

# Innovative And Future-Proof. Our Program For Efficient Pneumatics Solutions



## AVENTICS™ Pneumatics Solutions

A perfectly orchestrated scene equates –  
cylinders and drives, valves and valve systems, air supply management.



## Next up, a pneumatics program that captivates the audience

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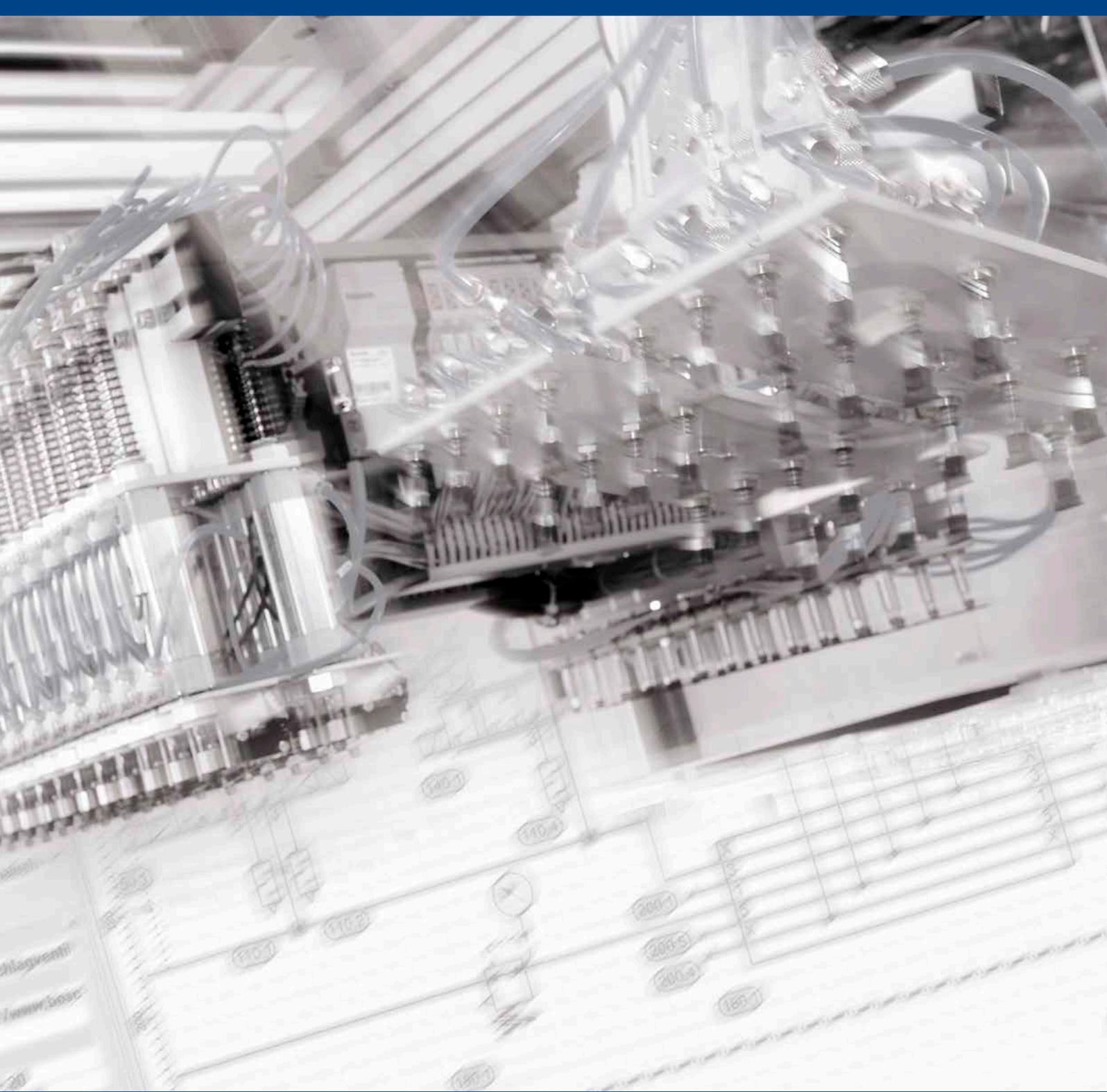
## Our package leaves no gaps in the system

In good hands right from the start: best-in-class product quality, an extensive product portfolio, solution expertise, and target-oriented, long-term support – as an Emerson customer, you can take advantage of everything you need for a future-proof pneumatic solution. What we offer:

- Best-in-class products and components
- Expertise in pneumatics: systems know-how and experience in the industry
- Comprehensive automation solutions with pneumatics

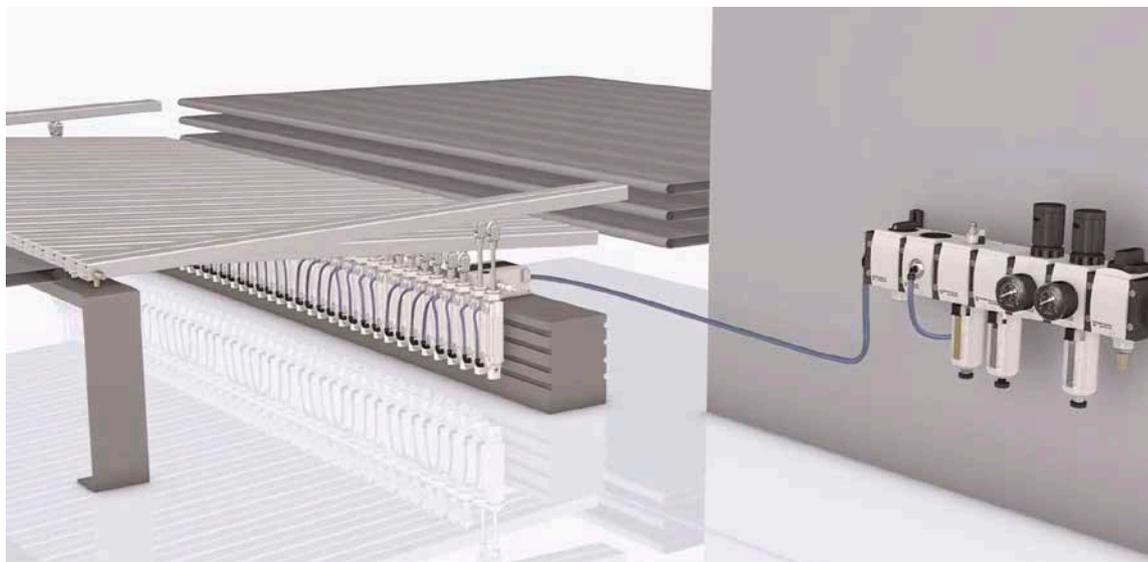
Successful collaboration with you is a major building block for our innovation. Every new project and daily practical experience add to our industry expertise and provide crucial impulses. Functional integration, component reduction, and alternative material management are just some trends on the way to optimized productivity. Thanks to the targeted use of new technologies and materials, as well as integration of electronic elements, we continually optimize the function and features of our products and solutions. A special plus for you – you can be sure of that.





