



HEATEC®

Fuel Heating and Storage Systems

WE BUILD A WIDE VARIETY OF SYSTEMS for heating and storing fuel at hot mix plants. Systems are configured to meet the special needs of your plant. A typical system includes a heavy-fuel preheater, fuel storage tanks, fuel pumps, filters, strainers and piping.

Heavy-fuel preheaters

Heavy-fuel preheaters heat the fuel as it flows to the burner of an aggregate dryer or other heating equipment. Preheating lowers the viscosity of the fuel so it can be properly atomized by the burner. Two types of preheaters are available. One type incorporates a coil that uses thermal fluid as its source of heat. The other has electric heat.

Stand-alone preheaters and preheater skids can be used with existing tanks. New portable tanks can be ordered with preheaters mounted on the same chassis as the tank.

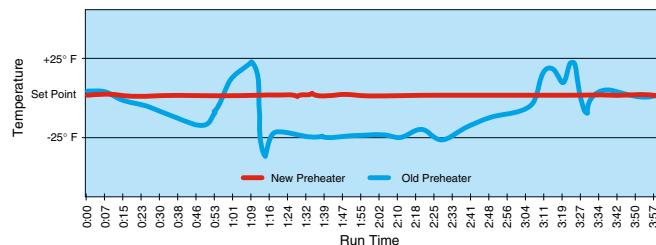
Preheater skids offer a real advantage for non-portable HMA plants. The skid combines many of the essential fuel system components into a single, compact package. The skid is easily positioned with a forklift truck. The typical skid includes the fuel preheater plus a fuel pump, duplex strainer, factory-installed piping with valves, and electrical controls. The unit is pre-assembled and tested at the factory.

Important features

Our current hot oil preheaters have important improvements over those in years past. Of particular importance are their new modulating controls and removable coil unit for easy cleanout.

The modulating controls produce significant benefits when operating an aggregate dryer/drum mixer on heavy fuel. Precise control of fuel temperature should increase burner efficiency of a dryer 1 to 2 percent for savings from \$200 to \$400 a week.

Test results show our preheater heats and maintains heavy fuel at optimum temperature, within one or two degrees. (Please see graph.) This is the key to improved benefits.



Graph from field tests shows temperature variations of two preheaters heated by hot oil. Preheater with modulating control is represented in red, versus preheater with on-off control represented in blue. Note how modulating control maintains temperature at setpoint with great accuracy. Note how the preheater with on-off control has temperature swings 25 degrees higher and lower than set point.



This fuel preheater skid includes the preheater with controls, a fuel pump and motor, a duplex strainer, and a valve manifold.



Preheater control panel with modulation controller for hot oil.

Significance of precise temperature control

It's a well known fact that heavy fuel at *optimum* temperature burns more efficiently than fuel at higher or lower temperatures. Thus, the burner of a dryer/drum mixer uses less fuel when its fuel is at the right temperature. And since dryers use relatively large amounts of fuel, the savings can be significant.

Moreover, fuel at temperatures much higher or lower than optimum produce adverse side effects on hot mix quality, bag house filters, stack emissions and burner operation.

Here's what happens: Fuel at a temperature several degrees *lower* than optimum does not atomize properly. Consequently some fuel droplets do not burn, so combustion is incomplete. Unburned fuel can coat the aggregate, degrading hot mix quality. Unburned fuel can contaminate bag house filters. Unburned fuel also produces unwanted emissions that pollute the atmosphere.

Fuel heated to a temperature *higher* than optimum can cause a different problem. If its temperature goes high enough for the fuel to vaporize it will cause the burner of the dryer/drum mixer to shut down.

Other features of the preheater

The preheater uses serpentine coils of finned pipe. The fins are serrated and increase the heat-transfer area of the pipe about 800 percent more than bare pipe. The serrations also increase efficiency by increasing the turbulence of the heavy fuel flowing around the fins. This turbulence increases the efficiency of heat transfer.

The entire coil bundle can be removed by unbolting the head and sliding it out. This allows easy access to the preheater shell for cleanout of sludge and debris left by heavy fuel. A drain valve facilitates draining water that may accumulate in the shell.

The HFP-100R preheater is designed to raise the temperature of heavy fuel as much as 100 degrees F at a flow rate of 1,000 gallons per hour. (Flow rates vary according to model.) As an option, preheaters can be built to ASME code.



The entire coil bundle can be removed from the shell for cleanout of sludge and debris left by heavy fuel. A drain valve facilitates draining water that may accumulate in the shell.

Electric hot oil heaters

Heatec offers electric hot oil heaters very similar to our electric fuel preheaters. At some locations electricity is more cost effective than fuel oil or gas. Consequently, an electric heater can be used instead of a hot oil heater that has a fired burner. The electric heater can heat thermal fluid (hot oil) for heating asphalt tanks, piping and other plant equipment. The outputs for our electric hot oil heaters usually range up to 255 kW or 870,000 Btu/hour.



This is a 150 kW electric fuel preheater with a 100 degree temperature rise at 1,320 gph.

