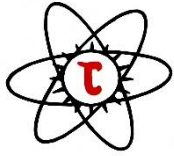


# THERM TECH ENGINEERING CO.



THERM TECH

Fact : Plot no. 48, Sector-57, Phase –IV, HSIIDC, Kundli, Dist.- Sonapat, Haryana

Office : BH-290, East Shalimar Bagh, Delhi-110088

M : 9958063334, 9136583299, mail: [thermtecheng@gmail.com](mailto:thermtecheng@gmail.com)

Website : <https://thermtecheng.com>

## Therm Tech Thermic Fluid Heaters Diesel/Gas Fired

This is a compact, rigid, noiseless, highly efficient, and fully automatic. TFH model air heater are designed to provide unmatched performance with high efficiency and maintenance free operation. Our Thermic Fluid Heater are a product of more than 20 years of industrial heating line design experience. Therm Tech Fluid Heater are forced circulation liquid phase heaters which optimally utilize the high velocity flame and hot gases for heating of thermic fluid circulating through the coil. The unit is basically of three pass construction and uses oil/gas as fuel.

The liquid fuel is pressurized by a gear pump and preheated electrically in the oil heater, wherever necessary, so as to reduce its viscosity and improve spray characteristics. It is then sprayed into the furnace through a pressure jet burner. Air from a forced draft fan is supplied concentric to fuel spray. The unique design of the burner ensures uniform spatial dispersal of fuel droplets.

The unit has a 3-pass construction where in the first pass, the flame travels downwards over the inner coil, thereby giving away most of its radiant heat in the first pass, which has by now converted itself into flue gases, then traverses radially upwards through the annular space between the inner and outer coils. This is the second pass. In the third pass, these gases finally flow downwards between the outer coil and inner shell and are vented out through the chimney. In APH Model flue gas flows from the 3<sup>rd</sup> Pass to the APH and finally flows out through the chimney. Efficiency is increased by 4-5% in APH model. The design ensures maximum absorption of heat thereby keeping low stack temperatures.



**Therm Tech Thermic Fluid Heater  
Gas/Diesel Fired 3 Pass with APH**

### Why choose us?

- ❖ Our industrial heaters promise high performances and are built using the latest technology.
- ❖ All our products are designed keeping in mind the customer's needs.
- ❖ Our heating units are built for high durability, less noise, maximum efficiency, and reliability.
- ❖ Our expert team strictly follows the total quality management.

## Capacity

Therm Tech Thermic Fluid Heater are manufactured over a standard wide range of capabilities ranging from 1Lakh k.cals/hr to 30Lakh k.cals/hr.

## Efficiency

The use of pressure jet burner and a high degree of swirl in the air steam ensure a well-anchored and stabilized flame. This coupled with preheated air from air preheater (APH), higher heat transfer area, etc ensures efficiency of  $92 \pm 2\%$  on G.C.V. of oil/gas over a wide range of loads.

## Advantages of Therm Tech Thermic Fluid Heaters

- Multiple passes on thermic fluid side ensure low pressure drop across the coil, thereby making more head available for process and reduce power consumption

- High Operating efficiency
- Low system lag and rapid warm up response.
- Ensures high performance

- Easy conversion to different fuels.
- High combustion efficiency
- Low heat release rates.



## Salient Features of Therm Tech Thermic Fluid Heaters

- Thermal Efficiency of  $92\% \pm 2\%$
- Reverse Flame Technology
- Four Pass Design
- Stainless steel Heat Exchanger
- Clean Hot Air
- Fully Automatic Operation
- Easy to Operate
- Space Saver and easy Installation
- Heavy Duty Construction
- Noiseless Operation to reduce Noise Pollution
- Eco-friendly / Low NOx, CO & Aldehydes Emission

## Applications of Therm Tech Thermic Fluid Heaters

- ❖ Rotogravure Printing
- ❖ Lamination & Adhesive Tapes
- ❖ Pharmaceuticals
- ❖ Space Heating
- ❖ Food Industries
- ❖ Pulse & Cereals
- ❖ Drying Chamber/Tumbler
- ❖ Plastics
- ❖ Corrugation Boxes
- ❖ Tobacco Drying
- ❖ Automotive

# Construction

Therm Tech Thermic Fluid Heater are manufactured in accordance with stringent standards and the units are of robust construction made from quality materials. The heat transfer coils are wound on special machines to maintain the symmetry and ensures that the coil is a closely pitched helical tubular stack. The coil are stress relived for longer life.



