

EFFITHERM GLOBAL

HIGH PERFORMANCE

Modern Type Oil / Gas Fired Thermic Fluid Heater



SALIENT FEATURES

- High Thermal efficiency
- Furnace is designed for multi-fuel options
- Coil design with optimum flow consideration to gain maximum heat from flue gas
- Robust construction
- High combustion efficiency by maintaining Air to fuel ratio via ID Fan, FD Fan, Booster Fan (if needed).
- De-aeration tank is specially designed considering flow and temperature requirement.
- Low power consumption
- No choking of flue gas passes

Capacity Range

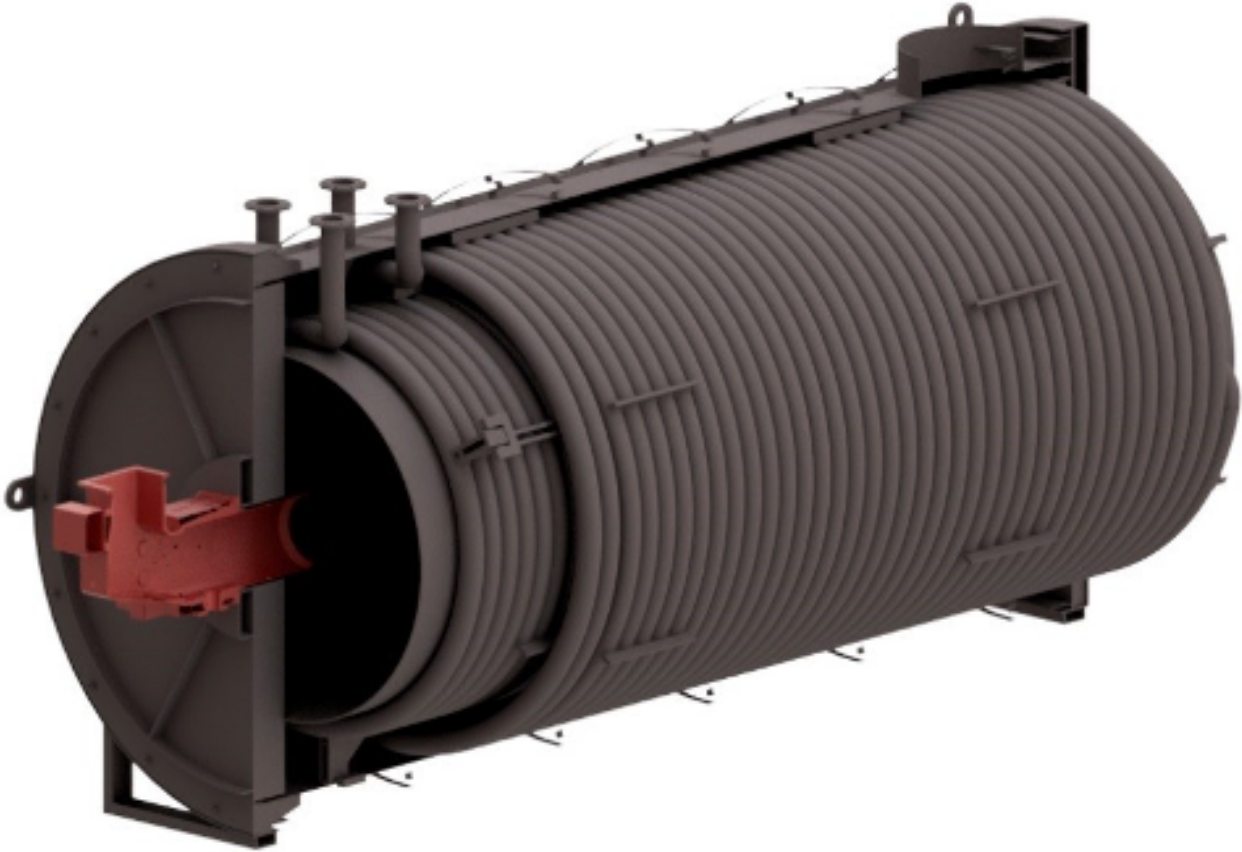
200,00 kcal/hr to 3 Mb kcal/hr



ROLLCE

EFFITHERM OVERVIEW

The well-documented technology and focus on system efficiency form the basis of Rollce's series of thermal oil boilers



Thermal oil boilers are most often used instead of steam and high temperature hot water boilers, with oil as the heat-carrying fluid. In general, a higher temperature level is achieved at low operating pressures. With pressure less thermal oil systems, temperature up to 300°C is achieved. 380°C is achievable with pressurized thermal oil systems.

