

GEMÜ F40

Pneumatically operated filling valve

EN

Operating instructions



further information
webcode: GW-F40



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1 General information

1.1 Information

- The descriptions and instructions apply to the standard versions. For special versions not described in this document the basic information contained herein applies in combination with any additional special documentation.
- Correct installation, operation, maintenance and repair work ensure faultless operation of the product.
- Should there be any doubts or misunderstandings, the German version is the authoritative document.
- Contact us at the address on the last page for staff training information.

1.2 Symbols used

The following symbols are used in this document:

Symbol	Meaning
●	Tasks to be performed
▶	Response(s) to tasks
-	Lists

1.3 Definition of terms

Working medium

The medium that flows through the GEMÜ product.

Control medium

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

Control function

The possible actuation functions of the GEMÜ product.

PD

PD = Plug Diaphragm

1.4 Warning notes

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

SIGNAL WORD	
Possible symbol for the specific danger	Type and source of the danger <ul style="list-style-type: none"> ▶ 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! <ul style="list-style-type: none"> ▶ Non-observance can cause death or severe injury.

 WARNING	
	Potentially dangerous situation! <ul style="list-style-type: none"> ▶ Non-observance can cause death or severe injury.

 CAUTION	
	Potentially dangerous situation! <ul style="list-style-type: none"> ▶ Non-observance can cause moderate to light injury.

NOTICE	
	Potentially dangerous situation! <ul style="list-style-type: none"> ▶ Non-observance can cause damage to property.

The following symbols for the specific dangers can be used within a warning note:

Symbol	Meaning
	Danger of explosion!
	Corrosive chemicals!
	Hot plant components!

2 Safety information

The safety information in this document refers only to an individual product. Potentially dangerous conditions can arise in combination with other plant components, which need to be considered on the basis of a risk analysis. The operator is responsible for the production of the risk analysis and for compliance with the resulting precautionary measures and regional safety regulations.

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

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

The safety information does not take into account:

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

Prior to commissioning:

1. Transport and store the product correctly.
2. Do not paint the bolts and plastic parts of the product.
3. Carry out installation and commissioning using trained personnel.
4. Provide adequate training for installation and operating personnel.
5. Ensure that the contents of the document have been fully understood by the responsible personnel.
6. Define the areas of responsibility.
7. Observe the safety data sheets.
8. Observe the safety regulations for the media used.

During operation:

9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not described in this document without consulting the manufacturer first.

In cases of uncertainty:

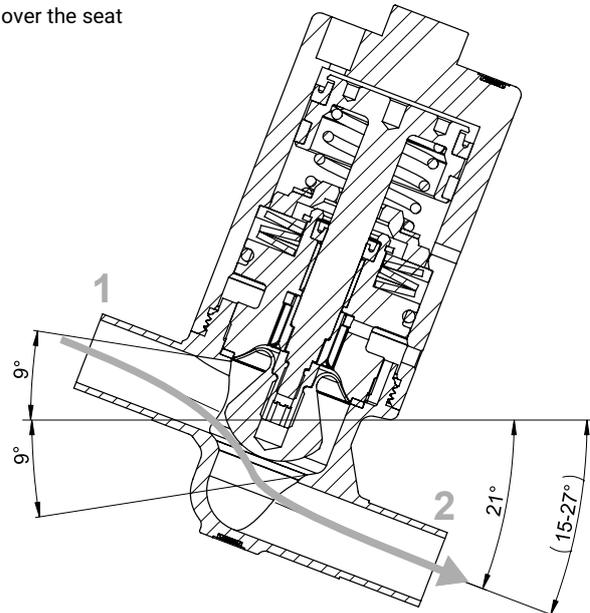
15. Consult the nearest GEMÜ sales office.

3 Product description

3.1 Construction

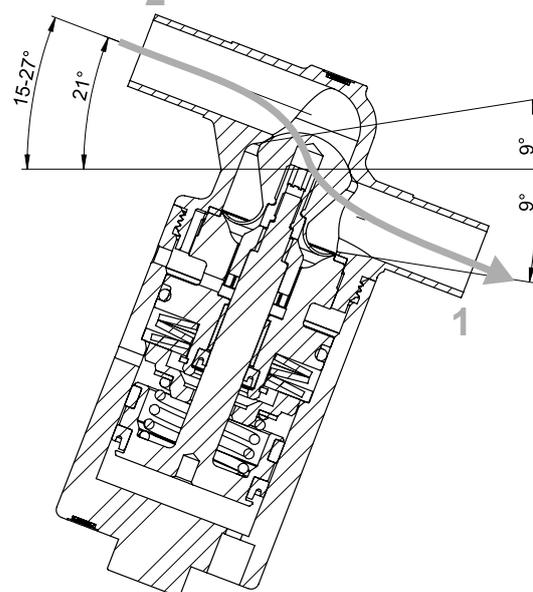
3.1.1 Flow direction

over the seat



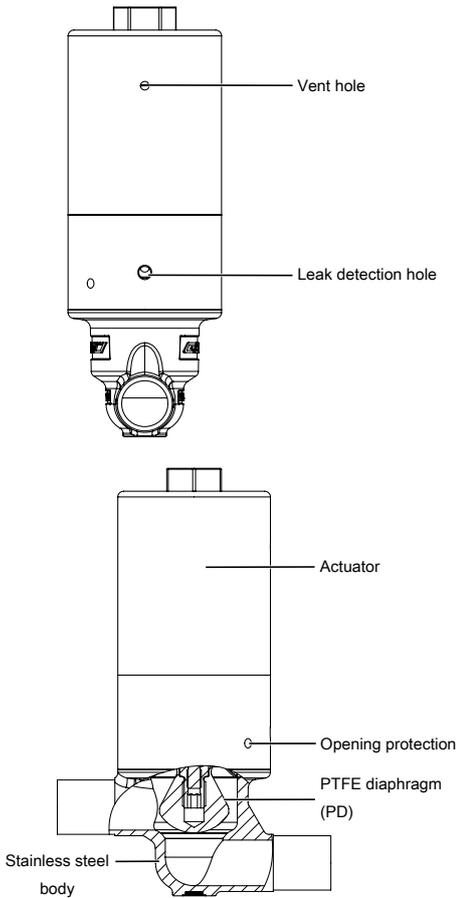
1 → 2, optimal draining and filling properties

under the seat



2 → 1, better pressure stability and higher flow

3.1.2 PD seal system



3.2 Description

The GEMÜ F40 2/2-way filling valve is designed for filling processes in aseptic and hygienic applications. Flow rates of up to 18,500 l/h are possible, depending on the design. The sealing concept of the valve is based on the GEMÜ PD design, whereby the actuator is hermetically separated from the medium. All actuator parts (except the seals) are made from stainless steel. The "Normally closed" and "Normally open" control functions are available.

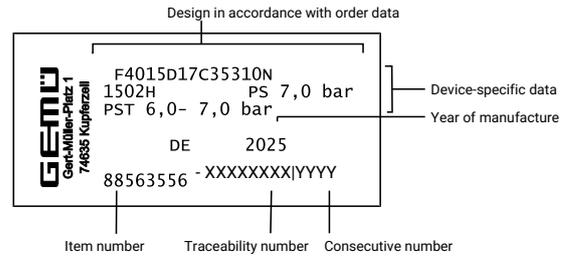
3.3 Function

The product is a pneumatically operated 2/2-way filling valve in stainless steel. The GEMÜ F40 2/2-way filling valve is designed for installation in piping systems.