The products in our portfolio play a major role in automation technology and have been well-received in virtually all industries. We would like to make your automation tasks the perfect platform for our program.

## A perfectly orchestrated scene equates to a successful presentation



We at Emerson know that in the end it's all about your satisfaction. About solutions that work safely and efficiently for you and reliably accomplish your automation tasks. Lasting and maintenance-free. Our products, components, and systems are designed for just that. And that's what we work towards every day.

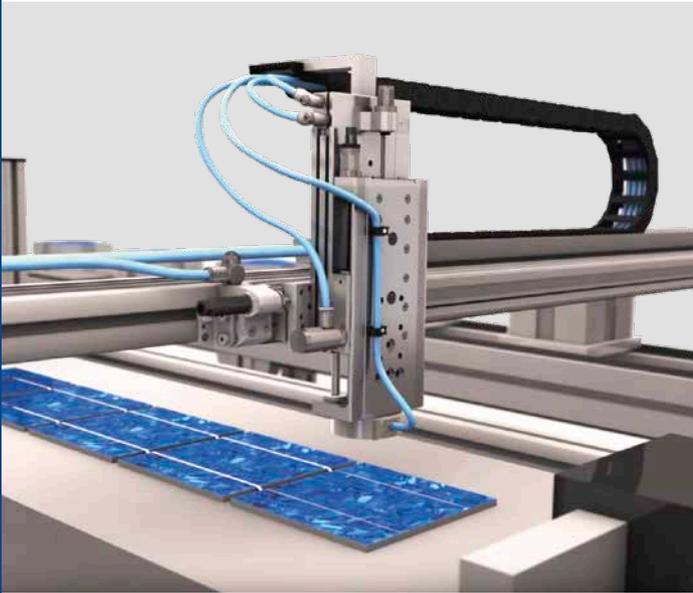
### **Pneumatic solutions tailor-configured to the application**

It's perfect interaction that makes an application successful. Of course, the use of individual AVENTICS products and components also offers proven quality for your machines and systems. But our mission doesn't stop there. We know that maximum efficiency requires all elements of a system to fit together perfectly, with a harmonic balance. This is why we offer you not only products, but solutions, not only functionality, but efficiency. Let's talk about it – take advantage of our expertise in pneumatics for your application tasks!

Emerson across the line: A pneumatic application generally consists of compressed air supply, compressed air control, and actuators. For all areas, Emerson offers a comprehensive range of equally innovative and proven products that optimally complement each other in line with our product philosophy. Everything fits perfectly – down to the last fitting.

## Pneumatic solutions

### Pneumatic solutions tailor-configured to the application

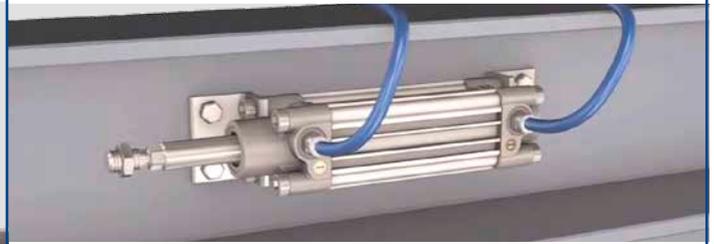


Handling system in the production of solar modules with rodless cylinders, guided slide units, and a non-contact transport system NCT series.

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## Actuators

### Cylinders, drives, accessories



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## Valve technology

### Valve systems, directional valves, electrical connection technology



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## Air supply management

### Maintenance units, pressure sensors, pneumatic connection technology



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## Here, movement is key – cylinders and drives for every scenario

Whether in extremely tight spaces, in especially tough conditions, or tasks with high hygienic demands – when it comes to our cylinders and drives, there are no unsuitable or unusual environments. Our performers master their roles and play nice in every application. For fast cycles and sensitive movements, the heaviest of loads and finely metered forces.

### CSL-RD series (ISO 6432)

The CSL series is available in an ISO version, a short version, and in hygienic design. The cylinders do not have any gaps, feature a low surface roughness, and work with food-grade lubricants and seals. Also available with cushioning adjusted at the factory.

CSL-RD



## Mini and round cylinders

### MNI series (ISO 6432)

Our smallest standard cylinder series for universal application in mechanical engineering. It is available in many variants and is characterized by extreme durability and a long service life.



MNI

### RPC series

The RPC series is the big brother to the MNI and offers an additional short version. The cylinders are easy to clean and are suitable for packaging applications in the food industry thanks to food-grade lubricants.



RPC

### ICM series (ISO 6432)

Cylinders from the ICM series are corrosion-resistant and durable. The cylinder is standardized according to ISO 6432 but also available in a more compact length. The cylinder tube and piston rod are made of stainless steel while the cover is made of high-quality plastic.



ICM

### ICS-D2 series

Cylinder series in hygienic design. Stainless steel, smooth surfaces, form-fit seals, and cushioning screws ensure optimal cleaning conditions.



ICS-D2

## Short-stroke and compact cylinders

### CCI series (ISO 21287)

The CCI series is ideal for increased cycle and moving mass requirements. It has a compact, easy-to-clean design with integrated sensor slots on all sides and offers a wide range of variants and equipment details, e.g. an ATEX version or US version.



CCI, non-rotating

### CCL-IC series

CCI means: innovative, compact construction and an easy-to-clean design. The CCI is ideal for long strokes and increased requirements for optimized cycle times and moving masses. The sensors can be installed quickly and easily on all sides and over the entire stroke range.



CCL-IC

### KPZ series (NFE 49 004)

KPZ series compact cylinders can be used for a wide range of applications thanks to their dimensions based on the established standard NFE 49 004. Also available in an ATEX version.



KPZ

### SSI series (ISO 15524)

The SSI short-stroke cylinders according to ISO standard 15524 feature a particularly short design and are up to 30% lighter than comparable cylinders thanks to material and component optimization. The 4 and 6 mm slots on all sides provide maximum flexibility for sensor installation.