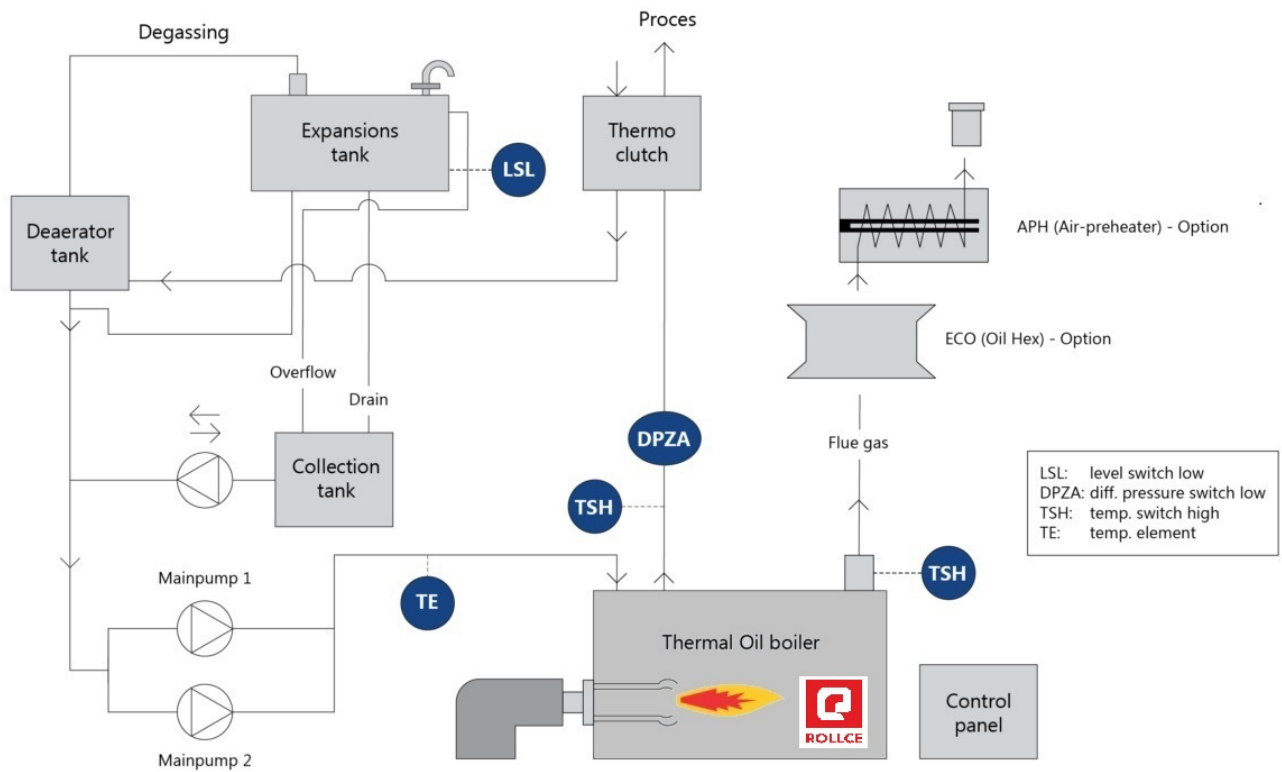
Horizontal thermal oil boilers are supplied as standard with oil-cooled end plates. This results in better operating economy and a maintenance-free solution.

Rollce thermal oil boilers are offered with a complete range of accessories:

- **Primary circulation pump(s)**
- **Expansion tank**
- **Collection tank**
- **Filling and emptying pump**
- **Deaerator tank**
- **Thermo Clutch**
- **Air preheater**
- **Burner and control panel**

Our unique mixing pot (Thermo Clutch), allows the hot oil boiler to adapt to different process requirements with optimized flow design. In practice, the same hot oil boiler can cover a larger ΔT area on the secondary side. This technology ensures better boiler performance, lower energy consumption and optimized pump sizes.

