



## 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> Web : <a href="http://www.bhel.com">www.bhel.com</a>
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	<b>Enquiry Number:</b> <b>2620900045</b>	<b>Enquiry Date:</b> <b>17.02.2009</b>	<b>Due date for submission of quotation:</b> <b>20.03.2009</b>
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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	FT Infra Red Spectro Meter 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> )	1 No.	30.11.2009

**BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats 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 “2620900045”.**

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 2 parts namely Technical and Price bid. Vendor shall submit Technical and Price bid separately. BHEL will study both the Qualifying Criteria and Response for Technical Specifications. The Price bid can be studied only if both the Qualifying Criteria and Response for Technical Specifications are 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 <b>FIVE</b> Years of Continuous Experience in the Design, Manufacture & Supply of "CRC EQUIPMENT". Please indicate the actual experience.	
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.	
4.1	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.	

Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Pattabiraman Dr R /SM/Labs		
	Sivasubramanian R /Manager/Labs		
<b>For Specifications having reference numbers</b>	CRC- 6	DATE : 05 – 01 –2008	

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<b>4.2</b>	Please enclose Performance Certificate from atleast <b>one</b> Indian or Foreign customer for the model quoted.	
<b>5.0</b>	Details of Design Set-Up and Technology Back-Up assured from the PRINCIPAL Equipment Maker.	
<b>6.0</b>	Details on Service-after-Sales set-up in India including the addresses of Agents/Service Centre in India.	
<b>7.0</b>	The BIDDER / VENDOR shall submit the offer in TWO PARTS namely " <u>Technical Bid</u> " & " <u>Price Bid</u> ".	
<b>8.0</b>	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. <b>NO PRICE DETAIL IS ENTERTAINED HERE.</b>	
<b>9.0</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>Committee Members</b>	<b>Name &amp; Design.</b>	<b>Signature</b>	<b>Initial</b>
	Kannan K/DGM/CR/CRC		
	Pattabiraman Dr R /SM/Labs		
	Sivasubramanian R /Manager/Labs		
<b>For Specifications having reference numbers</b>	CRC- 6	DATE : 05 – 01 –2008	

<b>10.0</b>	<p>The <u>"Price Bid"</u> shall have Price Part with following options.</p> <p><b>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.</b></p> <p><b>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.</b></p> <p><b><u>Option 1(Incase bidder supplies PC):</u></b>                  Basic Equipment.                  All PC hardware and software.                  All software CDs (1 set) with valid license.                  Installation &amp; Maintenance manuals (2 Hard copies &amp; 1 set of CDs)                  Mandatory spares.                  Consumables.                  AMC</p> <p><b><u>Option 2(Incase bidder does not supply PC)</u></b>                  Basic Equipment.                  Application software CDs 1 set with valid license.                  Responsibilities of interfacing BHEL supply PC with Basic Equipment(including interconnecting cables)                  Installation &amp; Maintenance manuals (2 Hard copies &amp; 1 set of CDs)                  Mandatory spares.                  Consumables.                  AMC</p>	
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Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Pattabiraman Dr R /SM/Labs		
	Sivasubramanian R /Manager/Labs		
<b>For Specifications having reference numbers</b>	CRC- 6	DATE : 05 – 01 –2008	

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**TECHNICAL SPECIFICATIONS FOR FT INFRA RED SPECTROPHOTOMETER**

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<b>Sl. No.</b>	<b>Particulars</b>	<b>BHEL specifications</b>	<b>Bidder's offer [With complete technical details]</b>
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"><li>1. Design, Manufacture, Testing, at vendor's works.</li><li>2. Original software, Installation &amp; Maintenance manuals, Consumables, Mandatory Spares.</li><li>3. UPS(if required)</li><li>4. Training, Installation, Commissioning &amp; Proving performance at BHEL Trichy.</li><li>5. On-site Guarantee, On-site Annual Maintenance Contract.</li></ol>	
4	Name of Equipment	FT INFRA RED SPECTROPHOTOMETER	
4.1	Area of Application	SPECTROMETER [an Opto-Electronic Analytical Instrument] is to be used in the Coal Research Centre. This has to cater to the extensive analytical testing of all type of Fuel, (mainly fossil fuels, coal ash, slags and deposits.	
4.2	Principle of Operation	IR absorbency technique or by IR reflectance technique. The System shall have provision for up gradation in Far-IR,NIR&VIS range	
4.3	Design Base	Laboratory Model Bench Top FTIR spectrometer with diamond & Ge crystal ATR system (to cover the entire MID-IR region), and with universal sample compartment for working with all available fuel samples. The system should have facilities for interfacing TGA-IR, GC-IR and upgradeable to	

