



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

An ISO 9001
Company

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 79 38 Fax : +91 431 252 07 19 Email : tvenkat@bheltry.co.in Web : www.bhel.com
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	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
	2620900061	26.02.2009	02.04.2009

You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Inductively Coupled Plasma with Mass Spectrometer System as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.	31.10.2009

BHEL commercial terms & conditions along with technical specifications 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 “2620900061”.

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**

Manager / Capital Equipment / MM

QUALIFYING CRITERIA

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

The bid consists of 3 parts namely Qualifying Criteria, Technical bid and Price bid. Vendor shall submit Qualifying Criteria & Technical bid together in a sealed cover. Price bid shall be in a separate sealed cover. BHEL will consider Technical bid only if the vendor/bidder qualifies. BHEL will consider Price bid only if the Technical bid is found acceptable.

[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]

Name of the product: BHEL uses the title "**CRC EQUIPMENT**" in this document. Please refer Technical Specification attached herewith for further details

S. No.	PARTICULARS	VENDOR's RESPONSE
1.0	The BIDDER / VENDOR shall have a minimum of FIVE Years of Continuous Experience in the Design, Manufacture & Supply of " CRC EQUIPMENT ". Please indicate the actual experience. This is a qualifying criteria.	
2.0	YEAR of launch of the Model quoted against this ENQUIRY	
3.0	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.	
4.0	Number of " CRC EQUIPMENT " supplied, installed and commissioned till date in India. Please furnish contact person name, address, phone number, fax number and mail id .Please mention that how many are used for coal analysis purpose.	
5.0	Number of " CRC EQUIPMENT " supplied, installed and commissioned till date outside India. Please furnish contact person name, address, phone number, fax number and mail id. Please mention that how many are used for coal analysis purpose.	

Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Lawrence Dr A /Mgr/Labs		
	Sivasubramanian R/Manager/Labs		
For Specifications having reference numbers	CRC- 17	DATE : 05 – 01 –2008	

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6.0	Please enclose Performance Certificate from atleast Five Indian customers for the model quoted. This certificate should not have been received prior to 01.Jan.2007. This is a qualifying criteria.	
7.0	Details of Design Set-Up and Technology Back-Up assured from the PRINCIPAL Equipment Maker.	
8.0	Details on Service-after-Sales set-up in India including the addresses of Agents/Service Centre in India.	
9.0	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. This is a qualifying criteria	
10.0	The <u>“Technical Bid”</u> shall have vendor’s responses along with Product Catalogue, Data Sheets in ORIGINAL and complete technical details of ‘Bought-Out-Items’ with copies of Product Catalogue. All Technical & Commercial terms can be here. NO PRICE DETAIL IS ENTERTAINED HERE.	

Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Lawrence Dr A /Mgr/Labs		
	Sivasubramanian R/Manager/Labs		
For Specifications having reference numbers	CRC- 17	DATE : 05 – 01 –2008	

11.0	<p>The “<u>Price Bid</u>” shall have Price Part with following options.</p> <p>In case the offered model requires PC with special hardware and software, then bidder should include the same in their scope. The scope includes 17” TFT monitor, Laser printer B/W, Windows XP+ services packages also.</p> <p>In case the offered model requires only general PC hardware and software, then bidder should include only the application software in their scope. Bidder should give detailed Hardware and Software specification for arranging at BHEL.</p> <p><u>Option 1(Incase bidder supplies PC):</u> Basic Equipment. All PC hardware and software. All software CDs (1 set) with valid license. Installation & Maintenance manuals (2 Hard copies & 1 set of CDs) Mandatory spares. Consumables. AMC</p> <p><u>Option 2(Incase bidder does not supply PC)</u> Basic Equipment. Application software CDs 1 set with valid license. Responsibilities of interfacing BHEL supply PC with Basic Equipment(including interconnecting cables) Installation & Maintenance manuals (2 Hard copies & 1 set of CDs) Mandatory spares. Consumables. AMC</p>	
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Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Lawrence Dr A /Mgr/Labs		
	Sivasubramanian R/Manager/Labs		
For Specifications having reference numbers	CRC- 17	DATE : 05 – 01 –2008	

