

Membranventil

Kunststoff, DN 12 - 50

Diaphragm Valve

Plastic, DN 12 - 50

- DE ORIGINAL EINBAU- UND MONTAGEANLEITUNG
- GB INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS



GEMÜ 600
Antriebsgröße Code 2-4
Actuator size Code 2-4



GEMÜ 630
Antriebsgröße Code 2-4
Actuator size Code 2-4

GEMÜ 630
Antriebsgröße Code 1
Actuator size Code 1

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1 General information

Prerequisites to ensure that the GEMÜ valve functions correctly:

- x Correct transport and storage
- x Installation and commissioning by trained personnel
- x Operation according to these installation, operating and maintenance instructions
- x Recommended maintenance

Correct installation, operation, servicing and repair work ensure faultless diaphragm valve operation.

	The descriptions and instructions apply to the standard versions. For special versions not described in these installation, operating and maintenance instructions the basic information contained herein applies in combination with any additional special documentation.
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2 General safety information

The safety information does not take into account:

- x Unexpected incidents and events, which may occur during installation, operation and servicing.
- x Local safety regulations which must be adhered to by the operator and by any additional installation personnel.

2.1 Information for service and operating personnel

The installation, operating and maintenance instructions contain fundamental safety information that must be observed during commissioning, operation and servicing. Non-compliance with these instructions may cause:

- x Personal hazard due to electrical, mechanical and chemical effects.
- x Hazard to nearby equipment.
- x Failure of important functions.
- x Hazard to the environment due to the leakage of dangerous materials.

Prior to commissioning:

- Read the installation, operating and maintenance instructions.
- Provide adequate training for the installation and operating personnel.
- Ensure that the contents of the installation, operating and maintenance instructions have been fully understood by the responsible personnel.
- Define the areas of responsibility.

During operation:

- Keep the installation, operating and maintenance instructions available at the place of use.
- Observe the safety information.
- Use only in accordance with the specifications.
- Any servicing work and repairs not described in the installation, operating and maintenance instructions must not be performed without consulting the manufacturer first.

⚠ DANGER

Strictly observe the safety data sheets or the safety regulations that are valid for the media used.

In cases of uncertainty:

- x Consult the nearest GEMÜ sales office.

2.2 Warning notes

Wherever possible, warning notes are organised according to the following scheme:

⚠ SIGNAL WORD

Type and source of the danger

- Possible consequences of non-observance.
- Measures for avoiding danger.

Warning notes are always marked with a signal word and sometimes also with a symbol for the specific danger. The following signal words and danger levels are used:

⚠ DANGER

Imminent danger!

- Non-observance will lead to death or severe injury.

⚠ WARNING

Potentially dangerous situation!

- Non-observance can cause death or severe injury.

⚠ CAUTION

Potentially dangerous situation!







- Non-observance can cause medium to light injury.

CAUTION (WITHOUT SYMBOL)

Potentially dangerous situation!

- Non-observance can cause damage to property.

2.3 Symbols used

	Danger - hot surfaces!
	Danger - corrosive materials!
	Hand: indicates general information and recommendations.
	Bullet point: indicates the tasks to be performed.
	Arrow: indicates the response(s) to tasks.
	Enumeration sign

3 Definition of terms

Working medium

The medium that flows through the diaphragm valve.

Control medium

The medium whose increasing or decreasing pressure causes the valve to be actuated and operated.

Control function

The possible actuation functions of the diaphragm valve.

4 Intended area of use

- x The GEMÜ 600, 630 diaphragm valve is designed for installation in piping systems. It controls a flowing medium by being closed or opened by a control medium.
- x **The valve may only be used providing the product technical criteria are complied with (see chapter 6 "Technical data").**
- x Do not paint the bolts and plastic parts of the diaphragm valve!

⚠ WARNING

Use the diaphragm valve only for the intended purpose!

- Otherwise the manufacturer liability and guarantee will be void.
- Use the diaphragm valve only in accordance with the operating conditions specified in the contract documentation and in the installation, operating and maintenance instructions.

5 Condition as supplied to customer

The GEMÜ diaphragm valve is supplied as a separately packed component.

6 Technical data

Working medium

Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

Working medium temperature

Valve body PVC-U	10 to 60 °C
Valve body ABS	-20 to 60 °C
Valve body PP, PP-H	5 to 80 °C
Valve body PVDF	-20 to 80 °C

The permissible operating pressure depends on the working medium temperature.

Ambient temperature

Valve body PVC-U	10 to 50 °C
Valve body PP / PP-H	5 to 50 °C
Valve body ABS / PVDF	-10 to 50 °C

Control medium

Inert gases	
Min. required control pressure	see table below
Max. permiss. control pressure	6 bar
Max. perm. temperature of control medium	40 °C
Filling volume:	
Actuator size 1	0.02 dm ³
Actuator size 2	0.25 dm ³
Actuator size 3	0.50 dm ³
Actuator size 4	0.80 dm ³

O-ring material for valve bodies with union ends

Diaphragm material	O-ring material
NBR	EPDM
FPM	FPM
EPDM	EPDM
PTFE	FPM
Other combinations on request	

Pressure / temperature correlation for PN 6 (valve bodies diaphragm size 10)

Temperature in °C (plastic body)		-20	-10	±0	5	10	20	25	30	40	50	60	70	80	
Valve body material		Permissible operating pressure [bar]													
PVC-U	Code 1	-	-	-	-	6.0	6.0	6.0	4.8	3.6	2.1	0.9	-	-	
PP	Code 5	-	-	-	6.0	6.0	6.0	6.0	5.1	4.2	3.3	2.4	1.6	0.9	
PP-H	Code N5	-	-	-	6.0	6.0	6.0	6.0	5.1	4.2	3.3	2.4	1.6	0.9	
PVDF	Code 20	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.4	4.8	4.3	3.8	3.2	2.8	

Pressure / temperature correlation for PN 10 (valve bodies diaphragm size 25-50)

Temperature in °C (plastic body)		-20	-10	±0	5	10	20	25	30	40	50	60	70	80	
Valve body material		Permissible operating pressure in bar													
PVC-U	Code 1	-	-	-	-	10.0	10.0	10.0	8.0	6.0	3.5	1.5	-	-	
ABS	Code 4	10.0	10.0	10.0	10.0	10.0	10.0	10.0	8.0	6.0	4.0	2.0	-	-	
PP-H	Code 71	-	-	-	10.0	10.0	10.0	10.0	8.5	7.0	5.5	4.0	2.7	1.5	
PVDF	Code 20	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.0	8.0	7.1	6.3	5.4	4.7	

Data for extended temperature ranges on request.

Please note that the ambient temperature and medium temperature generate a combined temperature at the valve body which must not exceed the above values.

