# OCM cleaning solutions for mineral oils

## Alfa Laval Oil Cleaning Module

Clean oil is crucial for the safe, reliable and economical operation of virtually all kinds of equipment that uses oils for either lubrication or hydraulic systems. Clean oil reduces wear and corrosion on all equipment installed downstream, thus helping avoid breakdowns and cutting back on downtime throughout a plant or installation.

The Alfa Laval Oil Cleaning Module (OCM) provides rapid, effective separation of the oil, water and sludge components in contaminated mineral lubricating and hydraulic oils – all at the same time.

The benefits include lower operating costs due to reduced oil consumption, lower disposal costs and improvements in both product quality and the working environment.

**Easy to operate oil purification**
The Alfa Laval Oil Cleaning Module is a modularized system with all the component systems fully integrated, ensuring easy operation while engaged in oil cleaning duties. At the heart of this compact, easy-to-use equipment is an Alfa Laval disc stack centrifuge of supreme efficiency.

Alfa Laval Oil Cleaning Modules are available with all components and systems pre-configured on a skid, for easy, rapid installation and ready for immediate use. They ensure the effective removal of particles and water in the oil. If an emergency arises, even a high level of water contaminants can be removed.

An OCM provides continuous purification of lubricating and hydraulic oils while the equipment in which they are used is in operation. If required, the OCM can continue operating while the primary equipment is at a standstill.

**The impact of contaminants in oil**
Contaminants in lubricating and hydraulic oils have serious effects on system performance, operating costs and durability. For example, the presence of solid particles:
- abrades metal surfaces
- increases friction
- clogs filters

Similarly, if water is present in the oil, this:
- causes corrosion
- reacts with additives

Complete OCM 304

- forms oil/water emulsions
- causes significant deterioration in the performance of the oil.

**Cleanliness counts**
OCM oil cleaning modules are specifically designed to remove contaminant particles, solid impurities and free water from mineral lubricating and hydraulic oils.
This is important because clean, uncontaminated oil:
- extends the service life of all kinds of equipment by as much as 50%
- eliminates or reduces corrosion by removing free water present in the oil
- ensures longer uptime operation, thus boosting productivity
- results in significant reductions in machinery wear and breakdowns
- cuts operating costs by reducing oil consumption
- extends oil service life and therefore reduces replacement and disposal costs
- improves both product quality and the working environment.

## Oil cleaning capacities

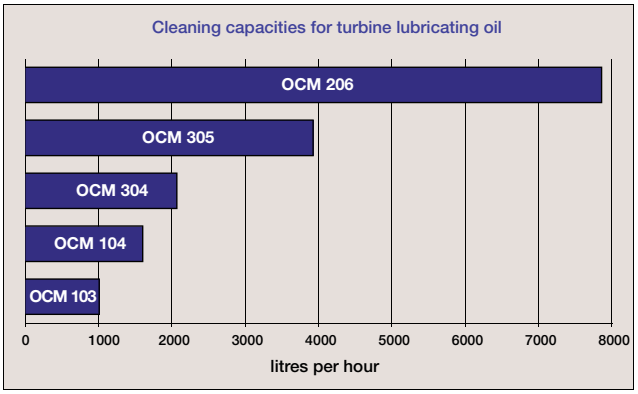


Fig. 1 OCM capacity table – ISO VG 46 lubricating oil separation temperature of 70°C. For steam turbines, the cleaning capacity should be based on 10% of the total charge of lubricating oil, unless stated otherwise by the turbine manufacturer.

