BREW 301

Separation system for the brewing industry

BREW 301 separation unit.

Alfa Laval separators for breweries are available in many different sizes and configurations, each designed for a specific type of separation duty. Compact in size, the BREW 301 offers a maximum throughput capacity of 250 hl/h*, combined with excellent solids handling capability, making the BREW 301 ideal for use in smaller breweries. The BREW 301 is a clarifier that provides intermittent discharge of solids in a very dry state and features a combination of high g-force, a high standard of hygiene and automated operation. The BREW 301 is also equipped with Oxy-Stop, a hydrohermetic seal that ensures minimal oxygen pick-up in the clarified liquid.

*actual capacity depends on application and solids content.

Applications

The BREW 301 is mainly intended for pre-clarification and green beer separation, but thanks to its flexible design, it can also be used for hot wort separation and beer recovery.

The BREW 301 is used for removing suspended solids with particle sizes of approx. 0.5 to 300 µm from a liquid with a lower density than the solids. The solids content in the feed is normally in the range of 0.1–10 % by volume depending on the specific operation involved, but may also be higher.

Special features

The BREW 301 is designed for variable, partial discharge, so that the discharge volume can be adjusted to give a dry solids phase, therefore minimising liquid losses. Discharge takes place at full speed without any interruption of the feed. Discharge can be timer triggered or triggered by turbidity meter.

The separator has an Oxy-Stop hydrohermetic seal that minimises oxygen pick-up in the product and a built-in paring disc for the liquid phase, which eliminates the need for an external pump.

The top part of the frame and the frame hood are jacketed for cooling and sound dampening. The sliding bowl bottom and the solids ports are fitted with easily exchangeable erosion liners for protection against abrasive solids.

A specially designed variable frequency drive (VFD) system provides benefits that include low starting current and a short time power supply (UPS). The UPS helps the control system to stop the separator in a controlled fashion to avoid damage and product loss in the event of external power failure.

Standard design

The BREW 301 system consists of a self-cleaning disc stack centrifuge and all the auxiliary equipment needed for a safe, efficient operation. This includes:

- Starting equipment for VFD drive of the separator motor.
- Control system including a Siemens PLC, pre-programmed to control and supervise the separation system.
- Process and service liquid module, comprising valves, fittings and instruments for process and service liquids entering and leaving the separator.
- Sensors for monitoring vibration levels and temperature of. the centrifuge motor winding.
- Pressure indicator at outlet.
- Flow meter.

All metallic parts in contact with the process liquid are made of high grade stainless steel. Liquid-wetted rubber gaskets are made of FDA-compliant nitrile rubber.

The cyclone is prepared for mounting a level probe. When cleaning in place, flushing takes place above and below the bowl, in the sediment outlet, in the cyclone and in the Oxy-Stop seal.

Options

The BREW 301 is available with two different paring discs for low and high capacity and two different disc stacks depending on the amount of solids in the process. The capacity can be controlled by inlet turbidity or by downstream tank level.

Optional extras

The BREW 301 is available with a cover interlocking kit to make it impossible to start the separator unless it is properly assembled.

Utilities consumption

Power consumption	Idling 11 kW (15 hp) [1] at max. capacity 28 kW (38 hp) [1]
Operating liquid	9 l/h + 1 l/discharge (0.44 US gpm + 0.26 US gallon)
Cooling water for frame and cyclone	150 l/h (1.32 US gpm)
Cooling water for lubrication	120 l/h (0.52 US gpm)
Instrument air	approx. 10 Nl/discharge (0.044 US gpm)
Co2 for Oxy -stop	300 Nl/h (1.32 US gpm) [2]
Water for Oxy-stop	0–60 l/h (0–0.26 US gpm) [3]

[1] Actual consumptions increases with throughput capacity, etc.
[2] Only used if required by process.
[3] Sealing medium and consumption depends on application.

