

AVENTICS 

**ALL UNDER PERFECT
CONTROL**

**PNEUMATIC SOLUTIONS
FOR COMMERCIAL VEHICLES**

Rexroth
Pneumatics





Switching and controlling – our pneumatic solutions provide the critical impulses

Commercial vehicles are always subject to high loads and thus must also function reliably under extreme conditions. Reliability has top priority – it doesn't pay to compromise! This is why our specifically developed pneumatic components are the top choice. They're uncompromisingly efficient.

Individual customer solutions always give optimum results

Over the years we have collaborated with our customers to develop a product portfolio precisely tailored to meet the needs of commercial vehicles. With cross-technology expertise, we can provide our customers with professional consulting and specific products that guarantee optimum performance and safety, environmental protection, driving comfort, and cost efficiency.

- Technological competitive edge
- Operational reliability
- Energy efficiency and low emissions
- Service life and costs

Our pneumatic components are designed to deliver the highest performance, even when the going gets tough. Extreme temperature fluctuations, road salt, vibrations, flying stones, ice, oil, or cleaning with steam jets are all in a day's work. Our products and systems can also be tailored to suit your needs. Take advantage of our experience and contact us to discuss your applications!

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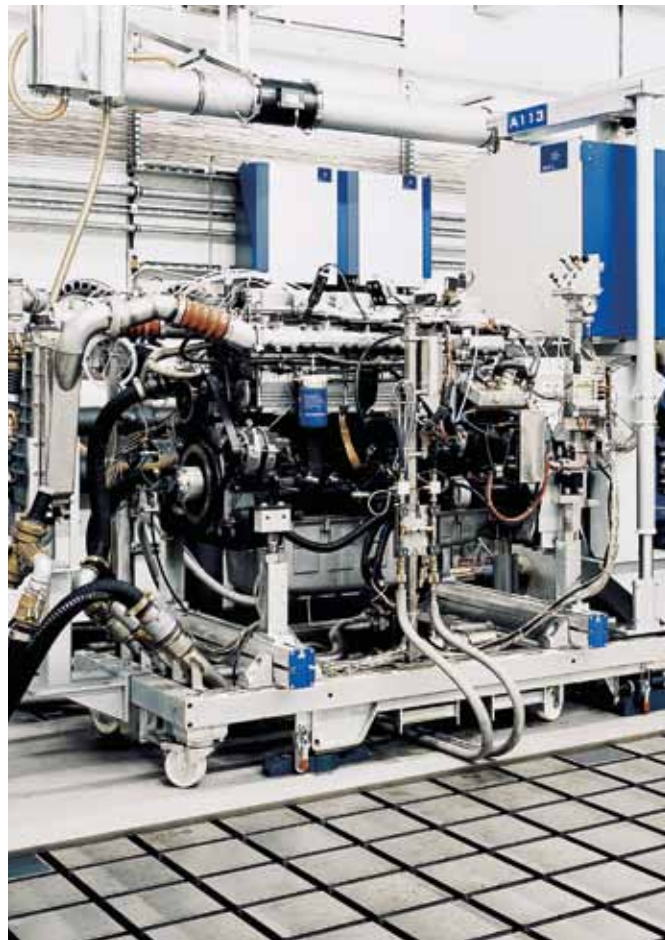
From initial discussion to series production



Quality and reliability – tailored to your requirements

We are able to achieve quality assurance, trust in the market-place, and customer satisfaction through our constantly high quality, “best-in-class” products, competent consultation, and professional engineering. Demand the best for your applications – in both technical and economic terms.

