# INVITATION FOR TENDER FOR SUPPLY OF EQUIPMENT

Sealed tender offers are invited in two separate sealed covers (Technical and Commercial offers) from eligible manufacturers/suppliers or their direct Indian agents for the supply of the following equipment.

**Bomb Calorimeter**

Please send offers, ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE. The validity of the bid should be at least four months (120 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than 29.04.2017 at 15:00 Hrs at the following address:

**Prof. Jyanta Bhattacharya**
**Professor, Mining Engineering Department,**
**Indian Institute of Technology Kharagpur – 721 302,**
**West Bengal, India.**

Earnest money of **Rs. 15000/-** is to be deposited in the form of Account payee Demand Draft in favour of IIT Kharagpur, payable at Kharagpur, India. Any bid which is not accompanied with an EMD shall be summarily rejected. Earnest money deposited will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. No interest will be paid on the earnest money of the unsuccessful bidders.

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|---|---|
| Tender Reference | **IIT/SRIC/Mining/ACGA/JB/ 2017-18/EQ-1, Dated: 27.04.2017** |
| Price of Tender Document | **NIL** |
| Last Date and Time for submitting the tender document | **29.05.2017 at 15:00 Hrs (Indian time)** |
| Time and Date of Opening of Technical Bids | **29.05.2017 at 16:00 Hrs (Indian time)** |
| Place of Opening Tender | **Mining Engineering Department,<br>Indian Institute of Technology<br>Kharagpur – 721 302, West Bengal, India** |
| Address of Communication | **As stated above** |
| Contact Telephone Numbers | **Office no-03222-283702** |
| E-mail | **jayantab@mining.iitkgp.ernet.in** |

## DETAILED TECHNICAL SPECIFICATIONS FOR

### Bomb Calorimeter

1. Microprocessor controlled Bomb Calorimeter for rapid determination of gross Calorific value of crushed/powered samples of coal/coke as per Indian/International standards. The equipment should be compact, integrated and bench-top model stand alone instrument and facility to run with PC control also. The value of gross CV should be reportable in Kcal/Kg, properly interfaced printer with LCD color graphic touch screen display of the final results on the screen of the instrument, fast hard copy printing facility and adequate memory storage facility (Approx. 1000 tests). The equipment should be easy to operate.
2. Calorimeter software should identify different bombs automatically & maintain the history of the ignitions performed with each bomb.
3. The basic calorimeter system should have OEM made integrated water handling system to measure water automatically.
4. Bomb & bucket should be removable type only to do more number of samples per hour as well as long safe life of bomb and bucket.
5. **Oxygen Combustion Vessel (Bomb):** Thick walled acid resistant having internal volume 250 to 350 ml made of high strength with proper insulation arrangement and capable of withstanding high pressure and fit for safety burning samples liberating up to 10,000 K.Cal per charge with oxygen pressure up to 40 atm. for 1 gm of sample size.
6. **Measuring range:** 1000 to 10,000 Kcal/Kg and more per one gram of sample.
7. **Temperature Measurement:** with inbuilt high precision electronic thermometer.
8. **Temperature Measuring Resolution:** 0.0001°C
9. **Operator time per test:** 8 -10 minutes or less in Isoperibol Method.
10. **No. of Tests per hour:** 6 to 8 samples or more in an hour.
11. **Method**- Isoperibol
12. **Sample weight**-0.5 gm – 1.5 gm
13. **Balance**-Built-in/interfaced/accesory, Top loading electronic balance with LCD display and auto-calibration facilities. Required weight range: -0.1 gm – 100 gm (Max.) Resolution:-0.0001gm (Minimum), Accuracy: - + 0.0001 gm (Minimum)
14. **Measurement Precision**- 0.01 - 0.075% RSD
15. **Equipment Resolution**-0.1 Cal/gm
16. **Corrections**-Operator selected option for correcting for Acid, Nitrogen, and Fuse wire, Sulphur, Moisture, Ash and Hydrogen.
17. **Gas filling arrangement**-Suitable gas filling arrangements with regulator and gauges for line/vessel pressure and all necessary attachments.
18. **Printer**-Either built-in or suitably interfaced with the basic unit with LCD display and real time print out facilities. Adequate data storage facility and key board controlled printing facilities.
19. **Guarantee-Warranty**-The tendered shall be fully responsible for the manufacturing warranty in respect of proper design, quality, workmanship of material for which these are indented for a period of eighteen months from the date of installation and commissioning.
20. Bomb has approval with PED (Pressure Equipment Directive).
21. **Interface:** Inbuilt USB interface for Balance, Printer and computer without any additional accessories/software.
22. Safe life of bomb vessel should be minimum 4000 test continuously.
23. Additional software if any required being included for PC operation.
24. **Sample Crucible:** Metal crucibles with Ni-Cr Alloy. Minimum for 5000 test sample crucible will supply with main instrument.
25. **Power requirement:** 230 VAC +/- 10 %, 50/60 HZ As per Indian condition.
26. **Up gradation**: Calorimeter should have a facility to upgrade with different types of bombs by simply plug in without changing the main calorimeter configuration.
27. **1 year full spare parts and maintenance warranty.**

