

Press Release

Munich/Düsseldorf, November 18, 2019

Modernization by Kiepe Electric: Low-floor trams on mass-transit duty in Schwerin ready for at least another 20 years

- **Following the modernization and retrofit of their electrical equipment, 30 trams are heading for another 20 years' service**
- **Modern passenger-compartment HVAC systems from Kiepe Electric ensure greater comfort on board**
- **Extended life cycle through obsolescence solutions and retrofittable HVAC systems offers a model for many other aging tram fleets**

Munich/Düsseldorf, November 18, 2019 – Kiepe Electric, a subsidiary of Knorr-Bremse, the global market leader for braking systems and a leading supplier of other rail and commercial vehicle subsystems, is to modernize 30 low-floor trams for Schwerin's mass transit operator Nahverkehr Schwerin GmbH (NVS). The city's 15-year-old fleet will undergo a retrofit of its electrical equipment and HVAC systems.

"Trams have an immensely important part to play in the mass transit picture in Schwerin. So we are delighted to be able to help attain a new level of safety and comfort with our modernization solutions," said Dr. Jürgen Wilder, Member of the Executive Board of Knorr-Bremse AG and responsible for the Rail Vehicle Systems division. "In terms of modernization, enhanced passenger comfort and greater economy, the solution we are offering here could be a model for many other mass transit operators."

Setting out the objectives of this modernization project, NVS CEO Wilfried Eisenberg said: "We want to keep our tried-and-tested trams in scheduled service for at least another 20 years. In the context of the mandatory general inspection, that means undertaking technical modifications and refits. And in Kiepe Electric we are delighted to have found a competent partner for the modernization of the electrical equipment."

Kiepe Electric supplied the original electrical equipment for the 30 trams that entered service with NVS between 2001 and 2003. The vehicles themselves were built by DWA Bautzen. Now Kiepe Electric has won the European tender issued by NVS for the modernization of the vehicle electronics. The relevant agreement was signed in November 2019 and the measures are slated for completion by 2023. Looking at the wider picture, Kiepe Electric Managing Director Dr. Heiko Asum noted that: "In Germany there are many tram fleets that have been in service for 15 to 25 years. The upgrading and modernization of these vehicle fleets, resolving a whole raft of obsolescence issues in the process, lines up alongside the procurement of new vehicles as one of the cornerstones in creating a high-performance mass transit system. We can provide compelling answers here by applying our systems expertise in the field of electronic components."

Focus on availability and on-board comfort

The retrofit measures will be focused on ensuring maximum vehicle availability. Kiepe Electric will be responsible for replacing some of the vehicle and train control technology, as well as the traction inverter and the on-board power converter, bringing them into line with the state of the engineering art. Another key consideration is enhancing passenger comfort: To ensure pleasant on-board temperatures, Kiepe Electric will replace the existing heating and ventilation equipment with the latest passenger-compartment HVAC systems. "Retrofitting these

HVAC systems to existing trams could well be a very attractive option for many other mass transit operators,” said Dr. Asum.

Trams have been part of the street scene in Schwerin for more than a century. With the support of the Ministry of Energy of the Federal State of Mecklenburg Western Pommern, the aim now is to make this means of transport more attractive than ever. Along with the retrofit for the trams, the rail network infrastructure has also been continuously modernized. By way of example, as early as 2008, the entire tram system was rendered fully accessible. All trams and buses operated by NVS offer free WiFi, and WiFi has also been made available at tram stops as a courtesy to passengers who have to wait.

Caption:

Upgrades for Schwerin’s trams: Kiepe Electric is delivering effective retrofit solutions and enhancing passenger comfort with new HVAC systems. | © NVS

Knorr-Bremse (ISIN: DE000KBX1006, Ticker symbol: KBX) is the global market leader for braking systems and a leading supplier of other safety-critical 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 28,500 employees at over 100 sites in more than 30 countries use their competence and motivation to satisfy customers worldwide with products and services. In 2018, Knorr-Bremse’s two divisions together generated revenues of EUR 6.6 billion (IFRS). For more than 114 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, eco-efficiency, digitization and automated driving.

Knorr-Bremse subsidiary **Kiepe Electric**, based in Düsseldorf, Germany, is a globally active supplier of electrical systems to the leading rail vehicle and bus manufacturers. The company offers efficient solutions and ecologically sustainable concepts for low-emission public transportation with eco-friendly electrical equipment for light rail vehicles, metros and regional rail networks as well as for battery, trolley and In Motion Charging (IMC) buses.

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