
◆ Engineering Guidelines ◆

by INDUSTRIAL STEAM

Section 2 - Deaerator Selection, 2.4

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Engineering Guidelines

*are offered by
INDUSTRIAL STEAM
to assist in the
application, sizing
and selection of
deaeration and
feed water
conditioning systems.*

*If you have questions
on any of the
topics discussed or
on the information
provided, please
contact one of our
people in our sales
or engineering
groups for
assistance.*

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Deaerator Selection: *Atmospheric or Pressurized?*

Occasionally, you may be requested to select between an atmospheric or pressurized deaerator.

Pressurized Deaerator

A pressurized unit should be considered whenever there are trapped returns to the deaerator. The pressurized system which uses the flash steam from the trapped returns for feedwater heat is the best choice. A constant recycle system is the best choice. Steam turbine exhausts are another reason to use a pressurized system

If the average feedwater temperature is greater than 180⁰F a pressurized system is the only choice since it will not be possible for an atmospheric system to operate with a temperature differential between the average feedwater temperature and the discharge temperature.

If you are unsure of the heat balance during any part of the operation, or there is a chance that the heat balance will change in the future, a pressurized, two compartment system offers the flexibility to deal with any set of operating conditions the system may experience.

Atmospheric Deaerator

The reasons for selecting an atmospheric unit are:

An atmospheric deaerator receiver offers a minimum of back pressure whenever low back pressures are required on trapped returns.

An atmospheric deaerator has an unrestricted vent which automatically removes non-condensables. There is no fixed vent loss in an atmospheric deaerator.

Pressure decay, a common problem in conventional pressurized deaerators, is impossible in an atmospheric unit. However, our Steam Flow pressurized deaerator with constant recycling also eliminates pressure decay.

Price on atmospheric unit is slightly lower than a pressurized unit.

The pressurized unit is more flexible, the atmospheric system costs less and usually has lower vent losses.