Data sheet

Solenoid valve

EV210B

Direct-operated 2/2 – way solenoid valves for universal use.

Description

EV210B covers a wide range of direct–operated 2/2–way solenoid valves for universal use. EV210B are a very robust valves program with high performance and can be used in all kind of tough working conditions in demanding industrial applications such as control and closage.

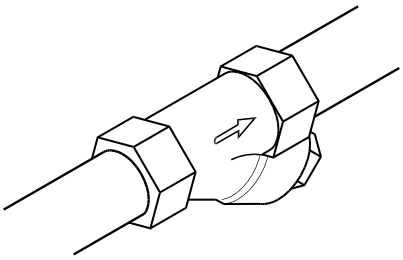
Features & benefits

- For water, oil, compressed air and similar neutral media
- Clip on coil
- Ambient temperature: up to 80 °C
- Coil enclosure : up to IP67
- The valves can be used for vacuum
- EV210B brass version for water, oil, compressed air and similar neutral media
- EV210B stainless steel version for neutral andaggressive liquids and gasses

Applications

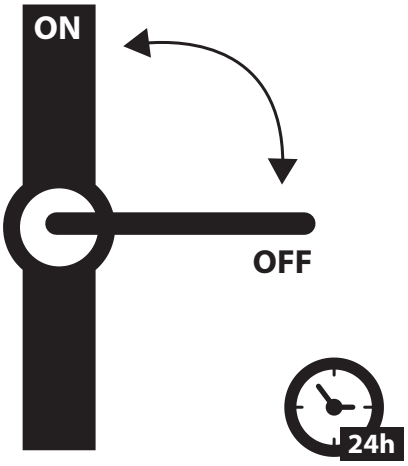
It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).

Figure: Filter



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.

Figure: Exercise - Valve on/off



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! limestone 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

Ordering

Product code numbers

Table: Brass/SS, valve body NC and NO

Connection ISO228/1	Orifice	K_v value	Sealing	Function			
				EV210B			
				Brass		SS	ECO[1]
	[mm]	[m^3/h]	EPDM/FKM	NC	NO	NC	NC
G ⅛	1.5	0.08	EPDM	032U5701	032U3630	–	–
			FKM	032U5702	032U3631	–	–
	2.0	0.15	FKM	032U5704	–	–	–
			EPDM		032U3632	032U3647	–
	3	0.30	EPDM	032U5705	–	–	–
			FKM	032U5706	–	–	–
	4.5	0.55	EPDM		–	–	–
G ¼	1.5	0.08	FKM	032U3629	–	–	–
			EPDM		–	–	–
	2	0.15	EPDM	032U5707	032U3636	032U3651	–
			FKM	032U5708	032U3637		–
	3	0.30	EPDM	032U5709	032U3638	032U3653	–
			FKM	032U5710	032U3639	032U3654	–
	4.5	0.55	EPDM	–	032U3640	032U3655	032U3600
			FKM	–	–	032U3656	032U3601
	6	0.70	EPDM	032U3602	–	–	–
			FKM	032U3603	–	–	–
G ⅜	3	0.30	EPDM	032U3642	–	–	–
			FKM	032U3643	–	–	–
	4.5	0.55	EPDM	–	–	–	032U3605
			FKM	–	–	–	032U3606
	6	0.70	EPDM	032U3607	–	–	–
			FKM	032U3608	–	–	–
	8.0	1.00	FKM	032U3610	–	–	–
	10	1.50	EPDM	032U3611	–	–	–
			FKM	032U3612	–	–	–
	15	2.50	FKM	–	–	–	–
G ½	8	1.00	EPDM	032U3615	–	–	–
			FKM	032U3616	–	–	–
	10	1.50	EPDM	032U3617	–	–	–
			FKM	032U3618	–	–	–
	15	2.85	EPDM	032U3619	–	–	–
			FKM	032U3620	–	–	–

