GEMÜ 620

Pneumatically operated diaphragm valve

EN **Operating instructions**

further information
webcode: GW-620

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Contents

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 function

The possible actuation functions of the GEMÜ product.

Control medium

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

1.4 Warning notes

Symbol	Meaning
	Imminent danger!
	Potentially dangerous situation!
	Danger of explosion!
	The equipment is subject to pressure!
	Corrosive chemicals!
	Actuator is under spring tension!
	Hot plant components!
	Leakage!
	Note the weight of the product!
	Corrosion from media that attack the valve body, seals or diaphragm
	Actuator under spring pressure!

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

SIGNAL WORD	
Possible symbol for the specific danger	Type and source of the danger ▶Possible consequences in case of non-compliance ●Measures for avoiding danger

Warning notes are always labelled 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 can cause death or severe injury

⚠ WARNING

Potentially dangerous situation!

▶ Non-observance can cause death or severe injury

⚠ CAUTION

Potentially dangerous situation!

▶ Non-observance can cause moderate to light injury

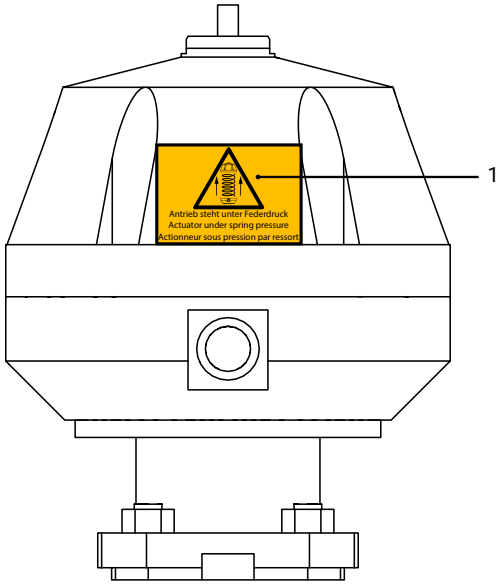
NOTICE

Potentially dangerous situation!

► Non-observance can cause damage to property

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

1.5 Safety information on the product



Item	Symbol	Meaning
1		Actuator under spring pressure! - Only open the actuator under a press.

The adhesive label on the product is printed in German, English and French as supplied. If the product is used in a country where a different language is spoken, a label in the corresponding language must be attached. Missing or illegible adhesive labels on the product must be attached or replaced. If the adhesive label is required in other, not enclosed, languages, it must be produced and attached by the customer at their own responsibility.

The following adhesive labels with warning notes in other languages are enclosed:

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

Item	Name	Materials
1	Optical position indicator	PP red
2	Actuator	Cast iron, PP reinforced
3	Diaphragm	NBR FKM CR EPDM PTFE / EPDM (one-piece) PTFE / EPDM (two-piece) PTFE / FKM (two-piece) PTFE / PVDF / EPDM (three-piece)
4	Valve body	EN-GJL-250 (GG 25) EN-GJS-400-18-LT (GGG 40.3) EN-GJS-400-18-LT (GGG 40.3), butyl lined EN-GJS-400-18-LT (GGG 40.3), PFA lined EN-GJS-400-18-LT (GGG 40.3), PP lined EN-GJS-400-18-LT (GGG 40.3), hard rubber lined EN-GJS-400-18-LT (GGG 40.3), soft rubber lined EN-GJS-500-7 (GGG 50), PFA lined EN-GJS-500-7 (GGG 50), PP lined

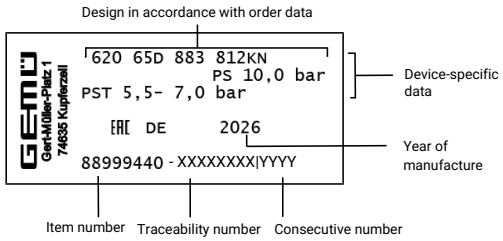
3.2 Description

The GEMÜ 620 2/2-way diaphragm valve has a low maintenance membrane actuator made of metal or plastic and is pneumatically operated. The valve has a metal distance piece. Normally Closed (NC), Normally Open (NO) and Double Acting (DA) control functions are available.

3.3 Function

The product is designed for use in piping. It controls a flowing medium by being closed or opened by a control medium.

3.4 Product label



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

4 Correct use

⚠ DANGER

Danger of explosion!

- ► Risk of death or severe injury
- ● Do **not** use the product in potentially explosive zones.

⚠ 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.

The product is not intended for use in potentially explosive areas.

- ● Use the product in accordance with the technical data.

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
Diaphragm valve, pneumatically operated, membrane actuator, cast iron distance piece	620

2 DN	Code
DN 15	15
DN 20	20
DN 25	25
DN 32	32
DN 40	40
DN 50	50
DN 65	65
DN 80	80
DN 100	100
DN 125	125
DN 150	150

3 Body configuration	Code
2/2-way body	D

4 Connection type	Code
Threaded connection	
Threaded socket DIN ISO 228	1
NPT female thread	31
Flange	
Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1, length only for body configuration D	8
Flange ANSI Class 150 RF, face-to-face dimension FTF MSS SP-88, length only for body configuration D	38
Flange ANSI Class 125/150 RF, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1, length only for body configuration D	39
Flange BS 10 table E, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7, length only for body configuration D	51
Flange EN 1092, PN 16, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7, length only for body configuration D	53
Flange ANSI Class 125/150 RF, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7, length only for body configuration D	56

5 Valve body material	Code
Cast iron material	
EN-GJL-250 (GG 25)	8
SG iron material	
EN-GJS-400-18-LT (GGG 40.3), PFA lining	17
EN-GJS-400-18-LT (GGG 40.3), PP lining	18
EN-GJS-500-7 (GGG 50), PFA lined	81
EN-GJS-400-18-LT (GGG 40.3), soft rubber lined	82
EN-GJS-400-18-LT (GGG 40.3), hard rubber lining	83
EN-GJS-400-18-LT (GGG 40.3), butyl lined	88
EN-GJS-400-18-LT (GGG 40.3)	90
EN-GJS-500-7 (GGG 50), PP lined	91

6 Diaphragm material	Code
Elastomer	
NBR	2
FKM	4
CR	8
EPDM	29
PTFE	
PTFE/EPDM one-piece	54
PTFE/EPDM two-piece	5M
PTFE/FKM two-piece	5T
PTFE/EPDM two-piece for lining bodies	5Y
PTFE/PVDF/EPDM three-piece	71
Note: The PTFE/EPDM diaphragm (code 5M) is available from diaphragm size 10.	
Note: The PTFE/EPDM diaphragm (code 5Y) is available for diaphragm size 25 and can only be combined with PFA-lined valve bodies.	
Note: The PTFE/PVDF/EPDM diaphragm (code 71) can only be combined with PFA lined valve bodies.	

