fulfil - not fulfil", on the basis of documents mentioned in point 7 of the Terms of Reference.

7. Information concerning declarations and documents to be provided by the contractor to confirm the fulfilment of the conditions for participation in the procedure:

7.1. Documents confirming the fulfilment of the conditions for participation in the procedure and confirming lack of grounds to exclude from the award procedure, required from the contractors with company seat or residence in Poland:

7.1.1. The list of the completed deliveries (to confirm fulfilment of the condition "**knowledge and experience**") – the contractor must prove, that within the period of the last three years before deadline of tender submission or if being active in the business for shorter period – in this period, have completed at least 1 delivery of the **LPCVD furnace for layers deposition**, with the indication of the price, object of delivery, date of performing, buyer and with enclosed document confirming that this delivery was performed by the contractor with due diligence.

The awarding entity recommends to fill in Appendix No. 4 to this Terms of Reference.

7.1.2. Current excerpt from the appropriate register, if separate provisions require registration to confirm lack of grounds to exclusion pursuant to article 24 paragraph 1 item 2 Public Procurement Law, issued not earlier than 6 months prior to deadline for submission of the offers, and referred to natural persons statement within the scope of Article 24 paragraph 1 item 2 of the Public Procurement Law.

7.1.3. Current information from the National Penal Register, which will confirm that they are not being excluded from the proceedings pursuant to Article 24 paragraph 1 items 4 - 8 of the Public Procurement Law, issued not earlier than 6 months prior to deadline for submission of the offers.

7.1.4. If, in case of the Contractor with the company seat in Poland, persons, mentioned in Article 24 paragraph 1 items 5 - 8 of the Public Procurement Law, whose place of residence is outside the territory of Poland, the contractor shall submit in their respect a certificate of the court or other relevant administrative authorities for the place of residence stating that they have not been validly sentenced within the scope, referred to Article 24 paragraph 1 items 5 - 8 of the Public Procurement Law, issued not earlier than 6 months prior to deadline for submission of

the offers. If this kind of statements are not available in residence of those persons, the contractor should submit documents including statements signed in the front of the notary, court, administrative body or professional and economical local government.

- 7.1.5. Current information from the National Penal Register pursuant to Article 24 paragraph 1 item 9 of the Public Procurement Law, issued not earlier than 6 months prior to deadline for submission of the offers.
- 7.1.6. Current certificates of no delay with tax and social security payments, or has obtained a immunity or postponement of such overdue payments signed by appropriate authority, issued not earlier than 3 months prior to deadline for submission of the offers.
- 7.1.7. Signed statement confirming fulfilment of the conditions defined in Article 22 paragraph 1 Public Procurement Law and lack of grounds to exclude from the award procedure in Article 24 paragraph 1 – in form of “STATEMENT” [Appendix No. 2 and No. 3].

7.2. Documents confirming the fulfilment of the conditions for participation in the procedure and confirming lack of grounds to exclude from the award procedure, required from the contractors with company seat or residence outside Poland:

- 7.2.1. The list of the completed deliveries (to confirm fulfilment of the condition “**knowledge and experience**”) – the contractor must prove, that within the period of the last three years before deadline of tender submission or if being active in the business for shorter period – in this period, have completed at least 1 delivery of the **LPCVD furnace for layers deposition**, with the indication of the price, object of delivery, date of performing, buyer and with enclosed document confirming that this delivery was performed by the contractor with due diligence.

The awarding entity recommends to fill in Appendix No. 4 to this Terms of Reference.

- 7.2.2. Document or documents confirming his not being subject of any liquidation, bankruptcy or similar proceedings, issued in the country of Contractor's company seat or residence not earlier than 6 months prior to deadline for submission of the offers.
- 7.2.3. Document or documents confirming his not being precluded from participation in public procurement proceedings, issued in the country of the Contractor's company seat or residence not earlier than 6 months prior to deadline for submission of the offers.
- 7.2.4. Document or documents confirming his not delaying with tax, social security and health insurance payments, or his obtaining an immunity or postponement of such overdue payments, issued by appropriate authority not earlier than 3 months prior to deadline for submission of the offers.
- 7.2.5. Certificate of the court or other relevant administrative authorities for the place of residence or place of residence of a person to whom the documents refer to, within the scope Article 24 paragraph 1 items 4 - 8 of the Public Procurement Law, issued not earlier than 6 months prior to deadline for submission of the offers.
- 7.2.6. Signed statement confirming fulfilment of the conditions defined in Article 22 paragraph 1 of the Public Procurement Law and lack of grounds to exclude from the award procedure in Article 24 paragraph 1 – in form of “STATEMENT” [Appendix No. 2 and No. 3].

