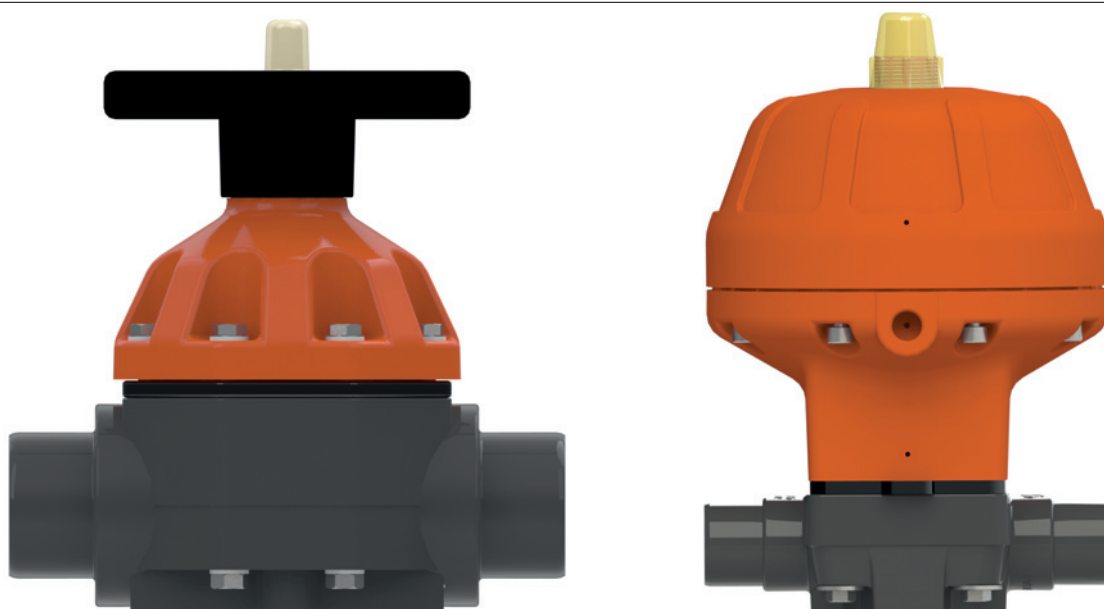


# Diaphragm valve

Operating manual

Series MV 310



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Subject to technical modifications.

Read carefully before use.  
Save for future use.

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# 1 About this document

This manual

- is part of the fitting
- applies to all series referred to
- describes safe and proper operation during all operating phases

## 1.1 Target groups




### Operating company

- Responsibilities:
  - Keep this manual available at the place of operation, also for future use.
  - Ensure that employees read and observe this manual and other applicable documents, especially the safety instructions and warnings.
  - Observe any additional country-specific rules and regulations that relate to the system.

### Qualified personnel, fitter








- Mechanics qualification:
  - Qualified employees with additional training for fitting the respective pipework
- Electrical qualification:
  - Qualified electrician
- Responsibility:
  - Read, observe and follow this manual and the other applicable documents, especially all safety instructions and warnings.

## 1.2 Other applicable documents

<p><b>Resistance lists</b> Resistance of materials used to chemicals</p> <p><a href="http://www.asv-stuebbe.de/pdf_resistance/300051.pdf">www.asv-stuebbe.de/pdf_resistance/300051.pdf</a></p>	
	<p><b>Data sheet</b> Technical data and conditions of operation</p> <p><a href="http://www.asv-stuebbe.de/pdf_datasheets/300848.pdf">www.asv-stuebbe.de/pdf_datasheets/300848.pdf</a></p>
<p><b>CE declaration of conformity</b> Conformity with standards</p> <p><a href="http://www.asv-stuebbe.de/pdf_DOC/300168.pdf">www.asv-stuebbe.de/pdf_DOC/300168.pdf</a></p>	


Tab. 1 Other application documents, purpose and where found

## 1.3 Warnings and symbols

Symbol	Meaning
	<ul style="list-style-type: none"> <li>• Immediate acute risk</li> <li>• Death, serious bodily harm</li> </ul>
	<ul style="list-style-type: none"> <li>• Potentially acute risk</li> <li>• Death, serious bodily harm</li> </ul>
	<ul style="list-style-type: none"> <li>• Potentially hazardous situation</li> <li>• Minor injury</li> </ul>
	<ul style="list-style-type: none"> <li>• Potentially hazardous situation</li> <li>• Material damage</li> </ul>
	<p>Safety warning sign</p> <ul style="list-style-type: none"> <li>▶ Take note of all information highlighted by the safety warning sign and follow the instructions to avoid injury or death.</li> </ul>
	Instruction
1., 2., ...	Multiple-step instructions
✓	Precondition
→	Cross reference
	Information, notes

Tab. 2 Warnings and symbols


## 2 Safety instructions

 The manufacturer accepts no liability for damages caused by disregarding any of the documentation.

### 2.1 Intended use

- Only use the fitting to shut off pipes for appropriate media (→ Resistance list).
- Adhere to the operating limits (→ Data sheet).

### 2.2 General safety instructions

 Read and observe the following regulations before carrying out any work.

#### 2.2.1 Obligations of the operating company

##### Safety-conscious working

- Only operate the fitting if it is in perfect technical condition and only use it as intended, remaining aware of safety and risks, and adhering to the instructions in this manual.
- Ensure that the following safety aspects are observed and monitored:
  - Intended use
  - Statutory or other safety and accident-prevention regulations
  - Safety regulations governing the handling of hazardous substances
  - Applicable standards and guidelines in the country where the pump is operated
- Make personal protective equipment available.

##### Qualified personnel

- Ensure all personnel tasked with work on the fitting have read and understood this manual and all other applicable documents, especially the safety, maintenance and repair information, before they start any work.
- Organize responsibilities, areas of competence and the supervision of personnel.
- The following work should be carried out by specialist technicians only:
  - Installation, repair and maintenance work
  - Work on the electrical system
- Make sure that personnel to be trained only work on the fitting under the supervision of specialist technicians.

