



# Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

An ISO 9001  
Company

|                               |   |
|-------------------------------|---|
| <b>ENQUIRY</b>                | Phone: +91 431 257 76 53<br>Fax : +91 431 252 00 31<br>Email : <a href="mailto:skaruna@bheltry.co.in">skaruna@bheltry.co.in</a><br>Web : <a href="http://www.bhel.com">www.bhel.com</a> |
| <b>NOTICE INVITING TENDER</b> |   |

|  |   |   |   |
|--|---|---|---|
| <b>TWO PART BID</b><br>Tender to be submitted in two Parts | <b>Enquiry Number:</b><br><b>2731300015</b> | <b>Enquiry Date:</b><br><b>30.11.2013</b> | <b>Due date for submission of quotation:</b><br><b>02.01.2014</b> |
|--|---|---|---|

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.

**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.**

| Item | Description   | Quantity      |
|------|---|---------------|
| 10   | <b>Universal Hardness Tester</b> as per the respective technical specification & commercial conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> ) | <b>01 No.</b> |

### Important points to be taken care during submission of offer

1. The rate of EMD for this Tender will be ( INR ) : 1,00,000/-
2. The Checklist for Acceptance of Commercial Terms & Conditions to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. 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.

**BHEL's General guidelines / instructions (refer [MM/CE/GENL/001-EMD](#)) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under above Enquiry reference.**

Tenders should reach us before 14:00 hours on the due date  
Tenders will be opened at 14:30 hours on the due date  
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,  
For **BHARAT HEAVY ELECTRICALS LIMITED**

Engineer / Capital Equipment / MM

**SECTION - I**

The BIDDER is expected to give complete details against each clause in the table given below, with additional sheets those may be attached (giving clear reference number) to furnish and cover the requisite details / documents.

| <b>Sl. No.</b> | <b>PARTICULARS</b>  | <b>BIDDER'S RESPONSE</b> |
|----------------|---|--------------------------|
| 1              | BIDDER to provide the Profile of their Company  |                          |
| 2              | The Bidder (OEM) shall have a minimum of five Years of Continuous Experience in the field of Design, Manufacture and Supply of <u>Universal hardness Tester</u> . |                          |
| 3              | List of customers to whom Universal hardness Testers were supplied, installed and commissioned till date.   |                          |
| 4              | Details on SERVICE-AFTER-SALES Set-Up in India including the Addresses of Agents / Service Centres in India.  |                          |
| 5              | Any Additional Data to supplement the manufacturing capability of the BIDDER for the subject equipment.   |                          |

**SECTION – II:** The BIDDER has to compulsorily meet the following requirements to get qualified for submitting an offer for the "Universal hardness Testers".

| Sl. No. | REQUIREMENTS   | BIDDER'S RESPONSE |
|---------|--|-------------------|
| 1       | Only those Bidders (OEMs) should quote, who have supplied and commissioned at least three numbers of Universal hardness Testers in the past five years (on the date of opening of Tender) and such equipment should presently be working satisfactorily for more than one year after commissioning (on the date of opening of Tender)..<br><br>The Bidder should submit following information where the Universal hardness Testers have been supplied: |                   |
| 1.1     | Name and postal address of the customer or company where similar equipment is installed.   |                   |
| 1.2     | Name and designation of the contact person of the customer.  |                   |
| 1.3     | Phone, FAX no and email address of the contact person of the customer.   |                   |
| 1.4     | Month and Year of commissioning of the equipment.  |                   |
| 1.5     | Application for which the equipment is supplied  |                   |
| 2       | Along with the Technical offer, the Bidder should submit <u>one Performance certificates from the customers for the satisfactory performance of the equipment supplied as per clause 1.0 above</u> (For obtaining the Performance certificate, a suggestive format is provided in <b>SECTION – IV</b> ).   |                   |
| 3       | Offers of only those Bidders who meet the above Qualifying Criteria will be considered for further evaluation.   |                   |
| 4       | BHEL reserves the right to verify the information provided by Bidder. In case the information provided by Bidder 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>BIDDER'S COMPLIANCE</b> |
|---------------|---|----------------------------|
| <b>1</b>      | The BIDDER shall submit the offer in <b>TWO PARTS-Technical [with PART A &amp; PART B]</b> & Commercial and Price Bid.  |                            |
| <b>2</b>      | The offer shall contain a comparative statement of Technical Specifications given by BHEL and the offered details submitted by the Bidder, against each clause. Merely stating 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words wherever 'Bidder to Specify' details in the technical comparative statement may lead to disqualification of the Technical Offer. |                            |
| <b>3</b>      | The Technical Offer shall be supported by product Catalogues & Data Sheets and also technical details of Bought-Out-Items with copies of Product Catalogue to the extent possible.  |                            |
| <b>4</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 of the inclusion of all the accessories, tooling's, attachments, auxiliary parts, spares, consumables, etc. with the main and basic equipment, to meet the technical specification requirements.                                    |                            |
| <b>5</b>      | BIDDER has to indicate the Country of Origin for the supply of equipment.   |                            |