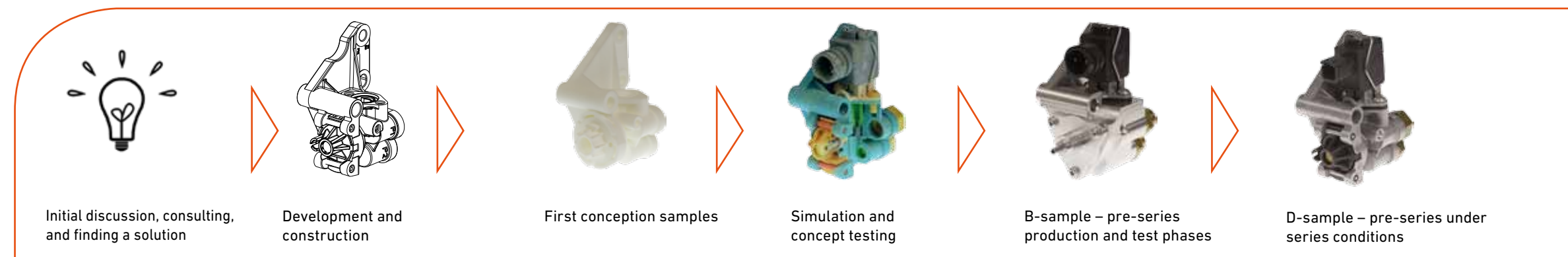
We will show you that customized solutions are not only the better alternative but are also more cost-effective. Our components for engine, clutch, and transmission controls can withstand harsh environmental conditions, such as extreme climate fluctuations and vibrations, and optimally meet required quality standards.



Tailor-made for you



▼ Mechanical pressure control valve designed to perform under extreme conditions. Direct mounting to the Truck engine



- Customer-specific product development
- Customer-specific adaptation of existing pneumatic solutions from the AVENTICS product range
- Modified standard components

Cooperation in development, production and logistics

Every new AVENTICS product, whether an individual component or an entire system, follows the same clearly structured path: from the first consultation, to start of production, and finally delivery. Our proven project organization, with standardized objectives and synchronized deadlines, ensures efficient and smooth processes.

The first step along the path to a creative solution is a consultation with the customers to define their tasks and search for solutions, followed by the creation of models, simulations, and prototypes and finally construction of the first pre-series designs. After initial function and concept checks, we implement additional test phases until the start of production. Let us know what we can do for you!

