

Eurobike 2021

**Schaeffler presents chainless electric drive system  
“Free Drive” for bicycles**

- “Bike-by-wire” technology offers potential for new business areas in the field of micromobility
- Free Drive further demonstrates the company's status as preferred mobility partner in the field of electrified drives
- Robust system provides maximum flexibility in the vehicle architecture with even less wear

Herzogenaurach/Friedrichshafen, Germany | August 30, 2021 | Networked, flexible, sustainable, and environmentally friendly: New mobility trends are placing high demands on products and technology. Schaeffler adopts an holistic approach to movement and offers solutions to meet all customer requirements, including those in the field of micromobility. At Eurobike 2021 in Friedrichshafen, the automotive and industrial supplier will be presenting the new “bike-by-wire” system, Free Drive, as an innovative solution for bicycles. The chainless drive system is a joint development with two-wheel electric drive specialist Heinzmann GmbH & Co. KG, which dispenses with the mechanical connection between the generator and motor, thus enabling completely new bicycle architectures and pedal configurations combined with an even lower requirement for wear parts. “Schaeffler is the preferred partner for mobility solutions of the future and is demonstrating this status once again with the innovative Free Drive for e-bikes,” says Matthias Zink, CEO Automotive Technologies, Schaeffler AG. “The development is proof of our transformation into a leading supplier of electrified drives. Our decades of expertise in the field of vehicle mechatronics, which we are now also transferring to the two-wheel segment, have assisted us in this development. The e-bike market is growing steadily and offers Schaeffler, as e-mobility partner, further business potential.” Schaeffler already has many years of experience in the e-bike segment and most recently presented the mechatronic automatic gearshift system VELOMATIC in 2016.

**One system for all applications**

The central component of the Free Drive system is the Schaeffler generator, which sets the constant resistance on the pedal while simultaneously absorbing the rider's pedaling power. The regenerative solution is a serial hybrid drive that converts the mechanical energy generated during pedaling into electric energy,

which in turn is converted back into mechanical energy in the wheel hub motor. Excess energy is stored in the battery. As with cars, all system components communicate with each other via a CAN connection. The complete, optimally matched system sold by Heinzmann GmbH & Co. KG, which generates a continuous output of 250 watts, consists of a pedal generator, drive motor, battery powerpack, and human-machine interface (HMI). “The Free Drive system combines Heinzmann’s long-standing drive and industry expertise with Schaeffler’s system and mechatronics expertise,” says Peter Mérimèche, Managing Director Electric Drives at Heinzmann GmbH & Co. KG.

“Regardless of whether the system is used in 2-, 3-, or 4-wheel applications, the absence of a mechanical connection between the generator and motor means that Free Drive can provide maximum flexibility in the bicycle architecture and a freely configurable pedaling sensation, which is tailored to the requirements of the bicycle and the needs of the rider, while ensuring minimal wear,” says Dr. Jochen Schröder, President of the E-Mobility Division. The compact dimensions of the Free Drive system permit a standard distance of 138 millimeters between the two pedals. The Free Drive system can be specified for various applications, irrespective of the manufacturer. For fleet operators, Free Drive offers an ergonomic, low-maintenance, and robust system with low operating and maintenance costs, as wear parts and peripheral chain equipment are not required. Dr. Jochen Schröder: “With the expansion of the portfolio in the bicycle segment, Schaeffler is not only stepping up its commitment to the fast-growing e-bike market but is also substantiating its own claim to help shape future movement with a pioneering spirit.”

Visit Schaeffler at the Eurobike from September 1 - 4, 2021, at the booth of cooperation partner Heinzmann GmbH & Co. KG in Hall A6-208.



Configurable pedaling sensation: The new Free Drive from Schaeffler operates using bike-by-wire technology.



The pedal generator from Schaeffler can be individually configured and used on a modular basis for various systems and applications.



For fleet operators, Free Drive offers an ergonomic, low-maintenance, and robust system with low operating and maintenance costs.

Images: Schaeffler

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## Schaeffler Group – We pioneer motion

As a leading global automotive and industrial supplier, the Schaeffler Group has been driving groundbreaking inventions and developments in the fields of motion and mobility for over 70 years. With innovative technologies, products, and services in the fields of CO<sub>2</sub>-efficient drives, electric mobility, Industry 4.0, digitalization, and renewable energies, the company is a reliability partner for making motion and mobility more efficient, intelligent, and sustainable. The technology company produces precision components and systems for drive train and chassis applications as well as rolling and plain bearing solutions for a multitude of industrial applications. The Schaeffler Group generated sales of approximately EUR 12.6 billion in 2020. With approximately 83,900 employees, the Schaeffler Group is one of the world's largest family-owned companies. According to the German Patent and Trademark Office (DPMA), Schaeffler was ranked as the second most innovative company in Germany in 2020, submitting more than 1,900 patent applications.

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