

Datasheet

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

Type EV225B



EV225B is a servo-operated 2/2-way solenoid valve for use in steam applications.

The design is based on a PTFE diaphragm concept, ensuring highly reliable function when used in connection with contaminated steam.

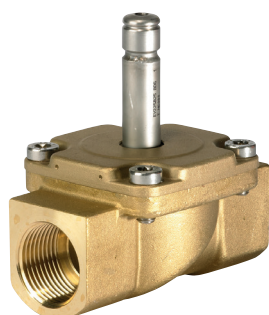
Each valve body is made of dezincification resistant brass and the valve seats are made of stainless steel.

This ensures a long life even in when used with highly aggressive steam.

Features and versions

- Specifically designed for steam applications, 160 °C or 185 °C
- Flow range: 0.9 – 6.0 m³/h
- Differential pressure: 0.2 – 10 bar
- Media temperature from 0 – 185 °C
- Ambient temperature: up to 40 °C
- Coil enclosure: up to IP65
- Thread connections: from G 1/4 to G 1
- DN 6 – 25
- DZR brass NC (normally closed)
- EV225B used with BQ coil: a.c. voltage up to 185 °C
- EV225B used with BN coil: d.c. voltage up to 160 °C
- EV225B used with BB coil: a.c. voltage up to 160 °C d.c. voltage up to 140 °C
- ISO 228/1 or UL listed version with NPT for North America (EVSIS/UL)

DZR brass valve body, NC



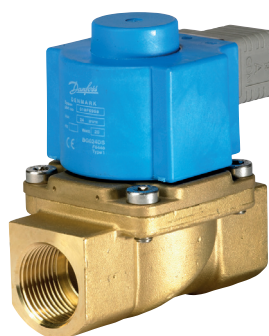
Conne- ction ISO228/1	Seal mate- rial	Ori- fice size [mm]	k _v - value [m ³ /h]	Differential pressure min. to max. [bar] ³⁾				Media temperature min. to max. [°C]		Code number
				Coil type BQ 10 W a.c.	Coil type BN 20 W d.c.	Coil type BB 10 W a.c.	Coil type BB 18 W d.c.	a.c. coil	d.c. coil	
G 1/4	PFTE	6	0.9	0.2 – 10	0.2 – 5	0.2 – 5	0.2 – 3.6	0 – 185	0 – 160	032U3802
G 3/8		10	2.2							032U3803
G 1/2		10	2.2							032U3804
G 1/2		15	3.0							032U3805
G 3/4		20	5.0							032U3806
G 1		25	6.0							032U3807

DZR brass valve body, NC
and BQ clip-on coil



Conne- ction ISO228/1	Seal mate- rial	Ori- fice size [mm]	k _v - value [m ³ /h]	Differential pressure min. to max. [bar]	Media tem- perature min. to max. [°C]	Code number, valve body with coil and power connector			
						Coil type BQ 10 W a.c.	24 V 50 Hz	110 V 60 Hz	230 V 50 Hz
G 1/2	PFTE	10	2.2	0.2 – 10	0 – 185	032U380416	032U380420	032U380431	032U380429
G 1/2		15	3.0			032U380516	032U380520	032U380531	032U380529
G 3/4		20	5.0			032U380616	032U380620	032U380631	032U380629
G 1		25	6.0			032U380716	032U380720	032U380731	032U380729

DZR brass valve body, NC
and BN clip-on coil



Connection ISO228/1	Seal material	Orifice size [mm]	k _v - value [m ³ /h]	Coil volt- age [V d.c.]	Differential pres- sure min. to max. [bar]	Media temperature min. to max. [°C]	Code number
G 1/2	PFTE	10	2.2	24	0.2 – 5	0 – 160	032U380402
G 1/2		15	3.0				032U380502
G 3/4		20	5.0				032U380602
G 1		25	6.0				032U380702

Technical data, NC

Main type	EV225B 6-25
Time to open [ms] ¹⁾	Max. 0.2 s
Time to close [ms] ¹⁾	Max. 0.2 s

