Alfa Laval Brew 20

Disc stack separation system for brewery applications

Introduction

The use of separators in different brewery applications goes back to the beginning of the 1900s. Based on the long-term cooperation with the brewery industry, Alfa Laval separators are specially designed for the requirements and demands of this industry.

The Brew separators are high performance clarifiers with intermittent solids discharges. The design ensures low power consumption and keeps the oxygen pick-up at a minimum.

The Brew separators are offered as complete skids or modularized systems that are easy to install and operate. They are fully equipped with a user-friendly control panel, valves, instruments, and other components for process and utilities control.

Application

The Brew 20 specially designed for green beer and beer pre-clarification or polishing duties with the target to produce the best quality beer with high performance and maximized yield.

Benefits

- High separation efficiency
- Gentle treatment of the product
- Minimized oxygen pick-up
- Complete system handling both process and utility requirements
- Robust and reliable design

Design

The Brew 20 separation system consists of a separator, a process & service liquid unit, and an electrical & control system. 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 other optional standardized units and control functions.

It has a clarifier type of bowl with a conventional top-fed design. The liquid outlet is sealed mechanically by an axial hermetic seal that prevents oxidation of the clarified product.

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 completely automated Cleaning in Place (CIP).

Scope of supply

The standard Brew 20 skid mounted separation system includes the following main components:

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

Options

Available standard options:

- Feed pump
- Solids receiving unit
- Turbidity triggered solids discharge function
- Service options:
  - Commissioning
  - Operators training (basic and advanced level)
  - Basic service agreement
  - Performance agreement

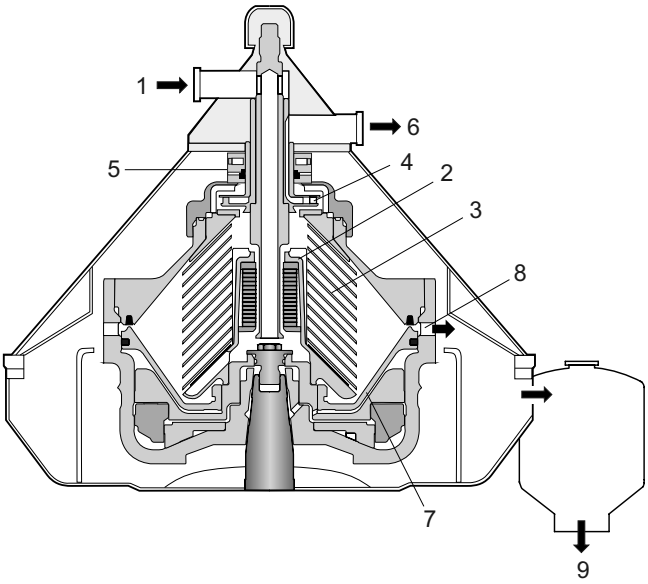
Working principle

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

The feed enters the separator bowl from the top. Separation takes place between the bowl discs as a result of the centrifugal force that causes the solids to move towards the periphery. The clarified/separated liquid is continuously pumped out of the mechanically sealed bowl by an integrated paring disc through the outlet at the top of the separator.

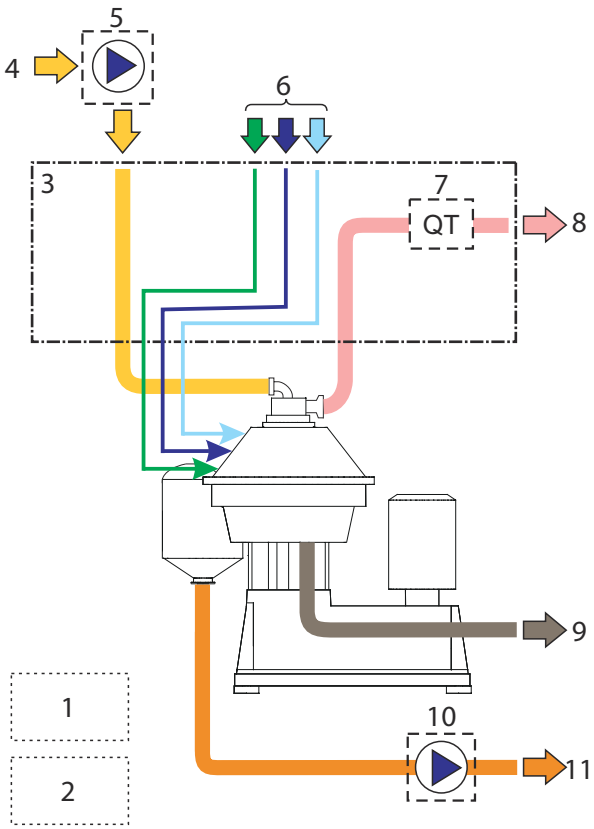
The solids collected in the periphery of the bowl are discharged intermittently through the discharge ports. The discharge is triggered by a timer or by an optional turbidity meter mounted on the clarified product outlet pipe. The discharged solids can be pumped out of the system by the optional solids 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. Feed inlet
2. Distributor
3. Disc stack
4. Paring disc
5. Axial-Hermetic Seal
6. Clarified liquid phase outlet
7. Sliding bowl bottom
8. Solids discharge ports
9. Solids outlet from cyclone



