

# Alfa Laval Brew 350

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

### Design

The Brew 350 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 is available in two versions - skidded or modularized. 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 350 skid mounted or modularized system includes the following main components:

- Disc stack separator
- Process & service liquid unit:
  - Valves, instruments and other components
  - Automatic flow and back pressure regulation valves
  - Sight glasses
  - Sample valves
- Electrical & control system:
  - Control cabinet with PLC and touchscreen HMI
  - Motor starter cabinet with VFD

- Commissioning spares
- Set of special tools
- Documentation
- The system is available in two pipe size configurations:
  - DN65 and D80

### Options

- Feed pump
- Solids receiving unit (a collection device and a transfer pump for the discharged solids)
- Turbidity triggered solids discharge function
- Capacity control by inlet turbidity
- Solids control (recirculation of the clarified product)
- Integrated blending by-pass
- WaterSaver CR Sustainability subscription
- Service options:
  - ConditionAlert (TM) — connectivity based subscription
  - Commissioning
  - Operators training (basic and advanced level)
  - Basic service agreement
  - Performance agreement

### Working principle

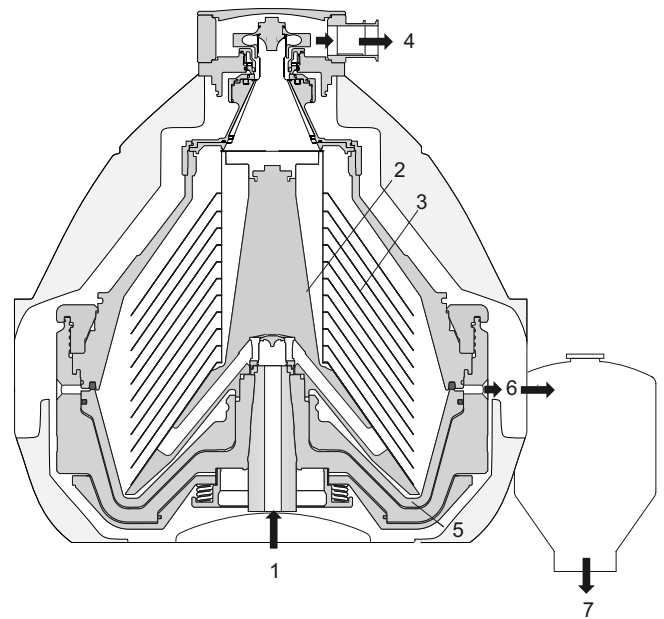
The process & service liquid unit monitors and regulates the flow and pressure of the feed and utility liquids in and out of the separator.

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.

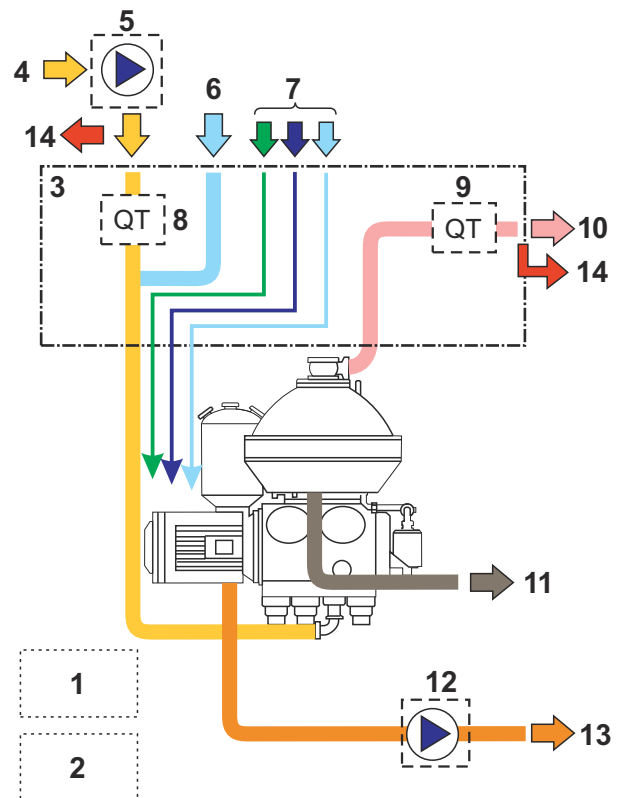
The solids collected in the periphery of the bowl are discharged intermittently through the discharge ports. The discharge is triggered by a turbidity meter placed in the outlet of the system.

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.



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



1. Control cabinet
2. Main motor starter and VFD
3. Process 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
13. Outlet of discharged solids
14. Drains for process liquid unit

## Technical data

### Performance data

|                           |  |
|---------------------------|--|
| Max capacity <sup>1</sup> | DN65: 250 hl/h (213 bbl/h)<br>DN80: 300 hl/h (298 bbl/h) |
| Max. motor power          | 22 kW (29.5 HP)  |

<sup>1</sup> Actual capacity and power consumption depend on application, solids content and operating conditions

### Connections

|                |                            |
|----------------|----------------------------|
| Feed inlet     | DIN 11851 Union DN 65 / 80 |
| Product outlet | DIN 11851 Union DN 65 / 80 |
| Solids outlet  | DN50 DIN11851 Union        |

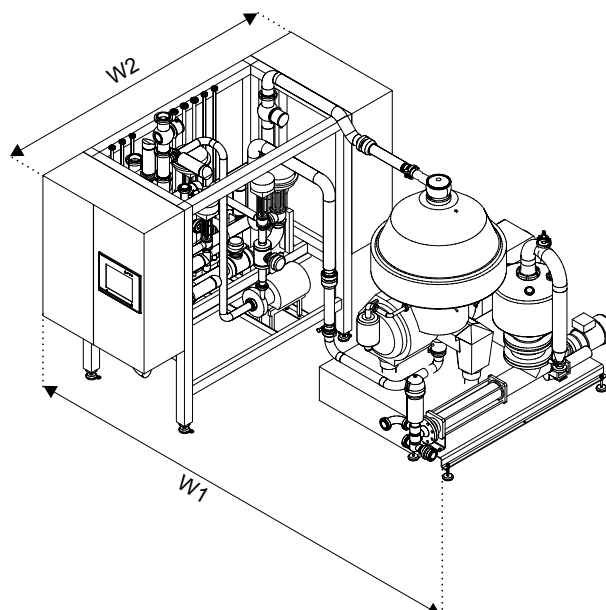
### Material data

|                          |  |
|--------------------------|--|
| Bowl body                | Duplex Stainless Steel, EN 1.4462, ASTM/UNS S31803 |
| Gaskets (product wetted) | EPDM (FDA approved materials)                      |
| Piping                   | Stainless steel, AISI 304                          |
| Frame and cabinets       | Stainless steel, AISI 304                          |

### Weights

|  |                   |
|--|-------------------|
| System incl, separator, bowl and motor | 2530 kg (5577 lb) |
| Bowl                                   | 595 kg (1310 lb)  |

## Dimensional drawing



### Dimensions

|    |                                 |
|----|---------------------------------|
| H1 | 3656 mm (11 ft 11 15/16 inches) |
| H2 | 2580 mm (8 ft 5 9/16 inch)      |
| W1 | 2970 mm (9 ft 8 15/16 inch)     |
| W2 | 2750 mm (9 ft 1/4 inch)         |

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200005509-1-EN-GB

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