

Alfa Laval AlfaPure S3

High speed centrifugal separation system for cleaning coolants, wash liquids

Introduction

The Alfa Laval AlfaPure S3 module is designed to clean service fluids in metal- working industries, such as vehicle manufacturing, and light industries, such as white goods, aerospace, metal components, and can manufacturing.

By using high-speed centrifugal separation it is possible to greatly extend the life of service liquids and minimize environmental impact. Alfa Laval's disc-stack centrifuges provide fast, efficient, simultaneous three-phase separation of, for instance, water, oil and sludge. The result is lower costs due to reduced service fluid & chemical consumption, lower costs for disposal of used oil and filters, more plant uptime, and improvements in both product quality and working environment.

Often installed in a bypass system, the module is operating continuously without interfering the main process. This means, that there is no need for any type of plant re-design.

Application

The AlfaPure S3 module can be used for example for:

- Industrial fluids
 - Coolant emulsion
 - Wash liquids
 - Water de-oiling

Benefits

- Easy to operate
- High capacity-to-size ratio
- Easy to install
- Easy to maintain
- High separation efficiency
- Bowl design that reduces the need for cleaning

Design

The AlfaPure S3 module consists of a WSPX 604 separator, feed pump piping, instruments, valves and a control system. As an option, the frame can be fitted with wheels, simplifying installation and service and allowing the module to be wheeled from tank to tank.

Separator process liquid wetted parts are in stainless steel for optimal compatibility with coolants and wash liquids. The separator is a concentrator type of bowl with a conventional top fed design.



Scope of supply

- Disc stack separator
 - Valves, instruments and other components
 - Pumps (feed, sludge discharge) including a VFD controlled feed pump
 - Flow meter
 - Sample valves
 - Pre-filter
 - Automatic counter pressure control
- Control system:
 - PLC and HMI with motor starter VFD
- Commissioning spares
- Set of special tools and intermediate service kit
- Documentation

Options

The modular design of the AlfaPure S3 makes it easy to adapt the system to the specific needs of the user. Several options and optional equipment are available:

- Surface suction device
- ANSI terminal connections

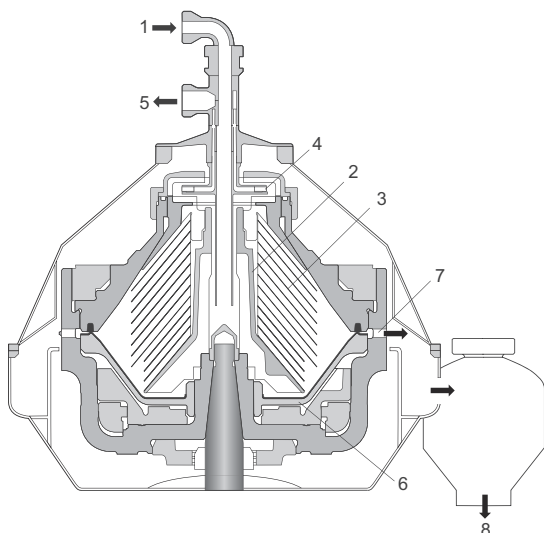
- Two plug for external alarms
- Hoses
- 10 m power cable
- Mobile execution (wheels)

Working principle

The feed enters the separator bowl from the top. Separation takes place between the bowl discs as a result of the centrifugal force that causes the solids to move towards the periphery.

