



LOCKWOOD PRODUCTS

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FAQ: Deaerator Storage Time

Deaerators are typically designed with a storage capacity equal to 10 minutes of operation at maximum capacity. Not only is this a general rule of thumb, Heat Exchange Institute (HEI) specifically recommends it:

Heat Exchange Institute: Standards and Typical Specifications for Tray Type Deaerators

“For a single tank deaerator with integral storage, the storage capacity shall be 10 minutes to overflow as determined by the manufacturer’s design criteria.”

Lockwood Products designs the storage to overflow capacity of all stock deaerators in accordance with this standard. As a rule of thumb, 10 minutes of storage has been proven to be adequate for a majority of deaerator installations. That said, other capacities are available upon request.

Note, it is important to differentiate between the **storage to overflow** capacity and the normal **operating capacity**.

Storage to Overflow: The storage to overflow is the total capacity of the tank measured to the bottom of the overflow connection. This is the maximum amount of water the tank can hold. If additional water is added to the tank, water will be discharged via the overflow connection. This is the value that is typically advertised by manufacturers and specified by engineers.

Operating Capacity: This is the total capacity at normal operating conditions. Pumped condensate is typically returned in an intermitted, ON/OFF, manner. Moreover, the deaerator typically has no control over when the condensate is returned, instead, the condensate tank simply waits until its full then pumps the condensate back to the deaerator. As a result, the normal operating level within the deaerator must be maintained low enough to account for surges of condensate return.

Lastly, it is important to note that a surge tank is recommended when the amount of condensate return exceeds 50% or when the condensate is returned in large surges. Equipment typically operates best when operating at steady state. Surges of condensate will disrupt the water temperature entering the deaerator resulting in pressure fluctuations within the deaerator. Oversizing the deaerator storage is not a substitute for a surge tank.