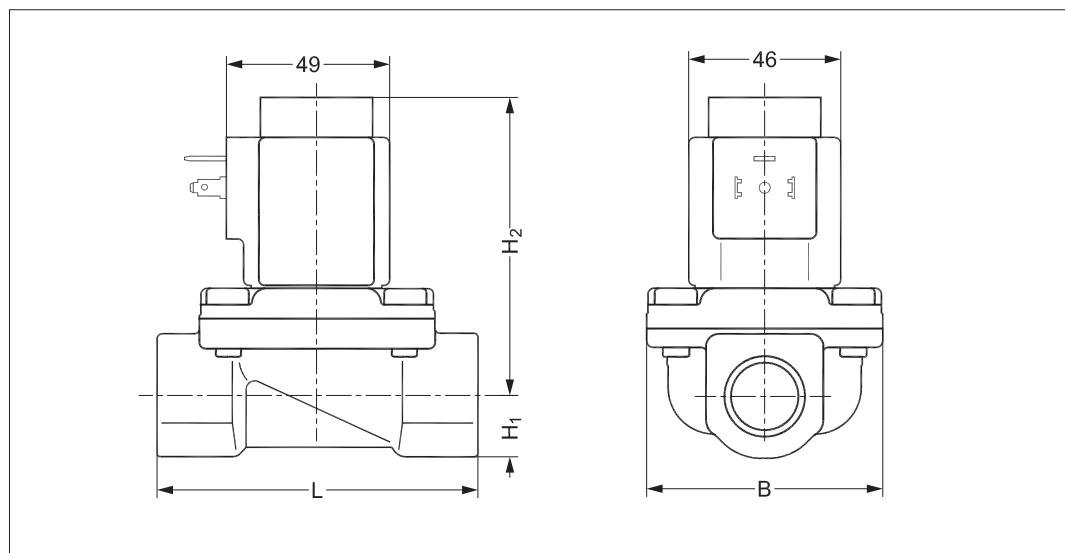
¹⁾ The times are indicative. The exact times will depend on the pressure conditions.

Installation	Vertical solenoid system is recommended		
Max. test pressure	25 bar		
Ambient temperature	Max. 40 °C at a medium temperature of 185 °C		
Viscosity	Max. 50 cSt		
Materials	Valve body	Dezincification resistant brass	
	Armature / armature stop	Stainless steel	W. no. 1.4105 / AISI 430FR
	Spring	Stainless steel	W. no. 1.4306 / AISI 304L
	Armature tube	Stainless steel	W. no. 1.4310 / AISI 301
	Diaphragm	PFTE	
	Valve plate	PFTE	
	Valve seat	Stainless steel	
	External gaskets	O-ring: AFLAS	

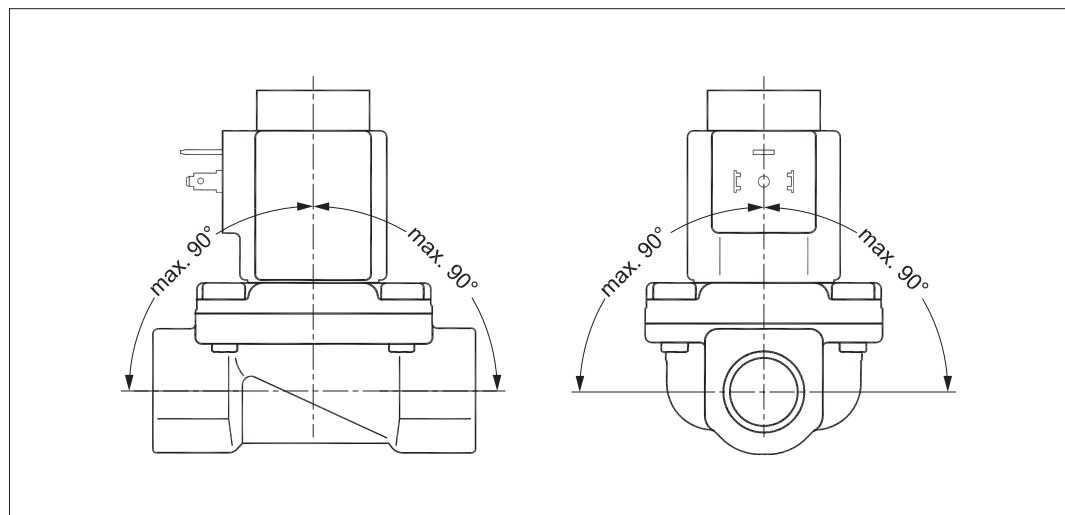
Dimensions and weight

Type	Weight gross valve body with coil BQ, BB [kg]	Weight gross valve body with coil BN [kg]	L [mm]	B [mm]	H [mm]	H ₁ [mm]	H ₂ [mm]
EV225B 6 BD	0.75	1.03	62	46	98	13	85
EV225B 10 BD	0.72	1.00	62	46	98	13	85
EV225B 15 BD	0.86	1.14	81	56	102	15	87
EV225B 20 BD	1.4	1.68	98	72	110	18	92
EV225B 25 BD	1.7	1.98	106	72	117	21	96