Type	Diaphragm size	DN	Control function 1 [bar]		Control pressure	Control function 2+3 [bar]		Kv value [m ³ /h]
			Operating pressure			Operating pressure		
			EPDM/FPM	PTFE		EPDM/FPM	PTFE	
GEMÜ 630	10	12			3.2 - 6.0	-	-	2.8
		15	0 - 6	0 - 6				3.5
		20						3.5
GEMÜ 600	25	15			4.0 - 6.0	0 - 10	0 - 6	5.6
		20	0 - 10	0 - 6				8.2
		25						10.5
		32	0 - 10	0 - 6				18.0
		40	0 - 10	0 - 6				25.0
50	40	0 - 10	0 - 6	4.0 - 6.0	0 - 10	0 - 6	46.0	
	50	0 - 10	0 - 6	4.0 - 6.0	0 - 10	0 - 6	46.0	

All pressures are gauge pressures.

Kv values determined acc. to IEC 534 standard, inlet pressure 6 bar, Δp 1 bar, PVC-U valve body and soft elastomer diaphragm.

7 Order data

Valve type	Code
GEMÜ 630 diaphragm size 10	630
GEMÜ 600 diaphragm size 25 - 50	600

Body configuration	Code
2/2-way body	D

Connection	Code
Spigots DIN for socket solvent cementing / welding	0
Threaded sockets DIN ISO 228	1
Solvent cement sockets DIN	2
Flanges EN 1092 / PN10 / form B length EN 558, series 1, ISO 5752, basic series 1	4
Union ends with DIN insert (socket)	7
Spigots for IR butt welding	20
Spigots for IR butt welding, BCF	28
Spigots - inch	30
Union ends with inch insert - BS (socket)	33
Flanges ANSI CLASS 125/150 RF length EN 558, series 1, ISO 5752, basic series 1	39
Flare connection with PVDF union nut	75
Union ends with DIN insert (for IR butt welding)	78

Valve body material	Code
PVC-U, grey	1
ABS	4
PP, reinforced	5
PVDF	20
Inliner PP-H grey / outliner PP reinforced	71
PP-H natural	N5*

* only with integrated mounting plate (code M)

Diaphragm material	Code	
NBR	2	
FPM	4	
EPDM	14	
PTFE / EPDM	PTFE laminated MG 10	52
PTFE / EPDM convex	PTFE loose MG 25 - 50	5E

MG = diaphragm size

Control function	Code	
Normally closed diaphragm size 10 - 50	NC	1
Normally open diaphragm size 25 - 50	NO	2
Double acting diaphragm size 50	DA	3

Actuator version	Code
Piston ø 54 diaphragm size 10 (GEMÜ 630)	1/N
Piston ø 85 diaphragm size 25 (GEMÜ 600)	2/N
Piston ø 105 diaphragm size 40 (GEMÜ 600)	3/N
Piston ø 125 diaphragm size 50 (GEMÜ 600)	4/N

Integrated mounting plate	Code
With integrated mounting plate (MG 10 / GEMÜ 630) Material code 20, N5	M
Without mounting plate (MG 10 / GEMÜ 630) Material code 20	O
Without mounting plate	-

MG = diaphragm size

Order example	600	15	D	7	1	14	1	2/N	-
Type	600								
Nominal size		15							
Body configuration (code)			D						
Connection (code)				7					
Valve body material (code)					1				
Diaphragm material (code)						14			
Control function (code)							1		
Actuator version (code)								2/N	
Integrated mounting plate (code)									-

Note: Standard connection to NAMUR (diaphragm size 25). For diaphragm sizes 40 and 50 please use the control air adapter GEMÜ 1470. Please order separately.

8 Manufacturer's information

8.1 Transport

- Only transport the diaphragm valve by suitable means. Do not drop. Handle carefully.
- Dispose of packing material according to relevant local or national disposal regulations / environmental protection laws.

8.2 Delivery and performance

- Check that all parts are present and check for any damage immediately upon receipt.
- The scope of delivery is apparent from the dispatch documents and the design from the order number.
- The valve's delivery condition:

Control function:	Condition:
1 Normally closed (NC)	closed
2 Normally open (NO)	open
3 Double acting (DA)	undefined

- The performance of the diaphragm valve is checked at the factory.

8.3 Storage

- Store the diaphragm valve free from dust and moisture in its original packaging.
- Avoid UV rays and direct sunlight.
- Maximum storage temperature: 40 °C.
- Solvents, chemicals, acids, fuels or similar fluids must not be stored in the same room as valves and their spare parts.

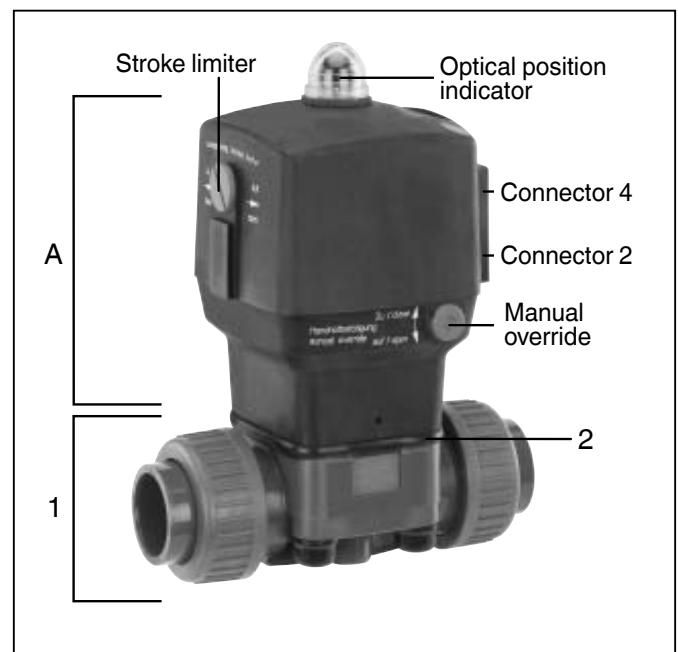
8.4 Tools required

- The tools required for installation and assembly are **not** included in the scope of delivery.
- Use appropriate, functional and safe tools.

9 Functional description

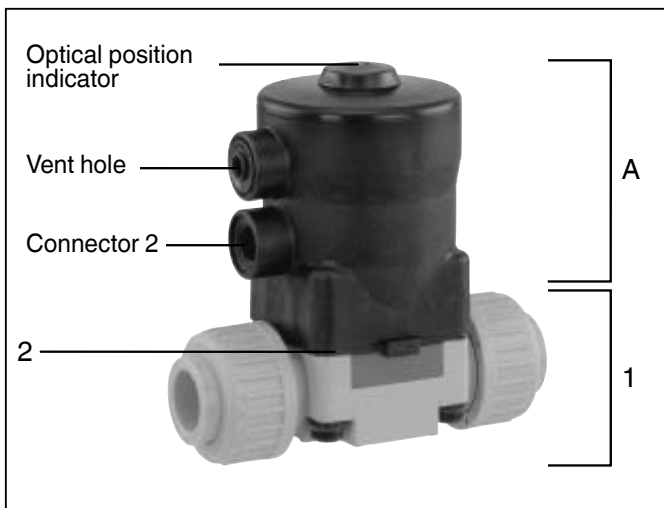
GEMÜ 600 / 630 is a plastic diaphragm valve with a 2/2-way body. The valve has a piston actuator and an optical position indicator as standard. "Normally closed (NC)", "Normally open (NO)" and "Double acting (DA)" control functions are available. The valve body and the diaphragm are available in various designs as shown in the data sheet. Diverse accessories are available, such as pilot valves, electrical position indicator with microswitches or proximity switches, pneumatic or electro-pneumatic positioner and a NAMUR plate.

