

Data sheet

# Direct-operated 2/2-way solenoid valves

## Type EV210B



EV210B covers a wide range of direct-operated 2/2-way solenoid valves for universal use.

EV210B is a very robust valve 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 and versions:

- For water, oil, compressed air and similar neutral media.
- Flow range: 0 – 8 m<sup>3</sup>/h
- Differential pressure: 0 – 30 bar
- Media temperature: -30 – 140 °C
- Ambient temperature: up to 80 °C
- Coil enclosure : up to IP67
- Tread connections: G 1/8 – G 1
- DN 1.5 – 25
- Viscosity: up to 50 cSt
- 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 and aggressive liquids and gasses
- Also available with NPT thread. See separate datasheet

**Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B**
**EV210B brass valve body, NC**


Conn. ISO 228/1	Seal material	Orif. size	K <sub>v</sub> value [m <sup>3</sup> /h]	Differential pressure min. to max. [bar] /coil type <sup>2)</sup>								Media temperature min. to max. [°C]	Code no.
				BA 9 [W AC]	BA 15 [W DC]	BD 15 [W AC]	BB 10 [W AC]	BB 18 [W DC]	BG 12 [W AC]	BG 20 [W DC]			
G 1/8	EPDM <sup>1)</sup>	1.5	0.08	0-30	0-30	0-30	0-30	0-30	0-30	0-30	0-30	-30-120	032U5701
	FKM	1.5	0.08	0-30	0-30	0-30	0-30	0-30	0-30	0-30	0-30	-10-100	032U5702
	FKM	2.0	0.15	0-30	0-20	0-30	0-30	0-30	0-30	0-30	0-30	-10-100	032U5704
	EPDM <sup>1)</sup>	3.0	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	0-30	-30-120	032U5705
	FKM	3.0	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	0-30	-10-100	032U5706
G 1/4	FKM	1.5	0.08	0-30	0-30	0-30	0-30	0-30	0-30	0-30	0-30	-10-100	032U3629
	EPDM <sup>1)</sup>	2.0	0.15	0-30	0-20	0-30	0-30	0-30	0-30	0-30	0-30	-30-120	032U5707
	FKM	2.0	0.15	0-30	0-20	0-30	0-30	0-30	0-30	0-30	0-30	-10-100	032U5708
	EPDM <sup>1)</sup>	3.0	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	0-30	-30-120	032U5709
	FKM	3.0	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	0-30	-10-100	032U5710
	EPDM <sup>1)</sup>	4.5	0.55	0-8	0-3.5	0-12	0-10	0-4.5	0-13	0-9	0-9	-30-120	032U3600
	FKM	4.5	0.55	0-8	0-3.5	0-12	0-10	0-4.5	0-13	0-9	0-9	-10-100	032U3601
	EPDM	6.0	0.70	0-2.5	0-1	0-3.3	0-4	0-2	0-6	0-4.5	0-4.5	-30-120	032U3602
	FKM	6.0	0.70	0-2.5	0-1	0-3.3	0-4	0-2	0-6	0-4.5	0-4.5	-10-100	032U3603
G 3/8	EPDM <sup>1)</sup>	3.0	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	0-30	-30-120	032U3642
	FKM	3.0	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	0-30	-10-100	032U3643
	EPDM <sup>1)</sup>	4.5	0.55	0-8	0-3.5	0-12	0-10	0-4.5	0-13	0-9	0-9	-30-120	032U3605
	FKM	4.5	0.55	0-8	0-3.5	0-12	0-10	0-4.5	0-13	0-9	0-9	-10-100	032U3606
	EPDM	6.0	0.70	0-2.5	0-1	0-3.3	0-4	0-2	0-6	0-4.5	0-4.5	-30-120	032U3607
	FKM	6.0	0.70	0-2.5	0-1	0-3.3	0-4	0-2	0-6	0-4.5	0-4.5	-10-100	032U3608
	EPDM	8.0	1.00	0-1.5	0-0.5	0-2	0-2	0-1.2	0-3	0-2.5	0-2.5	-30-120	032U3609
	FKM	8.0	1.00	0-1.5	0-0.5	0-2	0-2	0-1.2	0-3	0-2.5	0-2.5	-10-100	032U3610
	EPDM	10.0	1.50	0-0.8	0-0.3	0-1.1	0-1.2	0-0.6	0-1.6	0-1.3	0-1.3	-30-120	032U3611
	FKM	10.0	1.50	0-0.8	0-0.3	0-1.1	0-1.2	0-0.6	0-1.6	0-1.3	0-1.3	-10-100	032U3612
	EPDM	15.0	2.50	0-0.25	-	0-0.4	0-0.3	0-0.15	0-0.45	0-0.4	0-0.4	-30-120	032U3613
	FKM	15.0	2.50	0-0.25	-	0-0.4	0-0.3	0-0.15	0-0.45	0-0.4	0-0.4	-10-100	032U3614
G 1/2	EPDM	8.0	1.00	0-1.5	0-0.5	0-2	0-2	0-1.2	0-3	0-2.5	0-2.5	-30-120	032U3615
	FKM	8.0	1.00	0-1.5	0-0.5	0-2	0-2	0-1.2	0-3	0-2.5	0-2.5	-10-100	032U3616
	EPDM	10.0	1.50	0-0.8	0-0.3	0-1.1	0-1.2	0-0.6	0-1.6	0-1.3	0-1.3	-30-120	032U3617
	FKM	10.0	1.50	0-0.8	0-0.3	0-1.1	0-1.2	0-0.6	0-1.6	0-1.3	0-1.3	-10-100	032U3618
	EPDM	15.0	2.85	0-0.25	-	0-0.4	0-0.3	0-0.15	0-0.45	0-0.4	0-0.4	-30-120	032U3619
	FKM	15.0	2.85	0-0.25	-	0-0.4	0-0.3	0-0.15	0-0.45	0-0.4	0-0.4	-10-100	032U3620
G 3/4	EPDM	20.0	4.50	-	-	-	0-0.28	0-0.12	0-0.4	0-0.35	0-0.35	-30-120	032U3621
	FKM	20.0	4.50	-	-	-	0-0.28	0-0.12	0-0.4	0-0.35	0-0.35	-10-100	032U3622
G 1	EPDM	25.0	8.00	-	-	-	0-0.25	0-0.09	0-0.35	0-0.2	0-0.2	-30-120	032U3623
	FKM	25.0	8.00	-	-	-	0-0.25	0-0.09	0-0.35	0-0.2	0-0.2	-10-100	032U3624

