



THERMAL FLUID  
HEATERS



# **PACKAGED THERMAL FLUID HEATERS**

THE HI-R-TEMP® LINE

**VAPOR POWER** INTERNATIONAL

# THERMAL FLUID HEATERS

## Forced Circulation Coil Tube Design:

Capacities from: 400,000 to  
20,000,000 BTU/HR

Temperatures: Up to 750° F

HI-R-Temp® is a forced circulation type liquid phase heater in which fluid circulates through a set of coils. The pump is sized to optimize motor horsepower and maintain the fluid properties. Combustion fuel and air are controlled in response to fluid outlet temperature. This assures the outlet temperature of the heater is held steady.

The small volume and high fluid velocity allow the HI-R-Temp to respond quickly to changing system output requirements. The compact design makes installation simpler and less costly for new construction and retrofit. Simple, non-proprietary controls and advanced heat exchanger design lead to the most efficient, user friendly heaters available.

For over a century, our company has been serving the needs of a wide range of industries that require process heating. We have earned a reputation as the premier designer and manufacturer of boilers, steam generators and liquid phase heaters used worldwide.

# ADVANTAGES

- **RAPID START UP**  
From cold start
- **LOW INSTALLATION COSTS**  
Only half of the floor space of typical units is required
- **OPTIMAL EFFICIENCY AT ANY LOAD**  
Full modulation of air and fuel with cycle time of less than 30 seconds
- **LONG LIFE & MINIMUM MAINTENANCE**  
Coils designed for pressure of 1000 psi result in thicker coils for longer life
- **MAXIMUM SAFETY**  
All safety features included
- **MINIMUM CYCLING**  
Turndown ratios of up to 10 to 1 for handling wide range of loads
- **MINIMUM PREPURGE ENERGY LOSS**  
Compact size allows proper prepurge in seconds
- **LOW FUEL REQUIREMENTS**  
Air preheating and combustion zone for complete combustion
- **SIMPLIFIED FUEL SWITCHING**  
Only a turn of a switch is required, no burner changes needed
- **EASY INSTALLATION**  
Skid mounted design includes control panel
- **EASY ACCESS TO BURNERS**  
End mounted burner is simple to maintain
- **MINIMAL SOOT POTENTIAL**  
Separate combustion chamber prevents coating coils with partially burned fuels
- **COMPLETE LINE**  
Fourteen sizes to permit proper selection for any application

# APPLICATIONS

- Asphalt Terminals & Processing
- Chemical Processing
- Corrugated & Paper Processing
- Food Processing
- Marine - Barges & Ocean Vessels
- Oil & Gas Processing
- Process Steam & Heat
- Textile Industry
- University & Institutional Facilities
- Waste Water Treatment Facilities

