

Alfa Laval PureFerm 250

Disc stack separator for bio based processing

Introduction

Targeting high-density biomass fermentation application, the PureFerm 250 combines high separation area with continuous solids discharge. It is the perfect choice for high-density broths and completes Alfa Laval's wide range of separators for high-density industrial fermentation harvesting.

Application

The PureFerm 250 is a self-cleaning centrifugal separator that is specifically designed for high-density industrial fermentation harvesting.

Benefits

- Continuous removal of solids
- Gentle treatment of the product
- Foam-free handling in absence of air
- Minimized oxygen pick-up
- Small footprint
- Easy to install and start up

Design

Scope of supply

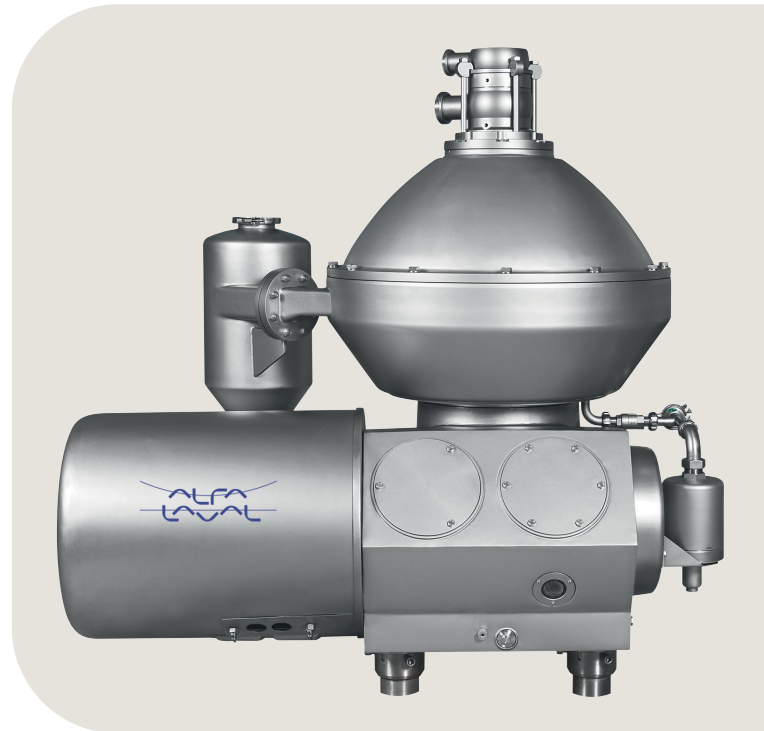
- Disc stack separator
- Electric variable speed drive motor
- Solids cyclone
- Foundation plate
- External arrangement for seal flushing and cleaning
- Set of tools
- Standard set of spare parts
- Documentation

Options

Working principle

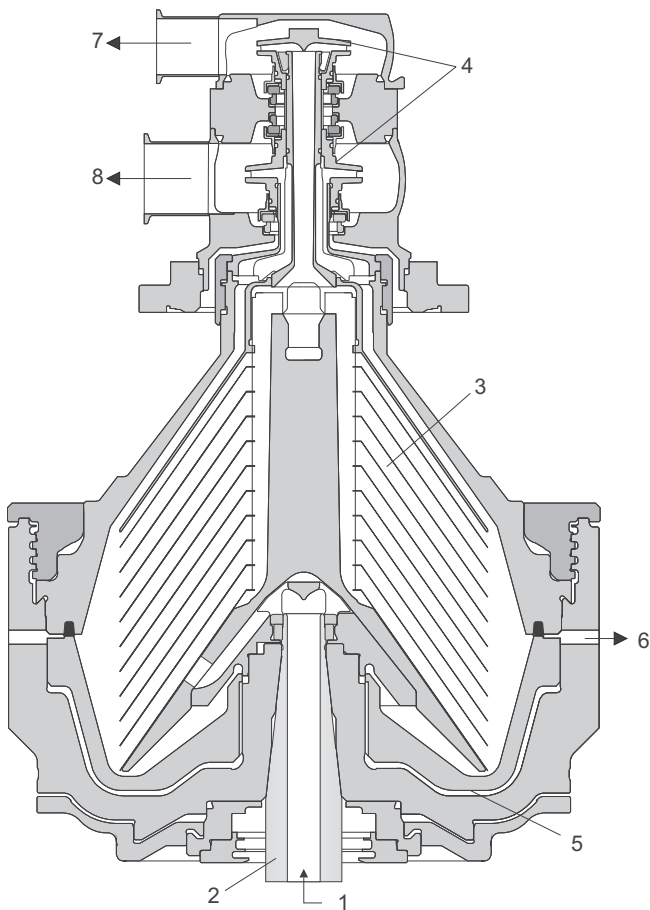
Fermentation broth is continuously fed from the bottom (1) into the separator bowl through the hollow spindle (2), which assures gentle acceleration. Separation takes place in a solids-ejecting centrifuge bowl, between the discs (3). However, the intermittent solids-ejecting function is primarily used to CIP the separator.

