

AIR SUPPLY MANAGEMENT
AN OVERVIEW OF COMPRESSED
AIR PREPARATION AND ACCESSORIES

Pneumatics
It's that easy





Everything you need

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. It works almost like a heart and lungs to provide the entire system with reliable power and machine-saving energy.

NL series – universal maintenance units for the most varied applications

AVENTICS has created an extremely flexible and modular maintenance unit concept that is put to use in its particularly robust family of NL products. These units can deal with the most difficult ambient conditions and are reliable and precise in all applications and industries.

- ▶ NL series components can be equipped with either transparent reservoirs made of polymer or metal reservoirs. Bayonet catches ensure easy maintenance.



Quality that grows to fit your needs

The NL series maintenance units are in top-form for all areas: as individual components or assembled maintenance units, for centralized or decentralized compressed air preparation, in compact or powerful versions, for use in high or low temperatures. 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 12500 l per minute, comes with filter element sizes as small as 0.01 µm and can withstand nominal pressures of up to 16 bar.

Functional reliability and a long service life

NL series – the right solution to ensure reliable functioning of pneumatic controls and a guarantee for a long service life. Precise regulation of the required pressure ensures economical use of energy, and the differential pressure indicator for the microfilter lets you know when it is time to exchange the filter, resulting in even more system efficiency. Special micro oil-mist lubricators that achieve the finest distribution and a uniform concentration of oil in the air flow ensure environmental compatibility. These are just a few examples that demonstrate the well thought-out details in the NL series – it is certain to have the right solution for your problem.

- Easy-to-assemble under all conditions
- Manual, semi-automatic or fully-automatic condensate drains
- Can be equipped with either transparent reservoirs
- Bayonet catches ensure easy maintenance.



NL1

Flow rate: 1000 l/min.
Width: 40 mm



NL2

Flow rate: 2000 l/min.
Width: 45 mm



NL4

Flow rate: 5600 l/min.
Width: 66 mm



NL6

Flow rate: 12500 l/min.
Width: 100 mm

The best in compressed air preparation

Whether AS, NL, MU or PR – AVENTICS 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.

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 25000 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.

