ENGINEERING TOMORROW

Data sheet

# Solenoid valve
## Types EV220B 15-50 and EV220BW 40-50




EV220B 15-50 and EV220BW 40-50 are a universal indirect servo-operated 2/2-way solenoid valve program.
Valve body in brass, dezincification resistant brass and stainless steel ensures that a broad variety of application can be covered.
Built-in pilot filter as standard, adjustable closing time and enclosures up to IP67 ensures optimal performance even under critical working conditions.

**Features and versions:**

- For water, steam, oil, compressed air and gases
- Flow range for water: 1.3 – 160 $m^3/h$
- Differential pressure: 0.3 – 16 bar
- Media temperature from -30 – 140 °C
- Ambient temperature: Up to 80 °C
- Coil enclosure: Up to IP67
- Thread connections: From G ½ – G 2
- DN 15 – 50
- Viscosity: Up to 50 cSt
- Water hammer damped
- Built in filter for protection of pilot system
- Adjustable closing time available
- EV220B 15-50 NC and NO brass version for neutral liquids and gasses
- EV220B 15-50 NC DZR brass version for neutral and slightly aggressive liquids and gases
- EV220B 15-50 NC Stainless Steel version for neutral and aggressive liquids and gases
- EV220BW 40-50 NC+NO EPDM and WRAS for drinking water

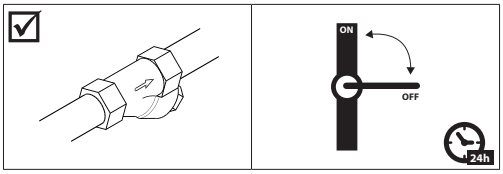
**EV220B 15-50**
**Brass valve body, NC**



- WRAS (see table below)
- ACS
- PZH
- In accordance with:
  - Low Voltage Directive 2014/35/EU
    - EN60730-1
    - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU
- UL recognized

| Connection ISO228/1 | Seal material | Orifice size | $K_v$ - value | Differential pressure min. to max.[6] | Max. working pressure | Media temperature min. to max. | Approval | Code number |
|---|---|---|---|---|---|---|---|---|
| | | | [$m^3$/h] | [bar] | [bar] | [°C] | | |
| G ½ | EPDM [1] | 15 | 4 | 0.3 – 16 | 16 | -30 – 120 [4] | WRAS | 032U7115 |
| | NBR [2] | 15 | 4 | 0.3 – 16 | 16 | -10 – 90 | | 032U7170 |
| | FKM [3] | 15 | 4 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7116 |
| G ¾ | EPDM [1] | 20 | 8 | 0.3 – 16 | 16 | -30 – 120 [4] | WRAS | 032U7120 |
| | NBR [2] | 20 | 7.5 | 0.3 – 16 | 16 | -10 – 90 | | 032U7171 |
| | FKM [3] | 20 | 8 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7121 |
| G 1 | EPDM [1] | 25 | 11 | 0.3 – 16 | 16 | -30 – 120 [4] | WRAS | 032U7125 |
| | NBR [2] | 25 | 11 | 0.3 – 16 | 16 | -10 – 90 | | 032U7172 |
| | FKM [3] | 25 | 11 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7126 |
| G 1 ¼ | EPDM [1] | 32 | 18 | 0.3 – 12 | 12 | -30 – 120 [4] | WRAS | 032U7132 |
| | NBR [2] | 32 | 18 | 0.3 – 12 | 12 | -10 – 90 | | 032U7173 |
| | FKM [3] | 32 | 18 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7133 |
| G 1 ½ | EPDM [1] | 40 | 24 | 0.3 – 12 | 12 | -30 – 120 [4] | | 032U7140 |
| | NBR [2] | 40 | 24 | 0.3 – 12 | 12 | -10 – 90 | | 032U7174 |
| | FKM [3] | 40 | 24 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7141 |
| G 2 | EPDM [1] | 50 | 40 | 0.3 – 12 | 12 | -30 – 120 [4] | | 032U7150 |
| | NBR [2] | 50 | 40 | 0.3 – 12 | 12 | -10 – 90 | | 032U7175 |
| | FKM [3] | 50 | 40 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7151 |

[1] EPDM is recommended for water.
[2] NBR is suitable for oil, water and air.
[3] FKM is suitable for oil and air. For water at max. +60 °C.
[4] Low pressure steam, 4 bar: Max. 140 °C.
BA AC/DC and BB/BE DC coils: Max. 100 °C.
BO and BP coils: Max. 90 °C.
[5] For water: Max. 60 °C.
BO and BP coils: Max. 90 °C.
[6] It is recommended to use a filter in front of the valve.
[7] In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve.
The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[8] To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up)
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.



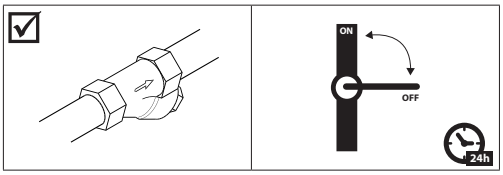
**EV220BW 40-50**
**with sealings for drinking water**
**Brass valve body, NC**



- WRAS
- In accordance with:
  - Low Voltage Directive 2014/35/EU
    - EN60730-1
    - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU

| Connection ISO228/1 | Seal material | Orifice size | $K_v$ - value | Differential pressure min. to max.[6)] | Max. working pressure | Media temperature min. to max. | Approval | Code number |
|---|---|---|---|---|---|---|---|---|
| | | | [$m^3$/h] | [bar] | [bar] | [°C] | | |
| G 1 ½ | EPDM | 40 | 24 | 0.3 – 10 | 10 | 0 – 90 | WRAS | 132U4003 |
| G 2 | EPDM | 50 | 40 | 0.3 – 10 | 10 | 0 – 90 | WRAS | 132U5003 |

[1)] It is recommended to use a filter in front of the valve.
[2)] In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve. The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[3)] To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up)
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.