SSI

### KHZ series

KHZ series cylinders feature an extremely compact design and are available from a piston diameter of 8 mm. They are ideal for installation in the tightest of spaces and can be assembled anywhere, easily and securely.



KHZ



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



## Profile and tie rod cylinders

### PRA series (ISO 15552)

PRA cylinders are based on a compact aluminum profile with integrated 4 and 6 mm sensor slots for simple, space-saving installation of sensor technology.



PRA with modular scraper (optional)

### TRB series (ISO 15552)

TRB cylinders with a classic design featuring smooth tubing and tie rods offer an impressive load capacity and adaptability to existing processes.



TRB

### ITS series (ISO 15552)

ITS cylinders are used for moving masses in the ton range. As standard, they are equipped with a configurable scraper module from the modular sealing system.

ITS with modular scraper (integrated)



### CCL-IS series (ISO 15552)

This cylinder in clean design is produced specifically for packaging applications in the food industry. It is characterized by practical sensor mountings and its hygienic design that combines simple cleaning with low maintenance.



CCL-IS

### CVI series (ISO 15552)

Custom units can also be configured online with the PRA and TRB ISO cylinder series, and five freely combinable valve series.



CVI

## Cushioning Adjustment Tool CAT – The easy way for precise cushioning adjustment

So far an optimum end cushioning adjustment requires experience, a certain feeling and sometimes patience. Today, you can count on the reliable support of sensor electronics. The adjustment of end cushioning is easy and quick, ensuring the correct settings. After the sensor is fixed on the cylinder and switched on, all functions can be read from the large LED display and cushioning adjustment can be effected precisely. In addition, the optional AVENTICS app provides information about piston speed and the cushioning characteristics graphically.



## Mini slides and guide units

### MSC series

MSC stands for maximum rigidity for high torques and loads. Versatile configuration options make the mini slide a truly universal handling component, ensuring great flexibility in machine design.



### MSN series

MSN offers precise guidance without play in a slim package. A wide variety of attachment and ventilation options allows for application in virtually any position and location.



### GPC series

The robust design is particularly reliable and absorbs high torques and transverse forces. The E and ST variants offer users a particularly cost-efficient handling solution.



### RCM series rotary compact module

RCM rotary compact modules can be mounted directly on mini slides. Different cushioning types, air ducts, and intermediate positions are available. Fine-adjustment of the end positions.



### TRR series rotary cylinder

The TRR series can realize angles of rotation up to 360° and torques up to 110 Nm and offers adjustable pneumatic cushioning.



## Special cylinders

### SWN series screw-in cylinders

Thanks to their integrated thread, SWN cylinders are compact and easy to screw into their work environment.



### RDC series rolling diaphragm cylinders

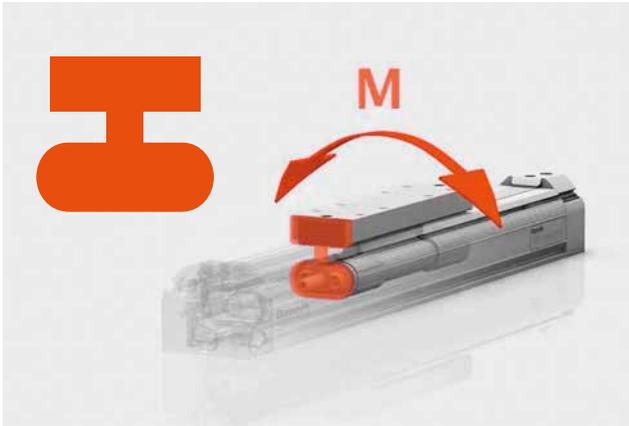
RDC cylinders can be operated at low pressures. This allows for precise force equalization in finely tuned systems.



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## Rodless cylinders and guided slide units



Permanently connected to the slide, the oval piston can withstand higher loads and moments than the round piston. Users achieve the same performance with far more compact cylinders, which cuts down on weight and costs.

### RTC series

RTC offers four variants with different strengths for movement and positioning as well as a wide range of speeds. As a basic version, compact guide, and heavy duty for heavy loads.



### CKP series

CKP is particularly suitable for applications requiring the movement of heavy loads. It provides sturdy, ultra-precise-guiding with excellent repeatability.



### GSU series

With its flat design, this high-performance guided slide unit is the ideal basis for many handling systems. Stroke length at stroke position can be set variably along the entire length – individually from both sides.



## Bellows actuators

### Series BCP, BCC, BRB, BCR

Our range offers four series for different areas of application. All bellows actuators enable high forces in the tightest of spaces and are virtually wear and maintenance-free. They are available in many sizes, with different versions and rubber qualities, in single, double, or triple bellows variants.



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



Cylinder			
Diameter	Max. stroke		Series
6 – 16 mm	15 mm		SWN
10 – 25 mm	1,300 mm		MNI ISO 6432
8 – 32 mm	400 mm		ICM ISO 6432
16 – 25 mm	1,300 mm		CSL ISO 6432
32 – 63 mm	1,200 mm		RPC
32 – 100 mm	1,600 mm		ICS
16 – 100 mm	500 mm		CCI ISO 21287
16 – 100 mm	500 mm		CCL-IC ISO 21287
12 – 100 mm	150 mm		SSI ISO 15524
8 – 100 mm	150 mm		KHZ
16 – 100 mm	400 mm		KPZ NFE 49 004
32 – 125 mm	2,800 mm		PRA ISO 15552
32 – 125 mm	2,800 mm		TRB ISO 15552
160 – 320 mm	2,700 mm		ITS ISO 15552
25 – 125 mm	2,800 mm		CCL-IS ISO 15552

Cylinder/handling technology			
Diameter	Max. stroke		Series
32 – 125 mm	2,800 mm		CVI ISO 15552
16 – 80 mm	9,900 mm		RTC
16 – 32 mm	3,700 mm		CKP
16 – 25 mm	1,000 mm		GSU
145 – 640 mm	580 mm		BCP
80 – 435 mm	355 mm		BCC
442 – 950 mm	365 mm		BCR
60 – 173 mm	100 mm		BRB
6 – 16 mm	30 mm		MSN
8 – 25 mm	200 mm		MSC
6 – 32 mm	100 mm		TWC
10 – 100 mm	200 mm		GPC
Drehmoment 0.17 – 6.5 Nm	–		RCM
Drehmoment 4.5 – 110 Nm	–		TRR
52.5 – 115 mm	95 mm		RDC



## Modular sealing system

The modular sealing system enables individual adaptation to the requirements of the respective application. This means maximum flexibility, optimal scraping, higher performance, and lower costs for maintenance and downtime. Standard for the ITS cylinder series and optional for PRA and TRB series cylinders.

