



Central register procedure no.: CRZP/355/004/D/10

TERMS OF REFERENCE

concerning the procedure of public tender led on the basis of law regulations from 29th January 2004: The Public Procurement Act (Consolidated text - Journal of Laws 2010 no. 113, pos. 755 with later amendments) hereinafter referred to as „the PP Act”

The Delivery of MW PECVD System– - for the Laboratory of Innovative Materials and Elements as part of Project „The Centre of Advanced Technologies POMERANIA”

**in the unlimited procurement procedure
above € 193 000**

I. EMPLOYER

Gdańsk University of Technology
11/12 G. Narutowicza St.
80-233 Gdańsk
POLAND

The Procedure is conducted by:
„The Centre of Advanced Technologies POMERANIA” Project Office
Tel: +48 58 348 63 67
Fax: +48 58 347 29 13
e-mail address: joanna.jackiewicz@pg.gda.pl
webpage: www.dzp.pg.gda.pl
working hours: 8.00 – 15.00



II. THE DESCRIPTION OF SUBJECT OF AGREEMENT

1. The Subject of Agreement is the delivery of MWPE CVD (Microwave Plasma Enhanced Chemical Vapour Deposition) System for the Laboratory of Synthesis of Innovative Materials and Components in frame of the Centre of Advanced Technologies POMERANIA
2. Contractor is obliged to deliver the manual in Polish or English language together with the equipment.
3. The Systems shall be new from factory-- and have a minimum one year warranty, after acceptance effect from the date of signing of protocol of transfer and receipt.
4. The Contractor is obliged to provide services under the guarantee covering the whole systems being Subject of Agreement.
5. Contractor shall secure the costs of transporting Subject to the Employer's registered office and installing the system using universities supplied required system facilities (electrical, gas, cooling) with assistance as requested by university staff, (room 315, Faculty of Electronics, Telecommunication and Informatics).
6. Contractor is obliged to conduct training at its own expense. It shall concern the operation of the aforementioned equipment for persons designated by Employer (with maximum of 3 persons) in its registered office at the date agreed by both parties.
7. Contractor is obliged to pointing the part of the procurement which execution is to be delegated to subcontractors. Including all costs and equipment required for lab facilities to place the system in safe operation. Employer does not allow submitting variant offers. the art. 67, sec. 1, pt. 7 of the PP act.
8. Employer shall not be accepted variants.
9. Employer does not allow partial tender.
10. Employer does not provide supplementary award, referred to in art. . paragraph 67 sec. 1, pt. 7 of the PP act.

11. The detailed description of subject of agreement

MW PECVD System (Microwave Plasma Enhanced Chemical Vapour Deposition) vacuum system for deposition of diamond thin films. Selection of the subject of delivery is determined by possibility of carrying out wide research program on growth of thin diamond films for applications in optoelectronics and nanotechnology. The research program is determined by aims of ROP CAT Pomerania. The main problem of the research is *in situ* investigation of processes of deposition of nanocrystalline diamond and doped diamond, which is not well-known problem.

Requirements of R&D works on diamond thin films, determines parameters of the CVD system as well as solutions, which are acceptable and preferred.

- a. The system should enable synthesizing diamond films having different forms, including micro-crystalline diamond, nano-crystalline diamond as well as doped films and hydrogenated films.
- b. Typical growth rate of MCD (Micro-Crystalline Diamond) should be at least 0.1 $\mu\text{m/hr}$. Because of requirements of high quality of the films and *in situ* control of their

composition during growth, possibility of reduction of growth rate to about 0.5 $\mu\text{m/hr}$ is required.

- c. Access for the vacuum CVD chamber must be safe for the staff and non-invasive for the film deposition process.
- d. The CVD process chamber should be double walled, made from stainless steel and water-cooled. The 2.45 GHz microwave radiation should be transmitted into the chamber through a dedicated dielectric window. Systems having internal glass process chamber are excluded from the competition, because such chamber may distort research and spectroscopic monitoring, while its removal during measurements makes risks of plasma distortion or propagation of microwave radiation outside the chamber, which can be dangerous for the staff.
- e. Vacuum System of the Reactor chamber should use oil-sealed Rotary Vane Pump. Performance of the Vacuum System and the Reactor chamber should provide following parameters:
 - operating pressure range: from 1.3 to 24 kPa (10-180 Torr),
 - pressure measurement - capacitance manometer,
 - closed-loop pressure control,
 - pump speed - at least 20 m^3/hr ,
 - gas load - up to 3.4 $\text{Pa}\cdot\text{m}^3/\text{sec.}$,
 - base pressure inside the chamber - 10 Pa ($7.5\cdot 10^{-2}$ Torr),
 - vacuum leak integrity - less than $1\cdot 10^{-9}$ $\text{Pa}\cdot\text{m}^3/\text{sec}$ (measured by Helium Leak Detector),
 - vacuum seals – following solutions are acceptable: (1) metal seals type CF or delta, (2) elastomer O-rings type ISO-KF.
- f. Design of the chamber and the whole CVD system must enable deposition of films on substrates, which are remotely and precisely positioned to places in plasma discharge having different concentration and energy of ions and electrons. It is required for optimization of process conditions.
- g. Substrate load/unload port - rectangular port with elastomer O-ring seal, dimension of the port should enable loading of circular substrates having diameter up to 3.8 inches. System shall include a 2" (internal diameter) Mo substrate holder to place on stage.
- h. The CVD system should be equipped with remotely positioned stage having possibility of heating or cooling the substrate. The stage should have following parameters:
 - heated substrate stage using RF induction source,
 - remote, motorized height positioning (Z-axis) with at least 60mm adjustment range,
 - induction heating power - at least 3 kW,
 - substrate stage diameter - at least 3.8 inches, supplied with Mo sample holder for max. of 2" substrate for normal process application and acceptance testing
 - substrate diameter - up to 3.8 inches (2 inches for uniform deposition area),
 - substrate temperature - up to 900°C,
 - substrate temperature measurement and control - by thermocouple and pyrometer.
- i. Design of the Reactor chamber should enable non-invasive measurements of plasma composition, as well as temperature and molecular composition of the growing diamond layer. Such measurements can be made by means of spectroscopic methods (Optical Emission Spectroscopy, in situ Raman monitoring), however the chamber must be equipped with set of viewing ports, which would be safe (microwave radiation can not go

outside the chamber) and would not distort recorded optical spectra. Therefore, the CVD system must be equipped at least with:

- 3 viewing ports located on the wall of the chamber 90° apart situated near the plane of the stage during process for easy viewing and metrology of the growth sample with Sapphire diameter of at least 0.9-inch diameter. Position of these viewing ports should enable three-dimensional acquisition of optical signals originating from the area where the films are growing.
- 2 viewing ports located on the wall of the chamber on the same height with Sapphire window having at least 0.55-inch diameter, located 180° apart, enabling looking down on the substrate at the angle 25° from the upper part of the chamber.
- an additional top down viewing port for fiber optic cable link to pyrometer,
- thermocouple connection for remote setting of heater stage temperature
- j. The CVD system should be at least semi-automatic control mode (non recipe driven) for precise process control is required as well as the system should be equipped with user friendly user interface (GUI).
- k. The CVD system must be equipped with low ripple 2.45 GHz microwave power supply having output power adjustable in range from 125 W to 1.5 kW.
 - l. Microwave radiation from the 2.45 GHz power supply should be transmitted into the Reactor chamber through a microwave circuit consisting of microwave circulator, tuner, dummy load absorbing reflected beam, waveguide assembly and dedicated dielectric window.
 - m. The system should be capable of accommodating at least four individual gas lines, controlled by mass flow controllers:
 - gas line # 1 - Hydrogen (H₂), Volume Flow Range - 1000 sccm,
 - gas line # 2 - Methane (CH₄), Volume Flow Range - 50 sccm,
 - gas line # 3 - spare, Volume Flow Range - 25 sccm,
 - gas line # 4 - spare, Volume Flow Range - 10 sccmall connections should be made from stainless steel pipes, polished internally and from VCR fittings.
 - n. Design of the CVD system should be flexible enough to enable replacement of the chamber, development of the chamber, increase of the microwave radiation power and biasing the substrate, which will be necessary during further stages of research - development and application research.
 - o. The supplier has to provide transportation of the system to Gdansk and on-site installation in room 315 of Faculty ETI seat. Moreover, the supplier is obliged to test the CVD system to confirm growth at least polycrystalline diamond film as well as is required to train staff on system operation from Gdansk University of Technology.
 - p. The supplier has to deliver set of system integration cables and operation manual for the delivered CVD system.
 - q. Total weight of the system (without replaceable chamber assembly) should not exceed 800 kg
 - r. Required warranty - at least 1 year after acceptance on-site in Gdansk

Delivered CVD system should be additionally equipped with:

- l. 2 Color Pyrometer for measurement and control of temperature of the substrate and the growing layer, measurement range – at least from 475 °C to 1200°C.



11. Turbo Molecular Pump with gate valve and controller for improvement of residual gas evacuation from chamber
 - Pump speed – at least 340 l/sec for N₂ and at least 290 l/sec for H₂,
 - Base Pressure – 10⁻⁴ Pa
111. Substrate DC-Bias to provide ion bombardment of the growing layer for Biased Enhanced Nucleation
 - Output DC voltage range – at least 0 - 300 VDC,
 - Required output power – at least 1 kW,
 - Constant current – 3.5 ADC

Common Procurement Dictionary:

38500000-0 controlling and research equipment

III. DATE AND PLACE OF EXECUTING SUBJECT

1. The date of executing Subject: 6 months from the day of signing the Agreement
2. The place of executing the delivery:

Gdansk University of Technology
Faculty of Electronics, Telecommunication and Informatics (room no.315)
11/12 G. Narutowicza St.
80-233 Gdańsk

IV. CONDITIONS OF PARTICIPATION AND DESCRIPTION OF THE PROCEDURE OF ASSESSING THOSE CONDITIONS

- 1) Contractors applying for the procurement are obliged to fulfill the condition described in art. 22 sec. 1 of the PP act concerning the following:
 - a) possessing rights to executing a certain type of activities or actions if the legal regulations impose an obligation of their possession.
The activity conducted for the need of Subject does not require possessing specific rights.
 - b) possessing knowledge and experience – Employer shall recognize the condition as fulfilled when Contractor demonstrate that, within the three year period before the end of offer submission period, and if the time of activity is shorter – within that period, the delivery of at least one MW PECVD System worth more than PLN 1 500 000,00 net.
 - c) Possessing appropriate technical potential and the personnel capable of fulfilling the order.
Employer does not require specified condition in this respect.
 - d) economic and financial situation – Employer shall recognise the condition as fulfilled if in the last 3 working years (unless the operational period is shorter, within that period) Contractor achieved an average net revenue not lower than PLN 1,500,000.00.

- 2) Only Contractors who fulfill the condition concerning the lack of basis of excluding them from the public procurement, mentioned in the art. 24, sec. 1 of the PP act, are able to take part in the procurement.

Contractor shall depend on the knowledge and experience, technical potential, persons capable of executing Subject or financial capacity of other parties, independently from the legal character of the relationship between the two. In such a situation, Contractor is obliged to prove to the Employer that it will possess resources needed to fulfil the order, especially submitting written obligation of the other parties to depositing necessary resources for the time of fulfilling the order. Moreover, if Contractor, while demonstrating fulfilling the conditions described in chapter IV, sec. 1, let. D of the following Terms of Reference, relies on the financial capacity of the other parties on the basis of the principles described in art. 26, sec. 2B of the PP act, Employer requires submitting documents mentioned in chapter V, sec. 1, let. C, concerning those parties.

- 3) Employer shall make an appraisal of fulfilling the conditions of participation in the procedure by Contractors on the basis of documents and statements submitted by them, as per fulfilled / unfulfilled basis. Unfulfilling any of the conditions shall result in excluding Contractor from the procedure.

V. DOCUMENTS AND STATEMENTS REQUIRED FOR SUBMISSION OF THE OFFER

- 1) For the purpose of Contractor's demonstrating the fulfillment of the conditions required to participate in the procedure described in chapter IV pt 1 of Terms of Reference, the following shall be submitted:
- a) the statement of fulfilling the conditions of participating in the procedure (appendix 2 to Terms of Reference);
 - b) the list of deliveries of MW PECVD Systems deliveries from the period of the last three years before the date of submitting offers, and, if the period of activity is shorter, within that period, together with their value, subject, completion dates and recipients (appendix 5 to Terms of Reference). In order to compare the values given in the lists, where they will be given in other currencies than PLN adopted in the proceedings, Employer will adopt the average rate of the NBP forward contract notice the Office for Official Publications of the European Communities .
 - c) the balance of profits and losses (in case when the financial report is subject to examination by an expert auditor in compliance with the regulations of bookkeeping, also with the opinion of examined report concerning the balance of profits and losses respectively), and in case of Contractors not obliged to preparing financial reports, other document describing the turnover and assets and liabilities – from the period of no more than the last three working years, and if the period is shorter, for the following period.
- 2) If Contractor cannot provide the following documents concerning its financial and economic situation for a justified reason, it can provide another document which sufficiently confirms the fulfillment of a condition described by Employer.

