



# MOPX

## Separation Systems

### Application

Purification or clarification of distillates, marine diesel oils, intermediate and heavy fuel oils, and lubricating oils used in marine installations and power stations.

The MOPX separation system (Fig. 1) is designed for automatic intermittent discharge of separated sludge.

### Concept

Each MOPX Separation System (Fig. 2) comprises:

- an MOPX separator
- ancillary equipment including EPC-41 control unit.

The separator can be delivered with or without built-on feed pump. An installation with a separate feed pump is recommended.

### Features and benefits

The main features of the system are:

- Simple and robust design.
- EPC-41 electronic control unit with built-in PI temperature controller for any type of steam heater or Heatpac electric oil preheater.



Fig. 1. MOPX separator system.

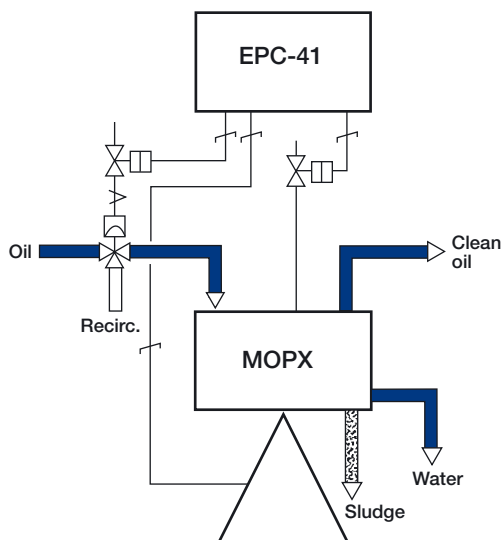


Fig. 2. Basic system concept.

The major benefits are:

- **Flexibility.** The self-cleaning bowl may be used either as a purifier or a clarifier.
- **Simple installation, operation and maintenance** as a result of few and simple components.
- **Preventive maintenance program** for improved operational safety and cost control with standardized service kits.

MOPX purifier

MOPX clarifier

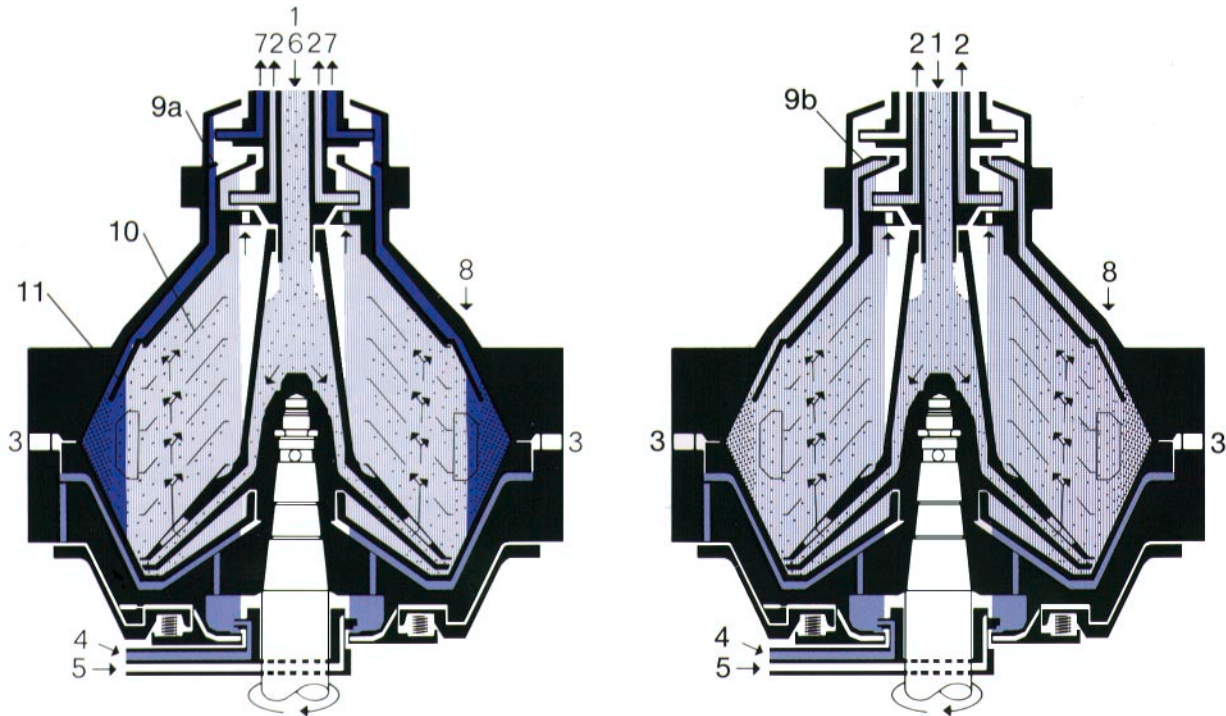


Fig. 3. Purifier-Clarifier.