**SECTION - IV**

**PERFORMANCE CERTIFICATE**  
(On Customer's Letter Head)

1. Supplier of the "Universal hardness Testers" : :
2. Make & Model of the "Universal hardness Testers" : :
3. Month & Year of Commissioning : :
4. Application for which the "Universal hardness Testers" is used : :
5. Measurement range & Accuracy :
6. Performance of the equipment : : Satisfactory / Good / Average /  
(Strike off whichever is not applicable) Not Satisfactory
7. After Sales Service : : Satisfactory / Good / Average /  
Not Satisfactory
8. Any other remarks : :

Date: Signature & Seal of the Authority  
issuing the Performance Certificate

| <b>S.No</b>  | <b>SPECIFICATION / DESCRIPTION</b>   | <b>BIDDER'S CONFIRMATION</b>        |
|--------------|--|-------------------------------------|
| <b>1.0</b>   | <p><b>Purpose:</b> To carry out hardness testing of different components of different materials, sizes and shapes. It should have motorized movement for the axis for fully automatic testing. Automatic image evaluation shall be made with the use of high resolution camera with electronic Zoom module &amp; integrated auto focus. Suitable hardware and software for accurate capturing, processing, display, storage and printouts. It should have "Closed loop load cell system" for precise application of load.</p> <p>Basic equipment capable of measuring Brinell, Vickers, Rockwell and Rockwell Superficial hardness complying to National/International standards as described in the subsequent specification, electronic display unit with full industrial grade touchscreen/PC controlled system with provisions for exporting test results and printing, automatic/semiautomatic loading with auto zoom focus module for automatic measurement of hardness, turret system for holding multiple indenters and lenses which can be swiveled manually/automatically, safety systems like specimen protection sensor/alarm to be provided to avoid accidental collision of sample with test head, overloading, and to ensure safety of operating personnel.</p> | Bidder to note                      |
| <b>2.0</b>   | <p><b>Scope of Supply</b> shall include the following items as per the specifications described in subsequent clauses:</p> <ol style="list-style-type: none"> <li>1. Universal Hardness tester --1 No.</li> <li>2. Essential accessories as per the specifications -- 1 Set</li> <li>3. Essential spares for two years trouble free Operation &amp; Maintenance -- 1 Set</li> <li>4. Essential consumables two years trouble free Operation -- 1 Set</li> <li>5. Documents as specified -- 3 Set</li> </ol>  | Bidder to confirm                   |
| <b>2.1.0</b> | <b>Universal Hardness Tester specification:</b>  |                                     |
| 2.1.1        | <p><b>The Universal Hardness Tester shall able to carry out Tests in accordance to:</b></p> <p>ROCKWELL : IS 1586:2000, BS EN ISO 6508 –2, ASTM E 18</p> <p>BRINELL DIN : IS 2281:1983, BS240, ASTM E 10, EN ISO 6506–1(with ball Ø 2.5mm,Ø5mm,Ø10mm)</p> <p>VICKERS DIN EN ISO 6507 – 1, ASTM E384</p> <p>BRINELL TESTING USING DEPTH MEASURING or any other method</p>   | Bidder to confirm                   |
| 2.1.2        | <p><b>Loading System:</b> Loading system must be essentially automatic and load cell is preferred over dead weight system and shall ensure highest possible degree of accuracy and repeatability. Details of loading system shall be provided.</p>   | Bidder to confirm & provide details |
| 2.1.3        | <p><b>Test load range:</b> 9.8 N to 2450 N / (1 kg to 250 kg) minimum</p>  | Bidder to confirm                   |