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

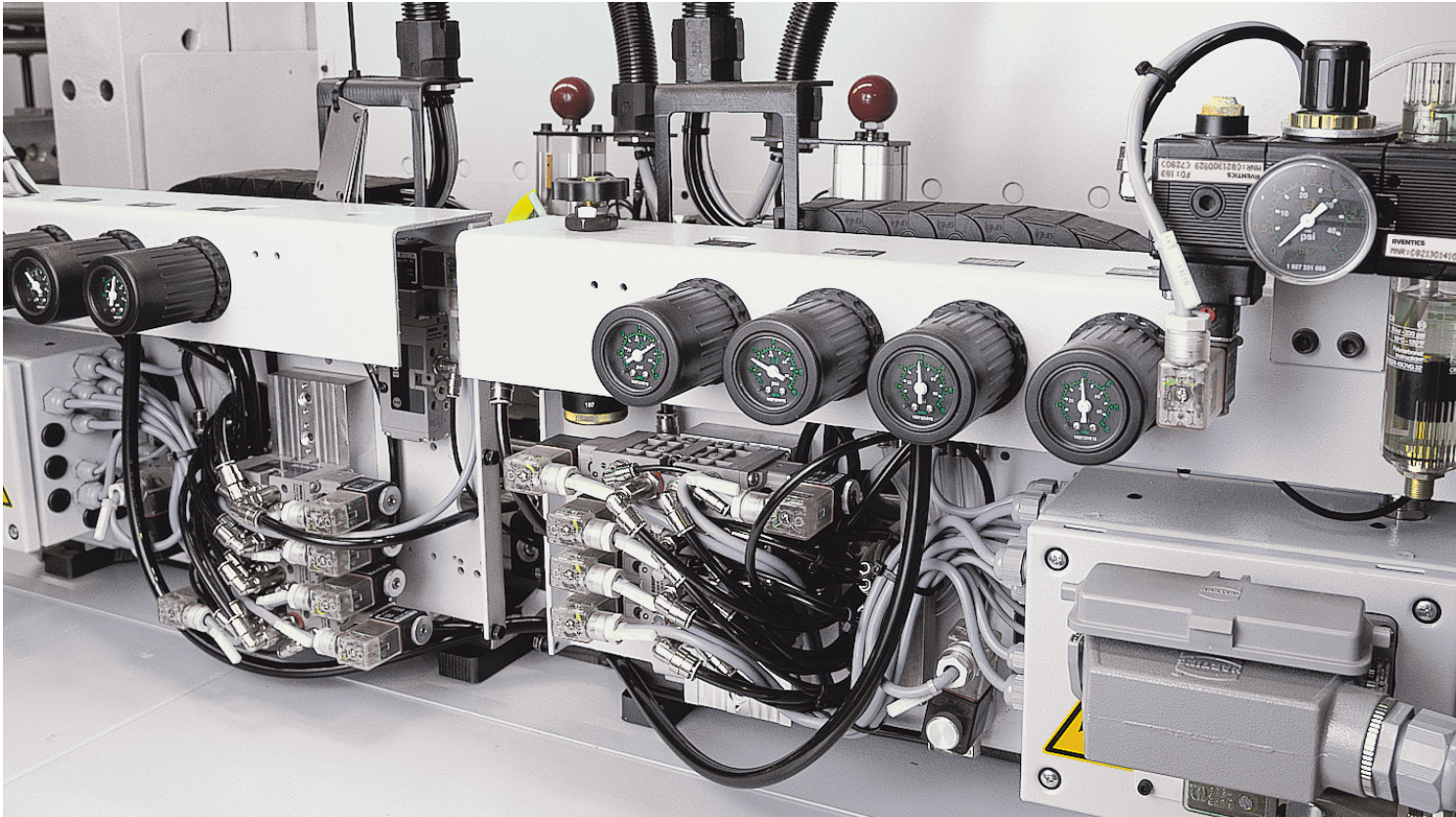


PR1

Series	AS	NL	MU	PR
Functionality	++	++	+	+
Component variety	++	++	–	–
Modularity	++	++	–	–
Flow rate	++	+	++	○
Robustness	+	++	++	+
Light weight	++	–	–	–
Easy-to-service	++	+	+	+
Temperature range	+	++	++	+
Modern design	++	○	–	○
Energy efficiency	++	+	○	++

++ Highly recommended + Recommended ○ Suitable – Less Suitable

Perfect control, even with the highest flow rates



PG1-SAS



PG1-SAS-ADJ



PG1-SNL



PG1-DIM

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. AVENTICS 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.

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.



▲ Many applications permit almost no pressure deviations for the work processes and demand exacting switching and repetitive precision.

Pressure sensors and switches for all fields of work

Depending on the application and individual components, AVENTICS 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

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

++ Highly recommended + Recommended ○ Suitable - Less Suitable

Everything under control – electronically or electromechanically

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.



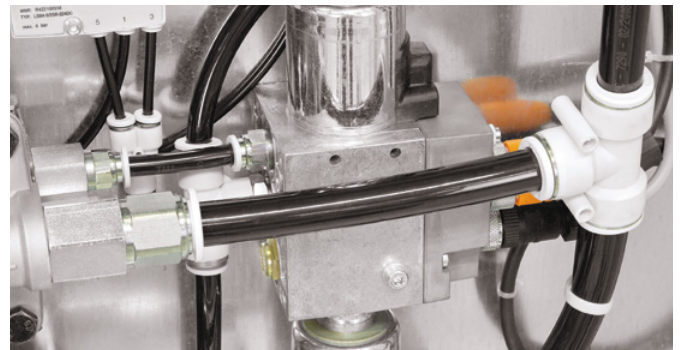
The fast and easy way: QR push-in fittings

Pneumatic connections should be fast and uncomplicated, leak-tight and reliable. This is made possible with the simple, yet brilliantly designed, push-in fittings in our QR series. Assembly and disassembly have never been so easy.

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



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

++ Highly recommended + Recommended ○ Suitable - Less Suitable

QR1 and QR2 – the program with perspectives

The perfect connection 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.

QR1 series

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 series

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).



