

EFFICIENT. TECHNOLOGY. WORLDWIDE.

railservices



THROUGH THE ENTIRE LIFE CYCLE – WORLDWIDE

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KNORR-BREMSE



SAFETY AND RELIABILITY: CRUCIAL FACTORS

WHAT YOU NEED TO KEEP TRAINS RUNNING.



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Railways are experiencing a time of huge growth. Transport capacity and the number of passengers are increasing, and trains have to be on duty longer than they used to be. On the other hand, even more restricted budget boundaries have to be met – without any compromises in quality.

For a rail operating company to stay competitive, safety and reliability are vitally important. Safety is something people take for granted. That is why Knorr-Bremse supports it over the whole life cycle of a vehicle. Reliability is a crucial factor in two ways:

It keeps operational costs low and helps to make your services attractive for your customers.

Now, what are the most important systems on a train to ensure safety and reliability? Key elements are the brake system, the entrance systems and the HVAC systems. Therefore, in order to keep your train running, you need a partner like Knorr-Bremse **railservices**.

To understand what our systems have to accomplish every day, it is helpful to have a look at some figures:

ASTONISHING FACTS ABOUT TRAINS AND THEIR SUBSYSTEMS

- Train carriages have a life of around 40 years. This is the time that rail vehicle systems must continue to perform, safely and reliably, at all times.
- With very high-speed trains, each brake disc has to handle up to 25 MJ of brake energy. This corresponds to the brake energy of about 15 Porsches from 250 km/h.
- Local rail networks in some major cities are capable of transporting some 70,000 passengers per hour in each direction at peak times. Platform screen systems can greatly enhance safety, and HVAC units can operate over a temperature range of -40 °C to +50 °C.



ENSURING LIFELONG PERFORMANCE: KNORR-BREMSE RAILSERVICES WHAT YOU NEED TO STAY ON TRACK.

For a train to be operated safely at all times, high-quality systems are a must. But they are not everything.

You have got to keep track. Your employees need to have in-depth and up-to-date knowledge about Knorr-Bremse systems. Necessary spare parts have to be available whenever you need them. You have to make sure that the rail vehicles are examined

and overhauled in a competent, reliable manner throughout their lifetime. In order to keep life-cycle costs low and to realize performance increase, it is advisable to have the system modernized from time to time.

The best way to ensure all this is to rely on original parts and services from the original system manufacturer.

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The service partner of choice providing innovative and competitive aftermarket solutions for rail customers worldwide.

THE PERFORMANCE AREAS OF KNORR-BREMSE RAILSERVICES

OUR PERFORMANCE CYCLE FOR YOUR VEHICLES' LIFE CYCLES.

Knorr-Bremse railservices offers you more than original parts. Our portfolio includes comprehensive service and support for all our products and systems.

ON-SITE SUPPORT – TRAINING

Sometimes service needs to be done even quicker than usual. Our *railservices* experts are ready when you are, supporting you on site. Our vast service portfolio includes recommissioning, fitting, dismantling, overhauling and troubleshooting.

Hungry for knowledge? The systems training from our specialists helps you to better understand our up-to-date system solutions. For optimized operation of all of our products, we offer customized training.

SPARE PARTS – LOGISTIC SERVICES

Original parts deliver original performance! We offer you the same quality parts, to the same specification, as those originally fitted to your train. All parts are railway-approved, temperature-resistant and durable. And they work in harmony. Your older trains need new parts? No problem! Our *railservices* production makes the original parts available over a long period of time. No matter how old your train is, we aim at providing excellent delivery performance. Our parts management process helps you to optimize inventories, offers you enhanced quality of reconditioning and reduces your administrative costs.

REDUCED LIFE-CYCLE COSTS

IMPROVED AVAILABILITY

PROFESSIONAL WORKFORCE

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OVERHAUL – REPAIR

At *rail*services, we are able to support you with the overhaul cycles of your vehicles. The specially trained specialists in our service centers are able to deliver high quality for you. To keep delivery times short, we are close to you and your needs. Wherever you are, you will always receive fine-tuned services in the same OEM quality almost all over the world. For enhanced process stability, all Knorr-Bremse *rail*services centers follow the methods established within our standardized production system. Before a serviced component is returned to our customer, it undergoes the same rigorous test procedures we apply to our new products.

MODERNIZATION – ENGINEERING

Your vehicle can be operated longer and its life-cycle costs can be reduced and performance increased if you have it modernized from time to time. We provide innovative component upgrades and system modernization for existing fleets. For all kinds of rail vehicles of all ages, we offer attractive system solutions worldwide. And after all, modernization would be nothing without passion and know-how. It is our commitment to your needs and to our continued product innovation that makes modernization projects a realistic option for our customers.

HOW TO BENEFIT FROM RELYING ON THE ORIGINAL

ONE SOURCE FOR ALL YOUR RAIL VEHICLE TYPES.



LOCOMOTIVES



LIGHT RAIL VEHICLES



FREIGHT CARS



METROS

Services for brake systems, intelligent access systems, control components, HVAC systems, windscreen wipers and platform screen doors – you can obtain all of these from Knorr-Bremse **railservices** as a one-stop supplier. This comprehensive and diversified approach makes us your indispensable partner of choice in almost all of the world's markets and in almost every conceivable rail vehicle application.



REGIONAL & COMMUTER TRAINS



MONORAILS



HIGH-SPEED TRAINS



PASSENGER COACHES



YOUR BENEFITS AT A GLANCE

- More than 100 years of experience
- Close to you
- Know-how and resources from the original designer and manufacturer
- OEM quality
- Flexibility
- One-stop purchase
- Lifetime support from the specialists



FROM MORE THAN 30 LOCATIONS WORLDWIDE,
WE KEEP YOUR TRAINS ON TRACK FOR SAFETY

ONE PARTNER AROUND THE WORLD – THROUGH THE ENTIRE LIFE CYCLE.

What is the best way for you to ensure safety? Rely on the original. Knorr-Bremse has more than 100 years of experience. Since 1905, we have been driving forward the design, development, manufacture and maintenance of rail systems as a technological leader. This is why we can offer you the Knorr-Bremse quality that went into the creation of the original system.

Almost all around the world, wherever our equipment is in operation, our service is at your disposal. More

than 30 service centers worldwide provide the comprehensive provision of our state-of-the-art services. Integrating all technologies, the centers carry out repairs and maintenance together for you at the one location. We always work together with you in order to decide what needs to be done. On this basis, we can evaluate the work required together in terms of safety, economy and the environment.

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 **IFE** Innovations for Entrance Systems

 **merak**

 **SIGMA**

 **Microelettrica Scientifica**

 **WESTINGHOUSE** platform screen doors

 **NEW YORK AIR BRAKE**

 **ZELISKO**

 **SYDAC**

 **rail services**

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