

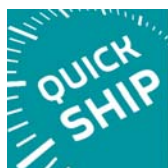


# AVENTICS

# WORLD-CLASS PNEUMATICS

## FROM AVENTICS

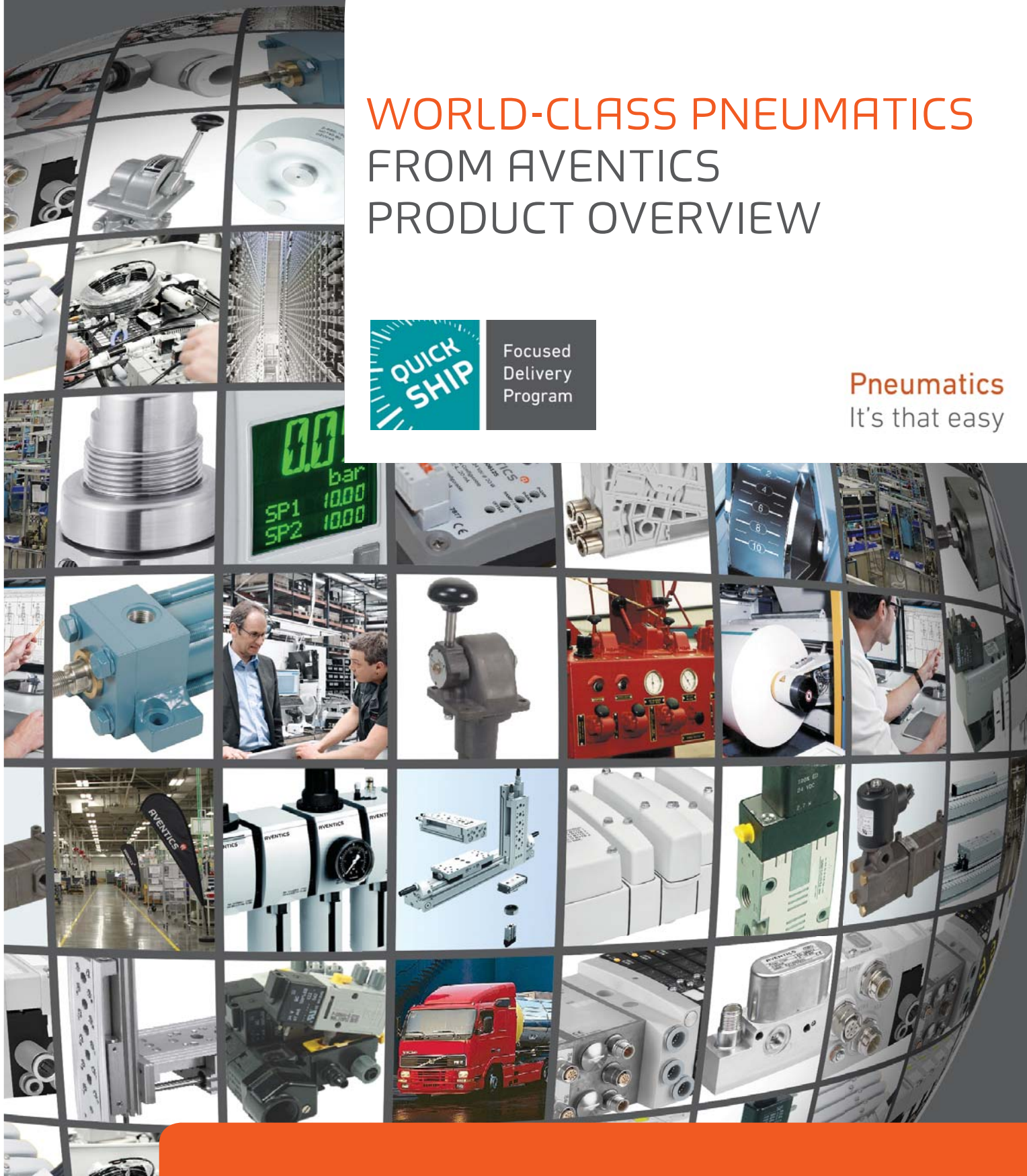
## PRODUCT OVERVIEW



Focused  
Delivery  
Program

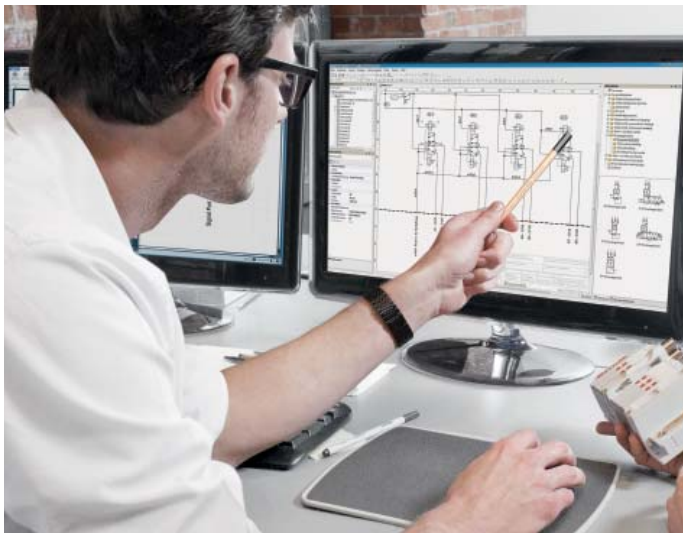
## Pneumatics

It's that easy



# Our expertise is your competitive advantage

Experience and expertise combined with world-class products. Working with AVENTICS means working with a partner who can show you how to apply pneumatics for your competitive advantage.



## Standard or custom

Providing a sophisticated and extensive standard product line in both NPT and ISO G (BSPP) port configurations, our products include pneumatic valves and actuators, pneumatic and hydraulic cylinders, pneumatic fieldbus compatible valve manifolds, electro-pneumatic valves and positioners, FRLs, tubing and fittings, vacuum components, industrial shock absorbers and tooth chain products.

We can also customize products to produce application-specific solutions. Our experience in materials, design and manufacturing, and machine knowledge gives us the flexibility to work with you to craft the exact solution you need.