G ¾	20	4.50	EPDM	032U3621	–	–	–
			FKM	032U3622	–	–	–
G 1	25	8	EPDM	032U3623	–	–	–
			FKM	032U3624	–	–	–

(1) valve body made from ECO brass CW724R

Accessories code numbers

Coils

Table: Below coils can be used for EV210B

Coil	Type	Power consumption	Enclosure	Features
	BA / BD, screw on	8.5 –15 W AC 14 W DC	IP00 with spade connector	IP20 with protective cap IP67 with cable plug
	BB/BY, clip on	11 –16 W AC 14 – 16 W DC	IP00 with spade connector	IP20 with protective cap IP67 with cable plug
	BR, clip on	12 – 14 W AC 16 W DC	IP00 with spade connector	IP20 with protective cap, IP67 with cable plug Design for marine application
	BE, clip on	11 –17 W AC 15 - 16 W DC	IP67	With terminal box
	BG, clip on	11 – 16 W AC 16 – 20 W DC	IP67	With terminal box

Cable plug

Table: Cable plug

Cable plug size	Description	Code no
DIN 18	Cable plug IP67	042N1256

Timer

Universal electronic multi - timer, Type ET20M

Table: Timer

Type	Voltage [V]	Suitable for coil types	Code no.
BA024A	24 –240	AL, AM, AS, AZ, BA, BD, BB	042N0185

Mounting bracket

For EV210B/BW 1.5 – 4.5B in connection with synthetic tubes, pipes and similar.

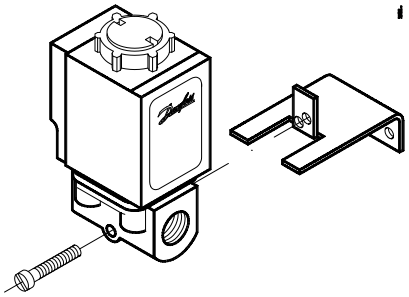


Table: Bracket

Description	Code no.
Brackets	032U1040

Isolating diaphragm kit for EV210B 1.5 – 4.5 NC

Avoids build-up of contaminates that can block movement of the armature. Permits use of more aggressive media that would normally attack the armature. Gel filled; guarantees operation after long periods of inactivity. The kit is suitable for orifice sizes up to DN 4.5 mm.

Table: Isolating diaphragm kit

Seal material	Media temperature [C°]	Code no.
EPDM	-20 – 50	042U1009
FKM	0 - 50	042U101

The kit consists of:
Assembled isolating unit
O-ring
4 screws
Locking button Nut for coil

Figure: Isolating diaphragm kit

Spare parts code numbers

Spare parts kit, NC

Valve type	Seal material	Code no.
EV210B 1.5, 2, 3, 4.5	FKM	032U2003
	EPDM	032U6000
EV210B 6, 8, 10	FKM	032U2011
	EPDM	032U2006
EV210B 15	FKM	032U2012
	EPDM	032U2013
EV210B 20	FKM	032U2014
EV210B 25	FKM	032U2018

The spare parts kit consists of:
Locking button
Nut for the coil
Armature with valve plate and spring
O-ring

Figure: Spare part kit

Spare parts kit, NO

Valve type	Seal material	Code no.
EV210B 1.5, 2, 3, 4.5	FKM	032U2004
	EPDM	032U2005

The spare parts kit consists of: Armature tube 2 O-rings

Figure: Spare part kit

Overview

Product portfolio

Table: Portfolio overview

Features	EV210B	EV210B
		
Body material	Brass, ECO brass	Stainless steel
DN [mm]	1.5 – 25	1.5 – 4.5
Connection	G ⅛ – G 1	G⅛ – G¼
Sealing material	EPDM, FKM	EPDM
Function	NC, NO	NC
K_v [m^3/h]	0.08 – 8.00	0.15 – 0.55
Differential pressure range [bar]	0 – 30	0 – 30
Temperature range [°C]	-30 – 120	-30 – 120