- 3) In order to demonstrate the lack of basis of excluding Contractor from the public procurement, mentioned in the art. 24, sec. 1 of the PP act, the following shall be submitted:
- a) the statement of the lack of basis of excluding Contractor from the public procurement (appendix no. 4 to Terms of Reference);
 - b) the valid certificate from appropriate register if separate regulations require a copy for the register in order to demonstrate the lack of basis of excluding Contractor from the public procurement on the basis of art. 24, sec. 1, pt. 2 of the PP act, issued not earlier than 6 months before the end of submitting offers, as compared to individuals, a certificate in terms of art. 24, sec. 1, pt 2 of the PP act.
 - c) the valid certificate from authorised official Inland Revenue confirming that Contractor does not have tax arrears or certificate stating that it has obtained tax allowance, respite or division of tax arrears into instalments or tax exemption based on a decision from an appropriate authority – issued not earlier than 3 months before the end of submitting offers.
 - d) The valid certificate from an appropriate branch of Social Insurance Company (ZUS) or Farmer's Social Security Fund (KRUS) confirming that Contractor is not behind with payments for health and social insurance or confirmation that it has obtained allowance, respite or division of arrears into instalments or exemption based on a decision from an appropriate authority – issued not earlier than 3 months before the end of submitting offers.;
 - e) the valid information from National Criminal Record in the range described in art. 24, sec. 1, pt. 4 – 8 of the PP act, issued not earlier than 6 months before the end of submitting offers;
 - f) the valid information from National Criminal Record in the range described in art. 24, sec. 1, pt. 9 of the PP act, issued not earlier than 6 months before the end of submitting offers;
- 4) Contractors having their registered office on the territory of the Republic of Poland, in case of persons described in art. 24, sec. 1, pt. 5-8 of the PP act residing outside the territory of the Republic of Poland, shall submit the statement of non criminal record of those individuals from the place of their residence, in the range described in art. 24, sec. 1, pt. 5-8 of the PP act, issued not earlier than 6 months before the end of submitting offers; however, in case of the situation where in the place of residence of those persons such statements are not issued, they shall be substituted with an affidavit made by a notary, an appropriate legal organ, an administrative organ or a professional or economic self-government organ appropriate for their place of residence.
- 5) If Contractor has the registered office or the place of residence outside the territory of the Republic of Poland, instead of documents referred to in pt.3:
1. pt. b-d and f – submits a document or documents issued in the country where it has the registered office or the place of residence confirming that:
 - a) it does not go into liquidation or is not declared bankrupt,
 - b) it is not behind with payments for health and social insurance or confirmation that it has obtained allowance, respite or division of arrears into instalments or exemption based on a decision from an appropriate authority

- c) the prohibition of taking part in the public procurement procedure has not been pronounced against it;
 2. pt. e – it submits the document from an appropriate legal or administrative authority from the place of residence.
- 6) The documents described in sec. 5), pt. 1 let. a) and c) and pt. 2 shall be issued no earlier than 6 months before the deadline for submitting motions for the inclusion in the public procurement procedure and submitting offer. The document described in sec. 1, let. b) shall be issued no earlier than 3 months before the deadline for submitting motions for the inclusion in the public procurement procedure and submitting offer.
- 7) In case of the situation where in the place of residence where Contractor has its registered office or the place of residence such statements are not issued, they shall be substituted with an affidavit made by a notary, an appropriate legal organ, an administrative organ or a professional or economic self-government organ appropriate for its place of residence or the country where Contractor has its registered office or the place of residence. Article sec. 2 is applied appropriately.
- 8) In case of doubts concerning the content of the document submitted by Contractor having its registered office or the place of residence outside the territory of the Republic of Poland, Employer may ask the appropriate organs for the place of residence of the person or the country where Contractor has its registered office or the place of residence with the motion for providing necessary information concerning the submitted document.

THE REMAINING INFORMATION ON DOCUMENTS

- 1) The procedure of public procurement is conducted in Polish. Employer allows submitting statements, offers and other documents in English.
- 2) Documents may be submitted in the form of an original copy or a copy certified to be true in compliance with the original by Contractor.
- 3) Documents created in a foreign language (other than English) shall be submitted with their translation into Polish, certified by Contractor.
- 4) Employer does not allow electronic form of documents.
- 5) Documents submitted with the offer are not subject to return.
- 6) Contractors may jointly apply for the procurement (art. 23 of the PP act)
- 7) In case of Contractors jointly applying for the procurement (consortium, private partnership)
 - a) Statements and documents mentioned in chapter V pt. 3 of Terms of Reference shall be submitted by each Contractor
 - b) Conditions of participation in the procedure described in chapter IV pt. 1 of Terms of Reference may be fulfilled jointly by Contractors applying for the procurement
 - c) Contractors jointly applying for the procurement shall appoint a representative to act on their behalf during the procedure and during the procedure and conclusion of



agreement on the following procurement, appropriately to art. 23, sec. 2 of the PP act.

- d) The representation document shall be attached to the offer and contain in particular indications of: the procedure of public procurement which it deals, Contractors applying jointly for the procurement, authorised representative and the range of duties.
- e) The representation document shall be signed on behalf of all Contractors applying jointly for the procurement by all persons entitled to submitting the declaration of will mentioned in the appropriate register or the register of business activity.
- f) The representation document may be submitted in the form of an original copy or a copy certified to be true in compliance with the original by Contractor.
- g) If the offer made by Contractors applying jointly for the procurement is chosen, Employer requires an agreement settling the cooperation of Contractors before signing the procurement agreement.
- h) Parties jointly applying have common responsibility for non-performance or improper performance of the agreement.

VI. INFORMATION ON MEANS OF COMMUNICATION BETWEEN EMPLOYER AND CONTRACTORS, AND PROVIDING EXPLANATIONS CONCERNING TERMS OF REFERENCE AND MEANS OF SUBMITTING STATEMENTS AND DOCUMENTS.

- 1) The procedure of public procurement is conducted in Polish. Employer allows submitting statements, offers and other documents in English.
- 2) Both parties may be submit statements, motions, notices and information in the written form, by fax or email. In case of fax, email each party is obliged to confirm the fact of receiving a fax or email when asked by the other party.
- 3) Statements, motions, notices and information shall be sent to:
Gdansk University of Technology, B wing of the main building, room no 206, 11/12 G.Narutowicza St., 80-233 Gdańsk
fax: +48 58 347 29 13,
e-mail: joanna.jackiewicz@pg.gda.pl.
- 4) In case of Contractors applying jointly for the procurement any correspondence shall be conducted with a representative exclusively.
- 5) Contractor ask Employer for the clarification of Terms of Reference. Employer is obliged to give explanations immediately, but no later than 6 days before the end of the procurement procedure – on condition that the motion on explaining Terms of Reference has been received not later than before the end of the day which marks the half of the period for submitting offers.
- 6) The content of enquiries with explanations shall be submitted to Contractors whom Employer sent Terms of Reference to, without disclosing the source of enquiry and displayed on the website where Terms of Reference are also available.
- 7) In justified cases Employer may change the content of Terms of Reference before the deadline for making offers. The following change of Terms of Reference shall be sent



immediately to all Contractors whom Terms of Reference were sent to and displayed on the website where Terms of Reference are also available.

