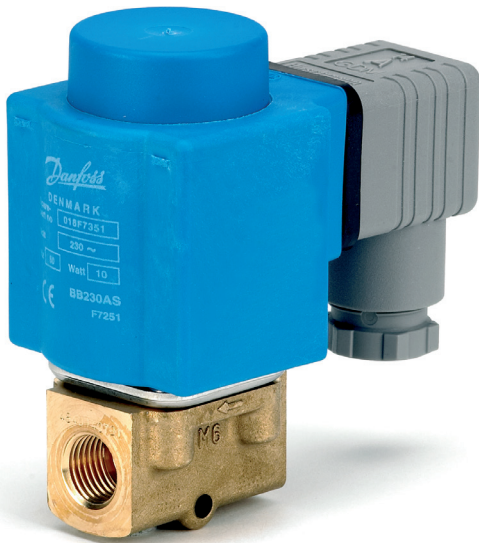


Data sheet

# 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 closure.

### 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

EV210B brass valve body, NC



Conn. ISO 228/1	Seal material	Orifice 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 number	
				BA 9 [W a.c]	BA 15 [W d.c]	BD 15 [W a.c]	BB 10 [W a.c]	BB 18 [W d.c]	BG 12 [W a.c]	BG 20 [W d.c]			
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		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	-30 – 120	032U5705	
	FKM		0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-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		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	-30 – 120	032U5709	
	FKM		0.30	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-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	-30 – 120	032U3600	
	FKM		0.55	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-10 – 100	032U3601	
	EPDM <sup>1)</sup>	6.0	0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-30 – 120	032U3602	
	FKM		0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	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	-30 – 120	032U3642
FKM		0.30		0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-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	-30 – 120	032U3605	
FKM			0.55	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-10 – 100	032U3606	
EPDM <sup>1)</sup>		6.0	0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-30 – 120	032U3607	
FKM			0.70	0 – 2.5	0 – 1.0	0 – 3.3	0 – 4.0	0 – 2.0	0 – 6	0 – 4.5	-10 – 100	032U3608	
EPDM <sup>1)</sup>		8.0	1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-30 – 120	032U3609	
FKM			1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-10 – 100	032U3610	
EPDM <sup>1)</sup>		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	-30 – 120	032U3611	
FKM			1.50	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3	-10 – 100	032U3612	
EPDM <sup>1)</sup>		15.0	2.50	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-30 – 120	032U3613	
FKM			2.50	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-10 – 100	032U3614	
G 1/2		EPDM <sup>1)</sup>	8.0	1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-30 – 120	032U3615
		FKM		1.00	0 – 1.5	0 – 0.5	0 – 2.0	0 – 2.0	0 – 1.2	0 – 3	0 – 2.5	-10 – 100	032U3616
	EPDM <sup>1)</sup>	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	-30 – 120	032U3617	
	FKM		1.50	0 – 0.8	0 – 0.3	0 – 1.1	0 – 1.2	0 – 0.6	0 – 1.6	0 – 1.3	-10 – 100	032U3618	
	EPDM <sup>1)</sup>	15.0	2.85	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-30 – 120	032U3619	
	FKM		2.85	0 – 0.25	-	0 – 0.4	0 – 0.3	0 – 0.15	0 – 0.45	0 – 0.4	-10 – 100	032U3620	
G 3/4	EPDM <sup>1)</sup>	20.0	4.50	-	-	-	0 – 0.28	0 – 0.12	0 – 0.4	0 – 0.35	-30 – 120	032U3621	
	FKM		4.50	-	-	-	0 – 0.28	0 – 0.12	0 – 0.4	0 – 0.35	-10 – 100	032U3622	
G 1	EPDM <sup>1)</sup>	25.0	8.00	-	-	-	0 – 0.25	0 – 0.09	0 – 0.35	0 – 0.2	-30 – 120	032U3623	
	FKM		8.00	-	-	-	0 – 0.25	0 – 0.09	0 – 0.35	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.