The filling valve can be opened or closed via 2 control functions (Normally open and Normally closed).

3.4 Product label

The product label is located on the actuator. Product label data (example):



The month of manufacture is encoded in the traceability number and can be obtained from GEMÜ. The product was manufactured in Germany.

The operating pressure stated on the product label applies to a media temperature of 20 °C. The product can be used up to the maximum stated media temperature. You can find the pressure/temperature correlation in the technical data.

4 Intended use

⚠ DANGER

Danger of explosion!

- ▶ Risk of severe injury or death
- If there is no corresponding declaration of conformity, the product must not be used in potentially explosive atmospheres!
- Only use the product in potentially explosive zones confirmed in the declaration of conformity.

⚠ WARNING

Improper use of the product!

- ▶ Risk of severe injury or death
- ▶ Manufacturer liability and guarantee will be void.
- Only use the product in accordance with the operating conditions specified in the contract documentation and in this document.

The product is designed for installation in piping systems and for controlling a working medium.

1. Use the product in accordance with the technical data.
2. Note the supplement acc. to ATEX.
3. Please note the flow direction on the valve body.

5 Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Order codes

1 Type	Code
Stainless steel PD valve, pneumatic	F40

2 DN-1	Code
DN 8	8
DN 10	10
DN 15	15
DN 20	20
DN 25	25

3 Body configuration	Code
2/2-way body	D
Angle valve body	E
Linearised body	G
Needle valve body	N
T body	T
Note: N body only available in conjunction with seal material T, adaptor for PD size 3 and seat diameter 20 mm H.	

4 Connection type, spigot 1	Code
Spigot	
Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2	17
Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C	59
Clamp	
Clamp DIN 32676 series A	86
Clamp ASME BPE, for pipe ASME BPE	88

5 Valve body material	Code
1.4435 (316L), block material	41
1.4435 (BN2), block material, $\Delta Fe < 0.5\%$	43
1.4435, investment casting	C3

6 Seal material	Code
PTFE	5
PTFE actuator seal/stainless steel adaption thread	T
Note: Seal material T only available in conjunction with body configuration N, adaptor for PD size 3 and seat diameter 20 mm H.	

7 Adaptor for valve body	Code
Adaptor for PD size 1	1
Adaptor for PD size 3	3
Adaptor for PD size 4	4

8 Control function	Code
Normally closed (NC)	1
Normally open (NO)	2

9 Actuator version	Code
Actuator without accessories, with standard spring set	0N
Actuator with M12x1 thread for accessories with standard spring set	1N

10 Bypass	Code
1.5 mm bypass bore	15
3.0 mm bypass bore	30
3.5 mm bypass bore	35
4.0 mm bypass bore	40
5.2 mm bypass bore	52
6.0 mm bypass bore	60
7.0 mm bypass bore	70

11 Surface	Code
Investment casting	
Ra $\leq 0.8 \mu\text{m}$ for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal	1502
Ra $\leq 0.8 \mu\text{m}$ for media wetted surfaces, in accordance with DIN 11866 HE3, electropolished internal/external	1503
Ra max. $0.76 \mu\text{m}$ (30 $\mu\text{in.}$) for media wetted surfaces, in accordance with ASME BPE SF3, mechanically polished internal	SF3
Block material	
Ra $\leq 0.4 \mu\text{m}$ for media wetted surfaces, in accordance with DIN 11866 H4, mechanically polished internal	1536
Ra $\leq 0.4 \mu\text{m}$ for media wetted surfaces, in accordance with DIN 11866 HE4, electropolished internal/external	1537

12 Seat diameter	Code
11 mm	F
20 mm	H
34 mm	M

13 Regulating cone	Code
Without	
Equal-percentage Kv value: $1.3 \text{ m}^3/\text{h}$	F
Equal-percentage Kv value: $4.7 \text{ m}^3/\text{h}$	H
Equal-percentage Kv value: $12 \text{ m}^3/\text{h}$	M

14 Special version	Code
Special version for 3A	M

15 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	C

Order example

Ordering option	Code	Description
1 Type	F40	Stainless steel PD valve, pneumatic
2 DN-1	15	DN 15
3 Body configuration	D	2/2-way body
4 Connection type, spigot 1	17	Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2
5 Valve body material	C3	1.4435, investment casting
6 Seal material	5	PTFE
7 Adaptor for valve body	3	Adaptor for PD size 3
8 Control function	1	Normally closed (NC)
9 Actuator version	0N	Actuator without accessories, with standard spring set
10 Bypass	70	7.0 mm bypass bore
11 Surface	1502	Ra ≤ 0.8 µm for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal
12 Seat diameter	H	20 mm
13 Special version	M	Special version for 3A
14 Regulating cone		Without
15 CONEXO		Without

6 Technical data

6.1 Medium

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.

Control medium: Inert gases

6.2 Temperature

Media temperature: -10 – 140 °C

Sterilization temperature: Hot water max. 4 bar at 140 °C, max. 60 min
Steam max. 2 bar at 140 °C, max. 60 min

Control medium temperature: max. 60 °C

Ambient temperature: -10 – 60 °C

Storage temperature: 0 – 40 °C

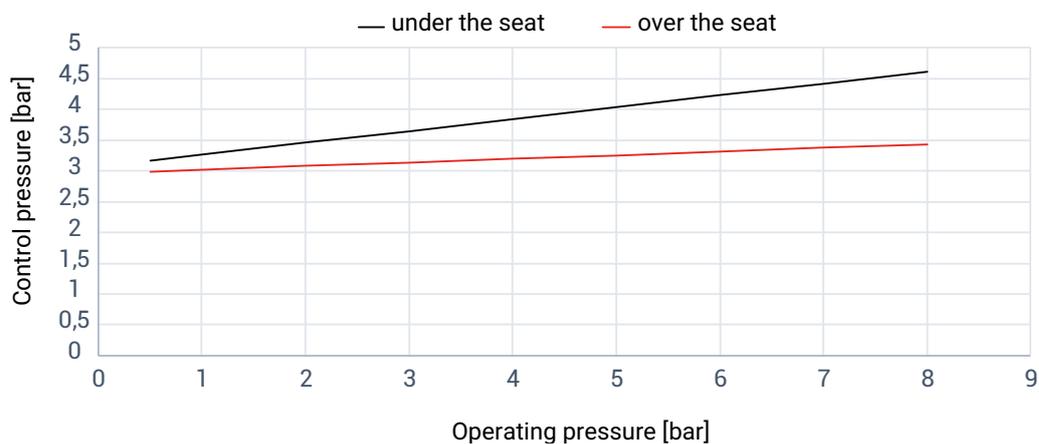
6.3 Pressure

Operating pressure: Control function 1 over the seat max. 7 bar (1 → 2)
Control function 1 under the seat max. 6 bar (2 → 1)
Control function 2 max. 7 bar

For applications with flow direction "over the seat" [1 > 2], the flow velocity must be limited to a maximum of 1.8 m/s for all nominal sizes. Otherwise a reduced life expectancy of the valve can be expected. For higher velocities the flow direction "under the seat" [2 > 1] is recommended.

