

Servo- operated 2/2-way solenoid valves

EV220A



MODERN PLANT

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Data sheet

Servo-operated 2/2-way solenoid valves

Type EV220A



EV220A is a compact servo-operated 2/2-way solenoid valve program, especially designed for use in machines and equipment with limited space.

Features and versions

- For water, oil, compressed air and similar neutral media
- Differential pressure: From 0.2 – 16 bar
- Media temperatures: From -30 – 100 °C
- Ambient temperatures: Up to 50 °C
- Enclosure: Up to IP65
- DN 6 – 50
- Viscosity: Up to 50 cSt
- Low power consumption
- Liquid hammer damped
- NO version, standard for ¼" – 1" valve sizes
- NC version, standard for ¼" – 2" valve sizes

Brass valve body, NC



| Connection ISO 228/1 | Seal material | Orifice size | K _v -Value [m ³ /h] | Differential pressure, min. to max. [bar] coil type AM | Media temperature min. to max. [°C] | Code number |
|----------------------|--------------------|--------------|---|--|-------------------------------------|-----------------|
| G 1/4 | EPDM ¹⁾ | 6 | 1 | 0.2 – 16 | -30 – 100 | 042U4001 |
| | NBR | | | 0.2 – 16 | -10 – 90 | 042U4003 |
| | FKM ²⁾ | | | 0.2 – 16 | 0 – 100 | 042U4005 |
| G 3/8 | EPDM ¹⁾ | 6 | 1 | 0.2 – 16 | -30 – 100 | 042U4002 |
| | NBR | | | 0.2 – 16 | -10 – 90 | 042U4004 |
| G 3/8 | EPDM ¹⁾ | 10 | 1.6 | 0.2 – 16 | -30 – 100 | 042U4011 |
| | NBR | | | 0.2 – 16 | -10 – 90 | 042U4013 |
| | FKM ²⁾ | | | 0.2 – 16 | 0 – 100 | 042U4015 |
| G 1/2 | EPDM ¹⁾ | 10 | 1.6 | 0.2 – 16 | -30 – 100 | 042U4012 |
| | NBR | | | 0.2 – 16 | -10 – 90 | 042U4014 |
| | FKM ²⁾ | | | 0.2 – 16 | 0 – 100 | 042U4016 |
| G 1/2 | EPDM ¹⁾ | 12 | 2.5 | 0.3 – 16 | -30 – 100 | 042U4021 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4023 |
| | FKM ²⁾ | | | 0.3 – 10 | 0 – 100 | 042U4025 |
| G 1/2 | EPDM ¹⁾ | 14 | 4 | 0.3 – 16 | -30 – 100 | 042U4022 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4024 |
| | FKM ²⁾ | | | 0.3 – 10 | 0 – 100 | 042U4026 |
| G 3/4 | EPDM ¹⁾ | 18 | 7 | 0.3 – 16 | -30 – 100 | 042U4031 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4032 |
| | FKM ²⁾ | | | 0.3 – 10 | 0 – 100 | 042U4033 |
| G1 | EPDM ¹⁾ | 22 | 7 | 0.3 – 16 | -30 – 100 | 042U4041 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4042 |
| | FKM ²⁾ | | | 0.3 – 10 | 0 – 100 | 042U4043 |
| G 1 1/4 | EPDM | 32 | 15 | 0.3 – 16 | -30 – 100 | 042U4085 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4084 |
| | FKM | | | 0.3 – 10 | 0 – 100 | 042U4095 |
| G 1 1/2 | EPDM | 40 | 18 | 0.3 – 16 | -30 – 100 | 042U4087 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4086 |
| | FKM | | | 0.3 – 10 | 0 – 100 | 042U4096 |
| G 2 | EPDM | 50 | 32 | 0.3 – 16 | -30 – 100 | 042U4089 |
| | NBR | | | 0.3 – 16 | -10 – 90 | 042U4088 |
| | FKM | | | 0.3 – 10 | 0 – 100 | 042U4097 |

¹⁾ EPDM is recommended for water.

²⁾ FKM is recommended for oil and air. For water at max. 60 °C.

Brass valve body, NO



| Connection ISO 228/1 | Seal material | Orifice size | K _v -Value [m ³ /h] | Differential pressure, min. to max. [bar] coil type AM | Media temperature min. to max. [°C] | Code number |
|----------------------|-------------------|--------------|---|--|-------------------------------------|-----------------|
| G 1/4 | NBR ¹⁾ | 6 | 1 | 0.2 – 16 | -10 – 90 | 042U4053 |
| G 1/2 | | 10 | 1.6 | 0.2 – 16 | | 042U4064 |
| G 1/2 | | 12 | 2.5 | 0.3 – 16 | | 042U4073 |
| G 1/2 | | 14 | 4 | 0.3 – 16 | | 042U4074 |
| G 3/4 | | 18 | 7 | 0.3 – 16 | | 042U4082 |
| G 1 | | 22 | 7 | 0.3 – 16 | | 042U4092 |

¹⁾ NBR is recommended for oil and air.

