



HEATPAC®

EHS-71 Electric Heating System



Designed for installation in oil systems, Alfa Laval HEATPAC® EHS-71 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

HEATPAC EHS-71 automatically heats all types of mineral oils, particularly high-density, high-viscosity fuel oils, sensitive lubricating oils and turbine oils, prior to centrifugal separation. It can, for instance, 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 requires storing fuels in tanks that do not have the possibility to be heated.

Since the EHS-71 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
- Easy to install
- Gentle treatment
- No deterioration of heated oil
- Automatic start-and-forget operation

Standard configuration

- *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 oil inlet and outlet are located

opposite each other on the same level, enabling installation in a series.

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 an external 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 stepless heating to achieve optimum temperature, the control unit provides temperature control and monitoring in an Alfa Laval oil heating system.

- *Ancillary equipment*

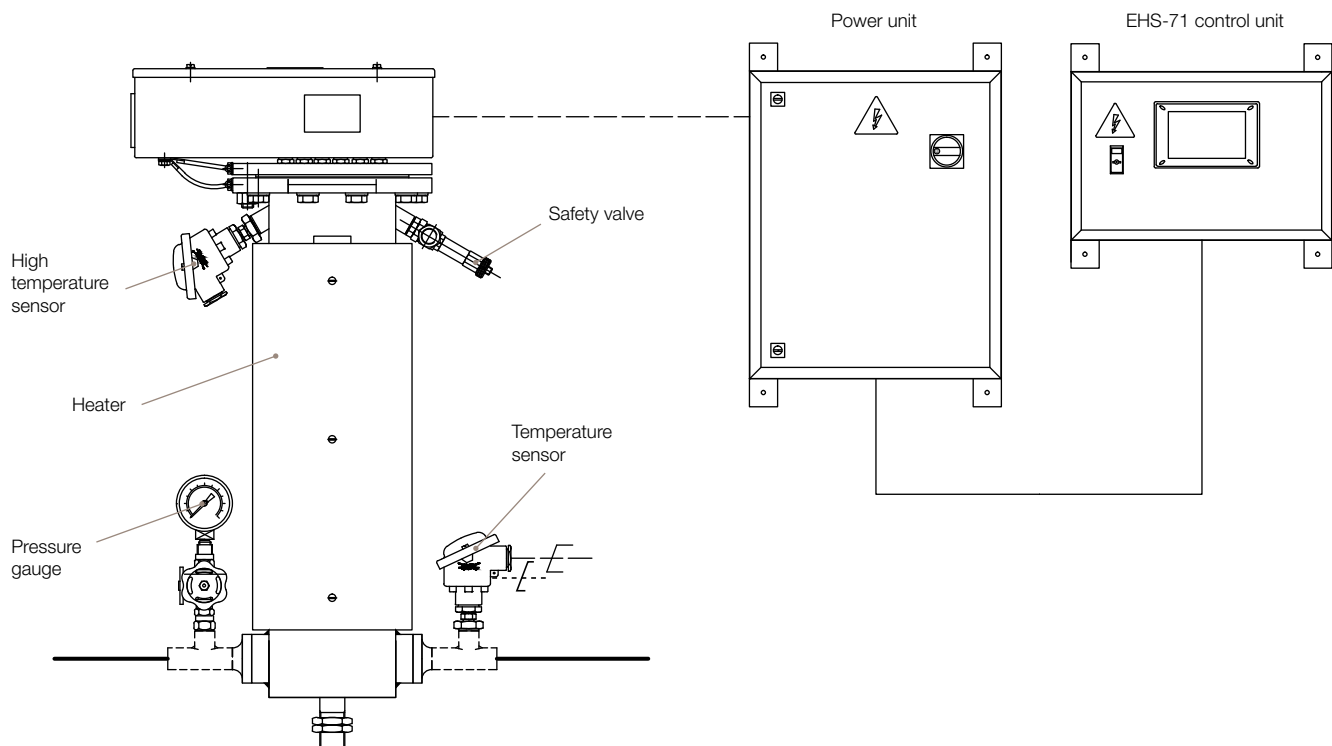
Includes a PT-100 temperature sensor, high temperature sensor and safety valve.



EHS-71 control unit.



HEATPAC power unit.



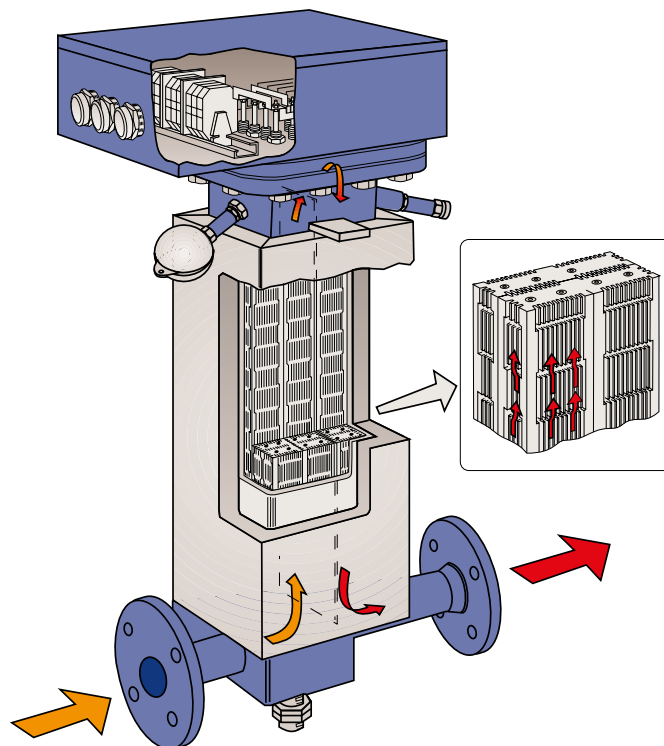
Basic concept of the HEATPAC EHS system.

