CONTENTS

EDITORIAL
Dr. Robert Wassmer, Chairman of the Executive Board, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH

NEWS IN BRIEF
The latest information

COVER STORY
InnoTrans – A platform for the future
Interview with Dr. Dieter Wilhelm, Member of the Executive Board, Knorr-Bremse AG

PRODUCTS
Magnetic track brakes

Simulators
Windscreen wiper and wash systems
Doors
Flexpad Silent brake pads
HVAC systems
Microeletrica Scientifica
product portfolio

PROJECTS
São Paulo monorail
Shinkansen E6

SERVICE
Modern sanding systems for Berlin S-Bahn

COMPANY
Growing with Values

This publication may be subject to direction without prior notice. A printed copy of this document may not be the latest version. Please contact your local Knorr-Bremse representative or check our website www.knorr-bremse.com for the latest update. The figurative mark “K” and the trademarks KNORR and KNORR-BREMSE are registered in the name of Knorr-Bremse AG. Copyright 2012 © Knorr-Bremse AG – all rights reserved, including industrial property rights, applications. Knorr-Bremse AG retains any power of disposal, such as for copying and transmitting.
EDITORIAL

In just a few days’ time InnoTrans 2012 will be opening its doors in Berlin. The whole industry is looking forward to September 18 with great expectations. That’s why much of this issue of Informer is dedicated to the innovations from across the portfolio that we will be presenting at InnoTrans under the motto “Efficient. Technology. Worldwide.”

The highlights among this year’s exhibits will include the WZKK wheel brake caliper that can handle temperatures as low as -60 °C, an electromagnetic track brake with the Modular Magnetic Track Brake Control System (MMBC) with rapid automatic brake testing, and the encapsulated VV120-T oil-free compressor, which will be used for example in Stuttgart’s new S-Bahn trains. The new wheel brake caliper provides a fine example of Knorr-Bremse’s ability to adapt its products to even the most hostile environmental conditions. The fully automated MMBC system is a great support for operators as they work to improve the efficiency of their fleets, because unlike with conventional systems, the driver no longer has to check these brakes by conducting a visual inspection along the train to ensure he can rely on their supplementary braking effect. And the VV120-T compressor illustrates to perfection how – thanks to a bright idea – noise reduction and environmental protection can go hand-in-hand.

Our IFE business unit will be showcasing a particularly low-maintenance door system with driver access facility, while will be presenting an extremely flat HVAC system for metro cars. And in the outdoor presentation area we will be showing a newly developed sanding system with integrated monitoring.

In addition to our focus on InnoTrans 2012, as always this issue features news and information from across the company. One article reports on the latest Shinkansen E6, for which Knorr-Bremse is supplying the braking systems. Another item covers a major Australian research project in which Knorr-Bremse subsidiary Sydac is joining with universities and other rail vehicle industry companies to study train driver fatigue.

Just a note on internal matters: on July 1, 2012 I took over as Chairman of the Executive Board of Knorr-Bremse Systeme für Schienenfahrzeuge (Rail Vehicle Systems). In this new role I’m looking forward to doing business with you and to the many challenging projects that lie ahead.

A warm welcome awaits you at our InnoTrans booth in Hall 1.2. You will find a ticket voucher enclosed with this issue of Informer.

We look forward to seeing you there!

