Schaeffler steps up its involvement in Rear Wheel Steering

- New development partnership with Bosch Automotive Steering
- Intelligent mechatronic Rear Wheel Steering system delivers improved ride comfort and safety as well as superior energy efficiency
- Matthias Zink: “A key milestone in our journey to becoming the technology partner of choice for chassis systems”

Global automotive and industrial supplier Schaeffler is embarking on a development partnership with Robert Bosch Automotive Steering GmbH to expand its intelligent Rear Wheel Steering (iRWS) portfolio. The aim of the partnership is to grow the market by offering integrated solutions for Rear Wheel Steering systems. Under the partnership, Schaeffler is providing mechatronic iRWS systems, and Bosch Automotive Steering is contributing software and electronics in the form of steering control units. “Combining the strengths of both companies enables us to create integrated systems that deliver superior added value to our customers,” commented Matthias Zink, CEO Automotive OEM at Schaeffler. “Intelligent Rear Wheel Steering technology is a key milestone in Schaeffler’s journey to becoming the technology partner of choice for chassis systems.”

Rear-wheel steering technology: a mechatronic evolution

Schaeffler successfully launched its mechatronic intelligent Active Roll Control system (iARC) back in 2015. “The lessons we learned from that process flowed directly into the development of mechatronic Rear Wheel Steering”, said Dr. Keiwan Kashi, President Business Unit Mechatronic Systems at Schaeffler. “By combining our expertise in mechatronics with our core competencies in the industrialization of mechanical and mechatronic components, we created a highly efficient product that can be tailored to customer requirements.” The mechatronic iRWS unit improves ride comfort and safety which offers several key benefits in today’s rapidly urbanizing world. By turning the rear wheels in the opposite direction to the front wheels, it reduces the turning radius, significantly increasing maneuverability in tight spaces, such as when parking in busy urban settings. Moreover, the rear axle’s assistive steering action enhances handling, stability and ride comfort and improves vehicle safety. Schaeffler’s Rear-Wheel Steering system uses lightweight technologies and features a maximum overall weight of just eight kilograms. At the heart of the system is a planetary roller gear that performs a self-locking function, ensuring that the rear wheels do not change direction without steering input from the driver. The planetary screw drive also delivers superior efficiency. Moreover, the system’s design is acoustically optimized, making it particularly well suited for use in low-noise electric vehicles.
Bosch steering control unit supports safer driving

Bosch’s contribution to the partnership is the steering control unit, an integrated module comprising control electronics, an electric motor and software. Scalable and modular in design, this unit is fundamental to many of the driver-assistance functions in Schaeffler’s new rear-axle steering system. Already a proven performer, the steering control unit has been successfully implemented in millions of front-axle steered vehicles. It features Bosch security for robust protection against cyber attacks. Functions and updates are supported by over-the-air (OTA) technology. “Our third-generation steering control unit was launched just last year and is already doing very well in the market for front-axle steering control systems,” said Dr. Stefan Waschul, head of passenger car steering systems at Robert Bosch Automotive Steering. “Under this partnership, we will apply our expertise in this area to rear-axle steering systems and contribute the wealth of experience and technical know-how in software and E/E architecture that has made us the market leader in steering control systems.”

With decades of experience in software development and steering control, Bosch has already successfully partnered this technology in numerous customer applications. Based on signals from the steering wheel torque sensor, the steering control unit’s integrated electronic controller calculates the optimal steering assist, which is then delivered by the integrated electric motor. In addition to the torque applied to the steering wheel by the driver, the calculation takes into account numerous other vehicle parameters.

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The Schaeffler Group is a leading global supplier to the automotive and industrial sectors. The portfolio includes high-precision components and systems for engine, transmission, and chassis applications as well as rolling and plain bearing solutions for a large number of industrial applications. The Schaeffler Group is already shaping “Mobility for tomorrow” to a significant degree with innovative and sustainable technologies for electric mobility, digitalization, and Industry 4.0. The technology company generated sales of approximately 14.4 billion euros in 2019. With around 84,200 employees, Schaeffler is one of the world’s largest family companies and, with approximately 170 locations in over 50 countries, has a global network of manufacturing locations, research and development facilities, and sales companies. With almost 2,400 patent applications in 2019, Schaeffler is Germany’s second most innovative company according to the DPMA (German Patent and Trademark Office).

Press picture
Development partnership to expand the intelligent Rear Wheel Steering (iRWS) portfolio: Dr. Keiwan Kashi, President Business Unit Mechatronic Systems at Schaeffler and Dr. Stefan Waschul, Head of passenger car steering systems at Robert Bosch Automotive Steering while signing the contract.

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Press picture
Schaeffler’s rear wheel steering unit boasts high efficiency and low weight.

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CONTACT:
Bettina Lichtenberg
Vice President Corporate Communications
Communications & Public Affairs Schaeffler Group
Schaeffler AG
Herzogenaurach
Tel. +49 9132 82-5000
E-Mail: presse@schaeffler.com

Daniel Pokorny
Head of Corporate Communications Future Trends
Communications & Public Affairs Schaeffler Group
Schaeffler Technologies AG & Co. KG, Herzogenaurach
Tel. +49 9132 88708
E-Mail: daniel.pokorny@schaeffler.com