



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
----------------	---

	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
	2620900063	26.02.2009	03.04.2009

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	Powder Particle Size Distribution Analyser as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.	30.11.2009

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 “2620900063”.

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		
For Specifications having reference numbers	CRC- 12	DATE : 05 – 01 –2008	

Coal Research Centre

Ref: CRC Eqpt: QC-A
Rev No. 0/Dt. 05.01.2009
Sheet 2 of 3

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 “Technical Bid” 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		
For Specifications having reference numbers	CRC- 12	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>	
------	--	--

Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Lawrence Dr A /Mgr/Labs		
For Specifications having reference numbers	CRC- 12	DATE : 05 – 01 –2008	

Coal Research Centre

TECHNICAL SPECIFICATIONS FOR POWDER PARTICLE SIZE DISTRIBUTION ANALYSER.

Ref: CRC- 12
Rev No. 0/ Dt. 05.01.2009
Sheet 1 of 6

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.	
4.0	Equipment Name	POWDER PARTICLE SIZE DISTRIBUTION ANALYSER	
4.1	Particle size range	0.02-2000 microns.	
4.2	Sample requirement	Dry =20 mg ; Wet =10mg	
4.3	Method of analysis	Both wet and dry samples of the above particle size range without any need for any alignment or calibration into the system during selection of wet and dry or vice-versa. Upgradeable for handling small quantities in wet dispersion using micro precision cell.	
4.4	Suspension media	Any liquid can be used to suspend powder for analysis and dry powder feeder system.	
4.5	P.C. computer interface	RS 232 C / 9 pin-serial ports for data transmission or better	
4.6	Safety of equipments, Security	Automatic laser safety shutter as per CE compliance	
5.0	Optical Bench		

TECHNICAL SPECIFICATIONS FOR POWDER PARTICLE SIZE DISTRIBUTION ANALYSER.

Ref: CRC- 12
Rev No. 0/ Dt. 05.01.2009
Sheet 2 of 6

5.1	Measurement Principle	Processing of optical data based on Full Mie scattering principle.	
5.2	Detection System	Dual wave scanning with 632.8 nm Red light/ 466 nm blue Light capable of measuring forward scattering, side Scattering along with wide range forward and back scattering. Adequate number of detectors for measuring wide-angle and backscatter data. Ability to measure the entire measurement range(0.02 Microns to 2000 microns) to be accessed using single-lens system is preferable Auto alignment of detector system prior to each sample measurement (<20 sec). Light source: Red light – He-Ne gas laser Blue Light – Solid state light source	
5.3	Detector	High sensitivity Silicon Diode detector as STD.	
6.0	Sample Handling Unit:		
6.1	Description	System should have dry powder feeder unit with suitable dispersion mechanism. Dry dispersion unit with software control of the sample feed rate and dispersive air pressure. Wet dispersion should be carried out in a stainless steel container by Centrifugal Pump is preferable Sample dispersion in Quartz sample cell by using mechanical stirrer/ultrasonic probe.	
6.2	Sampling Cell volume	50 ml or less	
6.3	Calibration Sample	Free Polystyrene latex granules /glass beads to be supplied as per universal standard with Certificate.	
6.4	Agitation	Mechanical stirrer, ultrasonic mixer with independently variable speeds.	
7.0	Software and Data presentation		

TECHNICAL SPECIFICATIONS FOR POWDER PARTICLE SIZE DISTRIBUTION ANALYSER.

Ref: CRC- 12
Rev No. 0/ Dt. 05.01.2009
Sheet 3 of 6

7.1	Application Software	<p>Windows2000 professional or advanced software having user-friendly graphical interface with provision of</p> <ul style="list-style-type: none">- Curves of percentage by weight, cumulative undersize' or 'oversize'- Histogram by weight- Histogram by area- Histogram by number of particles.- Possibility by processing measurements for values of 50 optional diameters.- Possibility of displaying super imposed curves.- Standard particle size and zeta potential.- Volume mean diameter- Surface mean diameter- Length mean diameter- Number mean diameter- Possibility of processing by the following methods<ul style="list-style-type: none">- SPLINE interpolation- ROSIN –RAMLER's law- Log-normal law- Custom report designing facility using drag and drop selection. <p>All software upgrades shall be free for life time of the instrument.</p>	
7.2	Analysis	<p>Ability to select both the Mie Theory and Fraunhofer Approximation models for calculating size distributions.</p> <p>Ability for the user to specify and calculate new optical models for the analysis of the light scattering data.</p> <p>Analysis quality assessment (analysis residual, data fit view, volume concentration reporting) via software available to aid with measurement trouble shooting and analysis selection. At least 100 size classes distributed throughout the measurement range. Ability for users to change the size classes used in representing the results.</p> <p>Ability to compensate for the scattering observed for irregular particles when carrying out size calculations.</p>	

TECHNICAL SPECIFICATIONS FOR POWDER PARTICLE SIZE DISTRIBUTION ANALYSER.

Ref: CRC- 12
Rev No. 0/ Dt. 05.01.2009
Sheet 4 of 6

		-Ability to transform results to show surface, length and number distributions as well as volume distributions. -Ability to calculate results based on dual-wave length or single-wave length data	
7.3	Instruments control	All operations should controlled through PC	
8.0	Database utility		
8.1		Automatic Searching, sorting and filtering by search criteria or data records on all parameter of interest. Storage of results within a database file. Ability to view key parameters associated with each result within database view, including sorting of records based on the parameters being viewed. Searching, sorting and filtering by search criteria or data records on all parameters of interest. Ability to export results using drag-and-drop from the database view.	
8.2	Real time display	Software should permit display of result in real time to study the effects due to particle breaking or agglomeration and dilution effects.	
8.3		- Particle size standards (glass bead samples of different particle size) for both wet and dry methods. -Operating manuals and IQ/OQ/PQ documents -CD of measuring software and back-up on CD -CD of operating systems	
9.0	Support / System Verification		
9.1	System Verification	Standard samples for the routine verification of the laser diffraction system are to be provided.	
9.2	Instrument Certification	For laser particle sizer and dispersion units: ISO9001:2000 certificate, CE certificate copies are to be provided.	
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	

Coal Research Centre

TECHNICAL SPECIFICATIONS FOR POWDER PARTICLE SIZE DISTRIBUTION ANALYSER.

Ref: CRC- 12
Rev No. 0/ Dt. 05.01.2009
 Sheet 5 of 6

		scope. Bidder should give detailed Hardware and Software specification for arranging at BHEL	
11	Power supply	230V +/- 10% AC/1 Ph/50Hz- 1 Feeder	
12	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.	
13	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.	
14	Performance Prove-Out at BHEL	The Supplier's Service Engineer has to conduct demonstration & calibration of the Equipment with Accessories.	
15	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.	
16	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.	
17	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.	
18	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	

Coal Research Centre

TECHNICAL SPECIFICATIONS FOR POWDER PARTICLE SIZE DISTRIBUTION ANALYSER.

Ref: CRC- 12
Rev No. 0/ Dt. 05.01.2009
Sheet 6 of 6

		necessary corrections if applicable and ask to furnish 2 more final sets. In addition, one soft copy in CD to be supplied.	
19	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 2 routine and 2 call visits (Totally 4 visits) per year.	
20	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.	