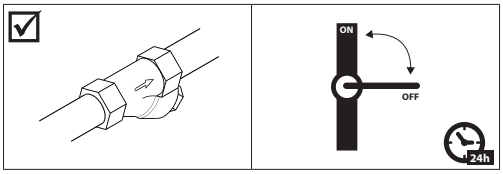
**EV220B 15-50**
**Brass valve body, NO**



- WRAS (see table below)
- ACS
- PZH
- In accordance with:
  - Low Voltage Directive 2014/35/EU
    - EN60730-1
    - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU
- UL recognized

| Connection ISO228/1 | Seal material | Orifice size | $K_V$ - value | Differential pressure min. to max. | Max. working pressure | Media temperature min. to max. | Approval | Code no. |
|---|---|---|---|---|---|---|---|---|
| | | | [$m^3$/h] | [bar] [6] | [bar] | [°C] | | |
| G ½ | EPDM [1] | 15 | 4 | 0.3 – 10 | 10 | -30 – 120 [4] | WRAS | 032U7117 |
| | NBR [2] | 15 | 4 | 0.3 – 10 | 10 | -10 – 90 | | 032U7180 |
| | FKM [3] | 15 | 4 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7118 |
| G ¾ | EPDM [1] | 20 | 8 | 0.3 – 10 | 10 | -30 – 120 [4] | WRAS | 032U7122 |
| | NBR [2] | 20 | 7.5 | 0.3 – 10 | 10 | -10 – 90 | | 032U7181 |
| | FKM [3] | 20 | 8 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7123 |
| G 1 | EPDM [1] | 25 | 11 | 0.3 – 10 | 10 | -30 – 120 [4] | WRAS | 032U7127 |
| | NBR [2] | 25 | 11 | 0.3 – 10 | 10 | -10 – 90 | | 032U7182 |
| | FKM [3] | 25 | 11 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7128 |
| G 1 ¼ | EPDM [1] | 32 | 18 | 0.3 – 10 | 10 | -30 – 120 [4] | WRAS | 032U7134 |
| | NBR [2] | 32 | 18 | 0.3 – 10 | 10 | -10 – 90 | | 032U7183 |
| | FKM [3] | 32 | 18 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7135 |
| G 1 ½ | EPDM [1] | 40 | 24 | 0.3 – 10 | 10 | -30 – 120 [4] | | 032U7142 |
| | NBR [2] | 40 | 24 | 0.3 – 10 | 10 | -10 – 90 | | 032U7184 |
| | FKM [3] | 40 | 24 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7143 |
| G 2 | EPDM [1] | 50 | 40 | 0.3 – 10 | 10 | -30 – 120 [4] | | 032U7152 |
| | NBR [2] | 50 | 40 | 0.3 – 10 | 10 | -10 – 90 | | 032U7185 |
| | FKM [3] | 50 | 40 | 0.3 – 10 | 10 | 0 – 100 [5] | | 032U7153 |

[1] EPDM is recommended for water.
[2] NBR is suitable for oil, water and air.
[3] FKM is suitable for oil and air. For water at max. 60 °C.
[4] Low pressure steam, 4 bar: Max. 140 °C.
BA AC/DC and BB/BE DC coils: Max. 100 °C.
BO and BP coils: Max. 90 °C.
[5] For water: Max. 60 °C.
BO and BP coils: Max. 90 °C.
[6] It is recommended to use a filter in front of the valve.
[7] In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve.
The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[8] To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up)
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.



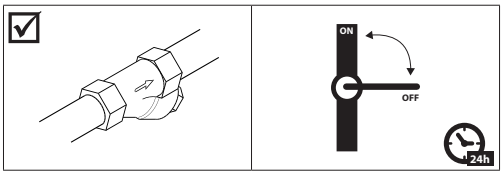
**EV220BW 40-50**
**with sealings for drinking water**
**Brass valve body, NO**



- WRAS
- In accordance with:
  - Low Voltage Directive 2014/35/EU
    - EN60730-1
    - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU

| Connection ISO228/1 | Seal material | Orifice size | $K_V$ - value | Differential pressure min. to max. | Max. working pressure | Media temperature min. to max. | Approval | Code no. |
|---|---|---|---|---|---|---|---|---|
| | | | [$m^3$/h] | [bar] [6] | [bar] | [°C] | | |
| G 1 ½ | EPDM | 40 | 24 | 0.3 – 10 | 10 | 0 – 90 | WRAS | 132U4004 |
| G 2 | EPDM | 50 | 40 | 0.3 – 10 | 10 | 0 – 90 | WRAS | 132U5004 |

[1] It is recommended to use a filter in front of the valve.
[2] In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve. The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[3] To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up)
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.



## Technical data, brass valve body, NC and NO

| Main type | EV220B 15B | EV220B 20B | EV220B 25B | EV220B 32B | EV220B 40B | EV220B 50B |
|---|---|---|---|---|---|---|
| Time to open [ms] [1)] | 40 | 40 | 300 | 1000 | 1500 | 5000 |
| Time to close [ms] [1)] | 350 | 1000 | 1000 | 2500 | 4000 | 10000 |

[1)] The times are indicative and apply to water. The exact times will depend on the pressure conditions. Closing times can be changed by replacement of the equalizing orifice.

| | | | |
|---|---|---|---|
| **Installation** | Optional, but vertical solenoid system is recommended | | |
| **Max. test pressure** | 20 bar | | |
| **Viscosity** | Max. 50 cSt | | |
| **Materials** | Valve body: | Brass | W.no. 2.0402 |
| | Armature: | Stainless steel | W.no. 1.4105 / AISI 430 FR |
| | Armature tube: | Stainless steel | W.no. 1.4306 / AISI 304 L |
| | Armature stop: | Stainless steel | W.no. 1.4105 / AISI 430 FR |
| | Springs | Stainless steel | W.no. 1.4310 / AISI 301 |
| | O-rings: | EPDM, FKM or NBR | |
| | Valve plate: | EPDM, FKM or NBR | |
| | Diaphragm: | EPDM, FKM or NBR | |

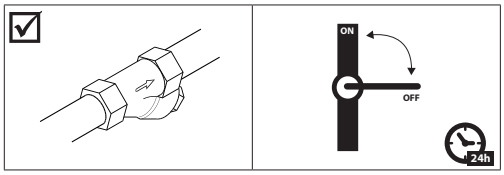
**EV220B 15-50**
**Dezincification resistant brass (DZR)**
**Valve body, NC**



- WRAS
- ACS
- PZH
- In accordance with:
  - Low Voltage Directive 2014/35/EU
    - EN60730-1
    - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU
- UL recognized

| Connection ISO228/1 | Seal material | Orifice size | $K_V$-value | Differential pressure Min. – max. | Max. working pressure | Media temperature min. to max. | Approval | Code no. |
|---|---|---|---|---|---|---|---|---|
| | | | [$m^3$/h] | [bar] | [bar] | [°C] | | |
| G ½ | EPDM [1] | 15 | 4 | 0.3 –16 | 16 | -30 – 120 [2] | WRAS | 032U5815 |
| G ¾ | EPDM [1] | 20 | 8 | 0.3 –16 | 16 | -30 – 120 [2] | WRAS | 032U5820 |
| G 1 | EPDM [1] | 25 | 11 | 0.3 –16 | 16 | -30 – 120 [2] | WRAS | 032U5825 |
| G 1 ¼ | EPDM [1] | 32 | 18 | 0.3 –12 | 12 | -30 – 120 [2] | WRAS | 032U5832 |
| G 1 ½ | EPDM [1] | 40 | 24 | 0.3 –12 | 12 | -30 – 120 [2] | | 032U5840 |
| G 2 | EPDM [1] | 50 | 40 | 0.3 –12 | 12 | -30 – 120 [2] | | 032U5850 |

[1] EPDM is recommended for water.
[2] Low pressure steam, 4 bar: Max. 140 °C.
BA AC/DC and BB/BE DC coils: Max. 100 °C.
BO and BP coils: Max. 90 °C.
[6] It is recommended to use a filter in front of the valve.
[7] In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve.
The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[8] To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up)
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.