QR1-S mini



MVT

QR1-S standard



RDY

QR2-S standard



RTK

QR2-C stainless steel



RTT



MIF



RVK



REE



RVK



MYZ



RVI



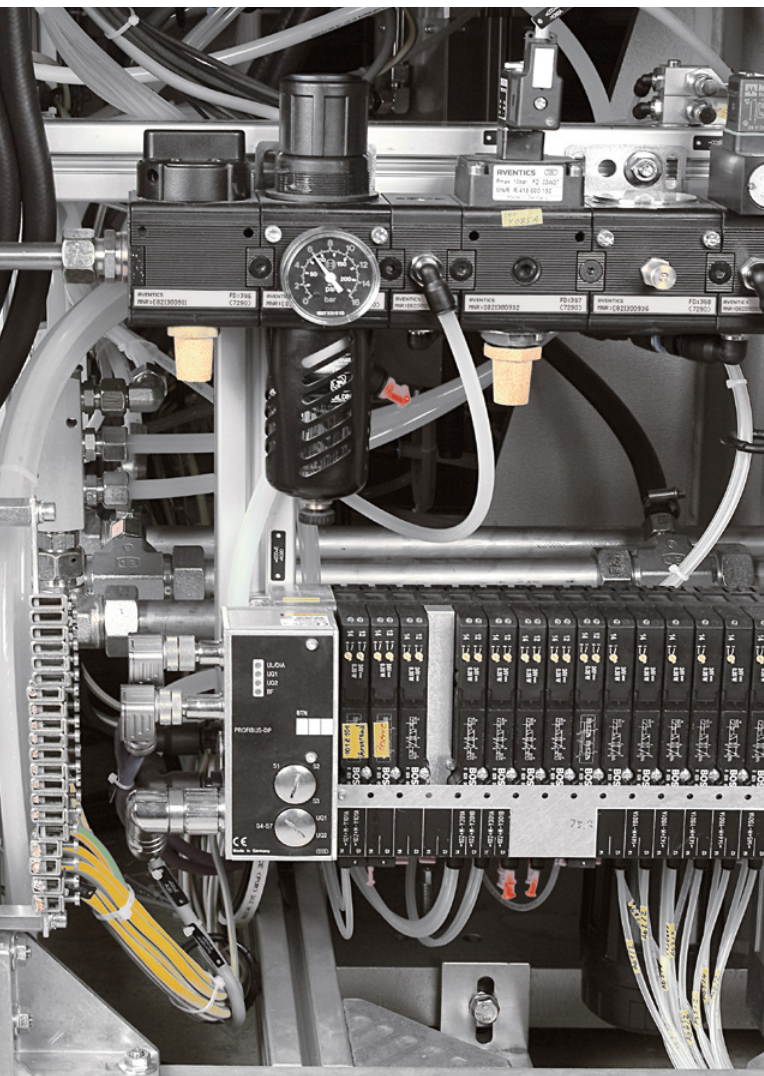
RVT



RV1

Pneumatic couplings for a reliable connection

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



CP1 coupling with tube nut



CP1 coupling

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.



Double-nipple fitting FPT



Blanking plug FPT

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.

