

AVENTICS™ Air Supply Management

As individual as your application. The best in compressed air preparation, well-designed down to the last detail.



Competent and well-designed down to the last detail – compressed air preparation

04 Product overview Throttle valves and non-return valves 06 Air preparation units **Consulting, Example: AS2** 11 Pressure gauges 12 Pressure sensors 24 **Engineering Tools** 14 QR push-in fittings 26 Catalog program Couplings, silencers Polymer tubing

Perfection is our business

The ever-increasing complexity and sensitivity of pneumatically controlled work processes continually redefine the requirements for compressed air preparation. Emerson confronts this challenge with comprehensive air supply management to cover any need.

Our comprehensive range of perfected air preparation technology offers customized solutions to provide optimum compressed air quality in a highly diverse range of applications and work environments. All components and every single detail in this extensive program follow our strategic product philosophy and are set apart by the same high standards in terms of quality and design.

- Functionality
- Modularity
- · Quality and design

All the components are perfectly adapted to each other, from the air preparation unit series with all conceivable functions for modern compressed air supply to the tubing and fittings. Thanks to this solid foundation, we can always find the right solution and use our application-oriented experience that has been cultivated over decades. Continued development of our program and innovative measures to increase energy efficiency provide us with decisive advantages for the future and certain additional benefits that are synonymous.



Modern air preparation is a complex system. It not only ensures the right pressure, but is also responsible for the lasting quality of the air.

The right air supply management for every application

Insight, overview, outlook

This brochure will assist you in finding the right systems and components for your demands, and includes information on the most important functions, preferred application areas, and product characteristics. A summary of the program at the end of the brochure serves as an introduction to our detailed catalog.

A comprehensive program with all the fine points

Emerson customers can always find a suitable solution for compressed air preparation, no matter how unusual the task. This fact is the basis for our enormous product program.

It is tailored to the diversity of pneumatic applications working under the most varied conditions and covers everything from air generation down to the individual actuator. We offer air preparation units with every possible function, tubing, sensors, system fittings, and assembly material. Systems with nominal flows of up to 50000 l/min. and with connection diameters from 3 mm to 2" threads are no problem. We've got it all! We have sub-divided the program into three basic areas to give you a better overview:

- Compressed air preparation
- Assembly material
- · Flow and check valves

Configurations made easy

Featuring many individual functions, the air preparation units are the core for compressed air preparation and have a modular design. As a result, you can configure fully customized systems to precisely fit your respective need. In addition to a personal consultation with one of our experts, customers can use our proven online tools for fast and exact configuration.

Pages 22 - 25

Compressed air preparation



Air preparation units



Pressure gauges



Page 11





PG1-SAS-ADI

PG1-DIM

Pressure sensors







Pages 12-13

Assembly material

Push-in fittings

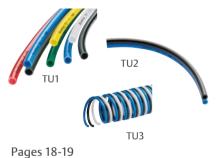


Fittings with tube nuts, couplings, silencers an other products



Pages 16-17

Plastic tubing



Flow and check valves

Flow and check valves, throttle valves and non-return valves, other valves















Qucik exhaust valves

Pages 20-21

651, 652, 653 series universal air preparation units for the most demanding of environments

With the AVENTICS 651, 652, 653 series, Emerson offers an extremely flexible and modular air preparation unit concept that is put to use in its particularly robust design. These units can deal with the most difficult ambient conditions and are reliable and precise in all applications and industries.

Functional reliability and a long service life

A true solution for outstanding pneumatic control reliability, the air preparation units ensure a long service life. The precise control provides just the right pressure for optimized energy consumption. The differential pressure indicator on microfilters makes sure you can replace your filters in good time, boosting efficiency. These are just a few examples showing how sophisticated the series is, with a solution for every application.