## Technical data

| Main type | EV220B 15BD | EV220B 20BD | EV220B 25BD | EV220B 32BD | EV220B 40BD | EV220B 50BD |
|---|---|---|---|---|---|---|
| Time to open [ms] [1] | 40 | 40 | 300 | 1000 | 1500 | 5000 |
| Time to close [ms] [1] | 350 | 1000 | 1000 | 2500 | 4000 | 10000 |

[1] The times are indicative and apply to water. The exact times will depend on the pressure conditions.
Closing times can be changed by replacement of the equalizing orifice.

| | | | |
|---|---|---|---|
| **Installation** | Optional, but vertical solenoid system is recommended. | | |
| **Max. test pressure** | 20 bar | | |
| **Viscosity** | Max. 50 cSt | | |
| **Materials** | Valve body: | Dezincification resistant brass (DZR) | CuZn36Pb2As / CZ132 |
| | Armature: | Stainless steel | W.no. 1.4105 / AISI 430 FR |
| | Armature tube: | Stainless steel | W.no. 1.4306 / AISI 304 L |
| | Armature stop: | Stainless steel | W.no. 1.4105 / AISI 430 FR |
| | Springs | Stainless steel | W.no. 1.4310 / AISI 301 |
| | Orifices | Stainless steel | W.no. 1.4404 / AISI 316L |
| | Valve seat | Stainless steel | W.no. 1.4404 / AISI 316L |
| | O-rings | EPDM | |
| | Valve plate | EPDM | |
| | Diaphragm | EPDM | |

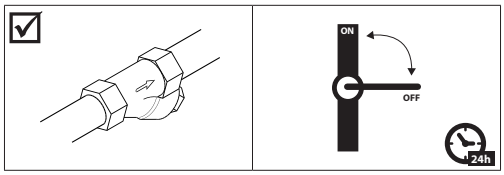
## EV220B 15-50
## Stainless steel valve body, NC



- PZH
- In accordance with:
  - Low Voltage Directive 2014/35/EU
    - EN60730-1
    - EN60730-2-8
  - Pressure Equipment Directive 2014/68/EU
- UL recognized

| Connection ISO228/1 | Seal material | Orifice size | $K_V$ - value | Differential pressure min. – max. | Max. working pressure | Media temperature min. to max. | Code no. |
|---|---|---|---|---|---|---|---|
| | | | [m³/h] | [bar] | [bar] | [°C] | |
| G ½ | EPDM [1] | 15 | 4 | 0.3 – 16 | 16 | -30 – 120 [2] | **032U8500** |
| | FKM [2] | 15 | 4 | 0.3 – 10 | 10 | -30 – 120 [2] | **032U8506** |
| G ¾ | EPDM [1] | 20 | 8 | 0.3 – 16 | 16 | -30 – 120 [2] | **032U8501** |
| | FKM [2] | 20 | 8 | 0.3 – 10 | 10 | -30 – 120 [2] | **032U8507** |
| G 1 | EPDM [1] | 25 | 11 | 0.3 – 16 | 16 | -30 – 120 [2] | **032U8502** |
| | FKM [2] | 25 | 11 | 0.3 – 10 | 10 | -30 – 120 [2] | **032U8508** |
| G 1 ¼ | EPDM [1] | 32 | 18 | 0.3 – 12 | 12 | -30 – 120 [2] | **032U8503** |
| | FKM [2] | 32 | 18 | 0.3 – 10 | 10 | -30 – 120 [2] | **032U8509** |
| G 1 ½ | EPDM [1] | 40 | 24 | 0.3 – 12 | 12 | -30 – 120 [2] | **032U8504** |
| | FKM [2] | 40 | 24 | 0.3 – 10 | 10 | -30 – 120 [2] | **032U8510** |
| G 2 | EPDM [1] | 50 | 40 | 0.3 – 12 | 12 | -30 – 120 [2] | **032U8505** |
| | FKM [2] | 50 | 40 | 0.3 – 10 | 10 | -30 – 120 [2] | **032U8511** |

[1] EPDM is recommended for water. (steam max. +140 °C / 4 bar).
[2] FKM is suitable for oil and air. For water at max. +60 °C.
[3] Low pressure steam, 4 bar: Max. +140 °C.
BA AC/DC and BB/BE DC coils: Max. +100 °C.
BO and BP coils: Max. +90 °C.
[4] For water: Max. +60 °C.
BO and BP coils: Max. +90 °C.
[6] It is recommended to use a filter in front of the valve.
[7] In water applications, exercise the valves at least once every 24 hours, meaning change the state of the valve.
The valve exercise will minimize the risk of the valve sticking due to calcium carbonate, zinc or iron oxide build-up.
[8] To minimize scaling, and corrosion attack it is recommended that the water passing the valve have the following values:
- Hardness 6-18 °dH to avoid scaling (chalk / lime stone build up)
- Conductivity 50 – 800 µS/cm to avoid brass dezincification and corrosion.
- Above 25°C media temperature avoid stagnant water inside the valve to avoid dezincification and corrosion attack.




## Technical data, stainless steel valve body, NC

| Main type | EV220B 15SS | EV220B 20SS | EV220B 25SS | EV220B 32SS | EV220B 40SS | EV220B 50SS |
|---|---|---|---|---|---|---|
| Time to open [ms] [1] | 40 | 40 | 300 | 1000 | 1500 | 5000 |
| Time to close [ms] [1] | 350 | 1000 | 1000 | 2500 | 4000 | 10000 |