Working principle

The fuel or lubricating oil is continuously fed to the HEATPAC heater. A signal from the PT-100 temperature sensor at the oil outlet is transmitted to the EHS-71 controller, which regulates the amount of electric power to the heating elements. Heat is transferred to the oil through the corrugated aluminium surface (shown right). The EHS-71 control unit and power unit are specially designed to supply power incrementally and to prevent any interference with other shipboard electric and electronic equipment.

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 co-operates with an independent temperature guard in the control unit/power unit to ensure protection from overheating.



Working principle of the HEATPAC system.

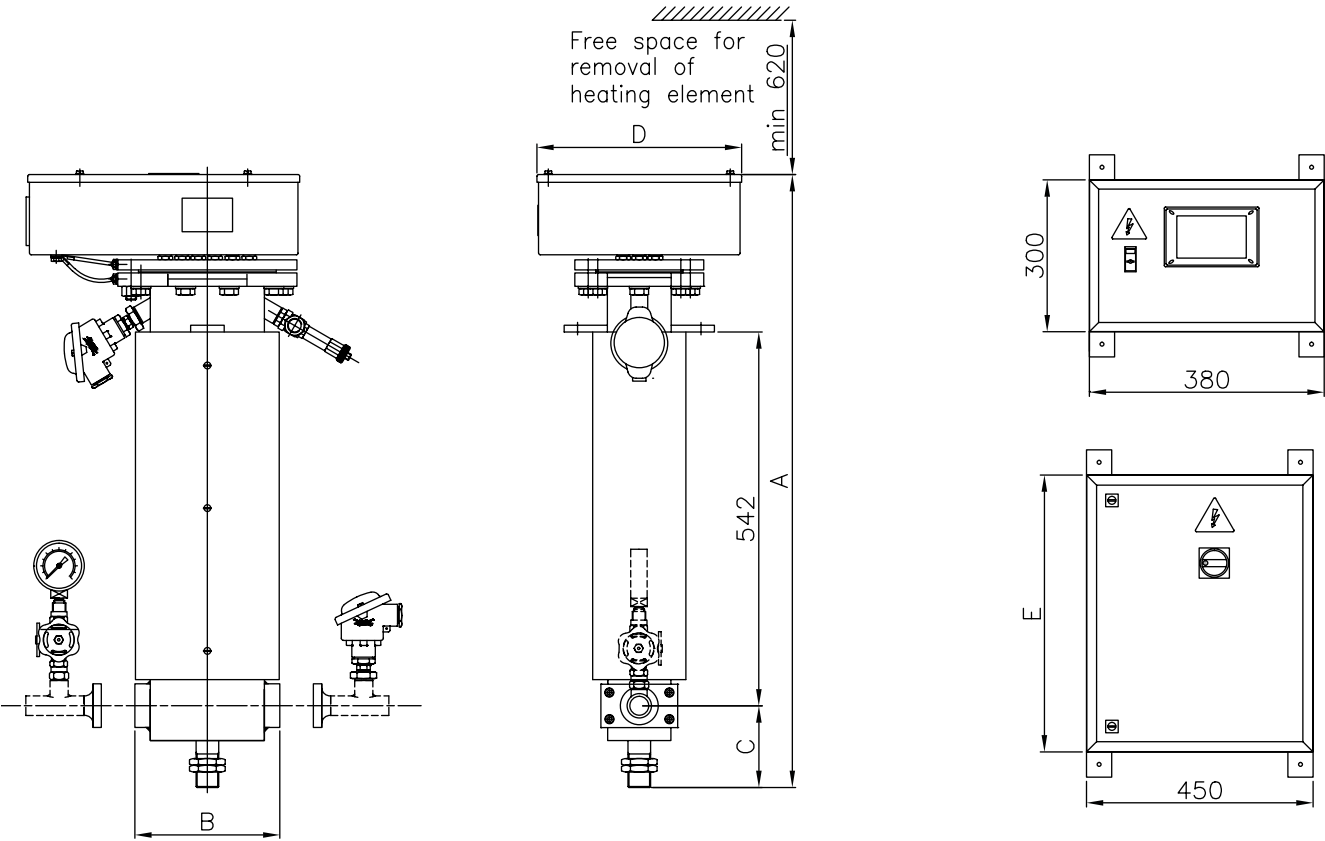
Technical data

HEATPAC EHM Heater	
Design pressure	1.5 MPa (15 bar)
Test pressure	2.25 MPa (22 bar)
Max. temperature	160°C (320°F)
Power supply	230, 400, 440, 480, 500, 690 VAC, 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
Installation	
Capable of being installed in any position	
Power unit	
Four cabinet sizes are available	
• Up to 24 kW • 36 to 56 kW • 65 to 72 kW • 100 to 130 kW	
Voltage	
All sizes are available for 230, 400, 440, 480, 500 and 690 VAC	
Certifications	
Marine	ABS, BV, DNV, GL, LR, NK, RINA, RMRS

Alfa Laval EHM

Article number	Capacity kW	Dimensions (mm)					Connections	
		A	B	C	D	E	mm	inch
9016616-01	7/8	890	159	116	150	550	25	1
9016616-02	14/16	890	159	117	200	550	25	1
9016616-03	22/24	895	216	122	300	550	40	1.5
9016616-04	36/40	895	216	122	300	700	40	1.5
9016616-05	50/56	895	216	120	300	700	40	1.5
9016616-06	65/72	895	216	120	300	700	40	1.5
9016616-07*	100/130	895	216	120	300	800	40	1.5

* Not approved for use with lubricating oil.



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