



Purifier system, PA

Cleaning system for fuel and lubricating oils

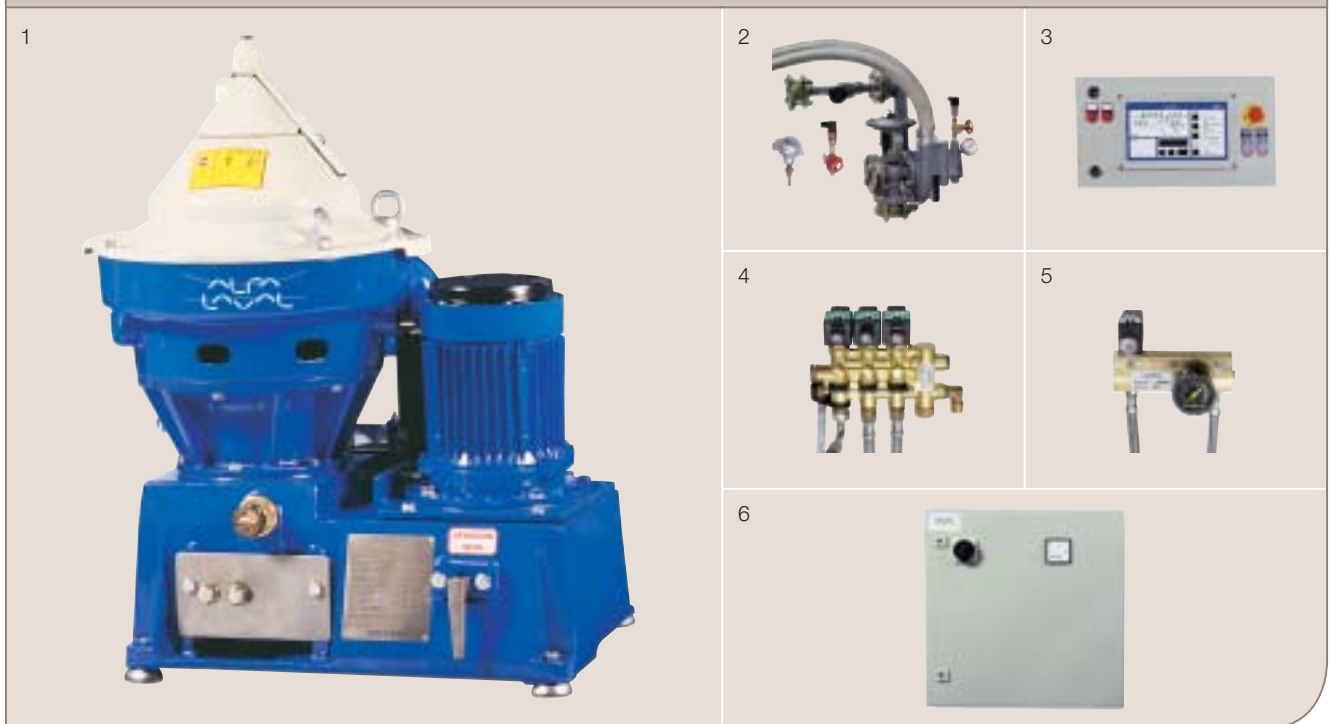


Figure 1. PA purifier system.

The wellknown technology incorporating a very efficient separator is the basis also in the Alfa Laval's mineral oil treatment system, PA. The system is based on the same components as the successful Purifier Unit.

Application

The PA purifier system is specifically designed for purification or clarification of mineral oils found in the marine and power industries.

- Heavy fuel oils with densities up to 991 kg/m³ and viscosity up to 600 cSt/50°C.
- Lubricating oils.
- Distillate and light diesel oils (MDO).

The PA purifier system (Fig. 1) is suitable for shipbuilders and ship operators in newbuilding applications; power plant builders and operators; diesel engine builders and in retrofit applications to replace or supplement existing cleaning systems.

Concept

The PA system is delivered as a few easy to mount blocks (fig. 1):

1. Separator.
2. Oil block and valves.
3. EPC50 control unit.
4. Water block.
5. Air block.
6. Optional starter.

An oil feed pump and oil heating system are supplementary equipment to the basic concept.

