



FABCON

DESIGN & ENGINEERING (PVT) LTD.

Coal Fired Package Type

STEAM BOILER

Cost
Effective
Solution For
steam in process industry



Construction:

This module is a horizontal double drum large capacity water tube boiler with high steam quality, adopts quick fitting and assembly structure. Boiler with steam capacity lower than 4tph is fast assembly water tube structure and the boiler with steam capacity between 6~30tph consists of the upper part (boiler heating part) and the lower part (combustion equipment). Optional furnace with membrane wall can also be provided.

Combustion and fuel:

Coal is fed from bunker through coal bunker, spread evenly and flat on the stoker into the furnace gradually where the coal is burned. Tube-panel in the furnace absorbs the heat of the flame and smoke turns water in the tube into the steam. The furnace pressure is maintained by induced draft fan installed before stack. All burnout ash is lined up at the end of stoker uniformly. Fabcon offers two types of chain stokers depending upon size of fuel.

A. Chain Belt Grate:

Medium size coal is fit for this type of grate with following specifications;

Size	0-8 mm less than 5%, 8-20 mm remaining
Max size:	less than 50 mm

B. Scale Type Grate:

Small size coal is fit for this type of grate with following specifications;

Size	0-3 mm less than 25%, 0-6 mm less than 50%
Max size:	less than 50 mm

The material of chain grate is selected as per coal LHV value.

Air & Ash System:

The air for combustion is supplied by forced draft air fan. The ambient air to the grate is pre-heated in the flue gas air preheater and sent to the duct under the stoker. Ash drops into the receiver at the end of stoker. Remaining ash being filtered, falls into the dust collector.

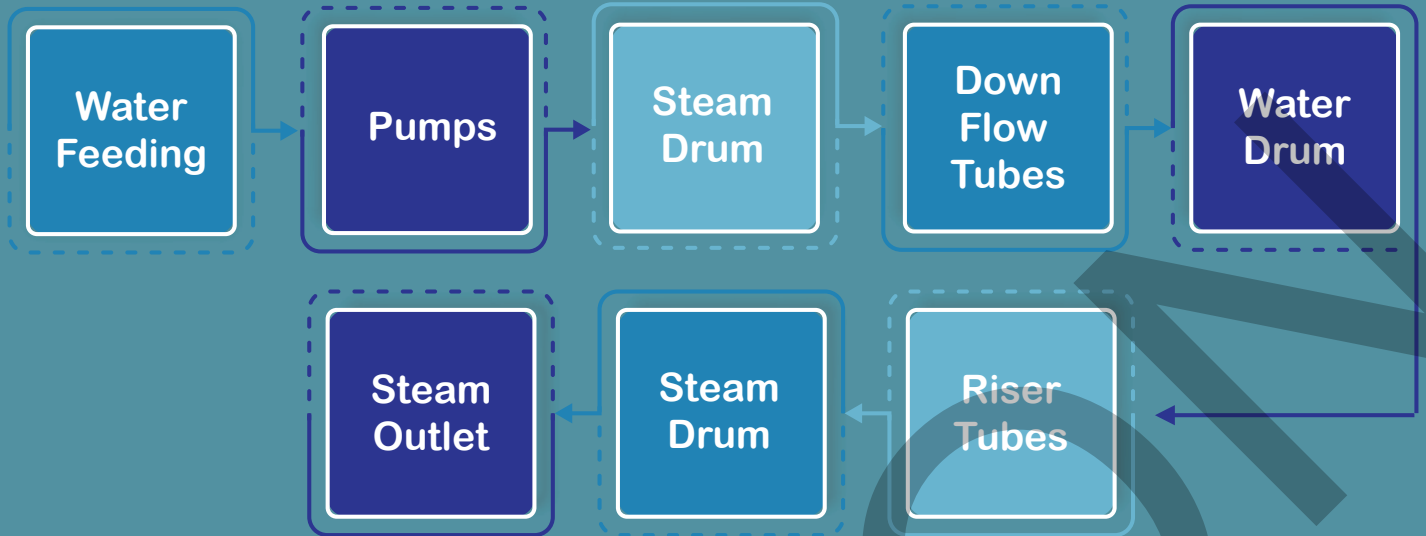
Control:

PLC system is used for level, pressure, flow and temperature control. Only a single operator is required to control all the above parameters using PLC thus reducing operational cost.

