



# 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 79 38
	Fax : +91 431 252 07 19
	Email : <a href="mailto:tvenkat@bheltry.co.in">tvenkat@bheltry.co.in</a>
<b>NOTICE INVITING TENDER</b>	Web : <a href="http://www.bhel.com">www.bhel.com</a>

<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	<b>2620900187</b>	<b>15.09.2009</b>	<b>26.10.2009</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>Atomic Absorption Spectrometer</b> 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="http://tenders.gov.in">http://tenders.gov.in</a> )	<b>1 No.</b>

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

- 1. Delivery required 4 months from the date of purchase order.**
- 2. Grace period of 1 month beyond the above delivery period will be considered.**
- 3. Checklist to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.**

**BHEL's General guidelines / instructions (refer MM/CE/GT/001) 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 Enquiry reference "2620900187".**

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 <b>BHARAT HEAVY ELECTRICALS LIMITED</b>  Manager / Capital Equipment / MM
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**PART A**

**QUALIFYING CRITERIA FOR THE SUPPLY OF  
ATOMIC ABSORPTION SPECTROMETER**

**SECTION – I**

**The BIDDER / VENDOR have to compulsorily meet the following requirements to get qualified for submitting an offer for the ICP SPECTROMETER.**

<b>S. No.</b>	<b>REQUIREMENTS</b>	<b>BIDDER / VENDOR comments</b>
<b>1.0</b>	The BIDDER / VENDOR shall have a minimum of Three Years of Continuous Experience in the Design, Manufacture & Supply of AES (ICP) Spectrometer. Indicate the actual experience.	
<b>2.0</b>	The BIDDER / VENDOR shall have supplied at least one number of AES (ICP) SPECTROMETER in INDIA, within the last five years. Indicate the number of equipment (of QUOTED MODEL) sold in India & Other Countries.	
<b>3.0</b>	Reference List of Customers and Performance Certificate from CUSTOMERS with full contact details of CONTACT PERSON.	
<b>4.0</b>	The BIDDER / VENDOR should have sound financial position and should furnish the Finance Statements (Summary of P & L Statement and Balance Sheet) for the immediate past three years.	

5.0	BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	
6.0	DELIVERY - The bidder shall quote the best possible delivery. However the delivery shall not exceed 4 months with an additional grace period of 1 month. The additional grace period will attract a penalty which is explained in the commercial terms of the enquiry. The delivery period shall be reckoned from date of purchase order to despatch from the vendor works.	

**SECTION – II**

The BIDDER / VENDOR has to necessarily provide the following details, for making an assessment of the firm's capability and competency:

[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]

S. No.	PARTICULARS	BIDDER / VENDOR comments
7.0	Number of Years of Experience of the BIDDER/ VENDOR in the field of design, manufacture and supply of AES (ICP) SPECTROMETER	
8.0	YEAR of LAUNCH of the Model quoted against this ENQUIRY	
9.0	Is there any other model launched after the quoted Model? Otherwise, indicate the likely year in which the next model is likely to be launched	

<b>10.0</b>	Number of AES(ICP) -SPECTROMETER supplied, installed and commissioned till date, in the QUOTED MODEL	
<b>11.0</b>	Number of AES(ICP) Spectrometers supplied, installed and commissioned till date for the following category of CUSTOMERS (within INDIA): a) Government Organisations b) Private Sector Companies (Large Scale Industries)	
<b>12.0</b>	Number of AES(ICP) -Spectrometer supplied, installed & commissioned till date in the following Category (around the GLOBE) : a) Universities b) R&D Labs c) Reputed Heavy Engineering Works / Manufacturing Firms	
<b>13.0</b>	Details of Design Set-Up and Technology Back-Up assured for the PRINCIPAL Equipment Maker	
<b>14.0</b>	Details on International Standards followed in Design of the Equipment (including Analysis Methodology and Calibration of Equipment)	
<b>15.0</b>	Comprehensive Details on Performance Testing - of the Equipment quoted, to be ensured in presence of BHEL Executives, prior to dispatch from Supplier's Works	
<b>16.0</b>	Details of Quality System followed (Kindly furnish the salient aspects of the QA system followed)	
<b>17.0</b>	Details on SERVICE-after-SALES Set-Up in India including the addresses of Agents/Service Centers in India and Asia	
<b>18.0</b>	Any Additional Data to supplement the manufacturing capability of the BIDDER	

