Enhancement of Smart Technology CM-1000 Series

The CM-1000 Series was recently presented during a customer's event in Hamburg

ACTIVE VALVE CONTROL OPTION | Colfax Fluid Handling, a business of US-based Colfax Corporation and a global leader in fluid-handling solutions for critical applications, has added an active valve control option to its Smart Technology CM-1000 Series intelligent seawater cooling system controller.

The CM-1000 Series has been designed to enhance shipboard seawater cooling system pumping efficiency while lowering operating and maintenance costs and maximising uptime for greener, sustainable operation. The CM-1000 Series with active valve control offers potential energy savings of up to 85%, thus reducing a vessel's carbon footprint, Colfax said. It also cuts maintenance by up to 50% and provides safer operation, return-on-investment and long-term savings for total ownership.

The CM-1000 Series with active valve control utilises sensors to monitor real-time operating conditions such as temperatures in the freshwater cooling loop, as well as the pumps' suction and discharge pressure. The sensor signals enable the CM-1000 Series controller to regulate the flow of seawater to the coolers according to varying heat loads from the main engine and generators.

The CM-1000 Series controller checks pump status based on the pumps' performance curve, then opens and closes valves in the seawater cooling system to adjust the pumps' duty point for optimal operation. In the case of a 3 x 50% pump setup, active valve control allows an intelligent cascading operation.

Because valve adjustments are made automatically, the risk of incorrect manual valve settings is eliminated and incremental energy savings and overall system efficiency are enhanced, the company said.

Active valve control also reduces system complexity on the coolers' freshwater side, significantly cutting pipe turbulence and essentially allowing the removal of the three-way valve and bypass line, reducing both equipment cost and associated maintenance costs.

"Regardless of the operation conditions and system requirements, the CM-1000 Series active valve control feature and the integrated cascading capability will always provide the most efficient pump operation," said Christian Martin, director of commercial marine product management at Colfax Fluid Handling. "It allows full operation control, not just operation monitoring. Instead of a warning light that must be acted upon when a pump is operated outside of prescribed limits, the active valve control logic will signal the CM-1000 controller to adjust the duty point automatically, eliminating the risk of pump cavitation. That means that equipment will last longer and require less maintenance, while operating at much higher efficiency levels, saving equipment, manpower and energy costs."

Designed to work effectively with both 2 x 100% and 3 x 50% pumping configurations, the CM-1000 Series with active valve control is said to offer:

› Variable speed operation that adjusts and lowers motor and pump speed, providing energy savings between 40 and 80% and reducing the loads to provide longer equipment life and minimise maintenance; this replaces the traditional system design that features continuously running pumps at full speed plus a bypass control. Worst-case conditions (32°C seawater, full load of all equipment) can still be met;

› Active valve control that provides additional system efficiency, up to 85% overall;

› Condition monitoring that detects potential wear and/or fault conditions such as bearing damage, misalignment or coupling damage, mechanical seal damage and dry running, to help prevent catastrophic breakdown and to increase uptime;

› Operational control that extends mean time between failures (MTBF) by avoiding part-load and overload operation to decrease bearing load and cavitation occurrences and to provide safe operation and consistent pump performance.

The CM-1000 Series with optional active valve control may be applied to both newbuilds and retrofits, the company said.