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		IR Microscope with 5 line external beams for simultaneous connection with external accessories.	
4.4	Equipment Configuration	The minimum desired features are enlisted below	
4.5	Optics and Interferometer design	The system should offer permanently aligned .Interferometer design equipped with cube corner (Retro reflectors), gold coated optics Or dynamically aligned interferometer. System shall have minimum 40 scans/Sec.	
4.6	Spectral Range	Approx. 7500 to 370 $\text{cm}^{-1}$ or more with standard KBr Beam splitter	
4.7	Resolution	0.3 $\text{cm}^{-1}$	
4.8	Signal to Noise Ratio	S/N ratio > 45000:1 in 1 minute integration peak to peak 4 $\text{cm}^{-1}$ resolution	
4.9	Wave number accuracy	0.01 $\text{cm}^{-1}$	
5.0	Detector	DLaTGS detector. Or any other advance detectors with temperature regulator	
5.1	Source	Air cooled MIR/ High intensity ceramic source	
5.2	Validation	The system should be supplied with performance validation standards like, Wavelength and photometric precision & S/N ratio etc.	
5.3	Performance Controller	The system should provide with performance guard for online monitoring of spectrometer components like source, detector, interferometer and electronics. The standards shall come with trace ability certificate.	
5.4	Typical Material Specifications to be analysed	All type of coal minerals like Quartz, kaolin, Siderite,	
5.5	Power supply	230V +/- 10% AC/1 Ph/50Hz- 1 Feeder	
5.6	Optional Accessories	BIDDER to list down (with UNIT RATE) the various ACCESSORIES to be procured along with the EQUIPMENT to enhance the Operating Efficiency and Features of the OFFERED EQUIPMENT, over and above those mentioned in the SPECIFICATIONS. The supplier should offer Diamond ATR, ZnSe crystal, Ge Crystal with liquid and solids trap. KBr pellet holder with press suitable die and demonstrable liquid cell. Paint library Rubber base material library	

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5.7	Mandatory Accessories	Following shall be supplied compulsorily with the Equipment: <ul style="list-style-type: none"><li>• Necessary Standard Samples with Test Certificates traceable to National / International Standards.</li><li>• Sample preparation machines</li><li>• Voltage Stabilizer and UPS</li></ul>	
5.8	Operating Software	<p>The system should have necessary software for instrument operation and libraries for Coal, lignite, peat, and all coal minerals. Software Features ~ database of all the spectrum related to our testing specification ~ Data Collection ~ Data Manipulation ~ QC Comparison facility ~ User Log-in ~ Ability to run macros and external programs TQ Analyst Qualitative Tools ~ Measure Only ~ Search Standards ~ Similarity Match ~ QC Compare Quantitative Tools ~ Macros facility ~ Export data to other programs (like Excel, Word, etc.) A validation software should be supplied with the FTIR and it should have capability to check the instrument performance with tests for wave number accuracy, wave number repeatability, &amp;T change % repeatability and resolution on a routine basis.</p> <p>The operating software should have the following features:</p> <ul style="list-style-type: none"><li>a) Spectrum calculation</li><li>b) Absorbance to transmittance conversion</li><li>c) Peak peaking</li><li>d) Integration spectral subtraction</li><li>e) Curve fitting</li><li>f) Library search facility</li><li>g) Spectral de convolution</li></ul>	
5.9	Data System	<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</p>	

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		software in their scope. Bidder should give detailed Hardware and Software specification for arranging at BHEL	
6	Along with offer the following details in hard copies shall be indicated.	<ul style="list-style-type: none"> <li>a) Scope and interconnection diagrams-2 copies.</li> <li>b) Catalogs-2 copies.</li> <li>c) Dimensional details for preparing Civil Engg Drawings-2 copies.</li> <li>d) Mandatory spares with Unit price if applicable.</li> <li>e) Consumables along with unit price if applicable.</li> <li>f) Power supply requirement.</li> <li>g) Instrument air and compressed air if required.</li> <li>h) PC configuration.</li> <li>i) Vents and drains if required.</li> <li>j) Space requirement around the equipment.</li> <li>k) List of software.</li> </ul>	
7	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.	
8	Performance Prove-Out at BHEL	The Supplier's Service Engineer has to conduct demonstration & calibration of the Equipment with Accessories.	
9	Inspection and Training at vendor's works	Incase the Equipment is of Indian origin, then BHEL's inspection and free training for 2 persons are applicable. Incase the Equipment is of Foreign Origin, the vendor should thoroughly inspect the equipment, furnish inspection certificate for BHEL's review and get clearance prior to dispatch of Equipment.	
10	Training on Operation & Maintenance at BHEL works.	Complete Training for BHEL Engineers to be given on Operation & Maintenance of the offered equipment at BHEL works, free of cost.	
11	Onsite Performance Guarantee	The Equipment & Accessories (including Bought-Out Items) are to be guaranteed for its performance for a minimum period of <b>one year from the date of performance acceptance at BHEL Works.</b>	
12	Draft and Final Installation and	1No Draft Installation, Operation & Maintenance Manual.It shall contain Electric	

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	O&M manual in ENGLISH Language	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.	
13	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 <b>Preventive and breakdown Maintenance</b> , Trouble Shooting and Re- Commissioning of the Equipment INCLUDING the Cost of SPARES and Consumables .Please consider <b>4</b> visits per year.	
14	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.	