**SECTION – III**

The BIDDER / VENDOR 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 / VENDOR comments</b>
<b>19.0</b>	The BIDDER / VENDOR shall submit the offer in TWO PARTS - Technical [ <b>with PART A &amp; PART B</b> ] & Commercial and Price Bid. The Technical Offer shall be in line with the BHEL Technical Specifications and the Guidelines or Annexure mentioned, wherever applicable.	
<b>20.0</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.	
<b>21.0</b>	The BIDDER / VENDOR shall assure a continuous support for SPARES and SERVICE for TEN Years, from the date of commissioning of the equipment at BHEL Works.	
<b>22.0</b>	The Technical Offer shall be supported by Product Catalogue and Data Sheets in ORIGINAL and complete technical details of 'Bought-Out-Items' with copies of Product Catalogue and Selection Criteria	
<b>23.0</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 of Scope of Supply.	
<b>24.0</b>	The reference List of Customers shall be accompanied with the details (Phone Number / E-Mail ID) of the CONTACT PERSON for cross reference by BHEL	

## PART- B

## TECHNICAL SPECIFICATIONS FOR (ICP) SPECTROMETER

S. No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER'S COMMENT
1.0	Area of Application	ICP-AES (Inductive Coupled Plasma- Spectrometer) an Opto-Electronic Analytical Instrument] is to be used in the Chemical Section of BHEL Plant Laboratory. This has to cater to the extensive Wet chemical analytical requirements for the materials used for the manufacturing in High Pressure Boilers, Industrial Valves, Seamless Steel Tubes viz., Alloys of Iron, Nickel, Copper, Aluminum, Titanium, Cobalt, etc..	
2.0	Principle of Operation	ICP SPECTROSCOPY	
3.0	Design Base	<p>Laboratory Model Dual View ICP-AES spectrometer has direct system control via an external PC data station and simultaneous in all aspects like</p> <ul style="list-style-type: none"> <li>• Background,</li> <li>• Internal standard and</li> <li>• Analysis.</li> </ul> <p>ICP spectrometer unit, operation based on a RF induced plasma emission source, a purged polychromator and Charge Injection Device (CID) array detector or CCD</p>	

S. No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER'S COMMENT
4.0	Equipment Configuration	The minimum desired features are enlisted below	
4.1	Operating Parameters	<p>Shall have operating parameters to ensure Accuracy, Precision and other requirements as per ASTM E-1479. Certification of the instrument shall be as per this ASTM Standard.</p> <p>Short-term relative standard deviation (RSD) of ten consecutive measurements , of not more than 10 s each for elements of concentration at least fifty times the detection limit, in an acidified aqueous sample solution with no strong interferences, should be less than 1.0 % for most elements with wavelengths greater than about 210 nm Sensitivity can be estimated as a detection limit covering 165-900 nm range or suitable range to cover UV- Visible range</p>	
4.2	Constructional Features	Laboratory model bench top Atomic Emission based (ICP) spectrometer	
4.3	Optical System	Vacuum path or purged with nitrogen	
4.4	Grating	Spectrometer should be provided with Echelle-based array polychromator system	
4.5	Wave Length Range	Wavelength ranges Covering 165-900 nm range for analyzing multi base materials or suitable to measure UV and Visible range	
4.6	Nebulizer	Concentric inert ceramic with HF resistant kit	
4.7	Viewing position	DUAL VIEW. Axial and Radial (Selectable) Fully controlled by Computer	

S. No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER'S COMMENT
4.8	Flow controller for gases	The system should coated with mass flow controller for <ul style="list-style-type: none"> <li>• Nebulizer gases</li> <li>• Pneumatic controller for auxiliary and</li> <li>• Coolant gases.</li> </ul>	
4.9	Peristatic pump	Computer Controlled three channel Peristatic pump	
4.10	Detector	CID /CCD NON BLOOMING	
4.11	RF generator	The RF generator (solid state) must run at a frequency of 27.12 MHz. or 40.68 MHz. A safety interlock must be included to turn off the RF . An RF generator is used to initiate and sustain the argon plasma. Generators typically are capable of producing,1.0 to 2.0 kW for the 27.12 MHz generator and 1.0 to 2.3,kW for the 40.68 MHz system	
5.0	Typical Material Specifications for analysis	IRON, NICKEL, COPPER, ALUMINIUM, TITANIUM Base & COBALT Base, for both Quantitative & Qualitative Analysis Mode with Multi element calibration solution for the above bases must be supplied with equipment	
6.0	Operating Software	Windows based SOFTWARE, with full frame image capability for droning semi-quantitative analysis auto diagnostic mode which displays all the parameters like Vacuum, Temperature, Voltage, Gas-Flow & Data Transfer to Excel, Word or Customized Report generation facility, e-mail output & data base for storage, retrieval, statistical analysis, etc.	
7.0	Calibration	To be calibrated during commissioning using multi element standard solutions	
8.0	Input Electric Power Supply	230 ± 10 % V, 50 Hz, Single Phase AC through a 3 wire system [Phase, Neutral & Protective Earthing]	

