



# Solenoid valve

## EV210A

Direct-operated 2/2- way solenoid valves for use in industrial machinery

## Description

EV210A covers a wide range of small, direct operated 2/2-way solenoid valves for use in industrial machinery. The compact design together with the broad range of coils means that EV210A covers a broad variety of industrial applications.

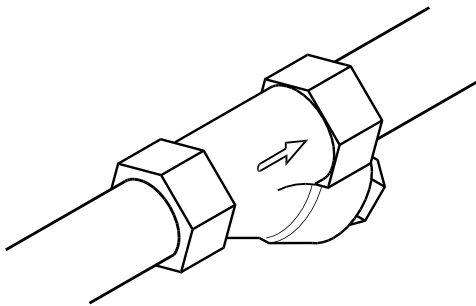
## Features & benefits

- For water, steam, oil, compressed air, aggressive liquids and gases
- Screw on coil
- Ambient temperature: Up to 50 °C
- Coil enclosure: Up to IP65
- EV210A NC and NO versions in brass for neutral media
- EV210A NC stainless steel version for neutral and aggressive liquids and gases

## Applications

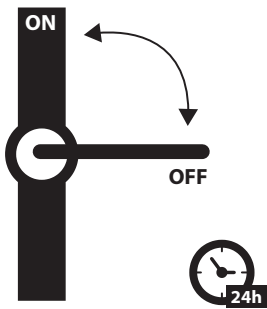
It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).

### 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.

### Exercise: Valve on/of



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 avoids stagnant water inside the valve to avoid dezincification and corrosion attack

## Ordering

### Product code numbers

#### Parts program





Table: Brass/SS, valve body NC and NO

Connection ISO228/1	Orifice [mm]	K <sub>v</sub> value [m <sup>3</sup> /h]	Sealing	Function		
				Brass		SS
			EPDM/FKM	NC	NO	NC
G <sup>1</sup> / <sub>8</sub>	1.2	0.04	EPDM	032H8000	-	-
			FKM	032H8001	-	032H8025
	1.5	0.08	FKM	032H8003	-	032H8027
		0.06	FKM	-	032H8049	-
	2.0	0.11	EPDM	032H8004	-	-
			FKM	032H8005	-	032H8029
		0.12	FKM	-	032H8051	-
	2.5	0.15	FKM	-	032H8053	-
		0.17	EPDM	032H8006	-	-
			FKM	032H8007	-	-
	3.0	0.18	FKM	-	032H8055	-
		0.22	EPDM	032H8008	-	-
			FKM	032H8009	-	032H8033
	3.5	0.20	FKM	-	032H8057	-
G <sup>1</sup> / <sub>4</sub>	2.5	0.17	EPDM	032H8014	-	-
			FKM	032H8015	-	032H8039
	3.0	0.22	EPDM	032H8016	-	-
			FKM	032H8017	-	032H8041
	3.5	0.26	EPDM	032H8018	-	-
			FKM	032H8019	-	032H8043

## Accessories code numbers

### Coils

Table: Below coils can be used with EV210A

Coil	Type	Power consumption	Enclosure	Features
	AB	4.5 W AC 5 W DC	IP00 with spade connector, IP65 with cable plug	In accordance with VDE 0580
	AC	7.0 W AC 10 W DC	IP00 with spade connector, IP65 with cable plug	In accordance with VDE 0580
	AM	7.5 W AC 9.5 W DC	IP00 with spade connector, IP65 with cable plug	In accordance with VDE 0580
	AK	3.0 W DC	IP00 with spade connector, IP65 with cable plug	In accordance with VDE 0580

For further information and for ordering, see separate data sheet for coils.