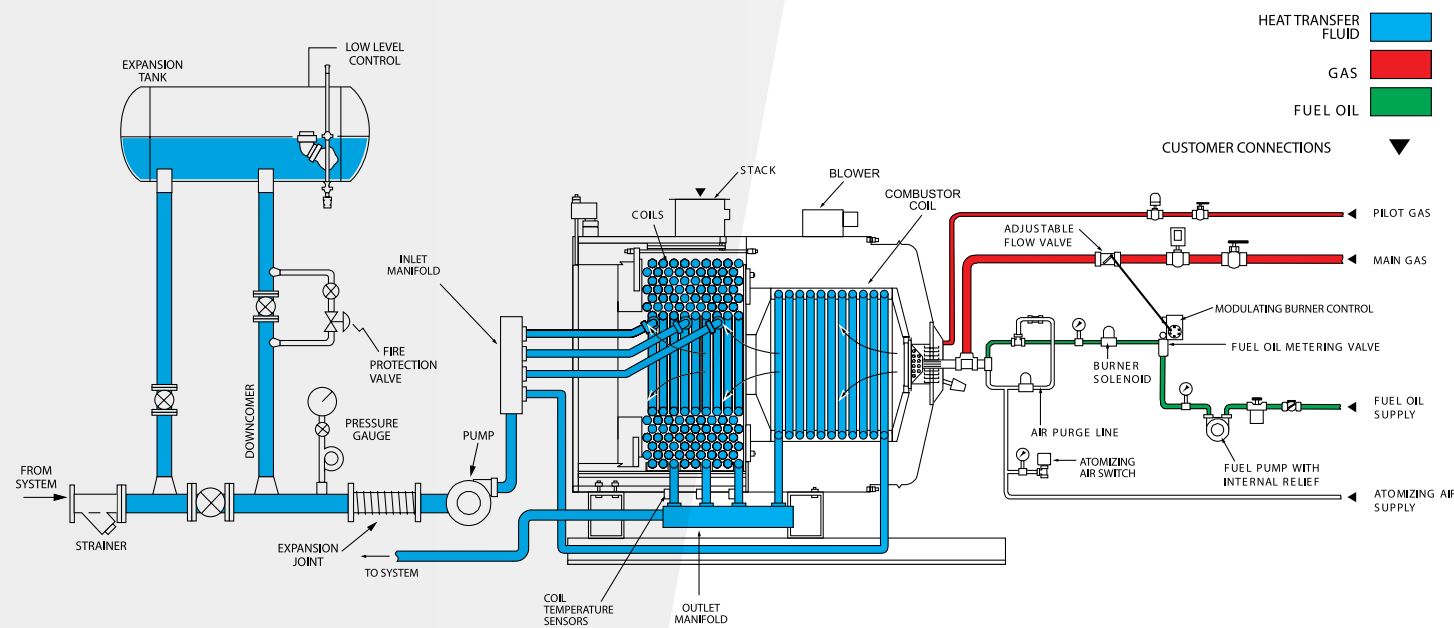
# HI-R-TEMP® FLOW DIAGRAM

The HI-R-Temp® is a forced circulation coil type thermal fluid heater in which fluid circulates through a set of coils. More efficient than helical coil type heaters, the HI-R-Temp coils are parallel connected and have a minimum of seven concentric layers.

The pump is sized specific to the flow rate and pressure drop requirements of each application, maintaining the fluid bulk and film temperature properties. Combustion air and fuel are controlled by PID control in response to fluid outlet temperature. The small volume and high fluid velocity allow the HI-R-Temp to respond quickly to changing system output requirements.

Vapor Power heaters can be designed with system accessories that include thermal fluid pump and motor sets, expansion tanks, skid mounted systems, system valves, thermal fluid and more.

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## Integral Control Panel

A factory wired control panel contains all controls and indicators necessary for the safe operation of the unit. A programmed operating sequence is also incorporated for simplified startup. Available equipment includes linkageless burner controls, touch screen controls interface, variable speed combustion air blower, oxygen trim, remote communication and data acquisition, and more.

## Built to Meet Standards

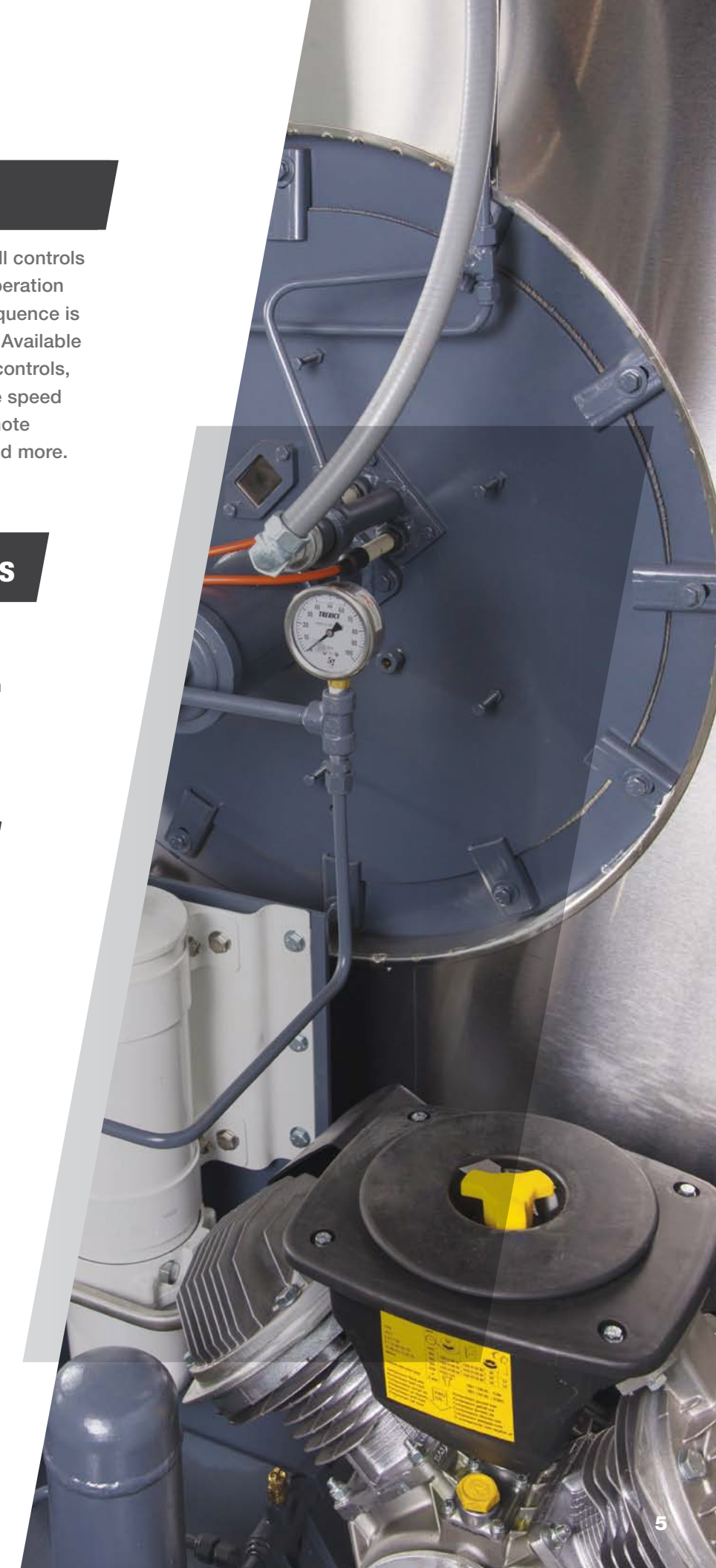
Every unit is built to ASME Standards, Hartford inspected and National Board registered. CSA, Coast Guard, American Bureau of Shipping, Factory Mutual, Lloyds and other approvals are also available upon request.

