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OPERATING OVERVIEW INSTRUCTIONS

HOT OIL COIL

The hot oil coil consists of series of continuously welded 2" Schedule 40 Seamless Finned Pipe as a standard or Smooth Pipe at customer's option.

Spiral Finned Pipe

Along with the pipe itself, the spiral fins on the pipe provide a generous amount of surface area for maximum heat transfer while minimizing the amount of space taken up by the coil on the inside of the tank. Thermal Fluid from the plants heating system flows through the hot oil coil and raises the temperature of the steel pipe and fins that comprise the coil. The finned tube heating coil then transfers heat into the liquid asphalt that surrounds the coil in the tank. This is the method in which the tank is heated.

Smooth Pipe

The heat transfer system is the same with a smooth seamless pipe coil and is just as effective as a finned tube coil in heating the contents of the tank. Generally, a greater amount of lineal footage of smooth pipe is required vs. finned tube to create the same heat transfer. More space in the bottom of the tank will be taken up by the smooth pipe coil, but they can be easier to clean as required.



Initial Coil Start Up

The coil in your storage tank has been hydrostatically pressure tested for at 300 psi at the factory. It is important, however, to confirm the integrity of the tanks heating coil after the tank has shipped, been erected, and the heat turned on prior to putting the first load of asphalt into the tank. Follow these steps:

1. Remove the tank manway cover for visual inspection of the coil.
2. Once the heating system is full with thermal fluid it is recommended to run the coil temperature to 350°F when the tank is empty and clean on the inside.
3. Allow the system to run for 2 hours at 350°F.
4. While abiding by all OSHA regulations pertaining to confined space, with a flashlight, inspect the bottom of the tank and all around the coil. You are looking for drips or runs of any kind of thermal fluid.

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5. If a leak is found, turn the heat off to the tank and allow the tank to cool down.
 6. Confirm the leak is thermal fluid and contact Meeker Equipment for service.
 7. Do not put product in the tank until the leak is repaired.

HAIR PIN COIL



The hairpin coil is a line that extends from the bottom to the top of the tank. It is used to create a path for expansion of the product. When the product in the tank is cold and before heat is applied, the heating coil (the hair pin) must be opened to create this path. When heat is then applied to the product through the fin coil there is a place for the expansion to take place. **IF THE HAIR PIN COIL IS NOT USED WHEN INITIALLY HEATING THE COLD TANK, THE BOTTOM OF THE TANK RUPTURE DUE TO EXPANSION OF THE PRODUCT.**

HEATING A COLD TANK

After the coil has been inspected for leaks at initial start-up (see hot oil coil section), there is a proper way to heat a cold tank. Follow these steps:

1. First confirm that the heating coil is submerged in liquid.
2. Confirm that the tank heating coils are turned off by closing valves to the oil in and out connections to the heating coils.
3. Bring the temperature of the plants heating system up gradually by starting at 150 degrees and let run for 4 hour increments raising the temperature 25 degrees at each increment.
4. At 200 degrees, turn on the hair pin coil and allow hot oil to flow through the hairpin overnight.
5. On day two and at 200 degree hot oil temperature, open the valves to the tank hot oil coils and continue to raise the temperature of the plants heating system 25 degrees every 4 hours until the tank is hot.

LIMIT SWITCH

A high level float type level switch is provided for your tank to indicate when the tank is full. The high level switch can be wired to the unloading pump switch gear to prevent the pump from operating when the high level switch is engaged. Alternatively, the switch can also be wired to an audible or visible alarm to notify personnel of the liquid level condition.

VENT AND OVERFLOW PIPE



The overflow pipe serves as the tank's main vent. **IMPORTANT!! As the tank's vent, the pipe should never be covered, capped, plugged or restricted in any way. If the vent is covered the tank can be significantly damaged during the filling or dispensing process.**

Described as an overflow pipe, if the high limit switch were to fail and the unloading pump continued to fill the tank, the liquid would come out the side of the tank through the overflow pipe and onto the ground rather than out the top of the tank. For safety purposes, it is important that all personnel stand clear of the overflow pipe while the tank is being filled.

TEMPERATURE CONTROL & HOT OIL CONTROL VALVE

An indicating temperature control is mounted in a weather tight box with a window to view the product temperature. The temperature control has a wire connected to a capillary which is to be installed into the drywell labeled "CAPILLARY". This measures the temperature of the product in the tank. The temperature controller energizes an actuated 2-way valve or 3-way valve. The valve will open and close to control the flow of heat transfer oil to the heating coils based on the tanks current temperature.

SAMPLE VALVE



A 1" valve is mounted to the tank to sample the product in the tank. **IMPORTANT!! PROTECTIVE SAFETY GEAR SHOULD BE WORN AT ALL TIMES WHEN TAKING SAMPLES INCLUDING BUT NOT LIMITED TO FACE SHIELDS, HEAT RESISTANT RUBBER GLOVES AND BOOTS AND BODY PROTECTIVE WEAR.** Extreme care must be used when taking samples. With a sample bucket or other adequate container device located at the discharge of the valve, turn the valve stem slowly to its open position until a sample of liquid has been discharged.