

## Data sheet

# Direct-operated 3/2-way compact solenoid valves

## Type EV310A



EV310A covers a wide range of small competitive, direct-operated 3/2-way solenoid valves for use within industrial applications, for example as pilot valve.

**Features**

- For water, oil, compressed air and similar neutral media
- Differential pressure: Up to 20 bar
- Ambient temperature: Up to 50 °C
- Media temperature from -10 – 100 °C
- Coil enclosure: Up to IP65
- Viscosity: Up to 20 cSt
- $K_v$  values up to 0.08 m<sup>3</sup>/h
- Thread connection:
  - NC G 1/8 – G 1/4
  - NO G 1/8
  - NC MAN G 1/8 – G 1/4
- Flange connection:
  - NC FL 32 x 32 mm

**Brass valve body, NC**



| Connection<br>ISO 228/1 | Seal<br>material | Orifice<br>size | K <sub>v</sub> - value<br>[m³/h] | Differential pressure, min. to<br>max. [bar] |       |        | Media<br>temperature<br>min. to max.<br>[°C] | Code number     |
|-------------------------|------------------|-----------------|----------------------------------|----------------------------------------------|-------|--------|----------------------------------------------|-----------------|
|                         |                  |                 |                                  | AC / AM                                      |       |        |                                              |                 |
|                         |                  |                 |                                  | Water                                        | Oil   | Air    |                                              |                 |
| G 1/8                   | FKM              | 1.2             | 0.04                             | 0 – 18                                       | 0 – 9 | 0 – 20 | -10 – 100                                    | <b>032H8085</b> |
|                         | FKM              | 1.5             | 0.07                             | 0 – 10                                       | 0 – 5 | 0 – 12 | -10 – 100                                    | <b>032H8087</b> |
| G 1/4                   | FKM              | 1.2             | 0.04                             | 0 – 18                                       | 0 – 9 | 0 – 20 | -10 – 100                                    | <b>032H8095</b> |
|                         | FKM              | 1.5             | 0.07                             | 0 – 10                                       | 0 – 5 | 0 – 12 | -10 – 100                                    | <b>032H8097</b> |
|                         | FKM              | 2               | 0.08                             | 0 – 6.5                                      | 0 – 4 | 0 – 8  | -10 – 100                                    | <b>032H8099</b> |

**Brass valve body, NO**



| Connection<br>ISO 228/1 | Seal<br>material | Orifice<br>size | K <sub>v</sub> - value<br>[m³/h] | Differential pressure, min. to max. [bar] |          |          |          |          |          |          | Media<br>temperature<br>min. to<br>max. [°C] | Code<br>number |
|-------------------------|------------------|-----------------|----------------------------------|-------------------------------------------|----------|----------|----------|----------|----------|----------|----------------------------------------------|----------------|
|                         |                  |                 |                                  | Coil type                                 |          |          |          |          |          |          |                                              |                |
|                         |                  |                 |                                  | AB<br>AC                                  | AB<br>DC | AC<br>AC | AC<br>DC | AM<br>AC | AM<br>DC | AK<br>DC |                                              |                |
| G 1/8                   | FKM              | 1.2             | 0.04                             | 0 – 6                                     | 0 – 4    | 0 – 9    | 0 – 7    | 0 – 13   | 0 – 9    | 0 – 4    | -10 – 100                                    | 032H8125       |
|                         | FKM              | 1.5             | 0.07                             | 0 – 3                                     | 0 – 2    | 0 – 5    | 0 – 3.5  | 0 – 7    | 0 – 5    | 0 – 2    | -10 – 100                                    | 032H8127       |

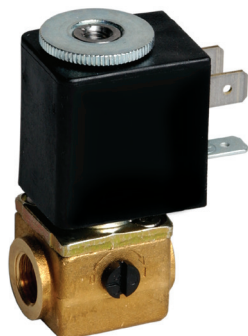
**Technical data**

|                                  |              |
|----------------------------------|--------------|
| Main type                        | EV310A NC/NO |
| Time to open [ms] <sup>1)</sup>  | 7 – 10       |
| Time to close [ms] <sup>1)</sup> | 7 – 10       |

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

|                     |                                         |                 |                         |
|---------------------|-----------------------------------------|-----------------|-------------------------|
| Type                | EV310A NC/NO                            |                 |                         |
| Installation        | Vertical solenoid system is recommended |                 |                         |
| Max. test pressure  | 50 bar                                  |                 |                         |
| Ambient temperature | Up to 50 °C                             |                 |                         |
| Medium temperature  | -10 – 100 °C                            |                 |                         |
| Viscosity           | Max. 20 cSt                             |                 |                         |
| Materials           | Valve body:                             | Brass           | W.no. 2.0401            |
|                     | Valve orifice:                          | 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 |
|                     | O-rings/valve plate:                    | FKM             | –                       |