### Cable plug



Table: Cable plug

Cable plug size	Description	Code no.
DIN 18	Cable plug IP65	042N1278

### Cable plug



Application	Code no.
GM 209 (Black) cable plug according to DIN 46650-B PG9	042N0139

### Universal electronic multi-timer, Type ET 20M

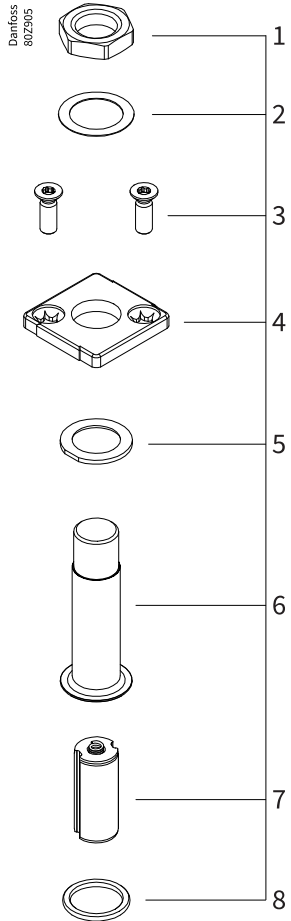


Type	Voltage [V]	Suitable for coil types	Code no.
BA024A	24 – 240	AL, AM, AS, AZ, BA, BD, BB	042N0185

## Spare parts code numbers

Spare parts kit, EV210A NC


Table: Spare parts kit

Type	Sealing	
	FKM	EPDM
EV210A 1.2 – 3.5	042U0068	042U0067
		
	<p>1. Nut Steel                  2. Spring washer                  3. 2 x screws                  4. Flange                  5. Washer                  6. Armature tube assembly                  7. Armature assembly                  8. O-ring</p>	

## Overview

### Product portfolio

Table: Portfolio overview

Features	EV210A NC	EV210A NO	EV210A NC
			
<b>Body material</b>	Brass	Brass	Stainless steel
<b>DN [mm]</b>	1.2 – 3.5	1.5 – 3.5	1.2 – 3.5
<b>Connection</b>	G $\frac{1}{8}$ – G $\frac{1}{4}$	G $\frac{1}{8}$	G $\frac{1}{8}$ – G $\frac{1}{4}$
<b>Sealing material</b>	EPDM, FKM	FKM	FKM
<b>K<sub>v</sub> [m<sup>3</sup>/h]</b>	0.04 – 0.26	0.06 – 0.20	0.04 – 0.26
<b>Differential pressure range [bar]</b>	0 – 30	0 – 30	0 – 30
<b>Temperature range [°C]</b>	-30 – 120	-10 – 100	-10 – 100

## Functions

### Function NC

#### Coil voltage disconnected (closed):

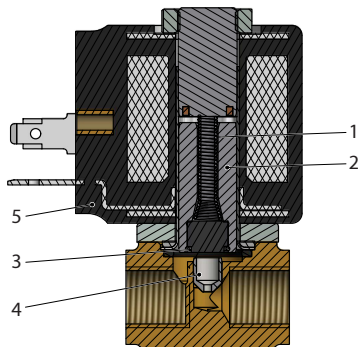
When the voltage is disconnected, the armature (2) with the valve plate (3) is pressed down against the valve orifice (4) by the closing spring (1) and the medium's pressure.

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

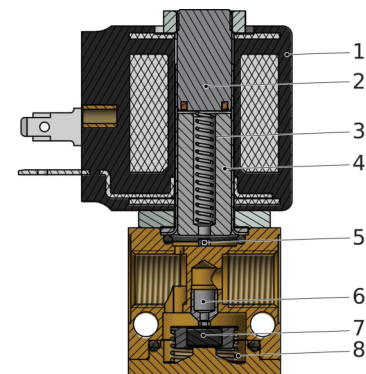
### Function NO

#### Coil voltage disconnected (open):

When the voltage to the coil is disconnected, the valve orifice (6) is open, the opening spring (3) pressing the valve plate (7) clear of the orifice (6) via the armature (4) and the pins (5). The valve will be open for as long as the supply voltage is disconnected.

