



Indotherm Industries

Willworld Engineering Corporation



Non FBC (CT Model)

Range : .5 TPH to 10 TPH

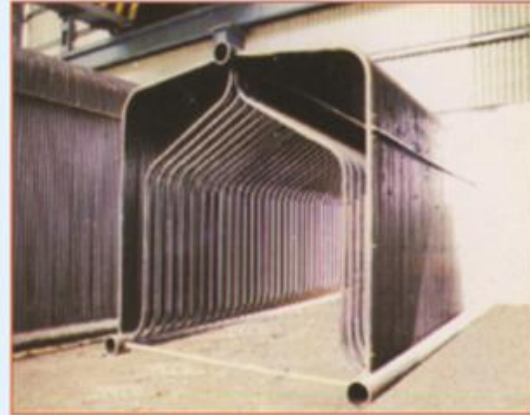
Pressure : 150 PSI to 450 PSI

Type :

- Water cum Smoke Tube Boiler; Membrane Water Wall
- Panel Lined Radiant Furnace with Shell & Tube Boiler

Options :

- Pneumatic Auto Firing
- Dumping Grate for Bagasse firing
- Travelling Grate for Higher Capacities
- Steam Super Heating
- Additional OIL / GAS Firing
- Provision for FBC Conversion



Salient Features :

- Very High THERMAL EFFICIENCY due to :
 - Low Combustion Air to Fuel Ratios
 - Higher Combustion Volume & Free Board resulting in Efficient Combustion
 - Minimal Radiation Losses due to Membrane Water Wall Panelled Radiant Furnace
 - Minimal Air Leakage in Furnace due to Membrane Panel
 - Higher Effective Heat Transfer Areas
- Automatic Operation for consistent & uninterrupted steaming
- Large Water Holding & Steam Space
- Better response to fluctuating Steam Load
- Superior MEMBRANE TECHNOLOGY in Fluidised Bed Combustion
- Minimum usage of Refractory in Furnace hence Lower Maintenance & Minimum Leakages
- Instrumentation & Controls for :
 - SAFE Operation
 - EASY Operation
 - OPTIMAL PERFORMANCE

A Typical CTD Model Boiler (Manual Firing cum FBC Firing) Under Erection



DISTINCT FEATURES

- The only Genuine Multifuel Boiler in the market.
- Burns 100% Bagasse and Pith with 50% moisture.
- Burns 100% Rice Husk.
- Large Steam and Water Space for Jerk Load Operations
- Generous Heating Surface Area.
- High Freeboard in the Furnace, better combustion.
- Expandable and Fully convertible to FBC or Pet Coke Firing.
- Automatic Controls for Pressure and Water Level.

Fully Convertible to Pet Coke Firing



SHELL - TUBE

Range : .5 TPH to 12 TPH

Pressure : 150 PSI to 300 PSI

Type : Straight, Three Pass, Fully Wet Back, Shell & Tube, Smoke Tube,
Oil cum Gas Fired Packaged Boiler

Fuel : FO, LDO, LSHS, Gas (Natural / Bio)

Salient Features :

- Rugged & Durable Design
- Straight Three Pass (No Reverse Flame);
Plain Stiffened, Furnace - Plain & Thicker hence Safer
- Compatible with most imported Oil / Gas Burners
- Suitable for Oil as well as Gas Firing
- Higher Radiation Heat Transfer Area
- Large Combustion Volume hence enhanced Safety & Higher Efficiency
- Atmospheric / Pressurised Water Pre - heating for Higher Capacities
- Easy & Quick in Erection & Commissioning



Range : 500 kgs / hr to 2000 kgs / hr
Pressure : 150 PSI to 250 PSI
Type : Shell & Tube Type, Dry / Semi Wet Back, Two Pass, Solid Fuel Fired, Internal Furnace Boiler

Salient Features :

- Suitable for Natural Draught Operation hence Power Cost Saving
- Suitable for Bagasse, Wood, Coal & Other Agro - Waste Fuels
- Easy in Operation in Erection & Maintenance
- Easy & Quick in Erection & Commissioning
- Lower Power Consumption
- Best (in Small Capacity) for Bagasse / Wood / Agro - Waste / Coal Firing



The T.F.H. VT series, from Thermax, offers the ideal agro-waste and wood burning facility for heating applications in textile, plywood, chemical, food, edible oil, rubber, leather and other process industries that require indirect heating. And in doing so, it reduces operating costs substantially.

