

Press release

Knorr-Bremse at IAA TRANSPORTATION 2022: Leading systems developer and strong OE partner engaged in transformation of CV industry

- **At IAA TRANSPORTATION, Knorr-Bremse will showcase pioneering automated driving, e-mobility and road safety solutions for the commercial vehicle industry**
- **The company will focus on sustainable, efficient solutions and strategies that make a significant contribution to climate protection and the ongoing decarbonization of commercial vehicle traffic**
- **Knorr-Bremse will present driver assistance systems and automated driving solutions, as well as modular, turnkey systems for the transition to e-mobility**

Munich, August 30, 2022 – Sustainable product innovations and reliable system solutions that clearly focus on commercial vehicle automation and electrification: These are what Knorr-Bremse, the global market leader for braking systems and other rail and commercial vehicle systems, is promising to show trade visitors to IAA TRANSPORTATION. In line with the slogan “driven to create the best solutions”, Knorr-Bremse’s trade fair agenda includes intensive technical coverage and multimedia demonstrations of advanced technologies for assisted and automated driving, e-mobility, sustainability, traffic and road safety, and connectivity. The IAA TRANSPORTATION trade fair will be held in Hanover, Germany on September 20–25, 2022. Knorr-Bremse’s booth is located in Hall 12 (Booth C21).

For Bernd Spies, Member of the Executive Board of Knorr-Bremse AG and responsible for the Commercial Vehicle Systems division, the international trade fair represents an important discussion forum: “The transportation industry as a whole is undergoing a remarkable transformation, which is rapidly accelerating. As we see it, traffic safety, automated driving, e-mobility and connectivity are the most significant trends in the commercial vehicle sector. This transformation poses major challenges to commercial vehicle manufacturers and fleet operators alike – and as a leading systems partner, we aim to tackle these challenges in close collaboration with OEMs. In the case of safety-critical products, our expertise lies in the development of system solutions that stand out by virtue of their superior functionality, efficiency, reliability and sustainability, adding significant value for our customers. This also applies to automated driving and e-mobility, because we want to help our customers create future-proof commercial vehicles and business models. We look forward to being able to present our solutions to our customers at IAA TRANSPORTATION in person once again.”

Continuously improving traffic safety has always been one of Knorr-Bremse’s main priorities. This core competency is also indispensable for mastering automated driving and e-mobility. Thanks not least to decades of experience of and expertise in safety-critical systems, Knorr-Bremse is in an outstanding position to engage with these industry trends and rapidly build market share in both. These key technologies will, of course, be on show at Knorr-Bremse’s booth at the trade fair.

Advanced Driver Assistance Systems (ADAS) and highly automated driving

Decades of continuous and ongoing development of brake control and driver assistance systems have turned Knorr-Bremse into the leading supplier of systems for enhancing commercial vehicle dynamics – as reflected by the millions of systems currently in operation and the millions of satisfied drivers who use them on the road every day. Knorr-Bremse already offers trailblazing, dependable solutions capable of, for example, precisely identifying

and classifying vulnerable road users. Knorr-Bremse's driver assistance systems reliably alert commercial vehicle drivers to potential risks in good time. They include, for example, the Blind Spot Assistant (for detecting cyclists when vehicles are turning), the Moving Off Information System (MOIS: a warning system for avoiding collisions when moving off), and traffic sign recognition.

By applying this longstanding expertise in safety-critical systems, Knorr-Bremse is also steadily driving forward the development of automated driving systems – right through to Highly Automated Driving (HAD). The ultimate goal is fully autonomous, driverless vehicles. At IAA TRANSPORTATION, Knorr-Bremse will present a broad, modular approach to fail-operational and safety-critical systems based on in-depth, systemic mastery of the relevant hardware and software solutions. The portfolio extends from Minimal Risk Maneuver solutions (bringing the vehicle to a safe standstill if the primary braking system fails) through to Mission Complete solutions (enabling the vehicle to continue driving safely despite multiple failures in a safety-relevant system) for HAD levels equal to or higher than Level 4 – including braking, steering and power supply systems. In these solutions, pioneering smart redundancy designs ensure the fail-safe operation of key subsystems. The evolution of Knorr-Bremse's new Global Scalable Brake Control (GSBC) system into a fail-safe, highly available braking system (rGSBC) also plays a leading role.

