



## **Oil/Gas Fired Calorifiers / Water Heaters**

VERSOTHERM - VERSOL STORAGE SOLUTIONS

## VERSOTHERM

### Oil / Gas Fired Water Heaters

Direct Oil / Gas Fired calorifiers are the best solution where fuel fired hot water system can be used. Wide range output can be achieved in this water heaters. Fully automatic burners are used for safe operation. Versotherm Oil / Gas Fired Calorifiers and Water Heaters are available in different shell material of construction with removable tube bundle heat exchanger and manhole. Each tank shall be furnished with standard accessories for control and monitor.

The removable tube bundle are made of stainless steel sheet and stainless steel tubes, to withstand high temperature. The units shall be fitted with fuel efficient low NOx burner. The units are fitted with factory fitted prewired Control panel with safety interlocks. Thermostatic control for burner shall include thermostatic switch, water level control switch etc. The safety features ensure safe and efficient operation of units.

Versotherm Gas / Oil fired Calorifiers / water heaters shall be fitted with 50mm or 100mm fibre glass insulation with painted GI or Stucco Aluminium cladding.

#### Benefits

- Efficiency is maintained throughout the range of load. Even at part load all energy is converted into heat.
- Space requirements are minimum. Separate boiler not required.
- Installation is simplified.
- The calorifier can be installed with minimum electric load.
- Maintenance is kept to a minimum.
- Low nox burners are used.
- Fuel efficient burners are used.
- Diesel oil, Natural Gas, LPG and Propane can be used.

#### Standards

VERSOL manufactures and Supply the Calorifiers and pressure vessels with design codes and material of construction to suit each project requirement. Our commercial design code is based on BS853 and takes account of many years of design and operational experience. We offer third party design and manufacturing appraisal where required and construction material certificate can be supplied. All our Calorifiers supplied comply fully with European Pressure Equipment Directive (97/23/EC). Our product can be designed and manufactured in accordance with ASME Sec VIII up on request. CE marked or UL listed Calorifiers can be provided upon request for some models.



## Material of Construction

VERSOTHERM Calorifiers can be manufactured with different type of materials depends on the customer requirement or project specification. Material needs to be chosen depending on the application and medium used. Apart from the selection of MOC, due to the specified welding technology and the tools, VERSOTHERM Calorifiers guarantee the life longevity.

### Solid Copper

Solid Copper Shells as per BS 2871-C106 is a proven reliable product by being virtually impervious to attack by aggressive water. Due to low material design strengths, solid copper may become uneconomical to use on cylinders with larger diameters and high pressures and thus, we would offer a copper-lined steel option for larger tank sizes. It is to be noted that copper shells should not be used in conjunction with galvanized steel pipe work or fittings due to incompatibility of the 2 materials.

### Copper Lined Steel

Where having a solid copper shell is impractical due to high pressures, we would offer a copper-lined steel shell Calorifiers. This type of manufacture combines the high strength of carbon steel with the corrosion resistance of copper. The process involves manufacturing a carbon steel outer shell and then lining internally with copper sheets which is welded together to form a waterproof surface with all wetted parts within the Calorifiers being manufactured from copper. Anti-vacuum valves are fitted as standard to copper-lined cylinders to avoid the vessel collapsing under vacuum conditions when draining down without a suitable vent.

### Stainless Steel

Stainless steel Calorifiers are becoming more common for domestic hot water heating due to high material strengths and potable water compatibility. Calorifiers with stainless steel shells installed in systems with high chloride content may be unsuitable as the chlorides can attack the welds. VERSOTHERM Calorifiers are normally with Stainless Steel 316L, but the lower grade SS304L also available depends on the requirement.

### Glass Lined Steel

As economical option Internally Glass Lined or Enamel Lined Carbon Steel option is also available in VERSOTHERM range Calorifiers. The internal lining is hygienic and Corrosion resistive and hence can be used on domestic applications and can offer better life time. Glass Lined/Enamel Lined Calorifiers are always preferred to use with anodic protection. VERSOTHERM internal lined Calorifiers offered with non-sacrificial electric anode protection.

## Heating Section

VERSOTHERM Oil / Gas fired Water heaters are fitted with removable type fire tube heat exchanger. These heat exchangers are made of Stainless Steel sheet and Stainless Steel tubes to withstand high temperature.