### Brass valve body, NC MAN



| Connection<br>ISO 228/1 | Seal<br>material | Orifice<br>size | K <sub>v</sub> - value<br>[m³/h] | Differential pressure, min. to<br>max. [bar] |       |        | Media<br>temperature<br>min. to max.<br>[°C] | Code number     |
|-------------------------|------------------|-----------------|----------------------------------|----------------------------------------------|-------|--------|----------------------------------------------|-----------------|
|                         |                  |                 |                                  | AC / AM                                      |       |        |                                              |                 |
|                         |                  |                 |                                  | Water                                        | Oil   | Air    |                                              |                 |
| G 1⁄8                   | FKM              | 1.5             | 0.07                             | 0 – 10                                       | 0 – 5 | 0 – 12 | -10 – 100                                    | <b>032H8143</b> |
| G 1⁄4                   | FKM              | 1.5             | 0.07                             | 0 – 10                                       | 0 – 5 | 0 – 12 | -10 – 100                                    | <b>032H8153</b> |

### Technical data

|                                  |               |
|----------------------------------|---------------|
| Main type                        | EV310A NC Man |
| Time to open [ms] <sup>1)</sup>  | 7 – 10        |
| Time to close [ms] <sup>1)</sup> | 7 – 10        |

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

|                     |                                          |                 |                          |
|---------------------|------------------------------------------|-----------------|--------------------------|
| Type                | EV310A NC Man                            |                 |                          |
| Installation        | Vertical solenoid system is recommended. |                 |                          |
| Max. test pressure  | 50 bar                                   |                 |                          |
| Ambient temperature | Up to 50 °C                              |                 |                          |
| Medium temperature  | -10 – 100 °C                             |                 |                          |
| Viscosity           | Max. 20 cSt                              |                 |                          |
| Materials           | Valve body:                              | Brass           | W.no. 2.0401             |
|                     | Valve orifice:                           | 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. 1.4305 / AISI 303  |
|                     | Other parts:                             | Stainless steel | W.no. 1.4016 / AISI 430F |
|                     | O-rings/valve plate:                     | FKM             | –                        |
|                     | Manual override                          | Polymer         | Polysulfon black         |

# Brass valve body, NC FL



| Connection<br>ISO 228/1 | Seal<br>material | Orifice<br>size | K <sub>v</sub> - value<br>[m³/h] | Differential pressure, min. to<br>max. [bar] |       |        | Media<br>temperature<br>min. to max.<br>[°C] | Code<br>number  |
|-------------------------|------------------|-----------------|----------------------------------|----------------------------------------------|-------|--------|----------------------------------------------|-----------------|
|                         |                  |                 |                                  | AC / AM                                      |       |        |                                              |                 |
|                         |                  |                 |                                  | Water                                        | Oil   | Air    |                                              |                 |
| 32 x 32                 | FKM              | 1.5             | 0.08                             | 0 – 10                                       | 0 – 5 | 0 – 12 | -10 – 100                                    | <b>032H8183</b> |

## Technical data

|                                  |              |
|----------------------------------|--------------|
| Main type                        | EV310A NC FL |
| Time to open [ms] <sup>1)</sup>  | 7 – 10       |
| Time to close [ms] <sup>1)</sup> | 7 – 10       |