- 8) If in case of a change of the content of Terms of Reference not resulting in the change of announcement about the public procurement, additional period of time shall be needed to make necessary changes in offers. Employer shall prolong the deadline for making offers and, therefore, inform Contractors whom Terms of Reference were sent to and displayed on the website where Terms of Reference are also available.
- 9) Employer does not have an intent to summon Contractors in order to clear any doubts concerning the content of Terms of Reference.
- 10) The person entitled to direct contact with Contractors is:
Marcin Gnyba (for substantial and technical matters)
Tel. +48 58 347 24 82
Joanna Jackiewicz (for procedural matters)
Tel. +48 58 348 63 67

VII. INFORMATION ON BID BOND

1. Currencies allowed by Employer: PLN, EURO, USD.
2. To enter the procedure Contractor is obliged to submit a bid bond amounting to **PLN 15.000. (EURO or USD, equivalent per exchange rate at time of offer by NBP bank transfer)**
3. The bid bond is to be submitted before the deadline for making offers in the following forms (chosen by Contractor):
 - a) in cash;
 - b) in bank sureties and sureties of savings and credit union on condition that the surety of the union is a cash surety;
 - c) in bank guarantees;
 - d) in insurance guarantees;
 - e) in sureties provided by the parties described in art. 6B, sec 5, pt. 2 of the Act of 9.11.2000 on the formation of Polish Agency of Enterprise Development (Journal of Laws, 2007, no. 42, pos. 275)
4. The bid bond submitted in cash shall be made by bank transfer to the following bank account of Employer:

Bid bond in PLN:

Bank Zachodni WBK I/O Gdańsk S.A 41 1090 1098 0000 000 0901 5569

Bid bond in EURO:

PL 77 1090 1098 0000 0000 0912 9963

CODE SWIFT: WBK PPLPP

Bid bond in USD:

PL 29 1090 1098 0000 0000 0903 3536

CODE SWIFT: WBK PPLPP

with the following notice: „**The bid bond – MW PECVD System (CRZP/355/004/D/10)**”. In case of submitting the bid bond by bank transfer the moment of delivery to the Employer's account is binding.



5. In the case of a bid bond in currencies other than PLN for comparison, Employer will adopt the average rate of the NBP forward contract notice the Office for Official Publications of the European Communities.
6. The bid bond made in cash Employer keeps on its bank account.
7. Submitting the bid bond in one of the forms mentioned in pt. 2, let. b-e occurs via delivering the confirmation to the Employer in the form of an original copy before the deadline for submitting offers. Such a document shall be submitted against receipt in the cashier's office of The Bursary of Gdansk University of Technology, 1st floor, B wing of the main building, ul. G. Narutowicza 11/12, Gdańsk, from Monday to Friday between 9 a.m. and 1 p.m.
8. In case of submitting the bid bond in the form of bank surety, bank guarantee or insurance guarantee, such a surety or guarantee shall include all cases resulting in the loss of the bid bond mentioned in art. 46, sec. 4A and 5 of the PP act, and it shall cover the whole period of offer validity described in Terms of Reference. In case of not fulfilling any of the aforementioned requirements, Employer shall recognise that the bid bond has not been submitted and exclude Contractor from the procedure.
9. Contractor whose offer will not be secured by the form of the bid bond mentioned in pt. 2 shall be excluded from the procedure.
10. Withdrawing the offer before the deadline of submitting offers does not result in the loss of the bid bond.
11. Employer shall return the bid bond under the conditions specified in art. 46 of the PP act.

VIII. OFFER VALIDITY

- 1) The offer validity amounts to 60 days. The course of offer validity starts with the deadline for submitting offers.
- 2) Contractor separately or on the initiative of Employer may prolong the offer validity, but only once and at least 3 days before the deadline of the offer validity, turning to Contractors for allowing the extension of the offer validity for a designated period, but no longer than 60 days.

IX. THE WAY OF OFFER PREPARATION

- 1) The offer shall be prepared in compliance with the requirements of the following Terms of Reference and the PP act. The content of offer shall correspond to the content of Terms of Reference.
- 2) Contractor may only submit one offer.
- 3) For the procedure the following documents shall be submitted: „Offer”-appendix no. 1 to Terms of Reference and:
 - a) the representation document for representing all Contractors applying jointly for the procurement (in case of the joint application);
 - b) the power of attorney for signing the offer unless the right to signing the offer does not result from other documents submitted with the offer;

- c) statements and documents required to prove the fulfillment of conditions of taking part in the procedure and the lack of basis for the exclusion from the procedure mentioned in chapter V of the following Terms of Reference;
 - d) optionally: the written obligation of other parties to grant the disposition of necessary resources to Contractor for the period of time of execution of the order. The document shall be submitted if Contractor relies on experience, technical potential, persons capable of fulfilling the order or financial capacity of the other parties;
 - e) the technical description of equipment, appendix no. 7 to Terms of Reference
- 4) The offer and the remaining documents for which Employer has set models attached as appendices to the following Terms and Reference, shall be compiled in compliance with the models in terms of the content and the description of columns and lines.
 - 5) The offer shall be made in writing otherwise shall be null and void, in a durable and clear technique and written in either Polish or English.
 - 6) Employer does not allow submitting the offer in the electronic form.
 - 7) All the points where Contractor has made changes shall be initialled by the person signing the offer together with the date of making changes.
 - 8) Every document included in the offer has to be legible.
 - 9) The offer shall be signed by Contractor. Employer requires the offer to be signed in compliance with the principles of representation indicated in the appropriate register or the register of business activity. An individual with a business enterprise is advised to submitted the entry from the register of business activity together with the offer. If the person signing the offer operates on the basis of the power of attorney, it shall indicate clearly the power to signing the offer in its content.
 - 10) The representation document shall be submitted together with the offer in the form of an original copy or a copy certified to be true in compliance with the original by a notary.
 - 11) The offer of Contractors applying jointly for the procurement shall be written in a way of binding all Contractors. It shall be signed by all Contractors applying jointly or by an appointed representative with the power of attorney.
 - 12) Contractors applying jointly for the procurement shall write the details of all Contractors, not their representative, in the boxes, eg. the name and address on the „Offer” document as well as other documents referred to „Contractors.”
 - 13) Documents included in the offer – other than representation documents – shall be submitted in the form of an original copy or a copy certified to be true in compliance with the original by an authorised person to submit statements on behalf of Contractor.
 - 14) It is advised for pages of the offer to be binded permanently and numbered one by one.
 - 15) In case of the offer, statements or documents containing confidential data in the sense of regulations of unfair competition law, Contractor shall reserve in a clear way not later than on the deadline of submitting offers which pieces of information are confidential data of the company and cannot be made available.
 - 16) Confidential data cannot constitute pieces of information made public during opening the offers, i.e. the information on the price, the validity offer, the guarantee period and the conditions of payment included in the offer.
 - 17) The appropriate reservation Contractor shall submit on the offer form. Otherwise, the whole offer will be made public. Employer advises to submit the information reserved as confidential in in a separate envelope by Contractor with the signature „Confidential Data of the Company” or binded (stapled) together separately from the other elements of the offer which are to be made public.