Each of the cylinder series features five scraper modules according to ISO 15552. They are available separately with fully installed seals, bushings, and metal scrapers, and can be exchanged at any time, quickly and easily, without removing the cylinder.

## Mounting accessories

### CM1 series cylinder mountings



CM1

### CM2 series piston rod mountings



CM2

### CG1 series guide units



CG1

### CB1 series sensor mountings

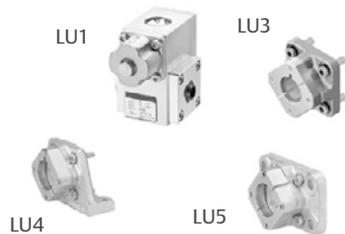


CB1

## Locking units

### LU1 – LU5 locking units

With eccentric movements, the units hold the piston rod in any position. Mounting to the cylinder is realized via a flange.



### HU1 series holding unit

The HU1 series holds piston rods using spring force. A corresponding adapter is used for attachment to the cylinder. Holding cartridges can be exchanged in case of wear.



### LU6 series locking unit

The LU6 is a mechanical holding unit/dynamic brake for piston rods in pneumatic cylinders according to ISO 15552 or comparable round bars. The unit can be used in safety-related controls in accordance with ISO 13849.



## Cylinder sensors

### ST4/ST4-2P series

These series offer high tech in the tightest of spaces and are ideal for pneumatic actuators in small handling. The ST4-2P sensor with two switching points also permits the measurement of any two switching points in a range of 50 mm.



### SC4 series

The SC4 is suitable for applications with pneumatic cylinders with a C-slot. Its short housing and connection line rotated by 90° make it ideal for use in tight spaces and with short-stroke cylinders. Thanks to a short, exact switching range, the SC4 is also a perfect fit for the AVENTICS UPG gripper series.



### SM6/SM6-AL series

SM6 and SM6-AL series sensors enable high-resolution, permanent distance measurement and are ideal for continual detection of piston movements in pneumatic cylinders within the maximum measurement range of 1,007 mm. Thanks to an intuitive teach pad, a 4-color LED display, and IO-Link communication, the SM6-AL is also easy to start up in next to no time.



### ST6 series

The ST6 is our universal sensor for the 6 mm slot. Established in automation technology as a standard sensor, it is spacesaving and can be mounted on all round cylinders, tie rod cylinders, and profile cylinders via sensor mounting.



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)

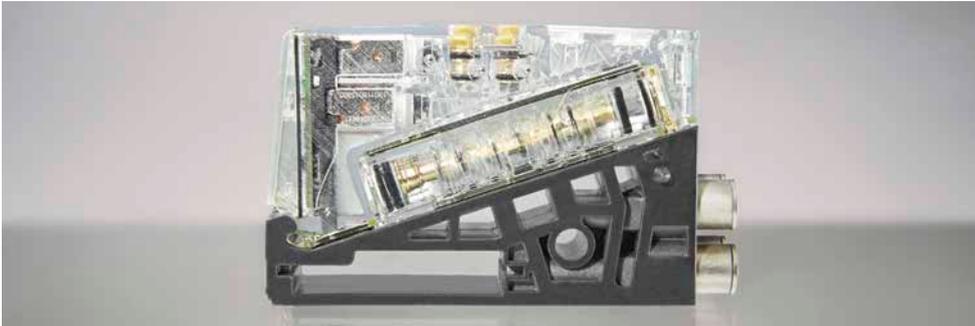


## They set the rhythm of the pneumatics – our valves and valve systems

The system dances to their tune. They have the central role. And that's why no compromises are made here – only the best for our customers. Innovation and quality from Emerson. With precise commands, our valves and valve systems control the pneumatic players in all automation processes. Whether as a group in a system or an individual performer, we have everything for you – best in class.

### Advanced Valve is more than just a valve system

Series AV is a complete automation solution with near-record switching times and an unbelievable size-to-output ratio. Up to 64 double solenoid valves can be added modularly to the board and freely combined with the AV03 and AV05 sizes.



The diagonal arrangement of the spool reduces the size of the Advanced Valves and optimizes the performance of the supply and exhaust channels. The result: convincing efficiency.

AES highlights	
Number of valve coils	128
Max. possible I/O modules	10
Protection class	Max. IP65
I/O functionality	Digital/ analog/pn. pressure signal
Connection options	M8, M12, D-SUB, spring clamp





Modularity, a key feature of the AES: digital and analog I/O modules with ring LED for each plug. AES bus coupler. Simple, subsequent addition of I/O modules. Tool-free connection of I/O modules.

## AV03/AV05 series valve system

Advanced Valve is more than just a valve system. AV is a complete automation solution that can continuously be adapted to the requirements of the application thanks to its consistent modularity. Its unique design, low weight, and optimized compact size with an increased function density offer clear product advantages. Compared with existing products, AV:

- Saves up to 45% space thanks to its diagonal design
- Is up to 40% lighter thanks to low-weight, high-performance polymers
- Up to 20% less compressed air consumption thanks to shorter distances from the actuator to the valve



## AES electrical connection

The Advanced Electronic System (AES) is responsible for serial data exchange between the controller and the AV family components. The flexible, modular structure of the AES and its wide range of variants offer additional advantages. Modify, exchange, upgrade – quickly and easily.

Fewer parts, an optimized design principle, and polymer technology have made the AES bus coupler up to 60% smaller and 70% lighter than existing products.

AES can be used with valve technology or as a stand-alone solution, for all common fieldbus protocols or, alternatively, with IO-Link connection.



AES bus coupler

## IO-Link



Stand-alone AES Profibus DP



## Highlight: Clean Line

Easy cleaning, chemical resistance, and the high component protection classes are all important parameters for the food production and primary packaging industries. The CL03 series valve system features an especially high protection class of IP69K, NSF H1 lubricants, with EHEDG certification and bus connection. It is available in two sizes, and also with multipole plug.

## CL03/CL03-XL series

CL03 is resistant to cleaning agents and aggressive chemicals and is ideal for wash-down applications, even under harsh conditions. The valve system provides maximum flexibility: all required valve functions, two combinable sizes, with integrated bus module or multipole plug, and up to 32 different pressure stages in a single system.



CL03



CL03-XL

## Valve systems

### CD01 series

CD01 is the valve system for ISO standards 15407-1 and 15407-2, available in size 26 mm. The wide range of equipment features with comprehensive functionality also offers an advantage for electrical systems.