S. No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER'S COMMENT
9.0	Ambient Condition	The uncontrolled ambient room conditions are : - a) Temperature : 18 to 45 ° C, b) Relative Humidity : 45 to 85 % BIDDER to specify the atmospheric conditions, as the working environment for the OFFERED Equipment to deliver precise results and serve for a prescribed life of the Equipment.	
10.0	Data Logging Facility	To provide a suitable PC System & Laser printer (Computer and Accessories) with pre loaded SOFTWARE compatible to Windows based, for acquiring and compiling of test data, and printing. And a suitable Computer (PC) for operating the equipment	
11.0	Mandatory Accessories	Following shall be supplied compulsorily with the Equipment : <ul style="list-style-type: none"> <li>• Necessary multi element Standard Solutions for the following bases alloys                          IRON, NICKEL, COPPER, ALUMINIUM, and TITANIUM &amp; COBALT Base alloys / with Test Certificates traceable to National / International Standards.</li> <li>• Suitable UPS for the instrument and PC , water chiller for the equipment, fume exhaust system, Argon &amp; Nitrogen gas regulators with gas purification system</li> </ul> Bidder shall provide complete list of mandatory accessories.	
12.0	Consumables for Main Equipment & Accessories	BIDDER has to list down the CONSUMABLES to be used in the Operation of the Equipment and QUOTE with UNIT RATE for all the listed consumables, to be procured with the equipment.	

S. No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER'S COMMENT
13.0	Inspection	The Equipment & Accessories shall be offered for Inspection by BHEL Engineers and Performance Prove-Out, as per ASTM E-1479, at the Works of the Supplier, prior to dispatch.	
14.0	Installation and Commissioning	The Equipment with all Accessories is to be installed & commissioned at BHEL Works, FREE OF COST, by the Service Engineer of the SUPPLIER.	
15.0	Performance Prove-Out at BHEL	The Supplier's Service Engineer has to conduct demonstration & calibration of the Equipment with Accessories as per <b>ASTM E 1479</b> and to carry-out Performance Prove-Out as per BHEL Specifications.	
16.0	Documentation in ENGLISH Language	2 Copies of the Operation & Maintenance Manuals containing Operating Instructions, Maintenance Procedure, Electric Schematics, Circuit Diagrams, PCB Drawings, Trouble Shooting Charts, Mechanical Sub-Assemblies, Rating of Bought-Out Items, etc. shall be supplied along with the equipment,. In addition, one SOFT COPY in CD to be supplied.	
17.0	Training on Operation & Maintenance	Complete Training for BHEL Engineers is to be given on Operation & Maintenance at BHEL Works, after the successful commissioning of the Equipment & Accessories.	
18.0	Performance Guarantee	The Equipment & Accessories (including Bought-Out Items) are to be guaranteed for its performance for a period of one year from the date of performance acceptance at BHEL Works.	
19.0	Service Support Requirements.	Vendor shall ensure AMC service facilities in India after the guarantee period, through trained service personnel in India	
20.0	Annual Maintenance Contract - AMC	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.	

S. No.	PARTICULARS	BHEL SPECIFICATIONS	BIDDER'S COMMENT
20.1	AMC – CASE I	Technical Service for Preventive Maintenance, Trouble Shooting and Re- Commissioning of the Equipment <b>excluding</b> the Cost of SPARES and Consumables [BHEL will make available the required Spares & Consumables on demand]	
20.2	AMC – CASE II	Technical Service for Preventive Maintenance, Trouble Shooting and Re- Commissioning of the Equipment <b>INCLUDING</b> the Cost of SPARES and Consumables [BHEL will not be responsible for the timely availability of Spares & Consumables]	
20.3	AMC - RESPONSE	THE BIDDER HAS TO FURNISH / INDICATE THE RESPONSE TIME FOR THE SERVICE ENGINEER TO BE AT BHEL WORKS, FROM THE TIME OF REPORTING BREAKDOWN THROUGH E-MAIL or TELEFAX.	
20.4	AMC – Service Calls	The BIDDER has to furnish details on service calls for preventive maintenance (number of calls and intervals) and break-down maintenance	