## Electric Control Panel

A fully dust proof control panel houses all the relays and controls required for the safe operation of the unit and its auxiliaries. Star Delta switchover wherever necessary is automatic through a timer. Full overloaded protection ensures that motors do not get overheated. All motor winding wiring and other components conform to specification laid down by the Indian Bureau of standards.

## Gas Burner

Therm Tech Thermic Fluid Heater are fitted with a complete gas burning system comprising a pressure jet burner, a F.D fan, gas prob and spark ignition. Also necessary accessories like gas train, filters, low pressure PRV, pressure gage, etc are provided.

## Oil Burner

Therm Tech Thermic Fluid Heater are fitted with a complete fuel oil burning system comprising a gear pump, a pressure jet burner, a F.D fan and spark ignition. Also necessary accessories like filters, non-return valve, etc are provided. The oil burning system is adaptable to a wide range of oil fuels such as LDO, HSD, furnace oil and LSHS with minor changes in the basic system.

## Standard Supply

- ❖ Complete Thermic Fluid Heater body having single jacketed casing with heat transfer coil in 3-pass design having one radiant and three convective heat transfer areas. The unit will be insulated with 75mm thick insulation.
- ❖ Fuel Supply System complete with gear pump, pipelines, control valves, oil filter, non-return valve, ignition electrodes and burner assembly. Necessary F.D. fan for providing combustion air.
- ❖ Completely prewired Control Panel alarm system. Centralised indicators for pressure and temp readings, necessary controls like temperature controllers pressure switches, overload relay, etc. with internal wiring.
- ❖ Centrifugal type Thermic Fluid Circulating Pump motor set.
- ❖ Expansion-cum-deaerator tank with inlet and outlet connections, level cock valve, level indicator, etc.

## Thermal Insulation

Factory assembled thermal insulation ensures that heat losses from the unit are minimum. Thus ensuring high efficiency. Well-tained and experienced craftsmen apply an optimum thickness of high temperature wool insulating uniformly all around the Thermic Fluid Heater taking special care around edges and corners. High quality wool blankets ensure full dimensional stability. The thermal insulation is covered with a protective shield of c.r.c.a. sheet painted in attractive colours.

Thermic Fluid Heater Diesel/Gas Fired												
Model	Unit	TFH-01	TFH-02	TFH-03	TFH-04	TFH-06	TFH-08	TFH-10	TFH-15	TFH-20	TFH-25	TFH-30
<b>Heat Performance</b>												
Heat Load	kcal/hr	1,00,000	2,00,000	3,00,000	4,00,000	6,00,000	8,00,000	10,00,000	15,00,000	20,00,000	25,00,000	30,00,000
Max. T.F Outlet Temp.	°C	280	280	280	280	280	280	280	280	280	280	280
Thermic Fluid Flow Rate	m3/hr	7	14	21	28	42	56	70	105	140	175	210
Available Circuit Pressure	m/c	20	25	25	25	25	25	25	25	25	25	25
<b>Fuel Consumption Without APH</b>												
Thermal Efficiency	%	88±2 Based on Fuel GCV										
Diesel Consumption	kg/hr	11.1	22.3	33.4	44.5	66.8	89.1	111.4	167.1	222.8	278.5	334.2
PNG Consumption	m3/hr	13.4	26.7	40.1	53.5	80.2	107	133.7	200.6	267	334.3	401
LPG Consumption	kg/hr	9.9	19.8	29.7	39.6	59.4	79.2	99	148.5	198	247.5	397
<b>Fuel Consumption With APH</b>												
Thermal Efficiency	%	92±2 Based on Fuel GCV										
Diesel Consumption	kg/hr	10.7	21.4	32	42.8	64.2	85.6	107	160.5	214	267.5	321
PNG Consumption	m3/hr	12.8	25.6	38.4	51.2	76.8	102.4	128	192	256	320	384
LPG Consumption	kg/hr	9.5	18.9	28.35	37.8	56.7	75.6	94.5	141.8	189	236.3	283.5
<b>Heater Construction Features</b>												
Coil Holding Capacity	liter	55	70	190	245	308	416	510	997	1360	2340	2795
Dearator cum Expansion Tank Capacity	liter	300	300	500	500	800	1000	1500	2000	3000	4000	5000
Pressure Drop on Coil Side	m/c	22	22	22	22	22	22	22	22	22	22	22
Overall Coil Assembly Height	mm	1400	1525	1800	2000	2500	2700	3000	3700	4200	4900	5750
<b>Material of Construction</b>												
Tube	ERW as per BS 3059 part 1 Gr. 320											
Tube Outer Diameter	mm	31.75	31.75	50.8	50.8	50.8	50.8	50.8	63.5	63.5	76.2	76.2
Tube Thickness	mm	3.25	3.25	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
<b>Thermic Fluid Circulation Pump</b>												
Type	Centrifugal Air Cooled											
Flow	m3/hr	7	14	21	28	42	56	70	105	140	175	210
Head	m/c	42	50	50	50	50	50	50	50	50	50	50
Power rating	HP	5	7.5	10	10	15	15	20	25	30	40	50
Model	Air Cooled	32*160	32*200	40*200	40*200	50*200	50*200	65*200	65*200	80*200	100*200	100*200

