

# Alfa Laval Low-alc de-alcoholization module

Process module for beer and beverage de-alcoholization with membranes



## Introduction

Low-alc de-alcoholization module is a stand-alone process module designed for beer and beverage de-alcoholization with membranes.

## Application

Cross-flow filtration separation principle, processing at low temperature preserves the natural flavour of the product maintaining its taste integrity throughout de-alcoholization.

## Benefits

- Large capacity range with 4 standard sizes
- Easy scale-up through the addition of extra filter modules
- The same plant can handle all types of beer, including cloudy, wheat & dark beers and other types of beverages
- All piping and equipment in contact with the product is designed to meet sanitary standards.

## Design

The Low-alc 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.

## Working principle

The Low-alc standardized spiral membrane filtration system for de-alcoholization is a plug-in unit. It is developed specifically for de-alcoholizing beer or other low-alcohol fermented products in a practical, cost-effective way. It is skid-mounted for simple installation and is easily extendable. It is equipped with a Cleaning-in-Place (CIP) system and automated cleaning procedures that ensure low maintenance and replacement costs of the de-alcoholization process.

The Low-alc system runs in a batch mode and is to be connected to the batch tank through an inbuilt swing-bend panel. Data like batch size, initial- and desired alcohol concentration are manually inserted through an HMI. Once prepared for production, the de-alcoholization unit runs a full production cycle in an automated mode.

The CIP requires manual cleaning agent dosing and operator's confirmation on HMI.

The de-alcoholization process consists of three steps: up-concentration, diafiltration and refilling. During the up-concentration the beer is concentrated to approximately three times of its original concentration. The up-concentration is followed by diafiltration step with deaerated water (DAW). Both steps actively reduce the alcohol volume of alcohol in relation to the original volume. The diafiltration continues until the alcohol concentration is reduced to a pre-calculated level that is three times higher than the final alcohol concentration. The final, refilling step, flushes out the extract from the filters, makes up the volume in the batch tank and thereby reduces the alcohol concentration to the desired level. Carbonation after finishing the de-alcoholization process is needed to achieve the CO<sub>2</sub> concentration in the final product.

## Options

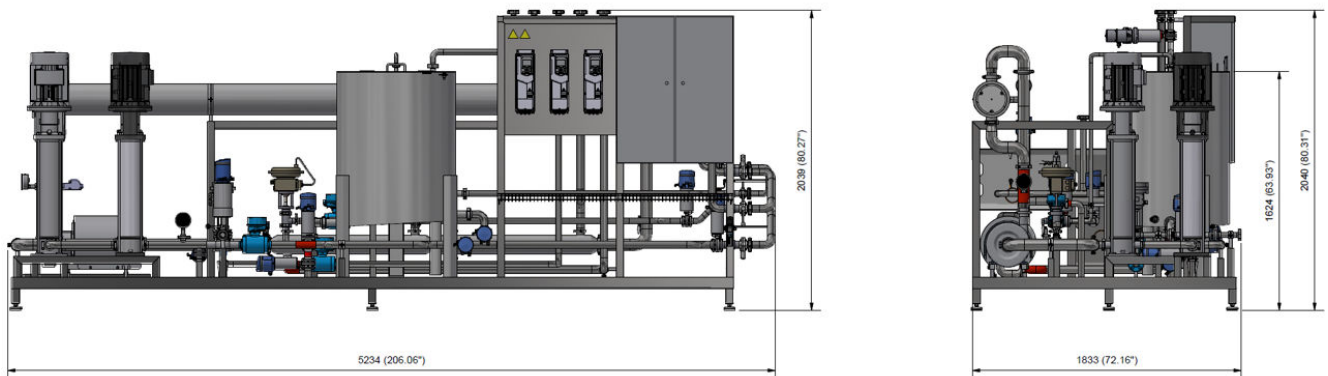
- Communication with SCADA via Profibus DP or Ethernet.

## Technical data

Technical data	
Standard capacity range, hl/day	5–15, 20–60, 40–120, 80–240
Batch length, hr	6–18
Final alcohol content, % ABV	< 0.5%

## Dimensional drawing

Approximate dimensions and weight depending on range, e.g. 20–60 hl/day. L = 5234 mm (206.06") W = 1833 mm (72.16") H = 2040 mm (80.31"). Weight 1800 kg (3,968 lbs).



This document and its contents are subject to copyrights and other intellectual property rights owned by Alfa Laval AB (publ) or any of its affiliates (jointly "Alfa Laval"). No part of this document may be copied, re-produced or transmitted in any form or by any means, or for any purpose, without Alfa Laval's prior express written permission. Information and services provided in this document are made as a benefit and service to the user, and no representations or warranties are made about the accuracy or suitability of this information and these services for any purpose. All rights are reserved.

## 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](http://www.alfalaval.com)