28. Venders have to provide consumables including Oxygen cylinder (99.99 % purity), Benzoic Acid Tablet: 150 nos, Crucibles: 10 Nos. [Minimum life of each Crucible must be 300 sample tests], Fuse wire/Cotton Thread: 2000 pcs. Filters: 100 nos ], 1 no. Bomb Cleaning Station along with the basic instrument during installation.
29. PC and software assisted.
30. **Tender opening date: 29.05.2017, at 4.00 pm.**
31. **Project code: 'ACGA'**
32. **Please send the quotation by speed post to the under mentioned address :**

Prof. Jayanta Bhattacharya
Department of Mining Engineering
IIT Kharagpur - 721 302.

## GENERAL TERMS & CONDITIONS

PLEASE SPECIFICALLY INDICATE THE FOLLOWING POINTS IN YOUR QUOTATIONS AND COMPLY THE TERMS AS MENTIONED HEREUNDER:-

1. TENDERS ARE INVITED COMPLYING THE REQUIREMENT FOR TENDER AS DETAILED IN THE TENDER SPECIFICATION TO BE SUBMITTED IN THE COMPANY'S / FIRM'S LETTERHEAD NEATLY PRINTED / TYPED DULY SIGNED BY AUTHORIZED PERSON WITH THE SEAL OF THE BIDDERS. ALL ENVELOPS CONTAINING THE TENDER SHOULD BE PROPERLY SEALED. SEPARATE ENVELOPS SHOULD BE USED FOR TECHNICAL AND PRICE BID AND INDICATION TO THEIR EFFECT MAY PLEASE BE SUPERSCRIBED ON THE ENVELOP.

**THE FOLLOWING DOCUMENTS ARE REQUIRED FROM THE INDIAN AGENTS OF FOREIGN FIRMS:**

1.1 FOREIGN PRINCIPAL'S PROFORMA INVOICE INDICATING THE COMMISSION PAYABLE TO THE INDIAN AGENT AND NATURE OF AFTER SALES SERVICE TO BE RENDERED BY THE INDIAN AGENT.

1.2 COPY OF THE AGENCY AGREEMENT WITH THE FOREIGN PRINCIPAL INDICATING THE NATURE OF AFTER SALES SERVICES, PRECISE RELATIONSHIP BETWEEN THEM AND THEIR MUTUAL INTEREST IN THE BUSINESS.

1.3 PLEASE ENCLOSE THE DOCUMENT(S) RELATED TO THE ENLISTMENT OF THE INDIAN AGENT WITH DIRECTOR GENERAL OF SUPPLIES & DISPOSALS (DGS & R) UNDER THE COMPULSORY REGISTRATION SCHEME OF MINISTRY OF FINANCE.

2. TECHNICAL CATALOGUE/LEAFLET SHOULD BE ENCLOSED WITHOUT FAIL. PROVIDE COMPLIANCE STATEMENT WITH RESPECT TO THE TECHNICAL SPECIFICATIONS MENTIONED ABOVE.

3. PLEASE CONFIRM WHETHER YOU ARE AUTHORISED TO QUOTE ON BEHALF OF YOUR PRINCIPALS AND IF SO, PLEASE ENCLOSE A COPY OF SUCH AUTHORISATION WITH YOUR QUOTATION.

4. **PRICE BIDS FOR FOREIGN FIRMS**: PRICES ARE TO BE QUOTED ON '**EX-WORKS**' DULY PACKED OR ON **"FCA/FOB"** INTERNATIONAL PORT" BASIS AND ALSO INCLUDING AGENCY COMMISSION PAYABLE TO YOUR INDIAN AGENTS, IF ANY SHOWING CLEARLY THE FOLLOWING BREAK UP:-

   I) EX-WORKS PRICE
   II) PACKING & FORWARDING
   III) FREIGHT
   IV) ANY OTHER RELEVANT EXPENSES.
   V) TAXES PAYABLE BY THE INSTITUTE

   INSURANCE WILL BE PAID BY OUR INSTITUTE SEPARATELY AND SHOULD NOT FORM PART OF THE QUOTED PRICE.