7.3. If in place of residence of a person or the country in which the contractor has the company seat or residence, the documents, listed in items 7.2.2. - 7.2.5. above, are not issued, they shall be replaced by a statement signed in the front of the notary, court, other relevant administrative body or professional and economical local government in the residence of a person or the country in which the contractor has the company seat or residence, respectively.

7.4. If the contractor, proving the fulfilment of the conditions defined in Article 22 paragraph 1 of the Public Procurement Law, depends on other entities's resources in rules defined in Article 26 paragraph 2b of the Public Procurement Law and this entities will partially participate in performing an order, the contractor submits in relation to them documents defined in items 7.1.2. or 7.2.2. of the Terms of Reference.

- 7.5. The contractors may jointly compete for a Contract. In case of submission a tender jointly, each partner presents documents mentioned in items 7.1.2. – 7.1.6. of this Terms of Reference separately. In case of submission a tender jointly by the contractors with company seat or residence outside Poland each partner presents documents mentioned in items 7.2.2. – 7.2.5. of this Terms of Reference.
- 7.6. In case of submission a tender jointly, each partner presents the statement confirming lack of grounds to exclude from the award procedure according to Article 24 paragraph 1 of the Public Procurement Law separately. The statement confirming fulfilment of the conditions defined in Article 22 paragraph 1 partners can submit jointly.
- 7.7. The contractors who jointly compete for a Contract are obligated to appoint an authorised representative to represent them in the Contract award procedure or in the procedure and conclusion of a public procurement contract. This authority should be enclosed to the offer.

The lack of the above documents will cause the contractor being excluded from further proceedings reserving the right to call him for supplement documents according to Article 26 paragraph 3 of the Public Procurement Law.

8. Information on the manner of communication between the awarding entity and the contractors as well as of delivery of declarations and documents, indication of persons authorised to communicate with the contractor.

In the award procedure the awarding entity and contractors shall provide all the statements, requests, notifications and information in writing form, by fax or by electronic.
If the awarding entity or the economic operator provides statements, requests, notifications and information by fax or by electronic means, either party at the request of the other party shall acknowledge the receipt immediately.

The contact person in matters concerning the tender is:
Michał Urbański MSc., e-mail: urbanski@ite.waw.pl

Please address all written correspondence, related to this proceeding, to:
Instytut Technologii Elektronowej
Al. Lotników 32/46
02-668 Warsaw, Poland
building No VI, room 216

Fax: + 48 22 548 78 46.

9. Deposit requirements:

The value of guarantees is 30 000 PLN (say: thirty thousand PLN) and can be paid in one or several of the following forms:

- cash,
- bank sureties or guarantees of collective savings-loan fund, however the surety of collective savings-loan fund is always a financial surety,
- bank guarantees,
- insurance guarantees,
- sureties given by entities, referred to in Article 6b paragraph 5 item 2 of the Act of 9 November 2000 on Establishment of Polish Agency for Enterprise Development (Polish Journal of Acts No. 109, item 1158 with later changes).

The deposits introduced in cash has to be provided before opening of the tenders.

The guarantees introduced in cash should be transferred to the awarding entitie's bank account : BRE Bank S.A. O/Warszawa 47 1140 1977 0000 5580 4500 1001 (IBAN PL 47 1140 1977 0000 5580 4500 1001 SWIFT BREXPLPW).

The guarantees introduced in any other forms should be submitted at ITE cash office which is located at Instytut Technologii Elektronowej, Al. Lotników 32/46, 02 – 668 Warsaw, Poland, building VI, room 218 (working hours: 9:00÷14:00).

The awarding entity will withhold guarantee within interests in cases defined in Article 46 paragraphs 4a and 5 of the Public Procurement Law.

10. Tender validation time :

Tender validation time comes to 60 days from the date of submission of the tenders.

