

Alfa Laval AlfaPure S7

Modularized disc stack separator and system for cleaning water-based liquids

Introduction

The Alfa Laval AlfaPure S7 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 S7 module can be used for example for:

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

Benefits

- Complete skid mounted system handling both process and utility requirements
- Plug-and-play installation
- Low operating costs
- Minimal maintenance
- Robust and proven design

Design

The AlfaPure S7 module consists of a WSPX 407 separator, feed pump, piping, instruments & valves and a control system.

All components are skid mounted to facilitate "Plug and Play" installation, which results in a small footprint.

It has a concentrator type of bowl with a conventional top-fed design.



All process wetted parts are made of stainless steel. Gaskets and seals in contact with the product are made of NBR.

Scope of supply

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

Options

The modular design of the AlfaPure S7 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 connectors from harting (external alarms)
- Remote start/stop
- Hoses
- 10 m power cable
- Three-way valve in the light phase outlet

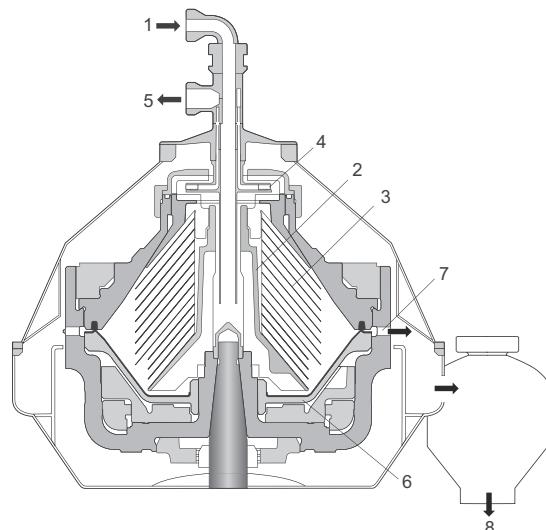
- Various certificates
- Extra intermediate & major service kit for HSS

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.

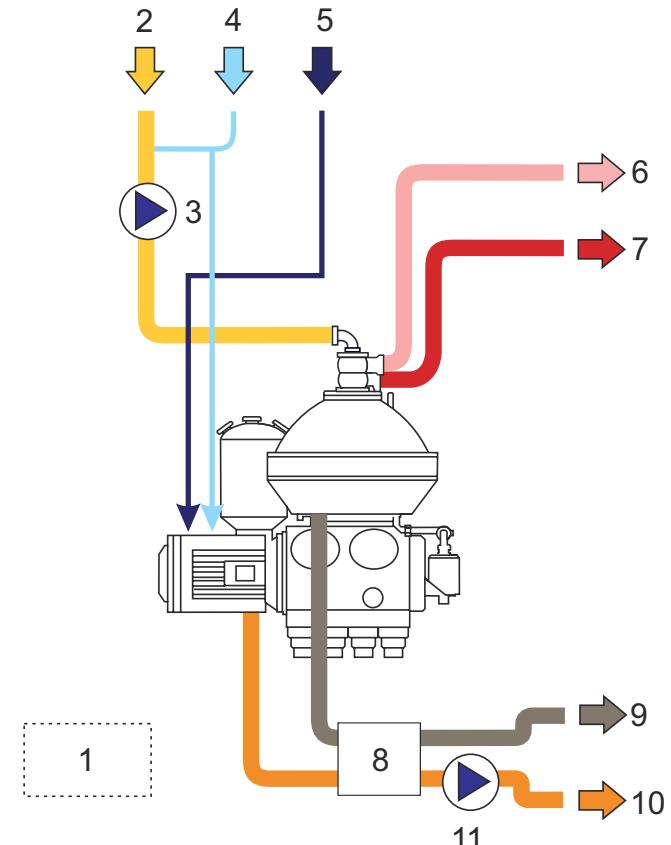
The separated liquid is continuously pumped out of the bowl by an integrated paring disc through the outlet at the top of the separator.

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	
AlfaPure S7	5000–7000 l/h (22–31 gpm)

Operating requirements

Separation temperature	15–100°C (60–210°F)
pH	6–14
Operating water pressure	200–600 kPa (30–85 psi)
Instrument air pressure	500–1000 kPa (73–145 psi)
Installed power	Max 10 kW
Ambient temperature	5–50°C (40–122°F)

Electrical system

Voltage	400/415/440/460/480 V
Frequency	50/60 Hz

Connections

Process liquid inlet (oily water)	DIN DN50
Heavy liquid outlet (water)	DIN DN40
Light liquid outlet (oil)	DIN DN40
Sludge outlet	DIN ISO-G1"
Operating water	DIN ISO-G3/4"
Instrument air	DIN ISO-G1/4"

Shipping data

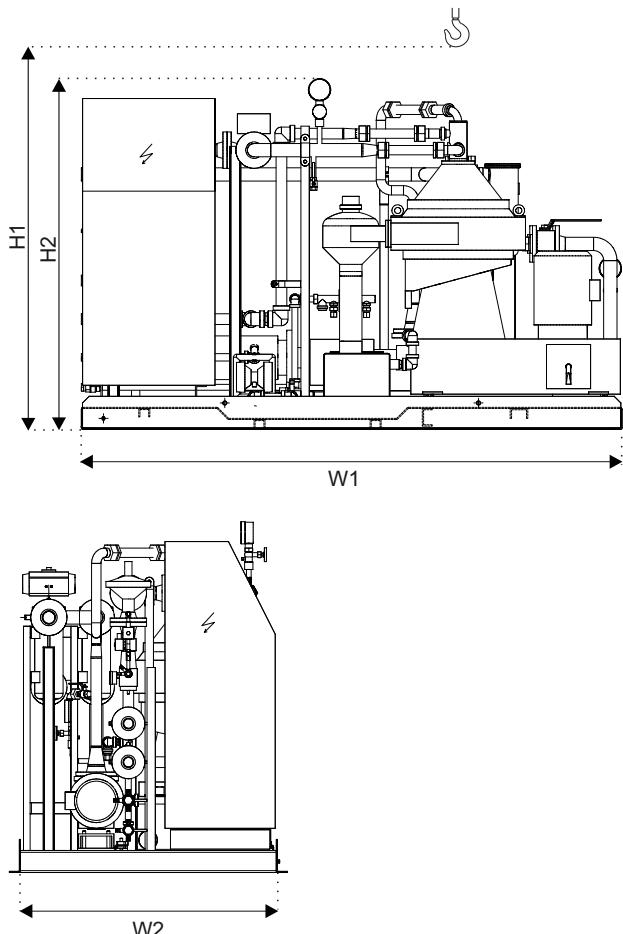
System weight incl. centrifuge, bowl and motor 1440 kg (3175 lbs)

Bowl weight 150 kg (331 lb)

Gross weight 1790 kg (3946 lb)

Volume 6.56 m³ (232 ft³)

Dimensional drawing



Dimensions

H1 (minimum lifting height) 2040 mm (6 ft/8.3 inch)

H2 1640 mm (5 ft/4.5 inch)

W1 2450 mm (8 ft/0.45 inch)

W2 1260 mm (4 ft/1.6 inch)

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