At home all over the world

We speak your language

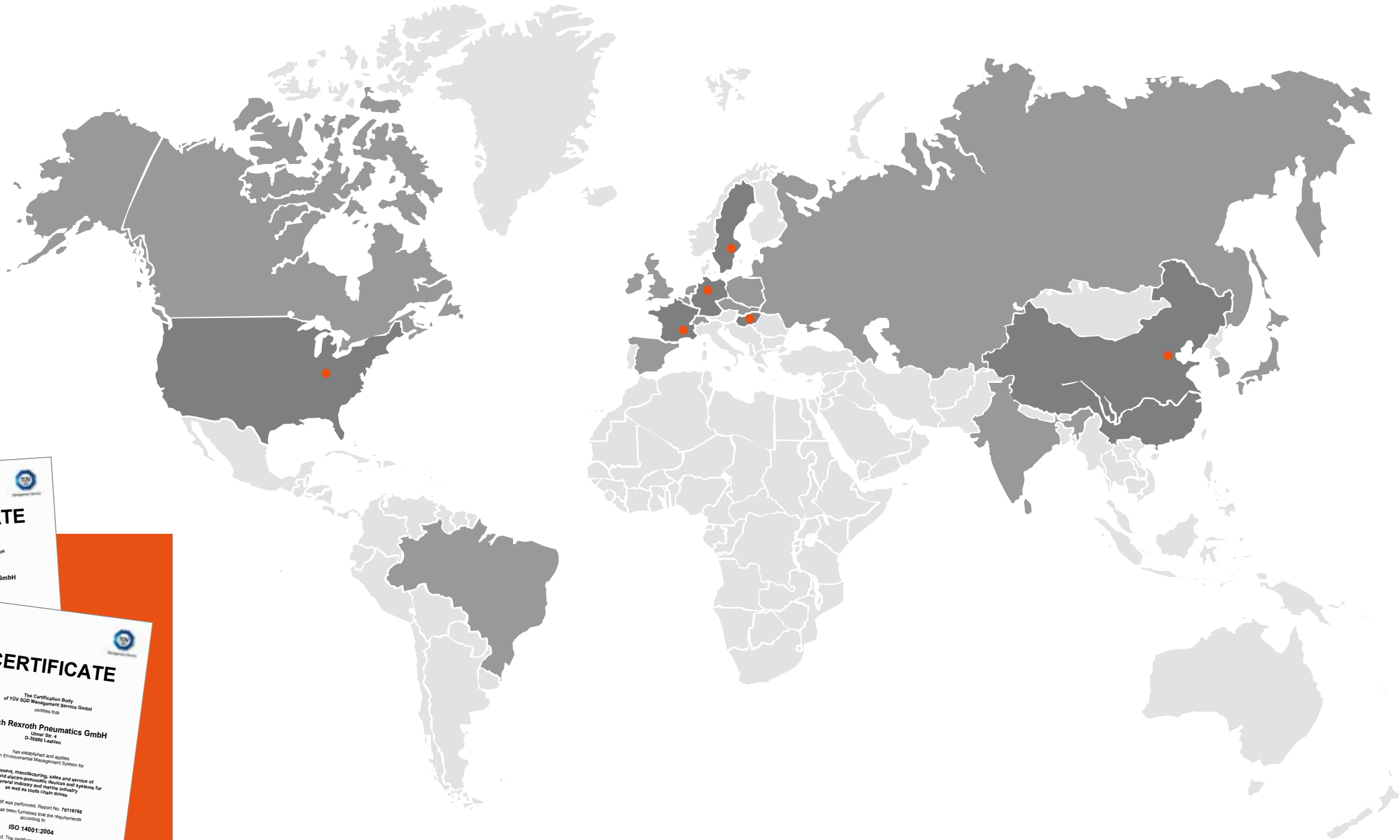
To us, close collaboration with our customers is one of the most important factors for success. Our solutions always result from a joint creative process in working together with the customer. This requires a common understanding – with regard to both technology and language. Our developers, technicians, and Key Account Managers have internationally based expertise, know what they are talking about, are at home all over the world, and provide you with support in your native language. This makes the process much easier and more efficient. Talk to us today!

- Our certified project management has an international focus
- We have development centers and production sites in Europe, the Americas, and Asia
- Our Key Account Managers and engineers are always close to the customer, providing you with on-site support

Innovative and certified

Exemplary quality and environmental management – your tasks are in good hands at AVENTICS.

- Our process-oriented quality management system is certified in accordance with ISO/TS 16949
- Implementation of environmentally friendly solutions. From development to production and logistics – AVENTICS is certified according to ISO 14001