## Versatile, modular, precise

Our products are designed with market-specific needs in mind. You're likely to find what you need from our standard product offering, or we can give you the custom solution you need. Our modular approach means greater versatility and flexibility in application and customization. What's more, the modularity allows easier integration and greater cost savings.

## Customer-based product development

Our products have always been state-of-the-art technology. We are constantly developing new products and improving existing ones—while working with customers globally to understand evolving needs. By focusing our product development on your real-world needs, we create products that give you a competitive edge in reliability, capabilities and ease of use.

## Worldwide presence

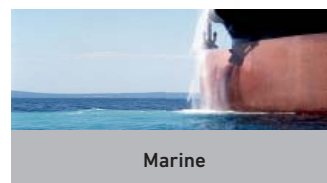
Global presence, global availability, global applications—with AVENTICS you have an international supplier who can support you worldwide. Five manufacturing sites—in Lexington, KY, USA; Laatzen, Germany; Gronau, Germany; Eger, Hungary; and Changzou, China—provide products from ISO 9001 certified design and production environments. In 2018, AVENTICS was acquired by Emerson, and is in the process of joining forces with ASCO Numatics to further strengthen the product portfolio and global footprint.

## Delivery

Our Quick Ship Focused Delivery Program provides a wide range of products when you need them. See the inside back cover of this brochure for more details.

# AVENTICS shines—in your industry

The right solution, whenever and wherever you need it: Our industry solutions showcase the excellent cooperation among all technological areas of AVENTICS. We use our experience, creativity, know-how, and keen understanding of individual requirements to help you get ahead.



## Industry-specific solutions

One-size pneumatic solutions don't fit all application needs. Different industries have decidedly different needs. The requirements of the food processing industry, for example, differ enormously from those of the automotive industry or the challenges of system automation. Our application specialists have experience in your market, understand your specific needs and can work with you to find the proper products.

## Advantages

- Industry-specific products
- Pneumatics experts
- Long-term experience
- Tailored solutions
- Energy-efficient and productive



# Pneumatic directional control valves

## Ceram™ and 581—ISO 5599-1 valves

Pneumatic 4-way and dual 3-way directional control valves in ISO sizes 1 through 4 are available in various solenoid and air pilot versions. The legendary Ceram valve utilizes ceramic plates for sealing, and has become known as *the* valve for rugged conditions or dirty air, and as the valve that doesn't stick. The 581 valve uses a balanced spool and sleeve design and offers a very economical solution for ISO valve installations. Both lines have solenoid and air piloted versions, and offer dozens of accessories and options. Porting is 1/4" to 1" NPT or BSPP.

## Plug-in valves—fieldbus solutions

A wide range of plug-in pneumatic 4-way and dual 3-way directional control valves plus very flexible, yet powerful, bus solutions set AVENTICS apart from the competition. Choose from centralized bus solutions with our B-Design bus components located directly on the valve manifolds, or decentralized systems with our S-Design DDL (Drive and Diagnostic Link) bus components.

Fieldbus-enabled valves include our latest AV valves, ISO 15407-2 CD01-PI valves with flow rates to 1.35 C<sub>v</sub>, ISO 5599-2. CD10/20/30-PI valves with

flows to 4.8 C<sub>v</sub> in ISO sizes 1 to 3 and HF valves with flows to 1.4 C<sub>v</sub>. All major protocols are supported. Configure factory-assembled custom manifolds on our Web site. Many of our other industrial valves/manifolds such as Ceram and 740 can be adapted to fieldbus using our various output modules and control units.

## AV03/AV05 valves

More modular, smaller and simpler, AVENTICS AV (Advanced Valve) System is perfect for every situation. Each component of the AV System is a small masterpiece—from the diagonal spool design to the flexible base plate system. Designed for optimized compressed air balance, compared to existing products, the AV03/AV05 offers 45 percent space savings, 40 percent less weight and 20 percent less compressed air consumption.

The modular base plate system is available in either discrete multi-pin, up to 36 stations and 40 outputs, or direct fieldbus connection with our advanced AES electronics, up to 64 stations and capable of driving 512 input and output bits with a vast offering of I/O blocks for both digital and analog control. The series can be combined on a single valve system, with flow rates of 0.3 C<sub>v</sub> (AV03) and 0.7 C<sub>v</sub> (AV05).

## CL03, CL03-XL and CL03-EV Clean Line™ valves

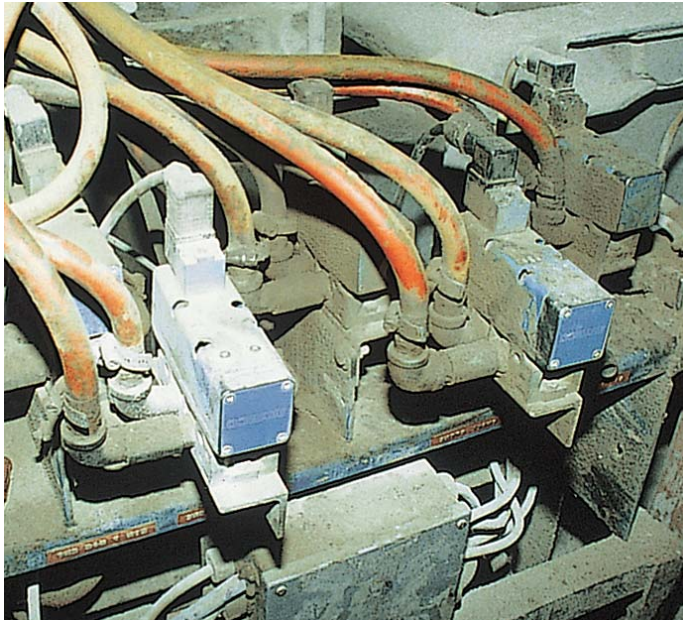
The CL03 Clean Line valve uses IP69K-rated technology in a hygienically designed package, making it ideal for high-pressure wash down applications. The gaps between the valve protection covers allow easy cleaning and avoid dirt pockets. The materials used for the subbases and covers are carefully selected and tested for chemical resistance. By not requiring a protective cabinet, the valve offers reduced installation cost, and the valve manifold can be located as close to the actuators as possible, allowing the machine to function faster.

