



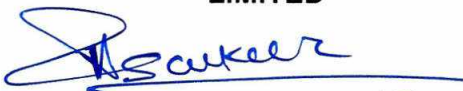
An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY		Phone: +91 431 257 7653 / 7360	
NOTICE INVITING TENDER		E-mail : karunanidhy@bhel.in ajayasalkar@bhel.in	
		Web : www.bhel.com	
TWO PART BID Tender to be submitted in two Parts	Enquiry Number: 2601800006	Enquiry Date: 18.01.2018	Due date for submission of quotation: 13.02.2018
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	Diffusible H2 Analyzer & XRF 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)		01 No.
Important points to be taken care during submission of offer. 1. Compliance Form No: TRY/IMP/02 & TRY/IND/02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation. 2. Delivery period required is 2 months from the date of P.O. 3. Commissioning and performance prove out shall be done at BHEL Trichy by the supplier. 4. Time period required for commissioning and performance prove out shall be 3 WEEKS from the date of intimation by BHEL. 5. EMD for this tender is INR 1,50,000/- 6. 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 the Government tender website https://eprocure.gov.in/epublish/app (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference.			
(This is not an E-tender, please submit your offer in hard copies) 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  AJAY V. ASALKAR Sr. MANAGER MM / Capital Equipment BHEL, Tiruchirappalli - 620 014. Sr. Manager / Capital Equipment / MM	

PART - A**TENDER REQUIREMENTS FOR THE SUPPLY OF "DIFFUSIBLE HYDROGEN ANALYZER AND HANDHELD XRF ANALYZER"****SECTION – I: Qualifying Criteria**

The BIDDER has to compulsorily meet the Qualification Criteria indicated in the Section – I to get qualified. Otherwise the technical offer will not be considered.

S.No.	TENDER PARTICULARS	VENDOR's RESPONSE
1.1	The VENDORS /Original Equipment Manufacturer (OEMs) might have supplied and commissioned at least one Numbers of "DIFFUSIBLE HYDROGEN ANALYZER" of the similar model in the past Five years (as on the date of opening of this Tender).	
1.2	Only those vendors (OEMs) should quote, who have supplied and commissioned in the last TEN years (as on the original date of this tender opening) at least one number of "DIFFUSIBLE HYDROGEN ANALYZER" of similar model in India or in any other country outside the country of origin. The referred equipment shall be presently working satisfactorily for more than one year from the date of commissioning (as on the original date of this tender opening). The name and contact addresses of the customers, to whom the above said equipment were supplied, to be furnished with details with the OFFER.	
1.3	Vendor has to submit at least ONE PERFORMANCE CERTIFICATE (as per ANNEXURE-A) for satisfactory performance of "DIFFUSIBLE HYDROGEN ANALYZER" as referred under above Clause 1.2, for a minimum period of one year from the date of commissioning (as on the original date of this tender opening) from their customers in India or in any other country outside the country of origin, supplied and commissioned in the last five years. Performance Certificate in Original Form may be sent by E-mail / TELEFAX directly from the customer to BHEL/Purchase.	

S.No.	TENDER PARTICULARS	VENDOR's RESPONSE
1.4	BHEL reserves the right to verify the information provided by the Vendor for the referred equipment at their referred customer's works. It shall be the responsibility of the vendor to facilitate the visit of BHEL's team at their refereed customer works. The Travel, Board, and Lodging expenses for BHEL Personnel shall be borne by BHEL. In case the information provided by vendor is found to be false / incorrect, the offer shall be rejected. BHEL reserves the right to accept or reject the OEM'S based on the assessment of their technical and financial capability.	

SECTION – II

The BIDDER/VENDOR are requested to provide the following information:-

S.No.	TENDER PARTICULARS	VENDOR's RESPONSE
2.1	The BIDDER / VENDOR to furnish Reference List of Customers, with complete address, details of contact person, where "DIFFUSIBLE HYDROGEN ANALYZER" and "HANDHELD XRF ANALYZER" have been supplied in the past.	
2.2	Specify details of "DIFFUSIBLE HYDROGEN ANALYZER" and "HANDHELD XRF ANALYZER" supplied to other unit of BHEL, if any (Year of commissioning with details etc).	
2.3	Details on SERVICE –AFTER-SALES Set-up in India including the Address of Agent/Service Centers In India to be provided	
2.4	To provide the copy of the OEM Plant Training Certificate for Indian Service Personnel, with the TECHNICAL OFFER.	
2.5	Any Additional data to supplement the manufacturing capability of the BIDDER for the subject equipment.	