Functions

Function NC

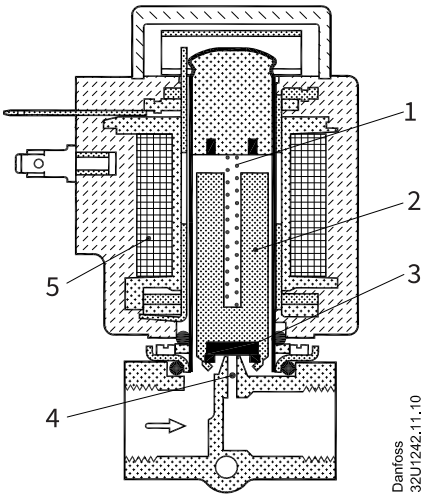
Coil voltage disconnected (closed):
When the voltage to the coil (5) is disconnected, the armature (2) with the valve plate (3) is pressed down against the valve orifice (4) by the closing spring (1) and the medium's pressure.

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 (5), the armature (2) with the valve plate (3) is lifted clear of the valve orifice (4).

The valve is now open for unimpeded flow and will be open for as long as there is voltage to the coil.

Figure: Function NC



1	Closing spring
2	Armature
3	Valve plate
4	Valve orifice
5	Coil

Function NO

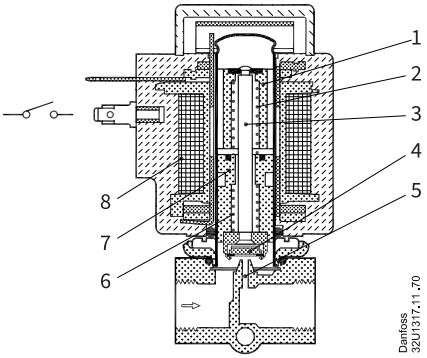
Coil voltage connected (open):
When the voltage to the coil (8) is disconnected, the valve orifice (5) is open, the opening spring (2) lifting the spindle (3) with the valve plate (4) clear of the orifice.

The valve will be open for as long as the supply voltage to the coil is disconnected.

Coil voltage disconnected (closed):
When voltage is applied to the coil (8), the magnetic field draws the valves armature (1) down to touch the fixed base (7). The spindle (3) with the valve plate (4) is now pressed down against the valve orifice (5) by the closing spring (6).

The valve will be closed for as long as there is voltage to the coil.

Figure: Function NO



1	Armature
2	Opening spring
3	Spindle
4	Valve plate
5	Valve orifice
6	Closing spring
7	Fixed base
8	Coil

Product details

General data

Table: Technical data

Media	EV210B brass EV210B ECO brass	FKM	For oil, compressed air
		EPDM	For water
	EV210B stainless	EPDM	For neutral and aggressive liquids and gasses for neutral and aggressive liquids and gasses
Media temperature	EPDM		-30 – 120 °C
	FKM		-10 – 100 °C
Ambient temperature	Up to 80 °C		
K_v value	DN1.5		0.08 m^3/h
	DN2		0.15 m^3/h
	DN3		0.30 m^3/h
	DN4.5		0.55 m^3/h
	DN6		0.70 m^3/h
	DN8		1 m^3/h
	DN10		1.50 m^3/h
	DN15 (⅜)		2.50 m^3/h
	DN15 (G½)		2.85 m^3/h
	DN20		4.50 m^3/h
	DN25		8.00 m^3/h
Min. Opening differential pressure	0 bar		
Max. Opening differential pressure	Up to 30 bar		
Max. working pressure	Up to 30 bar (Equal to max. differential pressure)		
Max. test pressure	DN1.5 – 4.5		52.5 bar
	DN6 – 10		37.5 bar
	DN15 – 25		24 bar
Pressure	Pressure range can be extended to use in rough vacuum, typically up to 99% vacuum (10 mbar), depending on the application		
Low pressure steam	140 °C / 3.6 bar low pressure steam, orifice DN 1.5 – 4.5 · Low pressure steam: DN 1.5 – 3 Use coil type BB or BG, DN 4.5 Use coil type BG		
Viscosity	Max. 50 cSt		

