



**INDIAN INSTITUTE OF SCIENCE EDUCATION AND  
RESEARCH THIRUVANANTHAPURAM (IISERTVM)  
(Govt. of India, Ministry of H.R.D)**

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Date: 28/02/2018

**INVITATION TO TENDER**

**No: IISER/PUR/1700/SKN/SP/17-18**

**Due Date: 13<sup>th</sup> March 2018 [4PM]**

**Date of Opening: 14<sup>th</sup> March 2018 [3PM]**

Dear Sirs,

**SUB: Supply of Chamber for oxide Thinfilm Deposition using pulse laser**

We invite Sealed Tenders for the following items:

Sl.No	Description
1	<b>Supply of Chamber for oxide Thinfilm Deposition using pulse laser (Details as per annexure I)</b>

Please quote your lowest rate and shortest delivery period as per the following terms. Your offer in sealed cover **SUPERSCRIBING TENDER NUMBER AND DUE DATE** shall reach us on or before the due date and time.

- EMD** : Rs.40,000/- should be paid through State Bank Collect- Tender No & Company Name must be mentioned in the Remarks column. Quotes should accompany a copy of Transaction slip /Print out **OR** Bank guarantee equivalent to the EMD value with validity 90 days **OR** Bidders should submit an undertaking in their letter head as per clause 12 of Instructions to Tenders (Imports).
- Payment** : Within 30 days after supply and installation/Net 30 days /LC **No advance payment will be made by IISERTVM.**
- Delivery** : To be delivered at our Vithura Campus (Free delivery). If import, mention Ex-works/FCA/CIP terms with clear breakup charges.
- Taxes & Duties** : Indicate taxes and duties. We are exempted for customs duty under 51/96 notification and GST under 45/2017 & 47/2017 Dated 14/11/2017 notifications.
- Discount** : Indicate, if any.
- Delivery Schedule** : Required Immediately. Indicate your schedule
- Validity of quote** : 60 days

Thanking You,

Yours Faithfully

Deputy Registrar  
[In-Charge]  
(Purchase & Stores)

- Please see the rear side for other Terms & Conditions  
Please visit the following websites for more information
1. [www.iisertvm.ac.in](http://www.iisertvm.ac.in)
  2. <https://www.eprocure.gov.in/epublish>