TYPICAL P&I DIAGRAM FOR THERMAL OIL SYSTEMS

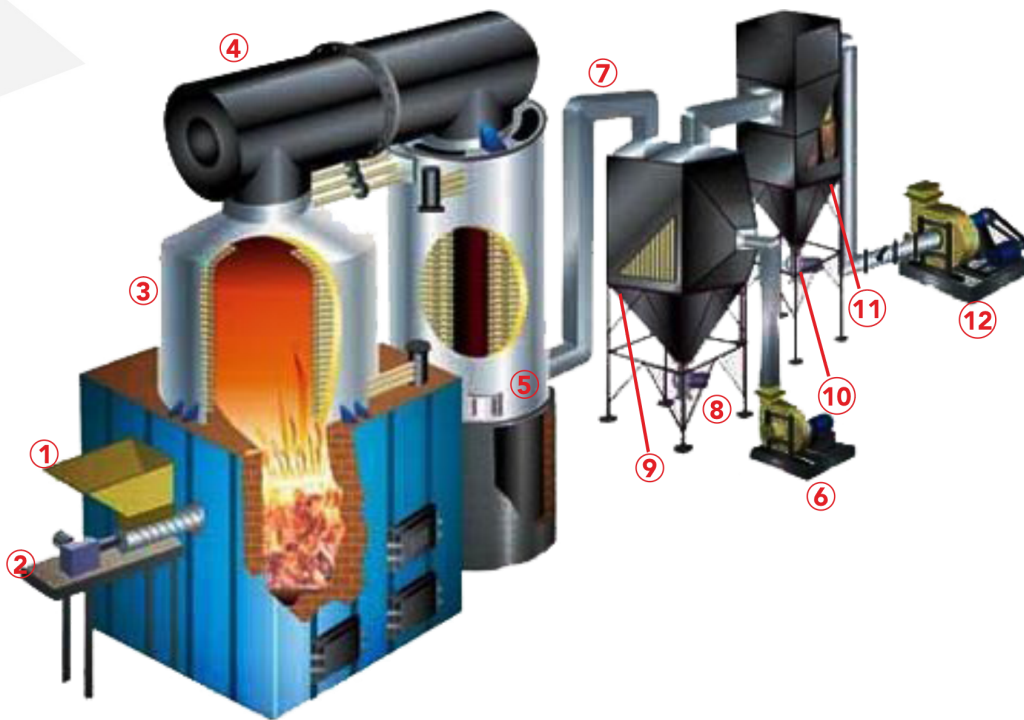


THERMAL HEATER CONFIGURATIONS

Capacity Range	0.2 Mn to 10 Mn Kcal/hr
Maximum Design Pressure	16 kg/cm ²
Maximum Design Temperature	up to 380°C
Fuels (Oil & Gas)	Bunker Oil/Diesel/Liquified Petroleum Gas/Natural Gas/Bio-Gas
Design Standards	ASME
Certification	DOSH
Design and manufacturing Certification	TUV, SGS, LYODS

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- 1) Hopper
- 2) Screw Feeder
- 3) Radiant Coil
- 4) Flue gan duct
- 5) Convective coil
- 6) F.O. Fan
- 7) Flue gan duct
- 8) Rotary Air lock valve
- 9) Air pre heater
- 10) Rotary Air lock valve
- 11) Dust collector
- 12) Diesel engine drive

AUTO CONTROLS AND SAFETY

- Thermic Fluid Temperature Control

Digital temperature Indicator-cum-controller cut of ID/FD fan of preset temperature and restart of present temperature and restart of preset differential temperature to maintain system temperature.

- Stack Temperature Control

A blind temperature controller cuts off ID/ FD fan and sounds an alarm if the stack temperature exceeds a preset temperature.

- Low/ NO Flow of Thermic Fluid

Differential pressure switch connected across intel and outlet headers signals low flow alarm in case of the low fluid pressure of Thermic fluid in coils

- Low Level of Thermic Fluid

The visual level indicator and float actuated lever switch fitted in the expansion tank signals alarm in case of low-level thermic fluid in the system

- Thermic Fluid Pump Motor Trip

In case of thermic fluid pump motor trip, electrical interlocks, cut off ID/ FD fan.

- Power Failure

Diesel engine drive keeps thermic fluid moving in the system to prevent degradation and overflow.

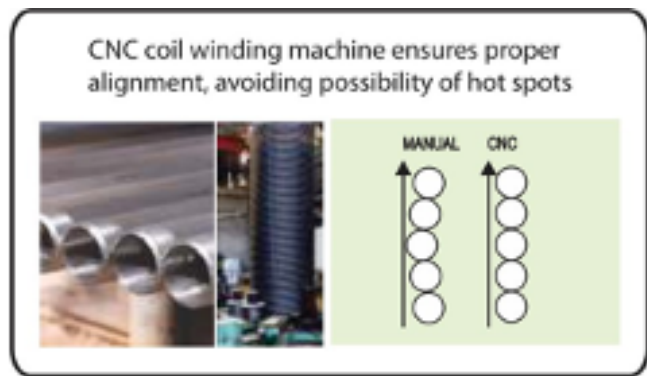
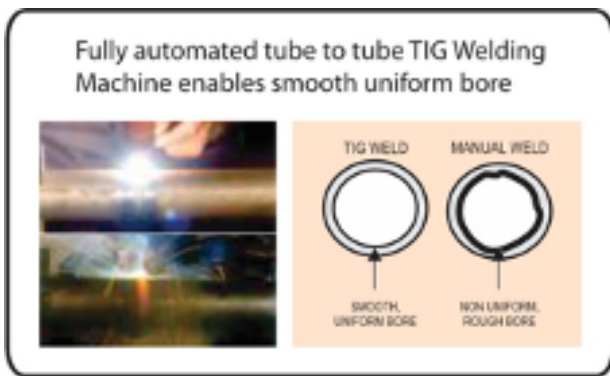
EFFITHERM FEATURES