Country-specific cooperation with leading truck manufacturers

International AVENTICS locations

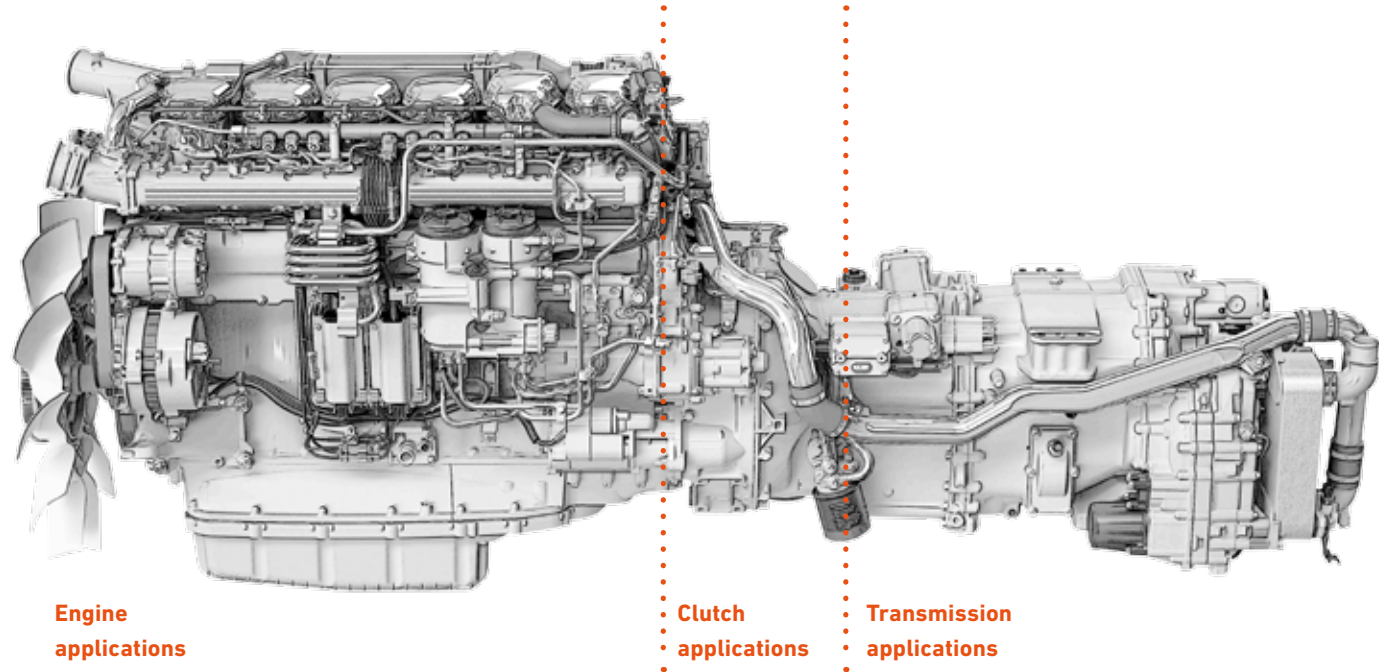
For those who want to achieve more







Engine, clutch, transmission – AVENTICS pneumatic control components ensure operational reliability. The product range is as multi-faceted as the tasks of our customers. A comprehensive range based on a future-proof platform strategy.

Product overview and applications

A large product range allows for a variety of possible functional solutions. The individual components for example facilitate shifting in transmissions and clutch controls, ensure compliance with emission standards via exhaust gas recirculation, guarantee optimal performance in variable-geometry turbochargers or provide for a gentle engine braking.

- 2/2-, 3/2-, and 4/2-way valves
- Cylinders and cylinder valve units
- E/P pressure control valves and valve units



Product groups		Engine	Transmission	Clutch	Outfitter
	Electropneumatic pressure regulator				
	■ Low hysteresis ■ High regulation precision ■ Exemplary dynamics ■ Adaptation to customer application through software	✓✓✓	–	–	✓
	Complex control units				
	■ Pressure regulation via switching valves ■ Customer application software can be integrated ■ Fail-safe switch: exhausted output line	–	✓✓✓	–	✓✓
	Electropneumatic valve units				
	■ Speed control possible ■ With 2/2 or 3/2-way valve ■ Fast switching times ■ Particularly durable	✓✓	✓✓✓	✓✓✓	✓✓
	Cylinders				
	■ Excellent power-to-weight ratio ■ High force density ■ Wide temperature range ■ 100% duty cycle	✓✓✓	–	–	✓✓
	Directional control valves with different actuation options				
	■ NO or NC function ■ Flexible use ■ Robust technology with a long service life ■ Resistant to overloading	✓✓	✓✓✓	–	✓✓
	3/2-way valves, operated directly				
	■ Fast switching times ■ Flexible use ■ Resistant to overloading ■ Low power consumption	✓✓	✓✓✓	✓✓	✓✓
More information on pages		10/11	12/13	14	16/17

▲ The table gives you an overview of the most important product groups and indicates the most frequent applications for these groups.