Factory-assembled and factory-tested manifolds can be from 1 to 12 stations, up to 32 solenoids in either discrete multi-pin or direct fieldbus connection, and single valves are available in all spool functions. The series features a flow rate of 0.7 C<sub>v</sub> (CL03), 1.4 C<sub>v</sub> (CL03-XL) and 0.7 C<sub>v</sub> (CL03-EV).



◀ Left to right, top to bottom: CERAM™ and 581 valves, HF and ISO plug-in valves, AV03/AV05 valves, CL03, CL03-XL and CL03-EV valves

Across a broad range of industries, we have pneumatic directional control valves to fit almost every application. We offer multiple valve types such as poppet or spool valves, ceramic sliding plates, and flow ranges from 0.014 to 15.75  $C_v$  (coefficient of velocity). Most AVENTICS valves are pre-lubricated, so they operate with or without line lubrication. And fieldbus interfaces for all major protocols are supported.



▲ Ceram™ valves withstand harsh conditions and dirty air without "sticking."

### Polymer bodied valves

These lightweight, compact valve lines offer excellent corrosion resistance. With solenoid or air pilot versions, the 840 ( $C_v$  of 0.2) and the 740 ( $C_v$  of 0.7) are 4-way valves used in-line or on our snap-on manifold system. They feature integrated fittings for plastic tubing, and a diaphragm/poppet design. Our TC valves are available in either in-line or manifold mounts, with body widths of 17 mm at 0.8  $C_v$  for the 1/8 size, and 21 mm at 1.5  $C_v$  for the 1/4 size.

ES05 4-way and dual 3/2 valves are inline or easy to assemble manifolds with flows up to 0.6  $C_v$  (D-Sub, fieldbus, etc.). 579/589 valves are 3-way valves with push-in inch or metric fittings and  $C_v$  up to 0.85 that use a dovetail joint to assemble modular valve manifolds. The compact, space-saving DO10/15-MR 2-way and 3-way valves are rated for 12 and 24 VDC and offer flows up to 0.014  $C_v$  (DO10-MR 10 mm wide) and 0.05  $C_v$  (DO15-MR 15 mm wide). Manifold banks and single subbases are available. The micro LS04 valves come in 3-way and 4-way, and feature flows up to 0.31  $C_v$ , with a valve width of only 10.8 mm.

### Other valves

Our Rotair® block poppet valves are 1/8", 1/4" and 3/8" NPT ported valves with a manual rotary handle and  $C_v$  of up to 1.2. CD07 1/4" NPT in-line valves are offered in solenoid, manual and air pilot versions with a  $C_v$  of 1.1. Subbase mounted TaskMaster® valves are 1/4" and 1/2" NPT ported with  $C_v$  of 1.0 and feature solenoid, air pilot, lever and button operators. A special version of TaskMaster valves is often used for hopper dump trailer controls. PowerMaster® tapped body valves come in 1/4" through 1 1/4" NPT ports with  $C_v$  from 2.4 to 15.8, and are available with solenoid, air pilot and mechanical operators.

Our economical 830 3-way solenoid valve is subbase or manifold mounted, with a  $C_v$  of 0.06. The AP series of 3-way and 4-way poppet valves feature six mechanical versions with flows up to 0.6  $C_v$  and choice of NPT or ISO-G ports. Stainless steel ST valves are mechanically operated and corrosion-resistant with G1/8 ports and flows up to 0.28  $C_v$ .



▲ Polymer bodied valves and other valves

# Pneumatic cylinders

## RTC rodless cylinders

RTC rodless cylinders employ a shuttle cylinder design with an oval-shaped piston. It's ideal for applications requiring high precision over a long stroke length, yet the installed length is just over half that of conventional piston rod cylinders. RTC rodless cylinders operate up to a fast 22 feet/second, thanks to optimized air channels and Ideal Cushioning. Bore sizes range from 16 mm to 80 mm, and multiple versions are available including: internal guiding, mini-guide and heavy-duty guide. Choose from NPT or ISO-G (BSPP) ports. The RTC is well-known for outperforming other rodless cylinders in the marketplace.

## NFPA pneumatic and hydraulic cylinders and positioners

Industry-proven PowerMaster® pneumatic and medium-pressure hydraulic, plus PressureMaster® high-pressure hydraulic, NFPA steel cylinders offer total flexibility in system design. Fully interchangeable with other NFPA cylinders, they are available with custom modifications, transducer feedback and integral valve mounting. A pneumatic servo-valve can be mounted directly on the cylinder to make a positioner.

NFPA cylinders are backed by fast shipping with our Quick Ship Focused Delivery Program, worldwide service and an on-line configurator with CAD drawings.

## TaskMaster® pneumatic cylinders

The TaskMaster® cylinders have been the standard in the industry for nearly 50 years with their smooth, extruded aluminum design. The line has two distinct model choices—the TM-1 matches NFPA rod thread and port dimensions, while the TM-8 offers an exact replacement for the original TaskMaster line. Features include standard magnetic piston, oversize rod options (TM-1 only), and port and cushion options. The



aluminum bodied cylinder is available in 1 1/2" through 6" bores (5" and 6" are tie rod design).

## ISO 15552 cylinders—aluminum

Choose from three different series of ISO 15552 cylinders. These aluminum-bodied cylinders are available in three designs: traditional tie rod (TRB), hygienic (CCL-IS) and robust profile-protected sensor (PRA). An optional rod brake is available. All feature AVENTICS Ideal Cushioning.

Bore sizes are 32 mm to 320 mm with ISO-G ports standard. NPT ports are available in bores 32 mm to 125 mm.

## Compact cylinders

The modular design of our compact cylinders provides a cylinder package with many size and mounting variants. Single-acting and double-acting



◀ Left to right: RTC rodless cylinders, NFPA pneumatic and hydraulic cylinders and TaskMaster® pneumatic cylinders

AVENTICS has an extensive line of industrial cylinders to provide solutions to applications large and small. Bore sizes range from 2.5 mm to over 20", with a wide variety of models and materials. From food processing to heavy industry, AVENTICS cylinders meet the demands of our customers worldwide. Many of our cylinder lines have on-line configurators for designing custom cylinders.



