



EXTREME-DUTY VENT CONDENSERS

CEI Extreme-Duty Vent Condensers are designed to handle maximum steam-volume flow rates. This occurs when the amount of vapors present in a tank are combined with the rapid rate of exhaust encountered when filling the tank with liquid asphalt.

The actual tank volume has a minor impact on the required vent condenser size, as evacuation volumes (and velocities) are relatively low in a storage tank under decreasing or dormant stages.

Large volume tanks, such as bulk storage tanks used at asphalt terminals, do have large surface areas which must be considered in addition to displacement volumes. The required maximum exhaust temperature must also be taken into account along with the local allowable level of visible emissions.



Extreme-duty vent condenser reduces exhaust temperatures below ambient air temperatures.



Extreme-duty vent condenser with optional cartridge air-cleaning device to eliminate visible emissions.

A conventional vent condenser will have an efficiency of 95% or more with ambient air. However, the exhaust temperatures will still be elevated above ambient temperatures, and there will be some light oil constituents escaping in the form of "blue smoke".

If local codes require *lower* exhaust temperatures, then an external cooling system is required. Exhaust temperatures of below 120 degrees F are achievable with the addition of

a relatively simple air conditioning unit.

Cooling the exhaust to below 120 degrees F still does not remove 100% of the light oils that cause visible emissions. When zero visible emissions are required, a cartridge air-cleaning device such as in the photo above can be employed to eliminate the blue smoke effect.

To optimize the efficiency of a vent condenser, you take into consideration temperature differential and time. The highest efficiency is obtained by using multiple passes. As exhaust fumes exit each pass, the total volume decreases with the condensing process, and the following passes are subject to lower velocities and hence

longer dwell-time to allow temperature differential to be a more significant factor.

Reducing visible emissions from asphalt storage tanks is not only a compliance issue with local codes, it is also a good neighbor policy. Most people believe that a "smoking stack" is bad health, even if that smoking stack is simple steam. In an asphalt tank application, the use of a vent condenser not only impacts the visual aspects of the plant, but condensing the light oils also helps reduce associated odor levels. With elevated product temperatures, such as those found in polymer-modified or rubber-modified asphalt cements, the impact is even more pronounced.



Temperature indicator from extreme-duty vent condenser in operation.

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