

# Alfa Laval Heatpac EHS-71 Module

## Electric Heating Module

### Introduction

Designed for installation in oil systems, the Heatpac EHS-71 Module is an automatic electric heating system (EHS) that heats all types of mineral oils. Compact and lightweight, it features specially designed heating elements that provide high-efficiency heat transfer and gentle treatment. It also features instant-response electronic temperature control with an accuracy of  $\pm 1^\circ\text{C}$ . This safeguards oil quality, thereby preventing quality degradation.

### Application

The Heatpac EHS-71 Module automatically heats all types of mineral oils, particularly high-density, high-viscosity oils, sensitive lubricating oils, hydraulic oils, compressor oils and turbine oils, prior to centrifugal separation. For instance, it can be used to heat oil before separation when steam production is low due to slow steaming. It can also be used for tank heating when tank design and operation require storing oils in tanks that do not have the possibility to be heated. Since the Heatpac EHS-71 Module does not feature viscosity reading, it can neither be used as additional heater in booster systems, nor for separate viscosity control.

### Benefits

- Compact and lightweight
- Gentle treatment of the product
- Plug-and-play installation
- Mobile option

### Design

#### Heatpac EHM Heater

Standard design, the heater comprises rectangular die-cast aluminium heating elements mounted on a flange to form a compact heating block, which is inserted in a pressure vessel made of mild steel. A baffle plate inside the pressure vessel divides the flow into two passes. The terminal box housing at the top of the heater is separated from the hot pressure vessel to maintain a low temperature in the box. The hot side of the pressure vessel is adequately insulated with 25 mm mineral wool wrapped in aluminium sheet.

#### Heatpac power unit

Housed in a robust cabinet, the unit feeds electric power to the heater. It is regulated by the EHS-71 controller.

#### EHS-71 control unit



The control unit is equipped with a HMI panel and a programmable logic controller (PLC). The system is operated via a 4" touch screen mounted on the front of the cabinet. The cabinet contains 24 VDC power supply and the compact PLC. Programmed for step-less heating to achieve optimum temperature, the control unit provides temperature control and monitoring in an Alfa Laval oil heating system.

## Scope of supply

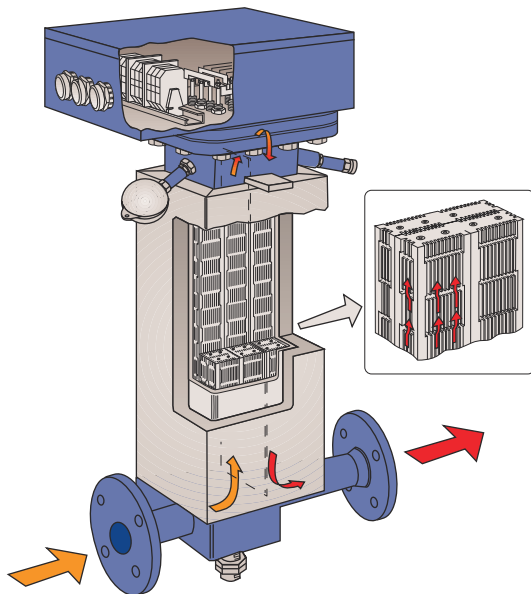
- Plug-and-play electric heater module — the heater module can be installed in front of Alfa Laval separator modules as the OCM Light 503, OCM Light 304, OCM Light 305 and others.

## Options

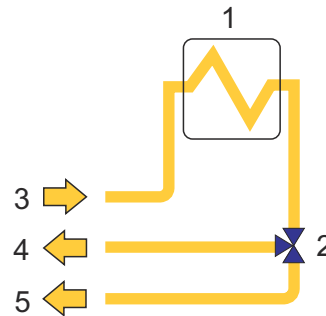
- Three flexible hoses
- Wheel set

## Working principle

The fuel or lubricating oil is continuously fed to the Heatpac EHS-71 Module heater. A signal from the PT-100 temperature sensor at the oil outlet is transmitted to the Heatpac EHS-71 Module controller, which regulates the amount of electric power to the heating elements. Heat is transferred to the oil through the corrugated aluminium surface (shown in the working principle image for the Heatpac EHS-71). The Heatpac EHS-71 Module control unit and power unit are specially designed to supply power incrementally and to prevent any interference with other electric and electronic equipment nearby. A unique characteristic of the cast aluminium heating elements is the rapid response to any load change. This feature, in combination with the specially designed control system, ensures outstanding control performance, independent from any fluctuations in flow rate or oil temperature. Standard safety equipment comprises a high temperature sensor located in close proximity to the aluminium heating element. The high temperature sensor cooperates with an independent temperature guard in the control unit/power unit to ensure protection from overheating.