10 Construction



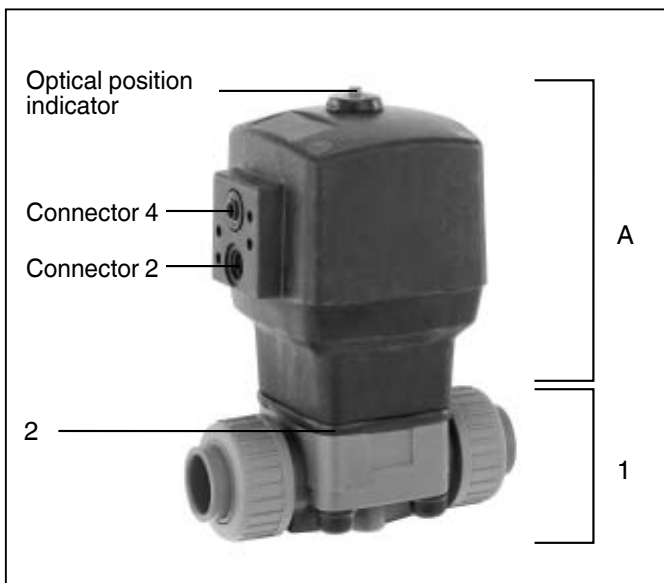
Construction - GEMÜ 600
Actuator size Code 2-4

A	Actuator
1	Valve body
2	Diaphragm



Construction - GEMÜ 630
Actuator size Code 1

A	Actuator
1	Valve body
2	Diaphragm



Construction - GEMÜ 630
Actuator size Code 2-4

A	Actuator
1	Valve body
2	Diaphragm


11 Installation and connection


Prior to installation:

- Ensure that valve body and diaphragm material are appropriate and compatible to handle the working medium.
- **Check the suitability prior to the installation.**
See chapter 6 "Technical data".

11.1 Installing the diaphragm valve

⚠ WARNING	
The equipment is subject to pressure!	
<ul style="list-style-type: none"> ➤ Risk of severe injury or death! ● Only work on depressurized plant. 	

⚠ WARNING	
	Corrosive chemicals! <ul style="list-style-type: none"> ➤ Risk of caustic burns! ● Wear appropriate protective gear when installing.

⚠ CAUTION	
	Hot plant components! <ul style="list-style-type: none"> ➤ Risk of burns! ● Only work on plant that has cooled down.

⚠ CAUTION	
Never use the valve as a step or an aid for climbing!	
<ul style="list-style-type: none"> ➤ This entails the risk of slipping-off or damaging the valve. 	

CAUTION	
Do not exceed the maximum permissible pressure!	
<ul style="list-style-type: none"> ➤ Take precautionary measures to avoid possible pressure surges (water hammer). 	

- Installation work must only be performed by trained personnel.
- Use appropriate protective gear as specified in plant operator's guidelines.

Installation location:

⚠ CAUTION

- Do not apply external force to the valve.
- Choose the installation location so that the valve cannot be used as a foothold (climbing aid).
- Lay the pipeline so that the valve body is protected against transverse and bending forces, and also vibrations and tension.
- Only mount the valve between matching aligned pipes.

- x Direction of the working medium: optional.
- x Mounting position of the diaphragm valve: optional.

Installation:

1. Ensure the suitability of the valve for each respective use. The valve must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions. Check the technical data of the valve and the materials.
2. Shut off plant or plant component.
3. Secure against recommissioning.
4. Depressurize the plant or plant component.
5. Completely drain the plant (or plant component) and let it cool down until the temperature is below the media vaporization temperature and scalding can be ruled out.
6. Correctly decontaminate, rinse and ventilate the plant or plant component.

Installation - Butt weld spigots:

1. Adhere to good welding practices!
2. Disassemble the actuator with the diaphragm before welding the valve body into the pipeline (see chapter 12.1).
3. Allow butt weld spigots to cool down.
4. Reassemble the valve body and the actuator with diaphragm (see chapter 12.4).

Installation - Union ends with insert:

CAUTION

Damage to the valve actuator or valve body!

- Adhere to good welding practices!

CAUTION

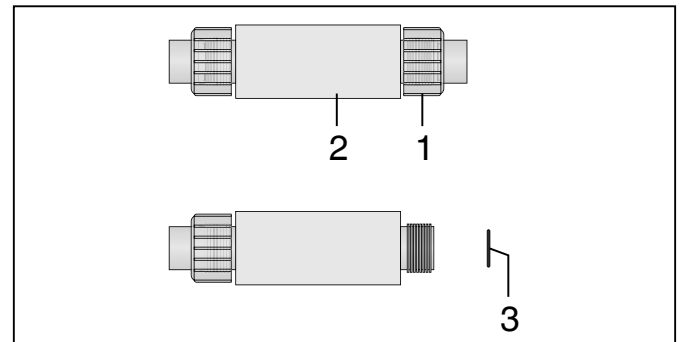
Damage to the valve body!

- Only use solvent cement suitable for the valve body.

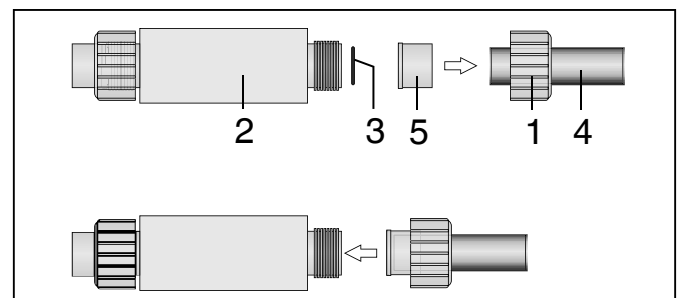


The solvent cement is not included in the scope of delivery!

1. Screw the threaded connections into the piping in accordance with valid standards.



2. Unscrew union nut **1** from valve body **2**.
3. Reinsert O-ring **3** if necessary.



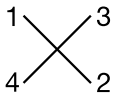
4. Push the union nut **1** over the piping **4**. Connect the insert **5** with the piping **4** by cementing / welding.
5. Screw the union nut **1** to the valve body **2** again.
6. Connect the other side of the valve body **2** to the piping **4**, too.

Installation - Threaded connections:

1. Screw the threaded connections into the piping in accordance with valid standards.
2. Screw the diaphragm valve body into the piping, use appropriate thread sealant. The thread sealant is not included in the scope of delivery.

