



भारतीय प्रौद्योगिकी संस्थान (भारतीय खनि विद्यापीठ), धनबाद

धनबाद, झारखण्ड, भारत, पिन-826004

(मानव संसाधन विकास मंत्रालय, भारत सरकार के अधीन राष्ट्रीय महत्व का एक संस्थान)

INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD

DHANBAD, JHARKHAND, INDIA, PIN-826004

(An Institute of National Importance under Ministry of H.R.D., Govt. of India)

STORES & PURCHASE SECTION Phone:(0326) 2235678 || Email : purchase@iitism.ac.in || Website : www.iitism.ac.in

No.: Mech/500409/17-18

Date: 03-01-2018

NOTICE INVITING TENDER

Subject: Supply & Installation of Experimental Test rig of computerized plate heat exchanger (PHE) for nanofluids

Sir,

Indian Institute of Technology (Indian School of Mines), Dhanbad invites quotations for the following to be supplied and delivered in Experimental Test rig of computerized plate heat exchanger (PHE) for nanofluids Department.

S No	Full Description of items/ store	Qty	Delivery
1	Supply & Installation of Experimental Test rig of computerized plate heat exchanger (PHE) for nanofluids (Detailed Specification is given in Annexure – I)	1	At the Earliest

Tender Schedule

Particulars	Date & Time
Tender Fee	Rs. 500/- (Rs. Five Hundred only)
Bid Security or Earnest money deposit	Rs 14000 (Rs. Fourteen Thousand Only)
Last date and time for submission of tenders	31.01.2018 at 1:00 P.M.
Date and time of opening of tenders	31.01.2018 at 3.00 P.M.

1. You are requested to quote your lowest rates for the supply of above items in the attached format for Financial Bid (Annexure – II)
2. You may send your representative in the office of the undersigned at the scheduled date and time of opening of tender.
3. Tender should be submitted in sealed cover only superscribed with Enquiry No. and due date at the following address only:

The Deputy Registrar (P&S)
Indian Institute of Technology (Indian School of Mines),
Dhanbad – 826 004 Jharkhand

Terms & Conditions

- 1) The rates should be quoted for each item separately.



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- 2) Conditional offer will not be accepted.
- 3) **Tender Cost of Rs. 500/- (non refundable) is to be paid by way of Demand Draft drawn in favor of Registrar, ISM payable at Dhanbad. Non-submission will lead to rejection of your bid.**
- 4) IIT (ISM) does not issue any Form 'C' or 'D' towards sales tax concessional rate. Hence, full rate of GST applicable should be quoted.
- 5) **Bid Security or Earnest money deposit (EMD):** should be submitted in form of A/c payee demand draft drawn in favor of Registrar, IIT (ISM) Dhanbad and payable at any other bank/branch located in Dhanbad.
- 6) Successful bidder will has to submit performance security as per rule (10% of purchase order value)
- 7) **Educational discount**, if any, should be clearly mentioned.
- 8) You are requested to submit your quotation strictly as per the specifications mentioned in the NIT.
- 9) Your tender must be valid for **minimum 90 days** from the date of opening of tender.
- 10) Please mention warranty/ guarantee in your offer clearly. Material/ equipment to be supplied must have minimum warranty/guarantee of **12 months**.
- 11) *Each page in the bid document must be numbered properly and duly signed & sealed by the bidder on every page of the bid.*
- 12) **The items/ materials shall be required to be delivered at Mech. Engg. Department/ Section through Purchase & Store Section, IIT (ISM) Dhanbad at the risk and cost of the tenderer.**
- 13) Unloading and installation shall be the complete responsibility of the supplier.
- 14) The stores are required to be delivered within 30 days. Late delivery may not be accepted.
- 15) The items offered should be of good quality confirming to BIS standards, wherever applicable.
- 16) **Advance payment is not admissible.** Payment shall normally be made within 3-4 weeks subject to receipt and acceptance & installation of the ordered materials/items and submission of bills, PBG etc. (as per Purchase Order Terms).
- 17) In the event date on which the tender is opened for acceptance is declared to be a holiday, the tenders shall be deemed to remain open for acceptance till the next working day.
- 18) Please send your offer by Regd.Post/ Speed Post/ Courier along with Courier receipt. Tender/ quotation will be received during IIT (ISM) working hours only (i.e. Monday to Friday). *Late or delayed tenders shall be summarily rejected.*
- 19) Any other information that you may like to obtain, you are free to contact IIT (ISM) before submission of tender.
- 20) IIT (ISM) reserves the right to accept and/or to reject any/ all tenders without assigning any reason.

Deputy Registrar



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Annexure – I

Technical Specifications:-

The Test Rig is designed to study (Approximate schematic diagram is shown in Figure 1, which may be modified according to the requirement):

- To determine the heat transfer performance at different temperature and pressure conditions
- To determine the heat transfer performance at different flow conditions
- To determine the heat transfer performance at different types of PHE
- To optimize the number of plates in PHE

Specifications:

Sl. No.	Item	Description
1.	Heat Exchanger Type	PHE –Flange Type Length: 500 mm \pm 25 mm, Width: 170 mm \pm 15 mm Thickness 0.8 mm \pm 0.2 mm Corner diameter = 38 mm \pm 4 mm, Spacing between plates = 5.0 mm \pm 0.5 mm, Max. Pressure = 2 MPa, Max. Temperature = 160°C, Max. Liquid Flow Rate = 5 LPM
2.	No of Heat Exchanger (total =03)	Wavy type plate heat exchanger - 01, Asterisk type plate heat exchanger - 01, Chevron type plate heat exchanger (60°/60°) -01
3.	Nos of Plates	20 for each Heat exchanger
4.	Plate Material	Alloy 316/ SS316
5.	Hot water pump - 01 No	Capacity 1HP (or more), Head - 2.0 m (or more), Casing material- Stainless steel/Nodular cast iron/Bronze, Impeller material-EN standard
6.	Nano fluid pump – 01 No	Low speed gear pump with starter, by-pass and suitable valves capacity-1HP (or more), Head-2.0 m (or more)
7.	Hot water tank – 01 No	Capacity: 40 liters \pm 5 liters Made of SS with heat resistance lagging with lid and temperature
8.	Nano fluid tank – 01 No	Capacity: 40 liters \pm 5 liters Made of anti rusting with heat resistance lagging with lid.
9.	Control valves	Required quantity of valves to change the flow and to maintain uniform flow rate throughout the experiment
10.	Heater	4 KW or more for the hot water
11.	Heater controller	Controller card controlled through computer



