



CIP

Type 11M

Application

The Alfa Laval CIP system (Fig. 1) is designed for cleaning of the bowl, oil inlets and outlets of Alfa Laval lube- and fuel-oil separators without dismantling the separator.

It can also be used for cleaning of the CBM preheater, either alone or in series with the connected separator.

Concept

Each CIP system (Fig. 5) consists of

- CIP unit
- Alfa Laval Alpacon Multi CIP II cleaning liquid
- Connection kit

Only the designated Alfa Laval Alpacon Multi CIP II cleaning liquid for lube oil and fuel oil may be used with the CIP unit.

Features and benefits

The unique features of the system are:

- Compact, lightweight, portable.
- Complete cleaning plant. No heaters or heavy-duty, high-capacity pumps are required.
- Connected directly to oil inlets and outlets. No need to dismantle the separator.
- Separator paring discs used to ensure high flow rate and speed of cleaning liquid through the disc stack.

The major benefits are:

- Clean and simple to use. Substantially reduces man-hours for cleaning of separator bowl.
- Lower spare parts consumption.
- Alpacon Multi CIP II cleaning fluid do not corrode or harm bowl parts. It is also readily biologically degradable.
- Improved separation efficiency as a result of cleaner bowl.
- Optimum separator performance protects main and auxiliary engines from unnecessary wear.



Fig. 1. Alfa Laval CIP system.

System working principle, separator

The oil flow to the separator is shut off and the separator stopped. The oil inlet and oil and water outlet lines are disconnected, The CIP connections are assembled onto the in- and outlet. The hoses from the CIP unit are connected to the separator. The tank in the CIP unit is filled with the proper amount of water. The separator is started manually (without controller) and the bowl is closed. The CIP pump is started and the reflow, pressure and flow through the water outlet are adjusted. The prescribed amount of cleaning liquid is added to the tank.

The separator paring discs are used to pump the cleaning liquid at a high flow rate and high speed through the disc stack, the oil and water outlets and back to the separator inlet.

The friction between the paring discs and the liquid creates the necessary heating of the cleaning liquid.

The sludge in the separator bowl is continuously dissolved in the cleaning liquid. There is a small bleed of liquid from the separator outlets back to the CIP tank to avoid too high sludge concentration in the circulating cleaning liquid. The cleaning liquid is then pumped back to the separator inlet.

