Fire protection for rolling stock

Dear Ladies and Gentlemen,

An exciting year with interesting projects in Germany and the world lies behind us. For example, we received our first order from India. Together with a local partner company, we are currently carrying out orders for Indian Railways and equipping almost 300 Indian passenger coaches with fire protection technology "*Made in Germany*".

Another highlight in 2019 was the cooperation with Transport System Bögl. The magnetic levitation train developed by the Bavarian construction company has successfully completed the test phase in Sengenthal and is being used for the first time in Chengdu, China, on a 3.5 km stretch. In China, further intensive urbanisation is expected, making magnetic levitation trains a sensible and cost-effective addition to existing local transport concepts in the metropolitan regions. The demand for public transport systems that require little space and transport as many people as possible at the same time will therefore increase. With Bögl, WAGNER has developed a suitable fire protection solution to equip the means of transport of the future with a fire detection system that is invisible to passengers. Read in our newsletter how both projects will continue.

No matter where your journey will take you this year, with fire protection technology from WAGNER you are on the right track.

Markus Kock, General Manager WAGNER Rail GmbH

MAGNETIC LEVITATION TRAIN FROM BAVARIA USED FOR THE FIRST TIME IN CHINA

Very early fire detection with TITANUS® technology ensures passenger safety

The construction and technology company Max Bögl from Bavaria has developed its own magnetic levitation train. With the **driverless Transport System Bögl (TSB)**, the construction company is responding to an increasing worldwide demand for public transport systems that require little space and can transport as many people as possible in metropolitan regions. The special feature: Due to the special design of the track, the magnetic levitation train can be easily integrated into existing infrastructures. And as an in-house developer, the construction company supplies the track, vehicle and control system from a single source. **WAGNER Rail has developed the optimum fire protection solution** to match exactly.

For several years now, the prototype has been driving across the construction company's premises in Sengenthal, Bavaria, where it has completed more than 125,000 trips. The test track is designed in such a way that the vehicle can negotiate inclines, bends and fast straight stretches. The train can travel at speeds of up to 150 km/h and is nearly silent. The test phase was successfully completed this year. The corresponding system approvals have been applied for at the Federal Railway Authority and are expected soon. Regardless, Max Bögl has already found its **first customer** for the magnetic levitation train: **the Xinzhu company in Chengdu, the provincial capital of Sichuan**. A 3.5 km demonstration section is currently being built on the premises of the Chinese partner company.

The magnetic levitation train impresses with its advantages: The system, including the track, can be installed relatively quickly (within months) in existing traffic infrastructure. In addition, the TSB consumes up to 20 percent less energy than conventional trams, says Bögl, and has room for 127 people per car. The TSB is to be used as a two or six-train variant and can transport up to 750 passengers. Active early fire detection by WAGNER Rail ensures passenger safety. Two **TITANUS *MICRO·SENS*®** are installed per car. Via a flexible hose system – which is in the intermediate ceiling and thus protected against vandalism – the active early fire detection system takes samples from the ambient air of the passenger areas via negative pressure through air sampling openings. Thanks to optical High Power Light Source technology, the system detects smoke particles as early as possible and reacts up to 2,000 times more sensitive than conventional point detectors. TITANUS *MICRO·SENS*® detects fires with high false alarm security. If a fire is then detected at its early stage, the detectors then sends a corresponding signal to the control system of the railway. The train is then brought to a standstill and the safe evacuation of the passengers is initiated.

The first operation of the TSB in Chengdu is currently in the commissioning phase and should be completed at the beginning of 2020. The demonstration line will then be used to sell the Transport System Bögl on the Chinese

market. As soon as all system approvals are available, worldwide marketing will begin - with innovative fire detection from WAGNER.

The Transport System Bögl is predestined for use on short distances in metropolitan regions in order to get as many travellers as possible to their destination quickly and in an environmentally friendly manner.

EFFECTIVE EARLY FIRE DETECTION: INDIAN RAILWAY RELIES ON TITANUS® TECHNOLOGY

WAGNER Rail receives its first order from India.

Interesting conversations at the trade fair Innotrans 2018 in Berlin with **Girivar Global, an Indian company for sales, marketing and consulting of Indian Railways and Metro,** had led to a „*Cooperation Agreement*" for the Indian market in March 2019. The result: 271 passenger coaches for the Indian Railways are now equipped with fire protection technologyk „*Made in Germany*".