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

1. Control cabinet
2. Main motor starter cabinet and VFD
3. Process & service liquid module
4. Feed inlet
5. Feed pump (optional)
6. Utilities
7. Turbidity meter for discharge triggering (optional)
8. Clarified product outlet
9. Separator drain
10. Solids receiving unit (optional)
11. Discharged solids outlet

Technical data

Performance data[1]	
Capacity range	4 to 15 hl/h (3.4 to 12.8 bbl/h)
Maximum motor power	3 kW (4.02 HP)

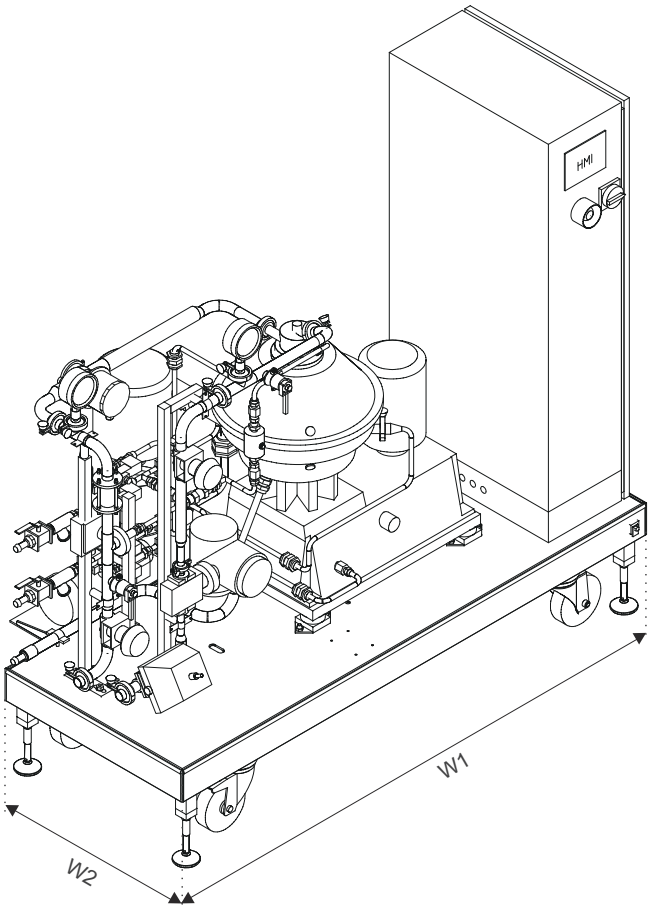
[1] Actual capacity and power consumption depend on operating conditions

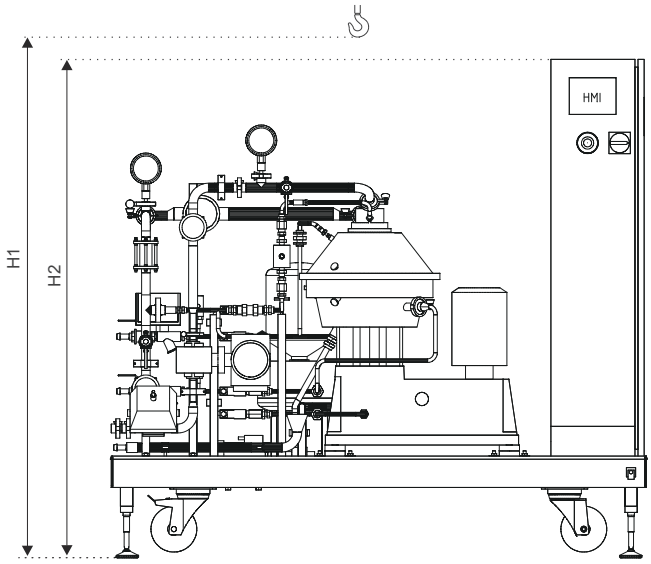
Main connections	
Feed inlet	Clamp ferrule DN25 DIN 32676
Product outlet	Clamp ferrule DN25 DIN 32676
Solids outlet	Clamp ferrule OD 63.5 ISO 2852

Material data	
Bowl body	Duplex stainless steel, EN 1.4462
Gaskets	NBR and EPDM, FDA approved materials
Piping	Stainless steel 316L
Frame and Cabinet	Stainless steel 316

Weights	
System incl, separator, bowl and motor	450 kg (992 lbs)
Bowl	37 kg (81 lbs)

Dimensional drawing





Dimensions	
H1 (minimum lifting height)	1700 mm (5 ft 6 15/16 inches)
H2	1630 mm (5 ft 4 3/16 inches)
W1	1750 mm (5 ft 8 7/8 inches)
W2	670 mm (2 ft 2 3/8 inches)

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How to contact Alfa Laval

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