Installation - Flange connection:

1. Pay attention to clean, undamaged sealing surfaces on the mating flanges.
2. Align flanges carefully before installing them.
3. Centre the seals accurately.
4. Connect the valve flange and the piping flange using appropriate sealing material and matching bolting. Sealing material and bolts are not included in the scope of delivery. Use all flange holes.
5. Only use connector elements made of approved materials!
6. Tighten the bolts diagonally!



Installation - Solvent cement sockets:

CAUTION

Damage to the valve body!

- Only use solvent cement suitable for the valve body.



The solvent cement is not included in the scope of delivery!

1. Apply solvent cement on the inside of the valve body and on the outside of the piping as specified by the solvent cement manufacturer.
2. Connect the valve body to the piping.

Installation - Solvent cement spigots:

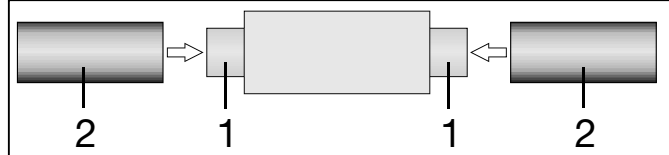
CAUTION

Damage to the valve body!

- Only use solvent cement suitable for the valve body.



The solvent cement is not included in the scope of delivery!



1. Apply solvent cement on the outside of the valve body spigots **1** and on the inside of the piping connector **2** as specified by the solvent cement manufacturer.
2. Connect the valve body to the piping.

Installation - Flare connection:

1. Also refer to GEMÜ FlareStar® brochure and GEMÜ flare and assembly instructions for preparation and connection of flare connections!
2. Push the flared PFA tube onto the flare connection.
3. Screw on union nut.
4. Use connection fittings resistant to and suitable for the ambient conditions.

Observe appropriate regulations for connections!

After the installation:



Important:

Diaphragms degrade in the course of time. After valve installation and commissioning you must retighten the bolts **18** (see chapter 20 "Sectional drawings and spare parts").

- Reactivate all safety and protective devices.

11.2 Control functions

The following control functions are available:

Control function 1

Normally closed (NC):

Valve resting position: closed by spring force. Activation of the actuator (connector 2) opens the valve. When the actuator is vented, the valve is closed by spring force.

Control function 2

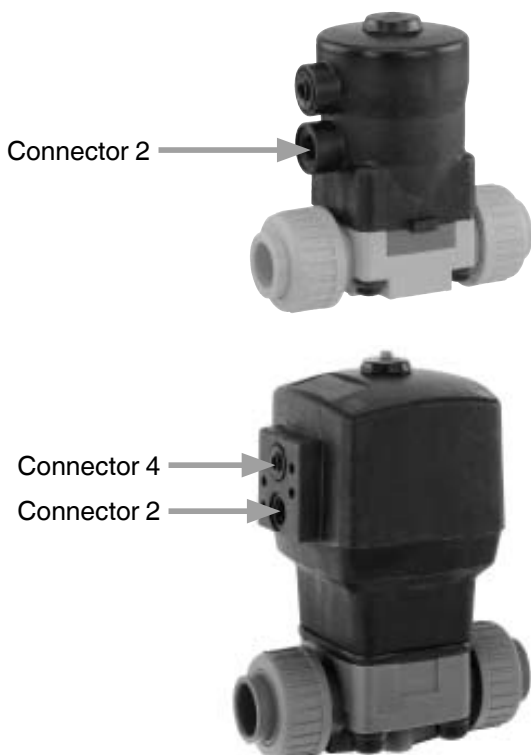
Normally open (NO):

Valve resting position: opened by spring force. Activation of the actuator (connector 4) closes the valve. When the actuator is vented, the valve is opened by spring force.

Control function 3

Double acting (DA):

Valve resting position: no defined normal position. The valve is opened and closed by activating the respective control medium connectors (connector 2: open / connector 4: close).



Control function	Connectors	
	2	4
1 (NC)	+	-
2 (NO)	-	+
3 (DA)	+	+

+ = available / - = not available
(for connectors 2 / 4 see pictures on the left)

11.3 Connecting the control medium



Important:

Connect the control medium lines tension-free and without any bends or knots! Use appropriate connectors according to the application.

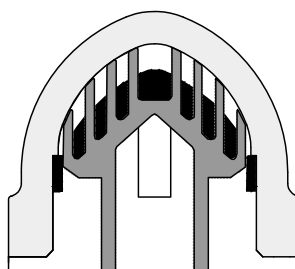
Thread size of the control medium connectors: G1/4

Control function		Connectors
1	Normally closed (NC)	2: Control medium (open)
2	Normally open (NO)	4: Control medium (close)
3	Double acting (DA)	2: Control medium (open) 4: Control medium (close)

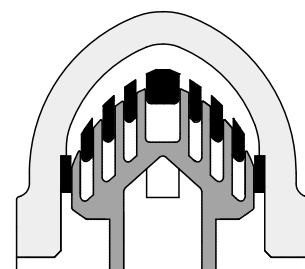
For connectors 2 / 4 see pictures on the left

11.4 Optical position indicator

GEMÜ 600



Valve open



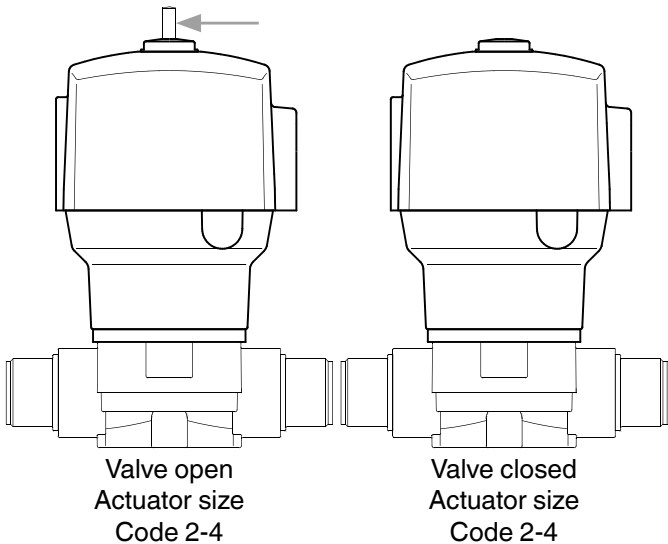
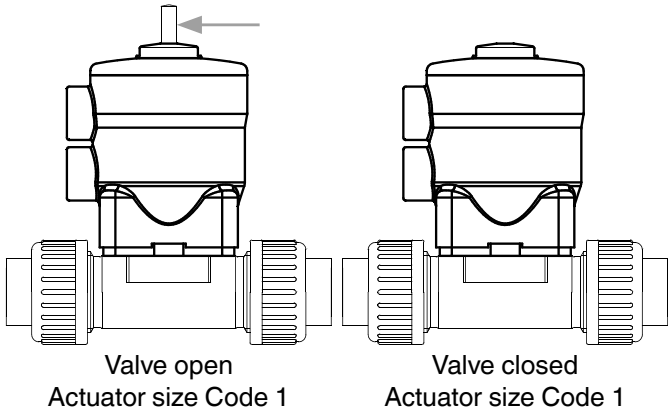
Valve closed

The diaphragm valve is equipped with an optical position indicator.

