

# Vertical Thermopac<sup>®</sup>

Solid Fuel Fired Vertical Thermal Oil Heater with  
Stationary Combustor



Heating Business

# Improving your business is our business

Thermax is an engineering major providing sustainable solutions in the areas of energy and environment. Spanning over 86 countries, clients make use of Thermax's business-to-business solutions for heating, cooling, power and cogeneration plants; waste heat recovery units; systems for water & wastewater management and air pollution control; performance improving chemicals.

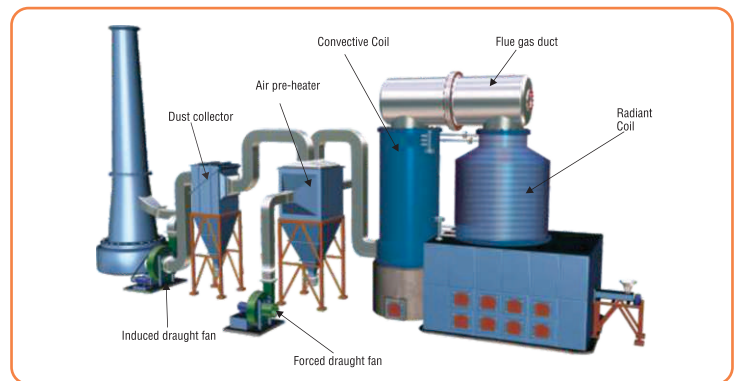
Thermax's operations are supported by ongoing Research & Development, tie-ups with global technology majors, an international sales & service network spread over 27 countries and state-of-the-art manufacturing facilities in 14 locations including India, Indonesia, China, Poland, Denmark and Germany.

As a part of Thermax, Heating business - a strategic business unit offers packaged boilers, thermal oil heaters, waste heat recovery boilers, hot water and air generators. These are available in modular construction as a standard package configuration or a custom design for specific requirements. Innovated by a strong R&D that focuses on customer applications, we offer a range of heating systems designed to combust wide range of solid, oil & gas fuels including biomass and heavy liquid fuels. Heating SBU helps small and medium firms & fortune 500 companies to reduce energy cost with a worldwide presence of oil & gas based systems in Middle East and Europe, biomass and solid fuel fired equipment in South East Asia and Africa.

## An ideal solution for indirect heating requirements

### Vertical Thermopac

The Vertical Thermopac is the perfect answer to the ever changing energy scenario. The vertical design offers compactness, multi-fuel flexibility and is ideal for heating applications in textile, plywood, chemicals, food, edible oil, rubber, leather and all other industries requiring indirect heating.



### Product Offering

- Vertical closed loop thermal oil heating
- Capacity - 4,00,000 to 30,00,000 Kcal/hr
- Operating temperature - 280°C
- Fuel - Coal, lignite, sawdust, wood logs, wood chips, paddy husk, bagasse and petcoke

### Options Available

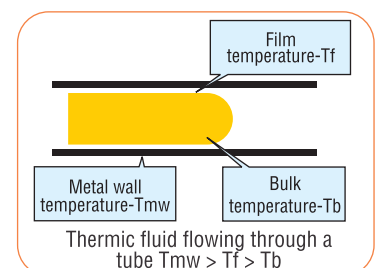
- Operating temperature - 300°C
- Combination fuel firing
- Saw dust, bagasse, lignite and petcoke firing
- Screw and rotary feeder
- Capacities up to 4 million kCal/ hr
- Complete boiler house and accessories on turnkey basis
- Separate deaerator & expansion tanks with multiple units

### Controls and Safeties

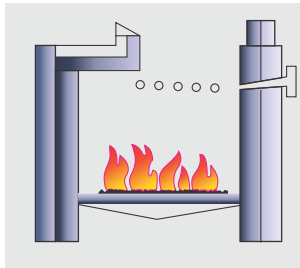
- Low thermic fluid flow cut-off
- High thermic fluid outlet temperature cut-off
- Precise thermic fluid temperature control
- Low level cut-off in deaerator tank
- High stack temperature cut-off
- Safety valve for protection against high pressure

### Engineered for Maximum Benefits

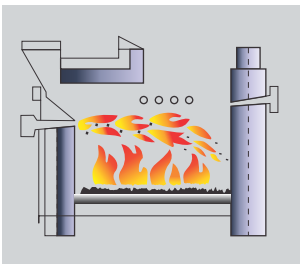
- Design adopts principles of DIN and API codes
- Air pre-heater improves combustion efficiency and ensures lower power consumption of ID fan
- Precise thermic fluid temperature control
- Low flow alarm to prevent coil tube overheating and choking
- Safety relief valve to prevent high pressure conditions
- Level indicator and float actuated level switch to signal drop in thermic fluid levels
- Adequate furnace volume and heat transfer surface to ensure higher thermal efficiency
- Modular assembly to facilitate quick and easy installation
- Dedicated DG set to keep thermic fluid in circulation during power failure



