



UNIVERSITY OF KERALA
DEPARTMENT OF PHYSICS
KARYAVATTOM, THIRUVANANTHAPURAM, INDIA – 695581.

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(Established as University of Travancore by the Travancore University Act in 1937 and reconstituted as University of Kerala by the Kerala University Act of 1957 and presently governed by the Kerala University Act 1974 passed by Kerala State Legislative Assembly)

(NAAC Reaccredited with 'A++' Grade)

TENDER – PHY/KSCSTE/PURCHASE/TES/ 06/25

Date: 30.06.25

Re-Tender Notice

The Principal Investigator, KSCSTE project, Department of Physics, University of Kerala, Thiruvananthapuram invites open tenders through e- Procurement (in two bid system) for the purchase of Thermal evaporation system suitable for the fabrication of thin film devices.

Start Date and time for submission of tender online	30.06.2025: 5pm
Last date and time for submission of tender online	14.07.2025 :5pm
Last date and time for submission of tender offline	16/07/2025 : 10 am
Hard copies of the sealed tenders to be submitted to	Dr.Deepa KG, Department of Physics, University of Kerala, Kariavattom, Trivandrum- 695 581, Kerala
Date and time of opening of tender	16.07.2025 : 11 am
Cost of tender document	Rs. 1770/-
EMD	Rs. 9000/-
Validity of tender	120 days
Completion/delivery period	60 days
For technical details contact	Dr. Deepa K. G., Assistant Professor, Department of Physics, University of Kerala, Thiruvananthapuram, Ph. No.9632784886 E-Mail: deepa@keralauniversity.ac.in

For further details logon to www.etenders.kerala.gov.in

Technical specifications of the required thermal evaporation system

Sl. No.	Part name	Specifications
1	Chamber	Stainless steel SS-304, front-loading, high vacuum and water cooled, D shaped chamber having approximate dimension of 400mm (D) x 400 mm (W) x 400mm (H). A front opening quick access door should be provided for loading & unloading of the substrate and materials. The chamber should be provided with water cooling system with Channels welded on external side of the chamber for water circulation. A high vacuum compatible, toughened glass view port with a manual shutter to avoid material deposition on the view port should be provided on the door. One set of removable stainless-steel liner for easy cleaning. Baffle plate to prevent debris from being deposited on electrodes and the high vacuum valve. The chamber, all stainless-steel components & sub-assemblies should be electro-polished.
2	L.T. Evaporation feed through	Three LT evaporation electrical feed through and evaporation source holder for evaporation made of electrolytic pure copper, with 200 amps current carrying capacity. The evaporation source holder should accept Filament / Basket / Boat as evaporation source.
3	L.T. Power supply	Three 200 amps power supply capable of delivering 200 amps at 10 volts, 100 amps at 20 volts.
4	H.T. Power supply	H.T. Transformers of 3.5 KV 50m A (5KV open circuit) and with H.T. cables connected to feed through in the base plate.
5	Substrate holder	Rotary substrate holder and associated fixture to hold a 4-inch dia. substrate or multiple no. of smaller size. A rotary drive mechanism for the substrate holder is provided to achieve substrate rotation with variable speed up to 30 rpm. A substrate heater is provided to heat the substrate from R.T to 800°C with temperature uniformity equal or better than $\pm 5^{\circ}\text{C}$ over an area of 3-inch dia Temperature measurement using 'K' type thermocouple. Temperature control using PID controller is provided.
6	High vacuum pump	Oil diffusion pump having the pumping speed of 285ltr/sec Ultimate vacuum (m. bar) : $> 5 \times 10^{-6}$ Effective Pumping Speed (lit/sec) :285 Type of jet :Fractionating No. of stages : 2 Heater rating (watts) : 500 Water cooling (at 20 to 25 °C) (lit/min) : 3-4
7	Backing Vacuum pump for Sputtering chamber	Rotary Vacuum pump with Free Air displacement capacity of 250 lit/min. It should have built-in anti-suck back valve.
8	Vacuum Gauges	Digital gauge with two numbers of high pressure pirani gauge monitor the pressure in the range of 1000 mbar to 10^{-3} mbar. Digital gauge with one number of inverted magnetron sensor monitor the pressure in the range of 10^{-2} mbar to 10^{-7} mbar.
9	Vacuum lines & valves	Stainless steel vacuum pipelines.

