



**Implement optimal solution,
simplify integration and realize
lower cost of ownership**

AVENTICS™ Series 581 Valve System
Modular ISO 5599-1 standardized valve system for your unique
pneumatics application.



AVENTICS Series 581 modular valve system provides ISO 5599-1 standardized solutions tailored to your unique pneumatic system requirements

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Modular design for a wide variety of applications

The AVENTICS Series 581 is an extremely robust and reliable valve system, conforming to the ISO standard 5599-1 and suitable for a broad range of pneumatic systems, including those requiring ATEX approval and IP 65-rated protection. A modular design and extensive range of options enables the AVENTICS Series 581 valve system to be very versatile and able to provide an optimal solution for your specific application. The valve system offers a choice of base plates, different basic valves and electrical or pneumatic pilot control. Solutions can be easily extended or adapted to meet changing application requirements, while standardized interfaces help to reduce spare part inventory and simplify storage – helping to reduce your total cost of ownership.

- All functions and sizes tailored to your requirements
- Comprehensive range ensures simple system integration
- Modular design provides extremely flexible solution
- Robust and extremely reliable technology



Emerson's ISO-standardized pneumatic valves are proven within the automotive industry and a broad range of mechanical engineering applications, providing reliability, speed and performance.

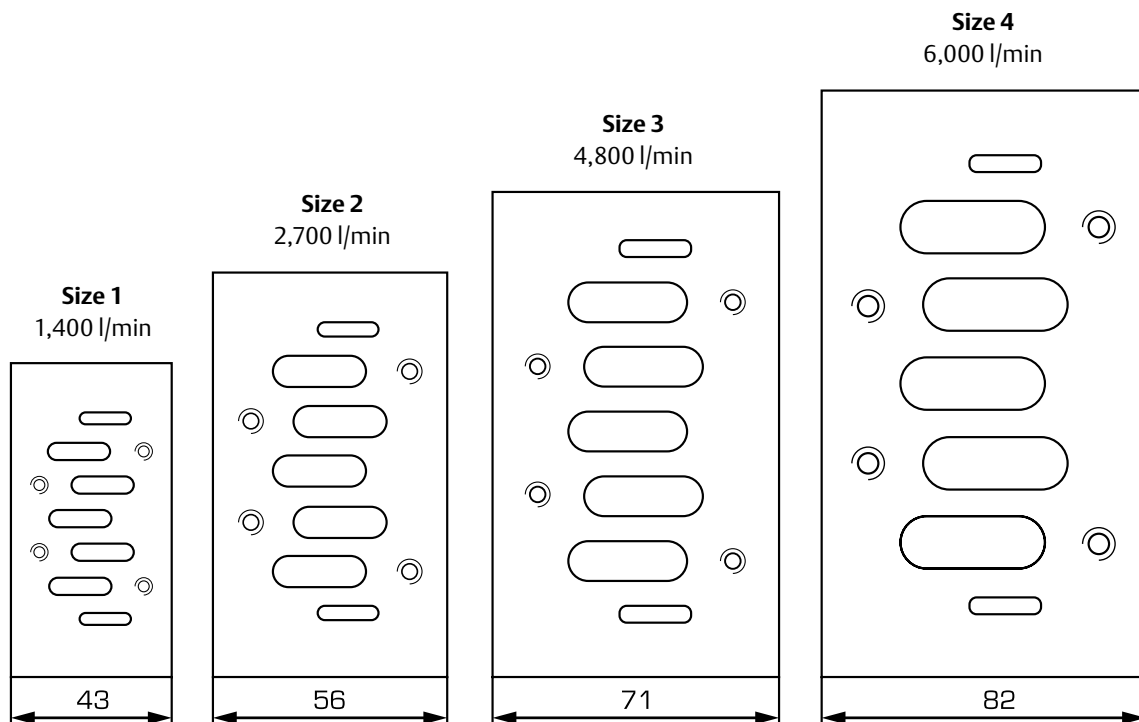
High performance ISO 5599-1 valve systems

Precise control across a broad range of applications

The AVENTICS Series 581 is designed for almost every application requiring the use of ISO 5599-1 standardized valves. The modular design enables the valve systems to be configured for specific tasks, including those requiring 5/2, 5/3 and 2x 3/2 valve functions, with flow rates from 1,100 to 6,000 l/min and a pressure range from 0.95 to 16 bar. The valve systems provide fast, precise switching times and a long service life of up to 20 million cycles.