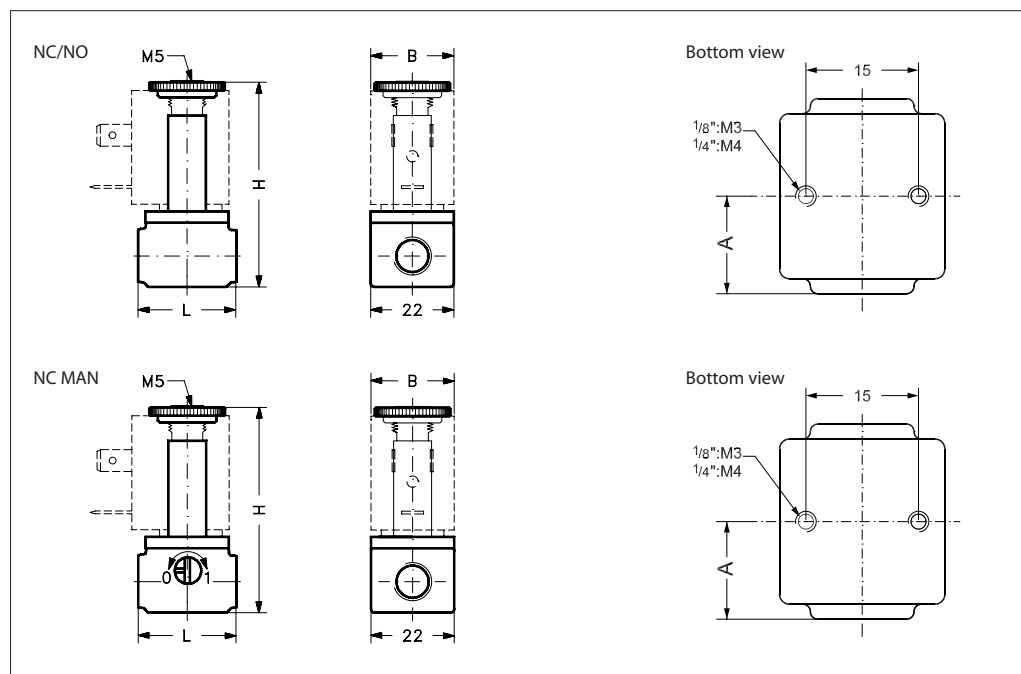
<sup>1)</sup> The times are indicative.

|                     |                                          |                 |                         |
|---------------------|------------------------------------------|-----------------|-------------------------|
| Type                | EV310A NC FL                             |                 |                         |
| Installation        | Vertical solenoid system is recommended. |                 |                         |
| Max. test pressure  | 50 bar                                   |                 |                         |
| Ambient temperature | Up to 50 °C                              |                 |                         |
| Medium temperature  | -10 – 100 °C                             |                 |                         |
| Viscosity           | Max. 20 cSt                              |                 |                         |
| Materials           | Valve body:                              | Brass           | W.no. 2.0401            |
|                     | Valve orifice:                           | 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 |
|                     | Springs:                                 | Stainless steel | W.no. 1.4310 / AISI 301 |
|                     | O-rings/valve plate:                     | FKM             | –                       |

### Dimensions and weight, NC, NO and NC MAN

| Thread ISO 228/1 | L<br>[mm] | B [mm] Coil type |         | H<br>[mm] | A<br>[mm] | Weight without<br>coil [kg] |
|------------------|-----------|------------------|---------|-----------|-----------|-----------------------------|
|                  |           | AB / AC          | AM / AK |           |           |                             |
| G 1/8            | 26        | 22               | 33      | 54        | 13        | 0.085                       |
| G 1/4            | 35        | 22               | 33      | 59        | 17,5      | 0.110                       |