7 Control function	Code
Normally closed (NC)	1
Normally open (NO)	2
Double acting (DA)	3

8 Actuator version	Code
DN 15 - 25, diaphragm size 25	
Plastic actuator material	
Actuator size 0KN	0KN

8 Actuator version	Code
DN 32 - 40, diaphragm size 40	
Plastic actuator material	
Actuator size 1KN	1KN
DN 50 - 65, diaphragm size 50	
Plastic actuator material	
Actuator size 2KN	2KN
DN 80, diaphragm size 80	
Plastic actuator material	
Actuator size 3/2	3/2
Actuator size 3/3	3/3
Actuator size 3/D	3/D
Actuator size 3/F	3/F
Metal actuator material	
Actuator size 3A2	3A2
Actuator size 3A3	3A3
Actuator size 3AD	3AD
Actuator size 3AF	3AF
Actuator size 4A2	4A2
DN 100, diaphragm size 100	
Plastic actuator material	
Actuator size 3/3	3/3
Actuator size 3/D	3/D
Actuator size 3/F	3/F
Metal actuator material	
Actuator size 3A3	3A3
Actuator size 3AD	3AD
Actuator size 3AF	3AF
Actuator size 4A2	4A2
Actuator size 4A3	4A3
Actuator size 4AD	4AD

8 Actuator version	Code
Actuator size 4AF	4AF
DN 125, diaphragm size 100	
Plastic actuator material	
Actuator size 3/3	3/3
Actuator size 3/D	3/D
Actuator size 3/F	3/F
Metal actuator material	
Actuator size 3A3	3A3
Actuator size 3AD	3AD
Actuator size 3AF	3AF
Actuator size 4C2	4C2
Actuator size 4C3	4C3
Actuator size 4CD	4CD
Actuator size 4CF	4CF
DN 125, diaphragm size 125	
Metal actuator material	
Actuator size 4A2	4A2
Actuator size 4A3	4A3
Actuator size 4AD	4AD
Actuator size 4AF	4AF
DN 150, diaphragm size 150	
Metal actuator material	
Actuator size 4A3	4A3
Actuator size 4AD	4AD
Actuator size 4AF	4AF
Note: On all actuators, the control air connector is 90° offset to flow direction.	

9 Mounting type	Code
With NAMUR mounting bracket	N0
With NAMUR mounting bracket and handwheel	NH

Order example

Ordering option	Code	Description
1 Type	620	Diaphragm valve, pneumatically operated, membrane actuator, cast iron distance piece
2 DN	80	DN 80
3 Body configuration	D	2/2-way body
4 Connection type	8	Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1, length only for body configuration D
5 Valve body material	90	EN-GJS-400-18-LT (GGG 40.3)
6 Diaphragm material	29	EPDM
7 Control function	1	Normally closed (NC)
8 Actuator version	3/3	Actuator size 3/3
9 Mounting type		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:

MG	Diaphragm material	Valve body material	Standard
25, 40, 50, 80, 100, 125, 150	NBR (code 2)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C
25, 40, 50, 80, 100, 125, 150	FKM (code 4)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 90 °C
25, 40, 50, 80, 100	CR (code 8)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C
25, 40, 50, 80, 100, 125, 150	EPDM (code 29)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C
25, 40, 50, 80, 100, 125, 150	PTFE/EPDM (code 54)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C

MG	Diaphragm material	Valve body material	Standard
25, 40, 50, 80, 100	PTFE/PVDF/EPDM (code 71)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C
25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C
25	PTFE/EPDM (code 5Y)	GGG 40.3, PFA lined (code 17) GGG 50, PFA lined (code 81)	-10 to 100 °C
25, 40, 50, 80, 100	PTFE/FKM (code 5T)	GG 25, without lining (code 8) GGG 40.3, PP lined (code 18) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	-10 to 100 °C

Ambient temperature:

MG	Diaphragm material	Valve body material	Standard
25, 40, 50, 80, 100, 125, 150	NBR (code 2)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C
25, 40, 50, 80, 100, 125, 150	FKM (code 4)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C
25, 40, 50, 80, 100	CR (code 8)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C
25, 40, 50, 80, 100, 125, 150	EPDM (code 29)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C
25, 40, 50, 80, 100, 125, 150	PTFE/EPDM (code 54)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C
25, 40, 50, 80, 100	PTFE/PVDF/EPDM (code 71)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C

MG	Diaphragm material	Valve body material	Standard
25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	GG 25, without lining (code 8) GGG 40.3, PFA lined (code 17) GGG 40.3, PP lined (code 18) GGG 50, PFA lined (code 81) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C
25	PTFE/EPDM (code 5Y)	GGG 40.3, PFA lined (code 17) GGG 50, PFA lined (code 81)	0 to 60 °C
25, 40, 50, 80, 100	PTFE/FKM (code 5T)	GG 25, without lining (code 8) GGG 40.3, PP lined (code 18) GGG 40.3, soft rubber lined (code 82) GGG 40.3, hard rubber lined (code 83) GGG 40.3, butyl lined (code 88) GGG 40.3, without lining (code 90) GGG 50, PP lined (code 91)	0 to 60 °C

Control medium temperature: 0 — 40 °C

Storage temperature: 0 — 40 °C

6.3 Pressure

Operating pressure:

MG	DN	Control function	Actuator size	EPDM	PTFE
25	**15 - 25**	1, 2, 3	0KN	0 - 10	0 - 10
40	**32 - 40**	1, 2, 3	1KN	0 - 10	0 - 10
50	**50 - 65**	1, 2, 3	2KN	0 - 10	0 - 10
80	**80**	1	3/2	0 - 3	0 - 2
			3A2	0 - 3	0 - 2
			3/3	0 - 7	0 - 5
			3A3	0 - 7	0 - 5
			4A2	0 - 10	0 - 6
		2	3/F, 3AF	0 - 10	0 - 6
		3	3/D, 3AD	0 - 10	0 - 6
100	**100**	1	3/3	0 - 6	0 - 4
			3A3	0 - 6	0 - 4
			4A2	0 - 6	0 - 4
			4A3	0 - 10	0 - 6
		2	3/F	0 - 6	0 - 4
			3AF	0 - 6	0 - 4
			4AF	0 - 10	0 - 6
		3	3/D	0 - 6	0 - 4
			3AD	0 - 6	0 - 4
			4AD	0 - 10	0 - 6
100	**125**	1	3/3	0 - 6	0 - 4
			3A3	0 - 6	0 - 4
			4C2	0 - 6	0 - 4
			4C3	0 - 10	0 - 6
		2	3/F	0 - 6	0 - 4
			3AF	0 - 6	0 - 4
			4CF	0 - 10	0 - 6
		3	3/D	0 - 6	0 - 4
			3AD	0 - 6	0 - 4
			4CD	0 - 10	0 - 6
125	125	1	4A2	0 - 5	0 - 3
			4A3	0 - 8	0 - 5
		2	4AF	0 - 10	0 - 6
		3	4AD	0 - 10	0 - 6
150	150	1	4A3	0 - 6	0 - 4
		2	4AF	0 - 8	0 - 5
		3	4AD	0 - 8	0 - 5

MG = diaphragm size
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side of a closed valve. Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.

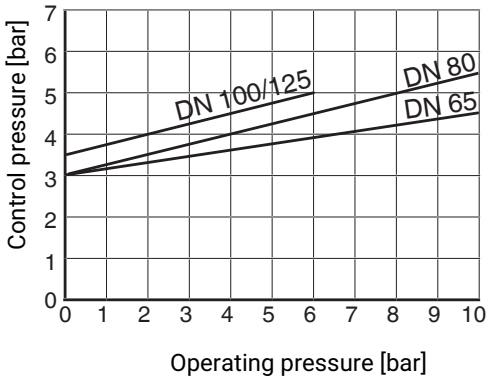
Pressure rating: PN 16

Leakage rate: Leakage rate A (acc. to EN 12266-1)

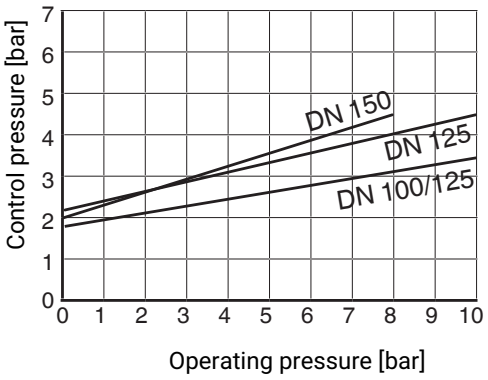
Control pressure:

Control pressure/operating pressure diagram

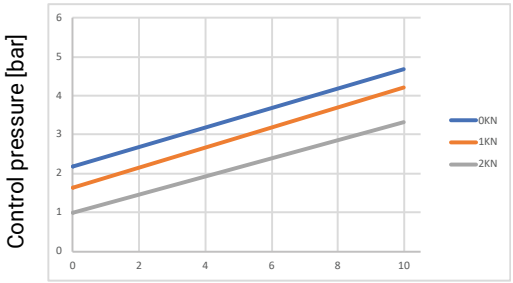
Actuator 3/F, 3AF, 3/D, 3AD



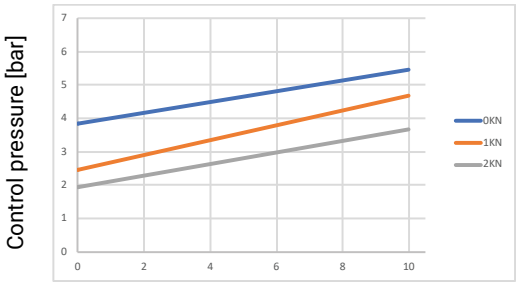
Actuator 4AF, 4AD, 4CF, 4CD



EPDM - Actuator 0KN, 1KN, 2KN



PTFE - Actuator 0KN, 1KN, 2KN



Note: The above diagrams give the minimum control pressure for "normally open" actuators (control function 2) for different operating pressures.

Control pressure:

MG	DN	Control function	Actuator size	EPDM
25	**15 - 25**	1	0KN	5.5 - 7.0
		2	0KN	max. 5.5
		3	0KN	max. 5.5
40	**32 - 40**	1	1KN	5.5 - 7.0
		2	1KN	max. 5.5
		3	1KN	max. 5.5
50	**50 - 65**	1	2KN	5.5 - 7.0
		2	2KN	max. 5.0
		3	2KN	max. 5.0
80	**80**	1	3/2	4.5 - 7.0
			3A2	5.0 - 7.0
			3/3	5.6 - 7.0
			3A3	6.5 - 7.0
			4A2	3.5 - 7.0
		2	3/F, 3AF	max. 5.5
		3	3/D, 3AD	max. 5.0
100	**100**	1	3/3	6.2 - 7.0
			3A3	6.5 - 7.0
			4A2	3.5 - 7.0
			4A3	4.5 - 7.0
		2	3/F	max. 5.0

MG	DN	Control function	Actuator size	EPDM
			3AF	max. 5.0
			4AF	max. 3.5
		3	3/D	max. 4.5
			3AD	max. 4.5
			4AD	max. 3.0
100	**125**	1	3/3	6.2 - 7.0
			3A3	6.5 - 7.0
			4C2	3.5 - 7.0
			4C3	4.5 - 7.0
		2	3/F	max. 5.0
			3AF	max. 5.0
			4CF	max. 3.5
		3	3/D	max. 4.5
			3AD	max. 4.5
			4CD	max. 3.0
125	**125**	1	4A2	4.0 - 7.0
			4A3	5.5 - 7.0
		2	4AF	max. 4.5
		3	4AD	max. 4.0
150	**150**	1	4A3	5.5 - 7.0
		2	4AF	max. 4.5
		3	4AD	max. 4.0

MG = diaphragm size

Filling volume:

Actuator size 0KN	0.16 dm³
Actuator size 1KN	0.40 dm³
Actuator size 2KN	0.69 dm³
Actuator size 3	2.50 dm³
Actuator size 4	6.80 dm³

Kv values:

MG	DN	Cast body without lining		Rubber lining	Plastic lining
		Threaded body	Flanged body		
		Material code 90		Material code 82, 83, 88	Material code 17, 18, 81, 91
25	**15**	8.0	10.0	6.0	5.0
	20	11.5	14.0	11.0	9.0
	25	11.5	17.0	15.0	13.0
40	**32**	28.0	36.0	29.0	23.0
	40	28.0	40.0	32.0	26.0
50	**50**	60.0	68.0	53.0	47.0
	65	-	68.0	53.0	47.0
80	**80**	-	130.0	128.0	110.0
100	**100**	-	200.0	180.0	177.0
	125	-	200.0	160.0	160.0
150	**150**	-	484.0	397.0	365.0

MG = diaphragm size, Kv values in m³/h
Kv values determined in accordance with DIN EN 60534, inlet pressure 5 bar, Δp 1 bar, with connection flange EN 1092 length EN 558 series 1 (or threaded socket DIN ISO 228 for body material GGG40.3) and soft elastomer diaphragm. The Kv values for other product configurations (e.g. other diaphragm or body materials) may differ. In general, all diaphragms are subject to the influences of pressure, temperature, the process and their tightening torques. Therefore the Kv values may exceed the tolerance limits of the standard.
The Kv value curve (Kv value dependent on valve stroke) can vary depending on the diaphragm material and term of use.

6.4 Product compliance

Pressure Equipment Directive: 2014/68/EU

Machinery Directive: 2006/42/EC

Food: FDA*
Regulation (EC) No. 1935/2006
Regulation (EC) No. 10/2011*

EAC: TR CU 010/2011

TA Luft (German Clean Air Act): The product complies with the equivalence requirements of section 5.2.6.4 of the German Clean Air Act (TA Luft / VDI 2440 according to section 3.3.1.3)*
The product complies with the requirements according to VDI 2440 (November 2000), VDI 3479, DIN EN ISO 158481, certificate no. 18 11 090235 002*
* see availability

6.5 Mechanical data

Weight:

Actuator

MG	Actuator size	Control function	Weight
25	0KN	1	2.2
	0KN	2 + 3	1.7
40	1KN	1	4.7
	1KN	2 + 3	3.1
50	2KN	1	6.9
	2KN	2 + 3	5.2
80	3/2	1	16.5
	3/3		17.2
	3A2		26.4
	3A3		27.4
	4A2		54.7
	3/F–3/D	2 + 3	15.2
	3AF–3AD		20.0
100	3/3	1	17.8
	3A3		28.1
	4A2–4C2		63.0
	4A3–4C3		63.3
	3/F–3/D	2 + 3	16.0
	3AF–3AD		21.0
	4AF–4AD		35.0
	4CF–4CD		35.0
125	4A2	1	58.0
	4A3		66.0
	4AF–4AD	2 + 3	35.0
150	4A3	1	67.0
	4AF–4AD	2 + 3	45.0

MG = diaphragm size
Weights in kg

Weight:

Body

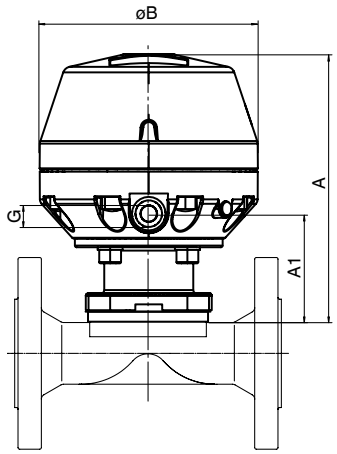
MG	DN	Threaded socket	Flange
		Connection type code	
		1, 31	8, 38, 39, 51, 53, 56
25	**15**	0.50	1.50
	20	0.60	2.20
	25	0.90	2.80
40	**32**	1.40	3.40
	40	1.90	4.50
50	**50**	2.70	6.30
	65	-	10.30
80	**80**	-	13.80
100	**100**	-	20.80
	125	-	26.30
150	**150**	-	37.30