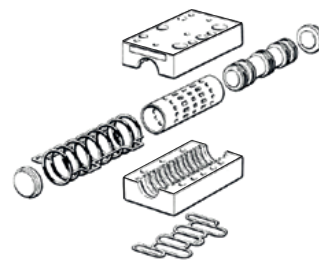
Extensive range of options provides flexibility

The AVENTICS Series 581 valves system is available with four pilot variants and four valve sizes that cover the entire performance range typically required by pneumatic systems. The valves can be mounted to a single base plate or be part of a valve system, and these can be controlled electrically or pneumatically. A comprehensive choice of electrical connections includes central M12 connectors or Form A, B Industry or C connectors, while integral exhaust air throttling or adjustable pilot air can be specified. To ensure you select the right solution for your application, Emerson offers online support for the design, configuration and order processing of your valve system.



AVENTICS Series 581 valves available on single base plates or part of a valve system

- Modular system
- Robust design, spool in sleeve
- Polymer housing for sizes 1 and 2
- Metal housing for sizes 1 to 4
- Same basic valve for electrical and pneumatic control
- Functions: 5/2 and 5/3 directional valves, size 1 – 4; 2 x 3/2 directional valves, size 1



Electrical controls overview

Electrical control - 15 mm

- Low power consumption
- Low space requirements
- Integrating wiring in valve systems



Electrical control - 22 mm

- Different operating voltages
- Available for all sizes (1 - 4)



Electrical control - 30 mm

- CNOMO version
- 16 bar version
- Different manual overrides
- Available for all sizes (1 - 4)



Electrical control - M12x1

- Central connection for double solenoid valves
- Very low power consumption



Basic data

Pilot valve	15 mm	22 mm	30 mm	M12
Available for sizes	ISO 1 - 2	ISO 1 - 4	ISO 1 - 4	ISO - 4
Electrical interface	Form C, 3-pin, with cable, M8 snap	Form B, industry, 3-pin	Form A, 3-pin	M12x1, 3-pin
Operating voltage	24 V DC	12, 24, 48 V DC 24, 110, 230 V AC	24 V DC 42, 230 V AC	24 V DC
Voltage tolerance	+/- 10%	+/- 10%	+/- 10%	+/-10%
Power consumption	2 – 2.2 W	5 - 10 W	2 – 15 W	0.35 W
Manual override	Push, w/o detent (Impulse)	Turn with detent	Non, Push, with or w/o detent (Impulse or Push and turn)	Push, with or w/o detent
Body material	ISO 1 - 2: PA	ISO 1 - 2: PA ISO 3 - 4: AL	ISO 1 - 2: PA ISO 1 - 4: AL	ISO 1 - 2: PA ISO 3 - 4: AL
Ambient temperature	-10°C / +50°C	-15°C / +50°C	-15°C / +50°C	0 – 50°C
ATEX	-	-	Yes	-

Control and pilot valves

- Pneumatic control via base plate, ATEX
- Electrical control
 - 15 mm pilot valve: 24 V DC, form C or cable M8x1
 - 22 mm pilot valve: different voltages, form B, industry
 - 30 mm pilot valve: different voltages, CNOMO interface, ATEX
 - M12 pilot valve: 24 V DC, 0.35 W, central M12 plug
- Valve pilot air: internal/external, can be changed later using rotatable seal



