

# Alfa Laval Emmie

## Mobile hydraulic oil cleaning system

### Introduction

The Emmie mobile cleaning system for hydraulic oil comprises a trolley mounted centrifugal separator and a mobile electrical oil heater. Wheeled between hydraulic systems, Emmie removes water and 99% of all particles in the size range 2  $\mu\text{m}$ –5  $\mu\text{m}$ .

### Application

- Bow, stern and azimuth thrusters
- CP propellers
- Deck cranes
- Winches
- Hoistable decks
- Hatch covers
- Ramps
- Steering gear
- Stabilizers
- Hydraulic lifts
- Deep well pumping systems for product tankers/chemical tankers
- Stern tube lube oil
- Steam turbine lube oil
- Thermal oil

### Benefits

- Drastic increase in the reliability and availability of hydraulic systems
- The life-time of the hydraulic oil is extended
- Reduced filter cartridge consumption
- Less contaminated oil and fewer filter cartridges to dispose of

### Design

**The Emmie system concept** involves the Emmie separator, mounted on a stainless steel trolley. The trolley is equipped with built-in screw-pump, collecting tank, control functions. There is also a mobile, electrical preheater. There is also a set of standard hydraulic hoses with quick-release couplings, including non-return valves.

**Features** includes installation-free start-up, Emmie can be connected to a hydraulic oil tank in minutes; Then simply plug in an switch on. The separator, pump and heater operate on single phase 110 V or 230 V AC, and can therefore be plugged into any wall. socket. Two bowl options delivered with the Emmie separator offer clarifier or purifier mode. The entire



system can be wheeled from tank to tank. There is a combined suction and return pipe with air/dust filter. The compact design allows access to confined spaces. Sledge runner handles on the trolley slide easily down ladders.

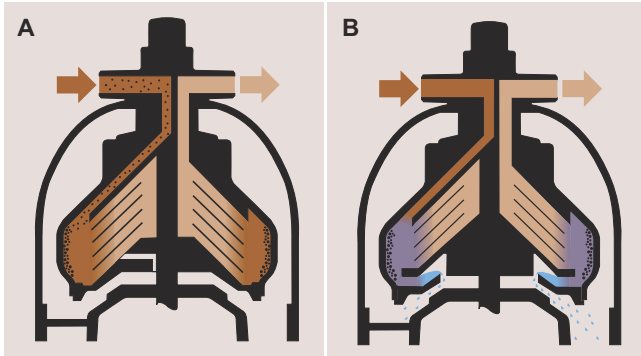
**System components of the Emmie separator** include direct drive which eliminates gears or belts, as well as a frequency converter with built-in voltage protector.

**The trolley** has a built-in screw pump, a collecting tank for oil and separated water, including overflow switch, starters for the separator and pump, a pressure gauge, a low pressure switch/water seal alarm on the outgoing oil, and handles with sledge runner design.

The mobile electrical oil pre-heater is fitted with wheels and handle, heats the hydraulic oil to max 65°C, has a hold-up volume of 1 litre which ensures good response, and features a PID controller which ensures oil at a constant temperature to the separator.

Standard hydraulic hoses with quick-release couplings, including non-return valves and dive pipe (with breather filter) with suction and return for connection to hydraulic oil tank.

### Working principle



A. Clarifier

B. Purifier

The Emmie is supplied with two bowl sets, enabling the user to operate Emmie in either purifier or clarifier mode. Switching between the two modes is done in minutes. Purifier mode is used when the oil is heavily contaminated with water since it offers continuous water removal. The separated water drains into the collecting tank under the separator. The solids accumulate on the bowl wall and are removed periodically by hand. If the hydraulic oil contains only traces of water, or none at all, the clarifier mode is recommended.

The system can be connected to a hydraulic oil tank in minutes. Replace the filler cap on the hydraulic oil tank with the Emmie cap with combined suction and return pipe. Connect one end of the hose to the dive pipe and the other to the suction side of the pump. Connect the pressure side of the pump to heater, the heater to the separator, and the separator to the hydraulic tank. Hook up the control cable from the separator control box to the heater. Connect the separator and heater to standard 110 V or 230 V AC wall socket. Start the separator, start the pump — wait for the oil to flow through. Start the heater. After about one to three days' operation, the separator bowl should be cleaned.