Function principle of the position indicator:

- When opening the valve, the internal red position indicator (grey) is pressed upwards and pushed over the black frame (black).
Valve open: indicator is red
Valve closed: indicator is black

GEMÜ 630

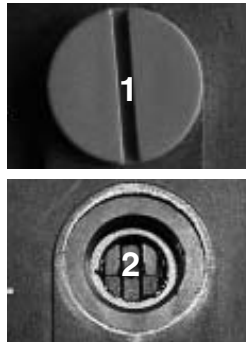


11.5 Setting the stroke limiter GEMÜ 600

The diaphragm valve is equipped with a stroke limiter.

Setting the stroke limiter:

- Remove red cover 1.
- Set the toothed wheel 2 of the stroke limiter with a screwdriver as required.

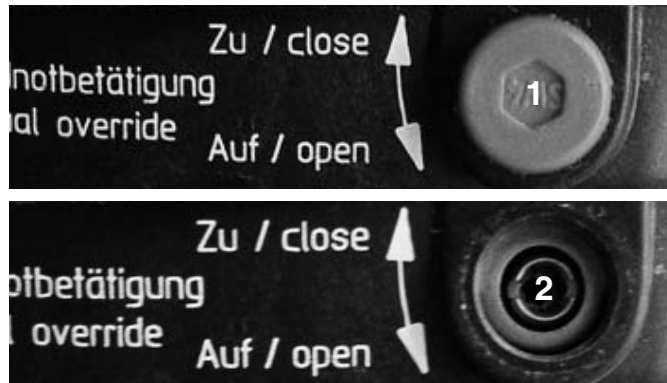


11.6 Manual override GEMÜ 600

The diaphragm valve is equipped with a manual override for control function 1 (NC).

Only actuate the manual override in case of malfunction!

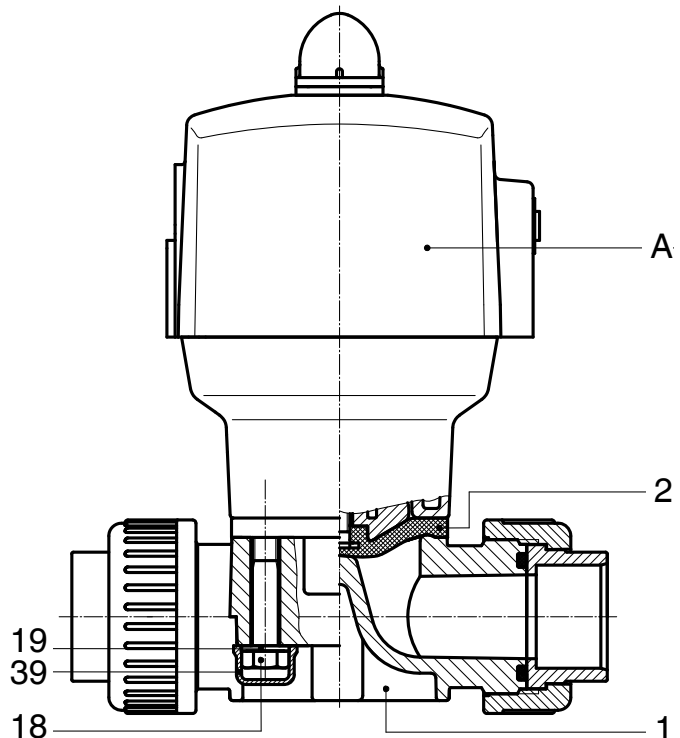
After using the manual override always reset it to its initial position and check the correct function of the valve.



Operation of the manual override:

- Remove red cover 1.
- Operate the manual override 2 with an SW4 Allen key if required.
Open: turn anti-clockwise
Close: turn clockwise

12 Assembly / Disassembly of spare parts



12.1 Valve disassembly (removing actuator from body)

1. Move actuator **A** to the open position.
2. Remove actuator **A** from valve body **1**.
3. Move actuator **A** to the closed position.

**Important:**

After disassembly, clean all parts of contamination (do not damage parts). Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

**Important:**

If the diaphragm is not screwed into the adapter far enough, the closing force is transmitted directly onto the diaphragm pin and not via the compressor. This will cause damage and early failure of the diaphragm and thus leakage of the valve. If the diaphragm is screwed in too far no perfect sealing at the valve seat will be achieved. The function of the valve is no longer ensured.

12.2 Removing the diaphragm

**Important:**

Before removing the diaphragm, please remove the actuator, see "Valve disassembly (removing actuator from body)".

**Important:**

Incorrectly mounted diaphragm may cause valve leakage / emission of medium. In this case remove the diaphragm, check the complete valve and diaphragm and reassemble again proceeding as described above.

1. Unscrew the diaphragm 2.
2. Clean all parts of the remains of product and contamination. Do not scratch or damage parts during cleaning!
3. Check all parts for potential damage.
4. Replace damaged parts (only use genuine parts from GEMÜ).

12.3 Mounting the diaphragm

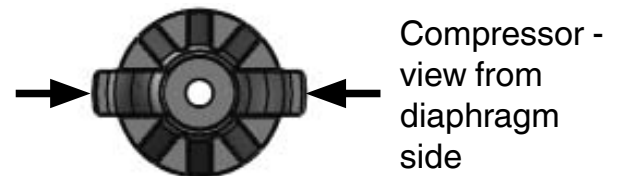
12.3.1 General information

**Important:**

Mount the correct diaphragm that suits the valve (suitable for medium, medium concentration, temperature and pressure). The diaphragm is a wearing part. Check the technical condition and function of the diaphragm valve before commissioning and during the whole term of use. Carry out checks regularly and determine the check intervals in accordance with the conditions of use and / or the regulatory codes and provisions applicable for this application.

Diaphragm size 10 (only GEMÜ 630):

The compressor is loose. Compressor and actuator flange seen from below:

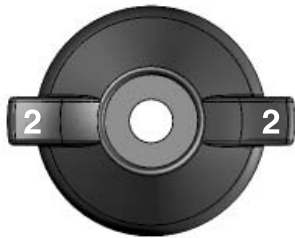


- Place the compressor loosely on the actuator spindle, fit the wings (black arrows) into the guides (white arrows).

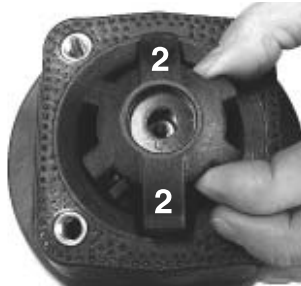
Diaphragm sizes 25 - 50:

The compressor is loose.

