

Data sheet

Servo piston operated 2/2-way solenoid valves for steam

Type EV245B



EV245B is a servo piston operated 2/2-way solenoid valve for use in steam applications.

The servo piston operated design with PTFE seal on the main orifice and steel valve plate in the armature secures a reliable function and long life in steam applications.

Features and versions

- Specifically designed for steam applications, 160 °C or 185 °C
- Differential pressure: 0.1 – 10 bar
- Media temperature from 0 – 185 °C
- Ambient temperature: Up to 40 °C
- Coil enclosure: IP65
- Thread connections: G ½ – G ¾
- DN 15 - 20
- Brass NC (normally closed)
- EV245B used with BQ coil
AC voltage up to 185 °C
- EV245B used with BN coil
DC voltage up to 160 °C
- EV245B used with BB coil
AC voltage up to 160 °C
DC voltage up to 140 °C
- Connection: ISO 228/1

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Brass valve body, NC



| Conne- ction ISO228/1 | Seal mate- rial | Ori- fice size [mm] | K _v - value [m ³ /h] | Differential pressure min. to max. [bar] | | | | Media temperature min. to max. [°C] | | | Code number |
|-----------------------------|--------------------|------------------------------|--|---|--------------------|--------------------|--------------------|--|----------------|---------|-----------------|
| | | | | Coil type BQ AC | Coil type BN DC | Coil type BB AC | Coil type BB DC | BQ | BN DC BB AC | BB DC | |
| G 1/2 | PTFE | 15 | 4.5 | 0.1 – 10 | 0.1 – 5 | 0.1 – 5 | 0.1 – 3.6 | 0 – 185 | 0 – 160 | 0 – 140 | 032U3833 |
| G 3/4 | PTFE | 20 | 5.5 | 0.1 – 10 | 0.1 – 5 | 0.1 – 5 | 0.1 – 3.6 | 0 – 185 | 0 – 160 | 0 – 140 | 032U3853 |

Technical data, NC

| | |
|----------------------------------|----------------|
| Main type | EV245B 15 – 20 |
| Time to open [ms] ¹⁾ | 200 |
| Time to close [ms] ¹⁾ | 2000 |

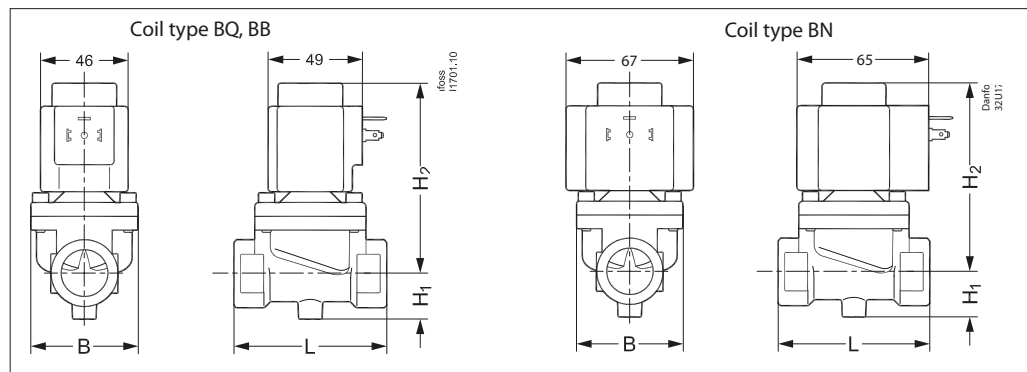
¹⁾ The times are indicative. The exact times will depend on the pressure conditions.

| | | | |
|-----------------------------|--|-------------------|----------------------------|
| Installation | Vertical solenoid system is recommended | | |
| Max. working pressure (MWP) | 10 bar | | |
| Max. test pressure | 25 bar | | |
| Ambient temperature | Max. 40 °C at a medium temperature of 185 °C | | |
| Viscosity | Max. 50 cSt | | |
| Materials | Valve body / cover | Brass | EN 12165, CW 617N |
| | Armature / armature stop | Stainless steel | W. no. 1.4105 / AISI 430FR |
| | Armature tube | Stainless steel | W. no. 1.4306 / AISI 304L |
| | Springs | Stainless steel | W. no. 1.4310 / AISI 301 |
| | Piston seal | PTFE | |
| | Piston ring | PTFE with grafite | |
| | Valve plate | Stainless steel | W. no. 1.4122 |
| | External gasket | PTFE | |

