

Design ,engineering, supply,erection,testing and commissioning of 4 TPH Boiler with necessary accessories,mountings,fittings,pipe lines and other necessary requirements.				
4 TPH , 10.5 KG/cm ² (g) , 180 deg C, Natural GAS and LPG fired Steam Boiler				
REQUIREMENTS				
S.No	BHEL SPECIFICATIONS			VENDOR SCOPE
1	Feed water temperature (Available)	28 ^o C	VENDOR TO CONFIRM	
2	Net steam required	4 TPH (From & At 100 deg C)	VENDOR TO CONFIRM	
3	Normal Operating pressure	10.5 Kg/cm ² (Gauge) * (Not design pressure)	VENDOR TO CONFIRM	
4	Dryness fraction	0.97 and above	VENDOR TO CONFIRM	
5	Turn down Ratio required	1/3	VENDOR TO CONFIRM	
6	Temperature at min load required	170 ^o C	VENDOR TO CONFIRM	
7	Temperature at MCR	180 ^o C	VENDOR TO CONFIRM	
8	Emission levels	As per APPCB Standards, Hyderabad	VENDOR TO CONFIRM	
9	Design Code	IBR 1950 with latest amendments	VENDOR TO CONFIRM	
10	Available Instrument air pressure	3 Kg/Cm ² (g)	VENDOR TO CONFIRM	
11	Electrical explosion/FIRE proof intrinsic safety requirements are needed for all electric equipments	All motors, electrical devices and panels.	VENDOR TO CONFIRM	
12	IBR statutory formalities	All to be taken care by Vendor	VENDOR TO CONFIRM	
13	Location of Boiler	Ramachandrapuram,Hyderabad, All transportation charges will be in the scope of vendor.	VENDOR TO CONFIRM	
14	Silencers for air vents and Safety valves required	< 85 dB	VENDOR TO CONFIRM	
15	Sound from FD fan (1Mtr distance)	< 85 dB	VENDOR TO CONFIRM	
16	Automatic combustion control required	Auto regulation is required for Air, Fuel (Natural gas/LPG) for complete combustion of fuel by maintaining O ₂ % below 4.5%	VENDOR TO CONFIRM	
17	Type of Fuel to be used	Natural Gas AND LPG	VENDOR TO CONFIRM	
18	AWLC SYSETM WITH WATER LEVEL BRASS HEADERS	AUTOMATIC WATER LEVEL CONTROLERS	VENDOR TO CONFIRM	
19	Existing DM Plant water to be used	DM water piping upto new boiler Supply, E&C will be in the scope of BHEL	VENDER TO COMMENT	
20	Max and Min ambient temperatures	52 / 18 deg C	VENDER TO COMMENT	
21	Plant altitude	556.5 Meters	VENDER TO COMMENT	
22	TDS of feed water(Available)	< 5PPM	VENDER TO COMMENT	
23	Available LPG Gas pressure	1+/- 0.5 Kg/cm ² @500 m ³ /hr	VENDOR TO SPECIFY	
24	DM storage tank at new boiler should be having capacity of 30 KL and should work as atmospheric de-aerator.DM tank should be having necessary stair cases along with railings.DM tank (Atmospheric De-aerator) with level indicator and controller is to be supplied and installed by vendor.All inlet and outlet connections along with supply of material is to be done by vendor.DM Storage tank should be made of MS with Epoxy coating and should handle 90 degC water. Condensate return will enter into this tank, hence necessary safety fittings to be supplied.Suitable condensate return pumps along with ss pipe lining is to be designed and erected.DM water to new boiler storage tank will be supplied from existing DM plant (DM tank should be cylindrical in shape and its wall thicknes should not be less than 5 mm).		VENDOR TO CONFIRM	
25	Shell,Furnace,Reversal Chamber and Tube Plates	As per latest IBR regulations	VENDOR TO CONFIRM	
26	Furnace access Tube	As per latest IBR regulations	VENDOR TO CONFIRM	
27	Stay bars	As per latest IBR regulations	VENDOR TO CONFIRM	
28	Plain and stay tubes	As per latest IBR regulations	VENDOR TO CONFIRM	
29	Man door Head holes, mud door lifting lug	As per latest IBR regulations	VENDOR TO CONFIRM	
30	Pads (Valves)	As per latest IBR regulations	VENDOR TO CONFIRM	
31	Bosses	As per latest IBR regulations	VENDOR TO CONFIRM	
32	Stand pipes	As per latest IBR regulations	VENDOR TO CONFIRM	
33	Inter connecting piping	As per latest IBR regulations	VENDOR TO CONFIRM	
34	Boiler internal dry pan & perforated Tray	As per latest IBR regulations	VENDOR TO CONFIRM	
35	Valves	As per latest IBR regulations	VENDOR TO CONFIRM	