Materials

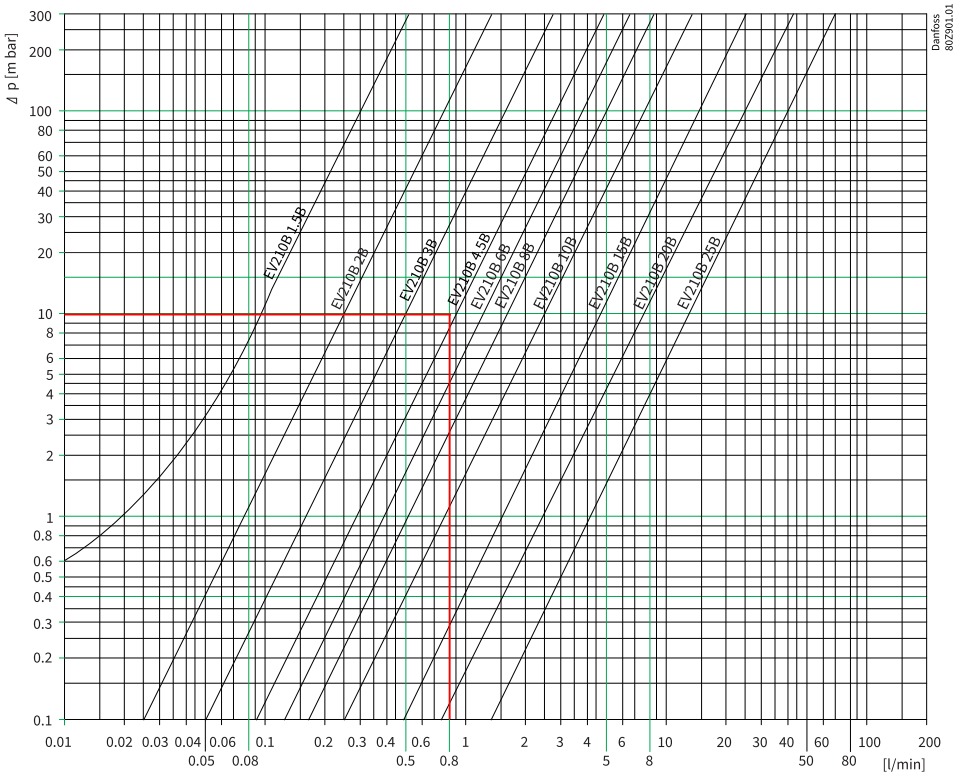
Components	Materials	Specifications
Valve body	Brass / ECO brass / Stainless steel	W. no. 2.0402 / CW724R / W. no. 1.4404 / AISI 316L
Armature	Stainless steel	W.no. 1.4105 / AISI 430 FR
Armature tube	Stainless steel	W.no. 1.4306 / AISI 304 L
Armature stop	Stainless steel	W.no. 1.4105 / AISI 430 FR
Springs	Stainless steel	W.no. 1.4310 / AISI 301
Valve plate	EPDM/FKM	
O-ring	EPDM/FKM	

