



MBPX 810

Separation system for fermentation and biotech industries

Applications

The MBPX 810 separation system is based on the solids ejecting disc stack separator MBPX 810SGV-34CL in clarifier execution. It is equipped with variable discharge mechanism for timer triggered discharge of solids.

It is used to remove suspended solids with particle sizes of approximately 0.5 to 500 μm from a liquid having lower specific gravity than the solids. The solids content is normally in the range of 0.1-10% by volume.

The main applications are bacteria, rDNA products, enzymes, cell cultures and vaccines.

Design features

The MBPX 810 separator is equipped with the following features

- Variable partial discharge mechanism, allowing settable discharge volume
- Disc inlet for low shear acceleration of process media
- Variable speed to facilitate performance optimization
- A cooling system with a cooling jacket for the bowl enclosure including the solids collecting receptacle, and a cooling coil for the lubrication oil bath.
- Anchoring feet and vibration dampers
- All liquid wetted parts are in high grade stainless steel
- All liquid wetted elastomers are in FDA approved EPDM
- Hygienic design of solids handling area with internal spray nozzles
- Monitoring kit with sensors for bowl, speed, vibrations and operating water pressure, and, as option, a cover switch for preventing the motor from being started unless the separator top part has been properly mounted.
- Choice of large or small disc stack to accommodate low or high solids loading
- Choice of low flow or high flow paring disc
- Enhanced surface finish to less than 0.8 μm Ra for product contact parts, as an option.



Complete system

The MBPX 810 separation system is flexible and designed to meet industry standards.

- The separator is mounted on a fixed base frame with process piping for service liquids and process liquids entering and leaving the separator.
- Clamp connections for improved hygiene.
- Control system with a PLC and HMI, suitable for connectivity (Profibus or Ethernet) with a supervising control system
- Automatic CIP possibilities
- Automatic flow control with magnetic flow meter and flow regulating valve
- Back-pressure control
- Optional - turbidity monitoring, replacement buffer liquid addition, solids receiving unit, mass flow meter (replacing magnetic flow meter) and temperature sensor on supernatant outlet provide enhanced installation flexibility to customer
- Enhanced documentation supporting cGMP qualification is available and FAT is performed before shipping.

Operating principles

The feed is introduced to the rotating centrifuge bowl (fig 1) from the top via a stationary inlet pipe (1), and is accelerated by the disc inlet in a distributor (2) before entering the disc stack (3). It is between the discs that the separation takes place. The liquid phase moves towards the centre of the bowl, from where it is pumped out under pressure by means of a built-in paring disc (4). The heavier solids phase is collected at the bowl periphery, from where it is discharged intermittently via the centrifuge cyclone. The solids discharge is achieved by a hydraulic system below the separation space in the bowl, which at certain intervals forces the sliding bowl bottom (5) to drop down, thus opening the solids ports (6) at the bowl periphery. The bowl is mounted on a vertical spindle (7) driven by a horizontally mounted motor, via a worm gear.

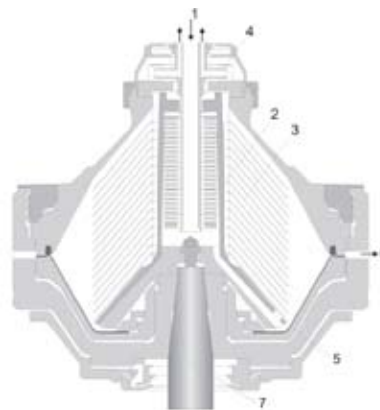


Fig. 1. Typical bowl drawing for solids-ejecting centrifuge in timer-triggered clarifier execution. Drawing details do not necessarily correspond to the centrifuge described.

Utilities for MBPX 810 separation system

Electric power consumption, max.	17 kW ¹⁾
Flushing & Operating water; max. momentary flow	3 000 l/h
Consumption	Up to abt. 200 l/h ²⁾
Cooling water, recommended flow	120 – 150 l/h

¹⁾ At a feed rate of 10 m³/h. Actual consumption depends on feed rate, feed characteristics and applied back-pressure on liquid outlet.

²⁾ Consumption is very dependent on selected flushing regime & discharging frequency.

Shipping data (approximate)

Complete system with bowl and motor. Packed on pallet or in case

Net weight	2 300 kg	
Gross weight	pallet 2 400 kg	case 2 800 kg
Volume	pallet 8 m ³	case 10.5 m ³

Technical specification, MBPX 810 separation system

Max throughput capacity	8 or 15 m ³ /h ¹⁾
Max solids handling capacity	360 or 540 l/h ²⁾
Feed temperature range	0 - 100 °C
Feed inlet pressure required, max.	250 kPa ³⁾
Liquid outlet pressure available upto	400 kPa ⁴⁾
Installed motor power	25 kW
Sound pressure	80 dB(A) ⁵⁾

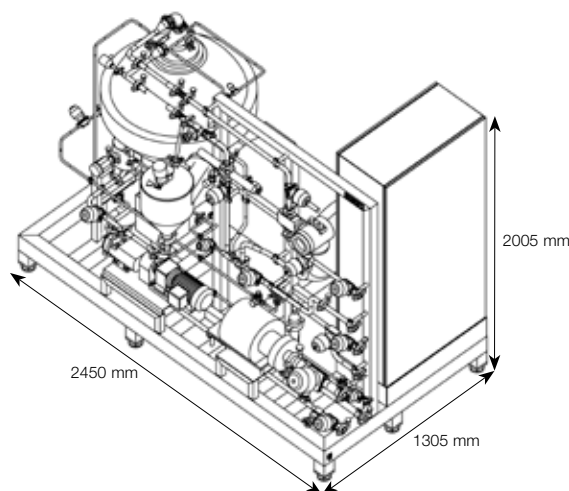
¹⁾ Actual throughput capacity depends on amount and type of solids in the feed, viscosity and required degree of clarification.

²⁾ Wet solids.

³⁾ Valid for water at throughput capacity 3 m³/h, and at max. back-pressure on liquid outlet.

⁴⁾ Valid for water throughput capacity 3 m³/h.

⁵⁾ According to EN ISO 4871.



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How to contact Alfa Laval

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