ALDOX™

Water deaeration

Application

ALDOX™ is a process module for production of deaerated and carbonated high quality water for breweries and soft drink manufacturers.

Design

ALDOX is a self-contained process module, pre-assembled and factory tested before delivery. It is designed for CIP and in compliance with food industry regulations, all components in contact with the process liquids are made of stainless steel with heat resistant seals.

The benefits of the ALDOX are

- Developed in cooperation with the brewing industry
- Automatic control and "plug-and-play" concept ensures a minimum of site work
- Sanitary and compact design with low maintenance demand
- Stable and reliable operation - no pressure vessels or vacuum pumps required
- Dissolved oxygen level to below 0.05 ppm or 0.02 ppm
- Stripping gas losses of less than 5%

Working principle

Deaeration

The ALDOX column removes the oxygen from the incoming water. The high desorption of oxygen is achieved by use of stripping gas (CO_2 or N_2) over a packed bed operating at atmospheric pressure. The water is routed via the liquid distributor at the top of the column and runs downwards counter current to the stripping gas. The internal packing material, specifically developed for this application, ensures a large effective contact area between liquid and gas. The benefit of this deaeration principle is highly efficient oxygen removal at very low gas consumption rates as the majority of stripping gas added to the column is dissolved into the water. The virtually oxygen-free water is collected at the bottom of the column. Due to the efficient design, there is no need for a second column or for any recirculation of water.

Pasteurization

The ALDOX module easily integrates pasteurization of the water to further secure the high water quality. The incoming water is heated regeneratively by the outgoing water thereby providing a high degree of heat recovery. Low pressure steam or hot water is used for the final heating to pasteurization temperature. The system volume and the temperature level secures that the correct PU-level is being achieved.

Chilling

The deaerated water can be cooled down to a required low outlet temperature under accurate control. As an option, the final cooling stage can be offered with ammonia cooling. The cooling system is arranged to avoid any risk of freezing in the chilling stage.

Carbonation

In case a carbonated water quality is required, additional CO_2 can be injected into the deaerated water. If a PHE chiller section is included, the gas is suitably injected immediately before the inlet so that the gas is dissolved by the turbulent flow across the chiller plates. The gas flow is continuously indicated and manually adjusted to give a coarse approximate carbonation level. The system can also be fitted with a CO_2 analyzer, a holding cell and controlled back-pressure in order to provide an exact and repeatable carbonation level.

The ALDOX module is fully automated with a PLC system controlling the plant operation. Selection of functions through easy and logical operator interaction via a colour touch panel / display.

Process data displayed:
- Plant status
- Actual and set-point temperatures
- Alarm status
- Controller settings

A fail¬safe system is monitoring the operation.

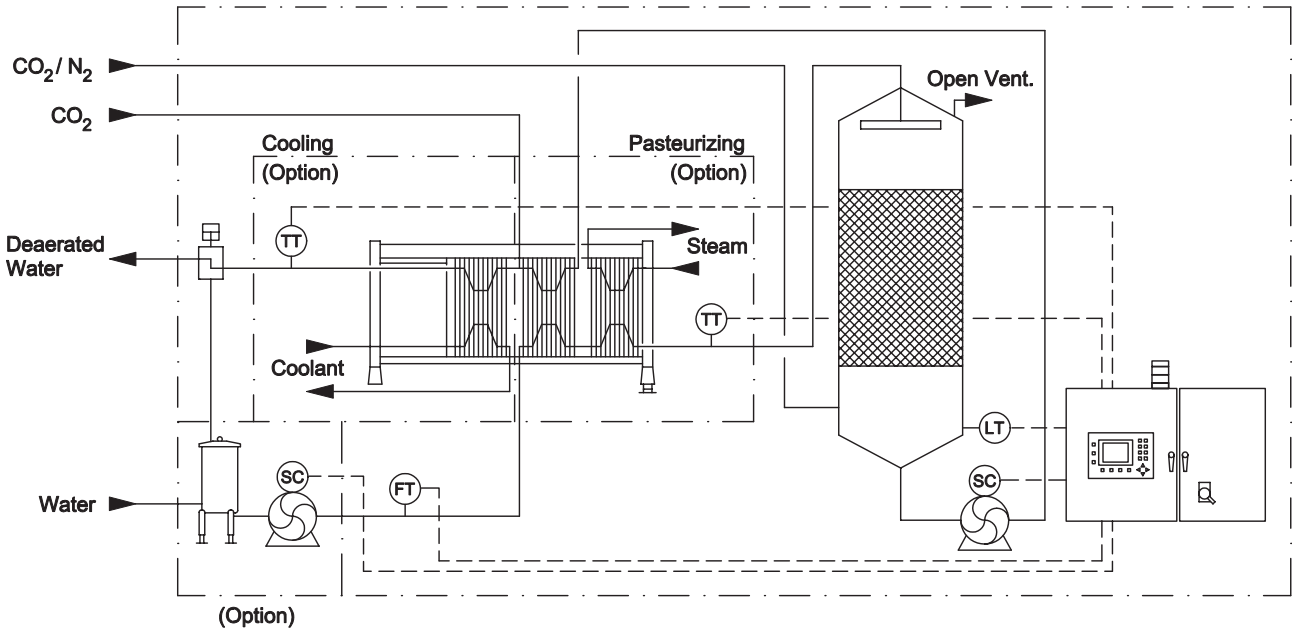
Specifications

Standard capacity ranges, hl/h:	10, 30, 60, 120, 200, 300, 400, 600, and 1000
Deaeration:	Standard to less than 0.05 or 0.02 ppm
Utility data:	Depending on capacity range

Approximate dimensions and weight depending on capacity range, e.g. 200 hl/h with pasteurization:

L = 3.0m W = 2.5m H = 4.5m Weight: 2,500 kg

Extra equipment
- Dissolved oxygen level to below 0.01 ppm
- Variable flow design
- Water pasteurization with up to 94% heat recovery
- UV sterilization
- Cooling of deaerated water down to 1-2 ºC
- Additional coarse carbonation
- In-line carbon dioxide measurement for exact and controlled carbonation level
- In-line dissolved oxygen measurement
- Remote control and communication with other control systems via data bus or digital I/O
- Integrated CIP.



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