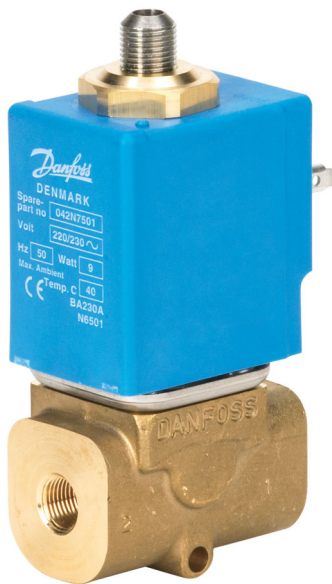


## Data Sheet

Solenoid valve  
Type **EV310B**

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






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**

- 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

## 1 Portfolio overview

Table 1: 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 $\frac{1}{8}$ - G $\frac{3}{8}$	G $\frac{1}{4}$	Flange 32x32 mm
<b>Sealing material</b>	FKM	FKM	FKM
<b>Kv [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

## 2 Functions

### 2.1 Function, NC

**Coil voltage disconnected (closed):**

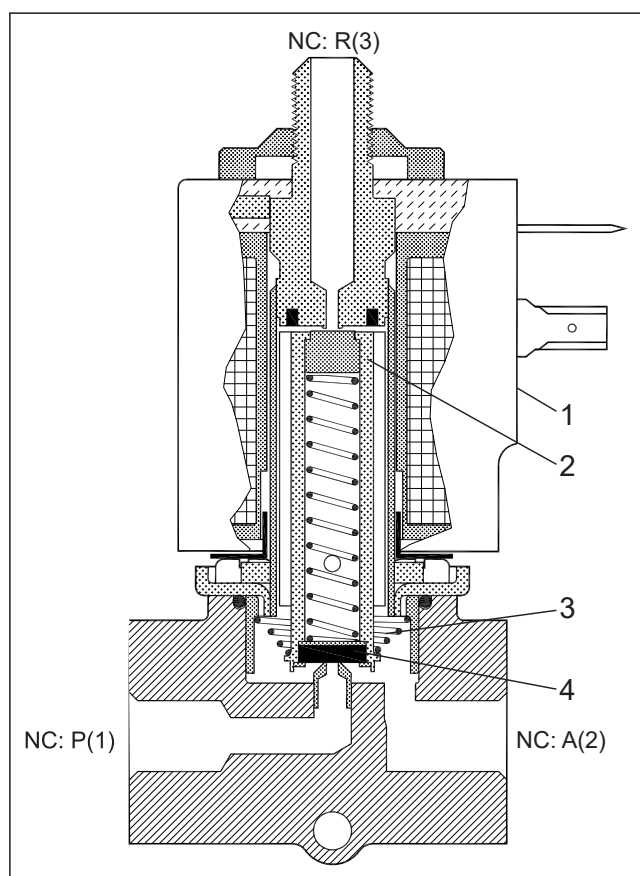
When the voltage to the coil is disconnected, the armature with the valve plates is pressed down by the closing spring and closes the connection between P and A. At the same time, the connection between ports A and R is opened.

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.



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

### 2.2 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.

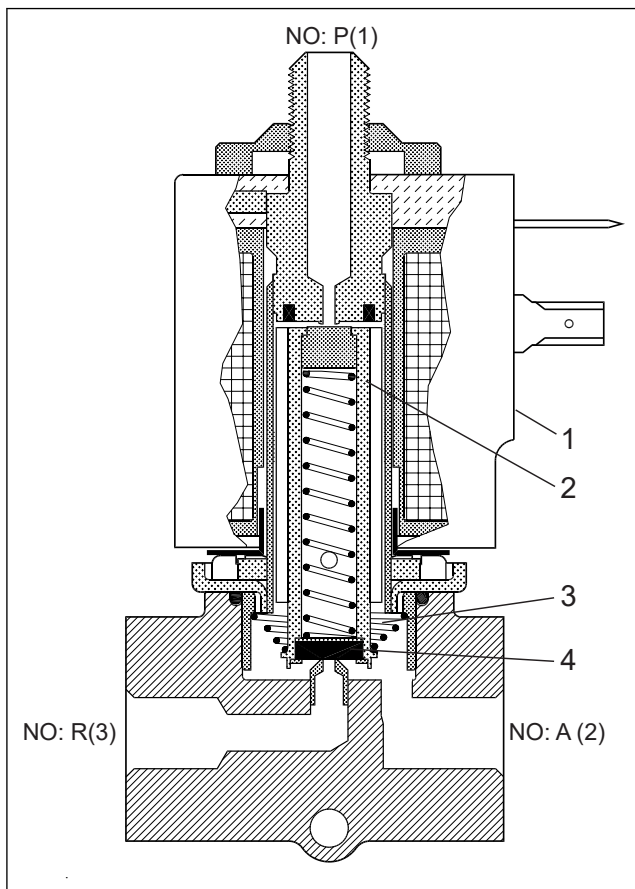
On valves with manual override the connection between P and A can be closed using a closing screw in the valve body.