**P.S. CATALOGUE/LEAFLET FEATURING ALL TECHNICAL SPECS/INFORMATION OF THE PRODUCT QUOTED SHALL ACCOMPANY THE OFFER.**

# **IISER-TVM**

## **INSTRUCTION TO TENDERERS [IMPORTS]:**

1. **PRICE:** The price quoted shall be firm. The terms of FOB/EXW/FCA/CIF/CIP etc shall be clearly mentioned.
2. **AGENT & AGENCY COMMISSION:** In case Tenderer is represented by any agent in India, their name and address shall be furnished. The amount of commission included in the price shall be clearly shown in the offer; which will be paid directly to the Indian Agents by purchaser in equivalent Indian Rupees. In case Indian agents existing and their agency commission is not shown in the Tender, reasons for the same shall be clearly mentioned in Tender. Details of Indian agent's statutory registration shall be stated. If Agency Commission is paid by Principals in foreign currency, the reasons for the same and exemption from Enforcement Directorate in India shall also be provided.
3. **LEAFLET/CATALOGUE:** Tenderer should furnish all necessary leaflet/catalogue etc., of the stores offered by him to enable the Purchaser to evaluate his offer correctly.
4. **MODE OF DESPATCH:** Tenderer shall indicate the mode of dispatch (*i.e.*, Sea/Air-freight/Parcel Post, etc.) depending upon the normal mode of dispatch adopted by him for the type of stores offered for consideration of the Purchaser.
5. **COUNTRY OF ORIGIN:** Tenderer shall indicate in his offer the country of origin of goods offered and the name and address of the manufacture.
6. **INSURANCE:** If insurance of the goods is felt necessary, the same shall be advised by the Tenderer in the offer.
7. **DELIVERY/SHIPMENT:** The time for and date of delivery quoted shall be reasonable/realistic and shall strictly be adhered to in case of placing order on the Tenderer.
8. **MODE AND TERMS OF PAYMENT:** Payment in full (excluding the amount of Agency Commission included in the price payable directly by the Purchaser to the Indian Agents in Indian Rupees) will be made immediately on presentation of the prescribed documents against SIGHT DRAFT or LETTER OF CREDIT or WIRE TRANSFER against shipping documents. **OURS BEING A GOVT OF INDIA EDUCATIONAL INSTITUTE WE ARE UNABLE TO MAKE ANY ADVANCE PAYMENT**
9. **WARRANTY:** Period of warranty and conditions shall be clearly mentioned in the Tender.
10. **GENERAL:** The Tenderer shall also be complied with the following:
  - a. Mention your Banker's name and address.
  - b. Show approximate net and gross weight and dimensions of packages/ cases. If dimensional details are available the same should also be indicated in your offer.
  - c. Furnish list of recommended spares for satisfactory operation for a minimum period of one year if the quote is for Plant & Machinery, Equipments etc.
  - d. Details of any technical service, if required for erection assembly, commissioning and demonstration.
  - e. Conform that the prices quoted are inclusive of all taxes, levies, duties arising in the tenderer's country.
  - f. Samples, if called for, will be sent free of all charges.
  - g. Late tenders and Delayed will not be considered.
  - h. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
  - i. The authority of person signing the tender, if called for, shall be produced.
  - j. The purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assessing any reason.
11. **Tender Opening:** All tenders will be opened at **Indoor Stadium, Vithura Campus**. Authorized representatives with authorization letters of the bidders may attend the Tender Opening.
12. **As per GFR 2017 clause 170 (III) Bidders who fail to pay the Earnest money deposit has to mandatorily sign a bid securing undertaking that if the bidder withdraw or modify the Bids during the period of validity, or if the bidder is awarded with the contract and they fail to sign the contract, or to submit a Performance security before the deadline defined in the request for bids document, they will be suspended for the period of time decided by the institute.**

## **INSTRUCTION TO TENDERERS [INDIGENOUS]**

1. Tenders should be sent in sealed envelopes superscribing the relevant tender no. and the due date of opening. Only one tender should be sent in each envelope.
2. Sales Tax and /or other duties/levies where legally levies and intended to be claimed should be distinctly shown separately in the tender.
3. (a). Your quotation should be valid for a minimum period of 90 days from the date of opening of the Tender. Quotation with firm prices will be preferred.  
(b). Prices are required to be quoted according to the units indicated in the Invitation to Tender. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
4. **(a) Preference will be given to those tenders offering supplies from ready stocks. The basis of delivery is at IISER site free of cost.**  
**(b) Our payment terms are within 30 days of receipt and acceptance of the item at our site.**
5. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.  
**Specifications:** Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificates wherever necessary should be forwarded along with supplies. Whenever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate reasons for the same.
6. IISER shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
7. Corrections, if any, in the Quotation must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail. Quotation must have price for each line item and totaling of the price including taxes and duties should be clearly mentioned.
8. The tenderer should mention the name of his bankers, Sales Tax Registration, PAN number etc in the tender.
9. The authority of the person signing the tender, if called for, should be produced.
10. IISER being a Govt of India Educational and Research Institute, is exempted from payment of GST under Notification No. 45/2017 & 47/2017 dt 14/11/2017 and Customs Duty under Notification No. 51/96- Customs dated 23<sup>rd</sup> July 2009. Also, we can issue Form 16 as per VAT Rules.
11. The stores supplied should be covered with minimum of 1 year warranty from the date of supply, installation and commissioning.
12. Earnest Money Deposit/ Bid Security should be submitted along with your quote as mentioned in Invitation for Tender. EMD should be in favour of Indian Institute of Science Education and Research Thiruvananthapuram valid for 90 days.

## Thin film deposition chamber with provisions for the integration with pulsed laser system

### General description:

A thin film deposition chamber is required for the deposition of oxide thin films under high temperature and oxygen atmosphere. The chamber should have provisions that allow it to be integrated with a pulsed laser source. Additional ports and flanges are to be provided for future upgradation of equipment and accessories and process automation. The system must support a vacuum of  $10^{-7}$  Torr to atmospheric pressure. The chamber must have sufficient mechanical parts/components that facilitate uniform thin film deposition at high temperatures (up to  $1100^{\circ}\text{C}$ ) under low mechanical noise/vibrations.

