

BHARAT HEAVY ELECTRICAL LIMITED, JHANSI



Specification No.	9098
Item No.	SP/STEAM/9098
Location	Boiler House
Quantity	1 no.

SPECIFICATION CUM COMPLIANCE CERTIFICATE OF GAS FIRED BOILER**NOTE:-**

- Vendor must submit complete information against clause no. 13.0 (Qualifying Condition). The offer meeting this clause would only be processed.
- Vendor to furnish the offer using this standard template of the specification. While furnishing the offer, no change is to be made in the first three columns (i.e. 'S.NO.', 'DESCRIPTION FOR BHEL REQUIREMENT' & 'ACTION BY VENDOR'). Only the "Offered" column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.
- The offer and all documents enclosed with offer should be in English language only.
- Wherever "vendor to specify" or "suitable" is mentioned, suitable backup data or calculation or justification is required for establishing the suitability.
- Circuit diagram of the system offered is to be enclosed with proper writeup.

NAME & ADDRESS OF THE SUPPLIER :

TELEPHONE NOS.:

FAX NOS.:

E-MAIL ADDRESS :

NAME & ADDRESS OF THE INDIAN AGENT :

TELEPHONE NOS.:

FAX NOS.:

E-MAIL ADDRESS :

SCOPE: DESIGN, MANUFACTURING, SUPPLY, INSTALLATION, COMMISSIONING AND TESTING/ PROVING FOR 10 MTPH CAPACITY GAS FIRED INDUSTRIAL BOILER COMPLYING WITH SPECIFICATIONS AS BELOW

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 at BHEL JHANSI PLANT (with material/scope of supply) in all respect for 10 MTPH capacity Gas Fired Industrial Boiler. FOR SCOPE OF SUPPLY & WORK REFER POINT SR. NO. 2.0 TO 4.1.	VENDOR TO NOTE & CONFIRM		
2.0	MATERIAL AND FACILITY AVAILABLE WITH BHEL: The below mentioned items of this plant are available and shall be provided by BHEL. The vendor will have to design the associated system accordingly and supply all the balance 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 items & the space available for installation of the boiler. 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	DM water plant of 15 KLPH capacity is available with BHEL. Connection of DM water line to feed water tank shall be provided by BHEL.	VENDOR TO NOTE & CONFIRM		
2.2	Connection point in main Steam pipeline (going to shops) available within boiler house. Interconnection of existing steam line to boiler with main steam stop valve and NRV to be done by Vendor.	VENDOR TO NOTE & CONFIRM		
2.3	Complete Civil Work will be in the scope of BHEL JHANSI (As per drawing submitted by vendor with in 15 days after issuing of Purchase Order)	VENDOR TO NOTE & CONFIRM		
2.4	BHEL will provide single point air @4-6 bar and electric supply near the plant. Further distribution of these services as per requirement will be in the scope of vendor.	VENDOR TO NOTE & CONFIRM		
3.0	SCOPE OF WORK & SUPPLY			

