



Viscochief MKII

Viscosity Control System



Fig. 1. Viscochief MKII – Viscosity Control System.

Application

The Viscochief MKII system is specifically designed for installation in fuel oil conditioning systems to automatically monitor and control fuel oil viscosity.

System concept

The key components of the Viscochief MKII system are:

- EVT20 sensor.
- EPC50V control unit.

The Viscochief MKII components are designed for installation in booster systems equipped with HEATPAC electric heaters or steam/thermal oil heaters from Alfa Laval. Steam/thermal oil heaters from other makers can also be used.

The Viscochief MKII system can also be used for upgrading existing booster systems equipped, for example, with conventional capillary viscometers.

Features and benefits

Design features:

- No moving parts.
- Robust design.
- Full-flow measurement.
- Simultaneous display of viscosity and temperature.
- Dual fuel operation modes as standard.
- Control of complete changeover valve function for changing DO to HFO and vice versa.

Customer benefits:

- Optimal burning efficiency.
- Prevention of engine damage.
- Ease of installation.
- Start-and-forget operation.
- Maintenance-free.
- Local and/or remote operation.
- High accuracy.

System working principle

The EVT20 viscosity sensor continuously monitors the viscosity of the fuel oil being fed to the engine. This measurement is compared with a set value stored in the EPC50V control unit. The control unit then regulates the heater to raise or lower the fuel oil temperature to maintain the required oil viscosity.

When installed with a HEATPAC EHS electric heater, the EPC50V control unit regulates the heater through connection with the HEATPAC power unit.

In a system equipped with a steam heater, the Viscochief MKII system regulates a motor-driven valve. Remote position indication of a steam-regulating valve is available as an option.

The Viscochief MKII system can also be equipped with a combination of the HEATPAC EHS and steam or thermal oil heaters from Alfa Laval, where the EPC50V uses the steam/thermal heater to provide the base temperature load.

When the maximum steam capacity is reached and additional heating is required to maintain the injection viscosity at setpoint, the EPC50V turns on the HEATPAC EHS electric heater to reach the required temperature and viscosity.

The Viscochief MKII system can be operated in three modes:

- Marine diesel oil (MDO) mode.
- Heavy fuel oil (HFO) mode.
- Manual operation of steam/thermal heater or electric heater.

There are many possibilities for remote control. Comprehensive monitoring and remote control is possible, thanks to the new EPC50V process controller, which is based on the same unit used in many other Alfa Laval applications.

The Viscochief MKII system may also be integrated with the automation system of the ship. The system can also provide control of the heavy fuel oil and diesel oil three-way changeover valve.