MG = diaphragm size
Weights in kg

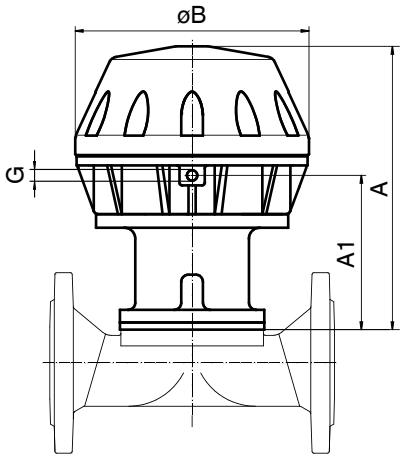
7 Dimensions

7.1 Actuator dimensions

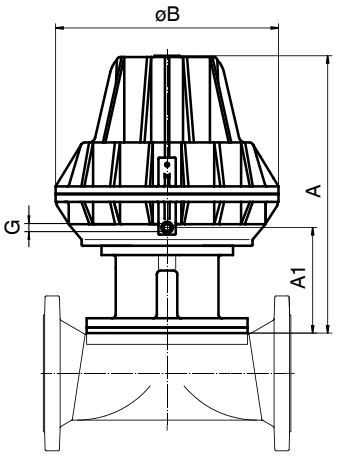
7.1.1 Control function 1



Actuator size 0–2
0KN, 1KN, 2KN



Actuator size 3

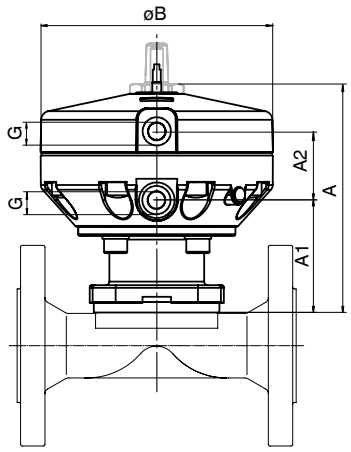


Actuator size 4

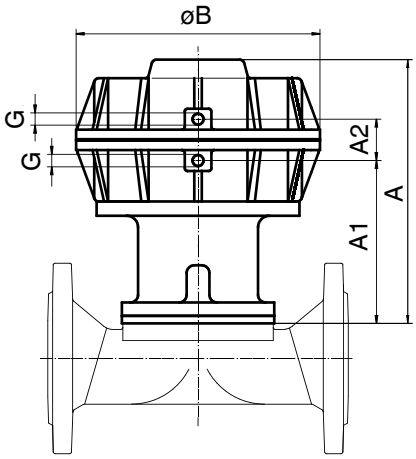
MG	DN	Actuator version	ø B	A	A1	G
25	**15 - 25**	0KN	130	170	59	G 1/4
40	**32 - 40**	1KN	171	208	75	G 1/4
50	**50 - 65**	2KN	211	244	90	G 1/4
80	**80**	3/2	259	333	173	G 1/4
		3/3	259	333	173	
		3A2	256	307	172	
		3A3	256	307	172	
		4A2	360	439	159	
100	**100 - 125**	3/3	259	333	173	G 1/4
		3A3	256	307	172	
		4A2	360	439	159	
		4A3	360	439	159	
		4C2	360	439	159	
		4C3	360	439	159	
125	**125**	4A2	360	451	171	G 1/4
		4A3	360	451	171	
150	**150**	4A3	360	440	160	G 1/4

Dimensions in mm
MG = diaphragm size

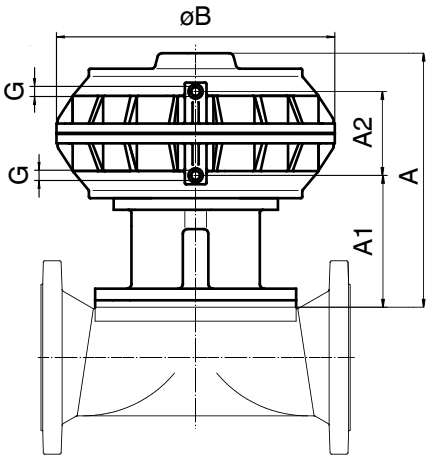
7.1.2 Control functions 2 + 3



Actuator size 0–2
0KN, 1KN, 2KN



Actuator size 3

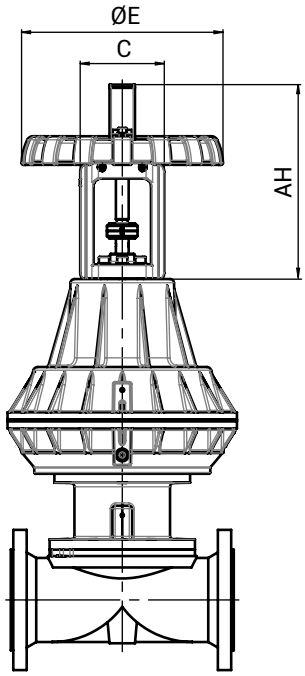


Actuator size 4

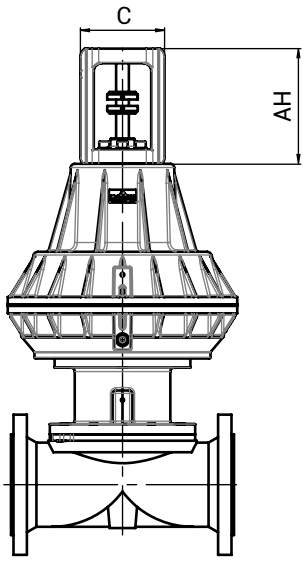
MG	DN	Actuator size	ø B	A	A1	A2	G
25	**15 - 25**	0KN	130	147	59	39	G 1/4
40	**32 - 40**	1KN	171	173	75	42	G 1/4
50	**50 - 65**	2KN	211	206	90	47	G 1/4
80	**80**	3/F - 3/D	256	282	169	45	G 1/4
		3AF - 3AD	256	282	169	45	G 1/4
100	**100 - 125**	3/F -3/D	256	282	169	45	G 1/4
		3AF - 3AD	256	282	169	45	G 1/4
		4AF - 4AD	360	322	156	109	G 1/4
		4CF–4CD	360	322	156	109	G 1/4
125	**125**	4AF - 4AD	360	334	168	109	G 1/4
150	**150**	4AF - 4AD	360	323	156	109	G 1/4

Dimensions in mm
MG = diaphragm size

7.1.3 Mounting type with NAMUR mounting bracket



Control function 1
Mounting type with NAMUR mounting bracket and handwheel (code NH)



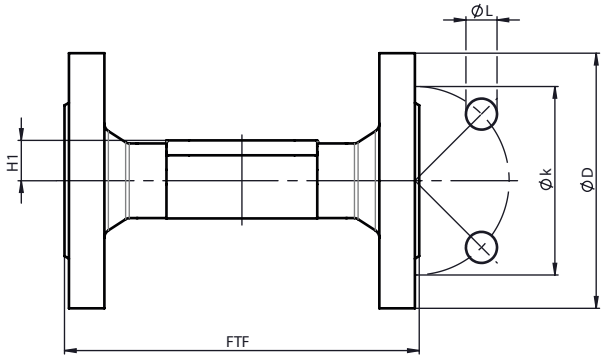
Control function 1
Mounting type with NAMUR mounting bracket (code N0)

MG	DN	AH		C	ØE
		Mounting type code N0	Mounting type code NH		
80–150	80–150	181.0	305.0	132.0	316.0

Dimensions in mm
MG = diaphragm size

7.2 Body dimensions

7.2.1 Flange EN (code 8)



Connection type flange, length EN 558 (code 8)[1], SG iron material (code 17, 18, 82, 83, 88, 90)[2]

