



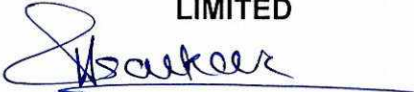
An ISO 9001  
Company

# Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                           |                                              |
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| <b>ENQUIRY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                             | Phone: +91 431 257 7653 / 7360                                                                                                                                                                                                                                                                                                            |                                              |
| <b>NOTICE INVITING TENDER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                             | E-mail : karunanidhy@bhel.in<br>ajayasalkar@bhel.in                                                                                                                                                                                                                                                                                       |                                              |
| Web : www.bhel.com                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                           |                                              |
| <b>TWO PART BID</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Enquiry Number:</b>                                                                                                                                                                                                                                                                                      | <b>Enquiry Date:</b>                                                                                                                                                                                                                                                                                                                      | <b>Due date for submission of quotation:</b> |
| Tender to be submitted in two Parts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2601800001                                                                                                                                                                                                                                                                                                  | 01.01.2018                                                                                                                                                                                                                                                                                                                                | 24.01.2018                                   |
| <p>You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.</p> <p><b>Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                           |                                              |
| <b>Item</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Description</b>                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                           | <b>Quantity</b>                              |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 100 Channel Dynamic and Static Strain data Logging System as per the technical specification & commercial conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="https://eprocure.gov.in/epublish/app">https://eprocure.gov.in/epublish/app</a> ) |                                                                                                                                                                                                                                                                                                                                           | 01 No.                                       |
| <p><b>Important points to be taken care during submission of offer.</b></p> <ol style="list-style-type: none"> <li>1. Compliance Form No: TRY/IMP/02 TRY/IND/02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.</li> <li>2. Delivery period required is 2 months from the date of P.O.</li> <li>3. Commissioning and performance prove out shall be done at BHEL Trichy by the supplier.</li> <li>4. Time period required for commissioning and performance prove out shall be 3 weeks from the date of intimation by BHEL.</li> <li>5. EMD for this tender is INR 1,50,000/-</li> <li>6. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.</li> </ol> <p>BHEL's General guidelines / instructions (refer MM/CE/GENL/001- EMD), compliance form and technical specification can be downloaded from BHEL web site <a href="http://www.bhel.com">http://www.bhel.com</a> or from the Government tender website <a href="https://eprocure.gov.in/epublish/app">https://eprocure.gov.in/epublish/app</a> (public sector units &gt; Bharat Heavy Electricals Limited page) under Enquiry reference.</p> |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                           |                                              |
| <p>(This is not an E-tender, please submit your offer in hard copies)</p> <p>Tenders should reach us before 14:00 hours on the due date.</p> <p>Tenders will be opened at 14:30 hours on the due date.</p> <p>Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                             | <p>Yours faithfully,</p> <p>For <b>BHARAT HEAVY ELECTRICALS LIMITED</b></p> <p></p> <p><b>AJAY V. SALKAR</b></p> <p>Sr. MANAGER</p> <p>MM / Capital Equipment</p> <p>BHEL, Tiruchirappalli - 620 014.</p> <p>Sr. Manager / Capital Equipment / MM</p> |                                              |

**PART A****QUALIFYING CRITERIA FOR THE SUPPLY OF 100 CHANNEL DYNAMIC AND STATIC STRAIN DATA LOGGING SYSTEM****SECTION – I**

The BIDDER is expected to give complete details against each clause in the table given below and wherever necessary an additional sheet may be attached (giving clear reference number) to cover the required details. The required rating of 100 Channel Dynamic and Static Strain Data logging system shall be supplied as a single unit ONLY.

| <b>S. No.</b> | <b>PARTICULARS</b>                                                                                                                                                                                                                                                                                                                                                         | <b>VENDOR'S RESPONSE</b> |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>1.0</b>    | Number of Years of Experience of the BIDDER (Original Equipment Supplier) in the field of design, manufacture and supply of 'Dynamic and Static Strain Data logging system'.                                                                                                                                                                                               |                          |
| <b>2.0</b>    | YEAR of LAUNCH of the MODEL quoted against this ENQUIRY                                                                                                                                                                                                                                                                                                                    |                          |
| <b>3.0</b>    | Number of '100 Channel Dynamic and Static Strain Data logging system' supplied, till date in the QUOTED MODEL.                                                                                                                                                                                                                                                             |                          |
| <b>4.0</b>    | Details on International Standards followed in Design and Testing of 100 Channel Dynamic and Static Strain Data logging system.                                                                                                                                                                                                                                            |                          |
| <b>5.0</b>    | Comprehensive Details, on Performance Testing of 100 Channel Dynamic and Static Strain Data logging system carried out at the Factory, to be furnished with the Technical Offer. Indicate the type of testing, methodology, strain measurements and observations in the test report.                                                                                       |                          |
| <b>6.0</b>    | Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centers in India, to be furnished compulsorily. The agents / service centers claiming to provide 'Service after sales' shall have been registered as an authorized service agency of the OEM (Original Equipment Manufacturer) on or before the date of release of this tender. |                          |
| <b>7.0</b>    | BIDDER to indicate the Country of Origin for the supply of Strain Data logging system.                                                                                                                                                                                                                                                                                     |                          |

