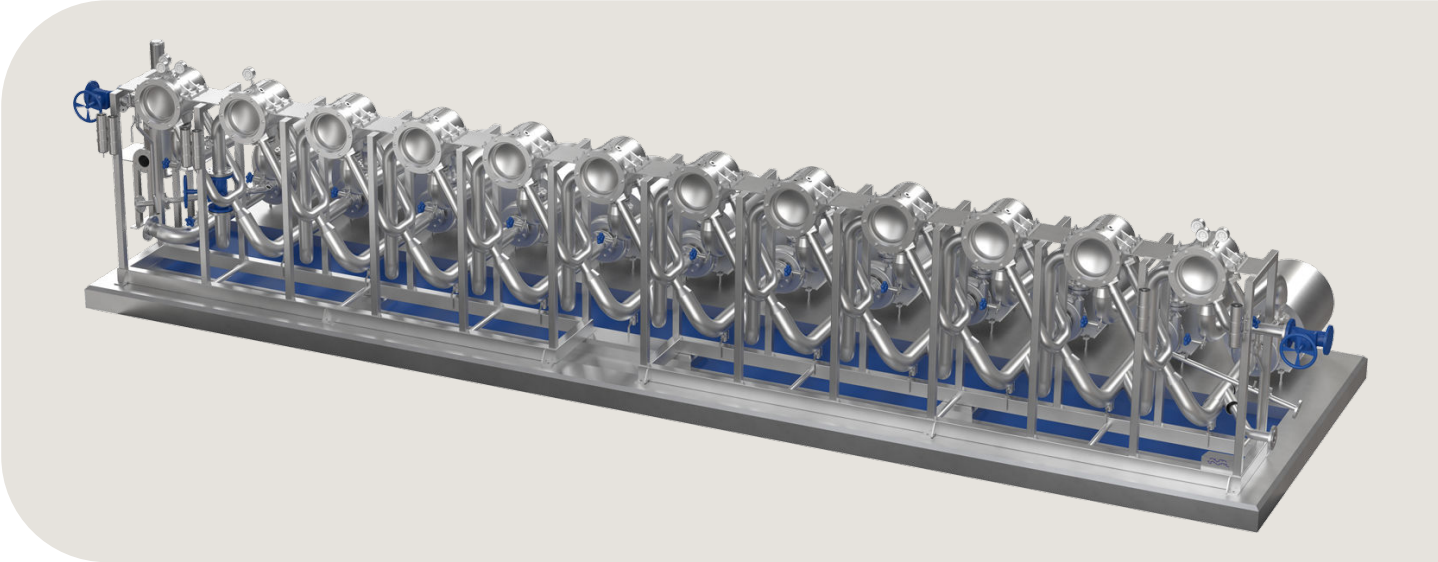
Alfa Laval Starch washing multicyclone system type PH

Purification of starch slurries



Introduction

The multistage starch washing system purifies and concentrates the starch slurries obtained from various raw materials. The purification is done by countercurrent washing in six to twelve multicyclone stages, depending on the specific application.

Application

- Corn-, potato- and wheat based starch processing

Benefits

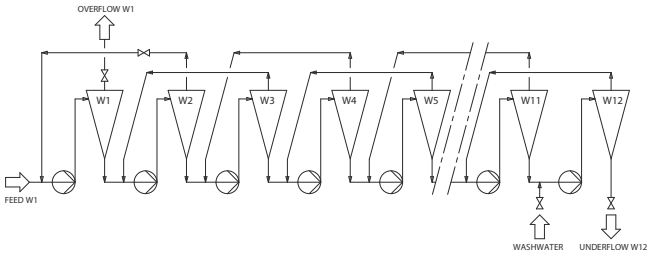
- The combined effect of dilution washing and high shear forces in the cyclonettes results in optimum washing efficiency
- Absence of moving parts results in minimum wear and minimum downtime
- Easy to operate system as required washing effect and underflow concentration are controlled by adjusting control valves
- Low maintenance cost
- Easy to implement CIP

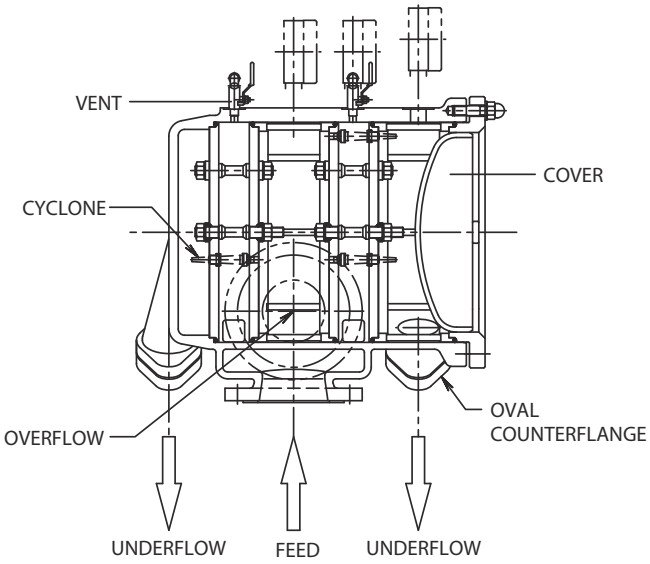
Working principle

The multistage starch washing system comprises several multicyclone housings containing a number of internally manifolded cyclonettes. Each individual housing is fed with a separate pump. The overflow of each housing is connected to the pump feeding the preceding housing in the system.

