

# Directly operated solenoid valves Series A

2/2-way, 3/2-way NC and NO.

Monostable - bistable (with magnetic memory)

Ports M5 and G1/8 - cartridge  $\varnothing 4$



The 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

|                           |   |
|---------------------------|---|
| <b>Valve functions</b>    | 2/2 - 3/2, NC - NO  |
| <b>Construction</b>       | poppet type   |
| <b>Materials</b>          | body = nickel-plated brass or technopolymer<br>seals = HNBR upper poppet, FKM lower FKM<br>others = stainless steel   |
| <b>Ports</b>              | M5 - G1/8, cartridge $\varnothing 4$  |
| <b>Installation</b>       | in any position   |
| <b>Temperature</b>        | 0 + 60°C (with dry air -20°C)   |
| <b>Operating pressure</b> | see table   |
| <b>Nominal flowrate</b>   | Qn ( see table)   |
| <b>Nominal diameter</b>   | $\varnothing$ ( see table)  |
| <b>Fluid</b>              | filtered air, without lubrication, inert gas.<br>If lubricated air is used, it is recommended to use ISOVG3 oil. The lubrication should never be interrupted. |

**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>U</b> | <b>7</b> | <b>7</b> |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|

| <b>A</b> | <b>SERIES</b>   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
|----------|---|-----------|-------------------------|---|---|---|----|----|----|---|------|------|----|---|----|-----------|----|---|----|-----------|-------------------------|---|-------------------------|--|----|---|------------------------|--|----|---|---------------|--|--|
| <b>3</b> | <b>BODY DESIGN:</b><br>1 = base ( 24x24 mm ) interface rotatable through 360°<br>2 = base ( 24x24 mm ) fixed interface<br>3 = threaded body<br>4 = rapid exhaust body<br>5 = base with ISO standard interface, fixed body in technopolymer<br>6 = ( 16x16 mm ) interface rotatable through 360°<br>A = single manifold<br>B = 2-part manifold<br>C = 3-part manifold<br>D = 4-part manifold<br>E = 5-part manifold<br>F = 6-part manifold<br>G = 7-part manifold<br>H = 8-part manifold<br>K = 9-part manifold<br>L = 10-part manifold<br>M = 11-part manifold<br>N = 12-part manifold<br>P = 13-part manifold<br>R = 14-part manifold<br>S = 15-part manifold  |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>3</b> | <b>NUMBER OF PORTS:</b><br>2 = 2 way<br>3 = 3 way   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>1</b> | <b>FUNCTION:</b><br>1 = NC<br>2 = NO<br>3 = NO in line  |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>0</b> | <b>PORTS:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>M5</td> <td>M5</td> <td>M5</td> </tr> <tr> <td>1</td> <td>G1/8</td> <td>G1/8</td> <td>M5</td> </tr> <tr> <td>3</td> <td>M5</td> <td>G1/8 male</td> <td>M5</td> </tr> <tr> <td>4</td> <td>M5</td> <td>G1/8 male</td> <td>M5 with manual override</td> </tr> <tr> <td>A</td> <td colspan="2">swivel O-ring interface</td> <td>M5</td> </tr> <tr> <td>B</td> <td colspan="2">fixed O-ring interface</td> <td>M5</td> </tr> <tr> <td>C</td> <td colspan="3">cartridge Ø 4</td> </tr> </tbody> </table> |           | 1                       | 2 | 3 | 0 | M5 | M5 | M5 | 1 | G1/8 | G1/8 | M5 | 3 | M5 | G1/8 male | M5 | 4 | M5 | G1/8 male | M5 with manual override | A | swivel O-ring interface |  | M5 | B | fixed O-ring interface |  | M5 | C | cartridge Ø 4 |  |  |
|          | 1   | 2         | 3                       |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| 0        | M5  | M5        | M5                      |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| 1        | G1/8  | G1/8      | M5                      |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| 3        | M5  | G1/8 male | M5                      |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| 4        | M5  | G1/8 male | M5 with manual override |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| A        | swivel O-ring interface   |           | M5                      |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| B        | fixed O-ring interface  |           | M5                      |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| C        | cartridge Ø 4   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>C</b> | <b>NOMINAL DIAMETER:</b><br>C = Ø 1,5<br>D = Ø 2<br>E = Ø 2,5   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>2</b> | <b>BODY MATERIAL:</b><br>2 = nickel-plated brass<br>3 = technopolymer   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>U</b> | <b>ENCAPSULATING MATERIAL:</b><br>G = PA<br>U = PET<br>A = PPS<br>H = PA6VO   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>7</b> | <b>SOLENOID DIMENSIONS:</b><br>7 = 22x22<br>8 = 30x30<br>9 = 22x58  |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |
| <b>7</b> | <b>SOLENOID VOLTAGE:</b><br>See the solenoids section on page 2/2.35.01   |           |                         |   |   |   |    |    |    |   |      |      |    |   |    |           |    |   |    |           |                         |   |                         |  |    |   |                        |  |    |   |               |  |  |