## **SECTION – II**

The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the '100 Channel Dynamic and Static Strain Data logging system'.

| <b>S. No.</b> | <b>REQUIREMENTS</b>                                                                                                                                                                                                                                                                                                                                                                                 | <b>VENDOR's RESPONSE</b> |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>8.0</b>    | The BIDDER shall have a minimum of TEN Years of Continuous Experience in the Design, Manufacture & Supply of 'Dynamic and Static Strain Data logging system'.                                                                                                                                                                                                                                       |                          |
| <b>9.0</b>    | The BIDDER should have supplied at least two '100 Channel Dynamic and Static Strain Data logging system' or better configuration to any customer in the preceding three years to the date of issue of this tender. Also, indicate the number of such '100 Channel Dynamic and Static Strain Data logging system' sold internationally / within India.                                               |                          |
| <b>10.0</b>   | Bidder has to submit a Performance Certificate for satisfactory performance of the equipment (stated under Clause No. 9.0) from a customer to whom such equipment has been supplied. A suggestive format of the performance certificate is enclosed in Annexure A. The performance certificate shall be valid for the immediate preceding period of one year from the date of issue of this tender. |                          |
| <b>11.0</b>   | BHEL reserves the right to verify the information provided by vendor. In case any of the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.                                                                                                                                                                                                               |                          |

## **SECTION – III**

The BIDDER has to comply with the following, for accepting the Technical Offer for scrutiny by the Purchaser:

| <b>S. No.</b> | <b>REQUIREMENTS</b>                                                                                                          | <b>VENDOR's COMPLIANCE</b> |
|---------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <b>12.0</b>   | The BIDDER shall submit the offer in TWO PARTS - Technical [with <b>PART A &amp; PART B</b> ] & Commercial and Price Bid.    |                            |
| <b>13.0</b>   | The Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by |                            |

|             |                                                                                                                                                                                                                                                                                                                                                      |  |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|             | the Bidder, against each clause. A just 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer. In case of any deviations in any of the technical specifications, such deviations should be clearly detailed in the comparative statement. |  |
| <b>14.0</b> | The BIDDER shall assure a continuous support for SPARES and SERVICE for TEN Years for the quoted model from the date of commissioning of the equipment at BHEL Works.                                                                                                                                                                                |  |
| <b>15.0</b> | The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details / literature on the QUOTED MODELS of 100 Channel Dynamic and Static Strain Data logging system.                                                                                                                               |  |
| <b>16.0</b> | The Commercial Offer (given with the Technical Offer) shall contain the Scope of Supply and the Un-Priced Part of the Price-Bid, for confirmation for the scope of supply.                                                                                                                                                                           |  |
| <b>17.0</b> | Earlier performance & field experience (service support) with BHEL (if any) will be a reckoning factor for the technical qualification of the OFFER.                                                                                                                                                                                                 |  |

**ANNEXURE-A****PERFORMANCE CERTIFICATE**

The Performance of the subject model 100 Channel Dynamic and Static Strain Data logging system should be certified by the customer on Customer's Letter Head, in the following suggestive pattern/format and submitted along with the TECHNICAL OFFER positively.

- 1.0 Name of the Equipment Supplier (OEM) :
- 2.0 MODEL/MAKE of the Strain Data logging system :
- 3.0 Month & Year of Commissioning of the Equipment :
- 4.0 Brief Details on the Application/Use of the 100 Channel Dynamic and Static Strain Data logging system:
- 5.0 Performance of the Strain Data logging system stated above  
: Very Good / Satisfactory / Not Good  
(If required a separate annexure maybe enclosed)
- 6.0 Availability of the Strain Data logging system stated above  
: Good / Poor
- 7.0 Service After Sales support given by the OEM / Indian Representative,  
including spares supply : Satisfactory / Not Satisfactory
- 8.0 Special Remarks / Recommendations :

Date:

Signature & Seal of the Authority  
Issuing the Performance Certificate

**To**

**DGM / Purchase  
MM / CAPITAL EQUIPMENT  
BHEL /TRICHY – 620 014**

**PART B****TECHNICAL SPECIFICATIONS FOR 100 CHANNEL DYNAMIC AND STATIC STRAIN DATA LOGGING SYSTEM**

| <b>AA. APPLICATION :</b>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                        |                   |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| <b>S. No.</b>                                               | <b>FEATURES /BHEL SPECIFICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>OFFER BY BIDDER</b> | <b>DEVIATIONS</b> |
| AA.1                                                        | <p>The Data logging system should be a 100 channel single unit capable of offering electronically selectable built in bridge completion for 120, 350 ohms' strain gauges in all channels with sampling rate of at least 1000 samples per second per channel (for strain measurement) with measurement accuracy of <math>\pm 0.05\%</math>. It should also have a LCD/LED graphic display, keyboard, removable Memory (Flash card/USB) features. The system shall house in itself the needs of power supply for the amplifier modules operating in 230 V/50 Hz supply. The scope of supply includes the software for running the system to its full capacity and also use it for analysis and display through a computer.</p> <p>Note: The vendor is free to offer a model which has more features than the one specified in this section. All additional features including number of channels, accuracy and measurement parameters will be accepted but the evaluation will be considered ONLY with respect to the minimum qualification stated in this section.</p> |                        |                   |
| <b>BB. SCOPE OF SUPPLY: (The system should consists of)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                        |                   |
| <b>S .No.</b>                                               | <b>FEATURES /BHEL SPECIFICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>OFFER BY BIDDER</b> | <b>DEVIATIONS</b> |
| BB.1                                                        | Desktop Housing with channels, power cable, display.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |                   |
| BB.2.                                                       | Sensor Input channels and cards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                   |
| BB.3                                                        | Software for Data Acquisition, Analysis and Processing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                        |                   |
| BB.4                                                        | Other Features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |                   |
| BB.10                                                       | Commissioning of Equipment at BHEL Works and Performance Prove-out of the offered equipment by Supplier / Vendor's Agent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |                   |

| <b>CC. DETAILED SPECIFICATION OF SCOPE OF SUPPLY</b> |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |                   |
|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| <b>S. No.</b>                                        | <b>FEATURES</b>                                      | <b>BHEL SPECIFICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>OFFER BY BIDDER</b> | <b>DEVIATIONS</b> |
|                                                      | Desktop Housing with channels, power cable, display. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |                   |
| CC.1                                                 | Type & rating                                        | The offered system should be single unit with modular options for accepting inputs from strain gauges for not less than 100 channels. The system should have a back lit LCD/LED Display for measurement and system parameters and also offer control operation through the display panel. A keyboard with decimal block can either be integrated or offered separate for interfacing with the system.<br>The system should run on a state of the art processor with a minimum of 64 MB SDRAM and 1 GB of data memory (integrated or detachable provision through flash/USB). |                        |                   |
| CC.2.                                                | Primary side Voltage                                 | For mains operation, 230V, 50 Hz with automatic voltage adaptation. The specification for 230 V supply is $230 \pm 10\%$ V AC, 3 Phase, $50 \pm 2\%$ Hz.                                                                                                                                                                                                                                                                                                                                                                                                                     |                        |                   |
| CC.3.                                                | Connection to Mains                                  | There shall be a suitable connection provided (wires/cables etc.) between the input terminals of the system with that of the power source.                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                   |
| CC.4.                                                | Portability                                          | The system shall be portable in nature and should offer rugged casing for handling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                        |                   |
| CC.5.                                                | Weight                                               | The weight of the system shall be suitable for mobile handling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                        |                   |
| CC.6.                                                | Dimensions                                           | Vendor to specify                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |                   |
| CC.7.                                                | Power cable                                          | A suitable power cable shall be provided for powering the system from the mains.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        |                   |

|       |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|-------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| CC.8. | System Controller                | A processor based system controller offering display and control of the operations through the Digital Display on unit/Software operation from laptop. The Interface to PC shall be Ethernet based protocols with multi-client capability, Auto identification of sensor/transducer connected to the modules.                                                                                                                                                                                                                                                                                                                                                                                           |  |  |
| CC.9. | Protection                       | a) Inbuilt protection for the Power source against Overload / Short-Circuit conditions<br>b) All electronic circuitry of the power source shall be protected suitably to prevent damage from dust and grinding particles<br>c) Machine Design to ensure proper earthing for the machine and its peripherals<br>Degree of protection shall be according to IP 21                                                                                                                                                                                                                                                                                                                                         |  |  |
|       | Sensor Input channels and cards. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
| CC.10 | Input Cards                      | Connection boards for strain gauges (in full, half, quarter bridges (4 wire circuit) with internal completion resistors for 120 ohm, 350 ohm. The connection should have standard connecting pinouts and be compatible with amplifier circuitry of the equipment.<br>24 bit A/D converter enabling 0.5 micro strain resolution. The sampling rate of individual channels for strain measurement shall be at least 1000 samples per second with frequency of signals upto 100 Hz on each channel.<br>Thermocouples with compensation circuits and LVDT or High level voltages (+/-10 volts)<br>Input cards for above types of sensors to be made available in multiples to meet a total of 100 channels. |  |  |

