



ASPHALT TANK VENT CONDENSERS

Vent Condensers reduce asphalt fumes and visible “blue smoke” emissions from AC storage tanks.

Light ends that are present in liquid asphalt become vapors when heated to elevated temperatures. Condensing the vapors back into a liquid form, through a heat exchanging process, returns these constituents back into the AC tank instead of allowing them to escape into the atmosphere.

Vent condensers are effective, simple to maintain devices that are suitable for horizontal tanks (stationary or portable), vertical tanks, and even underground storage tanks. Normally, one vent condenser per tank compartment is recommended. However, multiple tanks (or compartments) can be connected to a single vent condenser through a common header system.



The simple design of a vent condenser uses ambient airflow to remove heat from exhaust vapors as they pass through a bundle of finned tubes. Single pass designs have been the industry standard. However, more stringent regulations require the use of more efficient designs.

Heat exchange technology is relatively straightforward — it's a function of differential temperature, heat transfer area and time. For the highest level of efficiency you simply maximize these three criteria.

Differential Temperature
If ambient air temperature at a plant site is relatively low, then the efficiency of a single pass design is likely adequate. If the ambient air temperature is approaching triple-digits, you most likely will require a multiple pass design. You may

also need an additional source of external cooling.

Heat Transfer Area

Removing heat is an equal and opposite reaction to adding heat. Expanding the total available surface reduces the number of BTU's transferred per unit of area and increases efficiency. The required heat transfer area decreases with larger differential temperatures (ambient to tank temperature) and increases with reduced differential temperatures.

Time

Pass a candle under your hand and it will not burn. Hold it there and time will manifest itself. Any reaction requires an element of time. Increasing the differential temperature and increasing the transfer area will both reduce the time — to a degree.

Multiple passes through a fixed number of tubes increases the time for heat transfer, provides a reducing differential of temperature per pass, and increases efficiency without increasing the total surface area. In addition, a multiple pass design benefits by the reduced velocities achieved as vapors (and mass volume) are reduced.

CEI vent condensers are provided in standard sizes and configurations that are most commonly used in the industry. For some applications, vent condensers are specifically designed to meet local load requirements and emission standards. High ambient moisture contents and low ambient temperatures usually require multiple pass designs. External cooling, as well as exhaust temperature monitoring are available options.

Specifications are subject to change without notice.

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