



## Alliance. Volcanic's NEW Line of Packaged Thermal Fluid (Hot Oil) Heaters

The Alliance double wound helical coil heater features a compact footprint. Sizes 2.4 to 12,000,000 BTU/Hr.

These new heaters can be utilized for retrofit applications in marine cargo heating, tank farms, and other manufacturing processes: plastics, chemical, pharmaceutical, and building materials.



PACKAGED THERMAL FLUID (HOT OIL) HEATERS

VOLCANIC

## Alliance thermal fluid heaters feature a 3-pass, high efficiency design with single or dual fuel capabilities

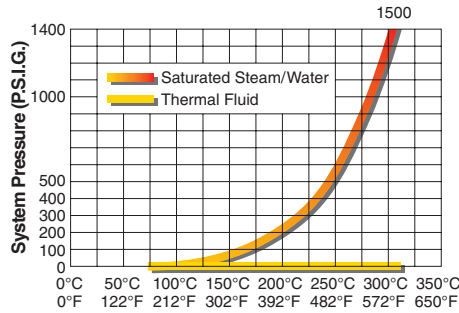
The original Hopkins design Volcanic Heaters are known as a leader in marine cargo heating. Volcanic heaters are "over built" for hard work on our nation's waterways.

**The new Alliance heater has a double wound helical coil featuring a 3-pass design resulting in higher efficiencies.** The smaller size Alliance heaters can put out the same BTU's as a physically larger unit. The on/off or fully modulated burners fire down the center of the coil. The hot gases return back between the coils to the front end plate and return to the back of the heater to exit out the flue.

### No high pressure with thermal fluid

With steam\* at 338°F (170°C), a pressure of 100 PSIG (7 bars) is required and at 572°F (300°C) the pressure rises to nearly 1500 PSIG (105 bars). With thermal fluids, these temperatures are achieved at low pressures. System pressure drop for pump circulation of the fluid is the only governing factor.

\*Saturated steam or pressurized water

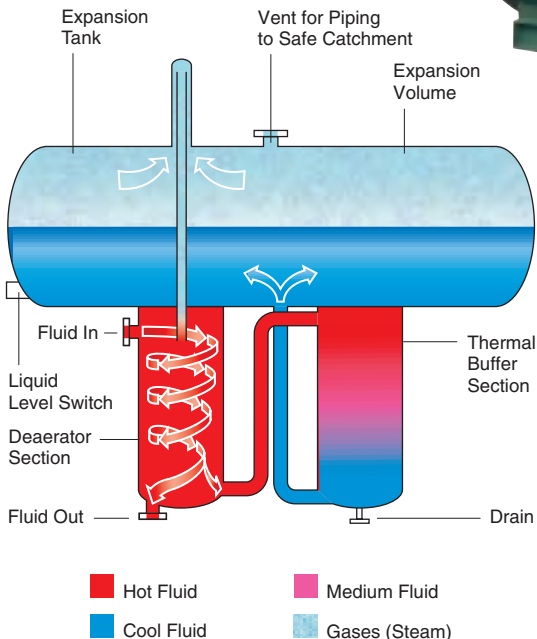


### No corrosion or freezing problems

Thermal fluid does not cause scale or corrosion. Thermal fluids contain no solids which precipitate when heated. Water treatment or chemical conditioning is not necessary. Thermal fluids are available from major oil or chemical companies.