- 1 Oil inlet
- 2 Oil outlet
- 3 Sludge outlet
- 4 Make-up and closing water inlet
- 5 Opening water inlet
- 6 Inlet for water seal and displacement water
- 7 Water outlet
- 8 Water/oil interface
- 9a Gravity disc
- 9b Clarifier disc
- 10 Disc stack
- 11 Top disc

#### System working principle

The MOPX Separation System is operated automatically by the EPC-41 control unit, except for starting the separator.

The MOPX 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.

In the purifier mode, the EPC-41 unit automatically controls the water admitted to the separator for the water seal and displacement of oil prior to sludge discharge. During normal operation vital process parameters are monitored. The EPC-41 unit provides alarm functions for broken water seal, low oil pressure, high back pressure and power failure. Alarm functions are also provided for errors involving the EPC-41 unit.

In addition, functions are available for high/low oil temperature alarm when the optional Pt 100 temperature sensor is fitted, and for vibration alarm when the optional vibration switch is fitted.

When operating in the purifier mode, a suitable 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 selected to match 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 MOPX Separation System is designed for automatic operation in periodically unmanned engine rooms at sea and automated power stations ashore.

Each MOPX separator is equipped with its own EPC-41 unit and ancillary equipment, forming an independent system. MOPX Separation Systems may be operated in single, in parallel or in series.

For cleaning of distillate, marine diesel oil, and lubricating oil, MOPX Separation Systems should be operated in single or parallel configuration, depending on prevailing operational conditions. The separators must then always be operated as purifiers.

If more than one MOPX Separation System is installed in a plant for the cleaning of intermediate or heavy fuel

oil, the systems should be operated in series. In such a case, the first separator should be operated as a purifier, followed by the second separator operated as a clarifier.

Up to three separation systems in the same cleaning plant can be interconnected between their EPC-41 control units; e.g. a purifier, a clarifier and a standby separation system.