OPTIONS AVAILABLE

- Vertical/horizontal design
- Oil, gas, or combi fired
- Air preheater ($\geq 91\%$ efficiency)
- ECO oil/flue gas (2-3% temp. depen.)
- High media temperature up to 350°C
- Complete accessories

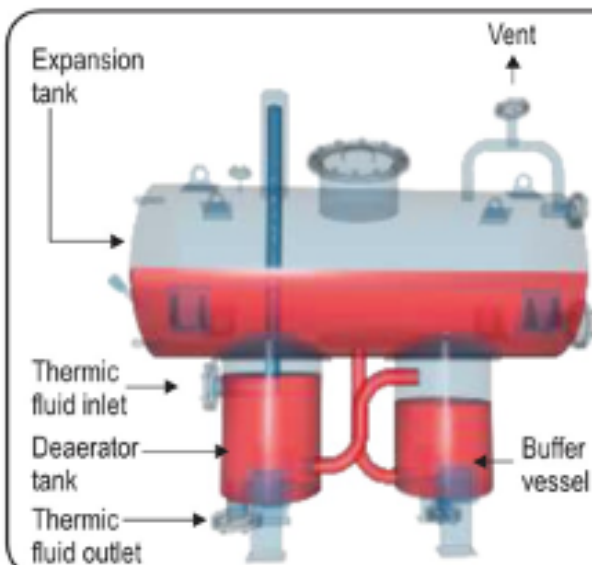
OPERATION AND SAFETY

- STOP at low oil flow
- STOP at high oil temperature
- Precise oil temperature control
- STOP at the low oil level
- STOP at high flue gas temperature



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 operations and maintenance of boilers.



Compact Deaerator Cum-Expansion Tank

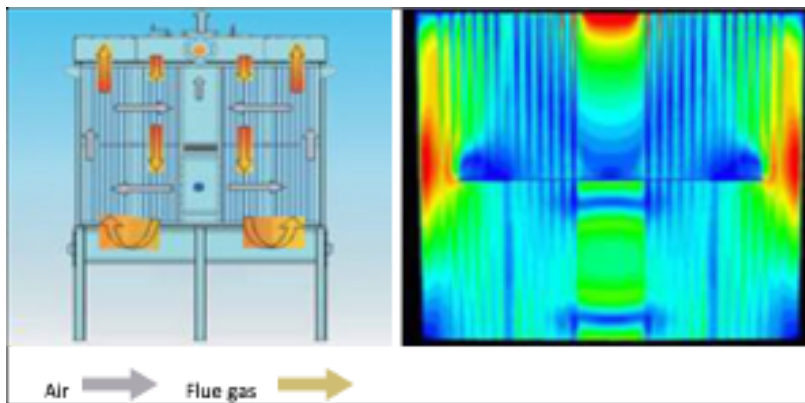
- The tangential thermic fluid entry in the de-aerator ensures optimal de-aeration
- It comes with a buffer vessel to prevent cooling of hot oil coming from the process
- De-aerator cum expansion tank having assembled together requires less space

Note : For multiple Thermopac installed in process house or for very high system holdup separate de-aerator and expansion tank can be supplied

EFFITHERM FEATURES

AIR PREHEATER (APH)

- High-pressure safety valve Rollce air preheater (APH) comes with a non-corrosive design, with a hybrid cross and counter flow design that has been validated with extensive CFD analysis.
- Used for heating the combustion air, ensuring high efficiency of the hot oil boiler.
- System efficiency and NOx emissions are opposing factors that are considered when designing the air preheater.




Advantages of APH design:

- Air is introduced in the intermediate flue gas zone which maximizes heat recovery and reduces stack temperature.
- The diverter damper in the flue gas line facilitates online cleaning of the APH and the use of only one module while the other is under cleaning.
- Modular APH helps to maintain efficiency even under part load conditions.
- No risk of dew point corrosion as the configuration ensures optimum steel temperatures.


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