#### 2.2.2 Obligations of personnel

- Observe the instructions on the fitting and keep them legible, e.g. name plate and identification marking for fluid connections.
- Only carry out work on the fitting if the following requirements are met:
  - System is empty
  - System has been flushed
  - System is depressurized
  - System has cooled down
  - System is secured against being switched back on again
- Do not make any modifications to the device.

### 2.3 Specific hazards

#### 2.3.1 Hazardous media

- When handling hazardous media (e.g. hot, flammable, explosive, toxic, hazardous to health or the environment), observe the safety regulations for the handling of hazardous substances.
- Use personal protective equipment when carrying out any work on the fitting.
- Collect leaking pumped liquid and residues in a safe manner and dispose of in accordance with environmental regulations.

### 3 Layout and Function

#### 3.1 Marking

##### 3.1.1 Name plate



Fig. 1 Name plate (example)

- 1 Type
- 2 ID number
- 3 Nominal pressure [bar] / Nominal diameter [mm]
- 4 Materials (valve body, diaphragm, other gaskets)
- 5 Date of manufacture - Series number

#### 3.2 Assembly

Compressed air operated diaphragm valve for shutting off pipelines or regulating systems.

- Optional flow direction
- Valve lift OPEN/CLOSE
- Optional installation position
- Valve functions
  - Normally closed (NC)
  - Normally open (NO)
  - Double acting (DA)

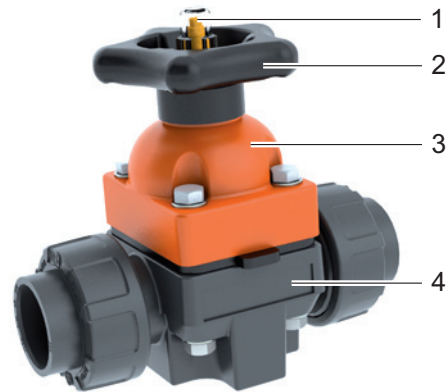


Fig. 2 Structure (manual operation)

- 1 Indicator cap
- 2 Handwheel
- 3 Upper part of housing
- 4 Valve body

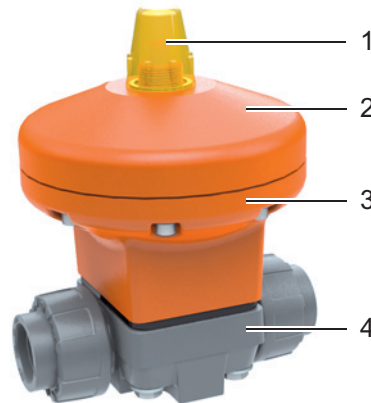


Fig. 3 Structure (pneumatic operation)

- 1 Indicator cap
- 2 Upper part of drive housing
- 3 Lower part of drive housing
- 4 Valve body

## 4 Transport, Storage and Disposal

### 4.1 Unpacking and inspection on delivery

1. Unpack the fitting when received and inspect it for transportation damage.
2. Report any transportation damage to the manufacturer immediately.
3. Ensure that the information on the name plate agrees with the order/design data.
4. With immediate installation, dispose of packaging material according to local regulations.
  - For later installation, leave the fitting in the original packaging.

### 4.2 Transportation

1. If possible, transport fitting (including drive) in the original packaging.
2. Lift fitting manually for transport. For weight specifications (→ Data sheet).

### 4.3 Storage

---

#### NOTE

---

#### Material damage due to inappropriate storage!

- ▶ Store the fitting properly.
- 
- ▶ Make sure the storage room meets the following conditions:
    - Dry
    - Frost-free
    - Vibration-free
    - Not in direct sunlight
    - Storage temperature +10 °C to +60 °C

### 4.4 Disposal

- Plastic parts can be contaminated by poisonous or radioactive media to such an extent that cleaning will not be sufficient.

#### **WARNING**

#### **Risk of poisoning and environmental damage from medium!**

- ▶ Use personal protective equipment when carrying out any work on the fitting.
  - ▶ Before disposing of the fitting:
    - Collect escaping medium and dispose separately according to local regulations.
    - Neutralize residues of medium in the fitting.
  - ▶ Remove plastic parts and dispose of them in accordance with local regulations.
- 
- ▶ Dispose of the fitting in accordance with local regulations.

## 5 Installation and connection

### 5.1 Preparing for installation

#### 5.1.1 Check operating conditions

1. Ensure the design of the fitting is consistent with the purpose intended:
  - Materials used (→ Type plate).
  - Medium (→ Order and design data).
2. Ensure the required operating conditions are met:
  - Resistance of body and seal material to the medium (→ Resistance lists).
  - Media temperature (→ Data sheet).
  - Operating pressure (→ Data sheet).
3. Consult with the manufacturer regarding any other use of the device.

### 5.2 Planning pipelines

#### 5.2.1 Designing pipelines

#### **WARNING**

#### **Risk of poisoning and environmental damage from medium!**

Leaks due to impermissible pipework forces.

- ▶ Ensure that the fitting is not subject to any pulling or thrusting forces or bending moments.

1. Plan pipes safely:
  - No pulling or thrusting forces
  - No bending moments
  - Adjust for changes in length due to temperature changes (compensators, expansion shanks)
  - Optional flow direction
  - Optional installation position and direction
2. Dimensions (→ Data sheet).

### 5.3 Installing fitting in pipe

#### **WARNING**

#### **Risk of poisoning and environmental damage from medium!**


Leak due to faulty installation.

- ▶ Installation work on the pipes should only be performed by technicians who have been specially trained for the pipework in question.


#### **NOTE**

#### **Material damage due to contamination of the fitting!**

- ▶ Make sure no contamination reaches the fitting.
- ▶ Flush the pipe with a neutral medium.

 The fitting is installed according to the connection type of the pipes.

#### 5.3.1 Connection with solvent welding/butt-weld spigot ends

 Do not connect the ASV valve body in the version “fixed connector” by means of butt-welding.

This applies to the heating element as well as infrared butt-welding procedures.

1. Prepare pipe ends according to connection type.
2. Adhesively apply or weld fitting with solvent welding/butt-weld socket ends (→ manufacturer specifications).