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	50 bar	50 bar	50 bar	50 bar	12 bar	12 bar	12 bar

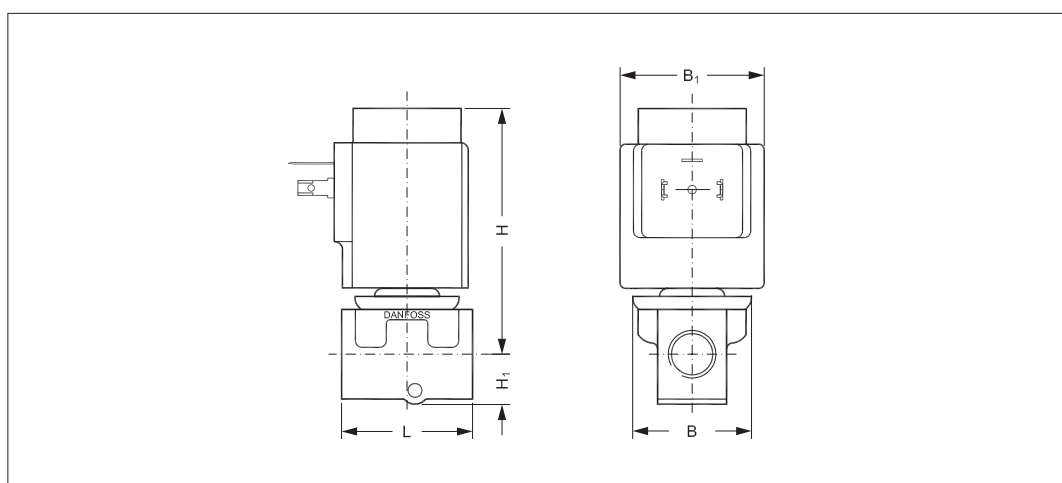
<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Tightness	Internally: Better than 8.3 x 10 <sup>-2</sup> mbar l/sec (5ccm 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 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]	B1 [mm]			H1 [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



EV210B brass valve body, NO



Conn. ISO 228/1	Seal material	Orifice 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 number
				BA 9 [W a.c]	BA 15 [W d.c]	BD 15 [W a.c]	BB 10 [W a.c]	BB 18 [W d.c]	BG 12 [W a.c]	BG 20 [W d.c]		
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	-30 – 120	032U3630
G 1/8	FKM	1.5	0.08	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-10 – 100	032U3631
G 1/8	EPDM <sup>1)</sup>	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-30 – 120	032U3632
G 1/8	FKM	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-10 – 100	032U3633
G 1/8	EPDM <sup>1)</sup>	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-30 – 120	032U3634
G 1/8	FKM	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-10 – 100	032U3635
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	-30 – 120	032U3636
G 1/4	FKM	2.0	0.15	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	0 – 12	-10 – 100	032U3637
G 1/4	EPDM <sup>1)</sup>	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-30 – 120	032U3638
G 1/4	FKM	3.0	0.30	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	0 – 5	-10 – 100	032U3639
G 1/4	EPDM <sup>1)</sup>	4.5	0.55	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	0 – 2	-30 – 120	032U3640
G 1/4	FKM	4.5	0.55	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 (10mbar), 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

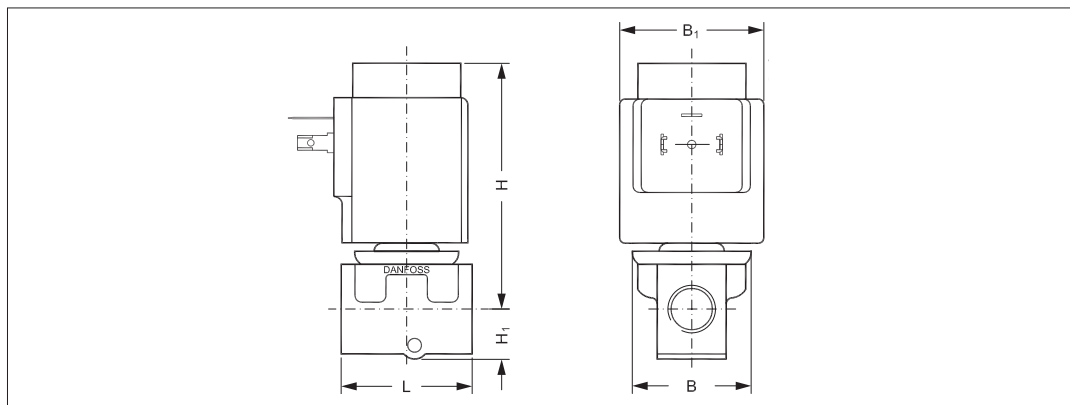
<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Max. test pressure	50 bar		
Tightness	Internally: Better than 8.3 x 10 – 2 mbar l/sec ( 5ccm air per min)		
	Externally: Better than 1 x 10 – 3 mbar l/sec (100%He)		
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]	B1 [mm]			H1 [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