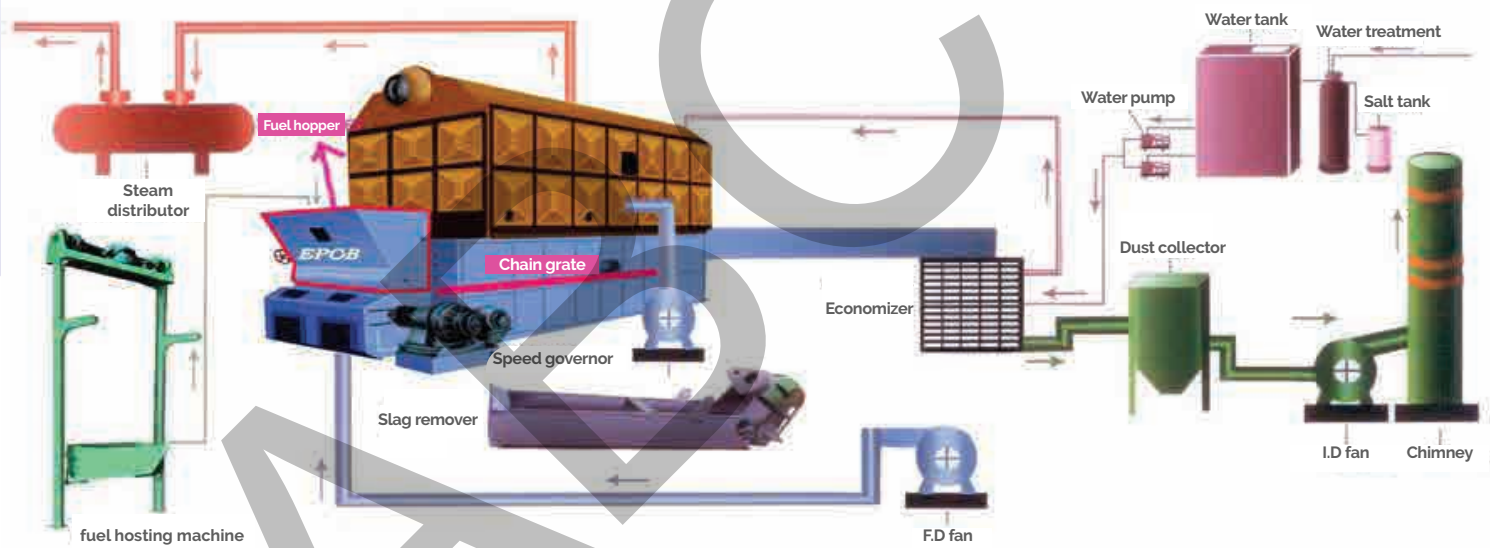
Boiler Characteristics & Quality Control:

