



# Solenoid valve

## EV310B

Direct-operated 3/2-way solenoid valves for universal use

## Description

EV310B covers a wide range of direct-operated 3/2-way solenoid valves for universal use. EV310B is a real robust valve program with high performance and can be used in all kind of tough working conditions. Clip-on coils can not be used on EV310B.

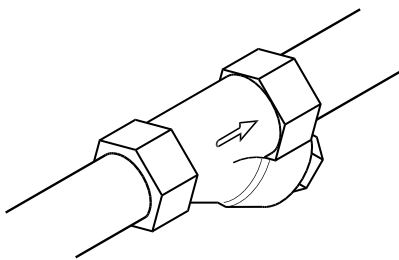
## Features & benefits

- For water, oil, compressed air and similar neutral media
- Screw on coil
- Ambient temperature: Up to 40 °C
- Coil enclosure (cable plug): Up to IP67
- Viscosity: Up to 50 cSt

## Applications

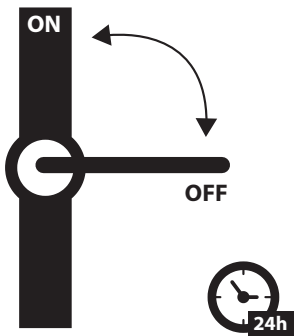
It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).

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

## Ordering


### Product code numbers

Table: Brass, valve body NC, NO, NC MAN, NO MAN, NC FL MAN

Connection ISO 228/1	Orifice	K <sub>v</sub> value	Function				
	[mm]	[m <sup>3</sup> /h]	NC	NO	NC MAN	NO MAN	NC FL MAN
G 1/8	1.5	0.08	032U4900	032U4926	–	–	–
	2.0	0.15	032U4901	032U4927	–	–	–
	3.0	0.30	032U4902	–	–	–	–
G 1/4	1.5	0.08	032U4903	032U4929	–	–	–
	2.0	0.15	032U4904	032U4930	032U4919	032U4944	–
	3.0	0.30	032U4905	032U4931	–	–	–
	3.5	0.40	032U4906	–	–	–	–
G 3/8	2.0	0.15	032U4907	032U4933	–	–	–
	3.0	0.30	032U4908	032U4934	–	–	–
	3.5	0.40	032U4909	–	–	–	–
Flange 32x32	2.0	0.15	–	–	–	–	032U4923

### Accessories code numbers

Table: Below coil can be used with EV310B

Coil	Type	Power consumption	Enclosure	Features
	BA / BD, screw on	9 W AC 15 W AC 15 W DC	IP00 with spade connector	IP20 with protective cap, IP67 with cable plug

### Cable plug



Table: Cable plug

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

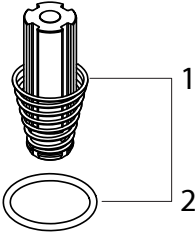
**ET20M**



Type	Voltage [V]	Suitable for coil types	Code no.
ET20M	24 – 240	AL, AM, AS, AZ, BA, BD, BB	042N0185

**Spare parts code numbers**




Table: Actuator kit, NC and NO

Type	Actuator kit	
	NC	NO
EV310B	032U2033	032U2035
		
	1. Armature with mounted spring 2. O-ring	

## Overview

### Product portfolio

Table: Portfolio overview

Features	EV310B	EV310B MAN	EV310B Flange MAN
			
<b>Body material</b>	Brass	Brass	Brass
<b>DN [mm]</b>	1.5 – 3.5	2.0	2.0
<b>Function</b>	NC, NO	NC, NO	NC
<b>Connection</b>	G 1/8 – G 3/8	G 1/4	Flange 32x32 mm
<b>Sealing material</b>	FKM	FKM	FKM
<b>K<sub>v</sub> [m<sup>3</sup>/h]</b>	0.8 – 0.40	0.15	0.15
<b>Differential pressure range [bar]</b>	0 – 20	0 – 16	0 – 16
<b>Temperature range [°C]</b>	-10 – 100	-10 – 100	-10 – 100
<b>Manual override (MAN)</b>	No	Yes	Yes