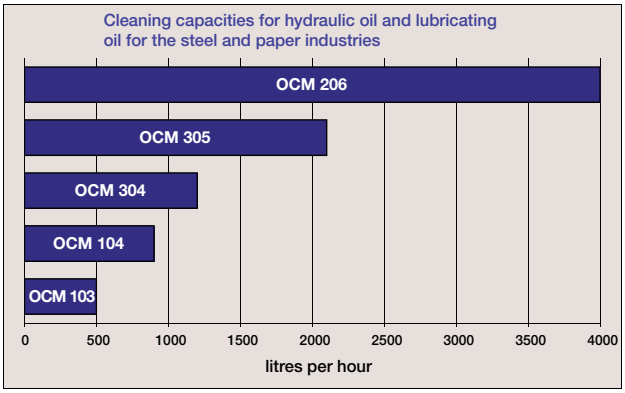


Fig. 2 OCM capacity table – Maximum flow at viscosity 20 cSt at separation temperature.

### Features and benefits

- Simple skid-mounted design that is compact and robust
- Removes both solids and water at the same time, and on a continuous basis
- Easy, rapid start-up procedure
- Low operating costs
- Low maintenance requirements, with easy access
- Eliminates need to dispose of filter cartridges, ensuring that sludge disposal has minimal environmental impact
- Extremely reliable, ensuring long service life.

### Standard OCM equipment

Each unit comprises:

1. Disc stack centrifuge to separate out solids and water
2. Electric motor to drive separator
3. Electric heater
4. Oil feed pump with motor
5. Combined starter and water seal alarm
6. Base plate and frame (mobile or stationary)

### Operating principle

Separation takes place in a disc stack centrifuge. The feed is pumped into the centrifuge where centrifugal force separates the feed liquid into its different phases.

The heaviest of these phases – sludge and water – are forced to the periphery of the bowl. The sludge component is deposited in the sludge space and must be removed manually at regular intervals. The clean oil and the separated water are discharged on a continuous basis.