SECTION – III

The BIDDER to note:

S.No.	TENDER PARTICULARS	VENDOR's COMPLIANCE
3.1	The BIDDER shall submit the offer in TWO PARTS - Technical [with PART A & PART B] & Commercial and Price Bid.	
3.2	The Offer shall contain a comparative statement of Technical Specifications given by BHEL and the Offer Details submitted by the Bidder, against each clause. A just 'CONFIRMED' or 'COMPLIES' or 'YES' or 'NO-DEVIATION' or similar words in the technical comparative statement may lead to disqualification of the Technical Offer. In case of any deviations in any of the technical specifications, such deviations should be clearly specified in the comparative statement.	
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 in ORIGINAL and complete technical details / literature on the QUOTED MODELS of DIFFUSIBLE HYDROGEN ANALYZER	
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 for the scope of supply.	
3.6	Earlier performance & field experience (service support) with BHEL (if any) will be a reckoning factor for the technical qualification of the OFFER. Vendor can quote of supply to BHEL units of systems of similar capability.	

ANNEXURE - A

Suggestive Format of Performance Certificate

The Performance of Diffusible hydrogen analyzer should be certified by the customer on Customer's Letter Head and submitted along with the offer.

PERFORMANCE CERTIFICATE

1.0	Name & Type of the Equipment:	
2.0	Supplier/s Name and Address	
3.0	Make & Model Number of the Diffusible hydrogen analyzer	
4.0	Month & Year of Commissioning	
5.0	Application for which the Equipment is generally used	
6.0	EQUIPMENT DETAILS :	
7.0	Performance of the Equipment (Please tick the appropriate option)	Satisfactory
		Non Satisfactory
8.0	Service after Sales Support Promptness (Please tick the appropriate option)	Satisfactory
		Non Satisfactory
9.0	Other Remarks (if any)	
Date :		Signature & Seal of the Authority Issuing the Performance Certificate

PART B**TECHNICAL SPECIFICATIONS FOR ‘DIFFUSIBLE HYDROGEN ANALYZER and HANDHELD XRF ANALYZER ’**

S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER
1.0	SCOPE OF SUPPLY	
	Scope of supply includes supply and commissioning systems for Microprocessor based Software controlled Automatic instrument for measurement of Diffusible Hydrogen determination in weldments and an additional system for measurement of weldment elemental analysis using Handheld XRF Analyzer.	
2.0	Technical Specification for Diffusible Hydrogen Analyzer	
	Diffusible Hydrogen Analyzer : Microprocessor based Software controlled Automatic instrument for measurement of Diffusible Hydrogen determination system utilized for the measurement of Diffusible hydrogen by hot extraction in solid samples like weld electrodes, weldmetal, steel weldments etc with high precision and should conform to EN/ISO-3690 NORMS and AWS A4.3 for reporting including generated reports, sample preparation and conversion of the results in ppm or ml/100g.	
2.1	Furnace	
2.1.1	Rapid heating Infrared and wire heated resistance furnace for measurement of Diffusible H ₂ in wide variety of sample matrix with Hydrogen detection limit down to accuracy upto 0.01 ppm nominal sample. The system should have the facility of incorporating both furnaces in a single unit.	
2.1.2	Ramping & Furnace Control. The analyzer should have the provision of programmable temperature control with ramping facility. The infrared-furnace for the measurement of diffusible hydrogen must be fully programmable (ramps, steps) shall have virtually no thermal mass and provide heating rates of >300 deg C/min with DIRECT HEATING of sample. Must be able to accept samples greater than 27mm diameter as per norms of Weld samples	
2.1.3	Furnace Temperature : Upto 900 deg C for Infra-Red furnace	
2.1.4	Furnace Cooling System : The infrared furnace should have the provision for external cooling approx. 1 l/min capacity flow rate	
2.2	Analysis Range	
	Diffusible Hydrogen : 0.05 -1000 ml/100g via hot extraction	

