



# **EZHIL ENERGIES**

**ENERGISING THE FUTURE**

## **HYBRID PRO**

**Ultra Compact Shell and Waterwall Combo**



**Capacity Range**  
1.5 to 6 TPH

**Standard Design Pressure**  
10.54 & 17.50 kg/cm<sup>2</sup>(g)

## Genesis

For decades the two major options for a solid fuel-fired steam boiler were the integrated furnace boiler and the conventional hybrid boiler. This led to a difficult choice between reduced site work yet better response to load of the integrated furnace boiler or the promise of high efficiency & fuel flexibility of the conventional Hybrid boiler. There was a need of an ideal solution which will support the best of both the designs packaged into one boiler - Ezhil made this reality with Combloc which is an amalgam of the best of these two designs. It represents the future of packaged boilers. A multi fuel-fired steam boiler which is robust, compact and efficient.

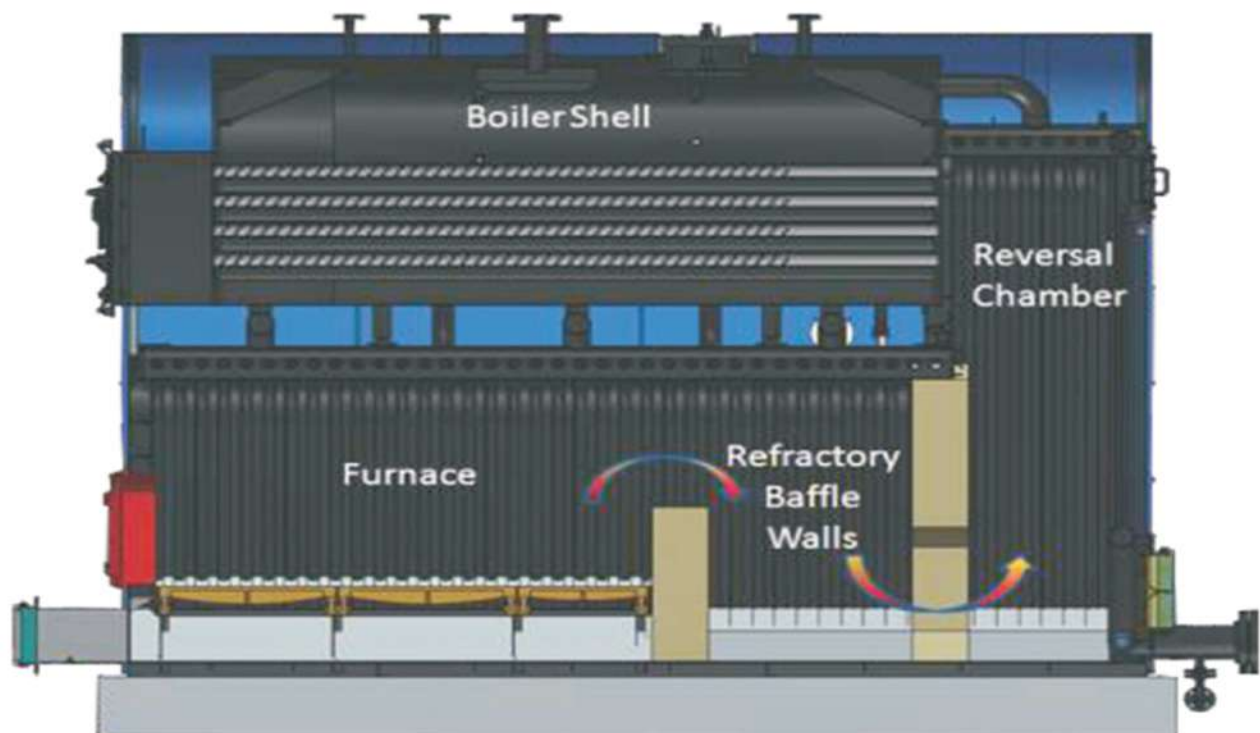
A Plug & Play packaged boiler designed to meet your steam requirements.