<sup>1)</sup> 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

<sup>2)</sup> Pressure range can be extended to use in rough vacuum, typically up to 99% vacuum (10 mbar), depending on the application.

## Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B

### Technical data, EV210B NC



Type	EV210B 1.5 – EV210B 2	EV210B 3 – EV210B 4.5	EV210B 6	EV210B 8 – EV210B 10	EV210B 15	EV210B 20	EV210B 25
Time to open [ms] <sup>1)</sup>	10	20	20	20	30	40	40
Time to close [ms] <sup>1)</sup>	20	20	20	30	50	50	70
Max test pressure [bar]	52.5	52.5	37.5	37.5	24	24	24

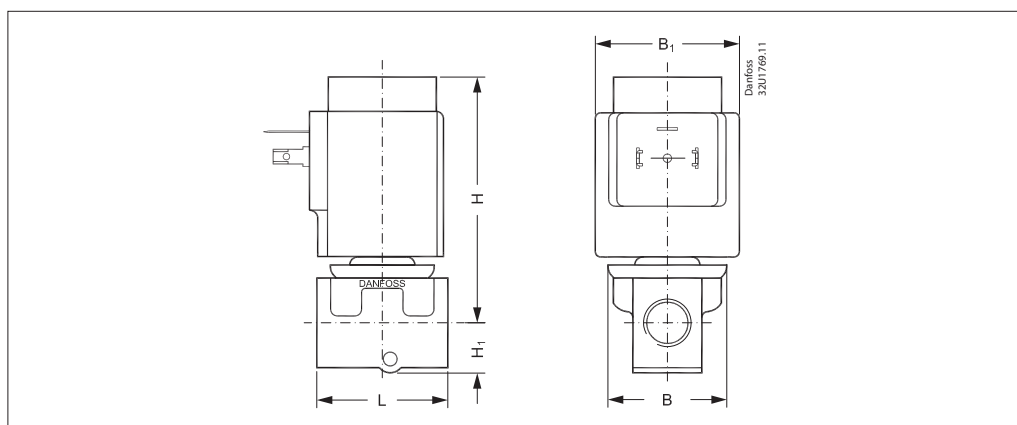
<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Tightness	Internally: better than $8.3 \times 10^{-2}$ mbar l / sec (5 ccm air per min.) Externally: better than $1 \times 10^{-3}$ mbar l / sec (100% H <sub>2</sub> )		
Ambient temperature	Max. 80 °C (depending on coil type)		
Viscosity	Max. 50 cSt		
Materials	Valve body	Brass	W.no. 2.0402
	Armature	Stainless steel	W.no. 1.4105 / ASIS 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / ASIS 304L
	Armature stop	Stainless steel	W.no. 1.4105 / ASIS 430FR
	Springs	Stainless steel	W.no. 1.4306 / ASIS 301
Seal material: see specific data in table			

### Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B <sub>1</sub> [mm]			H <sub>1</sub> [mm]	H [mm]
				Coil type BA / BD	Coil type BB / BE	Coil type BG		
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