Silence is golden



S11 with pipe stem



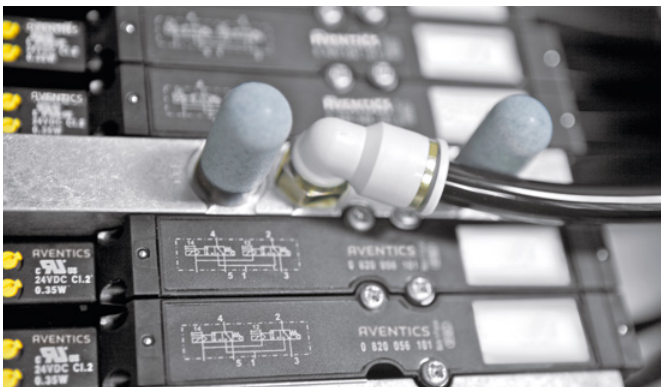
S11 with burst protection



S11 sintered bronze



S11 polyethylene



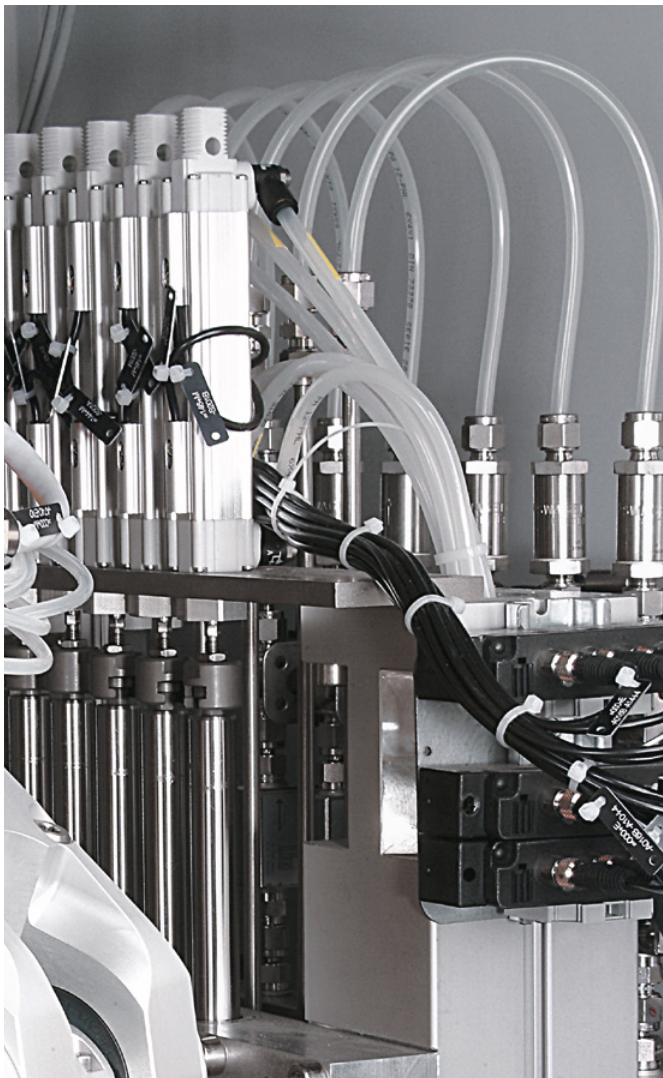
S11 series silencers

Specific silencers are needed anywhere that compressed air is released during operation – on individual valves or in valve systems and maintenance units. These wide-ranging locations demand a large number of different silencer types. AVENTICS S11 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).

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.

Polymer tubing for all conditions

The right mix is what makes it work. As flexible as possible, yet rigid enough - adapted to the ambient conditions and workloads of the respective application. This is all a question of the right materials and high-quality workmanship.



Three series with varying materials

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. AVENTICS has a high-quality range of polymer tubing that fits all needs and complies with specific technical or economic factors.

Series	TU1-...- PUR	TU1-S- PAM	TU1-S- PET	TU1-S- TEF	TU1-S- PVC
Pressure resistance	+	++	+	+	+
Temperature resistance	+	+	+	++	○
Media resistance	+	+	++	++	-
Flexibility (resistance to bending)	++	+	+	○	○

++ Highly recommended + Recommended ○ Suitable - Less Suitable

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

TU1 series single tubing

The TU1 series is the basis of our tubing program and is available in all materials and versions. Some 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 series dual tubing

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



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

++ Highly recommended + Recommended ○ Suitable - Less Suitable

Different types of polyurethane tubing enable use in various areas

Unimposing but indispensable

Here you can see that we have thought about every detail, since a system can only reach perfection when all the little things are just right. With this in mind, we do not make any compromises when it comes to the quality and reliability of the “little helpers” for air supply management.



CC01



CC04

CC series check-choke valves

The different check-choke valve versions in the CC series have been designed for nominal flows from 60 to 5600 l/min. They are available with either push-in fittings or internal threads.



CH01



CH02

CH series throttle valves

CH series throttle valves can be used for nominal flow rates of up to 4100 l/min. Special features include versions with an integrated silencer or for use as a screw-in throttle.

Flow and check valves



NR01



NR02



Shut-off valve



Quick exhaust valve 573

NR series non-return valves

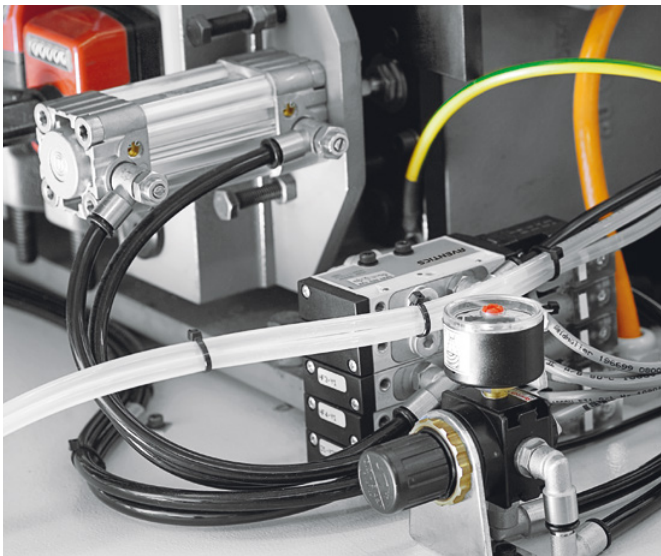
NR series non-return valves are available for nominal flow rates of up to 7950 l/min. Thanks to the connection options of push-in fittings or internal/external threads, they can either be screwed-in directly or mounted in-line during assembly.