   **PRICE BIDS FOR INDIAN FIRMS:** PRICES ARE TO BE QUOTED ON F.O.R., IIT KHARAGPUR, ON DOOR DELIVERY BASIS CLEARLY SHOWING THE BREAK UP.

5. **PERIOD OF VALIDITY**: BIDS SHALL REMAIN VALID FOR ACCEPTANCE FOR A PERIOD OF 120 DAYS FROM THE DATE OF OPENING.

6. INDIAN AGENTS ADDRESS AND PERCENTAGE OF AGENCY COMMISSION INCLUDED IN ABOVE F.O.B./EX-WORKS PRICE. (THIS WILL BE PAID TO THE INDIAN AGENTS IN INDIAN RUPEES ONLY AND NOT IN **FE).** PLEASE ENCLOSE COPY OF AGENCY AGREEMENT ENTERED INTO WITH YOUR

PRINCIPALS INDICATING THE NATURE OF AFTER SALES SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP & MUTUAL INTEREST IN THE BUSINESS.

7. **MEASUREMENTS/WEIGHT:** NETT/GROSS OF THE CONSIGNMENT. IN CASE OF AN ORDER, YOU SHALL USE AIR WORTHY PACKAGE (AS APPLICABLE) DULY CERTIFIED WITH DOCUMENTS – PLYTO – SANITARY CERTIFICATE (AS PER QUARANTINE ORDER 2003).

8. **SCOPE OF SUPPLY**: SHOULD INCLUDE FREE INSTALLATION AND COMMISSIONING

9. **PAYMENT TERMS** FOR FOREIGN FIRMS

   A) 90% PAYMENT THROUGH SIGHT DRAFT/FORIGN DEMAND DRAFT/LC (EXCEPTIONAL CASES)/SWIFT TELE TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION AND 10% AFTER SUCCESSFUL INSTALLATION & COMMISSIONING.

   B) BANK CHARGES ON LC/SD (WITHIN INDIA APPLICANT ACCOUNT AND OUTSIDE INDIA TO BENEFICIARY ACCOUNT).

   **PAYMENT TERMS** FOR INDIAN FIRMS

   A) 90% PAYMENT THROUGH CROSSED ACCOUNT PAYEE CHEQUE / ELECTRONIC TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION AND 10% AFTER SUCCESSFUL INSTALLATION & COMMISSIONING.

   B) ENSURE MENTIONING

   i) BANK DETAILS OF THE BENEFICIARY, VAT NO., SERVICE TAX NO. AND PAN NUMBER

   ii) FULL NAME AND ADDRESS OF THE BENEFICIARY ON WHOM ORDER HAS TO BE PLACED

10. WHETHER ANY EXPORT LICENCE IS REQUIRED FROM YOUR GOVERNMENT, IF SO, PLEASE CONFIRM WITH DETAILS.

11. COUNTRY OF ORIGIN OF THE GOODS IS TO BE MENTIONED.

12. THE INSTITUTE SHALL PROVIDE THE CONCESSIONAL CUSTOMS DUTY AND EXCISE DUTY EXEMPTION CERTIFICATE AS PER GOVT. NOTIFICATION NO. 51/96 CUSTOMS DATED: 23.07.1996 AND CENTRAL EXCISE DUTY EXCEMPTION IN TERMS OF GOVT. NOTOFICATION NO. 10/97 – CENTRAL EXCISE DATED: 01.03.1997 AS AMENDED FROM TIME TO TIME.

13. **LIQUIDATED DAMAGES**: THE STORES SHOULD BE DELIVERED / DISPATCHED TO DESTINATION AND READY FOR OPERATION NOT LATER THAN THE DELIVERY DATE SPECIFIED. IT THE SUPPLIER FAILS TO DELIVER ANY OR ALL THE STORES OR PERFORM THE SERVICE BY THE SPECIFIED DATE, LIQUIDATED DAMAGES AT 1% PER MONTH OR PART THEREOF IN RESPECT OF THE VALUE OF STORES WILL BE DEDUCTED FROM THE CONTRACT PRICE SUBJECT TO A MAXIMUM OF 5%. ALTERNATIVELY, THE ORDER WILL BE CANCELLED AND THE UNDELIVERED STORES PURCHASED FROM ELSEWHERE AT THE RISK AND EXPENSE OF SUPPLIER.