### Dimensions



Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B

EV210B brass valve body, NO



Conn. ISO 228/1	Seal material	Orif. size	K <sub>v</sub> value [m <sup>3</sup> /h]	Differential pressure min. to max. [bar] /coil type <sup>2)</sup>								Media temperature min. to max. [°C]	Code no.
				BA 9 [W AC]	BA 15 [W DC]	BD 15 [W AC]	BB 10 [W AC]	BB 18 [W DC]	BG 12 [W AC]	BG 20 [W DC]			
G 1/8	EPDM <sup>1)</sup>	1.5	0.08	0-30	0-30	0-30	0-30	0-30	0-30	0-30	0-30	-30-120	032U3630
	FKM	1.5	0.08	0-30	0-30	0-30	0-30	0-30	0-30	0-30	0-30	-10-100	032U3631
	EPDM <sup>1)</sup>	2.0	0.15	0-12	0-12	0-12	0-12	0-12	0-12	0-12	0-12	-30-120	032U3632
	FKM	2.0	0.15	0-12	0-12	0-12	0-12	0-12	0-12	0-12	0-12	-10-100	032U3633
G 1/4	EPDM <sup>1)</sup>	2.0	0.15	0-12	0-12	0-12	0-12	0-12	0-12	0-12	0-12	-30-120	032U3636
	FKM	2.0	0.15	0-12	0-12	0-12	0-12	0-12	0-12	0-12	0-12	-10-100	032U3637
	EPDM <sup>1)</sup>	3.0	0.3	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5	-30-120	032U3638
	FKM	3.0	0.3	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5	-10-100	032U3639
	EPDM <sup>1)</sup>	4.5	0.55	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	-30-120	032U3640
	FKM	4.5	0.55	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	-10-100	032U3641

<sup>1)</sup> 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

<sup>2)</sup> Pressure range can be extended to use in rough vacuum, typically up to 99% vacuum (10 mbar), depending on the application.

Technical data, EV210B NO

Type	EV210B 1.5 – EV210B 4.5
Time to open [ms] <sup>1)</sup>	20
Time to close [ms] <sup>1)</sup>	20

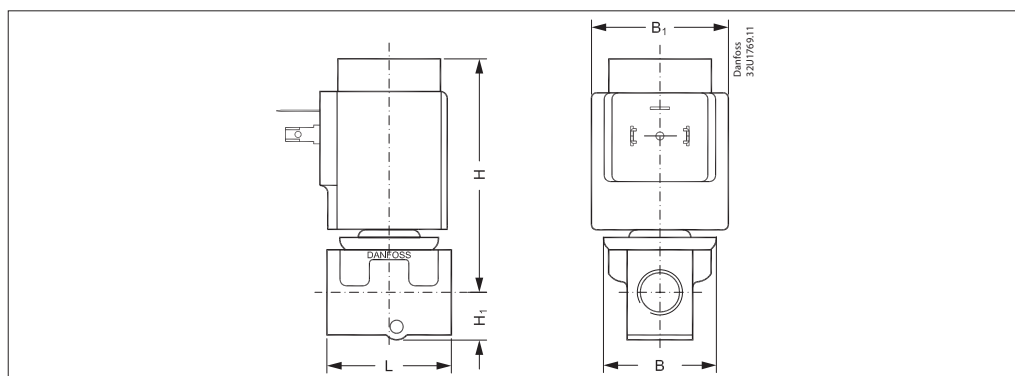
<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Max. test pressure	50 bar		
Tightness	Internally: better than 8.3 x 10 <sup>-2</sup> mbar l / sec ( 5 ccm air per min)		
	Externally: better than 1 x 10 <sup>-3</sup> mbar l / sec (100% H <sub>2</sub> )		
Ambient temperature	Max. 80 °C (depending on the coil type, see data for the coil selected)		
Viscosity	Max. 50 cSt		
Materials	Valve body	Brass	W.no. 2.0402
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	Seal material	See specific valve data	

Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B <sub>1</sub> [mm]			H <sub>1</sub> [mm]	H [mm]
				Coil type BA / BD	Coil type BB / BE	Coil type BG		
EV210B 1.5 / EV210B 2B, NO	0.15	35	34	32	46	67	12	70
EV210B 3 / EV210B 4.5, NO	0.20	38	34	32	46	67	11	70

Dimensions



## Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B

### EV210B stainless steel body, NC



Conn. ISO 228/1	Seal material	Orif. size	K <sub>v</sub> value [m <sup>3</sup> /h]	Permissible differential pressure [bar]							Media temperature min. to max. [°C]	Code no.
				BA 9 [W AC]	BA 15 [W DC]	BD 15 [W AC]	BB 10 [W AC]	BB 18 [W DC]	BG 12 [W AC]	BG 20 [W DC]		
G 1/8	EPDM <sup>1)</sup>	2	0.15	0-30	0-20	0-30	0-30	0-30	0-30	0-30	-30-120	032U3647
	EPDM <sup>1)</sup>	3	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	-30-120	032U3649
	EPDM <sup>1)</sup>	4.5	0.55	0-8	0-3.5	0-12	0-10	0-4.5	0-13	0-9	-30-120	032U3655
G 1/4	EPDM <sup>1)</sup>	2	0.15	0-30	0-20	0-30	0-30	0-30	0-30	0-30	-30-120	032U3651
	EPDM <sup>1)</sup>	3	0.30	0-15	0-9	0-24	0-20	0-13	0-30	0-25	-30-120	032U3653