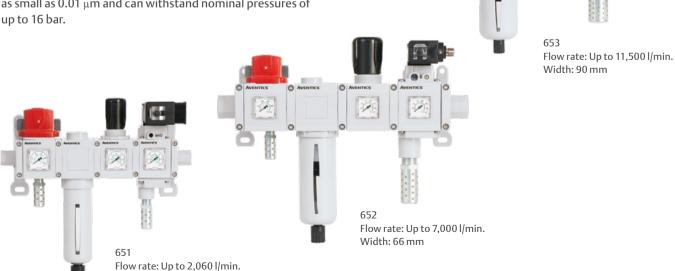
- Simple assembly no matter the installation conditions
- Condensate drain manual, semi, or fully automatic
- Bayonet catch for easy handling
- Fine-tuned filter properties for every use
- Contamination display for prefilter and microfilter
- · Oil level indicator
- Large inspection windows
- Reservoir made of metal with optional inspection glass
- Certified to ATEX and CUTR
- Standard temperature range -20 to +50°C (-40 to +80°C optional)
- Compressed air connections with G, NPT, & Rc thread
- Stainless steel fastening elements
- Tamperproof and lockable



Quality that grows to fit your needs

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. The system includes everything from 1/8 to 1" connections, can handle a flow rate of up to 11,500 l per minute, comes with filter element sizes as small as 0.01 μm and can withstand nominal pressures of up to 16 bar.

Width: 50 mm



AS series – our ace in the hole for perfect compressed air

All functions, all sizes – the modular versatility of the AS series air preparation units enable universal application. They have compact dimensions; are highly efficient; light and easy-to-use design; guarantee reliable, safe, and economical continuous operation with simplified assembly and maintenance efforts.

Everything that is possible – everything that is needed

The air preparation units in the AS series not only perform the standard functions of filtration, regulation, and lubrication, they also allow for the integration of specific function requirements such as shut-off valves, filling valves, distributors, and nonreturn valves. They are set apart by excellent performance data, high flexibility, and exceptional energy efficiency, all thanks to optimized condensate drain valves, finely-tuned filter element sizes, and smooth and precise pressure regulators.

AS series highlights

AS3-SV series

- 3/2 directional safety valve
- Category 4 Pl e, intrinsically safe
- Safe exhaust and protection against unexpected start-up
- Adjustable soft-start function
- Modular integration into AS3 series air preparation units
- Compressed air connection output: G1/2
- Electrical connection: M12.5-pin, A-coded

EV12 series

- Electropneumatic pressure regulator with high flow
- Can be integrated into AS3 series air preparation unit or stand-alone solution
- On-board parameterization
- Tamperproof
- No pressure loss in case of a load





Well-equipped for any need with just four series

The AS series covers the entire range up to a flow rate of 14,500 l/min. With its award-winning industrial design, it is sure to convince you with its compact construction and use of modern materials. The assembly widths can be very small and high-quality polymers make the air preparation units very light, yet sturdy. Incorporating sophisticated technology and many fully automatic functions, reduce assembly and maintenance tasks to a minimum. It is no problem to exchange individual elements or expand the system at a later point, even when installed. By selecting the appropriate ATEX options, these air preparation units can also be used in explosive areas.



AS3 Flow rate: Up to 5,200 l/min. Width: 63 mm



2006



Flow rate: Up to 14,500 l/min. Width: 85 mm



AS1 Flow rate: Up to 1,000 l/min. Width: 43 mm



AS2 Flow rate: Up to 2,700 l/min. Width: 52 mm

The best in compressed air preparation

Whether 651, 652, 653, AS, NL, MU or PR – Emerson only offers the very best for your specific needs. Each series has its special strengths and can be used in your application in a targeted manner no matter how varied your needs for compressed air preparation may be.

Series	AS	651/652/653	MU	PR
Functionality	++	++	+	+
Component variety	++	++		
Modularity	++	++		
Flow rate	++	+	++	0
Robustness	+	++	++	+
Light weight	++	+		
Easy-to-service	++	++	+	+
Temperature range	+	++	++	+
Modern design	++	+		0
Energy efficiency	++	++	0	++

⁺⁺ Highly recommended + Recommended O Suitable

Industry, application, task, ambient conditions – the most important criteria

"Not better or worse, just different" is the best way to describe the variations between the individual series. The decision for a task-specific series for compressed air preparation depends on many factors. With AVENTICS' program, you have all the options needed to optimally fulfill your specific requirements.



