

Media Release

Voith Group

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Voith installs state-of-the-art test bench for drives and transmissions, ensuring reliable and low-noise operation in extreme conditions

- High-performance testing to meet increasing customer demands
- Test runs in extreme environmental conditions
- Measuring of sound power levels with unprecedented accuracy
- Ensuring test conditions for acoustic-optimized product designs

HEIDENHEIM, Germany. To maintain the highest quality throughout its expanding portfolio of rail solutions, Voith is putting a powerful, multi-functional test bench into operation. It helps to ensure the reliable performance of transmissions and gear units in even the most adverse conditions – from extreme cold to severe heat. Resistance to mechanical factors, strong headwind and ice buildup can be tested as well. In addition, the test bench enables testing of sound power levels with unrivalled accuracy in compliance with DIN ISO 3744.

Voith is continually extending its portfolio to meet the growing demands of rail manufacturers around the world. As product development advances, so does the need for additional testing quality. Installed at the company's headquarters in Heidenheim, Germany, Voith's new test bench is designed for four-quadrant operation and ensures traction and braking testing of hydrodynamic and hydromechanical transmissions as well as gear units for electric multiple unit (EMU) applications. Type testing in accordance with individual customer requirements is possible as well.

Simulating harsh environmental conditions

To ensure a drive's reliable performance, even in the harshest conditions such as the icy terrains of Siberia or when exposed to severe heat, the test bench allows for testing in an extreme temperature range from -50°C to +85°C. Resistance to mechanical stress or ice buildup can be put to the test as well. Testing can be performed with wind flow velocities of up to 50

m/s (180 km/h) that relate to driving speeds of 360 km/h. In addition, the test bench is ideally suited for load testing and endurance runs with continuous operation of up to 24 hours, seven days per week. Further, a high grade of automation allows the simulation of real driving cycles.

Grade 2 accuracy measurement of sound power levels

Train manufacturers and operators are required to adhere to increasingly stricter standards in terms of noise emission. Due to its well-thought-out acoustic design, Voith's new test bench provides grade 2 accuracy measurements of sound power levels in accordance with DIN ISO 3744. This degree of precision is unprecedented in the rail industry. Hereby, drives made by Voith or third parties can be optimized regarding their acoustic behaviors.

Powerful components demand powerful testing equipment

In order to assess the limits of high-performance rail components, the testing equipment needs to be equally powerful. Voith's test bench achieves a nominal capacity of 1.9 MW with an input torque of 15 kNm at 8,000 rpm and an output torque of 60 kNm at 4,000 rpm. In addition, the CE-certified test bench has an overload capacity of 3,400 kW, enabling demanding testing procedures and a great range for highly dynamic simulations. The drive is height adjustable and can be positioned at a 90-degree angle to accommodate bevel gears. This is the basis to execute testing over the complete rail drive product range.

Maximum testing efficiency with minimized energy costs

Due to its flexible design, set-up times are kept brief, thus causing minimal downtime in between runs. In this way, testing efficiency is maximized significantly. The test bench's four-quadrant operation helps to effectively minimize energy costs. Energy efficiency is further improved by its cooling unit, which actively recovers heat for reuse.

Stadler Rail is one of Voith's first customers to test a gear unit on the new test bench. The test run served in particular for detailed noise measurements and functional tests under cold ambient conditions.

"Thanks to the diverse test and measurement scenarios that our gear unit underwent on Voith's state-of-the-art test stand, we can be sure that our customers will receive a product that meets the highest quality standards," says Bernhard Höger, Head of Transmission Engineering at Stadler Rail.

"Our unique test bench provides the best conditions for the optimum further development of our gear units and turbo transmissions. Function tests, driving simulations and endurance runs can be carried out for all dimensions, from Siberian cold to desert-like heat. In addition, the acoustic

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design of the test bench enables precise measurement of noise emissions independent of the power range,” states Stefan Hülsmann, Research Engineer at Voith.

In addition to the rail components, Voith will also use the new test bench to continuously guarantee the high quality standard of its DIWA automatic transmissions for buses and other commercial vehicle components.

For more information, visit the Voith website: www.voith.com/gearunits

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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, oil & gas, paper, raw materials and transport & automotive. Founded in 1867, the company today has more than 19,000 employees, sales of € 4.2 billion and locations in over 60 countries worldwide and is thus one of the large family-owned companies in Europe.

The Group Division Voith Turbo is part of the Voith Group and a specialist for intelligent drive technology, systems as well as tailor-made services. With its innovative and smart products, Voith offers highest efficiency and reliability. 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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