

Solenoid valves 2/2-way servo-operated

Type EV220B 6-22

Features



EV220B NC and NO

- For robust industrial application
- For water, oil, compressed air and similar neutral media
- Valve sizes 6-22 mm
- Differential pressure: Up to 30 bar
- Viscosity: Up to 50 cSt
- Ambient temperature: Up to 80°C
- Coil enclosure: Up to IP 67
- Thread connections: From G 1/4 to G 1
- Also available with NPT thread. Please contact Danfoss.
- WRAS approved EPDM NC versions

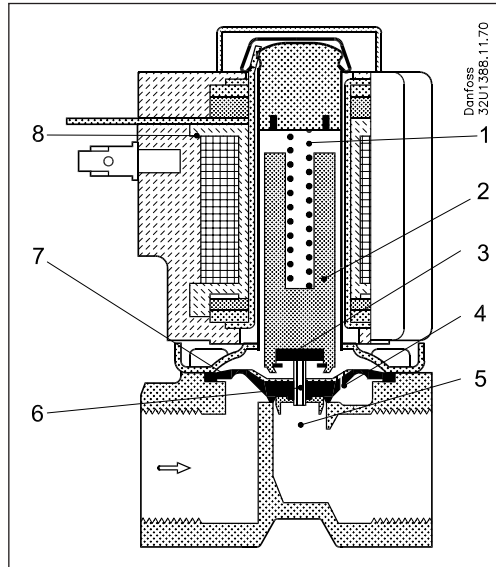
Technical data for NC and NO

| Type | EV220B 6B | EV220B 10B | EV220B 12B | EV220B 18B | EV220B 22B |
|-----------------------------|---|---------------|-------------------|------------|------------|
| Installation | Vertical solenoid system is recommended. | | | | |
| Pressure range | NC | 0.1 to 30 bar | | | |
| | NO | 0.1 to 10 bar | | | |
| Max.test pressure | 50 bar | 50 bar | 16 bar | 16 bar | 16 bar |
| Time to open ¹⁾ | 40 ms | 50ms | 60ms | 200ms | 200ms |
| Time to close ¹⁾ | 250ms | 300 ms | 300 ms | 500 ms | 500 ms |
| Ambient temperature | 40 to 80°C (depending on coil type, see data for the coil selected) | | | | |
| Medium temperature | EPDM: -30 to +100°C. | | FKM: 0 to +100°C. | | |
| Viscosity | max. 50 cSt | | | | |
| Materials | Valve body: Brass, W.no. 2.0402 Armature: Stainless Steel, W.no. 1.4105/AISI 430FR Armature tube: Stainless Steel, W.no. 1.4306/AISI 304L Armature stop: Stainless Steel, W.no. 1.4105/AISI 430FR Springs: Stainless Steel, W.no. 1.4310/AISI 301 O-rings: EPDM or FKM Valve plate: EPDM or FKM Diaphragm: EPDM or FKM | | | | |

1) The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Function NC

- 1. Armature spring
- 2. Armature
- 3. Valve plate
- 4. Equalising orifice
- 5. Main orifice
- 6. Pilot orifice
- 7. Diaphragm
- 8. Coil



Coil voltage disconnected (closed):

When the supply voltage to the coil (8) is disconnected, the valve plate (3) is pressed down against the pilot orifice (6) by the armature spring (1). The pressure across the diaphragm (7) is built up via the equalising orifice (4). The diaphragm closes the main orifice (5) as soon as the pressure across the diaphragm is equivalent to the inlet pressure. The valve will be closed for as long as the voltage to the coil is disconnected.

Coil voltage connected (open):

When voltage is applied to the coil, the pilot orifice (6) is opened. As the pilot orifice is larger than the equalising orifice (4), the pressure across the diaphragm (7) drops and therefore it is lifted clear of the main orifice (5). The valve is now open and will be open for as long as the minimum differential pressure across the valve is maintained, and for as long as there is voltage to the coil.

