

Press release

Munich, December 1, 2021

Innovating for rail: Knorr-Bremse is founding member of Europe's Rail Joint Undertaking

- **Knorr-Bremse is one of 25 founding members of the newly formed Europe's Rail Joint Undertaking technology initiative (ERJU)**
- **The ERJU is the successor of Shift2Rail, a European rail research program that has been running for over 10 years**
- **Knorr-Bremse will help lay the foundations of next-gen rail transportation technology in five Flagship Areas: autonomous train operation, digital freight transportation, sustainable green solutions, digitalization, and life-cycle management**

Munich, December 1, 2021 – A new organization is about to take over from Europe's Shift2Rail research program – and Knorr-Bremse, global market leader for braking systems and other rail and commercial vehicle systems, is one of 25 founding members. The new Europe's Rail Joint Undertaking (ERJU) initiative will form part of the EU's Horizon Europe research program (2021–2027), acting as a cornerstone for the development of a series of digital and green solutions for the rail industry.

Dr. Jürgen Wilder, Member of the Executive Board of Knorr-Bremse AG and responsible for the Rail Vehicle Systems division, discusses ERJU's relevance: "Tomorrow's eco-friendly mobility must give greater weight to passenger and freight transportation. To achieve this, we need innovations – both to boost transportation capacity, and to create an even more environmentally compatible, efficient and economical rail network. So the fact that major players in the European rail industry – including Knorr-Bremse – are now pooling their expertise in Europe's Rail Joint Undertaking is an enormously important step. Together, we can lay the foundations for a new generation of rail technologies and redefine the whole concept of rail travel and transportation within Europe's future mobility landscape."

After the official launch date, November 30, 2021, ERJU will be a fait accompli. Founded by 10 major network and rail operators, 13 manufacturers (including Knorr-Bremse) and two research firms, as well as the EU, the ERJU will receive funding to the tune of more than one billion euros, of which the EU will contribute some EUR 600 million. Whereas Shift2Rail focused primarily on developments affecting rail vehicles, rail vehicle subsystems, and rail infrastructure, the ERJU will concentrate on digitalization, automation and networking clusters at all levels of the rail industry.

The ERJU mission is to lay the foundations for pioneering technologies for the future rail sector by focusing on eight innovation clusters dubbed Flagship Areas, and by reaching collective agreement on the requisite standards and norms. The rationale is simple: The industry-wide market launch of new technologies will only be successful if their operational characteristics, features and specifications are jointly coordinated at an early stage. "Based on our many years of active membership in ERJU's predecessor, Shift2Rail, and the key role we continue to play in many ongoing Shift2Rail projects, we at Knorr-Bremse believe we're in an excellent position to exert a decisive influence on the technology roadmap for the European rail sector over the next ten years," adds Dr. Nicolas Lange, Chairman of the Management Board of Knorr-Bremse Rail Vehicle Systems and responsible for the company's R&D activities.

To create a platform for future innovations, the ERJU founding members will use an open-call mechanism to form consortia in multiple constellations. Within the ERJU, Knorr-Bremse will concentrate its resources and investment in **five Flagship Areas**:

- **Autonomous Train Operation (ATO):** Knorr-Bremse will continue to focus its efforts – both inside and outside the ERJU – on the development of **Reproducible Braking Distance (RBD)**. With this project, Knorr-Bremse is aiming to significantly reduce the variance and divergence of braking distances. As a result, train operating intervals could be reduced and train frequencies increased to provide up to 25% more transportation capacity without compromising on safety.
- **Rail freight of the future:** Knorr-Bremse will systematically continue its efforts to develop a **Digital Automatic Coupler** (DAC type 5) plus a package of intelligent solutions for building interoperable, automated and digital freight trains. The recent decision by the European DAC Delivery Program (EDDP) to opt for a Scharfenberg-type coupler has just validated Knorr-Bremse’s development strategy.
- **Digitalization:** This involves creating a framework that will allow all players in the rail vehicle sector to exchange operating data with each other, providing a basis for creating **new business models** associated with rail-vehicle availability and life-cycle costs.
- **Life-cycle management and cross-sectoral activities:** Knorr-Bremse is working to expand its portfolio of digital services for **Condition-Based Maintenance (CBM)**, plus Remote Condition Monitoring (RCM) of subsystems such as braking, entrance and HVAC systems. Knorr-Bremse is also committed to building an open Rail Data Space for the secure, long-term sharing of rail operating data between a steadily growing number of peers.
- **Green solutions:** Among other things, Knorr-Bremse will press ahead with its work on the development of **electromechanical braking systems (EM brakes)** for trains – which offer certain advantages in terms of efficiency and ease of maintenance – as well as eco-friendlier coolants and air purification solutions for HVAC systems produced by Group subsidiary Merak.

Caption 1: Knorr-Bremse is one of 25 founding members of the newly formed Europe’s Rail Joint Undertaking (ERJU; symbolic image). | © Getty Images/Stone/Jordan Siemens

Knorr-Bremse (ISIN: DE000KBX1006, ticker symbol: KBX) is the global market leader for braking systems and a leading supplier of other rail and commercial vehicle systems. Knorr-Bremse’s products make a decisive contribution to greater safety and energy efficiency on rail tracks and roads around the world. About 29,500 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services. In 2020, Knorr-Bremse’s two divisions together generated revenues of EUR 6.2 billion. For over 115 years, the company has been the industry innovator, driving innovation 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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