Sincerely,

Dr. Robert Wassmer

Chairman of the Executive Board, Knorr-Bremse Systeme für Schienenfahrzeuge GmbH

Dr. Robert Wassmer,
Knorr-Bremse in Bra King systems for Cara Cas

Having already supplied air treatment systems to trains destined for Istanbul, bogie equipment for Lima and Panama and braking systems for Amsterdam Metro (see picture) as part of a framework agreement with manufacturer Alstom to develop and supply systems for the Metropolis platform, Knorr-Bremse is now to supply the brakes for 22 new six-section trains destined for the metro system in Venezuela’s capital, Caracas. The operator has also taken out an option on one further multiple unit per train.
**SHANGHAI**
From May 30 to June 1, the Rail + Metro China 2012 exhibition took place in Shanghai. Global players from the rail vehicle sector as well as domestic companies showcased their products and expertise to visitors from all parts of China as well as the rest of the world. At booth M060 in Hall N1 of Shanghai New International Expo Center, Knorr-Bremse Rail Vehicle Systems division presented a fascinating range of state-of-the-art localized products in China as well as trend-setting solutions with a high degree of innovation and a focus on added value for customers.
One highlight amongst the Knorr-Bremse exhibits this year was the debut of a driver’s console simulator interfaced to real train equipment including a Knorr-Bremse bogie, IFE automatic train door system, Westinghouse platform screen door, Merak HVAC unit and Microeletrica Scientifica electronic components.

**CHINESE MINISTER SONG DAHAN VISITS KNORR-BREMSE**
On July 16, 2012 Chinese Minister Song Dahan, head of the Legal Affairs Office of the State Council of China, visited the headquarters of Knorr-Bremse AG in the course of a four-day visit to Germany. The Chinese Minister was accompanied by Federal Minister of Justice Sabine Leutheusser-Schnarrenberger and by Martin Zeil, Bavarian Minister of Economic Affairs, Infrastructure, Transport and Technology. The delegation was welcomed by Heinz Hermann Thiele, Knorr-Bremse’s proprietor and Supervisory Board Chairman, and by Executive Board member Dr. Dieter Wilhelm. The highlights of the visit included a guided tour of the Knorr-Bremse Forum and presentations on the test benches and in the Development Center.

**MODERN RAILWAYS**
The Modern Railways exhibition in Beijing has been attracting visitors from some 20 different countries and regions since 1992. This year’s event, which will be held between November 27 and 30, will focus on the theme of “safe transportation, engineering construction and operations management”. For Knorr-Bremse Asia Pacific it is an important opportunity to showcase its latest technologies, and the company will be displaying a driver’s console simulator interfaced with bogie equipment, an IFE train door, a WPsd platform screen door and an HVAC system from Merak.

**2012 IN BEIJING**
A PLATFORM FOR THE FUTURE

PROVIDING A MAJOR PLATFORM FOR THE RAILWAY INDUSTRY AT NATIONAL AND INTERNATIONAL LEVEL, a forum for the global rail sector and a shopwindow for innovations in railway technology, this year’s InnoTrans fair runs from September 18-21.

During these four days, more than 2,000 exhibitors from the passenger and freight sectors in over 40 countries will be showcasing components, systems and a broad spectrum of rolling stock and railway technology. This year the main attraction for visitors and journalists alike will once again be the new and upgraded products and systems.

Today, many companies around the world gear their innovation cycles to the timing of the InnoTrans fair, which the railway world has come to consider a must-see shopwindow for debuts and premières. So for many exhibits, this is their first outing in front of a wider trade audience. Two key topics among the innovations this year are sustainability and energy efficiency.

DEMAND GREATER THAN EVER

In all areas of the fair, demand for exhibition space is greater than ever. In the outdoor areas and railyard, all available space had been taken up almost a year before the exhibition was due to open. Demand from Asia is particularly strong. At the same point in time, Asian exhibitors had booked more space this year than they had two years ago.

In what is part of the same picture, Japan will be breaking new ground at InnoTrans 2012, reflecting the higher level of interest in the fair among Asian companies: for the first time in the history of this premier industry event, a country has booked an entire exhibition hall. Japanese companies will be presenting their rail technology innovations on a larger scale than ever before, in clear and concentrated form in a single location.

