



Alfa Laval Brew 250

Disc stack separation system for brewery applications

Introduction

For more than 100 years, Alfa Laval has been supplying separators for various industries. Today, Alfa Laval has the most complete and diverse offering of separators – each fully optimized for its specific duty and supplied with all auxiliary systems and key components.

The use of disc stack separators in different brewery applications goes back several decades. Based on the long-term cooperation with the brewery industry, Alfa Laval separators are specifically designed for the requirements and demands of this industry.

Brew separators have a long history of enabling breweries around the world to achieve higher yields, meet shifts in demand and maintain profitability. Used in multiple brewery applications, they ensure minimal levels of oxygen pick up during passage through the separator and the highest standards of hygiene.

Application

Self-cleaning disc stack separation systems in the Brew series are specially designed for general beer clarification, beer pre-clarification or polishing duties with the target to produce the best quality beer with high performance clarification and a maximized yield.

Benefits

- High separation efficiency
- No oxygen pick-up
- Gentle treatment of the product
- Low power consumption
- Robust and reliable design

Design

The Brew 250 separation system consists of a separator, a process & service liquid unit, and an electrical & control system.

The unique hermetic bottom fed design ensures superior separation performance and offers the lowest power consumption in the market. The bowl inlet and outlet are sealed mechanically and this prevents any oxygen pick-up in the clarified beer. Adjustable discharge volume function ensures discharge of solids with high dry matter content, thus minimizing product losses.



The system can be selected with an optional ProCarb™ feature - a patented inline carbonation technology that boosts productivity by combining rapid clarification with carbonation. This combination reduces the processing time from crash cooling tanks to packaging from 3 days to 3 hours.

All components are skid mounted to facilitate “Plug and Play” installation, which results in a small footprint. It can be configured from a selection of basic and optional features and control functions.

The control system includes a PLC and a user-friendly HMI to monitor and control the separation process parameters. The system can be configured for remote operation.

All metallic parts in contact with the process liquid are made of stainless steel. Gaskets and seals in contact with the product are made of FDA approved material and are approved according to food regulations (EC1935/2004).

The separation system is designed for automated Cleaning in Place (CIP).

Scope of supply

The standard Brew 250 skid mounted system includes the following main components:

- Disc stack separator
- Process & service liquid unit:
 - Valves, instruments and other components
 - Turbidity triggered solids discharge function
 - Manual flow regulation valve
 - Back pressure regulation valve
 - Flow meter
 - Sight glasses
 - Sample valves
- Electrical & control system:
 - Control cabinet with PLC and HMI
 - Motor starter cabinet with VFD
- Commissioning spares
- Set of special tools
- Documentation

Options

- ProCarb™
- Feed pump
- Solids receiving unit (a collection device and a transfer pump for the discharged solids)
- Capacity control by inlet turbidity
- Automatic flow control valve
- Automatic blending skid
- Service options:
 - Commissioning
 - Operators training (basic and advanced level)
 - Basic service agreement
 - Performance agreement

Working principle

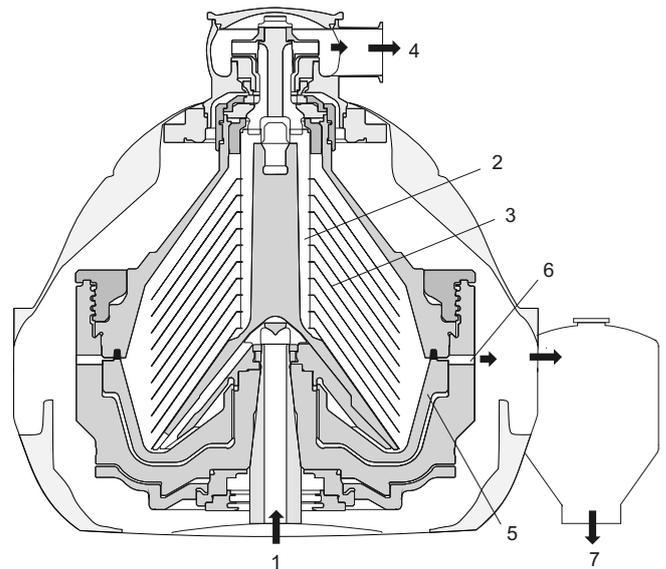
The process & service liquid unit monitors and regulates the flow and pressure of the feed and utility liquids in and out of the separator.

The process liquid is continuously fed from the bottom into the rotating separator bowl through the hollow drive spindle. Separation takes place between the bowl discs due to the centrifugal force. The solids settle towards the periphery of the bowl. The clarified/separated liquid is continuously pumped out of the hermetically sealed separator by an integrated impeller through the outlet at the top of the separator.

The solids collected in the periphery of the bowl are discharged intermittently through the discharge ports. The discharge is triggered by a turbidity meter placed in the outlet of the system.