(Signature)
Shirish Kumar / Manager

(Signature)
Satish Soni / Manager

(Signature)
Vivek Kumar Gupta / Sr. Manager

(Signature)
Manmohan Vaishya / Sr. Manager

(Signature)
Pawan Kumar / DGM

S.NO.	DESCRIPTION	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
3.1	DESCRIPTION				
3.1.1	Boiler shall be horizontal, three pass, fully wet back, smoke tube steam boiler, with reversal chamber, hinged ceramic lined front doors, smoke chamber with soot cleaning door, one manhole, two head hole on the boiler shell to inspect the internal of the boiler, one access opening at the back of the IRC to inspect the internal of the furnace, fusible plug for mechanical safety to prevent the boiler from overheating, automatically controlled, oil cum gas fired burner capable of firing LDO & Natural gas, Skid mounted.		VENDOR TO CONFIRM & SUBMIT THE CATALOG		
3.1.2	Boiler shall be complete with all structure, air ducting, piping, valves, mountings, fittings, filters, accessories, controls etc..		VENDOR TO CONFIRM		
3.1.3	Boiler construction should be in accordance with the latest revision of Indian Boiler Regulations 1950. All materials used should be approved and tested as per relevant existing codes. All the welded joints should be as per code requirement.		VENDOR TO CONFIRM		
3.1.4	Boiler should be designed and constructed to generate steam at minimum efficiency of minimum 92 % on net calorific value (NCV) basis. Efficiency should be demonstrated as per standard BS - 845 part1 (indirect method).		VENDOR TO CONFIRM		
3.2	TECHNICAL SPECIFICATION				
3.2.1	Boiler Type	Three pass wet back smoke tube boiler	VENDOR TO CONFIRM		
3.2.2	Design Code	IBR	VENDOR TO CONFIRM		
3.2.3	Capacity Steam Output F & A 100 ° C (Min.)	10000 kg/hr	VENDOR TO CONFIRM		
3.2.4	Design Pressure (Min)	10.5 kg/cm ² (g)	VENDOR TO CONFIRM		
3.2.5	Safety valves (1 & 2) set pressure	kg/cm ² (g)	VENDOR TO SPECIFY		
3.2.6	Efficiency on NCV as per BS 845 on 100% LDO firing only (With HRU) (Min.)	92%	VENDOR TO CONFIRM		
3.2.7	Efficiency on NCV as per BS 845 on 100% NG firing only (With HRU) (Min.)	92%	VENDOR TO CONFIRM		
3.2.8	Dryness Fraction (Min.)	98%	VENDOR TO CONFIRM		
3.2.9	Fuel	NG & LDO	VENDOR TO CONFIRM		
3.2.10	NCV of fuel considered -NG	8500 kcal/NM ³	VENDOR TO CONFIRM		
3.2.11	Fuel consumption at maximum output - NG	Nm ³ /h	VENDOR TO SPECIFY		
3.2.12	Fuel supply rate - pressure and flow rate- NG	m bar & kg/hr	VENDOR TO SPECIFY		
3.2.13	NCV of fuel considered -LDO	10100 kcal/NM ³	VENDOR TO CONFIRM		
3.2.14	Fuel consumption at maximum output - LDO	Kg/h	VENDOR TO SPECIFY		
3.2.15	Electric Supply: AC, 3Phase, 415+/-5%V, 50+/-3% HZ, 4 Wire System		VENDOR TO NOTE		
3.2.16	Burner type	Duel bloc	VENDOR TO CONFIRM		
3.2.17	Burner turn down ratio (for Oil and NG)	1:3 or better	VENDOR TO CONFIRM & SPECIFY		
3.2.18	Quantity of safety valves	Min 2 nos.	VENDOR TO CONFIRM		
3.2.19	Chimney height	M	VENDOR TO SPECIFY		
3.3	SCOPE OF SUPPLY				