# Therm Tech Thermic Fluid Heaters Wood Fired

This is a compact, rigid, noiseless, highly efficient, semi-automatic. TFH model are designed to provide unmatched performance with high efficiency and maintenance free operation. Our TFH model are a product of more than 20 years of industrial heating line design experience. The radiant / convective coil shell assembly is placed at the top of furnace, the fresh air is forced by the FD fan towards the APH (Air Pre Heater) which is then passed to the furnace for burning of fuel (wood/coal).

The unit has a 3-pass construction where in the first pass, the flame/gases travel upward over the inner coil, thereby giving away most of its radiant heat in the first pass, which has by now converted itself into flue gases, then traverses radially downward through the annular space between the inner and outer coils. This is the second pass. In the third pass, these gases finally flow upward between the outer coil and inner shell and then goes to APH (Air Pre Heater) followed by the cyclone separator where dust gets separated, then these flue gases passes through ID Fan and finally goes to the atmosphere through the Chimney. The design ensures maximum absorption of heat thereby keeping low stack temperatures.

## Thermal Insulation

Factory assembled thermal insulation ensures that heat losses from the unit are minimum. Thus ensuring high efficiency. Well-tained and experienced craftsmen apply an optimum thickness of high temperature wool insulating uniformly all around the Thermic Fluid Heater taking special care around edges and corners. High quality wool blankets ensure full dimensional stability. The thermal insulation is covered with a protective shield of c.r.c. sheet painted in attractive colours.



**Therm Tech Thermic Fluid Heaters  
3 Pass Solid Fired**

## Capacity

Therm Tech Thermic Fluid Heater are manufactured over a standard wide range of capabilities ranging from 1Lakh k.cals/hr to 30Lakh k.cals/hr.

## Efficiency

The use of pressure jet burner and a high degree of swirl in the air steam ensure a well-anchored and stabilized flame. This coupled with preheated air from air preheater (APH), higher heat transfer area, etc ensures efficiency of  $77 \pm 2\%$  on G.C.V. of oil/gas over a wide range of loads.

### Reduced Excess Air

Radiant Heat Exchanger above furnace cools furnace. Hence less excess air is needed. This increases efficiency.

### Air Preheating

Primary air required for primary combustion from FD fan is passed through air preheater to absorb the waste heat in the flue gases. This results in further increase in efficiency.

### Balanced Draught System

Balanced Draught System means minimum infiltration of unwanted air through fire doors. Hence all the combustion air passes through the air preheater. The maximum heat recovery from air preheated takes place and rated efficiency is assured.

## Advantages of Therm Tech Thermic Fluid Heaters

- Multiple passes on thermic fluid side ensure low pressure drop across the coil, thereby making more head available for process and reduce power consumption

- High Operating efficiency
- Low system lag and rapid warm up response.
- Ensures high performance

- Easy conversion to different fuels.
- High combustion efficiency
- Low heat release rates.