## Unique Design Features

- Compact, skid mounted and modular construction - up to 40% reduction in foot print
- Pre-insulated and factory assembled - up to 80% reduction in site work
- Flexibility of fuels (Biomass / Fossil) and combustors
- Quick startup and better response to load fluctuations
- Multi-pass hybrid construction with high combustion volume - better efficiency
- Easy ash removal and better accessibility for maintenance

## The Internal Arrangement



Ultra Compact

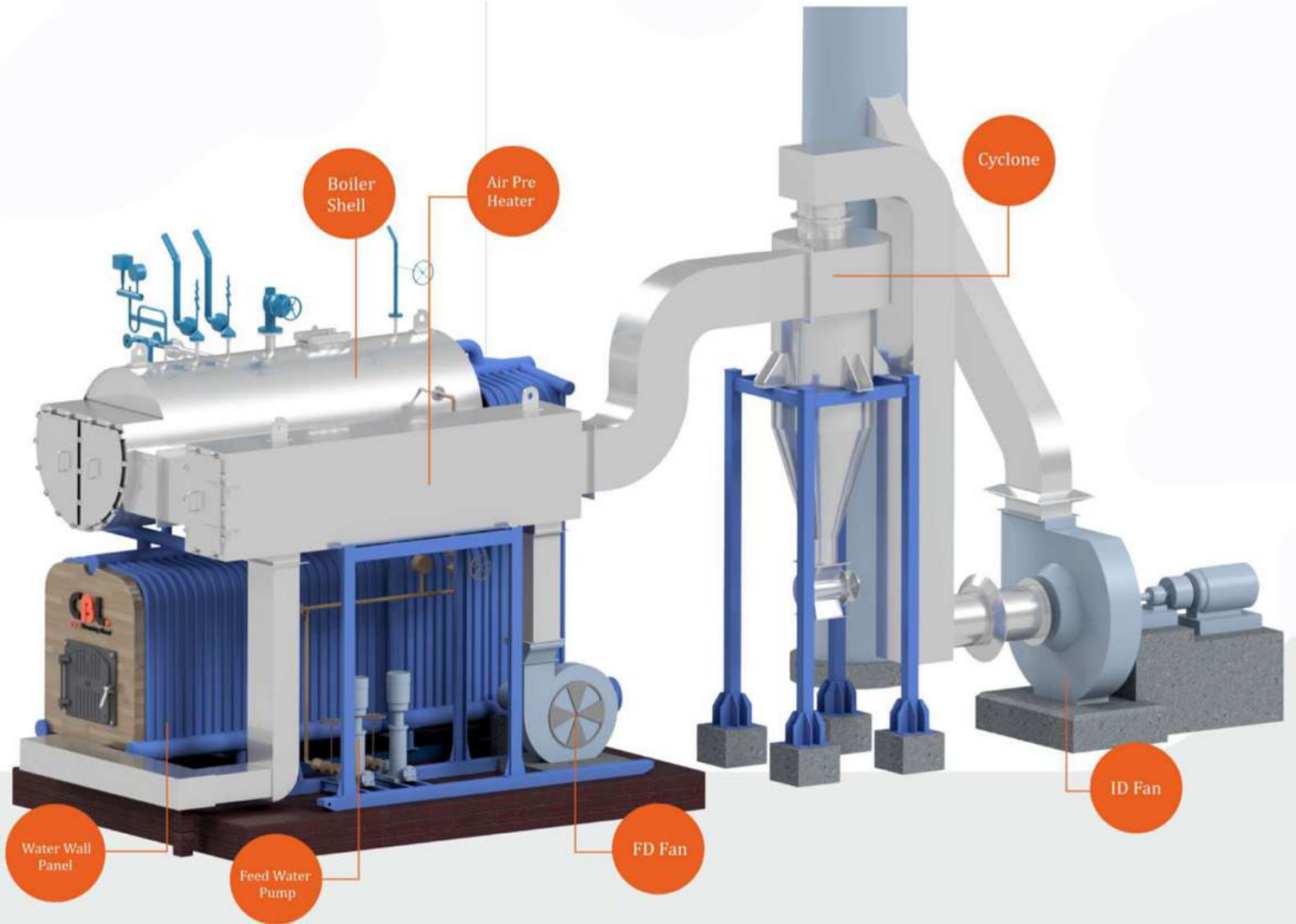
Multi Fuel

Packaged

Pre-insulated

High Performance

Best Aesthetics



## Unique Design Features

Ezhil Hybrid Pro the 'Skid mounted Plug and Play Boiler' comes fitted with many additional advantages:

- Saves on civil foundation cost
- Compact design – minimum refractory
- Less Foot print area
- Pre- insulated and factory assembled- Upto 85% reduction in site work
- Quick start up and better response to surge/fluctuating load variations
- Easy ash removal and better accessibility for maintenance
- Better space utilization
- Low power consumption with energy efficient fans, feed pumps and other efficient auxiliary equipment's