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**TECHNICAL SPECIFICATIONS FOR INDUCTIVELY COUPLED PLASMA
MASS SPECTROMETER (ICPMS)**

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Sl. No.	Particulars	BHEL specifications	Bidder's offer [With complete technical details]
1	Confirmation for each point of specification.	Vendor is requested to give specific confirmation for each point. Deviations if any shall be clearly indicated.	
2	Ambient Condition	The uncontrolled ambient room conditions are- a) Temperature: 10 to 50 ° C, b) Relative Humidity: 100 % c) Dusty	
3	Scope of Vendor	<ol style="list-style-type: none">1. Design, Manufacture, Testing, at vendor's works.2. Original software, Installation & Maintenance manuals, Consumables, Mandatory Spares.3. UPS(if required)4. Training, Installation, Commissioning & Proving performance at BHEL Trichy.5. On-site Guarantee, On-site Annual Maintenance Contract.	
4	General Requirement	<p>The ICP-MS system with preferably Collision / Reaction Cell Technology for the reduction of argon and other polyatomic background species under normal high temperature plasma operation is required for trace elemental analysis in a range of environmental and coal / coal ash / deposit samples including drinking and waste waters, sediments, non conventional fuel samples such as pet coke, biomass. Elements concentrations range from ppt levels (Sb, As, Pb, etc) to high ppm levels (Si, Al).</p> <p>The instrument and any accessories supplied should be computer controlled by a central-desktop PC with Windows based software. Measurement techniques for qualitative,</p>	

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		quantitative and isotope ratio measurement of analytes should be included. The system shall include a random access auto sampler of at least 80 samples.	
4.1	Critical Specifications		
4.2		Computer controlled, all solid state 27/40MHz RF generator with output power 100 – 1600 watts	
4.3		Computer controlled Mass Flow Controllers for the nebulizer, coolant and auxiliary Argon gas lines	
4.4		ICP torch position adjustable to enable the plasma position to be optimized	
4.5		Temperature controlled, nebulizer for optimum stability with fast washout and minimum cross contamination with clinical and soil sample digests.	
4.6		The interface sample and skimmer cones to be constructed from high purity Ni with apertures of suitable size to minimize condensation of sample matrix in the cone orifice	
4.7		The ion-optic design must provide maintenance free operation with no requirement for routine cleaning of the ion lens or collision cell between normal service intervals and must be of robust design. Cell operation with both collision gases such as He and highly reactive gases such as H ₂ , NH ₃ , and O ₂ etc must be included. Illustrations of analytical performance in both collision cell and reaction cell modes of operation with each of these gases shall be provided. The mean background count rate of the system must be high performance quadrupole mass analyzer shall be provided. The mass range of the analyzer shall be 2-255 amu.	
4.8		The quadrupole resolution will be computer controlled enabling user selectable between	

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		Normal and High-Resolution modes - element-by-element if required.	
4.9		Capable of analysis of all ICP-MS measurable elements including of high ionization potentials in a single run including As, Hg, Sb, Bi, Se elements in ppt level.	
4.10		Hydride generator and its require accessories should be quoted.	
4.11		The spectrometer shall include an integral high vacuum system. The capacity of the pumping system shall provide a final operating vacuum of $< 2 \times 10^{-6}$ mbar in the analyzer region during normal, non-CCT operation, ensuring a high quality mass spectrum with good peak shapes and excellent abundance sensitivity.	
4.12		The detector should be supplied to facilitate easy replacement by the user, without the need for any tools, wiring-connections or realignment and without the need for a service engineer.	
4.13		The ICP-MS system software must include Auto tuning to enable the instrument to be used with consistent and reproducible day-to-day performance, independent of the operator. The software must be capable of running Performance reports prior to acquiring data and generating electronic and hardcopies of these reports.	
5.0	Software	The instrument system software shall be based on the Windows XP operating system. The software must include as a minimum the following features and capabilities.	
5.1		Fully automated system start up and shutdown via an instrument control window	
5.2		Matrix Specific databases to provide preferred isotope selection following user entry or measurement of matrix elements.	