### 581 series

The 581 series is the valve system for ISO standard 5599-1 and offers all valve functions with an extensive range of accessories. It is available in sizes 1 – 4, has integrated throttle valves, and can be equipped with various pilot valves.



### TC08/TC15 series

The TC series is ideal for applications requiring lightweight, high-performance valves in tight spaces. They can be expanded modularly to include up to 12 valves – valves can be installed and removed easily without dismantling the valve block.

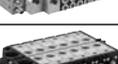


### HF02-LG/HF03-LG series

HF means high flow and high functionality with extensive equipment options. The valve series offers flexible installation options and is particularly service-friendly thanks to easy valve exchange and excellent diagnostic strength.



## Valve systems

Qn		Series	Functions	Connections	Control
300 l/min		AV03	2 x 2/2, 2 x 3/2, 5/2, 5/3 E/P	Ø 4, Ø 6, Ø 8	Multipole, AES fieldbus, single connection
600 l/min		ES05	2 x 3/2, 5/2, 5/3	Ø 8	Multipole, AES fieldbus
700 l/min		AV05	2 x 2/2, 2 x 3/2, 5/2, 5/3 E/P	Ø 4, Ø 6, Ø 8	Multipole, BDC, CMS, and DDL fieldbus
700 l/min		HF03-LG	2 x 3/2, 5/2, 5/3	G1/8, Ø 8, NPTF 1/8	Multipole, BDC fieldbus
700 – 1,100 l/min		CL03 CL03-XL	2 x 3/2, 5/2, 5/3	G1/4, Ø 5/16, Ø 10, Ø 3/8	Individual plug, pneumatic
800 l/min		TC08	2 x 3/2, 5/2, 5/3	G1/8, NPTF 1/8	Individual plug, pneumatic
1,010 l/min		CD01 CD01-PI	2 x 3/2, 5/2, 5/3	G1/8, G1/4, 1/4 NPT, Ø 4, Ø 6, Ø 8, Ø 10, Ø 3/8"	Individual plug, multipole, pneumatic fieldbus
1,400 l/min		HF02-LG	2 x 3/2, 5/2, 5/3	G1/4, Ø 10	Multipole, BDC, CMS, and DDL fieldbus
1,500 l/min		TC15	2 x 3/2, 5/2, 5/3	G1/4, NPTF 1/4	Individual plug, pneumatic
1,400 – 6,000 l/min		581	2 x 3/2, 5/2, 5/3	G1/8, G1/4, G3/8, G1/2, G3/4	Individual plug, multipole, pneumatic



## Directional valves for custom performances: alone or accompanied

### Ideal for decentralized applications

For applications indoors or outdoors, in extreme cold or heat, for delicate work or tasks demanding enormous power – our range of directional valves has the right valve solutions for every situation. From the Clean Line valve for wash-down applications in the food industry, to the special valve for use in furnaces in the aluminum industry – the single valves with flow rate performances from a minimum of 50 to a tremendous 13,620 l/m are tailored to a broad spectrum of applications with their specific characteristics.

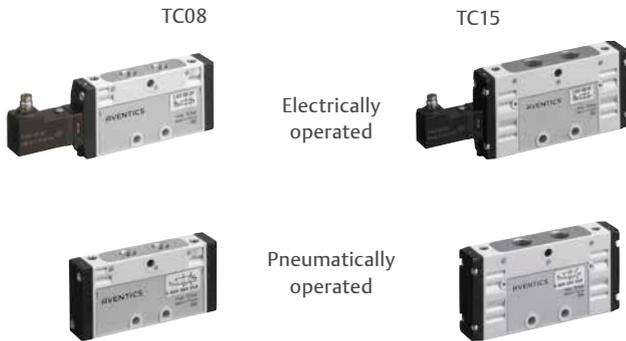


The CL03-EV single valve for decentral applications in the food industry was developed based on the proven CL03 series valve system. CL03-EV offers the maximum protection class IP69K and is one of the few single valves in the market featuring a hygienic design.

# Single valves

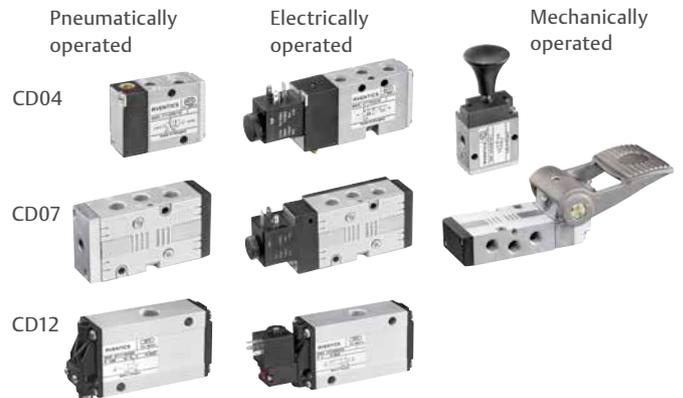
## TC series

TC series single valves consist of two size variants, TC08 and TC15, with flow rates of 800 and 1,500 l/min respectively. The valves can be operated both pneumatically and electrically. In addition, they are extremely easy to install. They offer flexible electrical and pneumatic connection options and can be mounted to practically any level surface via through holes.



## CD series

The CD series is available in three sizes as electrically, pneumatically, and mechanically operated valves. They are extremely robust and reliable, even in harsh working environments. The valves are even designed and approved for use in declared danger zones as they are resistant to mechanical loads, extreme temperature differences, and electrical voltage fluctuations.



## LS04 series

Thanks to their space-saving, lightweight design, LS04 valves are ideal for direct mounting to moving machine parts. They enable high dynamics and are optimal for applications in small handling.



## CL03-EV series

CL03 series single valves offer all valve functions with the maximum protection class IP69K. It features a consistent hygienic design, works with NSF H1 lubricants, and is also suitable for applications with direct contact with food products.



## 589 series

The 589 series offers users an especially cost-optimized 3/2 or 5/2 directional valve solution with poppet valve technology. They provide many integrated functions and can also be assembled into valve blocks.



## 740 series, 840 series

These series of valves are extremely robust and work without any problems, even with poor air quality and under tough conditions, thanks to their robust plastic housing and integrated diaphragm technology.



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



# Single valves



## Safety valves SV07/09 series

In safety-relevant controls, the double valves of SV07/09 series enable safe and controlled pressurization and exhaust of machines or machine sections. They mutually monitor their function and are therefore considered intrinsically safe certified components for use in high control categories.

