



# 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-INS-203-18-19

Date: 13-08-2018

## NOTICE INVITING TENDER

### Subject: Supply & Installation of Pin-Fin Apparatus

Indian Institute of Technology (Indian School of Mines), Dhanbad invites quotations for the following to be supplied and delivered in Mech. Engg. Department.

| S No | Full Description of items/ store                                                                | Qty | Delivery        |
|------|-------------------------------------------------------------------------------------------------|-----|-----------------|
| 1    | Supply & Installation of Pin-Fin Apparatus<br>(Detailed Specification is given in Annexure – I) | 1   | At the Earliest |

### Tender Schedule

| Particulars                                  | Date & Time             |
|----------------------------------------------|-------------------------|
| Last date and time for submission of tenders | 05.09.2018 at 1:00 P.M. |
| Date and time of opening of tenders          | 05.09.2018 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*



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## Terms & Conditions

- 1) The rates should be quoted for each item separately.
- 2) Conditional offer will not be accepted.
- 3) IIT (ISM) does not issue any Form 'C' or 'D' towards sales tax concessional rate.
- 4) Successful bidder has to submit performance bank guarantee @ 10% of total order value of the purchase order.
- 5) **Educational discount**, if any, should be clearly mentioned.
- 6) You are requested to submit your quotation strictly as per the specifications mentioned in the NIT.
- 7) Your tender must be valid for **minimum 90 days** from the date of opening of tender.
- 8) Please mention warranty/ guarantee in your offer clearly. Material/ equipment to be supplied must have minimum warranty/guarantee of **12 months**.
- 9) *Each page in the bid document must be numbered properly* and duly signed & sealed by the bidder on every page of the bid.
- 10) **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.
- 11) IIT(ISM), Dhanbad is entitled for Excise Duty Exemption under Govt. of India notifications and is registered with DSIR, Govt. of India for this purpose. This may be taken into consideration while quoting minimum possible rate. Exemption Certificates can be issued in favour of manufacturers only, if it is mentioned in the bid. It will not be issued any Indian Agent/dealer or distributor at any circumstances. IIT(ISM) will provide only custom duty exemption certificate for availing concessional custom duty. IIT(ISM) will not pay any extra custom duty other than duty exemption certificate.
- 12) Unloading and installation shall be the complete responsibility of the supplier.
- 13) The stores are required to be delivered within 30 days. Late delivery may not be accepted.
- 14) The items offered should be of good quality confirming to BIS standards, wherever applicable.
- 15) **Advance or part 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).
- 16) 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.
- 17) 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*.
- 18) IIT (ISM) reserves the right to accept and/or to reject any/ all tenders without assigning any reason.

Assistant Registrar (P&S)



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Annexure – I

## Technical Specifications:

### SPECIFICATIONS OF PIN – FIN APPARATUS (COMPUTERIZED MODE)

#### DESCRIPTION:

The apparatus consists of a Pin Fin placed inside an open duct. The other end of the duct is connected to the suction side of a blower. The delivery side of the blower is taken up through a gate valve and an orifice plate to the atmosphere. The pressure drop across an orifice can be measured by using U tube manometer with mercury as working fluid. The Pin is heated by a heater at different heat inputs. Thermocouples (5 nos.) are embedded along the length of the pin. Various parameters like heater input (Voltage & Current), temperatures are measured by respective Digital Indicators.

The whole system is a single unit, consists of a metallic, powder coated control panel with m s square tube table, which gives esthetic finish. The apparatus provided with digital instrumentation to get accurate readouts and results.

#### SYSTEM COMPONENTS & SPECIFICATIONS:

**Pin fin experiment is to be conducted in free and forced convection heat transfer mode.**

**Duct:** 100-120 x 150-160 x 560-600 mm (M S Powder coated.)

**Fin:** 11- 12mm dia x 230-240 mm Long, (Three fins, made of **Brass, Aluminium and Copper**)

**Heater:** Band type, Nichrome - 250watts.

**Manometer:** U-Tube with mercury as working fluid with Data logger

**Blower:** Centrifugal ½ HP, 220 VAC

**Variac:** Auto transformer 2A with Data logger

**Voltmeter:** Digital voltmeter of range 0-300V AC with Data logger

**Ammeter:** Digital ammeter of range 0-20A AC with Data logger

**Temperature indicator** : By thermocouple and digital temp.indicator with channel selector and interfaced with Data logger

No. of thermocouples fitted with fins = 5 in each fin x 3 =15

No. of thermocouple in ambient = 1

**Data acquisition used:** NI CHORD 16 BIT

**Software:** Lab view software or VB based card

Facility: Performance of Pin-Fin could be studied in both free and forced convection conditions.



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Annexure - II

## Format for Financial Bid

NIT No.: Mech-INS-203-18-19

Date:

Bidders Ref: No.

Date:

GSTIN No.:

**Subject: Supply & Installation of Pin-Fin Apparatus**

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

### 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.