EV210B stainless steel body, NC



Conn. ISO 228/1	Seal material	K <sub>v</sub> value [m <sup>3</sup> /h]	Orifice size	Permissible differential pressure [bar]							Media temperature min. to max. [°C]	Code number	
				BA 9 [W a.c]	BA 15 [W d.c]	BD 15 [W a.c]	BB 10 [W a.c]	BB 18 [W d.c]	BG 12 [W a.c]	BG 20 [W d.c]			
G 1/8	EPDM <sup>1)</sup>	0.15	2.0	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	032U3647
G 1/8		0.30	3.0	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	032U3649	
G 1/4		0.15	2.0	0 – 30	0 – 20	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	0 – 30	-30 – 120	032U3651
G 1/4		0.30	3.0	0 – 15	0 – 9	0 – 24	0 – 20	0 – 13	0 – 30	0 – 25	-30 – 120	032U3653	
G 1/4		0.55	4.5	0 – 8	0 – 3.5	0 – 12	0 – 10	0 – 4.5	0 – 13	0 – 9	-30 – 120	032U3655	

<sup>1)</sup> 140 °C / 3.6 bar low pressure steam, orifice DN 1.5 – 4.5.  
 - Low pressure steam: DN 1.5 – 3.0 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

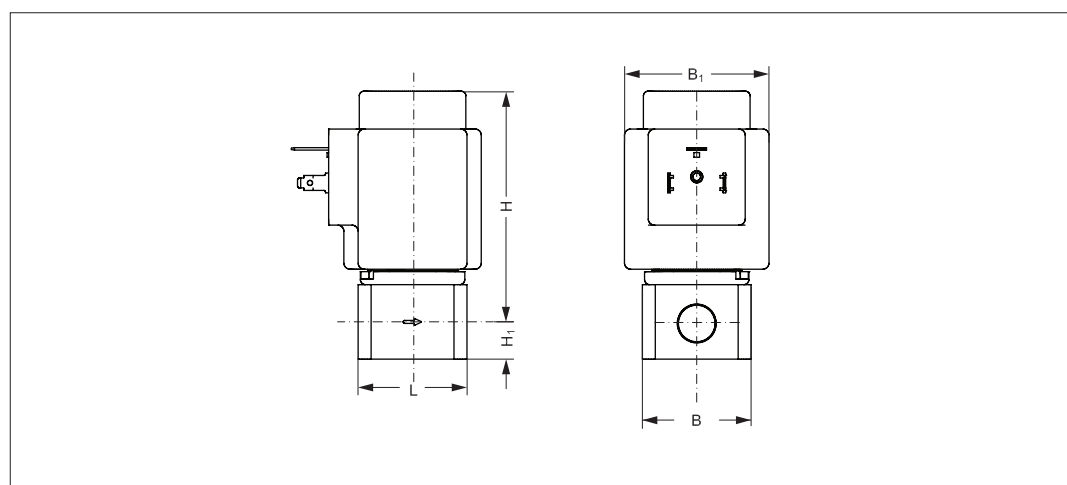
<sup>1)</sup> The times are indicative and apply to water. The exact times will depend on the pressure conditions.

Installation	Optional, but vertical solenoid system is recommended		
Max. test pressure	50 bar		
Tightness	Internally: Better than 8.3 x 10 – 2 mbar l/sec (5ccm air per min) Externally: Better than 1 x 10 – 3 mbar l/sec (100%He)		
Ambient temperature	Max. 80 °C		
Viscosity	Max. 50 cSt		
Materials	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	