Technical data, NC and NO

| Type | EV220A 6B | EV220A 10B | EV220A 12B | EV220A 14B | EV220A 18B | EV220A 22B | EV220A 32B | EV220A 40B | EV220A 50B |
|-------------------------------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|
| Time to open [ms] ¹⁾ | 40 | 50 | 60 | 100 | 200 | 200 | 2500 | 4000 | 5000 |
| Time to close [ms] ¹⁾ | 250 | 300 | 300 | 400 | 500 | 500 | 4000 | 6000 | 10000 |
| Capacity, k_v [m ³ /h] | 1 | 1.6 | 2.5 | 4 | 7 | 7 | 15 | 18 | 32 |
| Max.test pressure | 50 bar | | 25 bar | | | | | | |

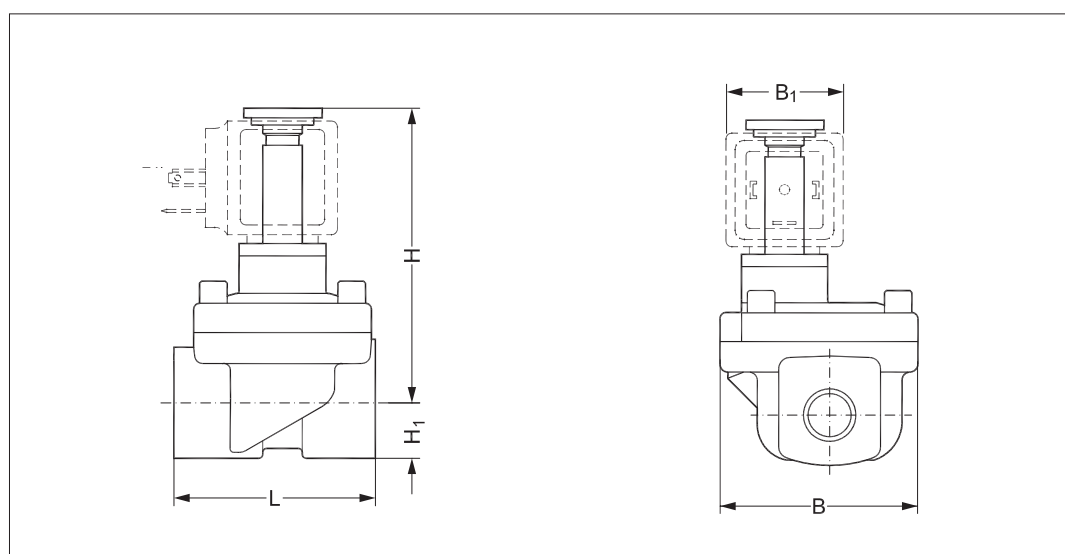
¹⁾ Times are indicative and apply to water. Exact times will depend on pressure conditions.

| | | | |
|---------------------|---------------|---------------------------------|----------------------------|
| Ambient temperature | Max. 50 °C | | |
| Media viscosity | Max. 50 cSt | | |
| Materials | Valve body | Brass | W. no. 2.0401 |
| | Armature | Stainless steel | W. no. 1.4105 / AISI 430FR |
| | Armature stop | Stainless steel | W. no. 1.4105 / AISI 430FR |
| | Armature tube | Stainless steel | W. no. 1.4303 / AISI 305 |
| | Spring | Stainless steel | W. no. 14310 / AISI 301 |
| | O-ring | NBR, EPDM or FKM | |
| | Valve plate | NBR, EPDM or FKM For NO: NBR | |
| | Diaphragm | NBR, EPDM or FKM | |