Pilot valves 15 mm



Pilot valves 15 mm



Pilot valves 22 mm



Pilot valves 22 mm



Pilot valves 30 mm



Pilot valves M12



Covers



Cover for pneumatically operated valves



Rotatable seal for valve pilot control, internal or external

Product and system overview

Basic valves

- ISO 1 – 4, 5/2 directional valves with spring return
- ISO 1 – 4, 5/2 directional valves with air spring (differential piston)
- ISO 1 – 4, 5/2 directional valves double solenoid
- ISO 1 – 4, 5/3 directional valves with pressurized/exhausted or closed center
- ISO 1, 2 x 3/2 directional valves
- ISO 1: Soft-start valves



Basic valve



Basis valve with air spring



Basic valve with manual actuation



Soft-start valves

Base plates

- Series 335: ISO 1-2, threaded connection on side
- TYPE F: VDMA-compatible, thread connections on the bottom
- TYPE G: side and bottom ported
- TYPE H: side and bottom ported, common or separate pilot supply
- TYPE K: low height, direct combination of sizes
- Single subbases ISO 1 - 4, thread connections on bottom or side (optionally according to VDMA)

Type F
ISO 1 - 4 thread
connections on the
bottom (VDMA)



Series 335
flexible channel
separation, common or
separate pilot supply



Type K
ISO 1 - 3 thread
connections on the bottom

Type G
ISO 1 - 2 thread
connections on the
bottom or side



Type H
ISO 1 thread
connections on the
bottom or side



ISO 1 - 4
single subbases, thread
connections on bottom or side
(optionally according to VDMA)



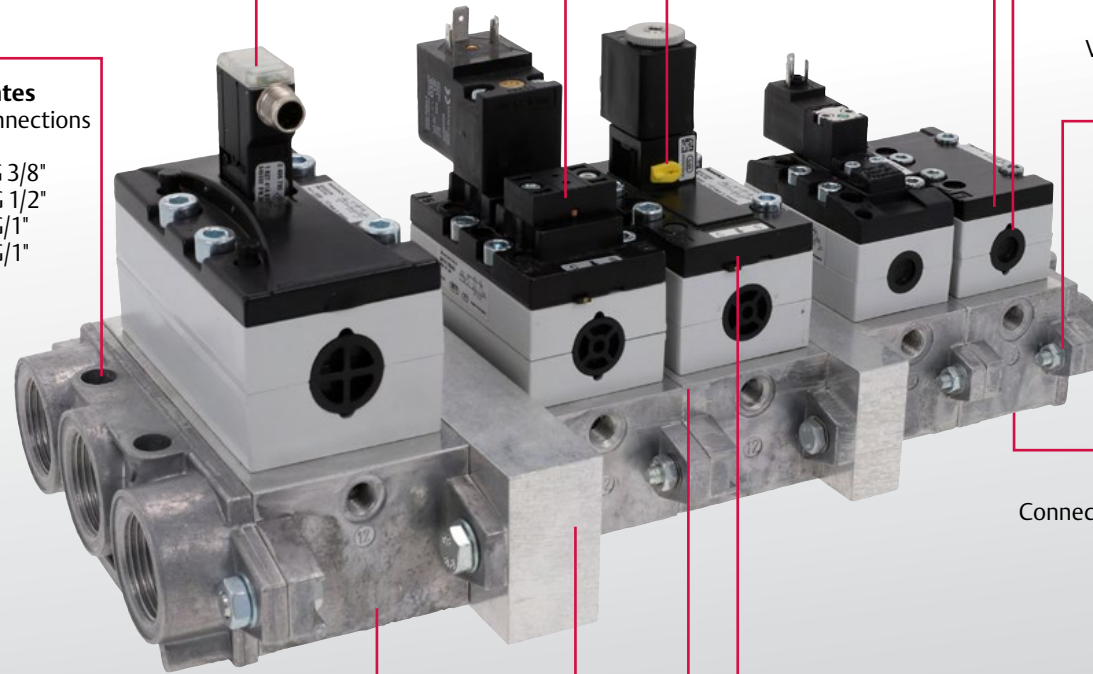
Example configuration: AVENTICS Series 581 valve system, ISO 5599-1, base plate type F (VDMA)

