Technical brochure

Solenoid valves 2/2-ways servo piston operated type EV245B

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

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

- 2/2-way
- Specifically designed for steam applications, 160°C or 185°C
- Servo piston operated
- DN 15 - DN 20
- Ambient temperature: +40°C
- G 1/2" to G 3/4"
- Brass valve body
- 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

Ordering

NC valve body

Connection ISO 228/1	Seal material	K_v value (m^3/h)	Media temperature		Type designation		Pressure range (bar)/coil type					Code no. without coil
			ac coil max (°C)	dc coil max (°C)	Main type	Specification	Min.	Max				
								BQ 10 W ac	BN 20 W dc	BB 10 W ac	BB 18 W dc	
G 1/2	PTFE	5.0	185	160	EV245B 15 B	G 1/2 T NC 000	0.1	10	5	5	3.6	**032U3833**
G 3/4	PTFE	6.0	185	160	EV245B 20 B	G 3/4 T NC 000	0.1	10	5	5	3.6	**032U3853**

Technical data

Main type	EV245B 15-20
Installation	Vertical solenoid system is recommended
Max. test pressure	25 bar
Time to open	Max. 0.2 s
Time to close	Max. 2 s
Ambient temperature	Max. 40°C at a medium temperature of 185°C
Medium temperature	185°C with ac BQ coil / 160°C with dc BN coil / 140°C with dc BB coil
Viscosity	max. 50 cSt

Materials

Valve body/cover	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
Spring	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 gaskets	PTFE

Ordering

Type BQ
Steam coil to 185°C

Coil voltage	Type	Coil output W	Temperature °C	Differential pressure	Appendix	Code No.
24 V 50Hz	BQ	10	185	10	16	**018F4517**
110 V 60Hz	BQ	10	185	10	20	**018F4519**
230 V 50Hz	BQ	10	185	10	31	**018F4511**
220 V 60Hz	BQ	10	185	10	29	**018F4520**

Technical data type BQ

Voltage tolerances	230 V ac coils: +6%, -15%
	Other ac coils: +10%, -15%
Power consumption, inrush	ac coils: 44 VA
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	IP 65
Ambient temperature	Max. 40°C
Duty rating	Continuous

Type BN dc
Steam coils to 160°C

Coil voltage	Type	Coil output W	Temperature °C	Differential pressure	Appendix	Code No.
24 V dc	BN	20	160	10	02	**018F6968**

Technical data type BN

Voltage tolerances	±10%
Power consumption, inrush	20 W
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	IP 65
Ambient temperature	Max. 40°C
Duty rating	Continuous

Type BB ac
Steam coils to 160°C

Coil voltage	Type	Coil output W	Temperature °C	Differential pressure	Appendix	Code No.
24 V 50Hz	BB	10	160	5	16	**018F7358**
24 V 60Hz	BB	10	160	5	14	**018F7365**
115 V 50Hz	BB	10	160	5	22	**018F7361**
110 V 60Hz	BB	10	160	5	21	**018F7360**
230 V 50Hz	BB	10	160	5	31	**018F7351**
230 V 60Hz	BB	10	160	5	32	**018F7363**
240 V 50Hz	BB	10	160	5	33	**018F7352**
380 V 50Hz	BB	10	160	5	37	**018F7353**

Type BB dc
Steam coils to 140°C

12 V dc	BB	18	140	3.6	01	**018F7396**
24 V dc	BB	18	140	3.6	02	**018F7397**

Technical data type BB

Voltage tolerances	230 V ac coils: +6%, -15%
	Other ac coils: +10%, -15% / dc: ±10%
Power consumption, inrush	ac coils: 44 VA / dc, 18 W
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	IP 65
Ambient temperature	Max. 40°C
Duty rating	Continuous