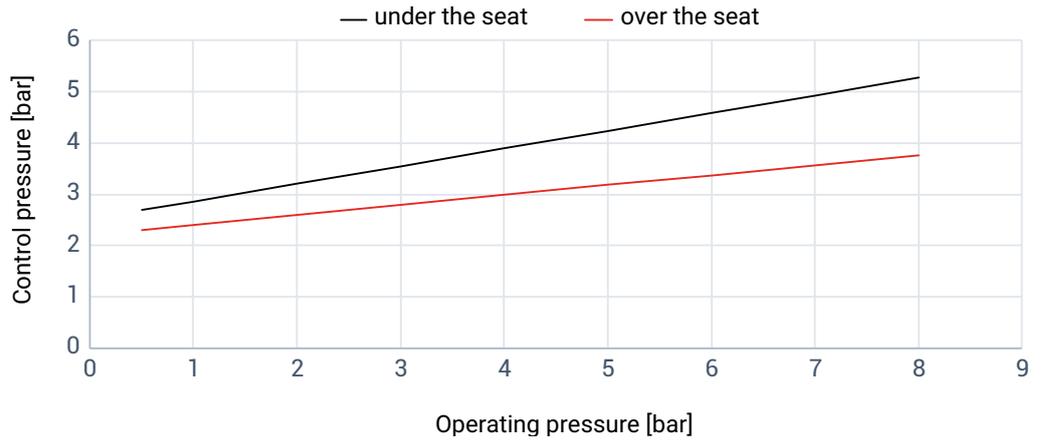
Control pressure: Control function 1 6 to 7 bar
Control function 2 max. 6 bar

Control pressure – Operating pressure characteristic control function 2, F40, actuator size 1

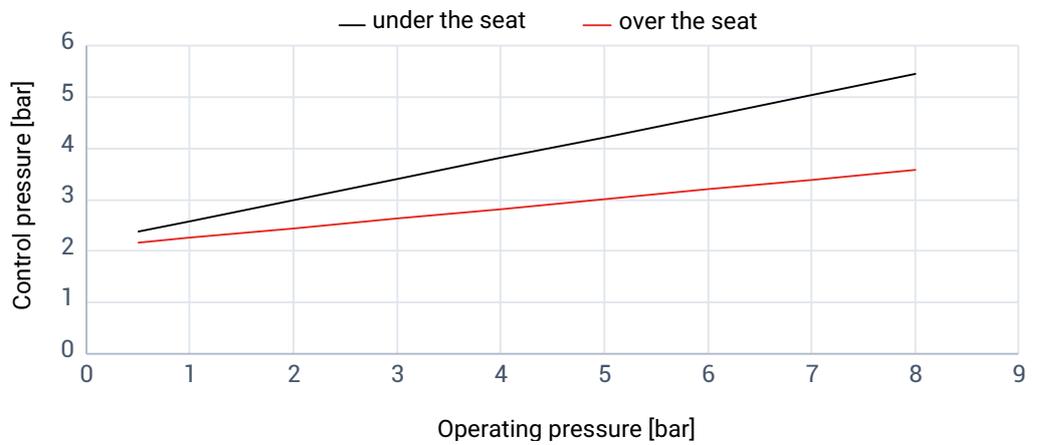


Control pressure:

Control pressure – Operating pressure characteristic control function 2, F40, actuator size 3



Control pressure – Operating pressure characteristic control function 2, F40, actuator size 4

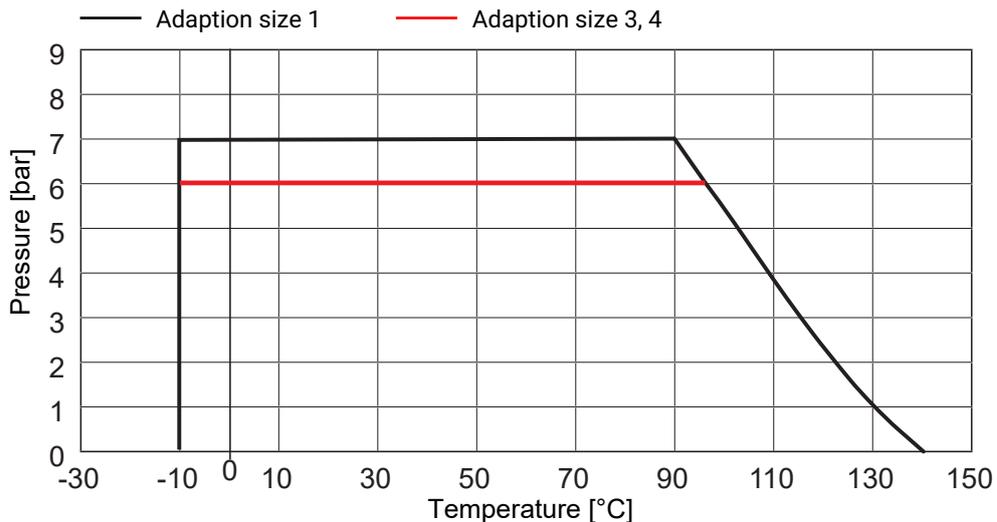


Filling volume:

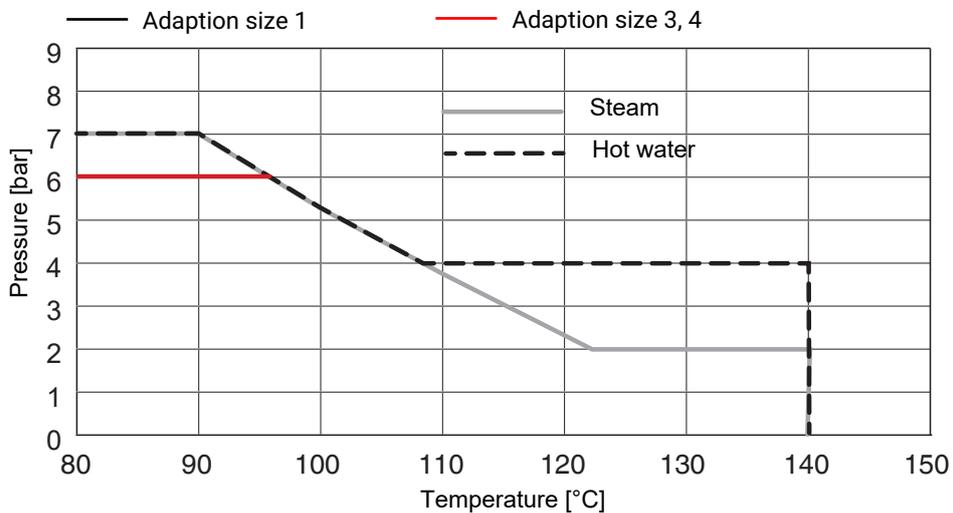
Actuator size 1, control function 1	0.0069 dm ³
Actuator size 1, control function 2	0.0043 dm ³
Actuator size 3, control function 1	0.017 dm ³
Actuator size 3, control function 2	0.010 dm ³
Actuator size 4, control function 1	0.0425 dm ³
Actuator size 4, control function 2	0.0368 dm ³