Working principle of Heatpac EHS-71



Flow diagram electric heater module

1. Heater
2. Three-way valve
3. Oil inlet
4. Oil recirculation
5. Hot oil outlet

## Technical data

Heatpac EHM-71 electric heater module	
Design pressure	1.5 MPa (15 bar)
Test pressure	2.25 MPa (22 bar)
Safety valve relieve	0.6 MPa (6 bar) for standard HSS
Max. temperature	160°C (320°F)
Power supply	230 <sup>1</sup> , 400, 440, 480, 500, 690 VAC <sup>2</sup> , 50/60 Hz
Control unit	
Control unit internal voltage	24 V
Protection class	IP 65
Max. ambient temperature	55°C (131°F)
External inputs	24 VAC potential-free contact PT-100 three-wire measurement 4–20 mA
	Four cabinet sizes are available
	- Up to 24 kW
	- 36 to 56 kW
	- 65 to 72 kW
	- 100 to 130 kW
Power unit	
Certifications Marine	ABS, BV, DNV, GL, LR, NK, RINA, RMRS

<sup>1</sup> Only available for up to 24 kW

<sup>2</sup> Other voltages as 220, 380, 415, 460, 575, 660 possible. In this case the heater power rate will be slightly different.

## Alfa Laval EHM electric heaters

Capacity kW	Dimensions					Connections	
	A	B	C	D	E	mm	inch
7/8	890	159	116	150	550	25	1
14/16	890	159	117	200	550	25	1
22/24	895	216	122	300	550	40	1.5
36/40	895	216	122	300	700	40	1.5
50/56	895	216	120	300	700	40	1.5
65/72	895	216	120	300	700	40	1.5
100/130 <sup>1</sup>	895	216	120	300	800	40	1.5

<sup>1</sup> Not approved for use with lubricating oil

## Flexible hoses (option)

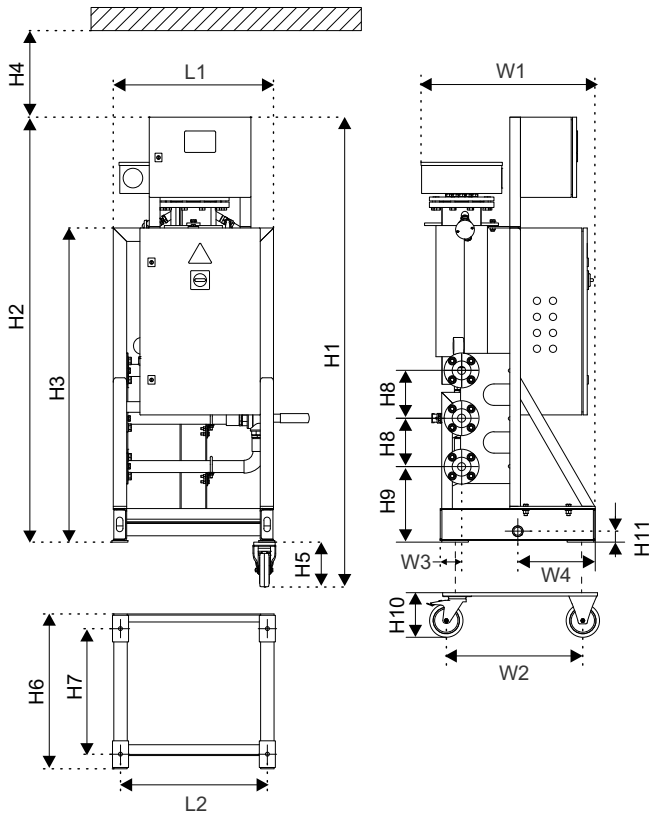
Tech data	
Media	oil, water
Media temperature max	100°C
Media pressure max	6 bar
Length	800 mm
Connections	G 3/4"
Material	

**Flexible hoses (option)**

Tube	Stainless steel
Connection	Brass, zinc plated
Braiding	Stainless steel, 1 layer

**Dimensions**

W2	511 mm (1 ft 8 1/8 inches)
W3	80 mm (0 ft 3 5/32 inches)
W4	290 mm (0 ft 11 27/64 inches)

**Dimensional drawing****Dimensions**

H1		1758 mm (5 ft 9 7/32 inches)
H2		1591 mm (5 ft 2 41/64 inches)
H3		1176 mm (3 ft 10 19/64 inches)
H4		600 mm (2 ft)
H5		167 mm (0 ft 6 37/64 inches)
H6		580 mm (1 ft 10 53/64 inches)
H7		470 mm (1 ft 6 1/2 inches)
H8	EHM 7–EHM 16	140 mm (0 ft 5 33/64 inches)
	EHM 22–EHM 130	180 mm (0 ft 7 3/32 inches)
H9	EHM 7–EHM 16	360 mm (1 ft 2 11/64 inches)
	EHM 22–EHM 130	280 mm (0 ft 11 1/32 inches)
H10		167 mm (0 ft 6 37/64 inches)
H11		41 mm (0 ft 1 39/64 inches)
L1		600 mm (2 ft)
L2		550 mm (1 ft 9 21/32 inches)
W1		650 mm (2 ft 1 19/32 inches)

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