14. **PATENT RIGHTS**: THE SUPPLIER SHALL INDEMNIFY THE PURCHASE AGAINST ALL THIRD PARTY CLAIMS OF INFRINGEMENT OF PATENT, TRADEMARK OR INDUSTRIAL DESIGN RIGHTS ARISING FROM USE OF THE GOODS OR ANY PART THEREOF IN INDIA.

15. ONLY THOSE BIDDERS WHO'S BIDS HAVE BEEN TECHNICALLY FOUND ACCEPTABLE WILL ONLY BE INVITED FOR PARTICIPATION IN THE PRICE BID.

16. THOSE BIDDERS WHO DO NOT RECEIVE ANY COMMUNICATION FOR PARTICIPATION IN PRICE BID OPENING MEETING MAY PRESUME THAT THEIR BID HAS NOT BEEN ACCEPTED BY THE INSTITUTE.
17. CONDITIONAL OFFER WILL NOT BE ACCEPTED.

18. LATE TENDERS I.E. TENDER RECEIVED AFTER THE DUE DATE AND TIME OF SUBMISSION AS MENTIONED ABOVE SHALL NOT BE ACCEPTED.

19. BIDDERS TO ENCLOSE THE FOLLOWING DOCUMENTS:-

A) CURRENT INCOME TAX AND SALES TAX CLEARANCE CERTIFICATES (VAT No.), SERVICE TAX NO. AND PAN NO.

B) BANKER'S SOLVENCY CERTIFICATE

C) SUMMARY OF AUDITED STATEMENT OF ACCOUNTS FOR THE LAST THREE YEARS TO BE ENCLOSED AND FINANCIAL HIGHLIGHTS AND THE KEY PERFORMANCE DURING THE LAST THREE QUARTERS TO BE ENCLOSED AS PER FORMAT:-

COMPANY'S KEY PERFORMANCE

| DESCRIPTION | JAN. TO MARCH | APRIL TO JUNE | JULY TO SEPT. |
|---|---|---|---|
| GROSS REVENUE | | | |
| PROFIT BEFORE TAX | | | |
| PROFIT AFTER TAX | | | |
| RETURN ON INVESTED | | | |
| CAPITAL (ROIC) | | | |

D) CUSTOMER SATISFACTION CERTIFICATE FROM ONE SUCH ORGANIZATION IS TO BE ATTACHED WITH THE TECHNICAL BID AND PRICE BID.

E) NAME AND ADDRESS OF MINIMUM THREE CLIENTS TO WHOM SUCH EQUIPMENT HAVE BEEN SUPPLIED SHOULD BE MENTIONED.

20. **WARRANTY / GUARANTEE**: THIS COMPREHENSIVE WARRANTY / GUARANTEE SHALL REMAIN VALID FOR **12 MONTHS** AFTER THE GOODS (OR ANY PORTION THEREOF AS THE CASE MAY BE) HAVE BEEN DELIVERED AND COMMISSIONED TO THE FINAL DESTINATION.

21. THE INSTITUTE DOES NOT BIND ITSELF TO OFFER ANY EXPLANATION TO THOSE BIDDERS WHO'S TECHNICAL BID HAS NOT BEEN FOUND ACCEPTABLE BY THE EVALUATION COMMITTEE OF THE INSTITUTE.

22. ALL TENDERS (UNLESS OTHERWISE SPECIFIED) ARE TO BE SUBMITTED / HANDED OVER TO **Prof. Jayanta Bhattacharya, Mining Engineering Department, INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR - 721 302** AND ACKNOWLEDGEMENT TO BE OBTAINED.

**IMPORTANT**

1. IIT Kharagpur authority may accept or reject any or all the bids in part or in full without assigning any reason and does not bind itself to accept the lowest bid. The Institute at its discretion may change the quantity / upgrade the criteria / drop any item or part thereof at any time before placing the Purchase Order.

2. Promptly make arrangements for repair and / or replacement of any damaged item (s) irrespective of settlement of claim.

3. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.

4. For any query pertaining to this bid document correspondence may be addressed to Prof. Jayanta Bhattacharya, at the address mentioned above.

**LAST DATE FOR SUBMISSION OF SEALED BIDS: 29.05.2017**

1) Please Note that the Institute remains closed during Saturdays & Sundays and all specified government holidays.

2) Fax, e-mail Tender will not be accepted.

3) The General Terms and Conditions as stated above relate to supply of stores / equipment /assets etc. and for specific service other terms and conditions of the Institute will apply.

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