1. Contaminated oil inlet
2. Clean oil outlet
3. Water outlet
4. Sludge basket
5. Water space
6. Sealing water inlet

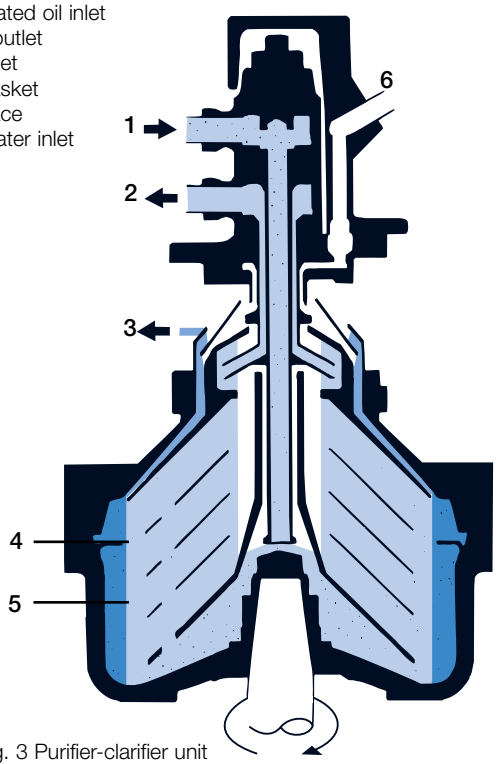


Fig. 3 Purifier-clarifier unit

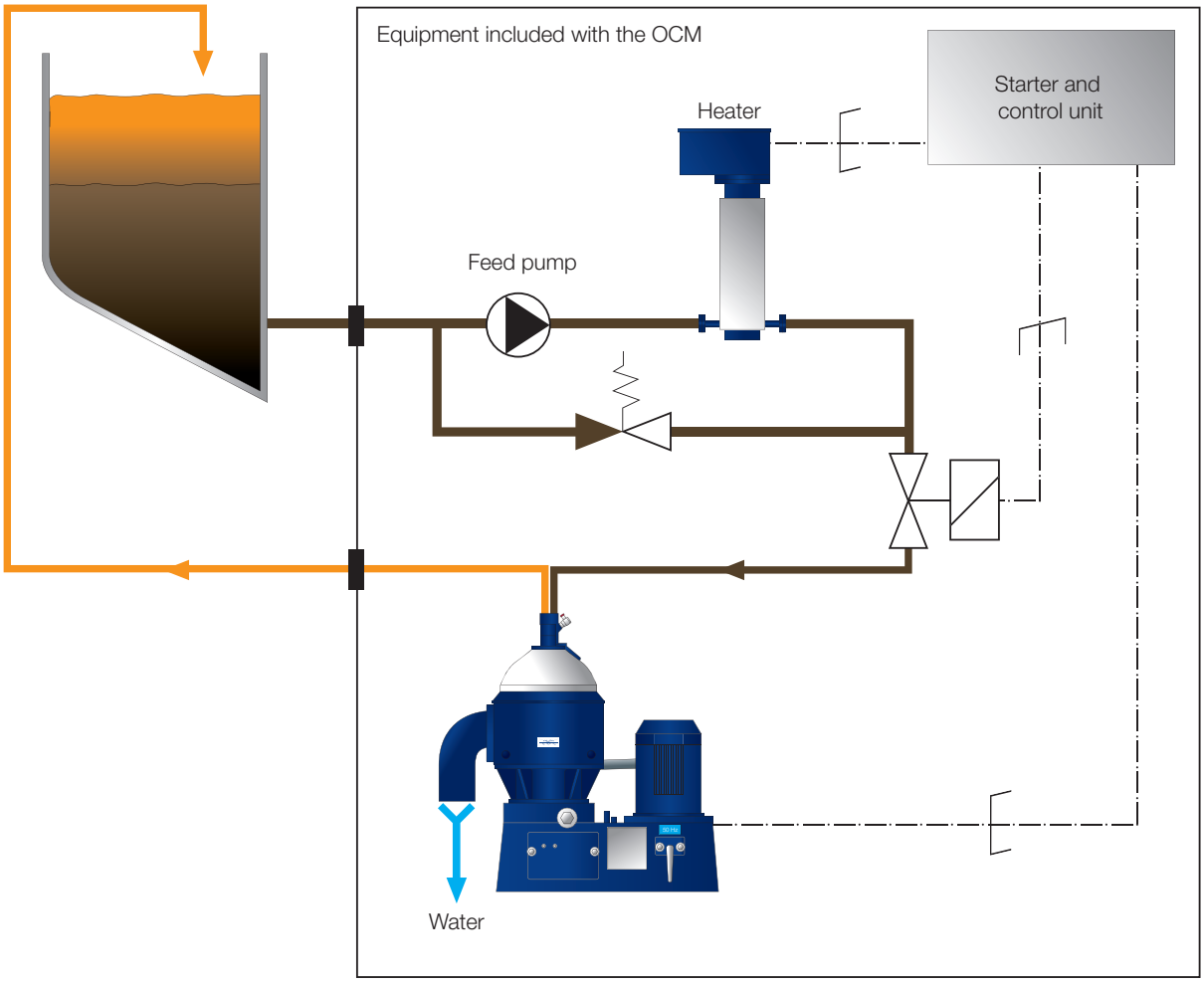


Fig. 4 System diagram

**Installation**
The oil cleaning module is normally installed in a by-pass system, treating a specified percentage of the full flow of contaminated oil. Tank-to-tank installation is also possible.

The suction line from the lubricating or hydraulic oil tank/sump is installed in the lowest end of the tank, typically 1/3 from the bottom. This ensures that any dirty oil present is treated promptly. The suction height should be as low as possible in order to reduce or eliminate any pump cavitation effect.

The oil return line is connected to the top of the oil tank opposite to the oil suction in order to ensure proper oil circulation during cleaning also when the turbine is out of operation.

**Technical specifications**
Power supply: 400/415/440 VAC (50/60 Hz)
Oil grades: all lubricating and hydraulic oils in normal use, as well as marine diesel oil and distillates
Water supply: demineralized water at a pressure of 2–6 bar

**Separation performance**
Particles: ≤ 5 micron 90% removal
Particle: ≤ 3 micron 70% removal
Water: Removal is typically in the range of 90%.

