

**Pondicherry University**  
**Department of Physics**

**Tender Document**

The Department of Physics, Pondicherry University invites sealed tenders under **two-bid system** for the supply and installation of High Vacuum Compatible Horizontal Tubular Furnace under equipments grant of Science and Engineering Research Board (SERB-DST) project to **Dr. D. Bharathi Mohan, Assistant Professor**. The technical specifications for the “high vacuum horizontal tubular furnace” are given below. All tenders should be sent to the address given below. The last date and time for the submission of tender is **15<sup>th</sup> SEPTEMBER 2017, 3.00 PM**.

**Name of the Equipment: High Vacuum Horizontal Tubular Furnace**

**DETAILED TECHNICAL SPECIFICATIONS**

S. No	Specifications for <u>High Vacuum Horizontal Tubular Furnace</u>	
	Details	Description
<b>I</b>	<b>High Vacuum Compatible Tubular Furnace</b>	
1.	Type of the furnace	Horizontal Vacuum Tube Furnace
2.	Maximum operating temperature	1250 °C
3.	Continuous operating temperature	1200° C with alumina tube
4.	Heating element	Kanthal (Imported)
5.	Muffle Tube	Alumina (High quality) imported from CeramTech or better
6.	Muffle dimension	80 mm x 70 mm x 900 mm
7.	Hot zone	250 mm
8.	Vacuum Compatibility	10 <sup>-5</sup> m.bar with quartz tube 10 <sup>-2</sup> m.bar with alumina tube
9.	Heating Uniformity	± 5 deg. C. within 150 mm (or) better
10.	Thermocouple	S-Type
11.	PID controller	Yudian/Naberthem B410/better (must be Imported) <ul style="list-style-type: none"> <li>- Digital PID controller</li> <li>- with accuracy ± 1° C</li> <li>- Internal 0.1 ° resolution</li> <li>- Alarm system when power on, Off, higher and lower limit and deviation higher and lower</li> <li>- multiple programs and each with 30 steps minimum</li> <li>- auto tune function</li> <li>- Program entry in steps of 1° Celcius or 1 min</li> <li>- Built in protection for overheated and broken Thermal couple</li> <li>- Suitable for any type of thermocouple</li> <li>- Heating rate upto 10°C per min</li> <li>- Cooling rate controllable</li> </ul>
12.	Working tube	Quartz (purity: 99.9%, maximum constant and continuous working temperature: 1050°C)
13.	Working tube dimension	65 mm×60 mm×1200 mm
14.	Power input	220 Volts, Single phase
15.	Control zone	single
16.	Flange for quartz tube	Water cooled stainless steel flanges with high vacuum compatible with Viton o-rings → Provision for connecting a rotary pump and vacuum gauge dial

		<p>→ Provision for connecting two needle valves (Ar and N<sub>2</sub>)</p> <p>→ provision for connecting a mass flow controller</p> <p>→ Provision for either connecting extra thermocouple or electric feed through with 6 pins (vacuum compatible)</p>
17.	Flange for Alumina tube	<p>Stainless steel flanges with vacuum compatible with Viton o-rings</p> <p>→ Provision for connecting a rotary pump and vacuum gauge dial</p> <p>→ Provision for connecting one needle valve</p> <p>→ venting valve</p>
18.	Needle valve	Quantity: 2
19.	Mass flow controller	Provision for connecting MFC
20.	Feed through	Quantity: 1; electric feed through with 6 pins (vacuum compatible)
21.	Pump and gauges	<p>→ Vacuum pump (rotary) with 250-100 lts/min. capacity (Should be compatible to evacuate hot gas from furnace)</p> <p>→ valve and bellows to connect rotary pump</p> <p>→ gauge dial which measures upto <math>1 \times 10^{-2}</math> m.bar</p>
22.	Skin temperature	< 50 <sup>o</sup> C @ 1200 <sup>o</sup> C
23.	Control panel	<p>Should be made at the bottom portion of the furnace for controlling gas flow (needle valves, MFC), PID control and also,</p> <p>a) MCB for protection</p> <p>b) SCR (Silicon Controlled Rectifier)</p> <p>c) Pilot lamp</p> <p>d) Ammeter</p> <p>e) ON/OFF switch</p> <p>f) water cooling indication</p>
24.	Furnace body	MS Body, Powder coated for superior finish, Double layer steel body with fan cooling for low surface temperature and long life of refractory.
25.	Insulation	2 layer insulation
26.	High temperature glove	1 quantity
27.	Sample pulling rod	1 quantity
28.	Stand	To hold quartz tube on both sides.
<b>II</b>	<b>Optional items</b>	
1.	Mass Flow controller along with power supply to directly connect to the given provision	1 Quantity with flow rate 0-100 SCCM for N <sub>2</sub> gas

## TERMS AND CONDITIONS

1. Quotation should be valid for six months.
2. The quotation should provide breakup with the individual component prices. Give the prices of optional item separately. All the prices should be provided in Indian rupees.
3. Prices should be inclusive of all charges towards packing, freight, transits, excise duty, Insurance, etc. GST may be indicated separately and included in the total cost. The supply and installation should be made at our premises.
4. All items should have original Test certificates & warranty certificates with clear mention of Item Serial No. Model. No., Year of manufacturing Etc. from original manufacturing company.
5. The bidder from within India shall obtain the requisite approval for imports etc., if required.
6. Payment: Payment will be made within 30 days only after successful supply, installation and the verification of the equipment.
7. Pondicherry University reserves the right to accept / reject any offer in full or in part or accept any offer other than the lowest offer without assigning any reason thereof. Any offer containing incorrect and incomplete information shall be liable for rejection.