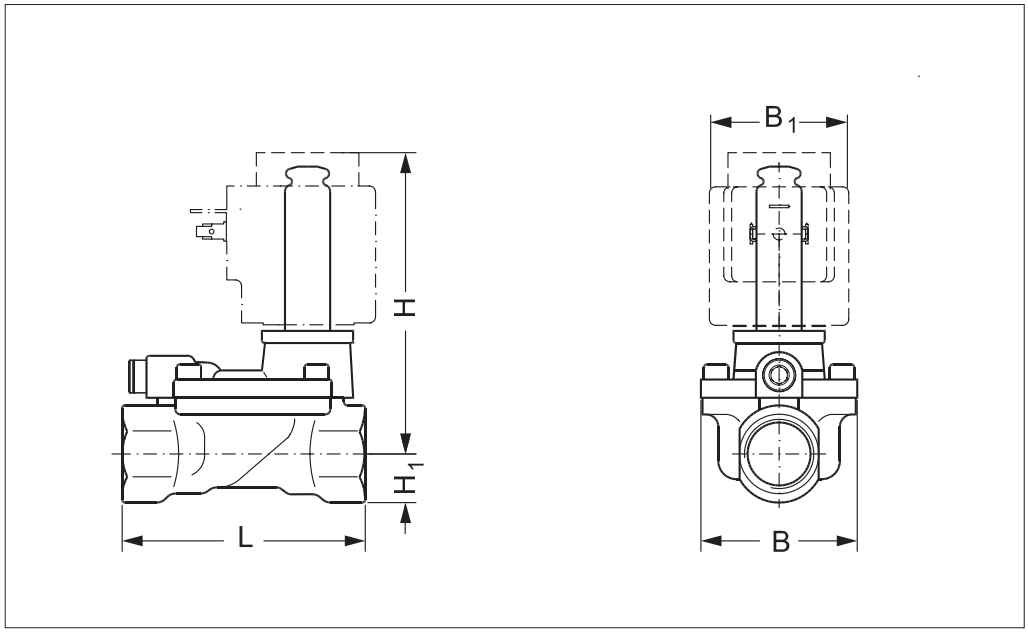
[1] The times are indicative and apply to water. The exact times will depend on the pressure conditions.
Closing times can be changed by replacement of the equalizing orifice.

| | | | |
|---|---|---|---|
| **Installation** | Optional, but vertical solenoid system is recommended. | | |
| **Max. test pressure** | 20 bar | | |
| **Viscosity** | Max. 50 cSt | | |
| **Materials** | Valve body: | Stainless steel | W.no. 1.4581 / AISI 318 |
| | Armature: | Stainless steel | W.no. 1.4105 / AISI 430 FR |
| | Armature tube: | Stainless steel | W.no. 1.4306 / AISI 304 L |
| | Armature stop: | Stainless steel | W.no. 1.4105 / AISI 430 FR |
| | Springs: | Stainless steel | W.no. 1.4310 / AISI 301 |
| | Orifices: | Stainless steel | W.no. 1.4404 / AISI316L |
| | O-rings: | EPDM or FKM | |
| | Valve plate: | EPDM or FKM | |
| | Diaphragm: | EPDM or FKM | |

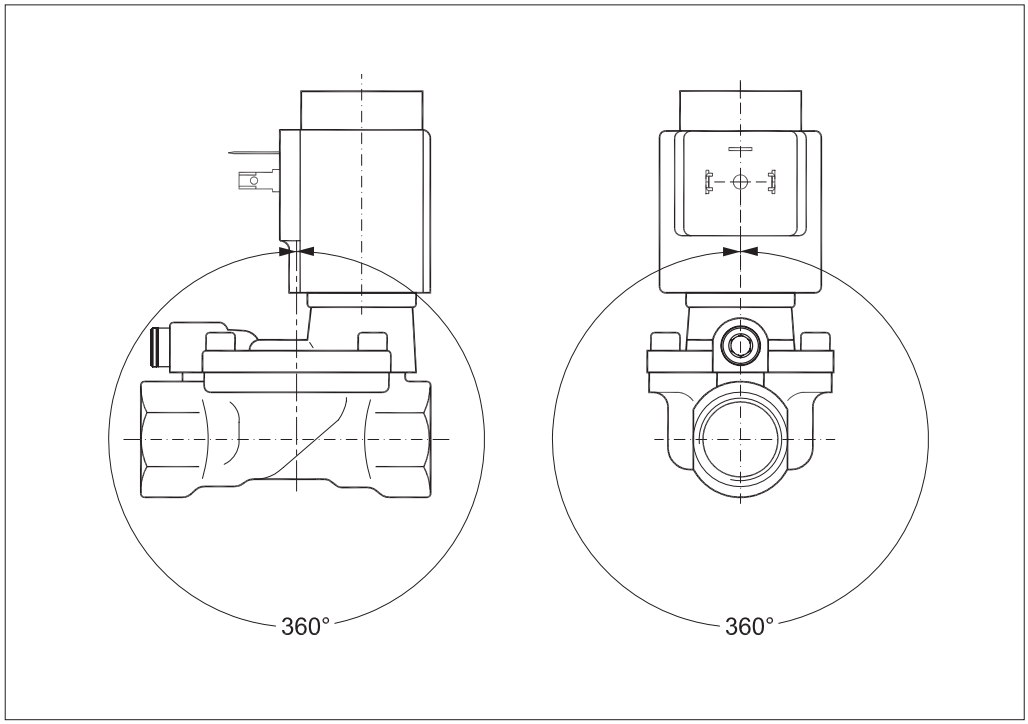
**Dimensions and weight: Brass, DZR brass and stainless steel, NC and NO**

| Type | L | B | $B_1$ [mm] / coil type | | | | H | $H_1$ | Weight without coil |
|---|---|---|---|---|---|---|---|---|---|
| | [mm] | [mm] | BA | BB / BE | BG / BO | BP | [mm] | [mm] | [kg] |
| EV220B 15 | 80.0 | 52.0 | 32 | 46 | 68 | 45 | 99 | 15.0 | 0.7 |
| EV220B 20 | 90.0 | 58.0 | 32 | 46 | 68 | 45 | 103 | 18.0 | 0.9 |
| EV220B 25 | 109.0 | 70.0 | 32 | 46 | 68 | 45 | 113 | 22.0 | 1.3 |
| EV220B 32 | 120.0 | 82.0 | 32 | 46 | 68 | 45 | 120 | 27.0 | 2.0 |
| EV220B / BW 40 | 130.0 | 95.0 | 32 | 46 | 68 | 45 | 129 | 32.0 | 3.0 |
| EV220B / BW 50 | 162.0 | 113.0 | 32 | 46 | 68 | 45 | 135 | 37.0 | 4.8 |

