

# Industrial Valves

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## Valves at high sea

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# Valves at high sea

*At high sea, the conventional methods of servicing are restricted to a minimum. This is why valves for marine technology have to be designed with the aim of utmost availability. And they have to cope with rough conditions like vibration, salt water and extreme temperatures.*

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Whenever a valve in an industrial plant does not operate properly, the malfunction may cause trouble and downtime, but it can be repaired in due time. If the valve is installed in a passenger ship, a freighter or a gas tanker, this is not the case: Here, the valves have to be engineered with the aim of 100 percent availability because the options of servicing during operation are very limited. And even in the harbour, regular service is restricted because the shore times in which such works could be done are continuously reduced.

## **THE MAIN GOAL: ABSOLUTE RELIABILITY UNDER ROUGH CONDITIONS**

In consequence, valves for marine technology have to be developed and manufactured with utmost care and to very high quality standards. This is even more important because the ambient conditions under which marine components operate are often quite adverse. They are exposed to constant corrosion, vibrations and extreme temperatures.

As a consequence, valves for marine technology are designed from scratch for this demanding application. GSR Ventiltechnik has gained comprehensive experience in this special branch of transportation and offers a wide range of special valves which are used in marine technology worldwide. This includes start-up valves for diesel engines, valves for bilge water de-oilers, valves for fire extinguishing systems and for the on-ship water treatment.



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## **STARTING THE ENGINE – WITH A SPECIAL SOLENOID VALVE**

Starting a large diesel engine requires an external impulse which is mostly generated by compressed air. A solenoid valve switches the starting air from compressed air bottles into the starting system of the motor, thus initiating the starting process.



**Fig. 1:** The piston solenoid valves of the 2/449 series are used to start the engine with a pneumatic starter

In this sensitive area of ship drives, piston solenoid valves of the type 2/449 (**Figure 1**) are often used. This 3/2 way pilot operated valve with customer-specific connections is designed for a pressure range of 7 to 40 bar. In order to fulfil all demands of this specific applications, the valve is equipped with additional options. This includes a red-anodized manual override for fast locating and switching off the valve. As a protection against foreign impact, the manual override is additionally equipped with a metal back-



**Fig. 2:** Designed for highest reliability under rough conditions: the direct acting valve types 2/420 to 2/425



**Fig. 3:** The force pilot operated 2/2-way piston solenoid valves of the type 24 are applied in the fire extinguishing systems of ships

et. Further options include a coupler socket with LED and a safety shutoff valve.

The 2/449 valve has been designed from scratch to prevent clogging of the pilot orifice even under most adverse conditions. The pilot orifice is very large, and a filter is also included in the housing. All these detail engineering functions have the aim of preventing contaminations from intruding the valve and clogging the orifice.

Apart from these functions and options, this special marine technology valve was certified according to the standards of RINA, ABS, Germanischer Lloyd, Det Norske Veritas, BV and Lloyds Register.

## DIRECT ACTING VALVES FOR BILGE WATER DE-OILERS

Valves that operate in bilge water de-oiling systems have to fulfil high standards of resistance to diverse media, from salt water to different oils. Under these severe conditions, the valve types 2/420 to 2/425 (**Figure 2**) offer high reliability. The direct acting pressure controlled 2/2-way diaphragm valve (which is also available as 3/2-way valve under the type numbers 2/431 to 2/438) is designed for a pressure range up to 16 bar. The sturdy diaphragm design guarantees for extreme immunity in the media range and a high stability even under the most severe operating conditions. The valve body is manufactured from cast iron, as an option GSR offers bodies in cast steel and stainless steel.

## FORCE PILOT SOLENOID VALVES FOR FIRE EXTINGUISHING SYSTEMS

In marine traffic, there is a tendency to transport in flammable goods like gaseous fuels. And as all ships operate with fuels, the risk of a fire cannot be excluded. For these reasons, fire extinguishing systems are an important part of the safety equipment – and they have to operate with the same reliability as the ships themselves. With the type 24 (**Figure 3**), GSR has designed a force pilot operated 2/2-way piston solenoid valve which is applied in these safety-related systems. It is suitable for a pressure range of 0-40 bar and offers a manual override. Optionally it can be equipped with two position indicators which create the pre-condition of integrating the valve into central surveying, control and safety systems.

## UTMOST RELIABILITY – NOT ONLY AT HIGH SEA

Not only the shipbuilding industry demands for precise, highly developed components that operate with absolute reliability. There are other branches of industry where valves are used under similar circumstances – from offshore technology and pipeline systems to different fields of plant engineering and civil engineering. So the competence and experience that GSR offers to shipyards proves that, in general, the valves are able to operate under severe conditions with utmost reliability and a minimum of servicing.

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## THE COMPANY

Since 1971 **GSR Ventiltechnik GmbH & Co. KG** has been developing, manufacturing and distributing valves and fittings for nearly all applications. The strength is the production of special valves according to customers request. Together with its customers the company develops system solutions and engineers them.

GSR's core competency is the fast development of special valve solutions meeting customers' requirements in all fields of valve technology. Over 35 years, the company's engineers have developed more than 3000 special valves which can reliably be fitted in nearly all technologies under different conditions.

Due to the fact that all the core components are produced on modern machines, it is possible to fabricate custom-made items. However GSR is also in a position to manufacture its regular series of valves to the highest quality, at short notice. All business is performed in accordance with DIN EN ISO 9001 which is continuously controlled and improved by the company's quality management.