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ABB SERVICE

## Services for railways (rolling stock)



## ABB and railways

### Efficient, reliable solutions for sustainable mobility

As a provider 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 providers 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 components**

When it comes to rolling stock, ABB leads the market in 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 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.





# ABB products for rolling stock

The entire drive train from a single source



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& battery chargers

One of the key factors in a train's performance is the combination of traction chain components, i.e. traction converters, motors, energy storage system and auxiliary converters.

ABB is one of the few independent providers of complete traction packages on the global market – including the fail-safe power supply.

## Traction converters

A traction converter forms the “intelligent connection” between the energy supply on the one hand and the traction motors on the other. ABB's BORDLINE® Compact Converters utilize the latest generation of Insulated-gate Bipolar Transistors (IGBT) semiconductors. This, together with the multi-level topology and high switching frequency and Best Efficiency Control (BEC) allows total optimization of the traction transformer and motors and significantly reduces the losses in the traction chain apart from other accrued benefits like the lowering of audible noise and reduced mechanical stress of the drive train.

## Energy storage system

BORDLINE® Energy Storage System (ESS) is a lithium-ion based onboard energy storage system that is characterized by its high safety level and achievable lifetime. BORDLINE ESS is suitable for use as a traction or as an auxiliary battery and is designed for use in road and railway vehicles. Its modular design allows easy scalability in terms of installed energy and flexible mechanical integration either on the roof, in the machine-room or underfloor of the vehicle.

The capabilities of ABB Ability™ platform together with ABB's domain expertise enhances customer value by providing predictive maintenance, condition monitoring and optimization of the energy storage system with advanced remote diagnostic services.

## Traction motors

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.

## Auxiliary converters & battery chargers

BORDLINE® M auxiliary converters and battery chargers 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. ABB offers highly-standardized and reliable solutions for all rail applications: from high speed trains to regional trains to metros and locomotives.

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## 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 manufacturer and operators, 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. 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 Support 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 obtained, thanks to a special maintenance program, to carry out 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 circuit breakers, control board 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.



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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 fulfil 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.



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Further information can be obtained from  
your ABB representative or on the Internet:

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**[abb.com/tractionconverters](http://abb.com/tractionconverters)**

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