### Burner

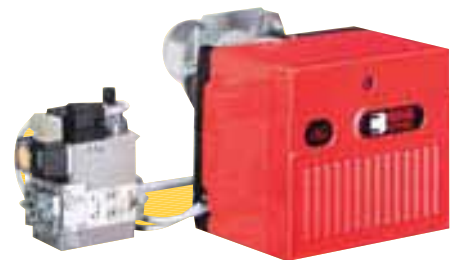
Monoblock pressure jet fully automatic oil / gas fired burners are used to heat the water. Depend on recovery, burners can be selected either on / off type or full modulation type.

Monoblock, gas burners, -completely automatic, one stage operation, made up of:

- Fan with forward curve blades
- Cover lined with sound-proofing material
- Air damper, completely closed in stand by, with external adjustment, with no need to remove the cover
- Single phase electric motor 230 V, 50 Hz
- Combustion head fitted with:
  - stainless steel head cone, resistant to high temperatures
  - ignition electrodes
  - ionisation probe
  - gas distributor
  - flame stability disk
- Flame inspection window
- Adjustable air pressure switch, with graduated selector, to guarantee burner lock out in the case of insufficient combustible air
- Microprocessor-based burner safety control box, with diagnostic and remote reset functions
- Protection filter against radio interference (included into burner safety control box)
- IP 40 electric protection level.



Oil Fired Burner



Gas Fired Burner

### Model Identification

STI-GAS 4000/140/10/V/CL					
Model	Storage Volume	Heat Duty	Working Pressure	Orientation	Material
STI- Gas Gas Fired Calorifiers	4000 L	140 kW	6	V- Vertical H- Horizontal	CL- Copper Lined SS- Stainless Steel GL- Glass Lined CL- Cement Lined
STI- Oil Oil Fired Calorifiers			10 16		

## Removable Type Heat Exchanger

Heat Exchanger section is made of stainless steel sheet and stainless steel tube material to withstand by high temperatures. Heating surface area is more to ensure high efficiency.

Carbon Steel Header Chest of the heat exchanger will be internally lined with refractory to withstand high flue gas temperatures. Header chest will be externally insulated with fibre glass wool mattress and clad with GI sheet painted (Optional).



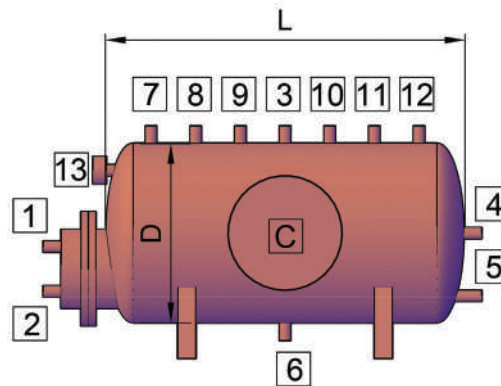
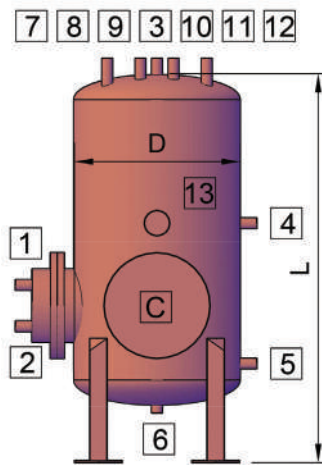
## Control Panels

Control panels are manufactured in house. All the wiring of panel and components are to IEE (Current Edition) Standard.

### Following Controls and Fittings are available in the panel

- Isolator
- Safety Door Inlet Lock
- Indicators
- Power On
- High Temperature alarm ( Optional )
- Low Water Level Alarm ( Optional )
- Operating Temperature Indication
- Hi limit Temperature Indication
- High temperature fault
- Low Water fault