| <b>S.No</b> | <b>SPECIFICATION / DESCRIPTION</b>  | <b>BIDDER'S CONFIRMATION</b>        |
|-------------|---|-------------------------------------|
| 2.1.4       | <b>Test height:</b> Shall be a minimum of <b>200 mm</b>   | Bidder to specify                   |
| 2.1.5       | <b>Height adjustment of the head:</b> Following mentioned three types of height adjustment of the head shall be made available to adjust the height:<br>i) Motorized Automatic Mode Can be fixed anvil/movable test head or fixed test head/movable anvil driven through motor is preferred<br>ii) Motorized mode<br>iii) Manual hand wheel mode. | Bidder to confirm                   |
| 2.1.6       | <b>Additional test force:</b>   | Bidder to specify                   |
| 2.1.7       | <b>Test force selection:</b>  | Bidder to specify                   |
| 2.1.8       | <b>Depth of Throat</b> shall be a minimum of <b>200 mm</b>  | Bidder to specify                   |
| 2.1.9       | <b>Least count:</b> Min. 0.1 units for all types of hardness test   | Bidder to specify                   |
| 2.1.10      | <b>Load duration</b>  | Bidder to specify                   |
| 2.1.11      | <b>Dwell time</b>   | Bidder to specify                   |
| 2.1.12      | <b>Vickers test procedures</b>  | Bidder to specify                   |
| 2.1.13      | <b>Brinell test procedures</b>  | Bidder to specify                   |
| 2.1.14      | <b>Rockwell test procedures</b>   | Bidder to specify                   |
| 2.1.15      | <b>Maximum sample weight</b>  | Bidder to specify                   |
| 2.1.16      | <b>Indenter types</b> shall be Brinell balls, Vickers Diamond 136°, Rockwell diamond cone 120° and balls 1/16 in, 1/8 in, ¼ in and ½ in.  | Bidder to specify                   |
| 2.1.17      | <b>Optical system:</b> Automatic, camera based high quality optical system is to be employed. It should ensure highly accurate and repeatable image and hardness evaluation.  | Bidder to confirm & provide details |
| 2.1.18      | <b>Objective lenses :</b> 2.5x, 4x, 10x, 20x and 40 x   | Bidder to confirm.                  |
| 2.1.19      | <b>Loading of lenses:</b> Automatic / Manual  | Bidder to specify                   |
| 2.1.20      | <b>Evaluation Camera:</b> 5 mega pixel or higher resolution with electronic Zoom module &integrated auto focus. Optional: With dark field and bright field illumination system for softer materials   | Bidder to specify                   |

| <b>S.No</b>  | <b>SPECIFICATION / DESCRIPTION</b>  | <b>BIDDER'S CONFIRMATION</b>                            |
|--------------|---|---|
| 2.1.21       | <p>PC &amp; HP Laser printer (A4 Size) &amp; its accessories with latest specification – Please provide specifications ( to be upgraded if there is up gradation at the time of supply – without cost implications).</p> <p><b>Operating System : Windows based(latest)</b></p> <p><b>Processor details : Intel Pentium i-5 (Intel® Core™ i5- Processor )</b></p> <p><b>Mother board details: Intel make</b></p> <p><b>RAM: 4 GB</b></p> <p><b>Hard disk details: 500 GB SATA hard disk</b></p> <p><b>DVD writer details</b></p> <p><b>Monitor: 20” LED(min)./Touchscreen display</b></p> <p><b>Multimedia Keyboard, Optical mouse</b></p> <p><b>Interface software-</b> Shall have automatic hardness conversion module along with statistical data and processing tools to calculate uncertainty. The software shall have facility to export data to other formats like .xls, .doc etc. and shall have Ethernet port for LAN/WAN access etc.</p> <p><b>Data connection ( Communication) cable between the Analyzer &amp; PC</b></p> <p><b>Suitable Laser Printer to print reports</b></p> | <p>Bidder to confirm &amp; provide complete details</p> |
| 2.1.22       | <p>All software shall be original and original CDs should be issued to BHEL.</p>  | <p>Bidder to confirm</p>                                |
| 2.1.23       | <p><b>Illumination system:</b> A high quality, long life and automatic brightness adjustable illumination system is to be employed. LED system of illumination preferred over halogen. As an optional Dark field and bright field system of illumination required.</p>  | <p>Bidder to confirm &amp; provide complete details</p> |
| <b>2.2.0</b> | <p><b>Essential/Accessories:</b> Bidder to attach un-priced list (priced list with <b>Unit Rate</b> shall be attached in the <b>commercial offer</b>) of various essential accessories to be procured with the equipment to enhance the operating efficiency and features of the offered equipment, over and above those mentioned in the specifications. Essential accessories shall include flat anvil, indenter for HV, HBW-2.5mm ball, HRC and HRB indenter along with suitable lenses, PC with software package/touchscreen integrated with software. Specimen protection sensor to prevent accidental collision of sample with anvil/test head driven through motor.</p> <p><b>Automatic Measurement Turret:</b> Six position automatic turret shall be quoted as an essential-accessory to carryout frequent automatic change of indenter / lens.</p> <p>Bidder to attach un-priced list (priced list with <b>Unit Rate</b> shall be attached in the <b>commercial offer</b>) of various essential accessories</p>   | <p>Bidder to confirm &amp; provide complete list</p>    |