## Salient Features of Therm Tech Thermic Fluid Heaters

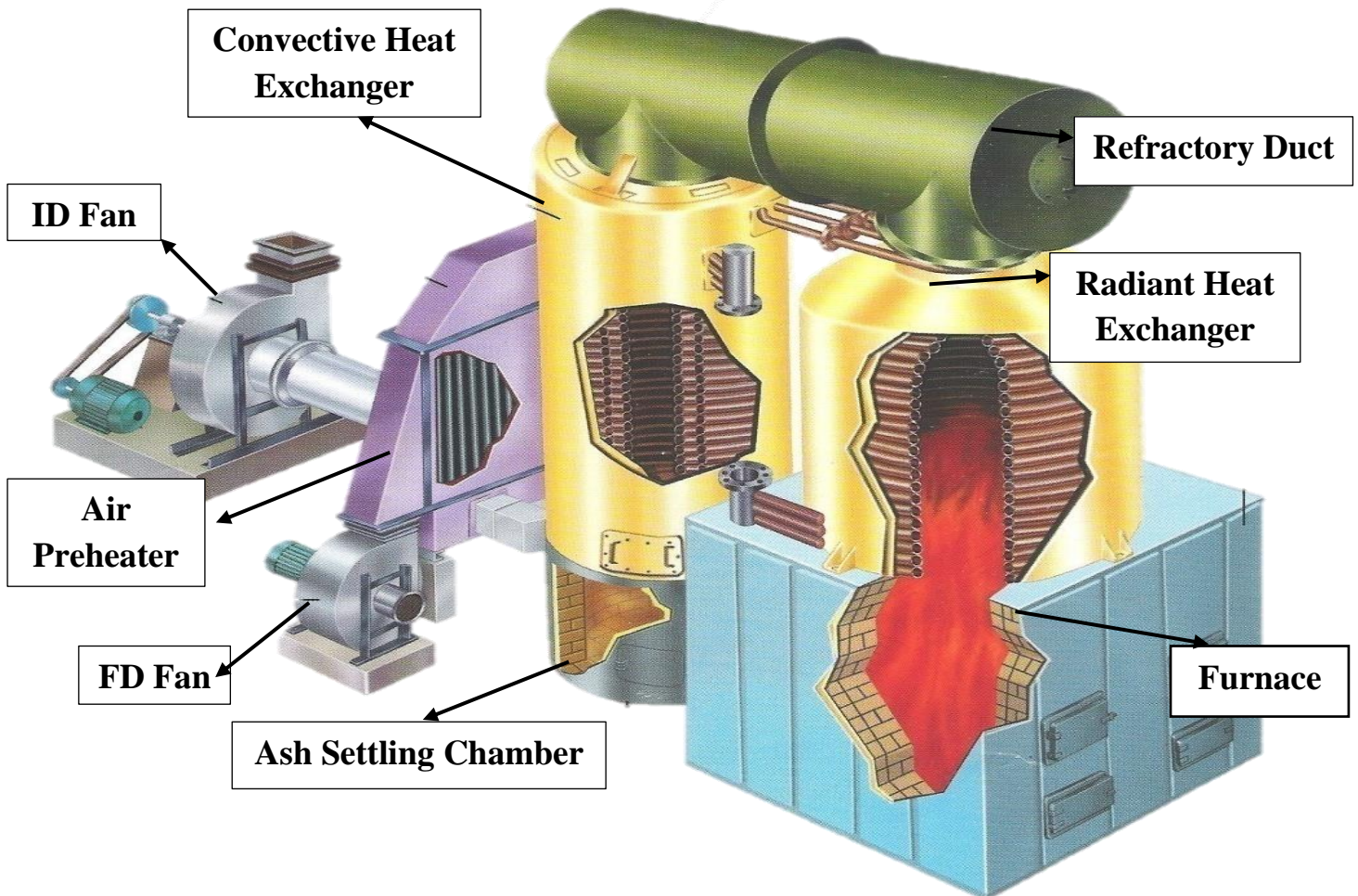
- Thermal Efficiency of 77% ± 2%
- Stainless steel Heat Exchanger
- Clean Hot Air
- Fully Automatic Operation
- Easy to Operate
- Space Saver and easy Installation
- Heavy Duty Construction
- Noiseless Operation to reduce Noise Pollution
- Eco-friendly / Low NO<sub>x</sub>, CO & Aldehydes Emission

## Applications of Therm Tech Thermic Fluid Heaters

- ❖ Rotogravure Printing
- ❖ Lamination & Adhesive Tapes
- ❖ Pharmaceuticals
- ❖ Space Heating
- ❖ Food Industries
- ❖ Pulse & Cereals
- ❖ Drying Chamber/Tumbler
- ❖ Plastics
- ❖ Corrugation Boxes
- ❖ Tobacco Drying
- ❖ Automotive

# Construction

Therm Tech Thermic Fluid Heater are manufactured in accordance with stringent standards and the units are of robust construction made from quality materials. The heat transfer coils are wound on special machines to maintain the symmetry and ensures that the coil is a closely pitched helical tubular stack. The coil are stress relieved for longer life.