#### Coil voltage connected (closed):

When voltage is applied to the coil, the armature (4) is drawn up to touch the fixed top (2). The valve plate (7) is pressed against the valve orifice (6) by the closing spring (8). The valve will be closed for as long as there is voltage to the coil.



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

## Product details

### General data

Table: Technical data

<b>Media</b>	FKM	For oil and air
	EPDM	For water
<b>Media temperature</b>	FKM	-10 – 100 °C
	EPDM	-30 – 120 °C
<b>Ambient temperature</b>	Max to 50 °C	
<b>K<sub>v</sub> value</b>	DN1.2	0.04 m <sup>3</sup> /h
	DN1.5	0.06 – 0.08 m <sup>3</sup> /h
	DN2	0.11 – 0.12 m <sup>3</sup> /h
	DN2.5	0.15 – 0.17 m <sup>3</sup> /h
	DN3	0.18 – 0.22 m <sup>3</sup> /h
	DN3.5	0.20 – 0.26 m <sup>3</sup> /h
<b>Min. opening differential pressure</b>	0 Bar	
<b>Max. opening differential pressure</b>	Up to 30 Bar	
<b>Max. working pressure</b>	Up to 30 Bar (equal to max. differential pressure)	
<b>Max. test pressure</b>	50 Bar	
<b>Viscosity</b>	Max. 20 cSt	

### Materials

Table: Materials

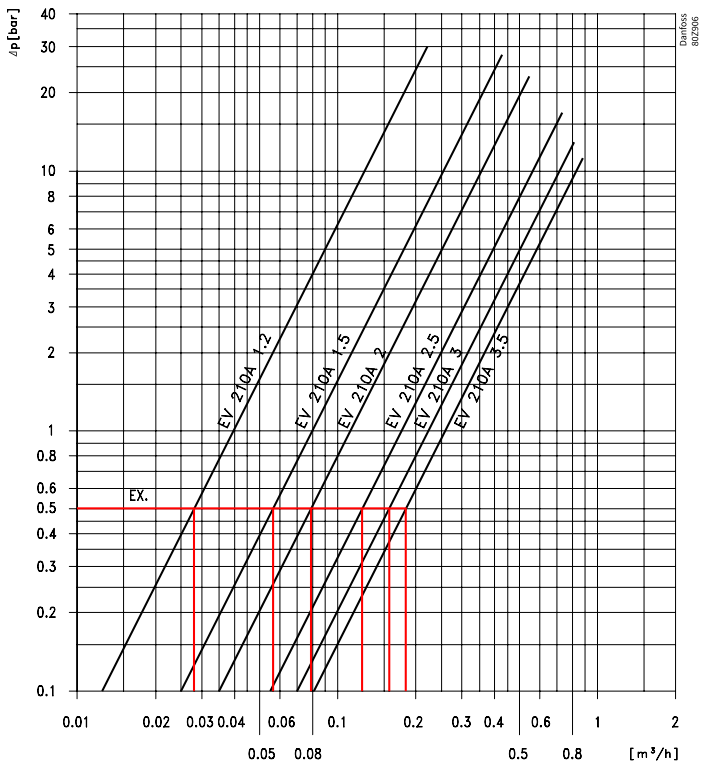
Components	Materials	Specifications
Valve body	Brass	W. no. 2.0401
	Stainless steel	W.no. 1.4305 / AISI 303
Armature	Stainless steel	W. no. 1.4016 / AISI 430
Armature tube	Stainless steel	W. no. 1.4303 / AISI 305
Armature stop	Stainless steel	W. no. 1.4016 / AISI 430
Spring	Stainless steel	W. no. 1.4310 / AISI 301
Valve orifice	Stainless steel	W. no. 1.4305 / AISI 303
O-ring / valve plate	EPDM / FKM	

## Capacity

### EV210A NC

Example, water at higher pressure: Capacity for EV210A 2.5B at differential pressure of 0.5 bar. Approx. 0.12 m<sup>3</sup>/h

