New automatic viscosity control system

Improved reliability, full remote control

Ship engines simply can't perform efficiently if the viscosity of the fuel oil doesn't match the specifications of engine manufacturers. The new fully automated Viscochief MKII from Alfa Laval provides the right viscosity at all times. That translates into optimal engine performance, reliable operation and the opportunity to avoid unnecessary wear on vital engine parts.

Delivering fuel oil to the engine at the right viscosity is essential to engine performance. If fuel oil viscosity is too high, the engine consumes more fuel, and fouling of the pistons and exhaust valve seatings can occur. Fuel cam failure is another casualty that can result from extreme pressure due to incorrect viscosity. If viscosity is too low, coke builds up on the fuel injector and there is poor lubrication of the injector needle, which can result in jamming the injector.

Upgrading your viscosity control system with the Viscochief MKII provides optimal engine performance and protection of your investment. Ideal for upgrading existing booster systems equipped with conventional capillary viscometers, this reliable solution delivers fuel oil to your engine at exactly the right viscosity.

Simply start the Viscochief MKII system and it runs itself, providing continuous, automated operation. The viscosity transducer provides highly accurate measurements, between 0 and 50 cSt, based on the torsional vibration of a pendulum in the fuel oil. The damping of this electrically controlled vibration is directly related to the viscosity. This achieves the most accurate viscosity measurement available.

Smart automation
Smart automation ensures that the actual fuel oil viscosity meets the demands specified by the engine manufacturer. The intelligence lies in the Viscochief MKII’s new EPC 50V process controller.

Based on the same advanced process controller found in most other Alfa Laval equipment, the EPC 50V powers the viscosity sensor, provides vital process information and enables activation of control functions from a remote location. The process controller automatically raises or lowers the temperature in the electric, or steam, heater to correct any deviation in viscosity. This ensures efficient fuel combustion and optimum power output.

The process controller has two standard modes of operation: diesel oil (DO) mode and heavy fuel oil (HFO) mode. It easily handles the transition from one mode to the other, controlling the complete changeover function of the three-way valve. To ensure continued operation should a system problem occur, the EPC 50V has these and other self-cure functions: automatic changeover from HFO to DO at heater failure; automatic changeover to temperature control upon detection of a viscosity sensor fault; and, emergency operation of electric heaters.

User-friendly remote control
In addition to comprehensive monitoring of a broad range of functionality from the control room, the EPC 50V enables full control from any remote location. The process controller displays in clear text process parameters, alarms and other data, such as run times, the viscosity value at 50°C and position of the steam-regulating valve. A system mimic with light-emitting diodes makes information easily accessible and easy to read.

The controller has two remote analogue outputs for viscosity and temperature. Using standard Profibus and Modbus communication protocol, the controller can be connected to central automation systems. The Viscochief MKII has been designed so that it is extremely easy to integrate into any existing installation. No welding is required. The slim profile of the remote panel makes it easy to mount in the control room.

Smart savings
Smart automation and remote control delivers smart savings. Because this automated system has no moving parts, the Viscochief MKII does not demand the close monitoring and spare part replacement that is required of conventional systems. This low-maintenance system also has long maintenance intervals and does not require frequent manual cleaning. These savings, together with eliminating unnecessary wear on engine parts, amounts to big savings in operation and maintenance costs — time and again.

Editor’s notes:
Alfa Laval is a leading global provider of specialized products and engineered solutions. Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again. We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals. Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.