Alfa Laval CARBOBLEND™

Blending and carbonation

Introduction
The CARBOBLEND™ process module is designed for blending two or more liquids, with subsequent carbonation.

Application
Blending and carbonation of beer, soft drinks and other beverages.

Benefits
• Compact design
• Outstanding blending accuracy
• Efficient dissolving of CO₂
• Versatile and adaptable to different process requirements
• Low maintenance.

Design
The CARBOBLEND unit is self-contained and factory pre-assembled on a frame. In compliance with food industry regulations, all components in contact with the process liquids are made of stainless steel with heat resistant seals. It is designed for CIP.

Working principles
Blending: Blending is carried out by continuously controlling the ratio of flows of the constituent liquids, e.g. beer and water. The blending ratio is preselected on the control panel. The microprocessor receives continuous data from the flow meters in the beer and water / beer lines and regulates the control valve in the water / beer line, so that the preset blending ratio is accurately maintained. Alternatively, the operator keys in the known and required properties, such as alcohol content or original gravity of the feed and of the end products. The corresponding blending ratio is then automatically calculated and used instead.

Carbonation: CO₂ is injected in the product line directly, without utilising any porous disc or sinter candle. This means that CIP of the CO₂ and product lines can be carried out without reduction of flow.

A specially designed mixer / accelerator makes sure that the CO₂ dissolves rapidly into the product by a combination of turbulent flow and increased pressure.

An analyzer is included after the mixer and carbonated product is analyzed for CO₂ content.

A control valve regulates the CO₂ flow to keep a constant CO₂ content in the product. A PLC controls the plant operation.

Relevant process data displayed:
• Actual and setpoint blending ratios
• Actual and setpoint flow rates
• Actual and setpoint CO₂ content
• Accumulated production volume
• Plant status
• Controller settings
• Alarm status.

A fail-safe system is monitoring the operation.
Options
- In-line analyzer. CARBOBLEND can be equipped with an analyzer for continuous in-line adjustment of the alcohol content and/or original gravity of the beer after blending. A Brix meter can be supplied for control of syrup content in soft drinks and other beverages.
- Remote control
- Communication with other control systems.

Technical data
| Capacity range, blended beer | 45-1,100 hl/h |
| Blending ratio, water / beer flow | 5-50% |

Deviation, flow measurement | Less than ±0.3% of max flow |
Carbonation level | Up to 7 g/l |
CO₂ analyzer accuracy | ± 0.05 g/l |
Utility data | Depending on capacity range |

Dimensional drawing
Approximate dimensions and weight depending on capacity range, e.g. 120 hl/h
- Length x width x height: 2.5 x 0.9 x 2.0 m
- Weight: 350 kg