## Factory Tested

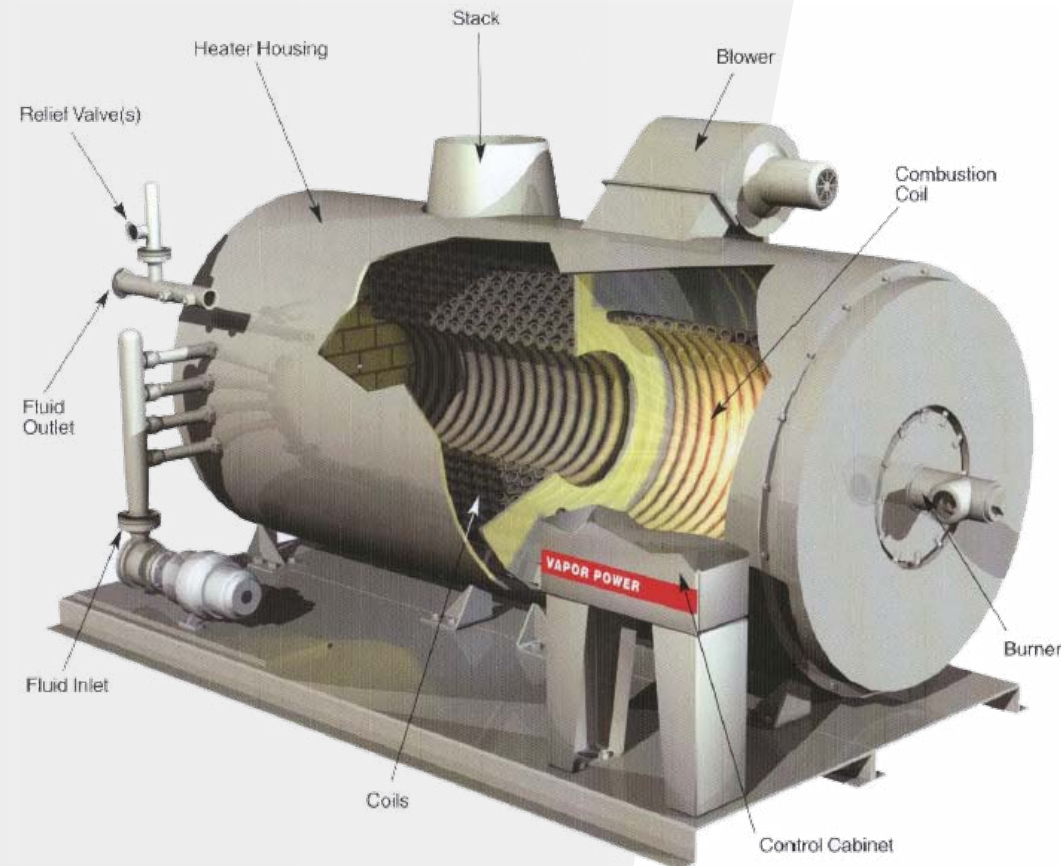
All units are fire tested at the factory, with their individual controls to assure proper operation and to allow for control adjustments which avoid installation delays.