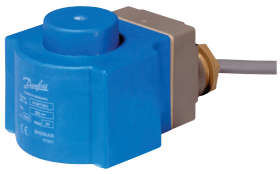
**Dimensions**




**Mounting angle**



## Below coils can be used with EV220B 15 – EV220B 50 – EV220BW 40-50

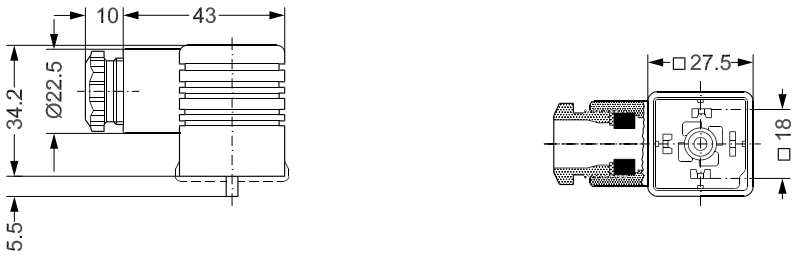
| Coil | Type | Power consumption | Enclosure | Features |
|---|---|---|---|---|
|  | BA / BD, screw on | 8.5 - 15 W AC<br>14 W DC | IP00<br>with spade connector | IP20 with protective cap,<br>IP65 with cable plug |
|  | BB / BY, clip on | 11 - 16 W AC<br>14 - 16 W DC | IP00<br>with spade connector | IP20 with protective cap,<br>IP65 with cable plug |
|  | BR, clip on | 12 - 14 W AC<br>16 W DC | IP00<br>with spade connector | IP20 with protective cap,<br>IP65 with cable plug<br><br>Design for marine<br>application |
|  | BE, clip on | 11 - 17 W AC<br>15 - 16 W DC | IP67 | With terminal box |
|  | BF, clip on | 11 - 15 W AC<br>14 - 16 W DC | IP67 | With 1 m cable |
|  | BG, clip on | 11 - 16 W AC<br>16 - 20 W DC | IP67 | With terminal box |
|  | BN, clip on | 22 W AC<br>20 W DC | IP67 | Hum free<br>With terminal box and 1 m cable |
|  | BO, screw on | 10 W AC<br>10 W DC | IP67<br>only including seal kit<br>018Z0090 | For explosion-risk<br>environment zone 1.<br>With terminal box and 5 m cable |

For further information and for ordering, see separate data sheet for coils.

## Accessories: Cable plug

| Application | Code no. |
|---|---|
| GDM 2011 (grey) cable plug according to DIN 43650-A PG11 | 042N0156 |






## Universal electronic multi-timer, type ETM

| Application | Voltage [V AC] | To use with coil | Ambient temperature [°C] | Code no. |
|---|---|---|---|---|
| External adjustable timing from 1 to 45 minutes with 1 to 15 seconds drain open. With manual override (test button). Electrical connection DIN 43650 A / EN 175 301-803-A | 24 – 240 | BA, BD, BB | -10 – 50 | 042N0185 |

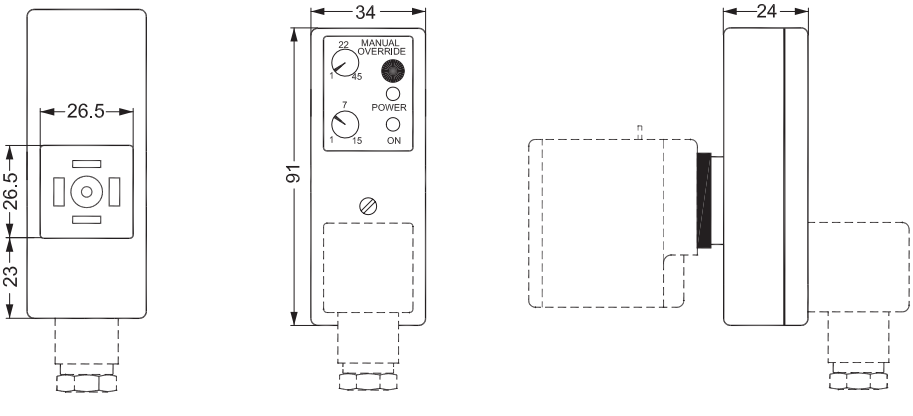



- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24 – 240 V AC
- Light diodes for indication
- All in one unit
- Manual override (test button)

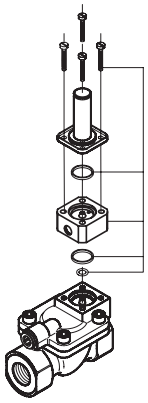
## Technical data

| | |
|---|---|
| **Type** | ET 20 M |
| **Voltage** | 24 – 240 V AC / 50/60 Hz. |
| **Power rating** | Max. 20 Watt |
| **Enclosure** | IP00, IP65 with power connector (cable plug) |
| **Electrical connection** | DIN connector ( DIN 43650-A) |
| **Ambient operating temperature range** | -10 – 50 °C |
| **Function** | Start with pulse |
| **Interval timer** | 1 – 45 min. |
| **"On" timer** | 1 – 15 sec. |
| **Weight** | 0.084 kg |

## Dimensions



## Manual override unit, tool operated



Used for manual override in event of power failure.
**Note:** *Valve height is increased by 16 mm.*

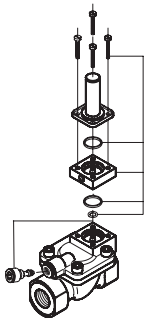


**The unit consists of:**
Manual override body
4 screws
3 O-rings (seal material NBR)

| Size [DN] | Body material | Seal material | | | Equalizing orifice | Media | Media temperature [°C] | Code no. |
|---|---|---|---|---|---|---|---|---|
| | | FKM | NBR | EPDM | | | | |
| 15 – 32 | Brass | x | x | x | n/a [2] | Air, oil, water | -10 – 90 | **032U0150** |
| | Stainless steel | x | x | x | n/a [2] | Air, oil, water | -10 – 90 | **032U0149** |
| 40 – 50 | Stainless steel | n/a [1] | n/a [1] | x | n/a [2] | Water | -10 – 90 | **032U0149** |

[1] Risk of functional failure.
[2] Original equalizing orifice to be used.

## Manual override unit including equalizing orifice, tool operated



Used for manual override in event of power failure.
**Note:** *Valve height is increased by 16 mm.*

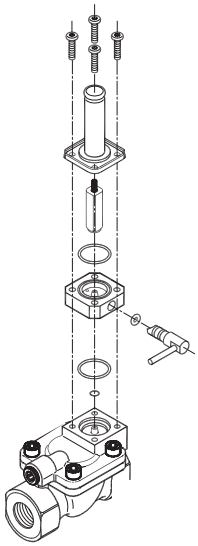


**The unit consists of:**
Manual override body
4 screws
3 O-rings (seal material NBR)
Equalizing orifice, size III

| Size [DN] | Body material | Seal material | | | Equalizing orifice | Media | Media temperature [°C] | Code no. |
|---|---|---|---|---|---|---|---|---|
| | | FKM | NBR | EPDM | | | | |
| 40 – 50 | Brass | x | x | x | Size III [3] | Water | -10 – 90 | **032U0260** |

[3] For FKM and NBR valves,it is recommended to change the equalizing orifice to size III, to obtain a proper function.