S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER
2.3	Reproducibility :	
	+/- 0.01 ml/100g or +/- 1% RSD depends on sample Weight & material.	
2.4	Resolution	
	Resolution: 0.001 ml/100g	
2.5	Calibration :	
	The system must incorporate in built gas dose Calibration facility for low ppm H analysis. The analyser should have facility for in built gas Calibration unit to facilitate calibration at least 4 or more different volumes (interpolation points) for every range. The system should have provision for accurate gas calibration for Hydrogen unit	
2.6	Analysis Time	
	Typical Analysis time for weld samples should be within 60 mins. Total out time should not be more than 180 min	
2.7	Detection Method :	
	Diffusible Hydrogen : Thermal conductivity detector (TDC) (The TCD should be of latest generation for easy maintenance with improved signal to noise ratio, excellent base line stability and s/w programmable gain adjustment. It must allow to record evolving Hydrogen on sub ppm level for 120 min or longer)	
2.8	Sample Introduction System :	
	The sample introduction area must be easily accessible for simplified routine maintenance and must have provision for inserting samples upto 26mm (or more) diameter directly into the furnace	
2.9	System Software and Hardware :	
2.9.1	The analyzer must operate under Windows Operating system and must include the Following essential parameters.	
2.9.2	The software program should incorporate Oxides and Nitrides separation (through external software) with graphically display for both qualitative and quantitative analysis.	
2.9.3	Unlimited Data Storage capability with weight list, result list and calibration methods.	
2.9.4	Automatic optimum range selection for detectors for low or high ppm analysis.	
2.9.5	The Window based software must provide on-board manual for method development, calibration and data processing.	

S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER
2.9	System Software and Hardware :	
2.9.6	The PC interface also includes advanced diagnostic, extended archiving and flexible reporting capability.	
2.9.7	The software should facilitate Analysis, Parameter setting, Calibration and statistic control of the entire analysis	
2.9.8	It Should have the provision of reporting data as ppm; ml/100g or % hydrogen as required.	
2.9.9	It should calculate weld sample mass directly and reporting as per Weld norms ISO 3690 & AWS A4.3	
2.9.10	It Should have provision for single point, two point and multipoint calibration facility	
2.9.11	It Should have provision for Gas dose and Certified standard sample calibration	
2.9.12	The system should have provision for external PC (with Windows XP/7 operating system and 2 serial ports RS232)	
2.9.13	Suitable personal computer and printer with latest configuration of branded make should be supplied by the vendor.	
2.10	Safety and certification :	
	The Analyzer must be CE Approved for Emission, shock, pinch points etc.	
2.11	Additional accessories	
2.11.1	Necessary capacity voltage stabilisers and UPS system should be quoted	
2.11.2	Necessary water cooling/chiller system should be quoted if applicable	
2.11.3	Analytical balance - weighing range for samples meeting EN ISO 3690 standard (0.1 mg to 220 g), including external calibration weights, data interface with measurement PC and necessary connections.	
2.11.4	Necessary tables and chairs for the equipment and PC should be quoted	
2.12	Spare and consumables	
	The system should be quoted with additional 2 years consumables and spare parts	
2.13	Optional Mass Spectrometer Connectivity	
	The system shall have a provision to connect an optional single quadrapole mass spectrometer (MS) in parallel to Thermal conductivity detector vis an MS interface to lower the LODs for sensitive hydrogen into the ppb level range. The MS control software must be able to work seamless with data files of the Diffusible Hydrogen Analyzer.	
2.14	EQUIPMENT INSPECTION & ACCEPTANCE "AT VENDORS WORKS [PDI]	

	Pre-dispatch inspection may be ensuring the specification issued in purchase order	
S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER
3.0	Technical Specification for Handheld XRF Analyzer	
	Handheld XRF Analyzer for weldment testing of Nickel based alloys, low alloy steels, high alloy steels, Aluminum alloys, Titanium alloys and stainless steels	
3.1	Principle of Operation	
	The Portable Alloy Analyser shall be based on X- ray Fluorescence or the like; but shall not contain any Radioactive Source. However equipment based on optical emission spectrometry will not be considered. The Equipment shall be capable of at least 1000 tests with the battery pack.	
3.2	Operating Parameters	
	The Portable Metal Analyser shall NOT require any "ISOTOPE LICENCING" or "TRAVEL RESTRICTIONS"	
3.3	Weight restriction	
	The Portable Alloy Analyser shall be light weight (less than 2.0 Kg weight along with Rechargeable Battery Pack) and truly portable. There shall not be any other heavy peripherals (example: vacuum systems) to be carried to the point of use, affecting the portability of the equipment.	
3.4	Detector	
	silicon drift detectors or better	
3.5	Tube Anode	
	Ag anode or equivalent	
3.6	Voltage	
	Max Up to 45KV or Better	
3.7	Current	
	Max Up to 100uA or Better	
3.8	Count Rate	
	Should be able to handle high count rates of 1,00,000 or better	
3.9	Element range	
	Mg – U or better	
3.10	Calibration method	
	Fundamental Parameter method or Better	