## Features

- Marine Design
- Customized Systems
- Fully Modulating Output
- Compact Size & Weight
- High Efficiency



# HI-R-TEMP® SPECIFICATIONS



**HEATER TYPE:** Multiple parallel coil, coil tube type, forced circulation, forced draft fired.

**BURNERS:** Air atomized burner for #2 fuel oil. Multi-orificed burner for natural gas or LPG. Burners available to meet low NOx and ultra-low NOx regulations.

**IGNITION:** Electric spark ignited, interrupted gas pilot on most units. Direct electric spark optional on #2 oil units where permitted.

**SAFETY CONTROLS:** Programmed flame safeguard control with flame detector, stack temperature control, coil temperature control, low flow cut-off control and fluid temperature control.

**MARINE DESIGN:** A marine version is also available. Please ask for sizing assistance.

**ELECTRIC POWER:** Main - 230, 460 or 575 VAC, 3 Ph, 60 HZ. Control - 120 VAC, 1 Ph, 60 HZ, factory wired. Special voltages are available on request.

**OPTIONAL EQUIPMENT:** Annunciator Systems, equipment to meet special codes, and fire extinguishing systems.

## DATA AND DIMENSIONS

Model <sup>1</sup>	Thermal Capacity Btu's/hr x1000	Approx. Fuel Consumption			Dimensions Inches			Approx. Shipping Weight lbs	Approx. Fluid Volume <sup>4</sup>	
		Oil <sup>2</sup> GPH	IMP Gal.	Gas <sup>3</sup> CFH	L	W	H		U.S. Gal.	IMP Gal.
4234	400	3.6	3.0	513	68	30	59	1,800	10	8.3
4238	800	7.2	6.0	1,025	89	43	80	2,300	18	15.0
4242	1,500	13.5	11.3	1,923	81	50	79	3,000	34	28.3
25	2,500	21.9	18.3	3,125	74	78	72	4,900	24	20.0
35	3,300	29.0	24.1	4,125	80	78	72	6,500	36	30.0
50	5,000	43.9	36.6	6,250	91	78	72	7,800	47	39.2
65	6,600	57.8	48.2	8,250	110	88	88 *	12,700	123	102.5
85	8,600	75.3	62.8	10,750	110	88	88 *	12,700	123	102.5
100	10,000	87.5	72.9	12,500	120	88	88 *	15,600	151	125.8
120	12,000	102.1	87.5	15,000	144	103	108	17,900	180	150.0
140	14,000	122.1	102.1	17,500	150	103	108	19,000	209	174.2
160	16,000	140.4	117.0	20,000	168	103	108	21,000	235	195.8
180	18,000	157.9	131.6	22,500	180	103	108	23,000	261	217.5
200	20,000	175.0	145.8	25,000	180	119	140	35,000	425	354.2

1. Available with heavy oil combustion systems.

2. Estimated as No.2 fuel oil of 139,000 Btu's/str. heat content.

3. Estimated as natural gas of 1000 Btu/cu.ft. heat content.

4. High temperature fluids are petroleum based and require no "water treatment".

\* Gas Fired units 108" H

### Commissioning & Training

Vapor Power can provide complete commissioning as well as hands-on, or classroom training about the complete operation of your equipment.

### Troubleshooting & Diagnostics

Vapor Power offers remote access and monitoring of your equipment.

### Parts & Service

Vapor Power stands behind its products with original OEM parts, no matter the age of the equipment. We also offer direct factory training and service on-site.

## AFTER MARKET

As one of the industry's leading manufacturers of boilers, packaged steam generators and thermal fluid heaters, Vapor Power International has everything you need to keep your boilers operating in top condition. That includes complete retrofit upgrade kits to outfit your boilers with the latest in controls and components.

- Control Panels
- Flame Safeguard Controls
- Linkageless Controls
- Temperature Controls



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