



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY	Phone: +91 431 257 7421/ 7297 Email : vkarna@bhel.in , hari.r@bhel.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two Parts	2622000008	06.06.2020	10.07.2020

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	Ion Chromatography Analyzer as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or https://eprocure.gov.in/epublish/app)	1 No.

Important points to be taken care during submission of offer

1. Delivery terms shall be FOR BHEL Stores, Trichy.
2. Compliance Form ATP/ TRY/ IND/ 06 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
3. EMD applicable for this enquiry is INR 60,000/-
4. Delivery period required is 3 months from the date of Purchase Order.
5. Erection and commissioning activities shall be done by the supplier, at BHEL, Trichy works.
6. Time period required for Erection and Commissioning activities shall be 1 week from the date of intimation by BHEL
7. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM/CE/GENL/001- EMD), compliance form and technical specification can be downloaded from BHEL web site <http://www.bhel.com> or from <https://eprocure.gov.in/epublish/app> under Enquiry reference "2622000008".

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  DGM / MM/ Capital Equipment
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V. KARUNAKARAN
Dy. General Manager
Capital Equipment / MM
BHEL / Tiruchirappalli - 620 014

ION CHROMATOGRAPHY ANALYZER, Qty: 1 No.

PART A

Section 1: Qualifying Criteria

The Bidder has to compulsorily meet the Qualifying criteria indicated in Section 1 to get qualified otherwise the technical offer will not be considered.

S. No.	BHEL Requirements	Bidder's response
1.1	a) The bidder/OEM shall have a minimum of last 10 years of continuous experience in the field of Design, manufacture and supply of Ion Chromatography Analyzer. b) The actual no. of years of experience to be indicated c) Authorization letter from OEM should be attached along with the offer.	
1.2	Only those bidders /OEM who have supplied, and commissioned at least 5 nos. of the Ion Chromatography Analyzer quoted for this tender or a higher version in the past five years (on the first date of opening of tender) should quote. Bidder has to give name, address, contact details of such customers who are all presently running the instruments	
1.3	Bidder has to submit at least 1 Performance Certificate from any of their customers, for satisfactory performance of Ion Chromatography Analyzer quoted for this tender or a higher version meeting the following conditions: a) The Equipment must have been supplied within the last 5 years as on the first date of tender opening. b) The Equipment must have performed satisfactorily for at least 1 year during this period. A suggestive format of performance certificate is given in annexure.	
1.4	BHEL reserves the right to verify the information (part A & B) provided by the bidder. If the case arises such that the bidder has to accept and demonstrate exactly same as that of the offered model successfully working in some other accredited government institutions, private institutions /labs in the same line of application as required by the tender, with the standard samples of for minimum two cations (Na^+, K^+) and anions (Cl^-, F^-) for proving out the offered specifications, the lower limit of detection of 5 ppb as required by the tender to a BHEL representative. In such case, it shall be the responsibility of the bidder to facilitate the visit of BHEL's team at their referred customer works. (The travel, boarding and lodging expenses	

	for BHEL team shall be borne by BHEL). In case the information provided by the vendor is found to be false/ incorrect, the offer shall be rejected.	
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Section 2: The Bidder is requested to provide the following information:

S. No.	BHEL Requirements	Bidder's response
2.1	Product Information: The supplier has to give following information about the offered model. Model Name, Year of launch of the Model, Name and postal address of the customers / company where offered model has been supplied and working well.	
2.2	Latest catalogue for the offered model has to be attached along with the technical bid.	
2.3	The BIDDER shall give details about supply of similar equipment to other BHEL units if any with Make, Model and Year of Supply & Commissioning etc.	
2.4	Servicing facility to be available in India. Details on Service-After-Sales Set-Up in India (Address of Agents / Service Centres), to be furnished compulsorily.	
2.5	Any Additional Data to supplement the manufacturing capability of the BIDDER.	

Section 3: The Bidder to comply with the following:

S. No.	Particulars	Bidder's response
3.1	The Bidder shall submit the offer in Two Parts – Technical [with PART A & PART B] & Commercial and Price Bid.	
3.2	The VENDOR's RESPONSE column against each clause in PART A & B of the offer should be filled by the Bidder compulsorily with complete details.	
3.3	The Bidder shall assure a continuous support for Spares and Service for Ten Years, from the date of commissioning of the equipment at BHEL Works.	
3.4	The Technical Offer shall be supported by Product Catalogue and Data Sheets and complete technical details / literature on the quoted models.	