## Therm Tech Thermic Fluid Heaters 4 Pass Solid Fired

### Standard Supply

- ❖ Complete Thermic Fluid Heater body having single jacketed casing with heat transfer coil in 3-pass design having one radiant and three convective heat transfer areas. The unit will be insulated with 75mm thick insulation.
- ❖ Completely prewired Control Panel alarm system. Centralized indicators for pressure and temp readings, necessary controls like temperature controllers pressure switches, overload relay, etc. with internal wiring.
- ❖ Centrifugal type Thermic Fluid Circulating Pump motor set.
- ❖ Expansion-cum-deaerator tank with inlet and outlet connections, level cock valve, level indicator, etc.

### Thermic Fluid Heater Wood Fired - 3Pass

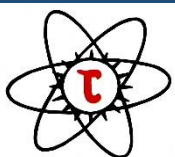
Model	Unit	TFH-01	TFH-02	TFH-04	TFH-06	TFH-08	TFH-10	TFH-15	TFH-20	TFH-25	TFH-30
<b>Heat Performance</b>											
Heat Load	kcal/hr	1,00,000	2,00,000	4,00,000	6,00,000	8,00,000	10,00,000	15,00,000	20,00,000	25,00,000	30,00,000
Max. T.F Outlet Temp.	°C	280									
Thermic Fluid Flow Rate	m <sup>3</sup> /hr	7	14	28	42	56	70	105	140	175	210
Available Circuit Pressure	mlc	20	25	25	25	25	25	25	25	25	25
Thermal Efficiency	%	77±2 Based on Fuel GCV									
Furnace (Length)	m	1.5	1.5	1.7	1.8	2	2	2.2	2.5	2.5	2.5
Furnace (Width)	m	1.5	1.5	1.7	1.9	2	2	2.5	2.5	2.75	3
Furnace (Height)	m	1.65	1.65	1.65	1.75	1.75	1.85	1.85	1.85	1.85	1.85
<b>Heater Construction Features</b>											
Heating Surface Area	m <sup>2</sup>	15.5	20.4	35	45.6	60	76	115	150	187	225
Coil Holding Capacity	liter	150	190	325	425	560	705	1425	1850	2900	3500
Deaerator cum Expansion Tank Capacity	liter	300	300	500	800	1000	1500	2000	3000	4000	5000
Pressure Drop on Coil Side	mlc	22									
Overall Coil Assembly Height	mm	1750	2050	2450	2700	2800	3500	3700	4750	5100	6100
<b>Material of Construction</b>											
Tube		ERW as per BS 3059 part 1 Gr. 320									
Tube Outer Diameter	mm	50.8	50.8	50.8	50.8	50.8	50.8	63.5	63.5	76.2	76.2
Tube Thickness	mm	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66	3.66
<b>Thermic Fluid Circulation Pump</b>											
Type		Centrifugal Air Cooled									
Flow	m <sup>3</sup> /hr	7	14	28	42	56	70	105	140	175	210
Head	mlc	42	50	50	50	50	50	50	50	50	50
Power rating	HP	5	7.5	10	15	15	20	25	30	40	50
Model	Air Cooled	32*160	32*200	40*200	50*200	50*200	65*200	65*200	80*200	100*200	100*200
Diesel Engine Required	HP	NA	NA	5	5	5	5	10	10	10	10
<b>Connected Load</b>											
Indian Coal/ Bagasse Briquette/ Wood	kw	4.9	7.9	11.25	17.25	19.13	26.25	35.62	45	60	71.25
<b>Fuel Consumption</b>											
Indian Coal of 4500 kcal/kg GCV	kg/hr	29	57	114	171	228	285	427	570	712	855
Wood of 3500kcal/kg GCV	kg/hr	37	73	146	220	293	366	550	733	916	1099
Bagasse Briquette of 3800 kcal/kg GCV	kg/hr	34	67	135	202	270	337	506	675	843	1012
Stack Temp.	°C	220	220	220	220	220	220	220	220	220	220
<b>ID Fan Details (Indian Coal/Wood/Bagasse Briquette)</b>											
Flow	m <sup>3</sup> /hr	600	1200	2400	3600	4800	6000	9000	12000	15000	18000
Head (at STP condition)	mm/WC	350	350	350	350	350	350	350	350	350	350
Power rating	HP	1	2	3	5	7.5	10	15	20	25	30
<b>FD Fan Details (Indian Coal/Wood/Bagasse Briquette)</b>											
Flow	m <sup>3</sup> /hr	420	840	1680	2520	3360	4200	6300	8400	10500	12600
Head (at STP condition)	mm/WC	220	220	220	220	220	220	220	220	220	220
Power rating	HP	0.5	1	2	3	3	5	7.5	10	15	15
<b>Pollution Control Equipment</b>											
Cyclone		Cyclone Separator									



