ENGINEERING TOMORROW

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 $^{1}/_{2}$ – G $^{3}/_{4}$
- 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

Brass valve body, NC

Connection ISO228/1	Seal material	Orifice size [mm]	K_V - value [m^3/h]	Differential pressure min. to max. [bar]				Media temperature min. to max. [°C]			Code no.
				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

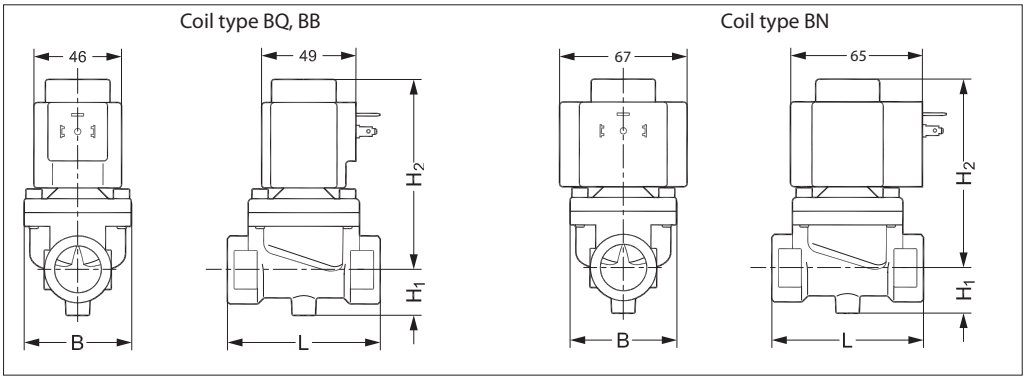
[1]) The times are indicative. The exact times will depend on the pressure conditions.

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	

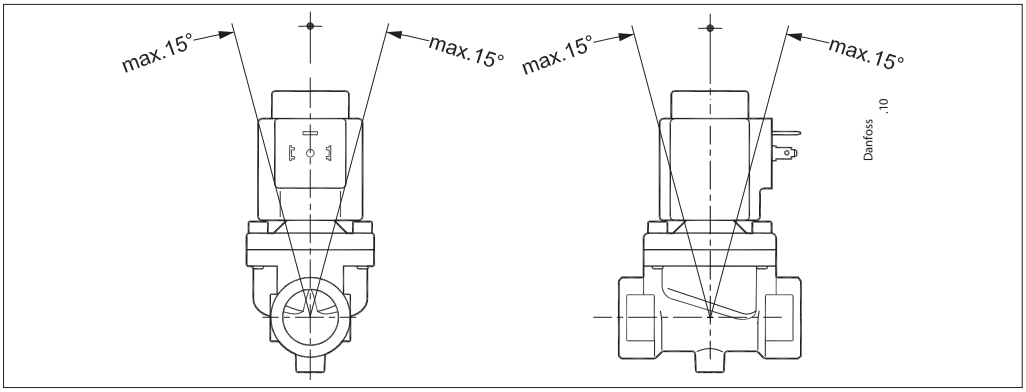
Dimensions and weight

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



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	-40 – 40	24	-15%, 10%	50	10	17	c UL us	018F4517
		24	-15%, 10%	60	9.0	16		
BQ120BS	-40 – 40	110 / 120	-15%, 6%	60	13.5	19	c UL us	018F4519
BQ240CS	-40 – 40	230	-15%, 6%	50	10	17	c UL 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	-40 – 50	24	±10%	DC	20	–	c UL 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	-40 – 80	24	-15%, 10%	50	11	19	018F7358
BB115AS	-40 – 50	115	-15%, 10%	50	11	19	018F7361
BB230AS	-40 – 80	220 / 230	-15%, 10%	50	11	19	018F7351
BB240AS	-40 – 80	240	-15%, 10%	50	11	19	018F7352
BB440CS	-40 – 80	400	±10%	50	14	24	018F7353
		440	±10%	60	15	24	
BB024BS	-40 – 80	24	-15%, 10%	60	14	23	018F7365
BB110CS	-40 – 50	110	±10%	50	15	28	018F7360
		110	±10%	60	13	22	
BB230CS	-40 – 50	220 / 230	±10%	60	13	24	018F7363
		220 / 230	±10%	50	16	31	

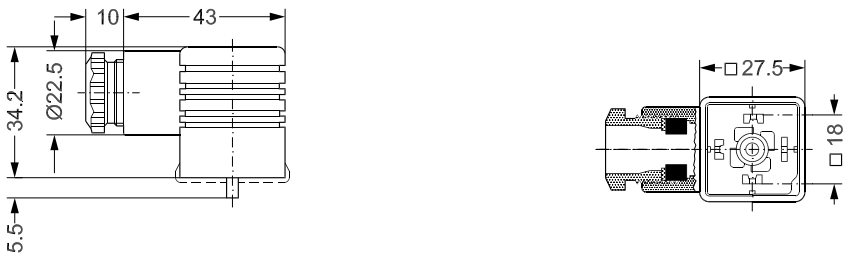
Type BB DC
Steam coils to 140 °C

BB012DS	-40 – 50	12	±10%	DC	14	–	018F7396
BB024DS	-40 – 50	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

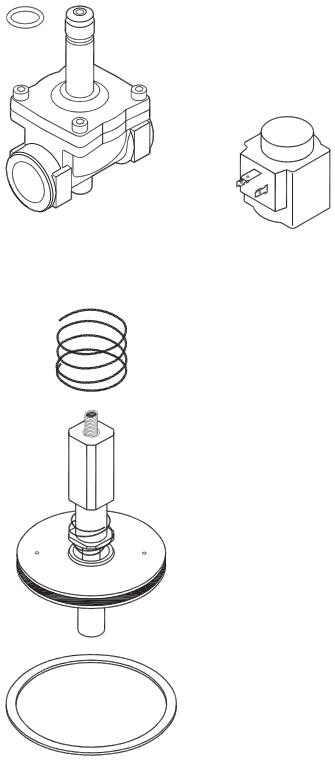
Type	Code no.
GDM 2011 (grey), cable plug according to DIN 43650-A PG11	042N0156

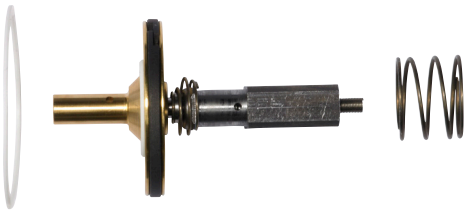


Spare part kits for EV245B 15 - EV245B 20

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

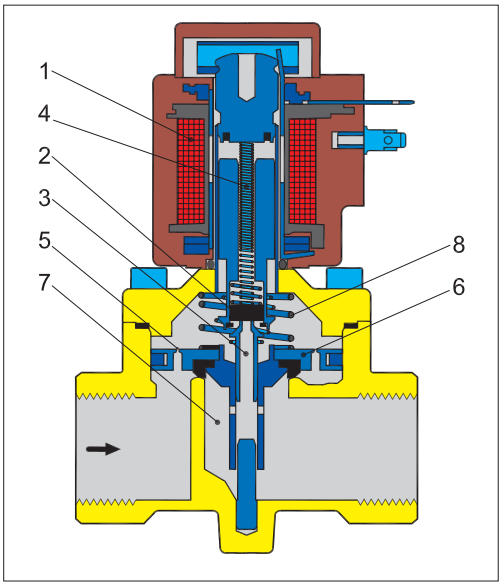
The spare part kits comprises:
An assembled armature fitted on a piston
All gaskets and springs.





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