**PART B - TECHNICAL SPECIFICATION****Universal Hardness Tester Qty : 1 No**

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| <b>S.No</b>  | <b>SPECIFICATION / DESCRIPTION</b>   | <b>BIDDER'S CONFIRMATION</b>              |
|--------------|--|---|
| <b>2.3.0</b> | <b><u>Optional Accessories:</u></b> Bidder to attach un-priced list (priced list with <b>Unit Rate</b> shall be attached in the <b>commercial offer</b> ) of various Optional accessories to be procured with the equipment to enhance the operating efficiency and features of the offered equipment, over and above those mentioned in the specifications. Details of the accessories to be specified. | Bidder to confirm & provide complete list |
| <b>2.4.0</b> | <b><u>Essential Spares:</u></b><br>Bidder to attach un-priced list (priced list with <b>Unit Rate</b> shall be attached in the <b>commercial offer</b> ) of various essential spares to be procured with the equipment for two years of trouble free Operations and Maintenance. Ordering No. and details / Specifications of the spares to be mentioned.  | Bidder to confirm & provide complete list |
| 2.3.1        | All types of spares for the equipment and its accessories should be available for minimum <b>tenyears</b> , after supply of the equipment. If any spares or controls are likely to become obsolete within this period, the Bidder should inform BHEL and provide details of it's suppliers to enable BHEL to procure them in advance.  | Bidder to confirm                         |
| <b>2.5.0</b> | <b><u>Consumables:</u></b> Bidder to attach un-priced list (priced list with <b>Unit Rate</b> shall be attached in the <b>commercial offer</b> ) of various consumables to be procured with the equipment for 1000 operations. Details / specifications of the consumables to be mentioned.  | Bidder to confirm & provide complete list |
| <b>3.0</b>   | <b><u>Calibration:</u></b> Along with the original calibration certificates, complete details of calibration procedures & instructions, applicable standards, periodicity, acceptance criteria, methodology for corrections etc shall be provided. Details of Calibration Kit, if required. Should be quoted separately in the commercial bid.   | Bidder to confirm                         |
| <b>4.0</b>   | <b><u>ELECTRICAL SYSTEM :</u></b>  | Bidder to confirm                         |
| 4.1          | 230V + 10% / -10%, 50HZ +/- 1.5 HZ, Single Phase AC through a 3 wire system (Phase, Neutral and Protective earthing) Power Supply Source will be provided by BHEL near the equipment. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to the equipment, shall be the responsibility of Bidder.   | Bidder to confirm                         |
| 4.2          | Tropicalisation: All electrical / electronic equipment shall be tropicalized. All control cables should be of copper.  | Bidder to confirm                         |
| 4.3          | All electrical & electronic control cabinets & panels should be dust and vermin proof and shall have IP 54 protection.   | Bidder to confirm                         |
| 4.4          | Bidder should ensure the proper earthing for the machine and its peripherals.  | Bidder to confirm                         |
| <b>5.0</b>   | <b><u>Pre-Dispatch Inspection:</u></b> The equipment, its accessories, etc shall be offered for inspection and performance prove-out to BHEL Engineers, prior to dispatch.   | Bidder to confirm                         |

