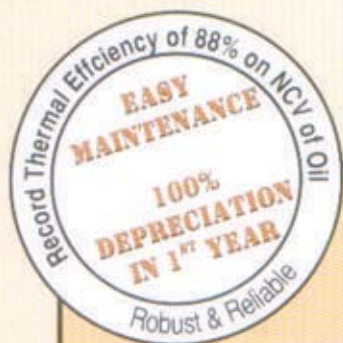


# STEAMPACK

Three Pass Oil / Gas Fired Fully Automatic  
Smoke Tube Steam Boiler



# Construction & Functioning

This Steam Generator is a THREE PASS Horizontal smoke tube economic shell type Boiler. This Boiler is Designed and Fabricated in accordance with Indian Boiler Regulations (IBR) 1950, and Stage inspected & hydraulically shop tested and certified by Director Steam Boilers of Maharashtra. The Boiler is of wet back construction having very good heat absorption in the Radiant heating zone. The outlet flue gas temperatures are optimum such that the Thermal Efficiency is Highest and problem due to  $H_2SO_3$  condensation are not observed.  
(Due to high sulphur Content in the Furnace Oil.)

The Furnace is Provided with a large Radiant Heating Surface thus maintaining safe Furnace Wall temperatures much below its safer Limits.

The Furnace Volumes are Liberally selected. This ensures complete combustion & highest combustion efficiency.

The steam and water space is quite large and hence it provides ability to respond to Fluctuating Loads effectively.

This Boiler is provided with a FULLY AUTOMATIC PRESSURE JET BURNER. The burner is either having Hi-low, On-Off modulations or contineous stepless modulation. This burner is SELF IGNITING and able to maintain clean and smokeless combustion all throughout the operation. The safties like Low Water Level Cut Out, Flame Failure lock out, Steam Safety Valve, Back Fire pressure Relief, Fusible Plug etc. are provided to ensure safety of the entire unit. The burner function is suitably Intergrated with the control panel such that in case of any abnormal condition arising, the Burner shall cut off safety & shall go to safety lockout condition by giving AudioVisible Annunciation & Alarm.

# Our Design And Performance Advantages

High Thermal Efficiency of 88% N.C.V. Over entire operating range.

## Water and Steam side Design

High Staem space in the boiler & large steam release area on water surface gives better quality of dry steam. Priming & foaming tendencies are totally eliminated. This means the steam pipe line will have long life & will never have deposits inside. Also the plant will have highest Integrated steam / circuit efficiency.

