

# Series A directly operated solenoid valves

2/2-way - Normally Closed (NC) and Normally Open (NO)

3/2-way - Normally Closed (NC) and Normally Open (NO)



- » Ports: M5, G1/8, R1/8, cartridge  $\varnothing 4$
- » Bistable version also available (with magnetic memory)

Series A solenoid valves are of the directly operated type and can be used with dry or lubricated air. They are available in the 2/2 and 3/2-way versions with normally closed (NC) or normally open (NO) operation.

As shown in the following tables, they are supplied in different versions according to the type of body, threaded ports and orifice. They can thus satisfy various operating and installation requirements.

The solenoid can be easily and quickly replaced without interfering with the pressurised part of the valve. On the same mechanical part different types of solenoids can be interchanged. The choice of solenoids determines the performance of the solenoid valve in terms of consumption and pressure.

## GENERAL DATA

### TECHNICAL FEATURES

Function	2/2 NC - 3/2 NC - 2/2 NO - 3/2 NO
Operation	direct acting poppet type
Pneumatic connections	M5, G1/8, R1/8 threads - $\varnothing 4$ fitting - CNOMO interface
Nominal diameter	1.5 ... 2.5 mm
Nominal flow	40 ... 130 Nl/min (air @ 6 bar $\Delta P$ 1 bar)
Flow coefficient kv (l/min)	0.62 ... 2.0
Operating pressure	-0.9 ... 15 bar
Operating temperature	0°C $\pm$ 60°C (with dry air -20°C)
Media	filtered air, class 5.4.4 according to ISO 8573-1 (max oil viscosity 32 cSt), inert gas
Response time	ON <15 msec - OFF <25 msec
Manual override	see tables
Installation	in any position

### MATERIALS IN CONTACT WITH THE MEDIUM

Body	nickel-plated brass - PBT technopolymer
Seals	HNBR, FKM
Internal parts	stainless steel

### ELECTRICAL FEATURES

Voltage	12 ... 110 V DC - 24 ... 380 V AC 50/60 Hz
Voltage tolerance	$\pm 10\%$ (DC) / $-15\% \div +10\%$ (AC)
Power consumption	3 ... 5 W (DC) / 3.5 ... 7 VA (AC)
Duty cycle	ED 100%
Electrical connection	F (155°C)
Protection class	DIN 43650 connector, (A, B Shape) IP65 with connector