**TABLE FOR THE COUPLING BETWEEN SOLENOIDS AND VALVES**

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

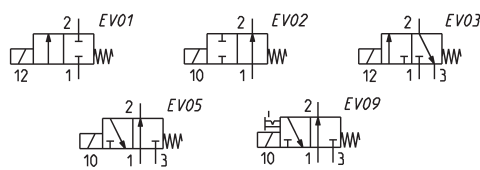
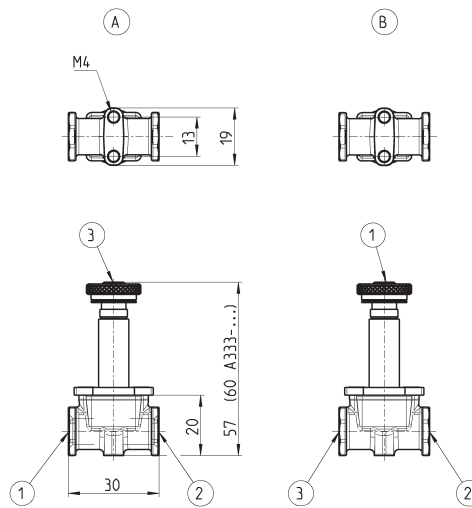
Valve function 3/2: for vacuum application connect the vacuum in "1"

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

| Mod.                         | Solenoids 3W working pressure (bar)<br>allowed pressure with solenoids DC - 3 W | Solenoids 4-5 W working pressure (bar)<br>allowed pressure with solenoids DC - 4-5 W | Solenoids 3,5 VA working pressure (bar)<br>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 ÷ 7   | -  | - 0,9 ÷ 10   |
| A333-1C2                     | - 0,9 ÷ 7   | -  | - 0,9 ÷ 10   |
| AA33-0C2                     | - 0,9 ÷ 7   | -  | - 0,9 ÷ 10   |
| AA33-0C3                     | - 0,9 ÷ 7   | -  | - 0,9 ÷ 8  |
| AA33-CC3                     | - 0,9 ÷ 7   | -  | - 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 (fi. 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 (NI/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          | EV09   |
| A332-1C2* | M5      | G1/8    | G1/8    | 3/2 NO        | 1,5          | 50          | EV09   |
| 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   |

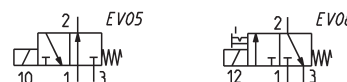
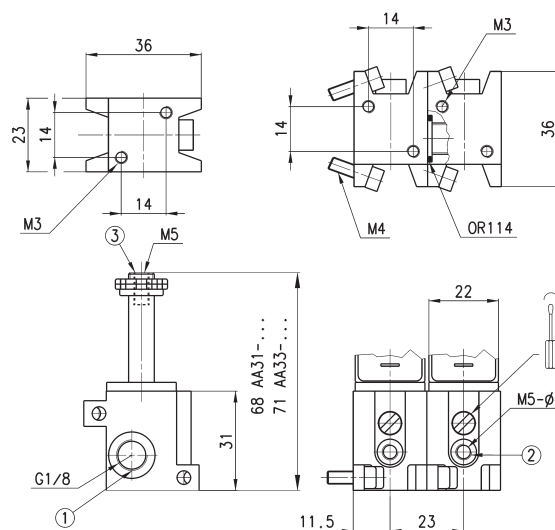
Note. For the use of NO valves in line, use the coil model U771 or U7K1 or G771 or G7K1.

solenoid.