KNORR-BREMSE PRESENTS INNOVATIVE PRODUCTS IN A MORE INNOVATIVE WAY

A long-standing exhibitor at InnoTrans, Knorr-Bremse will again be found in Hall 1.2. The main displays will be at the front of the ground floor area beneath a long upward spiral that symbolizes the way Knorr-Bremse thinks in terms of systems. Not only the products themselves but also the way they are presented will be more innovative. Each exhibit will have its own flatscreen that can be addressed via iPads placed at visitors’ disposal. This way, standard product presentations covering the entire portfolio will be available at any time, enabling visitors to dive deeper into the product range than in the past and making it easier for them to find precisely the solution they need.
If you don't find a voucher here for a trade visitor day ticket to InnoTrans 2012 or if you subscribe to the online version of Informer, please contact us at informer@knorr-bremse.com to request a voucher. We will get one on its way to you immediately.
Exhibiting at a trade fair always involves an immense effort and ties up a lot of resources. Why is Knorr-Bremse joining the exhibitors again at InnoTrans 2012?

Dr. Wilhelm: InnoTrans is without doubt the premier international trade fair for railway technology and this year it will again be the number one rendezvous for the entire rail industry. Visitors get to inspect the entire spectrum of rail technology innovations.
at first hand. North America and Asia have long since established a strong presence at InnoTrans and this year Japan has even reserved its own exhibition hall. So as a leading systems developer and manufacturer it’s only logical that we should show the flag and set out our stall at this key rail industry event.

To what extent are the main themes of a railway technology fair relevant to society at large?
Dr. Wilhelm: No matter which megatrends you think of, rail transportation can offer solutions to the challenges of the future. With the advance of globalization and urbanization, passenger volumes are soaring and their transportation needs must be met. And these rising numbers of passengers must be handled without compromising on safety. Added to which, rail transportation also helps cut carbon dioxide emissions, making a significant contribution to a more sustainable approach to our environment.

What part do you see Knorr-Bremse playing in this scenario?
Dr. Wilhelm: Knorr-Bremse plays a decisive part in helping to deploy solutions to these challenges in a way that is as eco-friendly and safe as humanly possible. We drive forward the relevant innovations and through our systems we offer our customers genuine added value at a competitive price. With that in mind, some of the exhibits at the Knorr-Bremse booth could well be among the highlights of this year’s show. Which ones come to mind?
Dr. Wilhelm: You’re quite right, of course. This year, under the motto “Efficient. Technology. Worldwide.” Knorr-Bremse is again serving up solutions that respond to the challenges that are increasingly being thrown up by the global megatrends. The first products that come to mind are the encapsulated VV120-T oil-free compressor and our new low-noise, high-performance Flexpad Silent disc brake pads that represent genuine innovations in terms of noise abatement. But the highlights will doubt-

All of these products already exist. But the industry is changing. Where do you see the company’s main focus of activity in the future?
Dr. Wilhelm: Even at the purchasing stage our customers are already thinking increasingly in terms of life cycle costs. So factors like life cycle costs, modernization and upgrades are coming to play a crucial part in the purchasing decision. Added to which, it’s more important than ever to be a systems supplier: rolling stock manufacturers and operators select a specialist to supply a specific subsystem for a vehicle and then expect them to provide support over the full life cycle. That’s good news for us, because we are exactly that kind of specialist.
RAPID, SAFE BRAKING

ELECTROMAGNETIC TRACK BRAKES DO NOT DEPEND ON ADHESION BETWEEN WHEEL AND TRACK and generate a substantial increase in braking force compared to wheel brakes alone. That makes them irreplaceable for emergency braking. The InnoTrans fair provides a chance for a closer look at the underlying technology.

To date Knorr-Bremse has manufactured more than 65,000 fixed magnets for use in electromagnetic track brakes in streetcars/trams in service around the world from Calgary to Valencia. And over 100,000 articulated magnets from Knorr-Bremse are on duty worldwide in mainline trains and multiple units. Unlike conventional braking systems, the electromagnetic track brakes installed as rapid or emergency brakes in metro units, EMUs, DMUs and high-speed trains do not apply the braking force to the track via the wheels.

ELECTRIC CURRENT MAKES FOR GREATER DECELERATION

The electromagnets are installed in a supporting structure between the axles in such a way that they are precisely positioned over the rails. When the driver applies the brakes, a pneumatic system presses the magnets against the track. At the same time a current is applied to the magnets. The resultant adhesion between magnet and track and the coefficient of friction between brake and track add up to the braking force of the electromagnetic track brake.