**PART B - TECHNICAL SPECIFICATION****Universal Hardness Tester Qty : 1 No**

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| <b>S.No</b> | <b>SPECIFICATION / DESCRIPTION</b>   | <b>BIDDER'S CONFIRMATION</b>                         |
|-------------|--|--|
| 6.0         | <p><b>Installation &amp; Commissioning, Performance Prove-out&amp; training at BHEL:</b> The equipment, its accessories, etc shall be installed and commissioned at BHEL works by the service engineer of the supplier.</p> <p>The service engineer has to calibrate the equipment and its accessories by direct and indirect methods and to carryout performance prove-out as per BHEL specifications.</p> <p>The Service Engineer has to impart training to a minimum of 3 BHEL Engineers on the Calibration, Operation, Data processing and Maintenance of the equipment and accessories.</p> | Bidder to confirm                                    |
| 7.0         | <p><b>Training at supplier's Works:</b> Training is to be given to Two BHEL Engineers on the Calibration, Operation, Data processing and Maintenance of the equipment and accessories at Suppliers Works. Travelling, Boarding &amp; Lodging will be Born by BHEL. Program details &amp; training venue shall be indicated in the offer.</p>   | Bidder to confirm                                    |
| 8.0         | <p><b>Performance Guarantee:</b> The equipment and its accessories (including bought-out Items) are to be guaranteed for its performance for a minimum period of One year from the date of performance acceptance at BHEL works.</p>   | Bidder to confirm                                    |
| 9.0         | <p><b>Service Support requirement:</b> Bidder shall ensure AMC service support facilities in India after the guarantee period, through trained Service personnel in India.</p>   | Bidder to confirm                                    |
| 10.0        | <p><b>AMC (Annual Maintenance Contract):</b> The bidder has to quote for AMC under two patterns given below, for a period of Three years after the expiry of original warranty period.</p>   |  |
| 10.1        | <p><b>AMC - CASE-I:</b> Technical service for Preventive Maintenance, Trouble shooting and Re-commissioning of the equipment <u>excluding</u> the cost of Spares and Consumables (BHEL will not be responsible for the timely availability of Spares and Consumables).</p>   | Bidder to confirm (Quote shall be in Commercial Bid) |
| 10.2        | <p><b>AMC - CASE-II:</b> Technical service for Preventive Maintenance, Trouble shooting and Re-commissioning of the equipment <u>including</u> the cost of Spares and Consumables (BHEL will not be responsible for the timely availability of Spares and Consumables).</p>  | Bidder to confirm (Quote shall be in Commercial Bid) |
| 10.3        | <p><b>AMC Response time:</b> The bidder has to furnish / indicate the response time for the service engineer to be at BHEL works from the time of reporting the breakdown through e-mail or tele-fax.</p>  | Bidder to specify.                                   |
| 10.4        | <p><b>AMC Service Calls:</b> The Bidder has to furnish details on service calls for preventive maintenance (number of calls and intervals) and Break-down maintenance.</p>   | Bidder to confirm.                                   |

| <b>S.No</b> | <b>SPECIFICATION / DESCRIPTION</b>  | <b>BIDDER'S CONFIRMATION</b> |
|-------------|---|------------------------------|
| <b>11.0</b> | <b>Documents should be submitted along with offer:</b> Apart from the details / documents mentioned above in various clauses, following documents <u>in English language</u> are to be submitted along with this technical offer, for technical evaluation.<br>Catalogues of the Equipment & Accessories<br>Details of bought out items with their specifications / catalogues  | Bidder to provide            |
| <b>12.0</b> | <b>Documents should be submitted at the time of PDI:</b> Three sets of hard copies and one soft copy in CD, following mentioned documents in <u>English language</u> are to be submitted to BHEL Engineers at the time of Pre Dispatch Inspection:<br>Catalogues of the Equipment& Accessories<br>O&M manuals containing electric schematics, circuit diagrams, PCB drawings, Troubleshooting charts, mechanical sub-assemblies, Bill of materials etc.<br>List of bought out items with their specifications / catalogues. | Bidder to confirm.           |
| <b>13.0</b> | <b>Details of the Equipment offered:</b>  | Bidder to specify.           |
| 20.1        | <b>Make:</b>  | Bidder to specify.           |
| 20.2        | <b>Model:</b>   | Bidder to specify.           |
| 20.3        | <b>Dimensions:</b>  | Bidder to specify.           |
| 20.4        | <b>Weight in Kg:</b>  | Bidder to specify.           |
| 20.5        | <b>Total Connected load in KW:</b>  | Bidder to specify.           |