#### 5.3.2 Connection with flange

1. Prepare pipe ends according to connection type.
2. Radially push the fitting and flat seal between the flange ends.
3. Bolt fitting and flange with flange screws, nuts and washers.

While doing so, observe tightening torques: (→ [Table 8 Tightening torque of flange connection, Page 16](#)).

#### 5.3.3 Connection with union nut and insert

1. Prepare pipe ends according to connection type.
2. Unscrew union nuts and slide over free pipe ends.
  - Check mounting direction.
3. Connect inserts with pipe ends.
4. Position fitting between the pipe ends.
  - Any position of the compressed air drive
5. Hand-tighten the union nut.



## 5.4 Connecting the drive

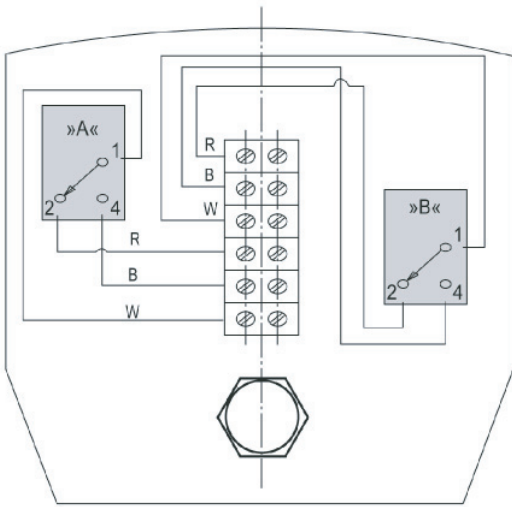


Fig. 4 Limit switch, type VCSP

A closed  
B open

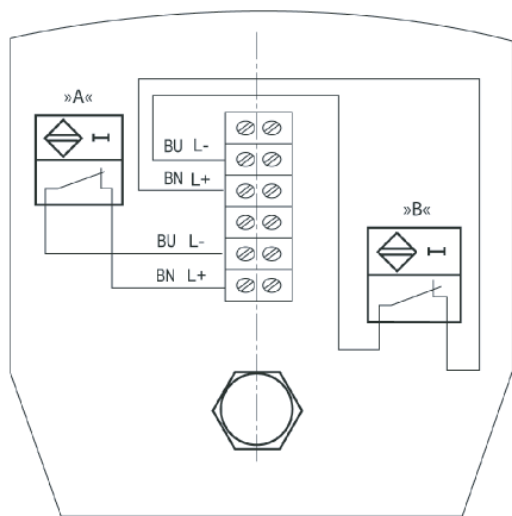


Fig. 5 Limit switch, type Nj2-V3-N

A closed  
B open

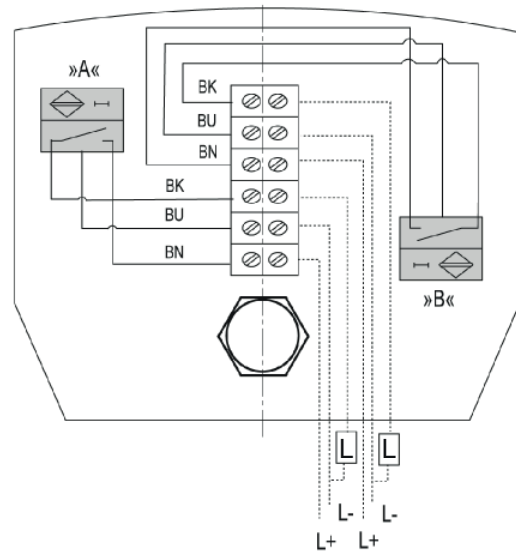


Fig. 6 Limit switch, type NBB2-V3-E2

L Load  
A closed  
B open

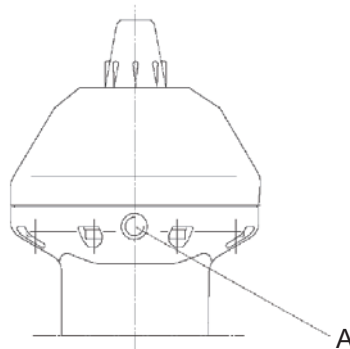


Fig. 7 Compressed air, control function NC

A Open valve

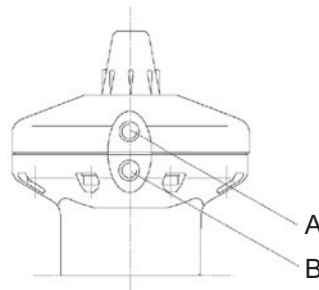



Fig. 8 Compressed air, control function NO DA

A Close valve  
B Open valve

### 5.4.1 Installing limit switch

 Only necessary for fittings with limit switches.


#### **DANGER**

##### Risk of electrocution!

► All electrical work must be carried out by qualified electricians only.

1. Mount limit switch unit onto fitting.
2. Connect limit switch:
  - (→ [Figure Limit switch, type VCSP, Page 9](#)).
  - (→ [Figure Limit switch, type Nj2-V3-N, Page 9](#)).
  - (→ [Figure Limit switch, type NBB2-V3-E2, Page 9](#)).

### 5.4.2 Pneumatic connection

 Solenoid pilot valves are available for control of the compressed air drive:

- 3/2-way valve for single-acting drives
- 5/2-way valve for double-acting drives

#### **CAUTION**

##### Risk of injury from compressed air!

► All work on the compressed air system must be carried out by qualified technicians.

- Connect compressed air lines to the compressed air drive:
- (→ [Figure Compressed air, control function NC, Page 9](#)).
  - (→ [Figure Compressed air, control function NO DA, Page 9](#)).


Function	Control pressure on	
	a	b
Normally closed (NC)	–	open
Normally open (NO)	close	–
Double acting (DA)	close	open

Tab. 3 Compressed air connection

### 5.4.3 Checking the function of the drive

- Open and close fitting using the pneumatic connection, the indicator pin signals the corresponding position
- lowered: Fitting is closed
  - protruding: Fitting is open

## 5.5 Performing the hydrostatic test

 Pressure test using neutral medium, e.g. water.