Ordering NC

valve body

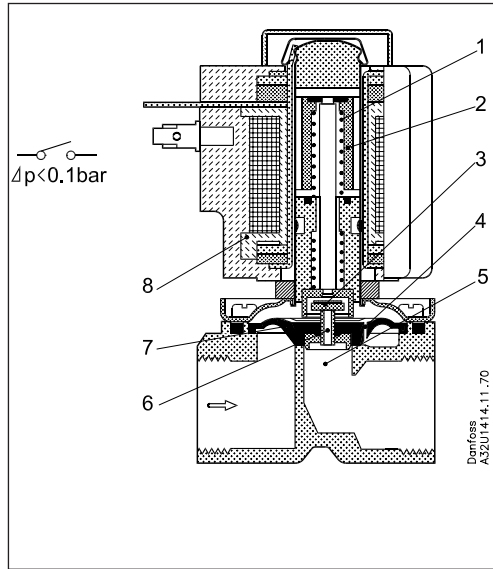
| Connection ISO 228/1 | Seal material | k _v - value [m ³ /h] | Media temp. | | Type designation | | Permissible differential pressure (bar)/ Coil type | | | | | | Code no. without coil | |
|----------------------------|--------------------|--|--------------|--------------|------------------|---------------|--|-----------|------------|------------|------------|------------|-----------------------------|------------|
| | | | Min. [°C] | Max. [°C] | Main type | Specification | Min. | Max. | | | | | | |
| | | | | | | | | BA | | BB/BE | | BG | | |
| | | | | | | | | 9 W ac | 15 W dc | 10 W ac | 18 W dc | 12 W ac | | 20 W dc |
| G 1/4 | EPDM ¹⁾ | 0.7 | -30 | +100 | EV220B 6B | G 14E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1236 |
| G 1/4 | FKM ²⁾ | 0.7 | 0 | +100 | EV220B 6B | G 14F NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1237 |
| | | | | | | | 0.1 | 30 | - | 30 | - | 30 | 30 | |
| G 3/8 | EPDM ¹⁾ | 0.7 | -30 | +100 | EV220B 6B | G 38E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1241 |
| G 3/8 | FKM ²⁾ | 0.7 | 0 | +100 | EV220B 6B | G 38F NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1242 |
| | | | | | | | 0.1 | 30 | - | 30 | - | 30 | 30 | |
| G 3/8 | EPDM ¹⁾ | 1.5 | -30 | +100 | EV220B10B | G 38E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1246 |
| G 3/8 | FKM ²⁾ | 1.5 | 0 | +100 | EV220B10B | G 38F NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1247 |
| | | | | | | | 0.1 | 30 | - | 30 | - | 30 | 30 | |
| G1/2 | EPDM ¹⁾ | 1.5 | -30 | +100 | EV220B10B | G12E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1251 |
| G 1/2 | FKM ²⁾ | 1.5 | 0 | +100 | EV220B10B | G 12F NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U1252 |
| | | | | | | | 0.1 | 30 | - | 30 | - | 30 | 30 | |
| G 1/2 | EPDM ¹⁾ | 2.5 | -30 | +100 | EV220B12B | G 12E NC000 | 0.3 | 10 | - | 10 | - | - | 10 | 032U1256 |
| G 1/2 | FKM ²⁾ | 2.5 | 0 | +100 | EV220B12B | G 12F NC000 | 0.3 | 10 | - | 10 | - | - | 10 | 032U1255 |
| G 3/4 | EPDM ¹⁾ | 6.0 | -30 | +100 | EV220B18B | G34E NC000 | 0.3 | 10 | - | 10 | - | 10 | 10 | 032U1261 |
| G 3/4 | FKM ²⁾ | 6.0 | 0 | +100 | EV220B18B | G34F NC000 | 0.3 | 10 | - | 10 | - | 10 | 10 | 032U1260 |
| G 1 | EPDM ¹⁾ | 6.0 | -30 | +100 | EV220B22B | G 1E NC000 | 0.3 | 10 | - | 10 | - | 10 | 10 | 032U1263 |
| G 1 | FKM ²⁾ | 6.0 | 0 | +100 | EV220B22B | G1F NC000 | 0.3 | 10 | - | 10 | - | 10 | 10 | 032U1266 |

1)EPDM is suitable for water only.