11. Description of the manner of the tender preparation.

The tender should be presented in writing form according to the tender form [Appendix No. 5 to the Terms of Reference] and must include in particular:

- a) name and address of the contractor,
- b) date of preparation of the tender,
- c) price – the awarding entity allows presenting the price in one of the indicated currencies: PLN, EUR, USD, GBP.

In the case of submission of the tenders in EUR, USD or GBP, for comparison the tenders, the price will be exchanged to Polish zlotys PLN according to selling exchange rate of the National Bank of Poland dated on the day before of opening of the tenders.

Together with the offer the contractor is allowed to submit:

- filled and signed Appendix No. 1 to the Terms of Reference,
- documents confirming the fulfilment of the conditions for participation in the procedure and confirming lack of grounds to exclude from the award procedure specified correspondingly in items 7.1. or 7.2. of the Terms of Reference.

The tender has to be signed by the contractor or his authorised representative.

In case the contractor's company is located outside Poland, it is approved to submit the tender as well as the documents required from the contractor as specified under point 7 of the Terms of Reference either in Polish or in English language.

The contractor is allowed to submit only one offer.

All costs of preparation of the tender, regardless of the results of the tender, shall be covered by the contractor.

12. Date and place of submission and opening of tenders.

The tenders should be submitted at the site of the awarding entity in Warsaw at Al. Lotników 32/46, building No. VI, room 216, **by 10⁰⁰ am, on 17th of January 2012** (in working days from 9 am till 2 pm). The tenders submitted after this deadline will not be considered.

The awarding entity forthwith inform the contractor that the tender was submitted past deadline and return the tender after the expiry of time limit for lodging the appeal.

Opening of the tenders will take place on 17th of January 2012 at 10¹⁵ am at the site of the awarding entity: Warsaw, Al. Lotników 32/46 in the building No. VI, room 120.

The awarding entity will open the tenders in accordance with its internal procedures but on occasion may hold a public opening which your representatives may attend.

The offers must be submitted in non-transparent and closed envelopes or packages. The envelope or package must be addressed as follows:

**Instytut Technologii Elektronowej
Al. Lotników 32/46
02-668 Warsaw
Building No VI, room 216
Do not open before 10¹⁵ am, on 17th of January 2012.
OFFER FOR:
DELIVERY OF THE LPCVD FURNACE FOR Si₃N₄ AND PolySi LAYERS DEPOSITION**

The envelope or package must include full name and address of the contractor.

The awarding entity does not accept responsibility for consequence of contractors failure to keep the above requirements.

13. Description of the method of the price calculation.

The tender price must include all the costs, which the contractor have to pay to perform the object of the Contract, described in the Terms of Reference inside the law:

- a) price of the device specified in point 3 of the Terms of Reference,
- b) installation,
- c) start up,
- d) testing of the device,
- e) transport,
- f) delivery conditions: DDP Piaseczno,
- g) insurance,
- h) training according to points 12 and 13 of the Appendix No. 1.

The tender price must also include all the proper charges, particularly taxes and other liabilities.

The contractor have to present the tender price according to the tender form, that means net value, VAT and gross value separately.

In case of the contractor's company located outside Poland, the tender form may present only net value without indicating VAT. The awarding entity for evaluation and comparison of the tenders will add VAT to the net price according to current tax regulations.

14. Description of the criteria which the awarding entity will apply in selecting a tender, specifying also the importance of particular criteria and method of evaluation of tenders.

The awarding entity will evaluate whether the tender meets requirements introduced in the Terms of Reference. If the tender is valid (meets requirements introduced in the Terms of Reference), it will be taken into consideration in choice of the best one.

Offer evaluation criteria:

- Price - 90%
- Quality of the device - 10%

Within each of the criteria, the evaluation will take place according to the following rules:

14.1. For the price: number of points in the price criteria will be calculated according to the following formula:

$$P_n = C_{\min} / C_n * W$$

- where: P_n – points in price criteria
 C_{\min} – the lowest price from all the offers
 C_n – the price from the evaluated offer
 W – weight of the criteria.

Maximum number of points to be gained within the price criteria is 90.

14.2. For the quality of the device: number of points in the quality criteria will be calculated according to filled table (Appendix No 1 to the Terms of Reference) and the following formula:

$$Q_n = (\sum(0,1)_p)_n / \max(\sum(0,1)_p)_n * W \quad \text{for } p=3$$

where: Q_n - points in quality criteria

$(0,1)_p$ - values of points for the evaluation of the p-th parameter

p - number of evaluated parameters

n - number of the offer

W - weight of the criteria.