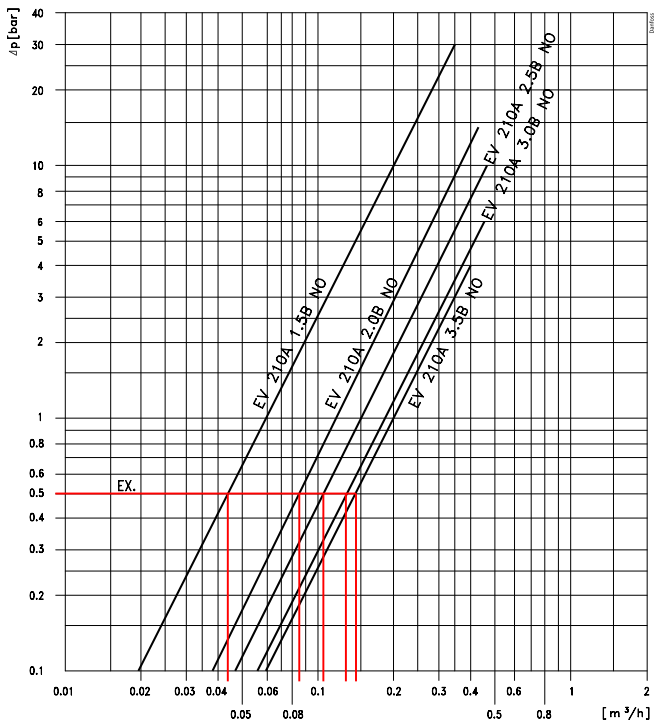
#### EV210A NC capacity diagram



### EV210A NO

Example, water at higher pressure: Capacity for EV210A 2.5B NO at differential pressure of 0.5 bar. Approx. 0.11 m<sup>3</sup>/h

#### EV210A NO capacity diagram



## Pressure and temperature data

**Table: Differential pressure range, NC and NO**

Connection ISO228-1	Orifice size [mm]	Seal material	Media	Differential pressure min. to max. [bar]									
				NC						NO			
				Suitable coil type									
				AB		AC		AM		AK	AM		
AC	DC	AC	DC	AC	DC	DC	AC	DC					
G½	1.2	EPDM	Water	0 – 30	0 – 17.5	0 – 30	0 – 24	0 – 30	0 – 24	0 – 24	–	–	
			FKM	Oil	0 – 28	0 – 16	0 – 30	0 – 24	0 – 30	0 – 24	0 – 24	–	–
				Air	0 – 30	0 – 19	0 – 30	0 – 24	0 – 30	0 – 24	0 – 24	–	–
	1.5	EPDM	Water	0 – 18 <sup>(1)</sup>	0 – 9.5 <sup>(1)</sup>	0 – 26 <sup>(1)</sup>	0 – 17.5 <sup>(1)</sup>	0 – 28 <sup>(1)</sup>	0 – 22.5 <sup>(1)</sup>	0 – 17.5	0 – 30	0 – 16	
			FKM	Oil	0 – 15	0 – 8	0 – 24	0 – 16	0 – 26	0 – 19	0 – 17.5	0 – 24	0 – 13
