

...mobil mit Batterien



RANGE OF SERVICES



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RAIL VEHICLE BATTERIES

Solid energy suppliers in proven technology



|| **PzS** low maintenance, closed

|| Lead batteries for railway vehicles

Whether batteries for use in passenger coaches, diesel locomotives, electric locomotives as well as modern traction vehicles, we convince with our products. We only use tested and proven components.

ADVANTAGES:

- || Proven technology
- || High mechanical strength under vibration and shock
- || Cost-effective
- || Completely recyclable



|| **PzV / GiV** maintenance-free, sealed



|| **Block battery** wet



|| **Block battery** pure lead

	Single cells	Block battery
Types	PzS, PzV	Wet, GEL, AGM
Design	PP single cell Tubular plate, grid plate, pure lead plate	6 V and 12 V Tubular plate, grid plate, pure lead plate
Capacity	60 - 1500 Ah	7 - 400 Ah
Application	Train light, on-board power supply and Diesel starter battery	On-board power supply and diesel starter battery, Pure lead: intermediate energy storage for traction

RAIL VEHICLE BATTERIES



■ NiCd Block battery in carrier

Technology: pocket plate



■ NiCd Battery

Technology: Fibre structure

■ NiCd Batteries

Besides lead batteries we also offer all common NiCd battery systems, starting from the classic pocket plate via the fibre structure to sinter foil technology.

ADVANTAGES:

- Long service life
- Insensitive and robust
- Low maintenance and low maintenance costs
- High performance even with extreme Temperatures

- L-Type: Low currents for long discharge times (from 2 hours)
- M-Type: Mixed currents for medium discharge times (30 minutes to 2 hours)
- H-Type: High currents for short discharge times (1 second to 30 minutes)
- X-Type: Very high currents for very short discharge times

	Pocket Plate	Fibre Structure	Sintered Plastic Bonded
Types	KL, KM, KH	KFL, KFM, KFH, KFX	KRM, KRX, KRH
Design	Steel single cell, PP single cell	PP single cell, PP block cell	PP single cell, PP block cell
Capacity	10 - 1500 Ah	Single cell: 11 - 540 Ah Block cell: 20 - 1500 Ah	Single cell: 22 - 340 Ah Block cell KRH: 70 - 260 Ah
Application	On-board power-supply system	On-board power supply system and diesel starter	On-board power supply system and diesel starter

RAIL VEHICLE BATTERIES

New developments



■ **Bombardier Traxx AC 3**

■ **Battery systems exactly as you need them**

Our comprehensive know-how enables us to develop reliable battery solutions according to your individual requirements for new vehicle developments and reconstructions. In this way we can realize even the most demanding projects for you.

■ **FIRE PROTECTION CONCEPT**

On-board power supply system batteries according to the current fire protection requirements for rail vehicles.

■ **SERVICE CONCEPT**

Higher performance through the latest battery technology and products.

■ **MAINTENANCE CONCEPT**

Reduced maintenance intervals of up to one year by using cells with increased electrolyte level.



■ **Bombardier DOSTO 2010**

ACCESSORIES

for rail vehicles



Quality accessories for your battery systems

Rail vehicle batteries place special demands on the accessories used to maintain the batteries due to their location. We supply charging technology, monitoring systems, maintenance accessories and spare parts so that your batteries are always ready for use.

Mobile charging technology



Maintenance accessories



Battery monitoring systems



Stationary charging technology

RECONDITIONING



Think globally - act locally

For a train or locomotive ride to be able to roll reliably again, a completely new battery is not always required. Here, our reconditioning service offers a cost-effective solution that provides you with fully functional batteries of tested quality.

PERFECTLY FUNCTIONING REFURBISHED BATTERIES - A REAL ALTERNATIVE TO A NEW BATTERY.

In this way we protect our environment and help our customers to act economically.



Partial Reconditioning	Full Reconditioning
Electrical testing and visual inspection of the battery	Quality parameters of partial reconditioning with minimum capacity $\geq 85\%$ are not fulfilled <i>or</i>
Mechanical testing and levelling out of the battery parameters including thorough external cleaning	Age and condition of the battery do not allow partial reconditioning <i>or</i>
Charging and discharging cycles (required residual capacity $\geq 85\%$; other limit values by arrangement)	Special order by the customer
Replacement of defective components including individual cells	Replacement of all battery cells with new cells
Reuse of removed and tested components of other reconditioned batteries	Cleaning, testing and reuse of all other components, e.g. battery trays, connection terminals and cable connectors
Final test and record of findings	Final test and release in case of complete correspondence with the parameters of a new battery

SERVICE



▀ Logistics and maintenance

Inventory management and professional storage of your battery systems.

