

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

Project Code No: DRC/DST-INSPIRE/CEGESS/SP/008/16-17

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

Ref.: Tender Advt. No. CGE 1237, published in the "Bartmaan", dated 22.03.2017

Notice Inviting Quotations

Sealed quotations are invited for the **Item 1. High Temperature 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: Dr. Snehangshu Patra) 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-T092/16-17)

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 **Dr. Snehangshu Patra**, Principal Investigator, of **DST Inspire project** and Assistant 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 Document 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 bid is **7 working days** from the date of publications 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 Quotation should clearly mention the price including the following:

- Ex Works Price
- Packing and Forwarding Charges, if any
- Freight and insurance, up to 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 C or D 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-711103, 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. HIGH TEMPERATURE TUBULAR FURNACE

Name of Equipment:

Electrically heated floor top Horizontal Tube Furnace. Maximum working temperature 1400⁰C with accuracy $\pm 1^{\circ}$ C. Using silicon carbide heating element with microprocessor based digital PID temperature programmer controller with Thyristor power drive and cooling fan.

Working Chamber Size:

Both end open 80% Alumina working tube, tube size 50 mm ID X 60 mm OD and 750 mm length. “*Industrial Ceramic*” make.

Details of Heating Elements:

‘SILCRAB’ make silicon carbide heating elements, solid rod type. Size of element 14 mm dia, 100 mm hot zone and 300 mm total length.

Temperature controller:

Microprocessor based digital PID temperature programmer controller, single programs 8 segments. Programming for heating, cooling and holding.

Thermocouple

‘R’ type (pt/pt RH 13%) with quick response and slight variations in temperature and should have thermocouple break protection to prevent the failure of thermocouple for 1000⁰C with high alumina refractory sheet and connecting holder.

Thyristor Power Drive:

YUDIAN make phase angle control thyristor power drive for long life and safe guard heating element with soft start and limit facility.
230VAC 45 A. Model no: AIJK3

Thermal Insulation:

For best thermal efficiency shell be triple layer insulation by Vacuum Formed Fiber Boards.

Imported vacuum compressed fiber board for 1600⁰C used in hot face. Fibrous ceramic of different grade (Temperature limit of 2nd layer – 1450⁰C, 3rd layer – 1260⁰C) used in back and finally air insulation for double chamber fabrication.

Rate of Temperature Rise:

Pre- determined temperature rising rate are available by the programmer and normal raising rate (0.1 – 20 deg C) are available by the controller.

Temperature Accuracy:

$\pm 1^{\circ}\text{C}$ at set temperature above 1000°C and suitable element placement, System to ENSURE better uniform temperature.

Flanges and accessories:

SS Flanges for gas purging along with special VITRON/SILICON rubber O-Rings install both end of working tube.

Construction:

MS angle and CRC sheet construction of thick gauge double walled for minimize skin temperature (below 60°C). Furnace and control panel place vertically (floor top type). Furnace outer dimensions around 400 mm (W) x 400 mm (D) x 900 mm (H).

Gas Cylinder:

'ECHO' made gas cylinder with gas, capacity 7 CUM.

Rotameter:

Acrylic make rotometer with needle valve, range 0-2 lts/min.

Furnace Essential Parts:

- 1) MS Angle and CRC sheet with enamel paint double constriction table top type furnace body.
- 2) Imported vacuum compressed fiber board constriction chamber.
- 3) 'SILCRAB' make silicon carbide heating elements, Solid rod type. 8 pcs.
- 4) Thermocouple 'R' type – 1 no.
- 5) SS gas charging flange.

Control Panel Essential Parts

- 1) Microprocessor based digital PID temperature programmer controller,
- 2) Thyristor power drive. 230 VAC, 45 A
- 4) Electrical equipment for running of furnace LED Indicator Lamp, Safety MCB, On/Off rotary switch, Ammeter, Magnetic contractor, Manual power regulator, Safety fuses.