



AFPX 517

High capacity solids-ejecting centrifuge for the animal and fish processing industries

Alfa Laval AFPX separator centrifuges were specially designed for extremely demanding separation jobs. Key features of the AFPX 517 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 517 centrifuge combines a high G-force, high sludge capabilities and automated operation.

Applications

The AFPX 517 was designed to discharge solids intermittently, while at the same time separating two intermixed and mutually insoluble liquid phases of different densities. The centrifuge comes in a series of optimized executions that are suitable for a considerable number of duties, including separating fish press water, stick water and extracts. Other applications include the purification of fish oil and 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	25.000–30.000 l/h (110–130 US gpm)
Purification - fish oil	14.000–18.000 l/h (60–80 US gpm)
Purification - animal fat	6.000–8.000 l/h (25–35 US gpm)

Standard design

The machine consists of a frame that has a horizontal drive shaft with clutch and 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 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 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 made for variable frequency drive. The VFD motor is provided with a protecting cap.



AFPX 517 complete with motor

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, frequency converter, discharge control panel, set of standard fittings, set of CIP valves and fittings, and serviceability package for online viewing of separator

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
Bottom frame	Cast iron, clad with s.s. 1.4301 UNS 30400
In and outlet	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 (4). 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 pipes (5) 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 (6) to the paring chamber, where it is pumped out of the rotor by means of a built-in paring disc (7). In purification duties, hot water is fed into the inlet of the bowl before the process liquid is introduced. This water forms a seal around the outer edge of the top disc and thus eliminates high loss of light phase through the heavy phase paring disc. The solids collect in the periphery, where they are discharged intermittently into the solids collecting cover below the bowl. The solids are discharged by means of a hydraulic system, which forces the sliding bowl bottom (8) to drop down at preset suitable intervals, thus opening the solids ports at the bowl periphery.

Basic executions

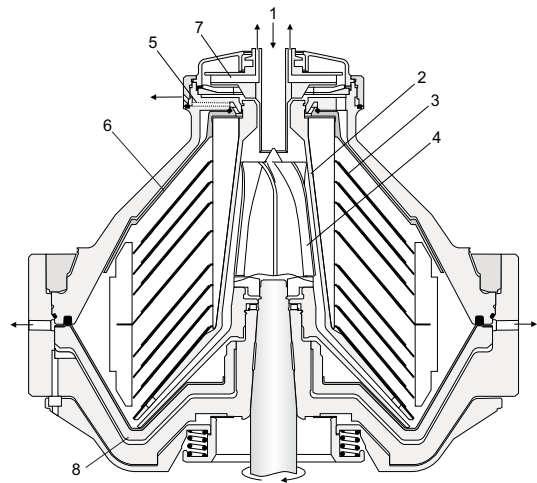
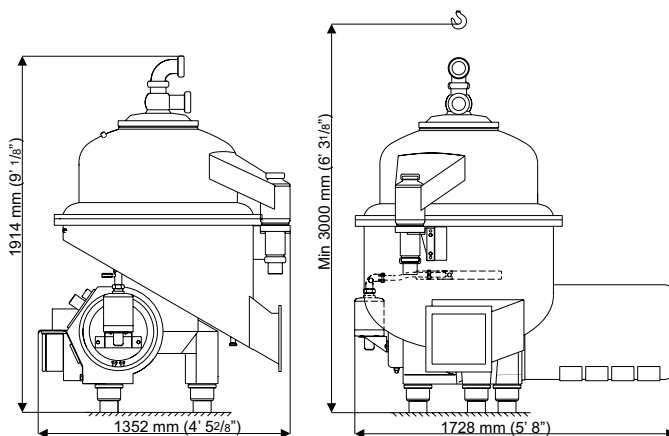
Purifier AFPX 517XGV-14: Purifies the light liquid phase, which is the major part of the feed mixture.

Concentrator AFPX 517XGV-74: Purifies the heavy liquid phase, which is the major part of the feed mixture. The light phase becomes concentrated.

Utilities consumption

Electric power at 30 m ³ /h	29 kW
Operating liquid	0.3 l per discharge plus 10–100 l/h
Flushing liquid per discharge	max. 18 l
Cooling liquid for the lubricating oil	100 l/h

Dimensions



Typical bowl drawing for a solids-ejecting centrifuge (concentrator execution). The details illustrated do not necessarily correspond to the centrifuge described.

Technical specification

Hydraulic capacity	50 m ³ /h (220 US gpm)
Bowl speed	4,135 rpm
Motor speed synchronous 50/60 Hz	1,500/1,800 rpm
Centrifugal force inside bowl	max. 6,225 g
Bowl volume	55 l
Sludge space volume	approx. 26 l
Motor power installed	37 kW
Starting time	10–12 min
Stopping time, at 400 kPa brake pressure	21–23 min
Inlet pressure at 35m ³ /h	400 kPa
Outlet pressure, oil	0 kPa
Outlet pressure, heavy phase	600 kPa
Sound pressure	83 dB(A) ¹⁾
Overhead hoist lifting capacity	min. 1,000 kg (2,205 lbs)

¹⁾ According to EN ISO 4871

Connections

Feed inlet diameter	76 mm (3") SMS Union
Heavy liquid outlet diameter	76 mm (3") SMS Union
Light liquid outlet diameter	76 mm (3") hose connections
Solids outlet	Flange 270 x 288 mm

Shipping data (approximate)

Centrifuge incl. bowl and motor	2,170 kg (4,800 lbs)
Bowl weight	820 kg (1,800 lbs)
Gross weight	3,425 kg (7,600 lbs)
Volume	10 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