

Media Release

Voith Turbo

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MRCU: The evolution of a legend

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- Compact, all-in-one solution with integrated ECU
- Continuous system monitoring and automatic fault elimination
- Meets the latest requirements for cyber-security in the automotive segment

HEIDENHEIM, GERMANY. For more than 50 years, the Voith retarder has been helping to make commercial vehicles safer, more efficient and more sustainable. Thanks to an ongoing development process, the hydrodynamic retarder system allows up to 90 percent of all braking operations to be wear-free. With the launch of its Mechatronic Retarder Control Unit (MRCU), Voith Turbo is now taking the technology to a new level. In future, the MRCU will be part of the retarder's standard equipment and will further improve its functionality.

One of the most striking benefits of the MRCU, which is designed as an all-in-one solution, is that the electronic control unit (ECU) responsible for the regulation, control and monitoring of the retarder is now integrated directly into the retarder. This saves space in the driver's cab and simplifies the layout of the entire vehicle system. Another new feature is that damping plate, pressure sensor and valve technology are housed in a single compact unit directly connected to the retarder.

The developers also attached particular importance to easier handling. The MRCU connection thus uses a single plug and the compressed air connection, allowing OEMs therefore to quickly integrate the module in just a few steps.

Moreover, the MRCU improves the safety of the retarder in operation, as the technology continually monitors the operation of the system. If it detects a fault, the unit immediately re-establishes a safe state. This also happens in the case of systemic errors. Voith Turbo's developers have also made provision for potential valve malfunctions – with a series

connection for the air intake and parallel circuit for the exhaust air. In addition, a pre-installed and maintenance-friendly filter screen in the air connection ensures the durability of the entire retarder system. Modern control valve technology also ensures that the system-related air consumption is reduced. “This results in lower air consumption with higher efficiency and also a longer service life. In any case, we have designed the entire unit so that environmental factors in the drivetrain will not impair the function of the MRCU,” explains Mirco Wassermann, Head of Engineering Retarder - Electronic Components at Voith Turbo.

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Naturally, the MRCU satisfies all the latest requirements for cyber security in the automotive segment. Voith Turbo is using the open AUTOSAR standard as the operating system for the MRCU. This standard provides a future-proof foundation for automotive control units and facilitates the implementation of updates and upgrades, for example. Optional support from CAN FD is also possible and allows faster communication between various control units within the vehicle. For diagnostic communication, Voith Turbo relies on the ISO-standardized UDS protocol. An improved error memory allows maintenance work to be performed in a more targeted and even more efficient way.



The Mechatronic Retarder Control Unit (MRCU) is integrated directly into the retarder.

About the Voith Group

The Voith Group is a global technology company. With its broad portfolio of systems, products, services and digital applications, Voith sets standards in the markets of energy, paper, raw materials and transport & automotive. Founded in 1867, Voith today has around 21,000 employees and earns 4.9 billion euros in sales. It has locations in more than 60 countries and is one of Europe's major family-owned companies.

Voith Turbo, a Group Division of Voith, is a specialist for intelligent drive technology, systems and customized services. Voith offers the highest level of efficiency and reliability with its innovative and smart products. Customers from highly diverse industries such as oil and gas, energy, mining and mechanical engineering, ship technology, rail and commercial vehicles rely on the advanced technologies and digital applications of Voith.

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