36	RTD's, Thermocouples, Level controllers with indicator, Flow controllers (For Steam, Natural gas/LPG, water, condensate, air), online conductivity meter, I/P's, solenoid valves, Transmitters etc required are to be supplied and installed by vendor		VENDOR TO CONFIRM	
37	Stop valve, Range valve (in addition to stop valve), Bypass valves, Auto control valves, safety valves, drain valves, traps etc required are to be supplied and installed by vendor.		VENDOR TO CONFIRM	
38	Centrifugal boiler feed water pumps (1R+1S) along with isolating valves is to be supplied and installed by vendor	KIRLOSKAR EBERRA/KSB/SULZER/GROUND FOSS/MATHERPLATT	VENDOR TO CONFIRM (make, model and type to specify)	
39	Audio Visual alarms for abnormal working conditions to be provided by vendor		VENDOR TO CONFIRM	
40	Platforms and ladders to be provided by vendor		VENDOR TO CONFIRM	
41	Control panel with switches, relays, contactors, fuses, dust, fire/vermin proof is to be supplied and installed by vendor		VENDOR TO CONFIRM	
42	All steam, blow down, drain piping and safety valve along with inlet and outlet piping is to be supplied and installed by vendor		VENDOR TO CONFIRM	
43	Steam Traps and along with drain valves are to be supplied and installed by vendor		VENDOR TO CONFIRM	
44	All Insulation / cladding material are to be supplied and installed by vendor	Standard Insulation	VENDOR TO SPECIFY	
45	All standard painting works to be done by vendor along with supply of material		VENDOR TO SPECIFY	
46	LPG and Natural Gas leak detectors along with Interlocks are to be provided		VENDOR TO CONFIRM	
<i>Pressure gauges are to be supplied and installed at following locations</i>				
47	FD fan delivery	standard pressure gauge	VENDOR TO SPECIFY	
48	Boiler main steam	standard pressure gauge	VENDOR TO SPECIFY	
49	Feed water pumps discharge	standard pressure gauge	VENDOR TO SPECIFY	
50	Feed water pumps strainers diff pressure	standard pressure gauge	VENDOR TO SPECIFY	
51	Before and after gas train	standard pressure gauge	VENDOR TO SPECIFY	
52	Before chimney temperature gauge	Standard temperature gauge to be installed.	VENDOR TO SPECIFY	
53	DM storage tank 30KL (Atmospheric De-aerator) temperature gauge	Standard temperature gauge to be installed.	VENDOR TO SPECIFY	
54	Feed water to boiler temperature gauge	Standard temperature gauge to be installed.	VENDOR TO SPECIFY	
55	Boiler outlet steam temperature gauge	Standard temperature gauge to be installed.	VENDOR TO SPECIFY	
56	Drum level, steam flow, water flow indicators to be given		VENDOR TO SPECIFY	
57	Gas pressure indicator before gas train		VENDOR TO SPECIFY	
58	Low water level in the boiler	Level controller-1 Alarm & Burner Trip	VENDOR TO CONFIRM	
59	Extra low water level in the boiler	Level controller-2 Alarm & Burner Trip	VENDOR TO CONFIRM	
60	Very extra low water level	Fusible plug trip Fusible plug blow & burner trip	VENDOR TO CONFIRM	
61	Flame failure	Flame sensor Alarm & Burner Trip	VENDOR TO CONFIRM	
62	Steam pressure high	safety valve Lift	VENDOR TO CONFIRM	
63	Combustion air pressure low	pressure switch Alarm & Burner Trip	VENDOR TO CONFIRM	
	Equipment	MAKES to be supplied and installed by vendor		
		Our selection		
64	Burner (1No.s)	Oilon / Eclips / Oertli / CCPL	VENDOR TO CONFIRM	
65	Feed Water Pumps (2No.s)	KSB / Sulzer / Kirloskar Ebera / Matherplate/ground foss	VENDOR TO CONFIRM	
66	FD Fan (1No.s)	Your approved vendor	VENDOR TO CONFIRM	
67	All motors (should be energy efficient)	LHP / Siemens / ABB / Kirloskar/ Bharat bijlee	VENDOR TO CONFIRM	
68	Blow down Valves	Audco / Levcon / UTAM	VENDOR TO CONFIRM	
69	Gate/Globe valves on water and steam lines	Audco / Levcon / UTAM	VENDOR TO CONFIRM	
70	Non return valves on water line	Audco / Levcon / Expert	VENDOR TO CONFIRM	

