

TENDER DOCUMENT

SUPPLY OF “LiBr-Water Vapor Absorption Refrigeration Experimental Test-Rig (1 TR or more)” for ARAC Lab



**MECHANICAL ENGINEERING DEPARTMENT
S. V. NATIONAL INSTITUTE OF TECHNOLOGY**

SURAT - 395 007



**SARDAR VALLABHBHAI NATIONAL
INSTITUTE OF TECHNOLOGY SURAT**

Tel: 0261-2259571 -2259582-584

Fax: 0261-2228394

SVNIT

TENDER NOTICE

Sealed tenders are invited from the supplier /manufacturer /distributor /vendor for the supply of the following item.

Name of the Item	Quantity
Lithium bromide-Water single effect Vapor Absorption Refrigeration Experimental Test rig (1 TR or more)	01 set

Tender documents will be available on request during office hours **from 01/11/2017 to 08/12/2017** from Mech. Engg. Deptt. of Institute on payment of Rs 500/- towards tender fee to be remitted by cash for tender documents delivered in person or Rs 550/- by DD drawn in favour of “Director, SVNIT, Surat” in case tender documents are to be sent by post. The date of opening of tender is **11/12/2017 at 15:00 hours**. The tender documents may also be downloaded from institute website www.svnit.ac.in. However, the tender fee must be paid before submission of tenders. The director reserves the right to reject any or all the tender items without assigning any reasons whatsoever thereof.

No. SVNIT/MED/Annual Plan/ARAC /17-18

DIRECTOR



SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT

Tel Nos: 0261-2259571, 82 to 84 Fax: 0261-2228394 director@svnit.ac.in; <http://www.svnit.ac.in>

TENDER NOTICE

I. Issued to M/s. _____

II. Name of work, Reference No. & EMD to be deposited by cash or D. D. Drawn in favour of “Director, S.V.N.I.T., Surat” are as specified in the following table:

Sr. No.	Equipment Name	Qty.	Ref. No.	E.M.D. (Rs.)
1	“Li-Br single effect Vapor Absorption Refrigeration Experimental Test rig (1 TR or more)”	1 set	No. MED/Annual Grant/ Vapor absorption refrigeration system/2017-2018	7000/-

III The total numbers of pages of this Tender document is 11 (eleven) only.

SCHEDULE OF TENDER

1. Last Date of Issuing Tender Documents : 8th of December’2017
2. Last Date of Receiving Tender Documents : 8th of December’2017
3. Date of Opening of Tender : 11th of December’2017 at 3:00 p.m.

DIRECTOR

GENERAL TERMS & CONDITIONS

1. **Tenders received without payment of tender fees will not be considered.**
2. Tender for equipment must be submitted with the name of equipment clearly mentioned on the top of the envelope along with the Tender Reference Number.
3. The Earnest money for each of the quoted item will have to be paid by Crossed Demand draft drawn in favour of **“Director, SVNIT, Surat”** and enclosed along with the tender documents. **This amount will be refunded later, only on receipt of written request from supplier. EMD shall not bear any interest and without this EMD, the Tender shall not be considered. No correspondence in this regard shall be entertained.**
4. **The tenders as quoted once shall be considered final. No negotiations for the rate nor any change, alterations and modifications shall be permitted at a later stage.** After opening of the tender regarding specifications of the items in quotations, it will not be possible to accept any changes and no correspondence will be entertained in this connection.
5. The equipment/instrument should be furnished/supplied with a complete set of manuals, catalogues, technical literature, user's manuals and other relevant manuals for each of the items supplied.
6. In case the party has the standard equipment/instrument with marginally different specifications, the same may also be quoted with complete specifications of the equipment/instrument being offered. In case the party has the equipment/instrument with more variations in specifications, equipment may be quoted with complete details.
7. The supplier should have preferably supplied the same equipment/instrument to some of the customers in South/West region, the list of which will have to be furnished along with the quotations.
8. The rate for equipment/instrument should be quoted in Indian Rupees for all indigenous goods. In case of imported equipment/instrument the rates should be offered in foreign currency **as the institute is exempted from, the payment of custom duty.**

9. The rates should be inclusive of all taxes with F.O.R. destination at S.V.National Institute of Technology, Surat. The rates may be quoted preferably in the following format:

9.1	Basic Price of the Unit	:
9.2	Taxes	:

- NOTE :** (1) The College cannot issue 'C' or 'D' forms for tax concessions.
(2) The college is also **exempted from the payment of Custom Duty and Central Excise Duty if applicable**. The college will provide necessary exemption certificate in this regard, **on demand**.