MU1 series

MU1 series components are always the perfect choice for applications in tough environments where large dimensions, thread connections or flow rates are required. The largest connection G2 (2") enables a compressed air flow rate of up to 25,000 l/min. and provides reliable filtration, regulation, and lubrication.



PR1 series

The precision pressure regulators in the PR1 series are ideal for applications that demand fast responses to the slightest fluctuation in compressed air. They can be adjusted exactly and are a good alternative to electronic pressure regulators.



PG1 series pressure gauges

An eye on everything and under control at all times. You must be able to rely on a clearly visible air pressure display for each of your pneumatic circuits. After all, in addition to the parameters for controlling the air quality, supplying sufficient pressure is the most basic factor for reliable system operation. Emerson has the right mechanical pressure gauges that can be specifically integrated into machines for diverse applications and with various air preparation systems. The specifications of the individual versions in the universal PG1 series provide a selection of options, such as appearance, material, or the required type of mounting.











PG1-DIM

The right sensors – to achieve the right pressure

As automation technology becomes more complex and sensitive, the need for intelligent solutions grows as well. Sensors that are able to measure and regulate with precise timing are becoming increasingly more important, as they ensure improved precision, economy, and energy efficiency.

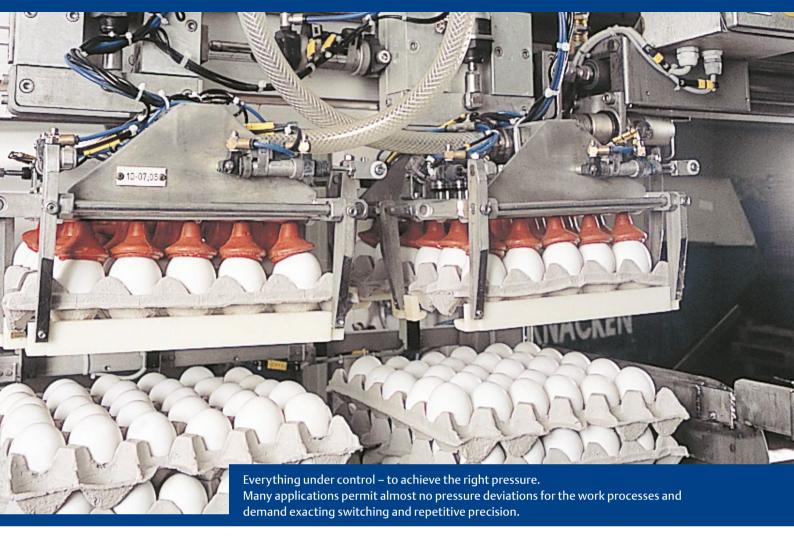
Series	PE2	PE5	PE6	PM1
Switching pressure range	++	++	+	++
Output signal	+	++	+	
Easy to use	+	++	+	0
Diagnosis		++		
Error detection	+	++		
Accesso protection	+	++		
PWIS-free		++		
Robustness	++	+	+	++
Light weight	+	++	++	0

⁺⁺ Highly recommended + Recommended O Suitable

Pressure sensors and switches for all fields of work

Depending on the application and individual components, Emerson uses the appropriate sensors and switches to measure pressure changes in the system – both electronically and electromechanically.

- Sensors and switches for both pressure and vacuum
- Switching pressures from -1 to 40 bar
- Proven connection technology



PE series

PE series electronic pressure sensors are a reliable solution for almost any application. They can be integrated into existing machine configurations and are characterized by excellent switching and repetitive precision. The latest generation of the universal PE5 pressure sensors offers the greatest convenience thanks to its many innovative design details.

- Large display with three zones
- Ergonomically arranged control panel
- Intuitive menu navigation

PM series

PM series electromechanical pressure switches are a suitable alternative for many applications. The switching point can be easily adjusted by hand and reliably fixed using the adjustment screw. The switching point is continuously adjustable, even during operation.







PM1

The fast and easy way QR push-in fittings

The perfect connenction for any occasion

QR series push-in fittings can be used with tubing diameters from 3 to 16 mm and are available in polymer, metal, and stainless steel versions. As a result, you can always find the suitable fitting for the most varied applications and industries.