71	Boiler single port spring loaded safety valves(2No.s)	Tyco sanmar / Fainger Leser / Sempell /DARLING MUESCO	VENDOR TO CONFIRM	
72	The layout is to be designed by vendor by giving proper place around the boiler and its auxiliaries covering storage tanks and control room. Finally it should satisfy our requirement and acceptable to us		VENDOR TO specify	
73	Submission of final IBR documentation folder duly signed by Director of Boilers, Andhra Pradesh will be in the scope of vendor (along with provisional order)		VENDOR TO CONFIRM	
74	Packing, marking, and Transporting all material to BHEL, RC puram, Hyderabad will be in the scope of vendor		VENDOR TO CONFIRM	
75	All electrical,Instrumentation,mechanical,works along with supply of material will be in the scope of vendor		VENDOR TO CONFIRM	
76	Vendor should submit all specs of boiler,equipment details,PID drawings,performance data etc along with quotation.		VENDOR TO SUBMIT	
77	Suitable FD fan with required suction and delivery ducts is to be supplied and installed by vendor.		VENDOR TO CONFIRM	
78	All mountings on the boiler like gauge glass,safety valves,pressure gauges, fusible plug, temperature gauges,,moburey are to be supplied and installed by vendor		VENDOR TO CONFIRM	
79	Supplying and erecting suitable chimney with IS standard and as per norms of APPCB,hyderabad,Andhrapradesh.Apart from this, Near by building height also to be considered while deciding chimney height. Inside and outside of chimney heat resistant paint could be used. Monkey ladder is to be provided for chimney. Lightening conductor is to be provided and flue gas pocket for flue gas monitoring is to be provided in chimney.		VENDOR TO CONFIRM	
80	The delivery period for supplying the boiler will be 6 months from the date of PO.		VENDOR TO CONFIRM/specify	
81	Erection and commissioning should be completed with in three months from date of supply of Boiler.		VENDOR TO CONFIRM	
82	Warranty required for all equipments and Motors	2 years from the date of commissioning	VENDOR TO CONFIRM	
83	Documents Required	Three Copies of Operation and Maintenance manual for Boiler and accessories	VENDOR TO CONFIRM	
84	Drawings required for all equipments,ductings,PID,MCC cabling,layout,steam pipe line, condensate line, feed water line etc	Three hard copy sets of each and one soft copy of each along with supply of Boiler.	VENDOR TO CONFIRM	
85	Specification of all boiler pressure parts, Boiler auxillaries,Scope of supply	details to be furnished by vendor	VENDOR TO CONFIRM	
86	Manufacturing, Inspection and testing of Equipment should be as per IBR and Preparation of necessary drawings and calculations for getting approval from Director of Boilers, Andhra Pradesh will be in the scope of vendor.		VENDOR TO CONFIRM	
87	Training on operation and Maintenance of the boiler is to be given to all our operators for 7 days		VENDOR TO CONFIRM	
88	Pre-Despatch Inspection by BHEL Executives is required at vendors works.		VENDOR TO CONFIRM	
89	BHEL scope of supply	Incoming power supply, DM water, air supply and Fuels supply	VENDOR TO confirm and specify	
90	Civil works	Civil works are under BHEL scope, required drawings to be supplied by vendor	VENDOR TO SPECIFY	

Pre qualification.

91	Vendor should be having experience in manufacturing of Gas fired Boilers and should have supplied one boiler of 4 TPH or higher capacity in last Ten years.	VENDOR TO CONFIRM	
92	Vendor should have IBR certificate for manufacturing of Boilers and should be familiar with IBR formalities.	VENDOR TO CONFIRM	
93	List of customers and contact numbers for whom similar (Min 4TPH) boilers (which are working more than one year after commissioning) are to be given along with quotation	VENDOR TO SUBMIT	