**General Information:**

- a) Last date and time of receipt of the Quotations: **15<sup>th</sup> SEPTEMBER 2017, 03.00 PM.**
- b) Date and Time of Opening of the Quotations: **15<sup>th</sup> SEPTEMBER 2017, 03.30 PM.**
- c) Quotation / Tender Document fee Rs. 500/- is mandatory for all bidders.
- d) EMD rates: 2.5% of the total cost of the equipment. It may be exempted against the submission of a valid and relevant exemption certificate/document. The Quotation must be accompanied by EMD as stated above, by means of a Demand Draft, drawn in favor of *The Finance Officer, Pondicherry University, payable at Puducherry.*
- e) Two bid systems have to be strictly followed. One for Technical bid and another for commercial bid and each bid should be submitted in separate sealed covers.
- f) However, the tender document fee and EMD as specified above should be remitted by each firm / bidder, collectively for all their bids advertised under this tender.
- g) Quoting merely the lowest price does not confer any right to any bidder for award of supply order. The University's Purchase Committee, reserves the right to select any bid under the grounds of specification compliance, technologically advanced quality, proven performance track record, brand reputation, compatibility with the existing System, etc.
- h) The Tender Processing Fee and EMD should be submitted in a separate cover super scribing Bank Demand Draft and which should be enclosed with the technical bid. *Tenders received without the appropriate fees will not be entertained.*
- i) The tender / quotation must be submitted along with the stipulated tender processing fee and EMD in the sealed cover, super-scribing the name of the Department for whose equipment the tender is quoted for.
- j) The cover should also contain the information like, Name of the item and Serial Number for which the bids are submitted. The name and address of the bidder should also be mentioned at the front address space.
- k). The tenders should be addressed to *Dr. D. Bharathi Mohan, Principal Investigator and Assistant Professor, Department of Physics, Pondicherry University, Puducherry – 605 014.* The examples for super-scribing the envelopes of the different categories of tenders are given below:

Tender Submitted under Double bid system for the Department of Physics  
Name of the Equipment item: \_\_\_\_\_

To  
**Dr. D. Bharathi Mohan**  
**Principal Investigator and Assistant Professor,**  
**Department of Physics,**  
**Pondicherry University,**  
**Puducherry – 605 014.**

From  
Supplier's Address

**I. Common Conditions (Import or Indigenous)**

***1. Purchase of Quotation Document:***

The Quotation / Tender document can be downloaded from the University website **www.pondiuni.edu.in**. The downloaded application should be accompanied with the quotation document fee, in the form of a Demand Draft.

***2. Price Schedule***

The rates should be quoted for a single unit and also for the total quantity required by the University. The price should include the delivery, installation, training charges, etc. at the Physics Department, Pondicherry University. The prices quoted shall remain firm until the items are supplied to the Physics Department, Pondicherry University.

***3. Eligibility:***

The firm must have the requisite domain expertise with regard to supply, installation and post-sale service of the items they are quoting. The firm should have been in existence for at least six years as on the date of this quotation and must have executed at least three orders for this kind of equipment during the last three years.

#### **4. Duty Exemption**

The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), India, vide their Notification No.10/97 dt. 01-03-1997 and 51/96 dated 23.07.96 respectively, in respect of

- a) Scientific and technical instruments, apparatus, equipment, Software including computers.
- b) Accessories and spare parts of goods specified in (a) above and consumables.
- c) Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, microchips etc.
- d) Prototypes.

Customs duties at Indian port, if any, will be to the account of the University.

**5.** A recent customer list (within last five years) with contact details including email address is to be submitted with technical bids / bids as the case may be.

**6.** The offers will not be considered if received after the bid closing date and time. The University shall not be responsible for any delay / loss or non-receipt of quotations by post / courier service.

**7.** If an order is placed with the firm, the purchase shall be governed by an agreement as per the University rules in force at the time.

**8.** Additional terms and conditions will be incorporated in the purchase order, if needed, to safeguard the interests of the University.

**9.** Quotation is not transferable.

**10.** In case of any dispute in respect of the quotation, all legal matters shall be instituted within the jurisdiction of the place where the purchaser ordinarily resides.

**11.** The Bidders must enclose authorization letter from the respective global / national service providers of the above equipment's particularly mentioning an undertaking that in case of default by the Bidder, they (Global Service Provider) shall take over all the responsibilities of the Bidder.

**12)** For any clarification with respect to technical specifications, please contact the respective Department PI as per the details given below: -

S. No	Name of the PI/Department	Contact Details
1	Dr. D. Bharathi Mohan / Department of Physics	d.bharathimohan@gmail.com 0413 – 2654 786

**REGISTRAR**

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