At the end of last year, delegates from 194 different countries came to the United Nations Climate Change Conference in Paris with the ambitious goal of discussing a follow-up to the Kyoto Protocol that would represent a global agreement on reducing climate change. When a consensus was finally reached on the last day of the conference, it was hailed by most observers, policymakers and environmental organizations as an important breakthrough in climate policy.

Knorr-Bremse was involved in the special “Train to Paris” organized by Deutsche Bahn and the German Federal Environmental Ministry that traveled from Berlin to Paris to mark the occasion of the conference. The campaign bearing the same name made a clear statement on the need for more climate protection in the run-up to the conference, and highlighted pioneering solutions for making railroads—already a low-impact mode of transport—even more energy-efficient and eco-friendly.

It was no coincidence that Knorr-Bremse was one of the companies selected to travel on the train. We were on board because we are in the business of creating practical solutions that contribute to climate change reduction. The Group’s portfolio is full of products that reduce greenhouse gases and cut energy consumption—and we want to present some of these to you in this edition of the Rail Informer. They include lightweight doors and ultra-efficient HVAC systems, low-dust sanding systems, applications for the new iCOM system and the extremely light aluminum brake discs we are currently installing in more than 400 cars operated by Hong Kong Metro. A recent acquisition has also enabled us to offer noise-reducing organic K brake pads as original equipment. And in the case of retrofittable LL pads, we have recently doubled our manufacturing capacity.

We aim to continue to respond to demand for energy-efficient, low-emission, and sustainable rail transport. A current example is “Intelligent Air Control,” which varies operation of the oil-free compressor according to the vehicle’s particular operating status—thereby reducing both energy consumption and noise emissions.

But there is also exciting news from other parts of the Knorr-Bremse world. For example we recently signed a major maintenance contract with South America’s biggest logistics service provider; and we are currently collaborating with the metro operator in Washington D.C. and with Gmeinder Lokomotiven GmbH. All these projects offer vehicle builders and operators exactly what they expect from Knorr-Bremse—attractive added value combined with customer benefits.

As a new member of the Management Board of Knorr-Bremse Systeme für Schienenfahrzeuge, I look forward to working with you on a wide range of interesting projects and to benefiting from a fruitful exchange of ideas.

I hope you enjoy reading this edition!

Best wishes

Dr. Martin Lange
In a project that is an excellent example of synergy between rail vehicle products and the related rail infrastructure, Knorr-Bremse PowerTech – a provider of power supply systems for rail vehicles and industrial applications – is equipping a state-of-the-art test rig with frequency converters for Deutsche Bahn AG. The four multi-voltage testing units at DB’s Neumünster workshop are used to carry out testing and maintenance work on entire rail cars including installed components such as HVAC systems, lighting, auxiliary power converters, and wiring. The units provide various AC and DC external supply voltages for many different types of train. The four air-cooled frequency converters with DC bus and active front end, each 120 kW, are key elements of the test rig.

CONSTRUCTION WORK STARTS FOR NEW JOINT VENTURE

In late October last year, the groundbreaking ceremony took place for the latest member of Knorr-Bremse’s production and service network in China. Located in the city of Jiangmen, some 150 kilometers south of Guangzhou, the site will be the home of a new joint venture – “Guangdong Knorr-Bremse Guo Tong Railway Vehicle Systems Equipment Co., Ltd.” The new company was set up almost a year ago by Knorr-Bremse Rail Vehicle Systems and the region of Guangdong with a view to manufacturing braking, door, and HVAC systems for commuter and intercity trains. It will also act as a regional service and maintenance hub for southern China. The plant, which is located in Guangdong Railway Industrial Park, is due to go into operation during the course of 2017.

POWERTECH EQUIPS DEUTSCHE BAHN TEST RIG

As a central element in Knorr-Bremse’s strategy to expand its systems competence and generate new solutions offering genuine added value for customers, the new test and development center will have a crucial impact on the company’s future. A total of EUR 90 million – the biggest single investment in its history – has gone into building and equipping the center with 350 workplaces where members of the Rail Vehicle Systems and Commercial Vehicle Systems divisions will develop new systems and components on a cross-disciplinary basis.

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SHAPING TOMORROW’S WORLD

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NEWS

EXCLUSIVE DISTRIBUTION AGREEMENT

Since the start of 2016, Knorr-Bremse has been marketing the wheel flange lubrication systems and lubrication sticks produced by U.S. company L.B. Foster. The exclusive distribution agreement runs for a period of five years and covers the markets in Germany, Austria, Switzerland, and Poland, as well as southern Africa. This considerably expands the geographical coverage of the technology and market leader for wheel flange solid stick lubricants. Up till now, L.B. Foster had largely focused on the North American market.

FIRST DELIVERIES AS PART OF EXTENSIVE PRASA PROJECT

PRASA (Passenger Rail Agency of South Africa) has placed one of the biggest ever orders in the rail sector: for 600 commuter trains based on Alstom’s X’Trapolis platform. It is also one of the largest projects ever completed by Knorr-Bremse subsidiary IFE, which is to supply 53 sliding door systems for the six-section trains. Designed to be reliable, compact, and simple, the doors posed quite a challenge for IFE, as the company had to adapt its production technology to handle the special 3Chrom12 material required for the door leaves. This is commonly used in South Africa but unusual for European manufacturers. For the final phase of the project IFE will have a localization rate of over 75%.

PRESENTING A NEW BRAKE CONTROL SYSTEM FOR THE JAPANESE MASS TRANSIT MARKET

Having already established itself in the Japanese market with its high-performance bogie equipment for Shinkansen trains and its air supply units, Knorr-Bremse has now specially designed a brake control unit for the country’s mass transit sector. The new system has sparked considerable interest amongst operators and vehicle owners alike. Some 28,500 visitors came to the Mass-Trans Innovation Japan 2015 trade fair (MTI Japan 2015) last November in Chiba, near Tokyo, where an example of the control system proved one of the most popular exhibits on the Knorr-Bremse booth and was the subject of many discussions amongst the rail experts.

RAILSERVICES EXPANDS SUPPLY CHAIN PREMIUM SERVICES

If rail vehicle fleets are to operate efficiently, maintenance services must be readily available so as to keep throughput times to a minimum. A reliable supply of spare parts to service depots is essential – which means that advanced supply chain solutions are invaluable. RailServices’ supply chain specialists draw up the precise solutions required.

Working with Scandinavian customers, RailServices recently developed a customized box concept for maintenance of brake calipers. Processes were defined and specially designed containers developed to deliver shorter processing times and lower handling and transport costs. Application of poka-yoke principles also significantly improved process quality. The RailServices team is continually expanding its supply chain premium services and tailoring them to customers’ wishes.
MORE THAN ANY OTHER MODE OF TRANSPORT, the train symbolizes eco-friendly, energy-efficient mobility.

And as climate goals become more and more ambitious, the route to achieving them increasingly involves the railroad. That is why Knorr-Bremse is constantly working on products and systems to make trains more resource-efficient than ever. Here is an overview of what the current portfolio has to offer – and what is just round the corner.
CUTTING COMPRESSOR NOISE

KNORR-BREMSE IS CURRENTLY WORKING ON A RESEARCH PROJECT that links air requirements and a vehicle’s operating status. The introduction of an intelligent control system for oil-free piston compressors can potentially save operators money and reduce ambient noise.

The system is still undergoing testing. At a Knorr-Bremse lab in Munich, a piston compressor and inverter are linked up to a mass of cabling and connected to a computer for capturing the test data. Dr. Gert Assmann, one of the vice presidents of the Air Supply division at Knorr-Bremse Rail Vehicle Systems, presses a button and the compressor springs into life. Now anyone wishing to hold a conversation has to shout.

FROM 1,450 TO 720 RPM

The buttons are used to set the compressor to two different operating modes. The first is ‘normal’, and Assmann calls the second one ‘station-and-night’. They are part of the Intelligent Air Control research project, which aims to set air requirements according to a train’s operating status. “We are drawing on the skills of our new Powertech colleagues to develop a way of adapting compressor control to the situation,” explains Assmann. Testing is being partly carried out in an acoustic laboratory equipped with state-of-the-art technology that includes an acoustic camera. As its name suggests, the focus in ‘station-and-night’ mode is on reducing noise emissions. Normally in these circumstances the compressor would briefly switch itself on as soon as the air in the reservoir dropped below a certain pressure. But that would generate noise, as conventional piston compressors only have two modes: ‘On’ and ‘Off’. Intelligent Air Control, however, would reduce the compressor’s rpm as soon as the train entered a station or during nighttime operation. Specifically it would halve the supply frequency from 50 to 25 Hertz, so instead of turning over at 1,450 rpm, the compressor would only run at 720 rpm. It would have to operate for longer in this mode, but at a lower rate and therefore considerably more quietly.

INTelligent control unit means no auxiliary compressor

Any expert looking at the experimental set-up would immediately notice that something is missing – the auxiliary compressor. “That’s deliberate,” explains Assmann. “A smart control system makes it unnecessary.” Instead, the air supply system switches to battery mode when the pantograph is lowered and the reservoir is empty. In this mode one of the two compressor stages and the regeneration phase of the air dryer are temporarily switched off. “That is a new feature of our new air dryer generation,” says Assmann. “We rely on the capacity of the dryer granulate. The air is still dried, but we stop continuous regeneration in order to save air.” This means the main compressor can raise the pantograph on battery current alone. The new Intelligent Air Control system is still undergoing testing. “But the results so far have been promising,” says Assmann. Once the logic is implemented in the inverter, the advantages of selective control could also relatively easily be used in ‘normal’ mode. The aim is to achieve as smooth running of the compressor as possible, avoiding high start-up current and extending the service life of the electronic components.

The intelligent Air Control test lab at Knorr-Bremse Rail Vehicle Systems in Munich.

OIL-FREE compressors will never be able to operate completely silently. But the noise emissions they generate can be reduced to a minimum if they are effectively encapsulated. However there are certain technical challenges involved. “It’s not just a question of putting them in a housing,” explains compressor product manager Karl Hering. “You have to ensure that, despite the sound insulation, enough cooling air still reaches the compressor.” To get it right, Knorr-Bremse uses state-of-the-art simulation techniques such as computational fluid dynamics. The result is a significant reduction in noise levels. At 60 Hertz, the W120-T oil-free compressor developed for the ET 418 commuter trains operating in Stuttgart and Frankfurt generates a mere 37 dB(A) at a distance of seven meters.

Cleverly packaged
CUTTING NOISE

BY 2020 THE GERMAN TRANSPORT MINISTRY aims to reduce railroad noise emissions by 50% compared with the year 2000. Friction materials from Knorr-Bremse make an important contribution towards meeting this target – but also offer more.

K PADS: A NEW OE OPTION
Following its acquisition of the rail vehicle division of brake pad specialist TMD Friction, Knorr-Bremse will soon be able to offer low-noise organic brake pads as part of its original equipment portfolio. Approval of the ‘Cosid 704’ friction material brand is currently in the pipeline, and as soon as it has come through, the brand will be available as one of the first applications of the second K pad generation.

The K pad functions in a similar way to the LL pad, which is designed for retrofitting. The background to this is the state of the wheel tread and the rail. If they are rough, they start to vibrate and generate noise in the process. Unlike old cast iron brake blocks, the organic K pad does not roughen the surfaces, and in combination with a smooth rail surface, the noise generated by the contact between wheel and rail can be reduced by some 10 dB(A).

Also in the portfolio since the acquisition: pads for hydraulic braking systems and the ultra-low-wear ‘Cosid 828’ material, which is also being used by Deutsche Bahn AG.

LL PADS: MANUFACTURING CAPACITY DOUBLED
Whereas organic K pads are fitted to new vehicles, organic LL pads are an attractive way of reducing noise emissions on existing freight car fleets. From the operator’s point of view they have the advantage that they can easily replace old cast iron blocks without any need to modify the braking system.

With its ICER Rail joint venture, Knorr-Bremse produces brake pads and blocks that comply with the European UIC standard. Faced with growing demand, ICER Rail recently doubled its output of LL pads.

FLEXPAD SILENT: PUTTING AN END TO BRAKE SQUEAL
The Flexpad Silent whisper brake pad is able to prevent the characteristic brake squeal generated by sintered brake pads as a train comes to a stop. This high-performance brake pad combines sophisticated design with intelligent use of materials. In Europe it is currently being installed in Twindexx trains operated by Swiss Railways and Deutsche Bahn AG.

ALUMINUM BRAKE DISCS FOR CHINESE METRO APPLICATIONS
Using the right friction material is not just important from the point of view of noise emissions but also for a vehicle’s overall efficiency. Compared with conventional cast iron discs, metro brake discs made of aluminum weigh almost 50% less.

As part of a contract for vehicles operated by Hong Kong Metro, Knorr-Bremse is currently equipping a total of 744 cars with eight lightweight brake discs each – the biggest order for aluminum brake discs ever received by the company in China. They will reduce the weight of each passenger car on the 93 eight-section trains by more than 400 kg. In terms of efficiency, translational and rotational mass are the key concepts. Metro trains accelerate and brake so frequently that the energy savings offered by aluminum brake discs are particularly large.
CLIMATE-FRIENDLY HVAC SYSTEMS

THE ECO-FRIENDLY HVAC SYSTEMS MANUFACTURED BY KNORR-BREMSE’S MERAK BRAND owe their high energy efficiency to their use of heat pump technology. These systems reverse the cooling cycle and draw warmth from the outside air, thereby massively reducing energy consumption by some 20,000 kWh per rail car per year – the equivalent of the annual energy requirements of six households. This is particularly effective in cold climate zones.

Operators are extremely interested in this tried-and-tested technology – for example the 404 Civity rail cars ordered last year from Spanish manufacturer CAF by Nederlandse Spoorwegen will use this solution. “The operator’s decision to opt for our heat pump system shows the confidence they have in the concept and their desire to combine passenger comfort with environmental compatibility,” commented project manager Africa Herrera. Other eco-friendly technologies in the Merak product portfolio include energy recycling through heat recovery, brake energy recuperation, adjustment of fresh air when passenger numbers are low and VVVF (Variable Voltage Variable Frequency) technology, which enables the power coefficient to be maintained or even improved during part load operation, whereas with traditional technology it normally declines. This can save around 5,000 kWh per rail car per year. Merak also always endeavors to reduce the weight of its systems and optimizes the design of the heat exchanger to the precise operating conditions, thereby optimizing energy efficiency for every customer and every application.

E4: LIGHTWEIGHT DOOR SYSTEM

IT’S SMALLER, LIGHTER, BUT ALSO STRONGER – the new 4th-generation entry system from Knorr-Bremse Group company IFE. The development engineers have managed to reduce the number of components by more than 40% compared with its predecessor. Combined with the use of new materials and a compact design, this has reduced the weight by 20%. The door drive system is also equipped with a linear guiding system that allows for deformation.

A special version of the entry system for regional trains is currently being installed as part of two major projects in the United Kingdom: the ScotRail link between Edinburgh and Glasgow, on which Hitachi AT200 trains will operate from 2017 onwards; and the new Crossrail line – currently Europe’s biggest rail project – which was recently renamed the Elizabeth Line in honor of the British Queen. The new rail link under London will run from west to east from 2018 onwards. The trains will be based on Bombardier Transportation’s AVENTRA platform.

In addition to saving energy as a result of their reduced weight, the newly designed doors also offer up to four times better sound installation and 50% less heat loss.

ECO-FRIENDLY CONTROL

TOWARDS THE END OF 2015, ALSTOM DELIVERED A FIRST VERSION OF THE NEW H3 HYBRID SWITCHER to Volkswagen (VW) in Wolfsburg for use on the company site and as a feeder locomotive for neighboring train stations.

The H3 locomotives operate on electric power for 50-75% of the time, so their fuel consumption is up to 50% lower than that of conventional switchers – and emissions are cut by up to 70%. Reduced noise is a further advantage, particularly in urban settings, in train stations and when entering and leaving factory halls.

The control technology for these state-of-the-art vehicles is supplied by Selectron. Based on the MAS 83x product family, it operates as a vehicle control unit, a battery monitor, and a diagnostic unit, amongst other things. A particular technical challenge met by the H3 is the speed-dependent switch-over between diesel and battery operation. Above a certain speed threshold the locomotive changes smoothly and virtually automatically between the two drive systems. Initial experience with operating the switchers has been so good that VW is considering operating further H3 locomotives at its Audi manufacturing site in Ingolstadt.
EFFICIENT DRIVING WITH iCOM METER AND iCOM ASSIST

TWO APPLICATIONS BASED ON THE iCOM SYSTEM ARE PARTICULARLY USEFUL FOR REDUCING EMISSIONS: the LEADER (iCOM Assist) driver information system and Energy Metering (iCOM Meter). The latter is essential for assessing any energy-saving measures.

The product involved is the EcoMeter, which detects and measures currents, voltages, and reactive energy according to the latest EN50463 standard. iCOM Meter then processes consumption data and provides a reliable basis for further optimization and calculation of energy costs. Swiss Railways (SBB) are currently equipping their entire fleet of trains with the system as part of a large-scale project.

The LEADER (iCOM Assist) driver information system aims to encourage locomotive engineers to adopt a driving style that is as efficient as possible. The application accesses an online database with information on the train configuration, route, and timetable. Using these parameters, the train’s current speed, and its position as plotted by GPS, it then calculates the most efficient driving recommendations at any point in time. For example, its advice may be to let the train roll on to the next scheduled stop instead of using more energy for traction and to apply the mechanical brake just as it arrives. This saves energy, improves punctuality, and reduces material wear.

“LITE”: THE NEW GENERATION OF ENERGY SUPPLY SYSTEMS

“LITE” STANDS FOR LIGHT INTEGRATED TRAIN ENERGY SYSTEM and is a development by Knorr-Bremse’s PowerTech brand that is fast approaching completion. The aim of this new generation of power supply systems is decentralized power distribution according to actual needs.

The system is extraordinarily effective – power losses can be reduced by up to 40 percent. It involves distributing power from the overhead line according to the actual requirements of users like HVAC systems and compressors. Supplying them according to the VVVF principle means they can operate with maximum efficiency – and an added advantage is that their service life can be extended. Combined with the use of semiconductors, additional savings in terms of weight and space can also be achieved. The effectiveness of “LITE” in this respect – and its potential for reducing energy consumption – is enhanced by intelligent linking of the power supply with other Knorr-Bremse systems that have been optimized for this combination.

REDUCED DUST FROM SANDING

FINE DRIZZLE, EARLY-MORNING MIST – or the familiar problem of autumn leaves on the line – are all situations where a sanding system is essential to ensure adequate wheel-rail adhesion. Knorr-Bremse’s portfolio includes a system that no longer delivers sand at a constant rate, but instead varies the volume according to the train’s speed.

The retrofittable system significantly reduces sand consumption – especially at speeds below 50 km/h – and also reduces dust by up to a third, according to braking intensity. Whereas in the case of the previous constant-delivery system, 60 grams of sand were delivered during braking at 2.7 m/s² from a speed of 50 km/h, the new speed-controlled system only delivers 40 grams. Similar reductions are achieved at braking rates of 1.5 m/s². Calculations are based on TSI limits.

▲ The relevant data can be clearly displayed on a tablet.
TOKYO’S NEW, GREENER TRAINS

A MILESTONE HAS BEEN REACHED FOR K诺R-BREMSE: ITS BIGGEST JAPANESE CUSTOMER, JR-EAST, has decided to use its ultra-eco-friendly oil-free compressor.

The Yamanote Line is the best-known of all the 110 train lines in Tokyo. Everyone in the country is familiar with it, and there is even a video game in its honor. It forms a 35 km loop that takes in all the urban centers in this mega-city. Despite the regular service – a 220-meter train rolls into a station every 2 to 4 minutes, accompanied by a special jingle – the line is always crowded with commuters and tourists.

Japan’s biggest rail operator, JR-EAST is responsible for the Yamanote line, and is planning a major upgrade in time for the Summer Olympics and Paralympics in 2020. All 51 trains are to be replaced with a new model – the three-section E235 multiple unit, which offers more seats for the elderly and a state-of-the-art passenger information system. Since March 2016 the first train has been running on the line with a view to collecting important operating data.

For the new trains JR-EAST is also using an oil-free compressor for the first time: the Knorr-Bremse VV180-T. This marks a milestone for Knorr-Bremse Rail Systems Japan, which has been preparing the market for this innovative technology for some 10 years. The new generation of eco-friendly air supply systems was initially piloted in collaboration with a private train operator, and this was followed by 12 months of field testing by JR-EAST itself.

Knorr-Bremse has been cooperating with JR-EAST in various fields for many years and has already supplied more than 1,000 compressors to Japanese customers. But the VV180-T represents a complete paradigm change thanks to its special piston and cylinder design. This means that no oil waste is generated through having to change oil and air filters.

Strict requirements for suppliers have earned Japan a reputation as one of the most difficult markets to penetrate, but Knorr-Bremse’s advantage is the reliability of its products. The CoC Air Supply and KBRS Japan cooperate closely over technical matters, project management, and process quality. The company expects sales of oil-free compressors in Japan to increase over the next few years. JR-EAST is likely to operate the new E235 trains as the latest version of its standard train for other lines as well. Working closely with the CoC Air Supply, Knorr-Bremse Rail Systems Japan intends to further expand its close and trusting relationship with its Japanese customers.
SIMPLIFICATION THROUGH INTEGRATION

CUSTOMERS BENEFIT FROM PROJECT-SPECIFIC INTEGRATION OF BRAKING EQUIPMENT: Pre-assembled containers or mounting frames reduce complexity while cutting assembly costs as well as total cost of ownership.

Vehicle builders often buy individual brake components from various suppliers and put them together on their own assembly line. This offers savings in initial procurement costs, but these are soon canceled out by the high cost of development, logistics, assembly, and testing.

As a leading supplier, Knorr-Bremse has both the competence and capacity to design and deliver ready-to-install brake control modules (BCM) that meet customers’ precise requirements. The car-specific, maintenance-friendly containers or frames can not only contain the brake control portion but also include all the necessary air supply equipment.

“Combining the brake control portion with compressors, filters, air dryers, and air reservoir on a single mounting frame maximizes mechanical integration, reduces the complexity and expense for the customer, and at the same time improves quality,” explains Jean-Marc André, Director Sales & Systems for Metro Applications at Knorr-Bremse Rail Vehicle Systems.

Some kinds of rail-industry news are much more likely to hit the headlines than others: high-speed trains, new vehicle platforms, or freight trains of record-breaking length. Without the dedicated team, they would be far harder to operate. Switchers efficiently shift trains to exactly where they are needed, or reconfigure them as required. Some locomotive builders produce customized switches either as one-offs or in small batches, for use on industrial railroads, steelworks or on narrow-gauge networks.

The DE75 BB from Gmeinder Lokomotiven GmbH – since 2012 part of the ZAGRO Group – is one of the most recent to appear on the market. With start-off traction of 260 kN, it is currently Europe’s most powerful hybrid switcher. Knorr-Bremse is supplying its braking systems.

KNORR-BREMSE HAS ITS OWN TEAM DEDICATED TO PRODUCING CUSTOMIZED BRAKING SYSTEMS FOR SPECIAL VEHICLES AND APPLICATIONS. The team is currently supplying the braking systems for the new DE75 BB switcher locomotives, and also for a very special modernization project.

Some kinds of rail-industry news are much more likely to hit the headlines than others: high-speed trains, new vehicle platforms, or freight trains of record-breaking length, to name but a few. Although the lowly switcher locomotive attracts much less media attention than its crowd-pleasing cousins, without it, they would be far harder to operate. Switchers efficiently shift trains to exactly where they are needed, or reconfigure them as required.

Some locomotive builders produce customized switches either as one-offs or in small batches, for use on industrial railroads, steelworks or on narrow-gauge networks.

The DE75 BB, currently Europe’s most powerful hybrid switcher.

Working across group companies and sites

Knorr-Bremse not only supplies braking systems as original equipment but also for modernization projects. For example, it is currently involved in a project – again in collaboration with Gmeinder – to upgrade fourteen 714-series locomotives for Deutsche Bahn rescue trains. These trains are kept permanently on standby close to high-speed rail lines that pass through long tunnels, ready to act in case of an emergency.

KNORR-BREMSE IS REPLACING NOT ONLY THE BRAKING SYSTEMS IN THE OLD LOCOMOTIVES, BUT ALSO SUPPLYING A COMPLETE NEW CONTROL MANAGEMENT SYSTEM, INCLUDING THE TRAIN BUS LINK TO THE LOCOMOTIVES. The automation system is made up of safety-relevant vehicle control systems and I/O interfaces, and I/O devices for controlling the locomotive’s various functions. It also coordinates a wide range of sub-systems such as the hydrodynamic drive system, the diesel engine and the local input and output modules. The project is typical of Knorr-Bremse’s systems-based approach: the new control management system is produced by Selectron Systems AG, a large proportion of the new components are sourced from the company’s sites in Mödling, Austria. The compressors are produced by Knorr Bremse in Munich, where the final assembly of the brake panels also takes place. The first of the new rescue trains has been on the tracks since January 2016, while the remainder are due to be supplied over the course of the year.
CLOSE COLLABORATION

TRANSPORTATION OF RAW MATERIALS IS A COMPLEX TASK.

South America’s biggest logistics company, RUMO/ALL, relies on Knorr-Bremse systems – and in the long term has also put its faith in RailServices.

ONE WEEK TURNDOWN FOR MAINTENANCE

The new braking systems are the first important element in the contract; the second runs to a different time frame and involves maintenance of the new systems and those Knorr-Bremse products that were installed prior to the modernization project. It is an enormous logistical and administrative task. New sets of equipment have to be installed and ready for operation within the space of a week. The main supplier of the DB60 II is the NYAB facility in Watertown, New York State, but one component is coming from the Knorr-Bremse plant in Budapest. All the installation work is being carried out by the fully-equipped service center at Knorr-Bremse’s site in Itupeva, Brazil.

NEW DB60 AND DB60 II CONTROL VALVES FOR ENHANCED SAFETY

A program to fit the vehicles with new AAR braking systems, most of which use DB60-II control valves, including brake cylinders and slack adjusters, has been running since December of last year. One of the biggest safety gains comes from the Brake Cylinder Maintaining function on the DB-10C valves, which continuously fills the brake cylinders with air even during the braking process, compensating for any unavoidable air leakage. “Without this feature there can be a potentially critical reduction in braking force, especially during long braking on downhill gradients,” explains Edison Pissolato, the RailServices manager at Knorr-Bremse Brazil responsible for the project.

“Our aim is to ensure that the freight cars can go back into service as quickly as possible,” adds Pissolato, who is managing the refitting program via NYAB on the basis of a forecast.

KEEPING WASHINGTON ON THE MOVE

FOR ALMOST 30 YEARS KNORR-BREMSE HAS BEEN SUPPLYING THE METRO IN WASHINGTON D.C., with OE components and after-sales service.

A number of major projects are currently in the pipeline.

Although the first plans for Washington Metro were drawn up more than 55 years ago, the current network operated by Washington Metropolitan Area Transit Authority (WMATA) is one of the most up-to-date in North America. It is designed for maximum efficiency, with a large number of Park-and-Ride facilities to attract commuters from the surrounding region, who can easily drive to them and continue on by public transport. And three major interchanges, plus carefully planned transfer points to the bus system, put virtually any destination in the city within easy reach. The system has grown steadily over the years and – at almost 220 kilometers – is now the second-biggest in the USA. With its braking, door operators, and HVAC systems Knorr-Bremse has maintained a presence on board the metro trains for almost 30 years – both as an original equipment supplier and a provider of after-sales services. The first order for equipment was received back in the late 1980s, and since 1999 the North American Knorr Brake Company has supplied equipment for virtually every new vehicle series to go into service on the network. Systems for the first 100 of a total of 748 new Kawasaki 7000 series railcars were recently delivered.

MAINTENANCE-FREE SPINDLES FOR 2K, 3K, AND 6K TRAIN SERIES

Following successful completion of an extensive Pilot RC program (Reliability Improvement Campaign) by RailServices for the old HVAC systems in the 5K series, Merak VA has been awarded a contract to upgrade the rest of that fleet. Now, a similar program is currently being implemented for the door systems, with the main focus on installation of maintenance-free door spindles. Last year the decision was made to retrofit all doors on the 2K/3K and 6K series with the new components in a process slated to begin in the spring of this year. The RIC program is an excellent example of how RailServices teams work hand in hand with local operators to identify potential problem areas and generate real added value,” commented Rich Bowie, President of Knorr Brake Company.
Thinking ahead

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