Features & benefits

- *Small footprint* and compactness gives flexibility in positioning in the engine room and saves space.
- *Installation ease* as all components and hardware are pre-mounted blocks. This saves significant costs, installation manhours, design and materials.
- *No water tank* needed to supply operating water, saving materials and installation costs.
- *Simple installation, operation and maintenance* because there are few and standard components.
- *Virtually no oil losses* because of efficient displacement.
- *Effective discharge* of separated sludge and water.
- *Built-in PI temperature controller* in EPC50 control unit.
- *Remote supervision.* The PA purifier system can be supervised remotely from a control room. REMIND software for monitoring purpose is included with every delivery.

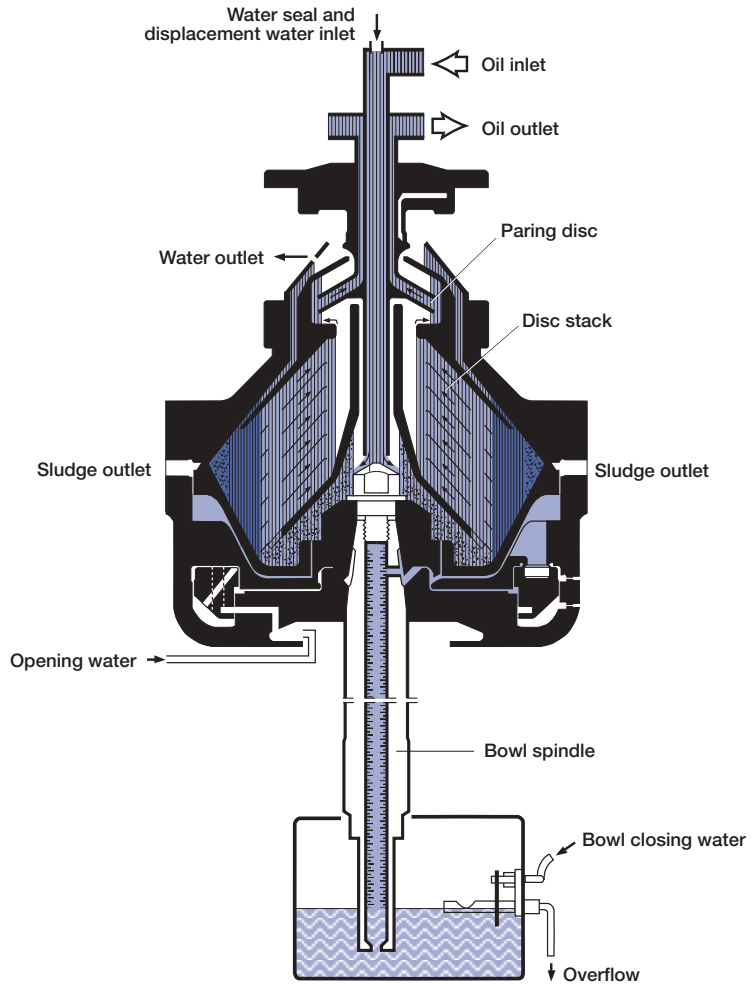


Figure 2. Separator bowl.