<sup>1)</sup> 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

### Technical data, stainless steel

Type	EV210B 2 – EV210B 4.5
Time to open [ms] <sup>1)</sup>	20
Time to close [ms] <sup>1)</sup>	20

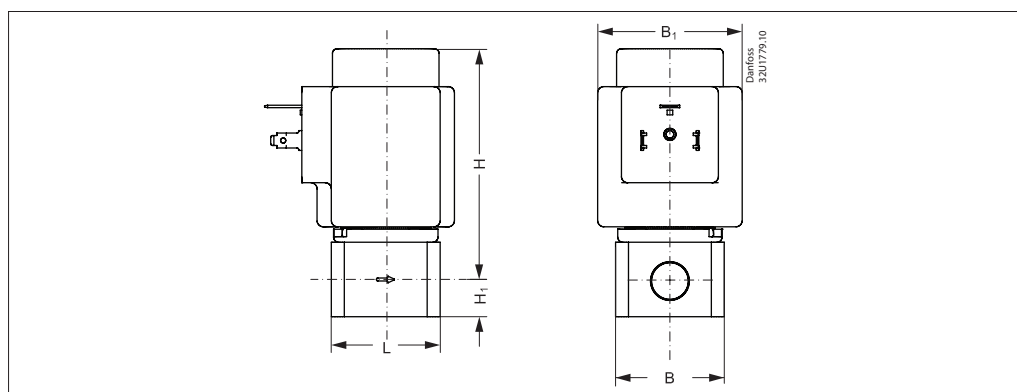
<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

<b>Installation</b>	Optional, but vertical solenoid system is recommended		
<b>Max. test pressure</b>	50 bar		
<b>Tightness</b>	Internally: Better than 8.3 x 10 <sup>-2</sup> mbar l / sec (5 ccm air per min) Externally: Better than 1 x 10 <sup>-3</sup> mbar l / sec (100% H <sub>2</sub> )		
<b>Ambient temperature</b>	Max. 80 °C		
<b>Viscosity</b>	Max. 50 cSt		
<b>Materials</b>	Valve body	Stainless steel	W.no. 1.4404 / AISI 316L
	Armature	Stainless steel	W.no. 1.4105 / AISI 430FR
	Armature tube	Stainless steel	W.no. 1.4306 / AISI 304L
	Armature stop	Stainless steel	W.no. 1.4105 / AISI 430FR
	Springs	Stainless steel	W.no. 1.4310 / AISI 301
	Seal material	See specific valve data	

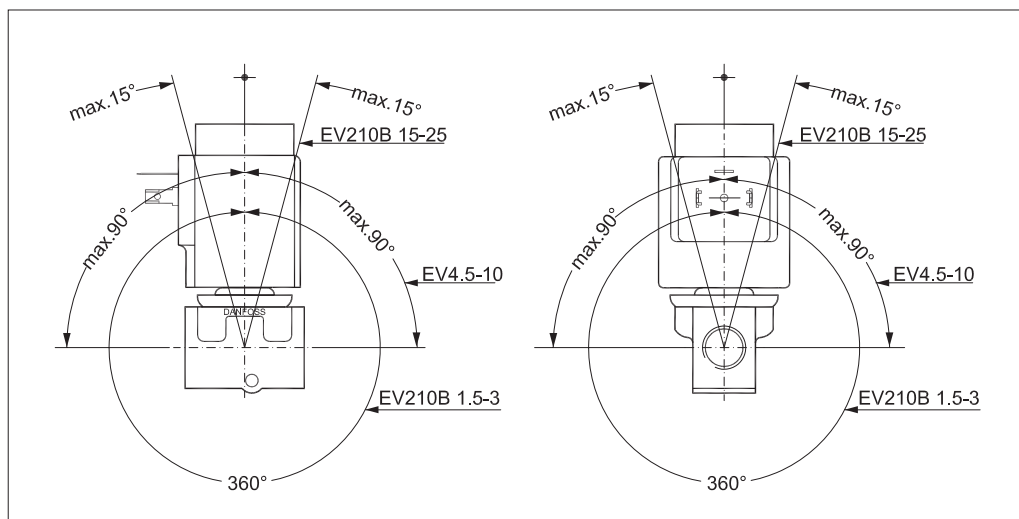
### Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B <sub>1</sub> [mm]			H <sub>1</sub> [mm]	H [mm]
				Coil type BA / BD	Coil type BB / BE	Coil type BG		
EV210B 2 / EV210B 3 / EV210B 4.5, NC	0.25	35	35	32	46	67	11.5	75