## Functions

### Function, NC

#### Coil voltage disconnected (closed):

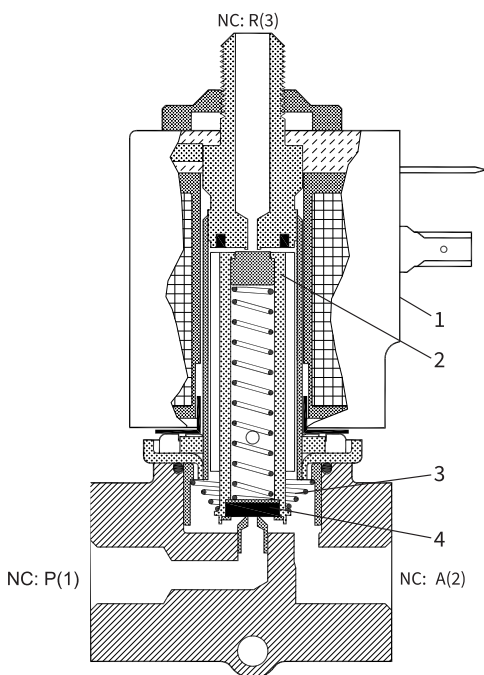
When the voltage to the coil is disconnected, the armature with the valve plates is pressed down by the closing spring and closes the connection between P and A. At the same time, the connection between ports A and R is opened.

The connection between P and A will be closed for as long as the voltage to the coil is disconnected.

#### Coil voltage connected (open):

When voltage is applied, the armature with the valve plates is lifted and closes the connection between A and R. At the same time, the connection between P and A is opened.

The connection between P and A will be open for as long as there is voltage to the coil.



<b>1</b>	Coil
<b>2</b>	Armature
<b>3</b>	Closing spring
<b>4</b>	Valve plate
<b>p</b>	Pressure port (stamped: 1)
<b>A</b>	Application port (stamped: 2)
<b>R</b>	Relief port (3)

## Function, NO

### Coil voltage disconnected (open):

When the voltage is disconnected, the armature with the valve plates is pressed down by the opening spring and closes the connection between A and R. At the same time, the connection between ports P and A is open.

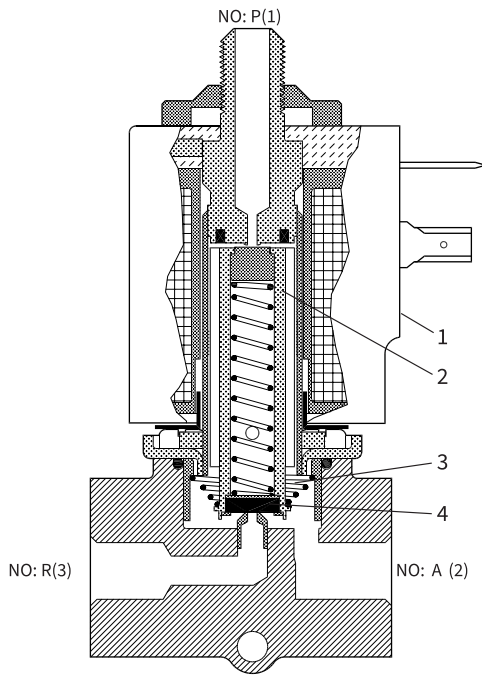
The connection between P and A will be open for as long as the voltage to the coil is disconnected.

On valves with manual override the connection between P and A can be closed using a closing screw in the valve body.

### Coil voltage connected (closed):

When voltage is applied to the coil, the armature with the valve plates is lifted and closes the connection between P and A. At the same time, the connection between ports A and R is opened.

The connection between P and A will be closed for as long as there is voltage to the coil.