9.3	Packing and Forwarding	:
	Transport (F.O.R. Destination at	:
	S.V. National Institute of	:
	Technology, Surat)	:
9.5	Installation and Commissioning	:
9.6	Insurance	:
9.7	Any other charges (please	:
	specify)	:
9.8	Rebate/Concession for academic	:
	Institution	:
9.9	Total	:

- 10 In case of authorized dealers/sole agents/sole manufacturer in India, appropriate certificate should be submitted along with the tenders.
- 11 The delivery should be effected within eight weeks from the date of receipt of supply order or a mutually agreed date. The tender should clearly state the delivery period required.
- 12 In the event of supply being delayed, the party concerned shall apply for suitable extension, stating the grounds/reasons on which the extension is sought.
- 13 In case the delivery period is delayed beyond the stipulated period inclusive of any extension granted, a penalty of 5% of the total value of the order will be levied for each week of delay or part thereof.
- 14 The goods are required to be duly insured with any nationalized insurance company and the insurance charges will be borne by the institution against the relevant documents of the insurance company.

- 15 The validity of the tender to be submitted may be kept open at least for 120 days from the last date of the receipt of the tender. However it is desirable to have a longer validity period
16. The supplier shall be required to undertake the comprehensive guarantee/warranty for all the equipment supplied for a period of **minimum three years** from the date of satisfactory installation of the equipment/instrument.
- 17 The supplier should provide necessary training for the operation and servicing of the equipment/instrument at free of cost to the concerned personnel, if asked by the purchaser.
- 18 The supplier shall provide users list and the certificates of satisfactory operation of the equipment/instrument supplied by them to at least three well-known organizations preferably within Gujarat state during the last three years.
- 19 The supplier shall provide 3 sets of both technical/service manuals and operation/installation manuals along with the proper dust covers for the instrument/equipment at free of cost. Supplier should also provide certificate of calibration traceable to National / International Standards.
- 20 In case the quoted rates are as per the valid and prevailing contract, with DGS&D, New Delhi/GEM, the supplier shall furnish a certified Xerox copy of the same to the purchaser. It may also be mentioned whether supplier can accept a direct order based on DGS&D rate / GEM contract.
- 21 Payment is normally made by cheque drawn on the SBI, SVNIT Branch, Surat within a period of 30 days from the date of satisfactory installation of equipment/instrument. **This college is fully financed by Central Governments and the Government auditors have objected for making advance payment against delivery/documents through bank.**
- 22 Goods may be inspected at the factory before dispatch, if required at supplier's cost and risk. Goods received in the damaged condition will be rejected at the cost and risk of the supplier.
- 23 In the event of material/equipment/instrument supplied not being as per specifications, the same will have to be replaced at the cost and risk of the supplier. The rejected material will also be sent back at the cost and risk of the supplier including packing and forwarding charges. No payment will be released unless the material/equipment/instrument is as per the specifications specified in the tender.
- 24 The supplier shall arrange for repair/replacement of the defective/worn out components of the equipment/instrument at our place during the guarantee period at purchaser's first instructions within 15 days. This work will be carried out at the

cost of supplier and no charges whatsoever will be paid including TA/DA of the service engineer for the same.