## Manual override unit, hand operated



Used for manual override in event of power failure.

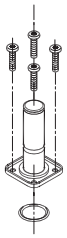
**The unit consists of:**
Armature incl. closing spring
Armature tube
Stainless steel valve body
O-ring 3.68 x 1.78
O-ring 19 x 1.5
O-ring 5 x 2.5
4 screws
4 nuts for transportation purpose only



| Size [DN] | Body material | Seal material | | | Equalizing orifice | Media | Media temperature [°C] | Code no. |
|---|---|---|---|---|---|---|---|---|
| | | FKM | NBR | EPDM | | | | |
| 15 – 32 | Brass | n/a [1] | n/a [1] | x | n/a [2] | Water | -30 – 120 | **032U7390** |
| | Stainless steel | n/a [1] | n/a [1] | x | n/a [2] | Water | -30 – 120 | |
| 40 – 50 | Brass | n/a [1] | n/a [1] | x | n/a [2] | Water | -30 – 120 | |
| | Stainless steel | n/a [1] | n/a [1] | x | n/a [2] | Water | -30 – 120 | |

[1] Risk of functional failure.
[2] Original equalizing orifice to be used.

## Isolating diaphragm kit



| Seal material | Media temperature [°C] | Code no. |
|---|---|---|
| EPDM | -20 – 50 | **042U1009** |
| FKM | 0 – 50 | **042U1010** |



The isolating diaphragm design ensures that no fluid enters the armature area, which gives the following advantages:
The valve is resistant to aggressive fluids, impurities in the fluid and to calcarous and scale deposits.

**The kit contains:**
Assembled isolating unit
O-ring
4 screws
Locking button
Nut for the coil

## Equalizing orifice



**The kit comprises:**
An equalizing orifice includes 2 O-rings. The valves closing time can be changed by installing an equalizing orifice of a size which deviates from the standard valve:

- A shorter closing time is obtained with a larger orifice (the shorter closing time, the greater risk of water hammering)
- A longer closing time is obtained with a smaller orifice.

| Equalizing orifice size [mm] | Seal material | Applicable in | Code no. | |
|---|---|---|---|---|
| | | | Brass | DZR brass [3]) / Stainless steel |
| 0.5 | EPDM [1]) | EV220B 15<br>EV220B 20 | **032U0082** | **032U6310** |
| 0.8 | EPDM [1]) | EV220B 25<br>EV220B 32<br>EV220B 40 | **032U0084** | **032U6311** |
| 1.2 | FKM [2]) | EV220B 25<br>EV220B 32 | **032U0085** | **032U6314** |
| 1.2 | EPDM [1]) | EV220B 50 | **032U0086** | **032U6312** |
| 1.4 | FKM [2]) | EV220B 40<br>EV220B 50 | **032U0087** | **032U6315** |

## Adjustable orifice



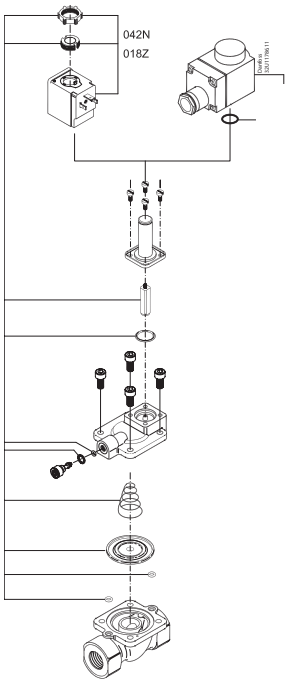
**The kit comprises:**
An adjustable orifice including O-ring and gasket.

The valves closing time can be adjusted by turning the setting screw.

| Orifice | Seal material | Applicable in | Material | Code no. |
|---|---|---|---|---|
| Adjustable | EPDM [1]) | All EV220B 15 – EV220B 50 valves | Brass | **032U0682** |
| Adjustable | FKM [2]) | All EV220B 15 – EV220B 50 valves | Brass | **032U0683** |

[1]) Approved by WRAS.
Approved by Attestation de Conformite Sanitaire (ACS).
EPDM is recommended for water. (Steam max. 40 °C / 4 bar).
[2]) FKM is suitable for oil and air. For water at max. 60 °C.
[3]) Dezincification resistant brass.

## Spare parts kit, NC




| Brass versions | | |
|---|---|---|
| **Type** | **Seal material** | **Code no.** |
| **EV220B 15** | EPDM [1]) | **032U1071** |
| **EV220B 15** | FKM [2]) | **032U1072** |
| **EV220B 15** | NBR [3]) | **032U6013** |
| **EV220B 20** | EPDM [1]) | **032U1073** |
| **EV220B 20** | FKM [2]) | **032U1074** |
| **EV220B 20** | NBR [3]) | **032U6014** |
| **EV220B 25** | EPDM [1]) | **032U1075** |
| **EV220B 25** | FKM [2]) | **032U1076** |
| **EV220B 25** | NBR [3]) | **032U6015** |
| **EV220B 32** | EPDM [1]) | **032U1077** |
| **EV220B 32** | FKM [2]) | **032U1078** |
| **EV220B 32** | NBR [3]) | **032U6016** |
| **EV220B 40** | EPDM [1]) | **032U1079** |
| **EV220B 40** | FKM [2]) | **032U1080** |
| **EV220B 40** | NBR [3]) | **032U6017** |
| **EV220B 50** | EPDM [1]) | **032U1081** |
| **EV220B 50** | FKM [2]) | **032U1082** |
| **EV220B 50** | NBR [3]) | **032U6018** |

| DZR brass [4]) and stainless steel versions | | |
|---|---|---|
| **Type** | **Seal material** | **Code no.** |
| **EV220B 15** | EPDM [1]) | **032U6320** |
| **EV220B 15** | FKM [2]) | **032U6326** |
| **EV220B 20** | EPDM [1]) | **032U6321** |
| **EV220B 20** | FKM [2]) | **032U6327** |
| **EV220B 25** | EPDM [1]) | **032U6322** |
| **EV220B 25** | FKM [2]) | **032U6328** |
| **EV220B 32** | EPDM [1]) | **032U6323** |
| **EV220B 32** | FKM [2]) | **032U6329** |
| **EV220B 40** | EPDM [1]) | **032U6324** |
| **EV220B 40** | FKM [2]) | **032U6330** |
| **EV220B 50** | EPDM [1]) | **032U6325** |
| **EV220B 50** | FKM [2]) | **032U6331** |

[1]) DN 15-32 approved by WRAS.
DN 15-50 (Brass and DZR) approved by Attestation de Conformite Sanitaire (ACS) and PZH.
DN 15-50 SS approved by PZH.
EPDM is recommended for Water.
(steam max. 140°C/ 4 bar)
[2]) FKM is suitable for oil and air. For water at max. 60 °C.
[3]) NBR is suitable for oil, water and air.
[4]) Dezincification resistant brass.

