



Enquiry No – CE/TE/CIC/03/2016-17

Date: 09/03/2017

**Sub:** Call for quotation for supply and installation of **8 – channel Isothermal Calorimeter** equipment

Dear Sir,

Sealed quotations (Technical and Financial bids separately) are invited from authorized suppliers for item and their specifications given below before 20/3/2017

The quotation for supply and installation of 8 – channel Isothermal Calorimeter equipment should be sent in two parts in sealed envelopes, clearly marked as "**Technical Bid**" and "**Financial Bid**". The Technical Bid should contain detailed technical specifications of the product being offered and **should not mention any prices**. The Financial Bid should include the detailed price quotation clearly, including the cost of the equipment, taxes, service charges, shipping and handling charges, if any. Our organization is an educational institute of repute and liable to get maximum education discount from manufacturer. Please specify it, separately.

#### **TECHNICAL SPECIFICATION FOR ISOTHERMAL CALORIMETER**

The calorimeter must be of differential type (twin type consisting of a sample and a reference vessel) and must operate in heat flow (heat flux) mode of detection. Isothermal calorimeter must comply with ASTM C1702 for heat of hydration measurements up to 7 days.

1. Isothermal Calorimeter: The thermostat must accommodate two interchangeable calorimeter blocks. The eight channel calorimeter block should accommodate eight (8) twin-type calorimeters and should be able to make up to eight independent differential measurements simultaneously.
2. Specifications:
  - a. Calorimeter Channel: 8
  - b. Operating temperature: 5°C to 85 °C (required range). Capability to perform outside of the required range and accessories required for which should be quoted separately
  - c. Temperature accuracy :  $\pm 1^{\circ}\text{C}$  (or less)
  - d. Temperature stability:  $\pm 0.02^{\circ}\text{C}/24\text{hrs}$  (minimum)
  - e. Limit of Detectability :  $4\mu\text{W}$  or better
  - f. Baseline stability over 24hr:
    - i. Drift  $\leq 40$  micro watt ( $\mu\text{W}$ ) or better
    - ii. Deviation  $< \pm 15$  micro watt ( $\mu\text{W}$ )

- iii. Error  $<\pm 25$  micro watt ( $\mu\text{W}$ )
3. Internal mixing capability: At least one of the sample cell should have internal mixing capability to facilitate early hydration reaction studies.
  4. Minimum sample size: 20ml or less
  5. Vial type: Closed ampules (crimp screws or screw caps) made of glass and/or plastic (HDPE)
  6. Admixture ampule: Capability for initiating reactions inside of the calorimeter by injecting a liquid/reactants in to the calorimeter (prior to or in the middle of an ongoing experiment). Vials should be disposable glass bottles and should have an open top cap (polypropylene cap or alternate) and sealing arrangement (a PTFE lined silicone septa or alternate) that can facilitate introduction of reagents to initiate reactions inside the calorimeter. An empty vial identical to the sample vial should be available for use in reference cell.
  7. Admixture ampule set up should also include stirring mechanisms which can either be manual or motor-controlled with an adjustable stirring speed.
  8. Quotation should include a minimum of one crimping tool, one alignment tool, 15 reusable lifting eyelets, 450 disposable glass ampoules with caps (20 mL), injection syringe and needle for admixture module and 500 bottle caps and seals.
  9. Heat flow calibration accessories should be included
  10. Quote for Computer & printer (if any) should be made separately.
  11. Software: The system should include custom software for complete experimental control, data acquisition, data analysis and report generation. Software should be capable of analyzing data for various studies like heat of hydration, sulfate optimization, setting time, admixture optimization in cement etc. The software should be capable of performing analysis of an existing data file while new data is being collected.

**Kindly arrange to send the sealed quotation(s) to the following address:** Syam Nair, Transportation Engineering Laboratory, Department of Civil Engineering, IIT Kanpur, 208016 by **20-03-2017 up to 4 pm.**

**Terms and conditions:**

1. If the Financial Bid is included in the Technical Bid, then the quotation will be rejected.
2. Please respond to specific details as asked for in tender document. If it is found that specifications given in tender is copied and placed in submitted technical bid, the quotation will be considered incomplete and will not be considered any further.
3. Your quotation shall contain Authorization Letter from manufacturer.
4. Quoted prices should include all taxes at rates that are applicable to IIT Kanpur
5. Equipment should have a minimum warranty of 1 year for all parts and labor.
6. Vendors should demonstrate the details of a minimum of 3 internationally reputed academic/ research institutions where the quoted equipment has been supplied in the last two years. Contact information (telephone numbers) of the lab-in-charge/faculty-in-charge of these institutions should also be furnished
7. Quotation must be valid for a minimum of 45 days.
8. Delivery period should not be more than **6 weeks** and delivery should be made at IIT Kanpur. All related paper works and expenses (shipping, insurance, etc.) will be the responsibility of supplier
9. Submit complete details of the product(s) including brochure, manuals etc. with the quotation.
10. AMC rates for the equipment after end of warranty period (excluding parts) should be included along with the quotation. Decision to pursue AMC or not will be made by IIT Kanpur
11. The firms may also quote for optional accessories which will extend the capability or ease of use of the equipment.
12. All quotations should be in the currency of the country of origin of the instrument and also converted to Rupee (₹) as per prevailing rates.
13. Normal payment terms for the Institute will be applicable (90% on delivery of the items and the remaining 10% after satisfactory installation/ inspection).
14. The Institute is exempted from excise duty and pays a nominal customs duty of ~5% under Govt. of India notifications 10/97 and 51196, respectively. Custom Duty exemption certificate under notification 51196 and road permit will be provided if applicable.
15. The Institute reserves the right for accepting and rejecting any quotations without assigning any reason thereof. **Also, the Institute reserves the right to reject or accept all or any of the offers made above.**
16. Thanking you

Sincerely,

 (Manoj Kumar)