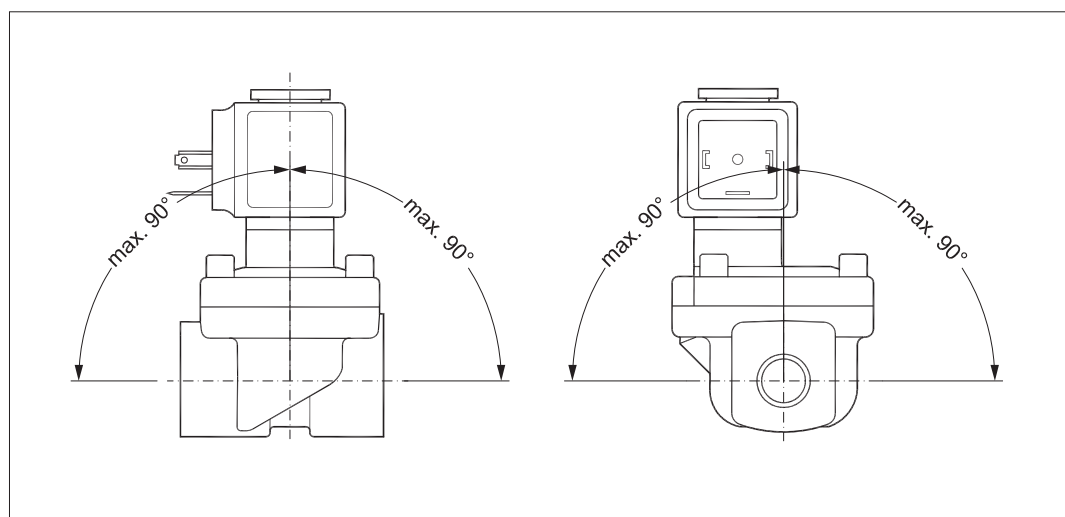
Dimensions and weight

| Type | Weight gross Valve body without coil [kg] | L [mm] | B [mm] | B ₁ [mm] | H ₁ [mm] | H [mm] | |
|------------|---|-----------|-----------|------------------------|------------------------|-----------|----|
| | | | | Coil AM | | NC | NO |
| EV220A 6B | 0.46 | 51 | 50 | 33 | 13 | 76 | 80 |
| EV220A 10B | 0.44 | 51 | 50 | 33 | 13 | 76 | 80 |
| EV220A 12B | 0.52 | 58 | 58 | 33 | 13 | 77 | 81 |
| EV220A 14B | 0.50 | 58 | 58 | 33 | 13 | 77 | 81 |
| EV220A 18B | 0.72 | 90 | 58 | 33 | 18 | 78 | 82 |
| EV220A 22B | 1 | 90 | 58 | 33 | 22 | 83 | 87 |
| EV220A 32B | 2 | 120 | 82 | 33 | 27 | 95 | - |
| EV220A 40B | 3.2 | 130 | 95 | 33 | 32 | 105 | - |
| EV220A 50B | 4.3 | 162 | 113 | 33 | 37 | 111 | - |


Dimensions



Mounting angle

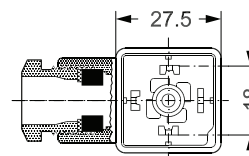
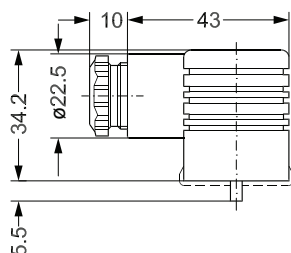


Below coil can be used with EV220A:

| Coil | Type | Power consumption | Enclosure |
|---|------|--------------------------|---|
|  | AM | 7.5 W a.c. 9.5 W d.c. | IP00 with spade connector, IP65 with cable plug |

Accessories:
Cable plug

| Application | Code number |
|--|-----------------|
| GDM 2011 (grey) cable plug according to DIN 43650-A PG11 | 042N0156 |



Spare parts kit, NC version



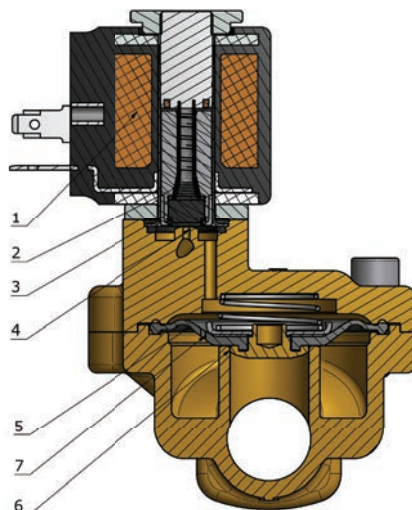
| Type | Seal material | Code number |
|------------------------|---------------|-----------------|
| EV220A 6 - EV220A 10B | EPDM | 042U1000 |
| EV220A 6 - EV220A 10B | NBR | 042U1001 |
| EV220A 6 - EV220A 10B | FKM | 042U1002 |
| EV220A 12 - EV220A 14B | EPDM | 042U1003 |
| EV220A 12 - EV220A 14B | NBR | 042U1004 |
| EV220A 12 - EV220A 14B | FKM | 042U1005 |
| EV220A 18 - EV220A 22B | EPDM | 042U1006 |
| EV220A 18 - EV220A 22B | NBR | 042U1007 |
| EV220A 18 - EV220A 22B | FKM | 042U1008 |
| EV220A 32B | EPDM | 042U1037 |
| EV220A 32B | NBR | 042U1038 |
| EV220A 40B | EPDM | 042U1039 |
| EV220A 40B | NBR | 042U1040 |
| EV220A 50B | EPDM | 042U1041 |
| EV220A 50B | NBR | 042U1042 |