### Special versions available on demand

**CODING EXAMPLE**

<b>A</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>-</b>	<b>0</b>	<b>C</b>	<b>2</b>	<b>-</b>	<b>U7</b>	<b>7</b>
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<b>A</b>	SERIES																																	
<b>3</b>	<p><b>BODY DESIGN:</b>            1 = base ( 24x24 mm ) interface rotatable through 360°            2 = base ( 24x24 mm ) fixed interface            3 = threaded body            4 = rapid exhaust body            5 = base with ISO standard interface, fixed body in technopolymer            6 = ( 16x16 mm ) interface rotatable through 360°            A = single manifold            B = 2-part manifold            C = 3-part manifold            D = 4-part manifold            E = 5-part manifold            F = 6-part manifold            G = 7-part manifold            H = 8-part manifold            K = 9-part manifold            L = 10-part manifold            M = 11-part manifold            N = 12-part manifold            P = 13-part manifold            R = 14-part manifold            S = 15-part manifold</p>																																	
<b>3</b>	<p><b>NUMBER OF PORTS:</b>            2 = 2 way            3 = 3 way</p>																																	
<b>1</b>	<p><b>FUNCTION:</b>            1 = NC            2 = NO            3 = NO in line</p>																																	
<b>0</b>	<p><b>PORTS:</b></p> <table border="0"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>0 M5</td> <td>M5</td> <td>M5</td> </tr> <tr> <td>1 G1/8</td> <td>G1/8</td> <td>M5</td> </tr> <tr> <td>3 M5</td> <td>R1/8</td> <td>M5</td> </tr> <tr> <td>4 M5</td> <td>R1/8</td> <td>M5 with manual override</td> </tr> <tr> <td>A swivel O-ring interface</td> <td></td> <td>M5</td> </tr> <tr> <td>B fixed O-ring interface</td> <td></td> <td>M5</td> </tr> <tr> <td>C G1/8</td> <td>cartridge Ø 4</td> <td>M5</td> </tr> </table>										1	2	3	0 M5	M5	M5	1 G1/8	G1/8	M5	3 M5	R1/8	M5	4 M5	R1/8	M5 with manual override	A swivel O-ring interface		M5	B fixed O-ring interface		M5	C G1/8	cartridge Ø 4	M5
1	2	3																																
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C G1/8	cartridge Ø 4	M5																																
<b>C</b>	<p><b>NOMINAL DIAMETER:</b>            C = Ø 1,5            D = Ø 2            E = Ø 2,5</p>																																	
<b>2</b>	<p><b>BODY MATERIAL:</b>            2 = nickel-plated brass            3 = technopolymer</p>																																	
<b>U7</b>	<p><b>ENCAPSULATING MATERIAL / SOLENOID DIMENSIONS:</b>            A8 = PPS / 30 x 30            G7 = PA / 22 x 22            G8 = PA / 30 x 30 (24 V DC only)            G9 = PA / 22 x 58            H8 = PA 6 V0 / 30 x 30            U7 = PET / 22 x 22</p>																																	
<b>7</b>	SOLENOID VOLTAGE (see the dedicated section 2.35)																																	

SERIES A SOLENOID VALVES

## TABLE FOR THE COUPLING BETWEEN SOLENOIDS AND VALVES

Valve function 2/2: for vacuum application connect the vacuum in "2"

Valve function 3/2: for vacuum application connect the vacuum in "1"

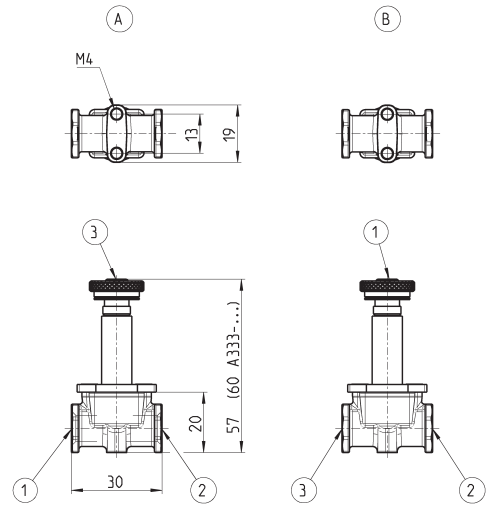
Note: for solenoid Mod. G90 (2/2 NO) contact our technical department