Electrical control

Form C - 15 mm
M8, 3-pin (with cable) - 15 mm
Form B, industry - 22 mm
Form A - 30 mm
M12x1, central connection

End plates

Side connections
1,3,5
Size 1: G 3/8"
Size 2: G 1/2"
Size 3: G/1"
Size 4: G/1"



CNOMO interface

189, 190, DO30
pilot type

Manual override

without detent,
with detent,
none,
robust metal version

Pneumatic control

Same basic valve
as for electrical control,
can be changed later
by replacing cover

Frame size

Very compact design

Base plate assembly

Simple connection
for assembly
in-house

Base plates

Connections 2,4 on bottom
Size 1: G 1/4"
Size 2: G 3/8"
Size 3: G 1/2"
Size 4: G 3/4"

Base plates

Type F: VDMA
Additional versions:
Type C: central pilot air
Type H: custom/central pilot air
Type G: all connections on bottom,
2 and 4 on side
Type K: all connections on bottom

Transition plates

ISO 1 to 2
ISO 1 to 3
ISO 2 to 3

Separate pressure zones

in channels via
partition plates

Pilot air

internal,
external,
can be changed later
by rotating the seal

**The AVENTICS Series 581 valve systems
are customized for your application**

Special equipment and accessories

Integrated throttles



The integrated throttles can also be retrofitted, helping to reduce costs and the space required for an intermediate throttle plate.

Logic modules



Small, fully-integrated pneumatic controls are possible by combining AVENTICS Series 551 logic modules in conjunction with size 3 AVENTICS Series 581 valves, without the need for extra tubing.

Fieldbus connectivity



With the AVENTICS AES or AVENTICS G3 electronics platform, ISO 5599-1 standardized valves can also be easily connected to fieldbus systems with all relevant protocols.

Single subbase



In addition to the base plate systems, single subbases are available with thread connections on the side or bottom.

Pressure regulators



Pressure regulator valves can be easily integrated into the valve system and do not require external tubing. Variants for controlled channels: 1, 2, 3, 2 and 4, 3 and 5.

Maintenance plate



The hot swap maintenance plate allows you to exchange individual valves without switching off the compressed air supply to the entire valve system.

Pressure zones



Pressure zone integration can be realized with blanking pieces in the supply channels. The compressed air supply can be configured individually using supply plates and a direct supply option in the base plates.

Throttle plate



Throttle plates can be mounted directly on the base plate and offer the advantage of the throttle settings being maintained, even when a valve is replaced.

Industry and application expertise

Your applications are unique and becoming ever more complex, requiring greater functionality and improved insight into equipment performance and health. With its global scale and local support with industry and application expertise, Emerson is able to support your project, providing customer-specific pneumatic solutions, machine safety solutions and Industrial Internet of Things (IIoT) applications that help support machine and process performance improvements. We create future-proof solutions that consider both current and future requirements in automation technology.

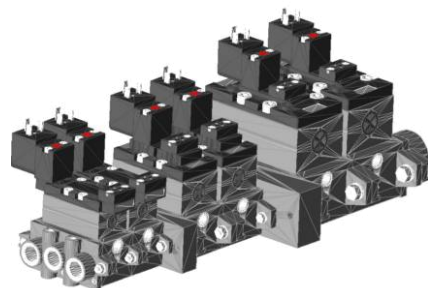
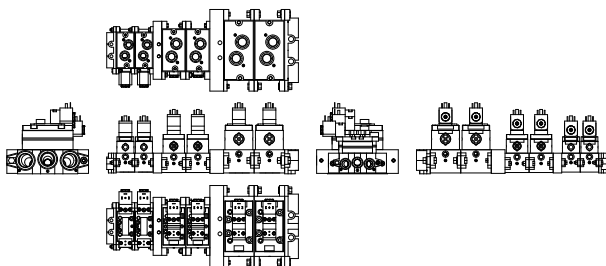
Tailored future-proofed solutions

Comprehensive pneumatic systems and deep industry expertise enables Emerson to provide support throughout your design engineering process. AVENTICS pneumatic solutions from Emerson are tailored to your specific requirements including machine safety applications or the need for smart pneumatics with IIoT-capability. Allow us to create innovative, tailor-made pneumatics solutions that optimize your machinery and though our rapid development and delivery services can help meet your demanding project timelines.