19/01/24
Pawan Kumar/DGM

19/01/24
Manmohan Vaishya/Sr. Manager

19/01/24
Vivek Kumar Gupta/Sr. Manager

19/01/24
Satish Soni/ Manager

19/01/24
Shivsh Kumar/ Manager

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
3.3.1	Oil cum Gas fired package boiler shall be complete with all accessories as specified such as fuel system, feed water system, air preheater, drain & vent piping, FD fan, chimney, flue gas ducting, structure, insulation, boiler mountings, motors, starters, electrical cabling, instruments & control etc. Foundation bolts for all items shall be supplied by vendor.	VENDOR TO CONFIRM		
3.3.2	Complete air pre-heater with corrosion management system and all other necessary accessories and attachment shall be supplied.	VENDOR TO CONFIRM		
3.3.3	Two nos. feed water pump of adequate capacity and rating complete with motor, starters etc. Feed water piping from feed water tank to pumps & to shell inlet, strainer, pressure gauges at outlet of pumps, Isolation valves for pressure gauges shall be provided by vendor.	VENDOR TO CONFIRM		
3.3.4	Oil cum gas firing burner shall be pressure jet burner having stepless modulation with high voltage spark ignition/ pilot flame for burner light up. A flame sensor on the burner as a part of flame failure safety control shall be provided. Burner with combustion air fan, gas butterfly valve assembly, damper assembly with step motor & cam linkages with oil regulating valve to control oil flow rate to the burner, separate cam is provided for gas and ignition electrodes, gasket for burner flange, gas flow meter shall be provided	VENDOR TO CONFIRM		
3.3.5	Gas Train shall be suitable for 1 to 4 bar gas inlet pressure Gas Train should consists of isolation valve, gas filter, pressure gauge at upstream & downstream of the pr regulator, gas pressure regulator, safety shutt off valve, relief valve with isolation valve, low gas pressure switch, solenoid valves to meet the requirement of boiler.	VENDOR TO CONFIRM		
3.3.6	Fuel oil pumping unit shall have two nos. fuel oil gear pump with motor, two nos. isolating valve at fuel pump inlet & outlet of each pump, two no. NRVs, oil filter, pressure switch, safety valve, strainer.	VENDOR TO CONFIRM		
3.3.7	One forced draft combustion air fan with flexible duct at suction & discharge of the fan shall be provided with air regulating assembly and all other accessories.	VENDOR TO CONFIRM		
3.3.8	Feed water tank of suitable capacity shall be provided with high & low level switch with BFP trip interlocks.	VENDOR TO CONFIRM		
3.3.9	Supply of Inter connecting piping, drain & vent piping for safety valve discharge to atmosphere, boiler air vent to atmosphere, shell drain & blowdown piping to blow down pit and gauge glass drain, common drain to blow down pit, sample Cooler (two points) with piping for blow down piping, fittings etc. shall be provided by vendor.	VENDOR TO CONFIRM		
3.3.10	All the items required for installation, commissioning & start up of boiler shall be arranged by vendor.	VENDOR TO CONFIRM		
3.3.11	Insulation & cladding on boiler, flue gas duct, steam piping, water piping, drain vent piping and LDO piping shall be provided by vendor.	VENDOR TO CONFIRM		
3.3.12	Self-supported chimney made out of MS sheet of approx 30-mtr height with suitable diameter Chimney shall be complete with ladder up to top of the chimney, aviation lamp (Neon), lightning arrestor, wind cutter/ spiral wings, necessary foundation bolts & platforms at suitable heights. Chimney to be painted with heat resistance anti corrosive paint.	VENDOR TO CONFIRM		
3.3.13	POWER CUM CONTROL PANEL Power cum control panel, free standing type confirming to IP 42 with MCB/MCCB. The panel should be made out of 14 / 16 SWG CRCA sheets, Internal & external surfaces shall be epoxy based powder coated and rust proof. Panel wiring with PVC 2.5 sqmm. copper wire 1.1 KV and having all standard accessories. Power & Control section physically isolated with partition plate, power section provided with a main incomer isolating switch with MCCB, required switch gears for all the feeders housed in the power section, control circuit for motors, indication lamps & hooter for the alarm, thermal overload relays, MCB's and contactors should be housed in the control section.	VENDOR TO CONFIRM		
3.3.14	All outgoing Power & Control cables shall be in the scope of vendor. Power cabling from control panel to all drive motors for boiler (cable armoured with copper conductor). Control cabling from control panel to boiler mounting instruments (cable armoured with copper conductor). Supply of complete termination with required hardware accessories. Electrical control panel shall have one incomer (MCCB type) and further distribution for all drives shall be done by vendor. Power cable from nearby source of sufficient current rating shall be provided by BHEL.	VENDOR TO CONFIRM		

