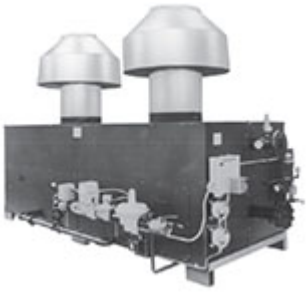
Item # O-HT-6250, 207 Series 200 Inch (in) Overall Length (2LB) Industrial High Temperature Thermal Fluid Liquid Heater

Gas, Power Gas, Oil or Combination Gas/Oil Fired (Low NOx Models Available)

The Parker bent steel liquid tube design offers an extremely efficient, reliable thermal fluid heater built for the long term and ease of maintenance. Low NOx burners are available. The Parker design offers many advantages. Compare ours to the competition.



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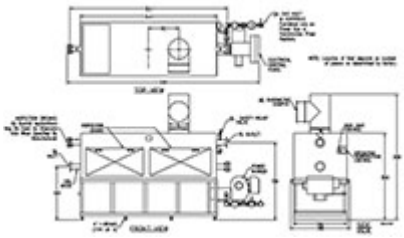

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Specifications

Brands	Parker
Heat Input (A)	6250 MBtu/hour
Heat Input (B)	5000 MBtu/hour
Flange Class (15)	Class 300
Flange Type (15)	Weld Neck
Flange Class (16)	Class 300
Flange Type (16)	Weld Neck
Temperature[1]	350 ºF 400 ºF 500 ºF 550 ºF 600 ºF 650 ºF
Recommended Clearances for Access	Additional space may be required by local codes. Controls 24 in. Electrical Panel 30 in. Inspection Doors 18 in.
Certifications	ASME S
Heater Thermal Fluid	Oil
Fuel Type	Oil

[1] Types of Media

The Parker Boiler Design

A time proven product backed by one of the largest and most successful manufacturers of packaged boilers whose name is synonymous with quality and safety. Every heater is thoroughly factory fire tested and is required to meet the highest standards in all phases of mechanical and operating efficiency before shipment.

Applications

Process heating applications which require temperatures between 350 and 650 ºF can frequently be serviced more dependably,

efficiently, uniformly and safely with a Thermal Liquid System as opposed to a steam, water, electric or direct fired system.

Over the past 50 years, thermal liquid systems have been used in a wide variety of applications. The following are some common uses:

- Chemical Plants
- Plastic Molding
- Cooking Fish Sticks to Potatoes
- Distillation
- Pipe Coating
- Asphalt Heating
- Laundries/Dye Houses
- Wood Veneer Manufacturing
- Particle Board Pressing
- Soil Remediation
- Food Processing
- Oil Heating
- Adhesive Heating

It is probable that more and varied applications will continue to be found.

System

A Thermal Liquid System consists of the heater, circulating pump and expansion tank, and possibly a distribution tank, with properly sized piping to the heat utilizers, such as jacketed kettles, presses, reactors, ovens, exchangers, etc.

System distribution tanks for primary secondary pumping systems are common when flow thru the heater cannot be guaranteed with one pump system.

Atmospheric Gas Fired Model

Correctly engineered, a Thermal Liquid System is extremely trouble free. Operating pressures are very low permitting the use of standard pipe and fittings. The entire system can be open to atmosphere through the expansion tank. Thermal liquids specifically compounded for high temperature service are readily available.

Heater, Flexible Tube Design

The Parker Direct Fired Type Heater represents an ideal heating system for thermal liquids. Our all double welded, bent steel liquid tube design allows for the continuous expansion and contraction to which the heater must be subjected without damage.

The double welded construction eliminates the problems of rolled tubes, ferrell fits, retainer clips, etc, experienced in competitive units. Thermal liquids at advanced temperatures are so thin that only the finest welding can contain the fluid without leakage. Since all fluids will burn in the ambient temperature of the gas flame, this leakage can be serious.

Advantages

1. Large Heating Surface All models contain at least 5.5 sq. ft. of heating surface per equivalent boiler H.P. This low intensity heat transfer assures long tube life and maximum operating efficiency.
2. Controlled Flow It is absolutely essential the thermal liquid is maintained at uniformly high velocity in every tube to prevent over-heating.
   This is accomplished with baffles in the upper and lower headers directing the flow through a selected number of tubes in each pass.
3. Durable Cabinet The cabinet is specifically designed and constructed for high temperature service using reinforced sheet steel effectively insulated to retain heat within the cabinet. The exterior is protected with a baked enamel finish.