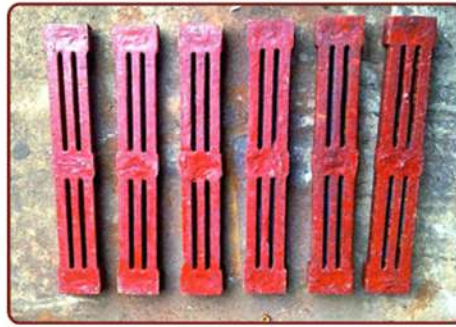
## Easy and Economical to maintain

- Highly efficient low speed fans
- Reputed brands of mountings and fittings
- Anti-abrasive coating in the cyclones
- High grade cast iron fire doors

## COMBLOC™ with different combustors

### Stationary Grate

- Robust triplex grate combustor for high reliability
- Higher grate area with better combustion volume
- Large fire doors for easy fuel charging
- Better accessibility to boiler internals



### Fuel and Efficiency

- Indian Coal 83%  $\eta$
- Woodlogs 83%  $\eta$
- Briquettes 82%  $\eta$

### Bubbling Bed

- Automatic fuel feeding
- Unique nozzle design using CFD
- Refractory baffle walls to ensure less carryover of fuel
- Turbulent combustion and high furnace volume ensure combustion efficiency



### Fuel and Efficiency

- Rice Husk 83%  $\eta$
- Imported Coal 85%  $\eta$
- Woodchips 84%  $\eta$
- Pellets 84%  $\eta$
- Petcoke 80%  $\eta$

## Technical Specifications

| Description                                          | Unit       | CB 15                                                                 | CB 20       | CB 30       | CB 40       | CB 50       | CB 60       |
|------------------------------------------------------|------------|-----------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Boiler type                                          |            | Horizontal Multitubular Shell Type Smoke Tube With Water Wall Furnace |             |             |             |             |             |
| Max steam output ( F & A 100°C )                     | kg/hr      | 1500                                                                  | 2000        | 3000        | 4000        | 5000        | 6000        |
| Out let steam condition                              |            |                                                                       |             |             |             |             |             |
| Design Pressure (SVLOP )                             | kg/cm² (g) | 10.54 / 17.50                                                         |             |             |             |             |             |
| Temperature                                          | °C         | 185 / 208                                                             |             |             |             |             |             |
| Dryness                                              |            | 98%                                                                   |             |             |             |             |             |
| Overall Size of the Boiler with HRU                  |            |                                                                       |             |             |             |             |             |
| Stationary Grate / Bubbling Bed                      |            |                                                                       |             |             |             |             |             |
| Length (L)                                           | m          | 5.20                                                                  | 5.20        | 5.65        | 6.10        | 6.40        | 6.40        |
| Width (W)                                            | m          | 3.52                                                                  | 3.70        | 4.10        | 4.31        | 4.60        | 4.80        |
| Height (H)                                           | m          | 4.43                                                                  | 4.56        | 4.70        | 4.85        | 5.12        | 5.25        |
| Dry Weight - Boiler skid assembly                    | kg         | 8750                                                                  | 9790        | 11980       | 14100       | 17120       | 18975       |
| Electrical connected load with MDC                   |            |                                                                       |             |             |             |             |             |
| Stationary Grate                                     | kW         | 12.5 / 13.0                                                           | 15.5 / 16.0 | 18.0 / 20.5 | 23.5 / 26.0 | 28.0 / 31.5 | 33.0 / 37.0 |
| Bubbling Bed                                         | kW         | 19.0 / 20.0                                                           | 23.0 / 23.5 | 27.0 / 29.5 | 37.0 / 39.5 | 41.5 / 45.0 | 48.5 / 52.0 |
| Electrical connected load with Cyclomax / Bag Filter |            |                                                                       |             |             |             |             |             |
| Stationary Grate                                     | kW         | 14.0 / 15.0                                                           | 18.5 / 19.5 | 25.5 / 28.0 | 31.0 / 33.5 | 39.5 / 43.0 | 41.0 / 45.0 |
| Bubbling Bed                                         | kW         | 21.0 / 21.5                                                           | 26.0 / 27.0 | 34.5 / 37.0 | 44.5 / 47.0 | 53.0 / 56.5 | 56.5 / 60.0 |

**Note :** Design code-IBR. Efficiency is calculated based on NCV of Paddy Husk as 2900 kcal/kg. Imported coal as 5570 kcal/kg weight, Indian coal as 4290 kcal/kg, Biomass briquette as 3600 kcal/kg, Wood chips as 2950 kcal/kg & Biomass Pellets as 4300 kcal/kg. Above mentioned dimensions and specifications may vary with actuals. Please refer to offer document for more details.



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