Shirish Kumar/ Manager

Satish Soni/ Manager

Vivek Kumar Gupta/Sr. Manager

Mannohan Vaisiya/Sr. Manager

Pawan Kumar/DGM

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
3.3.15	Cable tray to be supplied & installed for above mentioned cabling work. Cable tray to be laid with proper support.	VENDOR TO CONFIRM		
3.3.16	Ladder & catwalk to operate the valves & fittings mounted on the boiler shall be provided by vendor.	VENDOR TO CONFIRM		
3.3.17	Wiring Accessories. All the accessories like Cable glands, Cable markers, Ferules, Lugs, Legends for Control & Signalling devices etc., as per requirement shall be in scope of vendor.	VENDOR TO CONFIRM		
3.3.18	Necessary Mountings & Fittings - List to be provided	VENDOR TO SUBMIT		
3.3.19	Control System and Instrumentation -			
3.3.20	One number piezo electric type pressure transmitter for steplless modulation, one number pressure switch for burner ON/OFF control, One Temperature element for flue gas temperature, one level transmitter, temp element for steam temp measurement and pressure transmitter for steam pressure measurement along with necessary display instruments to be supplied by vendor.	VENDOR TO CONFIRM		
3.3.21	Automatic sequence controller for Burner Management system along with necessary start/stop control, auxiliary contactor and control circuit of all motors, indication lamp and hooter for the alarm and trip interlock to be supplied by vendor. Flame sensor on the burner as a part of flame failure safety control must be provided	VENDOR TO CONFIRM		
3.3.22	One temperature indicator and switch is to be provided in the control system to indicate the boiler stack temp. There should be provision for high stack temp alarm, with lamp indication and burner trip interlock.	VENDOR TO CONFIRM		
3.3.23	Accessories like isolating globe valves, manifold and condensate pot assembly for connecting the low and high line of level transmitter to be supplied.	VENDOR TO CONFIRM		
3.3.24	Steam and feed water totaliser along with flow meter, fuel pressure and flow measurement, pressure transmitter on shell and flue gas temperature at flue gas outlet shall be provided in system for monitoring.	VENDOR TO CONFIRM		
3.3.25	All drives, motors and pumps should have facility of remote operation from control system/HMI & Push buttons as well.	VENDOR TO CONFIRM		
3.3.26	Following Automatic Closed loop control shall be part of control system -			
3.3.27	Feed water control - Pneumatic control valve assembly with build in I/P converter and air filter regulator (electro pneumatic positioner) for regulating feed water flow to the boiler along with two numbers isolation gate valves for control valve and one globe valve for bypass line	VENDOR TO CONFIRM		
3.3.28	Min. circulation control - One number pneumatic control valve assembly with build in I/P converter and air filter regulator (electro pneumatic positioner) for regulating for feed pump min circulation line with two numbers isolation gate valves for control valve and one globe valve for bypass line. One number non return valve in min circulation line after control valve to be provided	VENDOR TO CONFIRM		
3.3.29	FD Fan air control - Forced draft fan air regulation assembly for regulation of air.	VENDOR TO CONFIRM		
3.3.30	Boiler water or drum level control - PID controller or embedded controller for boiler water level or drum level control on required set value. There should be provision for low water level alarm and same to be linked with burner trip interlock.	VENDOR TO CONFIRM		
3.3.31	Corrosion Management system - PID controller or embedded control system along with field instruments to be provided for corrosion management along with damper, flue gas temperature sensor as PID controller.	VENDOR TO CONFIRM		
3.3.32	Interlock and Protections - All required interlock and protection for safe boiler operation shall be incorporated by vendor. Controls, instruments and safety interlocks shall be of international standard. Following alarm and protection are envisaged (Not limited to this only) in system - Low water level, Extra low water level, flame failure, steam pressure high, combustion air pressure low, stack temp high, low fuel oil temp. APH inlet damper closed, APH outlet damper closed and APH bypass damper open.	VENDOR TO CONFIRM		
3.3.33	Interlocks and control logic are to be designed such that the plant operates safely round the clock as per required pressure and temp.	VENDOR TO CONFIRM		
3.3.34	System should have capacity for trend log and event log facility for minimum one week for storing and analysing data. Facility for taking backup of data in external storage device shall be provided by vendor.	VENDOR TO CONFIRM		