Pressure/temperature correlation:

Process:



Hot water, steam



Hot water max. 4 bar at 140 °C, max. 60 min
 Steam max. 2 bar at 140 °C, max. 60 min

Leakage rate:

Open/Close valve

Seat seal	Standard	Test procedure	Leakage rate	Test medium
PTFE	DIN EN 12266-1	P12	A	Air

Kv values:**Connection code 17 and 86 to DIN EN 60534**

Actuator size	DN	over the seat (1→2)	under the seat (2→1)
1	8	1.5	1.5
3	10	2.7	2.8
3	15	6.0	6.8
4	20	10.0	10.4
4	25	16.3	18.5

Kv values in m³/h**Connection code 59 and 88 to DIN EN 60534**

Actuator size	DN	over the seat (1→2)	under the seat (2→1)
1	10 [3/8"]	1.5	1.5
3	15 [1/2"]	2.4	2.5
3	20 [3/4"]	5.9	6.7
4	25 [1"]	11.7	12.9

Kv values in m³/h

For flow direction see product description on page 2

6.4 Product compliance**Machinery Directive:** 2006/42/EC

Food: FDA
 USP Class VI
 Regulation (EC) No. 1935/2004
 Regulation (EC) No. 10/2011

Explosion protection: ATEX (2014/34/EU) on request**ATEX marking:** The product's ATEX marking is dependent on the respective product configuration. This can be found in the product-specific ATEX documentation and the ATEX product label.**6.5 Mechanical data****Cycle duties:** Cycle duties (over 10 million)

The cycle duties and start-ups depend on the operating parameters. High pressures and media temperatures can lead to a shorter service life.

Weight:**Actuator**

Actuator size 1, control function 1	0.66 kg
Actuator size 1, control function 2	0.56 kg
Actuator size 3, control function 1	1.24 kg
Actuator size 3, control function 2	1.10 kg
Actuator size 4, control function 1	3.07 kg
Actuator size 4, control function 2	2.29 kg

Valve body

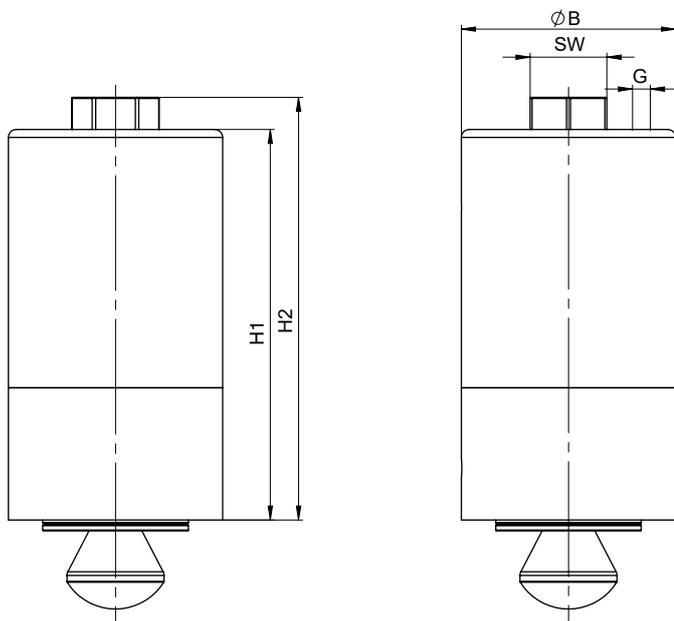
	Actuator size 1	Actuator size 3	Actuator size 4
Spigot	0.10	0.22	0.60
Clamp	0.13	0.30	0.72

Weights in kg

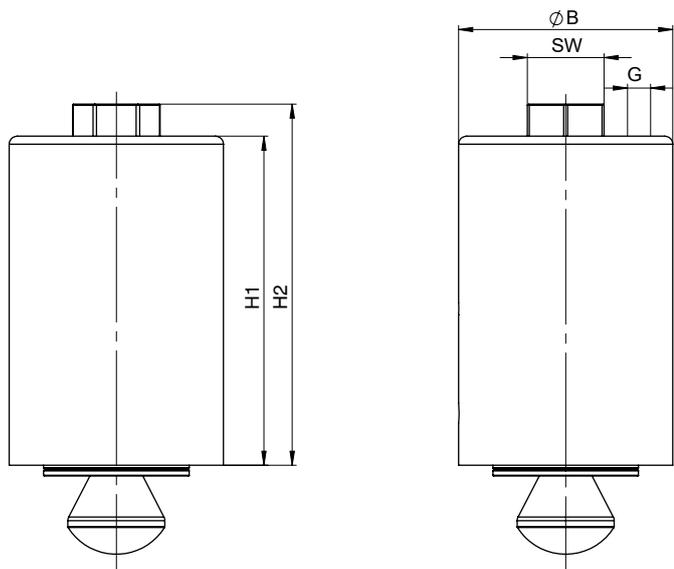
7 Dimensions

7.1 Actuator dimensions

Control function 1



Control function 2

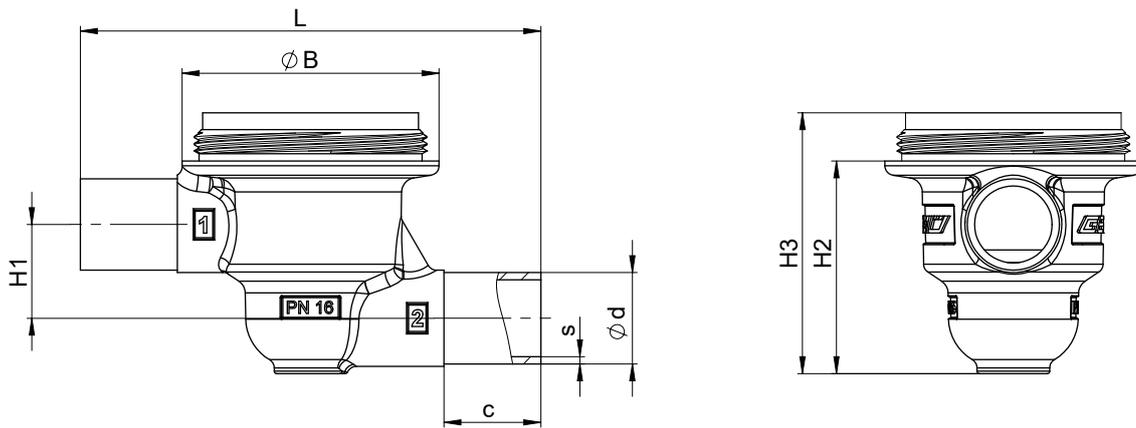


Actuator size	G	Control function	ØB	H1	H2	SW
1	M5	1	40.8	80.6	88.6	19
		2	40.8	68.0	76.0	19
3	G 1/8	1	53.0	97.4	105.4	19
		2	53.0	82.0	90.0	19
4	G 1/8	1	76.0	124.6	135.6	27
		2	76.0	80.8	98.8	27

