

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

**Project Code: DRC/MNRE/CEGESS/HS/006/11-12**

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

**Ref.: Tender Advt. No. CGE 1217, published in "The Statesman", "Sanmarg" & "Bartmaan",  
dated 27.09.2016**

**Under  
"Advanced Research on Thin Film Silicon Solar Cells and PV Systems", MNRE,  
Govt. of India**

**Notice Inviting Quotations**

Sealed quotations are invited from *bonafide* suppliers for supply of the following items.

- 1. Scroll Pump**
- 2. Ultrasonicator with auto filtration system**

Bidding documents may be downloaded from the website ([www.becs.ac.in](http://www.becs.ac.in)) and bidders can submit quotations as per instructions in the document.

Last date of submission of bid is 14 working days from the date of publications of this advertisement.

**Dean (R & D)**

**(A. Code DRC-T052/16-17)**

## **SECTION-I: General Conditions and Important Instructions for Bidders**

1. Bidders are to submit the original tender documents with technical specifications and price details in sealed envelope to Prof. Hiranmay Saha, Principal Investigator, "**Advanced Research on Thin Film Silicon Solar Cells and PV Systems**", **MNRE, Govt of India** and Chair 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. Bidders are to submit Technical Bid and Price Bids separately in **two sealed envelopes**.

(i) **PART I: TECHNO-COMMERCIAL BID** - giving Detailed Specifications, International Standards (BIS/INTERNATIONAL), Catalogues, List of users & Technical Details / Operating Parameters, Pre-Installation, Requirements, payment terms, warranty, etc.

(ii) **PART II: PRICE BID** - giving full Prices in Indian Rupees and/or in Foreign currency for

(a) Main Equipment.

(b) Essential Accessories & Spares.

The contents of the envelope (Technical Bid / Price Bid) should be mentioned on its top. All the sealed envelopes should be placed in a common sealed envelope, superscripted with the Ref. Advertisement No. and date along with the bidders name and address. Any deviation from the said process will result in disqualification of the particular bidder.

3. Bidders are to submit this tender document in original after accepting the terms and conditions.

4. Preference will be given to reputed indigenous manufacturers having proven track record with service and maintenance capability in Kolkata/ India. Vendors are requested to visit the site to evaluate the appropriate costing.

5. Last date of submission of bid is **21 working** days from the date of publications of this advertisement .

Tenders received late will not be accepted under any circumstances. Tenders will be opened in the room of Head Center of Excellence for Green Energy and Sensor Systems (CEGESS), IEST, Bengal Engineering and Science University, Shibpur, Howrah- 711103, West Bengal on a date and time to be notified to the vendor. In case the University remains closed on the said date, tenders will be opened on next working day at 3.10 pm.

6. The Price Bid 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 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 BESUS.

8. The University will not issue any C or D form availing of concessional Sales Tax/ VAT. The University 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 bidders 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 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 Price Quotation, failing which, unless otherwise exempted by any rule, shall not be entertained.

b) Tender 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 bidders 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. No interest is payable on Earnest Money Deposit/ Security Deposit.

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

13. Documents to be submitted with the tender:

- Tender Documents, General Conditions and Important Instruction 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 clearance certificates and copy of valid Trade License.
- Technical Bid, Price Bid (Priced) separately in two sealed envelope according to specifications.
- Demand Draft/ Pay Order for Earnest Money Deposit.( if applicable)

14. For all items the warranty/ guarantee period should be at **least 14 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, reserves the right to accept/ reject all or any of the bidders without assigning any reason whatsoever.

15. The vendors quoting against this tender should have a proper track record internationally and should have supplied similar instruments to National Institute of Repute ( Document to be attached)

**16. 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 Bidders with date and seal**

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## SECTION-II: Technical Specification

### SI No 1.

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<b>Technical Specification Scroll pump</b>	
Displacement 50 or 60Hz	60 m <sup>3</sup> h <sup>-1</sup> / 35 ft <sup>3</sup> min <sup>-1</sup>
Peak pumping speed 50 or 60Hz	40 m <sup>3</sup> h <sup>-1</sup> / 23.5 ft <sup>3</sup> min <sup>-1</sup>
Ultimate vacuum (Total pressure)	5 x 10 <sup>-2</sup> mbar / 4 x 10 <sup>-2</sup> Torr
Max continuous inlet pressure	40 mbar / 30 Torr
Max continuous outlet pressure	0.2 bar gauge / 2.9 psig
Max allowed inlet and GB pressure	0.5 bar gauge / 7 psig
Motor power	0.52kW
Power connector	IEC EN60320 C19
Nominal rotation speed	1750 rpm
Inlet flange	NW40
Exhaust flange	NW25
Noise level	55.4 dB (A)
Vibration	<4.5mms <sup>-1</sup> (rms)
Leak tightness (static)	<1 x 10 <sup>-6</sup> mbar ls <sup>-1</sup>
Operating temperature range	10 to 40 °C / 50 to 104 °F

### Other Features

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**Lubricant-free** within the vacuum envelope and hermetically sealed means a totally clean and dry vacuum to prevent cross contamination. Coated internally with anticorrosive layer.

**No atmosphere to vacuum shaft seals** means bearings are completely isolated, this prevents process attack and enable the bearings to run cooler and last longer.

**No oil to change eliminating cost** of contaminated oil disposal.

**Simple single sided scroll design** allows maintenance to be done in minutes for low cost of ownership and maximum up-time.

**Inverter drive** for consistent pumping speeds worldwide.

**Pump range** includes 35 and 40 m<sup>3</sup>h<sup>-1</sup>.

### SI No 2.

<b>Spares and accessories required for Scroll pump Suitable for (serial no 1)</b>
Appropriate vacuum isolation valve
Tip seal

Tip seal replacement and maintenance kit
Appropriate and suitable Gas Ballast Adapter

**SI No 3.**

<b>Spares and accessories required for Scroll Pump Edwards XDS 10</b>
Appropriate vacuum isolation valve
Tip seal
Tip seal replacement and maintenance kit
Appropriate and suitable Gas Exhaust

**SI No 4.**

Butterfly valve Part No-QSV-1M (must be fit with existing CT-100 exhaust system)



## **Technical Specifications and Features for Ultrasonicator with auto filtration system.**

Electric Supply: 170 - 245V, A.C, 50 Hz 1 phase.

Ultrasonic Frequency: 40 KHZ and 33 +/- 3 KHz

Ultrasonic Generator: Micro Controller Base Digital Timer.

With latest MOSFET base technology.

With Auto Degassing facility.

Automatic frequency tuning for maximum output

Modular generator for easier modification/servicing.

Timer: Two Digit LED display 0 – 90 minutes Timer with settable & On/ Off keys.

Heater with Digital Temperature Controller up to 90 °C

Protection to prevent overheating. Cleaner should automatically shut down in case of overheating.

Transducers: PZT Sandwich type, bonded on the base of S.S Tank

of good Make. High temp. & good quality wires for connection & epoxy form bonding of transducers are used.

Tank Clear Size must be fit for 29" x 29" x 4" stencil.

Tank MOQ: S.S 304 grade, 1.6mm thick & buffed form inside Tank Capacity

Drain Valve: 1/2" Ball Valve is provided for cleaning the tank Tank Outer Dimension

Tank Housing MOQ: S.S 304 grade.

**Total System must be on wheel so that it can be easily relocate.**

Accessory: SS Basket, SS Lid, Power Cord & Manual are Provided

Payment term 50 % advance and 50 % after successful installation. price must be including all taxes and freight up-to delivery location.