Capacity

Capacity diagrams

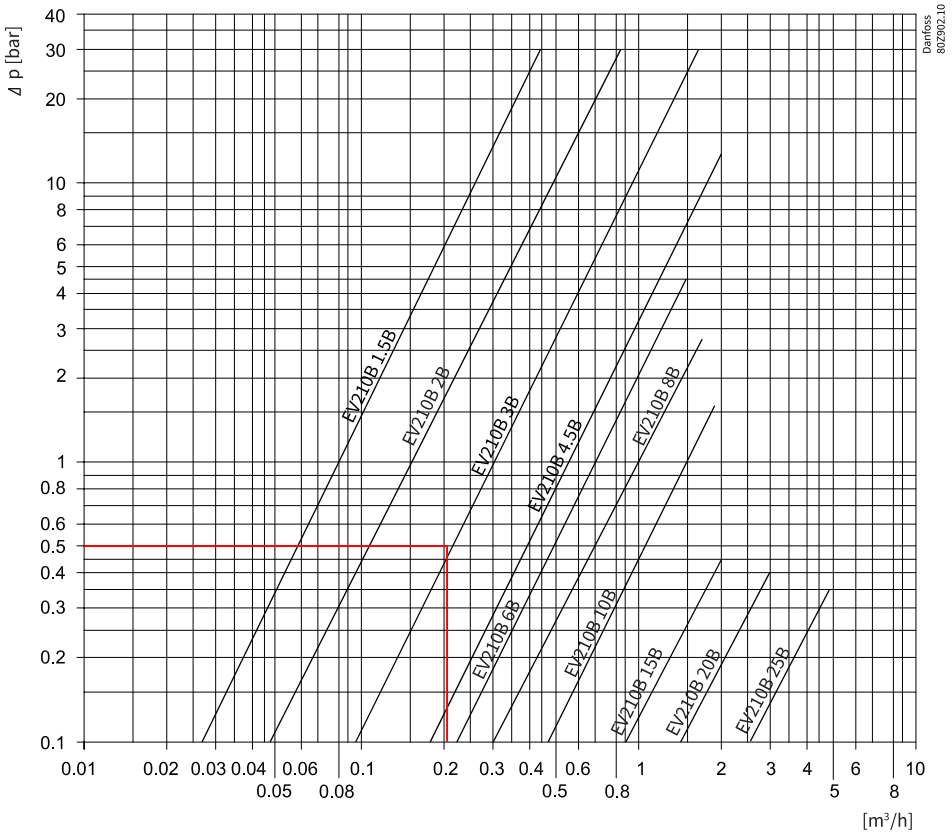
Example, water at low pressure: Capacity for EV210B 1.5B at differential pressure of 10 mbar. Approx. 0.08 l / min

Figure: Water at low pressure



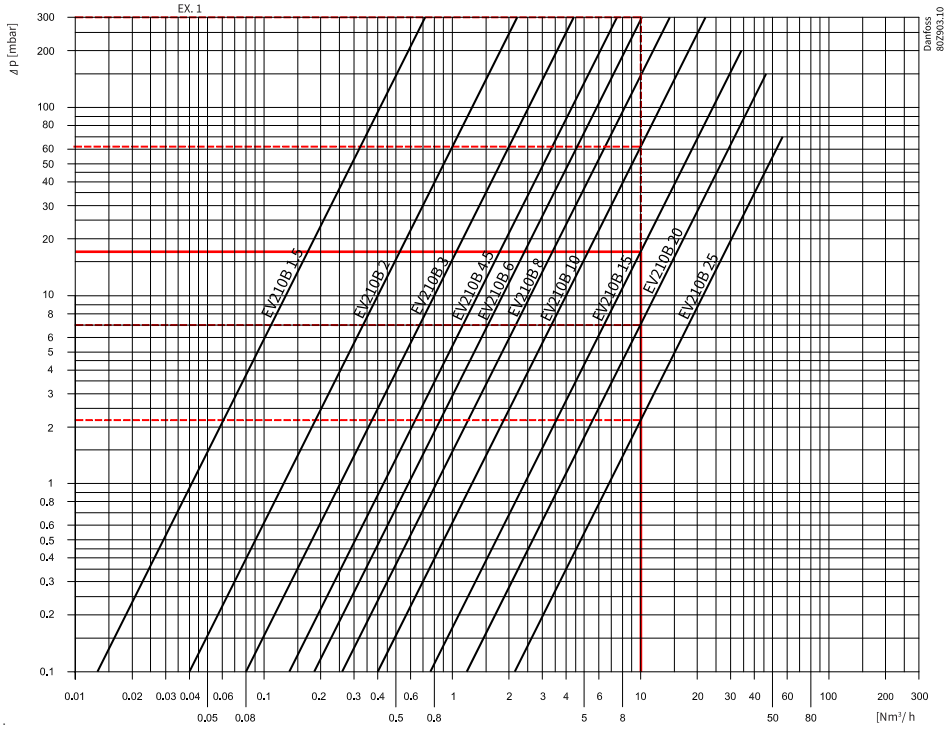
Example, water at higher pressure: Capacity for EV210B 3B at differential pressure of 0.5 bar. Approx. 0.21 m^3 / h