In normal production mode there are two continuous outlet flows from the top of the separator. One is clarified liquid (supernatant) and the second is concentrated biomass. Both these flows are discharged under pressure via centrifugal impellers (4). During production mode the bowl bottom is



hydraulically pressed into a closed position, ensuring a tight seal against the bowl hood. Solids, which move toward to the bowl periphery under centrifugal force, pass out of the separator over the top disc.

During cleaning (CIP), the intermittent discharge function can be employed to clean the bowl internals. The separator is fed with cleaning solutions continuously. Periodically, at pre-determined intervals, the sliding bowl bottom (5) is lowered hydraulically and waste residue is evacuated through the discharge ports (6). The bowl is then closed again by hydraulic action. The intermittent discharge is done at full speed without shutting off the feed of cleaning liquid. The entire sequence takes around 200 milliseconds. Mechanical seals on the inlet and outlet maintain a full hermetic condition, which prevents air from contacting product liquids.



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

1. Feed inlet
2. Spindle
3. Disc stack
4. Impellers
5. Sliding bowl bottom
6. Discharge ports
7. Light phase outlet
8. Heavy phase outlet

Technical data

Performance data	
Hydraulic capacity ¹	Max. 10 000 l/h (2460 US gal/h)
Maximum motor power	15 kW (20 HP)

¹ Actual capacities depend on operating conditions

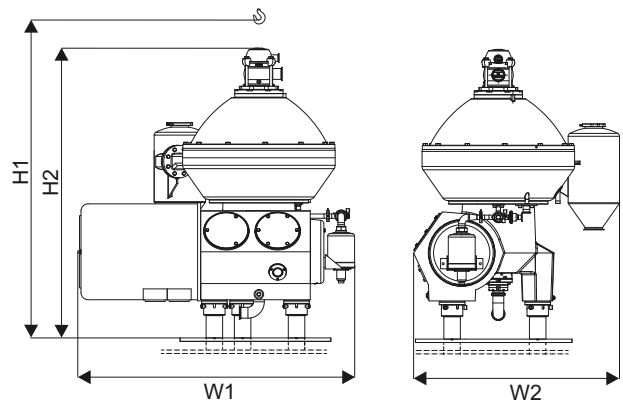
Material data

Bowl body, bowl hood and lock ring	Stainless steel 1.4462 UNS S31803
Frame top part and hood	Stainless steel 1.4401 UNS 31600
Frame bottom part	Cast grey iron, covered with Stainless steel 1.4301 UNS 30400
Gaskets and O-rings	Food-grade EDPM

Weights (approximate)

Separator weight incl. bowl and motor	1380 kg (3040 lbs)
Bowl weight	310 kg (685 lbs)

Dimensional drawing



Dimensions

H1	Min. 2100 mm (6 ft 10 11/16 inch)
H2	1521 mm (4 ft 11 7/8 inch)
W1	1618 mm (5 ft 3 11/16 inch)
W2	1190 mm (3 ft 10 7/8 inch)

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