

**Office of the Dean Research and Development
Indian Institute of Engineering Science & Technology (IEST), Shibpur
Howrah-711 103**

Project Code No: DRC/DST/CEGESS/HS/022/16-17

**Centre of Excellence for Green Energy & Sensor Systems
Indian Institute of Engineering Science & Technology (IEST), Shibpur
Howrah-711 103**

Ref.: Tender Advt. No. CGE 1376, dated 08.05.2018, published in the "Statesman (All Edition)", "Dainik Statesman" and "Sanmarg", dated 11.05.2018

Notice Inviting Quotations

Sealed quotations are invited for the **Item 1. Atmospheric control Tubular Furnace** as per the following technical specification. The technical specification can be downloaded from the website. The document can be also obtained from the Centre of Excellence for Green Energy & Sensor Systems (contact: Prof. H. Saha) between 10.00 a.m. and 4.00 p.m. on all working days. The invitation is valid for 7 working days from the date of publication of this notice.

Dean (R & D)

(A. Code DRC-T013/18-19)

SECTION-I: General Conditions and Important Instructions for Supplier

1. **Supplier** are to submit the original Quotation with technical specifications and price details in sealed envelope to **Prof. H.Saha**, Principal Investigator, of **DST project** and Professor, Center of Excellence for Green Energy and Sensor Systems (CEGESS), IEST, Shibpur (Formerly Bengal Engineering and Science University), Shibpur, Howrah-711103, West Bengal.

2. **Suppliers** are to submit **Technical & Commercial Bids** in **Separately (should be written Tech. Bid & Price Bid)**

All Documents should be placed in a common sealed envelope, superscripted with the DRC (**A. Code Number**), **Item name** and date along with the **Supplier name** and address. Any deviation from the said process will result in disqualification of the particular **Supplier**

3. Bidders are to submit the Quotation in original after accepting the terms and conditions.

4. Preference will be given to reputed manufacturers having **proven track record** with service and maintenance capability in Kolkata/India and **supplier having proven track** of export **will be added extra Preference**.

5. Last date of submission of bids **7 working days** from the date of publication of this advertisement up to **5.00pm**.

Quotation received late will not be accepted under any circumstances. Quotation will be opened in the office room of Center of Excellence for Green Energy and Sensor Systems (CEGESS), IEST, Shibpur, (Formerly Bengal Engineering and Science University) Howrah-711103, West Bengal. In case the University remains closed on the said date, Quotation will be received on next working day

6. The Quotations should clearly mention the price including the following:

- Ex Works Price
- Packing and Forwarding Charges, if any
- Freight and insurance, upto IEST, Shibpur West Bengal. Including loading and unloading charges
- All taxes, duties, levies applicable, in INR

For imported equipment, Letter of Credit / TT may be opened against proforma invoice received from the Principal Vendor. In case of imported equipment the local agents are to quote the price in foreign currency

7. The manufacturer selected shall provide Training in operation and application of the Instrument for the R&D work to user Scientists at IEST, Shibpur

8. IEST, Shibpur will not issue any CorD form availing of concessional Sales Tax/VAT. The IEST, Shibpur will issue Customs Duty Exemption Certificate or Excise Duty Exemption Certificate for foreign purchase, if required.

9. The equipments are to be supplied at the Center of Excellence for Green Energy and Sensor Systems (CEGESS), IEST (Formerly Bengal Engineering and Science University), Shibpur, Howrah-711 103, West Bengal, between 11.00 am and 4.00 pm from Monday to Friday except holidays. The Supplier will be responsible for any breakage, damage or defect in the equipment detected subsequently.

10.

(a) For Indian purchase (This clause is applicable only for Indian purchase and not applicable for foreign purchase):

Bills in triplicate should be presented for payment within 15 days of Supply / Completion of work. No Advance Payment can be made. All bills are to be accompanied by Order copies and Challan Receipt. The Order Number is to be noted on both the Challan and the Bill. Payment will be made on submission of Proper Bills, Challans etc, by A/C Payee Cheque / TT and no cash payment will be made under any circumstances.

Or

(b) For Foreign purchase (This clause is applicable only for foreign purchase and not applicable for Indian purchase):

Payment will be made through Letter of Credit / Bank Transfer. AWB, packing list, Warranty Certificate, etc should be provided.

11. All payments are subjected to statutory deductions as and when applicable.

12. Earnest Money Deposit: NIL

a) Earnest money deposit, as specified against different items, in the form of Demand Draft / Pay Order drawn in favour of the "Registrar, IEST, Shibpur" and payable at Kolkata shall have to be paid together with the TECHNO-COMMERCIAL BID, failing which, unless otherwise exempted by any rule, shall not be entertained.

b) Quotation has to be kept valid for acceptance for a period of **6 months** without any modifications in its terms and conditions.

c) Earnest Money Deposit of the successful supplier will be converted to Security Deposit.

d) Earnest Money Deposit / Security Deposit will be refunded after successful completion of supply or after expiry of Guarantee period or Completion of purchase (for unsuccessful supplier) No interest is payable on Earnest Money Deposit / Security Deposit.

e) Suppliers shall submit self-addressed envelope affixing postal stamp of Rs.25/- for release of Earnest Money Deposit.