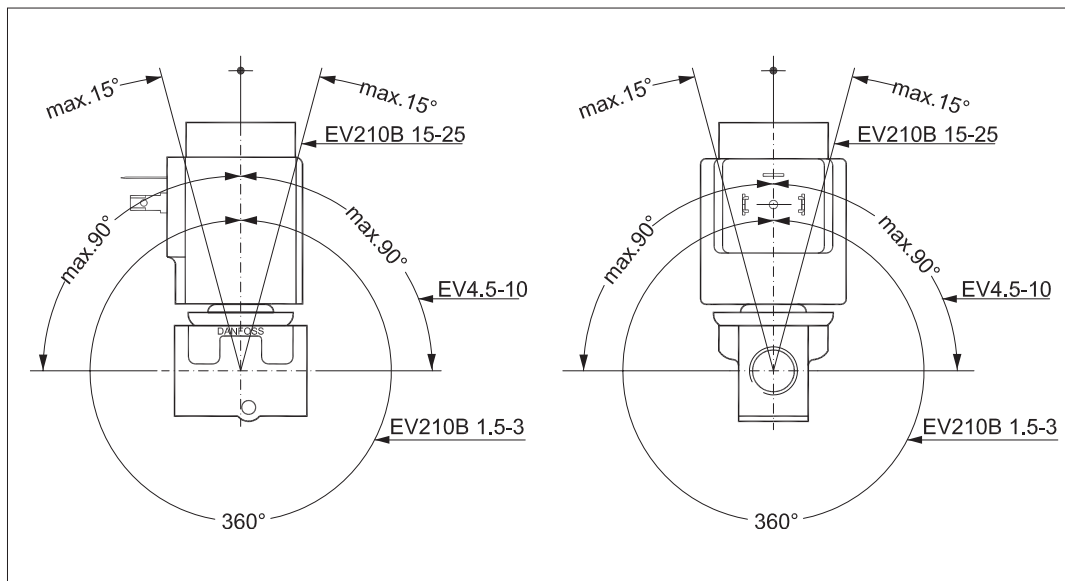
Dimensions and weight

Type	Weight gross valve body without coil [kg]	L [mm]	B [mm]	B1 [mm]			H1 [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

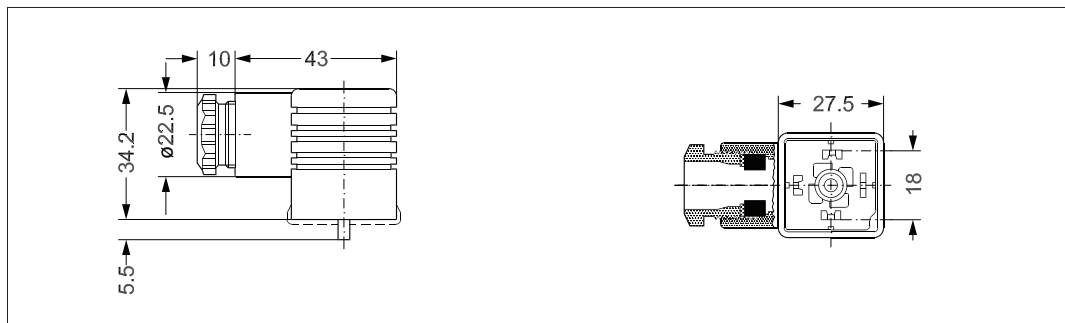


Below coils can be used for EV210B

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

**Accessories:**  
**Cable plug**

Application	Code number
GDM 2011 (grey) cable plug according to DIN 43650-A PG11	<b>042N0156</b>



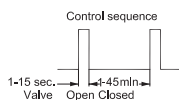
**Universal electronic multi-timer, type ETM**



Application	Voltage [V a.c]	To use with coil:	Ambient temperature [°C]	Code number
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	<b>042N0185</b>