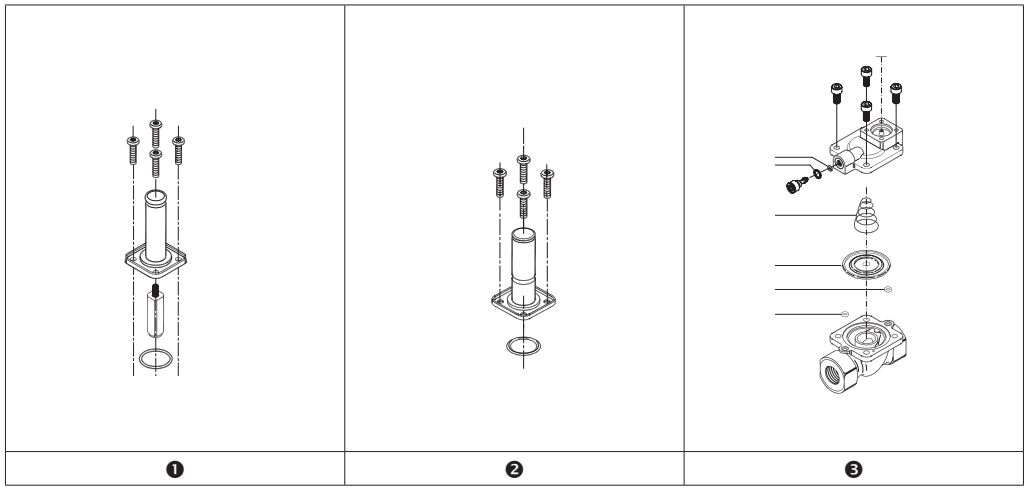
**The kit contains:**
Locking button and nut for the coil
Armature with valve plate and spring
O-ring for the armature tube
2 O-rings for the equalizing orifice
Spring and diaphragm
2 O-rings for the pilot system



## Spare parts kits DN40 and DN50 EPDM WRAS approved

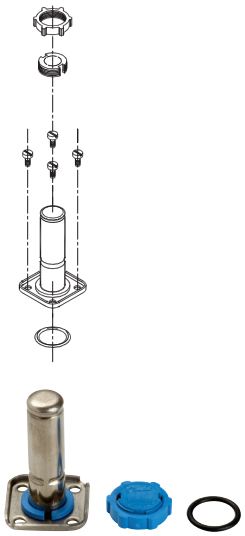
| Type | Valve code no. | Actuator kit NC [1]) | Actuator kit NO [2]) | Diaphragm kit NC and NO [3]) |
|---|---|---|---|---|
| **EV220BW DN 40 NC** | 132U4003 | 132U8080 | | 132U8041 |
| **EV220BW DN 50 NC** | 132U5003 | 132U8080 | | 132U8051 |
| **EV220BW DN 40 NO** | 132U4004 | | 132U8081 | 132U8041 |
| **EV220BW DN 50 NO** | 132U5004 | | 132U8081 | 132U8051 |

The kits contains
[1]) Armature tube, armature with spring, o-ring and 4 screws.
[2]) No unit, o-ring and 4 screws
[3]) Diaphragm, closing spring, 2 o-rings, equalising orifice + 2 o-rings and screws




To get a complete acatuator and diaphragm service 1) or 2) and 3) should be ordered.
Fx. For EV220BW 15 / G1/2 NC needed ordering are 132U8080 and 132U8016.

## Spare parts kit, NO



| Type | Seal material | Code no. |
|---|---|---|
| EV220B 15<br>EV220B 50 | EPDM [1] | 032U0296 |
| | FKM [2] | 032U0295 |
| | NBR [3] | 032U0299 |

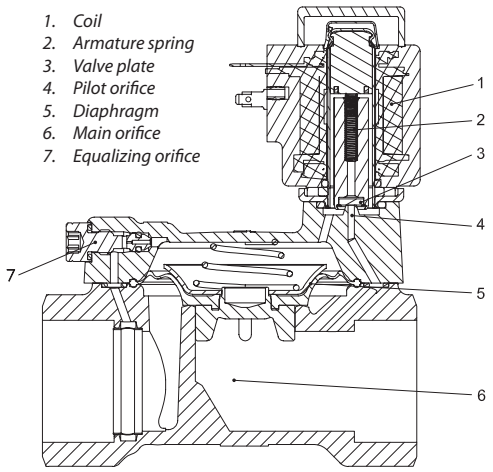
[1] EPDM is recommended for water.
(Steam max. 140 °C / 4 bar).
[2] FKM is suitable for oil and air. For water at max. +60 °C.
[3] NBR is suitable for oil, water and air.

**The kit contains:**
Locking button and nut for the coil
NO actuator unit
O-ring for the armature unit

## Function
## NC, brass, DZR brass and stainless steel

**Coil voltage disconnected (closed):**
When the voltage is disconnected, the valve plate (3) is pressed down against the pilot orifice (4) by the armature spring (2). The pressure across the diaphragm (5) is built up via the equalizing orifice (7). The diaphragm closes the main orifice (6) 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.

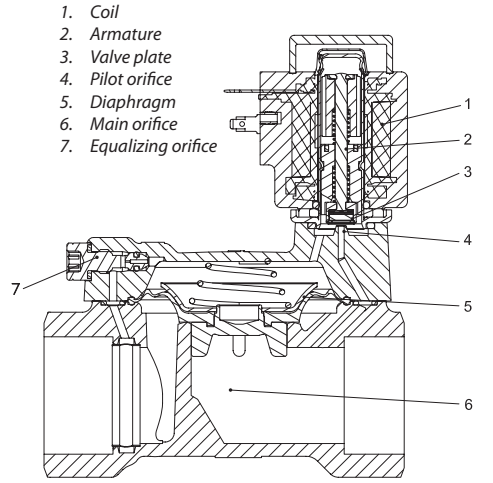
**Coil voltage connected (open):**
When voltage is applied to the coil (1), the pilot orifice (4) is opened. As the pilot orifice is larger than the equalizing orifice (7), the pressure across the diaphragm (5) drops and therefore it is lifted clear of the main orifice (6). The valve is now open for unimpeded flow 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.