The underflow of each housing is connected to the pump feeding the next housing in the system. In this way the underflow of each housing is diluted with the overflow of the next following housing, and is then fed to the following housing. By diluting the underflow of the next-to-last housing with fresh water, a countercurrent washing system is obtained in which the starch is repeatedly concentrated and diluted with an increasing portion of fresh water.

The purified starch milk leaves the system concentrated, through the last housing's underflow. The wash water together with impurities and part of the starch leave the system through the first housing's overflow.





Design

The multistage starch washing system comprises housings in stainless steel with internally manifolded cyclonettes. The housings are equipped with removable front covers (bolted), and with flanged feed, overflow, and underflow connections. It also features centrifugal pumps in stainless steel with mechanical seals. The interconnecting piping and the support frame are made in stainless steel.

The cyclonette gaskets and O-rings are in compliance with EC 1935 and FDA.

The multicyclone units type PH are available as single units and as double units (where two sets of cyclonettes are arranged in parallel in one housing) and in the following sizes:

- Single units: PH-75, PH-95, PH-165, PH-230
- Double units: PH-330, PH-460

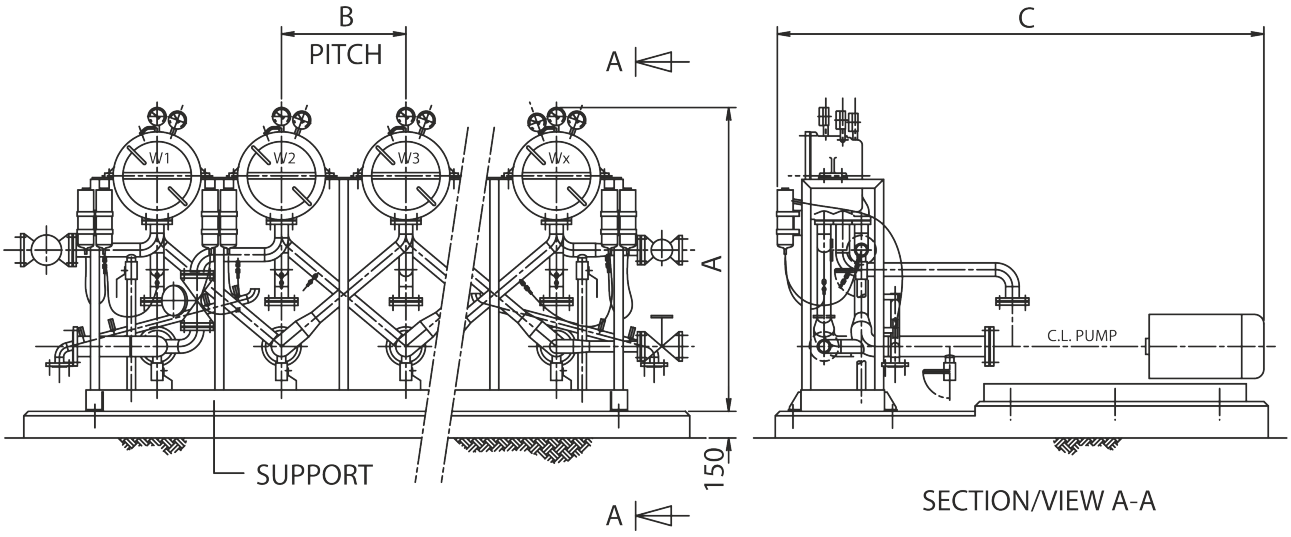
Technical data

Dimensions in mm (inches)[1]	A	B	C
PH-75 and PH-95	1500 (59.1)	600 (23.6)	2200 (86.6)
PH-165 and PH-230	1700 (66.9)	700 (27.6)	2500 (98.4)
PH-330 and PH-460	1700 (66.9)	800 (31.5)	2800 (110.2)

[1] Approximate dimensions depending on pump- and piping size

	PH-75	PH-95	PH-165	PH-230	PH-330	PH-460
Pressure	6.5	6.5	6.5	6.5	6.5	6.5
Cyclonettes	76	94	166	228	332	456
Capacity m³/h (gal/min)[1]	25 (110)	32 (141)	58 (255)	79 (348)	116 (511)	158 (696)

[1] The recommended pressure drop between the feed pressure and the overflow pressure is 4.5-8.0 bar. The capacity figures are approximate and based on a pressure difference of 6.5 bar, and with a dry solids content of 19 % in the feed slurry.



How to contact Alfa Laval

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