### 581 series, sizes 1 – 4

The 581 series single valves according to ISO standard 5599-1 are available in all sizes 1 – 4. They offer all valve functions, a comprehensive range of accessories, and integrated throttle valves.



### AS3-SV series

The AS3-SV valve assumes the redundant exhaust safety function, as well as protection against unexpected pressurization, reducing risks significantly. The valve only activates compressed air supply when all conditions for a safe system start-up have been met.



### AP series

Whether you require manual operation via levers or pedals, or automated operation via rollers, special buttons, or plungers – the AP series offers a wide variety of mechanically operated single valves.



### 563-018 series

The manually operated 563-018 valves are available in two sizes. The robust design enables reliable opening and closing at all times – even when wearing work gloves.



### CERAM series

CERAM: the right choice for exceptionally harsh operating conditions. The valve plates are made of a particularly hard ceramic material that is resistant to chippings, oils, and other sources of contamination.



### ST series

The ST series offers a wide range of 3/2 and 5/2 directional valves in a sturdy steel version for industrial applications in harsh working environments. They can be operated electrically, pneumatically, or mechanically and equipped with a broad spectrum of accessories.



### 563 series, 565 series, 567 series

In tough environmental conditions and under high working pressures up to 30 bar, the 563, 565, and 567 series valves are in their element. They are extremely reliable, extremely durable, and cover an impressive range of nominal flows from 1,350 to 13,620 l/min. The 3/2 directional valves can be operated both electrically and pneumatically.



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



## Single valves

Qn		Series	Functions	Connections	Control
50 – 850 l/min		589	2/2, 3/2, 5/2	Ø 6 x 1, Ø 8 x 1	Electric, pneumatic
200 – 310 l/min		LS04	2 x 3/2, 5/2, 5/3	Ø 4 – Ø 6	Electric
600 l/min		ES05	2 x 3/2, 5/2, 5/3	Ø 8	Single plug, multipole, AES fieldbus, IO-Link
600 – 800 l/min		TC08	2 x 3/2, 5/2, 5/3	G1/8, NPTF 1/8	Electric, pneumatic
900 l/min		CD04	3/2, 5/2, 5/3	G1/8, PTF 1/8	Electric, pneumatic, mechanical
900 – 1,400 l/min		CD07	3/2, 5/2, 5/3	G1/4, M14 x 1,5	Electric, pneumatic, mechanical
1,100 – 1,500 l/min		TC15	2 x 3/2, 5/2, 5/3	G1/4, NPTF 1/4	Electric, pneumatic
3,600 – 4,100 l/min		CD12	3/2, 5/2, 5/3	G1/2, M22 x 1,5	Electric, pneumatic
200 l/min		840	4/2	Ø 6 x 1	Electric, pneumatic
700 – 1,100 l/min		740	5/2, 5/4	Ø 8 x 1, Ø 10 x 1	Electric, pneumatic
700 l/min		CL03-EV	2 x 3/2, 5/2, 5/3	Ø 8 – G1/8	Electric
150 – 550 l/min		AP	2/2, 3/2, 4/2	G1/8, NPTF 1/8-27, G1/4, M5	Mechanical, manual
280 l/min		ST	3/2, 5/2	G 1/8	Electric, pneumatic, mechanical, manual
1,000 – 7,000 l/min		CERAM	5/2, 5/3	G1/8, 1/4, 3/8, 1/2 NPTF 1/4, 3/8, 1/2, 3/4, 1	Electric, pneumatic
7,200 l/min		AS3-SV	3/2	G1/2	Electric
950 – 6,000 l/min		581	5/2, 5/3	ISO 5599-1	Electric, pneumatic
1,350 l/min		563	3/2	G1/4	Electric, pneumatic
4,240 l/min		565	3/2	G1/2	Electric, pneumatic
13,620 l/min		567	3/2	G1	Electric, pneumatic
300 – 1,100 l/min		563-018	4/2, 4/3	G1/8	Manual



## On-demand, continuously adjustable, and dynamic pressure control

### Electropneumatic pressure regulators

Depending on the respective task, three different control principles are applied in electropneumatic pressure regulator technology: indirect control with pilot valves, direct control by means of a proportional solenoid, and highly dynamic control via two integrated proportional solenoids. Emerson is a technological leader in all of these principles and has the right E/P valve solution for every application.

#### AV-EP series

AV-EP series electropneumatic control valves are the ideal solution for the AV03/AV05 valve system. They can be fully integrated with all functions and provide the desired working pressure directly at the regulator via fittings or supply pressure to the switching valves adjacent to the regulator. The pressure can be set and controlled via the membrane keyboard and display or via multipole or fieldbus.



#### MU1 series, PR1 series, PR2 series pressure regulators

MU1 enables the secure, reliable control of great compressed air flows of up to 50,000 l/min. PR1 and PR2 series precision pressure regulators present an alternative to the electropneumatic pressure regulators. They can be adjusted exactly and allow for extremely fast responses to the slightest fluctuation in compressed air.



# Electropneumatic pressure regulators

## ED02 series

ED02 is our compact regulator. With its performance values, it presents an optimal control solution for many applications. On top of that, it is easy to stack.

ED02



## ED05 series

ED05 is a versatile regulator based on the principle of direct control with one proportional solenoid. It combines precision and high dynamics with a high flow.

ED05



## ED07/ED12 series

ED07 and ED12 are E/P valves for highly dynamic control. They can realize high air flow rates and offer particularly dynamic control characteristics thanks to proportional valves for pressurization and exhaust that can be controlled separately.



ED07/ED12

## EV03/EV07 series

EV03 and EV07 works according to the principle of indirect control with pilot valves. The E/P valves are optimal for static requirements and feature an extremely low energy consumption.



EV07

EV03

## Pressure regulators

Qn		Series	Functions	Connections	Control
120 l/min		ED02	3/3	G1/8, NPT	Electric
1,000 l/min		ED05	3/3	NPTF, G1/4	Electric
1,300 l/min		ED07	3/3	G3/8	Electric
2,600 l/min		ED12	3/3	G3/4	Electric
600 l/min		EV03	3/3	G1/4	Electric
800 l/min		EV07	3/3	G1/4	Electric
300 l/min (single pressure), 425 l/min (pressure zone)		AV03-EP	3/3	Via valve system	Electric
430 l/min (single pressure), 500 l/min (pressure zone)		AV05-EP	3/3	Via valve system	Electric
300 – 50,000 l/min		MU1	–	G1/8 – G2	Pneumatic, mechanical
480 – 5,600 l/min		PR1	–	G1/4 – G1/2	Pneumatic, mechanical
1,350 l/min		PR2	–	G1/4	Mechanical



## We provide the power needed – with compressed air prepared exactly right and present at all times

The demands on our pneumatic solutions are high – so there is no room for shortcomings. Our Air Supply Management spoils them with the best possible air conditions. Backstage! Tailored to the application, right on target, finely filtered, and well-oiled – a guaranteed success. Our program: from maintenance units to tubing, everything is perfectly matched.