◀ Left to right: ISO 15552 and compact cylinders, stainless steel cylinders and ISO 6432 and M mini cylinders

versions are offered, plus male or female threaded piston rod, single or double rod end versions, hollow piston rods, torsion protection, metal rod scrapers, high-temperature seals and reinforced piston rods.

Other models include multi-position and tandem cylinder combinations. Flush mounted proximity switches can be installed on all four sides. They are available from 16 mm through 100 mm bore sizes with strokes to 300 mm. CCI and KHZ have ISO-G ports, and the CCI is also available with NPT porting. The hygienic CCL-IC meets ISO 21287 and is ideal for food industry applications.

#### **Stainless steel ISO cylinders - ICS**

Our ICS (304 stainless steel) pneumatic ISO 6431 cylinders meet all levels of corrosion resistance. Their hygienic design has smooth, cavity-free surfaces for easy cleaning. The ICS is lubricated with food-grade grease, allowing direct contact with food. Bore sizes available from 32 mm to 100 mm.

#### **CSL-RD stainless steel mini ISO cylinder**

The CSL-RD mini ISO 6432 cylinder is fabricated from all 304 stainless steel and is available in three versions, optimized for many varied and demanding applications. The food processing-optimized FRE version has no external mounting threads, avoiding food and bacteria traps.

The electro-polished construction prevents beading of caustic washdown solutions, allowing the solution to run off the cylinder to leave it clean and dry. A PEEK rod bearing further enhances the corrosion resistance. The standard NSF-H1 grease makes the CSL-RD the ideal choice for food processing applications.

#### **M mini cylinders**

Mini cylinders feature stainless steel tubes and aluminum heads and caps. Bore sizes range from 5/16" to 3" with NPT porting. There are 27 mounting styles, magnetic piston and a wide variety of mounting accessories available. M mini cylinders are interchangeable with other major brands.

#### **ISO 6432 mini cylinders - MNI**

Single- and double-acting mini ISO cylinders feature stainless steel tubes and piston rods with anodized aluminum end caps. Bore sizes from 10 mm to 25 mm, with stroke lengths up to 1000 mm are available.

#### **RPC round cylinders**

RPC double-acting cylinders feature stainless steel tubes and piston rods with anodized aluminum end caps. Bore sizes range from 32 mm to 63 mm. Four versions are available: mini, compact, standard and standard heat resistant.

#### **SSI short stroke ISO cylinders**

The SSI short stroke cylinders are designed to accommodate the tightest of spaces, dramatically reducing the space needed for installation. Standardized to ISO 15524, these short stroke cylinders are available in bore sizes from 12 mm to 100 mm. Multiple grooves in the extruded aluminum bodies and an optional magnetic piston allow for proximity switches on any side, further enhancing the installation flexibility. Available in both single-acting and double-acting versions, with single, double and hollow rod versions and either male or female rod ends, custom configurations are also available via on-line configurators at [aventics.com/us](http://aventics.com/us). More demanding applications are accommodated by a non-rotating version with separate guide rods and an end-of-rod tooling plate.



# Automation/handling devices

AVENTICS provides automation building block solutions to allow custom applications at standard component prices. Compact, lightweight and efficient describe our products used in areas such as material handling, assembly and other precision applications.

## Mini slides

Pneumatic mini slides feature an integrated Ball Rail® guide for smooth, low-friction movement while offering high load capacity and rigidity. The MSC covers bore sizes 8 mm to 25 mm. The ZSC series is available in 6 mm to 25 mm bore sizes. They feature stroke lengths from 10 mm to 200 mm, anodized aluminum bodies and stainless steel piston rods and come standard with magnetic pistons for sensors.

## Rotary actuator

Two series of durable rotary actuators are offered. The RCM is a double rack-and-pinion design with torque values from 0.1 Nm (0.88 in-lb) to 2.4 Nm (21 in-lb), and rotation angles from 90° to 360°. This version also offers an optional intermediate position. The RAK are vane types with torque values from 0.13 Nm (0.1 lb-ft) to 81.4 Nm (60 lb-ft), and rotation angles from 90° to 275°.

## Vacuum products

Choose from a wide variety of vacuum cup styles, vacuum generators and accessory devices. Cup sizes range from 1/4" to 12" O.D., with holding forces up to 575 pounds at 60 percent vacuum. Cup styles include standard, tube mounted, bellows, oval and rough surface versions.

## NCT non-contact transport units

These devices allow lifting of small objects without touching the surface. Airflow under the device creates a low pressure zone, and thus a lifting force (Bernoulli principle). NCTs work in applications where traditional vacuum cups will not, as vacuum cups require a sealing surface, and NCTs do not. For example, NCTs work with objects having porous or rough surfaces.

NCTs are maintenance-free with a long life because they have no moving parts and contact is not required for lifting. NCTs are ideal for transporting highly sensitive objects such as those found in the electronics industry. Versions in aluminum (for general applications) or PEEK (engineering polymer for washdown/food and packaging applications) are available.

## UPG—parallel grippers

The two-finger UPG parallel grippers come in seven sizes, and feature gripping forces up to over 2,000 Newtons, covering performance needs for almost all standard automation applications.



◀ Mini slides, RCM rotary actuator, vacuum products, NCT non-contact transport unit, UPG gripper



Many of these products use the Easy-2-Combine interface for fast, yet precise integration. Easy-2-Combine seamlessly integrates controls, pneumatic and electro-mechanical actuators, plus aluminum framing into a system optimized for your application. Use our on-line configurator to design custom assemblies.

#### GPC—guide precision cylinder

The GPC makes it easier to design and build machines by reducing the need for external guides on cylinders, combining movement and precision in one unit. Reinforced guide rods provide high stability, high side load capacity and non-rotation. GPCs can be combined without the use of adapter plates to make a 2-axis system. The ball bearing version is for higher precision/lower friction applications. The slide bearing version is a cost efficient, high load solution. A magnetic piston and polymer impact cushions are standard. Bore sizes range from 10 mm to 100 mm. A “clean” version for food and packaging is available.

#### Easy-2-Combine

Easy-2-Combine is a simple solution to the complex problem of creating handling systems. By using Easy-2-Combine’s pneumatic linear modules, mini slides, rotary actuators and grippers as building blocks, you can significantly reduce the time and effort it takes to select, size and assemble components.

