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

TENDER REFERENCE	PUR/112/CAMP/02/2017-18
ITEM	SUPPLY INSTALLATION TESTING AND COMMISSIONING OF ASH FUSION DETERMINATOR
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

The Ash Fusion Determinator must have the following minimum specification:

Sl. No.	Specification	Requirement
1	Temperature Range	The instrument should have operational capabilities between 500 to 1600 deg. C with programmable Ramp Rate from 5 deg C to 10 deg C/min. The temperature display must be in degree centrigrade, degree Ferenhite or degree Kelvin (°C, °F or °K)
2	Temperature Precision	Should be within ±3°C upto 1600°C.
3	Safety Features	➢ The instrument must have safety interlocked furnace door, access panels, and an integrated furnace blower with no additional fume or bonnet hood. ➢ Built in CO monitor should be present within the instrument, and it should be capable of stopping the gas flow at the onset of alarm.
4	Application Software	➢ The operating software should be Windows based, with on-board help manual, and should perform checks based on user-defined service conditions and calibrates the furnace thermocouple. ➢ The operating software should comply with ASTM, 1857-87 DIN 51730, ISO 540: 1995, and BS 1016: Part 113 compliance, temperature setting and ramp rates, atmosphere setting and flow rates, Camera data acquisition rates, Image Recognition deformation settings, and sample report settings. ➢ Instruments software must display the sample name along with temperature and corresponding sample image for each of the deformation temperatures (IT, ST, HT, and FT). ➢ Instruments software must allow the analyst to digitally zoom and enhance the sample image as well as use metrics such as height, width, area, rounding and temperature in the analysis of samples.

		➢ The operating software should monitor furnace and system integrity by measuring gas flow through the system. The software should also have an automatic system's check which verifies all system interlocks, gas flows, hardware and network communications, furnace control and temperature.
5	Operational Capabilities	➢ The instrument should be computer controlled and the software should be capable of determining all the deformation points i.e, Initial Deformation Temperature (IT), Softening Temperature (ST), Hemispherical Temperature (HT), and Final Temperature (FT). ➢ The instrument should have capability to provide low temperature readings, and ability to view the samples during the entire ramping program, with adjustable camera settings at ambient temperatures. ➢ The instrument should work with PC.
6	Imaging Capabilities	➢ The instrument should have the camera positioned away from the furnace heat. The camera should be mounted permanently within the body cabinet of the instrument or adjustable with micro metric rail. The instrument must store all image history digitally using software that supports exporting the data and image history to CDR, DVD, networked drives etc. and should have the capability to auto terminate the analysis (data capture, temperature ramp and gas introduction) after all samples have reached the Final Temperature (FT).
7	Environmental conditions	The environmental condition for the Ash Fusion determinator should be 15 deg C to 35 deg C at 20 to 80% non-condensing relative humidity (RH).
8	Special Features	➢ Instrument vendor must provide remote service diagnostics with a separate software package designed specifically to connect the user with the instruments service personnel. ➢ The instrument must have the ability to auto terminate the analysis after all samples have reached the final temp.
9	Sample Analysis	The instrument should be capable of analyzing six-twelve samples simultaneously per analysis with maximum analysis time of 3-4 hours including cool down time.
10	Calibration	The instrument should be calibrated after installation, by using Ni/Palladium wire in reducing atmosphere and gold wire in oxidising atmosphere. Both nickel and gold wire should be standard supply with the instrument. Required quantities are mentioned below. • Gold wire, quantity:1 meter. • Nickel wire, quantity:1 meter
11	Consumables	The supply shall be completed with the essential spares and consumables to carry out 4000 tests for 03 (three) years. **Standard sample:** Minimum 02 (two) International standard coal ash samples should be provided along with certified values of constituent matters for day-to-day calibration. **Gas Cylinders:** Three gas cylinders (One air, one Nitrogen, and one for CO, CO_2 mixture) should be provided, with 99.999% purity, pressure of more than 150 kg/cm^2, and safety certificate. **Regulators:** Standard quality gas regulators with double stage SS diaphragms one for each gas cylinder i.e, Nitrogen, $CO+CO_2$ mixture & Compressed air should be provided, with adequate metal tubing, fixing nuts and screws, spanners for operation compatible to the system.

12	External PC and Printer	**PC:** Reputed branded (DELL/HP) PC with Intel i7 or higher processor, 8 GB RAM (min),1 TB hard disk (min), 4 USB ports (min), DVD RW drive, 21" flat screen monitor (min) with all accessories like Key board, Optical mouse etc. Licence version of Windows 7 or higher version of operating system. **Printer:** High speed laser jet colour printer (HP/Canon) with Cartridge.
13	Operation and Maintenance Training	On site comprehensive training for scientific officials operating the system and support services till customer satisfaction with the system, followed by one week training on operation and maintenance aspects of the instrument
14	Warranty	Comprehensive warranty with spares for one year from the date of successful installation of the instrument should be covered. The AMC (optional) charge to be mentioned for next two years after one year warranty is over.
15	UPS	10 KVA UPS from reputed brand with minimum 1 hour battery backup for the instrument and computer
16	Technical Manual / Calibration Certificate	A set of technical manuals are to be supplied, along with the drawing, installation and commissioning guidance. The vendor should also supply parts list and their identification, maintenance kit, instruction manual, fault-diagnosing guidance. Moreover, the equipment should be supplied with manufacturer's calibration certificate.
17	User List	Bidder should have supplied same instrument to at least 03 (three) customers in CSIR Labs/ Govt of India funded institutions/ PSUs/Reputed private testing laboratories/ Private Limited Industries within last 5 years (as on the date of Bid opening), out of which 01 must be supplied to a CSIR lab. Purchase order/performance certificate shall be enclosed with the bid.

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. Temperature Range.
2. Temperature Precision.
3. Operational Capabilities.
4. Imaging capabilities.

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.