Accessories:
power connector

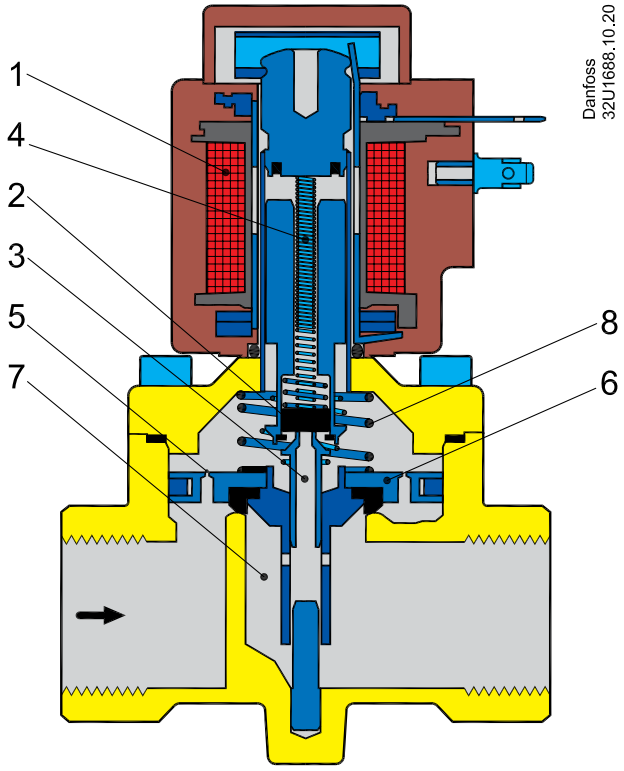
Type	Code No.
GDM 2011 (grey) Cable plug according to DIN 43650-A PG11	**042N0156**

Function

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 equalising 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.

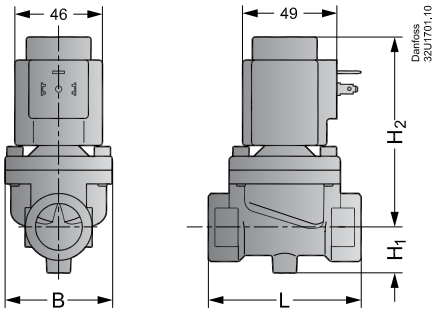
EV245B 15-20



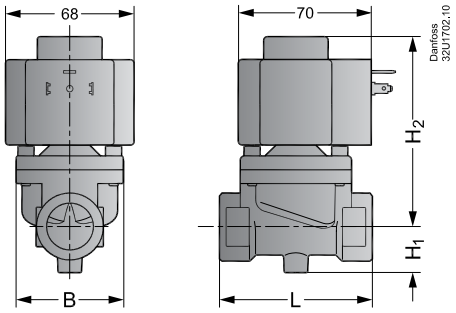
1. Coil
2. Valve plate
3. Pilot orifice
4. Armature spring
5. Equalising orifice
6. Diaphragm
7. Main orifice
8. Closing spring

Dimensions and weight

Coil type BQ, BB



Coil type BN

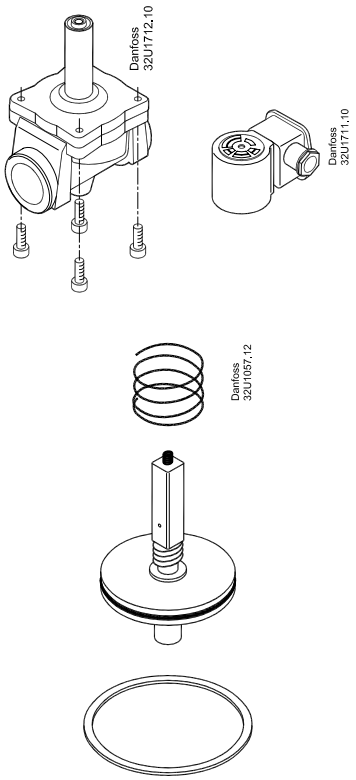


Type	L [mm]	B [mm]	H [mm]	H_1 [mm]	H_2 [mm]	Weight with coil BQ, BB [Kg]	Weight with coil BN [Kg]
EV245B 15 BD	62	46	98	13	85	0.75	1.03
EV245B 20 BD	62	46	98	13	85	0.72	1.00

Spare part kit

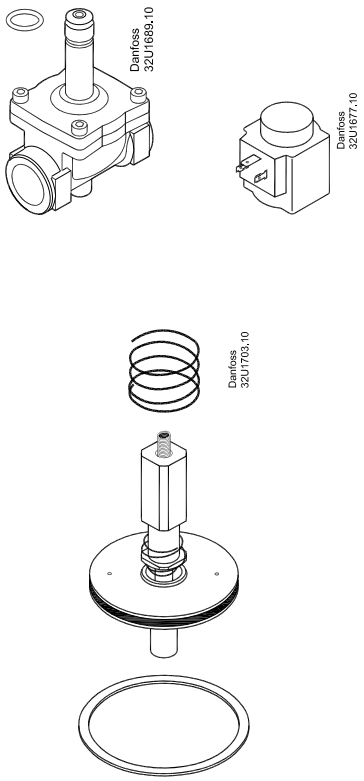
Spare parts kit for EV245B 15-20
The spare parts kit comprises an assembled armature fitted on a piston, and all gaskets and springs.