Signature of Pawan Kumar/DGM

Signature of Manmohan Vaishya/Sr. Manager

Signature of Virendra Kumar Gupta/Sr. Manager

Signature of Satish Singh/Manager

Signature of Shresh Kumar/Manager

Signature of Shresh Kumar/Manager

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/ REMARK
3.4	Description of PLC BASED CONTROL PANEL (if PLC based system is offered) The PLC Control Panel shall comprise of centralized CPU in fully wired panel with pluggable type DIN rail mounted interposing relays in a ready to connect state to the field I/Os. Redundant power supply together with all Panel Accessories and HMI. PLC system should have necessary software and logics for plant operation.	VENDOR TO CONFIRM		
3.4.1	PLC Panel Enclosure: 1 no. a) A fully wired electrical control panel confirming to IP 42 of suitable size housing complete PLC system, I/O modules, power supplies, relays contactors, fuse, TB etc. along with other accessories as per requirement. b) The TBs, relays, modules installed in the panel should be properly tagged, wires should have printed ferrules, all control cable should be properly dressed and routed through cable trays. c) Aux 240VAC single phase socket point inside PLC panel should be provided. d) Panel Illumination LED lamp 20W through door close switch for each section. e) Input Supply 415 VAC. Suitable 415V/230V Isolation Transformer shall be provided.	VENDOR TO CONFIRM		
3.4.2	PLC CPU & I/O Rack: The PLC shall comprise of the following:- a) Independent Power Supply module. for safe operation b) CPU rack and Inbuilt memory. The PLC I/O Rack shall comprise of the following:- a) 24 VDC Digital Inputs : As per requirement b) 24 VDC Digital Outputs : As per requirement c) Analog Input of suitable resolution : As per requirement d) Analog Outputs of suitable resolution : As per requirement e) Input/Output rack suitable for above I/O's. f) HMI Screen minimum 10 inch display suitable for visual display/operation of all process/mimics, for diagnostics, log for alarms and trends PLC acceptable makes: Siemens /ABB/Allen-Bradley/ Honeywell/ Fuji/ Mitsubishi/Schneider.	VENDOR TO CONFIRM		
3.4.3	DIN rail mounted PLC-INTERFACE Relay: All the PLC digital outputs shall be wired to the field, through PLC-INTERFACE Relay for protection against interference currents or interference voltages on the control side. Typical specs shall be as follows: a) Coil Voltage: 24VDC b) Contact Single Changeover Contact Acceptable makes: Phoenix Contact/Siemens/ABB/Schneider/Allen-Bradley/ L&T / Elmax with omron relays	VENDOR TO CONFIRM		
3.4.4	Vendor shall provide ethernet port for taking screen to computer	VENDOR TO CONFIRM		
3.5	SCOPE OF WORK & SERVICES			
3.5.1	INSTALLATION & COMMISSIONING OF THE BOILER The erection of the items as supplied under this specification is the responsibility of vendor, to the satisfaction of BHEL. Erection shall be carried out according to well-established practices. Items required for erection, inspection, hydraulic test and commissioning to accomplish the work, providing complete workers, supervisory personnel, tools & tackles, ensuring pre-commissioning checks, trial run of all rotating equipment shall be in the scope of vendor.	VENDOR TO CONFIRM		
3.5.2	IBR Approval of boiler upto provisional firing order shall be in the scope of vendor.	VENDOR TO CONFIRM		
3.5.3	All IBR formalities shall be in the scope of vendor. Only registration fees shall be deposited by BHEL.	VENDOR TO CONFIRM		
3.5.4	Commissioning and proveout of complete system. All interlocks to be checked and validated for their effective functioning by physical operation.	VENDOR TO CONFIRM		
3.6	MAKES OF THE BOUGHT OUT COMPONENTS:			