Shipping data (approximate)

Complete module incl. bowl & motor	2,380 kg (5,247 lbs)
Bowl weight	300 kg (662 lbs)
Motor weight	205 kg (452 lbs)
Gross weight	2,990 kg (6,592 lbs)
Volume	15 m^3 (530 ft^3)

Connections

Product inlet, outlet	DN 50 acc. to DIN 11851
Water hose nipple	16 mm (5/8 “) inner diam. or ½” female thread
Solids outlet	Pipe NW 50 acc to ISO 2037

Technical specification

Throughput capacity	max. 250 hl/h (110 US gpm) [1]
Feed temperature range	-5–100 °C (23–212°F)
Solids handling capacity	max. 408/564 l/h (1.80–2.48) [2] [3]
Feed pressure required	0–400 kPa (0–58 psi)
Outlet pressure available	0–700 kPa (0–102 psi)
Motor power installed	35 kW (47 hp)
Solids pump motor	4 kW (5 hp)
Sound pressure	79 dB(A) [4]
Overhead hoist lifting capacity	min. 900 kg (1984 lbs)

[1] Actual throughput capacity depends on amount and type of solids in the feed, viscosity and degree of clarification.
[2] Wet Solids. Actual amount depends on discharge interval and application.
[3] Depending on disc stack diameter.
[4] In compliance with ISO 3744.

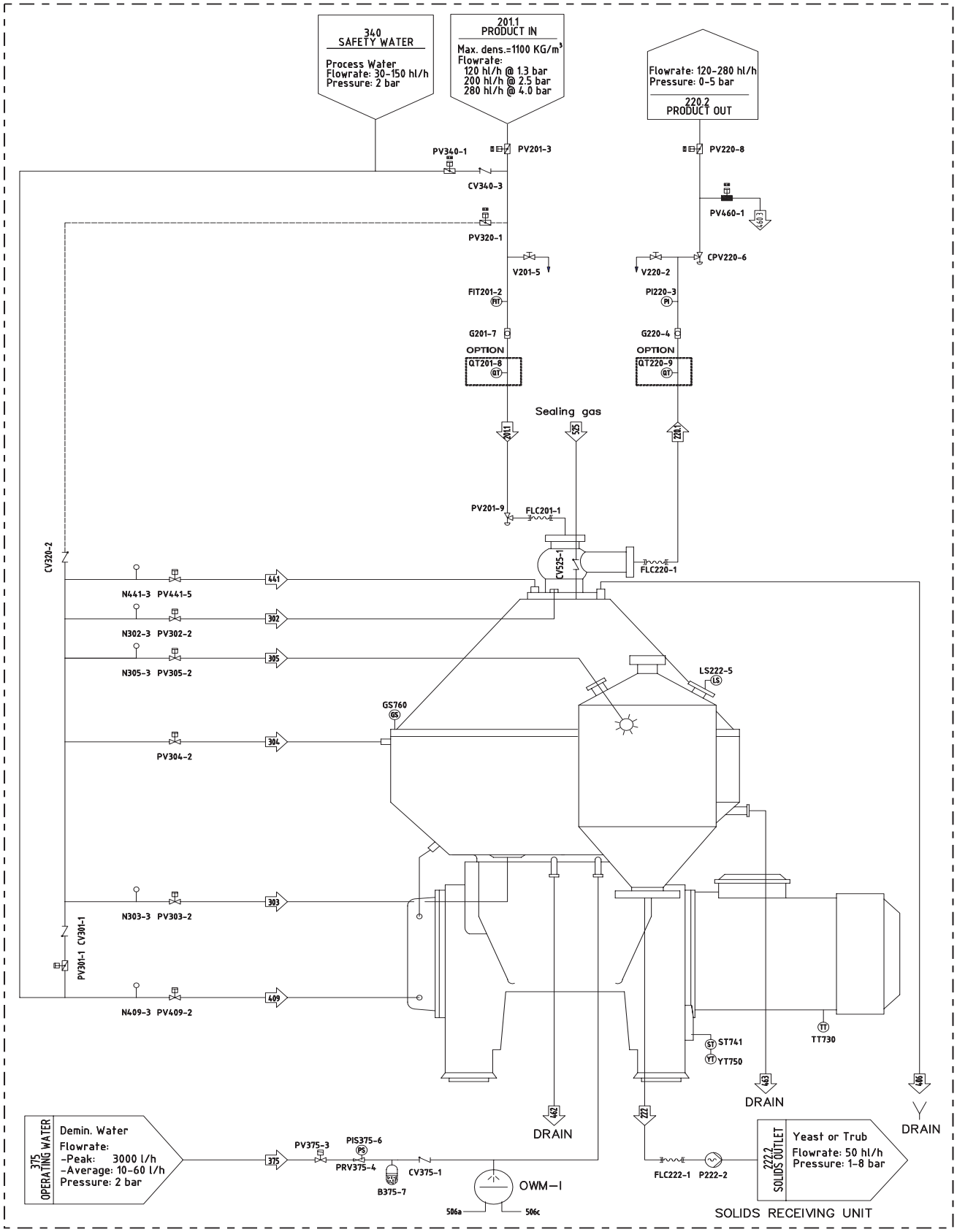
Material data

Bowl hood and lock ring	Stainless steel
Frame top part and hood	Stainless steel
Frame bottom part	Stainless steel
In and outlet parts	Cast iron
Piping	Stainless steel
Gaskets and O-rings	Nitrile rubber, food approved [1]

[1] In accordance with FDA CFR 21§177.2600.