Heavy-Fuel Preheaters

Model	Description	Heat Source	Fuel Rating (temp F rise @ gph)	Length/Width/ Height (inches)	Weight (pounds)
HFP-100R	Preheater	Hot oil	100° @ 1,000	137/28/58	1,100
HFP-120R	Preheater	Hot oil	100° @ 1,200	145/36/66	2,800
HFP-100RS	Skid*	Hot oil	100° @ 1,000	144/60/64	3,200
HFP-120RS	Skid*	Hot oil	100° @ 1,200	156/72/72	5,500
HFP-75E	Preheater	Electric 75 kW	100° @ 660	141/31/45	2,506
HFP-90E	Preheater	Electric 90 kW	100° @ 790	141/31/45	2,506
HFP-105E	Preheater	Electric 105 kW	100° @ 925	141/31/45	2,506
HFP-120E	Preheater	Electric 120 kW	100° @ 1,050	141/31/45	2,506
HFP-150E	Preheater	Electric 150 kW	100° @ 1,320	141/31/45	2,506

*Skid includes preheater, 25 gpm fuel pump, 3" duplex strainer, piping & manifold. Fuel ratings, dimensions and weights are nominal. Electric preheater weights do not include electric heating elements, which are shipped separately.

Fuel tanks

Our vertical fuel tanks meet requirements of UL-142 and are stamped to show compliance. UL-142 covers a wide range of safety-related issues related to design and construction of tanks for above ground storage of certain liquid fuels. All fuel tanks are fabricated, inspected and tested for leakage before shipment from our factory. Numerous choices are available:

- Vertical or portable
- Capacities: 6,500 to 25,000 gallons.
- Leak protection
- Heated and insulated
- A fuel pre-heater

Vertical tanks

Vertical tanks occupy much less ground area than horizontal tanks of the same capacity. They are usually the best choice for stationary plants because of the space they save. However, they are not available in a portable configuration.



An unheated vertical tank. Available in capacities from 6,500 to 23,500 gallons.

Portable tanks

Portable tanks are mounted on a chassis with wheels and suspension so they can be pulled by conventional truck tractors for highway travel. Fuel preheaters can be incorporated on the same chassis. Moving them from one location to another is fast and easy and does not require use of cranes.

Leak protection

We offer tanks with secondary containment for protection against leakage. Tanks with secondary containment are double-walled and

are, in effect, a tank within a tank. Both vertical and portable tanks are available with double walls.

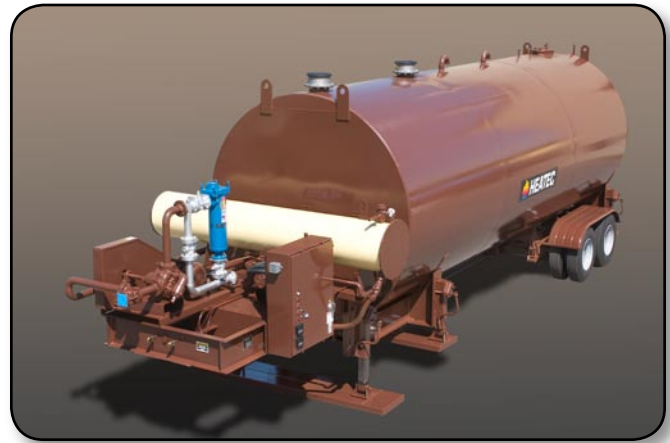
The space between the primary tank and its enclosure can be monitored for leakage into that space.

Heated tanks

Tanks are available with heating coils. The coils are heated by thermal fluid from a hot oil heater. Electric heating is also available. Insulation is optional.

Pumps, filters, strainers, etc.

We can provide a complete system including fuel unloading pumps, sock filters, duplex strainers, valves, piping and level gauges .



A portable fuel tank with a capacity of 15,000 gallons. It has built-in secondary containment. A fuel pump, sock filter and electric fuel preheater are mounted on the gooseneck. Retractable foundations facilitate fast setup.



A portable fuel tank with a capacity of 20,000 gallons. A hot oil heater mounted on the gooseneck provides all the heat for the fuel preheater, which is mounted on a chassis extension. A fuel unloading pump and 3 sock filters are also mounted on the gooseneck. Retractable foundations facilitate fast setup.

Vertical Fuel Tanks

Model	Capacity (gallons)	Height/Diameter (inches)	Weight (pounds)
AFT-6.5V	6,500	138/132	6,500
AFT-13V	13,000	256/132	10,000
AFT-20V	20,000	375/132	13,500
AFT-23.5V	23,500	434/132	15,250

Vertical Fuel Tanks With Secondary Containment

Model	Capacity (gallons)	Height/Diameter (inches)	Weight (pounds)
DCT-6.5V	6,500	138/132	12,000
DCT-13V	13,000	256/132	19,000
DCT-20V	20,000	375/132	26,000
DCT-23.5V	23,500	434/132	29,500

Portable Fuel Tanks

Model	Capacity (gallons)	Length/Width/Height (inches)	Weight (pounds)
AFT-10P	10,000	360/143/170	20,000
AFT-15P	15,000	456/143/170	25,000
AFT-20P	20,000	552/143/170	30,000
AFT-25P	25,000	648/143/170	35,000

Portable Fuel Tanks With Secondary Containment

Model	Capacity (gallons)	Length/Width/Height (inches)	Weight (pounds)
DCT-10P	10,000	408/143/170	30,000
DCT-15P	15,000	528/143/170	40,000
DCT-20P	20,000	648/143/170	50,000
DCT-25P	25,000	768/143/170	60,000

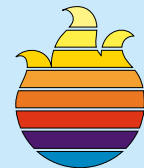
NOTES: Capacities shown are nominal storage capacities based on gross volumes of the tanks. Actual volumes may exceed these numbers up to 10 percent.

Dimensions shown are approximate overall shipping sizes and do not include items shipped separately. Weights are approximate.



Heatec manufacturing facility and offices in Chattanooga, Tennessee

Notice: products shown in this document are representative of those currently available, but details may vary. Most of the equipment shown includes options available at extra cost. All specifications are subject to change without obligation or prior notice.



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