ALDOX™ Core – the pre-engineered premium

Pre-engineered systems for producing high-quality deaerated water

Efficient, standardized water deaeration capabilities

From customized to standardized
The world-renowned ALDOX™ water deaeration system – currently used in more than 500 installations throughout the world – has long been the technology of choice in producing high-quality oxygen-free water for use in the brewery and beverage industries.

To provide our customers with an even more comprehensive and focused selection of equipment, Alfa Laval has developed a range of pre-engineered, fully standardized ALDOX Core deaeration units. These feature mainstream process design configurations as well as the mechanical and automation set-ups that have proven ideal for use with pre-defined sets of operating conditions.

This makes these standardized ALDOX Core units an important supplement to the existing range of extensively customizable ALDOX water deaeration units.

General operating assumptions
Pre-engineered, standardized configurations make ALDOX Core units ideal for the vast majority of processing requirements. They cover a capacity range of 50–450 hl/h (43–383 bbl/h), in 12 standard sizes, and are configured to operate at peak efficiency under the following conditions:

- Inlet water temperature of 10–20°C (50–68°F) and pressure of 300 kPa (44 PSI)
- Deaerated water outlet pressure of 200 kPa (29 PSI)
- Carbon dioxide stripping gas at >99.95% purity.

ALDOX-SPD

Pre-engineered advantages
ALDOX Core units are self-contained deaeration modules that are pre-configured, pre-assembled and factory tested before delivery.

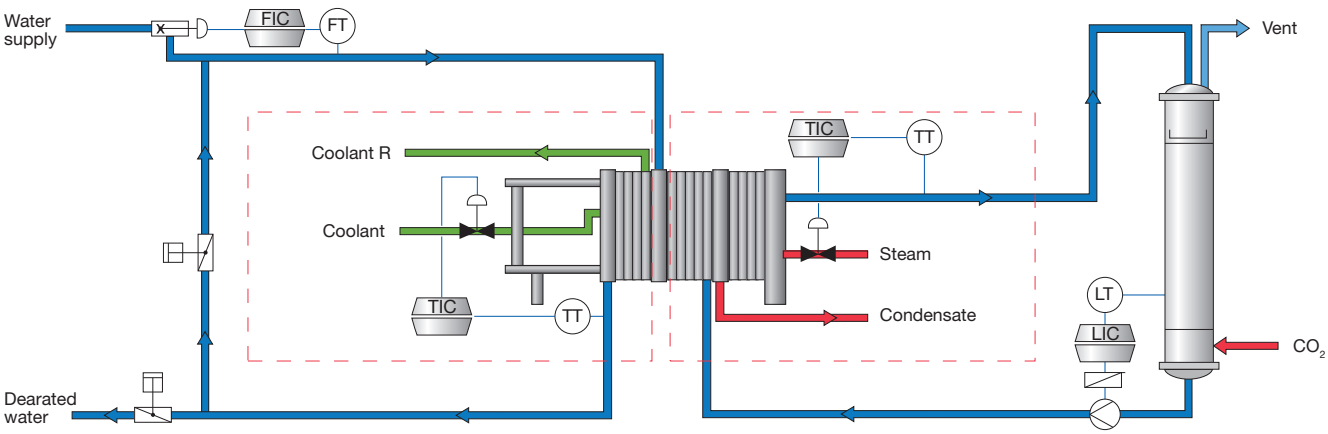
The aim with this range is to ”keep it simple” and avoid over-specifying. These cost-effective solutions reduce the capital investment involved.

This, combined with the documented low operating costs of ALDOX solutions, makes it possible to minimize the Total Cost of Ownership (TCO) for water deaeration equipment.

The Core efficiency pay-off
ALDOX Core units provide you with clear-cut benefits.

- Eliminates the need for costly pressure vessels and vacuum pumps, saving on space and operating costs
- Standardized plug-in design concept ensures rapid delivery of cost-effective solutions
- Pre-assembled frame-mounted systems only require a minimum of on-site installation work
- Factory-tested units save on commissioning time, so you can get them running quickly
- Automated control systems help you increase efficiency, cut down on inspection and minimize product losses
- Exceptional reliability and low maintenance help you minimize downtime
- Dissolved oxygen levels of less than 0.02 ppm (0.01 ppm with optional equipment) provide opportunities for improving product quality and shelf life
- Highly effective (95% or above) utilization of the stripping gas, cutting losses and waste to the minimum.