### Dimensions



Mounting angle



Below coils can be used for EV210B

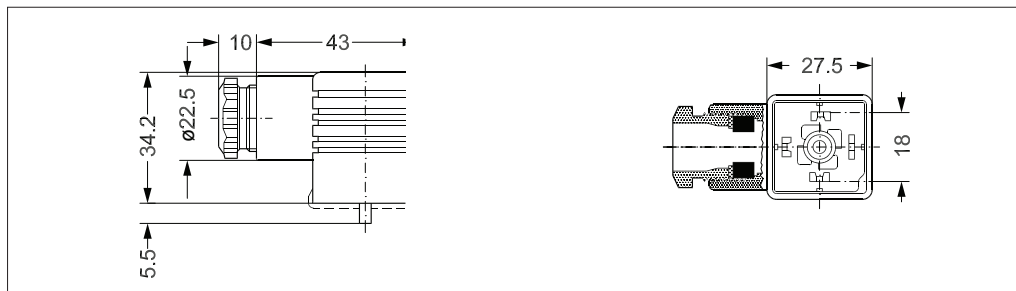
Coil	Type	Power consumption	Enclosure	Features
	BA / BD, screw on	9 W AC 15 W DC	IP00 with spade connector	IP20 with protective cap, IP65 with cable plug
	BB, clip on	10 W AC 18 W DC	IP00 with spade connector	IP20 with protective cap, IP65 with cable plug
	BE, clip on	10 W AC 18 W DC	IP67	With terminal box
	BG, clip on	12 W AC 20 W DC	IP67	With terminal box

## Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B

### Accessories: Cable plug



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



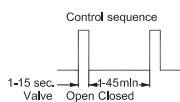
### Universal electronic multi-timer, type ETM



Application	Voltage	To use with coil	Ambient temperature	Code no.
	[V AC]		[°C]	
External adjustable timing from 1 to 45 minutes with 1 to 15 seconds drain open. With manual override (test button). Electrical connection DIN 43650 A / EN 175 301-803-A	24 – 240	BA, BD, BB	-10 – 50	042N0185

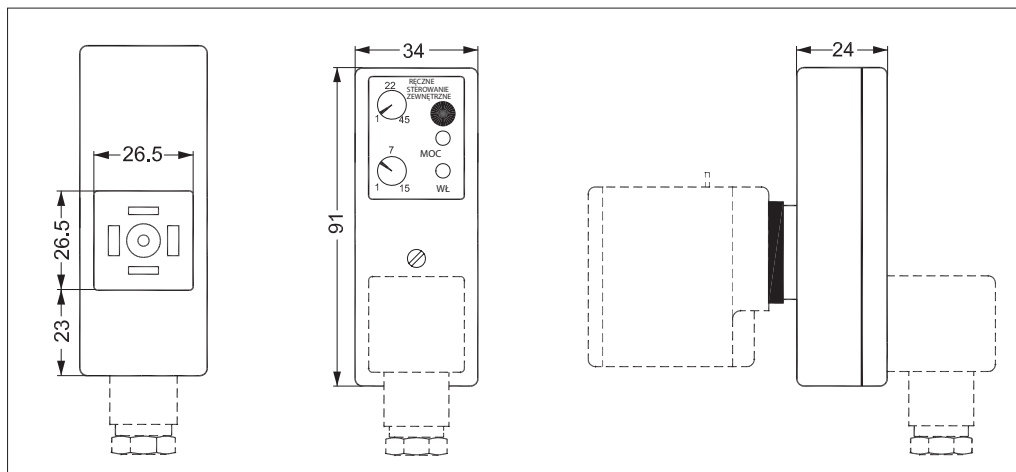
- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24 – 240 V AC
- Light diodes for indication
- All in one unit
- Manual override (test button)

### Technical data



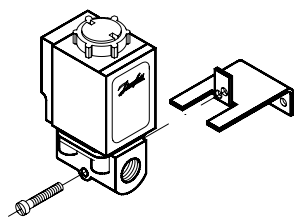
Type	ET 20 M
Voltage	24 – 240 V AC / 50/60 Hz
Power rating	Max. 20 Watt
Enclosure	IP00, IP65 with power connector (cable plug)
Electrical connection	DIN connector (DIN 43650-A)
Ambient operating temperature range	-10 – 50 °C
Function	Start with pulse
Interval timer	1 – 45 min.
“On” timer	1 – 15 sec.
Weight	0.084 kg

### Dimensions



Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B

Mounting bracket



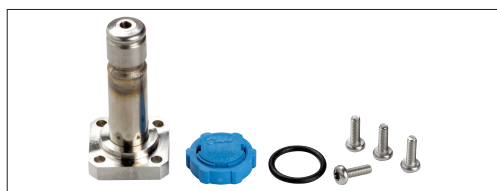
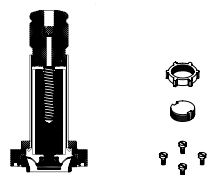
Description	Code no.
Brackets	032U1040

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

Isolating diaphragm kit for EV210B 1.5 – 4.5 NC

Seal material	Media temperature	Code no.
	[C°]	
EPDM	-20 - 50	042U1009
FKM	0 - 50	042U1010

Avoids build-up of contaminants 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.