Shrish Kumar Manager

Satish Sahni Manager

Vivek Kumar Gupta/Sr. Manager

Manmohan Vaishya/Sr. Manager

Pawan Kumar/DGM

19/01/24

S.NO.	ITEM	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
	MAKE				
3.6.1	MECHANICAL				
1	Feed pumps	Grundfos/ KSB/ LUBI/CNP/ Xylem	VENDOR TO SPECIFY		
2	Direct Water level gauge	Levcon/Pune Techitrol	VENDOR TO SPECIFY		
3	IBR Plates	SAIL/ JINDAL/AWINS	VENDOR TO SPECIFY		
4	Tubes (ERW)	TATA/TP/Pennar/ SAIL/ Jindal	VENDOR TO SPECIFY		
5	Burner	Unigas/ URET/ Combustion Concept/Thermax Oerli/ Forbes Marshall	VENDOR TO SPECIFY		
7	IBR valves	KSB L&T/Uniklinger/Forbes Marshall/Rushas/ Micon/ Expert/ Thermax	VENDOR TO SPECIFY		
8	Safety valves	Fainger Laser/Uniklinger/ Forbes Marshall/Darling meusco/ Thermax	VENDOR TO SPECIFY		
9	Blow down valves	Flosteer/Uniklinger/ Forbes Marshall/ Darling meusco/Punjab Metals/ Inditech/ Atam	VENDOR TO SPECIFY		
3.6.2	ELECTRICAL				
1	Motors	ABB / Siemens / GE / Bharat Bijlee / Marathon / Kirloskar Electric / Crompton Greaves	VENDOR TO CONFIRM/ SPECIFY		
2	Relays / Circuit Breakers / MCCB / MCB / Contactors / Lamps / PB / SFU / Timers / Fuses	ABB / Siemens / GE / L&T / Schneider / Legrand	VENDOR TO CONFIRM/ SPECIFY		
3	Switches	Kaycee / Salzer / ABB	VENDOR TO CONFIRM/ SPECIFY		
4	Meters	AE / Secure / Rishabh / Schneider / L&T	VENDOR TO CONFIRM/ SPECIFY		
5	PLC, SCADA (In case PLC and SCADA based system is offered)	Siemens / ABB / Allen-Bradley/Honeywell/ Fuji/ Mitsubishi/ Schneider	VENDOR TO CONFIRM & SPECIFY		
6	Control & Power Cables	KEI / Havells / Polycab / Finolex / Gemscab / Cords	VENDOR TO CONFIRM/ SPECIFY		
7	Desktop PC (if operation from computer desk is envisaged)	Dell / HP / Lenovo or equivalent	VENDOR TO CONFIRM & SPECIFY		
3.6.3	INSTRUMENTS				
1	Temp. gauges	E&H/Baumer/Honeywell/Wika/Yokogawa/GIC	VENDOR TO CONFIRM/ SPECIFY		
2	Pressure gauges	E&H/Baumer/Honeywell/Wika/Yokogawa/ GIC	VENDOR TO CONFIRM/ SPECIFY		
3	Thermocouples	E&H/Baumer/Honeywell/Wika/Yokogawa/GIC	VENDOR TO CONFIRM/ SPECIFY		
4	Pressure Switch	E&H/Baumer/Honeywell/Wika/Yokogawa/ Switzer	VENDOR TO CONFIRM/ SPECIFY		
5	Pressure Transmitter	Wika/Edward/Pfeiffer/honeywell/Yokogawa/Danfoss	VENDOR TO CONFIRM/ SPECIFY		
6	RTD	E&H/Baumer/honeywell/Wika/Yokogawa/GIC	VENDOR TO CONFIRM/ SPECIFY		
7	Level Gauge	Honeywell/Yokogawa/ Pune Techitrol	VENDOR TO CONFIRM/ SPECIFY		
8	Level switch	E&H/Truman/Honeywell/ Pune Techitrol	VENDOR TO CONFIRM/ SPECIFY		
9	Limit switch	BCH/Siemens/ABB/L&T/Honeywell	VENDOR TO CONFIRM/ SPECIFY		
10	Draught gauge	Wika/Switzer/honeywell/yokogawa/ GIC	VENDOR TO CONFIRM/ SPECIFY		

Shirish Kumar Manager

Satish Soni Manager

Vivek Kumar Gupta/Sr. Manager

Mamudhan Vaisya/Sr. Manager

Pawan KymadGM

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT		ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
11	Vortex Flow meter(Steam & water)	ABB/Yokogawa/Honeywell/E&H/ Emerson/ Armstrong International/ Thermax	VENDOR TO CONFIRM/ SPECIFY		
3.6.4	If the party is offering any item of equivalent make other than mentioned above the same should be clearly indicated in the offer and will be accepted only in case specifically approved by BHEL.				
4.0	TESTS/ PERFORMANCE PROVE OUT:				
4.1	Vendor to prove the performance of the boiler as per specifications, IBR requirement and As per BS 485 part I (indirect method).				
5.0	SAFETY ARRANGEMENTS Following safety features in addition to other standard safety features should be provided on the boiler.				
5.1	Boiler should have adequate and reliable safety interlocks / devices to avoid damage to the workpiece and the operator due to the malfunctioning or mistakes. Boiler functions should be continuously monitored and alarm / warning indication through lights / alarm number and audio alarm with message (on panels) should be available.				
5.2	A detailed list of all alarm / indications provided on Boiler should be submitted by the vendor with the offer.				
5.3	All the pipes, cables etc. on the Boiler should be well supported and protected.				
5.4	All the rotating parts used on Boiler Plant should be statically & dynamically balanced to avoid undue vibrations and well protected with safety guards.				
5.5	Emergency switches at suitable locations as per applicable industry standard are to be provided.				
5.6	Oil & water pipe lines should not run with electrical cable in the same tray / trench.				
5.7	Required PPEs shall be used by all the workers engaged by vendor at site from start of work till completion and other safety arrangements shall be arranged by vendor at his own cost as per requirement.				
6.0	ENVIRONMENTAL PERFORMANCE The Boiler shall conform to the following factors related to environment:				
6.1	Maximum noise level should be with in 85 db at normal load condition, 1mtr. away from the Boiler House with correction factor for back ground noise, if necessary. Supplier to demonstrate compliance to noise level, if so required.				
7.0	ERECTION AND COMMISSIONING				
7.1	All the erection and commissioning will be carried out by vendor with his own labour in BHEL-Jhansi. Laying & termination of all power & control cables shall be in the scope of vendor.				
7.2	Tools & tackles, equipment and consumables like paint, welding electrodes, gas, hardwares etc required for work to be brought by vendor.				
7.3	Supply, fabrication & erection of required structures, plat form and ladders to be done by vendor as per site requirement.				
7.4	Supply and application of various paints for lines and components as per the approved colour code and labeling (letter/number embossed metal plates) of the Plants to be done by vendor.				
7.5	E&C of the boiler shall be completed within 2 months from the date of intimation to the vendor by BHEL.				
7.6	Plant continuous trial operation of 24 hours shall be completed for final commissioning subject to availability of inputs from BHEL.				
7.7	Erection and commissioning schedule must be submitted before start the work for approval in line with time schedule indicated by BHEL (Complete activity Bar Chart with no. of days required to complete the desired work).				
8.0	GENERAL				
8.1	GA drawing, single line diagram, foot print of complete system showing all individual systems and BOM must be submitted with tech. offer for the evaluation.				