### More technical descriptions of the chamber:

**1. Chamber:** should be spherical in shape and made of stainless steel. The targets with a manipulator is to be set at the bottom port and the substrate for deposition, with heater and manipulator, is to be set at top side port. The chamber should have the following additional parts/provisions.

- i. Gate valve and it must be motorised for automated throttling.
- ii. A separate vent valve to break the vacuum.
- iii. One port is to be dedicated for coupling with load lock chamber.
- iv. Provisions must be made for future integration of RHEED facility.
- v. A dedicated port should be made for the coupling with excimer laser
- vi. The chamber should have at least 3 view ports of varying sizes for comfortable viewing of the process at different angles. A shutter provision can be given for preventing the materials deposition on the viewing windows.
- vii. Appropriate ports must be provided to fit pressure gauges.
- viii. An inlet for the purge of inert/reactive gas through a mass flow controllers (MFC).
- ix. A separate port should be dedicated for insertion of a moving mask.

**2. Moving Mask:** A parallel shutter moving facility that moves linearly just below the sample is necessary. The distance between the moving mask and substrate can be 5 to 10 mm. The mask movement arrangement can be a linear actuator with linear encoder such that the positioning accuracy is 5 micron or better. Provisions should be made for automation in future.

**3. Heater flange and manipulator:** The heater flange consisting of heating stage and thermocouple and power supply feedthroughs should allow 1 or 2 inch substrate clamping. Provisions should be made for substrate rotation (typically 0-10 rpm) using a stepper motor and also a translational (z) motion so that the substrate height with reference to horizontal moving mask position and the target height can be varied.

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**4. Heating stage:** should support at least 1" diameter substrate. The maximum reachable temperature should be 1100°C. The heating and cooling processes should be controlled through an Eurotherm PID controller.

**5. Target:** A total of 6 metallic stubs, should be provided at the bottom port of the chamber for individual target placement. The design must allow a few mm target height adjustment. Typical target disc size is 25 mm diameter and 8 mm thick. The mechanical motion must allow raster and rotation (~30 rpm) of target and the target carousel speed should be 30 rpm. A combination of ferrofluidic feedthroughs and stepper motors should be used to ensure a smooth and precise motion.

**6. Mass flow controller:** One digital MFC, build for standard gases, to control up to 100 sccm (preferably MKS) should be provided with necessary gas line fittings.

**7. Optical parts:** Optical window ports with suitable UV glass discs, mirrors and other mechanical supports, that can be aligned such that laser pulse hit the target at the desired location, should be supplied.

**8. Load lock chamber:** A design that is compatible to the main deposition chamber, which allows sample transfer without breaking the vacuum of the main chamber should be provided. The load lock chamber should have provisions for sample placement, view and sample transfer. It should be isolated from the main chamber through a gate valve however, the sample loading /unloading glass window/door may be a o-ring based. The load-lock chamber can be separately pump down by a suitable turbo molecular pump through a gate valve.

**9. Support and Frames:** The main chamber should be compatible to Hipace 300 and the load-lock chamber to Hicube 80 eco Pfeiffer TMPs backed by two independent dry pumps, pressure gauges, cables and other accessories to be supplied by IISER TVM. A metal frame that can house the main and load lock chambers and all pumping systems without obstructing/hindering the deposition process is necessary.

**10. Spares:** Additional heating stage parts, optical window ports, lenses, mirrors, flanges, metal gaskets, o-rings, cables and other materials for running and periodic maintenance should be supplied.

**11. Water chiller:** To cool heater electrodes

**12. PC based process automation:** Automation of mask movement, target rotation, carousel and sweep, temperature program, pumps, vacuum gauges, valves, pressure and mass flow control may be done in future. Therefore, the system design must accommodate all these features.

**13. Documents and Manuals:** A detailed sketch of design, individual components/parts with supporting technical details must be furnished. In addition, the manual of the components (both hard and soft copy) of the chamber and related software must be supplied during system delivery.

**14. Installation:** The supplier must undertake the responsibility of successful installation of entire system at IISER TVM.

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*28/02/2012*

**15. Warranty:** The supplier should provide at least one year warranty from the date of installation or acceptance. An additional extended quote for 2 years AMC is necessary.

**16. Miscellaneous:** The system must be compatible to the Indian electrical power standard and supplier must clearly mention about the electrical requirements, space requirements and gas connections etc.

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28/02/14