ABB and railways
Efficient, reliable solutions for sustainable mobility

As a supplier of components for rolling stock and infrastructure, ABB has been making railway history for a long time. We share our customer’s focus on long product life cycle, high availability, performance and passenger comfort.

ABB is one of the world’s leading independent suppliers of innovative and reliable technologies for rail vehicle manufacturers, railway operators and railway infrastructure operators. Drawing on its extensive experience in the energy and automation technology sectors, ABB offers reliable and cost-optimized solutions for both industries.

**Market leader for rolling stock**
When it comes to rolling stock, ABB leads the market in the railway transformers, traction motors and onboard converters that provide the traction power and onboard energy for the vehicles. We offer low and medium-voltage products, as well as semiconductors and over-voltage protection. ABB technologies and systems are employed in a number of different railway applications. These range from locomotives to highspeed trains to suburban trains, metros and tramways.

ABB is one of the world’s few independent manufacturers of main components for traction chains. Supplying all of these components from a single source creates the best overall solution, along with reliability, weight, size and cost optimizations, as well as cost and energy efficiency.

**Broad range of services**
ABB is not only a manufacturer of traction systems, the company also offers customer service that covers repairs, maintenance and retrofits. This broad range of products and services includes spare parts, maintenance, upgrades and retrofits on the customer’s premises. We create a specific service package upon request, as needed or under the terms of multi-year service agreements to suit the customer’s operational requirements.
One of the key factors in a train’s performance is the combination of traction chain components, i.e. traction transformers, traction converters, traction motors and onboard converters. ABB is one of the few independent providers of complete traction packages on the global market – including the fail-safe power supply.

**Traction transformers**
Having played a part in the three-phase electrification of railways from the outset, ABB can look back on a long tradition in transformers for rolling stock. ABB is now a world leader in this sector. ABB traction transformers have a modular design, and offer major advantages in the key areas of size, weight and reliability. Innovation is key to the development of our products. ABB offers highly-developed, optimized solutions for all applications, from high and very high speed trains to regional trains to locomotives.

**Traction converters**
A traction converter forms the “intelligent connection” between the energy supply on the one hand and the traction motors on the other. The traction converters from ABB are based on the AC 800PEC control platform, arguably the most powerful modular controller for high-speed control applications on the market. ABB has drawn on its expertise as a leading supplier of power semiconductors to launch a range of highly successful traction converters that are energy-efficient, reliable, compact and easy to maintain. Their modular platform offers the benefit of short realization times coupled with a low development risk.

**Traction motors**
Similar to its transformers, ABB’s experience of traction motors goes back to the very beginnings of railway electrification. The new modular asynchronous traction motors are reinforcing the company’s reputation as a world leader in energy and automation technology. ABB is offering railway operators an extremely versatile traction motor for an entire range of railway vehicles, helping to improve their performance and environmental compatibility.

**Onboard converter**
The demand for electrical power on board trains has risen. Train personnel and passengers are increasingly expecting HVAC (heating, ventilation, air-conditioning) systems and other conveniences such as passenger information and entertainment systems, power sockets for laptops and vacuum toilets. The BORDLINE® M range of ABB auxiliary converters are compact devices for the onboard power supply of rail vehicles. The static converter system is a solution for converting DC or AC supply voltages to a three-phase output and/or to a regulated DC voltage. It is set apart by IGBT (Isolated Gate Bipolar Transistor) technology and a robust mechanical design.
Extensive range of services
Protecting customers' investments

ABB offers a broad range of services for the railway sector. As a reliable partner to rolling stock manufacturers, ABB provides services that ensure optimized use of railway products.

Today, many railway companies are facing the challenge of managing a growing traffic volume under increasingly stiff competitive conditions. As a result, more and more companies are outsourcing their repair and maintenance work to external specialists in order to concentrate on the operative business.

ABB has developed a portfolio of services to help customers overcome the challenges this presents. Thanks to its extensive knowledge base, ABB is able to offer services for all kinds and ages of rolling stock.

Customized solutions
ABB offers its customers in the railway industry customized solutions for the entire traction chain or traction component parts (transformers, converters and motors). The range spans routine diagnostics and maintenance work to retrofits, overhauls and extensive modernizations for ensuring efficient and economical train operation. The services offered by ABB help reduce life cycle costs, prolong service life and improve reliability, efficiency and availability, thereby helping protect the customers’ investments.
Repairs
Qualified expertise for the fastest possible assistance

The consequences of a component failure can be serious. For this reason, railway operators demand a high degree of availability and fast rebuild times following a failure. In case of emergency, our specialists offer you expert assistance and fast support on-site.

Preventive maintenance of your traction components prevents unplanned and costly failures. And if a component does fail, we assist on-site. ABB is able to draw on its extensive knowledge to offer a broad range of repair services for your vehicles. Including on-site service and repair, as well as the provision of spare parts or replacement devices.

Telephone hotline and remote analysis
Technical Supports specialists from ABB use their experience to help your employees solve problems quickly and effectively. Expert assistance from a service engineer who is closely familiar with your components and applications is just a phone call away. The service engineer can use the data your trained employees have output via a special maintenance program to carry out a remote analysis of the current situation and decide what to do.

Repairs by certified service engineers
If a repair is required, certified ABB service engineers report to you to carry out the work. To minimize downtimes, they use modern diagnostics, repair and test methods to complete the work on-site. The repair scope can range from replacing individual spare parts, such as pumps or a transformer temperature sensor to replacing the entire converter module.
Spare parts
Maintaining the availability of rolling stock

We hold an extensive range of spare parts in stock for you. You can access these parts at short notice, do not have to hold an expensive stock yourself, and have the additional benefit of lower operating costs over the long term.

Operational reliability calls for availability of critical parts and components. The parts should be available immediately to prevent long outage times. To minimize the downtime of your rail vehicles, a broad range of components are in interim storage at ABB.

Reduced outage times, lower costs
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Availability for fast replacement
ABB is aware that the spare part logistics has a direct impact on operating costs. Waiting for spare parts and storing large volumes of outdated material is inefficient. ABB therefore offers spare parts concepts that fulfill customer requirements – for example, compact consignment warehouses always maintained at the latest technology and continuously optimized by ABB.
Training
Practical knowledge with added value

ABB training provides your service and maintenance personnel with the knowledge and skills they require to maintain traction components rectify faults themselves. Training is provided on the vehicle on your premises.

Our training courses provide your employees with the skills they require for maintenance and troubleshooting procedures, and enable them to correctly interpret messages and implement the measures to prevent a failure. This also has the additional benefit of a closer collaboration between your employees and our technical experts.

Hands-on training delivers tangible support
The benefits of professional training include a higher degree of safety for your personnel and for the vehicle technology, shorter downtime and a higher level of employee motivation. ABB delivers its certified product and service training at the vehicle on your premises. During the training course, usually over two days, your employees learn about the products used and the associated tools, and are then able to carry out basic maintenance and repair work themselves.

The courses include a theoretical part in the form of presentations, as well as practical exercises that provide the participants with tangible support for their everyday work. At the same time, your employees benefit from the years of experience garnered by our trainers and from their solid specialist knowledge and industry expertise. Certificates are issued to confirm successful completion of the training.
Further information can be obtained from your ABB representative or on the Internet:

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abb.com/transformers
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