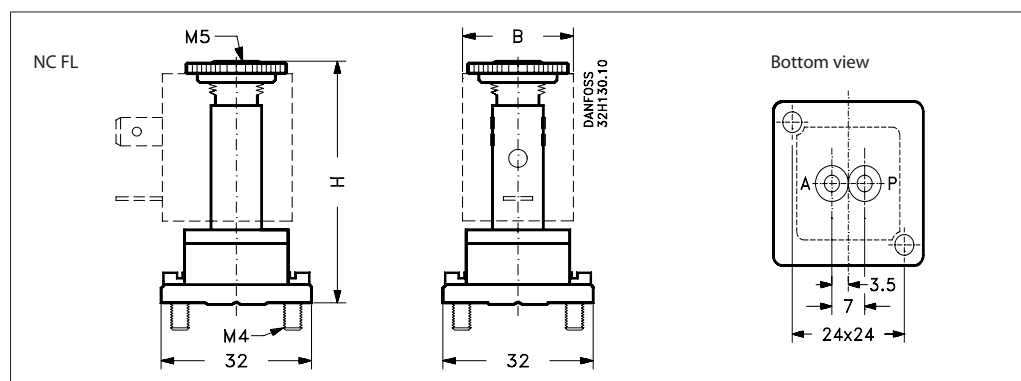
## Dimensions



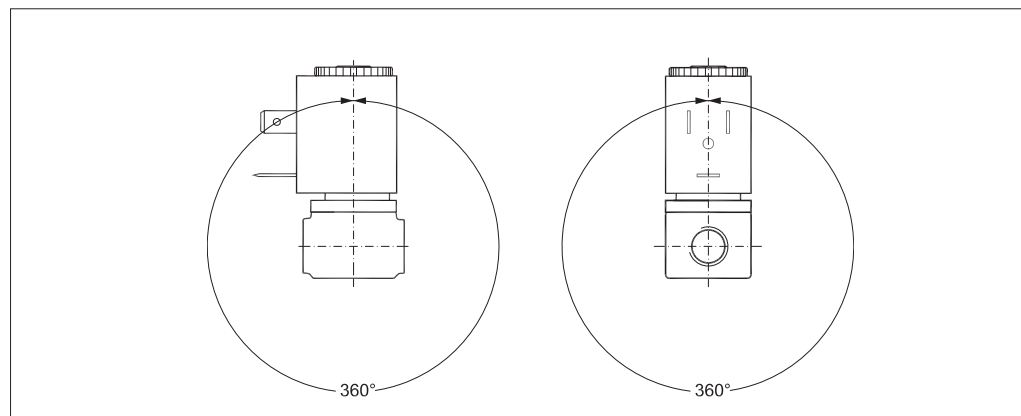
### Dimensions and weight, NC FL

| Flange [mm] | B [mm] Coil type |    | H [mm] | Weight without coil [kg] |
|-------------|------------------|----|--------|--------------------------|
|             | AC               | AM |        |                          |
| 32 x 32     | 22               | 33 | 50.5   | 0.085                    |

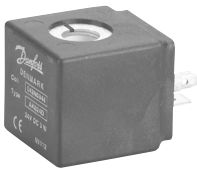
## Dimensions



### Mounting angle



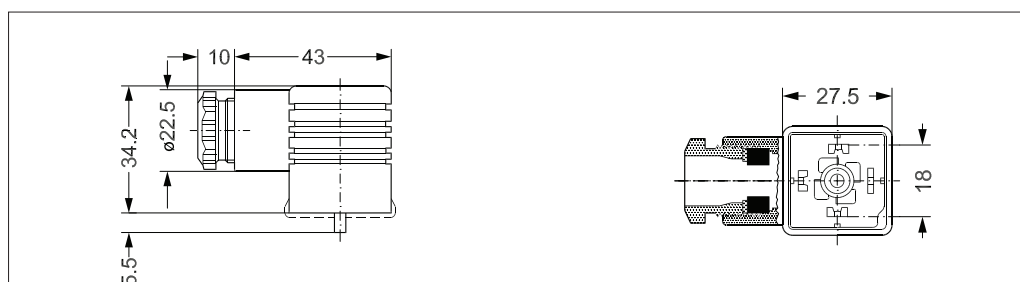
### Below coils can be used with EV310A

| Coil                                                                               | Type | Power consumption    | Enclosure                                          | Features        |
|------------------------------------------------------------------------------------|------|----------------------|----------------------------------------------------|-----------------|
|   | AM   | 7.5 W AC<br>9.5 W DC | IP00 with spade connector,<br>IP65 with cable plug | Cable plug      |
|   | AC   | 7 W AC<br>10 W DC    | IP00 with spade connector,<br>IP65 with cable plug | Industrial plug |
|   | AB   | 4.5 W AC<br>5 W DC   | IP00 with spade connector,<br>IP65 with cable plug | Industrial plug |
|  | AK   | 3 W DC               | IP00 with spade connector,<br>IP65 with cable plug | Cable plug      |