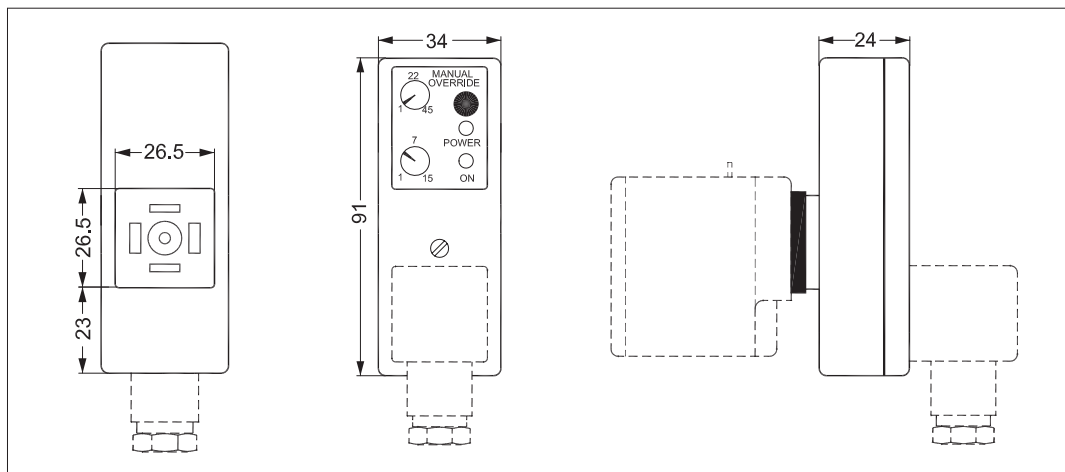
- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24 – 240 V a.c.
- Light diodes for indication
- All in one unit
- Manual override (test button)

**Technical data**

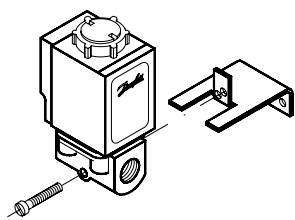


Type	ET 20 M
Voltage	24 – 240 V a.c. / 50 – 60 Hz.
Power rating	Max. 20 Watt
Enclosure	IP00, IP65 with power connector (cable plug)
Electrical connection	DIN connector ( DIN 43650-A)
Ambient operating temperature range	-10 – 50 °C
Function	Start with pulse
Interval timer	1 – 45 min.
“On” timer	1 – 15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

**Dimensions**



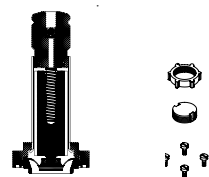
**Mounting bracket**



Description	Code number
Brackets	<b>032U1040</b>

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	Code number
EPDM	<b>042U1009</b>
FKM	<b>042U1010</b>

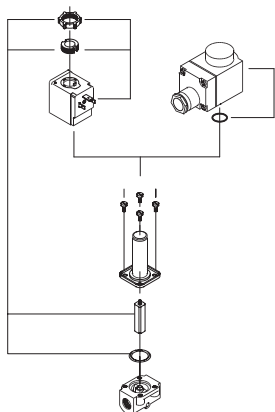


Avoids build-up of contaminants that can block movement of the armature. Permits use of more aggressive media that would normally attack the armature. Gel filled; guarantees operation after long periods of inactivity. The kit is suitable for orifice sizes up to DN 3 mm.

**The kit consist of:**

- Assembled isolating unit
- O-ring
- 4 screws
- Locking button
- Nut for coil

**Spare parts kit, NC**



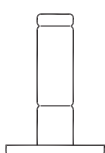
Valve type	Seal material	Code number
EV210B 1.5, 2, 3, 4, 5	FKM	<b>032U2003</b>
EV210B 6, 8, 10	FKM	<b>032U2011</b>
	EPDM	<b>032U2006</b>
EV210B 15	FKM	<b>032U2012</b>
	EPDM	<b>032U2013</b>
EV210B 20	FKM	<b>032U2014</b>
	EPDM	<b>032U2017</b>
EV210B 25	FKM	<b>032U2018</b>
	EPDM	<b>032U2019</b>



**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 number
EV210B 1.5, 2, 3, 4, 5	FKM	<b>032U2004</b>
	EPDM	<b>032U2005</b>