2)FKM is suitable for oil and air. May also be used for water and neutral aqueous solutions if the water temperature does not exceed 60 °C.

= Only gas

Function NO



- 1. Opening spring
- 2. Armature
- 3. Valve plate
- 4. Equalising orifice
- 5. Main orifice
- 6. Pilot orifice
- 7. Diaphragm
- 8. Coil

Coil voltage disconnected (open):

When the voltage to the coil (8) is disconnected, the pilot orifice (6) is open. As the pilot orifice is larger than the equalising orifice (4), the pressure across the diaphragm (7) drops and therefore it is lifted clear of the main orifice (5). The valve will be open for as long as the minimum differential pressure across the valve is maintained, and for as long as the voltage to the coil is disconnected.

Coil voltage connected (closed):

When voltage is applied to the coil, the valve plate (3) is pressed down against the pilot orifice (6). The pressure across the diaphragm (7) is built up via the equalising orifice (4). The diaphragm closes the main orifice (5) as soon as the pressure across the diaphragm is equivalent to the inlet pressure. The valve will be closed for as long as there is voltage to the coil.

Ordering NO

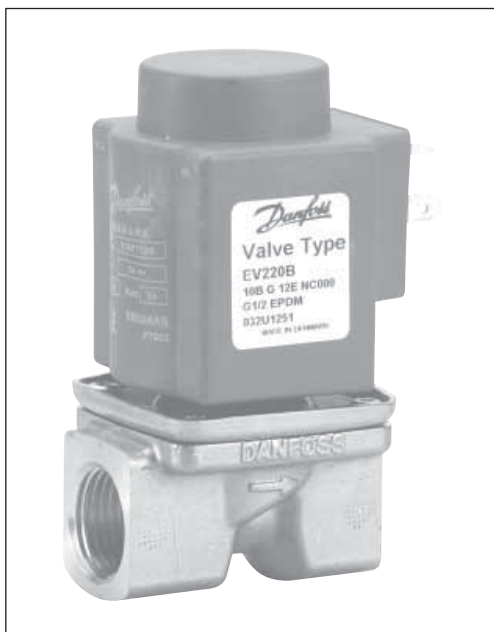
valve body

| Connection ISO 228/1 | Seal material | k _v - value [m ³ /h] | Media temp. | | Type designation | | Permissible differential pressure (bar)/Coil type | | | | | | Code no. without coil | |
|----------------------------|--------------------|--|--------------|--------------|------------------|---------------|---|------------|------------|----|----|----|-----------------------------|----------|
| | | | Min. [°C] | Max. [°C] | Main type | Specification | Min. | Max. | | | | | | |
| | | | | | | | | BA | | BB | | BE | | |
| | | | 9 W ac | 15 W dc | 10 W ac | 18 W dc | | 10 W ac | 18 W dc | | | | | |
| G 3/8 | EPDM ¹⁾ | 0.7 | -30 | +100 | EV220B 6B | G 38E NO000 | 0.1 | 10 | 10 | 10 | 10 | 10 | 10 | 032U1238 |
| G 3/8 | FKM ²⁾ | 0.7 | 0 | +100 | EV220B 6B | G 38F NO000 | 0.1 | 10 | 10 | 10 | 10 | 10 | 10 | 032U1239 |
| G 1/2 | FKM ²⁾ | 1.0 | 0 | +100 | EV220B 6B | G 12F NO000 | 0.1 | 10 | 10 | 10 | 10 | 10 | 10 | 032U1249 |

1)EPDM is suitable for water only.

2)FKM is suitable for oil and air. May also be used for water and neutral aqueous solutions if the water temperature does not exceed 60 °C.

Features



EV220BD for slightly aggressive liquids and gases.