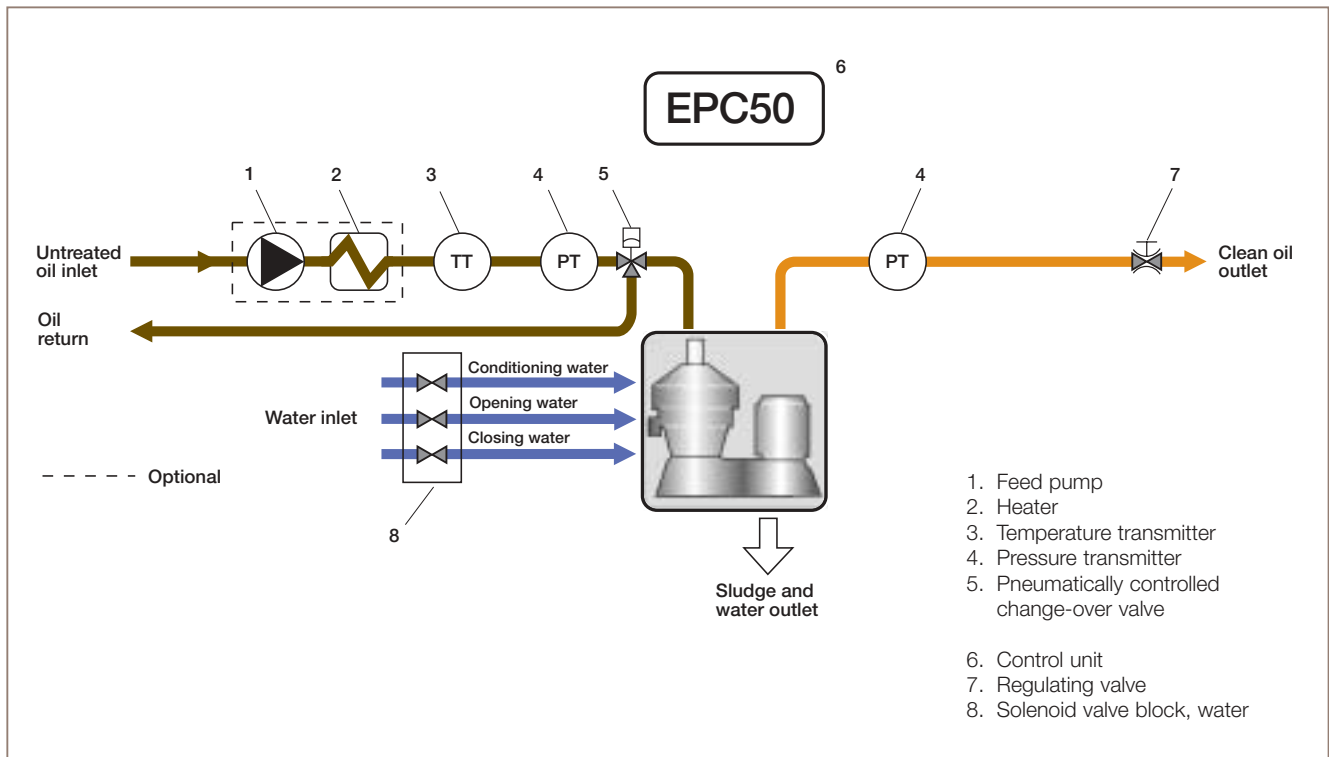


Figure 3. System layout.

Operating principle

The PA purifier system is operated automatically by the EPC50 control unit, except for starting the separator. The separator bowl can be arranged as a *purifier* or as a *clarifier*.

A purifier separates sludge and water from the oil. Water is continuously discharged from the bowl. The sludge accumulated in the sludge space in both a purifier and a clarifier is intermittently discharged.

In a clarifier, the water outlet is blocked, i.e. the water handling capability is limited. Water is accumulated like sludge.

In the purifier mode, the EPC50 unit automatically controls the water admitted to the separator for the water seal and displacement of oil prior to sludge discharge.

The separator is driven by an electric motor via a friction clutch and belt. The

separator bowl is fixed at the top of a spindle, which is supported by bearings and springs.

During normal operation vital process parameters are monitored. The EPC50 unit provides alarm functions for low oil pressure, high intermediate tank level if optimal sludge removal kit included, and power failure. Alarm functions are also provided for errors involving the EPC50 unit. Special text messages indicate process parameters and alarms on the LED display. The EPC50 is type approved by many classification societies.

In addition, functions are available for vibration alarm when the optional vibration switch is fitted.

When operating in the purifier mode, a gravity disc must be fitted to obtain the correct interface position in the separator bowl, i.e. the boundary between the oil and the water seal.

The size of gravity disc must be matched to the oil density, viscosity/temperature, and oil feed rate to the separator. In the clarifier mode, a clarifier disc is fitted instead of gravity disc.

