



## BTPX 710 - Sterilizable and fully contained separator module

### Solids ejecting centrifuge

#### Applications

The BTPX 710 module is based on the solids-ejecting centrifuge BTPX 710SGD-34CDP in clarifier execution. It is equipped with a double axial spindle seal and timer-triggered solids discharge. It is used for removing suspended solids with particle sizes from approximately 0.5 to 500  $\mu\text{m}$  from a liquid having a lower specific gravity than the solids. The solids content in the feed is normally in the range of 0.1-10 % by volume.

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

#### Special features

The BTPX 710 has a timer-triggered partial discharge system, meaning that only part of the bowl content is emptied during discharge. The discharge takes place at full speed without any interruption of the feed.

The inlet of the separator is equipped with wing type distributor or a low shear disk inlet, which enables separation of products with foaming tendency or high sensitivity to shear. The flanged motor is direct coupled to the drive system.

The drive system is splash lubricated without any need for an external lubrication circuit.

All product wetted surfaces are in high grade stainless steel with a standard surface finish of less than 1.2 micron Ra. Finer finish is available on demand.

The bowl casing, cyclone and cooling jackets are pressured rated to 3 bar. The Separator can be steam sterilised up to 1300. The separator can be mounted in a fully contained system with no risk for product or environmental contamination.

The built-in paring disc for the liquid phase eliminates the need for an external pump.

The machine is equipped with nozzles for flushing above the bowl and in the sediment outlet.



Fig 1. BTPX 710 Module

#### Standard design

All liquid-wetted parts are in high-grade stainless steel and liquid-wetted rubber gaskets in FDA approved EPDM.

The centrifuge is available with main connections as sanitary flanges and all other utility connections clamp type.

The centrifuge can be equipped with sensors for monitoring vibration level, and a cover switch to be used for preventing the motor from being started unless the centrifuge top part has been properly mounted.

The centrifuge is equipped with anchoring feet and vibration dampers.

## Operating principles

The feed is introduced to the rotating centrifuge bowl (fig 2) from the top via a stationary inlet pipe (1), and is accelerated 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.

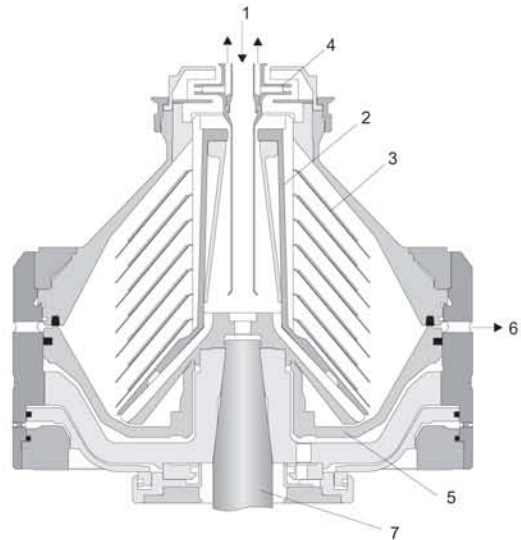


Fig. 2 Typical bowl drawing for a nozzle centrifuge with a solids recirculation system. Drawing details do not necessarily correspond to the centrifuge described.

## Utilities consumption

Electric power	15 - 20 kW <sup>1)</sup>
Operating liquid + seal water	120 dm <sup>3</sup> /h + 1-2 dm <sup>3</sup> /discharge <sup>2)</sup>
Flushing liquid	2 - 20 dm <sup>3</sup> /discharge <sup>3)</sup>
Cooling water	500 dm <sup>3</sup> /h <sup>4)</sup>
Air	2 Nm <sup>3</sup> /h

1) Actual consumption depends on throughput capacity, feed characteristics and applied back pressure on liquid outlet.

2) Normally water, used for the solids-ejecting mechanism.

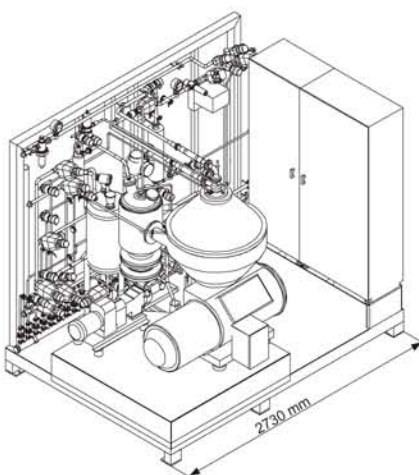
3) Normally water. Only used if the process so requires.

4) For centrifuge top part. Only used if the process so requires.

## Shipping data (approximate)

Complete module with bowl and motor	
Net weight:	3050 kg
Gross weight:	3390 kg
Volume:	18.7 m <sup>3</sup>

## Dimensions



## Technical specification

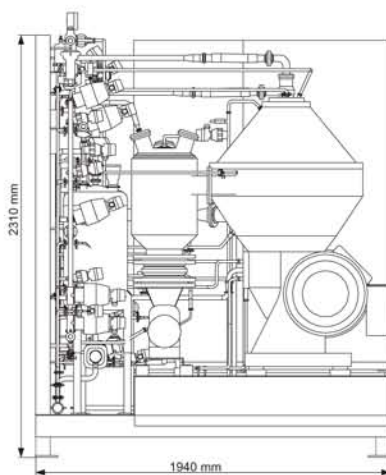
Max. throughput capacity	10 m <sup>3</sup> /h <sup>1)</sup>
Max. solids-handling capacity	360 dm <sup>3</sup> /h <sup>2)</sup>
Feed temperature range	0 - 100 °C
Feed inlet pressure required	0 - 200 kPa <sup>3)</sup>
Liquid outlet pressure available	300 kPa <sup>4)</sup>
Installed motor power	22 kW
Noise level (ISO 3744 or 3746)	76 dB(A)

1) Valid for large paring disc. 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 10 m<sup>3</sup>/h, and at max. back pressure on liquid outlet.

4) Valid for water at throughput capacity 5 m<sup>3</sup>/h.



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