**The spare parts kit consists of:**

- Armature tube
- 2 O-rings



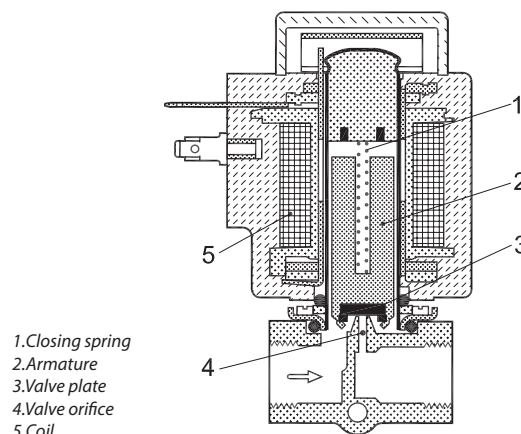
**Function NC**

**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.



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

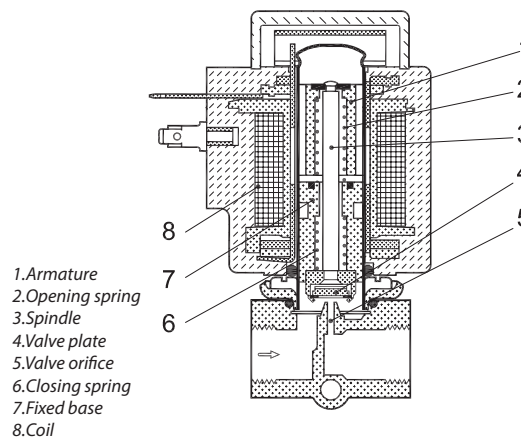
**Function NO**

**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):**

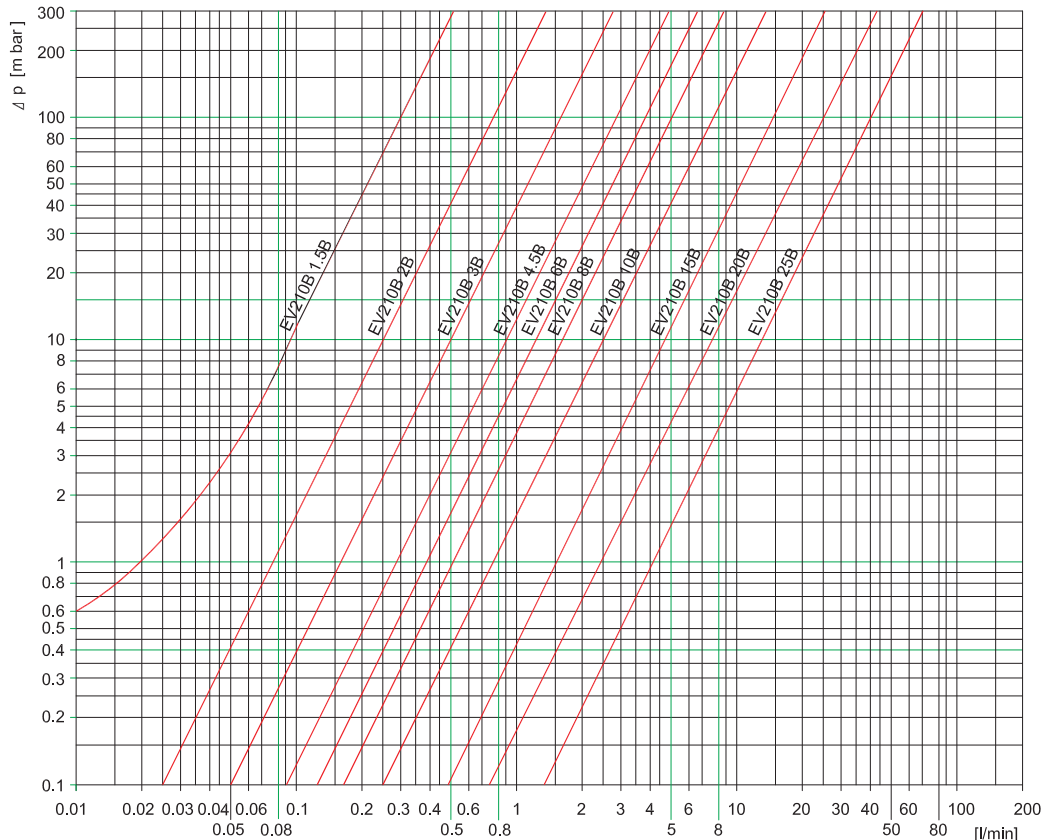
When voltage is applied to the coil (8), the magnetic field draws the valve's armature (1) down to touch the fixed base(7). The spindle (3) with the valve plate (4) is now pressed down against the valve orifice (5) by the closing spring (6). The valve will be closed for as long as there is voltage to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