Low operating costs

Complete combustion of fuel

- Adequate grate area loading for complete combustion
- Special furnace and combustion chamber design - for convenient charging of fuel and optimum residence time
- Balanced draft - for minimum heat loss and proper air supply

Compact De-aerator and Expansion tank

- To ensure proper de-aeration and long thermic fluid life

Trouble-free & reliable operation

- Automatic operation - fan operations totally determined by temperature controller
- Vertical design - ensures minimum ash deposition and provides easy access for cleaning
- Long life - the T.F.H. VT design adopts the principle of DIN 4754. API code for optimum heat flux, maximum heat absorption for long operating life of the heater and thermic fluid

Superior safeties & controls

- Precise thermic fluid temperature control
- Safety against low flow conditions to prevent coil failure
- Prevention of high pressure build-up in the system
- Checks thermic fluid level in the system

Vertical Thermic Fluid Heater

Range : 2 Lacs Kcal / hr to 25 Lacs Kcal / hr
Type : Vertical 4 Pass Heater with Radiant Furnace

Fuel : Coal, Lignite, Bagasse, Wood, Husk,
 Saw Dust & other Agro - waste Fuels

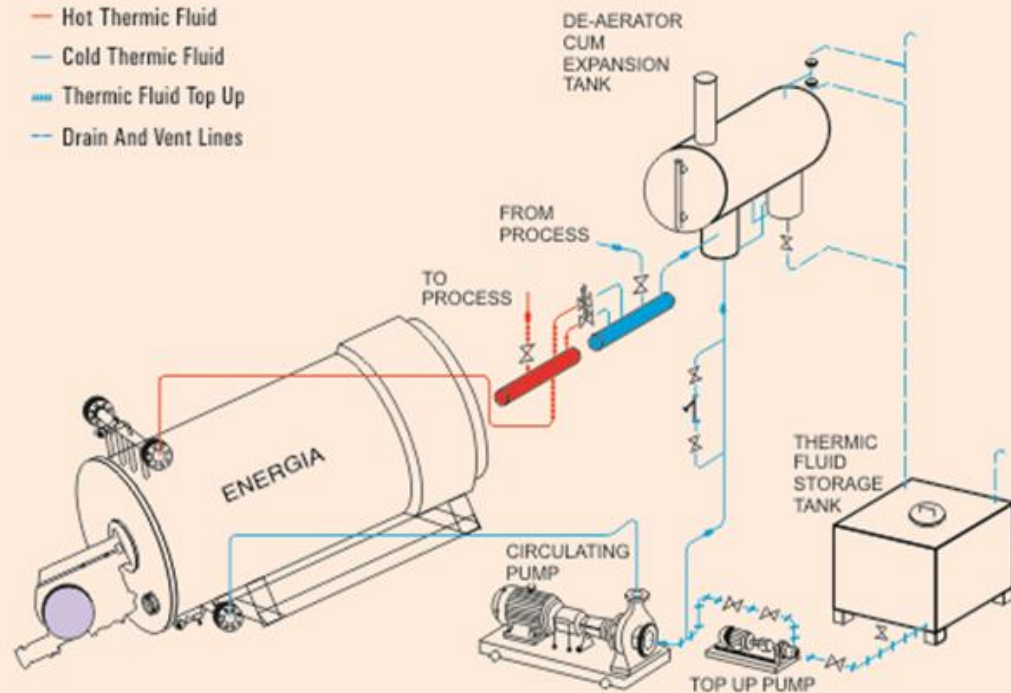
Salient Features :

- Radiant Furnace for Higher Efficiency
- Separate Radiation & Convective Coils
- High quality inputs
- Pneumatic firing of fuel like husk, bagasse etc.
- Fluidised Combustion for Special Applications
- Multiple Fuel Firing Arrangement



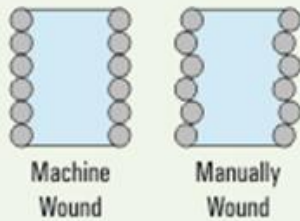
Thermic Fluid Lines

- Hot Thermic Fluid
- Cold Thermic Fluid
- Thermic Fluid Top Up
- Drain And Vent Lines



Energia operates at a consistent efficiency of 78% (NCV). Its unique, 3/4 Pass design ensure high heat transfer with corresponding low flue gas exit temperatures. An indication of its proven efficiency.

- **Indotherm** three pass thermic fluid heater is out side the purview of Indian Boiler regulations.
- No need of a separate Boiler House or an IBR approved boiler Operator.
- Extraordinary capabilities of generation temperatures of upto 315°C at near atmospheric pressure.



The coil winding and calibration is a high precision activity at this allows for ± 2 mm on a 4 M dia. coil. This ensures that the flame is on centre line, avoiding temperature hot spots within the chamber.

The control panel is a fully digitalised one.

- Best quality components from reputed manufacturers e.g. tubes are from TISCO or TI Group.

- **Indotherm** three pass thermic fluid heater and designed keeping in mind easy maintenance.
- All components are assembled in perfection. Blower, fuel pump, and combustion chamber with coils are placed separately for easy maintenance.