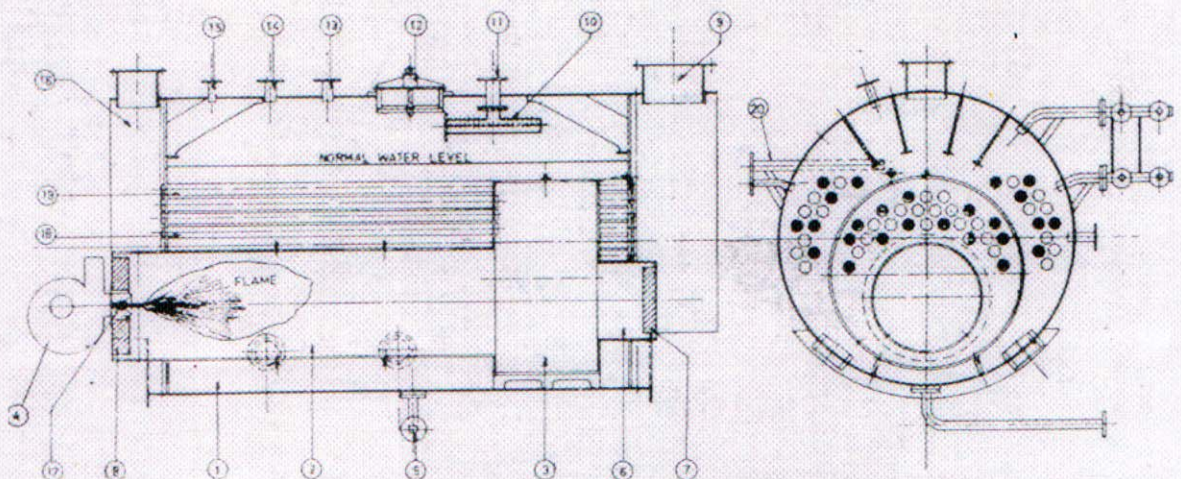
## Combustion and Heat Transfer

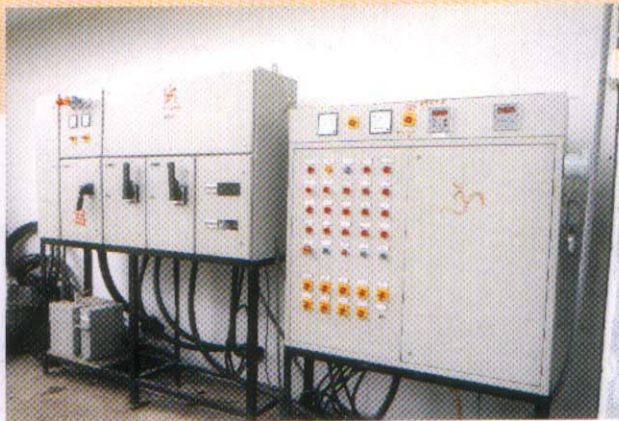
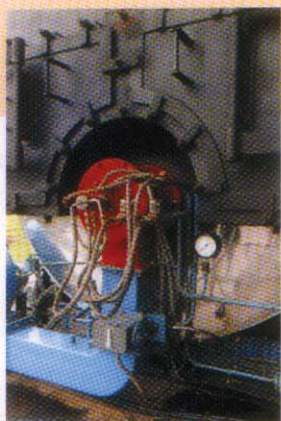
High Furnace volume means long furnace residence time & complete combustion of fuel at low excess air. This gives better combustion efficiency with soot free combustion.  $CO_2\%$  Highest percentage is guaranteed. Moderate Heat Release Rate / Heat Flux ensure low thermal stresses & safe furnace metal temperature.

## Optional

To achieve the highest fuel saving, the provision is made to incorporate the AIR PREHEATER. This preheats the Air before fed to combustion. The additional 5% of Thermal efficiency can be achived by this feature. High Furnace Volume & Large Radiation Surface gives very high heat absorption in furnace & also simultaneously keep moderate heat flux & heat release rates. ( Heat Flux + Heat released per  $m^2$  of furnace area & heat release rate+Heat release per  $m^3$  of furnace volume.

- |                                |   |
|--------------------------------|---|
| 1) Main Shell                  | 12) Man Hole                                  |
| 2) Furnace                     | 13) Auxiliary Steam Stop Valve                |
| 3) Revesal Chamber             | 14) Steam Safety Valve                        |
| 4) Combustion Blower           | 15) Air Vent Pressure Gauge & Pressure Switch |
| 5) Blow Down                   | 16) Front Smoke Box                           |
| 6) Rear Access Opening         | 17) Combustion Head                           |
| 7) Heat Refractory             | 18) IInd Pass Tubes                           |
| 8) Front Refractory            | 19) IIIrd Pass Tubes                          |
| 9) Flue gas outlet to Chimany  | 20) Water inlet                               |
| 10) Steam Seperator / Purifier |   |
| 11) Main Steam Stop Valve      |   |





## Our Range of Other Allied Equipments

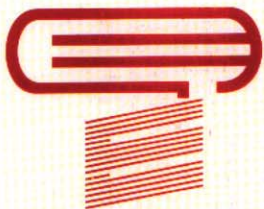
1. **Steampack -** Range of Oil/Gas Fired, four pass, fully automatic Non IBR Steam Boiler.  
( Range 100Kg/ Hr to 1000 Kg / Hr)
2. **Steamobile -** Range of miniature Oil/Gas Fired. Fully automatic instant steaming Boilers.  
( Range 25 Kg/Hr to 75 Kg/Hr)
3. **Fluidtherm -** Range of Packaged Oil/Gas Fired , Three Pass Fully Automatic, High efficiency ,  
Coil type Thermic Fluid Heaters with economisers / Air Heaters. (Optional)  
(Range 50,000 Kcal/Hr to 20 Lac Kcal/Hr)
4. **Aquawarm -** Range of Packaged Oil/Gas Fired , Fully Automatic , High efficiency pressurised  
/Non pressurised Hot Water Boilers with Economiser.
5. **Airpack -** Range of Packaged Oil/Gas Fired , Indirect type Fully Automatic,  
High Efficiency Hot Air Generators.
6. **Airpack-D** Range of Packaged Oil/Gas Fired , Direct type Fully Automatic. Hot Air Generator.
7. **Flamelite** Range of Packaged Oil /Gas Fired , Fully Automatic High efficient burners.
8. **Aquasoft** Range of Packaged Manual / Automatic Water Softening Plants with output capacities  
Ranging from 3.5M3 to 1400 M3 of soft Water per regeneration.
9. **Economiser  
& Air Heaters -** IBR / Non IBR type as Waste Heat Recovery System for Oil Fired / Coal Fired Steam  
Boilers & Thermic Fluid Heaters.
10. **Magnetic Water -  
Treatment Device** for Eliminating the maintenance problems of Chemical Water .Treatment  
Most easy and accepted concept Internationally.
11. **Forced Circulation** Evaporators Manufactured to suit requirement.
12. **Spray Dryers, Spray Coolers, Spray Concentrators & Concentrators.**
13. **Fluid Bed Dryers** Continous and Batch Type. Standard / GMP Models.
14. **Heat Exchangers, Condensors, (Design Fabrication & Supply)**
15. **Incinerators** ( Organic & Inorganic Liquid & Soild Waste Incinerators.
16. **Waste Heat** Recovery Boilers, Thermic Fluid Heaters and Air Heaters.

