

Press release

## **Driver assistance systems and Highly Automated Driving for commercial vehicles: Knorr-Bremse emerges as leading solutions provider at IAA TRANSPORTATION 2022**

- **Knorr-Bremse will focus on safety-related assistance systems and highly available vehicle dynamics systems (braking and steering systems)**
- **Automated Driving is a growing trend, driven by cost reduction targets, driver shortages, and rising demand for transportation services**
- **Knorr-Bremse's modular Highly Automated Driving (HAD) portfolio ranges from Minimal Risk Maneuver through to Mission Complete products**
- **Knorr-Bremse is the ideal HAD development partner**

**Munich, September 08, 2022** – How systematically is Knorr-Bremse, the global market leader for braking systems and other rail and commercial vehicle systems, pursuing the development of Highly Automated Driving (HAD) systems? The answer is: very. By preference, HAD development projects take the form of partnerships with specialists. Tried and tested expertise in vehicle dynamics (including driver assistance and high-availability braking and steering systems) puts Knorr-Bremse in an ideal position to support such projects. To demonstrate these strategies and technologies, accompanied by virtual presentations, Knorr-Bremse is inviting visitors to the company's exhibition booth at IAA TRANSPORTATION on September 20-25, 2022, in Hanover, Germany (Hall 12, Booth C21).

Bernd Spies, Member of the Executive Board of Knorr-Bremse AG and responsible for the Commercial Vehicle Systems division, regards the Automated Driving industry trend as one of the top development priorities for OEMs. He is very familiar with Knorr-Bremse's turnkey systems solutions: "As a technology leader in driver assistance systems, including brake control and many others, Knorr-Bremse has an absolute understanding of the specific vehicle dynamics of commercial vehicles. This has resulted in a broad range of driver assistance solutions, right through to the systems that make Highly Automated Driving possible. This focus on innovation is firmly embedded in our R&D roadmap, making us the ideal systems partner for Highly Automated Driving development programs."

### **Reliable Advanced Driver Assistance Systems (ADAS) for immediate deployment**

What makes Knorr-Bremse stand out is the company's deep-rooted systems expertise in hardware and software solutions for safety-critical systems. As a result, Knorr-Bremse is now the perfect partner for developing reliable ADAS that can consistently and accurately detect and analyze real-time traffic conditions. These assistance systems are specifically intended for use in commercial vehicles. With this portfolio of driver assistance solutions, Knorr-Bremse is the preferred partner of firms seeking to comply with the EU General Safety Regulation (GSR) and other industry standards. Typical ADAS include:

- **BSIS (Blind Spot Information System):** This blind spot assist system warns drivers of possible lateral collisions with pedestrians or cyclists, for example when turning.
- **MOIS (Moving Off Information System):** Warns drivers of possible collisions with pedestrians or cyclists as the vehicle is moving off from standstill.
- **Adaptive cruise control and proximity control** with stop-and-go function.

- **Lane Keep Assist (LKA):** Predictive warning of unintentional departures from the vehicle's current lane, accompanied by corrective steering (AHPS).
- **Traffic sign recognition:** Traffic signs identified by cameras are immediately displayed on the driver's dashboard screen.

### **Modular product approach, from Minimal Risk Maneuver through to Mission Complete**

By reducing the total cost of ownership (TCO), Highly Automated Driving represents a genuine business case for fleet operators. As a leading supplier of vehicle dynamics systems, Knorr-Bremse is the ideal partner for commercial vehicle manufacturers and AI firms seeking to further develop Highly Automated Driving (HAD, SAE Level 4 and up) and equip truck-trailer combinations with the necessary systems. As part of this gradual shift of responsibility from human drivers to machines, Knorr-Bremse offers customers a broad-based, modular pathway to fail-safe braking, steering and power supply systems. The range extends from solutions for Minimal Risk Maneuvers that ensure the vehicle can safely stop and park at any time, right through to Mission Complete solutions that enable vehicles to continue driving reliably even if a fault occurs in a safety-related system. To achieve this, Knorr-Bremse relies on intelligent, highly available system architectures. The company has in-depth experience of implementing such systems, and is already developing the first series products for customers. It goes without saying that all Knorr-Bremse systems are developed using state-of-the-art methods (that comply, for example, with functional safety standards such as ISO 26262, ASPICE, etc.)

- **Braking system:** Knorr-Bremse's new **Global Scalable Brake Control (GSBC)** is being transformed into a modular, redundant braking system (**rGSBC**). The associated fail-safe reliability and availability are basic prerequisites for automated driving.
- **Steering system:** Alongside the braking system, a steering system based on a highly redundant architecture is the other primary actuator that controls vehicle dynamics. Knorr-Bremse supplies two fail-safe steering systems, including the all-electric **Electric Power Steering (EPS)** system and the electrohydraulic **Redundant Advanced Hybrid Power Steering (rAHPS)** system – yet another key technology for the Highly Automated Driving of both electric and conventional vehicles.
- **Truck Motion Controller (TMC):** The TMC connects and coordinates all the actuators actively involved in vehicle dynamics (including braking, steering and drive units), representing an interface between the actuation level and the virtual driver. By bringing together and managing all the main actuators at the same execution level, the TMC can reliably control the vehicle on a given trajectory and compensate for potential actuator failures by intelligently combining other actuators.
- **Redundant Power Management System (rPMS):** The rPMS guarantees a highly available electrical power supply for safety-related functions such as brakes and steering, but also the HAD electronic control unit (ECU; control unit with virtual driver).

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

Product innovations, efficient systems solutions, and sustainable business models for helping commercial vehicle manufacturers to effectively manage their transformation within the transportation sector – these are the solutions Knorr-Bremse is promising to show visitors to IAA TRANSPORTATION 2022. In Hanover, Knorr-Bremse will provide transparent, clearly explained demonstrations of technologies for driving automation, e-mobility, sustainability and connectivity. Come and meet Knorr-Bremse at IAA TRANSPORTATION on September 20-25, 2022, in Hanover, Germany (Hall 12, Booth C21).



**Caption:** Customized driver assistance systems and smart innovation are the basis for the current and future SAE Level 4 solutions which Knorr-Bremse will showcase at IAA TRANSPORTATION. | © 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.

**Media contact:**

Simon Basler  
Press Office Commercial Vehicle Systems  
T +49 (0)89 3547 1498  
E [simon.basler@knorr-bremse.com](mailto:simon.basler@knorr-bremse.com)

Knorr-Bremse AG  
Moosacher Straße 80  
80809 Munich, Germany