3.5	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.	
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ANNEXURE

Suggestive Format of Performance Certificate

The performance certificate to be produced **on Customer's Letter Head.**

PERFORMANCE CERTIFICATE

1. Supplier of the Equipment :
2. Make & Model of the Equipment :
3. Month & Year of Commissioning :
4. Application :
5. Equipment description :
6. Performance of the Equipment : Satisfactory / Not Satisfactory
(Strike off whichever is not applicable)
- Any other remarks :

Date:

Signature & Seal of the Authority
Issuing the Performance Certificate

ION CHROMATOGRAPHY ANALYSER, Qty: 1 No.

Part B - Technical Specification

S. No.	BHEL Specification	Bidder's offer
1.0	PURPOSE: Ion chromatography Analyzer shall be a bench top equipment required for - the <i>simultaneous</i> determination of low level anionic species mainly chloride (Cl^-), Fluoride (F^-), anionic radicals - the <i>simultaneous</i> determination of the cationic species potassium (K^+), sodium (Na^+), ammonium ion (NH_4^+). It should be based on the principle of ion exchange based separation of ions followed by elution and chemical suppression with final detection based on conductometry for applications of water analysis and waste water analysis.	
2.0	Ion Chromatography Analyzer shall include following essential parts: - Sample Injection system - Automatic Multi eluent injection system - Ion exchange based Main Separation column for separating ionic species - Suppressing Column - Detector Unit Bidder to confirm and provide a neat schematic diagram of the integral parts available in the offer with specifics to flow controls, temperature sensors, pressure sensors etc.	
3.0	Sample Injection system includes following integral parts and features Piston pump: The piston pump shall be made up of chemical resistant materials and shall withstand the chemicals used for routine aqueous analysis e.g. acids, bases. The flow rate of pump shall be such that it can be varied step wise from 10.0 mL/min to 20 mL/min. Operating pressure of the pump shall be min. 5000 psi for withstanding backpressure. Sample Injection path: The sample injection system shall have an internal loop of volume minimum 10 μL by default. In addition, three sample loops of volume 20 μL, 50 μL, 100 μL shall also be supplied.	

S. No.	BHEL Specification	Bidder's offer
	c. Automatically controlled sample injection system with minimum 6 valves (ports) is to be provided. d. The eluents shall be stored in a vessels of capacity minimum 2L and shall be pumped to main separation column at required pressure limits. e. The eluents shall also be transported along with the sample in gradient manner with minimum binary arrangement for mixing two different eluents with stepwise increment and linear progression. System inbuilt provisions or a separate arrangement shall be provided for preparing the eluents, standards into various volumes for achieving different concentrations for injecting along with the sample. The eluent preparation unit should include a degassing set up for degassing the eluents.	
4.0	Main Separation column for separating ionic species includes following integral parts and features a. Operating Temperature: The main separation column shall be able to operate in the range of RT (°C) to 60 ° C. The stability of the temperature shall be maintained within $\pm 0.05^{\circ}$ C. b. The main separation column shall have provisions for measuring anionic species mainly chloride, fluoride anionic radicals cationic species mainly Sodium, Potassium, Ammonium ion at trace levels and the lower limit of detection for the aforesaid ionic species shall be confirmed and shall be demonstrated up to 5 ppb with standard solutions brought by the vendor during installation for acceptance. c. The capacity of the separation column shall be clearly specified. The safe working pH of the separation column shall be clearly specified and mechanisms for safeguarding the main column during over pressure shall be included. d. A guard column shall be provided along with main column in the instrument for safeguarding the main column from poisoning of unwanted impurities.	

S. No.	BHEL Specification	Bidder's offer
	e. In the case of low level determinations of anionic and cationic measurements additional concentrating facilities (preconcentrator) shall be provided for improved sensitivity and repeatability. f. An eluent purging system for degassing using Helium gas should be provided for ease of eluent preparation and storage for both carbonate and hydroxide based eluent systems. In case of hydroxide based eluent system, a compact air tight set up should be provided for in-situ preparation of hydroxide eluent by electrolysis process without addition of a base for avoiding contaminant ingress from ambient. g. The instrument shall have a set up for filtering the eluent and water sample in the filter size < 0.5 µm before admitting the eluent to avoid the entry of unwanted organic matter, solid particle into the column and damaging the column during water analysis and waste water analysis. h. Consumption of eluents (in liter) used for the operation of Ion Chromatography analyzer for a routine water, waste water analysis of 5 liters per day. Bidder to specify.	
5.0	Suppressor Column includes following integral parts and features a. The suppressor should perform ion exchange based chemical suppressing technology with chemical regeneration by post-column reaction to enhance the signal to noise ratio higher by reducing the background conductivity in the sample measurement in the detector. b. The suppressor system should be compatible to carbonate/ bicarbonate and hydroxide eluents and eluents containing solvents. c. Consumption of acids used in the suppressor shall be given in detail for a routine water, waste water analysis of 5 liters per day. Vendor to specify. d. The warranty for suppressor column shall be assured to a minimum of 10 years.	