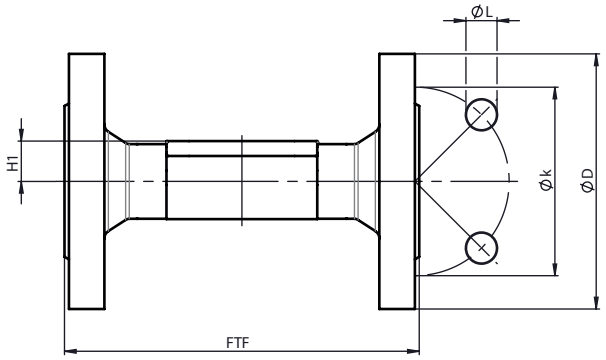
MG	DN	øD	øk	øL	n	H1			FTF		
						Material			Material		
						17, 82, 83, 88	18	90	17, 82, 83, 88	18	90
25	**15**	95.0	65.0	14.0	4	18.0	18.0	14.0	130.0	130,0	130.0
	20	105.0	75.0	14.0	4	20.5	20.5	16.5	150.0	150.0	150.0
	25	115.0	85.0	14.0	4	23.0	23.0	19.5	160.0	160.0	160.0
40	**32**	140.0	100.0	18.0	4	28.7	28.7	23.0	180.0	180.0	180.0
	40	150.0	110.0	18.0	4	33.0	33.0	27.0	200.0	200.0	200.0
50	**50**	165.0	125.0	18.0	4	39.0	39.0	32.0	230.0	230.0	230.0
	65	185.0	145.0	18.0	4	-	-	38.7	-	-	290.0
80	**80**	200.0	160.0	18.0	8	59.5	59.5	31.5	310.0	310.0	310.0
100	**100**	220.0	180.0	18.0	8	73.0	73.0	43.0	350.0	350.0	350.0
	125	250.0	210.0	18.0	8	73.0	-	58.0	400.0	-	400.0
125	**125**	250.0	210.0	18.0	8	87.0	-	-	400.0	-	-
150	**150**	285.0	240.0	22.0	8	109.0	-	58.0	480.0	-	480.0

Dimensions in mm
MG = diaphragm size
n = number of bolt holes

1) **Connection type**
Code 8: Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1, length only for body configuration D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 18: EN-GJS-400-18-LT (GGG 40.3), PP lining
Code 82: EN-GJS-400-18-LT (GGG 40.3), soft rubber lined
Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lining
Code 88: EN-GJS-400-18-LT (GGG 40.3), butyl lined
Code 90: EN-GJS-400-18-LT (GGG 40.3)

7.2.2 Flange EN (code 53)



Connection type flange, length EN 558 (code 53) [1], cast iron material (code 8), SG iron material (code 17) [2]

MG	DN	øD		øk	øL	n	H1		FTF	
							Material		Material	
		8	17				8	17	8	17
25	**20**	105.0	-	75.0	14.0	4	19.0	-	117.0	-
40	**40**	150.0	-	110.0	18.0	4	28.0	-	159.0	-
50	**50**	165.0	-	125.0	18.0	4	35.0	-	191.0	-
80	**80**	200.0	-	160.0	18.0	8	33.0	-	254.0	-
125	**125**	250.0	-	210.0	18.0	8	65.0	-	356.0	-
150	**150**	285.0	280.0 [3]	240.0	22.0	8	58.0	109.0	406.0	416.0

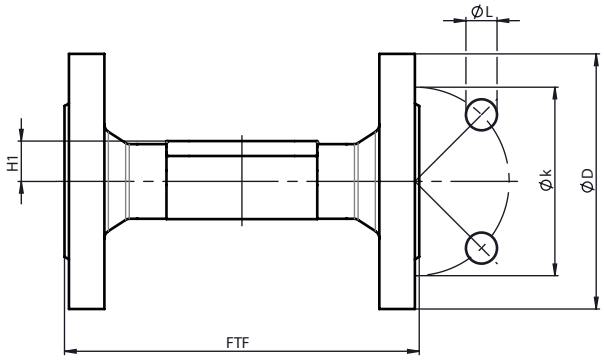
Dimensions in mm
MG = diaphragm size
n = number of bolt holes

1) **Connection type**
Code 53: Flange EN 1092, PN 16, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7, length only for body configuration D

2) **Valve body material**
Code 8: EN-GJL-250 (GG 25)
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining

3) Diameter deviates from standard

7.2.3 Flange ANSI Class (code 38, 39)



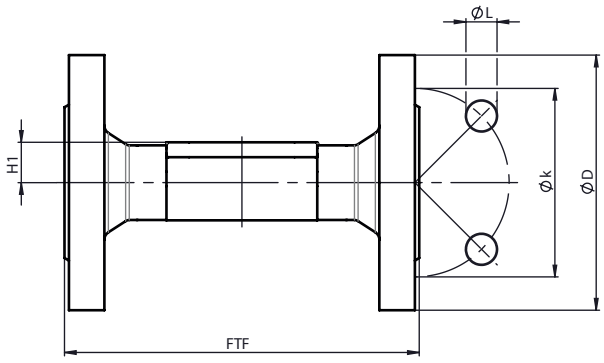
Connection type flange, length MSS SP-88 (code 38) [1], SG iron material (code 17, 18, 82, 83, 88) [2]

MG	DN	øD	øk	øL	n	H1		FTF		
						Material		Material		
						17, 82, 83, 88	18	17	18	82, 83, 88
25	**20**	100.0	69.9	15.9	4	20.5	20.5	146.0	146.0	146.4
	25	110.0	79.4	15.9	4	23.0	23.0	146.0	146.0	146.4
40	**40**	125.0	98.4	15.9	4	33.0	33.0	175.0	175.0	171.4
50	**50**	150.0	120.7	19.0	4	39.0	39.0	200.0	200.0	197.4
80	**80**	190.0	152.4	19.0	4	59.5	59.5	260.0	260.0	260.4
100	**100**	230.0	190.5	19.0	8	73.0	73.0	327.0	327.0	324.4
150	**150**	280.0	241.3	22.2	8	109.0	-	416.0	-	416.0

Dimensions in mm
MG = diaphragm size
n = number of bolt holes

1) **Connection type**
Code 38: Flange ANSI Class 150 RF, face-to-face dimension FTF MSS SP-88, length only for body configuration D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 18: EN-GJS-400-18-LT (GGG 40.3), PP lining
Code 82: EN-GJS-400-18-LT (GGG 40.3), soft rubber lined
Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lining
Code 88: EN-GJS-400-18-LT (GGG 40.3), butyl lined



Connection type flange, length EN 558 (code 39), [1] SG iron material (code 17, 18, 82, 83, 88, 90) [2]