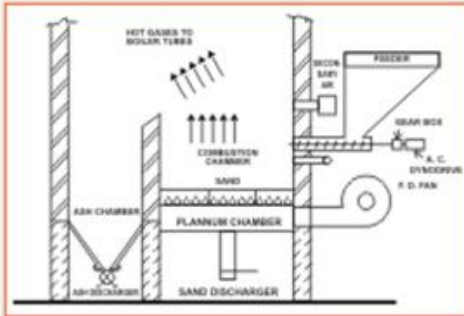
Every Energia comes with safeties like :

- | | |
|--|--------------------------------------|
| ▶▶ Circulating pump motor interlock. | ▶▶ High Stack Temperature Switch. |
| ▶▶ Low Fluid Flow Switch. | ▶▶ Flame Sensor. |
| ▶▶ Low Level Switch in Expansion Tank. | ▶▶ Low fuel oil temperature switch |
| ▶▶ High Fluid Temperature Switch. | ▶▶ Spring loaded Flow Relief Valves. |

FLUIDISED BED COMBUSTION SYSTEM

FUEL SAVING UPTO 25%:

Proper ratio of fuel to air, automatic, controlled & regular fuel feeding with high bed temperature cause complete combustion, hence considerable fuel saving is achieved.



POLLUTION CONTROL : Smokeless gases are released to atmosphere. Due to total combustion the colour of ash is grey, and the quantity of ash is considerably reduced. The F.B.C. system is also recommended by Punjab Pollution Control Board.

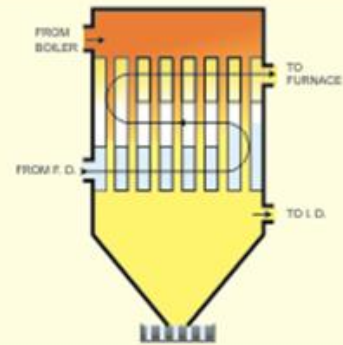
OPTIMUM UTILIZATION OF BOILER : The Furnace temperature is constant hence no fluctuations in steam pressure. Better heat transfer due to high bed temperature with marginal increase in capacity.

EASY OPERATION AND BETTER CONTROL : Controlled automatic fuel feeding with variable speed feeder. Easy ash removing. Fuel metering possible for better supervision.

INVENTORY CONTROL AND SAVING IN HANDLING : Low inventory for fuel (Due to reduced consumption) and proportionate saving in fuel and ash handling.

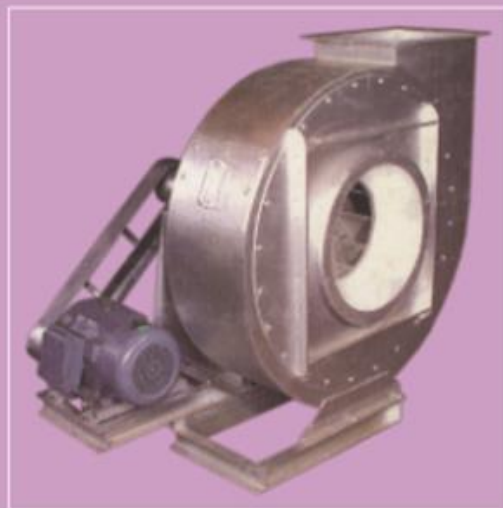
AIR PRE HEATER

- A device to pre-heat the combustion air by drawing heat from flue gases for saving.
- Hot air helps in better and quick burning even if the fuel is wet.
- Self cleaning multipass design for better efficiency.
- Helps to obtain optimum air fuel ratio.



IN-HOUSE MANUFACTURING

- Fans : High Efficiency Centrifugal Fans upto 300 HP
- Air Pollution Control : Multi Cyclone Dust Collections / Bag Filters
- Pumps : Heavy Duty, Multi - stage, Centrifugal Pumps
- Values : Cast Iron / Cast Steel / Forged Steel Economy, Premium & Deluxe Class
- Level Controllers : High Quality, SS / Monel Float, Silver Contact Switches
- Control Panels : High Quality Switch - Gears, Power Coated Higher Gauge Cabinets





Perfect Solutions For Heating...

Indotherm Industries an ISO 9001:9002 certified company well known for its excellence in manufacturing process heat equipments has established it self as a fast growing company. The phenomenal growth of the organization is attributed to the concept of specialised engineering & designing as per the customer's need and on going research & development.

The company is having state of the art facility of manufacturing process heat equipments. Like Steam boilers, Thermic fluid heaters, Hot air generators, Hot water generators, water treatment plants etc. and well known in the field of process Heat Equipments, capable of making tailor-made solutions as per customer's requirements.



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