				Air	0 – 22	0 – 10.5	0 – 30	0 – 18.5	0 – 30	0 – 24	0 – 19	0 – 30	0 – 16
	2	EPDM	Water	0 – 11	0 – 5.5	0 – 18	0 – 10.5	0 – 23	0 – 18.5	0 – 9	0 – 14	0 – 10	
			FKM	Oil	0 – 9	0 – 5	0 – 16	0 – 9.5	0 – 22	0 – 17	0 – 9	0 – 11	0 – 8
				Air	0 – 14	0 – 6	0 – 22	0 – 11	0 – 30	0 – 24	0 – 9	0 – 14	0 – 10
G½ – G¼	2.5	EPDM	Water	0 – 6	0 – 3	0 – 11	0 – 5.5	0 – 17	0 – 13	0 – 5	0 – 10	0 – 6	
			FKM	Oil	0 – 5	0 – 2.5	0 – 9	0 – 5	0 – 16	0 – 12	0 – 5	0 – 8	04.5
				Air	0 – 8	0 – 3	0 – 12	0 – 6	0 – 20	0 – 14.5	0 – 5	0 – 10	0 – 6
	3	EPDM	Water	0 – 4	0 – 1.5	0 – 7	0 – 3.5	0 – 13	0 – 9	0 – 3	0 – 6	0 – 4	
			FKM	Oil	0 – 3	0 – 1.5	0 – 6	0 – 3	0 – 12	0 – 8	0 – 3	0 – 5	0 – 3
				Air	0 – 5	0 – 2	0 – 8	0 – 3.5	0 – 14	0 – 9	0 – 3	0 – 6	0 – 4
G½ – G¼	3.5	EPDM	Water	0 – 2.8	0 – 1.2	0 – 5	0 – 2.5	0 – 11	0 – 6	0 – 1.5	0 – 4	0 – 3	
			FKM	Oil	0 – 2	0 – 0.8	0 – 4	0 – 2.5	0 – 10	0 – 5.5	0 – 1.5	0 – 4	0 – 2
				Air	0 – 3.5	0 – 1.2	0 – 5.5	0 – 2.5	0 – 6	0 – 6	0 – 1.5	0 – 4	0 – 3

