CSIR-CENTRAL MECHANICAL ENGINEERING RESEARCH INSTITUTE
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MODIFICATION OF BIDDING DOCUMENTS AFTER PRE-BID COFERENCE

TENDER REFERENCE	PUR/111/CAMP/02/2017-18
ITEM	SUPPLY INSTALLATION TESTING AND COMMISSIONING OF MICROPROCESSOR BASED PC CONTROLLED ISOPERIBOL BOMB CALORIMETER
DATE OF PRE-BID CONFERENCE	14 DECEMBER 2017

The following amendments have been made to the Bidding Documents after the Pre-Bid Conference

1. **CRITICAL DATES**

REVISED DEADLINE FOR RECEIPT OF BIDS	**18 JANUARY 2018 UPTO 2.30 PM IST**
REVISED DATE AND TIME OF OPENING OF BIDS [TECHNO-COMMERCIAL BID ONLY]	**18 JANUARY 2018 AT 3.00 PM IST**

2. **TECHNICAL SPECIFICATIONS AND OTHER REQUIREMENTS**

General specification: Microprocessor based PC Controlled Isoperibol Bomb Calorimeter to determine calorific value of various solid (different grades of coal) and liquid fuels (HFP, LDO) etc. The system must be complied ASTM/ ISO standards for removable type GCV analyser of above solid and liquid fuels. The instrument should be able to display calorific value in calorie/gm or other internationally accepted units. The instrument should be compatible and controlled by Microsoft windows based PC to account for the various corrections like fuse wire consumed, moisture correction, elemental correction (nitrogen and sulphur) etc. to arrive at automatically corrected calorific value. The system should have facility to use fuse-wire/ Cotton Thread Bomb (combustion vessel).

Sl No.	Specification	Requirement
1.	**Method**	Isoperibol Bomb Calorimeter for high precision and rapid determination of gross calorific value of coal/coke/lignite/oil and food products in compliance with international standard methods.
2.	**Sample weight**	0.6-1.2 g.
3.	**Range of GCV**	1000-8000 cal/g. or more.
4.	**Precision**	≤ 0.1 % RSD or less for 1 g. of benzoic acid. (The RSD value mentioned on OEM's product catalogue and manual will be considered only)
5.	**Temperature resolution**	0.0001 °C.
6.	**Analysis time**	8-10 min
7.	**Operating temperature**	Room temperature (25°C or more)
8.	**Correction facilities**	Should have provision for correction for acid or % nitrogen, fuse wire, sulphur, moisture, skipping and ash.
9.	**Compliance to standards**	The calorimetric bomb should be resistant to corrosion and certificate for safety of bomb under high pressure should be provided. The instrument should identify the bomb automatically. The bomb vessel should be compiled with ASTM E-144/ DIN/ISO standards.
10.	**Balance**	The bomb calorimeter should have facility to interface with the balance, computer and printer. The vendor should offer one Sartorius/Mettler made weighing balance with 200 g capacity and 0.1mg precision. The vendor should offer one branded PC with i-5 processor and one black- laser printer.

11.	**Application through software**	The instrument should operate through PC with appropriate Microsoft windows based original software. The software should have the facility to start/stop and run the instrument and able to store measurement reading, display real time data and graphs in the computer.
12.	**Required accessories**	The basic calorimeter system must have OEM made integrated water handling system with facilities of automatic measuring and filling of water. The water handling system should be integrated with basic calorimeter system and must be as per OEM's product brochure or manual. The water handling system should support the basic calorimeter system at ambient working temperature of up to 30°C or more which needs to cool.
13.	**Water handling system**	Closed loop water system at ambient temp with built-in 2000 ml pipette for integral water handling.
14.	**Sample type**	Direct analysis of powdered samples should have capability of system.
15.	**Bomb cleaning station**	Separate bomb cleaning station should be included as an integral part of system.
16.	**Standards**	Benzoic acid CRMs one bottle (100g)and Coal CRMs (100g)with certified value of GCV traceable to NIST must be provided.
17.	**Warranty period**	1 year after installation. **Note:** AMC charge to be mentioned for next two years after one year warranty is over (optional).
18.	**Qualification criteria**	Bidder should have supplied same instrument to at least 03 (three) customers preferably in CSIR Labs/ Govt of India funded institutions/ PSUs within last 5 years (as on the date of Bid opening). Purchase order/performance certificate shall be enclosed with the bid.
19.	**Spares of bomb calorimeter**	The vendor should supply consumables for 5000 test samples along with the basic instruments. Vendors should supply oxygen regulator and 1 no Pellet Press, along with the basic instrument.
20.	**Optionally quote**	One extra combustion vessel including cap. The vessel should be identical with the standard vessel supplied along with the instrument.
21.	**UPS**	1 KVA UPS with 15 minutes back up should be provided to run the instrument.

MODE OF EVALUATION

The Techno-Commercial Bids shall be first taken up for evaluation and assessment in the manner described in the Bidding Documents. After due evaluation of the Techno-Commercial bids, the short listed Bidders shall have to arrange for a physical demonstration of the offered model either at Bidder's premises or any location nearest to CSIR-CMERI, where the said model is installed and in use. Bidder shall arrange for such demonstration within 7 days of being notified by CSIR-CMERI. No charges shall be payable by CSIR-CMERI for the demonstration.

The demonstration shall be done in the presence of a technical team deputed by CSIR-CMERI. Bidder shall be required to demonstrate the performance of the offered model in respect of the following parameters :

1. Sample weight.
2. Range of GCV.
3. Precision.
4. Temperature Resolution.
5. Analysis Time.
6. Balance

Models which fail to meet the prescribed parameters shall be disqualified and the bid shall be rejected. Price Bids of only those Bidders whose models meet the prescribed parameters shall be opened

Note : Short listed Bidders mean Bidders whose Techno-Commercial bids meet the tender specifications

THE ABOVE AMENDMENTS SHALL AMOUNT TO AMENDMENT OF ALL RELEVANT PROVISIONS OF CSIR-CMERI BIDDING DOCUMENTS.

OTHER PROVISIONS OF THE BIDDING DOCUMENTS REMAIN UNCHANGED.