Schematic flow diagram for ALDOX Core systems



Three models – three purposes

The ALDOX Core range currently includes the following models, each designed to meet a specific set of standardized processing requirements:

- ALDOX-SBD exclusively for water deaeration
- ALDOX-SAD for a combination of water deaeration and cooling
- ALDOX-SPD for the full package of water deaeration, pasteurization and cooling.

A range of pre-defined, factory-installed options is available for each model, to provide additional functionality.

Exceptional efficiency

The ALDOX Core column removes the oxygen from the incoming water. The water is routed via the liquid distributor at the top of the column. The high desorption of oxygen is achieved by using an appropriate stripping gas (carbon dioxide, in this case) over a packed bed, at atmospheric pressure. The specially developed internal packing material makes sure of the largest possible surface area over which the liquid and gas can make contact.

This deaeration technology results in exceptionally efficient oxygen removal, with very low gas consumption. 95% or more of the stripping gas entering the column is dissolved into the water, which reduces the need for additional carbonation of products such as high-gravity blended beer. The virtually oxygen-free water that results is collected at the bottom of the column.

The built-in efficiency of this design means there is simply no need for a second column or for any recirculation to achieve deaerated water with the required specifications.

Automated operation

ALDOX Core systems are all fully automated. A PLC system controls all the operations, monitored by a fail-safe system. Operators select a range of clearly defined functions via an easy-to-use colour touch panel.

All ALDOX Core units are designed for CIP (Cleaning in Place) procedures. In compliance with food industry regulations, all components that come into contact with process liquids are made of stainless steel, with heat-resistant seals.

Basic water deaeration
The ALDOX-SBD model provides deaeration of water at ambient temperature. It is mainly intended for removing oxygen from water used for flushing product lines, but also for other applications where low levels of dissolved oxygen are the main requirement.

ALDOX-SPD
– with option for extended heat recovery.

The ALDOX-SBD unit, though intended mainly for basic deaeration, can also be delivered with equipment to improve dissolved oxygen levels to <0.01 ppm, with a dissolved oxygen analyzer, with an ultraviolet disinfection system and with databus communication capabilities.

Water deaeration and cooling
Apart from deaeration, the ALDOX-SAD model makes it possible to chill the deaerated water to temperatures normally suitable for subsequent use in a range of different products.

In addition to the operating conditions previously mentioned, the ALDOX-SAD is intended for cooling the water to an outlet temperature of 2°C (36°F), using glycol with a supply temperature of -3°C (27°F).

Optional features available for this model, in addition to those available for the SBD model, include a recirculation loop for the cooling medium and possibilities for additional carbonation of the deaerated chilled water.

Water deaeration, pasteurization and cooling
The ALDOX-SPD model provides bacteriological treatment of the deaerated water, in the form of pasteurization, as well as chilling the water to the desired outlet temperature.

In addition to operating conditions previously mentioned for the ALDOX-SAD model, the ALDOX-SPD model features energy recovery of 90% and final heating to deaeration/pasteurization temperatures using dry steam at a supply pressure of 300 kPa (44 PSI).

Additional optional features available specifically for this model include extended energy recovery to 92%, a steam pressure reducing station and by-pass for the regenerative plate heat exchanger section to ensure rapid system start-up.

Parts, service and maintenance
Alfa Laval has dedicated facilities and skilled personnel based at key locations around the world, whose sole job is to provide quality service and maintenance for your ALDOX system as well as for other Alfa Laval brewery equipment.

The Alfa Laval global distribution network ensures you a reliable supply of original spare parts, available from the local Alfa Laval sales company in your particular country or region.

Water with consistently managed parameters is essential if you wish to maintain processing reliability as well as product quality.

That is why we have created a range of pre-engineered ALDOX Core units, configured to ensure efficient production of high-quality deaerated and carbonated water under the majority of normal processing conditions.

The ALDOX Core deaeration units open new doors for breweries and soft drink manufacturers keen to install exceptionally reliable, cost-effective solutions. These productivity-boosting opportunities are available wherever on-site conditions match the mainstream deaeration requirements for which ALDOX Core pre-engineered units are specifically intended.

Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions. Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

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