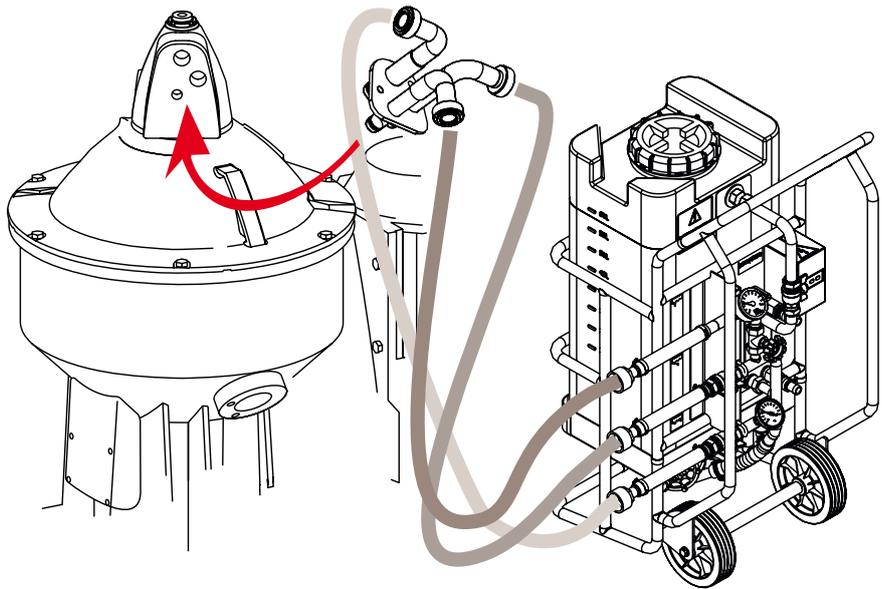


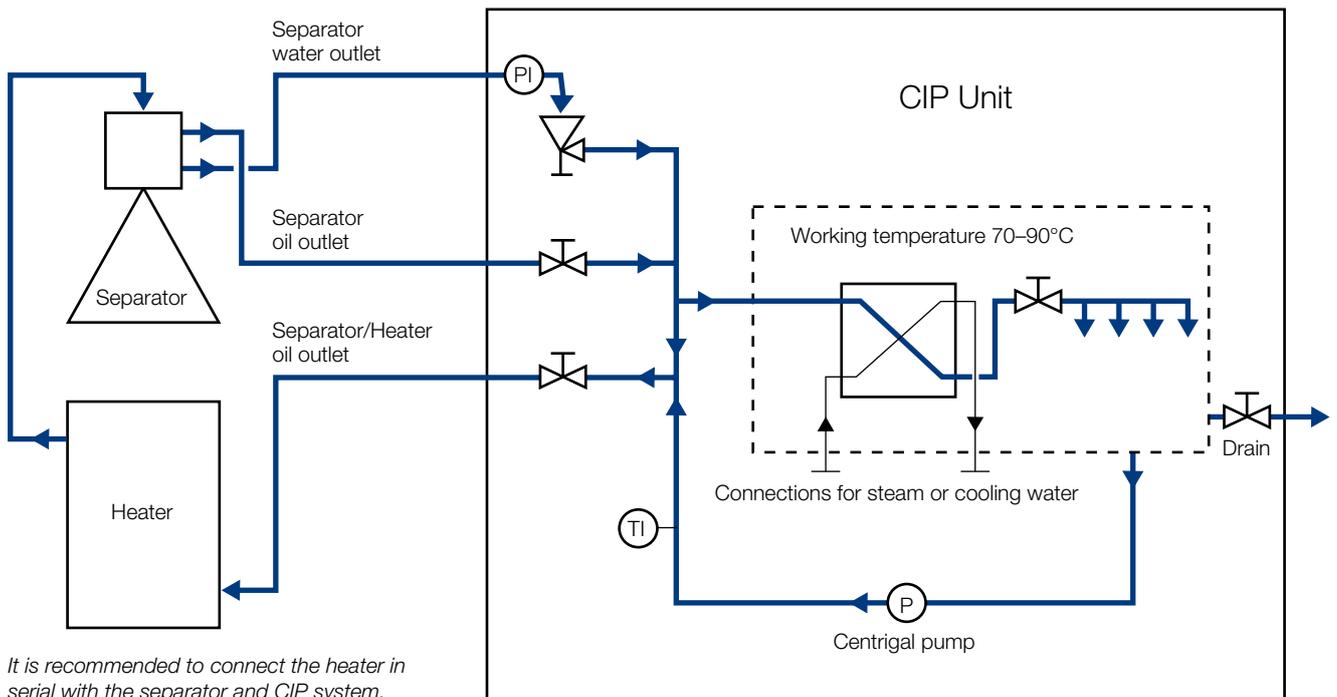
Fig. 2. Basic concept of the CIP system.

The recommended cleaning temperature of the liquid is 70–90°C. This temperature is maintained by the plate heat exchanger in the unit. Cooling media may be either fresh water or sea water.

The plate heat exchanger is fitted on the return line where the low flow minimizes the pressure drop through the heat exchanger.

After 2–3 hours the cleaning cycle is completed. The separator is discharged at regular intervals until the CIP tank is empty. The tank is then filled with water and the rinse cycle started.

When the temperature reaches 70°C, the water is discharged and the separator is stopped. The CIP hoses are disconnected and the separator is reconnected to the normal piping.



It is recommended to connect the heater in serial with the separator and CIP system.

Fig. 3. Principle flow diagram of the Alfa Laval CIP system.

System working principle, CBM preheater

For systems including a Heatpac® CBM heater, cleaning in place of the heater should be carried out circa every 6 months, or according to experience. Cleaning in place of the heater should also be carried out in the event of a pressure drop increase greater than 0.3–0.5 bar (which indicates that the heater is beginning to clog).

We recommend that you use Alfa Laval Alpacon Multi CIP II cleaning liquid. It is specially suitable for the materials used in the Heatpac® CBM heater. Liquids that are corrosive to copper or stainless steel, for example hydrochloric acid, phosphoric acid, or nitric acid, must not be used.

The oil feed pump and the separator are stopped. The valves before and after the heater are closed. The in- and outlet flexible hoses are disconnected from the separator. The heater drain valve, if existing, is opened until the remaining oil has stopped flowing. The drain valve is closed again.