Maximum number of points to be gained within the quality criteria is 10.

The sum of points received in all criteria makes aggregate evaluation of the tender.

15. Information concerning formalities which should be met following the selection of a tender in order to conclude a public procurement contract.

The Contract with the winning contractor will be signed pursuant to Article 94 of the Public Procurement Law.

The Contract is concluded under procedure according to Title IV of the Public Procurement Law.

16. Other important statements which will be included in the Contract.

The following statements will be included in the Contract:

16.1. Indemnity

- 1) In case of delay, caused by negligence, or poor performance of the Seller, the Seller will pay to the Buyer an indemnity of 0,1% of the value of the object of the Contract for each day of delay up to 10% of its value, without prejudice to point 5.
- 2) In case of delay in payment, the Buyer will pay to the Seller indemnity of 0,1% of the value of the object of the Contract for each day of delay up to 10% of its value.
- 3) In case the Seller will cancel the Contract because of reason caused by the Seller, the Seller will pay to the Buyer penalty of the 10% of the value of the object of the Contract and the Seller will transfer back all the received payments for the object of the Contract to the Buyer account.
- 4) In case the Buyer will cancel the Contract because of reason caused by the Buyer, the Buyer will pay to the Seller penalty of the 10% of the value of the object of the Contract plus documentary evidence costs of materials and labour based on the following schedule:
 - a) in period shorter than 30 days from order placement - 20% of the Contract value
 - b) in period shorter than 30 days before delivery and acceptance – 100% of the Contract value
 - c) in period between mentioned in points a) and b) – percentage approximated by linear function.
- 5) In case of delay, caused by the Seller, in delivery longer than 3 months, the Buyer can cancel the Contract and the Seller will pay to the Buyer penalty of the 10% of the total Contract value and the Seller will transfer back all the received payments for the subject of this contract to the Buyer account.

16.2. Warranty

- 1) The Seller will issue a letter of warranty.
- 2) The Seller undertakes a warranty of correct operation and technical quality of the delivered equipment for (warranty period included in the offer) months, calculated from the date of the signing the final acceptance protocol.
- 3) The Seller within warranty period covers costs of the repair or replacement of the defective goods and costs of their transport to the Buyer site after repair.
- 4) During the warranty period the Seller has the obligation to make the repair or replacement within not longer than 12 weeks after the date of the written claim.
- 5) The warranty period will be increased by the time needed for the repair.

- 6) The replaced or repaired parts of equipment will be included a warranty of the Seller or the Producer.
- 7) During the warranty period, the Seller undertakes a maximal service response time within 3 working days after the date of the written claim.

16.3. Delivery instruction

- 1) Subject of the Contract is to be shipped to the address below and placed at the disposal of the Buyer.
Shipping address: Instytut Technologii Elektronowej
 ul. Puławska 34
 05-500 Piaseczno, Poland
- 2) The Seller advises to the Buyer about the dispatch by fax (No.+48 22 54-87-803).
- 3) The Seller will deliver CE certificate together with subject of the Contract.

16.4. Terms of payments

Payment will be effected in the following way:

1. 80% of the contract value – (the value from the offer) – payable at delivery by the bank transfer to the Seller's account on the basis of an original invoice and shipment documents within 14 days after shipment of the subject of the Contract,
2. 20% of the contract value – (the value from the offer) – payable by the bank transfer to the Seller's account on the basis of an original invoice within 14 days after signing the acceptance protocol by both parties of the Contract.

The Buyer shall pay to the Seller due amount for the subject of this Contract by transfer to the Seller's account in:

.....
.....

All bank charges in Poland are at the Buyer's account and bank charges outside Poland are at the Seller's account.

16.5. Acceptance of the subject of the Contract

1. The preliminary acceptance test of the subject of the Contract will be performed at the Seller facility place of its origin in the presence of the Buyer and Seller representatives. The preliminary acceptance test procedure will be based on: verification of the device configuration as well as electrical and mechanical tests.

The results of the preliminary acceptance test must be accepted by signing by the Seller and the Buyer preliminary acceptance test protocol.