S. No.	BHEL Specification	Bidder's offer
	e. The suppressor should have a part, another suppressor or any technology to eliminate the conductivity contributed by the CO₂ prior to sending the sample to detector. Because carbon di oxide also contributes to conductivity when the sample is exposed to atmospheric conditions this will be wrongly attributed to sample conductivity. f. For the measurement of anionic species mainly chloride, fluoride, anionic radicals, cationic species mainly Sodium, Potassium, Ammonium ion at trace levels up to 5 ppb, suitable eluent system such as carbonate or hydroxide based eluents shall be provided considering improved sensitivity, repeatability, ease of operation and, lowest noise at trace level measurement in samples and accordingly the suppressor mechanism shall also be provided considering improved sensitivity, repeatability, ease of operation and, lowest noise at trace level measurement in water analysis and waste water analysis. Demonstration in this regard shall be made during commissioning with standard samples of certified values (as required by the tender) brought by vendor/commissioning engineer. Details of the suppressor used for cation (if required), anion shall be given in detail type, dimensions etc.	
6.0	Detector Unit includes following integral parts and features a. The detecting mechanism for the determination shall be by conductivity based for measuring anionic species mainly chloride, anionic radicals cationic species mainly Sodium, Potassium, Ammonium ion at trace levels and the lower limit of detection for the aforesaid ionic species shall be confirmed and shall be demonstrated up to 5 ppb. b. The operating range for conductivity detector shall be 0 - 15000 µS/cm with resolution 0.01 nS/cm and the electronic noise and baseline noise should be contained < 2 nS/cm for the applicable operating range of the detector i.e. 0.06 µS/cm -15000 µS/cm. The minimum cell volume for the conductivity cell shall be 0.8 µL. c. The operating temperature of the conductivity cell shall be 0 ° C – 60 ° C	

S. No.	BHEL Specification	Bidder's offer
	d. The conductivity sensor shall be sturdy and chemically inert for withstanding the chemicals used in routine aqueous analysis and shall have corrosion resistant polymer coating. e. The operating pressure of the conductivity detector shall be up to 500 psi.	
7.0	Ion Chromatographic analyzer should be capable of working in 220 V, 50 Hz. Bidder to confirm.	
8.0	CALIBRATION: The materials, methods required for calibrating the Ion Chromatographic analyzer have to be supplied along with the instrument for low range calibration up to 5 ppb. Bidder to confirm & specify.	
9.0	<u>OTHERS:</u> a. Display: custom LCD. b. Tools and accessories kit c. Computer System: For the control of various operations in Ion Chromatographic analyzer a special operating and control software shall be provided with compatibility to latest Windows OS 8/10 in pre-installed PC with necessary all the hardware peripherals. The vendor shall supply a LaserJet color printer loaded with color cartridge along with PC for test results printing with a spare color cartridge. d. standard scope of supply with detailed list: The listed items in the standard scope should be sufficient for the commissioning and two years of operation of the instrument; any additional spares or consumables shall be quoted extra.	
10.0	PRE-DESPATCH INSPECTION: The equipment shall be offered for inspection by BHEL at supplier's works prior to despatch.	
11.0	COMMISSIONING: The supplier shall depute his competent technical persons for commissioning of the equipment at BHEL works. Supplier shall be responsible for carrying out the commissioning of the Ion Chromatographic analyzer.	
12.0	TRAINING: The supplier shall impart training to BHEL's crew in Operation, calibration and Maintenance during commissioning of the	

S. No.	BHEL Specification	Bidder's offer
	equipment at BHEL works for ONE working day in addition to the commissioning days.	
13.0	GUARANTEE: The Equipment has to be guaranteed for its performance, for a minimum of 24 months from the date of commissioning.	