- For robust industrial application
- For neutral and slightly aggressive liquids and gases. Contact Danfoss if you are in doubt about the valve's suitability for the medium in question.
- Differential pressure: Up to 20 bar
- Viscosity: Up to 50 cSt
- Ambient temperature: Up to 80°C
- Coil enclosure: Up to IP 67
- Thread connections: From G 1/4 to G 1/2

Technical data

| Type | EV220B 6BD | EV220B 10BD | EV22B 12BD |
|-----------------------------|---|-------------|------------|
| Installation | Vertical solenoid system is recommended | | |
| Pressure range | 0.1 to 20 bar | | |
| Max. test pressure | 50 bar | 50 bar | 16 bar |
| Time to open ¹⁾ | 40 ms | 50 ms | 60 ms |
| Time to close ¹⁾ | 250 ms | 300 ms | 300 ms |
| Ambient temperature | 40 to +80°C (depending on coil type, see data for coil selected) | | |
| Medium temperature | -10 to +90°C | | |
| Viscosity | Max. 50 cSt | | |
| Materials | Valve body: Dezincification resistant brass, CuZn36 Pb2As/CZ132 Armature: Stainless Steel,.....W.no. 1.4105/AISI 430FR Armature tube: Stainless Steel,.....W.no. 1.4306/AISI 304L Armature stop: Stainless Steel,.....W.no. 1.4105/AISI 430FR Springs: Stainless Steel,.....W.no. 1.4310/AISI 301 Valve Seat: Stainless Steel,.....W.no. 1.4404/AISI 316L O-rings: EPDM Valve plate: EPDM Diaphragm: EPDM | | |

1) The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Ordering

valve body

| Connec- tion ISO 228/1 | Seal material | k _v - value [m ³ /h] | Media temp. | | Type designation | | Permissible differential pressure (bar)/Coil type | | | | | | Code no. without coil | |
|---------------------------------|--------------------|--|--------------|--------------|------------------|---------------|---|------|---|----|----|----|-----------------------------|----------|
| | | | Min. [°C] | Max. [°C] | Main type | Specification | Min. | Max. | | | | | | |
| | | | | | | | | BA | | BB | | BE | | |
| G 1/4 | EPDM ¹⁾ | 0.7 | -30 | +100 | EV220B 6BD | G 14E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U5806 |
| G 3/8 | EPDM ¹⁾ | 0.7 | -30 | +100 | EV220B 6BD | G 38E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U5807 |
| G 3/8 | EPDM ¹⁾ | 1.5 | -30 | +100 | EV220B 10BD | G 38E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U5809 |
| G 1/2 | EPDM ¹⁾ | 1.5 | -30 | +100 | EV220B 10BD | G 12E NC000 | 0.1 | 20 | - | 20 | 10 | 20 | 20 | 032U5810 |
| G 1/2 | EPDM ¹⁾ | 2.5 | -30 | +100 | EV220B 12BD | G 12E NC000 | 0.3 | 10 | - | 10 | - | - | 10 | 032U5811 |

1) EPDM is suitable for water only.

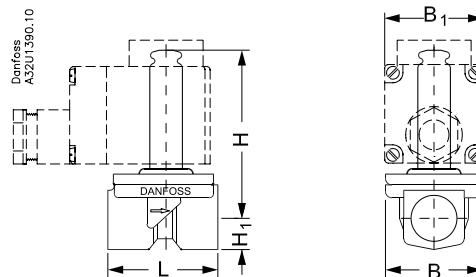
Coil options

| | | | | |
|-------------------------------|--------------------------------|---------------------------------------|--------------------------------|--|
| | | | | <p>Danfoss also offers hum-free coils for noise sensitive applications and EEx m II T4 coils for use in explosion risk areas - please see coil data sheet DKACV.PD.600.A</p> |
| Type: BA 9 W ac 15 W dc | Type: BB 10 W ac 18 W dc | Type: BE (IP67) 10 W ac 18 W dc | Type: BG 12 W ac 20 W dc | |