## Thermic Fluid Heater Wood Fired - 4Pass

Model	Unit	TFH-04	TFH-06	TFH-10	TFH-15	TFH-20	TFH-25	TFH-30
<b>Heat Performance</b>								
Heat Load	kcal/hr	4,00,000	6,00,000	10,00,000	15,00,000	20,00,000	25,00,000	30,00,000
Max. T.F Outlet Temp.	°C	280						
Thermic Fluid Flow Rate	m <sup>3</sup> /hr	28	42	70	105	140	175	210
Available Circuit Pressure	mlc	25						
Thermal Efficiency	%	77±2 Based on Fuel GCV						
Furnace (Length)	m	1.7	1.8	2	2.2	2.5	2.5	2.5
Furnace (Width)	m	1.7	1.9	2	2.5	2.5	2.75	3
Furnace (Height)	m	1.65	1.75	1.85	1.85	1.85	1.85	1.85
<b>Heater Construction Features</b>								
Heating Surface Area	m <sup>2</sup>	47	58	78.58	119	165	205	245
Coil Holding Capacity	liter	440	540	725	1105	2060	2550	3800
Deaerator cum Expansion Tank Capacity	liter	500	800	1500	2000	3000	4000	5000
Pressure Drop on Coil Side	mlc	22						
<b>Material of Construction</b>								
Tube		ERW as per BS 3059 part 1 Gr. 320						
Tube Outer Diameter	mm	50.8	50.8	50.8	50.8	63.5	76.2	76.2
Tube Thickness	mm	3.66	3.66	3.66	3.66	3.66	3.66	3.66
<b>Thermic Fluid Circulation Pump</b>								
Type		Centrifugal Air Cooled						
Flow	m <sup>3</sup> /hr	28	42	70	105	140	175	210
Head	mlc	50	50	50	50	50	50	50
Power rating	HP	10	15	20	25	30	40	50
Model	Air Cooled	40*200	50*200	65*200	65*200	80*200	100*200	100*200
Diesel Engine Required	HP	5	5	5	10	10	10	10
<b>Connected Load</b>								
Indian Coal/ Bagasse Briquette/ Wood	kw	11.25	17.25	26.25	35.62	45	60	71.25
<b>Fuel Consumption</b>								
Indian Coal of 4500 kcal/kg GCV	kg/hr	114	171	285	427	570	712	855
Wood of 3500kcal/kg GCV	kg/hr	146	220	366	550	733	916	1099
Bagasse Briquette of 3800 kcal/kg GCV	kg/hr	135	202	337	506	675	843	1012
Stack Temp.	°C	220						
<b>ID Fan Details (Indian Coal/Wood/Bagasse Briquette)</b>								
Flow	m <sup>3</sup> /hr	2400	3600	6000	9000	12000	15000	18000
Head (at STP condition)	mm/WC	350	350	350	350	350	350	350
Power rating	HP	3	5	10	15	20	25	30
<b>FD Fan Details (Indian Coal/Wood/Bagasse Briquette)</b>								
Flow	m <sup>3</sup> /hr	1680	2520	4200	6300	8400	10500	12600
Head (at STP condition)	mm/WC	220	220	220	220	220	220	220
Power rating	HP	2	3	5	7.5	10	15	15
<b>Pollution Control Equipment</b>								
TH Cyclone		Cyclone Separator						

## THERM TECH ENGINEERING CO.



**THERM TECH**

Fact : Plot no. 48, Sector-57, Phase -IV, HSIIDC, Kundli, Dist.- Sonapat, Haryana

Office : BH-290, East Shalimar Bagh, Delhi-110088

M : 9958063334, 9136583299, Mail: thermtecheng@gmail.com

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Note: We reserve the right to change any specifications without prior notice.