- Place the washer **1** loosely on the actuator spindle.
- Place the compressor loosely on the washer **1**, fit the wings **2** into the guides.

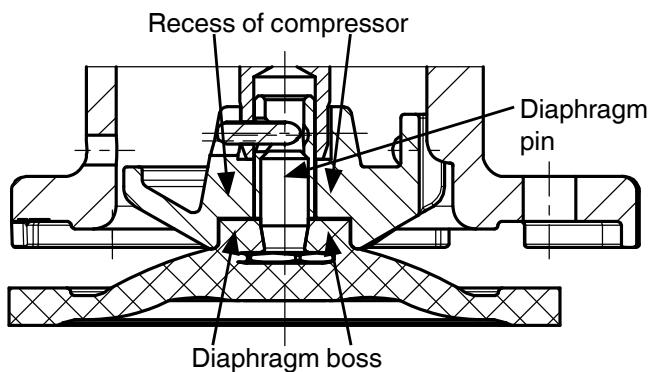


DN 15-25
(diaphragm size 25)



DN 32-50
(diaphragm sizes 40-50)

12.3.2 Mounting a concave diaphragm

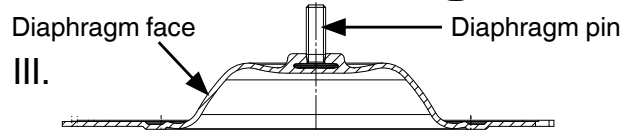
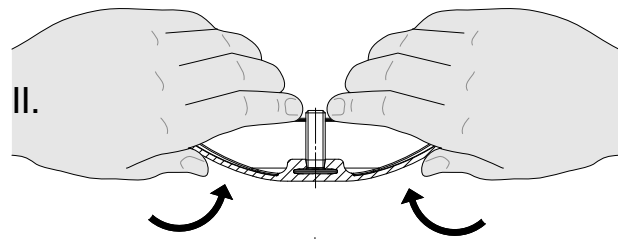
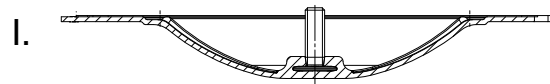


1. Move actuator **A** to the closed position.
2. Diaphragm size 10: Place the compressor loosely on the actuator spindle, fit the wings into the guides (see chapter 12.3.1 "General information").
Diaphragm size 25 - 50: Place the washer loosely on the actuator spindle. Place the compressor loosely on the washer, fit the wings into the guides (see chapter 12.3.1 "General information").
3. Check if the compressor fits closely in the guides.
4. Screw new diaphragm tightly into the compressor manually.
5. Check if the diaphragm boss fits closely in the recess of the compressor.
6. If it is difficult to screw it in, check the thread, replace damaged parts (only use genuine parts from GEMÜ).

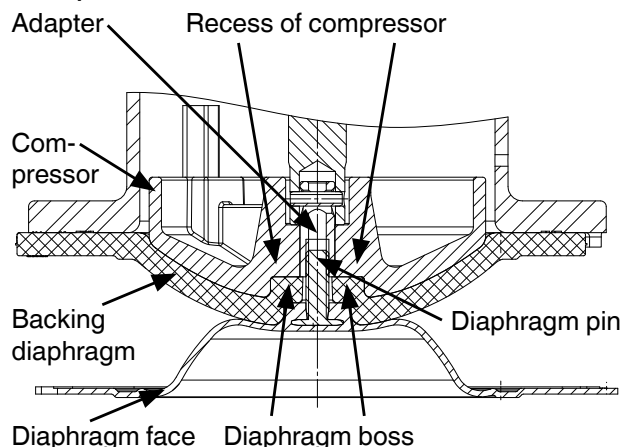
7. When clear resistance is felt turn back the diaphragm anticlockwise until its bolt holes are in correct alignment with the bolt holes of the actuator.

12.3.3 Mounting a convex diaphragm

1. Move actuator **A** to the closed position.
2. Diaphragm size 25 - 50: Place the washer loosely on the actuator spindle. Place the compressor loosely on the washer, fit the wings into the guides (see chapter 12.3.1 "General information").
3. Check if the compressor fits closely in the guides.
4. Invert the new diaphragm face manually; use a clean, padded mat with bigger nominal sizes.



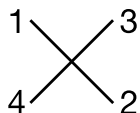
5. Position the new backing diaphragm onto the compressor.
6. Position the diaphragm face onto the backing diaphragm.
7. Screw diaphragm face tightly into the compressor manually. The diaphragm boss must fit closely in the recess of the compressor.



8. If it is difficult to screw it in, check the thread, replace damaged parts.
9. When clear resistance is felt turn back the diaphragm anticlockwise until its bolt holes are in correct alignment with the bolt holes of the actuator.
10. Press the diaphragm face tightly onto the backing diaphragm manually so that it returns to its original shape and fits closely on the backing diaphragm.

12.3.4 Actuator mounting on the valve body

1. Move actuator **A** to the open position.
2. Position actuator **A** with the mounted diaphragm **2** on valve body **1**, take care to align the compressor weir and valve body weir (see sectional drawings).
3. Insert and tighten the bolts **18** with washers **19** by hand (hand tight only).
4. Move actuator **A** to the closed position.
5. Fully tighten the bolts **18** diagonally.



6. Put on the caps **39** again.
7. Ensure that the diaphragm **2** is compressed evenly (approx. 10-15 %, visible by an even bulge to the outside).
8. Check tightness of completely assembled valve.



Important:

Diaphragms degrade in the course of time. After valve installation and commissioning you must retighten the bolts **18** (see chapter 20 "Sectional drawings and spare parts").

13 Commissioning

⚠ WARNING



Corrosive chemicals!

- Risk of caustic burns!
- Check the tightness of the media connections prior to commissioning!
- Use only the appropriate protective gear when performing the tightness check.

⚠ CAUTION

Protect against leakage!

- Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer).

Prior to cleaning or commissioning the plant:

- Check the tightness and the function of the diaphragm valve (close and reopen the diaphragm valve).
- If the plant is new and after repairs rinse the piping system with a fully opened diaphragm valve (to remove any harmful foreign matter).

Cleaning:

- x The plant operator is responsible for selecting the cleaning material and performing the procedure.



Important:

Diaphragms degrade in the course of time. After valve installation and commissioning you must retighten the bolts **18** (see chapter 20 "Sectional drawings and spare parts").

14 Inspection and servicing

⚠ WARNING

The equipment is subject to pressure!

- Risk of severe injury or death!
- Only work on depressurized plant.

⚠ CAUTION



Hot plant components!

- Risk of burns!
- Only work on plant that has cooled down.

⚠ CAUTION

- Servicing and maintenance work may only be performed by trained personnel.
- GEMÜ shall assume no liability whatsoever for damages caused by improper handling or third-party actions.
- In case of doubt, contact GEMÜ before commissioning.