\* choose the most suitable

**3/2-way solenoid valve Mod. AA31...**


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.



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.

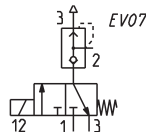
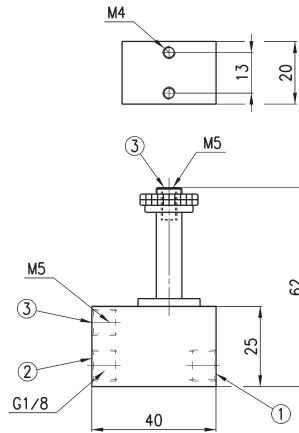
| Mod.      | Inlet / outlet | Function       | Orifice Ø mm | Manual override bistable | Qn (NI/min) | Symbol |
|-----------|----------------|----------------|--------------|--------------------------|-------------|--------|
| AA31-0C2* | G1/8 M5        | 3/2 NC         | 1,5          | Yes                      | 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   |

### 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          |

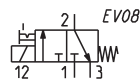
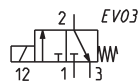
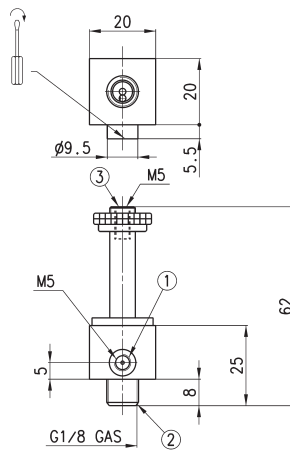
### 3/2-way solenoid valve Mod. A33

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 G1/8 male thread which can be screwed directly onto the component to be operated. The inlet port is M5 threaded.

\* choose the most suitable solenoid.



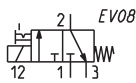
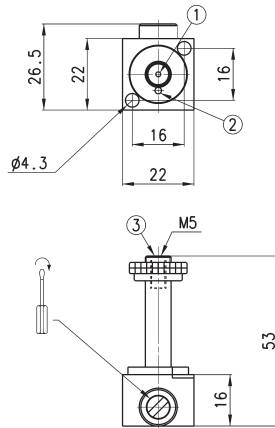
| Mod.      | Inlet / outlet | Function | Orifice Ø (mm) | Man. override bistable | Qn (NI/min) | Symbol |
|-----------|----------------|----------|----------------|------------------------|-------------|--------|
| A331-3C2* | M5/ G1/8       | 3/2 NC   | 1.5            | no                     | 55          | EV03   |
| A331-4C2* | M5/ G1/8       | 3/2 NC   | 1.5            | yes                    | 55          | EV08   |

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

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.



\* choose the most suitable solenoid.



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

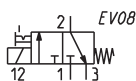
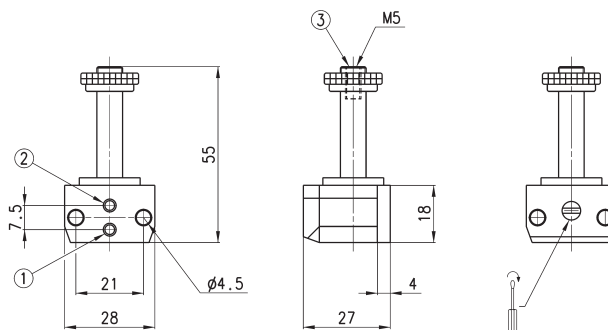
### 3/2-way solenoid valve Mod. A53

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.



The body only is in technopolymer.

\* choose the most suitable solenoid.



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