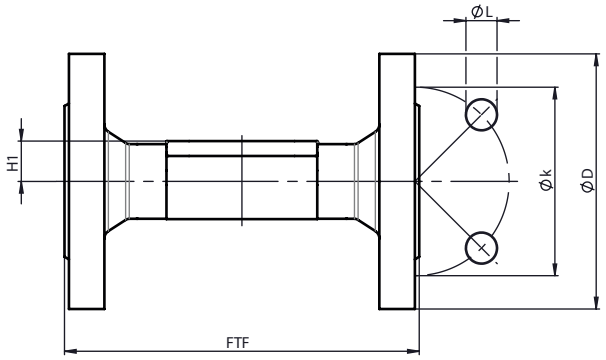
MG	DN	øD	øk	øL	n	H1			FTF		
						Material			Material		
						17, 82, 83, 88	18	90	17, 82, 83, 88	18	90
25	**15**	90.0	60.3	15.9	4	18.0	18.0	14.0	130.0	130.0	130.0
	20	100.0	69.9	15.9	4	20.5	20.5	16.5	150.0	150.0	150.0
	25	110.0	79.4	15.9	4	23.0	23.0	19.5	160.0	160.0	160.0
40	**32**	115.0	88.9	15.9	4	28.7	28.7	23.0	180.0	180.0	180.0
	40	125.0	98.4	15.9	4	33.0	33.0	27.0	200.0	200.0	200.0
50	**50**	150.0	120.7	19.0	4	39.0	39.0	32.0	230.0	230.0	230.0
	65	180.0	139.7	19.0	4	-	-	38.7	-	-	290.0
80	**80**	190.0	152.4	19.0	4	59.5	59.5	31.5	310.0	310.0	310.0
100	**100**	230.0	190.5	19.0	8	73.0	73.0	43.0	350.0	350.0	350.0
	125	255.0	215.9	22.2	8	73.0	-	58.0	400.0	-	400.0
125	**125**	255.0	215.9	22.2	8	-	-	-	-	-	-
150	**150**	280.0	241.3	22.2	8	109.0	-	58.0	480.0	-	480.0

Dimensions in mm
MG = diaphragm size
n = number of bolt holes

1) **Connection type**
Code 39: Flange ANSI Class 125/150 RF, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1, length only for body configuration D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 18: EN-GJS-400-18-LT (GGG 40.3), PP lining
Code 82: EN-GJS-400-18-LT (GGG 40.3), soft rubber lined
Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lining
Code 88: EN-GJS-400-18-LT (GGG 40.3), butyl lined
Code 90: EN-GJS-400-18-LT (GGG 40.3)

7.2.4 Flange ANSI Class (code 56)



Connection type flange, length EN 558 (code 56), [1] SG iron material (code 17, 81, 91) [2]

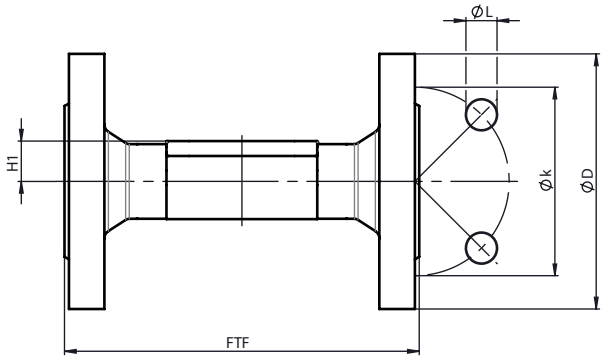
MG	DN	øD	øk	øL	n	H1		FTF	
						Material		Material	
						17	81, 91	17	81, 91
25	**25**	110.0	79.4	15.9	4	-	23.0	-	127.0
40	**40**	125.0	98.4	15.9	4	-	32.0	-	165.0
50	**50**	150.0	120.7	19.0	4	-	40.0	-	191.0
	65	180.0	139.7	19.0	4	-	47.5	-	216.0
80	**80**	190.0	152.4	19.0	4	-	58.0	-	254.0
100	**100**	230.0	190.5	19.0	8	-	70.0	-	311.0
150	**150**	280.0	241.3	22.2	8	109.0	-	416.0	-

Dimensions in mm
MG = diaphragm size
n = number of bolt holes

1) **Connection type**
Code 56: Flange ANSI Class 125/150 RF, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7, length only for body configuration D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 81: EN-GJS-500-7 (GGG 50), PFA lined
Code 91: EN-GJS-500-7 (GGG 50), PP lined

7.2.5 Flange BS (code 51)



Connection type flange, length EN 558 (code 51), [1] SG iron material (code 17, 81, 91) [2]

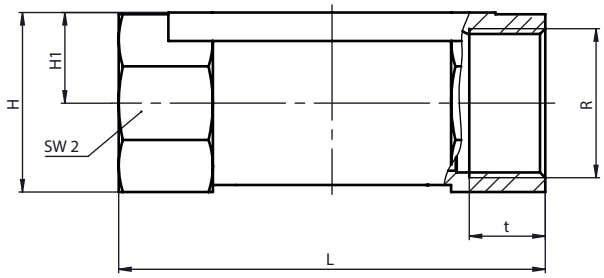
MG	DN	øD	øk	øL	n	H1		FTF	
						Materials		Materials	
						17	81, 91	17	81, 91
25	**25**	114.0	83.0	14.0	4	-	23.0	-	127.0
40	**40**	133.0	98.0	14.0	4	-	32.0	-	165.0
50	**50**	152.0	114.0	17.0	4	-	40.0	-	191.0
	65	165.0	127,0	17.0	4	-	47.5	-	216.0
80	**80**	184.0	146.0	17.0	4	-	58.0	-	254.0
100	**100**	216.0	178.0	17.0	8	-	70.0	-	311.0
150	**150**	279.0	235.0	22.0	8	109.0	-	416.0	-

Dimensions in mm
MG = diaphragm size
n = number of bolt holes

1) **Connection type**
Code 51: Flange BS 10 table E, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7, length only for body configuration D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 81: EN-GJS-500-7 (GGG 50), PFA lined
Code 91: EN-GJS-500-7 (GGG 50), PP lined

7.2.6 Threaded socket DIN (code 1)



Connection type threaded socket (code 1) [1], SG iron material (code 90) [2]

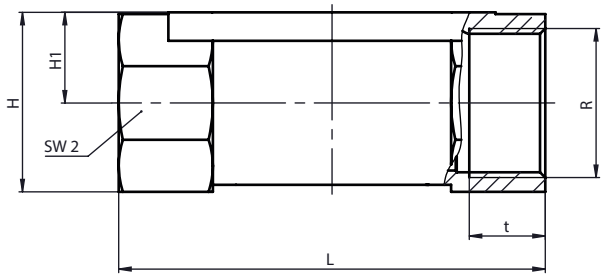
MG	DN	NPS	H	H1	L	n	R	SW 2	t
25	**15**	**1/2"**	32.7	16.7	85.0	6	G 1/2	32	15.0
	20	**3/4"**	42.0	21.5	85.0	6	G 3/4	41	16.3
	25	**1"**	46.7	23.7	110.0	6	G 1	46	19.1
40	**32**	**1¼"**	56.0	28.5	120.0	6	G 1¼	55	21.4
	40	**1½"**	66.0	33.5	140.0	6	G 1½	65	21.4
50	**50**	**2"**	76.0	38.5	165.0	6	G 2	75	25.7

Dimensions in mm
MG = diaphragm size
n = number of flats

1) **Connection type**
Code 1: Threaded socket DIN ISO 228

2) **Valve body material**
Code 90: EN-GJS-400-18-LT (GGG 40.3)

7.2.7 Threaded socket NPT (code 31)



Connection type threaded socket NPT (code 31) [1], SG iron material (code 90) [2]

MG	DN	NPS	H	H1	L	n	R	SW 2	t
25	**15**	**1/2"**	32.7	16.7	85.0	6	NPT 1/2	32	13.6
	20	**3/4"**	42.0	21.5	85.0	6	NPT 3/4	41	14.1
	25	**1"**	46.7	23.7	110.0	6	NPT 1	46	16.8
40	**32**	**1¼"**	56.0	28.5	120.0	6	NPT 1¼	55	17.3
	40	**1½"**	66.0	33.5	140.0	6	NPT 1½	65	17.3
50	**50**	**2"**	76.0	38.5	165.0	6	NPT 2	75	17.7

Dimensions in mm
MG = diaphragm size
n = number of flats

1) **Connection type**
Code 31: NPT female thread

2) **Valve body material**
Code 90: EN-GJS-400-18-LT (GGG 40.3)

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.