1. Use appropriate protective gear as specified in plant operator's guidelines.
2. Shut off plant or plant component.
3. Secure against recommissioning.
4. Depressurize the plant or plant component.

The operator must carry out regular visual examination of the valves dependent on the operating conditions and the potential danger in order to prevent leakage and damage. The valve also has to be disassembled in the corresponding intervals and checked for wear (see chapter 12 "Assembly / disassembly of spare parts").

15 Disassembly

Disassembly is performed observing the same precautionary measures as for installation.

- Disassemble the diaphragm valve (see chapter 12.1 "Valve disassembly (removing actuator from body)").

16 Disposal



- All valve parts must be disposed of according to relevant local or national disposal regulations / environmental protection laws.
- Pay attention to adhered residual material and gas diffusion from penetrated media.

17 Returns

- Clean the diaphragm valve.
- Request a goods return declaration form from GEMÜ.
- Returns must be made with a completed declaration of return.

If not completed, GEMÜ cannot process
x credits or
x repair work
but will dispose of the goods at the operator's expense.



Note for returns:

Legal regulations for the protection of the environment and personnel require that the completed and signed goods return declaration is included with the dispatch documents. Returned goods can be processed only when this declaration is completed.

18 Information



Note on staff training:

Please contact us at the address on the last page for staff training information.

Should there be any doubts or misunderstandings in the preceding text, the German version of this document is the authoritative document!

19 Troubleshooting / Fault clearance

Fault	Possible cause	Fault clearance
Control medium escapes from vent hole* in the actuator cover (connector 4* for control function NC or connector 2* for control function NO)	Actuator piston faulty	Replace actuator
Control medium escapes from leak detection hole*	Spindle seal leaking	Replace actuator and check control medium for impurities
Working medium escapes from leak detection hole*	Valve diaphragm faulty	Check valve diaphragm for damage, replace diaphragm if necessary
Control medium escapes between the upper and lower parts of the actuator (actuator size 2-4)	Gasket faulty	Replace actuator
Valve doesn't open or doesn't open fully	Control pressure too low (for control function NC)	Operate valve with control pressure specified in data sheet
	Pilot valve faulty	Check and replace pilot valve
	Actuator faulty	Replace actuator
	Control medium not connected	Connect control medium
	Valve diaphragm incorrectly mounted	Remove actuator, check diaphragm mounting, replace if necessary
	GEMÜ 600: Stroke limiter** incorrectly set	Reset stroke limiter
	Actuator spring faulty (for control function NO)	Replace actuator
Valve leaks downstream (doesn't close or doesn't close fully)	Operating pressure too high	Operate valve with operating pressure specified in data sheet
	Control pressure too low (for control function NO and control function DA)	Operate valve with control pressure specified in data sheet
	Control medium not connected (for control function NO and control function DA)	Connect control medium
	Foreign matter between diaphragm and valve body weir	Remove actuator, remove foreign matter, check diaphragm and valve body weir for damage and replace if necessary
	Valve body weir leaking or damaged	Check valve body weir for damage, if necessary replace valve body
	Valve diaphragm faulty	Check valve diaphragm for damage, replace diaphragm if necessary
	GEMÜ 600: Manual override*** incorrectly set	Move the manual override back to its initial position
	Actuator spring faulty (for control function NC)	Replace actuator
Valve leaks between actuator and valve body	Valve diaphragm incorrectly mounted	Remove actuator, check diaphragm mounting, replace if necessary
	Bolting between valve body and actuator loose	Retighten bolting between valve body and actuator
	Valve diaphragm faulty	Check valve diaphragm for damage, replace diaphragm if necessary
	Actuator / valve body damaged	Replace actuator / valve body
Valve body connection to piping leaks	Incorrect installation	Check installation of valve body in piping
	Threaded connections loose	Tighten threaded connections
	Sealing material faulty	Replace sealing material
Valve body leaks	Valve body faulty	Check valve body for damage, replace valve body if necessary

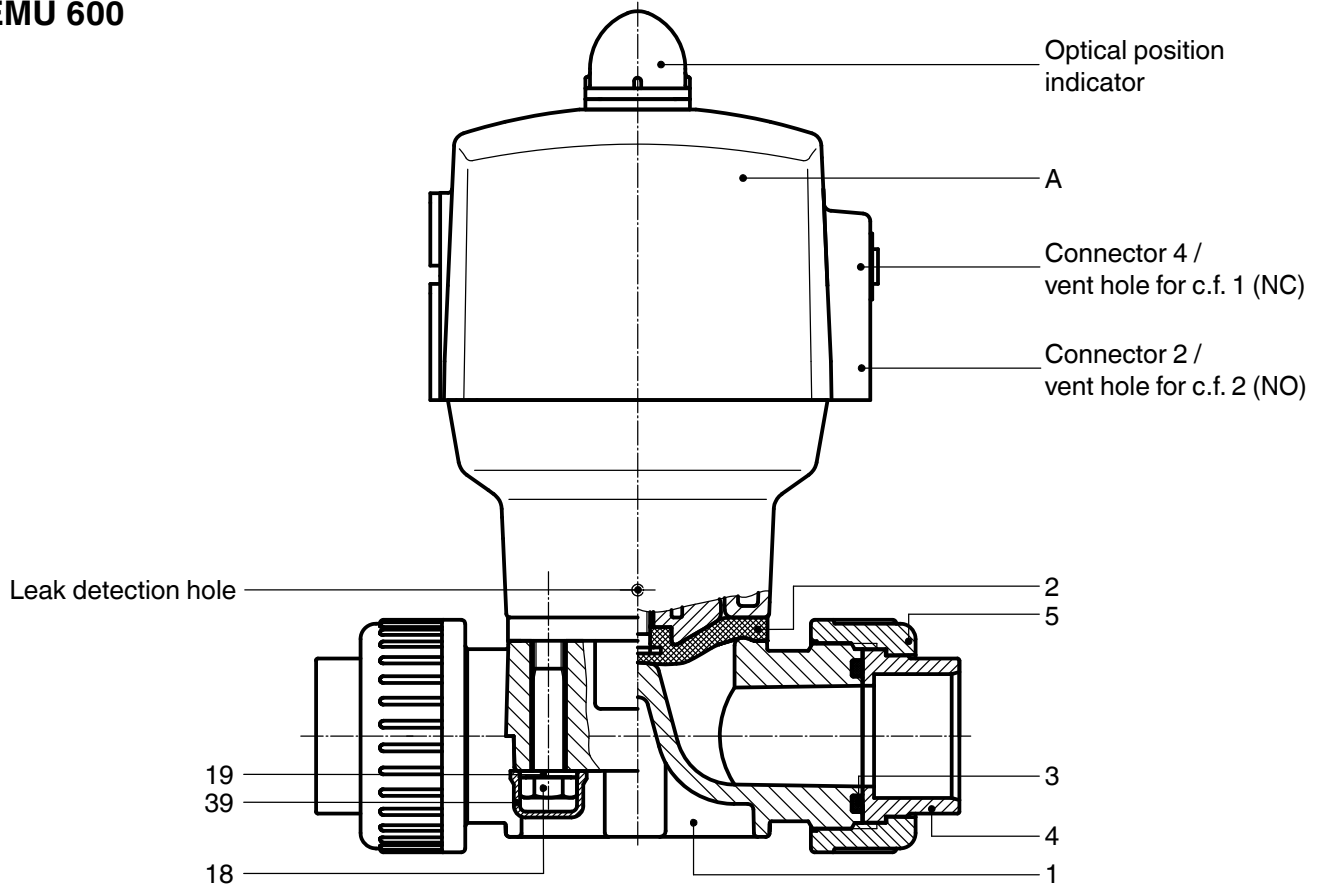
* see chapter 20 "Sectional drawings and spare parts"

