

Press release

Munich April 28, 2014

**Knorr-Bremse investing EUR 80 million
in a new test and development center in Munich**

- **Technical testing and quality assurance for rail and commercial vehicles on a floor area of some 17,000 square meters.**
- **350 modern workplaces for specialists, and 100 high-tech test rigs**
- **EUR 80 million invested as important stage in worldwide EUR 500 million investment program**

At its company headquarters in Munich, Knorr-Bremse is building a state-of-the-art test and development center with around a hundred test rigs for braking systems. The company is investing a total of around EUR 80 million in extending its market position as the global technology leader for rail and commercial vehicle braking systems. At the official ground-breaking ceremony on April 28, 2014, Dr. Michael Buscher, Chairman of the Executive Board of Knorr-Bremse AG, welcomed the owner and Chairman of the Supervisory Board of Knorr-Bremse, Heinz Hermann Thiele, together with many guests from the world of politics and representatives of the Munich city administration.

“By renewing production facilities and expanding innovative research and development capacity in our global growth markets, we are increasing our efficiency and strengthening our innovative capabilities. This will enable us to respond to the growing pressure of costs and supply our customers with extremely competitive systems”, said Chairman of the Executive Board Dr. Michael Buscher. This would, he said, enable the Group to maintain its current high standards of quality and respond flexibly to customer requirements. In fiscal 2013 Knorr-Bremse secured orders worth a record EUR 4.75 billion – a 20 per cent increase – and achieved sales of EUR 4.3 billion.

“With the construction of the development center in Munich, the major EUR 500 million program of investment carried out over the last five years to expand, modernize and maintain our production and development sites will be largely completed,” said Buscher. Seven new sites in the USA, Brazil, Italy, Hungary, India and Australia had already been inaugurated in the last twelve months.

The new center at the Munich site will bring together under a single roof the testing and development functions of the two Group divisions – Rail Vehicle Systems and Commercial Vehicle Systems. On a floor space measuring some 17,000 square meters there will be around 100 rigs for technical testing and quality assurance of components for braking systems and their sub-systems, providing modern workplaces for up to 350 highly specialized engineers and technicians.

Dr. Albrecht Köhler, Managing Director of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH, emphasized the major significance of the project for the company. "The test and development center underlines the importance of the Munich site and paves the way for further innovation by Knorr-Bremse. Together with our other international development centers we are now well positioned to meet the challenges of global markets." Prof. Dr. Gunter Henn, Chairman of the leading architectural practice HENN GmbH, which is responsible for planning and implementing the project, added: "Nowadays, companies are increasingly places for generating knowledge, for which they rely on the interaction of their employees. This test and development center takes up this aspect and creates a new architecture of knowledge in order to create a platform for interdisciplinary exchange."

The building has been designed according to the principles of the global Knorr-Bremse Production System (KPS) with its international standards of process organization, labor efficiency, logistics and quality. The building reflects the basic philosophy of creating a stable foundation for a process of continuous improvement in a shared center with transparent channels of communication – from the test systems on the first floor via test preparation and laboratories on the second floor to engineering and development on the third and fourth floors.

Test preparation has an important role to play in the development of braking systems. There are various different types of test and testing systems involved: In addition to countless function test rigs and endurance test rigs for load testing of braking systems and their materials, the center will also house four friction dynamometers, which are used to simulate emergency braking in order to test commercial vehicle brake discs' resistance to distortion and cracking under extreme conditions.

The test engineers are also able to use test rigs to simulate the braking behavior of entire freight trains with up to 100 freight cars. And it is also possible to reproduce for testing purposes the various different technical standards for brakes in Western Europe, the USA and Russia.

The test and development center project forms part of Knorr-Bremse's site concept in Munich, which aims to concentrate the company units in the northern part of the company site in order to boost the efficiency of internal processes and improve communication. A first new complex was built ten years ago in this area in response to the changed primary role of the Munich site as a center for development, assembly, testing and administration. In December 2013 Knorr-Bremse opened a new parking block with over 600 places for employees' vehicles.

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 advisory 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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