

# Alfa Laval ALDOX™

## Water deaeration

### Introduction

The ALDOX™ process system is designed for production of deaerated and carbonated high-quality water.

### Application

- Beer production
- Soft drink production.

### Benefits

- Automatic control and "plug-and-play" concept
- Stable and reliable operation - no pressure vessels or vacuum pumps required
- Dissolved oxygen level to below 0.01 ppm
- Stripping gas loss of approximately 5%.

### Design

The ALDOX self-contained process system is 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.

**Deaeration:** The ALDOX column removes the oxygen from the incoming water. The high desorption of oxygen is achieved by use of stripping gas ( $\text{CO}_2$  or  $\text{N}_2$ ) 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 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  $\text{CO}_2$  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  $\text{CO}_2$  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.

Process data displayed includes plant status, actual and set-point temperature, alarm status and controller settings. A fail-safe system is monitoring the operation.

**Options**

- Variable flow design
- Water pasteurization with up to 94% heat recovery
- UV sterilization
- Cooling of deaerated water down to 1-2 °C
- 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
- Automatic gas flow control
- DAW buffer tank and routing.

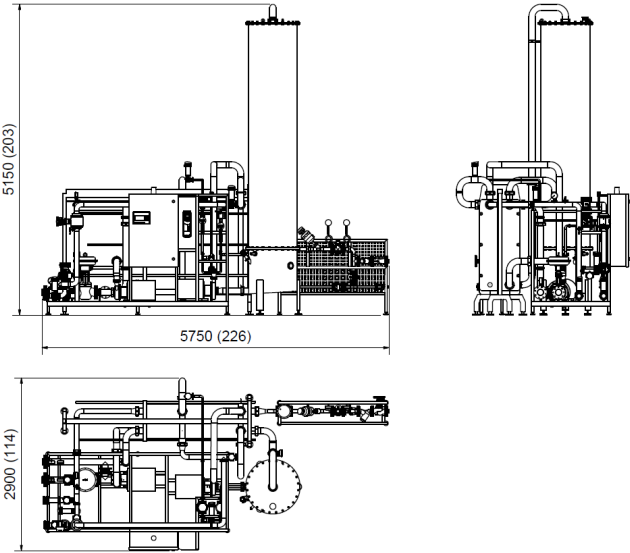
**Technical data**

Capacity range	50–1,500 hl/h
Deaeration to	< 0.01 ppm
Utility data	Depending on capacity range

**Dimensional drawing**

Approximate dimensions and weight depending on capacity range, e.g. 400 hl/h with pasteurization

Length x width x height	5.75 (226) x 2.9 (114) x 5.15 (203) m (inches)
Weight	4,500 kg



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