<sup>(1)</sup> Only NC SS

**Table: Time to open/close**

Type	EV210A 1.2 – 3.5
Time to open and close	7 – 10 ms (depending on pressure, coil and viscosity)

## Dimensions

Table: Dimension and weight, brass NC

Type	Connection ISO 228/1	Weight gross valve body without coil [kg]	L [mm]	B [mm]		H [mm]	A [mm]
				Coil type AB / AC	Coil type AM / AK		
EV210A	G $\frac{1}{8}$	0.085	26	22	33	54	13
	G $\frac{1}{4}$	0.110	35	22	33	59	17.5

Dimension, brass NC

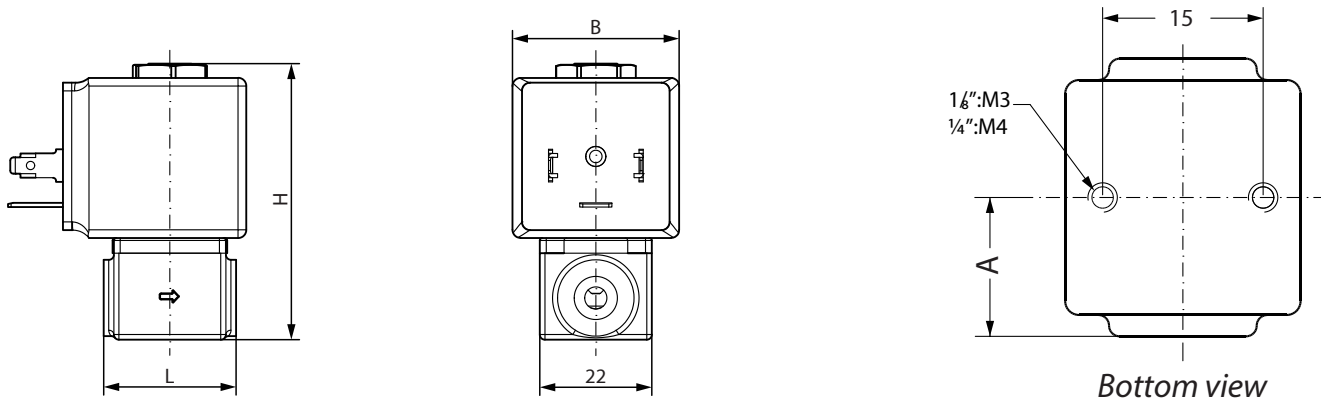
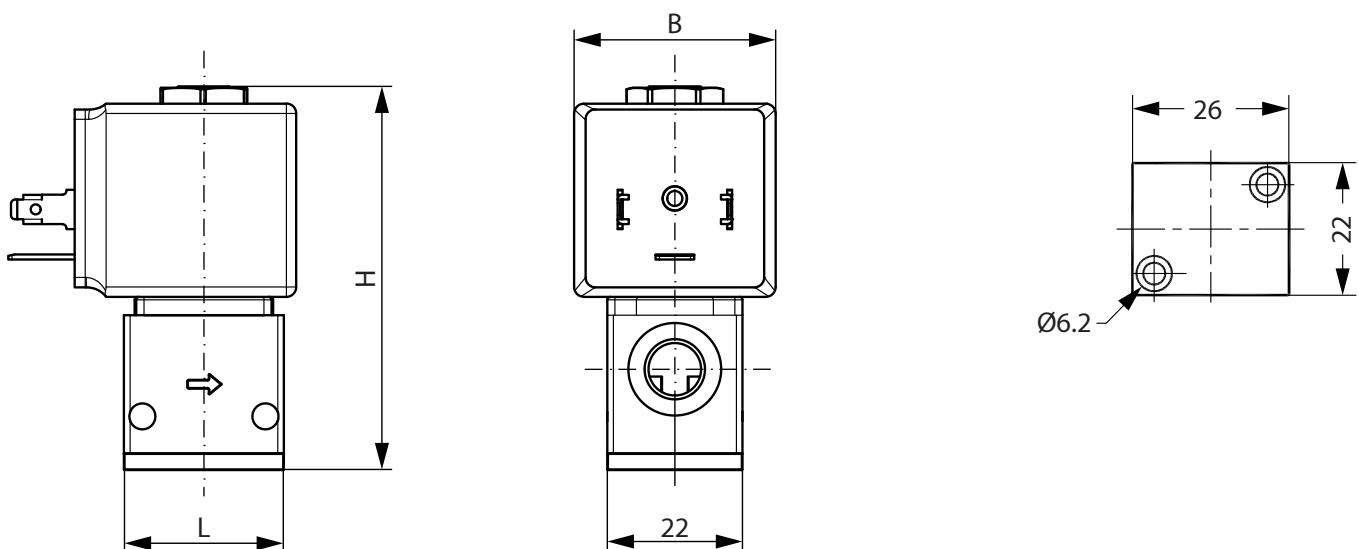


Table: Dimension and weight, brass NO

Type	Connection ISO 228/1	Weight gross valve body without coil [kg]	L [mm]	B [mm]	H [mm]
				Coil type AM	
EV210A	G $\frac{1}{8}$	0.125	26	33	63