1. Pressurize the fitting, ensuring:
  - Test pressure < permissible system pressure
  - Test pressure < 1.5 PN
  - Test pressure < PN + 5 bar
2. Check the fitting for leaks.

## 6 Operation

### **WARNING**

#### **Risk of injury and poisoning due to medium spraying out!**

- ▶ Use personal protective equipment when carrying out any work on the fitting.


### 6.1 Commissioning

- ✓ Fitting correctly installed and connected
- 1. Open and close fitting, the indicator pin signals the corresponding position
  - lowered: Fitting is closed
  - protruding: Fitting is open
- 2. After the initial stresses due to pressure and operating temperature, check if the fitting is sealed.

### 6.2 Manual operation


- ✓ Fitting correctly installed and connected
- ▶ Operate manually operated fittings as follows (depending on fitting size, turn 4–8 times):
  - Turn handwheel clockwise: Close valve.
  - Turn handwheel anti-clockwise: Open valve.

### 6.3 Emergency operation

 Applies to pneumatically activated valves NC, DN 15–DN 50.

- ▶ Turn adjustment screw (3.8) clockwise to open the valve if the pressure falls.

### 6.4 Set lift

 Applies to pneumatically operated valves DN 15–DN 50, special design with metal screw in the top part of the drive.

- ▶ Turn screw (3.30) as follows to set the lift:
  - Turn clockwise: Limit lift.
  - Turn anti-clockwise: Increase lift.

# 7 Maintenance

**⚠ WARNING**

**Risk of injury and poisoning due to hazardous media liquids!**

- ▶ Use personal protective equipment when carrying out any work on the fitting.

## 7.1 Servicing

1. Visual and function check (every three months):
  - Normal operating conditions unchanged
  - No leaks
  - No unusual operating noises or vibrations
2. Ensure that fitting functions properly (opening, closing).
3. Clean the fitting with a moist cloth if necessary.
4. Retighten housing screws (→ [Table 8 Tightening torque of flange connection, Page 16](#)).
5. Check diaphragm for wear and replace if necessary:

Diaphragm material	Max. number of operations <sup>1)</sup>
EPDM	150,000
FPM	100,000
PTFE (EPDM)	100,000

Tab. 4 Diaphragm maintenance interval

1) Applies to water at 20 °C. For different conditions (chemicals, media that contains solids/abrasives), shorten the maintenance intervals.

## 7.2 Maintenance

**⚠ DANGER**

**Risk of electrocution!**

- ▶ All electrical work must be carried out by qualified electricians only.

**⚠ WARNING**

**Risk of injury and poisoning due to hazardous or hot media!**

- ▶ Use personal protective equipment when carrying out any work on the fitting.
- ▶ Safely collect the media and dispose of it in accordance with environmental regulations.

**⚠ WARNING**

**Risk of injury during disassembly!**

- ▶ Wear protective gloves, components can be very sharp-edged due to wear or damage.
- ▶ Remove components with springs (e.g. pneumatic drive) carefully, since spring tension can cause components to be ejected.

### 7.2.1 Removing fitting


1. Ensure that:
  - System is empty
  - System has been flushed
  - System is depressurized
  - System has cooled down
  - System is secured against being switched back on again
2. Remove fitting from the pipe.
3. Decontaminate fitting if required.
  - Dead space in the fitting may still contain medium.

### 7.2.2 Fixing leaks in the port

Depending on the fitting type, note the following drawings:

- DN 15–DN 50: (→ 9.4.2 Part name DN 15–DN 50, pneumatic, Page 18).
- DN 65: (→ 9.4.3 Part name DN 65, pneumatic, Page 20).
- DN 80, DN 100: (→ 9.4.4 Part designation DN 80–100, Page 21).

1. Removing fitting (→ 7.2.1 Removing fitting, Page 12).

-  Before removing the connection elements, note:
- For NC drives, apply compressed air pressure to connection B to bring the drive into the open position
  - For NO and DA drives, this is not necessary.

2. Depending on the fitting type, remove the following connection elements:
  - DN 15–DN 50: Hexagon screw (5)
  - DN 65: Bolt (13) and washer (12)
  - DN 80, DN100: Screw (35), stud bolt (36), nut (37) and washer (38)
3. Depending on the fitting type, remove lift drive as follows:
  - DN 15–DN 50: Remove lower part (3.1.) and upper part (3.2) of drive housing.
  - DN 65: Remove drive (1).
  - DN 80, DN100: Remove upper (2) and lower part (18) of the drive.
4. For NC drives on connection B, release compressed air.
5. Depending on the fitting type, screw out the following diaphragm and dispose of it in an environmentally-friendly manner:
  - DN 15–DN 50: Diaphragm (2).
  - DN 65: Diaphragm seal (7)
  - DN 80, DN100: Diaphragm (24)
6. Depending on the fitting type, ensure that the following pressure piece is resting freely in the ducts:
  - DN 15–DN 50: Pressure piece (3.3)
  - DN 65: Compressor (6)
  - DN 80, DN100: Pressure piece (23)
7. Depending on the fitting type, check sealing areas on the following valve body for damage:
  - DN 15–DN 50: Valve body (1)
  - DN 65: Valve body (8)
  - DN 80, DN100: Valve body (25)
8. Lightly lubricate new diaphragm with special grease on top of curvature and on thread (recommended special grease: Syntheso ProAA2).
9. Screw diaphragm into spindle clockwise until resistance is felt.
10. Depending on the fitting type unscrew diaphragm until the diaphragm hole pattern matches the following valve body (max. 180°):
  - DN 15–DN 50: Valve body (1)
  - DN 65: Valve body (8)
  - DN 80, DN100: Valve body (25)

11. Depending on the fitting type, screw in the following connection elements and tighten via the cross. Ensure uniform contact pressure:
  - DN 15–DN 50: Hexagon screw (5) .
  - DN 65: Bolt (13) and washer (12)
  - DN 80, DN100: Screw (35), stud bolt (36), nut (37) and washer (38)
12. Depending on the fitting type, tighten the following connection elements with tightening torque (→ Table 8 Tightening torque of flange connection, Page 16):
  - DN 15–DN 50: Hexagon screw (5)
  - DN 65: Bolt (13)
  - DN 80, DN100: Screw (35) and nut (37)

### 7.3 Replacement parts and return

1. Have the following information ready to hand when ordering spare parts (→ Type plate).
  - Fitting type
  - ID number
  - Nominal pressure and diameter
  - Body and seal material
2. Please complete and enclose the document of compliance for returns (→ [www.asv-stuebbe.com/service/downloads](http://www.asv-stuebbe.com/service/downloads)).