- 18) In case when Contractor reserves in the offer the information that is not confidential and are made public on the basis of regulations of the PP act or other separate regulations, Employer shall made public appropriate pieces of information without the consent of Contractor (in compliance with the verdict of the Supreme Court returned on 20.10.2005, file no. III CZP 74/05).
- 19) The offer shall be submitted in two (one in the other) intransparent, closed packaging, preventing reading the content without causing its damage. The outer packaging shall be addressed as follows:

**Gdańsk University of Technology, Centrum Wiedzy i Przedsiębiorczości
Al. Zwycięstwa 27, room no. 11, 80-233 Gdańsk**

and signed:

The Offer for the Delivery of MW PE CVD System

Do not open before 08.09.2010 r.

The inner packaging shall be given the exact address of Contractor in order to prevent sending back the offer without its opening in case of submitting it after the deadline.

- 20) Before the deadline, Contractor may make changes to the offer or withdraw it. Both the change made to the offer and the withdrawal of the offer shall be submitted to Employer in writing otherwise shall be null and void before the deadline. The statement on making changes or withdrawing the offer shall be packed and signed like an offer and the packaging shall contain additional marking with the word, „CHANGE” or „WITHDRAWAL” respectively.

X. THE PLACE, DEADLINE FOR SUBMITTING AND OPENING THE OFFERS

- 1) The offers shall be submitted in the registered office of Employer: Gdańsk University of Technology, Centrum Wiedzy i Przedsiębiorczości, Al. Zwycięstwa 27, room no. 11, 80-233 Gdańsk
- 2) The offers may be submitted from Monday to Friday between 8 a.m. and 3 p.m.
- 3) The deadline for submitting the offer is 08.09.2010 r. **9:30 a.m.**
- 4) Employer shall inform Contractor immediately about submitting the offer after the deadline and return the offer without opening it after the deadline for lodging the appeal.
- 5) The opening of offers shall take place on 08.09.2010 r. **11 a.m.** in the registered office of Employer: Gdańsk University of Technology, Centrum Wiedzy i Przedsiębiorczości al. Zwycięstwa 27, room no. 11, 80-233 Gdańsk
- 6) The opening of offers is public. Contractor may take part in the public session of opening the offers.
- 7) Immediately before opening the offers Employers will make public the amount which it



intends to devote for financing the procurement. In the course of opening the offers Employer shall read the name/company and the address of Contractor whose offer is being opened and the information on the price, the offer validity, the guarantee period and the payment conditions included in the offer.

- 8) In case of Contractor's absence in the course of opening the offers, Employer shall send the information on opening the offer on the initiative of Contractor.

XI. THE DESCRIPTION OF THE WAY OF PRICE CALCULATION

- 1) While calculating the price of the offer, Contractor is obliged to take into consideration all the requirements described in the following Terms of Reference, include all the necessary costs for appropriate and full performance of Subject of the order, as well as:
 - a) the cost of delivery to Gdańsk University of Technology and the insurance of delivery
 - b) the cost of initiating the system and carrying the training in the registered office of Employer
 - c) performing the test procedure.
- 2) The price of the offer shall be given in PLN, EURO or USD, provided to two decimal places.
- 3) Contractors having their registered office on the territory of the Republic of Poland calculate the price in PLN or in other than PLN currency allowed in the present proceedings in the amount of gross (including VAT)
- 4) Contractors having their registered office or the place of residence outside the territory of the Republic of Poland (from the European Union and from outside the European Union) calculate the price in PLN or in other than PLN currency allowed in the present proceedings in the amount of net (excluding VAT).
- 5) Contractor from outside the European Union does not include custom fees. All cost of custom clearance will be covered by Employer, however, in order to evaluate the offers submitted to the Employer will add custom fees according to the customs tariff code.
- 6) The price of the offer is a gross price including the whole Subject. The price of the offer is the price given on a „Offer” document.
- 7) The price of the offer has to be made in number and in words.
- 8) The price of the offer shall be binding through the validity period of the agreement, shall not be the subject of negotiations and shall be binding for parties of an agreement.
- 9) The price given by Contractor in the offer shall not be changed during the performance of the order and shall not be subject to valorisation.
- 10) All the settlements between Employer and Contractor shall be made in agreed currency.
- 11) In case of making an offer in a currency other than PLN for comparing the offers made, Employer shall take an average exchange NBP rate for the day of opening the offers.
- 12) In case of Contractors applying jointly for the public procurement, settlements shall be made only with their representatives.

XII. THE CRITERIA OF ASSESSING THE OFFERS AND CHOOSING THE MOST PROFITABLE OFFER

- 1) The assessment of the offers shall be made by member of the procurement committee.



- 2) The assessment shall be made only on offers not subject to rejection.
- 3) The criteria for assessing the offers and their weight:
price - 100%
- 4) The most profitable offer shall receive the maximum number of points (100.) The marking shall be made on the basis of the following formula:

$$R = \frac{C_n}{C_b} \cdot 100$$

where: P_c – is the number of points given to an offer being examined according to the „Price” criterion

C_n – is the lowest price among the offer subject to assessment

C_b – is the price of an offer being assessed

- 5) The number of points shall be calculated with the provision of two decimal places.
- 6) If the choice of the most profitable offer cannot be made due to making offers of the same price, Employer shall ask Contractors who made those offers to make additional offers by the deadline nominated by Employer. Contractors cannot offer higher prices in their additional offers than the ones given in the submitted offers.
- 7) If an offer has been made whose choice leads to arising the tax obligation for Employer, it shall add the tax amount which it has to pay to the given price in order to assess such an offer in compliance with the regulations on goods and services tax in terms concerning intra-union purchase of goods. In the case an offer is made by a contractor from the European Union and from outside the European Union, the Employer will also add VAT.
- 8) Employer does not predict electronic auction.
- 9) Employer shall correct in the offer:
 - a) evident written errors,
 - b) evident calculating errors with the calculating consequences of errors made,
 - c) other errors relying on the inconsistency of the offer with Terms of Reference of the order not resulting in significant changes in the content of the offer,
- notifying Contractor immediately whose offer has been corrected.By calculating error Employer understands any incorrect result of the mathematical calculation provided that all the elements of the calculation were correct.
- 10) Employer shall inform immediately after choosing the most profitable offer Contractors who made their offers, about:
 - a) the choice of the most profitable offer giving the name (company), registered office and address of Contractor whose offer was chosen and giving the justification of the choice, and also the names (companies), registered offices and addresses of Contractors who submitted the offers together with the summary of the assessment and the comparison of the offers made containing the number of points received according to the criterion of assessing the offers;
 - b) contractors whose offers were rejected giving factual and legal explanation;
 - c) contractors who were excluded from the public procurement procedure giving factual and legal explanation;



- d) the date, described in art. 94, sec. 1 or 2, after which an agreement on the public procurement may be concluded;
- 11) Immediately after choosing the most profitable offer, Employer shall publish the information described in pt 12, let. a, on its webpage and in the public place available in its registered office (information board).