<b>1</b>	Coil
<b>2</b>	Armature
<b>3</b>	Opening spring
<b>4</b>	Valve plate
<b>p</b>	Pressure port (1)
<b>A</b>	Application port (stamped: 2)
<b>R</b>	Relief port (stamped: 3)

## Function, NC FL MAN

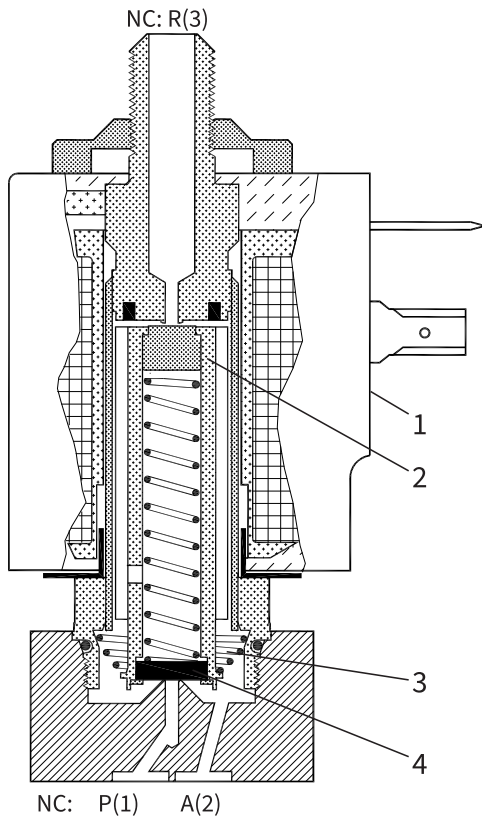
### Coil voltage disconnected (open):

When the voltage to the coil is disconnected, the armature, with the valve plates, is pressed down by the closing spring and closes the connection between P and A. At the same time, the connection between ports A and R is opened. The connection between P and A will be closed for as long as the voltage to the coil is disconnected. On valves with manual override the connection between P and A can be opened using an opening screw in the valve body.

### Coil voltage connected (closed):

When voltage is applied, the armature with the valve plates is lifted and closes the connection between A and R. At the same time, the connection between P and A is opened.

The connection between P and A will be open for as long as there is voltage to the coil.



1	Coil
2	Armature
3	Closing spring
4	Valve plate
p	Pressure port (stamped: 1)
A	Application port (stamped: 2)
R	Relief port (3)

## Product details

### General data

Table: Technical data

Media	FKM	For water, oil, compressed air and similar neutral media
Media temperature [°C]	-10 – 100	
Ambient temperature [°C]	Up to 40	
K <sub>v</sub> value [m <sup>3</sup> /h]	DN1.5	0.08
	DN2.0	0.15
	DN3.0	0.30
	DN3.5	0.40
Min. Opening differential pressure [bar]	0	
Max. Opening differential pressure [bar]	Up to 20	
Max. working pressure [bar]	Up to 20	
Max. test pressure [bar]	50	
Viscosity [cSt]	Max. 50	

Table: Differential pressure range

Connection ISO228/1	Orifice size [mm]	Max working pressure [bar]	Differential pressure, min. to max		
			NC/NO [bar]	NC/NO MAN [bar]	NC FL MAN [bar]
G 1/8	1.5	20	0 – 20		
	2.0	16	0 – 16		
	3.0	7	0 – 7		
G 1/4	1.5	20	0 – 20		
	2.0	16	0 – 16	0 – 16	0 – 16
	3.0	7	0 – 7		
	3.5	5	0 – 5		
G 3/8	2.0	16	0 – 16		
	3.0	7	0 – 7		
	3.5	5	0 – 5		

Table: Time to open/close

Main type	EV310B NC/NO/NC MAN/NO MAN/NC FL MAN
Time to open [ms] <sup>(1)</sup>	10 – 20
Time to close [ms] <sup>(1)</sup>	10 – 20

<sup>(1)</sup> The times are indicative.