Series	QR1-S- mini	QR1-S- standard	QR2-S- standard	QR2-C- stainless steel
Product variants	++	++	+	++
Compactness	+	++	+	
Pressure resistance	+	++	+	0
Temperature resistance		++		
Tube connection in acc. with ISO 14743	+	++		
O-ring seal in acc. with ISO 16030	+	++		
Weight		++		

⁺⁺ Highly recommended + Recommended • Suitable

A reliable connection with quick release

Flexibility has top priority with the QR series. This is apparent not only by the numerous shapes and sizes, but also by the easy reconfiguration of the connections. Pneumatic tubing is just as easy to release as it is to securely connect – you just need to plug or unplug it. A captive O-ring lets you release the connection many times with little force. Even the smallest fittings for tubing with a diameter of only 3 mm are easy to handle, since they have an expanded gripping surface provided by the oval release ring.

- Optimum sealing with a captive O-ring
- Straight, angled, T/Y/X form, multiple connections
- Pneumatic connection with cylindrical thread
- Complete fitting program



QR1-S mini, QR1-S standard

The QR1 consists of the "mini" series, for 3 to 6 mm diameter tubing, and the "standard" series, for 4 to 12 mm tubing. With numerous versions, QR1 fittings offer universal application options and, thanks to their compact design, are ideal for small handling tasks.



QR2-S standard, QR2-C stainless steel

QR2 consists of the "standard" (metal) program, for 4 to 16 mm diameter tubing and the "stainless steel" program, for 4 to 12 mm tubing. They are ideal for the food industry and areas with aggressive media (robust version).



Strong hold with optimal sound insulation – pneumatic couplings and silencers



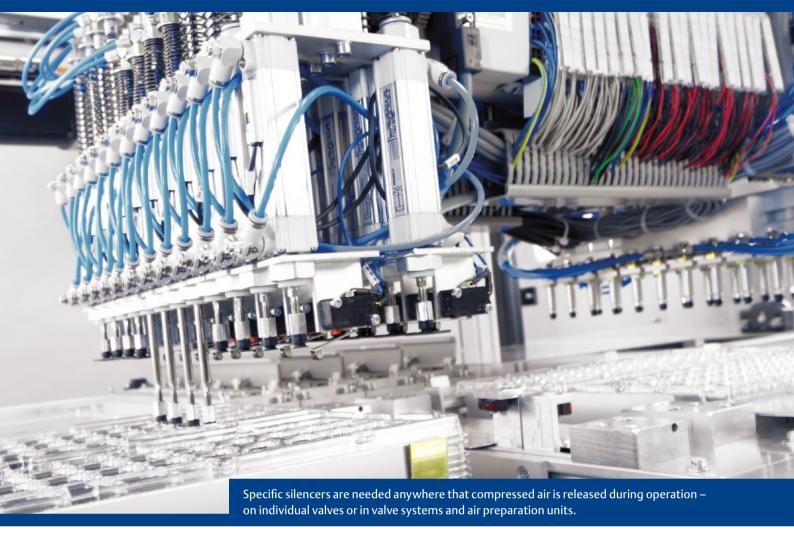
Couplings and fittings

Connecting plug and coupling quickly and reliably with just one hand is today's standard in the pneumatics industry. Emerson offers a wide variety of connection technology options, flow rates and functions, and provides the right solution for all your connection tasks.



Silencers

Silencers are used to decrease the pressure of escaping air and reduce noise. This reduces stress on the machines and components, and also improves working conditions. Excessive noise is not only annoying, it is also a proven cause of illness.



SI1 series silencers

These wide-ranging locations demand a large number of different silencer types. AVENTICS SI1 series has everything you need: polymer or metal versions, with pipe stems (from 4 to 14 mm diameter) or threaded couplings (from M5 to G1).



SI1 with pipe stem



SI1 with burst protection



SI1 sintered bronze



CP1 series couplings

The range of couplings is also ready for any demand and includes everything from a standard lock coupling with various connection types to safety couplings and special multi-couplings.



