



Shippensburg Pump Company, Inc.

BOILER FEED • CONDENSATE • DEAERATOR • VACUUM

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Re: Understanding Differences Between Atmospheric and Pressurized Deaerators

The main difference between an atmospheric deaerator and a pressurized deaerator is the type of steam regulator used. Atmospheric units have a temperature regulator and pressurized units have a pressure regulator. Temperature regulators are not as responsive as pressure regulators. This is a key factor for why most deaerators are pressurized to allow for the droop in the system when a surge tank is not used.

However, atmospheric units are generally less expensive than pressurized units since because it does not have the following features are not required: no overflow drainer, no safety relief, valve and no ASME code vessel. Another advantage of atmospheric units is that there is less steam loss at partial loads—pressurized units have a fired orifice while atmospheric units have vent condenser.

Deaerators typically are rated as .005 cubic centimeters of oxygen per liter of feed water (equivalent to 7 parts per billion) or .03 cc/liter (equivalent to 42 parts per billion). Many people incorrectly believe an atmospheric deaerator cannot achieve .005 levels of deaeration. Henry's Law explains that as long a deaerator operates at the saturation point, it will achieve zero levels of deaeration.

Shipco[®] offers a wide range of designs for both atmospheric and pressurized deaerators

Sincerely,

Shipco[®] Marketing and Sales Department