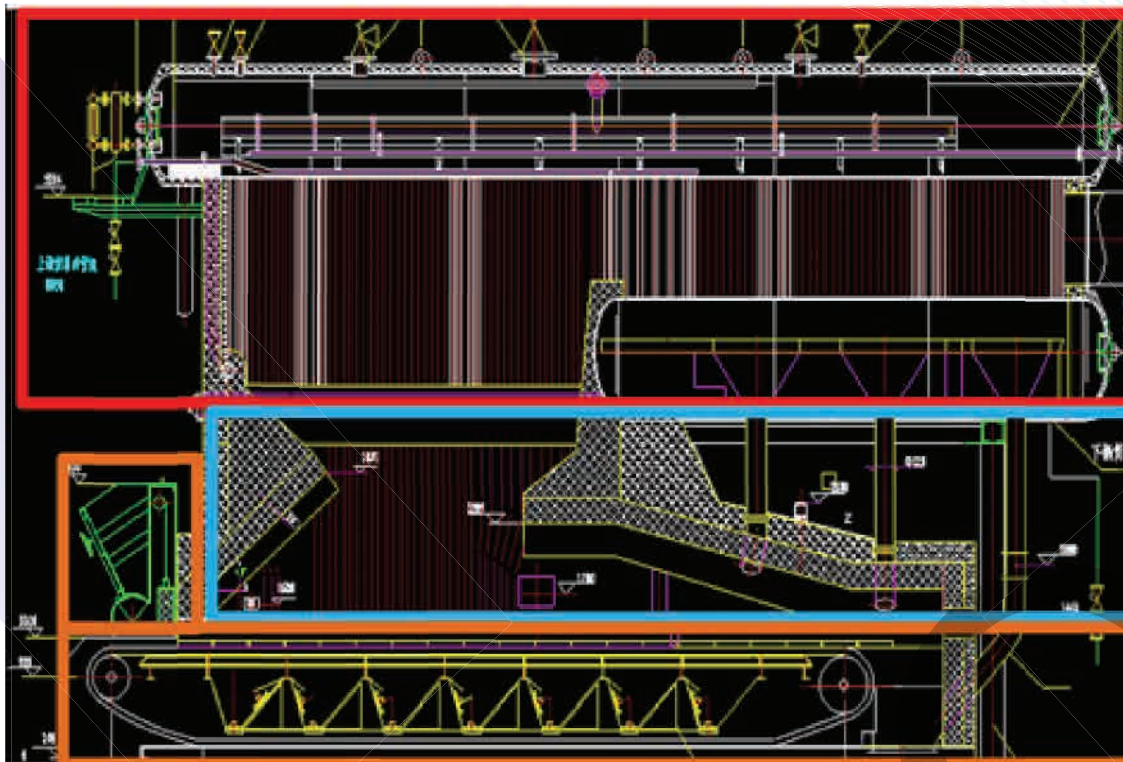
- Every boiler is thoroughly factory tested and is required to meet the highest standards with extremely low energy consumption.
- Boiler pressure parts are welded completely with full penetration and 100% radiographic testing is performed.
- Hydraulic pressure test is performed 1.5 times the operating pressure to make sure strength and tightness of pressure parts.
- In case of membrane water wall:
 - o The heating area is 50% increased;
 - o It replaces the firebrick-made packing of the boiler outside, with better sealed effect, an low heat loss;
 - o It also avoids collapse of firebrick-made furnace wall.

Water Scheme



Steam Boiler Flow Chart





Part 1: This is the boiler tanks with convection tubes which will be finished in our factory with insulation layer and out-packing

Part 2: This is the furnace arch, which cannot be finished in our factory, but need to constructed in user's factory