3.11	Calibration / Drift	
	Correction Provision for automatic recalibration	
S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER
3.12	Welding Joint Analysis	
	Sample adaptors (Welding mask) for Weld Joint and small samples	
3.13	Temperature / Pressure	
	Correction Automatic	
3.14	CPU & Operating System	
	In Built Computer and Windows OS, loaded with relevant software for operation of equipment. Including internal data storage capacity more than 10,000 spectra readings	
3.15	Camera	
	Equipment with CAMERA to view the measuring spot is desired.	
3.16	Connectivity	
	Bluetooth, WiFi, USB Host/Client	
3.17	Battery Packs	
	≥ 4Hours of Continuous operation	
3.18	Report Generation	
	XML / PDF / ASCII files or better readable file formats	
3.19	Safety	
	Equipment should be equipped with XRay Shutter for safe use LED / light warning indications for Activated X-Rays	
3.20	Accessories Should be supplied along with equipment	
3.20.1	1. Transport case - 01 Nos	
3.20.2	2. Instrument/battery holster - 01 Nos	
3.20.3	3. Battery packs - 02 Nos	
3.20.4	4. Charger, AC adapter - 01 Set .	
3.20.5	5. USB cable - 01Nos	
3.20.6	6. Data Transfer software CD- 01Nos	
3.20.7	7. Check samples/standards- one set	
3.21	Optional Features and Accessories	
3.21.1	Engine Guard protects critical detection components and minimizes operational downtime	

3.21.2	Stationary bench-top stand	
3.21.3	Mobile test stand	
S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER
4.1	Warranty	
	Supplier should provide minimum warranty period of 12 months form the date of Installation and Commissioning	
5.1	DOCUMENTATION	
	The following documents in English language should be supplied along with the equipment and all the add-on systems :- Hard Copies : 3 sets : :- In CD form : 1 Set Operating manuals of Diffusible Hydrogen Analyzer for welded samples and handheld XRF Operation and Maintenance manual of all accessories Electrical wiring Drawing – power & control circuits. Maintenance & Interface manuals for equipment control system Complete printed circuit board schematic indication check points for electronic controls. Complete list of alarm log, error code, error messages and remedies and on line fault diagnostic to be provided by the vendors, Trouble shooting chart for main and all sub-system Preventive maintenance check list for total system. Complete list of spares and consumables for equipment, along with item part no/ specification/type /model and make and adders of the sub-vendor. They should also submit the name(s) of the service engineer(s) employed by them who is/are competent to service the equipment being quoted with their locations in India.	
6.0	INSTALLATION AND COMMISSIONING	
6.1	The manufacturer shall be responsible for the installation of the equipment at the site and its subsequent start up at the site.	
6.2	All handling tools and mechanical / electrical help required for the installation and commissioning shall be provided by the BHEL.	
6.3	The required material and consumable for carry out prove out trials at site will be provided by the BHEL	
6.4	The supplier shall impart training to BHEL's equipment operator and maintenance crew in operation and maintenance during commissioning of the equipment at BHEL works, for 2 working days. It includes Safety, Operational of the equipment PC based System &	

	Operation, Trouble Shooting, software application, all special features of the equipment, electrical/mechanical/ electronics system etc.		
S. No.	PARTICULARS & BHEL SPECIFICATIONS	VENDOR's OFFER	
7.0	GENERAL POINTS (Details to be provided for the following clauses compulsorily with the TECHNICAL BID /OFFER)	DIFFUSE HYDROGEN ANALYZER	Handheld XRF
7.1	Original Equipment Manufacture (OEM)		
7.2	Equipment Model Number and other related details		
7.3	Total connected Load (in kVA)		
7.4	Total weight of the equipment & Accessories		
7.5	General Arrangement drawings		
7.6	Calibration certificates for all equipment , measurement instruments and standards from (OEM) to be provided by the vendor		
7.7	All electronic controls for integrated controller / drives that need stabilized supply shall be provided with suitable voltage stabilizer		
7.8	Civil & foundation details , flooring to reduce the vibration shall be provided immediate after releasing of purchase order		
7.9	Sea worthy & rigid packing for all items of complete equipment, all accessories and other supplied items to avoid any damage / loss in transit. When equipment dispatch in container, all small loose items shall be suitably packed in boxes		
7.10	(a) A single order will be processed for the entire configuration. (b) The firm has to guarantee support for both system and spares for a minimum period of 10 years. (c) Provision for on-line remote diagnosis of faults. (d) Free training on different applications to selected users. (e) Compliance of all listed specifications/terms and conditions sheet should be indicated by the vendors in tabular form. (f) Date of manufacturing of the equipment should be after the placement of order. (g) Break up of price for optional items should be shown separately in the price bid.		