



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT / CAPITAL EQUIPMENT

ENQUIRY

Phone: +91 431 257 70 49

Fax : +91 431 252 07 19

Email : csguna@bheltry.co.in

Web : www.bhel.com

Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
2620900228	14.10.2009	16.11.2009

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.

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	Delivery (Item required at BHEL on)
10	FTNMR Spectrometer as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 No.	15.05.2010

BHEL commercial terms & conditions with Price Bid and Bank Guarantee formats 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 "2620900228".

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

Sr.Manager / MM / Capital Equipment

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: FTNMR Spectrometer.

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 " FTNMR Spectrometer ". 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 " FTNMR Spectrometer " supplied, installed and commissioned till date in India. Please furnish contact person name, address, phone number, fax number and mail id .	
5.0	Number of " FTNMR Spectrometer " supplied, installed and commissioned till date outside India. Please furnish contact person name, address, phone number, fax number and mail id.	
6.0	Please enclose Performance Certificates from customers for the model quoted and specific for the purpose as in CRC-1.	
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	

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Ref: CRC Eqpt: QC-A
Rev No. 0/Dt. 12.10.09
Sheet 2 of 2

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.	
11.0	The <u>"Price Bid"</u> shall have Price Part with following. 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) Critical spares. Consumables.	

Committee Members	Name & Design.	Signature	Initial
	Kannan K/DGM/CR/CRC		
	Sivasubramanian R/Manager/Labs		
For Specifications having reference numbers	CRC- 1,	DATE : 12 – 10 –09	

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Technical specifications for FTNMR Spectrophotometer

Ref.No: CRC-1
Dt.12.10.09
Sheet 1 of 3

Sl. No.	Particulars	BHEL specifications	Bidders offer
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	Suitable AC room will be provided. Vendor to specify.	
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 4. Training, Installation, Commissioning & Proving performance at BHEL Trichy. 5. On-site Guarantee. 	
4	Name of Equipment	FT-NMR SPECTROMETER	
4.1	Type of Instrument	400 MHz FT-NMR Spectrometer : <ol style="list-style-type: none"> a) FTNMR Spectrometer at 400 MHz with specially shielded superconducting magnet of 9.4 Tesla. b) Solid State ¹H, ¹³C and X nuclei (15N to ¹⁹F) NMR spectra. c) Solution state high resolution ¹H, ¹³C and X nuclei (15N to ¹⁹F) NMR spectra. 	
4.2	Purpose	The FTNMR Spectrometer is to be suitable for: <ol style="list-style-type: none"> a) ¹H NMR in solid state ;static solids NMR and wide line NMR b) ¹³C NMR in solid state c) Multinuclear(¹⁵N to ¹⁹F) NMR in solids d) Rigid solid applications with or without MAS sample spinning e) For high resolution solution state work 	
4.3	Spectrometer	Solid State FT-NMR spectrometer. <ol style="list-style-type: none"> a) 2 Nos RF console with accessories for 2 complete RF channels. b) Pulse generating system of high timing resolution (ca. 10 ns) for frequency synthesizer, transmitter and receiver. c) Electronics for gradient enhanced solution state NMR experiments max ca. 100 G/cm. d) Power amplifiers: 1000 W, LF and HF Power Amplifiers (Transmitters). e) High power HF Preamplifier (¹H, ¹⁹F common). f) High power LF Preamplifier (¹³C) for multinuclear experiments. g) Pneumatic control unit for MAS. 	

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Technical specifications for FTNMR Spectrophotometer

Ref.No: CRC-1
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		<ul style="list-style-type: none"> h) Lock Frequency Transmitter. i) Lock Signal Receiver. j) Z0 auto-correction for effective solid NMR 	
4.4	Magnet	<ul style="list-style-type: none"> a) Actively shielded super conducting magnet at 9.4 Tesla. b) 89 mm room temperature (RT) bore. c) Liquid helium hold time of magnet -1 year. d) Liquid helium transfer line. e) Built-in liquid helium level sensor with automatic level monitoring. f) Liquid Nitrogen level indicator. g) Suitable shim system of cryoshims and room temperature (RT) shims. h) Ant vibration pads for magnet legs i) To specify yearly consumption of liquid helium under normal operating conditions. j) To specify weekly consumption of liquid nitrogen at normal operating conditions. k) To specify stray magnetic field of 5 gauss(G) along radial and axial distance /better stray field plot be provided 	
4.5	Probes	<ul style="list-style-type: none"> a) CPMAS Probe for solid samples, High speed 4 mm rotor. b) CRAMPS Probe for ^1H in solid state. ➔ Standard Set of rotors with caps for CPMAS and CRAMPS.^1H resolution as well as ^{13}C sensitivity and resolution to be specified for solids on standard samples. ➔ 5 mm High resolution solution state NMR probe for multinuclear observation including ^1H and ^{19}F and ^1H decoupling (optional ^{19}F decoupling) with z gradient. 	
4.6	Accessories	<ul style="list-style-type: none"> a) MAS auto-sampler. b) Digital temperature controller with accuracy of $\pm 0.1^\circ\text{C}$ suitable to the probes to study FTNMR spectra of samples at different temperature. c) Liquid N_2 dewars-6 nos. d) Suitable UPS set for the total NMR system with inverter, batteries and stand to house these items. e) Oil and moisture free air compressor with details. f) Consumables, sample tubes, caps, kit for reference samples for 3 years use. g) Essential and regular spares. h) N_2 gas cylinders. i) He gas cylinders. j) Cryogenics for initial charging of magnet with Liquid Helium and Liquid Nitrogen. 	

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Technical specifications for FTNMR Spectrophotometer

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		Scope for futuristic up gradation or expandability of the system to be clearly mentioned in the offer. Vendor to agree to supply liquid He for subsequent periods.	
4.7	Data System	<ul style="list-style-type: none"> a) Software for 1D, 2D and 3D acquisition and processing with minimum 2 numbers of licenses. b) Provision for automatic measurements.(auto-sampler, automatic tuning/ matching). c) PC with latest configuration 17" TFT LCD monitor, Laser printer B/W, Linux/ Windows XP+ services packages also. 	
4.8	Power supply	230V +/- 10% AC/1 Ph/50Hz- 1 Feeder	
5	Along with offer the following details in hard copies shall be indicated.	<ul style="list-style-type: none"> a) Catalogs-2 copies. b) Dimensional details for preparing Civil Engg Drawings-2 copies. c) Consumables along with unit price if applicable. d) PC configuration. e) Space requirement around the equipment. f) List of software. 	
6	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.	
7	Performance Prove-Out at BHEL	The Supplier's Service Engineer has to conduct demonstration & calibration of the Equipment with Accessories.	
8	Inspection at vendor works.	BHEL's Inspection is applicable. To and fro and lodging/boarding expenditure are in BHEL's scope.	
9	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.	
10	Onsite Performance Guarantee	The Equipment & Accessories (including Bought-Out Items) are to be guaranteed for its performance for a minimum period of four year from the date of performance acceptance at BHEL Works.	
11	Installation and O&M manual in ENGLISH Language	2 Nos Installation, Operation & Maintenance Manual-Hard copy. 1No Installation, Operation & Maintenance Manual-Soft copy in CD.	