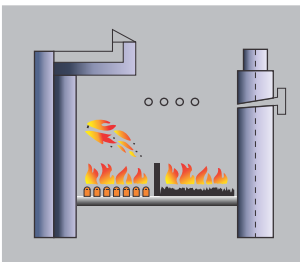
## Right Furnace For Every Requirement



Horizontal Grate  
(Manual fuel feeding)



Pneumatic Spreader  
(Automatic fuel feeding)



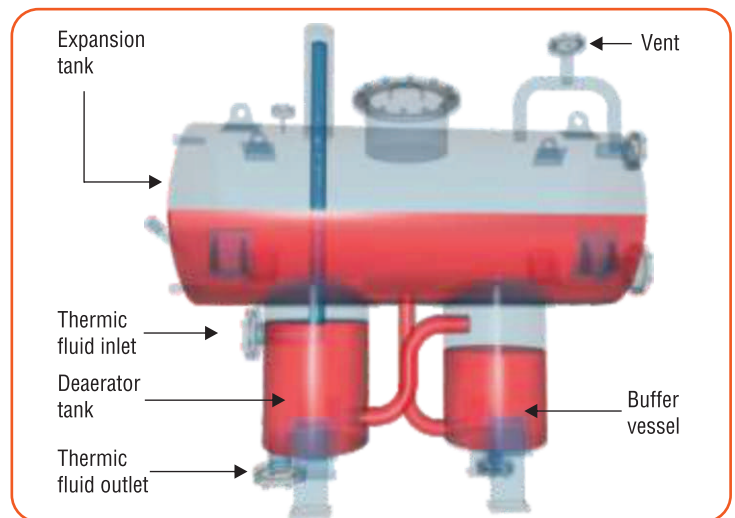
Fixed Grate  
with Bubbling Bed

## Combustion Technology

Complete combustion of solid fuel is achieved by ensuring the 3Ts (Time, Temperature and Turbulence) of fuel and air. Every solid fuel has different physical and chemical properties that influence boiler performance. Properties of ash also play a critical role in the operation and maintenance of boilers.

## Compact Deaerator

Requiring less space, it comes with a buffer vessel to prevent cooling of hot oil coming from the process, while the tangential thermic fluid entry in the deaerator ensures optimal deaeration.

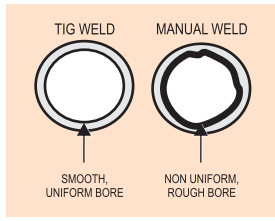


## Technical Specifications

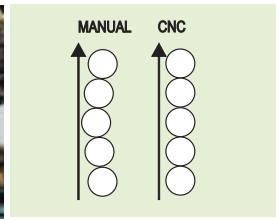
Description	Unit	VTB 04BB	VTB 06BB	VTB 10BB	VTB 15BB	VTB 20BB	VTB 25BB	VTB 30BB
Capacity	kcal /hr	400000	600000	1000000	1500000	2000000	2500000	3000000
Maximum Outlet Temperature	°C	280						
Thermic Fluid Flow Rate	m <sup>3</sup> /hr	24	36	60	90	120	150	180
Thermic Fluid temperature rise	°C	34						
Efficiency		As per BS 845 Part 1 NCV Basis						
Indonesial Coal	%	78						
Indian Coal	%	78						
Petcoke	%	76						
Wood	%	77.5						
Fuel / Combustor		Indonesian Coal or Petcoke / Bubbling Bed						
Fuel Firing System		Screw Feeder / Pneumatic Spreading (Bubbling Bed)						
Fuel / Combustor		Indian Coal or Wood / Stationary Grate						
Fuel Firing System		Manual Feeding						
Fuel Consumption								
Indonesial Coal	kg/hr	92	137	229	343	458	572	687
Indian Coal	kg/hr	119	179	298	447	596	745	894
Petcoke	kg/hr	66	99	164	247	329	411	493
Wood	kg/hr	175	262	437	656	875	1093	1312
Connected Electrical Load		with MDC/Cyclomax						
Indonesial Coal/Petcoke	kW	18.8/20.6	24.4/26.4	33.7/35.4	45.2/48.7	61.4/69.9	68.4/76.4	84.4/91.4
Indian Coal	kW	11.4/13.2	15.62/17.6	23.62/25.3	34.82/38.3	47.12/50.6	54.42/62.4	72.12/79.1
wood	kW	11.8/13.6	17.82/19.8	25.12/26.8	36.62/40.1	49.12/52.6	54.42/62.4	72.12/79.1

Note : This unit is offered with dual combustor (SG+BB). Units with only bubbling bed single combustor are offered for specific requirements.