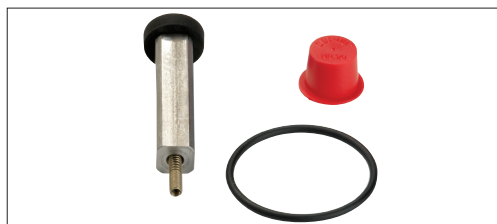
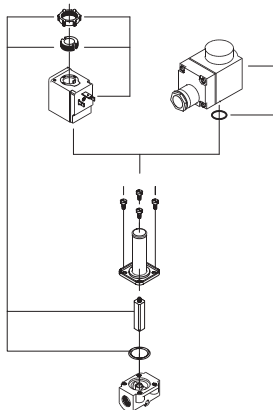


**The kit consist of:**  
 Assembled isolating unit  
 O-ring  
 4 screws  
 Locking button  
 Nut for coil

Spare parts kit, NC

Valve type	Seal material	Code no.
EV210B 1.5, 2, 3, 4, 5	FKM	032U2003
	FKM	032U2011
EV210B 6, 8, 10	EPDM	032U2006
	FKM	032U2012
EV210B 15	EPDM	032U2013
	FKM	032U2014
EV210B 20	EPDM	032U2017
	FKM	032U2018
EV210B 25	EPDM	032U2019

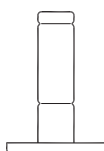
**The spare parts kit consists of:**  
 Locking button  
 Nut for the coil  
 Armature with valve plate and spring  
 O-ring



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



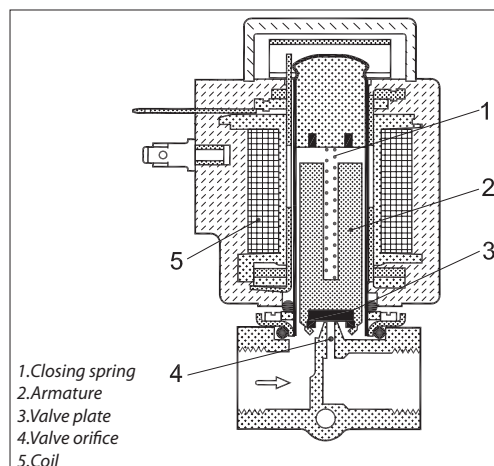
**Function NC**

**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.



**Function NO**

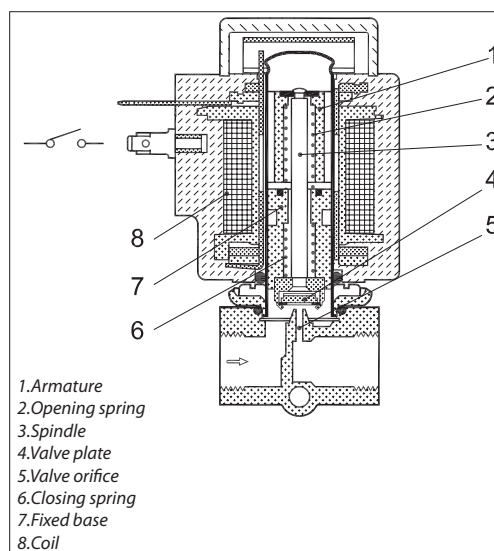
**Coil voltage connected (open):**

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):**

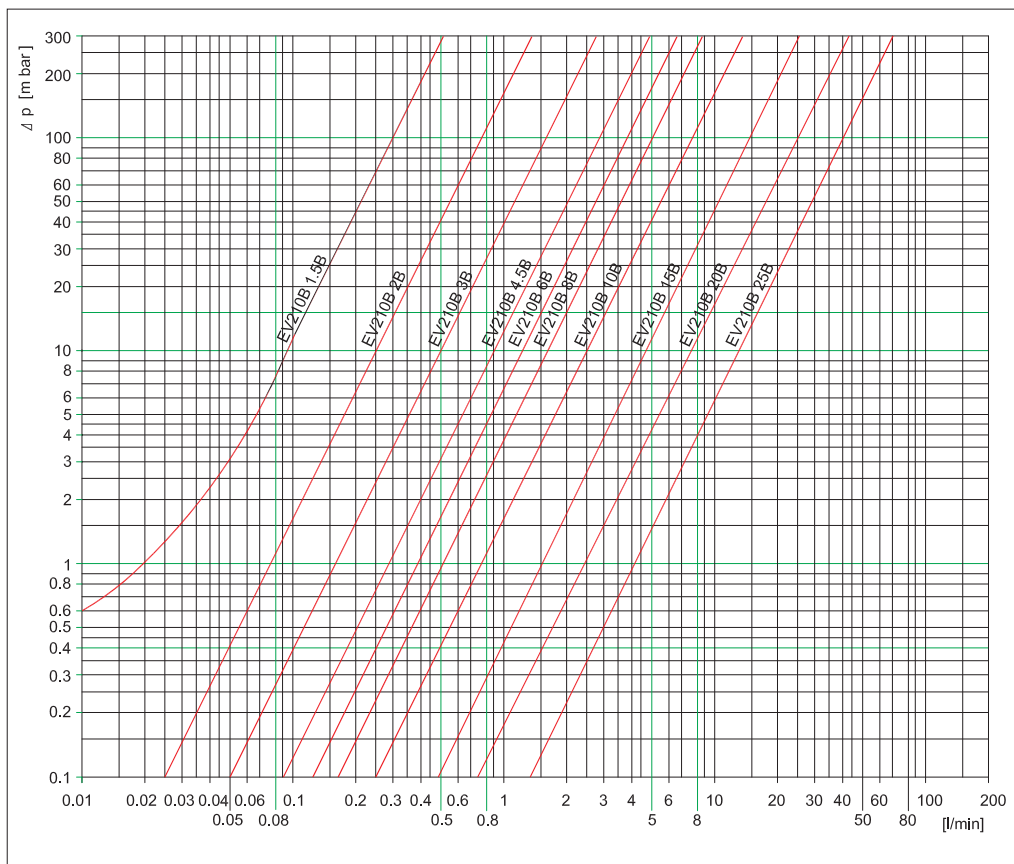
When voltage is applied to the coil (8), the magnetic field draws the valve's armature (1) down to touch the fixed base(7). The spindle (3) with the valve plate (4) is now pressed down against the valve orifice (5) by the closing spring (6). The valve will be closed for as long as there is voltage to the coil.