Mod.	Solenoids 3W working pressure (bar)	Solenoids 4-5 W working pressure (bar)	Solenoids 3,5 VA working pressure (bar)
	allowed pressure with solenoids DC - 3 W	allowed pressure with solenoids DC - 4-5 W	allowed pressure with solenoids AC - 3,5 VA
<b>Valve function 2/2 NC</b>			
A321-0C2	- 0,9 ÷ 8	- 0,9 ÷ 15	- 0,9 ÷ 15
A321-1C2	- 0,9 ÷ 8	- 0,9 ÷ 15	- 0,9 ÷ 15
A321-1D2	- 0,9 ÷ 4	- 0,9 ÷ 9	- 0,9 ÷ 9
A321-1E2	- 0,9 ÷ 1	- 0,9 ÷ 6	- 0,9 ÷ 6
<b>Valve function 2/2 NO</b>			
A322-0C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A322-1C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
<b>Valve function 3/2 NC</b>			
A331-0C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A331-1C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A331-3C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A331-4C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A431-1C2	2 ÷ 10	2 ÷ 10	2 ÷ 10
A531-BC2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
A631-AC2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
AA31-0C2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
AA31-0C3	2 ÷ 8	- 0,9 ÷ 8	- 0,9 ÷ 8
AA31-CC2	2 ÷ 10	- 0,9 ÷ 10	- 0,9 ÷ 10
AA31-CC3	2 ÷ 8	- 0,9 ÷ 8	- 0,9 ÷ 8
<b>Valve function 3/2 NO</b>			
A332-0C2	- 0,9 ÷ 7	- 0,9 ÷ 7	- 0,9 ÷ 7
A332-1C2	- 0,9 ÷ 7	- 0,9 ÷ 7	- 0,9 ÷ 7
A333-0C2	- 0,9 ÷ 6	-	- 0,9 ÷ 9
A333-1C2	- 0,9 ÷ 6	-	- 0,9 ÷ 9
AA33-0C2	- 0,9 ÷ 6	-	- 0,9 ÷ 9
AA33-0C3	- 0,9 ÷ 6	-	- 0,9 ÷ 8
AA33-CC3	- 0,9 ÷ 6	-	- 0,9 ÷ 8

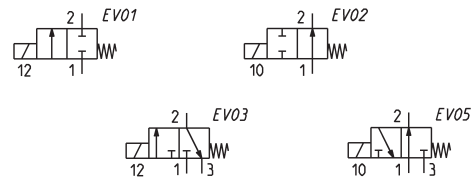
### 2/2 and 3/2-way solenoid valves Mod. A32 and Mod. A33



Available in the 2/2-way version, NC or NO, as well as in the 3/2-way version, NC, NO or NO in line. In the 3/2 NC version connection 1 is on the body (fig. A), whereas in the 3/2 NO version is on the M5 thread of the tube (fig. B).



Mod.	Conn. 1	Conn. 2	Conn. 3	Function	Orifice Ø mm	Qn (NL/min)	Symbol
A321-0C2-*	M5	M5	-	2/2 NC	1,5	50	EV01
A321-1C2-*	G1/8	G1/8	-	2/2 NC	1,5	55	EV01
A321-1D2-*	G1/8	G1/8	-	2/2 NC	2	100	EV01
A321-1E2-*	G1/8	G1/8	-	2/2 NC	2,5	130	EV01
A322-0C2-*	M5	M5	-	2/2 NO	1,8	70	EV02
A322-1C2-*	G1/8	M5	-	2/2 NO	1,8	80	EV02
A331-0C2-*	M5	M5	M5	3/2 NC	1,5	50	EV03
A331-1C2-*	G1/8	G1/8	M5	3/2 NC	1,5	60	EV03
A332-0C2-*	M5	M5	M5	3/2 NO	1,5	55	EV05
A332-1C2-*	M5	G1/8	G1/8	3/2 NO	1,5	50	EV05
A333-0C2-*	M5	M5	M5	3/2NO in line	1,5	60	EV05
A333-1C2-*	G1/8	G1/8	M5	3/2NO in line	1,5	60	EV05



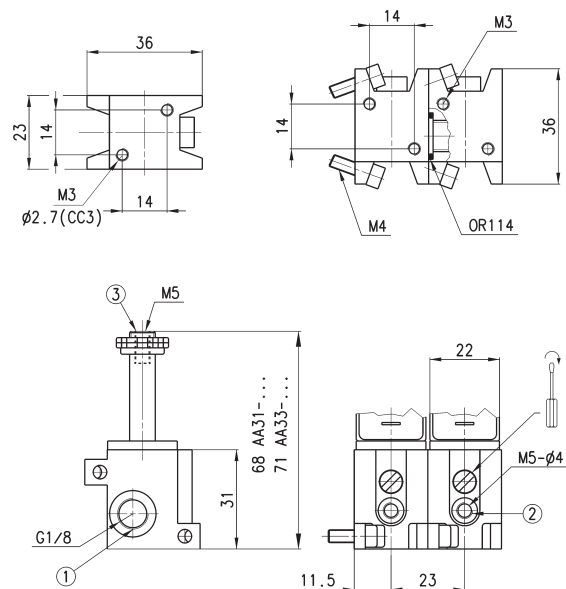
Note. For the use of NO valves in line, use the coil model U771 or U7K1 or G771 or G7K1.

