



Deaerator

Deaerating water or beverage



Application

Deaerators are used to reduce excessive gas content in liquids. Reducing oxygen in water is crucial to prevent downstream product fouling, colour changes or oxidation-induced degradation. Acceptable oxygen content typically varies from 0.2 to 1 ppm, dependent on application.

A typical application can be:

- Deaerating water or beverage.

Highlights

- Compact design requires minimal floor space
- No wastewater as vacuum pump has independent cooling ring
- Fully cleanable system
- Dual deaeration chamber design increases deaeration efficiency and keeps the capacity more flexible
- Additional oxygen reduction through small injection of CO₂

Working principle

A deaerator consists of a vacuum vessel equipped with spray pipes, circulating pipes, pumps and a vacuum vessel equipped with a continuous level sensor. The incoming liquid (usually water) is sprayed into the vacuum vessel. The level inside is monitored by the continuous level sensor and regulated by a modulating inlet valve.

The pressure inside the deaerator is usually around 30 mbar (abs). The vacuum is created by an independent vacuum unit located on the frame base. For optimal deaeration effect, the liquid circulates through multiple chambers.

Main components

- Main frame
- Deaeration tank
- Recirculation pump
- Vacuum unit
- Discharge pump
- Main water supply
- CIP supply

Control panel

The deaerator is controlled by an Allen Bradley Control-Logix or Siemens PLC. The machine is equipped with a remote cabinet communicating to an external PLC. Optionally the PLC can be fitted in the local cabinet on the machine skid.

Example layout

Measurements on request.



Technical data

All parts in contact with the product are made of AISI 316L. The frame is made of AISI 304L.

Standard sizes enable the following capacities:

- 50 000 l/h
- 100 000 l/h
- 150 000 l/h

Other capacities on request.

Residual oxygen content is 0.6 ppm without CO₂ addition. Residual oxygen content with CO₂ addition is 0.3 ppm (at a reference temperature of 15 °C).

Electrical power	400 V, 50 Hz
Other supply voltage or frequency available	

Compressed air	600 kPa (6 bar)
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