Figure: Water at higher pressure



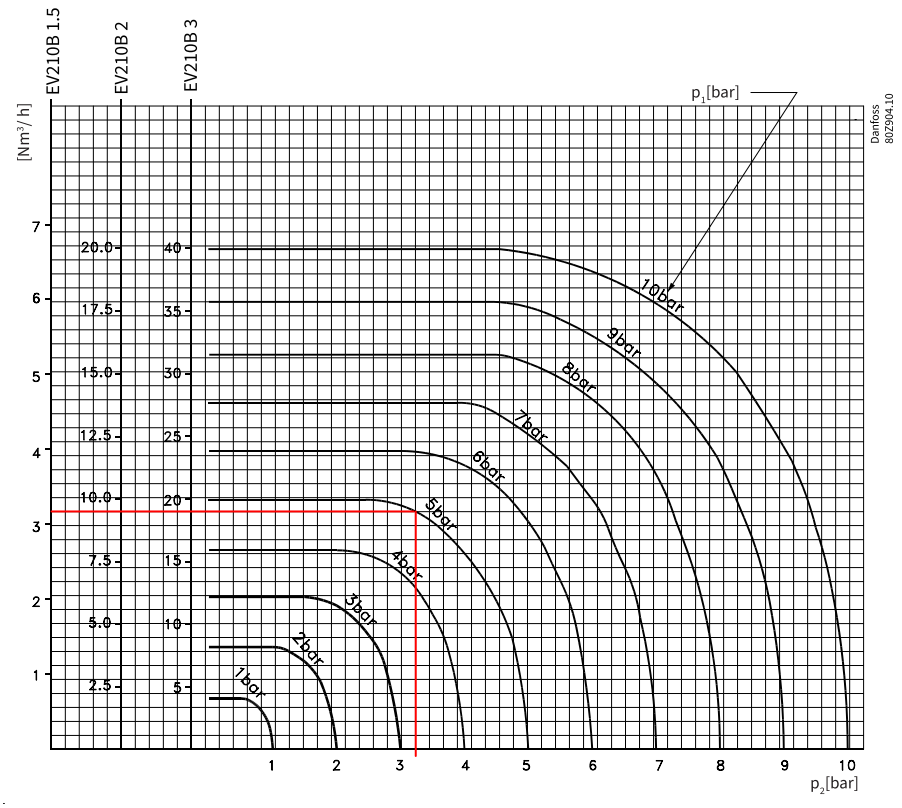
Example, air at lower pressure: Capacity for EV210B 15B at differential pressure of 17 mbar. Approx. 10 Nm^3 / h

Figure: Air at lower pressure



Example, air at higher pressure: Capacity for EV210B 2B at inlet pressure (p1) of 5 bar and outlet pressure (p2) of 3.25 bar. Approx. 9 Nm^3 / h

Figure: Air at higher pressure



Time to open/close

Table: EV210B/BW Brass valve body, NC time to open/close

Type	EV210B/BW 1.5 – 2	EV210B/BW 3 – 4.5	EV210B 6	EV210B 8 – 10	EV210B 15	EV210B 20	EV210B 25
Time to open [ms](1)	10	20	20	20	30	40	40
Time to close [ms](1)	20	20	20	30	50	50	70

(1) The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Table: EV210B Brass valve body, NO time to open/close

Type	EV210B 1.5 – EV210B 4.5
Time to open [ms](1)	20
Time to close [ms](1)	20

(1) The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Pressure and temperature data