XIII. INFORMATION ON FORMALITIES WHICH SHALL BE COMPLIED AFTER CHOOSING THE OFFER IN ORDER TO SIGN THE AGREEMENT

1. Employer shall give the order to Contractor who is not excluded from the public procurement, whose offer has not been rejected from the procedure and has been chosen as the most profitable as a result of assessment in compliance with the regulation described in chapter XII of Terms of Reference.
2. Employer shall sign the agreement on the public procurement at the date predicted in art. 94, sec. 1 or 2 of the PP act.
3. Contractor whose offer has been chosen as the most profitable shall be notified about the date and place of signign the agreement with a separate written document. Employer does not anticipate any additional formalities connected with signing the agreement.

XIV. INSURANCE OF THE PROPER EXECUTION OF THE AGREEMENT

In subject proceedings Employer does not require submitting insurance of the proper execution of the agreement.

XV. AGREEMENT ON THE PUBLIC PROCUREMENT

Significant decisions and conditions for parties which shall be included in the content of the agreement on the public procurement are described in the model of the agreement (appendix no. 6)

XVI. NULLIFICATION OF THE PROCEDURE

1. Employer shall invalidate the procedure only in cases described in art. 93, sec. 1 of the PP act.
2. All Contractors shall be notified of the nullification of the public procurement procedure simultaneously on the basis of regulations described in art. 93, sec. 3 of the PP act.

XVII. GENERAL INFORMATION

1. The costs of preparing, making an offer and participating in the procedure shall be made by Contractor.
2. Contractor shall familiarise with the entirety of Terms of Reference.
3. All attachments form an integral part of Terms of Reference.
4. Employer shall not predict concluding a framework agreement.



XVIII. INFORMATION ON LEGAL REMEDIES RESERVED FOR CONTRACTOR

Contractors and other persons whose legal interest shall be subject to prejudice or has been prejudiced by impairing the regulations of the PP act by Employer, are subject to legal protection described in section IV of that act.

XIX. APPENDICES TO TERMS OF REFERENCE

appendix no. 1 - offer

appendix no. 2 – statement on fulfilling the conditions of taking part in the procedure

appendix no. 3 – statement on the lack of basis of exclusion from the public procurement

appendix no. 4 – statement on the lack of basis of exclusion from the public procurement

appendix no. 5 – list of executed deliveries

appendix no. 6 – specimen agreement

appendix no. 7 – technical description of equipment

appendix no. 8 – protocol of transfer



Central register procedure no.: CRZP/355/004/D/10

Appendix no. 1 to Terms of Reference

(name and address of Contractor)

OFFER

Employer:
Gdańsk University of Technology
Faculty of Electronics, Telecommunication and Informatics
Ul. G. Narutowicza 11/12
80-233 Gdańsk
POLAND

In reference to the public procurement notice led in the open tender proceedings: for the delivery of MW PE CVD System (Microwave Plasma Enhanced Chemical Vapour Deposition)

We, the undersigned:

.....
.....
.....
.....

acting on behalf and in favour of

.....
.....
.....
.....

(state the full name and address of Contractor)

offer the completion of Subject in compliance with Terms of Reference for the gross price of (if the OFFER is made by Contractor having registered office on the territory of the Republic of Poland)

..... value of offer (.....) (say:
.....)
including VAT.

offer the completion of Subject in compliance with Terms of Reference for the net price of (if the offer is made by Contractors having registered office outside the territory of the Republic of Poland)

..... value of offer (.....)(say:
.....)
excluding VAT.

„The Centre of Advanced Technologies POMERANIA” project is co-financed by the European Regional Development Fund as part of Regional Operational Programme for Pomeranian Voivodeship for 2007-13. The value of the project: PLN 23,888,539.99. Agreement no.: UDA-RPPM.01.05.01-00-011/08-00.



1. **We hereby state that** we shall fulfil the order in the course of 6 months since the signing of an agreement.
2. **We hereby state that** we assure the - month guarantee for the delivery of MW PE CVD System effect from the date of signing the handover (or 14 months counting from the date of delivery if the installation is delayed by the fault of the University , in whichever situation occurs first).
3. **We hereby state that** we have familiarised ourselves with Terms of Reference and we do not raise any doubts or reservations of their content and we acknowledge being bound by resolutions and regulations of procedure described in them.
4. **We hereby state that** we have familiarised ourselves with the resolutions of an agreement which is an attachment to Terms of Reference. We do not raise any doubts or reservations of its content. In case of choosing our offer, we commit ourselves to conclude the agreement on conditions described in it, at the date and place designated by Employer.
5. **We regard ourselves** as bound by the following offer for the time given in reference, ie. the period of 60 days from the deadline for making offers.
6. **The order** shall be fulfilled with the help of the following subcontractors who shall fulfil the order:
.....
.....
.....
7. **We accept** the payment conditions described in the model of the agreement.
8. **We hereby state that** that the bid bond which amounts to in valuehas been made in the form of
9. **We hereby state that** confidential data in the sense of regulations of unfair competition law which cannot be made public include the information given in the offer on pages no.:
10. E-mail address by which to designate a contact with the Employer :
.....
11. **Attachments** to the following offer that form its integral part are:
 3.
 4.
 5.
 6.
 7.
 8.
 9.
 10.
 11.

.....
(the signature and stamp of the person/s entitled to represent Contractor on it behalf)



Appendix no. 2 to Terms of Reference

.....
(place and date)

.....
(the stamp of Contractor)

Procedure no.: CRZP/355/004/D/10

STATEMENT

on fulfilling the conditions of taking part in the procedure
(art. 22, sec. 1 of the Public Procurement act)

By submitting an offer for the public procurement led in the unlimited procurement proceedings for the MW PE CVD System for Gdańsk University of Technology in 2010,

we hereby state that we fulfil the condition described in chapter IV, pt. 1 of Terms of Reference of the participation in the proceedings concerning:

- the possession of rights to performing the following type of activity or action if law regulations impose their possession;
- the possession of knowledge and experience;
- the possession of appropriate technical potential and the personnel capable of fulfilling the order;
- the financial and economic situation.

.....
(the signature and stamp of the person/s entitled to
represent Contractor on it behalf)



.....
(place and date)

.....
(the stamp of Contractor)

Procedure no.: CRZP/355/004/D/10

STATEMENT

**on the lack of basis of exclusion from the public procurement
(art. 24, sec. 1 of the Public Procurement act)**

By submitting an offer for the public procurement led in the unlimited procurement proceedings for the **MW PE CVD System** for Gdańsk University of Technology in 2010,

we hereby state that:

there is no basis for our exclusion from from the public procurement on the basis of premises described in art. 24, sec. 1 of the Public Procurement act.

