

# समुद्रीय अभियांत्रिकी व ऑफशोर प्रौद्योगिकी

## MARINE ENGINEERING & OFFSHORE TECHNOLOGY

www.BRIC.com

WINTER 2010

### उत्सर्जनों की चुनौती तक पहुँचना **Rising to the emissions challenge**

साक्षात समय में संकटकालीन पुकार को किस तरह  
से नियंत्रित करें

**How to control heave in real time**

इंटरऑपरेबल जीएमडीएसएस को प्रयोग में लाना

**Switching to interoperable GMDSS**

ISSN 0013-0265



9 770013 026007







## Electric release valves boost response time

**Fast-acting safety systems, including remote controlled quick-closing valves and low noise level alarms, are improving safety in hazardous offshore environments**

**E**lectricity consumption has risen proportionately on all ships as they have developed more sophisticated equipment and machinery requiring power. Safety and control systems are a vital element of this power demand. Detecting problems early and containing hazardous environments is vital for the safety of crew and cargo onboard vessels.

### Quick-closing valves

According to SOLAS requirements set out by the International Maritime Organisation (IMO), ships must ensure that, in the case of an emergency, they are able to interrupt the fuel supply to a particular area rapidly and remotely.

Pneumatic and manually hydraulic valves have been commonly adopted for this purpose.

A new type of valve now offers an alternative to these conventional systems. Developed by Hamburg-based company, Armaturen Wolff, the quick-closing valve system with electrical release makes it possible to interrupt fuel supply remotely if, for example, there is a fire in the engine room. The valves are connected via a control cabinet, with uninterruptible power supply to ensure the system is operational, even if no auxiliary energy is available. This also means that uncontrolled closure of the valves during short, non-critical blackouts can be avoided.

In comparison with the new system,

conventional safety systems are much more costly to install, mainly because standard piping material is often made of stainless steel.

"For the installation of electric lines, the required labour comes down to a fraction of the work that would be required for the installation of conventional and stiff piping," says Hendrik Wolff, managing director, Armaturen Wolff. "This is indeed a matter of importance, since we easily have to consider 700 metres of control lines just for the quick-closing valves plant in an average container vessel."

The system works by converting the vessel power supply of 115 – 230 VAC into 24 VDC using a battery-buffered direct current supply module. 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 effectuates the release command at the valve actuators, thereby dropping the fixing device of the open valves; the valves close immediately.

Electric systems are easily integrated into existing control systems, allowing comprehensive supervision of all cables in the system from one control box. If a cable is defective, a fault alarm is triggered and can



be transferred to the engine control room or to the bridge as required. The precise location of the defective line is indicated on the display of the collective failure alarm module – allowing for immediate repair.

Using a number of different interfaces – including USB ports – the valve system can be integrated into the wider supervision system onboard.

This propriety technology has received type approval from the German classification society, Germanischer Lloyd, and is also backed by the German flag authority, the Seamen's Accident Prevention and Insurance Association (Seeberufsgenossenschaft). Acceptance by international classification societies is also expected shortly.

#### Alarm bells

Vital offshore safety equipment includes electrical acoustic alarm systems designed

for noisy engine room areas. Hamburg-based sm electrics specialises in such alarms for the marine and offshore markets, providing a Light Signal Alarm System (LSAS). This is a mini-PLC-based light signal and a stand-alone visual alarm system that provides visual and audible alarm signals for a variety of parameters, while being controlled by a control unit.

A recent innovation by the company is the development of a dynamic acoustics controller (DAC) that is equipped with eight different sounds levels and enables the user to adjust volume easily to a starting sound level, ending sound level and a 'rising speed'.

"The 'soft start' will help raise health and safety levels for personnel working in low noise level environments that do not require ear protection, and where standard alarm systems generating maximum sound levels could damage hearing," says Thomas Streit,

director, sm electrics.

In addition, selected light signal devices (LSDs) in 'harbour mode' can reduce operating sound levels to a comfortable but safe level, especially useful on passenger ferries or cruise ships where it is particularly helpful for operators to avoid unnecessary noise.

#### Monitoring tank levels

Monitoring tank levels to ensure they remain at the right level is another vital task for vessel alarm systems. The IMO-compliant Centurion system from Martek Marine uses electrically independent alarm systems, controlled from a control panel in the cargo room. Tank levels are detected by stainless steel float switches, which trigger visual and audio alarms when fuel exceeds a stated level.

The system can be remotely operated, allowing for quick response times to potentially dangerous situations. ■



Esvart  
Danish Dof  
Indian Navy  
Dubai Police  
Swedish Navy  
Mexican Navy  
Abu Dhabi Police  
Belgian Coastguard  
Australian Customs  
Norwegian Red Cross  
Norwegian Coastguard  
Icelandic Coastguard

## Military and Professional

Operations in hostile areas demand the utmost in ruggedness, reliability, high speed and invisible performance. Norsafe mission specific boats are based on Norsafe's unique deep-v hull platform for outstanding seaworthiness, but with increased customizations and strength for operations in the "no-failure-zone." The boats have hull and seating arrangements designed to mitigate shock and maximize seaworthiness. The hulls are vacuum infusion moulded of fire reinforced fiberglass with carbon fibre and kevlar reinforcements. Different bullet resistant materials are also available upon request. [www.norsafe.com](http://www.norsafe.com)