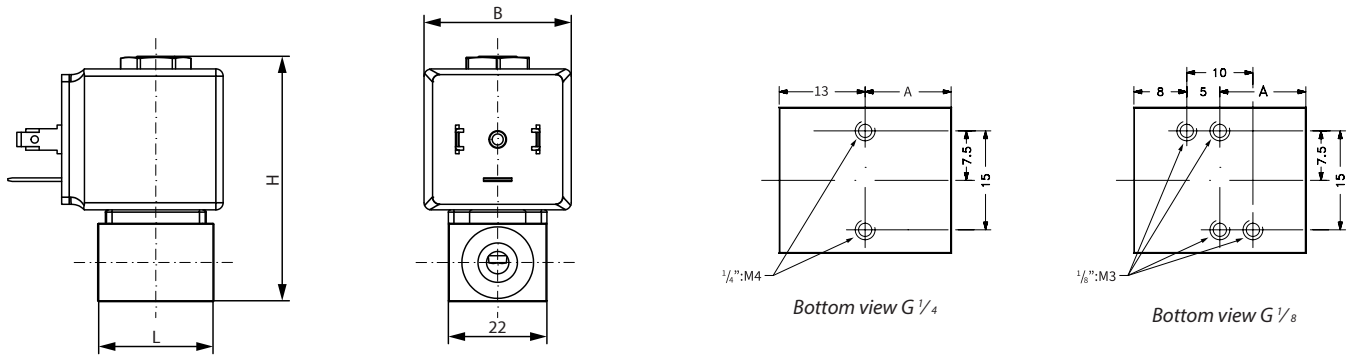
Dimension, brass NO



**Table: Dimension and weight, stainless steel**

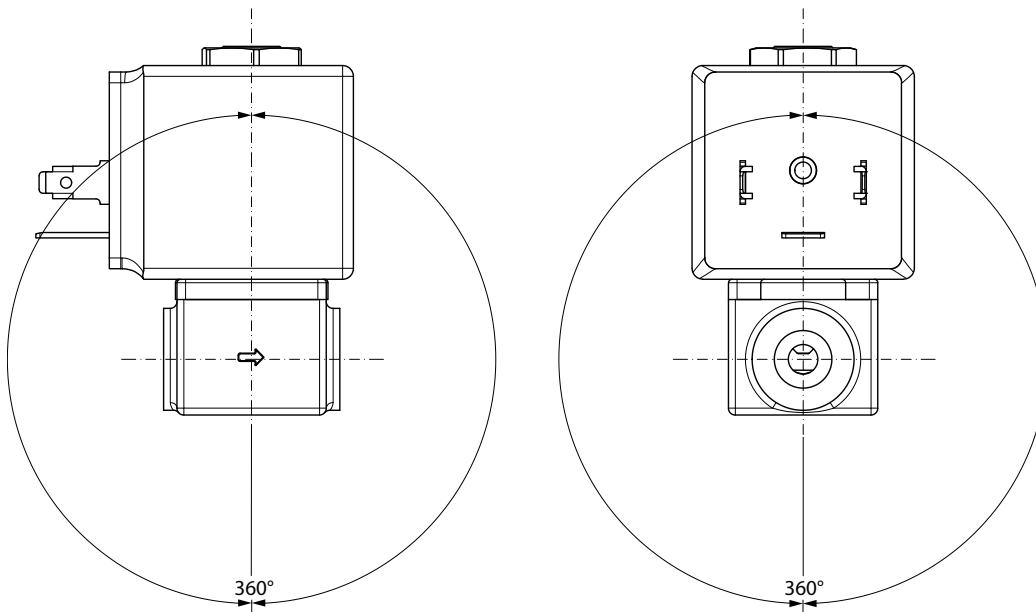
Type	Connection ISO 228/1	Weight gross Valve body without coil [kg]	L [mm]	B [mm]		H [mm]	A [mm]
				Coil type AB / AC	Coil type AM / AK		
EV210A	G $\frac{1}{8}$	0.085	26	22	33	54	13
EV210A 6	G $\frac{1}{4}$	0.110	35	22	33	59	17.5

**Dimension, Stainless steel**



**Mounting**

**EV210A, 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.

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Manufacturer's Declaration	<a href="#">Danfoss MD 033F0232.AA</a>	Danfoss	PED, Pressure
Export Control Declaration	<a href="#">Solenoid valves - Stainless steel</a>	Danfoss	
Export Control Declaration	<a href="#">Solenoid valves – Polymer, Bronze, Brass, Cast iron</a>	Danfoss	
EU Declaration	<a href="#">Danfoss EU 033F0683.05</a>	Danfoss	LVD, EU RoHS
UA Declaration	<a href="#">Danfoss UA 8481</a>	Danfoss	UA RoHS
Mechanical Safety Certificate	<a href="#">UL MH7648</a>	UL - Underwriters Laboratories inc.	
Pressure Safety Certificate	<a href="#">LLC CDC EURO-TYSK</a> <a href="#">UA.TR.089.1015.02-22</a>	LLC CDC EURO TYSK - Ukraine	PED, Pressure
Manufacturer's Declaration	<a href="#">Danfoss MD 033F4006 AC</a>	Danfoss	China RoHS
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