Spare parts kit comprises:

- Armature assembly
- Diaphragm assembly
- Armature spring
- Diaphragm spring
- 2 O-rings

Function, NC

- 1. Coil
- 2. Armature spring
- 3. Armature
- 4. Pilot orifice
- 5. Diaphragm
- 6. Main orifice
- 7. Equalizing orifice



Coil voltage disconnected

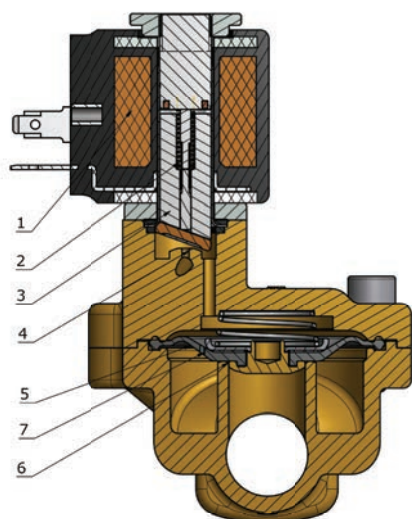
When voltage is disconnected, the armature spring (2) presses the armature (3) down against the pilot orifice (4). Pressure builds up over the diaphragm (5) via the equalizing orifice (7). The diaphragm closes the main orifice (6) as soon as the pressure over the diaphragm equals the inlet pressure. The valve stays closed for as long as voltage remains disconnected.

Coil voltage connected (open)

When voltage is applied to the coil (1), the pilot orifice (4) is opened. Since the pilot orifice is larger than the equalizing orifice (7), pressure over the diaphragm (5) falls and the diaphragm is lifted clear of the main orifice (6). The valve stays open for as long as the required least differential pressure is present and voltage is applied to the coil.

Function, NO

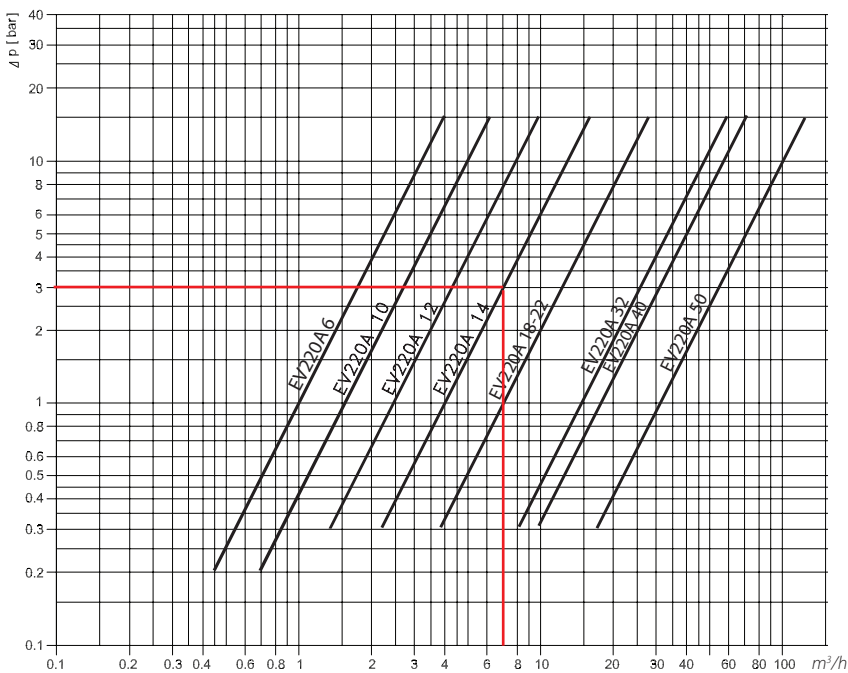
- 1. Coil
- 2. Armature spring
- 3. Armature
- 4. Pilot orifice
- 5. Diaphragm
- 6. Main orifice
- 7. Equalizing orifice



In principle the function involves valve positions opposite to the above for applied and disconnected voltage respectively.

Capacity diagram

Example for water:
Capacity for EV220A at differential pressure of 3 bar: Approx. 7 m³/h





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