Ordering Coils

See separate data sheet for coils DKACV.PD.600.A

Dimensions and weight

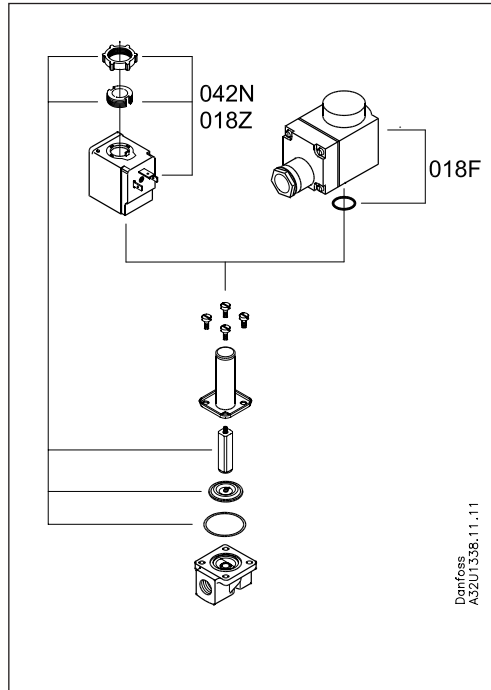


| Type | L [mm] | B [mm] | B ₁ [mm] | | | H ₁ [mm] | H [mm] | Weight without coil [kg] |
|------------|--------|--------|---------------------|-------|----|---------------------|--------|--------------------------|
| | | | Coil type | | | | | |
| | | | BA | BB/BE | BG | | | |
| EV220B 6B | 45.5 | 43.5 | 32 | 46 | 68 | 13.0 | 74.0 | 0.22 |
| EV220B 10B | 51.5 | 48.0 | 32 | 46 | 68 | 13.0 | 77.0 | 0.29 |
| EV220B 12B | 58.0 | 54.0 | 32 | 46 | 68 | 13.0 | 77.0 | 0.35 |
| EV220B 18B | 90.0 | 62.0 | 32 | 46 | 68 | 18.0 | 83.0 | 0.65 |
| EV220B 22B | 90.0 | 62.0 | 32 | 46 | 68 | 18.0 | 98.0 | 0.65 |

Media resistance

Please contact Danfoss

Spare parts kit for
 -EV220B 6 - 22 B
 (brass body)
 -EV220B 6 - 12 BD
 (dezincification resistant
 brass body)

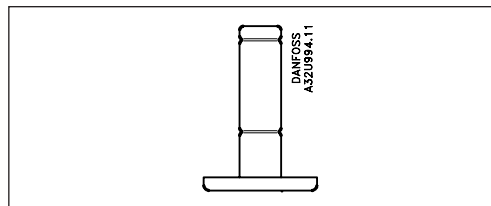


The spare parts kit comprises a locking button, nut for the coil, armature with valve plate and spring, and a diaphragm. For EV220B 6 and 10 the spare parts kit also includes an O-ring.

| Type | Seal material | Code no. | |
|-------------|--------------------|----------|----------|
| | | Standard | WRAS |
| EV220B 6B | EPDM ¹⁾ | 032U1062 | 032U6001 |
| EV220B 6B | FKM ²⁾ | 032U1063 | |
| EV220B 10B | EPDM ¹⁾ | 032U1065 | 032U6002 |
| EV220B 10B | FKM ²⁾ | 032U1066 | |
| EV220B 12B | EPDM ¹⁾ | 032U1068 | 032U6003 |
| EV220B 12B | FKM ²⁾ | 032U1067 | |
| EV220B18-22 | EPDM ¹⁾ | 032U1070 | 032U6004 |
| EV220B18-22 | FKM ²⁾ | 032U1069 | |

| Type | Seal material | Code no. |
|-------------|--------------------|----------|
| EV220B 6BD | EPDM ¹⁾ | 032U4280 |
| EV220B 10BD | EPDM ¹⁾ | 032U4281 |
| EV220B 12BD | EPDM ¹⁾ | 032U4283 |

Assembled normally
 open(NO) unit



| EV220B 6 - 10B; NO | | |
|--------------------|--------------------|----------|
| Type | Seal material | Code no. |
| EV220B 6B | EPDM ¹⁾ | 032U0165 |
| EV220B 6B | FKM ²⁾ | 032U0166 |
| EV220B 10B | FKM ²⁾ | 032U0167 |

1)EPDM is suitable for water.

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

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