

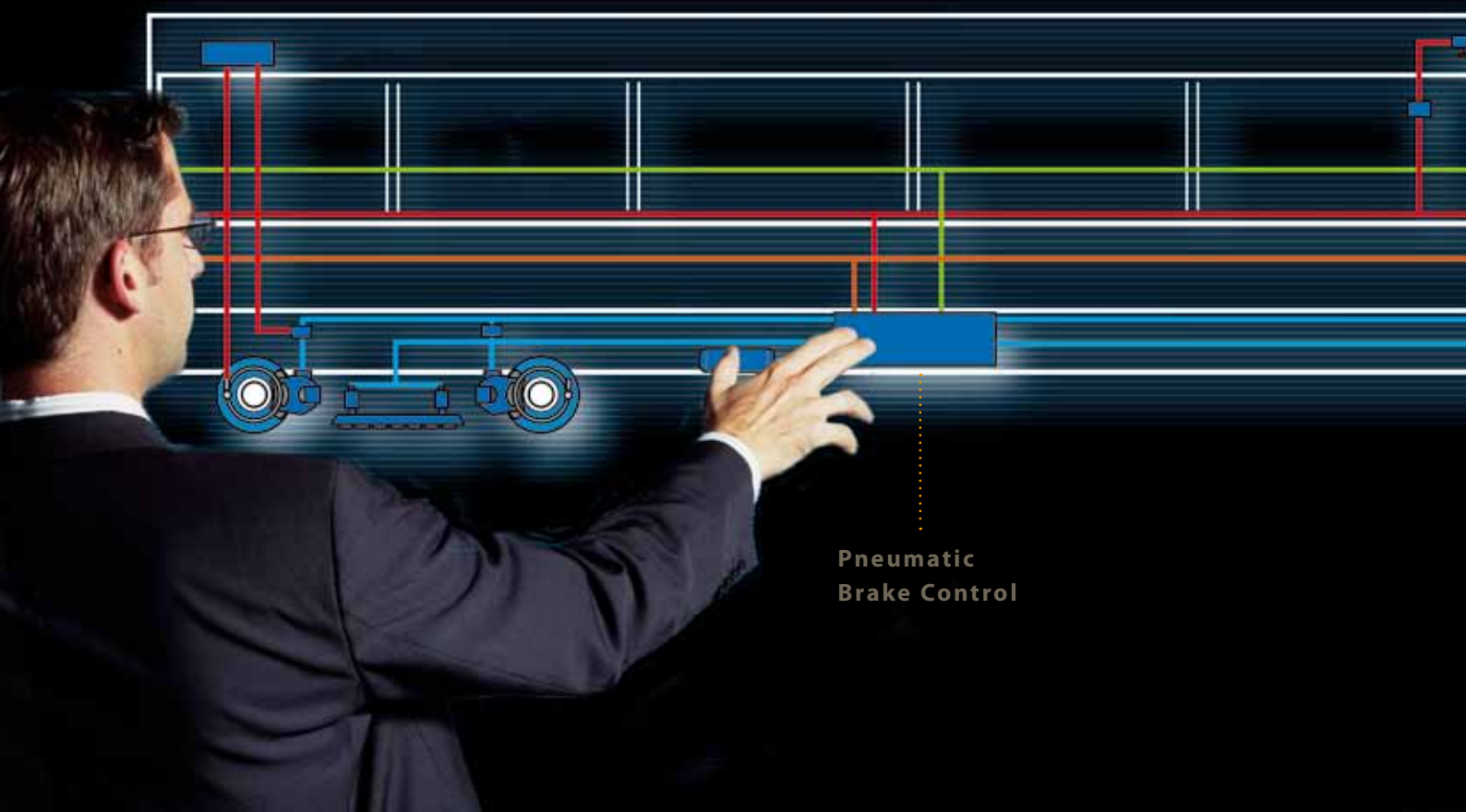
Passenger Coaches



ANSWERS
FOR A WORLD
OF MOBILITY

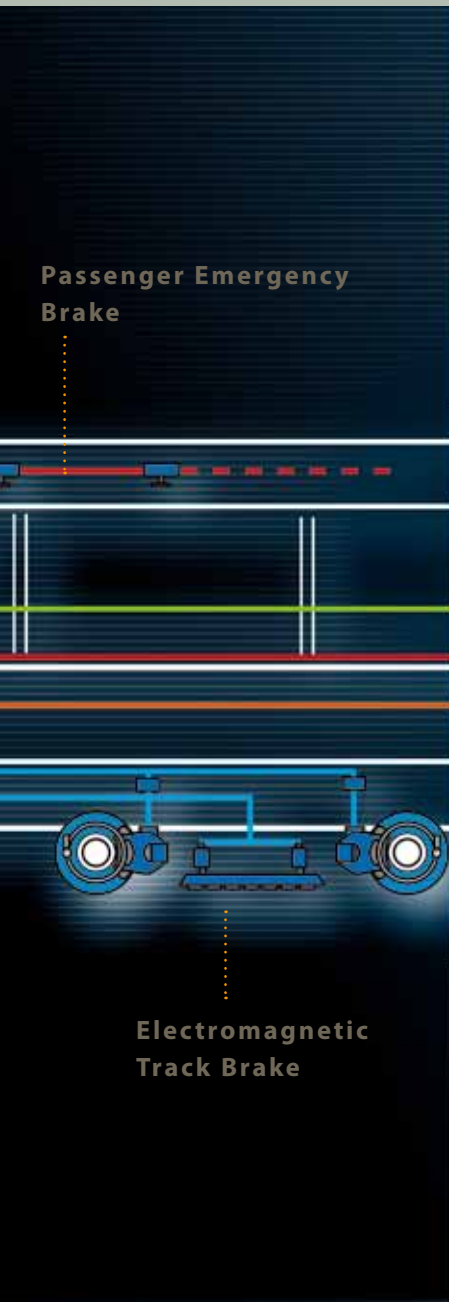


Systems solutions for every market ...



What is Knorr-Bremse's complete passenger coaches "one-stop solution"?





Disc Brakes

Optimum cooling with minimal friction loss

Knorr-Bremse's high-performance disc brakes are capable of absorbing large amounts of energy. The discs are ventilated by rods designed in such a way as to offer maximum

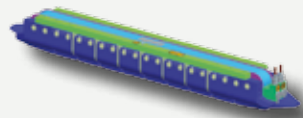


cooling without adversely affecting braking. A number of different materials are available, including aluminum for maximum weight-savings. All of which helps reduce life-cycle costs.

Electromagnetic Track Brake

More compact, lighter and less maintenance

Knorr-Bremse's latest electromagnetic track brakes are ideally suited to modern mainline passenger coaches with limited bogie space in. Sintered materials are increasingly



being used for the pole shoes, as these can develop the same braking force as steel but avoid any build-up of deposits. This reduces life-cycle costs by up to 40%.

Brake Panels

Less expensive, clearer layout

Knorr-Bremse brake panels offer tried and tested components in a compact configuration. The modular design of braking systems also considerably simplifies the panel layout.



By integrating electronic and mechanical components, the dimensions have been significantly reduced. The resulting reduction in piping and cabling contributes significantly to lowering costs.

Is it true that Knorr-Bremse's passenger car solutions are also world-leaders in terms of economy



Slide Protection

Preventing wheel lock

Knorr-Bremse's electronic slide protection system means that flats resulting from wheel lock are now a thing of the past. It is available as a stand-alone unit but can also be networked



via interfaces to the bus system with the brake diagnostics, emergency brake override, wheel sensors and other safety functions.

Olaf Metzner
Systems Engineer
Knorr-Bremse Rail Vehicle
Systems

"Passengers want to be as relaxed as possible when they reach their destination. Our systems help make trains both safe and comfortable."

