

NATIONAL INSTITUTE OF TECHNOLOGY

TIRUCHIRAPPALLI – 15

Department of Chemical Engineering

Web : www.nitt.edu

Phone : 0431 - 2501801



TENDER DOCUMENT

Tender Notification No.: NITT/03/2010 Dated :17/02/2010

Name of the component : **Equipments for Fluid Machinery Lab**

Quantity required : List Attached

EMD Amount : Not Applicable

Delivery : One month from date of Purchase Order

Last Date of submission of Tender : 09/03/2010 upto 3.00 p.m.

Address for submission of Tender : The Head of the Department
Dept. of Chemical Engineering
National Institute of Technology
Tiruchirappalli – 620 015
E-mail : chloffice@nitt.edu
Phone No: 0431- 2503104
Mobile : 9486001128

Date of opening of bid : 09/03/2010 at **3.30 p.m**



**NATIONAL INSTITUTE OF TECHNOLOGY
TIRUCHIRAPPALLI – 15**

DEPARTMENT OF CHEMICAL ENGINEERING

Tender Notification No.: NITT/03/2010

Dated: 17/02/2010

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 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 quotations will be opened on the next day in the presence of bidders or their authorized agents who may choose to be present.

Name of the component : **Equipments for Fluid Machinery Lab**
Quantity required : List Attached
EMD : Not Applicable
Time for completion of supply after placing purchase order : One month from date of Purchase Order
Last Date of submission of Tender : 09/03/2010 upto 3.00 p.m.
Tender to be submitted at the following address : The Head of the Department
Dept. of Chemical Engineering
National Institute of Technology
Tiruchirappalli – 620 015
E-mail : chlooffice@nitt.edu
Phone No: 0431- 2503104
Mobile : 9486001128

Place, Date and time of opening of bid :

**Date: March 9, 2010 Time: 3.30 p.m. Venue : Administrative Office, NIT,
Trichy**

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 bidders should 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 bidder/profile should be furnished along with the copy of all related documents.

1.1 Documents to be submitted in the Bid:

- (i) The bidder should furnish copy of licence certificate for manufacture/supply of the item.
 - (ii) The bidder should furnish Income Tax PAN number
 - (iii) Catalogue of the product with detailed product specifications
 - (iv) Shelf-life of the chemicals offered for supply is to be specified.
 - (v) EMD, if applicable, 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.
2. The bidder should submit their rate as per the format given in Section 4 of the Notice Quotation 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.

The bid cover should be duly superscribed with the following details.

(1) Quotation Notification Number (2) Quotation for the supply of (3) Date of opening

Mention "Kind Attention: Contact's person's name and phone number", and submit at the address given in the quotation Notice.

3. The quotation 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 quotation will be rejected.
5. Details of quantity and the specifications are mentioned in Section 3 appended to this quotation Notice.
6. The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities.
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 quotation 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. 5% of the supply value will be retained by the Institute towards Performance Security and will be returned to the supplier after the 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 60 days. No claim for escalation of rate will be considered after opening the Quotation.
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 Quotation Notice.
12. **Clarification of Quotation Document:** A prospective bidder requiring any clarification of the Quotation document may communicate to the contact person given in this notice inviting quotation.
13. **Amendment of quotation 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 Quotation 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. The decision of the Institute Purchase Committee is final in all matters of quotation and purchase.
17. The bidder should give the following declaration while submitting the Quotation.

DECLARATION

I/we have not tampered/modified the quotation forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our quotation 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 quotation 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 quotation document.
9. Period required for the supply and installation of item should be specified conforming to the section 3 of this quotation 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

Name of the component to be procured	:	Equipments for Fluid Machinery Lab
Specifications:		
Quantity	:	List attached
Any other details/requirement	:	
Warranty period required	:	One year
Delivery schedule expected after release of purchase order (in weeks)	:	One month from date of purchase order
EMD (in Rupees)	:	Not applicable
Performance Security to be given by Successful bidder after release of purchase order (in Rupees)	:	

SECTION: 4 PRICE SCHEDULE

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

- 1. Component Name : **Equipments for Fluid Machinery Lab**
- 2. Specifications (confirming to Section 3 of Quotation 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 Quotation 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 Quotation 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 quotation 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 quotation document without any defect and deviations.
3. Warranty will be given for the period mentioned in the quotation 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

Equipments for Fluid Machinery Lab:

S. No	Requirements	Quantity
1	Closed circuit Francis Turbine Test Rig	1
2	Closed circuit Pelton Wheel Turbine Test Rig	1
3	Closed circuit Submersible pump test rig	1
4	Closed circuit Reciprocating pump test rig	1
5	Closed circuit Jet pump test rig	1
6	Closed circuit apparatus for Notches	1
7	Closed circuit Centrifugal pump test rig	1
8	Closed circuit Screw pump test rig	1
9	Closed circuit apparatus for calibration of Venturi meter	1
10	Closed circuit apparatus for calibration of Orificemeter	1
11	Closed circuit apparatus for determining major and minor losses in pipes	1

Specifications:

1. Closed circuit Francis Turbine Test Rig:

A test rig should consist of a Francis water turbine designed for laboratory experimental purpose with necessary accessories.

- The turbine with normal speed of 2200 rpm, capacity of 1000 W and supply head of 20 m.
- A rope brake arrangement with a spring balance / AC Alternator for loading the turbine.
- Pressure gauge and vacuum gauge at the inlet and outlet to measure the net supply head to the turbine.
- A centrifugal pump to provide water to the turbine with necessary specifications.
- A storage tank with required capacity and required lining for total rust protection.
- Other standard accessories include a DOL starter, switch, flow control valve, suitable piping, flow measuring unit and for speed measurement.