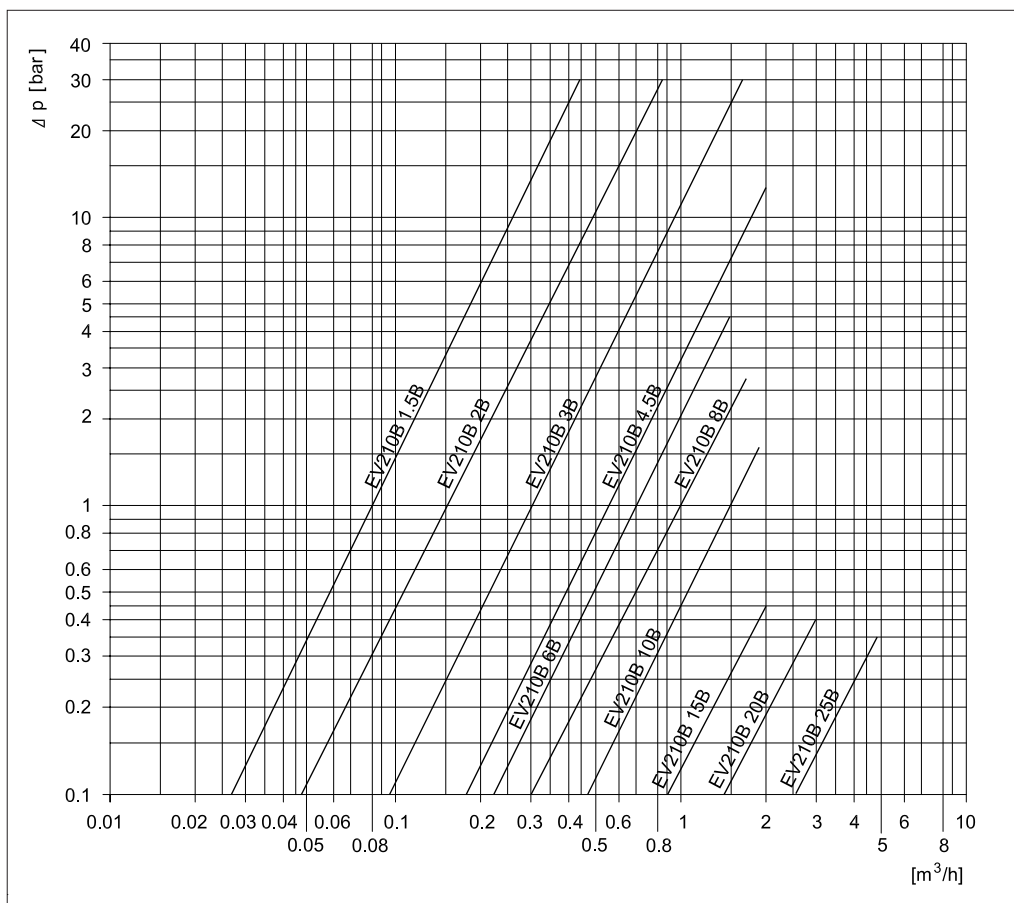
**Data sheet | Direct-operated 2/2-way solenoid valves, Type EV210B**