**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.

## Solenoid valve, type EV310B

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



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

### 2.3 Function, NC FL MAN

#### Coil voltage disconnected (open):

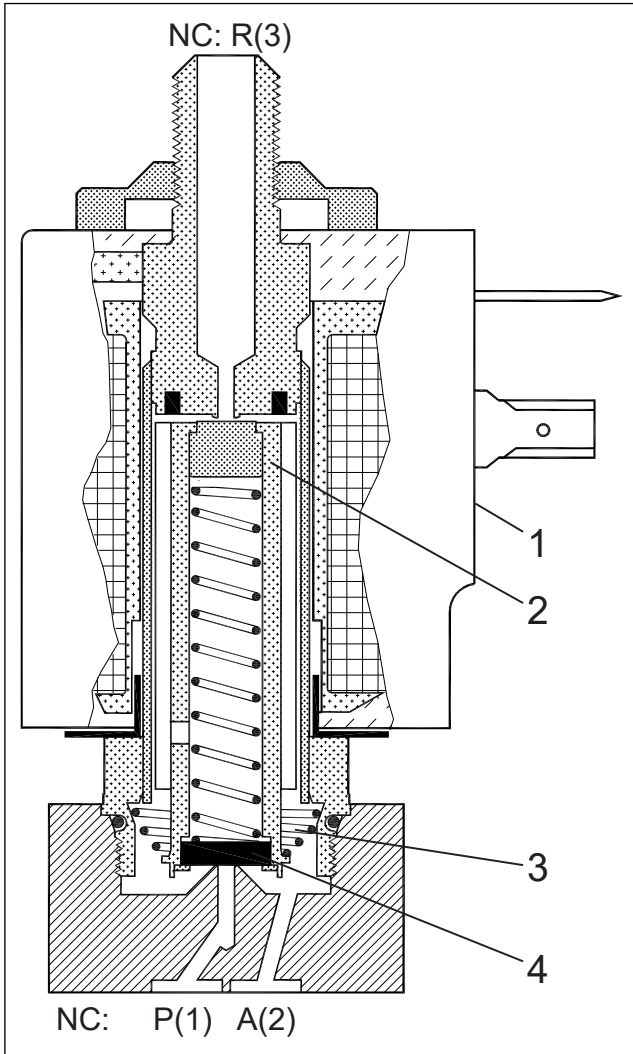
When the voltage to the coil is disconnected, the armature, with the valve plates, is pressed down by the closing spring and closes the connection between P and A. At the same time, the connection between ports A and R is opened. The connection between P and A will be closed for as long as the voltage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

Solenoid valve, type EV310B

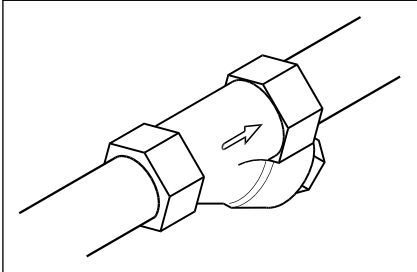


1	Coil
2	Armature
3	Closing spring
4	Valve plate
p	Pressure port (stamped: 1)
A	Application port (stamped: 2)
R	Relief port (3)

### 3 Applications

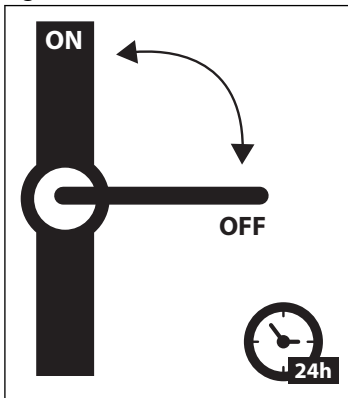
It is recommended to use a filter in front of the valve. Recommended filter 50 mesh (297 microns).