**After-sales support**
The Alfa Laval preventive maintenance programme is available for the OCM series. Alfa Laval service engineers are available to assist you with all types of maintenance and repair, as well as to help you train your personnel in operating and maintaining these units.

Using genuine Alfa Laval spare parts reduces downtime and repair costs. Spare parts kits can be ordered from Alfa Laval Service Centres.

Intermediate service kits for routine bowl maintenance and major service kits for separator overhaul are also available.

| Module type | OCM 103 | OCM 104 | OCM 304 | OCM 305 | OCM 206 |
|---|---|---|---|---|---|
| Separator motor, kW (50/60 Hz) | 0.75/0.9 | 1.5/1.8 | 2.2/2.5 | 3.0/3.7 | 5.5/6.4 |
| Feed pump, kW | Integral | Integral | 0.37/0.43 | 0.75/0.86 | 1.5/1.75 |
| Heater, kW | 14 | 22 | 22 | 36 | 65 |

## Dimensions

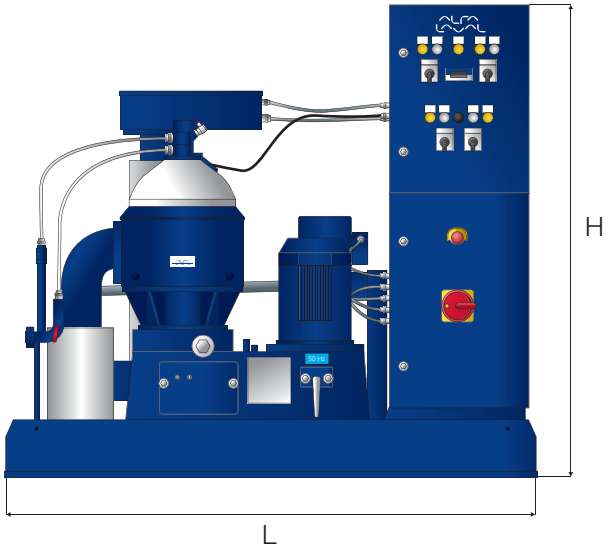


Fig. 5. Dimensions

| | Net | Dimensions (inch /25.4) | | | Weight in kg (lbs *2.2046) | Gross | Dimensions (inch /25.4) | | | Weight in kg (lbs *2.2046) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | W | H | | | L | W | H | crate truck | box sea |
| OCM 103 Stationary | mm | 1,150 | 850 | 1,260 | 325 | mm | 1,500 | 1,000 | 1,700 | 475 | 525 |
| OCM 103 Mobile | mm | 1,285 | 760 | 1,445 | 345 | mm | 1,500 | 1,000 | 1,750 | 495 | 545 |
| OCM 104 Stationary | mm | 1,450 | 850 | 1,260 | 455 | mm | 2,000 | 1,000 | 1,700 | 625 | 695 |
| OCM 104 Mobile | mm | 1,585 | 760 | 1,445 | 485 | mm | 2,000 | 1,000 | 1,750 | 655 | 725 |
| OCM 304 Stationary | mm | 1,450 | 850 | 1,260 | 525 | mm | 2,000 | 1,000 | 1,700 | 660 | 730 |
| OCM 304 Mobile | mm | 1,650 | 760 | 1,445 | 545 | mm | 2,000 | 1,000 | 1,750 | 690 | 760 |
| OCM 305 Stationary | mm | 1,450 | 850 | 1,260 | 525 | mm | 2,000 | 1,000 | 1,700 | 695 | 765 |
| OCM 305 Mobile | mm | 1,650 | 760 | 1,445 | 545 | mm | 2,000 | 1,000 | 1,750 | 720 | 790 |
| OCM 206 Stationary | mm | 1,950 | 1,200 | 1,500 | 1,040 | mm | 2,500 | 1,300 | 2,050 | 1,370 | 1,460 |
| OCM 206 Mobile | mm | 2,085 | 1,110 | 1,683 | 1,100 | mm | 2,500 | 1,300 | 2,050 | 1,430 | 1,520 |



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

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