Almost all Easy-2-Combine components mate together without adapter plates. Our on-line configurator does the engineering calculations and provides a single part number for the entire system.



▲ GPC cylinders (standard, top-loader and clean versions) and an example of Easy-2-Combine

# Accessories/air preparation

To complete a pneumatic application, you need more than just valves and cylinders. That's why AVENTICS offers an extensive line of fittings, tubing, air preparation and accessory devices. These accessory devices allow for easier, cleaner and more energy-efficient installations.



▲ Fittings, tubing and silencers

## Fittings, tubing and silencers

A wide variety of inch and metric fittings (including flow controls), tubing, adapters and silencers are available. Push-in fittings provide quick, easy connection to plastic tubing. Stainless steel fittings provide corrosion resistance where necessary. Tubing is available in various materials (PUR, PE, PA and PTFE) for maximum application compatibility. Silencers for exhaust ports come in several styles and materials.

## Accessory valves

Quick exhaust valves with aluminum or plastic bodies range in port size from 1/4" to 1" NPT. Aluminum bodied shuttle valves come with 1/8" to 1/2" NPT ports. In-line check valves and flow controls are available in 1/8" to 1" NPT. Right angle check valves and flow controls range from 1/8" to 1/2" NPT.

## Relay valves

The "S" relay valve is a pilot-operated, 3-way, pneumatic pressure control valve with open exhaust. Ideal for use as a volume booster, port sizes range from 3/8" to 1" NPT, with supply and pilot pressure to 250 psi.

## Shock absorbers

Shock absorbers for energy absorption or to function as a mechanical stop come in self-compensating and adjustable models. Maximum energy absorption ratings range from 1,700 to 8,000 Nm.



▲ Accessory valves, a relay valve and a shock absorber



### Pressure sensors

AVENTICS offers electrical (reed contact) and electronic (piezoresistive) pressure sensors for monitoring of pneumatic system status. Our PE5 is our most versatile pressure sensor yet, offering a host of user-selectable options through its on-screen menu. PM1 mechanical pressure sensors are available in flange-mount versions designed for direct coupling to filters, regulators and lubricators (FRLs) without the need for fittings.



### Air preparation

Our 65x (651, 652 & 653) series of FRLs lets you choose either NPT, BSPP or BSPT) ports. Combination units are available from 1/8" to 1" ports, and filters, coalescing filters and regulators available from 1/8" to 1" ports and larger. Many options and accessories are available, including lock-out valves, exhaust ("dump") valves, start-up valves, reverse flow regulators and pilot-operated regulators. Our unique Combi FRL combines all functions of a traditional FRL in one single component package, and our MH1 offers filters and regulators with 316 stainless steel construction and 1/4" or 1/2" ports. The AS series of metric ported air preparation unit features components with G 1/8 to G 1 ports, with many options and accessories available.



- ▲ 65x & AS air preparation, MH1 stainless steel filter/regulator and Combi FRL
- ◀ Heavy duty lockout valve, SV07 safety valve, and PE5 pressure sensor

### Safety valves

Heavy duty 3/2 energy isolation (lockout) valves help users to meet OSHA requirements for a safe work environment by ensuring the isolation of pneumatic energy during equipment service (Lockout-Tagout). Valves are available with NPT or BSPP ports up to 2" and employs an easy-to-see and easy-to-recognize color scheme.

# Electro-pneumatic devices

AVENTICS electro-pneumatic (E-P) devices bridge the gap between electronics and pneumatics by converting an electrical signal proportionally into pneumatic pressure. They are used where electrical control is required to act directly on a change of pressure or force. A serial interface option is available on all models via AVENTICS analog bus modules.



## **ED02 E-P pressure control valves - the smallest**

In a design including two directly controlled 2/2 way proportional valves and an air flow rate greater than 100 l/min, the compact ED02 (less than 3" wide) attains a dynamic that is usually only possible with our ED07 and ED12. Four different internal pressure sensors result in a resolution that sets it apart from the competition within any pressure range between 15–150 psi. Hysteresis is <0.6 percent full scale.

## **ED05 E-P pressure control valves - general purpose**

The ED05 E-Ps feature flow rates up to 35 SCFM with output pressure ranges up to 150 psi. Command signals include 0–10 VDC, 0–20 mA, 4–20 mA or a potentiometer. Universal port threads allow ISO-G 1/4 or 1/4" NPT ports. Hysteresis is <1 percent full scale.

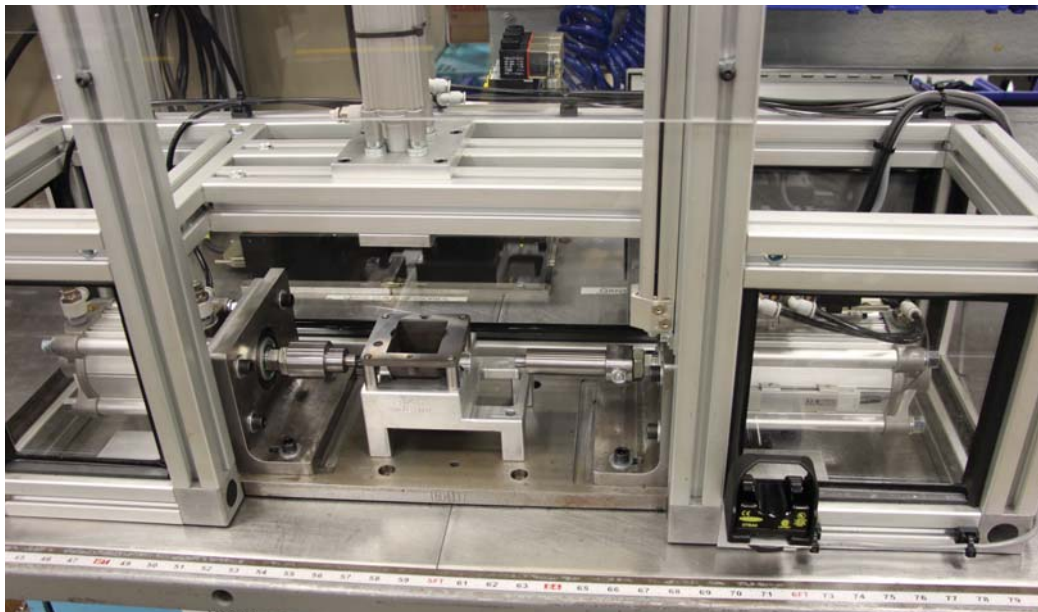
## **ED07/ED12 E-P pressure control valves - highly dynamic**

The ED07 & ED12 feature highly dynamic controls, with flows of up to 45 and 92 SCFM. Exhaust can be controlled separately. Hysteresis is <0.6 percent full scale.

