



ENERGY PROCESS EQUIPMENTS

ENTHERM

A safe-economical and efficient
industrial thermic fluid heating system

Oil/Gas Fired Model

Fully Automatic Vertical
and Horizontal

High Fuel Efficiency

Instant Heating

Non-IBR

Easy Maintenance

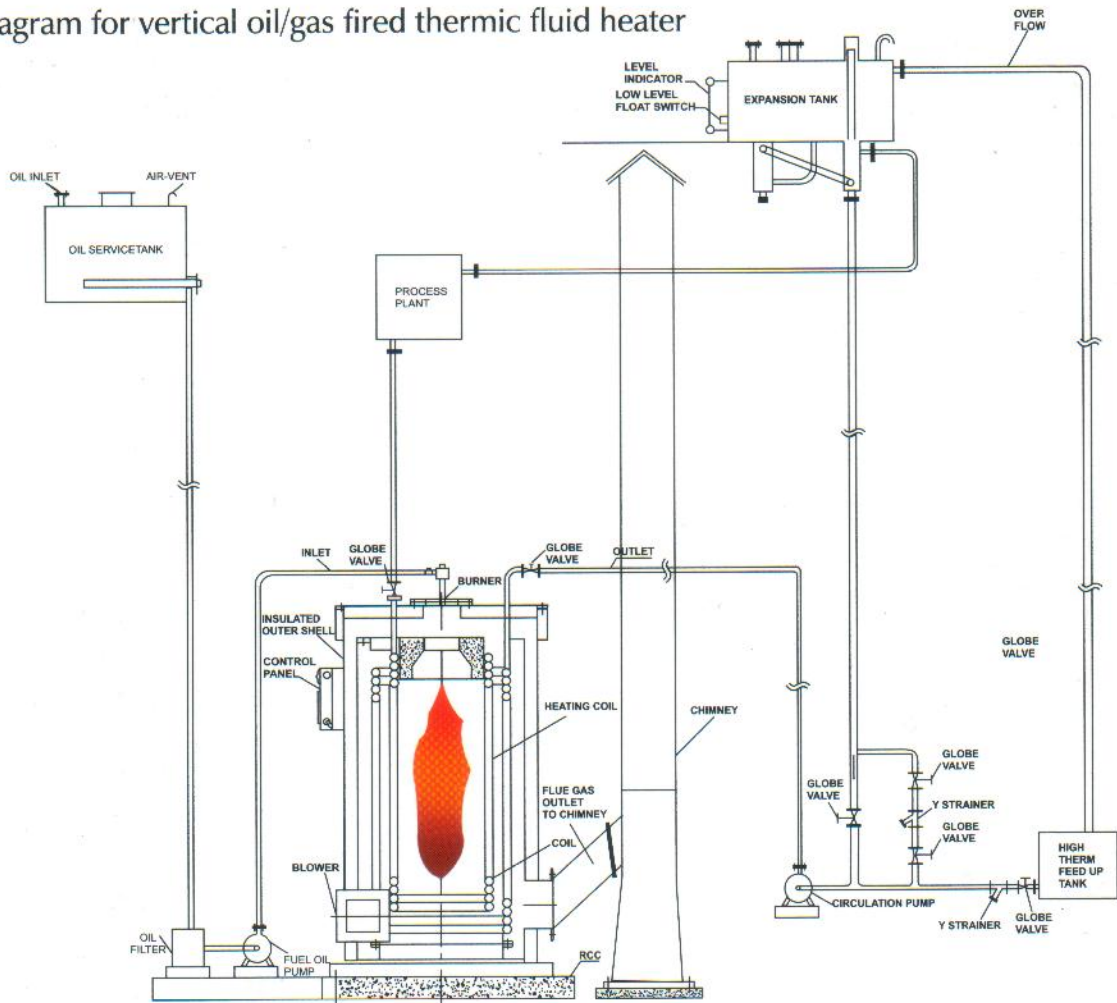
Low Budget Equipment

Indian Boiler

Regulation not Required



P & I Diagram for vertical oil/gas fired thermic fluid heater



Technical Specifications of 'EPE' Thermic Fluid Heater

MODELS	UNIT	TCV-07	TCV-10	TCV-20	TCV-40	TCV-60	TCH-100	TCH-200	
Heat Output	Kcal./Hr.	70,000	1,00,000	2,00,000	4,00,000	6,00,000	10,00,000	20,00,000	
Maximum Operating Outlet Temperature	°C	300	300	300	300	300	300	300	
Circulating Pump Capacity	M ³ /Hr.	5	7.5	18	35	45	75	150	
Efficiency on GCV	%	←-----→		83 ± 1%		←-----→			
Efficiency on NCV	%	←-----→		88 ± 1%		←-----→			
Fuel Consumption (Approx)	LDO/HSD	Kg./Hr.	8.25	11.6	23	46	68.6	114.4	225
	FO/LSHS	Kg./Hr.	8.75	12.5	25	48	71.5	119	238
	Natural Gas	NM ³ /Hr.	10	14	27.6	55	82	137	270
Electric Supply		←-----→		415 volts, 50Hz, 3 Phase, 4 Wire		←-----→			
Fuel Oil Pump	KW	0.37	0.37	0.37	0.37	0.37	0.74	1.11	
Circulating Pump Motor	KW	2.23	3.72	5.59	7.45	11.18	14.91	18.64	
Blower Motor	KW	0.37	0.74	1.49	2.23	3.72	3.72	5.59	
Furnace Oil Preheater	KW	1.0	2.0	3.0	4.0	6.0	9.0	15.0	
Total Connected Load	LDO/HSD	KW	2.97	4.83	7.45	10.05	15.27	19.37	25.34
	FO/LSHS	KW	3.97	6.83	10.45	14.05	21.27	28.37	40.34
	Natural Gas	KW	2.6	4.46	7.08	9.68	14.9	18.63	24.23
Dimension (Approx.)	Height	mm	1200	1500	1800	2500	3500	2000	3000
	Length	mm	900	1200	1500	1800	2000	4000	6000
	Width	mm	900	1200	1500	1800	2000	2000	3000
Dry Weight (Approx.)	Kgs.	1200	1800	2500	3000	4000	6000	10500	
Expansion Tank Capacity	Ltrs.	250	250	450	600	750	1000	2000	

