



阀门可经由一个控制柜来连接不间断电源
Valves can be connected via a control cabinet, with an uninterruptible power-supply

电动释放阀可大大加速 反应时间

Electric release valves boost response time

快动安全系统，如遥控速闭阀和低噪音警报系统，正在帮助改善海上危险环境的安全性

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

Electricity 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

随着人们研发出更为先进的耗电机器和设备，所有船只上的电力消耗也成比例地上升。安全控制系统是此类电力需求的一个重要构成部分。对船上的船员和货物的安全而言，及时发现问题并对危险环境实施有效控制至关重要。

速闭阀

根据国际海事组织（IMO）制定的《海上人命安全公约》（SOLAS），在遇到紧急情况时，船只必须确保能够通过远程方式迅速中断对某个区域的燃料供给。为了达到这个目的，通常采用气动及手动液压阀。

如今，一款新型的阀门为人们提供了不同于这些传统系统的新选择。这款速闭阀系统由总部位于德国汉堡的Armaturen Wolff公司设计，采用了电动释放装置，可以在诸如轮机舱发生火灾的情况下，能够远程切断燃料供给。这些阀门经由一个控制柜与不间断电力供给系统相连，确保即使在没有辅助能源的情况下也能正常运行。这同时意味着：在不严重的临时停电情况下，可以避免阀门不受控制地关闭。

与新系统相比，传统的安全系统安装成本较大，这主要是因为标准的管道敷设材料通常由不锈钢制成。

“安装输电线时，所需的工作实质上就是传统上所必需的昂贵

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

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The SKF logo is displayed in a bold, blue, sans-serif font. It is positioned in the bottom right corner of the advertisement, partially overlapping the image of the lighthouse and the sea. The background of the advertisement is a photograph of a white lighthouse with a black top, situated on a rocky island in the middle of a dark, choppy sea under a cloudy sky.



可以调节警报系统的噪音度，以保护船员的听觉系统
Noise levels on alarm systems can be adjusted to protect the hearing of crew members

管材的敷设那点活儿。”Armaturen Wolff执行总监亨德里克-沃尔夫说道。“这件事情非同小可，因为如果一艘普通的集装箱船装有这种速闭阀，我们只需考虑安装700米的控制线就行了。”

该系统利用一个缓冲电池组直流电源模块，把船只提供的115 - 230伏的交流电转换成24伏的直流电。电源供给几个装有释放指示灯的释放开关上，每个开关连接一组阀门。开关打开时，电压的变化形成释放指令给阀门驱动装置，打开状态的阀门紧固装置下压，阀门立即关闭。

电力系统能方便地整合到现有的控制系统中，通过一个控制箱，可以全面监测系统的所有电缆。如果某一电缆出问题，故障报警则被激活并传到轮机舱集控室，必要时传到驾驶室。综合故障报警模块的显示器上显示出问题电缆的准确位置，以便及时修复。

通过采用多种不同的接口——包括USB端口——该阀门系统可广泛应用于船上的监测系统。

这一专利技术已经获得德国船级社——德国劳氏船级社的型式认证，同时还获得了德国海事权威机构——德国海事事故预防及保险协会（Seeberufsgenossenschaft）的支持。该技术也将很快获得国际船级社的认证。

报警铃

海上安全的关键设备包括用于轮机舱室嘈杂环境的电动音响报警系统。总部位于德国汉堡的sm电器公司专门经营海洋和近海市场所需的这种报警系统，供应一种叫做灯光信号报警系统（LSAS）的产品。这是一种基于微型可编程逻辑控制器的灯光信号及独立视觉报警系统，能够提供多种参数的视觉及听觉报警信号，整个系统由

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.

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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

一个控制单元实现对该系统的控制。

该公司最近研发了一种动态声学控制器（DAC），这种控制器配有八种不同的声级，可让用户将音量轻松调节至初始噪音度、最高噪音度和“新增噪音度”。

“‘柔和的初始噪音度’有助于提升低噪音环境中工作的员工的健康和安全水平，这样便无需保护耳朵，而标准的报警系统则会产生最大的噪音度，可能会导致工作人员的听觉系统受到损伤”，sm电器公司总监托马斯-斯特赖特说道。

此外，处于“海港模式”的光信号精益求精装置（LSDs）能够将运行时的噪音降到舒适而安全的水平。由于可使操作员避免不必要的噪音，该装置尤其适用于客轮或游船。

油箱液位监测

船只报警系统的另一个重要用途是监测油箱液位以确保其保持在合适的水平。由马泰克海洋公司（Martek Marine）设计、符合国际海事组织要求的Centurion系统采用独立电源报警系统，该系统由位于货舱的一个控制面板控制。不锈钢浮控开关探测液位水平，当燃料超过指定的水平时，这些开关就会触发视觉及听觉警报。

这个系统可以通过远程操作，能够对潜在的危险状况做出及时反应。

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. ■



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在危险海区的操作要求尽可能可靠、高速并具有隐蔽性能。挪赛夫专业用艇是以挪赛夫特有的深-V型船壳为基础，不断改进设计和强度以达到杰出的适航性，以保证在“无故障区”的日常活动。船体和座位安排的设计可以最大限度的减少震动并提高了适航性。外壳采用先进复合材料真空成型。除防火玻璃纤维外，在特定项目的夹层结构中还使用了碳纤维和Kevlar®复合加固材料。也可按要求使用防弹材料。www.norsafe.com