

Press Release

Munich, July 14, 2014

**Innovation award for Knorr-Bremse –
Intelligent brake testing boosts operational efficiency**

Knorr-Bremse has won the 2014 “Intelligence for Transportation and Logistics” innovation award for its newly developed Brake Pipe Length Estimation (BPLE) system. BPLE provides the driver of a freight train with a fast and easy way to check brake availability along the entire train without leaving the cab, benefiting both the safety and efficiency of freight train operation.

The award was presented to Knorr-Bremse in Munich on July 10 by the Center for Transportation & Logistics Neuer Adler (CNA e.V.) and the Bavarian Rail Technology Cluster, in the presence of Franz Josef Pschierer, State Secretary at the Bavarian State Ministry for Economic Affairs and Media, Energy and Technology.

“Our new product is just one example of the numerous research and development projects that make Knorr-Bremse what it is: the driving force in rail vehicle braking system technology,” said Dr. Dieter Wilhelm, Member of the Executive Board of Knorr-Bremse AG responsible for the Rail Vehicle Systems division, speaking at the awards ceremony. Dr. Wilhelm also pointed in recent weeks Knorr-Bremse had begun construction of the Group’s new Test and Development Center at its Munich site. Here, through a total investment of €80 million, Knorr-Bremse was putting down new foundations for the technical testing and quality assurance of systems for both rail and commercial vehicles, said Dr. Wilhelm. For railway operators, he added, it was becoming increasingly important to boost their competitiveness by making their operations even safer and more efficient. And an expert supplier like Knorr-Bremse had a duty and obligation to support them through technical innovations.

The Brake Pipe Length Estimation (BPLE) system commended by CNA is a sensor system that enables the driver of a freight train to determine fast and easily if sufficient brake force is available in all of the cars that make up the train. The “Brake Pipe” in the name refers to the main brake pipe that runs along the entire train, carrying compressed air to all of the cars, and through which braking activity is controlled. Only if this brake pipe is connected up along the train can each of the cars generate the required brake force. BPLE uses a sensor

to measure the volume of air being fed through the train's braking system. As a result, the driver can check the functionality of the braking system from the cab. In contrast to the traditional method of checking the brakes, which involved the driver walking from the locomotive to the end of the train, this process takes just a few minutes and provides an easy way to identify critical conditions. This not only enhances efficiency but also helps make rail operations even safer.

Praising the BPLE in front of some 60 invited guests, including customers, journalists and partners of CAN, State Secretary Franz Josef Pschierer said: "Through this innovation from Bavaria, Knorr-Bremse has made an important contribution to optimizing the railways as a means of transportation – and to safeguarding quality jobs in Bavaria."

The Chairman of CAN, Norbert Schäfer, underlined the BPLE's potential to minimize the risks for people, material and the environment. This technology, with which the condition of the braking system could be monitored from the cab at any time, permitted irregularities and technical defects along the train to be spotted in good time, he said, which enhanced the efficiency and reliability of rail freight transportation.

The system was developed and readied for volume production by an international project team at Knorr-Bremse. A pre-production version of the BPLE is currently being tested on the large-scale test bench at Knorr-Bremse, and operation in a test locomotive has already proved successful. The start of series production for the entire system is scheduled for the end of 2015.

The **Knorr-Bremse Group** is the world's leading manufacturer of braking systems for rail and commercial vehicles. For more than 100 years now the company has pioneered the development, production, marketing and servicing of state-of-the-art braking systems. In the rail vehicle systems sector, the product portfolio also includes intelligent entrance systems, HVAC systems, control components, and windscreen wiper systems, as well as platform screen doors, friction material and driver assistance systems. Knorr-Bremse also offers driving simulators and e-learning systems for optimum train crew training. In the commercial vehicle systems sector, the product range includes complete braking systems with driver assistance systems, as well as torsional vibration dampers, powertrain-related solutions and transmission control systems for enhanced energy efficiency and fuel economy.

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