Dimensions



Mounting angle



Coil type BQ a.c.
Steam coils to 185 °C



Coil voltage	Voltage tolerances	Power consumption, inrush	Coil output [W]	Max media temperature [°C]	Coil appendix	Code number
24 V 50Hz	+10%, -15%	44 VA	10	185	16	018F4517
110 V 60Hz	+10%, -15%				20	018F4519
230 V 50Hz	+6%, -15%				31	018F4511
220 V 60Hz	+10%, -15%				29	018F4520

Coil type BN d.c.
Steam coils to 160 °C



Coil voltage	Voltage tolerances	Power consumption, inrush	Coil output [W]	Max media temperature [°C]	Coil appendix	Code number
24 V d.c.	±10%	20 W	20	160	02	018F6968

Coil type BB a.c.
Steam coils to 160 °C



Coil voltage	Voltage tolerances	Power consumption, inrush	Coil output [W]	Max media temperature [°C]	Coil appendix	Code number
24 V 50Hz	+10%, -15%	44 VA	10	160	16	018F7358
24 V 60Hz	+10%, -15%				14	018F7365
115 V 50Hz	+10%, -15%				22	018F7361
110 V 60Hz	+10%, -15%				21	018F7360
230 V 50Hz	+6%, -15%				31	018F7351
230 V 60Hz	+6%, -15%				32	018F7363
240 V 50Hz	+10%, -15%				33	018F7352
380 V 50Hz	+10%, -15%				37	018F7353

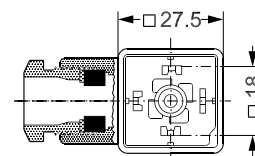
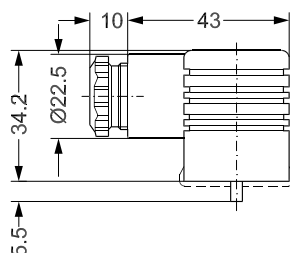
Type BB d.c.
Steam coils to 140 °C

12 V d.c.	±10%	18 W	18	140	01	018F7396
24 V d.c.	±10%				02	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 PG1 1
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 PG1 1	042N0156

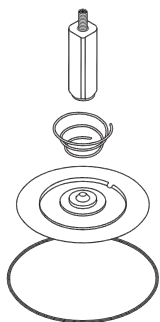


Spare parts kit for EV225B 6-25

Type	Code number
EV225B 6-10	032U3171
EV225B 15	032U3172
EV225B 20-25	032U3173

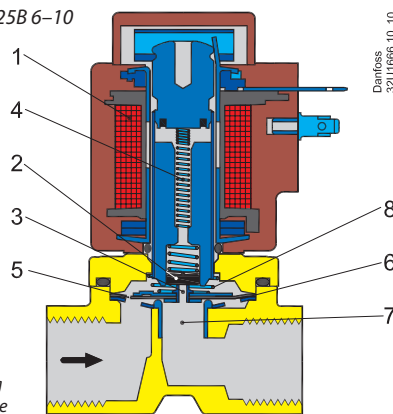
The spare parts kit comprises:

- An armature with valve plate and spring
- Closing spring
- Diaphragm
- O-ring



Function NC

EV225B 6-10



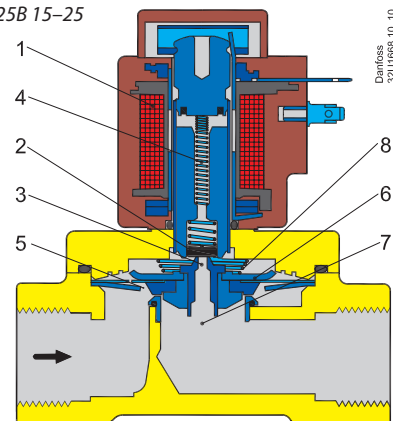
1. Coil
2. Valve plate
3. Pilot orifice
4. Armature spring
5. Equalising orifice
6. Diaphragm
7. Main orifice
8. Closing spring

Danfoss
32U1666.10.10

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 diaphragm (6) is built up via the equalising orifice (5). The diaphragm/piston closes the main orifice (7) as soon as the pressure across the diaphragm/piston is equivalent to the inlet pressure. The valve will be closed for as long as the voltage to the coil is disconnected.

EV225B 15-25



Danfoss
32U1666.10.10

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 diaphragm (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 EV225 10 BD; inlet pressure (p_1) of 6 bar absolute;
 differential pressure at 1 bar:
 approx. 100 kg/h / 80 kW