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		<ul style="list-style-type: none">➤ Quantitative via external calibration/semi-quantitative.➤ Standard additions/semi-quantitative.	
5.3		Results output formatted in mixed concentration units e.g. ppt, ppb, ppm etc. for ease of data interpretation by the user should be possible.	
5.4		Quality control software for automated QA/QC during unattended operation.	
5.5		True multitasking operation – ability to set up new experiments or modify existing experiment templates whilst an automatic run is taking place without concern regarding overwriting previously acquired data.	
5.6		External drift correction, with and without internal standards.	
5.7		Intelligent, automated monitoring of sample uptake / commencement of integration shall be included for both solution and laser ablation sampling.	
5.8		<p>Intelligent, automated monitoring of washout to the baseline shall be available, user selectable.</p> <ul style="list-style-type: none">○ Integral Time Resolved Analysis software shall be provided for data acquisition. <p>Such that the ICP-MS is provided ready for integration with these hyphenated techniques and these sample introduction systems can be added at a later date without the requirement for additional software for data acquisition and data reduction</p>	
5.9		<p>The supply should include:</p> <ul style="list-style-type: none">a) Specpure Analytical single element STD solutions (minimum pack or 100 ml each whichever is lower for all	

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		available elements b) Multi element Standard c) Gas cylinders applicable d) Chiller or coolant e) Standard reference materials (NBS) related to major elements and trace elements in coal ash.	
5.10	Data System	In case the offered model requires PC with special hardware and software, then bidder should include the same in their scope. The scope includes 17" TFT monitor, Laser printer B/W, Windows XP+ services packages also. In case the offered model requires only general PC hardware and software, then bidder should include only the application software in their scope. Bidder should give detailed Hardware and Software specification for arranging at BHEL	
6.0	Power supply	230V +/- 10% AC/1 Ph/50Hz- 1 Feeder	
7.0	Along with offer the following details in hard copies shall be indicated.	a) Scope and interconnection diagrams-2 copies. b) Catalogs-2 copies. c) Dimensional details for preparing Civil Engg Drawings-2 copies. d) Mandatory spares with Unit price if applicable. e) Consumables along with unit price if applicable. f) Power supply requirement. g) Instrument air and compressed air if required. h) PC configuration. i) Vents and drains if required. j) Space requirement around the equipment. k) List of software.	
8.0	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.	
9.0	Performance Prove-Out at BHEL	The Supplier's Service Engineer has to conduct demonstration & calibration of the Equipment with Accessories.	

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10.0	Inspection & Training at Vendor works.	BHEL's Inspection is applicable. Complete Training for BHEL Engineers is to be given on Operation & Maintenance free of cost.	
11.0	Training on Operation & Maintenance at BHEL works.	Complete Training for BHEL Engineers is to be given on Operation & Maintenance of the offered equipment at BHEL works, free of cost.	
12.0	Onsite Performance Guarantee	The Equipment & 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.	
13.0	Draft and Final Installation and O&M manual in ENGLISH Language	1No Draft Installation, Operation & Maintenance Manual. It shall contain Electric Schematics, Circuit Diagrams, PCB Drawings, Trouble Shooting Charts, Mechanical Sub-Assemblies, Rating of Bought-Out Items, etc. BHEL will review its completeness and inform supplier to make necessary corrections if applicable and ask to furnish 2 more final sets. In addition, one soft copy in CD to be supplied.	
14.0	Annual Maintenance Contract - AMC	The bidder has to quote for AMC through trained service personnel in India for a period of three years after the expiry of ORIGINAL WARRANTY period. Technical Service for Preventive and breakdown Maintenance , Trouble Shooting and Re- Commissioning of the Equipment INCLUDING the Cost of SPARES and Consumables .Please consider 4 visits per year.	
15.0	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.	