These brakes do have one effect on wheel-track adhesion, however, because the braking magnets help clean the track, which enhances adhesion between wheel and track.

ALSO ON SHOW AT INNOTRANS

- Electromagnetic track brake with MMBC
- Fully automated magnet effectiveness monitoring
- With magnet heating in winter conditions
- Prevents braking jolts
In Australia, universities and rail industry organizations have joined forces to set up a research center that is investigating various issues including fatigue amongst train drivers. The simulators they are using come from Knorr-Bremse subsidiary Sydac.

Improved environmental impact, greater efficiency and enhanced safety – these are the main objectives of the Cooperative Research Center (CRC) for Rail Innovation, which was set up in 2007 by a number of Australian universities and rail vehicle sector companies. Based in Adelaide, by 2014 the CRC is planning to invest US$100 million in a range of projects – making this the biggest single research program in the history of Australian railways.

The players involved have already pooled their expertise in dozens of research projects – aiming, for example, to identify the best funding model for a high-speed rail link on Australia’s east coast, investigate the effects of moisture and load on damage caused by rail-wheel contact or improve safety on the rail network through the use of simulated traffic scenarios.

**Working together instead of replicating effort**

The latest project in which Sydac is involved concerns the investigation of fatigue among railway employees. In concrete terms, this is about enhancing the current fatigue modeling software so that it can be used not just for drivers but also for other rail employees who handle safety-critical tasks. And precisely this kind of fatigue risk management is to become a statutory requirement in Australia from January 2013.

The benefits of the CRC’s networked approach are particularly obvious in this project. In the past, any work on fatigue recognition and its consequences was largely uncoordinated. In practice this led to a situation where the regulations on working hours currently vary from one state to the next – and even from one operator and trade union to the next.

**Additional functions for simulators**

To enable the fatigue recognition function to be extended to additional railway employees, the algorithms used by the software have to be put on a much broader basis. This is achieved partly by incorporating data related to employees in stations or control centers into the researchers’ calculations. Such data is currently being collected in twelve locations in different parts of the country.

The need to process this additional data also means that it is no longer possible to use conventional training simulators to create the new models, because they simply lack the necessary functions. This is where Sydac comes in – the company is adding precisely these functions to the simulators. In return, Sydac will be entitled to incorporate some of the insights gained during the project into its next generation of simulators, for example in the shape of even more realistic training tools.
MAXIMUM VARIETY

FROM LIGHT RAIL VEHICLES TO HIGH-SPEED TRAINS, FROM MODERATE TO EXTREME CLIMATES, Knorr-Bremse has the ideal solution when it comes to windscreen wiper and wash systems. Two recent orders from Germany tell the story.

The first electric windscreen wiper and wash systems were solutions based on components from the automobile industry. But when these adaptations were no longer sufficient to meet an increasingly diverse range of customer requirements, Knorr-Bremse began developing systems that were precisely geared to the specific needs of rail vehicles. The outcome is today’s broad-based portfolio of solutions tailored to the widest variety of applications.

HIGH ECONOMY AND LONG-TERM SECURITY OF SUPPLY FOR ORIGINAL PARTS

No matter how different the systems may be from one case to the next, there are certain properties they all share: high economy, low life-cycle costs, long service life, long-term supply security for original parts and compliance with rigorous railway standards.

Two orders recently obtained in Germany provide the perfect example of how diverse the product portfolio really is. In one case Knorr-Bremse won the order for 260 windscreen wiper systems for the ICX, being built by Siemens for Deutsche Bahn AG. With the PHX (Pneumatic High-End NeXt Generation System) the company is supplying a system specially designed to cope with the forces generated at high speeds, as well as with large windscreens.

