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THE FOLLOWING STEAM BOILER IS AVAILABLE FOR SALE WITH US WITH IMMEDIATE DELIVERY:

1 No. - 32 TPH Thermax B & W (2007) make, AFBC type Water Tube Steam Boiler, having the Following Technical Specifications:

DESCRIPTION:

BRIEF OVERVIEW

The boiler package supplied by Thermax Babcock & Wilcox, Pune, India and has been designed for 32 TPH steam generation, 66 kg/cm² (g) pressure, 485+/- 5 deg C Super Heated Steam output designed for firing with 100% lignite 1, 100% Indian Coal, 100% B Lignite, 70% Pet coke + 30% Indian coal. This boiler is Bi-Drum design, boiler bank, Natural circulation, Water Tube, Balanced Draft, underbed fuel feeding system, Bottom Supported Pressure parts and Bed plate design.

Fuel Combustion will be in an Atmospheric Bed Combustor (AFBC) fixed at the Boiler bottom. Fuel is stored in Bunker. Drag chain feeders are connected at the bottom of surge hoppers (below the bunker). The fuel is fed by these feeders to under bed fuel feed pipes and transported to the furnace bottom for firing inside the bed.

As a complete unit, the boiler plant is equipped with the following circuits:

- Feed water and steam system.
- Pressure parts circuit.
- Boiler Steam circuit.
- Boiler Blow down circuit.
- Sample coolers.
- Chemical dosing system.
- Combustor / Furnace.
- Combustion Air.
- Fuel handling storage & Fuel feeding system.

- Flue gas circuit.
- Refractory and insulation.
- Electrical and Instrumentation.
- Chimney

GENERAL DESCRIPTION

The main parameters of the boiler are

Maximum continuous Rating	: 32 TPH
Manufacturer	: Thermax B&W
Year of make	: 2007
Steam Pressure	: 66 kg/cm²
Steam Temperature	: 485 +/- 5 Deg. C.
Fuel Fired	: Lignite 1, B Lignite, Indian Coal PetCoke.

The boiler has been designed to confirm to **Indian Boiler Regulations (IBR)**

TECHNICAL SPECIFICATIONS:

NUMBER & TYPE OF BOILER: 1 No. AFBC, Bi Drum, outdoor, water tube, natural circulation, balance draft, Under bed Fuel Feeding System, Bottom Supported Pressure part design.

1. DESIGN SPECIFICATIONS OF STEAM GENERATOR

PARAMETERS	UNIT	VALUE
Boiler Rating (MCR)	TPH	32
Steam Pressure at Main Steam Stop Valve Outlet from minimum Load upto MCR	Kg/cm ² (g)	66
Steam Temperature at the Main Steam Stop valve at MCR	Deg C	485 +/- 5
Main Steam Temperature Control range at the Main Steam Stop Valve Outlet.	% MCR	70 - 100
Feed Water Temperature at Economiser Inlet/ Spray water temp	Deg C	130

Feed Water Inlet Temperature to Deaerator	Deg C	62
Fuel Gas Temperature at APH Outlet	Deg C	150
Fuel Firing Combination.		
Main Fuel For MCR Generation		100% Lignite 1
Secondary Fuel For MCR Generation		100% Indian Coal 70% Petcoke + 30% Indian Coal
Start Up Fuel for Coal		Charcoal Sprayed with diesel fuel
Boiler Performance Testing Procedure		ASME PTC 4.0 Indirect abbreviated heat loss method on GCV basis

DESIGN CODE

Boiler & Economiser / Pressure Parts : As per IBR

HEATING SURFACE AREA

Zone	Unit	Value
Boiler Bank Zone	Sq.Mtr	550.3
Water wall Zone	Sq.Mtr	236
Super Heater Zone	Sq.Mtr	612
Inbed coils	Sq.Mtr	83
Economiser	Sq.Mtr	308
Total Heating Surface	Sq.Mtr	1789.3

FUEL

a) Main Fuels : 100% Indian Coal

100% Lignite 1.
70% Petcoke + 30% Indian Coal

b) Start up Fuel : Charcoal sprayed with Diesel fuel.

FUEL ANALYSIS (% BY WT)

Ultimate Analysis

Composition	Unit	Barmer Lignite	Indian Coal	Petcoke	Coal To Be Considered For Design (Lignite 1)
Carbon	% Wt	37.80	34.20	86.5	34.3
Hydrogen	% Wt	3.47	2.75	3.18	3.0
Nitrogen	% Wt	0.54	2.50	0.39	0.42
Sulphur	% Wt	3.60	0.30	5.94	3.6
Moisture	% Wt	24.13	8.00	1.08	40 (Max 8% Surface Moisture)
Ash	% Wt	24.07	45.0	0.78	9.99
Oxygen	% Wt	6.39	7.25	1.93	8.69
GCV Kcal/kg	Kcal/Kg	3809	3500	8010	3400

FANS

Duty Conditions	Unit	FD fan Test Block Conditions	ID Fan Test Block Conditions	PA Fan Test Block Conditions
Make		Flakt wood	Flakt wood	Flakt wood
Type		HACB-7-071-160-02-6-1	HABB-7-125-167-04-1-8	HACB-7-031-854-00-6-2-3
Quantity	Nos.	1	1	1
Nature Of		Clean Air	Flue Gas	Clean hot Air

