MECHMAR
EMBRACE ENERGY

# TITAN BI-DRUM

## Exceeding Expectations

"The Titan Bi-Drum (BD) is the ideal solution for reliable high capacity steam generation from biomass and other solid fuels."

### BOILER CIRCULATION

The boiler water flows from the steam drum via designated downcomer tubes into the lower drum. Downcomers are in coldest part of gas passage and last tube row is covered by insulating material. The boiler water flows from the drums to furnace front and side headers and to the nest of convection bank riser tubes. External downcomers are also mounted.

Larger volume of boiler water contained in the assembly of the Titan BD allows the boiler to respond to fluctuating steam demands. The unique baffling arrangement and steam/water separator incorporated inside the steam drum ensures high levels of steam quality.

### STEAM DRUM INTERNALS

The Titan BD adopts a 3-stage approach to achieving maximum steam purity. Steam is directed by baffling into cyclone separators which separates water from steam. The steam subsequently rises and flows through chevron scrubbers where residual water droplets or condensate cling to the scrubber plates, collect and return to drum water. The end result of this process is steam of excellent quality and high purity up to 99.5% dryness.

### FLUE GAS PASSAGE

First flue gas passage takes place in the furnace of the Titan BD. The gas changes flow direction at the furnace exit and flows downwards through super-heater cavity (where applicable) to enter the bottom part of the convection bank. The baffling arrangement provided in the third boiler pass induces cross-flow to maximize the recovery of thermal energy from the flue gas.

### FURNACE

The Titan BD is designed with a large furnace volume which provides sufficient residence time to ensure the complete combustion of solid fuels burnt. The Titan BD is based balanced draft design. Combustion air is introduced to the furnace by means of forced under-grate fan equipped with damper. The balanced draft is maintained by the induced draft fan linked with boiler pressure draft controller. Over-fire air is supplied to the furnace through air nozzles into the volatile zone to ensure adequate furnace turbulence and complete burn-out of fuel.

## GRATE SYSTEMS

The Titan BD comes equipped with, as a standard, with high quality cast iron pin hole grates, which provide even air distribution over the entire grate area irrespective of fuel distribution. Depending upon the type of solid fuel being burnt, the Titan BD can also be customized with automated moving grate systems for easier operation, minimal manpower and efficient combustion of fuel.

For example, biomass fuels such as palm waste (including Empty Fruit Bunch), coconut shells, rice husks and wood waste can be combusted in an extremely efficient manner with the Reciprocating Grate System. The Titan BD can also be equipped with the Travelling Grate System for other forms of biomass such as bagasse and solid fuels such coal. In addition the metallurgical content of the grates can be customized specifically to cope with any inherent chemical properties of a fuel to ensure long operational life and durability.

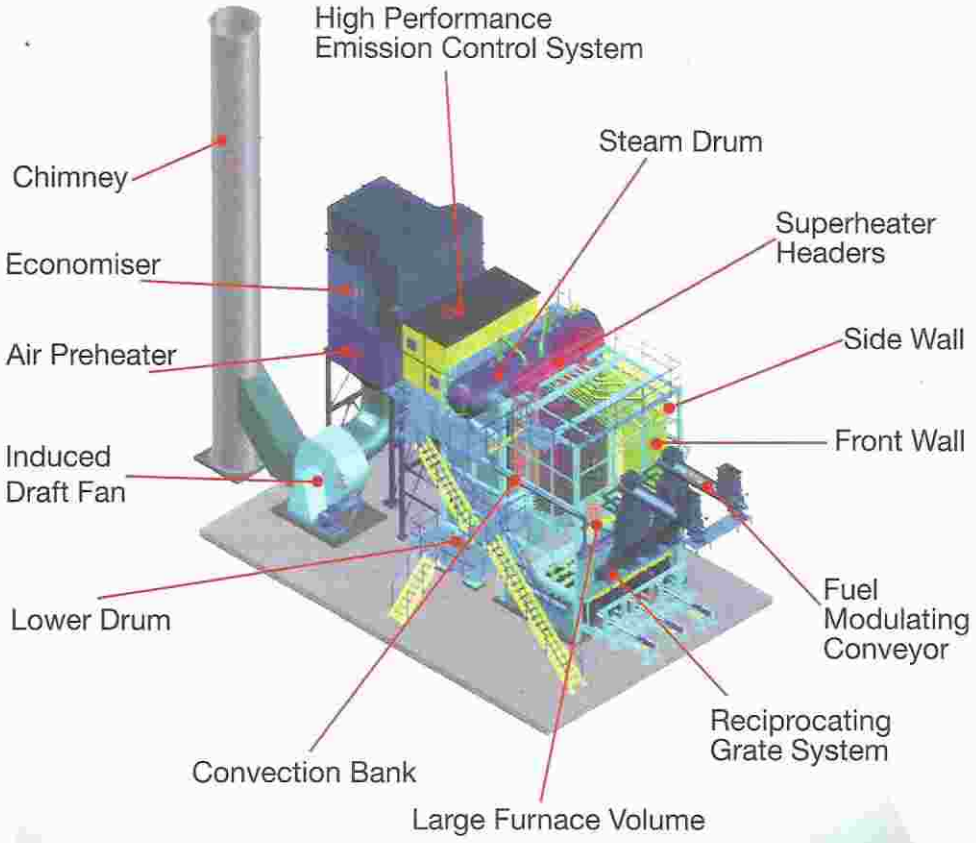
## PERFORMANCE ENHANCEMENT

The Titan BD can also be supplied with various components that will improve overall thermal efficiency such as:

- Economizer
- Air Pre-heater
- Thermal Deaerator
- Modulating Fuel Feed Conveyors

| BOILER MODEL | | BD46 | BD56 | BD66 | BD 76 | BD 91 | BD 101 | BD 111 | BD 121 |
|---|---|---|---|---|---|---|---|---|---|
| BOILER RATING | KW | 10450 | 13934 | 17417 | 20901 | 24384 | 27868 | 31351 | 34835 |
| BOILER OUTPUT | LBS/HR | 33069 | 44092 | 55115 | 66138 | 77160 | 88183 | 99206 | 110229 |
| | KG/HR | 15000 | 20000 | 25000 | 30000 | 35000 | 40000 | 45000 | 50000 |
| WORKING PRESSURE | 20 - > 40 barg<br>300 - > 580 psig | | | | | | | | |

Note : Working pressure can be customized to suit client's requirements

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