3. Only use spare parts from ASV Stübbe.

## 8 Troubleshooting

**⚠ WARNING**

**Risk of injury and poisoning due to hazardous or hot media!**

- ▶ Use personal protective equipment when carrying out any work on the fitting.
- ▶ Safely collect the media and dispose of it in accordance with environmental regulations.


Consult with the manufacturer regarding faults which are not identified in the following table, or which cannot be traced to the indicated causes.

Error	Possible cause	Corrective action
Control function is not right	Control connections mixed up	▶ Connect control connections correctly.
	Compressed air connection mixed up at solenoid pilot valve	▶ Check compressed air connection and correct if necessary (→ supplementary instructions for drives).
	Electrical connection faulty	▶ Check electric connect and correct if necessary (→ supplementary instructions for limit switch).
Medium escapes between housing and diaphragm	Housing screws too loose	▶ Tighten housing screws (→ <a href="#">Table 8 Tightening torque of flange connection, Page 16</a> ).
Medium escapes at the drive	Diaphragm leaky	▶ (→ <a href="#">7.2.2 Fixing leaks in the port, Page 13</a> ).
Fitting does not close completely	Control pressure too low	▶ Check compressed air supply. ▶ Ensure sufficient air pressure (→ <a href="#">9.1.2 Control air connections, Page 15</a> ).
	Diaphragm leaky	▶ (→ <a href="#">7.2.2 Fixing leaks in the port, Page 13</a> ).
	Drive defective	▶ Replace drive.

Tab. 5 Troubleshooting

## 9 Appendix

### 9.1 Technical specifications

 Technical data (→ Data sheet).

#### 9.1.1 Mechanical specifications

Size	Value
<b>Process conditions (medium)</b>	
Pressure and temperature	→ Data sheet
<b>Materials in contact with medium</b>	
Diaphragm	EPDM, FPM, PTFE (EPDM diaphragm, PTFE-coated on medium-side)
sealing	FPM, EPDM
Housing	PVC-U, PP, PVDF
<b>Materials not in contact with medium</b>	
Upper part	PP, glass fiber reinforced

Tab. 6 Mechanical specifications

#### 9.1.2 Control air connections

- Maximum control pressure
  - 5 bar for DN65 NO and for DN65 DA
  - 6 bar for other fittings
- Compressed air classes according to ISO 8573-1
  - 2 or 3 at  $T < 0\text{ °C}$
  - 3 or 4 at  $T > 0\text{ °C}$
- Control pressure diagram (→ Data sheet).

## 9.2 Tightening torques

### 9.2.1 Housing

Fitting size		Tightening torque housing screw [Nm]			
d [mm]	DN [mm]	Manual operation EPDM diaphragm	Manual operation PTFE diaphragm	Compressed air operation EPDM diaphragm	Compressed air operation PTFE diaphragm
20	15	6	8	6	8
25	20	6	8	6	8
32	25	10	12	10	12
40	32	10	12	10	12
50	40	18	20	18	20
63	50	18	20	18	20
75	65	18	20	14	14
90	80	18	20	40	50
110	100	20	22	30	40

Tab. 7 Tightening torques housing

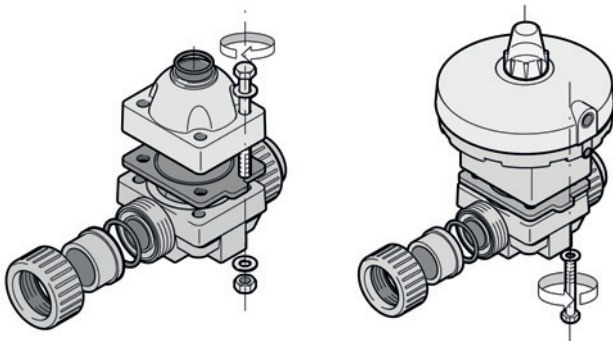


Fig. 9 Tightening torque housing screw

### 9.2.2 Flange connection

Fitting size		Tightening torque flange connection [Nm]		
d [mm]	DN [mm]	Flat sealing ring max. 10 bar, max. 40 °C	Profile seal max. 16 bar	O-ring max. 16 bar
16	10	5	5	5
20	15	10	10	10
25	20	12	12	12
32	25	15	12	12
40	32	20	15	15
50	40	25	15	15
63	50	30	20	20
75	65	35	20	20
90	80	35	20	20
110	100	35	20	20

Tab. 8 Tightening torque of flange connection

## 9.3 Accessories

Description
limit switch unit

Tab. 9 Accessories



## 9.4 Parts

### 9.4.1 Part name DN 15–DN 100, manual

#### DN 15–DN 50

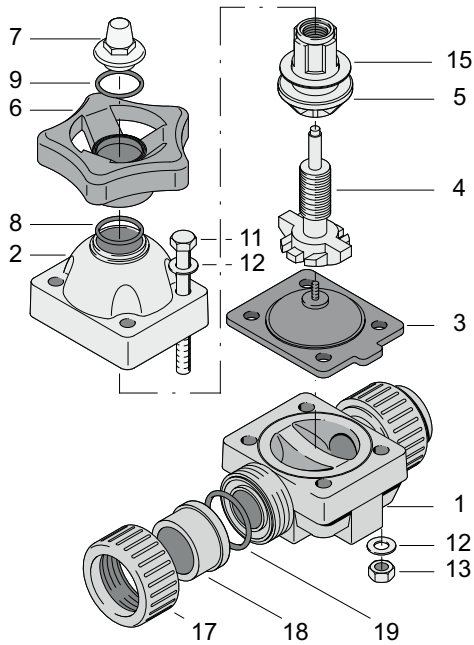


Fig. 10 Part name DN 15–DN 50

Pos.	Quantity	Designation
1	1	Valve body
2	1	Upper part of housing
3	1	Membrane
4	1	Shaft
5	1	spindle nut
6	1	Handwheel
7	1	Indicator cap
8	1	O-ring
9	1	O-ring
11	4	hexagon bolt
12	8	Washer
13	4	Hexagon nut
15	1	bearing ring
17	1	Union nut
18	1	Union end
19	1	O-ring