Shut-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.

Quick exhaust valves

Quick exhaust valves are designed for nominal flow rates from 220 to 6800 l/min. These poppet valves come with internal threads.



















As individual as your application - systematic air supply management



Assistance right from the start

In addition to our online tool for configuring maintenance 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 maintenance unit example underlines the range of components, functions, and details. Benefit from our specific product and industry expertise!

	<p>Maintenance unit, 2-part, AS2-ACD series With pressure gauge, filter size: 5 µm, suitable for ATEX</p>		<p>Filter, AS2-FLS series Filter size: 40 µm, suitable for ATEX</p>
	<p>Maintenance unit, 3-part, AS2-ACT series With pressure gauge, filter size: 5 µm, suitable for ATEX</p>		<p>Filter, AS2-FLS series Filter size: 25 µm, suitable for ATEX</p>
	<p>Pressure regulator, AS2-RGS series Suitable for ATEX</p>		<p>Filter, AS2-FLS series Filter size: 5 µm, suitable for ATEX</p>
	<p>Pressure regulator, AS2-RGS-...-DS series With continuous pressure supply, suitable for ATEX</p>		<p>Pre-filter, AS2-FLP series Filter size: 0.3 µm, suitable for ATEX</p>
	<p>Precision pressure regulator, AS2-RGP series Suitable for ATEX</p>		<p>Microfilter, AS2-FLC series Filter size: 0.01 µm, suitable for ATEX</p>
	<p>Precision pressure regulator, AS2-RGP-...-DS series With continuous pressure supply, suitable for ATEX</p>		<p>Microfilter, AS2-FLC series Filter size: 0.01 µm, suitable for ATEX</p>
	<p>Filter pressure regulator, AS2-FRE series Filter size: 5 µm, suitable for ATEX</p>		<p>Diaphragm-type dryer, AS2-ADD series</p>
			<p>Active carbon filter, AS2-FLA series Suitable for ATEX</p>
			<p>Standard oil-mistlubricator, AS2-LBS series Suitable for ATEX</p>

In dialog with our customers and partners

Based on proven expertise and a first-class product range

Our understanding of cooperation goes well beyond the boundaries of individual projects. We are constantly in dialog with our customers and are always a competent contact for both technical and economic questions. The know-how contained in our comprehensive pneumatic product range gives us a solid foundation for our work.

- Cylinders and sensor technology
- Valves, valve systems, field bus connections
- Gripper and vacuum technology
- Compressed air preparation, assembly material, accessories

A two-way flow of ideas keeps us a step ahead of the competition and ensures solutions ideally matched to our customers' needs. The outcome? We're right where the action is, staying on the offensive to safeguard technological edges for ourselves and our customers.



Around-the-clock information

The AVENTICS Internet Portal never sleeps. In the online catalog, you can find additional information covering the entire product range, including all technical details, as well as the use of user-friendly Engineering Tools.

www.engineering-tools.com



Online catalog

The fastest point of entry is via our online catalog. Here you can start your search directly by entering a part number or keyword.



CAD

Your desired object can be issued here directly as a CAD file in various formats, as a PDF file, or for further configuration in your software.



Configurators

The configurator can be reached by clicking the selected product. After selecting your product, you can begin to adapt it to your own specifications.



Calculation programs

Here you can specify the dimensions or loadbearing capacity of your components with a wide variety of calculation options. We also provide an air consumption calculator as a special feature.



Circuit diagram software

With the D&C Scheme Editor, you can quickly and easily create circuit diagrams that are based on your component layout and linked to your catalog selection.



eShop

The eShop is our online shop that answers your price requests and monitors the whole order process up to delivery.