Engine applications

Electrically operated switching valve

Electropneumatic pressure regulator

Non-return valve

Mechanical pressure regulator valve

Electropneumatic pressure regulator

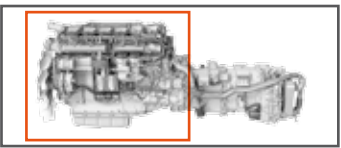
These highly dynamic valves convert a control signal into pneumatic pressure, which is used to control various actuators.

- To meet highest emission standards in exhaust gas recirculation (EGR), to control the power of the turbocharger (WG) or the engine brake

Mechanical pressure regulator valve

The valve switches between two supply sources. Optimized pressure supply selection reduces fuel consumption.

- The integrated pressure regulator guarantees a constant pressure



Quick exhaust valve

Single-acting cylinders with spring return

Mechanical pressure regulator with fixed set point

Single-acting working unit with spring return



- Nominal diameter: 3 mm or 5 mm
- Working pressure: up to 10 bar
- Regulated pressure range: up to 7.5 bar
- Operating voltage: 12V or 24 V
- Control signal: PWM signal



- Working pressure: 0.5 – 10 bar
- Mechanically fixed output pressure
- Operating voltage: 12V or 24 V

Non-return valve

To increase the service life of pneumatic components and actuators.

- Protection from high counter pressures
- Protection from contamination
- Also available with integrated pressure sensor on request



- Nominal diameter: 5 mm
- Working pressure: 0 – 9 bar
- Opening pressure: 30 ± 20 mbar

Mechanical pressure regulator with fixed set point

To increase the service life of pneumatic components and actuators.

- Protection from pressure spikes
- Pressure limitation for different applications
- Exhaust control



- Nominal diameter: 2 mm
- Working pressure: 2 – 10 bar
- Regulated pressure range: 2 – 8 bar
- Integrated filter 200 µm

Electrically operated switching valve

Multi-functional valve for general switching functions.

- Low power consumption
- Various valve functions possible



- Nominal diameter: 1.2 – 4 mm
- Switching time: < 30 ms
- Working pressure: 4 – 10 bar
- Operating voltage: 12V or 24 V

Quick exhaust valve

For fast pressure reduction.

- High flow rate with minimum installation space
- To reduce switch-off times
- High temperature resistant – to be mounted on the engine „Hot side“



- Nominal diameter: 7 mm
- Working pressure: 0 – 8 bar

Single-acting working unit with spring return

To control butterfly valves.