Shirish Kumar/ Manager

17/10/24
Satish Kishor/ Manager

17/10/24
Vivek Kumar Gupta/Sr. Manager

17/10/24
Manmohan Vasthya/Sr. Manager

17/10/24
Pawan Kumar/DGM

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
8.2	Any thing else which is required to prove the performance of boiler upto the satisfaction of BHEL as per specification will be in the scope of vendor without any extra cost.	VENDOR TO CONFIRM		
8.3	Any deviation to the scope and conditions to be mentioned pointwise.	VENDOR TO CONFIRM		
8.4	After placement of order by BHEL, the vendor to complete detailed designs and submit the drawings/data sheets (block layout and P&ID) with complete Bill of material along with rating, specification of all equipments/ components with in one month from the date of purchase order.	VENDOR TO CONFIRM		
8.5	Scope of work includes installation & commissioning of all supplied item/ items required and any additional work & material required to operate the plant in auto & manual mode.	VENDOR TO CONFIRM		
8.6	All required instruments should be calibrated through OEM or NABL certified agencies.	VENDOR TO CONFIRM		
8.7	Supply should complete within 06 months from the date of drawing approval by BHEL.	VENDOR TO CONFIRM		
8.8	Predispach inspection will be carried out by representative of BHEL for all components, assemblies etc. at suppliers works.	VENDOR TO NOTE & CONFIRM		
8.9	Quality Assurance Plan to be submitted by vendor alongwith offer	VENDOR TO CONFIRM & SUBMIT		
8.10	List of mandatory spares with price list (of minimum 2 years validity) shall be submitted along with technical offer. This shall not be included/ considered during price bid evaluation.	VENDOR TO SUBMIT		
8.11	Charges for Annual maintenance contract of offered boiler with spares and without spares to be submitted by vendor. This shall not be included/ considered during price bid evaluation.	VENDOR TO SUBMIT		
9.0	DOCUMENTATIONS			
9.1	Complete P&I diagram, General arrangement, terminal point/ hook up drawing, foundation drawing for all equipment, Boiler house drawing, electrical interfacing drawing, complete Electrical Schematic Drawing (as commissioned) shall be provided in 03 nos. hard copies & 01 no's soft copy.	VENDOR TO CONFIRM		
9.2	Complete technical literature /brochure with specifications of all supplied bought-out items shall be provided in 03 nos. hard copies	VENDOR TO CONFIRM		
9.3	Operation, maintenance, spare parts manual and technical data sheet to be submitted alongwith supply in 03 nos. hard copies & 01 no's soft copy.	VENDOR TO CONFIRM		
9.4	In case PLC and/or SCADA based system is offered then - PLC Project backup file, SCADA project backup file in Soft copies with comments in English, PDF copy of PLC Ladder and screens of SCADA, all loaded in one USB 32GB Pen drive.	VENDOR TO CONFIRM		
9.5	A complete set of IBR drawings and documents certified by the Inspecting Authority of the State of its origin. Boiler IBR folder at the time of dispatch (original)	VENDOR TO CONFIRM		
9.6	Test certificates - After placement of P.O. and at the time of commissioning conformance to be provided.	VENDOR TO CONFIRM		
9.7	In case PLC and/or SCADA based system is offered then licenced software of PLC and/or SCADA shall be in vendor's scope.	VENDOR TO CONFIRM		
10.0	GUARANTEE			
10.1	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		
10.2	Performance guarantee runs shall be conducted as per BS 845 part1 -1987 indirect test method after one month of continuous trouble free operation/ trial operation.	VENDOR TO CONFIRM		
10.3	Any defect due to faulty material / bad workmanship shall be rectified free of cost to the entire satisfaction of BHEL.	VENDOR TO CONFIRM		
11.0	TRAINING			
11.1	Boiler operational training shall be provided by vendor to BHEL operators at site.	VENDOR TO CONFIRM		
11.2	Maintenance training shall be provided (Mechanical, Electrical and Electronics) by vendor to concerned BHEL persons	VENDOR TO CONFIRM		
12.0	AMBIENT CONDITIONS & THERMAL STABILITY:			