Tab. 10 Part number and designation DN 15 – 50

#### DN 65–DN 100

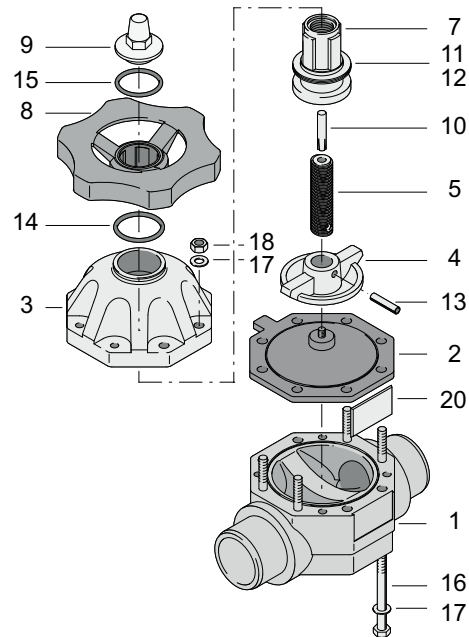


Fig. 11 Part designation DN 65–DN 100

Pos.	Quantity	Designation
1	1	Valve body
2	1	Membrane
3	1	Upper part of housing
4	1	pressure piece
5	1	Shaft
7	1	spindle nut
8	1	Handwheel
9	1	Indicator cap
10	1	indicator pin
11	1	Axial bearing
12	1	axial bearing disc
13	2	Clamping sleeve
14	1	O-ring
15	1	O-ring
16	4	hexagon bolt
17	8 / 12	Washer
18	4 / 8	Hexagon nut
20	1	Name plate

Tab. 11 Part number and designation DN 65 –100

**9.4.2 Part name DN 15–DN 50, pneumatic  
Valve function NC without lift limit**

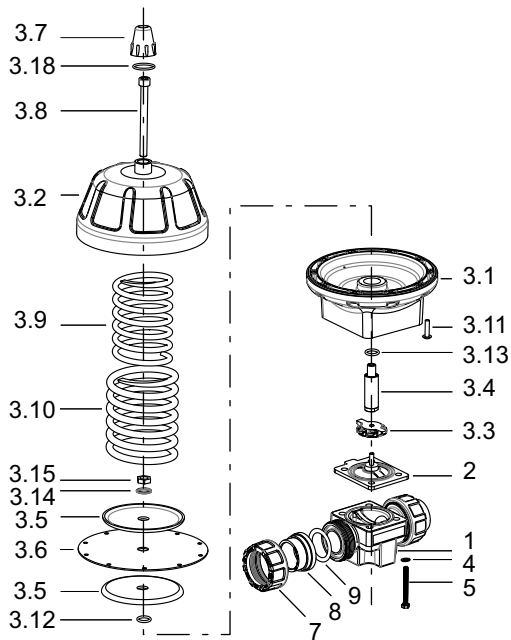


Fig. 12 DN 15–DN 50, pneumatic, valve function NC without lift limit

**Valve function NC with lift limit**

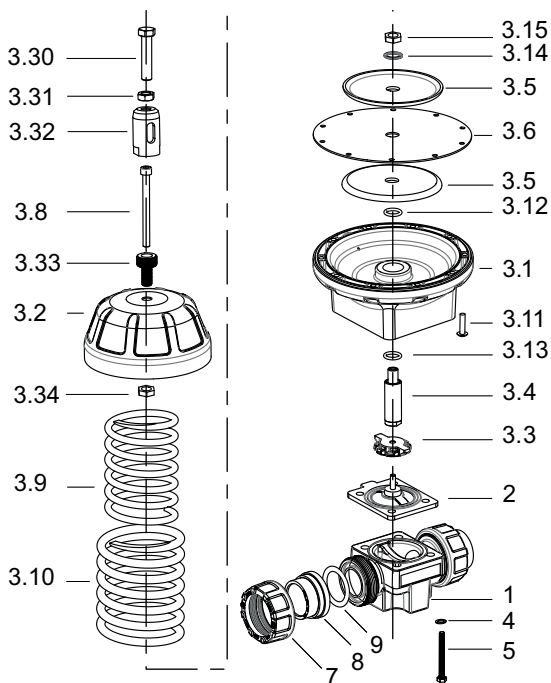


Fig. 13 DN 15–DN 50, pneumatic, valve function NC with lift limit

Pos.	Quantity	Designation
1	1	Valve body
2	1	Membrane
3.1	1	Lower part of drive housing
3.2	1	Upper part of drive housing
3.3	1	pressure piece
3.4	1	Drive bar
3.5	1	Diaphragm disk
3.6	1	Membrane
3.7*	1	Indicator cap
3.8	1	Adjustment screw
3.9	1	Pressure spring
3.10	2	Pressure spring
3.11	8/12	Cylinder screw
3.12	1	Circlip
3.13	1	Disc
3.14	1	Circlip
3.15	1	Hexagon nut
3.18*	1	O-ring
3.30**	1	hexagon bolt
3.31**	1	Hexagon nut
3.32**	1	Lift limitation
3.33**	1	Screw
3.34**	1	Hexagon nut
4	4	Disc
5	4	hexagon bolt
7	2	Union nut
8	2	Union end
9	2	O-ring