- Integrated sensor for position monitoring
- Integrated exhaust air routing



- Cylinder diameter: 25 mm
- Stroke: 20 – 200 mm
- Nominal voltage: 16 V

Single-acting cylinders with spring return

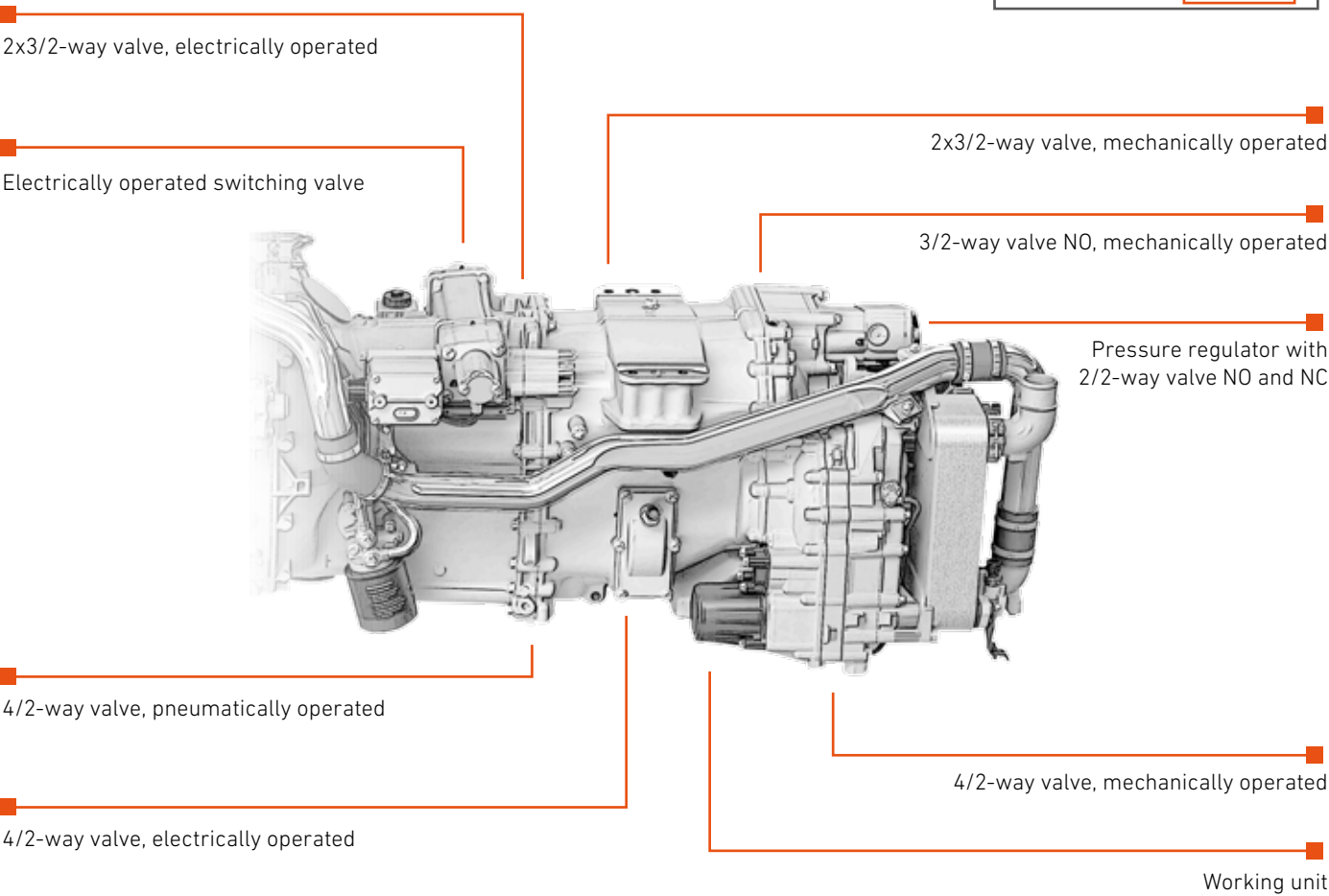
For precise, continuous control of butterfly valves.

- Also available in a high-temperature variant
- Optionally available with an integrated sensor for position monitoring
- Further configurations available



- Cylinder diameter 40 mm
- Stroke: 60 mm

Transmission applications



4/2-way valve, electrically operated

Fast switching times and a long service life, even under tough conditions (extreme vibrations, temperature fluctuations).

- Interlock functions in manual transmission
- Selection of shifting range in transmission



- Nominal diameter: 3.6 mm
- Switching time: < 50 ms
- Working pressure: 4.5 – 10 bar
- Operating voltage: 12V or 24 V

4/2-way valve, pneumatically operated

Fast switching times and a long service life, even under tough conditions (extreme vibrations, temperature fluctuations).

- Interlock functions in manual transmission
- Selection of shifting range in transmission



- Nominal diameter: 3.6 mm
- Switching time: < 50 ms
- Working pressure: 4.5 – 10 bar

Working unit

Cost efficiency through a reduction in assembly times, the number of air connections used, and the installation dimensions.