# SPECIFICATIONS

| DETAILS   |             | UNITS  | STEAMPACK<br>1000                   | STAEMPACK<br>1500 | STEAMPACK<br>2000 | STEAMPACK<br>3000 | STEAMPACK<br>4000 | STEAMPACK<br>5000 | STAEMPACK<br>6000 | STEAMPACK<br>8000 | STEAMPACK<br>10000 | STEAMPACK<br>15000 |
|---|-------------|--|-------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| Rated Steam ** Output from Feed Water At 100°C                  |             | Kg/hr  | 1000                                | 1500              | 2000              | 3000              | 4000              | 5000              | 6000              | 8000              | 10000              | 15000              |
| Output Steam*Pressure Rating                                    |             | Kg / Cm2 Gauge                                     | 10.54                               | 10.54             | 10.54             | 10.54             | 10.54             | 10.54             | 10.54             | 10.54             | 10.54              | 10.54              |
| Thermal Efficiency  |             | On N.C.V.  | 88                                  | 88                | 88                | 88                | 88                | 88                | 88                | 88                | 88                 | 88                 |
| Thermal Efficiency With Air Preheater On-Economiser             |             | On N.C.V.  | 93                                  | 93                | 93                | 93                | 93                | 93                | 93                | 93                | 93                 | 93                 |
| Fuel Oil Consumption For steam Output from Feed water At 100° C | Furnace Oil | Kg / hr  | 63                                  | 94.5              | 126.0             | 189.0             | 252.0             | 315.0             | 378.0             | 504.0             | 630.0              | 945.0              |
|   |             | Kg/hr with air pre heater Economiser               | 60.3                                | 90.4              | 120.6             | 180.8             | 241.2             | 301.5             | 241.2             | 482.4             | 603.0              | 904.0              |
| Burner Control  |             | - ON-OFF<br>HIGH-LOW                               | HIGH - LOW OR CONTINUOUS MODULATING |                   |                   |                   |                   |                   |                   |                   |                    |                    |
| Pressure Parts  |             | AS PER INDIAN BOILER REGULATIONS, 1950 / ASME CODE |                                     |                   |                   |                   |                   |                   |                   |                   |                    |                    |
| Electric Supply   |             | 415 + 5% 50 Hz 3 Ph. 4 Wire                        |                                     |                   |                   |                   |                   |                   |                   |                   |                    |                    |
| 1. Feed Water Pump Motor  | KW          | 3.75   | 3.75                                | 5.0               | 5.0               | 5.0               | 5.0               | 7.5               | 10.5              | 10.5              | 15                 | 15                 |
| 2. Blower Motor   | KW          | 2.25   | 3.75                                | 3.75              | 5.0               | 5.625             | 7.5               | 9.375             | 11.25             | 15.00             | 22.50              | 22.50              |
| 3. Fuel Oil Preheater   | KW          | 6.0  | 9.0                                 | 9.0               | 12.0              | 15                | 15                | 18                | 18                | 18                | 18                 | 18                 |
| 4. Fuel Pump  | KW          | 0.5  | 0.75                                | 0.75              | 0.75              | 0.75              | 0.75              | 1.5               | 1.5               | 1.5               | 2.25               | 2.25               |

- NCV of Oil Considered Equal to 9650 Kcal / Kg. ( Generally Specified by Oil Companies)
- Higher Working Pressure also available on Specific request (15, 17.5, 24, 40 Kg / Cm2)
- Vertical space saving Units available on specific request.
- Waste Heat Recovery Boilers available on request.

## ELITE THERMAL ENGINEERS PVT. LTD.



**Mumbai Office :**  
6, Jaygandha Annexe,  
Ram-Maruti Road,  
Opp. Paranjape Eye Hospital,  
Thane ( W ) 400 602.  
Tel. : 91-22-25331807  
Fax : 91-22-25333069  
E-mail : elitethermal@vsnl.net

**Pune Office :**  
1846/47, Shri. Balwant Niwas,  
C-Wing / Hall No 2,  
Sadashiv Peth,  
Pune - 411 030.  
Tel.: 91-20-24491746, 24493553  
Fax : 91-20-24491769  
E-mail : elite@giaspn01.vsnl.net.in

**Factory :**  
Gat No.558,  
Village Wing,  
Post Shirwal,  
Tal. Khandala,  
Dist. Satara - 412 801.  
Tel. : 02169 - 284292/3  
Fax : 02169 - 284295