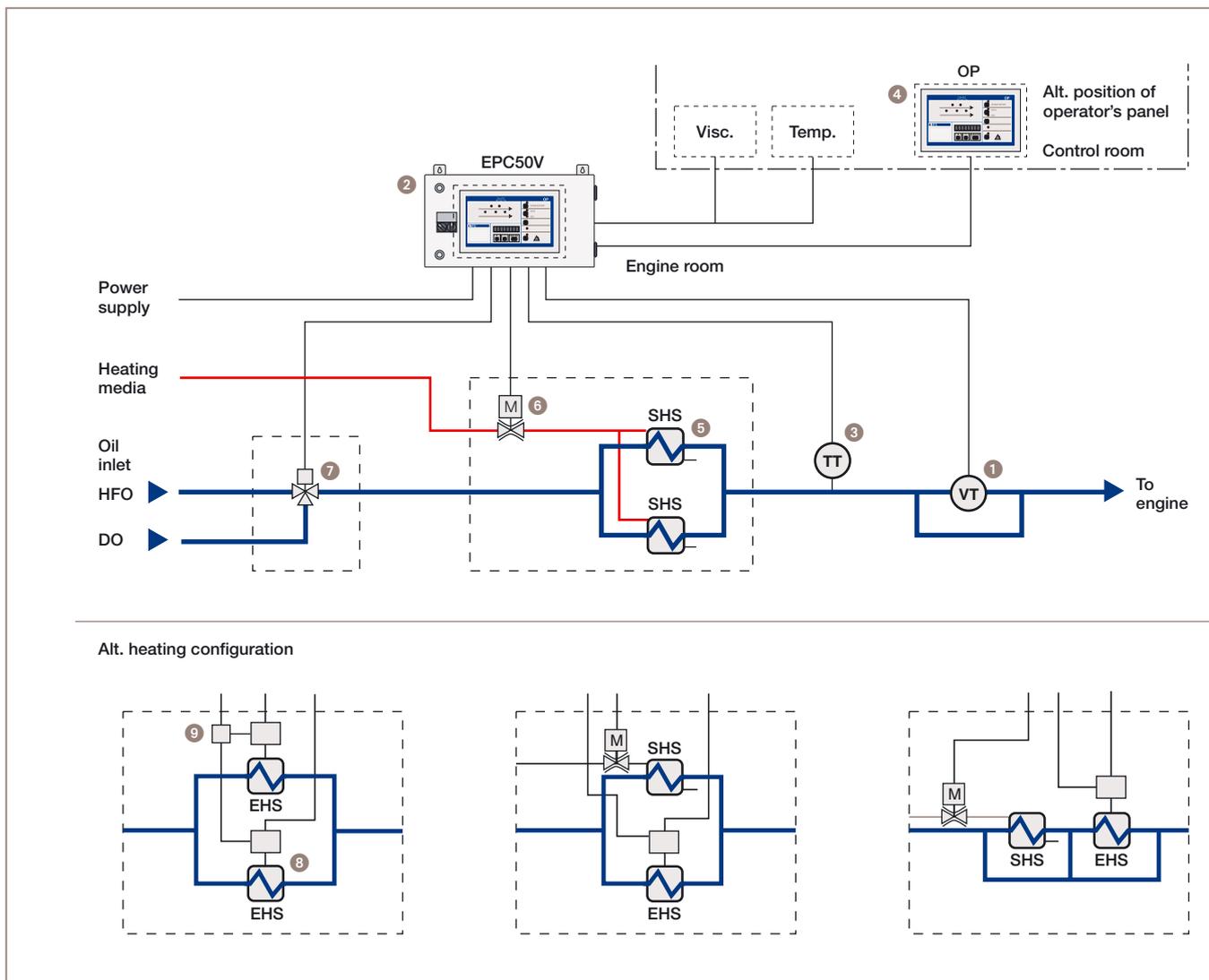


Fig. 2. Typical system layout, Viscochief MKII system.

Main system components

EPC50V viscosity control unit

The EPC50V control unit contains an electronic controller, which regulates electric or steam heaters. It also provides power for the viscosity sensor and the optional regulating valve. There are two models available: a local solution that has a control unit with a built-in operator's panel and a remote solution that has a local I/O unit and a separate operator's panel intended for remote positioning in the control room.

Viscosity sensor

The EVT20 electronic viscosity sensor is designed for full-flow installation in booster systems. The housing has standard flanges for installation. The operating principle of the viscosity sensor is based on torsional vibration of a pendulum in fuel. The damping of this electrically controlled vibration is directly related to the viscosity. This principle achieves the most accurate viscosity measurement. The operation of the viscosity sensor, EVT20, is not affected by external vibration and fluctuations in pressure and flow.

Basic equipment

- 1 Viscosity sensor
- 2 Control unit EPC50V
- 3 Temperature sensor

Optional equipment

- 4 Operator's panel

Additional equipment available

- 5 Steam heater
- 6 Regulating valve
- 7 Changeover valve
- 8 HEATPAC EHS-62 electric heater
- 9 Selector switch

 Additional equipment available

SHS: Steam/Thermal Oil Heating System

EHS: Electric Heating System



Fig. 3. EPC50V – Local solution.



Fig. 4. EPC50V – Remote solution.



Fig. 5. EVT20 – Viscosity sensor.

Technical data

EPC50V

Power supply:	230 VAC, 50/60 Hz
Power consumption:	230 VA
Material (cabinet):	Steel
Protection class:	IP65
Ambient temperature (max.):	55°C

Output signals

Alarm, common	
Alarm, high temperature/low viscosity	
low temperature/high temperature	
Steam-regulating valve, increase/decrease	
Electric heater	
Viscosity:	4–20 mA (optional)
Temperature:	4–20 mA (optional)
Three-way valve control	
Field bus interface:	Profibus or Modbus (optional)

Input signals

Viscosity	
Temperature	

Dimensions

Height:	300 mm
Width:	530 mm
Depth:	188 mm
Weight:	20 kg

EVT20 sensor

Measuring range:	0–50 cSt, (4–20 mA)
Accuracy (viscosity):	±0.5 cSt
Response time:	Less than 1 minute
Material (sensor):	Stainless steel 316
Protection class:	IP65
Signal cable (length):	5 m
Fuel temperature (max.):	180°C
Fuel oil pressure (max.):	16 bar
Flow (max.):	25 m ³ /h
Connections:	DN 50, DIN, JIS

Dimensions

Height:	<380 mm
Width:	150 mm
Depth:	200 mm

Weight

Sensor:	1 kg
Housing:	11.5 kg

Optional equipment

Operator's panel

Additional equipment available

M6 steam heater
HEATPAC EHS-62 electric heater
Selector switch
Regulating valve
Three-way changeover valve

Installation

All system components are designed for onsite installation in the engine room. The EVT20 is factory-calibrated. Flanges are according to DIN or JIS standards. The EPC50V can be installed locally or at a remote site.

Technical documentation

Complete information and documentation for the main components accompany each Viscochief MKII system.

Type approval

The Viscochief MKII components have been type approved by the major classification societies.

Aftersales support

Replacement components and aftersales service is provided through a network of Alfa Laval subsidiaries and representatives worldwide, including marine service centers in all major ports.

How to contact Alfa Laval

Contact details for all countries are continually updated on our web site. Please visit www.alfalaval.com to access the information direct.