

NATIONAL INSTITUTE OF TECHNOLOGY

TIRUCHIRAPPALLI – 15

Department of Chemical Engineering

Web : www.nitt.edu

Phone : 0431 - 2503110



TENDER DOCUMENT

~~Last date extended~~

Tender Notification No.: **NITT/R&C/CHL/PK/CSIR/2010-11/19**

Dated : **14.9.2010**

- Name of the component : Equipments/Instruments for the thermal analysis of Plate Heat Exchanger
- Quantity required : List Attached
- EMD Amount : ` 5000/-
- Delivery : within four weeks from the date of purchase order
- Last Date of submission of Tender : **27.10.2010 upto 3.00 p.m.**
- Address for submission of Tender : The Director,
National Institute of Technology, Tiruchirappalli – 620 015.
- With kind attention to** : Dr. P.Kalaichelvi
Associate professor
Dept. of Chemical Engineering
National Institute of Technology
Tiruchirappalli – 620 015
E-mail: kalai@nitt.edu
Mobile: 9486066990
- Date of opening of bid : **27.10.2010 at 3.30 p.m**



**NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 15**

DEPARTMENT OF CHEMICAL ENGINEERING

Tender Notification No.: **NITT/R&C/CHL/PK/CSIR/2010-11/19**

Dated : **14.9.2010**

NOTICE INVITING TENDER

The National Institute of Technology, Tiruchirappalli (NITT) is an autonomous body under MHRD, GOI, imparting Technical Education and engaged in Research Activities. It is proposed to procure the following component for the departmental academic/research activities.

Sealed Quotations under **two cover system** are invited for the following component subject to the following terms and conditions, from the reputed manufacturers or their authorized dealers so as to reach this office on or before scheduled date and time. The technical cover will be opened on the same day in the presence of bidders or their authorized agents who may choose to be present.

Name of the component : Equipments/Instruments for the thermal analysis of Plate Heat exchanger

Quantity required : List Attached

EMD : ` 5000/-

Time for completion of supply after placing purchase order : 4 weeks

Last Date of submission of Tender : **27.10.2010** upto 3.00 p.m.

Tender to be submitted at the following address : The Director,
National Institute of Technology,
Tiruchirappalli – 620 015.

With kind attention to : Dr. P.Kalaichelvi
Associate professor
Dept. of Chemical Engineering
National Institute of Technology
Tiruchirappalli – 620 015
E-mail: kalai@nitt.edu
Mobile: 9486066990

Place, Date and time of opening of bid :

Date: **27.10.2010**

Time: **3.30 p.m**

Venue: **Dean (R&C) office/Admin Block**

Note : The Institute shall not be responsible for any postal delay about non-receipt / non delivery of the bids or due to wrong addressee.

SECTION : 1 INSTRUCTION TO BIDDER

1. The bidder should give details of their technical soundness and provide list of customers of previous supply of similar items to Universities, Institutes or Government Departments/Undertakings/public sectors with contact details. The details of the agency/profile should be furnished along with the copy of all related documents.

1.1 *Bids are to be submitted under two cover system.*

Cover 1:

Cover 1 should contain the following:

- a. *EMD - Earnest Money Deposit (EMD) is to be remitted by way of Demand Draft drawn on any Nationalised bank in India by Demand Draft drawn on any scheduled bank in favour of "The Director, NIT, Trichy" payable at Trichy should be submitted. EMD shall bear no interest. Any bid not accompanying with EMD is liable to be treated as non-responsive and rejected.*
 - b. *Technical pamphlets*
 - c. *Detailed technical specification*
 - d. *The agency should furnish copy of license certificate for manufacture/supply of the item.*
 - e. *The agency should furnish Income Tax PAN number*
 - f. *Warranty period offered for the tendered item to be specified. If the warranty period is not conforming with the schedule of requirements given in section 3 of the document, the bid is liable to be treated as non-responsive and rejected.*
 - g. *Duly filled up technical questionnaire, if any*
 - h. *Duly filled up deviation schedules to technical specification*
 - i. *Copy of supply orders completed during the last three years ending 31-12-2008.*
 - j. *If the prices are revealed in the cover 1, the offer will be summarily rejected*
- 1.2 *The cover 1 shall be superscribed as 'Technical cover' duly indicating the Tender reference No. and the due date of opening.*

1.3 Cover 2:

Cover 2 should contain the following

Cover 2 shall contain Price only and shall be superscribed as 'Price Cover' duly indicating the Tender Reference No. and the due date of opening.

Each Cover shall be sent in a double sealed cover. The inner covers (Cover 1 and Cover 2) should be sealed individually with the sellers's distinctive seal and superscribed with the tender reference no. and due date of opening. Both the inner covers shall be placed in a common outer cover which shall also be sealed with seller's distinctive seal and superscribed with the tender reference no. and due date of opening.

Mention "Kind Attention :Dr.P.Kalaichelvi, Department of Chemical Engineering, NITT and submit at the address given in the Notice Inviting Tender.