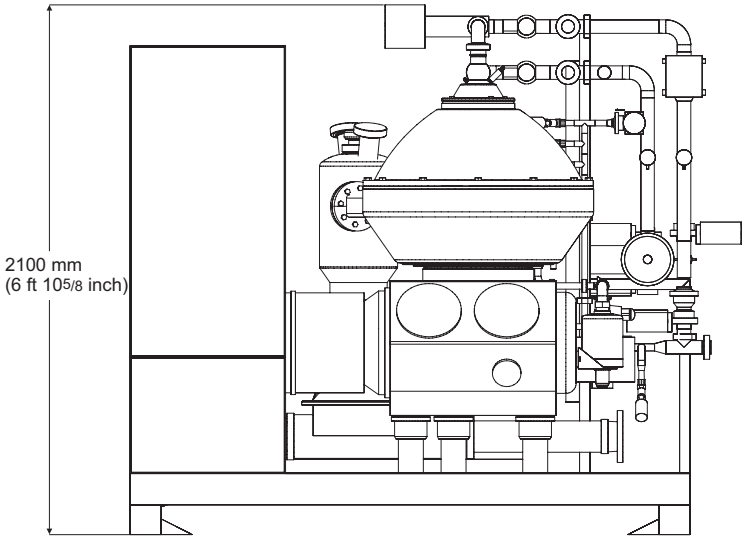
Operating principles

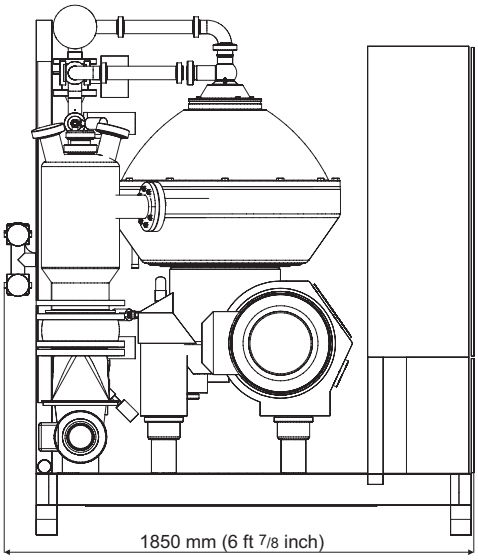
The feed containing the liquid and the solids is led into the unit through connection 201 and is introduced into the rotating bowl from the top, via a stationary inlet pipe. The solids are collected in the periphery of the rotating bowl and are discharged at either preset intervals or by means of a turbidity meter. The solid part is discharged via the cyclone to the integrated solids pump and leaves the unit at connection 222. The clarified liquid leaves the unit through connection 220 after passing a sight glass, a flow meter, a pressure indicator and a regulating valve.

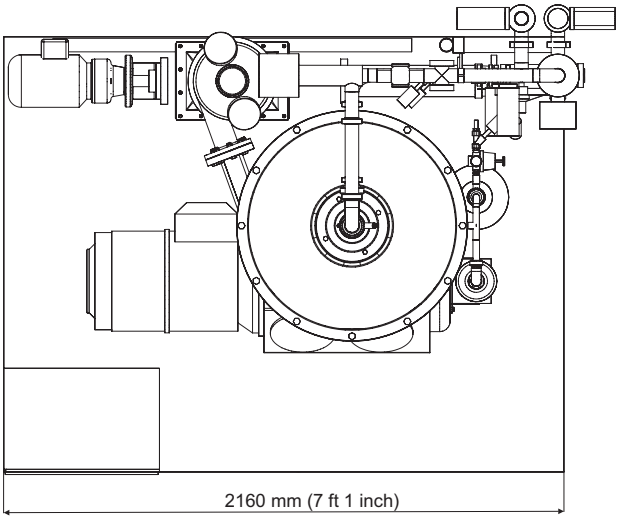


BREW 301 flowchart

Dimensions







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