AFPX 513

Medium capacity Solids-ejecting centrifuge for animal and fish processing industries

Alfa Laval AFPX separator centrifuges were specially designed for extremely demanding separation jobs. Key features of the AFPX 513 centrifuge are its ability to handle high flow rates, high solids content and high-temperature processing. These functions make it the ideal choice to handle the tough conditions encountered in the animal and fish processing industries. In addition, the AFPX 513 centrifuge combines a high G-force, high sludge capabilities and automated operation.

AFPX 513XGD purifier complete with motor

Applications

The AFPX 513 was designed to discharge solids intermittently, while at the same time splitting a tight emulsion of two liquid phases. The centrifuge comes in a series of optimized models that are suitable for a considerable number of duties, including separating fish press water, stick and glue water as well as meat and fish extracts. Other applications include the purification of fish oil and fish liver oil, animal fat, peel oil, and similar products.

Performance

The actual throughputs depend on variables such as the amount and type of solids, the temperature, viscosity and degree of separation required. The following figures indicate the rate of performance, although no guarantees are given. Alfa Laval representatives will be pleased to provide you with further information.

Separation - fish press water	12.000–18.000 l/h	(50–80 US gpm)
Purification - fish oil	6.000– 8.000 l/h	(25–35 US gpm)
Purification - animal fat	3.000– 6.000 l/h	(13–25 US gpm)

Standard design

The machine consists of a frame that has a horizontal drive shaft with brake, worm gear, lubricating oil bath and vertical bowl spindle in the lower part. The bowl is mounted on top of the spindle, inside the space formed by the upper part of the frame, the ring solids cover, the oil collecting cover, and the frame hood. The feed and liquid discharge system, including the paring disc pump for the heavy phase, also rests on this structure. All metallic parts in contact with the process liquid are made of stainless steel. The bowl is of the solids-ejecting disc type with a hydraulic operating system for “shooting” (for automatic or manual operation). The electric motor is either of the controlled torque type or of the standard type for frequency control drive.

Basic equipment

Concentrator or purifier parts, inlet and outlet devices, revolution counter, set of erosion-protective parts, illuminated sight glass box for light phase outlet, vibration switch, vibration-isolating base plate, flange motor, set of tools and standard set of spares.

Optional extras

Starter equipment, discharge programme equipment, standard set of fittings.

Material data

Bowl body, hood and lock ring	s.s. 1.4462 UNS S31803
Solids cover and frame hood	s.s. 1.4401 UNS 31600
Frame bottom part	grey cast iron
In and outlet parts	s.s. mostly 1.4401 UNS 31600
Gaskets and O-rings	Nitrile rubber

Operating principles

Separation takes place inside a rotating bowl. The feed is introduced to the rotating centrifuge bowl from the top via a stationary inlet pipe (1), and is accelerated in the distributor (2), which was specially designed to ensure smooth acceleration of the feed liquid. Leaving the distributor, the feed enters the disc stack (3). The separation into liquid–liquid–solids takes place between the discs, with the oil phase moving through the disc stack to the centre. When it reaches the centre, it is discharged through channels (4) and ejected into the collecting frame. The water and heavy solids separated from the oil move to the periphery, and the water flows via channels in the top disc (5) to the paring chamber, where it is pumped out of the rotor by means of a built-in paring disc (6). During purification, water is fed into the bowl before the process liquid is introduced. This water forms a seal around the outer edge of the top disc. The solids collect in the periphery, where they are discharged intermittently via the centrifuge cyclone. The solids are discharged by means of a hydraulic system, which forces the sliding bowl bottom (7) to drop down at preset intervals, thus opening the solids ports at the bowl periphery.

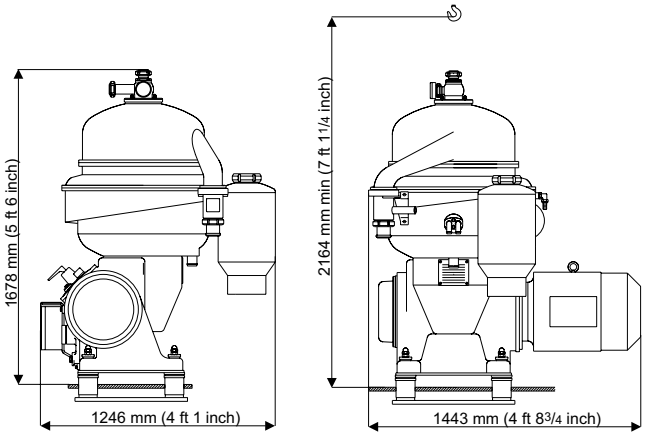
Basic executions

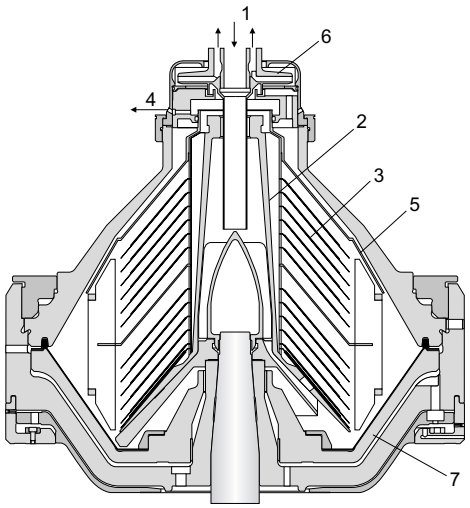
Purifier AFPX 513XGD-14CG: Purifies the light liquid phase, which is the major part of the feed mixture.
Concentrator AFPX 513XGD-74CG: Purifies the heavy liquid phase, which is the major part of the feed mixture. The light phase becomes concentrated.

Energy consumption

Electric power at 18 m^3/h	18 kW
Operating liquid per discharge	0.6 l

Dimensions





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

Technical specification

Hydraulic capacity	37 m^3/h (60 US gpm)
Bowl speed	5,120 rpm
Motor speed synchronous 50/60 Hz	1,500/1,800 rpm
Centrifugal force inside bowl	max. 7,520 g
Bowl volume	38 l
Sludge space volume	approx. 12 l
Motor power installed	30 kW
Starting time	8–10 min
Stopping time with brake	7–8 min
Outlet pressure, oil	0 kPa
Outlet pressure, heavy phase	max. 600 kPa
Sound pressure	83 dB(A) [1]
Overhead hoist lifting capacity	min. 800 kg (1,764 lbs)

[1] In compliance to EN ISO 4871

Connections

Feed inlet diameter	51 mm (2") SMS Union
Heavy liquid outlet diameter	51 mm (2") SMS Union
Light liquid outlet diameter	76 mm (3") hose connection
Solids outlet diameter	205 mm (8")

Shipping data (approximate)

Centrifuge incl. bowl and motor	1,260 kg (2,800 lbs)
Bowl weight (-14/74)	391/371 kg (860/820 lbs)
Gross weight	2,000 kg (4,400 lbs)
Volume	5 m^3

How to contact Alfa Laval
Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com