Alfa Laval Pressure bar screen

For separation of fibrous material from starch slurries

Introduction

The pressure bar screen is used for starch extraction by separating fibrous material from starch slurries.

Application

Starch extraction.

Benefits

- **High capacity** The screens handle extremely large flow volumes per screening area unit because of the centrifugal force developed by using a continuously curved surface, coupled with proper velocity of material across the screen.
- **Non-clogging** Since the size of separation is smaller than the bar spacing (slot width) the screen design eliminates blinding and consequently keeps cleaning costs at a minimum.
- **Permanent screen media** The rugged wedge bar screen provides a permanent screening media, eliminating fine fibre contamination of the process by screen breakage or screen wear.
- **No moving parts** The screen is a stationary, non-vibrating screening device, which ensures easy maintenance and long lifetime.
- **Superior performance** Screen surfaces are manufactured with utmost precision. The special shape of the full bar enables the screen to be reversed without diminishing the effectiveness of the screen.

Design

Housing Individual stainless steel housing for each screen surface clamping device enabling mounting and quick replacement of the screen surface. A divider separates the bottom discharges for the fibre fraction and the starch stream. Housing can be supplied for completely closed execution with hinged and gasketed front and rear doors, but also for semi-open execution with easily removable front and rear splash panels.

Feed manifold Furnished with a common manifold in stainless steel with a flanged inlet connection and a number of stainless steel nozzles for each screen to distribute feed tangentially over the surface. Each nozzle has an individual feed pipe and shut-off valve. The manifold has a quick coupling to facilitate cleaning.

Screen surface Made in stainless steel with profile bars at a standard bar spacing (slot width) of 50/75/100/125/150 micron. Each surface is mounted and sealed between two retainers of polypropylene.

Discharge hoppers Hoppers in stainless steel for discharge of fibre and starch fraction. Discharge hoppers are welded to the housing and provided with flanged connections.

Sizes Screen boxes are available in single, double, or triple unit execution. Screens are available in widths between 360 and 700 mm (14 and 28 inches).

Pressure The feed pressure to the feed nozzles is 2.5 to 4 bar for a 50 micron screen, and 1 to 2.5 bar for larger screen openings.

Working principle

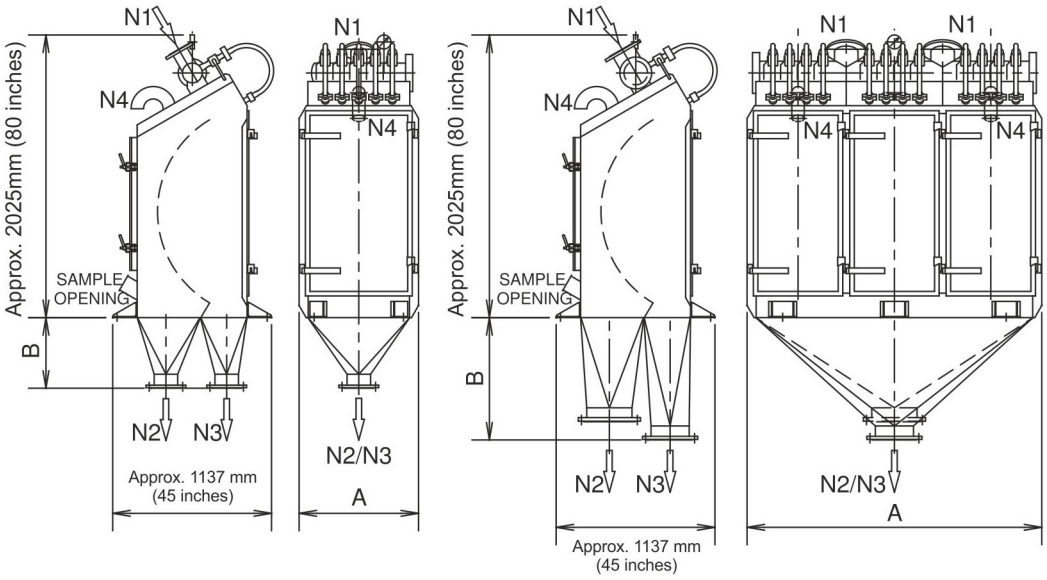
The starch extraction screen is a rugged stationary device using a concave wedge bar screen. Under pressure the feed is introduced tangentially by feed nozzles, and flows across the concave screen surface at right angles to the openings between the wedge bars. The sharp leading edges of the wedge bars act as sharp knives on the underside of the passing slurry, thus slicing off a layer of mill starch (filtrate) and directing it downward through the slot and into the screen box, where it leaves via the underflow discharge. The fibre (oversize material) is continually dewatered as it flows across the screen and discharges at the far end to leave the screen box through the overflow discharge.

In order to obtain the required starch recovery performance, the starch extraction screen has a bar spacing (slot width) of minimum 50 micron. The unique continuously curved surface design, together with the velocity across the surface, creates a centrifugal force that holds the slurry constantly against the screen.

Technical data

Type	Number of feed nozzles	Feed flow 50 micron in m^3/h[1]	Feed flow 100 micron in m^3/h
PBS 160/36	2	20	26
PBS 160/48	3	27	39
PBS 160/58	4	34	52
PBS 160/70	5	40	64
PBS 160/2x48	6	54	77
PBS 160/2x58	8	68	103
PBS 160/2x70	10	83	129
PBS 160/3x58	12	102	155
PBS 160/3x70	15	124	193

[1] Capacities for a 50 micron screen are based on a 2.5 bar pressure drop and feed nozzles with a diameter of 12 mm (0.5 inches). Capacities for a 100 micron screen are based on a 1.5 bar pressure drop and feed nozzles with a diameter of 19 mm (0.7 inches).



Dimensions and weight	A mm (inches)	B mm (inches)	Net weight kg (lbs)	Operational weight kg (lbs)
PBS 160/36	505 (20)	305 (12)	210 (463)	320 (705)
PBS 160/48	630 (25)	355 (14)	230 (507)	400 (882)
PBS 160/58	730 (29)	425 (17)	260 (551)	480 (1058)
PBS 160/70	855 (34)	505 (20)	290 (639)	570 (1257)
PBS 160/2x48	1220 (48)	525 (21)	360 (794)	760 (1676)
PBS 160/2x58	1420 (56)	595 (23)	460 (1014)	960 (2116)
PBS 160/2x70	1670 (66)	680 (27)	580 (1279)	1240 (2734)
PBS 160/3x58	2110 (83)	875 (34)	680 (1499)	1660 (3660)
PBS 160/3x70	2485 (98)	1015 (40)	870 (1918)	2170 (4784)

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How to contact Alfa Laval

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