## **EV03/EV07 E-P pressure control valves - externally piloted**

The EV03 and EV07 E-Ps use the indirect control principle and are perfect for static requirements. The EV03 is available with or without LED display. A key feature is extremely low energy consumption, yet still guaranteeing pressure control during a power loss. Flows are up to 21 and 28 SCFM, ports are G 1/4.





◀ Bushing press assembly operation using EPPS system

#### AV03-EP/AV05-EP E-P pressure control valves - for AV series

The subbase mounted AV-EP series is perfect to integrate into AV03/AV05 valve manifolds. The externally piloted AV03-EP and AV05-EP are available with or without LED displays and feature flows up to 10.6 and 15.3 SCFM.

#### Electro-Pneumatic Positioning System—EPPS

Unlike traditional pneumatic positioning systems which control the position of the actuator with directional flow, the AVENTICS EPPS uses direct-acting proportional regulators (E-Ps). This eliminates the “dithering” problem that is common with the traditional method. EPPS can utilize a variety of actuators, including both rodless and piston rod types. And because the EPPS uses an externally mounted SM6 sensor, it does not require the piston rod to be gun-drilled, so standard cylinders that are more readily available and less expensive can be used.

Our E-P Position Controller (EPPC) uses analog command and feedback of 0-10 VDC or 4-20 mA. It features easy setup, field adjustability, 12 bit resolution and no programming required. The EPPS allows a 100 percent duty cycle, eliminating worries about cycle rate and overheating associated with electromechanical systems. Accuracy is application- and cylinder-specific, with +/- 1 mm being typical.

#### Electronic flowmeters

This electronic volume meter accurately measures air volume flow rates. A selectable output electrical signal of 200–1200 Hz, 0–10 VDC or 4–20 mA is proportional to the flow rate measurement. Maximum operating pressure is 145 psi. Three sizes are available with flow ranges up to 1 C<sub>v</sub>.



▲ E-P pressure control valves and electronic flowmeter



▲ Typical components used in EPPS system

# AVENTICS' pathway to the Internet of Things: SMART PNEUMATICS MONITOR – the intelligent solution from AVENTICS

Want to check the state of wear? Need information on energy efficiency? The new Smart Pneumatics Monitor will provide you with reliable answers. It sends status messages to defined employees and parent IT systems without detouring to the machine controller. This minimizes the risk of machine downtime and substantially lowers operating costs.

Together with our AES fieldbus solution, the Smart Pneumatics Monitor (SPM) IoT gateway analyzes existing sensor signals and uses the result to generate status information. To monitor the wear of a shock absorber, for example, the SPM breaks down the end switch signals to evaluate the cushioning sequence. Algorithms written by AVENTICS based on the company's application experience analyze this data internally and send the information either to defined people or to the parent MES or ERP systems via the OPC UA interface.

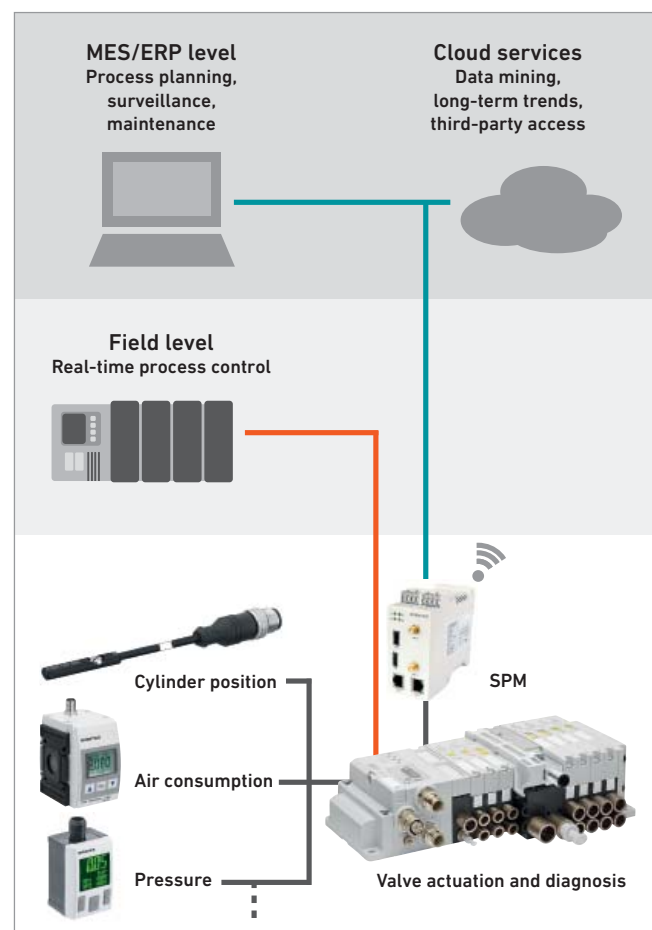
## Smart Pneumatics – it's that easy.

Using drag and drop, the components to be monitored are combined and linked in the SPM. On request, the module monitors the current energy consumption or the degree of wear, for example. Users can take measures for optimization early on and thereby meet the requirements set out in the EU Energy Efficiency Directive as well as minimize unplanned system downtime.

The SPM makes it easy for AVENTICS customers who are already using AV valves and the AES fieldbus system to take a further step towards implementing IoT solutions. Programming of the SPM can even be edited while the application is running, without any impact on communication to the controller.

Learn more about AVENTICS IoT solutions at:

[www.aventics.com/us/IoT](http://www.aventics.com/us/IoT)



# Mobile/oilfield valves

AVENTICS pneumatic valves for mobile and oilfield applications have been the industry leader for decades due to their rugged, proven reliability and precise control. These directional and pressure control valves control oilfield equipment, vehicle transmission shifting, cranes, construction and mining equipment, hopper dump trailers, rail car hopper gates and more.