13. Documents to be submitted with the Quotation

- General Conditions (**Section I**) and Important Instruction (**Clint list**) in original duly signed by the Proprietor/ Partner/ Director of the company as a token of acceptance of Terms and Conditions of Tender.
- **Latest Income Tax, Sales Tax, Professional Tax, CST clearance certificates and copy of valid Trade License. (photo copy duly signed) (Compulsory)**
- Demand Draft/ Pay Order for Earnest Money Deposit.

14. For all items the warranty/guarantee period should be at least 12 months from the date of commissioning. Warranty/ Guarantee for all the items supplied will be on 'all comprehensive' basis, i.e., including repairs, replacements, maintenance etc.

Calibration/Test Certificate must accompany along with the equipment.

Supply of equipment shall include installation, commissioning and demonstration.

IEST, Shibpur, Howrah reserves the right to accept/reject

all or any of the supplier without assigning any reason whatsoever.

15. The vendors quoting against this Notice should have a proven track record to export internationally and should have supplied similar instruments like IIT, NIT, IEST, Central Gov. Institution(document should be attached)

15. IEST, Shibpur, reserves the right to accept / reject all or any of the tenders without assigning any reason whatsoever.

I/We accept the above terms and conditions.

Signature of the Supplier with date and seal

Note: Kindly send this paper with signature & seal

SECTION-II :Specifications:

Item No:1. Atmospheric control Tubular Furnace

Name of Equipment:

Atmospheric Control Horizontal Programmable Tubular Furnace,

Electrically heated Atmospheric Control Horizontal Programmable Tubular Furnace. Microprocessor based digital PID temperature programmer controller with thyristor power drive, accuracy $\pm 1^{\circ}\text{C}$. Maximum working temperature range RT- 1000°C . Water cooled Stainless Steel made Vacuum/Gas purging flanges provided of both end of Quartz working tube.

Working Tube Specification & Size:

Both end open fused clear Quartz tube, size is 165 mm ID X 170 mm OD X 750 mm length.

Furnace Cell:

Furnace cell floor type(Self stand) single zone horizontal tube furnace.

Details of Heating Elements:

'KANTHAL' make Kanthal A1 heating element, 16 SWG wire, coil formation.

Thermocouple

'K' type(Cu/Al) with high alumina refractory sheet and connecting holder. One thermocouple indicates furnace temperature and another five indicate sample temperature.

Temperature Controller:

Microprocessor based digital PID temperature programmer controller. Single program 64 segments, programming for heating, cooling & holding. Model no: PXF9.

Thyristor Power Drive:

Phase angle control thyristor power drive for long life and safe guard heating element with soft start and limit facility. 230 VAC, 45 A

Thermal Insulation:

Refractory material to withstand 1400°C . Fibrous ceramic of different grade (Temperature limit of 2nd layer – 1250°C , 3rd layer – 1060°C by SIMVAC) and low heat capacity coldface insulation and finally air insulation.

Rate of Temperature Rise:

Pre- determined temperature rising rate are available by the programmer and normal raising rate (0.5 – 10 deg C) are available by the controller.

Temperature Accuracy:

$\pm 1^{\circ}\text{C}$ at set temperature above 500°C and suitable element placement, System to ensure better uniform temperature.

Vacuum/Gas flow Flange:

Detachable (screwed) type water cooling stainless Steel (grade 304) make atmosphere control flange fitted both end of working tube allow high vacuum upto 0.01 mbar. High precision ball valve with atmospheric pressure relished valve, Gas flow meter(range 0-2.5 lts/min) for inert gas, 100/250 lts/min capacity Vacuum Pump and vacuum indicator (digital Pirani gauge) fitted with flange.

Construction:

SS heavy gauge sheet construction of double walled for minimum skin temperature. Furnace and control unit placed separately.

Gas Purging System:

Analog flow meter(range 0-2.5 lts/min) with needle valve provide for gas purging system with two way high vacuum valve fitted SS304 pipe line and another end provide high vacuum valve with gas bubbling system.

Accessories:

- i) Pooler Hook for inserting/ removing the substrate trolley from the tube
- ii) Alumina block for hold at hot zone for block radiation heat – 2 pairs.

Essential Parts in Control Unit of Furnace:

- 1) Microprocessor based digital PID temperature programmer controller,
- 2) Thyristor power drive.
- 3) LED Indicator Lamp, FRC Fuse, On/Off rotary switch, Ammeter, Magnetic contractor, On/Off push button switch in control panel etc.