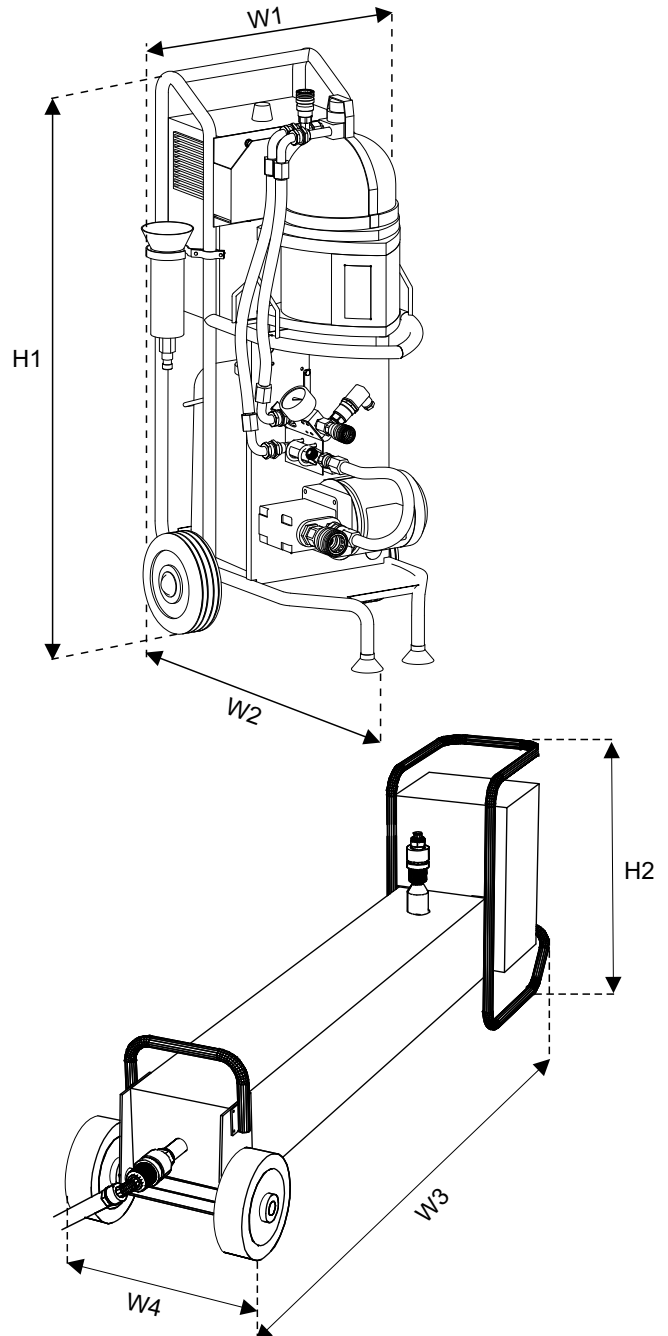
### Technical data

Application	
Mineral oil based hydraulic oils	
Viscosity grade	VG 15–150
Flow rate	80–120 l/h
Separation temperature	35–65°C
Separator	
Emmie	Solid bowl separator, manually cleaned
Weight	15 kg (separator alone)
Bowl sludge space	0.6 litre
Bowl speed	7,300 r.p.m.
Separator trolley	
Weight	64 kg without transformer 72 kg with transformer

Heater	
Output	Full-load, 2,100 W Low-load, 700 W
Heat load	1.1 W/cm <sup>2</sup>
Weight	34 kg

Electrical	
Separator, pump and heater operate on single phase	(110 V) 230 V, 50/60 Hz
Amperage (total system)	10A/14A (heater low-load/full-load)

### Dimensional drawing



Separator trolley	
Width W1	600 mm
Width W2	710 mm
Height H1	1,300 mm

Heater	
Height H2	490 mm
Width W3	1,370 mm
Width W4	295 mm

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