Screw on /
Cover screws from bellow



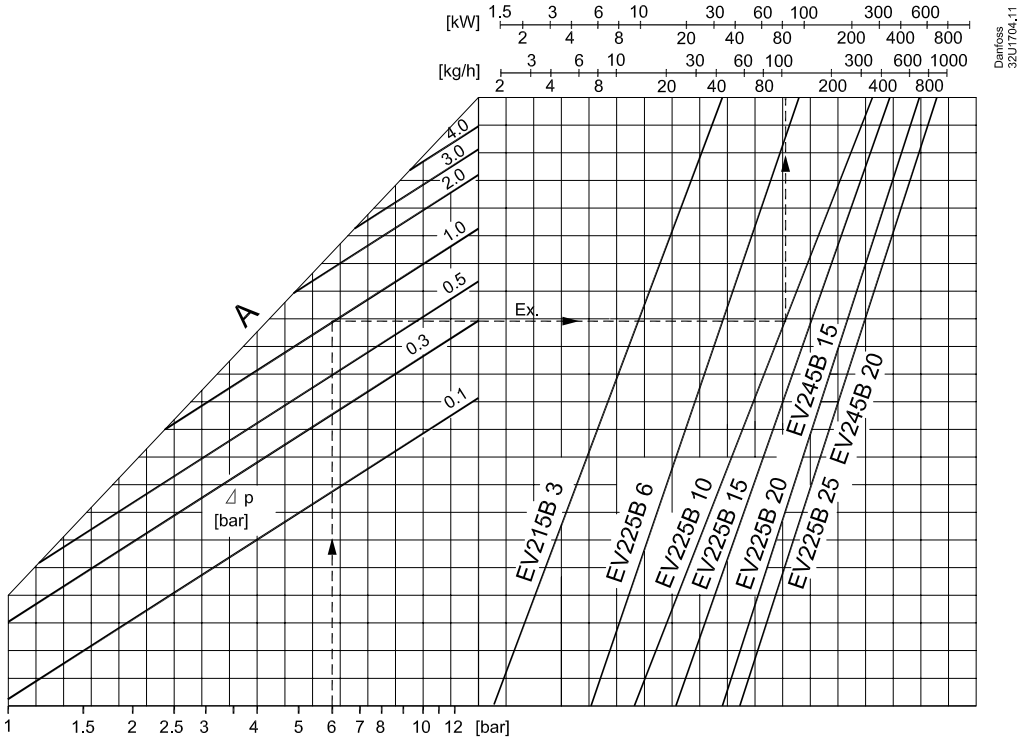
Type	Coil	Code No.
EV245B	BR	**032U3129**

Clip on /
Cover screws from top



Type	Coil	Code No.
EV245B	BQ, BN, BB, BR	**032U3121**

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

Spare part coils for earlier steam valve versions with only screw to fasten coil to armature tube.

Type BR

Old coil Voltage	Type	Power consumption	Temperature °C	Differential pressure	Code No.
24 V 50 Hz	BR 024A	10	185	10	**032K143682**
24 V 60 Hz	BR 024B	10	185	10	**032K143693**
110 el. 115 V 50 Hz	BR 115A	10	185	10	**032K143683**
110 V 60 Hz	BR 110B	10	185	10	**032K143691**
230 V 50 Hz	BR 250A	10	185	10	**032K143684**
230 V 60 Hz	BR 230B	10	185	10	**032K143694**
240 V 50 Hz	BR 240A	10	185	10	**032K143685**
24 V dc	BR 024D	17	160	5	**032K140902**
220 V 60 Hz	BR 220B	10	185	10	**032K143690**

Technical data

Voltage tolerances	230 V ac coils: +6%, -15%
	Other ac coils: +10%, -15%
Power consumption, inrush	ac coils: 50 VA
Power consumption, holding	ac coils: 20 VA, 10 W ac
Insulation of coil windings	Class H according to IEC 85
Connection	Terminal box; Pg 13.5
Coil enclosure, IEC 529	IP 43
Ambient temperature	Max. 40°C
Duty rating	Continuous