At the other end of the portfolio, so to speak, is the EAS (Electric Advanced System) designed for streetcar applications. Vehicle manufacturer Heiterblick ordered 100 of these systems for installation in the new LRVs for the Hanover streetcar network.
VEHICLE BUILDER STADLER IS TO SUPPLY NORWEGIAN STATE RAILWAYS (NSB) with a total of 50 five-section trains from the latest generation of the FLIRT family. A new version of the E3 door system from Knorr-Bremse subsidiary IFE will also be on board.

NSB will be operating 26 of the FLIRT trains as so-called “long local trains” in the Oslo area, with travelling times of up to 90 minutes. The remaining 24 will be configured as short regional trains to be used in southern Norway for connections of up to three hours’ duration.

The trains are a development of the tried-and-tested FLIRT family, with a special focus on customer friendliness for families, the elderly and passengers with limited mobility. With such passengers in mind, IFE put the emphasis in developing the door system on acoustic and thermal insulation designed to meet the high requirements needed for winter operation in Norway.

SPECIAL ACOUSTIC AND THERMAL INSULATION, HIGH LOAD-RESISTANCE

The specially-developed door leaves for the E3 access system have an additional layer offering particularly high levels of acoustic and thermal insulation (33 to 34 dB(A); ≤ 3.9 W/m²K). Active locking mechanisms in the lower part of the door can cope with peak dynamic loads of up to 3,000 Pa and static loads of up to 4,000 Pa.

As usual, each door is provided with at least two steps, with the system selecting the appropriate sliding step according to the platform configuration. Both steps have the same main components – reducing the variety of parts requiring servicing.

In contrast to the passenger doors, the driver doors on the NSB FLIRT trains are equipped with a third sliding step, enabling the driver to comfortably enter and exit the cab even outside stations.
LOW-SQUEAL
HIGH-TECH BRAKE PAD

KNORR-BREMSE’S WHISPERING BRAKE PAD – the Flexpad Silent – minimizes annoying brake squeal from trains.

The screeching noise from trains braking to a stop at stations can be loud and unpleasant. While it may cause no more than a moment’s discomfort for passengers, for local residents the problem is more permanent. With its new high-performance brake pad, Knorr-Bremse is taking an important step towards reducing noise and improving the environmental friendliness of rail transport.

NIPPING VIBRATION IN THE BUD
The main reason for brake squeal is what is known as the “stick-slip” effect – a kind of “stuttering” braking effect that occurs at low speeds. This effect is caused partly by the reduced brake pad contact pressure and partly by the low speed of rotation of the brake disc. The combination of these two factors causes the brake pad to keep sticking, briefly but repeatedly, to the brake disc. As a result, the brake disc begins to vibrate – leading to the squeal.

To prevent this sticking effect, the Flexpad Silent uses what is known as a “compound” brake pad, consisting of a high-performance sintered pad and a lubricant-impregnated core. This ensures a literally “well-oiled” performance at all times. Knorr-Bremse has combined this solution with a type of mechanical silencer system, based on damping shims integrated between the pad and the back plate. The shims absorb vibration, thereby preventing squeal.

NOW FULLY OPERATIONAL
The Flexpad Silent, which is also suitable for use in high-speed trains, is now fully operational. Following successful homologation tests, the new Knorr-Bremse “whispering brake” has been in regular service – on “Italo” trains operating between Milan and Naples – since the end of April.

ALSO ON SHOW AT INNOTRANS
Flexpad Silent
- Reduces brake squeal
- Suitable for high-speed trains
- In regular service since April 2012
LOW PROFILE, HIGH PERFORMANCE

AT THE 2012 INNOTRANS FAIR, KNORR-BREMSE SUBSIDIARY MERAK is showcasing an extremely flat air conditioning system for metro cars. At its highest point it measures just 290 millimeters.

Air conditioning systems must turn in top performance reliably for hours on end, ideally make no noise at all and, as if that were not enough, must be kept as small as possible. Such are the requirements specified by rail vehicle operators — and they are by no means easy to meet.