CP1 coupling



CP1 coupling with tube nut

FPT series other fittings

Blanking plugs and connectors in many shapes and with tailored connections are some of the small things that add up to a functional whole, thanks to a wide and comprehensive assortment of products.



Blanking plug FPT



Polymer tubing for all conditions

Series	TU1PUR	TU1-S-PAM	TU1-S-PET	TU1-S-TEF	TU1-S-PVC
Pressure resistance	+	++	+	+	+
Temperature resistance	+	+	+	++	0
Media resistance	+	+	++	++	0
Flexibility (resistance to bending)	++	+	+	0	0

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Three series with varying material

Selecting the right material for polymer tubing is essential. For example, very different material properties are required in the food industry compared to the chemical industry or in explosive areas. Emerson has a high-quality range of polymer tubing that fits all needs and complies with specific technical or economic factors.

The varied characteristics of polyurethane, polyamide or Teflon, both their strengths and weaknesses, must be specifically examined for use in the particular application.

Series	TU1-S-PUR	TU1-A-PUR	TU1-E-PUR	TU1-F-PUR	TU1-X-PUR
Anti-static		+			
Resistant to microbes	0	+	0	+	+
Flampe protection (UL94V), resistant to welding sparks					+
Halogen- / fluorine-free	+	+	+	+	+
Resistance to hydrolysis	0	+	0	+	+
Suitable for dynamic laying	+	+	+	+	+
UV resistant	0	+	0	0	+
High pressure resistance	+	+		+	+

⁺⁺ Highly recommended + Recommended O Suitable



TU1 series singles tubing

The TU1 series is the basis of our tubing program and is available in all materials and versions. Some TU1 of its special options include suitability for direct contact with food, tubing for extremely high flow rates, tubing that is resistant to very aggressive media, or tubing that is completely anti-static. They are matched to AVENTICS line of fittings and come in many different colors.

TU2



TU2 series dual tubing

Dual tubing consists of two parallel lengths of tubing in a combination of blue and black. It simplifies assembly in seriemany standard applications.

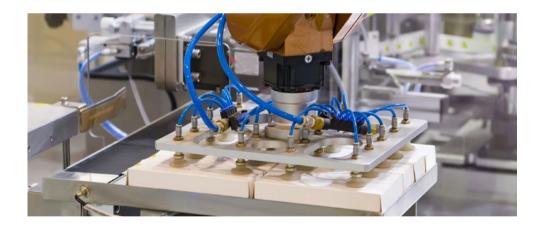
TU3 series spiral tubing

We developed our special TU3 series of spiral tubing for use in applications where the tubing must comply with a flexible range of motion.

U3

Unimposing but indispensable – throttle valves and non-return valves, flow and check valves





CC series check-choke valves

The different check-choke valve versions in the CC series have been designed for nominal flows from 60 to 5,600 l/min. They are available with either push-in fittings or internal threads.









CH series throttle valves

CH series throttle valves can be used for nominal flow rates of up to 4,100 l/min. Special features include versions with an integrated silencer or for use as a screw-in throttle.



CH01



Shutt-off valves

These special shut-off valves are primarily used in safety relevant work processes. They are directly assembled on the cylinder, thus enabling an automatic block of the air supply to immediately stop the working stroke.

Shut-off valves

NR series non-return valves

NR series non-return valves are available for nominal flow rates of up to 7,950 l/min. Thanks to the connection options of push-in fittings or internal/external threads, they can either be screwed-in directly or

mounted in-line during assembly.



NR01



Quick exhaust valves

Quick exhaust valves are designed for nominal flow rates from 220 to 6,800 l/min. These poppet valves come with internal threads.



Quick exhaust valves 573



As individual as your application systematic air supply management. **Example: Series AS2**

Assistance right from the start

In addition to our online tool for configuring air preparation units, we are also pleased to offer you expert support from our air supply specialists at any time. They have years of experience, are familiar with everything there is to know about product characteristics, and can integrate their industry-specific expertise into your application.

This AS2 series air preparation unit example underlines the range of components, functions, and details. Benefit from our specific product and industry expertise!