## **"A" Pilotair® directional control valves**

These valves are panel mounted, poppet-type valves that open, close and vent an air circuit. They are ideal for frequent use because of ease of operation, fast response and ability to tolerate contaminated air. Maximum pressure is 250 psi, 1.0 C<sub>v</sub>, 1/4" NPT ports, with 3-way, 4-way and multiple 3-way functions. Handle operated or block style valves with variety of air pilot or mechanical operators are available.



## **"P" Rotair® directional control valves**

This valve has single handle operation, with up to eight distinct handle positions, and is ideal for control of multi-position cylinders on vehicle transmissions. Maximum supply pressure is 150 psi. It supports multiple 3-way functions and 1/4" NPT ports.



## **"D" Pilotair® directional control valves**

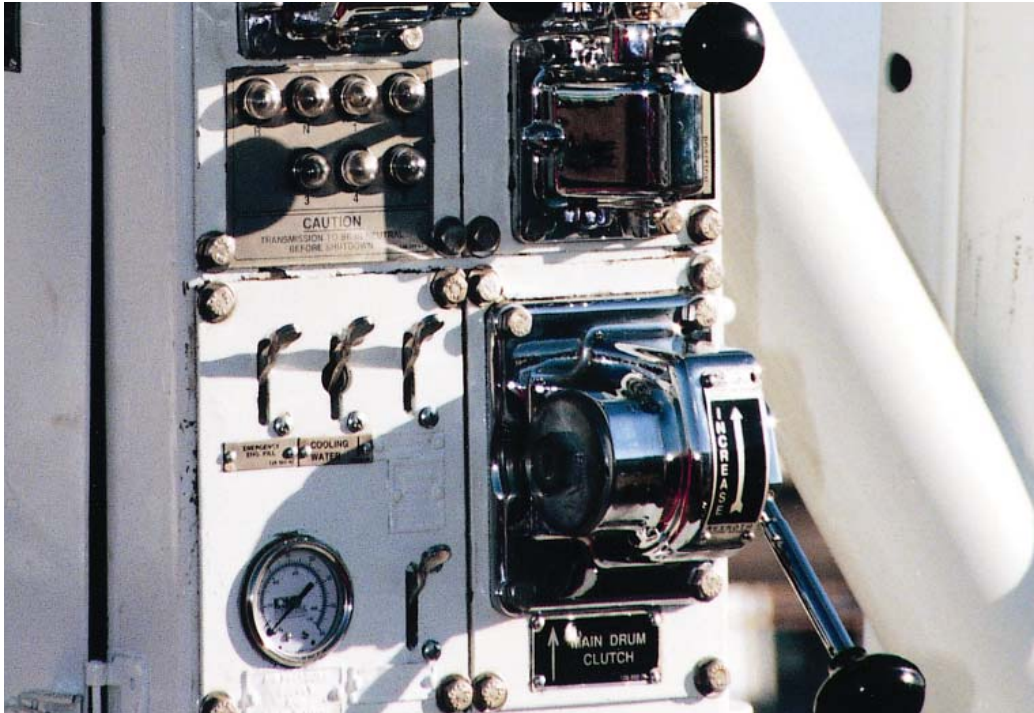
A custom valve for a standard price, the "D" Pilotair is easily tailored to your installation. Nine basic valves and nine basic operators in both 1/4" and 1/2" NPT & BSPP port sizes, along with various operator spring return and holding functions, are available. The operators and valve segments can be rotated at 90-degree increments to fit most any application problem, with flows of 2.1 and 5.1 C<sub>v</sub>. Available supported functions are 2-way, 3-way and 4-way.

## **SuperSpool™ and RCV directional railcar valves**

These valves come in manual or solenoid operated models, in subplate or tapped body mounting, in single or double solenoid and in 1/2" and 3/4" NPT ports. Limited models are available with 1" and 1-1/4" NPT ports with C<sub>v</sub> up to 15.75. Some of our popular 3/4" NPT models are used to control our railcar cylinders on bottom dump coal and aggregate cars.



- ▲ Top left: "A" Pilotair®
- ▲ Top right: "P" Rotair®
- ▲ Above left: RCV railcar
- ▲ Above right: "D" Pilotair®
- ◀ Left: "M" Plus™, Flexair® and "H" Controlair®



#### **Flexair® pressure regulating valves**

The Flexair valve gives 3-way, precise control of the various functions performed during the operation of oil drilling rigs, excavating machinery, hoist, dredges and production machines. Handle options include various lengths, self-holding, self-returning and detent in extreme positions. Handle guide arrangements available to operate one, two or three pressure or directional control lines separately or in combinations. Maximum pressure is 150 psi.

#### **“M” Plus™ pressure control valves**

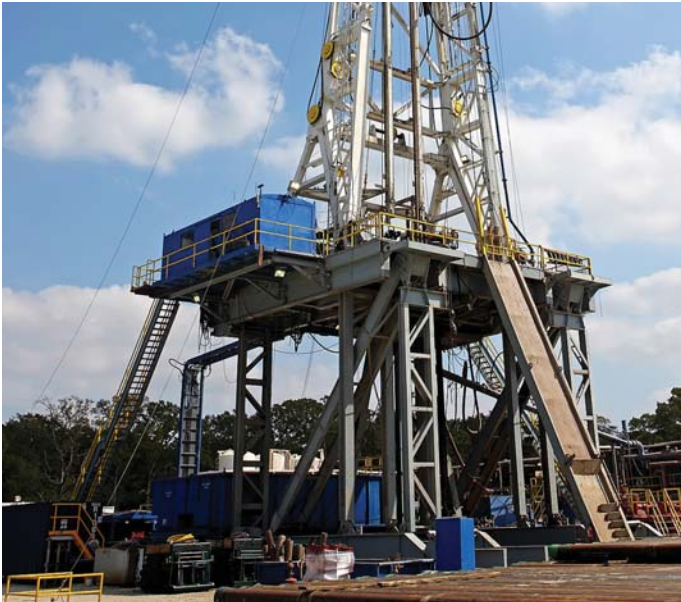
Designed for short-distance (up to 50 feet), low-force pressure control applications, this valve offers economical and accurate control. Operators include hand lever, foot pedal and mechanical plunger. Maximum supply pressure is 150 psi, with choice of two controllable output pressure ranges, 0–60 or 0–100 psi. Sensitivity is 2 percent of range, and ports are 1/8" NPT.

