

Technical Specification for Multi-Channel Dilatometer

Specification No. CCMLT/DL/2014/01

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A. General Requirement:

SL NO	PARAMETER	BHEL SPECIFICATIONS
1	Item	Multi-channel Dilatometer
2	Purpose	To measure thermal expansion of ceramic & allied materials in multiple channels simultaneously in a reliable and reproducible manner.
3	Scope of Supply	Supply of Multi-channel Dilatometer along with essential or mandatory accessories and required (OEM) software to run the equipment for data capturing, storing & analysis on windows-based computer.
4	Qualifying Requirement:	A. Manufacturers/ Principals of original manufacturer should have supplied equipment/s for similar usage in Industries / Institutions. B. Vendor shall provide 'Performance Certificate' from "one of the End Users" to demonstrate satisfactory performance of the supplied equipment/s for a period of at least ONE YEAR
5	Warranty	At least One Year Warranty from the Date of Commissioning of the Equipment
6	Submission of Technical Offer	Technical Offers (in two part bid) from prospective Vendors should be submitted as per the format of this Technical Specification with desired information in each parameter AS GIVEN BELOW.

B. Technical Specification-wise Requirement:

SL NO	PARAMETER	BHEL SPECIFICATIONS
7	Technical Specification for Multi-channel Dilatometer	<p>I. Item: Description: 'Multi-channel Dilatometer Equipment' or 'Multi-channel Dilatometer Equipment Set', capable of measuring a minimum FOUR number of samples at a time (simultaneously) by a single software in a reliable and reproducible manner</p> <p>II. Equipment Type: 'Multi-channel Dilatometer' with an objective to measure co-efficient of thermal expansion of samples (ceramics & allied materials) at a programmed rate of heating under normal pressure and atmosphere with a facility to capture data on windows-based computer.</p> <p>III. No. of Channels & Configuration of the Equipment: The equipment should be capable to load and measure a minimum FOUR numbers of samples at a time, controlled by a single software capturing the desired data for all the four samples simultaneously. So, the equipment can have either : a) multiple set-ups/ furnaces, or b) One single unit of minimum 4 channels, or c) 2 units of minimum 2 channels, or d) in combination/s of multiple units having a minimum 4 number of channels – all with an objective to measure a minimum 04 number of samples simultaneously in which all are to be controlled by a single software on a windows-based computer.</p> <p>IV. Sample Dimension: a) Length: Preferably in the range of 10 mm to 50 mm (however, could be specified by the manufacturer); b) Diameter: Preferably in the range of 5 to 12 mm (however, could be specified by the manufacturer)</p> <p>V. Sample Type: Porcelains, Alumina, Ceramic glaze samples and other ceramic & allied materials</p> <p>VI. Type of Sample Holder/s: Suitable sample holder/s and sample probes are to be provided.</p> <p>VII. Calibration: Standard samples for calibration shall be offered along with the equipment</p> <p>VIII. Operating Temperature Range: Ambient to 1000 Deg. C (minimum)</p> <p>IX. Rate of heating: 1.0 to 20.0 Deg. Centigrade /minute with the provision to adjust the rate of heating</p> <p>X. Resolution: 0.001 mm (maximum)</p> <p>XI. Accuracy: maximum $\pm 1\%$ of the measured value in the entire range of measurement</p> <p>XII. Essential Accessories & Power Connection: The equipment shall be offered with all essential accessories, those are required to run the equipment. Any exception/s are to be mentioned in the offer clearly. The equipment shall be compatible to Indian power supply standards.</p> <p>XIII. Spares: Mandatory spares/ Optional spares are to be mentioned separately.</p> <p>XIV. PC Interface: The equipment should have provision to transfer the data to a windows-based PC. The offer shall include desired software for PC interface and data download to a PC. The configuration for PC and printer required may be specified and can be offered as an optional item.</p> <p>XV. Sensing Device: Should be mentioned (like, LVDT/LASER etc)</p> <p>XVI. Power Failure: In case of power failure, necessary facility & controls available for the equipment shall be furnished. If UPS is required, the details of the UPS may be furnished for procurement by BHEL</p>

M K Pandey

K S Ravishankar

Dr. S Roy

R Subramanian