Example: AS2 series



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



Filling unit, AS2-SSU series
Adjustable filling rate, pneumatically operated, suitable for ATEX



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



3/2-way valve, AS2-SOV series
Pneumatically operated, suitable for ATEX



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



Filling valve, AS2-SSV series
Adjustable filling rate, suitable for ATEX



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



Non-return valve, AS2-DIN series
Suitable for ATEX



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



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



Mounting bracket, AS2-MBR-...-W03 AS2, kit



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



Mounting bracket, AS2-MBR-...-W02
For AS2 series



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



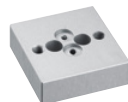
Block assembly kit, AS2-MBR-...-W05



Coupling adapter, AS2-3



Panel nut, AS2-MBR-...-W06



Transition plate
For AS series, with CNOMO porting configuration



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



Pressure sensor, PE5 series
Switching pressure: -1 – 12 bar, electr. connection: plug, M12x1, 4-pin



Flow sensor, Series AF1
Qn = 150 – 5000 l/min
Electr. connection: plug, 5-pin



Pressure switch, PM1 series
Switching pressure: -0.9 – 16 bar, electr. connection: plug, ISO 4400, form A and M12x1, 4-pin



Fitting, QR1-S mini series
Working pressure: -0.95 – 10 bar



Directional control valve, D016 series
Qn = 16 – 25 l/min.
Electr. connection: plug, ISO 15217, form C

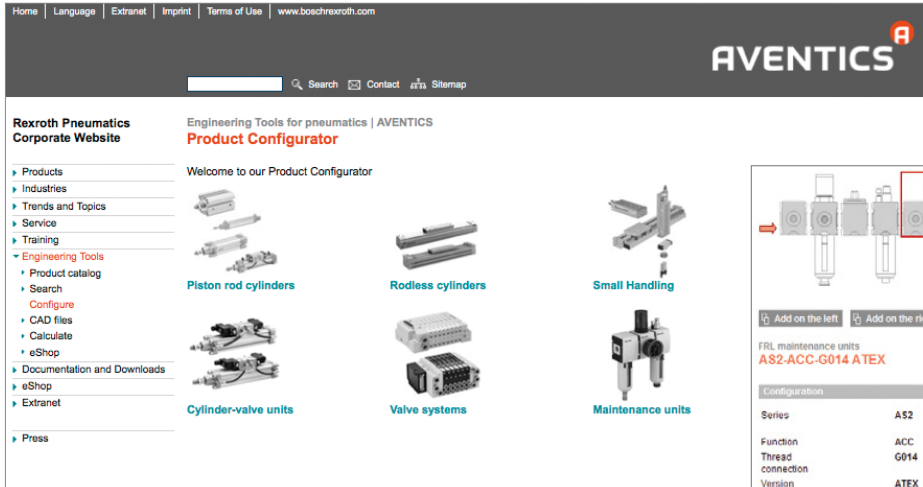


Lock coupling with tube nut, CP1 series
NW 5 mm, working pressure: 0 – 35 bar



Silencer, S11 series
Polyethylene with thread, working pressure: 0 – 10 bar

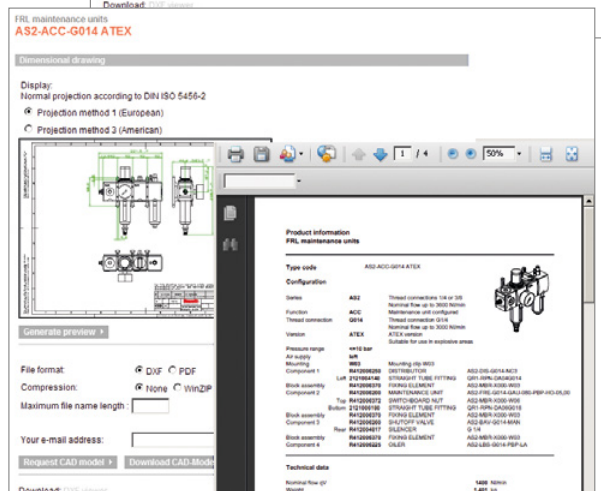
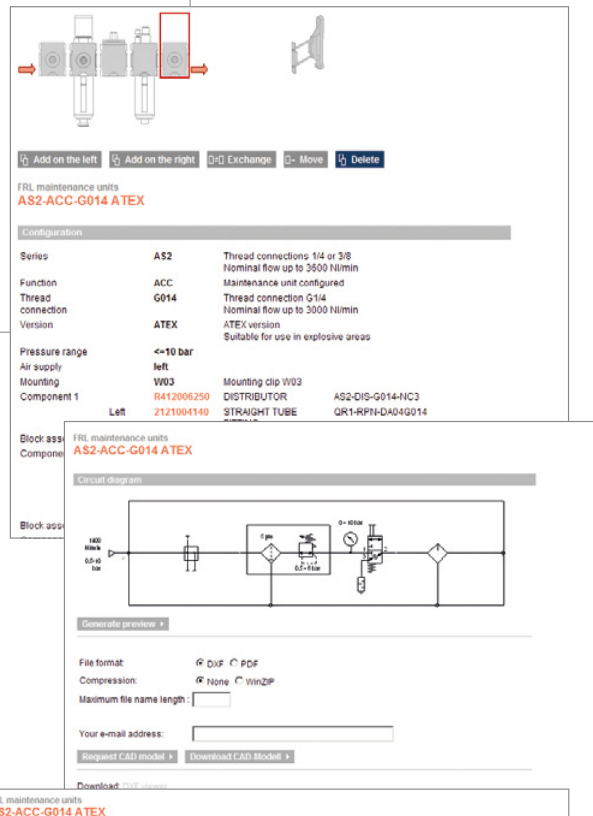
Configured for your application online









































