

August/September 2010

the journal of ships' engineering systems

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Electrically controlled valves enhance ship safety



A set of Armaturen Wolff's new quick-closing valves is illustrated together with their control cabinet

Stowage rules and all international classification society requirements dictate that in case of an emergency, for example fire in the engine room, a vessel must have a facility to interrupt rapidly and remotely all fuel supplies. For this purpose, pneumatic, manual hydraulic and (for simpler arrangements) rope-pull systems have been widely accepted.

Now the Hamburg-based German company, Armaturen Wolff, which has produced quick-closing valve systems for several decades, offers a technical innovation in this field. It has developed a quick-closing valve, which operates with an electrical release.

For emergency situations, Hamburg based Armaturen Wolff is now marketing new quick-closing valves with electric release to cut off the fuel supply to machinery spaces, reports **Donald Crighton**

The new electrically controlled method works with the same type of mechanical quick-closing valves normally used in conventional systems; however, the tappet of an actuator fixes the valve in the open position against the force of a compressed spring. When released, the tappet is retracted and gives way to the fixing nut, which results in the valve closing under the force of the spring. Only the design of the actuator is different to that used in normal mechanical quick-closing valve systems.

In this new electric system, the valves are connected via a control cabinet, which guarantees an un-interruptable power supply and allows remote control of the release action.

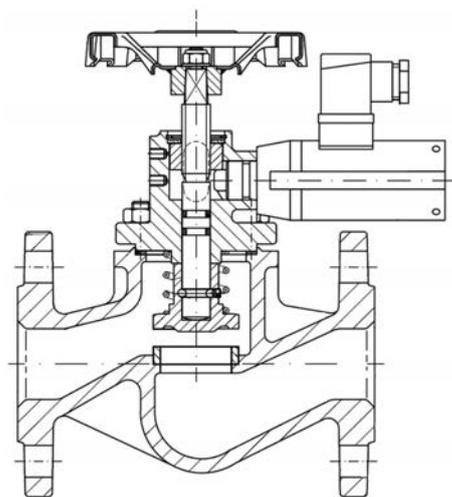
Since such systems are designed solely for emergencies, a self-sustaining function is necessary, regardless of their control technology concept. The equipment has to be fully operational even when there is no auxiliary power available. In addition, a short and maybe uncritical blackout or other disturbance must not lead to an uncontrolled valve closure.

With Armaturen Wolff's new arrangement, a ship's power supply of 115-230V AC is transformed to 24V DC by means of a battery-buffered DC supply module. On the secondary side, the power supply is distributed to a number of release switches with release indication lights, which are each connected to one group of valves. When the switches are turned, the voltage change actuates the release command at the valve actuators, thereby dropping the securing device of the open valves and causing the valves to close immediately.

One special aspect of electric systems is the relatively simple integration of a comprehensive supervision function. Due to this, all control lines are permanently monitored inside the control cabinet with a collective failure alarm module. In case a plug is not secured properly or a cable becomes defective, a collective fault alarm is generated; this can be signalled either on site as a general machinery alert, or in the engine control room and on the bridge. The display on the collective failure alarm module indicates exactly where the problem is, thus allowing an efficient and straight forward repair.

The central components of the control cabinet are arranged in the same way. This, Armaturen Wolff claims, provides an advantage over conventional systems, since electric controls save space. This may prove a benefit for shipyards installing the equipment.

Conventional methods often require more than 600m of control lines for a quick-closing valve



Section through Armaturen Wolff's new electrically actuated valve

system. Armaturen Wolff's electrical controls are said to be much easier to install than either hydraulic or pneumatic control lines.

Germanischer Lloyd has already given type

approval for the new technology, while the German flag authority and the Seamen's Accident Prevention & Insurance Association (Seeberufsgenossenschaft) have both also approved the method.

Approval from other classification societies is expected soon. Armaturen Wolff is convinced that owners, shipyards and design offices will appreciate the advantages of its new technology.

Autronica re-organises its gas detection business

Autronica, the leading global fire detection, suppression and presentation systems specialist, has renamed its wholly owned gas detection and equipment supplier, Omicron. The company, acquired in December 2008, will now be known as Autronica Fire & Security's Tønsberg division, which will operate from Tønsberg in southern Norway. These changes follow a period of co-operation between the two safety technology focused companies.

Omicron became an official division of Autronica's core business in December 2009 and will continue to produce Omicron products as a key part of Autronica's business. The company says that this will ensure that the commercial and offshore marine sectors have improved access to the products and solutions that first established Omicron as a leader in the field of gas detection technology. Further, the possibility of shared resources, R&D in particular, will be a key driver in the

development of new integrated solutions.

Victor Wilmann, Autronica's global sales manager, commented that, "The acquisition and subsequent merger of Omicron with our core business makes us probably the only one-stop-shop for fire and gas detection systems. This provides customer benefit in terms of cost, quality, logistics and installation efficiency, in addition to enhancements in global customer support for Omicron customers, thanks to our existing worldwide service network.

"The new organisation has enabled Autronica to introduce an improved package for Omicron's traditional tanker market. This includes AutoPrime and AutoSafe fire detection, the FlexiFog low-pressure water mist system, AutoMaster fire presentation, also various gas and foam suppression systems.

"The package will also include the range of Omicron gas sampling systems," continues Mr Wilmann. "These include the OGS 2.1 fixed

detection system for pumphooms and OGS 3.11 for use in all spaces where gas detection is required.

In addition, it will include OGS 3.1 for especially demanding requirements such as within the offshore industry and onboard LNG carriers. In addition, there will be products such as independent high level and overflow alarm systems for cargo tanks and vapour alarms."

Kristin Øgaard, vice president of maritime sales, further said that, "We are delighted that the full integration of Omicron into the Autronica Fire & Security organisation is now complete. We are now in a unique position to supply newbuild and retrofit projects with proprietary fire and gas detection solutions, meaning that procurement, installation, commissioning and support can all be streamlined to a customer's financial and operational advantage."

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