# Manufacturing Excellence



Fully automated tube to tube TIG Welding Machine enables smooth uniform bore



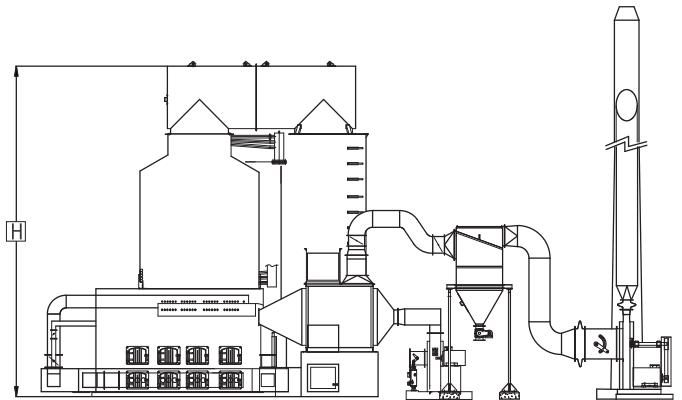
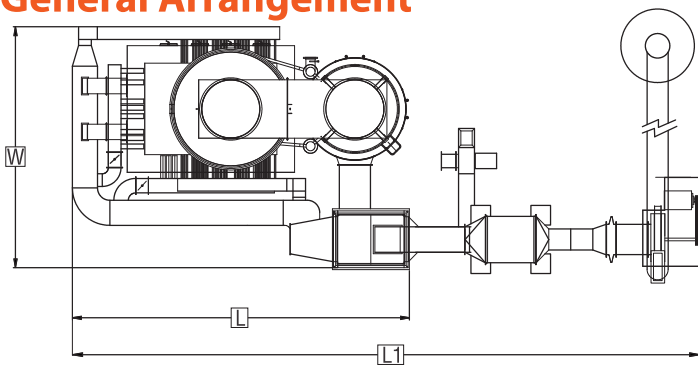
CNC coil winding machine ensures proper alignment, avoiding possibility of hot spots

## Technical Specifications

Description	Unit	VTB 04	VTB 06	VTB 10	VTB 15	VTB 20	VTB 25	VTB 30	
Capacity *	kcal/hr	400000	600000	1000000	1500000	2000000	2500000	3000000	
Maximum Outlet Temperature	°C	280							
Thermic Fluid Flow Rate	m <sup>3</sup> /hr	24	36	60	90	120	150	180	
Thermic Fluid temperature rise	°C	34							
Efficiency		As per BS 845 Part 1 NCV Basis							
Rice Husk	%	77.5							
Baggase (at maximum moisture 40 %)	%	75							
Kutch Lignite (at maximum moisture 29 %)	%	76.5							
Fuel (Stationary Grate)		Rice Husk				Baggase / Kutch Lignite			
Fuel Firing System (Stationary Grate)		Pneumatic Spreader with Screw Feeder (Horizontal Fixed Grate)				Manual (Horizontal Fixed Grate)			
Fuel Consumption									
Rice Husk	kg/hr	178	267	445	667	890	1112	1335	
Baggase (at maximum moisture 40 %)	kg/hr	230	345	575	862	1149	1436	1724	
Kutch Lignite (at maximum moisture 29 %)	kg/hr	152	227	379	568	758	947	1137	
Connected Electrical Load		with MDC/Cyclomax							
Rice Husk/Baggase/Kutch Lignite	kW	11.8/13.6	17.8/19.8	25.1/26.8	36.6/40.1	49.1/52.6	54.4/62.4	72.1/79.1	
Dimension & Weight									
Length	mm	4200	5000	5800	6200	7100	7900	8100	
Width	mm	3200	3500	3900	4500	4900	5300	5900	
Height	mm	5300	5400	6300	6500	7000	7500	8000	
L1	m	9.3	10.2	11.9	12.6	14.2	15.2	15.5	
Chimney Top Diameter	mm	310	390	500	660	700	790	870	
Dry Weight	Kg	3345	4335	5840	7675	9850	12195	15225	

Note: 1. For Saw dust mixing with Rice husk contact HO 2. \*Output Capacity mentioned above on Husk firing will get deareated by 14% for Kutch Lignite and 22% for Baggase respectively.

## General Arrangement



**THERMAX**

www.thermaxglobal.com



### Registered Office

D-13, MIDC Industrial Area, R D Aga Road, Chinchwad, Pune 411019, India Customer Care : 1800-209-0115

@thermaxglobal

@thermaxlimited

enquiry@thermaxglobal.com

@thermax\_global

@thermaxglobal

@thermaxmedia

### Thermax Business Portfolio

- Heating
- Cooling
- Power
- Air Pollution Control
- Chemicals
- Water and Wastewater Solutions
- Solar
- Specialised Services