Figure 1: 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 2: 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 / lime stone 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

## 4 Product specification

### 4.1 Technical data

Table 2: Technical data

<b>Media</b>	FKM	For water, oil, compressed air and similar neutral media
<b>Media temperature [°C]</b>	-10 °C - 100 °C	
<b>Ambient temperature [°C]</b>	Up to 40 °C	
<b>Kv value [m³/h]</b>	DN1.5	0.08 m³/h
	DN2.0	0.15 m³/h
	DN3.0	0.30 m³/h
	DN3.5	0.40 m³/h
<b>Min. Opening differential pressure [bar]</b>	0 bar	
<b>Max. Opening differential pressure [bar]</b>	Up to 20 bar	
<b>Max. working pressure [bar]</b>	Up to 20 bar	
<b>Max. test pressure [bar]</b>	50 bar	
<b>Viscosity [cSt]</b>	Max. 50 cSt	

### Differential pressure range

Table 3: Differential pressure range

Connection ISO228/1	Orifice size	Max working pressure [bar]	Differential pressure, min. to max		
			NC/NO [bar]	NC/NO MAN [bar]	NC FL MAN [bar]
G½	1.5	20	0-20		
	2.0	16	0-16		
	3.0	7	0-7		
G¾	1.5	20	0-20		
	2.0	16	0-16	0-16	0-16
	3.0	7	0-7		
	3.5	5	0-5		
G1	2.0	16	0-16		
	3.0	7	0-7		
	3.5	5	0-5		

### Time to open/close

Table 4: 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 5: Materials

Components	Materials	Specifications
<b>Valve body</b>	Brass	W.no. 2.0402
<b>Armature</b>	Stainless steel	W.no. 1.4105/AISI 430FR
<b>Armature tube</b>	Stainless steel	W.no. 1.4306/AISI 304L
<b>Armature stop</b>	Stainless steel	W.no. 1.4105/AISI 430FR
<b>Spring</b>	Stainless steel	W.no. 1.4310 / AISI 301
<b>Seal material</b>	FKM	

### 4.2 Dimension and weight

Figure 3: Dimension and weight NC / NO / NC MAN / NO MAN

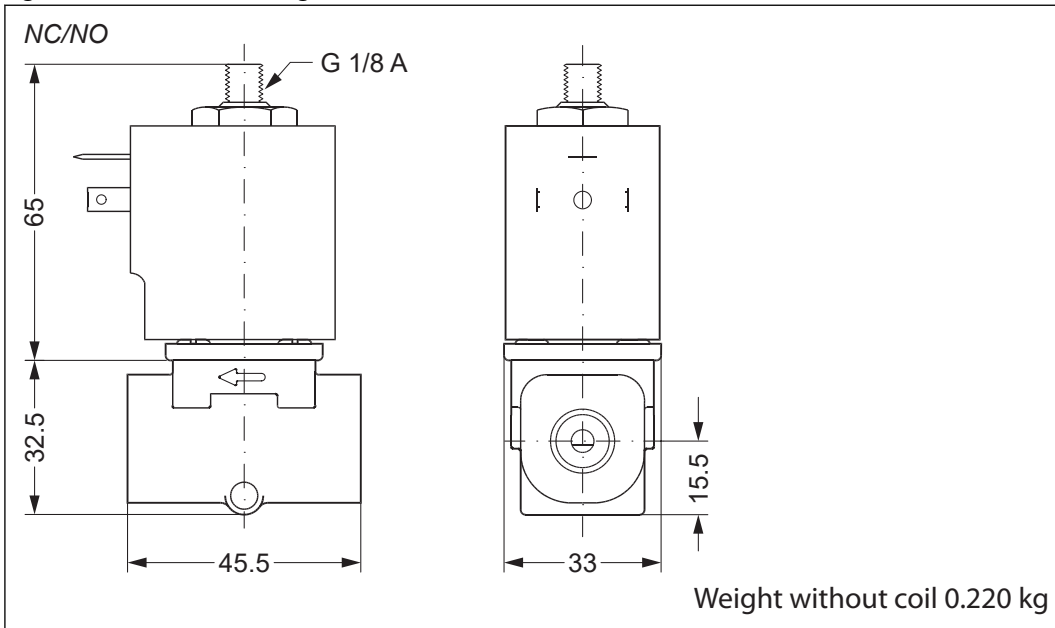
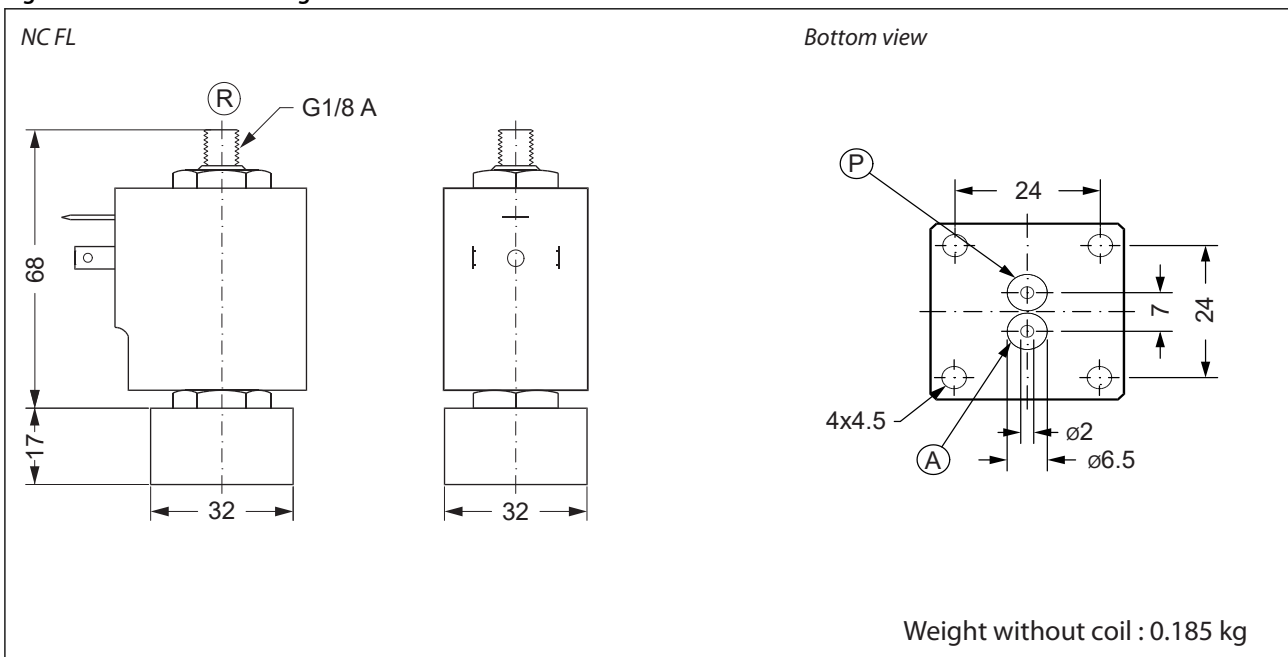