\* choose the most suitable solenoid.

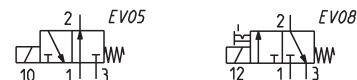
### 3/2-way solenoid valve Mod. AA31... - AA33...



The 3/2-way solenoid valves for manifold assembly are available in the NC and NO in line version, with G1/8 ports at the manifold inlet. The inlets can be with M5 threading or with a Ø 4 cartridge. The solenoid valve is supplied complete with O-ring and screws.



Mod.	Inlet / outlet	Function	Orifice Ø mm	Manual override bistable	Qn (NL/min)	Symbol
AA31-0C2-*	G1/8 M5	3/2 NC	1,5	Yes	55	EV08
AA31-CC2-*	G1/8 04	3/2 NC	1,5	Yes	55	EV08
AA31-0C3-*	G1/8 M5	3/2 NC	1,5	Yes	55	EV08
AA33-0C2-*	G1/8 M5	3/2 NO in line	1,5	No	55	EV05
AA33-CC2-*	G1/8 04	3/2 NO in line	1,5	No	55	EV05
AA33-0C3-*	G1/8 M5	3/2 NO in line	1,5	No	65	EV05
AA31-CC3-*	G1/8 04	3/2 NC	1,5	Yes	55	EV08
AA33-CC3-*	G1/8 04	3/2 NO in line	1,5	No	65	EV05



Note. For the use of NO valves in line, use the coil model U771 or U7K1 or G771 or G7K1.

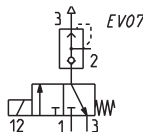
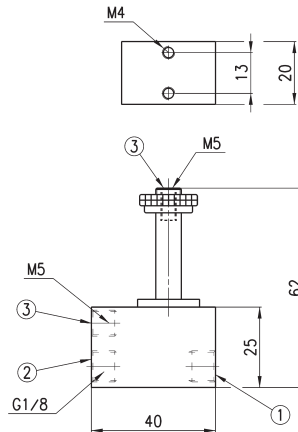
\* choose the most suitable solenoid.

### 3/2-way solenoid valve Mod. A43



The 3/2-way NC solenoid valve, with G1/8 ports, incorporates a rapid exhaust valve. It is particularly suitable for operating small single-acting cylinders.

\* choose the most suitable solenoid.



Mod.	Ports	Function	Orifice Ø mm	Qn (NI/min)
A431-1C2-*	G1/8 / M5	3/2 NC	1.5	50

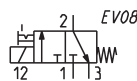
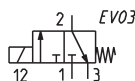
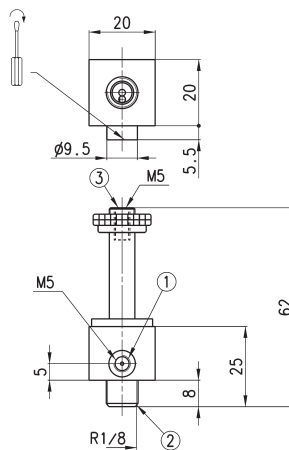
### 3/2-way solenoid valve Mod. A33



They are particularly suitable for the actuation of small single-acting cylinders and the operation of pneumatic valves with very low operating pressures.

The body has an outlet with a R1/8 male thread which can be screwed directly onto the component to be operated. The inlet port is M5 threaded.

\* choose the most suitable solenoid.



