LAPX 404

Laboratory separation module

The LAPX 404 module has been designed specifically for small scale fermenter capacities. The emphasis is on simple, user-friendly design. Its compactness and mobility makes it ideally suited for development applications as it can be moved easily in and out of various laboratory suites.

Connection to utilities is minimised so that the LAPX 404 can be installed on an “as needed” temporary basis, if so desired. Or so that mechanical maintenance can be done outside the cleanroom areas.

The piping design and layout permit complete dismantling and chemical santization and even autoclaving of flow components, if necessary.

Hygienic design
The piping has been designed with hygienic considerations being the utmost importance.

- All product-wetted parts in the separator are in high grade stainless steel.
- Clamp connections are used on all process piping to allow complete disassembly.
- Stainless steel pneumatic diaphragm pumps (with EPDM diaphragms) are used to minimise damage of shear sensitive micro organisms or protein particulates.
- Alfa Laval´s patented low shear disk inlet is a standard feature on the LAPX 404.

Scale-up possibilites
The LAPX 404 will allow biochemists to use centrifugal separators on small scale duties and be able to reliably scale up to production scale.

Antifoam fouling is not a problem for centrifugal separators, so frequent changing of parts is not an issue as it is for membranes.

The centrifugal separator can be used on a wide variety of biologicals because blinding of porous surfaces and subsequent flux reduction is avoided.

The LAPX 404 separation module is compact and requires less than 1 m^2 of floor space.

The intermittent self-cleaning feature means the solids handling capacity of the LAPX 404 is much higher than tubular bowl machines. This, in turn, gives more hygienic operation and less operator involvement.

Working principle of the separator

The feed is introduced to the rotating centrifuge bowl from the top via a stationary inlet pipe (1), and is accelerated in the disk inlet (2) of the distributor (3) before entering the disk stack (4).

It is between the disks that the separation of the liquid phase and the solids takes place. The liquid phase moves to the centre and leaves the bowl through the paring disk (5). The heavier solids phase is collected at the bowl periphery (6), from where it is discharged intermittently. The solids discharge is achieved by a hydraulic system below the separation space in the bowl, which at preset intervals forces the sliding bowl bottom (7) to drop down, thus opening the solids ports (8) at the bowl periphery. The bowl is mounted on a vertical spindle (9) driven by a vertically mounted motor, via a belt drive.

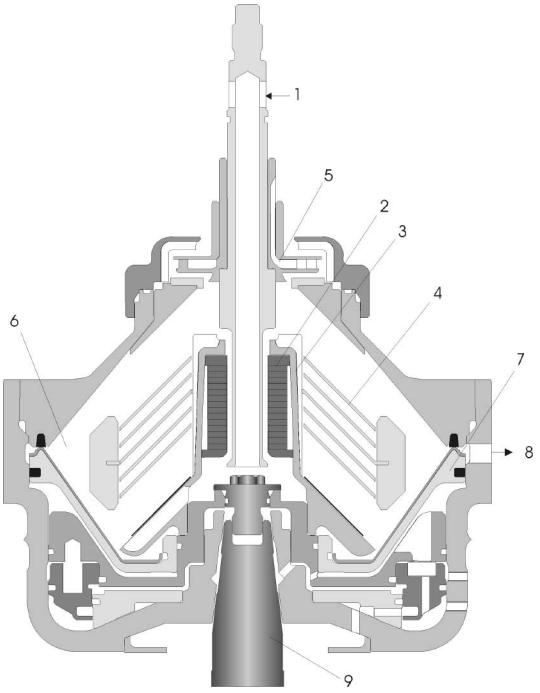

Fig. 1. Typical bowl drawing for a solids-ejecting centrifuge in clarifier execution. Drawing details do not necessarily correspond to the centrifuge described.

Technical data

Max. throughput capacity	4 m^3/h*
Max. solids-handling capacity	33 l/h
Feed temperature range	0-100 °C
Installed motor power	3.3 kW
Noise level (ISO 3744 or 3746)	69 dB(A)

Utilities consumption

Electric power	0.6-2.2 kW**
Discharge and closing liquid	0.5 l/discharge

* Actual consumption depends on composition of feed and separation demands.

** Depends on flow rate.

Shipping data (approximate)***

Net weight	400 kg
Gross weight	550 kg
Volume	2.7 m^3

*** Complete module with bowl and motor

Main dimensions

Height	1 676 mm
Width	1 200 mm
Depth	770 mm

How to contact Alfa Laval
Contact details for all countries
are continually updated on our website.
Please visit www.alfalaval.com to
access the information direct.