(Signature)
Pawan Kumar/DGM

(Signature)
Manmohan Vaishya/Sr. Manager

(Signature)
Vivek Kumar Gupta/Sr. Manager

(Signature)
Satish Soni/ Manager

(Signature)
Shilpa Kumar/ Manager

S.NO.	DESCRIPTION FOR BHEL REQUIREMENT	ACTION BY VENDOR	OFFERED	DEVIATION/REMARK
12.1	Boiler and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. POWER SUPPLY : Voltage :- 415 V -10%, +10% . Frequency - 50 Hz +1.5Hz , -1.5Hz No. of phases - 3 , no neutral Ambient Conditions - Temperature = 5 to 47 degree celsius , Relative Humidity: 95 % . (Vendor to confirm that Boiler is suitable for above).	VENDOR TO CONFIRM		
12.2	Weather conditions are tropical. Atmosphere may be dust laden during some part of the year. Boiler shall be kept in the Boiler house. Max. temperature variation is up to 25 deg Celsius in 24 hours. (VENDOR to confirm that Boiler is suitable for above).	VENDOR TO CONFIRM		
13.0	QUALIFYING CONDITION :			
	Only Original Equipment Manufacturers (OEMs) or their Authorized Dealer meeting the following conditions are eligible to participate in the tender: (a) The vendor, submitting the quotation or it's OEM, should have supplied and installed at least 1 no. of minimum 6 TPH capacity Gas Fired Industrial Boiler in the past, which is operational at present can participate. (Vendors other than OEM shall have to submit valid authorization certificate issued by OEM and back-to-back guarantee from their OEM for satisfactory performance of the offered plants with all technical support.)			
13.1	Or Indian Vendors who have a running Collaboration/ Joint Working arrangement with Foreign Manufacturer [meeting above specified qualifying conditions mentioned in 13.1 (a)] can also participate. Such Indian Vendors shall have to submit a back-to-back guarantee from their foreign partner for satisfactory performance of the offered plant and collaboration certificate/ joint venture documents to be submitted along with offer.	Vendor to confirm & furnish		
13.2	The following information is to be submitted by the VENDOR about the company where such plant has been supplied. This is required from all the VENDORS for qualification of their offer.	Vendor to Confirm		
13.2.1	Name of the customer / company where such Plant is installed (unpriced copy of purchase order to be furnished in line with point no. 13.1)	Vendor to furnish		
13.2.2	Name, designation, Complete postal address, Mobile no. and E-mail address of the contact person of the customer	Vendor to furnish		
13.2.3	Year of installation	Vendor to furnish		
13.2.4	Application/ Industry for which plant has been supplied	Vendor to furnish		
13.2.5	Copy of IBR certification of the Boiler supplied in line with point no. 13.1 regarding satisfactory installation of supplied Boiler.	Vendor to furnish		
13.2.6	BHEL reserves the right to verify information or visit the place of installation of customer to verify the operation of the boiler as indicated by VENDOR. BHEL may accept or reject the offer based on assessment of performance of boiler or the information submitted by VENDOR.	Vendor to note & confirm		

Shishu Kumar/ Manager

Sudesh Singh/ Manager

Vivek Kumar Gupta/Sr. Manager

Mannohan Vaishya/Sr. Manager

Pawan Kumar/DGM