

Press release

Munich, August 17, 2022

Knorr-Bremse at InnoTrans 2022: Innovation leader showcases winning solutions at world's largest rail industry trade fair

- **Uniting all Group brands under the banner *Get into the Flow*, Knorr-Bremse's strong presence at InnoTrans will spotlight technologies for sustainable, available, efficient mobility**
- **At the exhibition, four solution spaces will focus on key customer needs: Ecological Footprint, Traffic Flow, Train Operations & Maintenance, and Smart Solutions**
- **One of the highlights will be rail freight digitalization and automation (Digital Freight Train)**

Munich, August 17, 2022 – *Get into the Flow* is the principle guiding Knorr-Bremse, the global market leader for braking systems and other rail and commercial vehicle systems, at InnoTrans 2022, where visitors will be given an in-depth tour of the Group's innovative, resilient, green and connected solutions. The various themes in the booth's solution spaces are directly based on customers' current and future needs. InnoTrans will take place in Berlin on September 20-23, 2022 – visitors will find Knorr-Bremse's 1,000 m² booth (nearly 11,000 sq. ft) in Hall 1.2 (Booth 250).

Dr. Jürgen Wilder, Member of the Executive Board of Knorr-Bremse AG and responsible for the Rail Vehicle Systems division, underlines how the Group's presentation at InnoTrans will focus on solutions drawn directly from customer needs. "We want to talk to our stakeholders, including vehicle manufacturers and fleet operators, about all the political, economic and social challenges confronting the mobility sector and the rail industry, and show them the solutions we've devised at first hand. These include pioneering innovations for digitized, automated freight transportation, but also numerous system solutions that can be implemented with immediate, tangible effect – all designed to strengthen the rail sector and deliver on our industry's commitment to dependability."

The Knorr-Bremse booth will showcase connected systems and solutions in **three solution spaces, each targeting a selection of key customer needs and market demands:** Ecological Footprint, Traffic Flow, and Train Operations & Maintenance. The **fourth solution space** will focus on Knorr-Bremse's Smart Solutions, the overarching ecosystem that brings together all the other systems and subsystems to deliver new functions and services. This directly reflects Knorr-Bremse's role as enabler – actively assisting and supporting customers as they engage with digital transformation.

Ecological Footprint: How can customers help create a sustainable rail industry and improve their vehicles' eco-footprint? Only by systematically reducing emissions and energy consumption will the rail sector be able to meet sustainability expectations and targets – and expand its share of the mobility mix. Knorr-Bremse supplies specially designed solutions for producing safe, clean air such as the **clean[air] family's integrated, energy-efficient HVAC systems** or the **green[air]** systems using low-GWP refrigerants (GWP = Global Warming Potential). At the same time, all Knorr-Bremse products and services are designed to support an optimized circular economy, while meeting the Group's own high standards of recyclability.

Traffic Flow: How can customers optimize rail capacity and passenger flow? The two main levers are high vehicle availability and reduced train headway times (gaps between trains). These are the levers exploited by Knorr-Bremse technologies for new and existing fleets. For example, Knorr-Bremse is paving the way for digitalized freight transportation with its **Digital Freight Train** concept, which includes **Digital Automatic Couplers (DAC)**, the Knorr-Bremse automation system, and digital services. And at the heart of Knorr-Bremse's **Evolution of Braking** drive is the **electromechanical brake (EM brake)**, which uses brake-by-wire technology to transfer braking signals and energy electrically instead of pneumatically. The EM brake is backed up by the **CubeControl and FlexControl brake control families**, designed to provide customized brake control solutions for almost any multiple unit. And when it comes to transportation capacity, the further development of tried and tested technologies is also paying dividends. One example is the **LIFEDrive** door control system supplied by Knorr-Bremse's IFE brand. Because each door has a separate drive, passenger flows remain continuous even when one door is jammed, significantly reducing passenger congestion and delays.

Train Operations and Maintenance: How can customers streamline the efficiency, processes and workflows of their fleet operations? “Sustain, enhance, accelerate” are the principles underpinning the **Knorr-Bremse RailServices** portfolio, which includes a wide variety of methods and immediately available solutions. Operators can use them to meet sustainability targets by, for example, saving energy. Or increase fleet availability by, for example, taking steps to safeguard and even extend the operating lives of their trains. Or reach new heights of efficiency by, for example, digitizing and optimizing processes and applying innovative maintenance models to train systems and subsystems.

Smart Solutions & Applications: Smart applications are the key to making rail vehicles truly smart. Smart applications optimize ecological footprints, boost traffic flow, and lift train operations and maintenance capabilities to a whole new level. Knorr-Bremse's Smart Solutions allow manufacturers and operators to configure their own **Application Landscapes**, tailored to their own vehicle mixes and fleets. Typical solutions range from applications for energy-efficient driving and condition-based maintenance through to smart billing support for transparent energy management – further enriched by fleet and service management and **intelligent Internet of Things (IoT) services**. At the same time, Knorr-Bremse is investing in startups and high-tech companies that are leaders in their chosen fields – sensor technology, connectivity and big data – with the aim of further enhancing the safety, availability and efficiency of rail operations through digitalization and automation.

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

For the first time, the Knorr-Bremse Group is bringing together all the brands and business units that support its rail vehicle business in a 1,000 m² exhibition space at InnoTrans 2022. The Group's main presence will be in Main Hall 1.2 (Booth 250). Also exhibiting their subsystems in their respective competitive environments are Cometfans (axial and centrifugal fans, including special ventilation systems) together with Microelettrica (electronic components for control systems) in Hall 5.2 (Booth 700), and Zelisko GmbH (signaling and traffic management systems) in Hall 25 (Booth 104). Knorr-Bremse will also be represented at the Europe's Rail Joint Undertaking booth (Hall 27, Booth 511), and by the Merak and Evac brands (HVAC systems and sanitary systems respectively) in Deutsche Bahn's Ideas Tent just outside the South Entrance. A battery-powered e-bus fitted out by Kiepe Electric will welcome visitors for tours of the exhibition ground's popular Summer Garden.

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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