Dimensions in mm

7.2 Body dimensions

7.2.1 Spigot



Connection type code 17

DN	AG	Connection type code 17 ¹⁾							
		Material code 41, 43, C3 ²⁾							
		L	B	c	H1	H2	H3	d	s
8	1	82.0	40.8	20.0	14.5	30.5	39.7	10.0	1.0
10	3	95.0	53.0	20.0	21.5	41.2	51.2	13.0	1.5
15	3	95.0	53.0	20.0	19.5	44.2	54.2	19.0	1.5
20	4	131.0	76.0	25.0	31.5	61.0	71.0	23.0	1.5
25	4	131.0	76.0	25.0	31.5	67.0	77.0	29.0	1.5

Connection type code 59

DN	AG	Connection type code 59 ¹⁾							
		Material code 41, 43, C3 ²⁾							
		L	B	c	H1	H2	H3	d	s
10	1	82.0	40.8	20.0	14.5	30.5	39.7	9.53	0.89
15	3	95.0	53.0	20.0	21.5	41.2	51.2	12.70	1.65
20	3	95.0	53.0	20.0	19.5	44.2	54.2	19.05	1.65
25	4	131.0	76.0	25.0	31.5	65.0	75.0	25.40	1.65

Dimensions in mm

AG = actuator size

1) Connection type, spigot 1

Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C

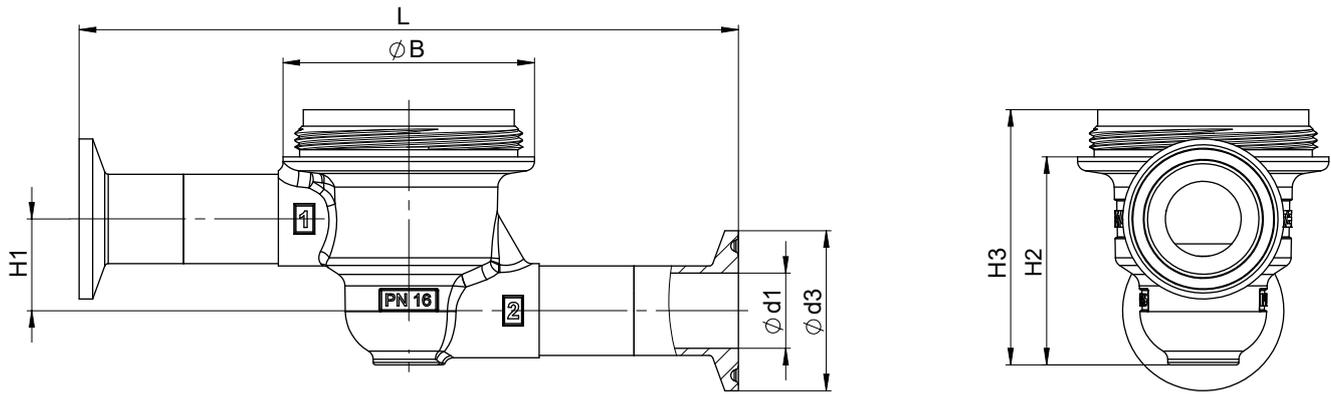
2) Valve body material

Code 41: 1.4435 (316L), block material

Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

7.2.2 Clamp



Connection type code 86

DN	AG	Connection type code 86 ¹⁾							
		Material code 41, 43, C3 ²⁾							
		L	B	H1	H2	H3	d1	d3	s
8	1	108.0	40.8	14.5	30.5	39.7	8.0	25.0	1.0
10	3	121.0	53.0	21.5	41.2	51.2	10.0	34.0	1.5
15	3	121.0	53.0	19.5	44.2	54.2	16.0	34.0	1.5
20	4	157.0	76.0	31.5	61.0	71.0	20.0	34.0	1.5
25	4	157.0	76.0	31.5	67.0	77.0	26.0	50.5	1.5

Connection type code 88

DN	AG	Connection type code 88 ¹⁾							
		Material code 41, 43, C3 ²⁾							
		L	B	H1	H2	H3	d1	d3	s
10	1	108.0	40.8	14.5	30.5	39.7	7.75	25.0	0.89
15	3	121.0	53.0	19.5	41.2	51.2	9.40	25.0	1.65
20	3	121.0	53.0	19.5	44.2	54.2	15.75	25.0	1.65
25	4	157.0	76.0	31.5	65.0	75.0	22.10	50.5	1.65

Dimensions in mm

AG = actuator size

1) Connection type, spigot 1

Code 86: Clamp DIN 32676 series A

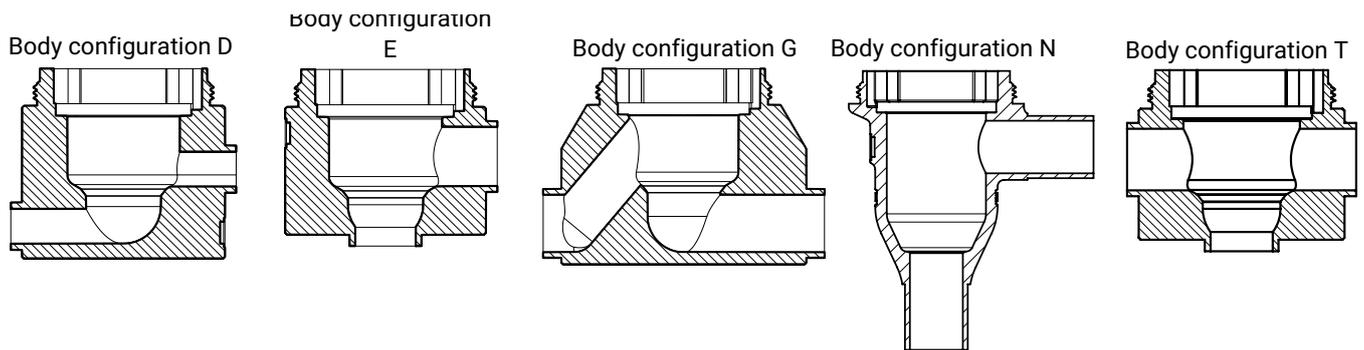
Code 88: Clamp ASME BPE, for pipe ASME BPE

2) Valve body material

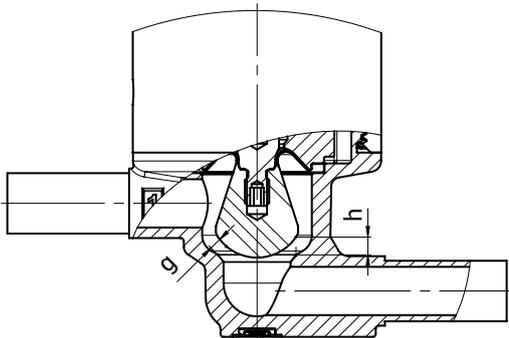
Code 41: 1.4435 (316L), block material

Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

7.3 Special body

Dimensions and installation dimensions of the special bodies on request

7.4 Gap dimensions

Actuator size	Maximum stroke [h]	Max. gap with complete opening [g]
1	2.8	1.8
3	6.0	4.0
4	8.0	5.7

8 Manufacturer's information

8.1 Delivery

- Check that all parts are present and check for any damage immediately upon receipt.