Everything you need with just a few clicks

With AVENTICS' unique product configurator, you come to a result quickly and easily online. You can reach the configurator tool via the online catalog and the catalog pages for the product in question. Program navigation is intuitive and easy to understand. The program itself ensures that no details are overlooked and that the configuration is perfect, both technically and economically.

After selecting the series, thread, mounting, and desired components and accessories, you will receive a part number with the catalog price, a parts list with an item-based drawing, a circuit diagram, and a dimensioned drawing. 2-D and 3-D CAD data is also included. As we said – unique!



Qn		Series	Designation	Ports	Filter porosity	ATEX
1200 l/min		AS1	Maintenance units	G1/4	0,01 µm	
2700 l/min		AS2	Maintenance units	G1/4 – G3/8	0,01 – 40 µm	optional
5200 l/min		AS3	Maintenance units	G3/8 – G1/2	0,01 – 40 µm	optional
14500 l/min		AS5	Maintenance units	G3/4 – G1	0,01 – 40 µm	
325 – 2000 l/min		MH1	Maintenance units	G1/4 – G1/2	5 µm	
350 – 25000 l/min		MU1	Maintenance units	G1 – G2	8 – 60 µm	
1000 l/min		NL1	Maintenance units	G1/8 – G1/4	0,01 – 5 µm	optional
2000 l/min		NL2	Maintenance units	G1/8 – G3/8	0,03 µm	optional
5600 l/min		NL4	Maintenance units	G3/8 – G3/4	0,01 µm	optional
12500 l/min		NL6	Maintenance units	G3/4 – G1	0,01 – 40 µm	optional
750 – 5600 l/min		PR1	Precision pressure regulators	G1/4 – G1/2		
		PE2	Electronic pressure sensor	G1/4 Flange Ø 5 x 1,5		
		PE5	Electronic pressure sensor	G1/4 Push-in fitting Ø 4		
		AF1	Electronic flow sensor			
		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	Qn		Designation	Series
Ø 3 – 6 M3 – G1/8		Push-in fittings	QR1-S mini	85 – 2100		Check-choke valves	CC04
Ø 4 – 16 M5 – G1/2		Push-in fittings	QR1-S standard	110 – 8830		Check-choke valves	CC01
Ø 4 – 16 M5 – G1/2		Push-in fittings	QR2-S standard	38 – 2800		Throttle valves	CH01
Ø 4 – 12 M5 – G3/8		Push-in fittings	QR2-C stainless steel	200 – 4100		Throttle valves	CH02
NW 2,7 – 10		Couplings	CP1	40 – 7950		Non-return valves	NR01
M5 – G1		Blanking screws and connectors	FPT	300 – 5800		Non-return valves, with release	NR02
Ø 4 – 14 M5 – G1		Silencers	SI1	280 – 2000		Non-return valves	QR1
Ø 3 – 16		Polymer tubing, polyethylene	TU1	220 – 6800		Quick exhaust valves	573
Ø 4 – 16		Polymer tubing, polyamide	TU1-S	340 – 680		Shut-off valves	
Ø 4 – 14		Polymer tubing, Teflon	TU1			Pressure gauges	PG1
Ø 10 – 27		Polymer tubing, polyvinyl chloride	TU1				
Ø 3 – 16		Polymer tubing, polyurethane	TU1				
Ø 4 – 10		Dual polymer tubing, polyurethane	TU2				

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