After initial quotations and discussions as well as presentations in India, **WAGNER Rail** started test installations at the **Integral Coach Factory (ICF)** in the middle of this year. The task was to implement fire detection in passenger coaches. A special feature: The monitoring of the toilet rooms also had to be considered, as incidents with smoking passengers in toilet rooms occur repeatedly in Indian trains.

The trains are of the Linke-Hofmann-Busch design, which was produced in Salzgitter (Germany) until the mid-1990s. Originally, the Indian Rail Coach Factory had acquired the rights to the vehicle type in 2000 and imported 24 trains from Germany. Now the company is rebuilding the train type, together with the Integral Coach Factory (ICF) and the Modern Coach Factory (MCF), in large numbers. The regional trains used throughout India have up to 14 cars. Each car consists of eight compartments with six to eight seats each as well as a corridor. A maximum of 900 passengers can fit in it.

After the successful completion of the test phase, WAGNER Rail received the order in November 2019 to equip the 271 passenger cars with the fitting fire detection system. The solution provides each car with a **TITANUS *PRO·SENS*®** aspirating smoke detector with a detection module and the corresponding aspiration points. The system for effective early fire detection already detects fires in the pyrolysis phase by permanently taking samples from the air and examining them for smoke particles. The customer opted for TITANUS *PRO·SENS*® specifically because three alarm levels were required for the trains: optical, acoustic and train-internal alarms. Together with its Indian partner Girivar Global, WAGNER Rail designed a special solution for fire detection in the toilet room tailored to the needs of the subcontinent. This looks as follows: A special thermocouple only releases an additional aspiration point in the toilets for the aspirating smoke system when a certain temperature is reached and is then monitored by TITANUS®. An incipient fire, on the other hand, is reliably detected at an early stage so that measures can be initiated instantly.

All components of the fire protection solution are to be delivered to the new customer by February 2020. Further discussion with Girivar Global are planned. The Indian market is growing rapidly in urban transport. Up to 10,000 new rail vehicles are expected per year to be in service in the coming years.

Discuss at WAGNER Rail the solution for the LHB trains used in India (from left to right): Satish Gupta (Director Marketing Girivar Global), Markus Kock (Managing Director WAGNER Rail), Ronald Gutknecht (Commercial Manager WAGNER Rail), Anish Gupta (Chief Operating Officer Girivar Global), Bernhard Skrybczak (Key Account Manager Sales WAGNER Rail).

KISS DOUBLE-DECKER TRAINS SOON ON THE WAY ON CALTRAIN LINE IN CALIFORNIA

First order from the USA for WAGNER Rail

The **Swiss train manufacturer Stadler is currently building high-performance double-decker electric multiple-unit trains for the Californian local transport system Caltrain**. As part of the "*Peninsula Corridor Electrification Project (PCEP)*" work is underway to electrify the approximately 80 km San Francisco - San José line in order to increase operational efficiency and replace the old diesel locomotives. The **Stadler KISS double-decker trains with electric drive unit (EMU)** are intended to help transport the growing number of passengers quickly and in an environmentally friendly manner. WAGNER Rail supplies the suitable fire protection solution for the new Caltrain trains.

In rail traffic, the very early fire detection is important for two reasons: on the one hand, personal protection and thus the earliest possible evacuation are of top priority, on the other hand, the damage to the trains themselves should also be minimised as far as possible. In the case of Caltrain, the customer opted for a solution with point detectors, linear heat detectors and fire alarm control panels 138 for the KISS double-decker trains. The operator's platform and the technical areas, i.e. the areas with the greatest fire risk, are thus monitored. The toilet area is also protected by fire detection. This solution ensures that appropriate countermeasures can be initiated at an early stage in the event of an emergency. The solution is designed in accordance with the fire protection standard NFPA 130.

The new KISS double-decker trains from Stadler replace the old diesel locomotives on the Caltrain route between San José and San Francisco and offer considerably more passenger space.

The KISS double-decker trains are currently under final assembly in Salt Lake City. From the end of 2020, they are to run on the Caltrain route; then at a higher frequency than once an hour. The number of commuters is also to increase from 65,000 a day at present to 240,000 by 2040. Further plus points of the KISS double-deck: Electrically driven, the train has a considerably lower CO_2 footprint than the previous diesel locomotives. It is also quieter and can be extended from seven to eight units if required. The tailor-made WAGNER fire protection system then simply grows with the locomotive.