2. The final acceptance test will be performed after installation and start up of the subject of the Contract in the awarding entitie's site. The final acceptance procedure will be based on assessment of the results of the functional tests confirming technical parameters of the system according to technical specification as well as performing tests specified in point 10 of the Appendix No. 1 to the Terms of Reference.

The results of the final acceptance test must be accepted by signing by the Seller and the Buyer the final acceptance test protocol.

16.6. Force Majeure

1. The parties shall be free of responsibilities for non-fulfilment of their obligations due to Force Majeure or these obligations will be change according to the point 4. Force Majeure shall be considered as an event, unforeseeable by either of the parties at the date of signature of this Contract, arisen after such date and being unavoidable and beyond the control of both parties.
2. Cases of Force Majeure are e.g. flood, earthquake, fire, explosion, war, mobilisation, strikes, blockades, general shortage of transport.
3. The party wishing to claim Force Majeure shall notify the other party in writing without delay on the intervention and on the cessation therefore.

4. Such party must certify the case of Force Majeure to the other party by documentation issued by the competent official authority of this country. The dates and periods for fulfilment of these obligations will be postponed or extended by the period of existence of the state of Force Majeure.

16.7. Modifications of the Contract

- 1) The Buyer reserves himself the right to extend the time limit for the Contract performance due to organizational or technical reasons caused by the Buyer, in particular: caused by carrying out planned technological works within realized projects, averages or eventual delays due to the modernisation works carried out in the awarding entitie's lab.
- 2) The Buyer allows possibility of changing the total value of the subject of the Contract due to eventual changes in the VAT rates.

16.8. Setting of disputes

All disputes arising from the present Contract, failing amicable settlement shall be resolved by the Arbitration Court of the Polish Chamber of Commerce in Warsaw in accordance with the rules of this Court.

17. Requirements concerning the security on due performance of the Contract:

The awarding entity does not require any security on due performance of the Contract.

18. Procedure for additional explanations.

Contractor is authorized to address the awarding entity only in writing form, by fax or by electronic is also allowed with request for additional information regarding the content of Terms of Reference - in this proceeding till 27th of December 2011. The awarding entity will respond all the inquiries according to the Article 38 of Public Procurement Law.

The questions and the answers will be published on the awarding entitie's web site.

19. Information on legal protection measures available to an the Contractor during the contract award procedure.

Contractor's legal protection laws are included in Chapter VI of Public Procurement Law (available on the Public Procurement Office (PPO) web site: www.uzp.gov.pl).

20. Other matters.

For all matters not regulated in this Terms of Reference, the provisions of Public Procurement Law will apply.

Michał Urbański

Vice-Director for Administrative and Technical Affairs

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Requirements and technical parameters of LPCVD furnace for Si₃N₄ and PolySi layers deposition

| No. | Parameter | Requirement | The column to the fulfilment by the Contractor* | Points |
|-----|----------------------|--|---|--------|
| 1 | 2 | 3 | 4 | |
| 1. | Model, type | | Specify | |
| 2. | Production year | 2012 | Confirm | |
| 3. | Country of origin | | Specify | |
| 4. | Manufacturer | | Specify | |
| 5. | Device | Brand-new | Confirm | |
| 6. | General requirements | Three stock system must be horizontal and capable of 4" and 6" silicon wafers | Confirm | |
| | | Deposition of poly-Si from SiH ₄ ; Deposition rate of poly-Si: 5.6 – 6.1 nm/min | Confirm | |
| | | Deposition of stoichiometric and low stress silicon nitride from NH ₃ and SiH ₂ Cl ₂ Deposition rate of stoichiometric silicon nitride: 2.8 – 3.1 nm/min; Refractive index of stoichiometric silicon nitride: 2.00 ± 0.05 Deposition rate of low stress silicon nitride: 2.0 – 2.3 nm/min; Residual stress in low stress silicon nitride: < 5 x 10 ⁸ Pa tensile | Confirm and describe | |
| 7. | General features | Left-hand system - the furnace module must be on the left side of the loading module for a furnace operator standing in front of the loading module | Confirm | |
| | | Manual wafer handling | Confirm | |
| | | Automatic wafer boat loading to the furnace | Confirm | |
| | | The furnaces must be equipped with necessary instrumentation (one boat lifting fork per each furnace); quartz tubes, quartz boats suitable for 4" and 6" wafers must be provided according to the specification shown in Table No. 1 | Confirm | |
| | | Heating system for LPCVD furnaces: temperature zone 300 – 400 mm with temperature gradient suitable to obtain thickness uniformity of poly-Si and silicon nitride films given in item 9, for 50 wafers with 6" diameter. Temperature accuracy ± 0.2°C at the temperature range of 400° - 1000°C is required. Heating system for the furnace to annealing and dry oxidation: flat temperature zone 300 – 400mm. Temperature accuracy in flat zone ± 0.5°C at the temperature range of 400° - 1250°C is required | Confirm and specify | |
| | | Heating ramp rate must be in the range of 5°- 15°C/min for the furnace to annealing and dry oxidation | Confirm and specify | |
| | | Cooling ramp rate must be in the range of 2°- 6°C/min for the furnace to annealing and dry oxidation | Confirm and specify | |

