PNEUMATIC SOLUTIONS FOR PANTOGRAPH CONTROLS

Pneumatics
It’s that easy
Switching and regulating – pneumatics is the first choice for rail vehicles

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 AVENTICS – your innovative and experienced partner, with a product range that has been designed to meet the special requirements of the railway industry.

We know what’s important in the rail business
Safety comes first, both for people and functions. Maximum reliability in all areas is essential. Our pneumatic components have been extensively tested, they meet the highest levels of the relevant standards, fulfill all expectations, are sturdy and made to last. They feature low-maintenance, cost efficient continuous operation, and low life cycle costs thanks to their long life.

- Designed for extreme temperature ranges
- Safe and reliable under all conditions
- Resistant to shock and vibration

Railway-specific standards

- Requirements for electronic and mechanical components acc. to EN 50155
- Fire protection standards and requirements for rail vehicles acc. to EN 45545 and NFPA 130
- Electromagnetic compatibility to EN 50121-3-2
- Cold-resistant to -40 °C acc. to EN 60068-2-1
- Heat-resistant to +70 °C acc. to EN 60068-2-2
- Resistant to high humidity
- Special requirements for shock and vibration acc. to EN 61373 and MIL-STD-810G
- Corrosion resistant for up to 500 hours acc. to ISO 9227
- Voltage tolerance + 25 % / - 30 %
- Protection class IP65 or higher
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 high quality rail specific products that contribute to long life with low maintenance. Many of our pneumatic components for railway are standard products that have been modified to meet our customer requirements. They are produced at optimum cost under high-volume conditions – worldwide, for customers in the U.S., Europe, and Asia.

- We know the special requirements and standards.
- We have the rail expertise and speak our customers’ language.
- We offer global support.

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

"With 140 years of experience in the railway industry, we cover the entire range of applications in rail."

Thomas Alm,
Head of Rail Sector at AVENTICS
No room for compromise – pantographs have to work: at any speed, in all conditions

The complex control electronics in rail vehicles require a continuous power supply. The challenge lies in reliably maintaining the contact between the carbon strip of the pantograph and the catenary. But not pushing against the catenary line too hard to prevent wear or even ripping – a task perfectly solved by pneumatics with accurate pressure control. With smart and robust components tailored to railway and customer specific requirements.

- Customized products and system solutions
- Pre-tested components ready for bolt-on delivery
- Products and solutions tested to customer and rail standards
- Compliance with safety standards

The pneumatic solution with electropneumatic valves, precision regulators, bellow actuators, and air preparation pushes the carbon strip against the catenary with the right pressure. Tailored to a wide range of pantograph applications. At all speeds and curves or at different voltages and pantograph widths in various countries – the pneumatic components are designed to meet all needs. They are not only extremely reliable and robust, they are also virtually wear-free compared to electromechanical actuation.

ED05 Rail electro pneumatic pressure regulator: Based on the direct control principle with a proportional solenoid, the valve offers great dynamics at high flows. The robust poppet valve technology and other design features make the valve extremely durable and highly resistant. ED05 Rail combines dynamics, precision and repeatability with high robustness. This is why the valve performs crucial tasks not only for pantographs, but also for brake control and suspension leveling.

Only the best components for your products and systems

Precision regulators, bellow actuators, special valves, and matching accessories – AVENTICS supplies all pneumatic products and assemblies needed to control pantographs. The ED05 Rail electro pneumatic proportional valve is one core
component, along with BCE series bellow actuators in different sizes. MH1 precision regulators, ISO valves, and air preparation with secure pipe fittings complete the offering – pre-assembled, tested, and ready for use.

**Our expertise is your benefit**

Extreme temperatures, high voltage tolerances, demanding railway standards, sub-base mounted products, or the trend towards condition-based monitoring – as specialists for pneumatics and railway technology, we are familiar with all challenges. We cover everything that has to be controlled, regulated, and safely actuated in trains with the help of pneumatics. From consultation to delivery of ready-to-use systems – talk to us about your applications!

- Robust products tailored to the rail industry
- Customer specific solutions
- Sub-base or pipe mounted components

**Brake control:**
Cost efficient control panels for direct and blended EP-brake.

**Door control:**
Special cylinders for safe opening, closing and locking of doors.

**Train coupling control and actuation:**
Cylinders and valve systems for nose cone and coupling.

**Ventilation flap control and actuation:**
Control solutions for automatic opening and closing of the ventilation flaps for air conditioning and ventilation systems.

**Electronic control of pneumatic suspension**
Active platform height and suspension control for easy access.
The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.