## Function
## NO, brass, DZR brass and stainless steel

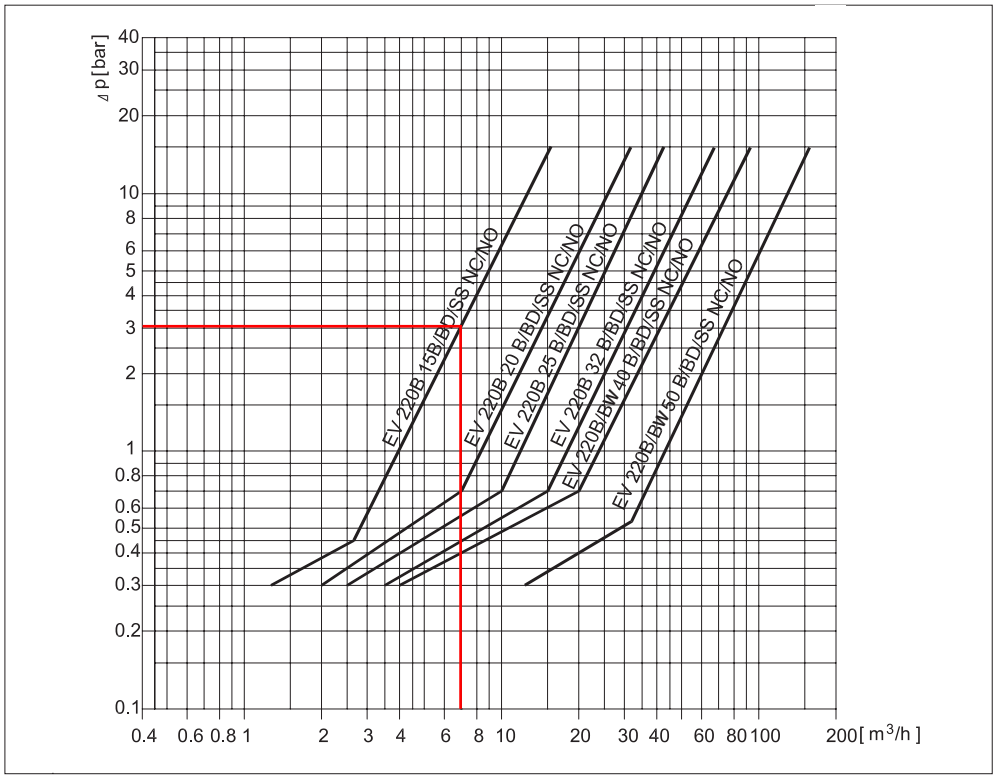
**Coil voltage disconnected (open):**
When the voltage to the coil (2) is disconnected, the pilot orifice (4) is open. As the pilot orifice is larger than the equalizing orifice (7), the pressure across the diaphragm (5) drops and therefore it is lifted clear of the main orifice (6). The valve will be 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 (4). The pressure across the diaphragm (5) is built up via the equalizing orifice (7). The diaphragm closes the main orifice (6) 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.

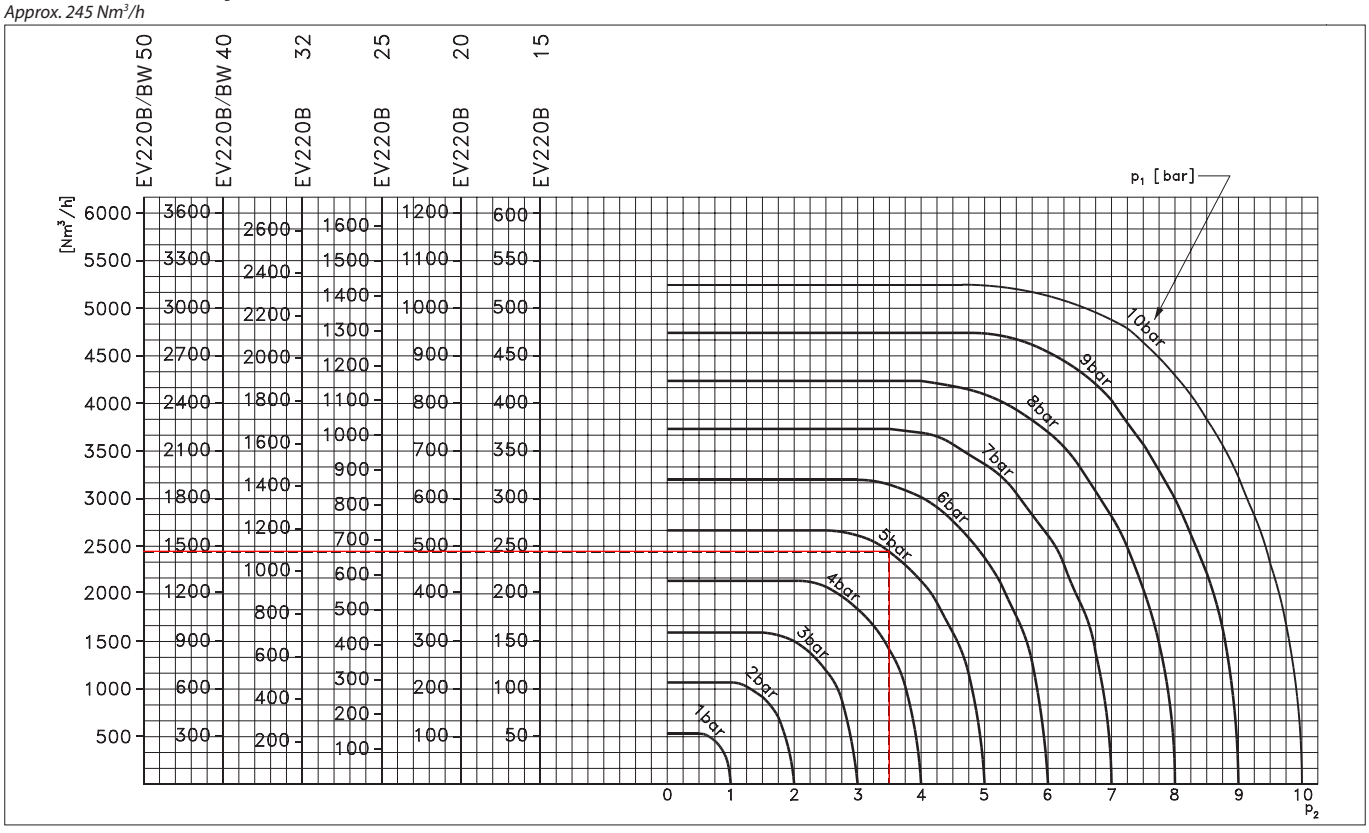


## Capacity diagrams:

*Example, water:*
*Capacity for EV220B 15B at differential pressure of 3 bar. Approx. 7 m³/h*




*Example, air:*
*Capacity for EV220B 15B at inlet pressure ($p_1$) of 5 bar and outlet pressure ($p_2$) of 3.5 bar:*
*Approx. 245 Nm³/h*




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