Air preparation unit. 2 part, AS2-ACD series with pressure gauge, filter size: 5 μm, suitable for AT



Filter, AS2-FLS series Filter size: 40 μm, suitable for ATEX

Filter, AS2-FLS

suitable for ATEX



Filling unit, AS2-SSU series Electrically operated, adjustable filling rate

Filling unit, AS2-SSU

pneumatically operated

series Adjustable

suitable for ATEX

filling rate,



Contamination display for microfilters, AS2-FLC, AS3-FLC

Mounting bracket.

AS2-MBR-...-W03



Pressure gauge, PG1 series SAS, for AS2-AS5 series

Pressure sensor.

M12x1, 4-pin

PE5 series Switching

pressure: -1 – 12 bar,

electr. connection: plug,



Air preparation unit, 3-part, AS2-ACT serie with pressure gauge, filter size: 5 μm, suitable for ATEX

Pressure regulator,

AS2-RGS series

suitable for ATEX



Filter, AS2-FLS series Filter size: 5 μm,

AS2-FLP series Filter

size: 0.3 μm, suitable

suitable for ATEX

Pre-filter,

for ATEX

series Filter size: 25 µm,



3/2-way valve, AS2-SOV series Electrically operated

3/2-way valve,

AS2-SOV series

suitable for ATEX

Filling valve,

AS2-SSV series

suitable for ATEX

Adiustable filling rate.

Pneumatically operated,



Mounting plate, AS2-MBR-...-W01 For AS2 series

AS2, kit



Flow sensor, Series AF1 On = 150 - 5.000 l/minElectr. connection: plug,

Pressure switch, PM1

-0.9 - 16 bar, electr.

series Switching pressure:

connection: plug, ISO 4400,

form A and M12x1, 4-pin

Directional control

valve, DO16 series

Qn = 16 - 25 I/min.

Electr. connection:



Pressure regulator, AS2-RGS-...-DS serie with continuous pressure supply, suitable for ATEX

Precision pressure

regulator,

regulator,

AS2-RGP series

suitable for ATEX

Precision pressure

with continuous

pressure supply, suitable for ATEX

Filter pressure

regulator,

AS2-RGP-...-DS series



Microfilter. AS2-FLC series Filter size: 0.01 μm, suitable for ATEX

Microfilter,

AS2-FLC series

Filter size: 0.01 μm,

suitable for ATEX



3/2-shut-off-valve (ball valve), AS2-BAV series Mechanical, lockable version for padlock, suitable for ATEX



Block assembly kit, AS2-MBR-...-W04

Block assembly kit,

AS2-MBR-...-W05

Mounting bracket,

AS2-MBR-...-W02

For AS2 series



Solenoid valve, Series DO16 Qn = 16 - 25 l/min,

ISO 15217. Form C

plug, ISO 15217, form C



AS2-FRE series filter size: 5 µm, suitable for ATEX



Diaphragm-type dryer, AS2-ADD series

Active carbon filter,

AS2-FLA series

Suitable for ATEX

oil-mistlubricator,

AS2-LBS series

Suitable for ATEX



Filling valve, AS2-SSV series Adjustable filling rate, with electrical priority control

Non-return valve.

AS2-DIN series

Suitable for ATEX



Coupling adapter,

Panel nut.



tube nut, CP1 series NW 5 mm, working pressure: 0 - 35 bar

Lock coupling with





Standard



Distributor, **AS2-DIS** series 3x, suitable for ATEX



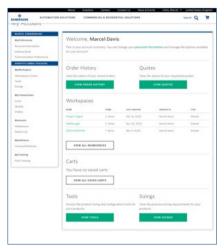
Transition plate For AS series, with CNOMO porting configuration

AS2-MBR-...-W06

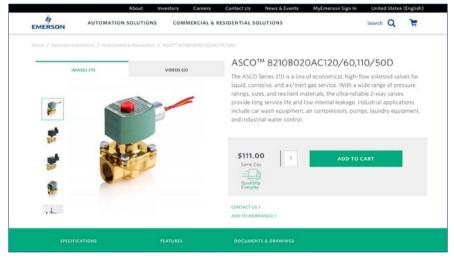


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Focused on you - MyEmerson

To simplify purchasing fluid control and pneumatics products, Emerson provides a single online store for its ASCO and AVENTICS brands. The MyEmerson personalized digital customer experience at Emerson.com offers a range of features and functionality via a single login, including an overview of orders, delivery tracking, and easy access to downloadable product documentation. A convenient single-sign-on will facilitate the log-in process while avoiding logins on several platforms like our online configurators. MyEmerson features an overview of orders, track deliveries, and download options for all relevant documents.