- Pressure regulator, filter, switching valve, and cylinder – all integrated into a single housing



- Nominal diameter: 3.6 mm
- Switching time: < 50 ms
- Working pressure: 6 – 10 bar
- Pressure limiter: up to 5.5 ±0.5 bar
- Operating voltage: 12V or 24 V
- on demand also with pneumatical activation

4/2-way valve, mechanically operated

Long service life, even under tough conditions (extreme vibrations, temperature fluctuations).

- Locking functions in manual transmission
- Selection of shifting range in transmission



- Nominal diameter: 3.6 mm
- Working pressure: 0 – 10 bar

3/2-way valve, mechanically operated

Long service life, even under tough conditions (extreme vibrations, temperature fluctuations).

- Interlock functions in manual transmission
- Selection of shifting range in transmission



- NO or NC function
- Nominal diameter: 2.6 – 3.4 mm
- Working pressure: 0 – 10 bar

Complex control units

High performance and precise control thanks to electronic regulation of the integrated valves.

- Regulation and control functions in the transmission
- Additional external valves can be actuated
- Retarder control



- Nominal diameter: 2 – 3.7 mm
- Regulated pressure range: 0 – 6 bar
- Precision +/- 0.25 bar
- Control: CAN bus

Electrically operated switching valve

Multi-functional valve for general switching functions.

- Low power consumption
- Various valve functions possible



- Nominal diameter: 4 mm
- Switching time: < 30 ms
- Working pressure: 4 – 10 bar
- Operating voltage: 12V or 24V

2x3/2-way valve, electrically operated

A joint compressed air connection for easy assembly and cost reduction.

- Locking functions in manual transmission
- Selection of shifting range in transmission



- Nominal diameter: 4 mm
- Switching time: < 30 ms
- Working pressure: 4.5 – 10 bar
- Operating voltage: 12V or 24 V

2x3/2-way valve, mechanically operated

Up to 3 switching positions can be realized with this NO-NO valve.

- Intended for direct fitting to the transmission
- Selection of shifting range in transmission



- Nominal diameter: 2.6 – 3.4 mm
- Working pressure: 4 – 10 bar

Clutch applications

Clutch valve unit – stand-alone

Clutch valve unit – mechanically integrated

Clutch valve unit – electrically integrated

Clutch valve unit – stand-alone

Clutch unit for stand-alone installation. Air is guided through external tubing. Alternatively, routing of the working pressure can be integrated into the housing base.

- For controlling the clutch actuation cylinder e.g. in AMT or Clutch by wire systems



- Valve function: 4x2/2
- Nominal diameter: 2 – 3.7 mm
- Switching time: < 10 ms
- Working pressure: 4 – 10 bar
- Operating voltage: 12V or 24V

Clutch valve unit – mechanically integrated

The housing of the valve unit also acts as the cover for the clutch actuation cylinder.

- For controlling the clutch actuation cylinder e.g. in AMT or Clutch by wire systems



- Valve function: 4x2/2
- Nominal diameter: 2 – 3.7 mm
- Switching time: < 10 ms
- Working pressure: 4 – 10 bar
- Operating voltage: 12V or 24V

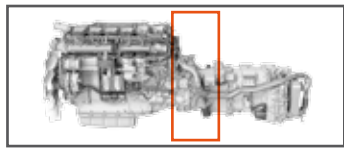
Clutch valve unit – Customer specific

Customer adapted solutions for integration of additional functions e.g. transmitting sensor signals through integrated cable harness. Optionally, routing of the working pressure can be integrated into the housing base.

- For controlling the clutch actuation cylinder e.g. in AMT or Clutch by wire systems



- Valve function: 4x2/2
- Nominal diameter: 2 – 3.7 mm
- Switching time: < 10 ms
- Working pressure: 4 – 10 bar
- Operating voltage: 12V or 24V



That's not all!