Control function	Function	Condition as supplied to customer
1	Normally closed (NC)	closed
2	Normally open (NO)	open
3	Double acting (DA)	undefined

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.
5. Close the compressed air connections with protection caps or sealing plugs.

9 Installation in piping

9.1 Preparing for installation

⚠ WARNING

The equipment is subject to pressure!

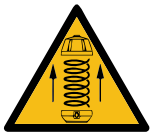
- ► Risk of severe injury or death
- ● Depressurize the plant or plant component.
- ● Completely drain the plant or plant component.

⚠ WARNING

Corrosive chemicals!

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

⚠ WARNING



Actuator is under spring tension!

- ► Risk of severe injury or death
- ● The actuator must not be opened; the valve must be returned to GEMÜ for maintenance purposes.

⚠ CAUTION

Hot plant components!

- ► Burns
- ● Only work on plant that has cooled down.
- ● Wear protective gear.

⚠ 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.

⚠ CAUTION

Leakage!

- ► Emission of dangerous materials
- ● Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

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

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 suitability of the product for each respective use.
2. Check the technical data of the product and the materials.
3. Keep appropriate tools ready.
4. Ensure 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 plant or plant component.
8. Secure 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 scalding can be ruled out.
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 vibrations and tension.
13. Only install the product between matching aligned pipes (see chapters below).
14. Pay attention to the installation position (see chapter "Installation position").

9.2 Installation position

The installation position of the product is optional.

9.3 Installation with flanged connection

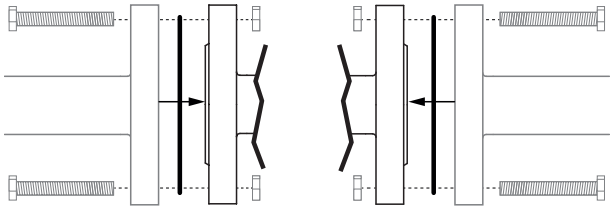


Fig. 1: Flanged connection

NOTICE

Sealing material!

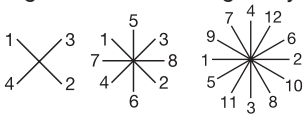
► The sealing material is not included in the scope of delivery.
● Only use appropriate sealing material.

NOTICE

Connector elements!

► The connector elements are not included in the scope of delivery.
● Only use connector elements made of approved materials.
● Observe permissible tightening torque of the bolts.

1. Keep sealing material ready.
2. Carry out preparations for installation (see chapter "Preparing for installation").
3. Ensure clean, undamaged sealing surfaces on the connection flanges.
4. Align flanges carefully before installing them.
5. Position the product centrally between the piping with flanges.
6. Centre the gaskets.
7. Connect the valve flange and the piping flange using appropriate sealing materials and matching bolting.
8. Use all flange holes.
9. Tighten the bolts diagonally.



10. Re-attach or reactivate all safety and protective devices.

9.4 Installation with threaded sockets

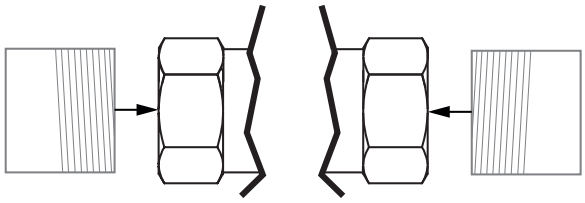


Fig. 2: Threaded socket

NOTICE

Sealing material!

► The sealing material is not included in the scope of delivery.
● Only use appropriate sealing material.

1. Keep thread sealant ready.
2. Carry out preparations for installation (see chapter "Preparing for installation").
3. Screw the threaded connections into the pipe in accordance with valid standards.
4. Screw the body of the product onto the piping using appropriate thread sealant.
5. Re-attach or reactivate all safety and protective devices.

9.5 After installation

NOTICE

Diaphragms set in the course of time!

► Leakage

- After disassembly/assembly of the product, check that the bolts and nuts on the body are tight and retighten if required.

- Re-attach or reactivate all safety and protective devices.

10 Pneumatic connections

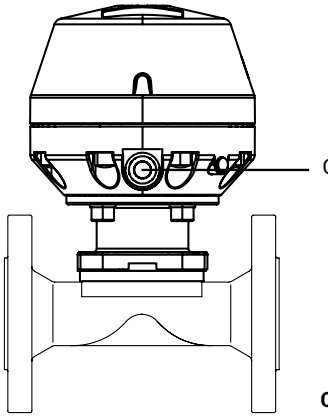
10.1 Control function

The following control functions are available:

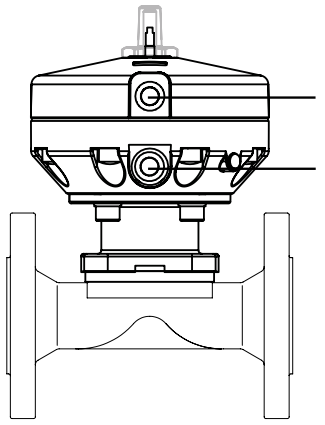
Control function 1
Normally closed (NC):
Valve resting position: Closed by spring force. Activation of the actuator (connector 2) opens the valve. When the actuator is vented, the valve is closed by spring force.

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 1



Control functions 2 + 3

The product has 2 control medium connectors.

Control function	Control medium connector 2 (open)	Control medium connector 4 (close)
1 (NC)	+	-
2 (NO)	–	+
3 (DA)	+	+

10.2 Connecting the control medium

1. Use suitable connectors.
2. Connect the control medium lines tension-free and without any bends or knots.

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 figure above		

11 Commissioning

⚠ WARNING

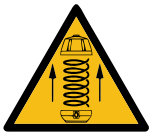
Corrosive chemicals!

► Risk of caustic burns

● Wear appropriate protective gear.

● Completely drain the plant.

⚠ WARNING



Actuator is under spring tension!

► Risk of severe injury or death

● The actuator must not be opened; the valve must be returned to GEMÜ for maintenance purposes.

⚠ CAUTION

Leakage!

► Emission of dangerous materials

● Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

⚠ CAUTION

Note the weight of the product!

► If necessary, use suitable lifting equipment.

⚠ CAUTION

Corrosion from media that attack the valve body, seals or diaphragm

► Damage to the product.

● Prior to commissioning, the operator must carry out a material compatibility test.

● Only operate the product with suitable media.

⚠ CAUTION

Cleaning agent!

► Damage to the GEMÜ product

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

1. Check the tightness and the function of the product (close and reopen the product).
2. Flush the piping system for new plants and after repair work (the product must be fully open).

⇨ Harmful foreign matter has been removed.

⇨ The product is ready for use.

3. Commission the product.
4. Commission the actuators in accordance with the enclosed instructions.

12 Operation

Operate the product according to the control function (see also chapter "Pneumatic connections").

12.1 Control function 1

In its resting position, the product is closed by spring force.

1. Activate the actuator via control medium connector 2.

   ⇨ The product opens.
2. Vent the actuator via control medium connector 2.

   ⇨ The product closes.

12.2 Control function 2

In its resting position the product is opened by spring force.

1. Activate the actuator via control medium connector 4.

   ⇨ The product closes.
2. Vent the actuator via control medium connector 4.

   ⇨ The product opens.

12.3 Control function 3

In its resting position the product has no defined normal position.

1. Activate the actuator via control medium connector 2.

   ⇨ The product opens.
2. Activate the actuator via control medium connector 4.

   ⇨ The product closes.