### Low maintenance with thermal fluid

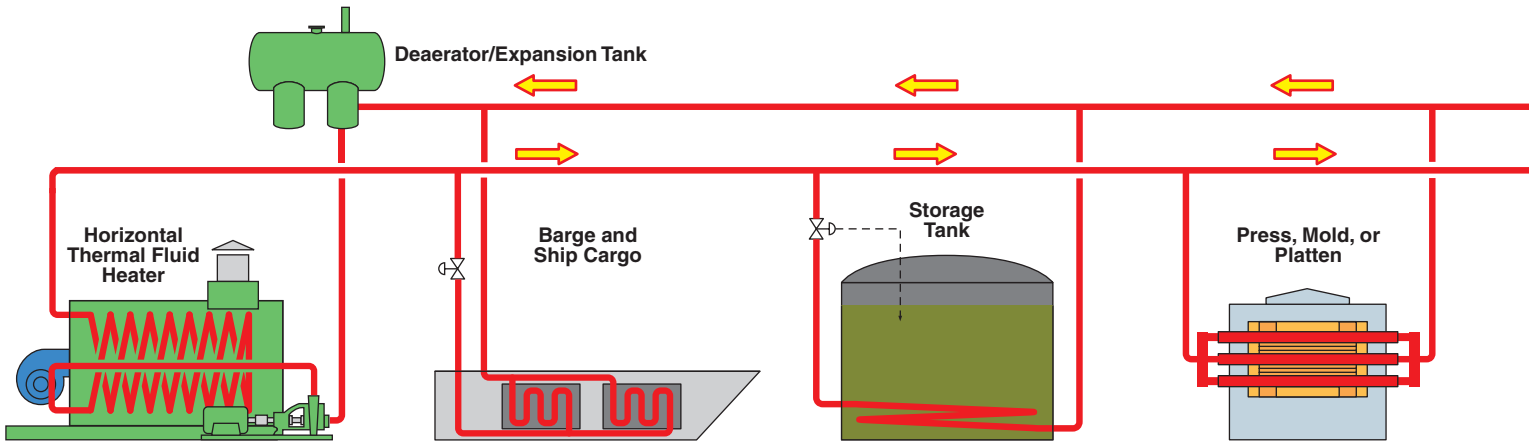
Maintenance is limited to burner, pump, controls, and an annual thermal fluid check. Licensed pressure vessel operators are not required. The heater is a non-pressurized vessel with an expansion tank vented to the atmosphere.



### Alliance's combination expansion deaeration/thermal buffering system

The Alliance deaerator cold seal expansion tank is designed to work as an open system. The deaerator expels steam and any other non condensibles out to a safe catchment and prevents hot thermal fluid from oxidizing by allowing only cool thermal fluid to come in contact with the outside air. This is done by utilizing three separate components incorporated into one combined tank.

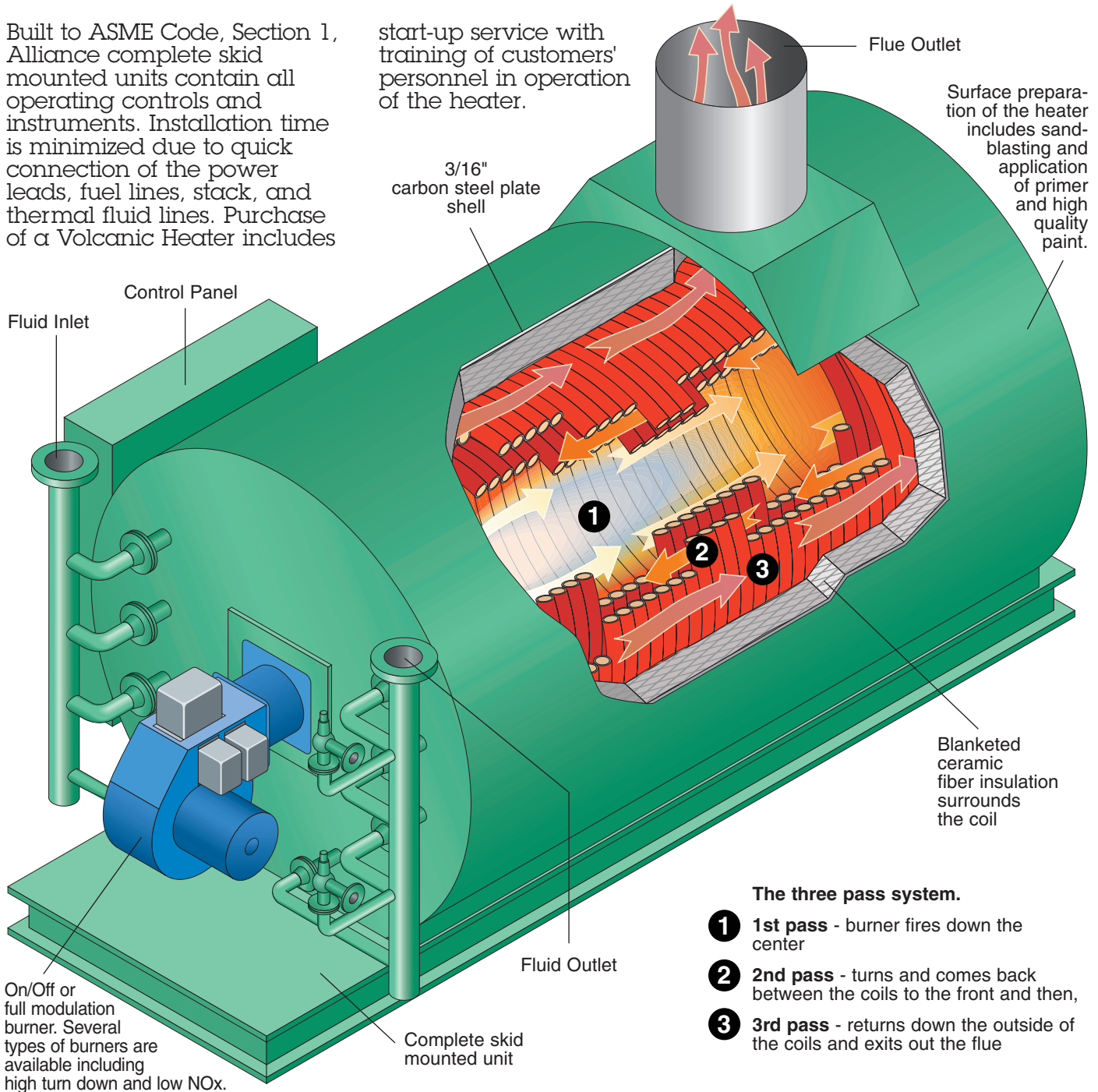
The unique combination of the operation of these three vessels in one results in numerous advantages including: pipe work simplification, protection of thermal fluid from oxidation, ease of installation, and continuous deaeration of fluid, avoiding pump cavitation.