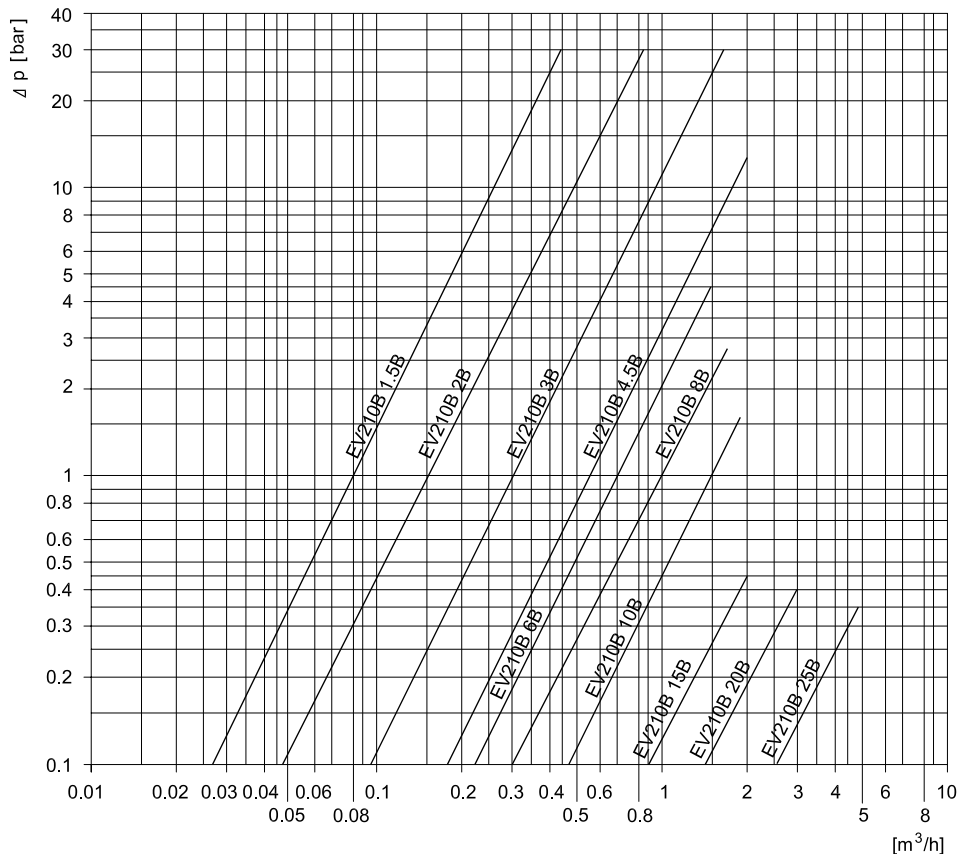
1.Armature  
2.Opening spring  
3.Spindle  
4.Valve plate  
5.Valve orifice  
6.Closing spring  
7.Fixed base  
8.Coil