2. Closed circuit Pelton Wheel Turbine Test Rig

A test rig should consist of a Pelton wheel water Turbine designed for laboratory experimental purpose with necessary accessories.

- The Pelton wheel water turbine for design speed of 1000 rpm, Output Power of 1000 W and supply head of 50 m.
- A rope brake arrangement with a spring balance/AC Alternator for loading the turbine.
- Pressure gauge and vacuum gauge at the inlet and outlet to measure the net supply head to the turbine.
- A centrifugal pump to provide water to the turbine with necessary specifications.
- A storage tank with required capacity and required lining for total rust protection.
- Other standard accessories include a DOL starter, switch, flow control valve, suitable piping, flow measuring unit and for speed measurement.

3. Closed circuit Submersible pump test rig

A test rig consists of a Submersible pump designed for laboratory experimental purpose with necessary accessories

- PUMP : A monoblock submersible pump to discharge about 75 lpm against as delivery head of 15 m.
- MOTOR : 1 hp, to run on single phase, 200/220 V, 50 cycles AC supply
- ELECTRICAL PANEL : Suitable control panel with necessary switches & accessories.

MEASURING TANK	:	M.S/S.S tank with required coating for rust protection with control valve, Piezometer with scale and an overflow arrangement.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection for storage of water to circulate through experimental unit.
OTHERS	:	Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

4. Closed circuit Reciprocating pump test rig

A test rig consists of a Reciprocating pump designed for laboratory experimental purpose with necessary accessories.

PUMP	:	A reciprocating pump to discharge about 30 lpm at 20 m total head.
MOTOR	:	A vertical shaft motor of 1hp, to run on Single phase, 200/220 V,50 cycles AC supply mono block type.
ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.
OTHERS	:	Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

5. Closed circuit Jet pump test rig

A test rig consists of a Jet pump designed for laboratory experimental purpose with necessary accessories.

PUMP	:	A jet pump to discharge about 30 lpm at 20 m total head.
MOTOR	:	1 hp, to run on Single phase, 200/220V, 50 cycles, AC supply mono block type.
ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.
OTHERS	:	Piping system consisting of pipes, valves & fittings, pressure & flow measuring unit.

6. Closed circuit apparatus for determination of C_d of notches

A test rig consists of different notches designed for laboratory experimental purpose with necessary accessories

NOTCHES	:	Rectangular, Trapezoidal, V-Notch, Broad crested weir, Ogee weir (with the facility of interchangeable notches)
PUMP	:	1 hp monoblock pump.
MOTOR	:	To run on Single phase, 200/220V, 50 cycles AC supply.
ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.
OTHERS	:	Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

7. Closed circuit Centrifugal pump test rig

A test rig consists of a Reciprocating pump designed for laboratory experimental purpose with necessary accessories.

PUMP	:	1 hp Centrifugal pump (with the option of variable speed)
MOTOR	:	A VFD to run on three phase, 440 V supply.
ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.
OTHERS	:	Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

8. Closed circuit Screw pump test rig

A test rig consists of a Screw pump designed for laboratory experimental purpose with necessary accessories

PUMP	:	1 hp screw pump
MOTOR	:	1 hp motor to run on Single phase supply phase, 200/220V, 50 cycles, AC supply mono block type.

ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.
OTHERS	:	Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

9. Closed circuit apparatus for calibration of Venturi meter

A test rig consists of Venturi meter designed for laboratory experimental purpose with necessary accessories

PUMP	:	0.5 hp monoblock pump.
MOTOR	:	Single phase, 200/220V, 50 cycles AC supply.
ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.
PIPING SYSTEM	:	G.I pipeline of size 25mm line fitted with size acrylic Venturimeter & Gate valve provided with a set of mini ball valves.
OTHERS	:	Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

10. Closed circuit apparatus for calibration of Orificemeter

A test rig consists of Orifice meter designed for laboratory experimental purpose with necessary accessories

PUMP	:	0.5 hp monoblock pump.
MOTOR	:	Single phase, 200/220V, 50 cycles AC supply.
ELECTRICAL PANEL	:	Suitable control panel with necessary switches & accessories.
SUMP TANK	:	M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
MEASURING TANK	:	M.S/S.S tank with required coating for rust protection of Suitable size provided with standard fittings for measuring discharge of water.

- PIPING SYSTEM : G.I pipeline of size 25 mm line fitted with size acrylic Orificemeter & Gate valve provided with a set of miniball valves.
- OTHERS : Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.

11. Closed circuit apparatus for determining major losses and minor losses in pipes

A test rig designed to study the major and minor losses in pipes for laboratory experiments with necessary accessories

- PUMP : 0.5 hp monoblock pump.
- MOTOR : Single phase, 200/220V, 50 cycles AC supply.
- ELECTRICAL PANEL : Suitable control panel with necessary switches & accessories.
- SUMP TANK : M.S/S.S tank with required coating for rust protection of suitable size to store sufficient water for independent circulation through the unit.
- MEASURING TANK : M.S/S.S tank with required coating for rust protection of suitable size provided with standard fittings for measuring discharge of water.
- PIPING SYSTEM : A battery of 12.5mm pipes of stainless steel, aluminium and copper of length over 100 times the diameter with pressure tappings to measure the losses due to pipe friction - major losses and a 15mm(1/2") GI pipe is fitted with a bend, an elbow, a sudden enlargement and a sudden contraction to measure the minor losses.
- OTHERS : Piping system consisting of pipes, valves and fittings, pressure & flow measuring unit.