Pneumatic Solutions for Level Control and Brake Control
Control and regulation – pneumatics is the top choice in rail vehicles

We know what matters in the railway industry

Having to move a lot every day means you need partners and a technology you can rely on. That’s where pneumatics comes in – a robust and intelligent technology. And Emerson – your innovative and experienced partner. Our product range is optimized for the special requirements of the railway industry.

Safety comes first, both for people and functions. Maximum reliability in all areas is essential. Our pneumatic components have been tried and tested, they meet the highest levels of the relevant standards and fulfill all expectations. They feature low-maintenance, economical continuous operation, and low life cycle costs thanks to their longevity.

- Designed for extreme temperature ranges
- Reliable function even under extremely difficult ambient conditions
- Resistant to shock and vibration
Railway-specific standards

- ✔ Requirements for electronic and mechanical components acc. to EN 50155
- ✔ Electromagnetic compatibility acc. to EN 50121-3-2
- ✔ Cold-resistant to -40°C acc. to EN 60068-2-1
- ✔ Heat-resistant to +85°C acc. to EN 60068-2-2
- ✔ Fire protection standards and requirements for rail vehicles acc. to EN 45545 and NFPA 130
- ✔ Special requirements for shock and vibration acc. to EN 61373 and MIL-STD-810G
- ✔ Corrosion resistance for > 500 hours acc. to ISO 9227
- ✔ Voltage tolerances +25% / -30%
- ✔ Protection class IP65 or higher
- ✔ Resistant to high humidity

Emerson – A Respected Heritage of Fluid Control & Pneumatics Solutions

- 1869 Westinghouse Air Brake Company (WABCO) established
- 1888 ASCO™ founded as a manufacturer of elevator, compressor and generator controls
- 1910 World’s 1st Industrial solenoid valve
- 1952 World’s 1st billion cycle spool valve
- 1984 ASCO™ acquired
- 1988 Joucomatic™ acquired
- 1998 Sirai™ acquired
- 2005 Numatics® acquired
- 2010 World’s 1st valve island with graphic display
- 2016 TopWorx™ and TESCOM™ added

- 1888
- 1945 AB Mekanprodukter, predecessor of AB Mecman, founded
- 1989 Rexroth acquires the pneumatics business of WABCO
- 1991 Mannesmann Rexroth acquires AB Mecman
- 1995 Mannesmann Rexroth becomes part of Mannesmann AG
- 2001 Merger of Bosch Automation and Mannesmann Rexroth
- 2001
- 2014 AVENTICS® GmbH
- 2018 AVENTICS™ acquired
With our experience, you are on the safe side

Quality and reliability – our tradition
The history of our company goes back to the invention of the pneumatic brake for trains, one of the first industrial applications for pneumatics. Today, we offer an extensive range of products that not only set standards for quality and functionality in railway technology, but also offer cost-effectiveness.

• We know the special requirements and standards.
• We have industrial expertise and speak our customers’ language.
• We offer established application support.

To us, close collaboration with our customers and partners is one of the key factors for global success.

“We tailor the assembly hardware and software precisely to the customer requirements.”

Roland Hatzenbichler – Sales Engineer – at Emerson Österreich
Pneumatics from Emerson, especially the AVENTICS ED05 Rail EP pressure regulator, make sure this is the case. All required components, including overcurrent valves, pressure switches, stop valves, and pressure sensors, are preassembled and tested, enabling direct installation of the complete control unit.

- Customer-specific product and system solutions
- Components and subsystems delivered ready for installation
- Components and systems validated according to customer and railway standards
- Maximum compliance with safety standards

Safe, precise brake controls require systems that are 100% reliable and ensure low-maintenance continuous operation. Pneumatics from Emerson, especially the AVENTICS ED05 Rail EP pressure regulator, make sure this is the case. All required components, including overcurrent valves, pressure switches, stop valves, and pressure sensors, are preassembled and tested, enabling direct installation of the complete control unit.
The AVENTICS ELV leveling valve primarily consists of one proportional valve, two switching valves, and control electronics with sensors. The bus control makes handling easy and enables condition monitoring. Control electronics optimize the control and switching behavior of the integrated valves while minimizing air consumption.

Electronic leveling valve for trains

Pneumatic control of air springs:

The entire ELV assembly corresponds to protection class IP66 and is designed for an operating temperature range of -40 to +70 degrees Celsius. Highlights include the software functions and the interaction of the train control as the master with the air suspension control as the slave.
## Expertise

**Our expertise is your benefit**

Extreme temperatures, high voltage tolerances, demanding railway standards, bolted-on products, or the trend towards condition-based monitoring – as a specialist for pneumatics and railway technology, Emerson is familiar with all challenges. We cover everything that can be sensibly controlled, regulated, and safely moved in trains with the help of pneumatics. From consultation to delivery of ready-to-use solutions – talk to us about your applications!

- Standard products tailored to specific trains
- Solutions precisely tailored to the application
- Bolted-on components and products for pipe mounting

### Sliding step control and drive:

Sensor-controlled cylinders for exact extension and retraction of the sliding steps in line with the platform.

### Door control and drive:

Special cylinders for safe opening, closing, and locking of doors.

### Train coupling control and drive:

Cylinder controls to open and close the front ends, as well as actuate and lock the coupling mechanism.

### Ventilation flap control and drive:

Sensor-controlled cylinders for automatic opening and closing of the ventilation flaps for air conditioning and ventilation systems.

### Toilet control:

Valve systems to control various functions in train toilets.

### Pantograph control and drive:

Complete system for precise, situation-specific contact force control with electropneumatic components and bellows actuators.
Pneumatics is the top choice in rail vehicles. With our experience, you are on the safe side.

Visit us: Emerson.com/aventics
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