Thermal Liquid Heating

Thermal liquid heating is a specialized form of process heating that utilizes the forced circulation of special heating medium as a liquid. In many types of process heating, high temperature, rather than high pressure, is essential where heat, not vapor or steam per se, is required. Thermal Liquid Systems can generally be used at high temperature without a corresponding high pressure.

History

In 1954 the first Parker High Temperature Thermal Liquid Circulating System was installed. This system and the numerous ones that followed have operated extremely well and the owners attest to their satisfaction. The continual trouble free operation of these units proves the practicality of the Thermal Liquid System for solving high temperature problems.

Heater

The Parker Direct Fired Type Heater represents an ideal heater for thermal liquids. Our all welded, bent steel tube design allows for the continuous expansion and contraction to which the heater must be subjected without damage. Please refer to our Brochure 207 for internal construction details. The double welded construction eliminates the problems of rolled or poor joining of tubes, experienced in competitive units. This type of heater is preferred by more Fluid Manufacturers. Thermal liquids at advanced temperatures are so thin that only the finest welding can contain the fluid without leakage. Since all fluids will burn in the ambient temperature of the gas flame, this leakage can be serious with other than our design. The effects of thermal liquid shock are nullified in our serpentine design tube assemblies.

Our parallel serpentine tube design is ideal for velocity flow control. By installing baffles in our headers to divert the flow of medium, we can obtain the required velocity through the tube. Generally a velocity of 8 to 12 ft. per second is required across the internal tube surface. The baffling is simple and requires no maintenance. Due to the higher anticipated heater temperatures, we use a high temperature insulated cabinet on Thermal Liquid Heaters. This contributes to our high thermal efficiency. Additionally, the tube design extracts the optimum of heat from the burners.

Numerous special controls must be employed which are not standard to other Parker Boilers. Higher range temperature operating and high limit controls are provided. A pressure control is provided to monitor the pressure differential across the heater. A relay interlocks the pump motor to the burner circuit to assure that the pump is running prior to burner operation. FM (Factory Mutual) trim is standard on Parker Thermal Fluid Heaters. Parker offers Thermal Liquid Heaters with standard atmospheric natural gas or propane fired burners, with our new Premix Low NOx Burners, or with Power Burners for oil or power gas firing.

Fluids

The fluid to be used must be selected from a wide variety of specifications. Fire resistance, cold flow and freeze points, high operating temperatures, viscosity at varying temperatures, life expectancy, vapor pressure characteristics, and of course, fluid cost are among the deciding factors in fluid selection.

There are a number of fluids available and all of them have been successfully used in Parker Thermal Liquid Heaters. They include: Mobiltherm (Mobil Oil Co.), Thermia (Shell Oil Co.), Therminol (Monsanto), Sylthemm (Dow Chemical), Parthemm (Paratherm Corp.), Multitherm (Multitherm Corp.), Humblethemm (Humble Oil Co.), Ucon (Union Carbide), Caluria (Exxon), and Calflow. Final fluid selection should be made in consultation with experienced personnel to determine the best fluid for the application.

Pumps

In closed recirculating Hot Water Systems, pump selection in GPM is based on the desired temperature rise through the heater and the system head pressure. Pump selection in a thermal liquid system is based on velocity flow across the tube surface and the total system head. Some fluids reduce viscosity by 100 times from 50 centistokes at 100 ºF to 0.5 centistokes at 600 ºF. Velocity flow should not be less than 8 feet per second, which with 1" pipe as boiler tubing represents approximately 20 GPM per tube. Due to the change in viscosity with change in temperature, pump motor horsepower must be selected by considering the cold point and hot point of the system. Parker can assist in selection and provide air cooled or water cooled pumps.

Tanks

Selection of the system expansion tank can generally be based on the simple formula of 4 % expansion per 100 ºF of temperature. This figure will be accurate enough for most applications. The tank should be sized to be 1/4 full at 70 ºF and 3/4 full at maximum system temperatures. A sight glass and low liquid level cut-off should be installed on the tank to monitor liquid level. The tank should be mounted at the highest point in the system. Provisions should be made to vent the system to the correct opening in the expansion tank. Refer to piping diagrams. Expansion Tank pressurization with nitrogen or air may be necessary.

System Arrangement/Specification

A central system distribution tank for primary secondary pumping systems is common and recommended when flow thru the heater cannot be guaranteed with a one pump system.

All system piping over 1" should be welded. When flanges are required, a high grade Flexitallic high temperature spiral wound gasket must be used. No petroleum type pipe dope should be used. All long circulating lines should be protected with expansion joints to prevent damage due to expansion.

Additional Information

Never a Compromise for Quality or Safety.

Note

All of the above dimensions are for a standard trim model. Due to continuous improvement, specifications are subject to change without notice.

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