The product's performance is tested at the factory. The scope of delivery is apparent from the dispatch documents and the design from the order number.

8.2 Packaging

The product is packaged in a cardboard box which can be recycled as paper.

8.3 Transport

1. Only transport the product by suitable means. Do not drop. Handle carefully.
2. After the installation dispose of transport packaging material according to relevant local or national disposal regulations / environmental protection laws.

8.4 Storage

1. Store the product free from dust and moisture in its original packaging.
2. Avoid UV rays and direct sunlight.
3. Do not exceed the maximum storage temperature (see chapter "Technical data").
4. Do not store solvents, chemicals, acids, fuels or similar fluids in the same room as GEMÜ products and their spare parts.

8.5 Cleaning and sterilization

The valve can be cleaned (CIP) and sterilized (SIP) without being removed. **The conditions in chapter "Technical data" (operating, cleaning and sterilization media, temperatures) must be observed.** During cleaning and sterilization, the valve must remain permanently open. Closing the valve against an enclosed, incompressible medium can result in damage or a breakage in the plug diaphragm.

8.6 Flow

It is generally recommended that the valve is operated with the flow direction against the plug diaphragm (from connector 2 to connector 1).

9 Installation in piping

9.1 Preparing for installation

WARNING

The equipment is subject to pressure!

- ▶ Risk of severe injury or death
- Depressurize the plant.
- Completely drain the plant.

WARNING



Corrosive chemicals!

- ▶ Risk of caustic burns
- Wear appropriate protective gear.
- Completely drain the plant.

CAUTION



Hot plant components!

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

CAUTION

Exceeding the maximum permissible pressure.

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

CAUTION

Use as step.

- ▶ Damage to the product
- ▶ Risk of slipping-off
- Choose the installation location so that the product cannot be used as a foothold.
- Do not use the product as a step or a foothold.

NOTICE

Suitability of the product!

- ▶ The product must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions.

NOTICE

EHEDG certified valves

- EHEDG certified valves must be installed so that they can be easily cleaned and drained.
- For valves with weld ends, the weld seams must be made in accordance with EHEDG Guideline 9 and 35.
- For valves with removable connections, the "Position Paper" of the EHEDG must be taken into account and, if necessary, special seals must be used.

NOTICE

Tools

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

1. Ensure the product is suitable for the relevant application.
2. Check the technical data of the product and the materials.
3. Keep appropriate tools ready.
4. Wear appropriate protective gear, as specified in the plant operator's guidelines.
5. Observe appropriate regulations for connections.
6. Have installation work carried out by trained personnel.
7. Shut off the plant or plant component.
8. Secure the plant or plant component against recommissioning.
9. Depressurize the plant or plant component.
10. Completely drain the plant (or plant component) and let it cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
11. Correctly decontaminate, rinse and ventilate the plant or plant component.
12. Lay piping so that the product is protected against transverse and bending forces, and also from vibrations and tension.
13. Protect the piping against the total weight of the valve, vibrations during operation, as well as torques generated during assembly and disassembly.
14. Only install the product between matching aligned pipes (see chapters below).
15. Please note the flow direction (see chapter "Flow direction").
16. Please note the installation position (see chapter "Installation position").

9.2 Installation with butt weld spigots

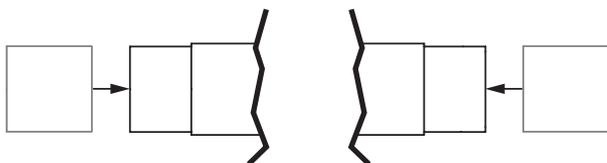


Fig. 1: Butt weld spigots

1. Carry out preparation for installation (see chapter "Preparing for installation").
2. Remove the actuator before welding the valve into the plant (see chapter "Removing the actuator").
3. Adhere to good welding practices!
4. Weld the body of the product in the piping.
5. Allow butt weld spigots to cool down.
6. Mount the actuator on the valve body (see chapter "Mounting the actuator").
7. Re-attach or reactivate all safety and protective devices.
8. Flush the system.

9.3 Installation with clamp connections

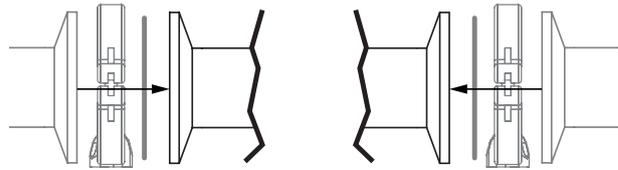


Fig. 2: Clamp connection

NOTICE

Gasket and clamp!

- ▶ The gasket and clamps for clamp connections are not included in the scope of delivery.

1. Keep ready gasket and clamp.
2. Carry out preparation for installation (see chapter "Preparing for installation").
3. Insert the corresponding gasket between the body of the product and the pipe connection.
4. Connect the gasket between the body of the product and the pipe connection using clamps.
5. Re-attach or reactivate all safety and protective devices.

10 Commissioning

- ✓ The product is installed in piping.
 - ✓ The product is pneumatically connected.
1. Check the tightness and the function of the product (close and reopen the product).
 2. Flush the piping system of new plant and following repair work (the product must be fully open).
 - ⇒ Harmful foreign matter has been removed.
 - ⇒ The product is ready for use.
 3. Commission the product.

11 Troubleshooting

Error	Error cause	Troubleshooting
Control medium escapes from vent hole / vent in the actuator cover	Piston faulty NC and NO	Replace actuator cartridge
	Spindle seal leaking NC	Replace actuator cartridge
Working medium escaping from leak detection hole	Plug diaphragm faulty	Check plug diaphragm for potential damage, replace plug diaphragm if necessary
The product does not open or does not open fully	Control pressure too low	Operate the product with the control pressure specified in the datasheet
	Pilot valve faulty	Replace the pilot valve
	Actuator faulty	Replace actuator cartridge, replace actuator if necessary
	Control medium not connected	Connect the control medium
	Plug diaphragm incorrectly mounted	Remove actuator, check plug diaphragm mounting, replace plug diaphragm if necessary
The product doesn't open or doesn't open fully	Actuator spring faulty (for control function NO)	Replace actuator cartridge
The product is leaking downstream (does not close or does not close fully)	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	Plug diaphragm incorrectly mounted	Remove actuator, check plug diaphragm mounting, correct if necessary
	Foreign matter between plug diaphragm and valve seat	Remove actuator, remove foreign matter, check plug diaphragm and valve body for damage and replace if necessary
	Valve body leaking or damaged	Check valve body for potential damage, replace valve body if necessary
	Plug diaphragm faulty	Check plug diaphragm for potential damage, replace plug diaphragm if necessary
The product leaks downstream (doesn't close or doesn't close fully)	Control pressure too low (for control function NO)	Operate valve with control pressure specified in data sheet
	Actuator spring faulty (for control function NC)	Replace actuator cartridge
The product is leaking between actuator and valve body	Plug diaphragm incorrectly mounted	Remove actuator, check plug diaphragm mounting, correct if necessary
	Bolting between valve body and actuator loose	Retighten bolting between valve body and actuator
	Plug diaphragm faulty	Check plug diaphragm for potential damage, replace plug diaphragm if necessary
	Actuator/valve body damaged	Replace actuator/valve body
Valve body connection to piping is leaking	Incorrect installation	Check installation of valve body in piping
Valve body connection to piping leaks	Sealing material faulty	Replace sealing material
Valve body leaking	Valve body leaking or corroded	Check valve body for damage, replace valve body if necessary

12 Inspection and maintenance

⚠ WARNING

The equipment is subject to pressure!