Tab. 12 Part number and designation DN 15–DN 50, pneumatic, valve function NC

\*) Valid for fitting without lift limit

\*\*) Valid for fitting with lift limit

**Valve function NO**

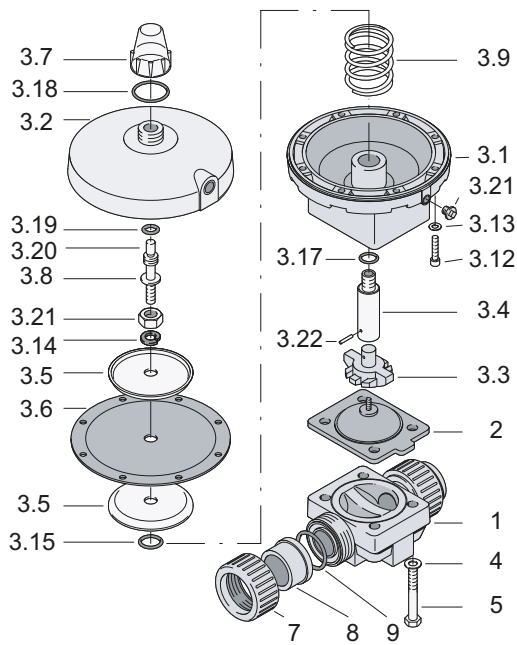


Fig. 14 DN 15–DN 50, pneumatic, valve function NO

**Valve function DA**

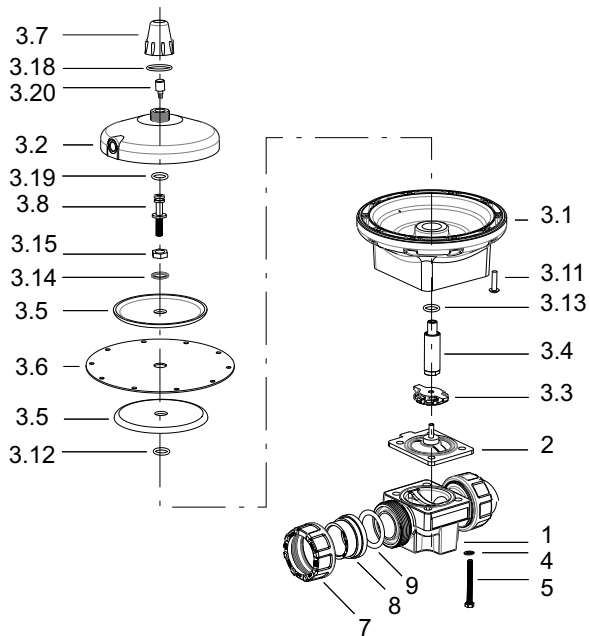


Fig. 15 DN 15–DN 50, pneumatic, valve function DA

Pos.	Quantity	Designation
1	1	Valve body
2	1	Membrane
3.1	1	Lower part of drive housing
3.2	1	Upper part of drive housing
3.3	1	pressure piece
3.4	1	Drive bar
3.5	1	Diaphragm disk
3.6	1	Membrane
3.7	1	Indicator cap
3.8	1	Adjustment screw
3.9*	1	Pressure spring
3.11	8/10	Cylinder screw
3.12	8/10	Cylinder screw
3.13	10	Disc
3.14	1	Circlip
3.15	1	O-ring
3.17*	1	O-ring
3.18	1	O-ring
3.19	1	O-ring
3.20	1	indicator pin
3.21*	1	Hexagon nut
3.22*	1	Clamping sleeve
4	4	Disc
5	4	hexagon bolt
7	2	Union nut
8	2	Union end
9	2	O-ring

Tab. 13 Part number and designation DN 15–DN 50, pneumatic, valve function NO and DA

\*) Valid for fitting NO

### 9.4.3 Part name DN 65, pneumatic

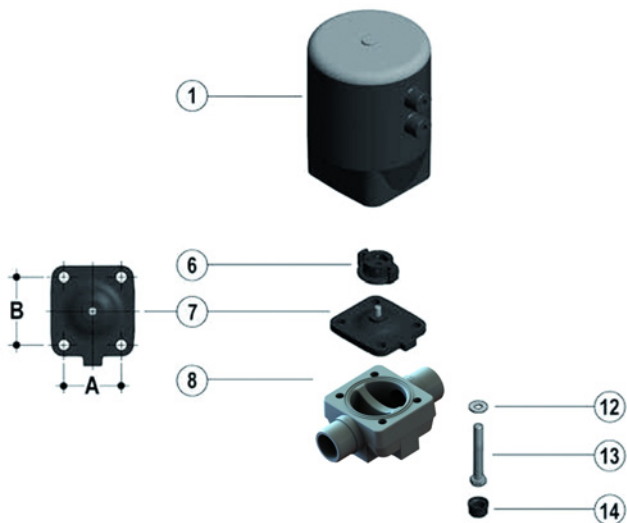


Fig. 16 Part name DN 65, pneumatic

Pos.	Quantity	Designation
1	1	Drive
6	1	Compressor
7	1	Diaphragm seal (EPDM, FPM, PTFE)
8	1	Valve body (PVC-U, PP, PVDF)
12	4	Washer
13	4	Bolt
14	4	Protective plug (PE)
A	–	78.0 mm
B	–	82.0 mm

