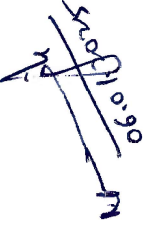
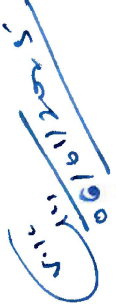


BHARAT HEAVY ELECTRICAL LIMITED, JHANSI				
		Specification No.	7605 Rev.01	
		Item No.	SP/TEST/1/8/7605	
		Location	Boiler House	
		Quantity	1 No.	
SCOPE: DESIGN, MANUFACTURING, SUPPLY, INSTALLATION, COMMISSIONING AND TESTING/ PROVING FOR ONLINE WATER CHEMISTRY MONITORING SYSTEM FOR BOILER COMPLYING WITH SPECIFICATIONS AS BELOW.				
NOTE:-				
1 Vendor must submit complete information against clause no. 9.0 (Qualifying Condition). The offer meeting this clause would only be processed.				
2 The "offered" column and the "deviations" column (if applicable) of this format shall be filled by the vendor and submitted along with the offer. Technical details also need to be submitted along with the offer. Inadequate / incomplete, or unsustainable information against any of the clauses of the specification / requirements shall be treated as non - compliance.				
3 The offer and all documents enclosed with offer should be in English language only.				
SPECIFICATION CUM COMPLIANCE CERTIFICATE OF ONLINE WATER CHEMISTRY MONITORING SYSTEM FOR GAS BOILER				
S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/ REMARK
1.0	WORK PIECE MATERIAL			
1.1	This specification governs the quality requirements of Design, Manufacturing, Supply, Installation & Commissioning of water chemistry monitoring system at BHEL Jhansi Plant.	VENDOR TO NOTE		
2.0	The vendor will have to design the associated system and components to achieve the desired performance. Vendor may visit the site before submitting the offer to assess the work, to analyse the technical requirement, to witness available facilities & the space available for installation of the system. Vendor will have to design the layout such that all the supplied modules / equipment are accommodated in the available space only.	VENDOR TO NOTE & CONFIRM		
2.1	BHEL will provide 220 V single phase at single point. Vendor to lay cable from source to panel with proper routing.	VENDOR TO NOTE		
2.2	BHEL will provide two no. 25 NB tapping with flange at feed water pump suction. Vendor to take sample water from one tapping and return to same header with necessary piping and pumps.	VENDOR TO NOTE		
3.0	SCOPE OF SUPPLY & SCOPE OF WORK			
3.1	Scope of supply			
3.1.1	Vendor to supply all the required instruments and sensors for monitoring water chemistry. Supplied instruments shall have the facility to provide following readings: 1). pH, 2). TDS Range, 3). Specific conductivity, 4). Total Hardness & 5. Dissolved Oxygen	VENDOR TO CONFIRM		


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S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/ REMARK
3.1.2	Vendor to supply manifold and piping with tapping for mounting of sensors, piping supports.	VENDOR TO CONFIRM		
3.1.3	Vendor to supply panel with digital screen, necessary switches along with cabling. Supplied Panel shall have main switch for power supply, pump on/off control, alarm for system failure and emergency.	VENDOR TO CONFIRM		
3.1.4	Wiring Accessories: All the accessories like Cable glands, Cable markers, Ferrules, Lugs, Legends for Control & Signalling devices etc., as per requirement shall be in scope of vendor.	VENDOR TO CONFIRM		
3.2	SCOPE OF WORK			
3.2.1	Installation of water chemistry monitoring system along with panels, manifolds, piping and all the required sensors with necessary support.	VENDOR TO CONFIRM		
3.2.2	Laying and termination of cable from main power source to panel and from panel to sensors (as per requirement).	VENDOR TO CONFIRM		
3.2.3	Commissioning of complete system with reliable parameters through digital screen display by ensuring effective functioning of physical system.	VENDOR TO CONFIRM		
3.3	TECHNICAL SPECIFICATION			
	Complete system shall have panel mounted single digital screen and sensors installed over manifolds (with necessary protection in line with- IP 65) showing water chemistry parameters of sample water with following detail: Sample water input Quality- 1. Sample pressure - 0 – 1 Bar (A positive displacement pump to be used for maintaining constant sample flow through sampling header). 2. Sample temperature 0 – 100 °C Sample water parameters required over digital screen : 1. PH Range- 0-14 2. TDS Range- 0 – 1000 ppm 3. Specific conductivity Range- 0-2000 µs/cm 4. Total Hardness- 0-1000 ppm 5. Dissolved Oxygen- 0- 100 ppm Note- Digital screen size shall be 6 inches or above with simultaneous display of all parameters.	VENDOR TO NOTE & CONFIRM		
3.3.1				
3.3.2	Online water chemistry monitoring system shall have future provision of data capture, data acquisition (through pendrive/USB card/MicroSD card), data storage (3 months) and also provision of sharing the analog outputs (4-20 mA) of system to SCADA.	VENDOR TO NOTE & CONFIRM		
3.3.3	All piping, manifold and fittings used in conduit shall be of stainless steel.	VENDOR TO NOTE & CONFIRM		
3.2.5	Necessary Mountings & Fittings - List to be provided along with offer.	VENDOR TO SUBMIT		