| | | | | |
|-----|---|--|---------------------|--------|
| | | Three stock system (2 LPCVD furnaces and the furnace for annealing and dry oxidation) must be equipped with gas lines include MFC, filters and pressure regulators with pressure gauges | Confirm | |
| | | Gas lines must be terminated with ¼" male VCR | Confirm | |
| | | LPCVD furnace for deposition of silicon nitride must be equipped with nitrogen trap to condensation of ammonium chloride vapour | Confirm | |
| | | Dimensions: length ≤ 5.5 m, depth ≤ 0.9 m, height ≤ 2.7 m | Confirm and specify | |
| | | Laminar station with horizontal flow | Confirm | |
| | | Vacuum pumps suitable for the Poly and Nitride part of the system | Confirm | |
| | | All miscellaneous items (e.g. Tube fittings) to provide a working system at start up | Confirm | |
| 8. | Specific features | Two spare quartz tubes for LPCVD furnaces and one spare quartz tube for the furnace to annealing and dry oxidation | Confirm | |
| | | Two spare quartz boats for 4" wafers | Confirm | |
| | | Two spare quartz boats for 6" wafers | Confirm | |
| | | Four spare sets of gaskets for LPCVD furnaces | Confirm | |
| | | Computer control system | Confirm | |
| | | Software requirements: | Specify | |
| | | a) Windows XP or 7 based control system - yes - no | | 1 0 |
| | | b) Collection of all main machine data – temperature, gas, boat, power and events etc. - yes - no | | 1 0 |
| | | c) Remote User Operation, using standard Ethernet LAN - yes - no | | 1 0 |
| 9. | Pre-acceptance test at the manufacturer site | Verification of the hardware configuration, electrical and mechanical tests | Confirm | |
| 10. | Acceptance test at awarding entitie's site after installation and start-up of the system; the sample wafers will be supplied by the awarding entity | The purity of tubes must be verified by C-V (Capacitance-Voltage) test. Silicon wafers must be oxidized in the furnace with dry oxygen. Next, oxidized wafers must be annealing in LPCVD furnaces in nitrogen. $N_m \leq 1 \times 10^{10} \text{ cm}^{-2}$, $\Delta V_{FB} \leq 0.05 \text{ V}$ are required | Confirm | |
| | | Demonstration of deposition processes in LPCVD furnaces must be performed for silicon nitride and Poly-Si. | Confirm | |