#### **“H” Controlair® pressure regulating valves**

Hand, foot or mechanically operated, these valves can control both pressure and flow of air. Some models control functions in separate and independent air circuits or in branches of the same circuit. Other models control these functions either selectively or simultaneously in three separate and independent branches of an air circuit. Outlet pressures are controllable between 0–175 psi and can maintain pressure within 1-1/2 psi.



# Mobile/oilfield actuators and cylinders



AVENTICS actuator/positioners are compact, pneumatically operated devices used for accurate positioning of diesel engine governor control arms, butterfly valves, carburetors and other low-force mechanisms. AVENTICS pneumatic actuators are the industry leader in oil/gas drilling and well servicing applications, including transmissions, positioning hydraulic valves, clutches and brakes, plus railcar hopper control and other uses common to mobile/oilfield equipment.

## A-2-H actuators

These diaphragm-lever radial actuators have a power rating of 410 in-lb-degrees and come in four pressure range choices up to 90 psi. The A-2-H has a nominal stroke of 2", adjustable from 1-7/8" to 2-1/4".



## AA actuators

These powerful diaphragm lever type actuators have a force rating up to 1,125 inch-lb-degrees. Single- and two-direction models are available, as well as models with a separately controlled stop cylinder. Output travel is adjustable from 7/8" to 2-1/4", with a pressure range of 0–60 psi.

## Two direction positioners

These versatile linear positioners move one-half their total stroke length in each direction from a center "zero" position. They feature three total stroke lengths: 1", 1-1/2" and 2". Force ratings range from 410 to 820 in-lb-degrees, and four pressure range choices up to 115 psi are available.

## "C" linear positioners

These small linear piston type positioners have integral female clevises for easy mounting. Two sizes are offered, with force ratings of 650 and 1,400 in-lb-degrees. Strokes are 1-1/5" or 3", and operating pressure ranges from 0–60 psi.



## Multi-position transmission cylinders

These air cylinders are discreet positioning devices which can be controlled by "A" or "D" Pilotair® or "P" Rotair® valves depending on number of positions. Two through eight position models have various stroke lengths, available in 1/16" increments. Maximum operating pressure can be up to 250 psi depending on the model.

## Construction grade (cast iron) cylinders

Constructed of unyielding semisteel, these durable cylinders are unequaled for clutch and brake applications. The cylinders feature an integral female clevis mounting. Operating pressure is 120 psi, and strokes range from 2-1/2" to 7". Single- and double-acting models, and bore sizes from 2-1/2" to 4-1/2" are offered.

## Hopper dump railcar cylinders

These heavy-duty 8", 10", 12" or 14" bore air cylinders operate hopper gates. Cast ductile iron heads and caps are standard, with stroke lengths from 10" to 30". The cylinder tubing can be chrome plated I.D. steel or lightweight corrosion-resistant fiberglass. NFPA type MP1 and MS4, or customized, mounts are available.



# Marine controls

We pioneered pneumatic marine propulsion controls, as Westinghouse, in the 1940s. Today, AVENTICS provides both pneumatic and electronic controls for a broad spectrum of vessels, from pleasure and fishing boats, to tugs, offshore supply and military ships.

## Marex OS III electronic marine control systems

These microprocessor-controlled systems feature a high level of flexibility and the ability to transfer data via CAN-Bus. They are able to control a variety of propulsion systems, from reverse gear to controllable pitch propellers. The modular concept enables specific requirements of a ship to be met with a minimum of design and installation work. Clear text information via a display aids in programming functions and troubleshooting.

## Electro-pneumatic control systems

Factory-assembled and factory-tested AVENTICS control systems are ready for shipboard installation and operation. They incorporate electro-pneumatic pressure interlocks and protective circuits for proper engine and reverse gear operation without relying on operator judgment to time or anticipate propulsion machinery functions.



## Pneumatic clutch and throttle valves

We offer a very large selection of rugged, panel mounted marine Controlair® valves, all corrosion-resistant and with proven dependability. Choose from single or double handle models, and plenty of position and pressure options. Models with chrome-plated brass covers and handles are available for open deck or other applications.

## Air logic valves and accessories

A wide variety of other special marine components are available to complete installations. These include shuttle, check and flow control valves; gauge blocks; timers; positioners; multi-function valves; and pressure regulators.



- ▲ Above left: Marex OS III electronic marine control components
- ▲ Above right: Pneumatic control systems, pneumatic clutch and throttle valves and positioner
- ◀ Left: Proportional air clutch panel

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# AVENTICS Quick Ship Focused Delivery Program for pneumatics



Focused  
Delivery  
Program

## Saving you time

At AVENTICS, we understand the competitive pressures that drive businesses across every industry segment. To help speed your time to market and sustain your competitive edge, count on our Quick Ship Focused Delivery Program.

To help speed your development process, our Quick Ship program offers a wide selection of our most popular and proven pneumatic products. They're ready to ship, with fast, reliable lead times that meet or exceed market lead times. The Quick Ship program saves you delivery time, and by standardizing these products, you will save time over the life of your systems by using products that are readily available.

Add to this your reduced downtime due to using quality, reliable AVENTICS pneumatic products proven through decades of use in the widest range of demanding applications. Our Quick Ship program includes pneumatic products such as:

- air preparation and accessories
- pneumatic valves
- pneumatic cylinders (plus hydraulic NFPA)

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**AVENTICS Corporation**

1953 Mercer Road  
Lexington, KY 40511  
Tel 859.254.8031  
Fax 800.489.1488  
[www.aventics.com/us](http://www.aventics.com/us)  
[info.us@aventics.com](mailto:info.us@aventics.com)

**AVENTICS Incorporated**

5515 North Service Road  
Suite 104  
Burlington, Ontario L7L 6G4  
Tel 905.332.0399  
Fax 905.332.8596  
[www.aventics.com/ca](http://www.aventics.com/ca)  
[info.ca@aventics.com](mailto:info.ca@aventics.com)



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