- 25 The supplier should clearly mention the after sales service facility/capability and provide the same during guarantee/warranty period.
- 26 Incomplete tenders will be rejected without assigning any reasons and no correspondence will be entertained in this connection.
- 27 Supplier and/or his representative may remain present on the date and time specified for opening of the tender.
- 28 The Director reserves the right to increase or decrease the quantity of the tender items or split the items of the tender. Rights are also reserved with the Director to reject any or all the tenders without assigning any reasons thereof.
- 29 In case of any dispute the matter shall be subject to Surat (Gujarat state) jurisdiction only.
- 30 In case the equipment is internationally certified for quality and bears the ISO 9000 or TQM certification, a copy of relevant certificate may be enclosed. Such equipment may be given preference.
- 31 In case of the authorized dealers quoting on behalf of Manufacturers, a copy of certificate is required to be enclosed from the manufacturer, that the equipment being quoted by the party is on behalf of the concerned manufacturer and the manufacturer undertake to provide the after sales maintenance of the equipment.
- 32 The Tender must be accompanied with a signed declaration from the party that the terms and conditions of the Tender are acceptable and binding to the party.

DIRECTOR

DECLARATION

I/We hereby declare that the terms and conditions of the Tender stated herein, and as may be modified/mutually agreed upon are acceptable and binding to me/us.

Name and Address of Supplier/
Manufacturer

Name and Signature of the
Tenderer with Official Stamp

Telephone No. :

Date :

Fax Number :



TECHNICAL SPECIFICATION

Sr No	Name of Equipment	Quantity	Technical Specification with Desirable Features	Experimental Capabilities
	“Li-Br single effect Vapor Absorption Refrigeration Experimental Test rig” (1 TR or more)	1 set	<p>Design, fabrication and commissioning of Li-Br single effect vapor absorption refrigeration experimental test-rig should include:</p> <ul style="list-style-type: none">➤ Generator: Hot water type and capable to maintain constant temperature of generator for evaporator load. Tube material SS304. It must be properly insulated with glass wool.➤ Evaporator: Evaporator coils must be made of SS304 and evaporator chamber must be properly insulated with P.U. Foam sheet. There must be suitable mechanism of changing the evaporator heat load.➤ Condenser: Horizontal shell and tube type water cooled condenser. Coil material must be SS304.➤ Absorber: Horizontal shell and tube type absorber. Tube material must be SS304.➤ Cooling tower: Induced or forced draught cooling tower in order to supply cooling water at desired temperature in condenser and absorber.➤ Flow meter: Suitable analog flow meter or rota meter which can measure the flow rate in lit/hr or m³/min of hot water supply to generator, cooling water supply to condenser and	<ul style="list-style-type: none">➤ To calculate the theoretical and overall actual COP of Vapour Absorption refrigeration system.➤ To calculate the COP of system at different Evaporator Load➤ To obtain the thermal load of Evaporator, Generator, Condenser and Absorber.➤ To obtain temperature values of refrigerant (water vapour) and Libr-water solution at different location of system➤ To find the effect of generator and condenser temperatures on system COP.➤ To find the circulation ratio (Ratio of mass flow rate of strong libr-water solution to refrigerant) at different evaporator load.

			<p>absorber. Accuracy: +/- 2% full scale deviation, Repeatability: 0.5%</p> <ul style="list-style-type: none"> ➤ Temperature sensors: Can provide the temperature of chilled water inlet-outlet, cooling water inlet-outlet to absorber and condenser, hot water inlet-outlet temperature to generator. ➤ Energy meter: Separate energy meters for measurement of power consumption by electrical accessories. ➤ Vacuum sensor: sensors capable to measure the vacuum pressure of generator/condenser and Evaporator/Absorber. ➤ Expansion device: Integrated mechanical /Electronic expansion device insulated with P.U. Foam sheet. ➤ Purge system include the vacuum pump (Purge pump) in order to remove the air and non condensable gases to maintain desired vacuum. ➤ Electric heating coils: Suitable rating of heating coils for changing evaporator thermal load and heating the hot water required for generator. ➤ Inhibitors: Correct proportion of formulated inhibitors like Lithium molibidate and lithium nitrate mixture added with LiBr-water solution. ➤ Safety device: System should avail with necessary safety tripping (like Auto hot water cut-off, Auto dilution mode ,audio-visual alarm etc.) in order to prevent crystallisation of LiBr solution 	
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Annexure-I

(This must be typed on Supplier's Letterhead & submitted along with the offer)

Sr.No	Specifications given as above in Tender	Supplier specifications
1		
2		
3		