- Gross Calorific Value of LDO 10,700 Kcal/Kg.
- Gross Calorific Value of HSD 10,900 Kcal/Kg.
- Gross Calorific Value of FO 10,200 Kcal/Kg.
- Gross Calorific Value of LSHS 10,550 Kcal/Kg.
- Gross Calorific Value of NG 8,500 Kcal/M³

Note:

1. The TFH units indicated in the above table are as per our present range of manufacture. We also manufacture and supply of TFH to the clients specific requirements.
2. The efficiency is guaranteed subject to clean internal and external heat transfer surfaces.
3. Design is under constant improvement and is subject to change without notice.

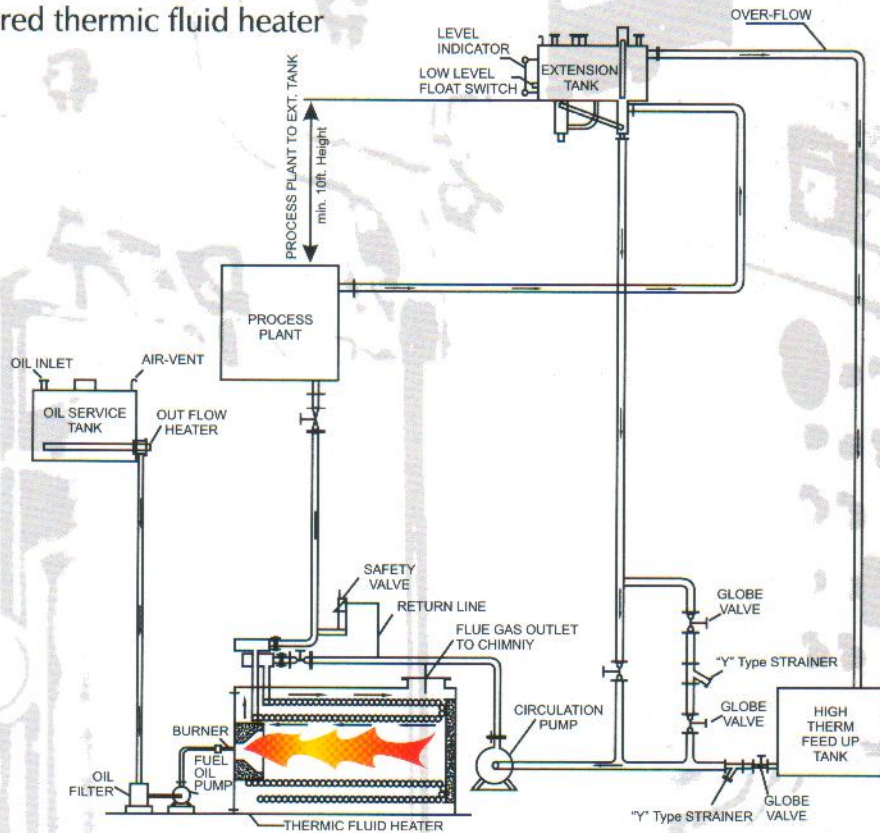
P & I Diagram for horizontal oil/gas fired thermic fluid heater



HORIZONTAL THERMIC MODEL



EXPANSION CUM DEARATOR TANK



Construction and Function of Entherm

Thermic Fluid Heating system is a fully automatic packaged, oil/gas fired 3 pass heater in which Thermic fluid can be heated upto 300°C almost at atmospheric pressure. Thermic fluid heater is a closed circuit unit in which a hot thermic fluid is circulated. The heat is transferred to process through a heat exchanger in user equipment.

Heat Exchange

The integral combustion chamber is provided with concentric helical tube coils, placed in double shell of mild steel construction, allowing flue gases to pass thrice, thus ensuring optimum heat release and maximum heat transfer, due to top elimination of extensive use of refractory, it permits rapid start up operational and maintenance flexibility.

Instrumentation and controls

Thermic Fluid is fully automatic and safe for a unattended continuous operation. This is possible only due to reliable instrumentation and controls incorporating in the system. Every safeties are interlocked giving an indication by flowing lamps on control box audio visual alarm.

Major Controls and Safeties

Flame sensor, Photo-electric cell operated audio-visual alarm and automatic burner cut-off, high temp. Burner cuts off giving an audio-visual alarm, low flow of thermic fluid, differential pressure switch operated audio-visual and burner cut-off, low fuel temp. (in case of F. O.) burner cuts off due to low temp. and audio-visual alarm, low thermic fluid level (In expansion tank) burner cuts off due to level audio-visual alarm.

Low Budget Equipment no Indian Boiler Regulations

Thermic Fluid is a pressure less liquid phase heater and it is outside the preview of Indian boiler regulations. No statutory inspection are required eliminating the need for a shut-down of the process. No corrosion or scale formation. The heat transfer used in the thermic fluid are of mineral origin and do not contain any dissolved solids, which causes corrosion of lead to scale information.

The Thermic Fluid Pump

The high temp. centrifugal pump circulates the hot thermic fluid at the required capacity and head, the pump is provided with colling jackets, Graphoil packaging coupled with suitable electric motor.