.....
(the signature and stamp of the person/s entitled to
represent Contractor on it behalf)



.....
(place and date)

.....
(the stamp of Contractor)

Procedure no.: CRZP/355/004/D/10

STATEMENT

**on the lack of basis of exclusion from the public procurement
(art. 24, sec. 1.2 of the Public Procurement act)**

By submitting an offer for the public procurement led in the unlimited procurement proceedings for the **MW PE CVD System** for Gdańsk University of Technology in 2010,

we hereby state that:

there is no basis for our exclusion from from the public procurement on the basis of premises described in art. 24, sec. 1.2 of the Public Procurement act.

.....
(the signature and stamp of the person/s entitled to represent Contractor on it behalf)

.....
(place and date)

.....
(the stamp of Contractor)

Procedure no.: CRZP/355/004/D/10

LIST OF EXECUTED DELIVERIES

We hereby state that in the period of last three years before the initiation of proceedings, we carried out the following deliveries:

No.	Subject of delivery	Date of execution (day, month, year)	Delivery recipient (name, address)	Net delivery value*
1.				
2.				
3.				

***The currency in which the value of deliveries is given::**.....
Employer shall take an average exchange NBP forward contract notice the Office for Official Publications of the European Communities.

Other documents (eg. references or others) proving that the services mentioned in the list were carried out appropriately shall be attached to the following list.

.....
(the signature and stamp of the person/s
entitled to represent Contractor on it behalf)



Procedure no: CRZP/355/004/D/10

Appendix no. 6 to Terms of Reference

DELIVERY AGREEMENT

No.

between:

Gdańsk University of Technology

ul. Narutowicza 11/12, 80-233 Gdańsk, POLAND

REGON no. 000001620 Tax Identification Number (NIP): 584-020-35-93

represented by:

1.

2.

hereinafter referred to as EMPLOYER

and

.....
.....

REGON no.:

Tax Identification Number (NIP):

National Court Register / Register of Business Activity.....

represented by:

1.

2.

hereinafter referred to as CONTRACTOR.

§ 1

SUBJECT OF AGREEMENT

1. On account of appointing Contractor in the course of public procurement procedure in the open tender proceedings, Contractor accept Subject delivery of MW PA CVD (Microwave Plasma Enhanced Chemical Vapour Deposition) System as part of „The Centre of Advanced Technologies POMERANIA” project in compliance with Terms of Reference , Price Form and Contractor's offer being appendices to the following agreement.

„The Centre of Advanced Technologies POMERANIA” project is co-financed by the European Regional Development Fund as part of Regional Operational Programme for Pomeranian Voivodeship for 2007-13. The value of the project: PLN 23,888,539.99. Agreement no.: UDA-RPPM.01.05.01-00-011/08-00.

2. The purchase of Subject is co-finance by the European Union from the European Regional Development Fund.
3. Subject of Agreement has the use for research-development work.
4. Subject of Agreement shall not have the commercial use (bringing profit) in the period described in the regulations of the European Regional Development Fund.

§ 2

EXECUTION DATE

The deadline for executing Subject is 6 months from the date of signing Agreement.

§ 3

VALUE OF AGREEMENT

1. Gross price described in Agreement shall include the total amount which Employer is obliged to pay for Subject of Agreement.
2. Employer is obliged to pay, on account of executing Subject of Agreement, the amount of net:
.....(say), gross:
.....(say) described in Contractor's offer from(date).
3. An invoice shall serve as the basis for the payment, the invoice shall be issued by Contractor every time after completing the following actions:
 - 50 % of the gross amount described in § 3, pt. 3 within 14 days from signing Agreement
 - 40 % of the gross amount described in § 3, pt. 3 within 14 days from the delivery of Subject of Agreement described in § 2, pt. 1
 - 10 % of the gross amount described in § 3, pt. 3 within 14 days from the installation of Subject of Agreement described in § 2, pt. 1, in the place designated by Employer.
4. Subject of Agreement shall be delivered to the registered office of Employer at Contractor's expense. Contractor shall bear costs of delivery insurance as well as costs of initiating the equipment and the training.
5. The payments shall be made to Contractor's account:

.....
.....
.....
.....
.....

6. VAT invoices shall be issued to:
Gdansk University of Technology, Faculty of Electronics, Telecommunication and Informatics, ul. Narutowicza 11/12, 80-233 Gdańsk.
7. Contractor is obliged to issuing invoices described in sec. 3 only on the basis and in compliance with the report of acceptance made by Employer, referred to in § 4 sec. 1
8. On account of failure to pay invoices on time, Contractor shall calculate statutory penalties for the delay specified by binding regulations.

§ 4

CONDITIONS OF EXECUTION

1. The delivery shall be treated as executed if it is submitted with the protocol of transfer and receipt by both parties.
2. Contractor guarantees conducting the training at the date agreed bilaterally, not later the 2 months since the day of the delivery.
3. The protocol from the training shall be made.
4. Contractor designates its representative to contact Employer:
.....
tel. no..... fax no..... e-mail.....
5. Employer designates its representative to contact Contractor:
..... tel.
no..... fax no..... e-mail.....
6. The liability for the delivery total risk is taken by Contractor.
7. The delivered equipment shall be free from any defects and damages and shall not be the subject of third party rights.
8. Contractor is obliged to deliver the instruction for the equipment together with it in Polish or English (one copy.)
9. On account of delivery inconsistent with Agreement, Employer shall issue a written complaint at Contractor's which shall be examined within 5 days of notice and after ineffective passage of the deadline, the following complaint shall be treated as accepted in full with demands of Employer.
10. Subject of the agreement will be delivered to Gdansk University of Technology, Faculty of Electronics Telecommunication and Informatics room no. 315 at the expense of the Contractor.
11. Contractor shall prepare a complete technical documentation of the subject of the agreement and will provide the correct position of the pack and provide all the transport documents.



12. Employer does not provide physical workers or any means of hand transport. Contractor shall bring the equipment into the room designated by Employer at its own expense.

§ 5

GUARANTEE CONDITIONS

1. Contractor issues a 12-month guarantee for the equipment being Subject of Agreement counted from the day of installation (or 14 months after delivery if delay in installation is due to university whichever is first) in a room designated by Employer. Warranty includes all non-consumables parts (magnetron, quartz window and vacuum seals are consumables) for user to reinstall.. Contractor will either repair or replace defective part or assembly it its own discretion. Limited warranty does not include service call by contractor after system is installed and accepted per standard test procedure. System is user serviceable using Contractor supplied parts and instructions.
2. Parties establish that in the guarantee period Contractor shall respond to the request for repair within 72 hours from the day of notification. The period for repairing the damage shall not be longer than 30 days counted from the day of notification unless, in the special case a replacement part must be ordered by the contractor which may require longer delivery time.
3. Contractor is obliged to exchanging pieces of equipment possessing physical faults for others of the same type and of the same technical parameters in the following cases:
 - a) Not carrying out the repair within 30 days counted from the first day of starting the repair (first working day.)
 - b) If, after three guarantee repair, the equipment shall still show the same physical faults refraining its exploitation in accordance with its purpose.
4. Contractor is obliged to add to the equipment being Subject of Agreement appropriate technical documents and guarantee documents.