Differential pressure range

Table: Differential pressure range, NC

Connection ISO228-1	Orifice size	Differential pressure min. to max. [bar]						
		NC						
		Suitable coil type						
		BA		BD	BB/BE/BR/BY		BG	
		AC	DC	AC	AC	DC	AC	DC
G⅛, G¼	1.5	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30
G⅛		0 –16	0 – 16	0 –16	0 – 16	0 – 16	0 – 16	0 – 16
G⅛, G¼	2.0	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30
G⅛, G¼, G⅜	3.0	0 –15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25
G¼, G⅜		0 – 15	0 – 9	0 – 16	0 – 16	0 – 13	0 – 16	0 – 16
G¼, G⅜	4.5	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9
		0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 - 13	0 – 9
G¼, G⅜	6.0	0 – 2.5	0 – 1	0 – 3.3	0 – 4	0 – 2	0 – 6	0 – 4.5
G⅜, G½	8.0	0 – 1.5	0 – 0.5	0 – 2	0 – 2	0 – 1.2	0 – 3	0 – 2.5
G⅜, G½	10.0	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3
G⅜, G½	15.0	0 –0.25		0 – 0.4	0 –0.3	0 – 0.15	0 – 0.45	0 – 0.4
G¾	20.0				0 – 0.28	0 – 0.12	0 – 0.4	0 – 0.35
G1	25.0				0 – 0.25	0 – 0.9	0 – 0.35	0 – 0.2

Table: Differential pressure range, NO

Connection ISO228-1	Orifice size	Differential pressure min. to max. [bar]						
		NO						
		Suitable coil type						
		BA		BD	BB/BE/BR/BY		BG	
		AC	DC	AC	AC	DC	AC	DC
G⅛	1.5	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30
G⅛, G¼	2.0	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12
G¼	3.0	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5
G¼	4.5	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2