Loosen the heater connections and install the connection kits to the heater and separator. Connect the CIP unit as shown in Fig. 4. Proceed with the cleaning followed by water washing as described above.

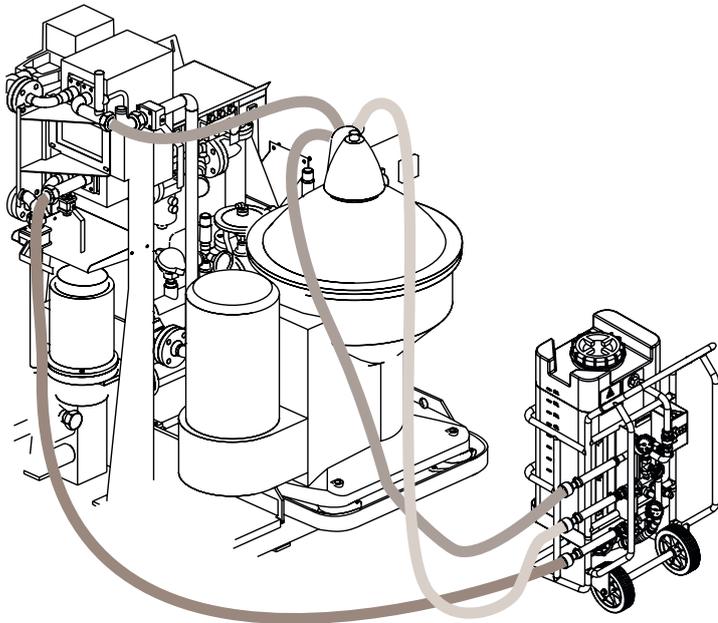


Fig. 4. CIP of CBM heater in series on SU separator system.

Main components CIP unit

The unit functions as a holding tank for the cleaning solution, with a small feed pump that is only used to initially pump the liquid to the separator inlet and to return the partial flow of liquid that is tapped from the separator.

The required velocity for the flow through the disc stack is provided by the paring disc pumps in the separator.

The CIP unit (Fig. 5) comprises tank, piping system, connections, flow valves, feed pump and starter. The heat exchanger, starter and regulating valves are located on the front of the tank. Three rubber hoses for connection to the separator are included. Different connection kits to suit most models of Alfa Laval separators must be ordered separately.

The CIP unit has two wheels and a handle for easy transport by one man. It can be easily lifted by two men. The top handle can also be used for lifting with an overhead crane.

In addition, a 5 litre can of Alpacon Multi CIP II cleaning liquid is included.

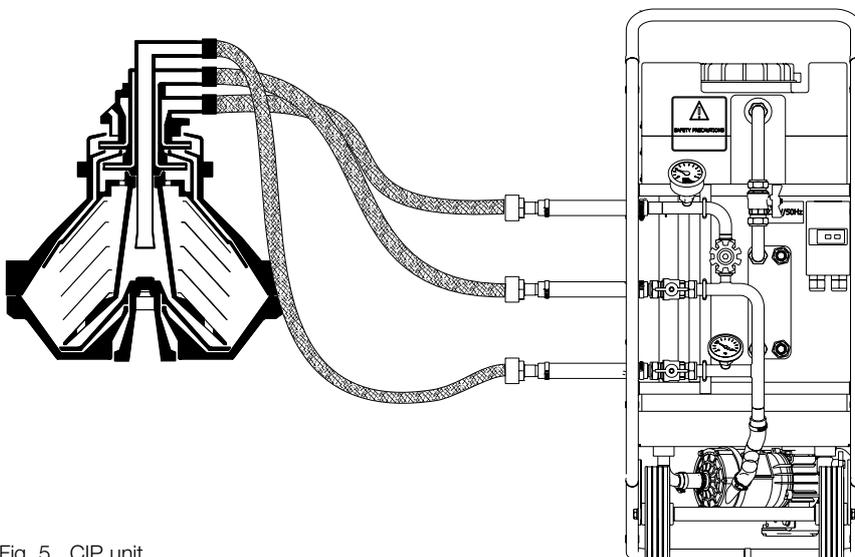


Fig. 5. CIP unit.