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12.	Power measurement	Wattmeter for heater power
13.	Temperature Measurement	Digital temperature Indicator (Minimum 8 channels) interfaced with computer for different positions of inlet and outlet conditions
14.	Temperature Sensor	RTD Type Thermocouple sensor (0-250°C)
15.	Flow measurement	Turbine based flow sensor with digital indicator 2 Nos for both the fluids
16.	Pressure Sensors	Digital pressure gauges at 4 locations at inlet and outlet conditions
17.	Piping material	SS 316 / SS 304
18.	Refrigeration circuit for cooling	Suitable refrigeration system or chiller unit must be provided to cool the nanofluid from 80 °C to 20 °C within 20 mins. materials: SS/Copper
19.	Power Requirements	Single phase, 230 V, 32Amps
20.	Software	The complete unit mounted on a Self-contained Control panel with compatible interface software between latest windows OS and all hardware (DAQ system and sensors etc.) for data acquisition system.
21.	Computer Specifications	7 th Generation Intel Core I 5 compatible computer, 3-4 GHz processor or more, 19" Plasma/Color LCD/TFT monitor, 8GB RAM, 1 TB hard disk or more, DVD reader and writer, latest Windows and MS office, 64 bit pre loaded, USB ports, blue tooth, wireless and other necessary items.
22.	Instruction manual with calculation sheet and results.	

Supply should be completed with all accessories required for installation and commissioning of the items at site.



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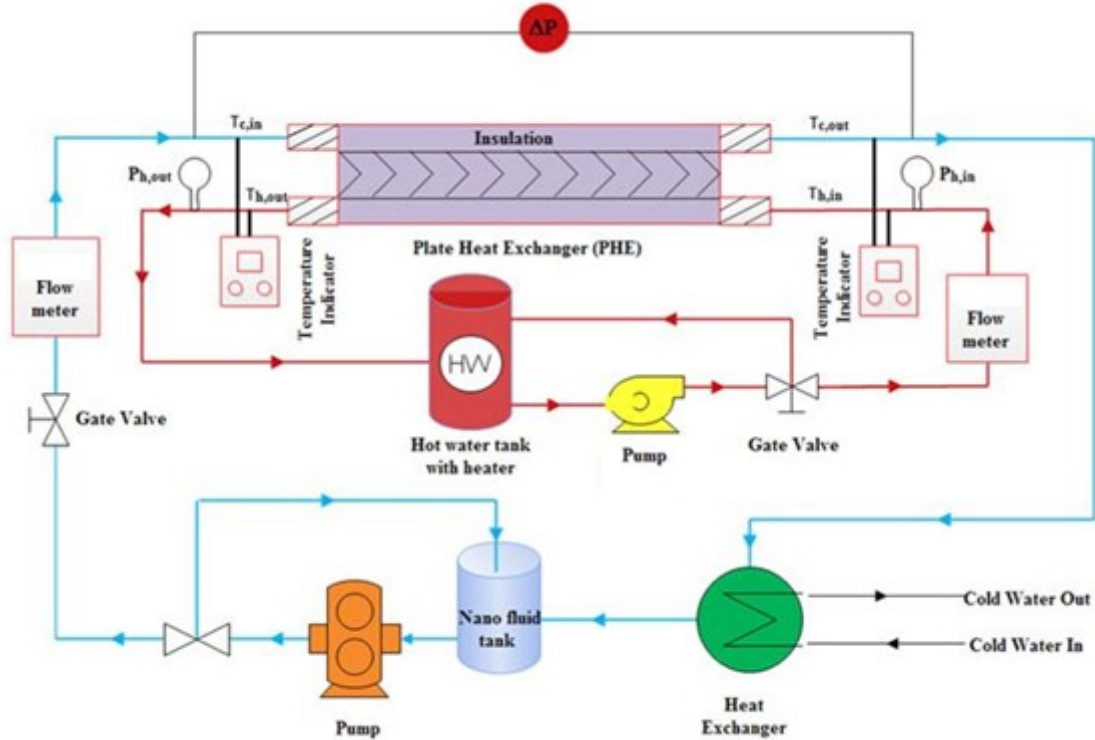


Figure 1: Schematic diagram of the tentative experimental test rig



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Annexure - II

Format for Commercial Bid

Our NIT No.: Mech/500409/17-18

Date:

Bidders Ref: No.

Date:

Sub: Supply and installation of Experimental Test rig of computerized plate heat exchanger (PHE) for nanofluids

Sl. No.	Full Description of Items with (HSN Code/SAC Code)	Qty.	Rate	Amount
			Packing & Forwarding (if any)	
			Total	
			GST	
			Freight (if any)	
			Installation (if any)	
	Amount should be in figure as well as word		Grand Total	

Note:

- 1) All the details must be provided as per prescribed format only
- 2) Prices quoted by the bidders should include GST, HSN Code, SAC Code, duties, livies, transportation cost and insurance costs etc. if any
- 3) All the rates must be quoted in Indian Rupees.