Dimensions

Figure: Brass/ECO brass body

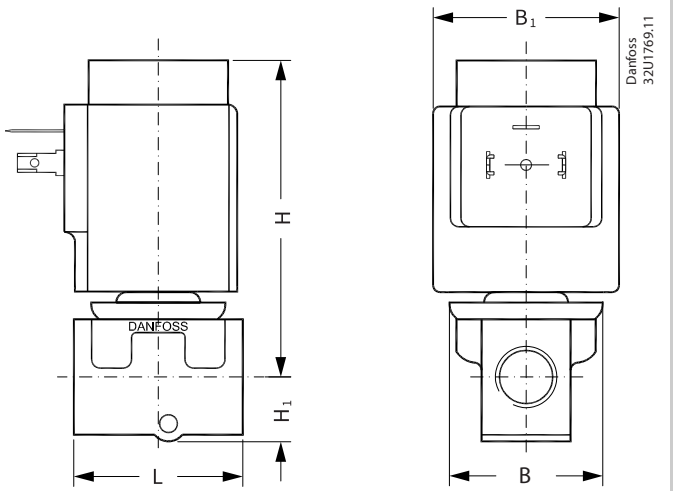


Figure: Stainless steel body

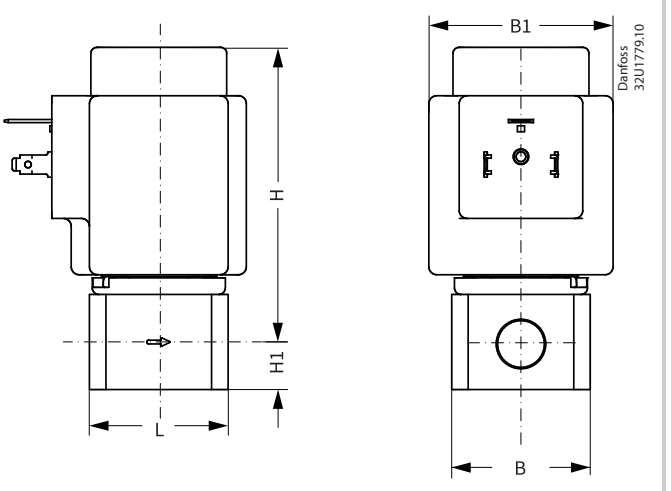
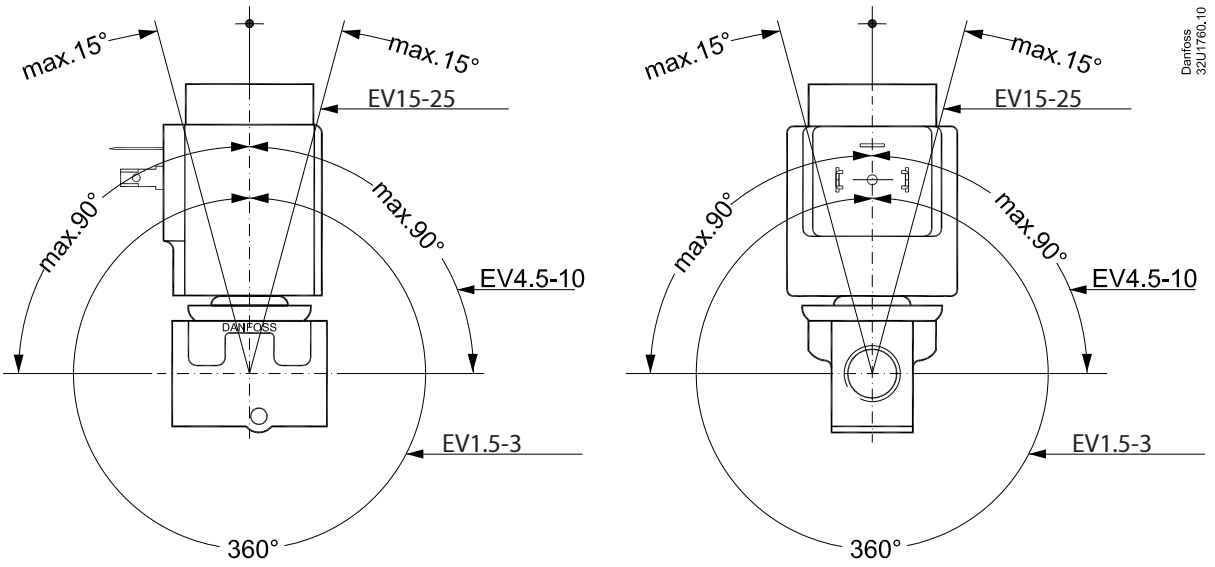


Table: Dimension and weight

Type	Weight gross valve body without coil	L	B	B_1 [mm]			H_1	H
	[kg]	[mm]	[mm]	Coil type BA / BD	Coil type BB / BE BR / BY	Coil type BG	[mm]	[mm]
EV210B 1.5 / EV210B 2B, NC	0.15	35	34	32	46	67	12	70
EV210B 3 / EV210B 4.5, NC	0.20	38	34	32	46	67	11	70
EV210B 6B, NC	0.22	46	34	32	46	67	16	73
EV210B 8 / EV210B 10B, NC	0.29	49	34	32	46	67	16	73
EV210B 15B, NC	0.45	58	53	32	46	67	13	93
EV210B 20B, NC	1.10	90	58	32	46	67	18	92
EV210B 25B, NC	1.10	90	58	32	46	67	23	96

Installation

Figure: Mounting angle



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The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Export Control Declaration	Solenoid valves - Stainless steel	Danfoss	
Manufacturer's Declaration	Danfoss MD 033F0699.00	Danfoss	China RoHS
Export Control Declaration	Solenoid valves – Polymer, Bronze, Brass, Cast iron	Danfoss	
UA Declaration	Danfoss UA 8481	Danfoss	UA RoHS
Mechanical Safety Certificate	UL MH7648	UL - Underwriters Laboratories inc.	
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.02-22	LLC CDC EURO TYSK - Ukraine	PED, Pressure
Manufacturer's Declaration	Danfoss MD 033F1140.01	Danfoss	EU RoHS
Manufacturer's Declaration	Danfoss MD 033F0232.AA	Danfoss	PED, Pressure
EU Declaration	Danfoss EU 033F0683.05	Danfoss	LVD, EU RoHS
Hygienic Certificate	PZH B-BK-60110-0524-2023	PZH - National Institute of Hygiene	Drinking Water

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