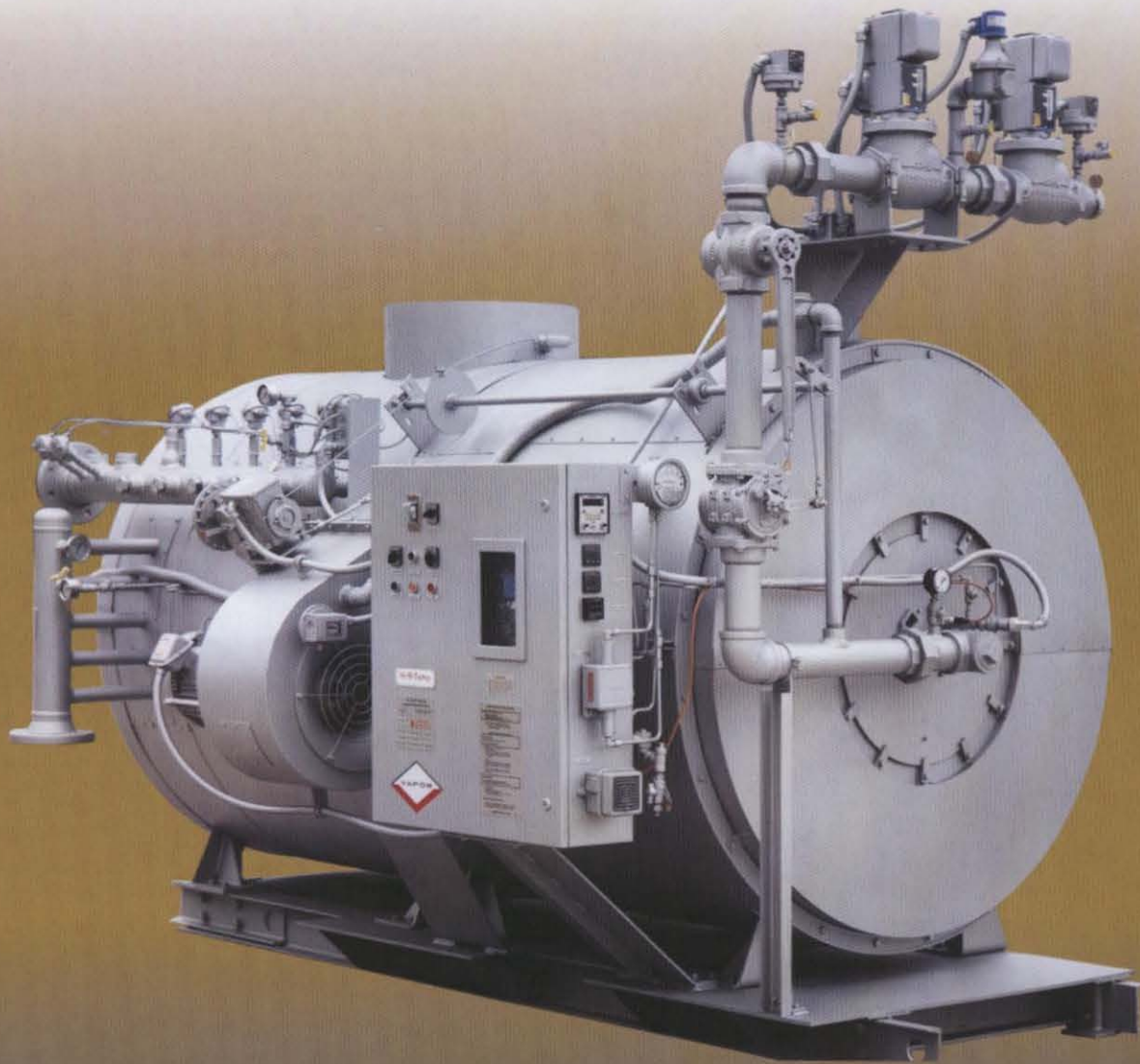


# PACKAGED THERMAL FLUID HEATERS

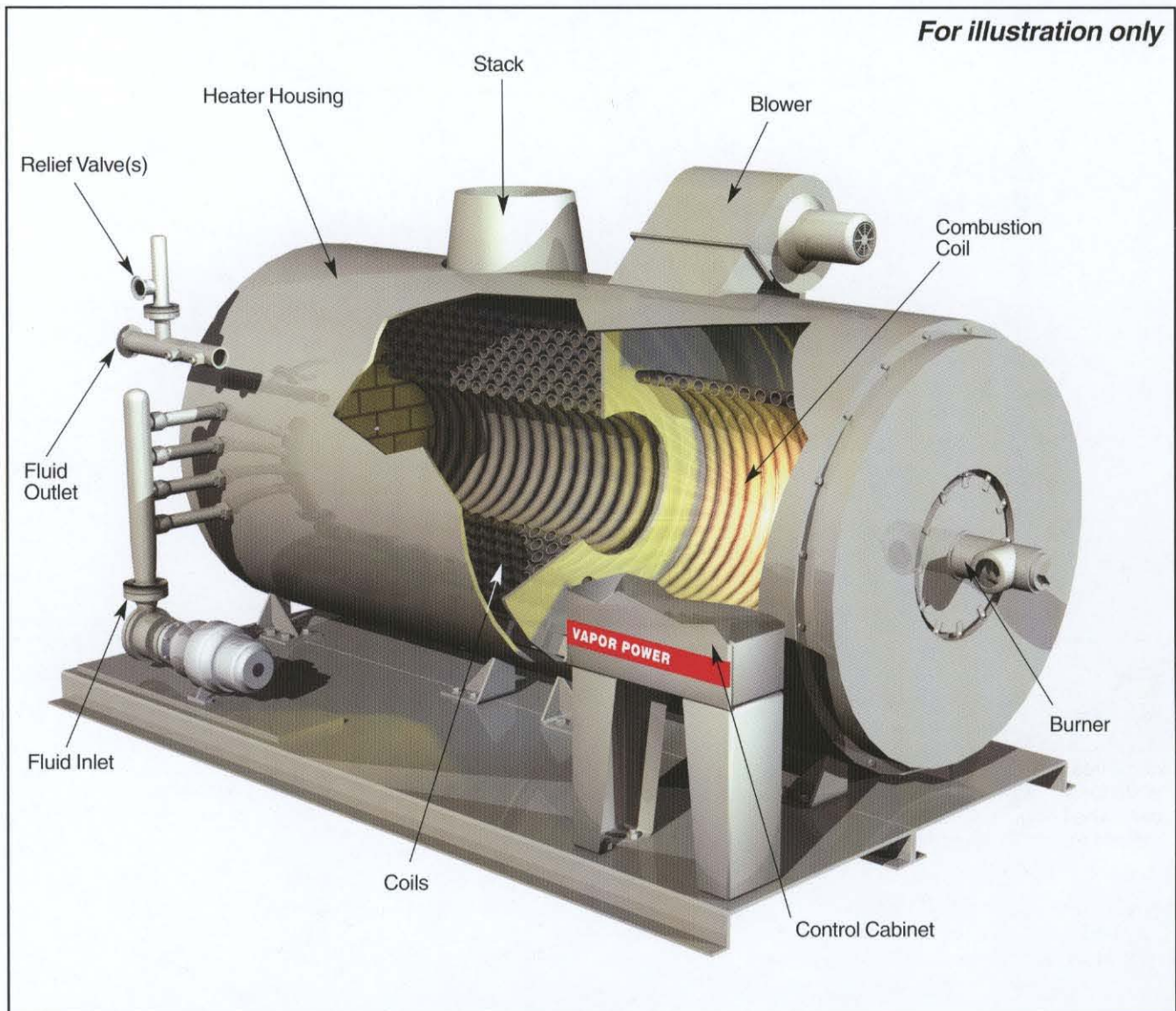
## *The HI-R-TEMP<sup>®</sup> Line*



Forced Circulation Water Tube Design:  
300°F to 750°F Process Heat  
400,000 to 20,000,000 Btu/hr