Tab. 14 Part number and designation DN 65, pneumatic

9.4.4 Part designation DN 80–100

DN 80, NC

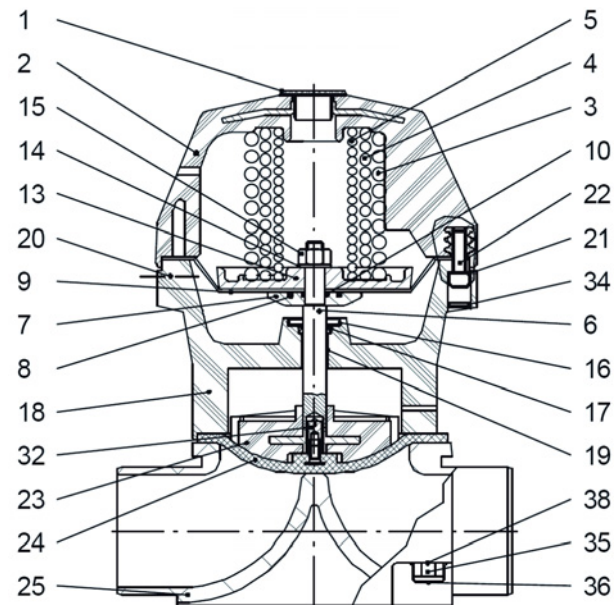


Fig. 17 Part name DN 80

DN 100, NC

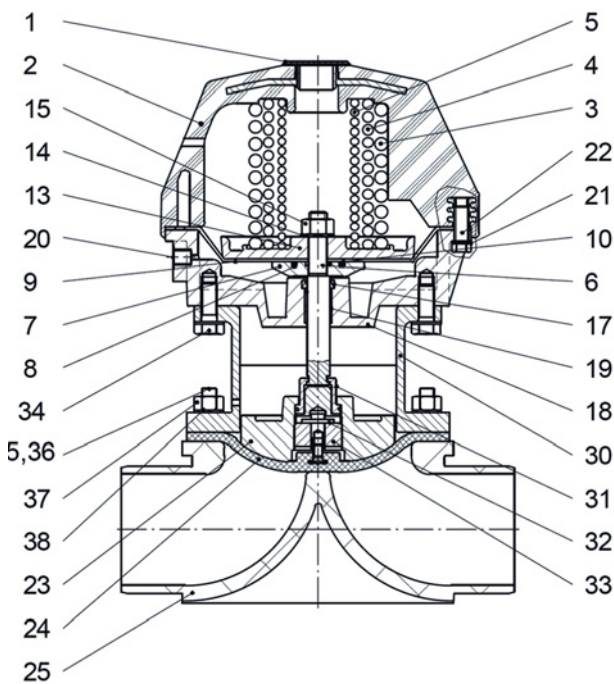


Fig. 18 Part name DN 100

Pos.	Quantity	Designation
1	1	Plug
2	1	Upper part of drive
3	1	Spring
4	1	Spring
5	1	Spring (no standard)
6	1	Shaft
7	1	Washer
8*	1	O-ring
9*	1	Control diaphragm
10*	1	O-ring
13	1	Diaphragm disk
14	1	Washer
15*	1	Stop nut
16*	1	Safety washer
17*	1	Quad-ring
18	1	Lower part of drive
19	1	Plain bushing
20	1	Plug for control air G 1/4"
21	12	Washer
22	12	Screw
23	1	pressure piece
24	1	Membrane
25	1	Valve body
26	4	Washer
27	4	Screw
30	1	Wafer type flange
31	1	Coupling
32	1	Mounting complete
33	1	Coupling
34	4	Screw
35	4	Screw
36	4	Stud bolt
37	8	nut
38	8	Washer

Tab. 15 Part number and designation DN 80-100, NC

\*) Spare part

**DN 80, NO DA**

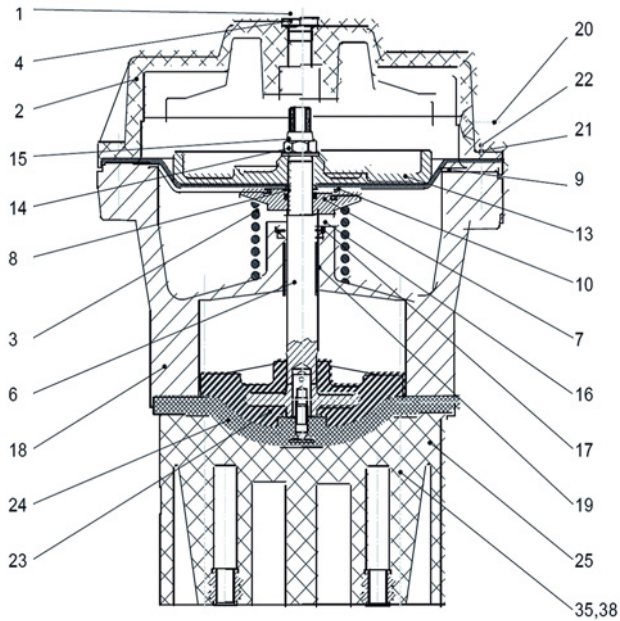


Fig. 19 Part name DN 80, NO DA

**DN 100, NO DA**

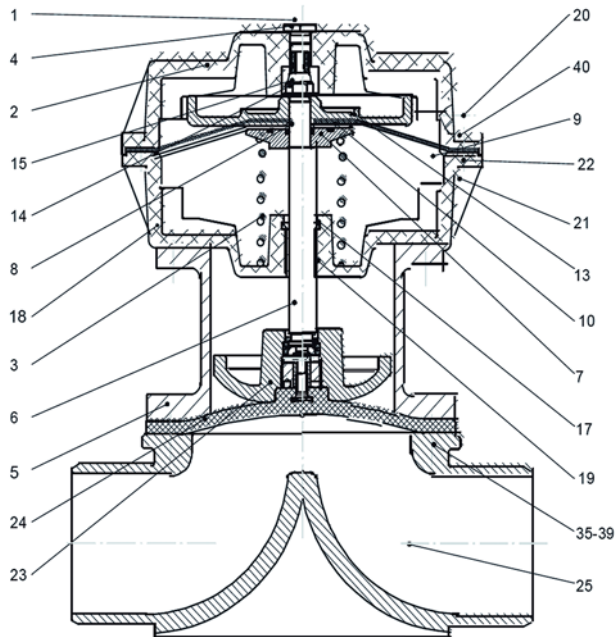


Fig. 20 Part name DN 100, NO DA

Pos.	Quantity	Designation
1	1	Threaded plug
2	1	Upper part of drive
3	1	Spring
4	1	O-ring
5	1	Wafer type flange
6	1	Shaft
7	1	Washer
8*	1	O-ring
9*	1	Control diaphragm
10*	1	O-ring
13	1	Diaphragm disk
14	1	Washer
15*	1	Stop nut
16*	1	Safety washer
17*	1	Quad-ring
18	1	Lower part of drive
19	1	Plain bushing
20	1	Plug for control air
21	12	Washer
22	12	Screw
23	1	pressure piece
24	1	Membrane
25	1	Valve body
35	4	Screw
36	8	Cover flap
37	4	Stud bolt
38	4	Washer
39	8	nut
40	12	nut

Tab. 16 Part number and designation DN 80-100, NO DA

\*) Spare part