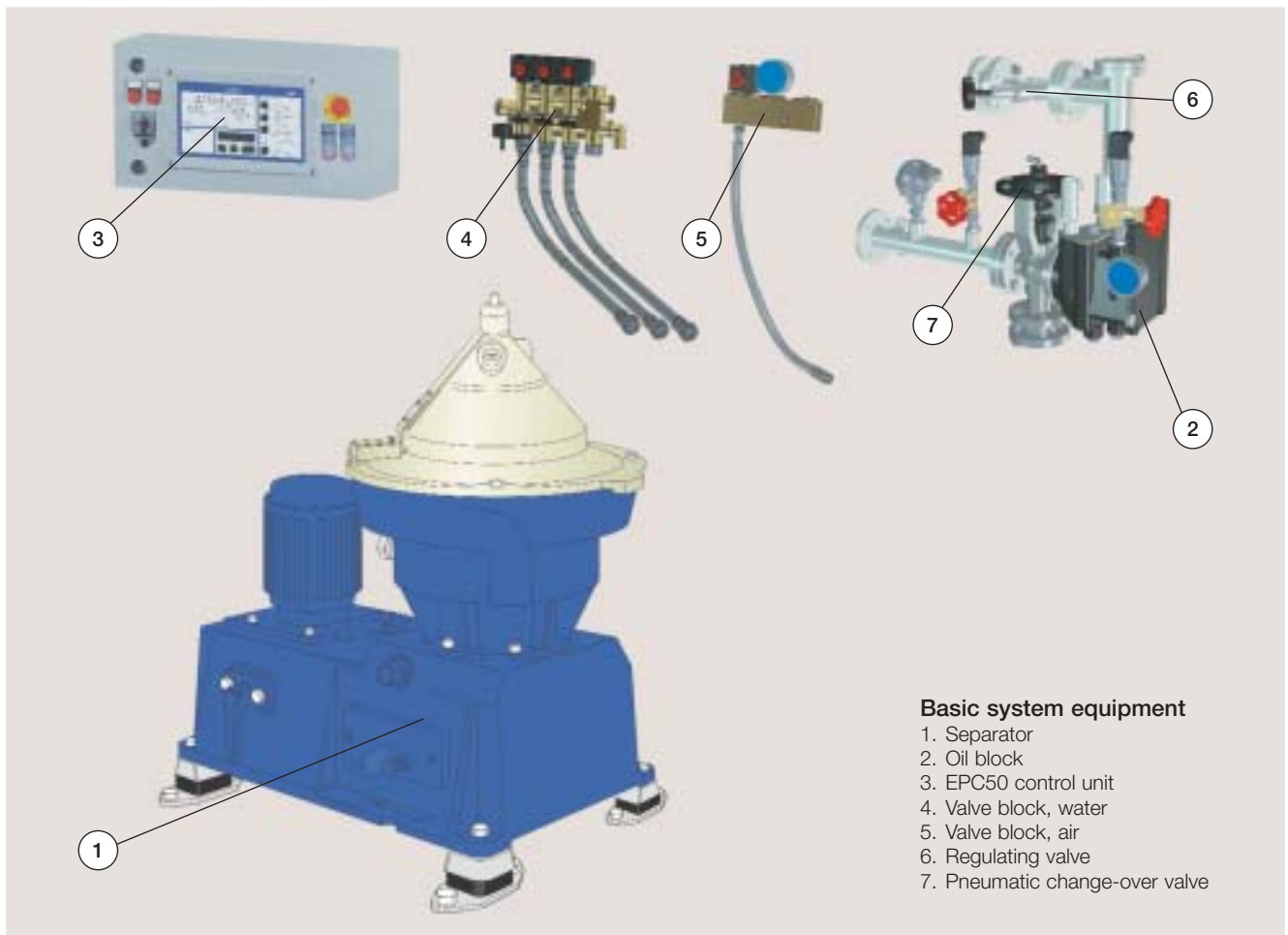
Installation

The PA purifier system is designed for automatic operation in periodically unmanned engine rooms at sea and automated power stations ashore.