**VAPOR POWER INTERNATIONAL**

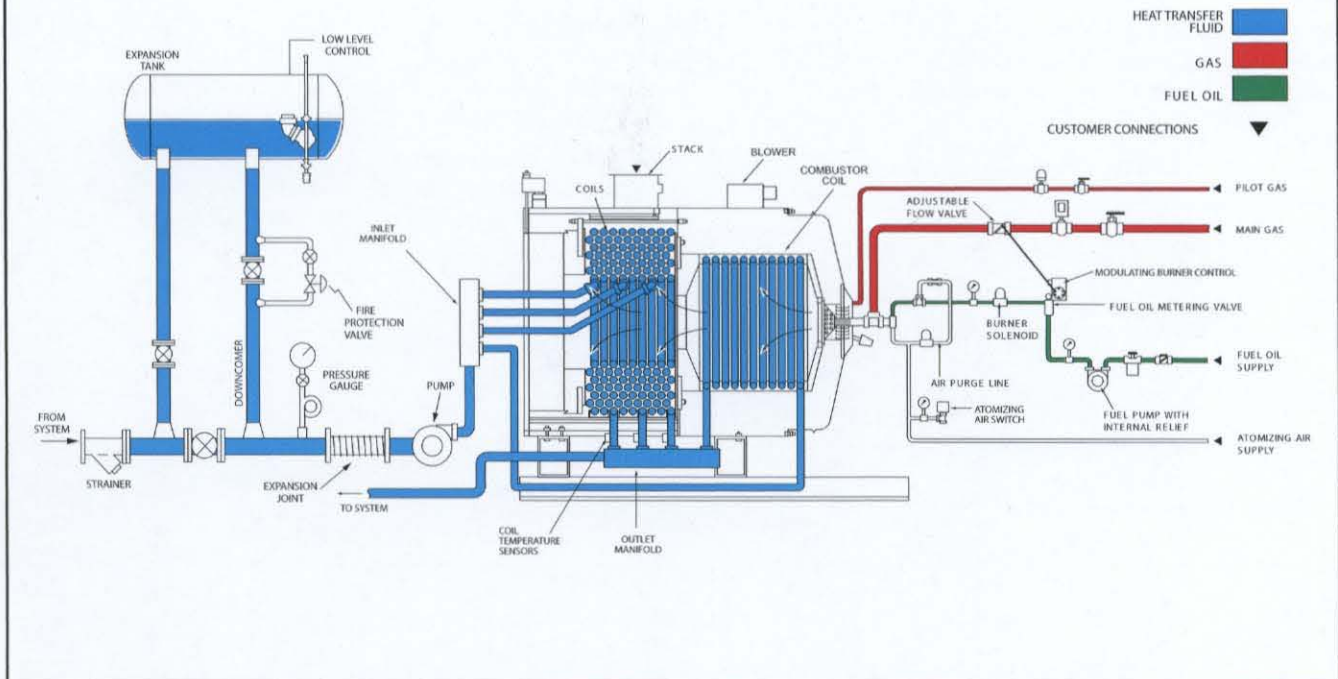
# High quality, general purpose process heat for Industrial of Marine Applications



## User Benefits you can rely on —

- Rapid startup — from cold start.
- Minimal soot problems — separate combustion zone prevents coating coils with partially burned fuels.
- Low fuel requirements — air preheating and combustion zone for complete combustion.
- Quick response to load changes.
- Complete line — thirteen sizes to permit proper selection for any application.
- Long life with minimum maintenance — coils designed for pressure of 1000 psi result in thicker coils for longer life.
- Optimal efficiency at any load — full modulation of air and fuel. (On-off controls also available where applicable.)
- Easy access to burners — end mounted burner is simple to maintain.
- Low cost coil replacement — multiple coil design permits replacement of only the damaged coil.
- Minimum cycling — turndown ratios of up to 10 to 1 for handling wide range of loads.
- Minimum prepurge energy loss — smaller size allows proper prepurge in seconds.
- Simplified fuel switching — only a turn of a switch is required — no burner changer needed.
- Low installation costs — only 40 to 60% of the floor space of typical units is required.
- Easy installation — skid mounted design includes control console.
- Maximum safety — all safety features included.

## FLOW DIAGRAM



## Operating Concept

The HI-R-TEMP thermal fluid heater is a forced circulation water tube design in which thermal fluid under pressure circulates through a set of nested, parallel connected coils while forced draft combustion gases travel across the coils. The hot gases envelope the entire tube surface making maximum use of both radiant and convective heat to achieve very high heat transfer rates.

A recirculating pump is selected to give the proper flow rate and pressures for each application to optimize motor horse power required while maintaining low film temperatures to ensure long fluid life.

Temperature controls monitor the output temperature and regulates the supply of fuel and air to the burner and provides efficient combustion over the complete modulating range of the heater. High efficiency is maintained, without thermal shock, over the full operating range, not only at high fire.

