

Media Release

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Innovative drive system for efficient and eco-friendly bus operation

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- **Low-weight, low-noise, low energy consumption thanks to recuperation, plus long-range**
- **Self-learning energy management and maximized efficiency**
- **Suitable for vehicles from all manufacturers**

Heidenheim, Germany. With its new electric drive system for buses, Voith delivers a well-balanced complete system and enters the growing market for e-mobility. The innovative as well as reliable drive impresses with low weight and maximized efficiency, rounded off with an intelligent energy management system.

The drive system was originally conceptualized as a prototype for a Solaris Urbino Bus, but it can be integrated into vehicles from other manufacturers without restrictions. "The achievable range primarily depends on the battery, which we acquire from an internationally renowned supplier," explains Jürgen Berger, project manager at Voith Turbo GmbH & Co. KG. "We are currently using a lithium-iron-phosphate battery. This battery offers the highest level of reliability, but the electric drive system is designed in such a way that it can work together with any battery technology," says Berger.

With a torque of 2,250 Newton meters and an output of 260 kilowatts, the liquid-cooled permanent magnet motor with high-efficiency inverter and smart energy management system provides outstanding driving performance and does not require a separate transmission. The system can even efficiently operate heavy articulated buses. The compact design of the drive means that it is not only low in weight but also low in noise emissions and maintenance. The consistently employed lightweight design approach makes it possible to minimize any surplus weight, which in turn has a positive effect on energy consumption and consequently the

achievable range. What's more, the targeted brake force recuperation of the drive positively affects mileage. The fact that all components are cooled with water increases reliability and performance and makes it possible to reduce noise emissions during operation.

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The range of the demonstrator bus currently exceeds 200 km. This corresponds to the total daily operation of a conventional city bus line. In the coming years, this range is expected to increase thanks to further developments in battery technology.

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Electro mobility on the rise

Studies have shown that inner-city traffic is subject to increasing changes, brought on by developments in terms of growing population, air pollution as well as climate change. The demand for environmentally friendly, low-noise drives in public transport is rapidly growing. Added to this is the political pressure, as for example restrictions imposed on nitrogen oxide and noise emissions, meaning that the number of electric drive vehicles will continue to grow in the coming years.

The concept of mobility must adapt to these circumstances if individual traffic is still to be allowed inside cities in the future. "Especially for the bus fleets of municipal transport services, the time for electro mobility has definitely arrived," says Cornelius Weitzmann, Executive Vice President & CEO Mobility of Voith Turbo GmbH & Co. KG. "As an established and experienced partner of the bus industry, we have acquired an extensive amount of experience in regard to the various drive systems used for buses. With the new electric drive system, we are putting this experience to good use and add yet another milestone in our company history to our portfolio."

Voith is expecting that by 2030, electric drives will have taken up a superior position in the bus fleets of transport operators compared to other drive solutions. Significant growth of the electro mobility market for buses is expected for all regions of the world. In the course of this, the city bus segment is only the first step toward an emission-free city, which will soon enough be followed by other segments of the transport sector.

Scoring top marks with technical expertise and experience

Voith also scores top marks when it comes to data capture and analysis, offering an integrated approach and extensive know how from Voith Digital Solutions. "We bring together our innovative technical system approach

with our experience in public transport," says Dr. Robert Müller, manager of Strategic Design Market Development at Voith Digital Solutions. "Thanks to our systems, we have obtained two decades worth of elementary data and knowledge regarding driving profiles and cycles within large inner city bus fleets. This is the crucial benefit for operators in the age of intelligent data networking. You want to operate your vehicle fleets efficiently and cost-effectively." This is precisely what the integrated system approach of the electric drive system ensures.

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In September, Voith will introduce the demonstrator bus to the general public at the IAA Commercial Vehicles 2018 trade fair in Hanover, under the motto "Drive New Ways."

About the company

Voith Turbo, a Group Division of Voith, is a specialist for intelligent drive solutions, systems and comprehensive services. Customers from highly diverse industries such as oil and gas, energy, rail and commercial vehicles, ship technology, mining and mechanical engineering rely on the advanced technologies and solutions-driven expertise of Voith Turbo.

Voith Digital Solutions bundles Voith's long-standing automation and IT expertise with its know-how in the fields of water power, paper machines and drive engineering. This new Group Division works with new and existing customers to develop innovative products and services by driving IIoT innovations and decisively shaping the digitalization process in the field of machine and plant engineering.

Voith is a global technology group. 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, Voith 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 largest family-owned companies in Europe.



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The electric drive system from Voith can be integrated into the vehicles of any bus manufacturer without restrictions.



With a peak torque of 2,250 Nm and an output of 260 kW, the liquid-cooled permanent magnet motor with high-efficiency inverter delivers outstanding driving performance.

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