For over 45 years now, Knorr-Bremse's subsidiary Merak has been designing and manufacturing air conditioning systems to the very highest standards. The company’s systems are installed in high-speed trains that hurtle through icy Russian winters, they cool the dry air in commuter trains in dusty Middle Eastern regions, and they have to cope with ultra-high humidity in applications in Southeast Asia. Merak’s success here is based on two pillars: state-of-the-art development and testing technology and supremely efficient solutions for all customer requirements.

HIGH PERFORMANCE, LOW WEIGHT, SIMPLE MAINTENANCE

One of Merak’s latest systems is a roof-integrated HVAC unit specially developed for use in metro cars. Thanks to its flexible design, the system can be adapted to meet specific customer requirements or different climate conditions with relative ease. In fact, this concept has already been customized for applications operating in Chile, Washington and São Paulo.

Despite a robust steel frame and copper-copper coils in order to withstand high-corrosion environments, the WMATA system (HVAC equipment for the Washington Metropolitan Area Transit Authority) that will be exhibited at InnoTrans fair tips the scales at just 575 kilos. Its maximum height of just 290 millimeters takes account of what is normally a very restricted installation envelope in metro cars. The unit’s integrated air intake means there is no necessity for either additional air intake ducting on the coach side or fresh air openings and grilles on the car frame. Other characteristic features include a low noise level and ease of maintenance.

**ALSO ON SHOW AT INNOTRANS**

- HVAC system for metro cars
- Extremely flat
- Low weight (even with copper-copper coils)
- Easily adaptable to different market requirements
- With integrated fresh-air intake
STATE-OF-THE-ART CONTROL COMPONENTS

WITH INNOVATIVE LINE CONTACTORS AND DISCONNECTORS, high-voltage transducers and fans on show, as well as resistors, switches, HSCB, switchgears and relays, at InnoTrans 2012 Knorr-Bremse subsidiary Microeletrica will be presenting a selection of products from its broad portfolio at its own booth (201) in Hall 17.

Knorr-Bremse subsidiary Microeletrica produces AC&DC contactors and disconnectors, resistors and electronic devices for rail vehicle and industrial applications.

For the rail vehicle market, Microeletrica produces four ranges of contactors and disconnectors, for loads from 50 to 2,000A per pole and for circuits up to 4 kV. The company also develops high-voltage transducers for measuring line voltage and current, and for energy metering, either on board trains or in DC substations.

At InnoTrans, Microeletrica will be showing a range of new switches such as a new LGS earthing switch and a prototype of the MPC400 motor protection contactor, as well as the LPRC module that combines line contactor, pre-charge contactors and pre-charge resistor in an ultra-compact unit. In addition, Microeletrica will be presenting its totally maintenance-free LTSS solid state contactor, suitable for heating and other duties involving frequent switching, as well as the next generation of multi-position modular disconnectors (LTMP). Exhibits will also include the new, fully industrialized IR3000 series of circuit breakers, the prototype of the new IR4000 model and a 6,000 A feeder, equipped with the new IR6000 Evo and an advanced remote control system. The new GPRO feeder manager relay will also be on show.

The range of resistors from Microeletrica includes braking, damping, snubber, filter and discharge resistors. At InnoTrans, the company will be displaying a high-tech brake resistor as well as a modular and compact solution for railway applications where space is at a premium. A new polymer insulator design technology will also be showcased.

A NEW ADDITION: FANS FROM COMET

Among the highlights of the Microeletrica presentation will be systems from fan manufacturer Comet, acquired in the course of last year. In the rail vehicle sector Comet fans are used, for example, to cool the traction motors as well as the main and auxiliary converters, and also for cooling high-performance brake resistors. In the industrial sector the fans are used in a wide range of electrical machinery, heat exchangers and radiators, as well as in refineries, power plants and the cement industry.
AS MONORAILS RUN ON PREFABRICATED SECTIONS OF RAISED TRACK, monorail projects can be put in place relatively fast and economically. In São Paulo these were the main reasons behind the green light for planning a second monorail line. Knorr-Bremse is to supply the brakes.