Cover 1 will be opened on the scheduled date and time mentioned in the tender enquiry. Cover 2 of the technically and commercially suitable offers alone will be opened on a date which will be intimated to the qualified bidders.

2. The agencies should submit their rate as per the format given in Section 4 of the Notice Inviting Tender in this cover. Rate should be quoted in Indian Rupee. The rate should be quoted both in words and figures. All the pages of the bid should be signed affixing the seal. All corrections and overwriting should be initialed.
3. The tender will be acceptable only from the manufacturers or its authorized supplier.
4. The bid shall be in the format of price schedule given in Section 4. The contract form as per format given in section 5 shall be submitted. Incomplete or conditional tender will be rejected.
5. Details of quantity and the specifications are mentioned in Section 3 appended to this Notice Inviting Tender.
6. The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities. It must be delivered and installed in good working condition.
7. The Institute reserves the right to cancel or reduce the quantity included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of the whole or part of the works.
8. Performance Security of 5% of the contract value in terms of Bank guarantee by scheduled banks shall be given by the successful bidder for the total period of warranty.
9. **Release of EMD:** The EMD shall be released after receipt of performance security from successful bidder.
10. **Validity of bids:** The rate quote should be valid for a minimum of 90 days. No claim for escalation of rate will be considered after opening the Tender.
11. **Imports:** In case, goods are to be imported, the Indian agent should furnish authorization certificate by the principles abroad for submission of the bid in response to this Notice Inviting Tender.
12. **Clarification of Tender Document:** A prospective bidder requiring any clarification of the Tender document may communicate to the contact person given in this notice inviting tender.
13. **Amendment of tender document:** At any time prior to the last date of receipt of bids, Institute may for any reason, whether at its own initiative or in response to a clarification requested by prospective bidder, modify the Tender document by an amendment.
14. ***The Institute may at its own discretion extend the last date for the receipt of bids.***
15. The bids shall be written in English language and any information printed in other language shall be accompanied by an English translation, in which case for the purpose of interpretation of the bid, the English translation shall govern.
16. The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids without assigning any reasons therefor. The decision of the Institute Purchase Committee is final in all matters of tender and purchase.
17. The bidder should give the following declaration while submitting the Tender.

DECLARATION

I/we have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Trichy and /or prosecuted.

Signature of the Bidder :

Name and Designation :

Business Address :
.....
.....

Place :

Date :

Seal of the Bidder's Firm

18. Any other details required may be obtained from the contact person given in the notice inviting tender during the office hours.

SECTION : 2 CONDITIONS OF CONTRACT

1. The rates should be quoted in Indian Rupee FOR NIT, Trichy for supply within India.
2. In case of import both CIF and / or FOB rate should be quoted. All components of expenditure to arrive at Chennai need to be explicitly specified.
3. The bidder shall indicate the excise duty exemption for the goods if applicable
4. The Institute is eligible for customs duty and excise duty exemption.
5. The rate quoted should be on unit basis. Taxes and other charges should be quoted separately, considering exemptions if any.
6. Rate quoted should be inclusive of Testing, commissioning and installation of equipment and training.
7. **Payment** : No advance payment will be made. Payment will be made only after the supply of the item in good and satisfactory condition and receipt of performance security by supplier. In case of imports, the payment will be made through LC after installation and performance security need to be submitted at the time of LC commitment.
8. Guarantee and Warrantee period should be specified for the complete period conforming to the section 3 of this tender document.
9. Period required for the supply and installation of item should be specified conforming to the section 3 of this tender document.
10. In case of dispute, the matter will be subject to Tiruchirappalli, Tamil Nadu Jurisdiction only.

SECTION : 3 SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS

List of Components to be procured

- I. Feed tanks and Instruments (Digital Differential pressure sensors and Flow sensors) for plate heat exchanger
- II. Thermal Conductivity of Liquids

I. Specification for Feed tanks and Instruments (Digital Differential pressure sensors and Flow sensors) for plate heat exchanger.

COLD FLUID FEED TANK (Required number - 01)

Cold water tank Made of SS tank (304) with cooling coil; controls temperature 30°C to 60°C.

- Tank capacity 25 liters
- Cooling coil consists 2m copper coil with solenoid valves(which is used for normal water which removes the heat)
- Inlets and outlet pipes made of SS with valves
- Drin of ½" SS with valve
- RTD sensors and one temperature controller and Indicator
- Insulation
- Remi make stirrer for equal distribution of heat with RPM indicator
- Level gauge which is used for level measurement
- Full enclosure

HOT FLUID FEED TANK (Required number - 01)

Made of SS tank (304) with heating coil capacity 3KW it controls 30°C to 80°C temperature

- Tank capacity 30 liters
- Heating coil capacity 3KW
- Inlets and outlet pipes made of SS with valves
- Drin of ½" SS with valve
- Level gauge which is used for level measurement
- RTD sensors and one temperature controller with indicator
- Insulation
- Remi make stirrer for equal distribution of heat with RPM indicator
- Full enclosure