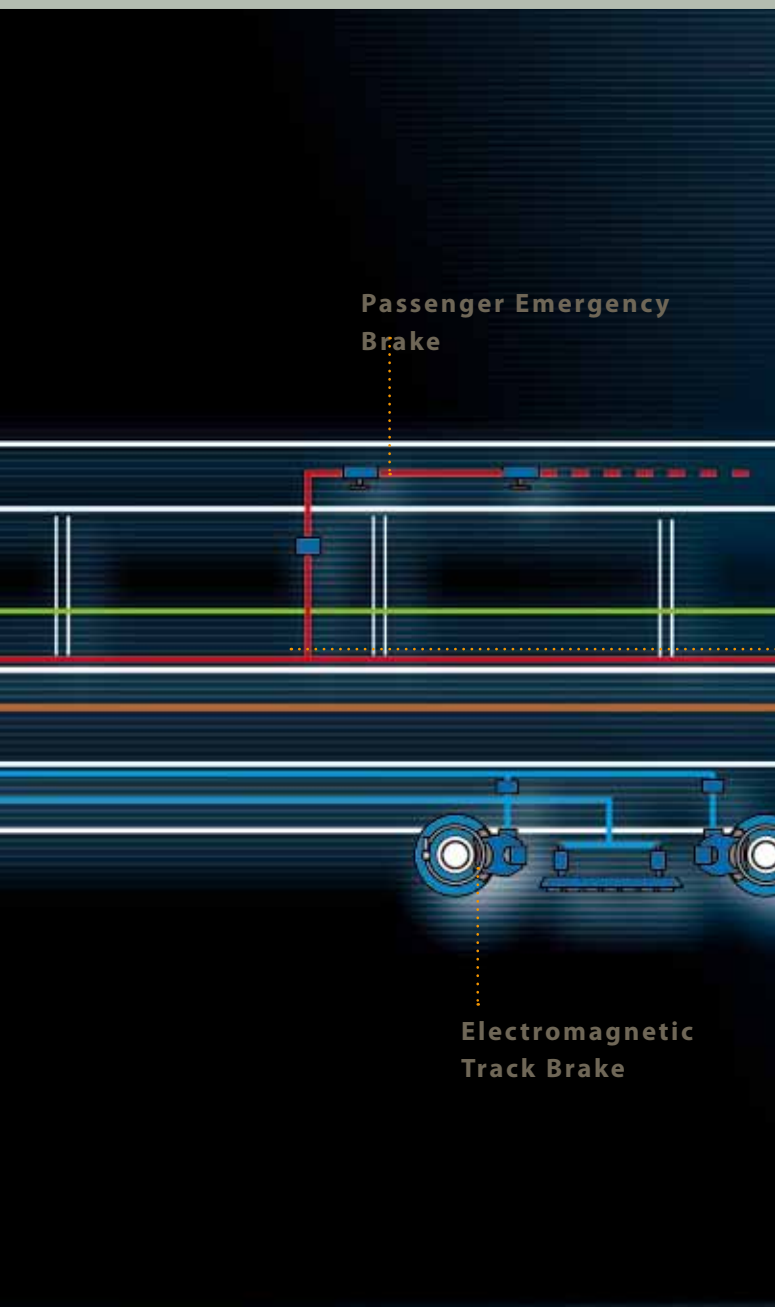


Innovations that pay their way.

Reducing wear and tear and maintenance costs is a good way of saving money. More than any other manufacturer, Knorr-Bremse has succeeded in finely coordinating the complex interplay of different braking systems. The modular KE valve enables a wide variety of additional functions to be realized on a single, uniform platform. And patented KRS brake pads are considerably more durable and more economical than conventional ones, effectively reducing the frequency with which pads or discs have to be replaced. Even when replacement does become necessary, it is obvious that Knorr-Bremse has taken maintenance requirements into consideration from the outset. Include all these factors in the calculation, and the bottom line is savings for our customers.

railservices

Customized service packages ensure that all Knorr-Bremse systems function smoothly for anything up to 30 years – anywhere in the world. The secret is our combination of OEM expertise and a highly efficient service infrastructure.



Passenger Emergency Brake

Electromagnetic Track Brake

Bogie Equipment

Innovative design minimizes assembly and maintenance requirements

Knorr-Bremse offers a wide range of compact, lightweight bogie equipment including axle- and wheel-mounted disk brakes, low-wear brake discs, and brake pads. Knorr-Bremse electromagnetic track brakes are not only considerably lighter and more compact than conventional articulated electromagnets – the use of sintered metal pole shoes also means they operate without building up any deposits, thus improving braking performance.

Brake Control

Ensuring coordination of all brake functions

Knorr-Bremse offers a wide range of integrated systems and components to ensure proper co-ordination of braking throughout the entire train: rapid brake accelerators, electro-pneumatic brake control systems, emergency brake override systems, driver cab equipment, brake diagnostic systems and many more.

Services

A partner for all requirements throughout the entire product lifecycle

Knorr-Bremse offers a wide range of **rail** services, ranging from individual consultancy and collaborative product development to homologation, commissioning, training, maintenance, repair, upgrading and overhaul of all components – as well as a reliable supply of OEM parts. Whether you opt for individual services or the full package, everything is provided locally, either on-site or in one of our worldwide network of service centers.

On-board Systems

Doors, air-conditioning units, toilets and more

It is not just Knorr-Bremse braking systems that ensure greater safety and comfort in rail vehicles. Our on-board product portfolio covers a wide range of innovative products and solutions that includes vehicle and platform doors, air-conditioning units and toilet systems. We also produce state-of-the-art electronic diagnostic systems and passenger information systems.

A perfect balance of high-quality systems and services.

For decades, manufacturers and operators of mainline passenger coaches all over the world have been opting for Knorr-Bremse braking systems. The company uses its expertise to develop new ways of enhancing the performance and economy of tried and tested, safe technologies. Top-quality components operate smoothly together to guarantee optimum functionality. Every project is designed in such a way that parameters such as pressure settings, characteristic curves and braking calculations are tailored precisely to the customer's operating requirements. Modular concepts ensure that this flexibility comes with maximum economy. And it goes without saying that Knorr-Bremse offers help with homologation and commissioning as well as all the necessary aftermarket services.

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