

**Press release**

Munich, September 6, 2022

## **For a better eco-footprint: Knorr-Bremse solutions at InnoTrans 2022**

- **Knorr-Bremse offers rail sector customers highly efficient solutions for reducing emissions and energy consumption**
- **Sustainable HVAC systems from Merak: clean[air] for clean, safe air in passenger compartments; green[air] with low-GWP (Global Warming Potential) refrigerants**
- **Quiet, energy-efficient air supplies for braking systems: AirSupply Smart uses data to supply air on demand**
- **Optimized energy management: Microelettrica's ECOSystem captures driving data to improve energy efficiency; LEADER enables energy-efficient driving**
- **Electric drives: Energy management and operational optimization for e-mobility; battery-powered buses fitted with Kiepe Electric's High Power Charging (HPC) systems will be running in the InnoTrans exhibition ground**

**Munich, September 6, 2022 – Knorr-Bremse helps customers to optimize their eco-footprints. The Ecological Footprint solution space at InnoTrans (in Main Hall 1.2, at Booth 250) will showcase solutions for reducing the emissions and energy consumption of rail vehicles and fleets.**

Dr. Jürgen Wilder, Member of the Executive Board of Knorr-Bremse AG and responsible for the Rail Vehicle Systems division, underlines the range of solutions on offer and its relevance to the sustainability megatrend: "In terms of our product engineering, we respond to our customers' sustainability needs with the highest levels of corporate responsibility. On the one hand, our increasingly networkable systems are already helping our customers to reduce emissions and energy consumption in their rail operations. On the other, Knorr-Bremse products are eco-designed with the aim of building up an optimized circular economy within the industry, while also meeting our own high standards of reuse and recyclability."

**clean[air] & green[air]:** Interest in sustainable climate management systems for trains has risen enormously in recent years. The COVID-19 pandemic acted as a catalyst for new solutions that are even safer and cleaner. Merak, Knorr-Bremse's global brand for HVAC solutions, provides the specialist knowledge and supplies the relevant solutions:

- **clean[air] HVAC systems** deliver clean air by the clever use of smart ventilation to distribute the air, using highly efficient filtering and purification solutions to remove potentially pathogenic spores, viruses and germs. One of the impressive features of the concept, which is designed for rapid, scalable retrofitting, is the added hygienic value it offers by extracting aerosol-bound SARS-CoV-2 viruses from the atmosphere. A definite plus for clean air and all-round onboard comfort.

- **The green[air] concept** relies on refrigerants with reduced Global Warming Potential (GWP) and thus consumes less energy. Eco-efficient ECOFans use 30 percent less energy than conventional systems – a figure further improved by the innovative Light Integrated Train Energy (LITE) control system, which saves as much as one metric ton of weight per train.

**AirSupply Smart:** This air system, that quietly and (energy-)efficiently supplies air to braking systems, has completed the paradigm shift from component to multifunctional platform by using a new demand and noise emission management system including, among other things, flexible speed modes. The air supply regulator can be controlled according to ambient operating conditions (such as vehicle load, speed, number of braking operations, track topography, etc.). A frequency converter acts as the air supply system's "brain", transforming overhead line current into vehicle-specific voltages and frequencies. This flexibility means that the compressor can be powered directly from the onboard battery – no more need for an auxiliary air compressor. Adaptive system management and integrated condition monitoring result in a self-supervising system which operators can monitor in real time, providing a basis for making fleet vehicles more available and reducing their life cycle costs.

**ECOSystem for energy-efficient vehicle operation:** Supplied by Knorr-Bremse's Microelettrica brand, the system captures data and measures and manages energy consumption. To do so, the inbuilt sensor system includes high-precision current and voltage metering of DC and AC power supplies to monitor energy consumed and recuperated. For ease of analysis, the processed energy data is transparent to infrastructure and fleet operators. Smart Billing Support adds value by enabling operators to calculate the amount of current consumed or fed back into the grid. And Driver Advisory Systems such as **LEADER** can aggregate this energy data with train configuration, infrastructure and vehicle operating data to generate recommendations for situational, energy-efficient driving styles. LEADER is already achieving energy savings of at least 5 percent in the rail freight sector.

**Energy management for electric drivelines:** Kiepe Electric supplies solutions for energy management and operational optimization in the e-mobility sector. The company's Smart Fleet Management (SFM) system is a digital product for smart energy management in real time, and the Kiepe Motion Controller (KMC) is the latest generation of brake lever. The company's mobile charging infrastructure (mHPC, High-Power Charging) is another pioneering product for flexible e-fleet deployment planning. A battery-powered HPC bus (charging at up to 750 kW) will be showcased in the InnoTrans exhibition grounds.

#### **Where to find Knorr-Bremse: Main Hall 1.2, Booth 250**

*"Get into the Flow"* is the banner under which Knorr-Bremse will be taking InnoTrans visitors on an all-embracing tour of connected solutions for sustainable, efficient rail transportation. At the company's central booth in Main Hall 1.2 (Booth 250), Knorr-Bremse has packaged its solutions and systems into four solution spaces. Each space is based on key customer and market imperatives: **Ecological Footprint**, Traffic Flow, and Train Operations & Maintenance. The fourth solution space – Smart Solutions & Application Landscapes – is the all-pervasive loop that runs through and brings together all the other spaces.

**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:**

Julian Ebert  
Press Officer Rail Vehicle Systems  
T +49 (0)89 3547 1497  
E [julian.ebert@knorr-bremse.com](mailto:julian.ebert@knorr-bremse.com)

Knorr-Bremse AG  
Moosacher Straße 80  
80809 Munich, Germany