**Capacity diagrams:**

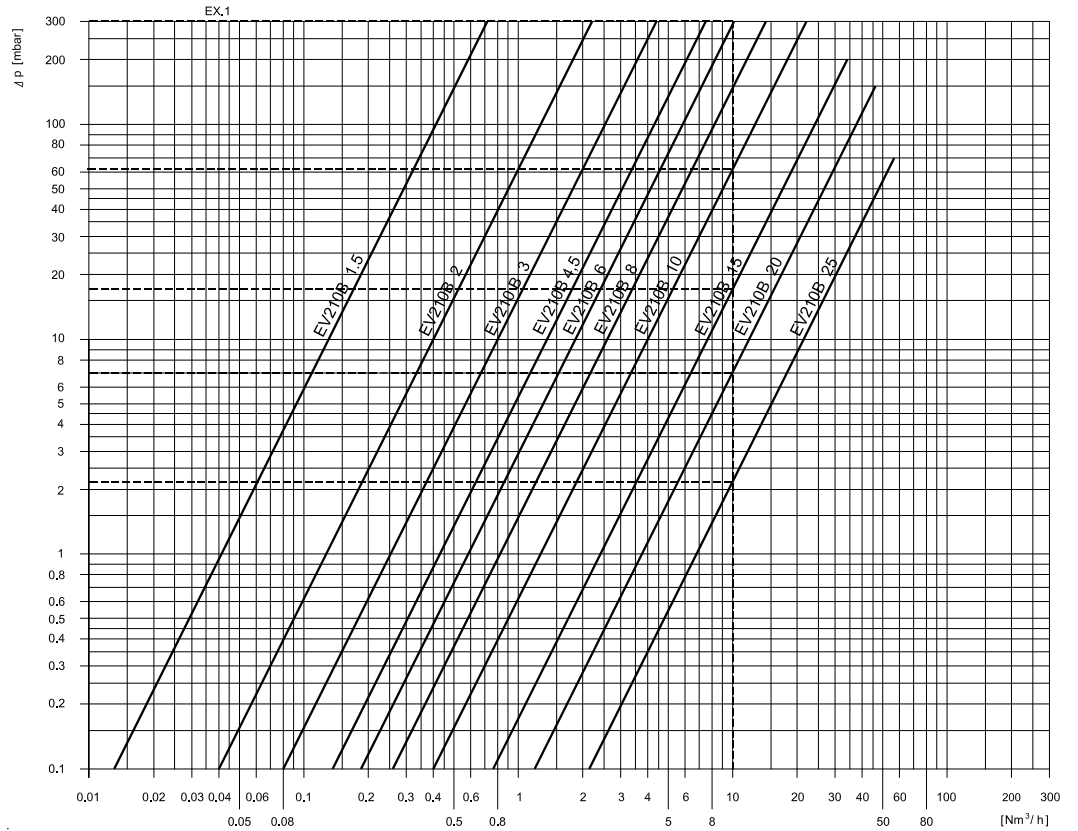
Example, water at low pressure:  
Capacity for EV210B 1.5B at differential  
pressure of 10 mbar. Approx. 0.08 l/min



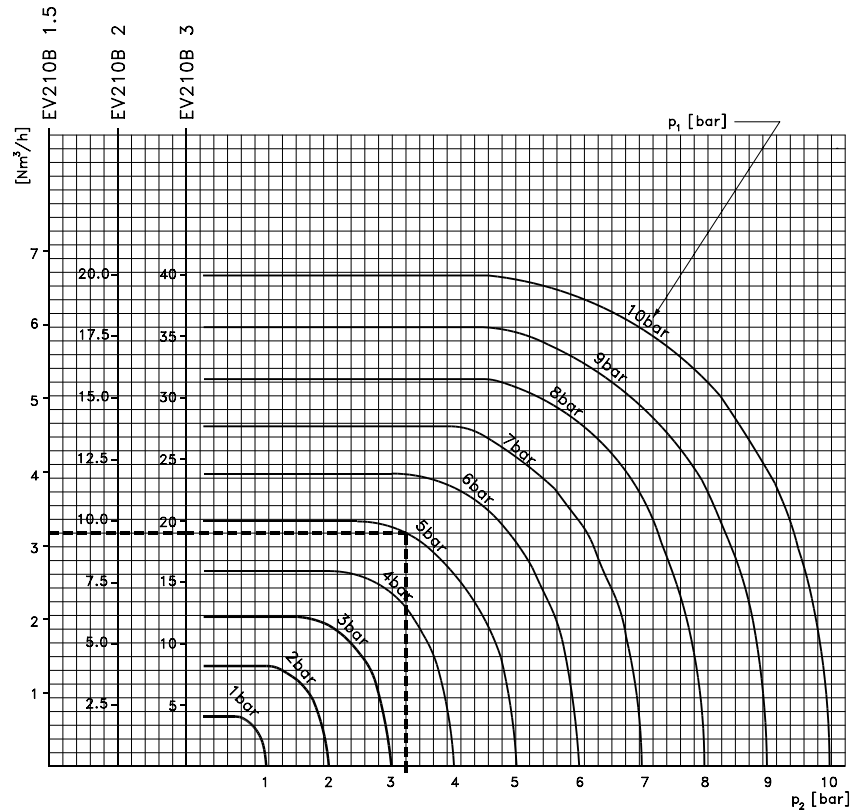
Example, water at higher pressure:  
Capacity for EV210B 3B at differential  
pressure of 0.5 bar. Approx. 0.21 m<sup>3</sup>/h



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 (p<sub>1</sub>) of 5 bar and outlet pressure (p<sub>2</sub>) of 3.25 bar. Approx. 9 Nm<sup>3</sup>/h



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