§ 6

STATUTORY PENALTIES

1. Employer can charge the following contractual penalties:
 - a) for the delay in execution of Subject of Agreement exceeding 120 days - a penalty of 0,1% gross contractual remuneration for each day of the delay
 - b) for withdrawal from Agreement by any party for reasons dependent on Contractor – a penalty of 5% gross contractual remuneration.



2. Contractor reserves the right to charge a statutory penalty of 5% gross contractual remuneration for withdrawal from Agreement by Employer for reasons dependent on Employer with the exclusion of circumstances described in art. 145 of the Public Procurement Act (the PP act.)
3. In case when the damage exceeds the amount of statutory penalties, parties reserve the right to seek supplementary remedies in line with general principles.
4. In case of not executing Subject of Agreement within within 14 days of the end of eight months from the date of signing the contract, Employer may rescind from Agreement without designating additional deadline. In such case Contractor shall pay Employer a statutory penalty of 10% of the provisional gross price of Subject of Agreement.

§ 7

FINAL PROVISIONS

1. To all matters not settled herein appropriate provisions of the Civil Code and the Public Procurement act.
2. Employer does not allow the possibility of assignment any liabilities resulting from Agreement to third parties without Employer's consent.
3. Contractor's offer, Terms of Reference, shall be an integral part of Agreement.
4. Disputes relating to Agreement shall be settled by appropriate Court of local jurisdiction for Employer's registered address under Polish law.
5. All changes to following Agreement require a separate amendment in order to be effective.
6. Agreement has been drawn up in two duplicates, one for each of the parties.

ATTACHMENTS TO AGREEMENT:

- a) Contractor's offer
- b) Terms of Reference

CONTRACTOR

EMPLOYER

.....

.....



Appendix no. 7 to Terms of Reference

.....
(place and date)

.....
(the stamp of Contractor)

Procedure no.:

TECHNICAL DESCRIPTION OF EQUIPMENT
for MW PECVD System– 1 piece

.....
(manufacturer/brand/type)

manufacturing year

Required functions and technical parameters	Confirmation of the fulfillment of requirements by tenderer *
Parameters of technological CVD process chamber: <ul style="list-style-type: none"> • operating pressure range: from 1.3 to 24 kPa (10-180 Torr), • pressure measurement - capacitance manometer, • closed-loop pressure control, • pump speed - at least 20 m³/hr, • gas load - up to 3.4 Pa·m³/sec, • base pressure inside the chamber - 10 Pa (7.5·10⁻² Torr), • vacuum leak integrity (chamber tightness) - less than 1·10⁻⁹ Pa·m³/sec (measured by Helium Leak Detector), • vacuum seals – following solutions are acceptable: (1) metal seals type CF or delta, (2) elastomer O-rings type ISO-KF. 	
Parameters of heated substrate stage: <ul style="list-style-type: none"> • heated substrate stage using induction source, • remote, motorized height positioning (Z-axis) with at least 60mm adjustment range, • induction heating power - at least 3 kW, • substrate stage diameter - at least 3.8 inches, • substrate diameter up to 3.8 inches (2 inches for uniform deposition area), • substrate temperature up to 900°C, • substrate temperature measurement and control - by thermocouple and pyrometer 	



3 viewing ports located on the wall of the chamber 90° apart situated near the plane of the stage during process for easy viewing and metrology of the growth sample with Sapphire diameter of at least 0.9-inch diameter. Position of these viewing ports should enable three-dimensional acquisition of optical signals originating from the area where the films are growing	
2 viewing ports located on the wall of the chamber on the same height with Sapphire window having at least 0.55-inch diameter, located 180° apart, enabling looking down on the substrate at the angle 25° from the upper part of the chamber	
Accommodation at least four individual gas lines, controlled by mass flow controllers: <ul style="list-style-type: none"> • gas line # 1 - Hydrogen (H₂), Volume Flow Range - 1000 sccm, • gas line # 2 - Methane (CH₄), Volume Flow Range - 50 sccm, • gas line # 3 - spare, Volume Flow Range - 25 sccm, • gas line # 4 - spare, Volume Flow Range - 10 sccm. 	
an additional top down viewing port for fiber optic cable link to pyrometer	
thermocouple connection for remote setting of heater stage temperature	
low ripple 2.45 GHz microwave power supply having output power adjustable in range from 125 W to 1.5 kW.	
a microwave circuit consisting of microwave circulator, tuner, dummy load absorbing reflected beam, waveguide assembly and dedicated dielectric window transmitting radiation to CVD chamber.	
2 Color Pyrometer for measurement and control of temperature of the substrate and the growing layer, measurement range – at least from 475 °C to 1200°C.	
Turbo Molecular Pump for improvement of residual gas evaporation of chamber <ul style="list-style-type: none"> • Pump speed – at least 340 l/sec for N₂ and at least 290 l/sec for H₂, • Base Pressure – 10⁻⁴ Pa Substrate DC-Bias to provide ion bombardment of the growing layer for Biased Enhanced Nucleation <ul style="list-style-type: none"> • Output DC voltage range – at least 0 - 300 VDC, • Required output power – at least 1 kW, • Constant current – 3.5 ADC 	

* In the column on fulfilling the required functions and technical parameters you are obliged to answer „yes” or „no.” If the range of requirements has been determined, you are obliged to enter the actual Subject parameters.

.....
(the signature and stamp of the person/s
entitled to represent Contractor on it behalf)

PROTOCOL OF TRANSFER AND RECEIPT

concerning the transfer of Subject in compliance with Agreement from (date)
no. CRZP.....

CONTRACTOR	EMPLOYER
	Gdansk University of Technology Ul. G. Narutowicza 11/12 80-233 Gdańsk POLAND
CONTRACTOR'S REPRESENTATIVE:	EMPLOYER'S REPRESENTATIVE:

Subject of the delivery:

.....
(manufacturer, type, model, serial number)

Subject of Agreement delivered by Contractor with the set in compliance with Agreement from
(date).....

Initiated on (date).....

Warranty documents and operation instructions has been delivered.

Comments concerning the execution of Subject of Agreement/Defects found during the acceptance:

.....

The deadline for repairing lacks/defects

.....

Employer's Representative

(full name of Employer)

Contractor's Representative

(full name)

The following protocol entitles to issuing an invoice.