Medium				
Rated Flow	Kg/hr	61585	73475	
Rated Operating Temperature	Deg C	40	165	175
Absorbed Power	kW	156	74	30
Fan Speed	Rpm	1470	970	2910
Static Pressure				
(a) Inlet Static Pressure	mmWc	(-25)	(-200)	(500)
(b) Outlet Static Pressure	mmWc	775	0	1200
(C) Differential Static Pressure	mmWc	800		700
Total Efficiency	%	85.8	81.6	85.4
Free/Fixed Bearing Housing		Housing: SNA 520 Free brng.: 23220 EK/C3. Fixed brng.: 23220 EK/C3	Housing: SNA 522 Free brng. 22222 CCK (SKF make) Fixed brng. 22222 CCK (SKF make)	Housing: SNA 515 Free brng.: 22215 EK/C3 (SKF make)+ H315. Fixed brng.: 22215 EK/C3 (SKF make)+ H315 + FRB 12.5/130P.
Bearing Lubrication		GREASE (servogem-EP 2)	GREASE (servogem-EP 2)	GREASE (servogem-EP 2)
Motor		180 KW/4 pole make: ABB	160 KW/6 pole make: ABB	45 KW/2 pole make: ABB
Coupling		Make: WELLMAN, TYPE: Resilient; Size:	Make: WELLMAN, TYPE: Resilient;	Make: WELLMAN, TYPE: Resilient; Size: 136 HC

		212 FX	Size: 236 FX	
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Boiler Feed Water Pump

Make : KSB		
Description	Units	Parameters
Pump Type		HAD-65-14
No of Stages		14
Liquid		Boiler Feed Water.
Temperature	Deg C	130
Specific Gravity		0.9346
NPSH pump/plant	M	4.2
Vapour Pr	Kg/cm ²	2.75
Capacity	M ³ /hr	40
Minimum Flow	M ³ /hr	7.2
Head	M	870
Differential Pressure	Kg/cm ²	81.31
Nom. speed	Rpm	2900
Nom. power	KW	140
Direction of Rotation		CW seen from Drive End
Shut off head	M	976
Nom. Efficiency	%	63.5
Bearing Lubrication		Ring oil
Shaft Seal		Mechanical seal
Coupling Make / Type		Make- Rathi

		Type & Size - Gear spacer type
Motor		ABB; 160 KW,Frame-315(ABB model M2BA315MLA2), 2980 rpm/ 2pole
Cooling Medium, Press, Temp, Flow		Water, 3- 4 kg/cm ² , 25-30 Deg, 15 - 40 LPM

HP & LP DOZING PUMPS

Make : RAVI INDUSTRIES

Description	HP	LP
Pumps		
Make	METACHEM	METACHEM
Tank	750 O.D X 750 HT. X 5 THK. With Rubber Lining	600 O.D X 700HT. X 5 THK.(MSRL)
Type	Reciprocating Plunger, Variable Stroke	Reciprocating Plunger, Variable Stroke
Flow	0 - 10 LPH	0.0 - 6.0 LPH
Discharge pressure	85 kg/cm ² g	6 kg/m ² g
Relief valve set pressure	90 kg/cm ² g	9 kg/cm ² g
Motor for Dosing Pumps		
Make	Crompton/ SIEMENS	Crompton/SIEMENS
Motor Type	0.5HP, 1500 RPM, TEFC-IP55, 50 Deg C amb. ,415 V, 50 Hz	0.SHP, 1500 RPM, TEFC-IP55, 50 Deg C amb.,415 V, 50 Hz

Rating	0.5 HP / 1500 rpm	0.5 HP / 1500 rpm
Agitator		
Make	Crompton/ SIEMENS	Crompton/SIEMENS
Motor Type	0.SHP, 1000 RPM, TEFC-IPSS, 50 Deg C amb. ,415 V, 50 Hz	0.5HP, 1500 RPM, TEFC-1P55 50 Deg C amb.,415 V, 50 Hz
Agitator- Motorised	16 Dia, Propellar Type-1000 RPM, 415 V	16 Dia, Propellar Type-1000 RPM, 415 V
Fluid handled	Tr sodium phosphate	Diluted Hydrazine Solution

GAUGE GLASS

Drum level

Description	Details
Make	HI- TECH SYSTEMS AND SERVICES LTD.
Tag No.	LG-122A & LG-1228
Location	Steam drum
Operating pressure	71.6 kg/cm2 (g)
Design pressure	78.3 kg/cm 2(g)
Hydrotest pressure	315 bar
Operating temp	286 deg c

SAFETY VALVES

Sr. No.	Description	Unit	Details		
1	Location		Steam Drum	Steam Drum	Super Heater

2	Tag No.		B7	B8	S4
3	Set Pressure	Kg/cm ² G	78.3	79.5	71.3
4	Relieving Temperature	Deg. C	292.980	294.030	490.000
5	Capacity Rated/Required	Kg/h	12115/12000	19193/12000	8875/8000
6	Size & Style		1.5 G 3.0 HC - 56W -IBR	1.5 H 3.0 HC - 56W -IBR	1.5 G 3.0 HCA -58W-IBR

All safety valves are of IBR type and quantity one each.

TEMPERATURE PROFILE ('C)

GAS TEMPERATURE

- AT the outlet of Boiler : 355 Deg C.
- At the outlet of economiser : 253 Deg C.
- At the outlet of air-preheater : 150 Deg C.

19.2 WATER TEMPERATURE

- At the inlet of De-aerator
- a) Condensate from process : 60 Deg C.
- b) Make up water : 30 Deg C.
- c) Turbine bleed : 230 deg C.
- At the inlet of FW Pumps : 130 Deg C.
- At the inlet of economiser : 130 Deg C
- At the outlet of economiser : 180 Deg C.

19.3 AIR TEMPERATURE

- At the inlet of air heater : 40 Deg C.
- At the outlet of air heater : 160 Deg C.

20. FLUE GAS PRESSURE PROFILE (MM WC)

- Furnace : -5
- After boiler bank : -40
- After economiser : -65
- After air heater : -90
- After ESP : -120
- At ID fan inlet : -120
- - At ID fan outlet : +5

DRAWING:







