Light Rail Vehicles

REALIZING SYSTEM SYNERGIES

KNORR-BREMSSE
Light rail vehicles can be an attractive option when existing local transport systems have reached their limits. They can have diverse capacities and individual performance characteristics and can act as important feeders for the metro system. Major Asian cities in particular are showing an increasing interest in this type of transport, which is relatively new to their part of the world.

When road traffic has ground to a halt, agile LRVs can glide quietly past the automobiles with minimum environmental impact. However, their sheer complexity can be a challenge, even for experienced vehicle builders. As a competent and reliable partner, Knorr-Bremse can help with their development and production – and of course maintain them as well.

**THE PERFECT COMBINATION OF HIGH-QUALITY SYSTEMS & SERVICES**

Knorr-Bremse is the world’s leading manufacturer of braking systems for rail vehicles. The product portfolio also includes entrance systems, HVAC systems, auxiliary power supply systems, control components and windscreen wiper systems, platform screen doors, friction material, driver assistance systems, and control technology. As a technology leader through its products the company has been making a decisive contribution to greater efficiency, cost effectiveness and safety in the international rail business.

**IF E**

IFE is the leading manufacturer worldwide of automatic entrance systems for rail vehicles. The guiding principle “Success through Quality and Innovation” has marked the company’s development for more than 70 years. Today, external and internal doors, door control units, and access devices are among the range of solutions offered. With the experience of an unparalleled 650,000 entrance systems delivered in the company’s history IFE continues to shape the industry.

**MERAK**

Our mission is to be the most respected partner for rail climate control solutions, through shared values, engineering experience, and global presence. Close customer cooperation, continuous improvement, and innovation have made Knorr-Bremse a world leader for heating, ventilation, and air conditioning (HVAC) systems, with some 100,000 units in successful daily service.

**MICROELETTRICA SCIENTIFICA**

Microelettrica Scientifica, based in Italy, has been developing and producing power switches, transducers, resistors and fans dedicated to the most advanced applications of the rail vehicle industry and industrial applications for more than six decades. The company’s high product quality results from continuous research, realized in close cooperation with its customers in order to precisely and punctually meet their needs.

**POWERTECH**

Knorr-Bremse PowerTech is a leading supplier of advanced auxiliary power supply solutions, ensuring effective power conversion in all types of rail vehicles. Combining more than 100 years of extensive experience with comprehensive engineering competence, we support customers with tailor-made compact, highly reliable and efficient power supply solutions – life-long services around the globe included.

**SELECTRON**

State-of-the-art rail vehicles can only be realized with advanced control technology. For many years, Selectron Systems AG has been successfully developing such solutions for the automation, networking, and control of rail vehicles. As Selectron is able to utilize the worldwide Knorr-Bremse sales and service network it can provide its customers with even better support at international level.

**KIEPE ELECTRIC**

Full range of electrical systems, traction/power supply inverters, climatization and cooling systems (motor, battery, traction). Keipe Electric GmbH is one of the global leaders in electrical systems and traction technology for local public transport vehicles, including LRVs, metro trains and buses. With more than 100 years of experience, the company not only offers pioneering electrical equipment for rail vehicles and buses but also a broad range of related maintenance services. Its comprehensive refurbishment offer for existing vehicles helps many vehicle operators cope with financial pressures.
More than 110 years of experience have made Knorr-Bremse the world’s leading manufacturer of rail vehicle braking systems. The company’s skills are evident not just in the individual components it manufactures but also in their perfect interaction – the key to a braking system that meets the highest standards of functionality, reliability and safety. Building on both proven and innovative technologies, Knorr-Bremse works closely with customers to develop project-specific solutions from a single source with a carefully designed combination of electronic, pneumatic, mechanical and hydraulic components. A single, direct interface ensures cost-effective and resource-efficient integration into the overall vehicle system.

**CUTTING-EDGE TECHNOLOGIES**

**HYDRAULIC UNIT HGES**
- Best power density due to optimized design for brushless DC application
- Combination of various additional functions possible (security brake, auxiliary release circuit)
- Customized interfaces
- Ideal for stopping/holding brakes and brakes with wheel slide protection
- Smallest measurement: 148 mm height

**HYDRAULICS I HYDRAULIC BRAKE CALIPER HSE1A30**
- Compact and designed for limited installation space
- Further improved force density
- Wide temperature range for application area
- Low maintenance requirement

**SYSTEMS SOLUTIONS – BENEFITS FOR THE CUSTOMER**

The more closely braking systems are networked with other rail vehicle sub-systems, the greater the benefit for the operator, as this reduces overall complexity by avoiding redundant infrastructure. For example the braking system’s vehicle weight sensors can be used by the HVAC system to adjust output when passenger density drops.

**PRODUCTS FOR ALL STANDARDS**

Knorr-Bremse is the partner of choice for regional train applications – with systems based on more than 110 years of development, production and practical field experience. It provides innovative, TSI-compliant solutions tailored to local requirements, all current global standards (UIC, AAR, GOST, Chinese Standard, ABA) and individual operating scenarios. And its worldwide production and service network meets even the strictest requirements for local content.
**PRODUCT RANGE**

**ELECTRONIC BRAKE CONTROL UNIT**
- Modular and flexible design with standard board configuration
- Functionality for wheel slide protection and load correction integrated
- Ethernet connection possible

**HYDRAULIC CONTROL MODULE**
- Simplified diagnostic and functionality including regen control
- Simplified hardware interface including LED visual status display
- Software installation, diagnostic and maintenance via a standardized interface

**TRACK BRAKE CONTROL – IRCB**
- Next-generation control for track brakes
- Supports condition-based maintenance
- Enhanced function monitoring
- Modular system

**MOTION CONTROLLER KIT**
- Brake, traction and master controller
- Compatible with UIC standard
- Small, flexible installation space
- Robust modular design, proven application

**HYDRAULIC UNIT HGK**
- DC, brushes, DC or AC motor
- Smallest dimension: 100 mm
- Installation options: horizontal or vertical

**HYDRAULIC UNIT HGF**
- For pressure- or spring-actuated brake calipers
- With brake pressure or regulation
- Pressure range from 0 to 100 bar

**HYDRAULIC UNIT HGE**
- For pressure or spring-actuated calipers
- Option for emergency brake
- Integrated hydraulic leveling control

**HYDRAULIC BRAKE CALIPER**
- Knorr-Bremse brake caliper units are ideally suited for tram platforms, especially the low-floor segment, where installation space is at a premium. These high-performance modules can be installed even in the most confined spaces and operate with low maintenance requirements.

**HYDRAULIC BRAKE CALIPER HSC1P10N**
- Low life-cycle costs
- Enhanced maintainability
- Improved safety

**MAGNETIC TRACK BRAKE**
- Modular standardized solutions
- Robust and proven design
- Wear-optimized pole shoes available

**AXLE-MOUNTED BRAKE DISC**
- Standardized interface and mounting on wheel
- Resistant against thermal cracks due to movable friction disc
- Robust design with high protection against external shock and vibration

**PROPADS**
- Specific design for all hydraulic applications
- Optimized designs for:
  - high thermal loads
  - high static friction values
  - wide range of designs and friction materials

**SUSPENSION LEG**
- Part of hydraulic pneumatic suspension and leveling system
- Vertical and lateral suspension functionality
- Installation space corresponding to steel springs

**LEVELING CYLINDER**
- Hydraulic height adjustment
- Integration inside the steel spring
- Integration of wheel wear adjustment
BRAKE SYSTEMS

PRODUCT RANGE

SANDING SYSTEMS
- Suitable for manual or automatic sand filling
- Continuous innovation
- Lighter weight and smaller installation space
- Drying, heating and loosening of the grit

WIPER SYSTEMS
- Expertise with all vehicle types
- Extensive investigations and tests to guarantee durable products
- Long-term product support with spare parts delivery of 30 years

AIR DRYER
- Dual-chamber regenerative dryer
- Disposable cartridges
- Integrated pre-filtration

OIL-FREE COMPRESSOR 2.0
- Specially optimized design to minimize noise and vibrations
- Cold starts without preheating, down to -50 °C
- No oil exchange, no disposal of used oil, no contaminated condensate to collect

DIAGNOSTICS/iCOM
- iCOM transfers the mobile device philosophy to the railway industry
  - Condition monitoring (iCOM Monitor)
  - Driver advisory system (iCOM Assist)
  - Energy metering (iCOM Meter)
  - Developer tool (iCOM Developer Studio)
  - Energy management (iCOM Energy Saver)
  - Service tool (iCOM Service)
ENTRANCE SYSTEMS

41,000,000 safe opening and closing cycles daily with IFE products around the world for LRVs, metros and monorails require highly dependable entrance systems. Matching the steadily increasing requirements regarding safety, passenger comfort and uninterrupted availability for persons with reduced mobility is a technical challenge for rolling stock manufacturers, system suppliers and train operators.

As a leading manufacturer of LRV, metro and monorail entrance systems we offer the full range of suitable products: from sliding plug doors and sliding doors with opening widths between 650 and 2,000 mm and a choice of all glass, aluminum sandwich or stainless steel door leaf options, up to boarding aids such as sliding steps, ramps and gap-bridging devices. Further development is not only driven by technical and functional excellence but also by long-term economic considerations. Our products are characterized by a particularly low-maintenance and easy-to-install design featuring the lowest life-cycle costs.

IFE is globally renowned as a reliable partner for the supply of entrance systems. The range of offered services, however, goes far beyond this area and furthermore includes installation, commissioning as well as maintenance over the whole product life of our entrance systems, including spare parts management.

CUTTING-EDGE TECHNOLOGIES

RLS ENTRANCE SYSTEM
The RLS entrance system is one of the top-selling systems worldwide. It is characterized by reliable operation even under the worst climatic conditions – the system has been successfully implemented in the far north at extreme subzero temperatures as well as in desert areas with enormous heat and sand. Thanks to the modular design of the system, we are able to cover the worldwide demand for trams and metros with standardized modules.

The IFE RLS door drive design is straightforward and simple. It needs only one linear guiding system for the swiveling and sliding movements of both door leaves. This drive – which needs no rotary columns – is mainly used for low train speeds and reduced loads but with frequent opening and closing cycles.

ADVANTAGES
- Flexible integration in all types of vehicles with only a small protrusion outside of the portal
- Needs only one linear guiding system for the swiveling and sliding movements of both door leaves
- Low maintenance: Use of a lubrication-free spindle drive and encapsulated recirculating ball bushings
- Robust: Durable ball bushing guide allowing for a high number of cycles
- Single-leaf and double-leaf versions
- Straightforward and simple design

PRODUCT RANGE

E4 DOOR DRIVE
WITHIN THE DOOR PORTAL, DOUBLE-LEAF
- Active floor-level locking device fitting in the installation space of a rotary column
- Increased safety thanks to four over-dead-center locks
- Maintenance-free door drive
- Adjustment-free design
- Rugged guiding system

RLS DOOR DRIVE
OUTSIDE THE DOOR PORTAL, SINGLE AND DOUBLE-LEAF
- Linear and encapsulated guiding system for swiveling and sliding
- Suitable for frequent opening and closing cycles
- Decades of field experience ensure high reliability
- Lubrication-free spindle drive
- Modular design

X4 SLIDING STEP
- Reduced installation height of 50 mm
- Summery-free S-pressure guiding system
- Tolerant to torsion of the vehicle
- Maintenance- and adjustment-free locking module
- Rugged design, not affected by dirt, corrosion or by ice and snow

RAMP
- Secure access to the vehicle for wheelchair users, even with high level difference between vehicle and platforms
- Delivered as a narrow, pre-mounted cassette
- Requires only minimal installation space at low altitude
- Versatile: penetrable, mobile, etc. It can be adapted to the conditions of the customer infrastructure

SYSTEMS SOLUTIONS – BENEFITS FOR THE CUSTOMER
The more closely entrance systems are networked with other rail vehicle sub-systems, the greater the benefit for the vehicle builder, as a well-designed solution can enable data from adjoining systems to be used. For example sub-systems can ‘share’ information on the train’s speed to ensure that the doors only open once the train has come to a complete standstill in a station.
HVAC SYSTEMS

HEATING, VENTILATION AND AIR CONDITIONING
Passengers expect the rail sector to steadily improve levels of comfort. Noise and vibration are increasingly regarded as sources of irritation, and a properly air-conditioned interior is taken for granted. Knorr-Bremse HVAC systems ensure the right level of comfort for all passengers, whether they are commuters on urban metro trains operating in tropical conditions, or long-distance travelers in the arctic winter. Project-specific application of service-proven technologies means that systems can be flexibly configured for all rail vehicle types and operating environments, and always deliver the right performance with low weight, noise, and energy consumption. Available as roof-mounted, floor-level, or under-floor units, for driver’s cabs or passenger cars, for newly-built vehicles or modernizations, Knorr-Bremse HVAC systems are in operation in all parts of the world – with local teams ensuring seamless service, every day.

CUTTING-EDGE TECHNOLOGIES

ADAPTIVE LIGHT RAIL SALOON HVAC SYSTEM
- Roof-mounted
- Very compact and low weight with an excellent ratio of size vs. cooling capacity (45 kW in 500 kg)
- Adaptive temperature control
- Fresh air input control according to occupation and exterior conditions

HVAC SYSTEM WITH ALTERNATIVE REFRIGERANTS
- CO₂ (R744) with GWP=1 (global warming potential)
- High energy efficiency thanks to frequency-controlled compressor and new electric expansion valve control
- Heat pump and energy recovery available

SYSTEMS SOLUTIONS – BENEFITS FOR THE CUSTOMER
The more closely an HVAC system is networked with other rail vehicle sub-systems, the greater the benefit for the vehicle builder and operator, as this enables intelligent response to the other systems’ current operating status. For example the HVAC unit can be immediately shut down if a fire alarm is triggered, instead of continuing to blow air into the vehicle.

In combination with heat pump and motor cooling units, the HVAC system can significantly reduce the power consumption, which is a major benefit for the vehicle operator.

PRODUCT RANGE

HVAC SYSTEMS
- Roof-mounted with compact design
- Control panel mounted inside or outside the unit (CAN, MVB, Ethernet, Profinet)
- Acoustic noise level optimized
- Compact and low weight

SALOON
- HVAC system with 1 or 2 cooling circuits
- Variable fresh air and capacity control (CO₂, humidity sensors)
- Improved energy efficiency (G1 during braking phase, heat recovery)

CABIN
- HVAC system with one cooling circuit
- Control panel mounted inside the unit
- With IGBT

MOTOR Cooling SYSTEM
- Application for water cooled motors
- Compact design with integrated brake resistor
- Energy can be used for HVAC heating support (heat recovery)
- Cooling system for battery and traction also available
With growing comfort and safety requirements in modern rail vehicles, the power demand by various on-board consumers is constantly increasing. The on-board power supply system is thus assuming an increasingly important role. Knorr-Bremse PowerTech stands for more than 100 years of extensive hands-on expertise in power conversion, ensuring effective power supply and efficient energy distribution in all types of rail vehicles.

With our comprehensive engineering competence and a proven track record of more than 30,000 converters in operation worldwide, we supply cutting-edge power converter solutions, distinguished by their compact design as well as high reliability and efficiency. Based on standardized modules, combined with a large range of optional product features, we closely work together with our customers to develop auxiliary power supply and distribution systems, tailored to their specific needs. Added to this, we ensure close proximity to our customers and maximum uptime of our systems through a broad portfolio of custom-fit service solutions and the integration into the global Knorr-Bremse service network.

**PRODUCT RANGE**

**AUXILIARY POWER SUPPLY SYSTEMS**
- Wide range of input voltages supporting global requirements
- Scalable architecture for varying power demands
- Optimized efficiency in silicon and silicon carbide
- Supporting all common communication interfaces
- Suitable for all mounting positions
- Parallel switching of AC as well as DC outlets possible

**STAND-ALONE BATTERY CHARGERS**
- Broad range of input voltages
- Scalable based on modular design
- Efficient and highly reliable
- Supporting RCAN and MVB communication
- Flexible mounting positions incl. 19” enclosure
- Parallel switching of DC outlets possible

**INVERTERS FOR VARIABLE VOLTAGE, VARIABLE FREQUENCY LOADS**
- Demand-driven power supply for vvvf loads (HVAC, air supply unit)
- Convection-cooled module
- Stand-alone or integrated into load
- Optimized power management on vehicle level
- Full-scope diagnostic functions for improved LCC

**SYSTEMS SOLUTIONS – BENEFITS FOR THE CUSTOMER**

The more closely power supply systems are networked with other rail vehicle sub-systems, the greater the benefit for the vehicle operator. For example a smart air supply unit could adjust compressor performance when the train enters a station, thereby reducing noise emissions.
Resistors enable safe, controlled braking to take place, contactors connect and disconnect circuits under load, and disconnectors change the configuration of the traction circuit when the catenary voltage changes. High-voltage metering transducers provide reliable data for the vehicle logic, drive control and many other measuring devices. Systems like these are often invisible to the outside world but are essential for the proper functioning of a modern vehicle. And however diverse their tasks, such control components have one thing in common: There can be no compromises in terms of safety. Microelettrica Scientifica’s cutting-edge solutions have met this requirement for more than 50 years, and today the company is a global market leader in electrical and electromechanical control components for rail applications.

**CUTTING-EDGE TECHNOLOGIES**

**LPRC1000 LINE AND PRE-CHARGING CONTACTOR UNIT**
- Single unit including a line contactor, a pre-charging contactor and a pre-charging resistor
- Rated voltage up to 2000 V DC
- Electrical connections between the contactors and the resistors are implemented
- Easy installation, wiring and maintenance
- Type and routine tests are made on the unit (and not only on the single components)

**LTHS320HF MOTOR PROTECTION CONTACTOR**
- Three-phase contactor, with voltage rating up to 2 kV
- Intended to separate permanent magnet motors from inverters during short circuits
- Capability of interrupting currents at high frequency, up to 300 Hz
- Compact design and high breaking capacity

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Modern rail vehicles are highly complex systems incorporating braking, door and HVAC systems as well as traction, lighting and power supply components. They also carry a wide range of display units for vehicle diagnostics, passenger information and safety alerts. The train control management system (TCMS) links all these functions into a single, intelligent system that offers maximum precision, safety and reliability. This is where Selectron Systems AG comes in – the market leader in rail vehicle control technology and automation. Selectron’s comprehensive product portfolio includes freely programmable control units, central and distributed remote I/O systems and train setup components. At the heart of the systems is an EN 50155-compliant family of control systems.

**SYSTEMS SOLUTIONS – BENEFITS FOR THE CUSTOMER**

The more closely a rail vehicle’s sub-systems are networked with each other, the greater the benefit for the vehicle builder and operator. For example, cross-system diagnostics can make individual service tools superfluous. Cutting-edge control technology from Selectron Systems AG provides the perfect basis for this.

**CUTTING-EDGE TECHNOLOGIES**

**SMARTIO**

The smart remote I/O system (“Smartio®”) simplifies the complexity of the wiring in the body of the vehicle, in the cabinet, and in the driver’s desk allowing a lean design, savings on installation and service time, and is extremely space-saving and easy to install. It can be flexibly expanded for all applications and is, therefore, a “just enough” solution.

The new CPU3xx Smartio® controller family (SIL0/SIL2) has been added to the established Smartio® I/O system.
FULL RANGE OF ELECTRICAL SYSTEMS AND TRACTION TECHNOLOGIES.
Kiepe Electric GmbH is one of the global leaders in electrical systems and traction technology for local public transport vehicles, including LRVs, metro trains and buses. With more than 100 years of experience, the company not only offers pioneering traction technologies for rail vehicles and buses but also a broad range of related maintenance services. Its comprehensive refurbishment offer for existing vehicles helps many vehicle operators cope with financial pressures.

EXTENDED SERVICE LIFE AND MINIMUM MAINTENANCE.
Products from Kiepe Electric are designed to be low-maintenance. Powerful diagnostic tools and a worldwide service network ensure that life-cycle costs are kept to a minimum. This is the result of closely interconnected sub-systems whose data is collected by Kiepe System Diagnostics (KSD) and Kiepe Fleet Management (KFM). These diagnostic and maintenance programs provide operators and service personnel with an overview of the operational and diagnostic data of installed components and reduce downtimes to a minimum.

CUTTING-EDGE TECHNOLOGIES
DGG 500 POWER CONVERTER SERIES – INTEGRATED TRACTION AND ON-BOARD POWER SUPPLY IN STANDARDIZED VERSION FOR STREETCAR AND LRV APPLICATIONS
- Option of axle-selective or bogie-selective traction
- With or without on-board auxiliary power converter
- Integrable auxiliary power converter with parallel connectability of the 3 AC outputs and emergency start function
- Optional DC/DC converter for energy storage
- Optional emergency operation using on-board battery
- Ultra-efficient, low-noise cooling through use of variable speed fan motor
- Rapid, easy maintenance thanks to modular design

SYSTEMS SOLUTIONS – BENEFITS FOR THE CUSTOMER
DEVELOPMENT OF A “COMBICONTAINER” USING THE KIEPE CONVERTER KIT, OPTIMIZED TO DIFFERENT VEHICLE SYSTEM ARCHITECTURES
- Achieving a high power density while taking into account accessibility and maintainability
- Variant for group or axle-selective drive
- Variant with included traction battery charger
- Single device geometry with consideration of requirements of different vehicle builders
- Reduction of costs, weight and installation space with simultaneous increase in customer benefits
  - single diagnostic concept
  - single maintenance concept
- Consistent documentation and identification standards
- Further derivation of a pure traction container, for extended traction requirements, vehicle lengths.
- One 400 V AC Power Bus, supplied by synchronized auxiliary power modules
- Intelligent AC load management
- Functional redundancy

PRODUCT RANGE

IGBT DC CHOPPER
Kiepe Electric offers IGBT DC chopper solutions for the modernization of existing DC traction current circuits. Different control versions are possible due to the system’s modular construction. Different models can be either integrated into new vehicles or adapted to existing systems.

THE KIEPE DIRECT PULSE INVERTER (DPU) IN TWO PERFORMANCE CLASSES
This is an indirect converter constructed using IGBT technology for vehicles with three-phase drive supplied by the catenary (DC 600/750 V 250 kVA or 150 kVA). It converts the overhead line’s DC voltage into a three-phase AC current system with variable amplitude and frequency to supply the three-phase asynchronous traction motor for operation.

TRACTION CONTROL UNITS
The design of the modular control unit is based on a power supply module and a central unit with the option of adding different sub-modules to create the optimum control unit for the task concerned.
- Self-developed, SIL2-certified: control hardware, control software (firmware)
- Modular, compact design
- Applicable for 24 V and 110 V
- Railway stock, bus and refurbishment projects
- Device and system diagnostics
- Already more than 55,000 modules in operation
- Graphical programming
  - SIL & non-SIL functions
  - Certified project planning tools
  - Automated test systems

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A reliable service partner – over the entire life cycle. All train operators are unique – and their servicing requirements for braking and on-board systems are also highly specific. But they have one thing in common: They depend on their vehicles remaining operational at all times and in all places. The mission of our RailServices brand is to ensure that this happens – for all Knorr-Brems sub-systems and over the vehicle’s entire life cycle.

The extended RailServices portfolio includes comprehensive service and support for all our products and systems, including vehicle maintenance:

Products and services creating genuine added value in line with ongoing changes in the rail sector – RailServices is further developing its range of services:

SERVICE CENTERS – ALWAYS CLOSE TO THE CUSTOMER
Excellent service calls for rapid reaction times. With 30 service centers on all continents, our RailServices specialists are close at hand when local customers need them. The first European Rail Services sites already fulfill the requirements of European Regulation (EU) no. 445/2011 for freight wagons.

MODERNIZATION – CUSTOMER-SPECIFIC SOLUTIONS BREATHE NEW LIFE INTO EXISTING VEHICLES
RailServices provides innovative component upgrades and systems modernization for existing fleets. We offer attractive system solutions worldwide for rail vehicles of all ages. Modernization is delivered by RailServices specialists with expertise and above all, passion. It is our ongoing commitment to your operational needs and to continued product innovation that makes modernization projects a realistic and affordable option for our customers.

ICOM DIGITAL PLATFORM 4.0 – DIGITALIZATION ON BOARD
Knorr-Brems provides a digital, innovative platform for the railway industry 4.0. User-friendly applications on a single platform using one on-board computer unit and a back office. This is the flexible expandable Knorr-Brems solution for the railroad 4.0. This retrofittable system extends rail vehicle diagnostics to cover not just specific systems but whole vehicles. By introducing tablets, smartphones and apps to the railroad sector, it offers unique access to data on the condition of the entire vehicle fleet. Sophisticated measurement and analysis processes combine with automatic diagnostics to enable ICOM to predict maintenance requirements in advance – allowing operators to take measures pro-actively. This powerful and flexible system already supports additional applications such as driver advisory systems and energy metering as well as third-party products due to the open architecture.

A reliable service partner – over the entire life cycle. All train operators are unique – and their servicing requirements for braking and on-board systems are also highly specific. But they have one thing in common: They depend on their vehicles remaining operational at all times and in all places. The mission of our RailServices brand is to ensure that this happens – for all Knorr-Brems sub-systems and over the vehicle’s entire life cycle.

The extended RailServices portfolio includes comprehensive service and support for all our products and systems, including vehicle maintenance:

Products and services creating genuine added value in line with ongoing changes in the rail sector – RailServices is further developing its range of services:

SERVICE CENTERS – ALWAYS CLOSE TO THE CUSTOMER
Excellent service calls for rapid reaction times. With 30 service centers on all continents, our RailServices specialists are close at hand when local customers need them. The first European Rail Services sites already fulfill the requirements of European Regulation (EU) no. 445/2011 for freight wagons.

MODERNIZATION – CUSTOMER-SPECIFIC SOLUTIONS BREATHE NEW LIFE INTO EXISTING VEHICLES
RailServices provides innovative component upgrades and systems modernization for existing fleets. We offer attractive system solutions worldwide for rail vehicles of all ages. Modernization is delivered by RailServices specialists with expertise and above all, passion. It is our ongoing commitment to your operational needs and to continued product innovation that makes modernization projects a realistic and affordable option for our customers.

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