### Accessories:

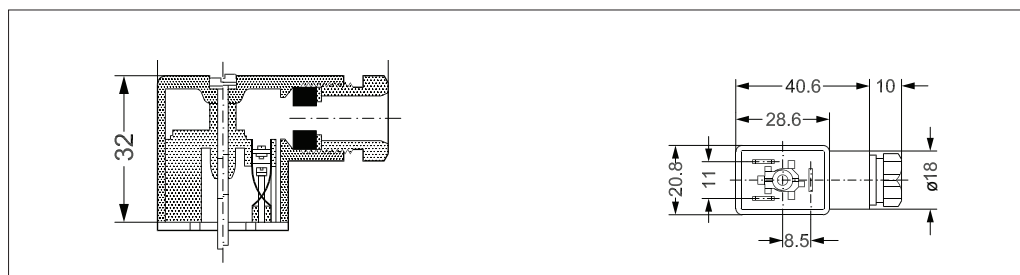
#### Cable plug

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



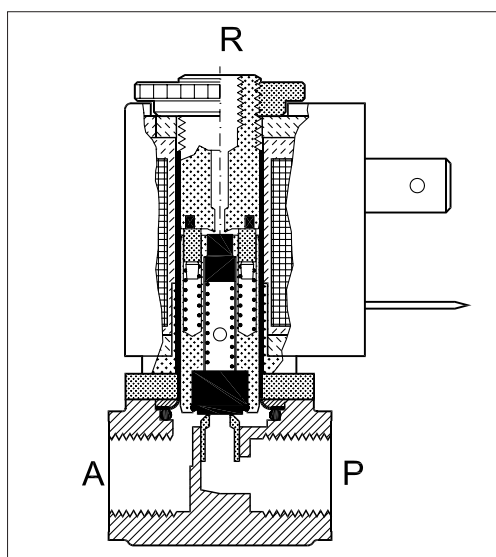
#### Industrial plug

| Application                                            | Code number     |
|--------------------------------------------------------|-----------------|
| GM 209 (Black) cable plug according to DIN 43650-B PG9 | <b>042N0139</b> |



# Function, NC / NC MAN

- 1. Opening spring
- 2. Armature
- 3. Valve plate
- 4. Coil
- P: Pressure gate
- A: Working gate
- R: Relief gate



## Coil voltage disconnected (closed):

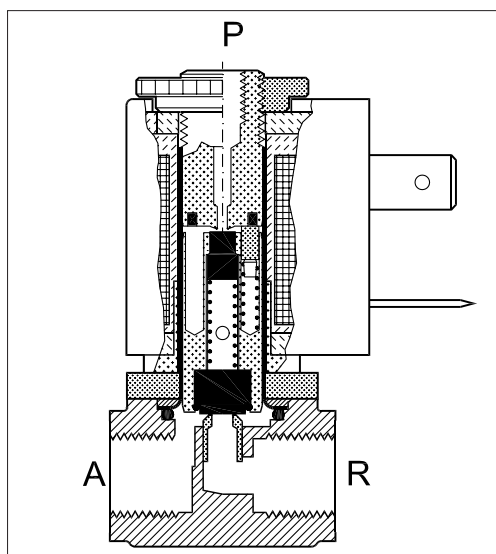
When the voltage to the coil (4) is disconnected, the armature (2) with the valve plates (3) is pressed down by the closing spring (1) and closes the connection between P and A. At the same time, the connection between gates A and R is opened. The connection between P and A will be closed for as long as the voltage to the coil is disconnected.

## Coil voltage connected (open):

When voltage is applied, the armature (2) with the valve plates (3) 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.

# Function, NO

- 1. Opening spring
- 2. Armature
- 3. Valve plate
- 4. Coil
- P: Pressure gate
- A: Working gate
- R: Relief gate



## Coil voltage disconnected (open):

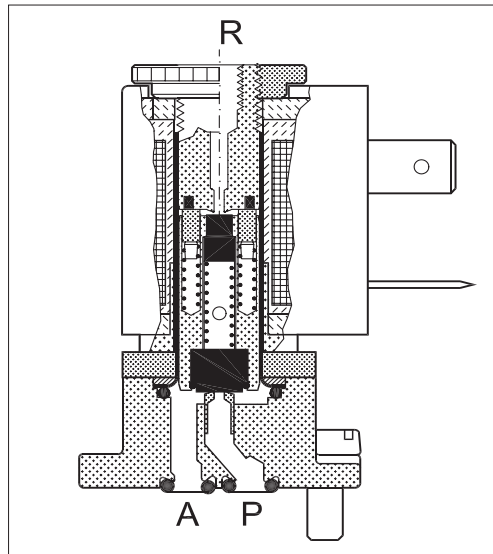
When the voltage is disconnected, the armature (2) with the valve plates (3) is pressed down by the opening spring (1) and closes the connection between A and R. At the same time, the connection between P and A is open. The connection between P and A will be open for as long as the voltage to the coil is disconnected.

## Coil voltage connected (closed):

When voltage is applied to the coil (4), the armature (2) with the valve plates (3) is lifted and closes the connection between P and A. At the same time, the connection between gates A and R is opened. The connection between P and A will be closed for as long as there is voltage to the coil.

## Function, NC FL

- 1.Closing spring
- 2.Armature
- 3.Valve plate
- 4.Coil
- P:Pressure gate
- A:Working gate
- R:Relief gate



### Coil voltage disconnected (open):

When the voltage to the coil (4) is disconnected, the armature (2) with the valve plates (3) is pressed down by the closing spring (1) and closes the connection between P and A. At the same time, the connection between gates 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 (closed):

When voltage is applied, the armature (2) with the valve plates (3) 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.