It’s not exactly a small project that operating company Cia Do Metropolitano de São Paulo has embarked upon: the company has commissioned Canadian manufacturer Bombardier to supply no less than 54 seven-car trains for its new “Expresso Tiradentes” monorail line. When the new INNOVIA Monorail 300 system is in place, the journey time for trips between the Vila Prudente and Cidade Tiradentes regions of the city will drop from almost two hours to just 50 minutes or so, benefiting around 500,000 passengers every day. Knorr-Bremse stands to benefit, too, as the plans have given rise to a substantial order: the company is to supply the brake discs, brake calipers and brake control units for the hydraulic braking system, which is designed for a maximum speed of 80 km/h.

**COMBINED SYSTEMS EXPERTISE**

The rubber tires on the monorail trains can put down both acceleration and braking forces far more effectively than, for example, the steel wheels of a train or metro unit. So this kind of vehicle is particularly well suited to routes with short distances between stops. Given the combination of rubber tires and rails, Knorr-Bremse is virtually predestined to develop monorail braking systems. And while monorails have only become more widespread relatively recently, Knorr-Bremse can draw on the decades of experience amassed by its Commercial Vehicle and Rail Vehicle Systems divisions to ensure the ideal interplay of components from both fields.
EFFICIENCY COMBINED WITH EXPERTISE

BERLIN’S S-BAHN LIGHT RAIL SYSTEM IS RETROFITTING MODERN SANDING EQUIPMENT TO VIRTUALLY ITS ENTIRE VEHICLE FLEET.

Developed and installed by Knorr-Bremse, the automatic system with its efficient monitoring function has been in service since the early summer.

More and more operators all over the world are investing in modernizing their vehicles and components. Upgrading offers an opportunity to reduce costs, add new functions and prolong vehicle service life.

A successful modernization project requires not just top product quality and first-class systems and development expertise but also excellent project management, competent field service teams and a reliable, long-term relationship with customers – all qualities that Knorr-Bremse rail services demonstrates on a daily basis.

MODULAR SANDING SYSTEM: AN ATTRACTION UPGRADE FOR ALL VEHICLE TYPES

Knorr-Bremse’s newly developed sanding system combines value for money with state-of-the-art diagnostic functions. Its modular design means it can be customized to the particular requirements of the vehicle and its operating environment. In the field of sanding systems, Knorr-Bremse is an absolutely top-class provider – and one of the few manufacturers with a range of sanding systems that covers all types of rail vehicle worldwide.

The main advantage of the system being used in Berlin is the newly developed sand delivery sensor. This has a contactless system for measuring the quantity of sand delivered and also provides the train driver with information about the sanding status, removing the need for expensive and time-consuming manual checks. Even the German Federal Railway Authority has officially recognized the advantages of such a system.

Constant delivery volumes mean that refilling of the sand container can be better planned – and a further advantage is the reduction in wear and tear of the pneumatic system compared to other sanding systems.

AN ENTIRE MODERNIZATION PROJECT FROM DEVELOPMENT TO INSTALLATION

In the case of the Berlin S-Bahn, the manual monitoring system used in the past had a further disadvantage. The existence of a live rail on the system meant there were only certain locations at which the driver could check the functioning of the sanding system and the train had to be temporarily taken out of operation for that purpose. But since May of last year, manual checks have been a thing of the past. Thanks to the new sanding system, many more vehicles can be kept in service each day.

Knorr-Bremse was involved throughout the project, from initial design and product development to actual production and installation in the customer’s vehicles. Close co-ordination between the development engineers, project managers and field service teams meant the entire process from initial tendering to the start of installation work took a mere four months. Together with their colleagues from Berlin S-Bahn, Knorr-Bremse technicians, working mainly at night, succeeded in retrofitting 569 Class 480 and 481 S-Bahn vehicles with the new sanding system.
With 569 two-car units you have equipped almost your entire fleet with new sanding systems. What were the most challenging aspects of this project?