**Capacity diagrams:**

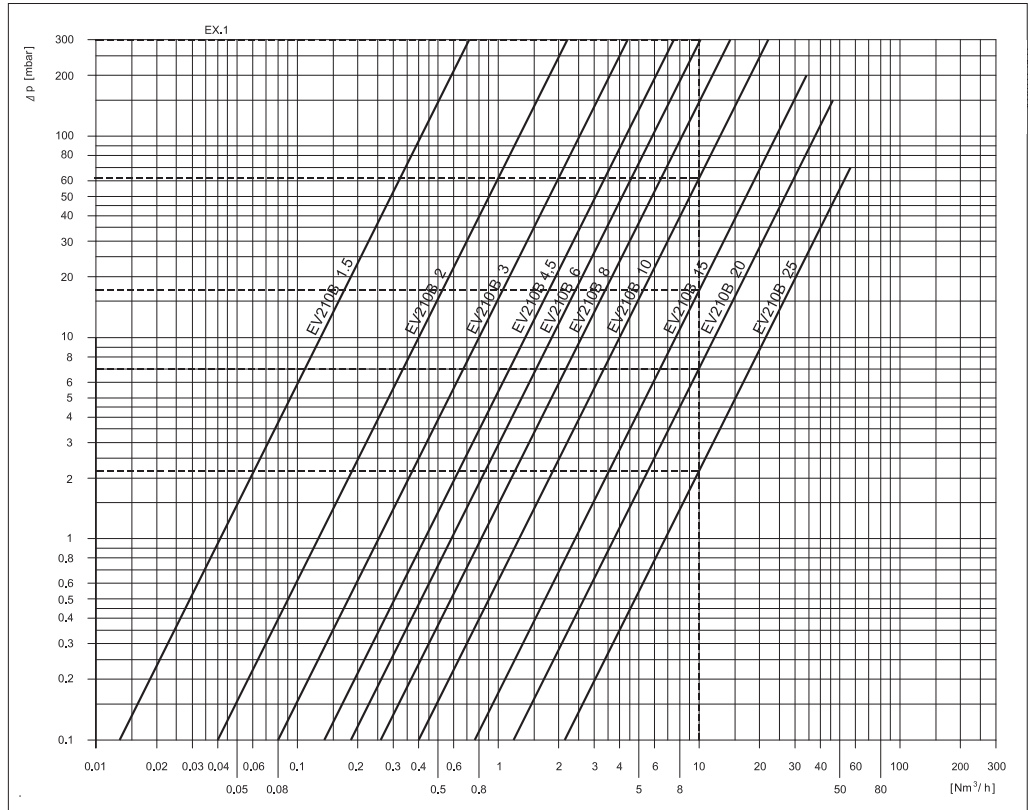
Example, water at low pressure:  
Capacity for EV210B 1.5B at differential pressure of 10 mbar. Approx. 0.08 l / min



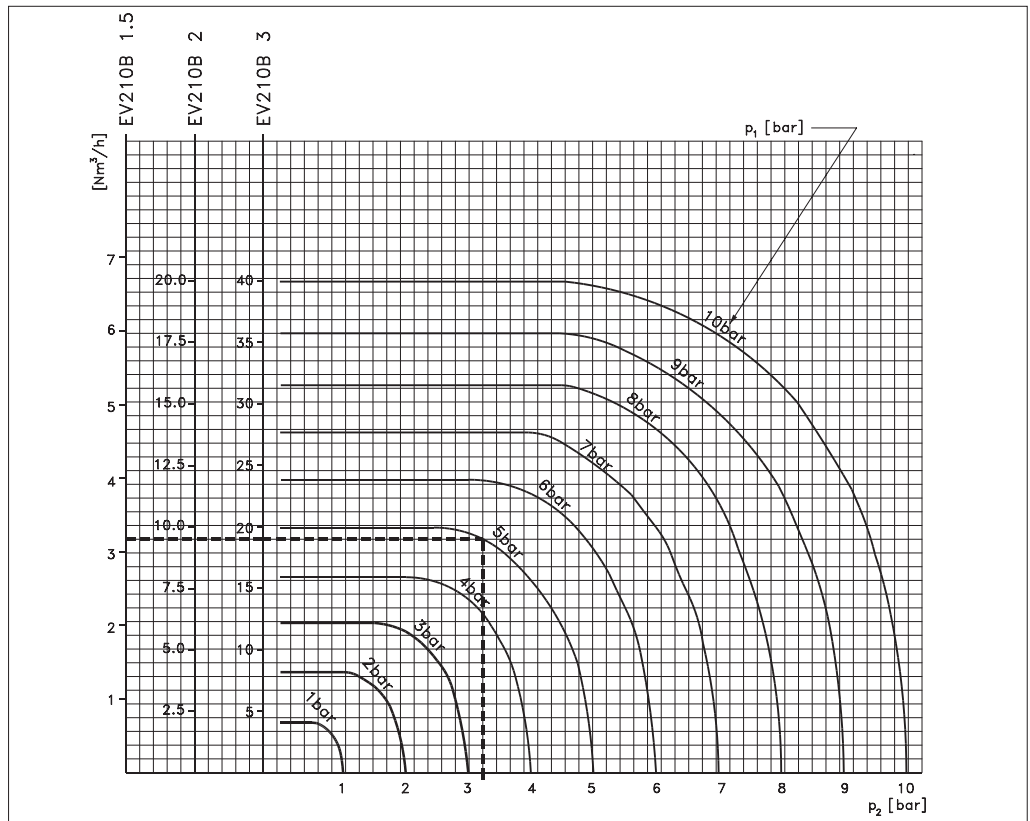
Example, water at higher pressure:  
Capacity for EV210B 3B at differential pressure of 0.5 bar. Approx. 0.21 m<sup>3</sup> / h



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



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<sup>3</sup>/h



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