# Air supply management

## AS series maintenance units

The modular versatility of the AS series makes it perfect for universal application. With four size variants, they cover the entire operating range up to a flow of 14,500 l/min and enable not only the standard functions of filtering, regulating, and lubricating but also the integration of all specifically required functions.



## 651/652/653 series Maintenance units

This line offers you complete, customizable compressed air preparation technology. It includes an option to combine every component in the series to achieve the desired function, making it possible to adjust the components precisely to the application requirements.



## MH1 series Maintenance units

MH1 series maintenance units are designed for use in food production and primary packaging. In a stainless steel version, optionally with a protective cap in the hygienic design variant, the products are resistant to corrosion, cleaning agents, and disinfectants. The materials comply with Framework Regulation (EC) No. 1935/2004. The seals are made of FDA-certified material with NSF H1 grease. Every component also complies with NACES MR0175 and ISO standard 15156.



## PM1 series pressure sensor

With PM series electromechanical pressure switches, switching points are set manually. The adjustment screw can be fixed easily and securely. The switching point is continuously adjustable, even during operation.



## PE series pressure sensor

The electronic pressure sensors of the PE series can be used in virtually all applications and are easy to integrate into existing compressed air preparation systems. They feature a high degree of switching precision and repeatability with optimal operating comfort.



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



## Flow and check valves

### CC series check-choke valves

CC series check-choke valves are designed for nominal flows from 60 to 5,600 l/min. The different versions are available with a push-in fitting or internal thread.



### CH series check-choke valves

CH series check-choke valves can be used for nominal flows up to 4,100 l/min. The series features special versions with integrated silencer and screw-in variants.



### NR series non-return valves

Thanks to an array of connection options, the NR non-return valves can be screwed in separately and are also suitable for direct installation in piping.



### Shut-off valves, quick exhaust valves

Designed for safety-relevant processes, the valves enable automatic blocking of the air supply to immediately stop the working stroke.



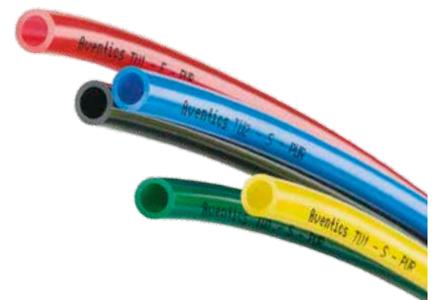
## Pneumatic connection technologies, plastic tubing

### QR series push-in fittings

The push-in connectors with easy, secure mounting are available in many versions: for tubing diameters from 3 to 16 mm, as well as in plastic, metal, and stainless steel variants. Our QR program offers the right solution for every application and industry.



### TU series plastic tubing



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



Maintenance units						
Qn		Series	Designation	Connections	Filter porosity	ATEX
1,000 l/min		AS1	Maintenance units	G1/4	0.01 – 5 µm	Optional
2,700 l/min		AS2	Maintenance units	G1/4 – G3/8	0.01 – 40 µm	Optional
5,200 l/min		AS3	Maintenance units	G3/8 – G1/2	0.01 – 40 µm	Optional
14,500 l/min		AS5	Maintenance units	G3/4 – G1	0.01 – 40 µm	Optional
2,060 l/min		651	Maintenance units	G1/8 – G1/4	0.01 – 40 µm	Optional
7,000 l/min		652	Maintenance units	G1/4 – G1/2	0.01 – 40 µm	Optional
11,500 l/min		653	Maintenance units	G1/2 – G1	0.01 – 40 µm	Optional
325 – 2,000 l/min		MH1	Maintenance units	G1/4 – G1/2	0.01 – 5 µm	

Flow and check valves			
Qn		Designation	Series
50 – 1,960 l/min		Check-choke valves	CC02
85 – 2,100 l/min		Check-choke valves	CC04
110 – 8,830 l/min		Check-choke valves	CC01
38 – 2,800 l/min		Throttle valves	CH01
200 – 4,100 l/min		Throttle valves	CH02
40 – 7,950 l/min		Non-return valves	NR01
300 – 5,800 l/min		Non-return valves with release	NR02
280 – 2,000 l/min		Non-return valves	QR1
500 – 2,600 l/min		Ball valve and shut-off valve	QR1

Fittings and plastic tubing			
Connections		Designation	Series
Ø 3 – 6 M3 – G1/8		Push-In fittings	QR1-S mini
Ø 4 – 16 M5 – G1/2		Push-In fittings	QR1-S standard
Ø 4 – 16 M5 – G1/2		Push-In fittings	QR2-S standard
Ø 4 – 12 M5 – G3/8		Push-In fittings	QR2-C stainless steel
Ø 4 – 16		Plastic tubing, polyethylene	TU1
Ø 4 – 22		Plastic tubing, polyethylene	TU1-S
Ø 3 – 16		Plastic tubing, polyethylene	TU1
Ø 4 – 10		Duo plastic tubing, polyurethane	TU2

## Non-contact transport system



### NCT non-contact transport system

The unique, gentle NCT gripper technology is available in two material versions. NCT-AL (aluminum) is suitable for all standard applications. NCT-PK (PEEK) grippers are designed for special requirements in the food, semiconductor, and solar industries and enable direct contact with foods or silicon.



## Vacuum cups and vacuum accessories

### Vacuum cups

Whether angle joints, flow valves, vacuum filters, spring-loaded plungers, the right fitting, or the entire range of vacuum cups – along with vacuum ejectors, our program offers everything required for a vacuum-based pneumatic solution.



## Vacuum ejectors

### EBS series

The ESB series features inline ejectors with axial compressed air and vacuum connections for direct installation in the vacuum line as well as compact ejectors with several integrated functions: vacuum generation, pilot valves, filters, switches, and silencers.



## Vacuum ejectors

### EMS series

Enormous suction capacity with maximum efficiency – the multistage ejectors with multiple Venturi nozzles connected in series offer a very high suction capacity, making it possible to handle workpieces with difficult-to-seal surfaces.



### ECD series

From Basic, Smart, Intelligent, to Large: ECD series ejectors are available in four modular versions with functions, sizes, and features that can be selected as needed.