|       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|-------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| CC.11 | Measurement requirement                                | <ul style="list-style-type: none"> <li>• Stable, accurate, low noise signal conditioning</li> <li>• Measurement accuracy <math>\pm 0.05\%</math></li> <li>• Measurement resolution 0.5 micro strain for strain gauge</li> <li>• Electronically selectable signal conditioning circuits for different sensor configurations.</li> <li>• Electronically selectable switching of sensor options.</li> <li>• USB/Memory card storage of logged data is to be provided.</li> <li>• Measured values should be made available in excel sheet format (amongst other options) for further processing.</li> </ul> |  |  |
|       | Software for Data Acquisition, Analysis and Processing |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |

|       |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |
|-------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| CC.12 | Hardware and Software requirements | <p>State of the art software for data analysis, graphical data visualisation, time, frequency domain, position, statistical tools for analysis including mathematical functions as applicable should be part of standard compatible software.</p> <p>The software should have provisions to calculate the principal stresses from the strain measurement.</p> <p>Any supporting requirements of operating system, office software, plotting software should be supplied together with valid license.</p> <p>Hardware support in terms of a portable computer with latest version of Windows operating system and system capability of not less than 8 GB RAM and 2 TB HDD is to be provided. System processor should be at least of equivalent of i7 core. Supporting cables and packaging should be made available as part of standard supply.</p> <p>Applicable Software updates for a period of 6 years from the date of supply is to be included in the offer. Cost of maintenance of software (if any) is to be included for a period of at least 24 months from the date of supply.</p> <p>System supplied should be having compatibility in terms of both hardware and software with all other components. All ports are accordingly to be designed.</p> <p>All software licences are to be valid in perpetuity for that version and hardware should not demand additional software for its operation during its service period.</p> <p>If the software upgrades demand a hardware upgrade, it will also fall in the scope of supplier for the specified period.</p> |  |  |
|       | Other Features                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |
| CC.13 | Calibration                        | <p>All meters and equipment should be a valid calibration certificate as on date.</p> <p>The machine should be self-calibration traceable to NIST standards for its operation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |

|       |                                   |                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
|-------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| CC.14 | Operation and Maintenance Manuals | All equipment/parts should be clearly supplied with operating/maintenance/troubleshooting manual in two hard and soft copies each.<br>All software component should be supplied individually in DVDs with valid license numbers. The software versions should also be made available online for download till the update period is valid.                                            |  |  |
| CC.15 | Other mandatory accessories       | Additional Strain measurement interface cards to be supplied in 10 nos. mandatorily.<br>All accessories that are mandated for functioning of the equipment are to be mentioned by vendor and supplied against the offer.<br>All spares and accessories required for trouble free operation of the equipment for two years is to be mentioned separately and supplied with the offer. |  |  |

**DD. GENERAL POINTS :**

| S. No. | PARTICULARS             | BHEL SPECIFICATION                                                                                                                                                                                                                                                                                     | OFFER BY BIDDER | DEVIATIONS |
|--------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|
| DD.1.  | Pre-dispatch Inspection | The equipment shall be submitted for pre-dispatch inspection (PDI) at the manufacturer's works by BHEL Engineers before despatching the same to the BHEL, Trichy. During the PDI, verification and validation trials of the features of the equipment shall be done in the presence of BHEL Engineers. |                 |            |
| DD.2.  | Training                | The Supplier's SERVICE ENGINEER shall give training in the Operation and Maintenance of the Machine for BHEL Staff for a period of five days, after the successful commissioning equipment with job trials.                                                                                            |                 |            |
| DD.3.  | Commissioning           | The equipment shall be installed and commissioned by the supplier/supplier's representative at BHEL Works. The charges for manpower and other costs associated with the commissioning of the equipment at BHEL will be at vendor's scope.                                                              |                 |            |

|       |                       |                                                                                                                                                      |  |  |
|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| DD.4. | Performance Guarantee | The equipment shall be guaranteed for a minimum of 12 months from the date of commissioning at WRI/BHEL or from 18 months from the date of despatch. |  |  |
|-------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|