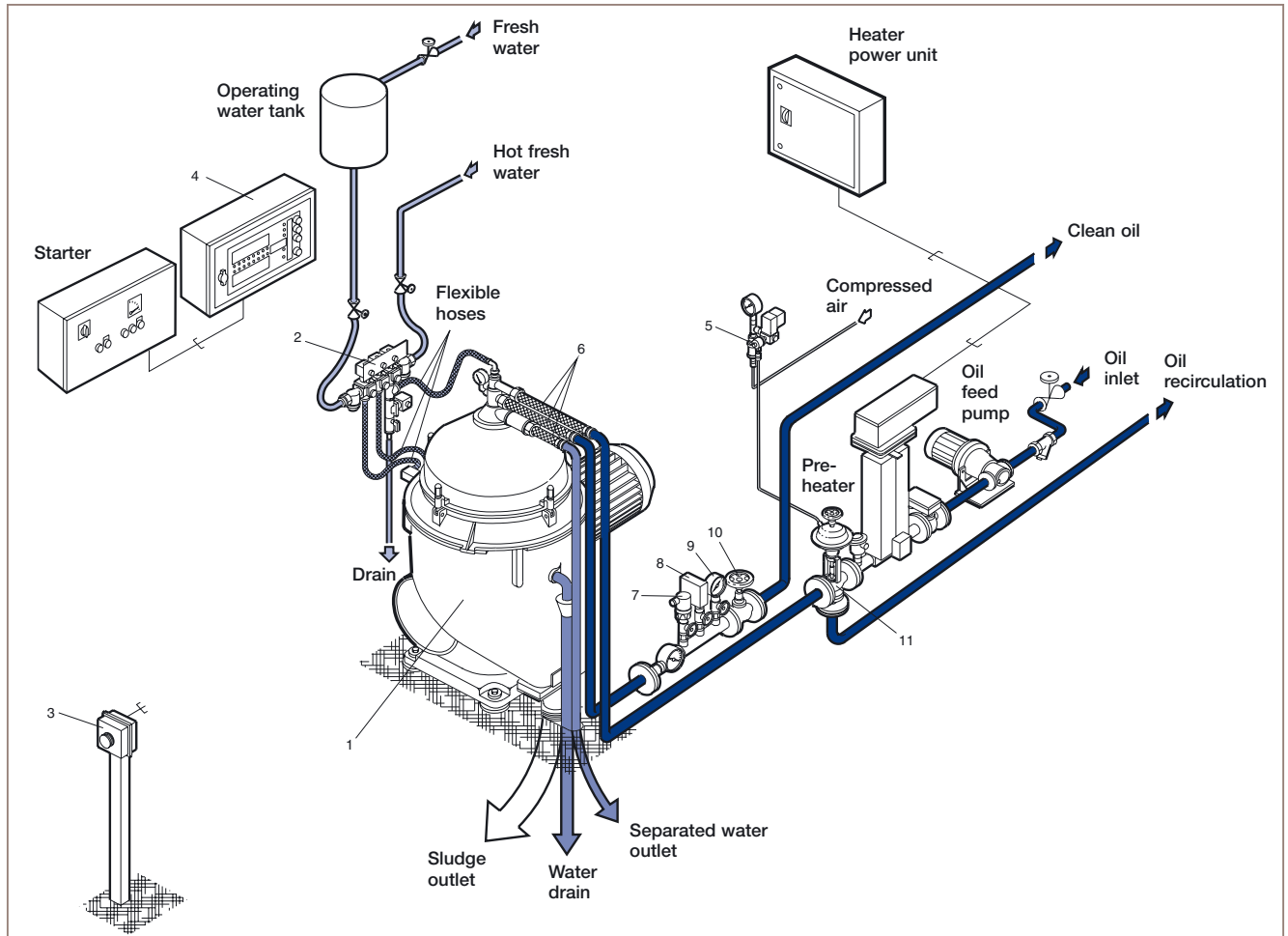


Fig. 4. Schematic installation layout of an MOPX separation system.

### Basic system equipment (See Fig. 4)

- 1 MOPX separator with or without built-on feed pump
- 2 Solenoid valve block, water
- 3 Emergency stop pushbutton
- 4 EPC-41 control unit
- 5 Solenoid valve block, air
- 6 Flexible hoses
- 7 High pressure switch
- 8 Low pressure switch
- 9 Pressure gauge
- 10 Regulating valve
- 11 Pneumatic 3-way valve

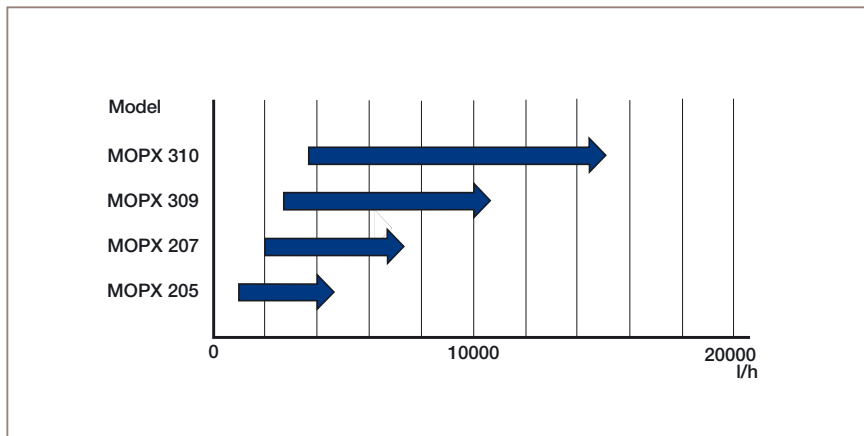
Selected spare parts for separator and system equipment.

### Additional equipment necessary for operation

- Electric motor and starter
- Set of tools
- Operating water tank
- Separate oil feed pump with strainer and starter (for separators without built-on pump)
- Oil heating system

### Optional equipment

- Vibration switch
- Temperature sensor PT-100
- MCFR flow regulation system
- Air pressure reducing valve



### Throughput Capacities

Blue bars indicate range from maximum recommended capacity on 600 cSt/50°C heavy fuel oil to maximum recommended capacity on distillate (1.5 to 6 cSt/40°C). For detailed information on throughput capacities see separate capacity table for individual model.

### Modules

The separation system with supplementary equipment can be delivered as a standardized plug-in unit, suitable for both marine and power installations.

### Technical documentation

Complete information and documentation accompany each separation system. Complete System Manual covering separator and ancillary equipment.

### After Sales support

A Preventive Maintenance Program has been developed, with two different spare parts kits available corresponding to two levels of service: every three months, and every year of operation. The kits can be ordered and stocked as single units.

For further details of the Preventive Maintenance Program contact your nearest Alfa Laval representative. Our service engineers are available to assist you for any level of maintenance and to train your maintenance engineers.

### Shipping data

MOPX 205	Weight:	net	400 kg	gross	530 kg	Volume	1.55 m <sup>3</sup>
MOPX 207	"	"	785 kg	"	950 kg	"	2.25 m <sup>3</sup>
MOPX 309/310	"	"	1060 kg	"	1330 kg	"	3.88 m <sup>3</sup>

### How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information direct.