If you do not need your battery system at the moment, we will be happy to take over the logistics and maintenance for you.

OUR SERVICES IN DETAIL:

- ▀ Receiving inspection of your battery and reconditioning
- ▀ Storage in accordance with the currently valid regulations
- ▀ Regular testing and loading treatments

ADVANTAGES:

- ▀ Care and maintenance of your batteries according to the valid regulations/specifications
- ▀ Low capital commitment of current assets
- ▀ No additional room costs
- ▀ No binding of personnel for battery maintenance

▀ Battery Leasing

Batteries when you need them, how you need them.

Our leasing model offers you completely new concepts for the operational readiness of your batteries.

Especially suitable for bridging bottlenecks, it offers full flexibility with maximum reliability.

ADVANTAGES:

- ▀ Monthly instalments
- ▀ Direct deductible costs
- ▀ No depreciation
- ▀ Low capital commitment
- ▀ Security of supply over the term
- ▀ No further costs
- ▀ Optional: Full Service

STATIONARY BATTERY SYSTEMS

For an absolutely reliable power supply



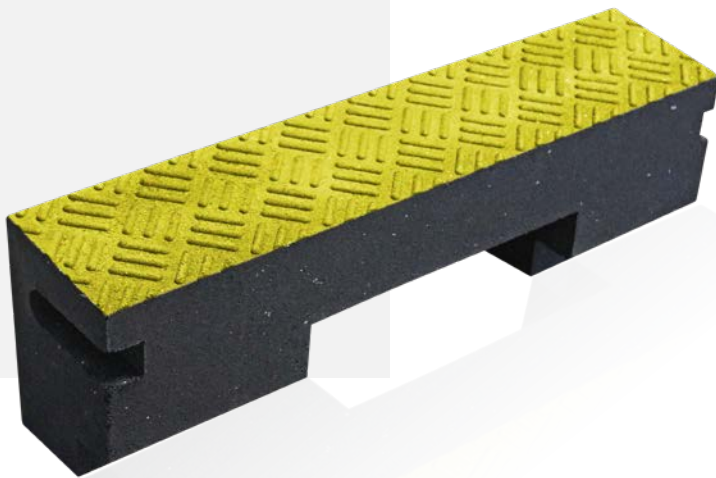
Lead and NiCd systems

For stationary battery systems, we offer you the entire range of lead and NiCd batteries. In addition to the appropriate charging technology and accessories, we also take care of dismantling and disposal of the battery system, as well as the installation and commissioning of new systems.

	Lead Batteries sealed, closed	NiCd Batteries
Types	Sealed: AGM, GEL Closed: OGI, OPzS, GroE	Pocket plate, fibre structure, sintered foil technology
Design	2V, 6V and 12V Single cells and block battery	Single cells, block cells
Capacity	0,8 Ah - 3500 Ah	10 Ah - 3500 Ah
Application	Back-up power supply units for power plants Telecommunications UPS units Signalling systems Safety lighting	Back-up power supply units for power plants Telecommunications UPS units Signalling systems Safety lighting

SPECIAL PRODUCTS

Our know-how for smooth operation



▮ **Threshold**

▮ **Special products far away from battery technology**

Special requirements often bring with them special problems. And the problems do not always have anything to do with the battery, but occur at the same place or in connection with it.

For such applications and for individual special products, we provide remedies with our special developments.

PRESSED RUBBER PARTS

Our pressed rubber parts can make your daily work easier.

For example, as thresholds in place of metal grids, they offer numerous advantages. While metal gratings can bend and there is a risk of slipping in damp conditions, a rubber threshold is always stable and safe.

Further application possibilities:

- ▮ Noise protection
- ▮ Silent blocks
- ▮ Mats

SPECIAL CONNECTORS

In some applications, standard connectors are not suitable - for example, where space is limited or under highly demanding operating conditions. This is where our special plugs are used, which require only a small amount of space while offering a high degree of connection reliability.

Possible applications:

- ▮ Military
- ▮ Railways



▮ **Special connector**



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