Technical data in brief

Materials:	Stainless steel, brass, plastic
Feed pump rating:	0.55 kW
Tank volume:	60 liters
Weight:	32 kilograms

Technical documentation

Complete information and documentation is included in the instruction book (IB) accompanying each CIP system delivery.

After Sales support

Spare parts are available from Alfa Laval Marine service centers worldwide.

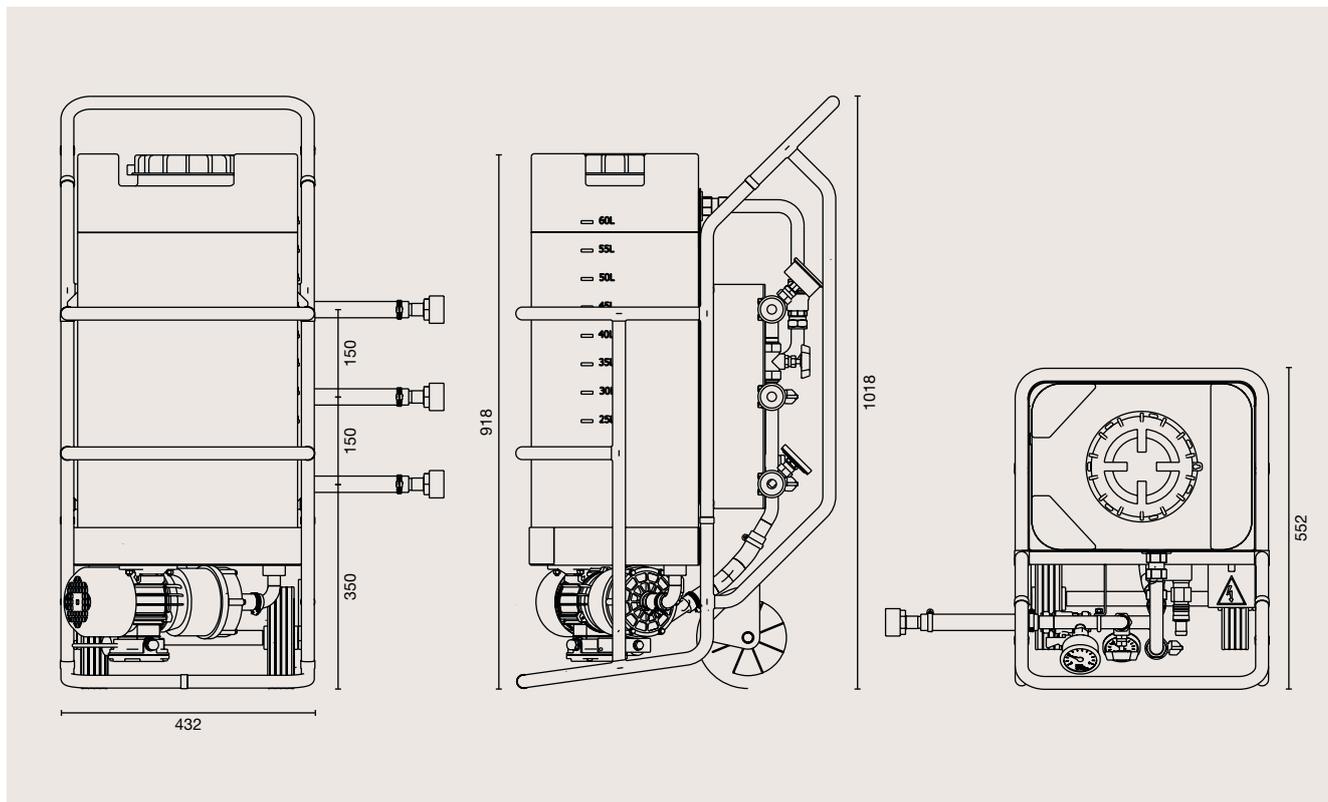
The Alpacon Multi CIP II cleaning liquid can be ordered from the service centers as well as most Alfa Laval subsidiaries and representatives. If you have any problems, our service engineers are available to assist you in the use of the CIP system.

Dimensions

Specific instructions regarding the handling and use of the cleaning liquids are printed on the product label.

Separators suitable for CIP

The CIP system can be used for cleaning of all Alfa Laval separators for cleaning of mineral oils, except solid bowl types and the MOPX 207, MAPX 207 and 309.



Alfa Laval reserves the right to change specifications without prior notification.

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