

PRESS INFORMATION

Increased performance for two-stroke marine engines

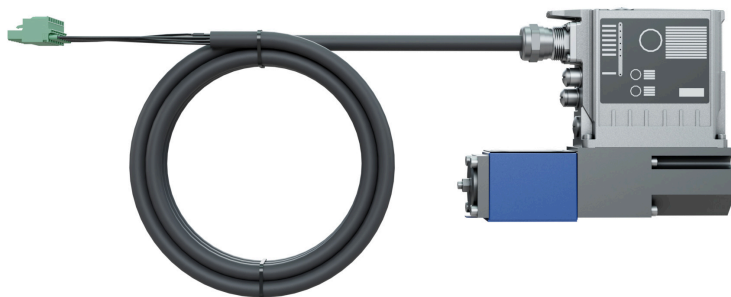
Manuela Kessler | 01.09.2026 | Lohr am Main / Germany | PI 030/26

New ELFI and ELVA pilot valves from Bosch Rexroth for two-stroke engines manufactured by Everllence optimize fuel consumption and availability

- High-performance continuous operation: quality, precision, and dynamics
- Optimized engine efficiency, even with alternative fuels
- Reliable spare parts supply within 24 hours



Designed for years of continuous operation with the highest precision and dynamics: The new pilot valves from Bosch Rexroth for the ELFI and ELVA functions of modern two-stroke marine engines from Everllence. (pictured: ELVA pilot valve, image source: Bosch Rexroth AG)



Designed for years of continuous operation with the highest precision and dynamics: The new pilot valves from Bosch Rexroth for the ELFI and ELVA functions of modern two-stroke marine engines from Everllence. (pictured: ELFI pilot valve, image source: Bosch Rexroth AG)

Modern two-stroke engines are designed to lower fuel consumption in the maritime industry and reduce emissions. Bosch Rexroth supports this development with two new pilot valves:

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ELFI and ELVA. They are designed for continuous operation and, thanks to their high precision and dynamics, enable optimized engine efficiency, even with future fuels such as methanol or ammonia. Bosch Rexroth's consistently fast and reliable supply of spare parts is essential for seamless maintenance.

In Everllence's two-stroke engines, ELFI (Electronic Fuel Injection) controls the injection timing and injection volume per cylinder, while ELVA (Electronic Valve Actuation) actuates the exhaust valve across the load range. The new pilot valves from Bosch Rexroth, with the type designations 4WRRFH (ELFI) and WRPFH (ELVA), control these two functions just as quickly and precisely as conventional valves, while consuming approximately 20 percent less energy.

The pilot valves, developed in close collaboration with Everllence, operate with high repeatability even under the most demanding conditions. Combined with a step response time of less than 5 ms and a frequency response of over 200 Hz, they can precisely reproduce the required injection profiles.

Application-specific test series by Everllence, as well as performance and endurance tests by Bosch Rexroth, demonstrate the capabilities of the new pilot valves. The service life of five to seven years, calculated on this basis, corresponds to more than 340 million switching cycles. Both valves also support operation with future fuels such as methanol or ammonia. In the long term, these fuels could be produced from green hydrogen and can replace heavy fuel oil, which is commonly used in shipping today and emits particularly high levels of pollutants. The combustion of these future fuels is CO₂-free.

The pilot valves will be available in the second half of 2027.

At the same time, customers benefit from Bosch Rexroth's global service network. Thanks to scalable manufacturing capacities and local inventory, manufacturers and operators of two-stroke engines can rely on the fastest possible delivery – within 24 hours – in the event of a service call. Bosch Rexroth ensures this through a global, round-the-clock network comprising over 200 service centers and strategically located repair centers, thereby creating ideal conditions for maximum availability.

Basic Information Bosch Rexroth

As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile and Industrial Applications as well as Factory Automation. With its intelligent components, customized system solutions, engineering and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries, around 31,900 associates generated sales revenue of 6.5 billion euros in 2025.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 413,000 associates worldwide (as of December 31, 2025). The company generated sales of 91 billion euros in 2025. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, digitalization, electrification, and artificial intelligence. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in hardware, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture intelligent, user-friendly, and sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 500 subsidiary and regional companies in over 60 countries. Including sales and service partners,

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Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. Bosch employs some 82,000 associates in research and development.

Press Contact

Please get in touch with our Press Contact



Manuela Kessler

Spokesperson
technology topics
+49 9352 184145

Manuela.Kessler@boschrexroth.de