## Component View - Features of the Alliance Coil Design Heater

Built to ASME Code, Section 1, Alliance complete skid mounted units contain all operating controls and instruments. Installation time is minimized due to quick connection of the power leads, fuel lines, stack, and thermal fluid lines. Purchase of a Volcanic Heater includes

start-up service with training of customers' personnel in operation of the heater.



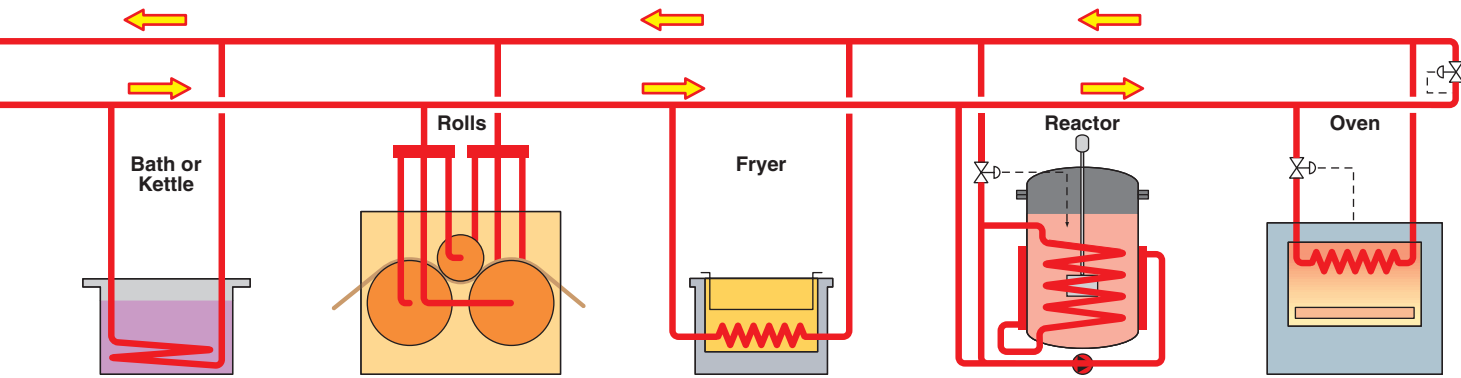
Surface preparation of the heater includes sand-blasting and application of primer and high quality paint.