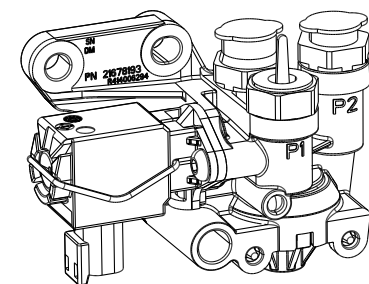
Our pneumatic products have much more to offer. On the one hand, consider the many tasks in the outfitter industry: special functions that can find a safe and efficient solution in pneumatics. On the other hand, we are constantly implementing new customer solutions that expand the range of potential applications of our products or optimize existing ones. Because there's always room for improvement.

Pneumatic control components can further optimize engine, transmission, and clutch functions

One example of a state-of-the-art innovation is the environmentally friendly use of compressed air from the turbo-charger for low-pressure applications. Our solution: the dual-source pressure regulator.

- Use of charge air for low-pressure consumers
- Reduction of fuel consumption

Using a downstream power turbine in a turbo-compound engine unfortunately results in pollution of the oil in the turbo-charger. To prevent this from happening, the bearing housing must be pressurized to ensure that no oil from the crankcase enters the turbo compound. In close collaboration with a customer, we have developed and implemented the complete functionality for pressure regulation and switchable input. This is, of course, just one example.



◀ Dual-source pressure regulator

Special solutions for special-purpose vehicles

The vehicle equipment sector, such as customized components and systems for manufacturers of trailers, attachments, and special-purpose vehicles, is a growing application area.



▲ Automated extinguishing technology

Fit for outfitters

Secure and quick locking

Truck-mounted forklifts are particularly advantageous if no loading ramp or other devices such as forklifts or loading cranes are available.

For transportation, safety-related measures have to be taken to secure the truck-mounted forklift from falling. To minimize the time needed to secure the forklifts, the transportation safety devices on this truck are operated pneumatically.



Pneumatic door openers

To simplify loading and unloading and therefore make the processes as cost-efficient as possible, we have implemented a patented system for the simultaneous loading of trailers and trucks without uncoupling. With roll-up gates, trucks and trailers are connected directly – pneumatic cylinders are responsible for actuating the gates and also locking them in the open position.



- ◀ Pneumatic cylinders
Specific cylinders actuate the transportation safety device locking mechanism.
- Profile cylinder, PRA series



- ◀ Pneumatic cylinders
- Cylinders for temperatures down to -40°C
- Metal scrapers to protect against damage from ice and abrasive pollution
- Optionally with a guide unit
- Tie rod cylinder, TRB series



- ◀ Control panel
Simple control of all pneumatic elements on a well-organized control panel.
- Panel with 4/2-way valve



- ◀ Control cabinets
- Protection against environmental influences
- With integrated pressure regulation
- Control cabinet tailored to customer

Automated extinguishing technology

Modern fire-fighting vehicles are equipped with complex extinguishing technology that must be able to reliably perform various functions at all times and under extreme conditions. In addition to this necessary reliability, AVENTICS offers customized, vehicle-specific solutions with high flexibility in their configuration: from compressed air preparation and valve control to the actuator.



- ◀ Valve system
Pneumatic control for separate rapid-deployment reel
- Modular valve system, HF03 series
- 3/2, 5/2, and 5/3-way valves



- ◀ Valve systems with maintenance unit
Complex control with CANopen bus technology
- Modular valve system, CD01 series
- Maintenance units, NL2 series



- ◀ Pneumatic cylinders
Specific cylinders actuate the individual elements of the extinguishing system
- Profile cylinder, PRA series

Special solutions for special-purpose vehicles

Including equipment options for trucks; refrigerator, refuse-collection and fire-fighting vehicles; and sweepers or concrete pumps. The components are extremely versatile in their application: they are both powerful and sensitive, as well as highly robust.



- ◀ Cylinder valve unit for positioning and adjusting brushes



- ◀ Cylinder valve unit for loading door opening and closing



- ◀ Cylinder valve combinations and valve blocks for handling garbage containers

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