- ▶ Risk of severe injury or death
- Depressurize the plant.
- Completely drain the plant.

⚠ CAUTION



Hot plant components!

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

NOTICE

Exceptional maintenance work!

- ▶ Damage to the GEMÜ product
- Any maintenance work and repairs not described in these operating instructions must not be performed without consulting the manufacturer first.

The operator must carry out regular visual examination of the GEMÜ products dependent on the operating conditions and the potential danger in order to prevent leakage and damage.

The product also must be disassembled and checked for wear in the corresponding intervals.

1. Have servicing and maintenance work performed by trained personnel.
2. Wear appropriate protective gear as specified in plant operator's guidelines.
3. Shut off plant or plant component.
4. Secure the plant or plant component against recommissioning.
5. Depressurize the plant or plant component.
6. Actuate GEMÜ products which are always in the same position four times a year.

12.1 Replacing the actuator

12.1.1 Removing the actuator

⚠ WARNING

The equipment is subject to pressure!

- ▶ Risk of severe injury or death.
- Depressurize the plant.
- Completely drain the plant.

⚠ CAUTION



Hot plant components!

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

⚠ WARNING



Corrosive chemicals!

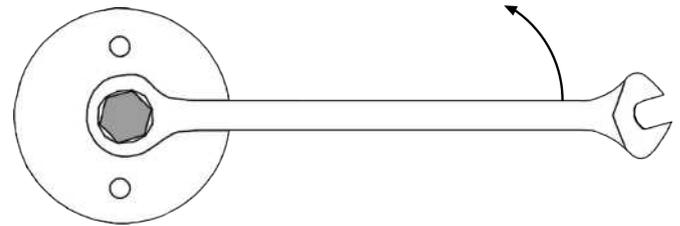
- ▶ Risk of caustic burns.
- Wear suitable protective gear.
- Completely drain the plant.

⚠ CAUTION

Use of incorrect spare parts!

- ▶ Damage to the GEMÜ product.
- ▶ Manufacturer liability and guarantee will be void.
- Use only genuine parts from GEMÜ.

1. Depressurize the air in the actuator.
2. Undo the grub screw in the opening protection.



3. Undo and remove the hex screw by turning it anticlockwise with an SW19 wrench (for actuator size 4: SW27).

⚠ CAUTION

Risk of cartridge falling out

- ▶ This will damage the cartridge.
- Take care removing the cover, because the cartridge can come loose in the cover.

4. Remove the cover.
5. Carefully remove the actuator from the valve body.

NOTICE

Important:

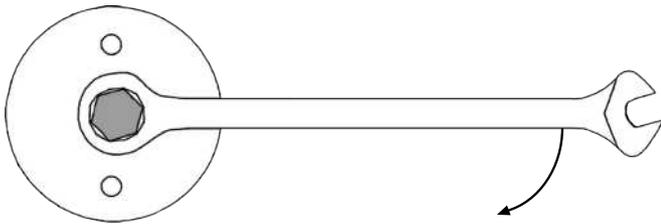
- ▶ After removal, clean all parts of contamination. Take care not to damage the parts in the process. Afterwards, check parts for potential damage. If parts are damaged, replace.

12.1.2 Mounting the actuator

NOTICE

- ▶ GEMÜ recommends using Tunap Tungrease ST3. Using another grease may lead to galling and may limit the service life of the components. In the case of damage, there would then be no justified grounds for a complaint. In general, all finished and assembled parts (valve assemblies, actuators) are delivered already greased. All individual components (cartridges, PDs, bodies, or unassembled valves or drives) are delivered without being greased.

1. Lightly grease the thread on the valve body and actuator using Tunap Tungrease ST3.



2. Screw the actuator onto the valve body by turning clockwise (can be positioned at a 90° angle via four-start thread).
3. Tighten the actuator to the specified torque (see table below).

Actuator size	Wrench size	Torque
1	19	30 Nm
3	19	60 Nm
4	27	110 Nm

4. Tighten the grub screw in the opening protection.

12.2 Replacing the cartridge

Video showing how to replace the cartridge:

QR code:

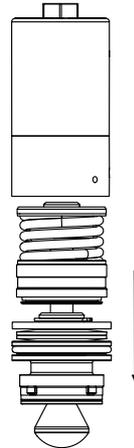


Link for Internet browser:

https://www.gemu-group.com/de_DE/videos-und-animationen/patronenwechsel-fuellventil-gemu-f40

12.2.1 Removing the cartridge

1. Remove the actuator from the valve body (see chapter "Removing the actuator").



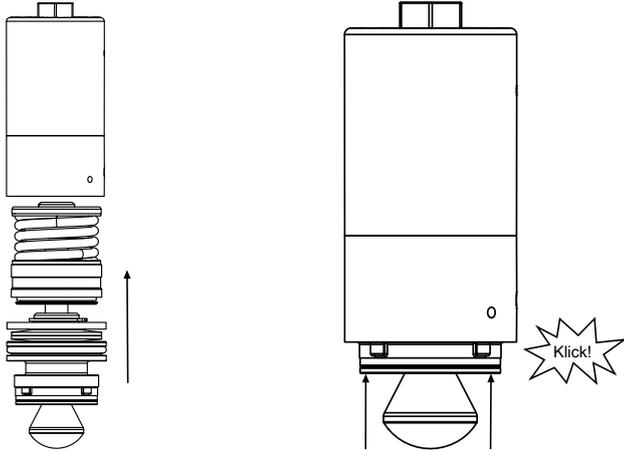
2. Remove the cartridge from the cover or from the valve body.
3. Clean all parts of contamination. Do not scratch or damage parts during cleaning!
4. Check all parts for potential damage.
5. If damage to parts of the cartridge is visible, the cartridge must be replaced completely.

12.2.2 Mounting the cartridge

NOTICE

► GEMÜ recommends using Tunap Tungrease ST3. Using another grease may lead to galling and may limit the service life of the components. In the case of damage, there would then be no justified grounds for a complaint. In general, all finished and assembled parts (valve assemblies, actuators) are delivered already greased. All individual components (cartridges, PDs, bodies, or unassembled valves or drives) are delivered without being greased.

1. Grease the cartridge using Tunap Tungrease ST3.
2. Grease the cover using Tunap Tungrease ST3.



3. Insert the lubricated cartridge into the cover and press into the collar of the plug diaphragm until you hear it click into place.