| | | | | |
|-----|---|---|---|--|
| | | <p>Three test runs for silicon nitride and poly-Si must be performed in order to verify repeatability of deposition rate and thickness uniformity.</p> <p>Each test batch must consist of 50 wafers (4" or 6")</p> <p>Thickness uniformity must be estimate according to obligatory rule. Thickness uniformity of silicon nitride must be better than:</p> <p>± 2.5% wafer to wafer within a run ± 2.5% run to run ± 1.5% wafer point to point</p> <p>Thickness uniformity of poly-Si must be better than:</p> <p>± 4.0% wafer to wafer within a run ± 4.0% run to run ± 2.0% wafer point to point</p> <p>Uniformity must be measured in accordance with ASTM standards</p> | Confirm | |
| 11. | Completion of the tender including installation, start up and testing | Maximally to 32 weeks after signing the Contract | Confirm | |
| 12. | Process training in range of performing technological processes | Training of three persons during acceptance test in the awarding entitie's site | Confirm | |
| 13. | Maintenance training | Training of three persons during acceptance test in the awarding entitie's site | Confirm | |
| 14. | User manual and system documentation | <p>in Polish or English;</p> <ul style="list-style-type: none"> ▪ User manual: pdf file and printed one ▪ System documentation: pdf file and printed one | Confirm | |
| 15. | Catalogue cards | Description of basic technical parameters and photos of the offered system | Enclose | |
| 16. | Consumables for the period of warranty | Ensured and taken into account in price of the system, provided together with the system | Confirm and specify the list of the consumables | |
| 17. | Spare parts | Ensured within 10 years after the date of the final acceptance protocol | Confirm | |
| 18. | Free of charge service hot line - technical and process support | Ensured within at least 3 years after the date of the final acceptance protocol | Confirm | |
| 19. | Service response | Ensured within max. 3 working days after the claim | Confirm | |
| 20. | Technical and process support | Ensured within 10 years after the date of the final acceptance protocol | Confirm | |
| 21. | Warranty period | Minimum 12 months after the date of the final acceptance protocol | Confirm and specify | |
| 22. | Post warranty service | Ensured within 10 years after the date of the final acceptance protocol | Confirm | |
| 23. | Installation requirements | Attach installation requirements: electrical, gases and other | It must be attached to the written offer | |

* The contractor is allowed to fill in the table in column 4 precisely and readable.

Three stock system

| Furnace | Tube/boat | Max process temp. | Process gases | Process requirements |
|---------------------------------|---|-------------------|---|--|
| 1 upper furnace | Quartz/ one Quartz for 4", and one Quartz for 6" | 1250°C | N ₂ , O ₂ | Annealing and dry oxidation |
| 2 middle LPCVD furnace | Quartz/ one Quartz for 4", and one Quartz for 6" | 1000°C | SiH ₄ , N ₂ | Deposition of poly-Si, low stress poly-Si and amorphous Si |
| 3 bottom LPCVD furnace | Quartz/ one Quartz for 4", and one Quartz for 6" | 1000°C | NH ₃ , SiH ₂ Cl ₂ , N ₂ | Deposition of stoichiometric and low stress silicon nitride |

.....
/signature of the contractor or his authorised representative/

.....
/address stamp of the contractor/

.....
/date/

STATEMENT

Acting in accordance with the contract award procedure, we certify that we fulfil all the requirements for participation in this proceeding.

.....
/signature of the contractor or his authorised representative/

.....
/address stamp of the contractor/

.....
/date/

S T A T E M E N T

Acting in accordance with the contract award procedure, we certify that there is lack of grounds to exclude us from this proceeding.

.....
/signature of the contractor or his authorised representative/

.....
/address stamp of the contractor/

.....
/date/

THE LIST OF THE COMPLETED DELIVERIES

Submitting the tender in the proceeding conducted in the open procedure for **delivery of the LPCVD furnace for Si₃N₄ and PolySi layers deposition** we certify that within the period of the last three years before deadline of tender submission or if being active in the business for shorter period – in this period, we have completed following delivery:

| No. | Object of the delivery | Price | Date of performing | Buyer |
|-----|------------------------|-------|--------------------|-------|
| 1 | 2 | 3 | 4 | 5 |
| 1. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Notice! To each delivery presented in this list should be enclosed documents confirming that this delivery was performed by the contractor with due diligence .

.....
/signature of the contractor or his authorised representative/

.....
/address stamp of the contractor/

TENDER FORM
for Institute of Electron Technology

| | | |
|-------------------------|--|--|
| The object of the order | | Delivery of the LPCVD furnace for Si₃N₄ and PolySi layers deposition. |
| 1. | Name and address of the contractor | |
| 2. | VAT identification number | |
| 3. | Phone number: Fax: e-mail: | |
| 4. | Net price of the tender VAT rate VAT value Gross price of the tender | PLN* / EUR* / USD* / GBP* say: PLN* / EUR* / USD* / GBP* say: |
| 5. | Time limit for the Contract performance: maximally to 32 weeks after signing the Contract | specify: |
| 6. | The persons authorised to represent the contractor | |
| 7. | Parts of tender which the contractor intends to subcontract | |
| 8. | The list of documents enclosed to the tender: | 1. . . |
| 9. | Place: Date of preparation of the tender: | |

*choose one currency

.....
/signature of the contractor or his authorised representative