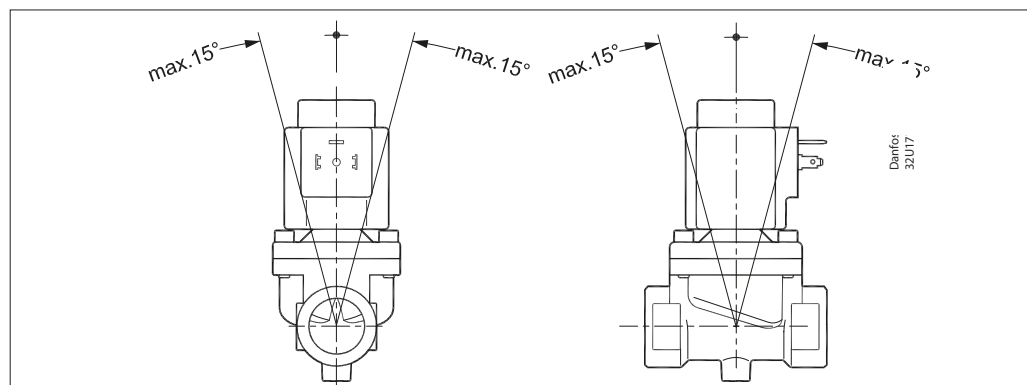
Dimensions and weight

| Type | L [mm] | B [mm] | H [mm] | H ₁ [mm] | H ₂ [mm] | Weight gross valve body with coil BQ, BB [kg] | Weight gross valve body with coil BN [kg] |
|------------|-----------|-----------|-----------|------------------------|------------------------|---|---|
| EV245B 15B | 80.5 | 57 | 124 | 24 | 100 | 0.75 | 1.03 |
| EV245B 20B | 80.5 | 57 | 124 | 24 | 100 | 0.72 | 1.00 |

Dimensions



Mounting angle



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**Coil type BQ AC
Steam coil to 185 °C**



| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|---------------------|----------|
| | | | | | [W] | [VA] | | |
| BQ024CS | -40T40 | 24 | -15%, +10% | 50 | 10 | 17 | cRU [®] US | 018F4517 |
| | | 24 | -15%, +10% | 60 | 9.0 | 16 | | |
| BQ120BS | -40T40 | 110/120 | -15%, +6% | 60 | 13.5 | 19 | cRU [®] US | 018F4519 |
| BQ240CS | -40T40 | 230 | -15%, +6% | 50 | 10 | 17 | cRU [®] US | 018F4511 |
| | | 208/240 | -6%, +6% | 60 | 9.5 | 16 | | |

**Coil type BN DC
Steam coils to 160 °C**



| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|---------------------|----------|
| | | | | | [W] | [VA] | | |
| BN024DS | -40T50 | 24 | ±10% | DC | 20 | - | cRU [®] US | 018F6968 |

**Coil type BB AC
Steam coils to 160 °C**



| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BB024AS | -40T80 | 24 | -15%, +10% | 50 | 11 | 19 | 018F7358 |
| BB115AS | -40T50 | 115 | -15%, +10% | 50 | 11 | 19 | 018F7361 |
| BB230AS | -40T80 | 220/230 | -15%, +10% | 50 | 11 | 19 | 018F7351 |
| BB240AS | -40T80 | 240 | -15%, +10% | 50 | 11 | 19 | 018F7352 |
| BB440CS | -40T80 | 400 | ±10% | 50 | 14 | 24 | 018F7353 |
| | | 440 | ±10% | 60 | 15 | 24 | |
| BB024BS | -40T80 | 24 | -15%, +10% | 60 | 14 | 23 | 018F7365 |
| BB110CS | -40T50 | 110 | ±10% | 50 | 15 | 28 | 018F7360 |
| | | 110 | ±10% | 60 | 13 | 22 | |
| BB230CS | -40T50 | 220/230 | ±10% | 60 | 13 | 24 | 018F7363 |
| | | 220/230 | ±10% | 50 | 16 | 31 | |

**Type BB DC
Steam coils to 140 °C**

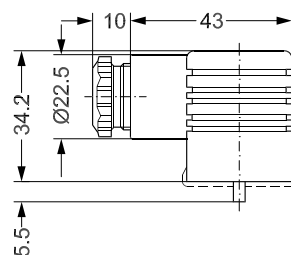
| | | | | | | | |
|---------|--------|----|------|----|----|---|----------|
| BB012DS | -40T50 | 12 | ±10% | DC | 13 | - | 018F7396 |
| BB024DS | -40T50 | 24 | ±10% | DC | 16 | - | 018F7397 |

| Technical data | Type BQ, BN, BB |
|-----------------------------|---|
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | GDM 2011 (grey) Cable plug according to DIN 43650-A PG11 |
| Coil enclosure, IEC 529 | IP65 |
| Ambient temperature | Max. 40°C |
| Duty rating | Continuous |

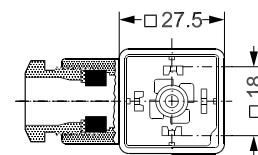
**Accessories:
Cable plug**



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



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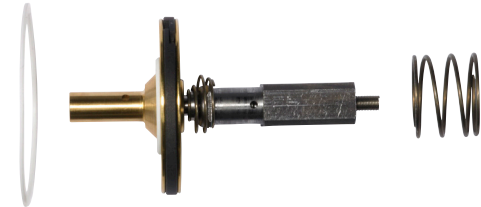
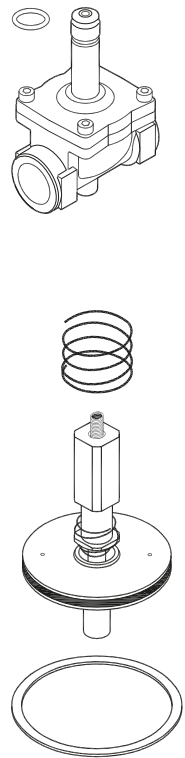