The high velocity flow and small fluid volume in the unit result in immediate response to load changes.

The built in safeguards which monitor the flame and other safety interlocks assure maximum operational safety of the heater.

## Marine Design

Vapor offers a specialized version of this heater for the marine environment. If interested in the marine design please contact our office for the applicable supplemental literature.

## Controls

An integral 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.

## Customized Systems

Vapor Power can provide a variety of skid arrangements including mounting the heater, circulating pump, and expansion tank on a common skid with interconnecting piping, valves, strainer, etc. for a complete package.

## Built to Meet Standards

Every unit is built to ASME Standards, Hartford inspected and National Board registered. Coast Guard, American Bureau of Shipping, Factory Mutual, Industrial Risk Insurers, 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 allow for control adjustments which avoid installation delays.

# HI-R-TEMP — General Specifications

## Heater Type

Multiple parallel coil, watertube 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 NOx regulations.

## Ignition

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

## Marine Design

A marine version is also available. Please ask for applicable literature.

## Safety Controls

Programmed flame safeguard control with flame detector, coil temperature control, high pressure control, differential pressure flow switch and fluid temperature control.

## Electric Power

Main - 230 or 460 VAC, 3 Ph, 60 Hz  
Control - 120 VAC, 1 Ph, 60 Hz, factory wired. Special voltages are available on request.

## Optional Equipment

Stack Switch, Annunciator Systems, equipment to meet special codes, and fire extinguishing systems.

## Data and Dimensions

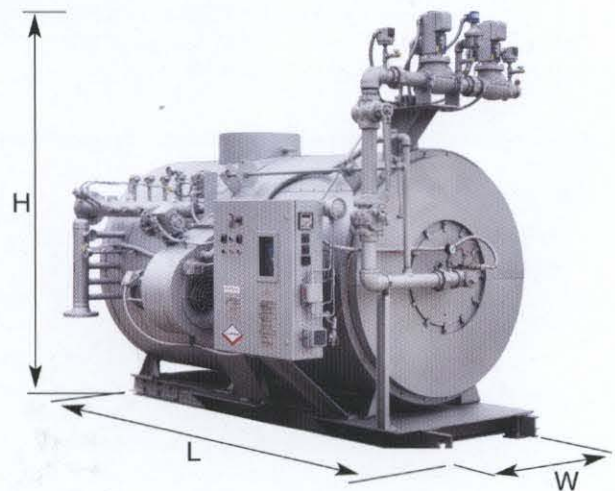
Model <sup>1</sup>	Thermal Capacity Output Max Btu's/hr (x 1000)	Approximate Fuel Consumption			Overall Dimensions (inches)			Approximate Shipping Weight (lbs)	Approximate Fluid Volume <sup>5</sup>	
		Oil <sup>3</sup> GPH	IMP. Gal.	Gas <sup>4</sup> CFH	L	W	H		U.S. Gallon	IMP. Gallon
4234	400	3.6	3.0	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	22.5	18.8	3,205	74	78	72	4,900	24	20.0
35	3,300	29.6	24.7	4,230	80	78	72	6,500	36	30.0
50	5,000	45.0	37.5	6,410	91	78	72	7,800	47	39.2
65	6,600	57.8	48.2	8,250	102	88	88*	11,600	86	71.7
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	105.0	87.5	15,000	144	103	108	17,900	180	150.0
140	14,000	122.5	102.1	17,500	150	103	108	19,000	209	174.2
167	16,750	146.5	122.1	20,935	150	119	140	32,000	350	291.7
200	20,000	175.0	145.8	25,000	180	119	140	35,000	425	354.2

\*Gas Fired units 108" H

- All units are 240 or 480 volts, 3 phase, 60 cycles, 120 VAC control power, factory wired. Other voltages on request.
- Available with heavy oil combustion systems.
- Estimated as No. 2 fuel oil of 139,000 Btu's/hr. heat content.
- Estimated as natural as of 1000 Btu's/hr. cubic foot heat content.
- High temperature fluids are petroleum based and require no "water treatment".

## Application Assistance

With over 50 years experience in the design and manufacture of steam generators, and thousands of operating units, Vapor stands ready to assist with any specific application. Computer simulation of process systems and heat loss analysis are available to ensure the proper system for your application.



**VAPOR POWER INTERNATIONAL**

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