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S.NO.	DESCRIPTION FOR BHEL REQUIREMENT		ACTION BY VENDOR	OFFERED	DEVIATION/ REMARK
3.3	MAKES OF THE WATER CHEMISTRY MONITORING ANALYZER:				
	ITEM	MAKE			
3.3.1	Analysers/sensors for water chemistry monitoring	Mettler Toledo/ JUMO/ Emerson/ Forbes Marshall/ Mechatest/ E&H	VENDOR TO SPECIFY		
4.0	SAFETY ARRANGEMENTS				
4.1	A detailed list of all alarm / indications provided on the system should be submitted by the vendor along with the offer.		VENDOR TO SUBMIT		
4.2	All the pipes, cables etc. on the Boiler should be well supported and protected.		VENDOR TO NOTE & CONFIRM		
4.4	Required PPEs shall be used by all the workers engaged by vendor at site from the start of work till completion and all other necessary safety arrangements shall be arranged by vendor at its own cost as per requirement.		VENDOR TO CONFIRM		
5.0	ERECTION AND COMMISSIONING				
5.1	Installation and commissioning of complete online water chemistry monitoring system along with laying & termination of power & control cables shall be in the scope of vendor. All the work related to installation and commissioning will have to be carried out by vendor with his own labour in BHEL-Ihansi.		VENDOR TO CONFIRM		
5.2	Tools & tackles, equipment and consumables like paint, welding electrodes, gas, hardwares, calibrated instruments etc. required for installation & commissioning work shall be in the scope of vendor.		VENDOR TO CONFIRM		
5.3	Installation & commissioning of the complete system shall be completed within 30 days from the call of commissioning by BHEL.		VENDOR TO CONFIRM		
5.5	After installation and commissioning vendor to verify and prove out all the readings of water chemistry against calibrated instruments for all the parameters listed in the clause 3.3.1.		VENDOR TO CONFIRM		
6.0	GENERAL				
6.1	GA drawing , single line diagram showing all individual systems and BOM must be submitted with technical offer for the evaluation.		VENDOR TO SUBMIT		
6.2	Any deviation to the scope and conditions to be mentioned pointwise.		VENDOR TO CONFIRM		
6.3	After placement of order by BHEL ,the vendor to complete detailed designs and submit the drawings (block layout and P&ID) and data sheets with complete Bill of material along with rating, specification of all equipments/ components with in 15 days from the date of purchase order.		VENDOR TO CONFIRM		
6.5	All the instruments and sensors should be calibrated through OEM or NABL certified agencies. Calibration Certificates to be provided along with supply.		VENDOR TO NOTE & CONFIRM		
6.6	Supply should complete within 30 days from the date of drawing approval by BHEL.		VENDOR TO CONFIRM		

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S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/ REMARK
7.0	DOCUMENTATIONS			
7.1	Complete technical literature /brochure with specifications of all supplied bought-out items shall be provided.	VENDOR TO CONFIRM		
7.2	Operation & maintenance manual (one set hard copy and one soft copy) having details of spare parts and technical data sheet to be submitted along with supply.	VENDOR TO CONFIRM		
8.0	GUARANTEE			
8.1	Material (against any manufacturing and design defect) and work carried out & performance shall be guaranteed for the period of 24 months from the date of commissioning.	VENDOR TO CONFIRM		
8.2	Any defect due to faulty material / bad workmanship shall be rectified free of cost to the entire satisfaction of BHEL by the vendor.	VENDOR TO CONFIRM		
9.0	QUALIFYING CONDITION :			
9.1	Bidder who have supplied, installed and commissioned atleast one number RO/RODM/RO-EDI plant/DM plant water package with SWAS package/Control panels/HMI control in boiler or chemical industry or any other industry in past 10 years from the date of tender opening should quote.	VENDOR TO CONFIRM		
9.2	Bidder to submit PO / WO copy of the contract that they have executed and proof of commissioning (e.g. commissioning certificate / performance certificate/ completion certificate/GeM crac etc.).	VENDOR TO SUBMIT		
10	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.	VENDOR TO CONFIRM		

Shirish Kumar Mahanager-WEX

Manoj Kumar Kashyap/Sr. Manager-WEX

Vivek Kumar Gupta/Sr. Manager-WEX

Man Mohan
Vaishya/DGM-WEX