The basic concept is single stage operation: adequate cleaning is achieved with one system. Each system is designed to operate independently.

Optional equipment

- Starter.
- Heater board in EPC50 for control of heater.
- Feed pump.
- Remote supervision kit.
- Sludge outlet butterfly valve kit.
- Heater.
- Vibration switch.



Basic system equipment

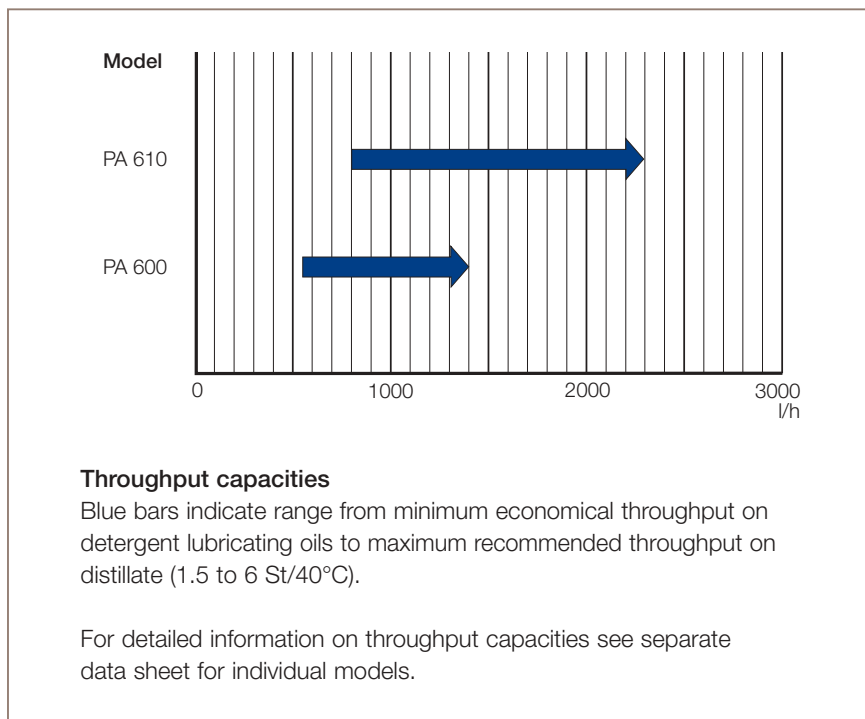
1. Separator
2. Oil block
3. EPC50 control unit
4. Valve block, water
5. Valve block, air
6. Regulating valve
7. Pneumatic change-over valve

Figure 4. Installation principle.

Operations

A preventive maintenance program has been developed using service kits.

- Maintenance intervals
 - Intermediate Service every 2000 h or 3 months.
 - Major Service every 8000 h or 12 months.
- Service spares kits contain all necessary spare parts for each service and tips for maintenance in checkpoints:
 - Intermediate service kit with O-rings and seals for separator bowl, inlet and outlet.
 - Major service kit with parts for drive system, belt, bearings and friction pads.
- System manual includes detailed information in electronic format or paper copy:
 - Operating instructions.
 - Alarms & fault finding.
 - Installation instructions.
 - Service & spare parts.
- Commissioning & technical service is available from all Alfa Laval offices to start-up the system and to advise about operation & maintenance.
- Training in all aspects of oil treatment, fresh water generation and heat transfer is obtainable.
- All services are incorporated in specially tailored Nonstop Performance packages, with details available from local Alfa Laval offices.



Technical data

Separators include ancillary parts.

Purifier system	Size (height x width x length)	Net weight
PA 600	928 x 895 x 780 mm	277 kg
PA 610	928 x 895 x 780 mm	287 kg

Main supply voltage	3-phase, 220 V up to 690 V
Control voltage	1-phase, 100/110/115/230 V
Frequency	50 or 60 Hz
Control air	Min 5 bar, max 7 bar
Operating water pressure	Min 2 bar, max 6 bar



The mark of conformity confirms that the equipment complies with European Economics Area (EEA directives).

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