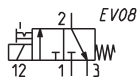
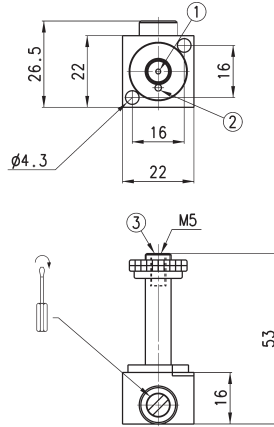
Mod.	Inlet / outlet	Function	Orifice Ø (mm)	Man. override bistable	Qn (NI/min)	Symbol
A331-3C2-*	M5 / R1/8	3/2 NC	1,5	no	55	EV03
A331-4C2-*	M5 / R1/8	3/2 NC	1,5	yes	55	EV08

### 3/2-way solenoid valve Mod. A63



\* choose the most suitable solenoid.

Equipped with a manual override for a steady operation, it is suitable to be mounted directly onto machine parts by two screws. The sealing is ensured by two concentric O-rings allowing the body a 360° adjustment.



Mod.	Interface	Function	Orifice Ø (mm)	Qn (NI/min)
A631-AC2-*	OR	3/2 NC	1,5	40

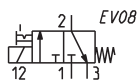
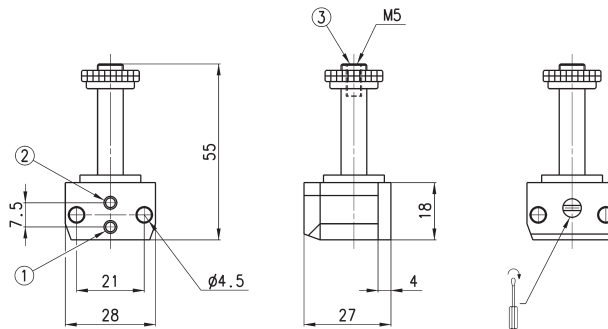
### 3/2-way solenoid valve Mod. A53



The body only is in technopolymer.

\* choose the most suitable solenoid.

Equipped with a manual override for a steady operation, it is suitable to be mounted on Series 9 valves with an ISO interface. The interface which complies CNOMO norms is interchangeable with all ISO versions.



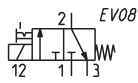
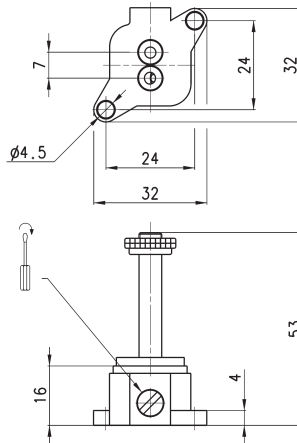
Mod.	Interface	Function	Orifice Ø (mm)	Qn (NI/min)
A531-BC2-*	OR	3/2 NC	1,5	40

### 3/2-way solenoid valve Mod. A231 with fixed interface



Equipped with a manual override with the possibility of a bistable actuation.

\* choose the most suitable solenoid.



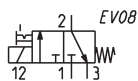
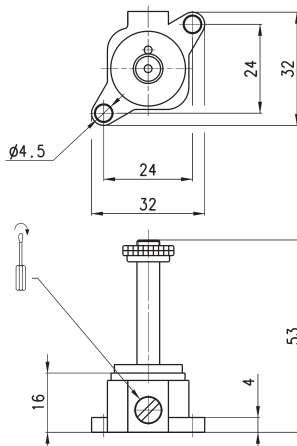
Mod.	Interface	Function	Orifice $\varnothing$ (mm)	Qn (NI/min)
A231-BC2-*	OR	3/2 NC	1,5	70

### 3/2-way solenoid valve Mod. A131 with swivel interface



Equipped with a manual override with the possibility of a bistable actuation.

\* choose the most suitable solenoid.



Mod.	Interface	Function	Orifice $\varnothing$ (mm)	Qn (NI/min)
A131-AC2-*	OR	3/2 NC	1,5	70