Figure 4: Dimension and weight NC FL MAN

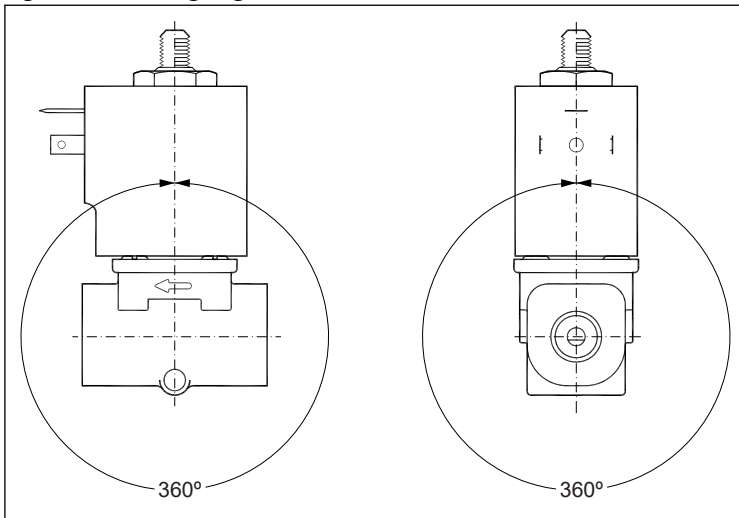


P	Pressure port
A	Application port
R	Relief port



### 4.3 Mounting

Figure 5: Mounting angle



## 5 Ordering

### 5.1 Parts program


Table 6: Brass, valve body NC, NO, NC MAN, NO MAN, NC FL MAN

Connection ISO 228/1	Orifice	Kv 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

### 5.2 Accessories

#### Coil

Table 7: 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

Figure 6: Cable plug

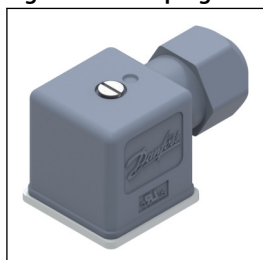


Table 8: Cable plug

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

Solenoid valve, type EV310B

Universal electronic multi-timer, type ET20M

Figure 7: ET20M



Type	Voltage [V]	Suitable for coil types	Code number
BA024A	24 – 240	AL, AM, AS, AZ, BA, BD, BB	042N0185

Spare parts kit

Table 9: Actuator kit, NC and NO

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

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