12.3 Replacing the plug diaphragm

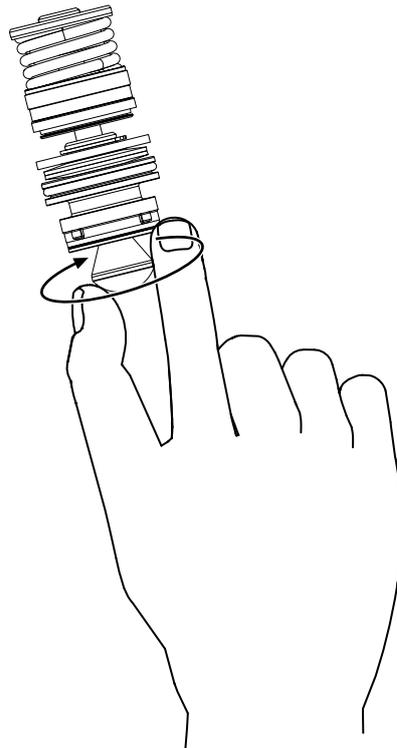
12.3.1 Removing the plug diaphragm

⚠ CAUTION

Use of incorrect spare parts!

- Damage to the GEMÜ product.
- Manufacturer liability and guarantee will be void.
- Use only genuine parts from GEMÜ.

1. Remove the actuator (see chapter "Replacing the actuator").
2. Remove the cartridge (see chapter "Replacing the cartridge").



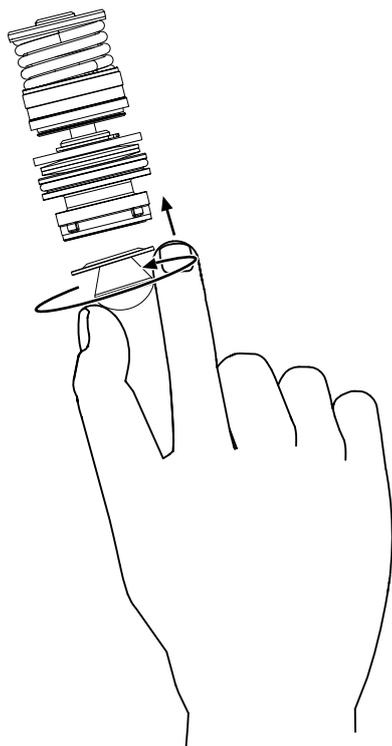
3. Unscrew the plug diaphragm from the cartridge by hand by turning it anticlockwise.
4. Clean all parts of contamination. Do not scratch or damage parts during cleaning!
5. Check all parts for potential damage.
6. If damage to parts of the cartridge is visible, the cartridge must be replaced completely.

NOTICE

Plug diaphragm – PD

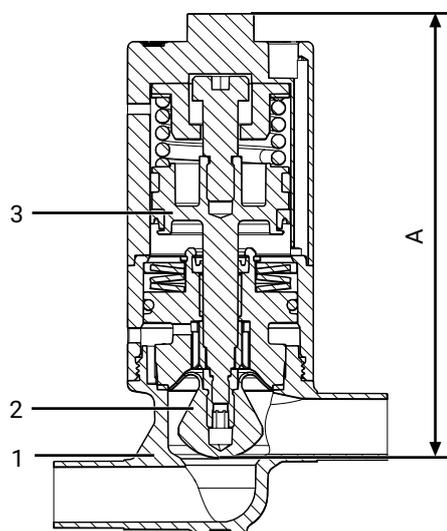
- Only remove the diaphragm from the packaging for installation
- Do not bring the diaphragm into contact with sharp or blunt objects
- Only install the diaphragm with clean hands that are free of dirt
- Avoid scratching, e.g. with your fingernails

12.3.2 Mounting the plug diaphragm



1. Screw the plug diaphragm onto the male thread of the cartridge by turning it clockwise.
2. Ensure the plug diaphragm is hand-tight.

12.4 Spare parts



Item	Name	Order description
A	Actuator	AF40...
1	Valve body	BF00...
2	Plug diaphragm	DF00...
3	Cartridge	SF40...

13 Removal from piping

1. Remove the clamp or screw connections in reverse order to installation.
2. Remove welded or solvent cemented connections using a suitable cutting tool.
3. Observe the safety information and accident prevention regulations.

14 Disposal

1. Pay attention to adhered residual material and gas diffusion from penetrated media.
2. Dispose of all parts in accordance with the disposal regulations/environmental protection laws.

15 EU Declaration of Incorporation

Version 1



Original EU-Einbauerklärung
EU Declaration of Incorporation

Wir, die Firma

We, the company

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Gert-Müller-Platz 1
74635 Kupferzell
Deutschland

erklären hiermit in alleiniger Verantwortung, dass die nachfolgend bezeichneten Produkte den Vorschriften der genannten Richtlinien entspricht.

hereby declare under our sole responsibility that the below-mentioned products complies with the regulations of the mentioned Directives.

Produkt: GEMÜ F40

Product: GEMÜ F40

Produktname: Pneumatisch betätigtes Füllventil

Product name: Pneumatically operated filling valve

Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn gegebenenfalls festgestellt wurde, dass die Maschine, in die die unvollständige Maschine eingebaut werden soll, den Bestimmungen der Maschinenrichtlinie 2006/42/EG entspricht.

The partly completed machinery may be commissioned only if it has been determined, if necessary, that the machinery into which the partly completed machinery is to be installed meets the provisions of the Machinery Directive 2006/42/EC.

Richtlinien/Verordnungen:

Directives/Regulations:

MD 2006/42/EG¹⁾

Folgende harmonisierte Normen (oder Teile hieraus) wurden angewandt:

The following harmonized standards (or parts thereof) have been applied:

EN ISO 12100:2010

Folgende grundlegenden Sicherheits- und Gesundheitsschutzanforderungen der EG-Maschinenrichtlinie 2006/42/EG, Anhang I wurden angewandt und eingehalten:

The following essential health and safety requirements of the EC Machinery Directive 2006/42/EC, Annex I have been applied or adhered to:

1.1.2.; 1.1.3.; 1.1.5.; 1.3.2.; 1.3.3.; 1.3.4.; 1.3.7.; 1.5.13.; 1.5.2.; 1.5.3.; 1.5.4.; 1.5.5.; 1.5.8.; 1.5.9.; 1.6.1.; 1.6.3.; 1.6.4.; 1.6.5.; 1.7.1.; 1.7.1.1.; 1.7.2.; 1.7.3.; 1.7.4.; 1.7.4.1.; 1.7.4.2.; 1.7.4.3.

¹⁾ MD 2006/42/EG

¹⁾ MD 2006/42/EG

Bemerkungen:

Ferner wird erklärt, dass die speziellen technischen Unterlagen gemäß Anhang VII Teil B erstellt wurden.

Remarks:

We also declare that the specific technical documents have been created in accordance with part B of Annex VII.

Der Hersteller verpflichtet sich, einzelstaatlichen Stellen auf begründetes Verlangen die speziellen technischen Unterlagen zu der unvollständigen Maschine zu übermitteln. Diese Übermittlung erfolgt elektronisch.

The manufacturer undertakes to transmit relevant technical documents on the partly completed machinery to the national authorities in response to a reasoned request. This communication takes place electronically.

Die gewerblichen Schutzrechte bleiben hiervon unberührt!

This does not affect the industrial property rights.

i.V. M. Barghoorn
Leiter Globale Technik
Kupferzell, 09.12.2025

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Subject to alteration

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