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Spare part kits for EV245B 15 - EV245B 20

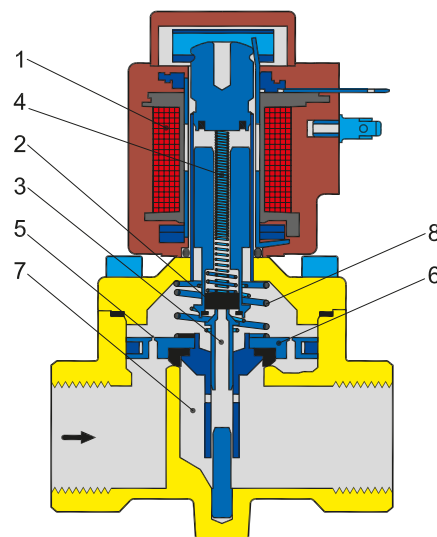
| Type | Coil | Code number |
|-----------------------------------|----------------|-------------|
| EV245B (cover screws from top) | BQ, BN, BB, BR | 032U3121 |

The spare part kits comprises:
An assembled armature fitted on a piston
All gaskets and springs.



Function NC

EV245B 15 - EV245B 20



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

Coil voltage disconnected (closed):

When the voltage is disconnected, the valve plate (2) is pressed down against the pilot orifice (3) by the armature spring (4). The pressure across the piston (6) is built up via the equalizing orifice (5). The piston closes the main orifice (7) as soon as the pressure across the piston is equivalent to the inlet pressure. The valve will be closed for as long as the voltage to the coil is disconnected.

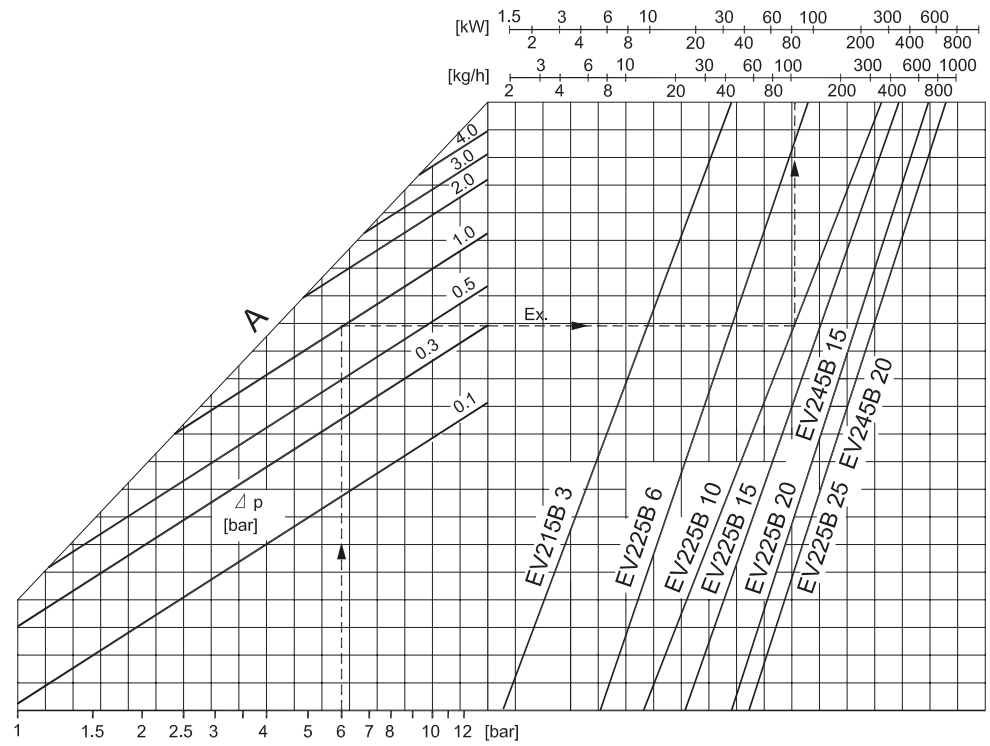
Coil voltage connected (open):

When voltage is applied to the coil (1), the pilot orifice (3) is opened. As the pilot orifice is larger than the equalizing orifice (5), the pressure across the piston (6) drops and therefore it is lifted clear of the main orifice (7). 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.

Steam capacity diagrams

Example

Capacity for EV245B 20 BD; inlet pressure (p_1) of 6 bar absolute; differential pressure at 1 bar: Approx. 100 kg/h / 80 kW



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