Development partner for the transition to electric commercial vehicles, offering a broad range of efficient and scalable technologies

Electromobility will fundamentally change the architecture of commercial vehicles and the systems required to operate them. This is already providing numerous opportunities to create efficient, scalable technologies that also comply with increasingly stringent product safety standards. Knorr-Bremse will work with customers to explore joint R&D concepts while thinking ahead to devise suitable technical solutions and business models for an electrified future. Knorr-Bremse's Commercial Vehicle Systems division is already developing many new products that meet the requirements of electric commercial vehicles while contributing to the "Zero Emission" mission of both vehicle manufacturers and Knorr-Bremse. To proactively influence this transformation, Knorr-Bremse has set up eCUBATOR®, the company's e-mobility innovation unit. Since February 2020, the unit's experts have been working on innovative, intelligent solutions for electrically powered commercial vehicles. As part of this paradigm shift, Knorr-Bremse is seeking to adapt its existing product portfolio and define new product areas. At IAA TRANSPORTATION, Knorr-Bremse will showcase market-ready products from the Group's e-mobility roadmap, such as the Electric Power Steering system (EPS), the Rotary Vane and screw electric compressors, the SYNACT® Radial disc brake, and the eGSU electromechanical gearshift unit. Other energy-efficient, safe innovations from the new product range include the electric Vehicle Motion Control (eVMC) system and the redundant Power Management System (rPMS).

Sustainability: Knorr-Bremse's ongoing contributions to environmental protection and decarbonization

At IAA TRANSPORTATION, Knorr-Bremse will offer stakeholders a comprehensive overview of its corporate and product-related activities in support of sustainability. Climate protection in particular is a core strategic priority. In 2021, in line with the Group's Climate Strategy 2030, Knorr-Bremse achieved carbon neutrality across all Group sites. Knorr-Bremse is also well on the way to achieving its second key climate target: to halve carbon emissions by 2030. Knorr-Bremse's ambitious climate protection initiatives also include, of course, the systematic enhancement of product sustainability. Developed in accordance with EcoDesign principles, Knorr-Bremse's technologies and solutions are all helping to decarbonize the commercial vehicle industry. At IAA TRANSPORTATION, these issues will also be covered by product presentations at multiple interactive touchpoints. Typical examples include Knorr-Bremse's e-compressors, Active Caliper Release (ACR) system – a concept that makes a

major contribution to reducing fuel consumption – as well as Knorr-Bremse’s remanufacturing portfolio under the EconX® brand.

Future-proof technologies for improving road safety: new disc brake models and brake control systems for trucks, buses and trailers

Being able to rely on safe operation is one of the key principles underlying efficient transportation and modern logistics. For more than 115 years, Knorr-Bremse has been a major driving force behind road and traffic safety. Now Knorr-Bremse is taking the next steps toward fulfilling the “Zero Accidents” vision by going on a broad-based product offensive. Key products in this campaign include the modular SYNACT® disc brake family, of which the SYNACT® Radial and axial SYNACT® Compact solutions will be on show, as well as the Global Scalable Brake Control (GSBC) system. The latter will play a leading role as a building block in automated driving functions for future generations of commercial vehicles. As well as EPS, Knorr-Bremse will also be presenting the Advanced Hybrid Power Steering (AHPS) torque overlay steering system at IAA TRANSPORTATION. This was developed to fulfill ADAS/HAD requirements up to and including fail-operational applications. Also on display will be the latest trailer technology, aiming to demonstrate what is now possible in terms of brake and chassis control (in the form of, for example, reduced-weight NexTT disc brakes and the iTEBS X trailer EBS), as well as in the field of driver assistance for trailers.

Where to find Knorr-Bremse: Hall 12, Booth C21

In Hanover, Knorr-Bremse is looking forward to sharing ideas with international industry experts, and discussing the demands of and plans for tomorrow’s mobility with customers. Come and meet Knorr-Bremse at the IAA TRANSPORTATION exhibition in Hanover on September 20–25, 2022: You will find us at Booth C21 in Hall 12.

Caption: IAA TRANSPORTATION in Hanover: Knorr-Bremse’s strength as an innovator is a solid basis for the current and future development of automated, electrified, connected solutions. | © Knorr-Bremse

Knorr-Bremse (ISIN: DE000KBX1006, ticker symbol: KBX) is the global market leader for braking systems and other systems for rail and commercial vehicles. Knorr-Bremse’s products make a decisive contribution to greater safety and energy efficiency on rail tracks and roads around the world. About 30,500 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services. In 2021, Knorr-Bremse’s two divisions together generated revenues of EUR 6.7 billion. For more than 115 years, the company has been the industry innovator, driving developments in mobility and transportation technologies with an edge in connected system solutions. Knorr-Bremse is one of Germany’s most successful industrial companies and profits from the key global megatrends: Urbanization, Sustainability, Digitalization and Mobility.

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