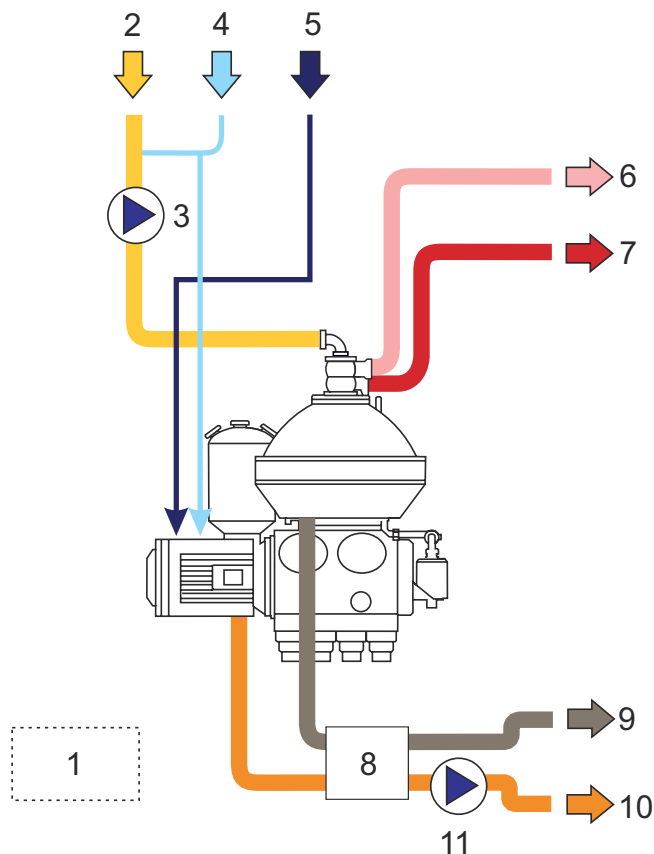
The separated liquid is continuously pumped out of the bowl by an integrated paring disc through the outlet at the top of the separator.

The solids collected in the periphery of the bowl are discharged intermittently through the discharge ports. The discharge is triggered by a timer. Water is used to control the movement of the sliding bowl bottom part that opens and closes the discharge ports. The discharged solids decelerate in the sludge cyclone and can be pumped out of the sludge tank.



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

1. Feed inlet
2. Distributor
3. Disc stack
4. Paring disc
5. Liquid phase outlet
6. Sliding bowl bottom
7. Solids discharge ports
8. Solids outlet from cyclone



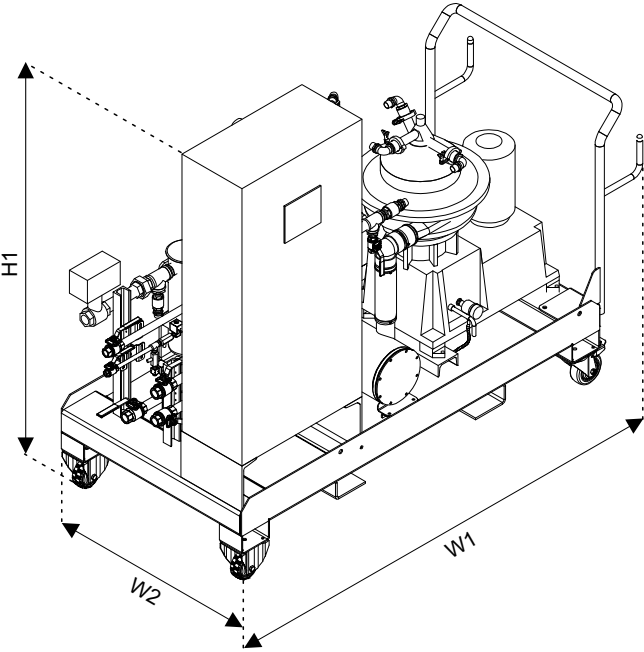
Typical flow chart of a separator system. The details may differ slightly between different systems.

1. Control cabinet
2. Product inlet
3. Feed pump
4. Operating water
5. Utilities
6. Outlet light phase
7. Outlet heavy phase
8. Sludge tank
9. Drain from sludge tank
10. Sludge outlet
11. Sludge pump

Technical data

Capacity	
Coolants & wash liquids	900–3000 l/h
Operating requirements	
Separation temperature	0–80°C (60–210°F)
pH	6–12 ¹
Operating water pressure	200–600 kPa
Instrument air pressure	400–800 kPa
¹ For pH over 12, please contact Alfa Laval for feed chemical analysis and confirmation	
Installed power	
Unit for water-based liquids	4kW
Ambient temperature	5–50°C (40–122°F)
Dimensions	
Stationary module (l x w x h)	1800 x 900 x 1310 mm
Mobile version (l x w x h)	2070 x 900 x 1555 mm
Weight	with bowl 616 kg, without bowl 579 kg
Power supply	3x400 V (380/440/460/480 V optional) 50 Hz (60 Hz optional)

Dimensional drawing



Dimensions	
H1 (minimum lifting height)	1555 mm (5 ft/1,2 inch)
W1	2070 mm (6 ft/9.5 inch)
W2	900 mm (2 ft/ 11.4 inch)

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