### The three pass system.

- 1** 1st pass - burner fires down the center
- 2** 2nd pass - turns and comes back between the coils to the front and then,
- 3** 3rd pass - returns down the outside of the coils and exits out the flue

On/Off or full modulation burner. Several types of burners are available including high turn down and low NOx.

Complete skid mounted unit

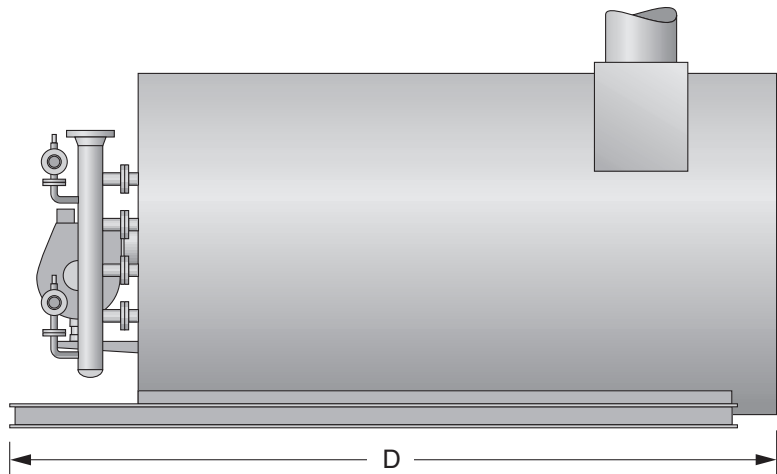
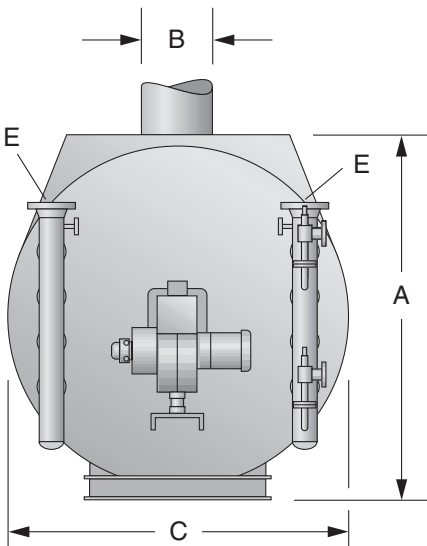


## Specifications - Alliance Thermal Fluid Heater

|                            | Model AL | 240 | 400   | 600   | 800   | 1000  | 1200  |
|----------------------------|----------|-----|-------|-------|-------|-------|-------|
| Heat Output BTU/HR         | Millions | 2.4 | 4     | 6     | 8     | 10    | 12    |
| Flow Rate                  | GPM      | 150 | 300   | 400   | 600   | 850   | 1000  |
| Circulating Pump Motor     | HP       | 15  | 25    | 30    | 50    | 60    | 75    |
| Max. Burner Combustion Air | CFM      | 903 | 1,206 | 2,010 | 2,721 | 2,721 | 3,216 |
| Blower Motor               | HP       | 2   | 5     | 7.5   | 10    | 10    | 15    |

## Dimensions - Alliance Thermal Fluid Heater

|                                       | Model AL | 240   | 400   | 600   | 800    | 1000   | 1200   |
|---------------------------------------|----------|-------|-------|-------|--------|--------|--------|
| <b>(A)</b> Overall Height (w/o stack) | IN       | 53    | 60    | 70    | 95     | 99     | 117    |
| <b>(B)</b> Stack Diameter             | IN       | 12    | 14    | 18    | 20     | 22     | 24     |
| <b>(C)</b> Overall Width              | IN       | 48    | 56    | 80    | 83     | 94     | 111    |
| <b>(D)</b> Overall Length             | IN       | 117   | 119   | 157   | 157    | 152    | 153    |
| <b>(E)</b> Inlet/Outlet Connections   | IN       | 2.5   | 3     | 4     | 4      | 6      | 6      |
| Thermal Liq. Volume                   | GAL      | 75    | 115   | 190   | 264    | 325    | 508    |
| Approx. Dry Weight                    | LBS      | 5,000 | 7,500 | 9,500 | 12,500 | 19,250 | 21,700 |



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# VOLCANIC

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