** see chapter 11.5

*** see chapter 11.6

20 Sectional drawings and spare parts

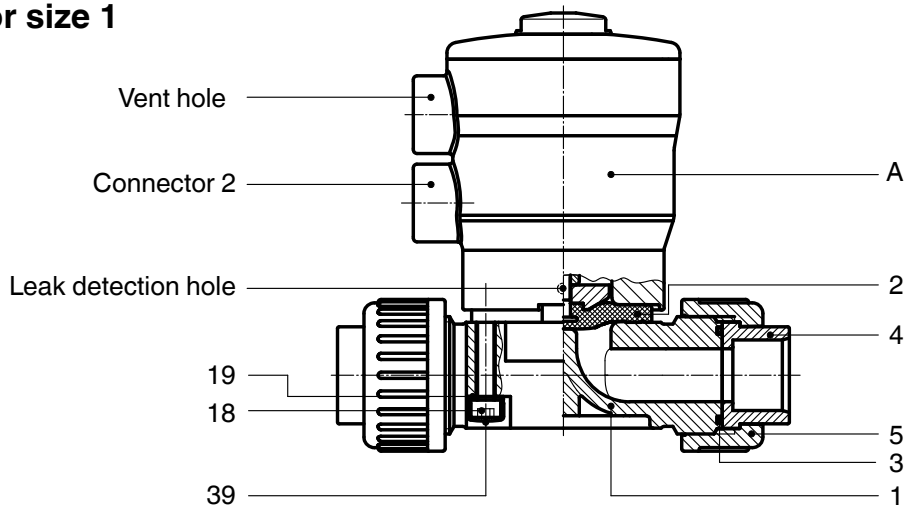
GEMÜ 600



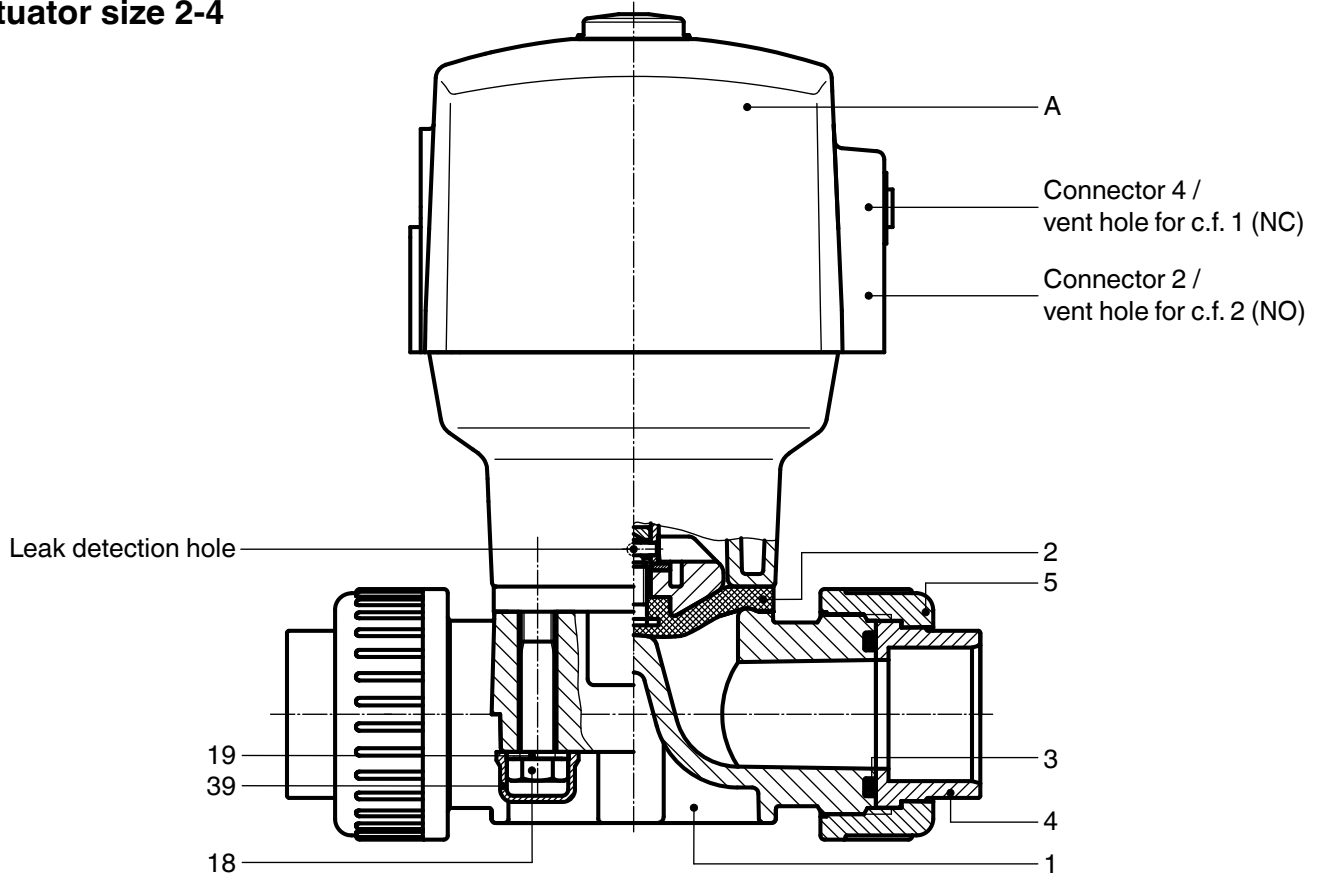
Item	Name	Order description
1	Valve body	} K 600...
3	O-ring	
4	Insert	
5	Union nut	
2	Diaphragm	600...M
18	Bolt	} 600...S30
19	Washer	
39	Cap	
A	Actuator	9600...

GEMÜ 630

Actuator size 1



Actuator size 2-4



Item	Name	Order description
1	Valve body	Actuator size 1: K 610... diaphragm size 10 Actuator size 2-4: K 600... from diaphragm size 25
3	O-ring	
4	Insert	
5	Union nut	
2	Diaphragm	
18	Bolt	} 630...S30
19	Washer	
39	Cap	
A	Actuator	9630...