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The online store and digital customer experience includes the entire pneumatics range and comprehensive expertise and support at one convenient location – **Emerson.com/en-us/automation/fluid-control-pneumatics**

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.

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.

Smart Shopping for Professionals



In the new online shop, you can easily, quickly, and securely order your fluid control and pneumatics products – simply register with your e-mail address and password, and order directly. Emerson.com/en-us/automation/fluid-control-pneumatics

Your advantages:

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

Qn		Series	Designation	Ports	Filter porosity	ATEX
1,000 l/min	Ta	AS1	Air preparation units	G1/4	0.01 μm	
2,700 l/min	4	AS2	Air preparation units	G1/4 – G3/8	0.01 – 40 μm	Optional
5,200 l/min		AS3	Air preparation units	G3/8 – G1/2	0.01 – 40 μm	Optional
14,500 l/min	Mili	AS5	Air preparation units	G3/4 – G1	0.01 – 40 μm	
2,060 l/min		651	Air preparation units	G1/8 – G1/4	0.01 – 40 μm	Optional
7,000 l/min		652	Air preparation units	G1/4 – G1/2	0.01 – 40 μm	Optional
11,500 l/min		653	Air preparation units	G1/2 – G1	0.01 – 40 μm	Optional
325 – 2,000 l/min		MH1	Air preparation units	G1/4 – G1/2	5 μm	
350 – 25,000 l/min		MU1	Air preparation units	G1 – G2	8 – 60 μm	
750 – 5,600 l/min	į	PR1	Precision pressure regulators	G1/4 – G1/2		
	641	PE2	Electronic pressure sensor	G1/4 Flange Ø 5 x 1.5		
		PE5	Electronic pressure sensorer Drucksensor	G1/4 Push-in- fitting Ø 4		
		PE6	Electronic pressure sensor	Flange Ø 1.2 x 1		
		PM1	Mechanical pressure switch	G1/4 Flange Ø 5 x 1.5		Optional

Ports		Designation	Series
Ø 3 – 6 M3 – G1/8	5	Push-in fittings	QR1-S mini
Ø 4 – 16 M5 – G1/2	10	Push-in fittings	QR1-S standard
Ø 4 – 16 M5 – G1/2	06	Push-in fittings	QR2-S standard
Ø 4 – 12 M5 – G3/8		Push-in fittings	QR2-C stainless steell
NW 2,7 – 10		Couptings	CP1
M5 – G1		Blanking screws and connectors	FPT
Ø 4 – 14 M5 – G1		Silencers	SI1
Ø 3 – 16	0	Polymer tubing, polyethylene	TU1
Ø 4 – 16	M	Polymer tubing, polyamide	TU1-S
Ø 4 – 14	0	Polymer tubing, Teflon	TU1
Ø 10 – 27		Polymer tubing, Polyvinyl chloride	TU1
Ø 3 – 16	21.	Polymer tubing, polyurethane	TU1
Ø 4 – 10		Dual polymer tubing, polyurethane	TU2

Qn		Designation	Series
50 – 1,960 l/min		Check-choke vlaves	CC02
85 – 2,100 l/min		Check-choke vlaves	CC04
110 – 8,830 I/min		Check-choke vlaves	CC01
38 – 2,800 I/min	000	Throttle valves	CH01
200 – 4,100 I/min		Throttle valves	CH02
40 – 7,950 I/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
220 – 6,800 l/min		Quick exhaust valves	573
340 – 680 I/min		Shut-off valves	
		Pressure gauges	PG1

Competend and well-designed down to the last detail – The right air supply management for every application