Conducting an upgrade of this size while minimizing the impact on scheduled services is a major challenge in itself. In this particular case, however, there were a couple of other factors in the equation. This was the first time the SDN 31 system had been fitted to a rail vehicle, so the period from system development to large-scale installation was very short. In parallel with the installation work, we also had to deliver proof that safety standards were unaffected. And as we were only able to carry out system testing and operational trials in September 2011, we were under severe time pressure.

How does Berlin S-Bahn expect to benefit from this upgrade in terms of operations and efficiency? How will your passengers benefit?

The upgrade will help stabilize our operations. Thanks to the integrated monitoring system, manual checks of the sanding system are now a thing of the past. That means we have 17 more vehicles at our disposal and those 17 vehicles can play a big part in stabilizing our operating schedule. So ultimately our passengers also stand to benefit.

How would you rate cooperation with Knorr-Bremse on this project?

We were supported throughout by a strong partner and we were impressed at how flexible and cooperative Knorr-Bremse proved, working with us in a spirit of partnership to master what were often difficult phases of the project. The teams involved did a great job – particularly the local employees, but also all the technical support people from Munich or Austria who were called in at short notice and for various periods.
ABOUT TWO YEARS AGO, KNORR-BREMSE SECURED A FOOTHOLD IN THE JAPANESE HIGH-SPEED MARKET when the company won an order for bogie equipment for the E5 Shinkansen train. Now the company is also to equip the latest generation – the E6.

The order extends to the supply of brake discs, brake calipers and brake pads for the traction bogies on all 23 new trains. As with the E5 generation, the new E6 trains will feature ultra-compact, weight-optimized brake calipers designed – like the brake disc and ISOBAR sintered brake pad – to ensure maximum performance under extreme operational conditions.

SPEEDS UP TO 320 KM/H

The new generation of Shinkansen – the
E6 – will be operated JR East, one of the world’s largest passenger rail operators, moving roughly 17 million passengers daily on a network covering more than 7,500 km. The new E6 trains will shuttle between Tokyo and Akita on the west coast of the main island of Honshu. Cars from the new E6 trains will also be coupled with cars from the older generation of E5 trains on the line between Tokyo and Morioka. During the first stage the new E6 generation will be operated at top speeds of 300 km/h, but starting in spring 2014 that will climb to 320 km/h.

HIGHLY SATISFIED WITH PREVIOUS GENERATION BRAKING SYSTEMS

This repeated success for Knorr-Bremse in the highly demanding Japanese market can be attributed to two significant factors: On the one hand, Knorr-Bremse can offer customers a tremendous pool of expertise, particularly in the high-performance brake segment. On the other hand, this order shows that the systems delivered for the previous generation of E5 trains lived up to the operator’s high expectations.
In an age of advancing globalization and increasingly intense competition, one of the key success factors for any company is a motivational corporate culture. One central element here with a strong bonding impact is a common understanding of values. With this in mind, Knorr-Bremse launched a “Corporate DNA” project to study our corporate culture and take it forward to help master the challenges of the future.

Within the Corporate DNA project, Knorr-Bremse took a close and detailed look at its own genetic makeup. In all, over 100 employees from more than 20 countries around the world were involved in defining our DNA. The new Knorr-Bremse corporate values that resulted from this initiative stand for clear characteristics and strengths of the company. Just like personal values, corporate values are intended to provide a framework for our daily activities and decision-making.

Courageous entrepreneurship focused on technological excellence, outstanding reliability, personal passion and responsibility – these are the values that set Knorr-Bremse apart from the crowd. Now it is up to the company and each individual employee to ensure that, in line with the “Growing with Values” concept, we grow to match the challenges of the future.

The new corporate values, drawn up over the space of one year, were presented to the company’s management team in the spring of 2012. Then, on June 12, all Knorr-Bremse employees had an opportunity to discuss the values and their meaning for each individual and their work.

Today the corporate values provide us with a platform for further growth and a basis on which to write the next chapter in the over 100-year success story of this high-tech company.
... IN TECHNOLOGY AND QUALITY. Delivering the highest levels of safety and availability for operators. This is the goal of Knorr-Bremse.  | www.knorr-bremse.com |