Part 3: This is the chain grate for combustion ,which is delivered separately

Boiler Module

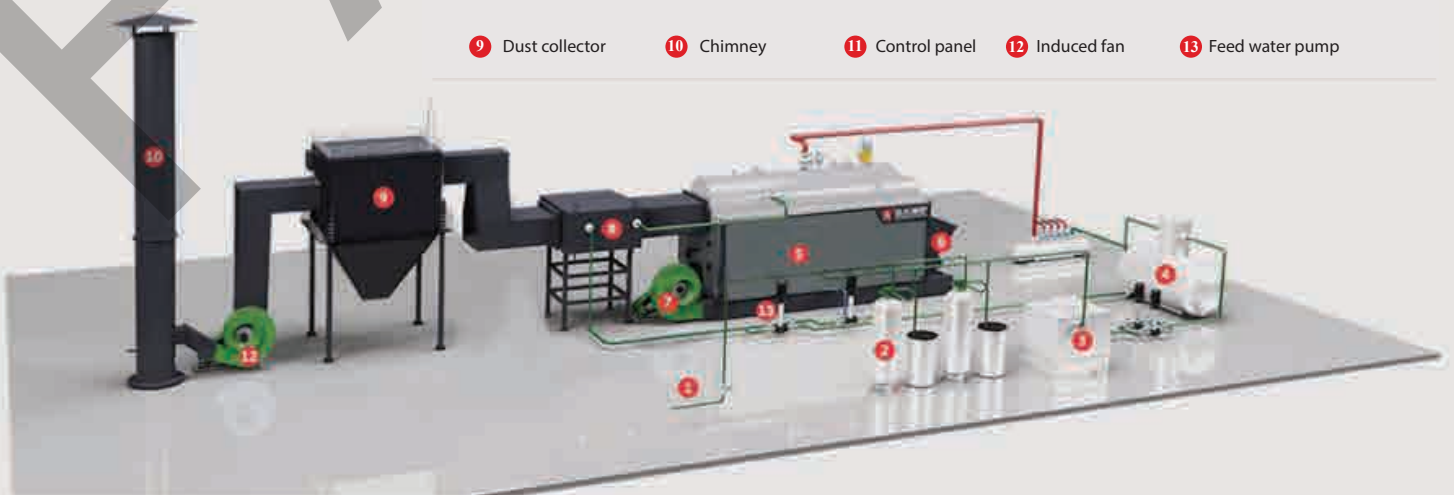
Module / Parameter		CWPB/4-1.25	CWPB/6-1.25	CWPB/8-1.25	CWPB/10-1.25	CWPB/15-1.25	CWPB/20-1.25	CWPB/25-1.25	CWPB/30-1.25
Rated capacity	t/h	4	6	8	10	15	20	25	30
Operation pressure	Mpa	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Steam temperature	C	194	194	194	194	194	194	194	194
Water-inlet temperature	C	25	25	25	105	105	105	105	105
Heating efficiency	%	81	81	81	82	82	82	82	82
Heating Area	Furnace	m ²	21	26.1	29.5	34.8	63	80	105
	Body	m ²	78.5	105	184	210	283	442	612
	Economizer	m ²	85	109	130	174	348	494	592.8
	Air Pre-Heater	m ²	22.5	36	46	62	80	110	160
Area of Grate	m ²	6.4	7.23	8.6	11.72	16.4	18.87	22.5	24.3
Steam valve diameter	mm	PN1.6 DN125	PN1.6 DN125	PN1.6 DN150	PN1.6 DN150	PN1.6 DN200	PN1.6 DN200	PN1.6 DN200	PN1.6 DN250
	mm	PN1.6 DN50	PN1.6 DN50	PN1.6 DN50	PN1.6 DN50	PN1.6 DN65	PN1.6 DN65	PN1.6 DN65	PN1.6 DN80
Fuel (LHV 6000kcal/kg)	kg/h	500	750	1000	1250	1875	2500	3125	3750
Boiler Body Assembly Size	m	7.1×2.8×3.6	9.6×5.4×6.0	9.7×5.5×6.2	9.8×5.7×6.2	10.9×5.7×6.7	12×5.8×6.8	13.8×6.0×10.6	13.8×6.0×11.8
Water supply	Capacity	m ³ /hr	5.5	7.5	9	12	18	25	35
	Motor power	kw	7.5	10	15	18.5	22	30	45
Force Draft Fan	Capacity	m ³ /h	14,500	16,000	18,000	20,000	23,000	32,079	42,150
	Pressure	Pa	1,960	1,960	1,960	1,960	1,960	1,960	1,960
	Motor power	kw	7.5	10	15	18.5	30	30	55
Induced Draft Fan	Capacity	m ³ /h	20,000	22,000	25,000	28,000	40,000	54,250	81,370
	Pressure	Pa	3,038	3,038	3,038	3,038	3,038	3,038	3,038
	Motor power	kw	22	37	45	55	75	90	132

Main part supply

“Ready constructed Boiler when delivered with”

- Coal Bunker
- Furnace Wall
- Steam Drum
- Water Drum
- Evaporator
- Chain Stoker
- Air Pre-heater
- Supporting Frames
- Peeping Doors
- Insulation Layer
- Platform, Ladders and Stairs
- Dust Collector
- Force Draft Fan
- Induced Draft Fan
- Slag Caries
- Ash Carries
- Instrumentation
- PLC Control Centre
- Feed Water Pumps
- Saftey and Control Valves
- Valves and fittings
- De-aereter with water storage tank
- Wet Scrubber
- Stack

- | | | | | |
|----------------------|-------------------|------------------|----------------|--------------------|
| 1 Water Supply | 2 Water treatment | 3 Water tank | 4 Deaerator | — |
| 5 Chain Grate Boiler | 6 Fuel hopper | 7 Forced fan | 8 Economizer | — |
| 9 Dust collector | 10 Chimney | 11 Control panel | 12 Induced fan | 13 Feed water pump |





Advantages:

- Designed as per ASME code
- Cost efficient due to compact size
- Workshop assembled module
- Easy maintenance
- Economical civil works cost
- Membrane wall option available
- Ecologically efficient
(Minimum NOx and CO2 emissions)

Suitable Module for:

- Textile processing
- Food and beverages
- Chemical plants
- Dairy and Milk Industry
- Leather Industry
- Paper and Board Industry
- Tobacco Industry

**Get in Touch
With Us**



www.fabconengg.com



info@fabconengg.com



+92 423 529 7123



+92 423 529 7121-22



227, Sundar Industrial Estate
Sundar Raiwind Road, Lahore.