## Materials

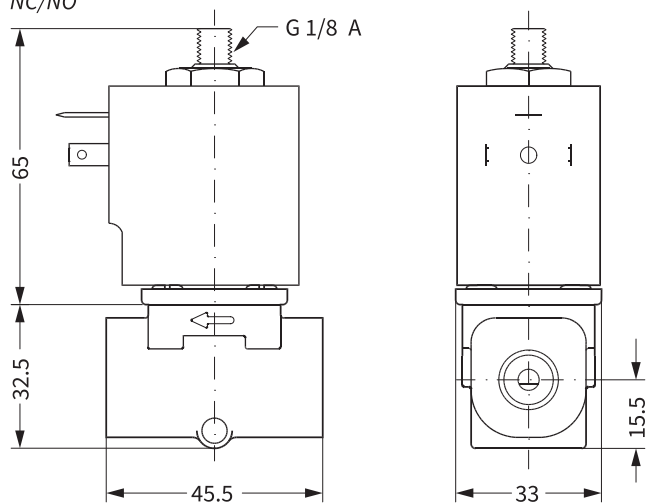
Table: Materials

Components	Materials	Specifications
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
Spring	Stainless steel	W.no. 1.4310 / AISI 301
Seal material	FKM	-

## Dimensions

Dimension and weight NC / NO / NC MAN / NO MAN

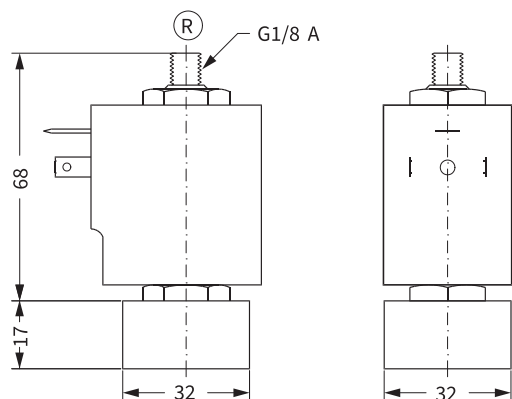
NC/NO



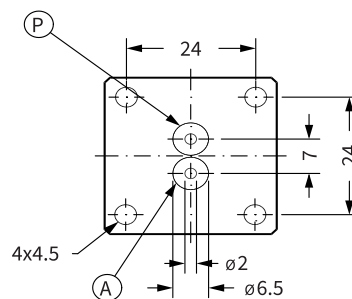
Weight without coil 0.220 kg

Dimension and weight NC FL MAN

NC FL



Bottom view

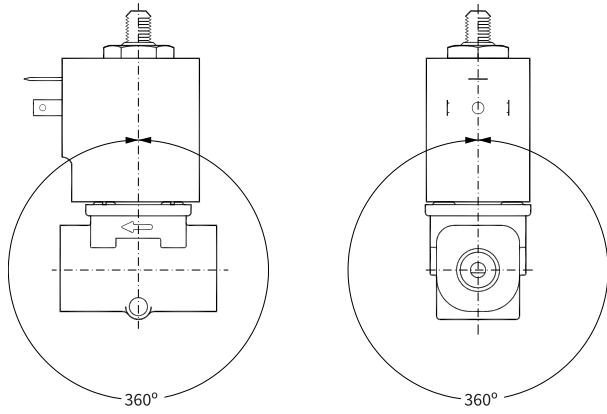


Weight without coil : 0.185 kg

<b>P</b>	Pressure port
<b>A</b>	Application port
<b>R</b>	Relief port

**Mounting**

**Mounting Angle**



## Certificates, declarations and approvals

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
Manufacturer's Declaration	<a href="#">Danfoss MD 033F0232.AA</a>	Danfoss	PED, Pressure
Manufacturer's Declaration	<a href="#">Danfoss MD 033F0699.00</a>	Danfoss	China RoHS
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
Pressure Safety Certificate	<a href="#">LLC CDC EURO-TYSK UA.TR.089.1015.02-22</a>	LLC CDC EURO TYSK - Ukraine	PED, Pressure
Manufacturer's Declaration	<a href="#">Danfoss MD 033F1140.01</a>	Danfoss	EU RoHS

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