PRESSURE SENSORS WITH INDICATOR (Required numbers - 02)

Differential pressure measurement across the hot fluid and cold fluid. Digital differential pressure sensor range 0 to 0.5 bar

TPR18

- Measurement range -05 to +05m bar compound pressure, gauge or absolute pressure
- Output signal : 4-20mA (except -1+0 bar where -1=20mA, 0=4mA)
- Supply voltage : 11 to 40vdc
- Electromagnetic compatibility:
- With screen cable, screen connected at both ends
- Global error (linearity, hysteresis, and repeatability)
- Typically +/- 0.2% of F.S
- Operating temperature:
- Ambient (Ta): standard :-25 to +85°C
- Option: low T°: -40°C to +85°C
- High T°: 25 to +100°C
- Standard: -25 to +40°C

- Zero thermal drift $\pm 0.025\%$ F.S. / $^{\circ}\text{C}$ max (except $p=1\text{bar}$: $\pm 0.06\%$ FS/ $^{\circ}\text{C}$)
- Wetted parts: ceramic stainless steel 1.4404 (316L)+NBR seal (standard)
- Standard connections:
- Electrical: DIN 43650 connector
- Pressure: $\frac{1}{4}$ " BSP
- Protection rating (EN 60529)
- Standard: IP65(DIN Connector) Option : IP67 or IP68,(depending on connection)
- Typical response time 3 ms
- Vibration resistance (IEC68-2-32) : 25 fails from 1m on concrete ground
- Shock resistance (IEC 68-2-32)1.5MM (10-55HZ)

FLOW SENSORS WITH INDICATOR(Required Number – 02)

Flow measurement in hot and cold fluid

- Range 0 to 10 lpm pedal type flow meter
- Material CPVC or SS304
- Voltage input 11 to 24 V
- Output 4 to 20mA
- Operating temp 10 to 80°C
- Accuracy: 2% of full scale reading
- Pressure with stand up to 10bar
- Auxiliary supply 230V 50 Hz AC
- Inlet and outlet Size: $\frac{1}{2}$ " BSP

Cold fluid feed tank, hot fluid feed tank, pressure sensors and flow sensors are to be installed, connected to the existing plate heat exchanger and initialized. Trial runs on the performance of the plate heat exchanger are essential.

II. **Specification for Instrument to measure Thermal Conductivity of Liquids**

The apparatus is to be designed to study the variation of thermal conductivity of different liquids at different temperature.

- The apparatus consists of a heater to heat a thin layer of liquid
- A cooling plate to remove heat through liquid layer, ensuring unidirectional heat flow.
- Temperature is to be measured across the liquid layer and complete assembly is to be properly insulated.
- A proper arrangement for changing the liquids is to be provided.
- The whole assembly is to be kept in chamber.
- Suitable control panel with necessary switches & accessories are to be provided.

- Name of the Component to be procured : Equipments/Instruments for the thermal analysis of Plate Heat Exchanger
- Specifications : As prescribed in Section 3
- Quantity : As listed in Section 3
- Any other details/requirement : Cold fluid feed tank, hot fluid feed tank, pressure sensors and flow sensors are to be installed, connected to the existing plate heat exchanger and initialized. Trial runs on the performance of the plate heat exchanger are essential
- Warranty period required : One year from the date of Installation
- Delivery schedule expected after release of purchase order (in weeks) : Four weeks
- EMD (in Rupees) : ` 5000/-
- Performance Security to be given by Successful bidder after release of purchase order (in Rupees) : **5% of the equipment cost**

SECTION : 4 PRICE SCHEDULE

[To be used by the bidder for submission of the bid]

- 1. Component Name :
- 2. Specifications (confirming to Section 3 of Tender document-enclose additional sheets if necessary) :
- 3. Currency and Unit Price :
- 4. Quantity :
- 5. Item cost (Sl.No.3 & Sl.No.4) (in Indian Rupee) :
- 6. Taxes and other charges :
 - (i) Specify the type of taxes and duties in percentages and also in figures
 - (ii) Specify other charges in figures
- 7. Warranty period (confirming to the Section 3 of Tender document. This should be mentioned in Technical bid also in order to get qualified for Financial bid) :
- 8. Delivery Schedule (confirming to the Section 3 of Tender document) :
- 9. Name and address of the firm for placing purchase order :
- 10. Name and address of Indian authorized agent (in case of imports only) :

Signature of the Bidder :

Name and Designation :

Business Address :
.....
.....

Place :

Date :

Seal of the Bidder's Firm

SECTION : 5 CONTRACT FORM

[To be provided by the bidder in the business letter head]

1. {Name of the Supplier's Firm) hereby abide to deliver theby the delivery schedule mentioned in the Section 3 tender document for supply of the items if the purchase order is awarded.
2. The item will be supplied conforming to the specifications stated in the tender document without any defect and deviations.
3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of NIT, Trichy during this period.

Signature of the Bidder :

Name and Designation :

Business Address :
.....
.....

Place :

Date :

Seal of the Bidder's Firm