- Customer-specific solutions
- Rapid product development
- Smart products for the industrial internet of things
- Machine safety

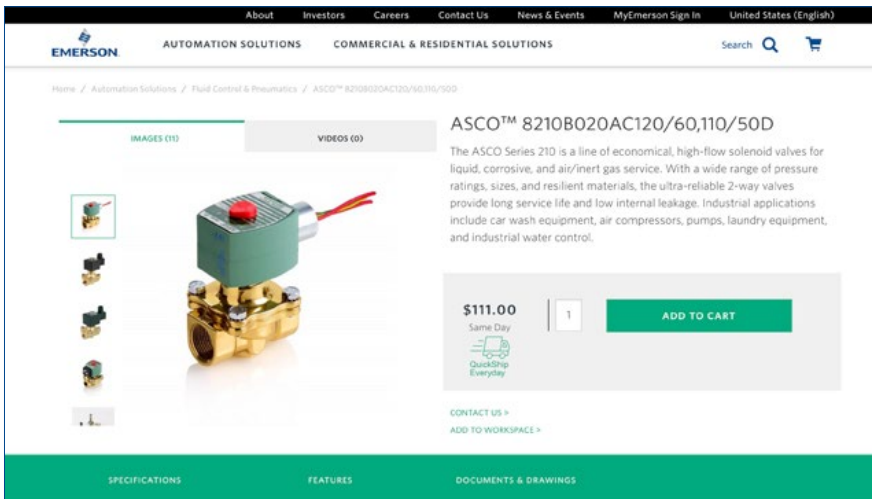
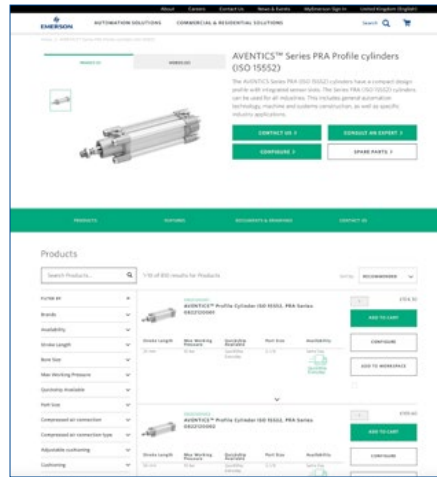
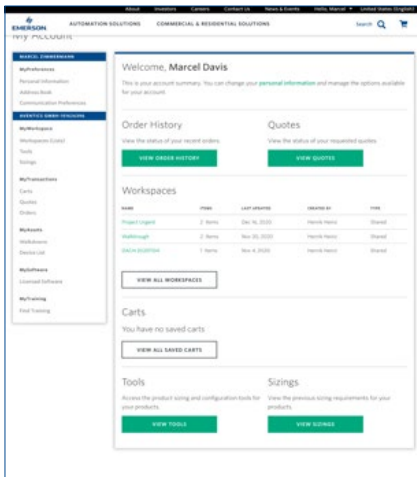
Configured and delivered as ready-to-assemble systems

All AVENTICS Series 581 valves and valve systems can be provided as fully tested ready-to-assemble units. Pre-mounted solutions with electrical connections enable immediate installation and commissioning without additional services. This prevents wiring and assembly errors, simplifying commissioning, ensuring reliable installation and creating cost and time efficiencies. Configuration is supported by Emerson's online Engineering Tools.



You can configure your application right down to the last detail with the free Engineering Tools.

A single online shopping experience to meet your complete fluid control and pneumatics requirements



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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 Emerson 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



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Your advantages:

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

The AVENTICS Series 581 valve system delivers optimized solutions for your unique pneumatic system application



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