For further information on these or any other AVENTICS product, visit [Emerson.com](http://Emerson.com)



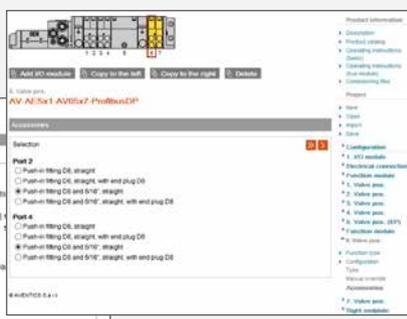
# Configuration in just a few clicks



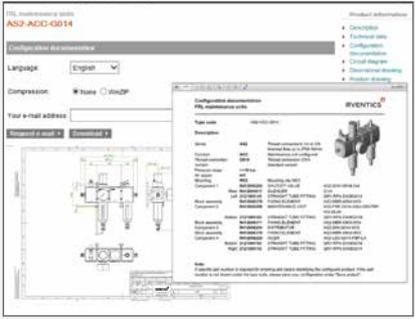
**Handling systems, cylinders, and drives**

www.engineering-tools.com/configurator





**Valves and valve systems**



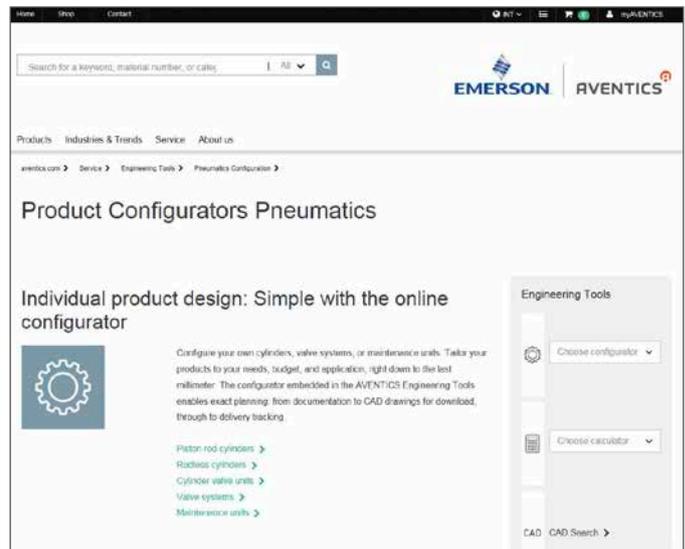
**Air supply management**

## The unique online Engineering Tool

With the unique product configurator, you get results quickly and easily – online. You can configure your complete application, from compressed air preparation to valve control and handling solution with single cylinders and drives, to complex multi-axis handling systems.

- Configuration of the entire spectrum of products
- Clear, intuitive navigation
- Immediate configuration result with complete documentation

After selecting the series, functions and sizes, accessory elements and equipment details, you receive the relevant project documentation for all components: catalog price, parts list, defined application parameters, calculation results with item drawing, circuit diagram, dimensioned drawing, and assembly instructions. Furthermore, a material number is created that, depending on the user's wishes, represents the product as a kit



including assembly parts or as a preassembled unit. Of course, 2D and 3D CAD data is also provided in all standard formats.

## Saving the best for last! Encore: tailored entirely to the customer

Looking for something custom? You've come to the right place. Because customer-specific solutions have always been an Emerson specialty. From the script, to the premiere. If there's a suitable solution for your task, we will find it. Not because we're driven by ambition at any price, but out of conviction.

### System technology – ready-to-install pneumatic solutions

Our system engineers mainly focus on the planning, configuration and assembly of control panels, control cabinets, or handling systems. They turn your task into the right ready-toinstall module solution – including compressed air preparation, valve technology, electrical control, and all accessory parts.

- Ready-to-install cylinder valve units
- Modified valve systems and maintenance units
- Configured control cabinets and panels
- Pneumatic handling systems

Save time and costs: from planning, design, and documentation, to logistics and assembly, to delivery and reliable commissioning, we do it all for you.

### Specific product development

Our product development experts realize specific product adaptations and special solutions just for you. Their tasks range from simple modification of existing products to completely new designs and product solutions for your application.

- Modification of standard components
- Integrating various functions in a single product
- Product development with additional specifications
- Integration of electrical system and pneumatics

From highly complex projects with functional integration to careful, yet effective, adjustments, the tailored components offer clear added benefits for your application.



## The homepage for non-stop service



AVENTICS' Engineering Tools bundle the entire pneumatics range and comprehensive expertise at one convenient location – [www.engineering-tools.com](http://www.engineering-tools.com)

### CAD



Objects can be issued here directly as a CAD file in various formats, as a PDF file, or for further configuration in our customers' software.

### Configurators



To create customized products matching their individual requirements, customers can set their parameters in the configuration program, which then presents a product tailored to their specifications.

### Calculation programs



With transparent calculations, our customers can determine the size or durability needed for their products and can even keep an eye on energy consumption.

### Circuit diagram software



With the Scheme Editor, our customers can quickly and easily create circuit diagrams that are based on their components and linked their your catalog selection.

### Cross Reference Tool



This tool shows our customers the right alternatives to competitor products from within the AVENTICS catalog.

### CylinderFinder



This free online tool helps our customers find the right cylinder for their application with just a few clicks.

### Sales Partner Portal



The Sales Partner Portal establishes a direct connection between AVENTICS and our sales partners and speeds up communication. It also contains a great deal of valuable information.

### Smart shopping for pneumatics professionals



In the new Online Shop, you can easily, quickly and securely order your pneumatics products – [www.pneumatics-shop.com](http://www.pneumatics-shop.com)

Your advantages:

- Intelligent search and filter functions
- Spare parts and accessories available for every product
- Track your orders online
- Transparent pricing

Simply register with your e-mail address, password and order directly

## Efficient pneumatic solutions, our program: cylinders and drives, valves and valve systems, air supply management



Emerson Automation Solutions  
Germany  
AVENTICS GmbH  
Ulmer Straße 4  
30880 Laatzen, Germany  
Tel.+49 511 2136-522  
Fax+49 511 2136-163  
www.aventics.de

Emerson Automation Solutions  
USA  
AVENTICS Corporation  
PO Box 13597  
1953 Mercer Road (40511)  
Lexington, KY 40512  
Tel. +1 859 254-8031  
www.aventics.us

Emerson Automation Solutions  
China  
AVENTICS Group  
2002 Unit, Asdendas Plaza, No 333  
Tianyaoqiao Road, Xuhui district  
Shanghai, China, 200030  
Tel. +86 21 2426 9666  
www.aventics.cn

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