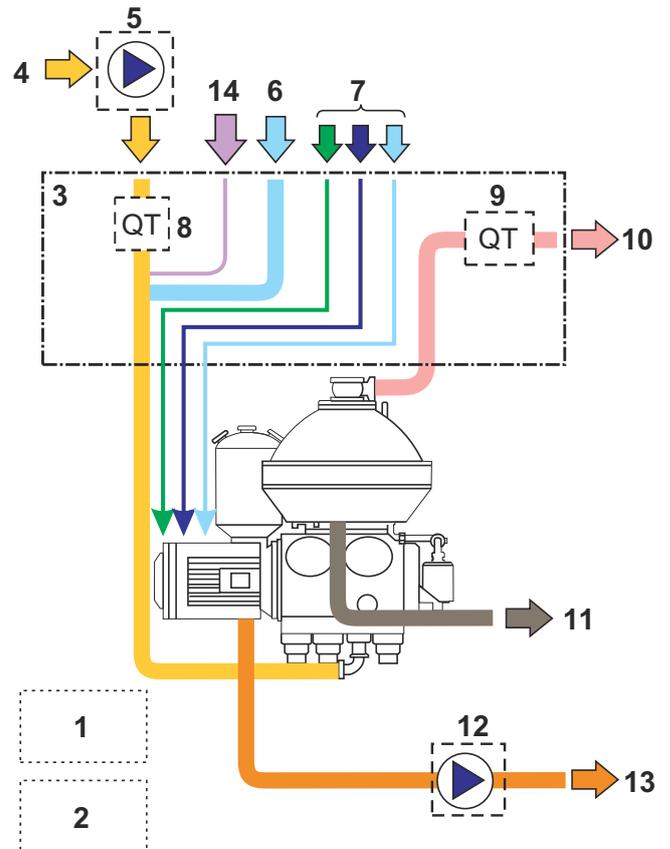
Water is used to control the movement of the sliding bowl bottom part that opens and closes the discharge ports. The discharged solids decelerate in the sludge cyclone and can be pumped out of the system by the optional solids receiving unit.

The process & service liquid unit also controls the separator's discharge system, flushing, and CIP.



Typical bowl drawing for a solids-ejecting separator. The details illustrated do not necessarily correspond to the separator described.

1. Inlet
2. Distributor
3. Disc stack
4. Liquid phase outlet
5. Sliding bowl bottom
6. Solids ports
7. Solids outlet from cyclone



General flow chart of a separator system. The details may differ slightly between different systems.

1. Control cabinet
2. Main motor starter and VFD
3. Process and service liquid module

4. Product inlet
5. Feed pump (optional)
6. Standby / Safety water
7. Utilities
8. Turbidity meter for capacity control (optional)
9. Turbidity meter for discharge triggering
10. Outlet for clarified product
11. Drain for separator
12. Solids receiving unit (optional)
13. Outlet of discharged solids
14. ProCarb™ (optional)

Technical data

Performance data¹

Max capacity	180 hl/h (151 bbl/h)
Max. motor power	18.5 kW (24.8 HP)

¹ Actual capacity and power consumption depend on application, solids content and operating conditions

Connections

Feed inlet	DIN 11851 Union DN 50
Product outlet	DIN 11851 Union DN 50
Solids outlet	Flange DN 65 PN 16

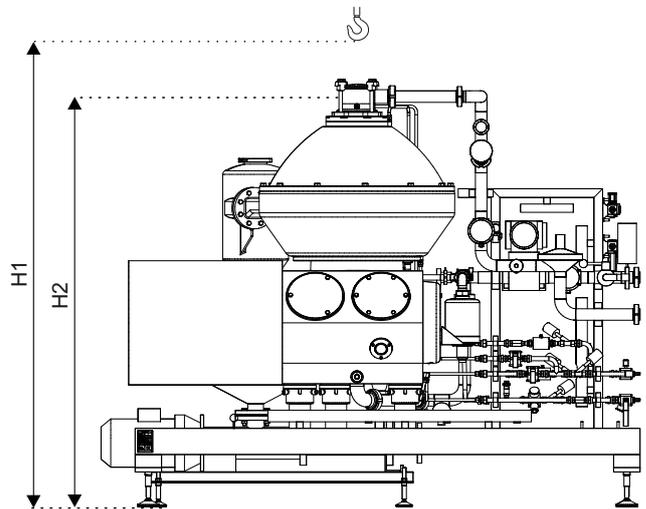
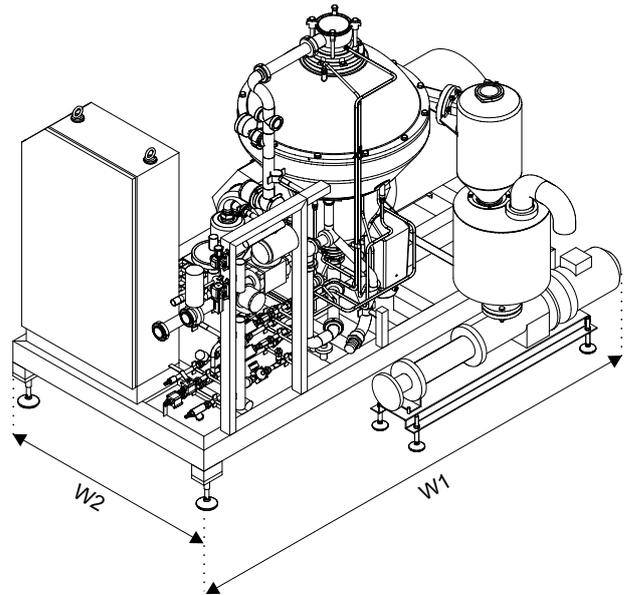
Material data

Bowl body	Duplex Stainless Steel, EN 1.4462, ASTM/UNS S31803
Gaskets (product wetted)	EPDM (FDA approved materials)
Piping	Stainless steel 316L
Frame and cabinets	Stainless steel 316

Weights

System incl. separator, bowl and motor	2195 kg (4839 lb)
Bowl	310 kg (683 lb)

Dimensional drawing



Dimensions

H1	2573 mm (8 ft 5 5/16 inches)
H2	1960 mm (6 ft 5 3/16 inches)
W1	2400 mm (7 ft 10 1/2 inch)
W2	1700 mm (5 ft 6 15/16 inch)

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