		1-inch right angle valves for roughing and backing. A fine needle control valve to admit N ₂ gas into the process chamber. A vent valve to break the vacuum at the end of the process to open the chamber. 4- inch high vacuum valve
10	Safety and interlocks	Necessary safety devices and interlocks for the entire unit for operator's Safety.
11	Frame	Support frame for the system with corrosion resistant material or coating (Powder coated) and clean room compatible.
12	O-rings and gaskets	O-rings should be made of fluoroelastomer rubber compound. Additional full set of O-rings, gaskets etc. necessary for vacuum-tight joints/seals.
13	Water chiller	Water chiller of suitable capacity
14	Housing cabinet	A standalone Industrial standard control console is provided which will be integrated to the system. All the controllers and display units will be mounted on the control console. The unit should be mounted on 4 castor wheels.
15	General terms	a) Base Vacuum: better than or equal to 1×10^{-6} mbar. Pump down to 1×10^{-6} mbar in 1 hour or less from clean dry and empty after N ₂ vent. b) The thickness uniformity is $\pm 5\%$ over a 50 mm diameter substrate. c) Pre-despatch inspection should be allowed and complete operation of the system and process should be demonstrated. d) Original invoice and AWB to be submitted for all imported items with warranty details. e) Copies of Brochures of all imported parts should be presented along with the Tender.
16	Warranty	The item should be under comprehensive warranty for 1 year or more.
17.	List of institutes inside and outside kerala where the vendor has supplied the same item before with contact number of the corresponding staff.	To be provided

General Conditions:

- 1, Every tenderer should submit Tender fee of Rs. 1770/- (Rupees One thousand and seventy only)
2. Every Tenderer should submit an Earnest money Deposit EMD of Rs. 9000/- (Rupees Nine Thousand Only)
3. All the MSMEs with Udyog Aadhar registration or any other body specified by the Ministry of Micro, Small and Medium Enterprises working within the state of Kerala will be exempted from the payment of Tender fee and Earnest Money Deposit. Attested copy of registration certificate may be enclosed with the tender for reference.
4. The tender shall be submitted in the two bids viz. Technical Bid and Financial Bid. Only those qualified in technical bid will be eligible for participating in financial bid. A presentation regarding the technical specification and item to be supplied shall be done before the technical evaluation committee if requested.
5. The bidder should be a manufacturer or their dealer specifically authorized by the manufacturer to quote on their behalf for this tender as per Manufacturer Authorization Form and Indian agents of foreign principals, if any, who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified

in the “Technical Specification”. Such equipment must be of the most recent series/models incorporating the latest improvements in design. The models should be in successful operation for at least one year as on date of Bid Opening.

6. Compliance Statement: Along with the technical details provide a tabular column indicating whether the equipment quoted by you meets the specifications by indicating 'YES' or 'NO'. If 'YES', support the claim by providing original brochures. Venders should provide clear brochures/data sheets about the equipment and its working. Also include adequate proof for the claim regarding the performance.

7. Reference: Names of Institutes with contact person and telephone/ email where similar equipment supplied by you in India [Preferably South India] shall be mentioned in the bid.

8. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasons thereof.

9. The price should be inclusive of all taxes, duties, transportation, insurance, installation etc. Nothing extra will be paid in addition to the quoted rate. Any amount in Indian rupees for installation, commission, labour, spares, service etc. shall be entered in item 2 of BoQ.

10. Payment Terms: 90% payment shall be made through irrevocable LC on presentation of complete and clear shipping documents and balance 10% of the amount shall be released after the receipt, installation commissioning and acceptance of the equipment.

11. Validity of tender: Tender submitted shall remain valid at least for 120 days from the date of opening the tender. Validity beyond 120 days, from the date of opening of the tender shall be by mutual consent.

12. Delivery and installation: Proposed delivery schedule should be mentioned clearly. Delivery and installation and training (one week) should be made at the Department of Physics, University of Kerala, Kariavattom campus, Trivandrum without extra cost (inclusive of documentation, demurrage, customs duty, clearance and transportation charges). University of Kerala will provide customs duty exemption certificates if required.

13. Service facility: Supplier should mention their details of service setup and manpower in Thiruvananthapuram who are responsible for after sales support.

14. The model number, make, and a printed literature of the product shall submit positively.

15. In case of any dispute, the decision of the University authority shall be final and binding on the bidders.

16. The undersigned reserves the right to reject any or all of the tenders received without assigning any reason thereof.

17. The quoted item should be under comprehensive warranty for 1 year or more.

18. If any component is found to be defective during the warranty period, the vendor has to replace the defective item immediately at their own cost.

19. For any queries please contact, Dr. Deepa K.G. Assistant Professor, Department of Physics, University of Kerala, Thiruvananthapuram, Ph. No. 9632784886 E-Mail: deepa@keralauniversity.ac.in

Documents to be Uploaded

- 1 Signed Compliance Matrix
2. Detailed Technical Brochure
3. Under taking of support for next 10 Years
4. BoQ
5. Detailed Financial Bid

The Principal Investigator, KSCSTE Project,
Department of Physics,
University of Kerala,
Kariavattom,
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