REF	DESCRIPTION	CAPACITY LITRES	D mm	L mm	C mm	MAIN CONNECTIONS					
						3	4	5	6	11	12
1	PRIMARY INLET	230	500	1270	250	1.25	1	1.25	0.75	1	0.75
2	PRIMARY OUTLET	270	500	1470	250	1.25	1	1.25	0.75	1	0.75
3	SECONDARY FLOW	360	600	1370	250	1.25	1	1.25	0.75	1	0.75
4	SECONDARY RETURN	450	600	1740	250	1.5	1	1.25	0.75	1	0.75
5	COLD FEED	500	675	1470	250	1.5	1	1.25	0.75	1	0.75
6	DRAIN	550	675	1720	250	1.5	1	1.25	0.75	1	0.75
7	THERMOSTAT	600	750	1450	250	1.5	1	1.25	0.75	1	0.75
8	SAFETY VALVE	700	750	1680	250	1.5	1	1.25	0.75	1	0.75
9	PRESSURE GAUGE	800	750	1930	250	1.5	1	1.25	0.75	1	0.75
10	TEMP GAUGE	900	750	2150	300	1.5	1	1.25	0.75	1	0.75
11	VENT	1000	900	1750	300	2	1.5	2	1	1.25	1
12	ANTI-VACUUM	1200	900	2050	300	2	1.5	2	1	1.25	1
13	ELECTRIC HEATER	1500	1050	1950	450	2	1.5	2	1	1.25	1
		1750	1050	2175	450	2	1.5	2	1	1.25	1
		2000	1050	2400	450	2	1.5	2	1	1.25	1
		2250	1200	2200	450	65	2	65	1.5	1.5	1.25
		2500	1200	2400	450	65	2	65	1.5	1.5	1.25
		3000	1200	2850	450	80	2	80	1.5	1.5	1.5
		3500	1350	2700	450	80	2	80	1.5	1.5	1.5
		4000	1350	3000	450	80	2	80	1.5	1.5	1.5
		4500	1500	2770	450	80	2	80	1.5	1.5	1.5
		5000	1500	3050	450	80	2	80	2	2	1.5
		5500	1500	3350	450	100	65	100	2	2	2
		6000	1600	3250	450	100	65	100	2	65	2
		7000	1600	3750	450	100	65	100	2	65	2
		8000	1800	3450	450	125	65	125	2	65	2X2
		9000	2000	3200	450	125	65	125	2	65	2X2
		10000	2000	3500	450	125	65	125	2	65	2X2



## VERSOTHERM SPECIALITIES

Versotherm Calorifiers can be supplied with all needed accessories to be used with for the better performance of the Calorifiers and System. All accessories are complying universal standards and ensuring better performance.

### Insulation

All Versotherm Calorifiers are supplied with Insulation and cladding unless otherwise specified for. Standard insulation is with 50mm thick Mineral Wool insulation or 50mm thick Polyurethane insulation. Insulation will supported with Cladding. Standard Cladding for Stainless Steel Calorifiers are Stainless Steel. Also other cladding is available with Aluminum or Galvanized Steel Sheet.

### Lifting Points

Lifting points will be provided with the Calorifiers to suit Loading unloading and site clearance. If the Unit is transported horizontally, lifting points will be provided in both horizontal and vertical sides.

### Support Legs

Support legs are provided with Steel or Stainless Steel. Supports are designed to meet the requirements of transportation and operational weight.

### Temperature-Pressure Relief Valve

All Calorifiers need to provided with Temperature Pressure relief valve, to ensure the Calorifiers Shell will not be operated at beyond the designed limit. All VERSOTHERM Calorifiers are with provision for the TP Safety Valve and can be included in our scope of supply

### Anti-Vacuum Valve

Anti-vacuum Valve is recommended with all Calorifiers to ensure the shell will not get affected by vacuum due to the sudden drain or any negative pressure in the Shell. All VERSOTHERM Copper lined Calorifiers are supplied with Anti Vacuum Valve and in other Calorifiers provision shall be provided.

### Temperature & Pressure Gauge

Gauges need to be provided with the Calorifiers for the monitoring of the parameters. Provision are provided and all standard Calorifiers and can be supplied with unit upon request.

VERSOL can offer skid assembled solutions of versotherm calorifiers with circulation set, controls which will make easier site work & ready to start solutions.



# Water Heating & Cooling Solutions

Solar Water Heaters

Heat Exchangers

Storage Calorifiers

Heat Pump

Hot Water Boilers

Gas Fired Calorifiers

Electric Calorifiers

Steam Boilers



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