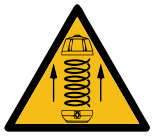
13 Troubleshooting

Error	Error cause	Troubleshooting
Control medium escaping from vent hole* in the actuator cover for control function NC or control medium connector 2 for control function NO (see chapter "Control functions")	Actuator membrane faulty	Replace the actuator
Control medium escaping from leak detection hole*	Spindle seal leaking	Replace the actuator and check control medium for impurities
Working medium escaping from leak detection hole*	Shut-off diaphragm faulty	Check shut-off diaphragm for potential damage, replace diaphragm if necessary
Control medium escaping to the outside at the actuator membrane*	Connecting bolts between actuator cover and base loose	Retighten bolts professionally diagonally
The product does not open or does not open fully	Control pressure too low (for control function NC)	Operate the product with the control pressure specified in the datasheet
	Pilot valve faulty (for NC control function and DA control function)	Check and replace pilot valve
	Control medium not connected	Connect control medium
	Shut-off diaphragm incorrectly mounted	Remove the actuator, check the diaphragm mounting, replace the shut-off diaphragm if necessary
	Actuator spring faulty (for control function NO)	Replace the actuator
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
	Control pressure too low (for control function NO and control function DA)	Operate the product with the control pressure specified in the datasheet
	Foreign matter between shut-off diaphragm and valve body	Remove the actuator, remove foreign matter, check diaphragm and valve body for potential damage, replace damaged parts if necessary
	Valve body weir leaking or damaged	Check valve body weir for damage, replace valve if necessary
	Shut-off diaphragm faulty	Check shut-off diaphragm for potential damage, replace the shut off diaphragm if necessary
	Actuator spring faulty (for control function NC)	Replace actuator
The product is leaking between actuator and valve body	Shut-off diaphragm incorrectly mounted	Remove the actuator, check the diaphragm mounting, replace the shut-off diaphragm if necessary
	Bolting between valve body and actuator loose	Tighten bolting between valve body and actuator
	Shut-off diaphragm faulty	Check shut-off diaphragm for potential damage, replace the shut-off diaphragm if necessary
	Actuator/valve body damaged	Replace actuator/valve body
Connection between valve body and piping leaking	Incorrect installation	Check installation of valve body in piping
	Threaded connections / unions loose	Tighten threaded connections / unions
	Sealing material faulty	Replace sealing material
Valve body leaking	Valve body leaking or corroded	Check valve body for damage, replace valve body if necessary

* see chapter "Spare parts"

14 Inspection and maintenance

⚠ WARNING



Actuator is under spring tension!

- ► Risk of severe injury or death
- ● The actuator must not be opened; the valve must be returned to GEMÜ for maintenance purposes.

⚠ WARNING

The equipment is subject to pressure!

- ► Risk of severe injury or death
- ● Depressurize the plant or plant component.
- ● Completely drain the plant or plant component.

⚠ CAUTION

Hot plant components!

- ► Burns
- ● Only work on plant that has cooled down.
- ● Wear protective gear.

⚠ CAUTION

- ● Servicing and maintenance work must only be performed by trained personnel.
- ● Do not extend hand lever. GEMÜ shall assume no liability for damages caused by improper handling or third-party actions.
- ● In case of doubt, contact GEMÜ prior to commissioning.

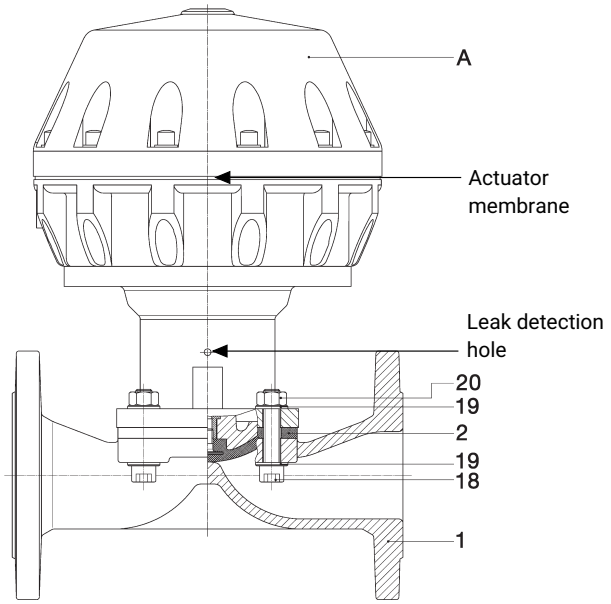
1. Wear appropriate protective gear in accordance with the plant operator's guidelines.
2. Shut off the plant or plant component.
3. Secure against recommissioning.
4. Depressurize the plant or plant component.

The operator must carry out regular visual examinations of the valves, depending on the operating conditions and the potentially hazardous situations, in order to prevent leakage and damage. The valve also has to be disassembled in corresponding intervals and checked for wear (see "Fitting/removing spare parts").

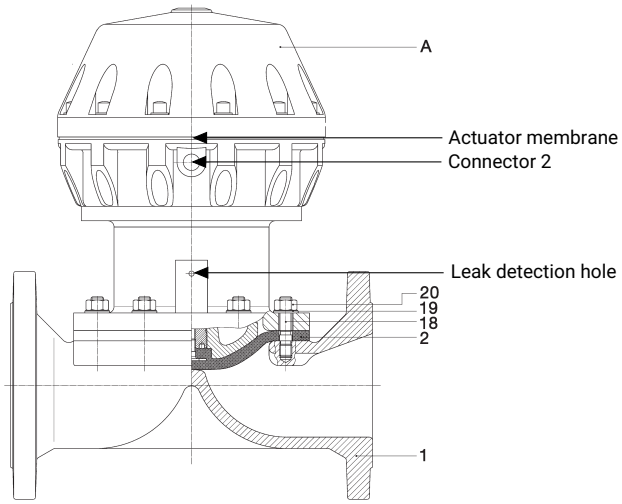
5. Ensure even compression of the diaphragm (approx. 10 to 15%).
   ⇨ Even compression is detected by an even outer bulge.
6. **Please note:** For a code 5M diaphragm (convex diaphragm), the PTFE diaphragm face and the EPDM backing diaphragm must be positioned level with and parallel to the valve body.

14.1 Spare parts

Diaphragm size 25–80



Diaphragm size 100–150



Item	Name	Order designation
1	Valve body	K600… (DN 15–50)
		K620… (from DN65)
2	Diaphragm	600…M… (DN 15–50)
		620…M… (from DN 65)
18	Bolt	620…S30…
19	Washer	
20	Nut	
A	Actuator	9620…

14.2 Fitting/removing spare parts

14.2.1 Valve disassembly (removing the actuator from the body)

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

NOTICE

► Clean all parts of contamination (do not damage the parts during cleaning) following removal. Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

14.2.2 Removing the diaphragm

NOTICE

► Before removing the diaphragm, remove the actuator; see “Valve disassembly (removing the actuator from the body)”.

1. Unscrew the diaphragm **2**.
2. Clean all parts so that they are free of remains of product and contaminants. Take care not to scratch or damage the parts in the process.
3. Check all parts for potential damage.
4. Replace damaged parts (only use genuine parts from GEMÜ).

14.2.3 Mounting the diaphragm

14.2.3.1 General information

NOTICE

► Mount the correct diaphragm for the valve (suitable for medium, medium concentration, temperature and pressure). The shut-off diaphragm is a wearing part. Check the technical condition and function of the valve prior to commissioning and during the entire 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.

NOTICE

► 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 leakage of the valve. If the diaphragm is screwed in too far, perfect sealing at the valve seat will not be achieved. The function of the valve is no longer ensured.

NOTICE

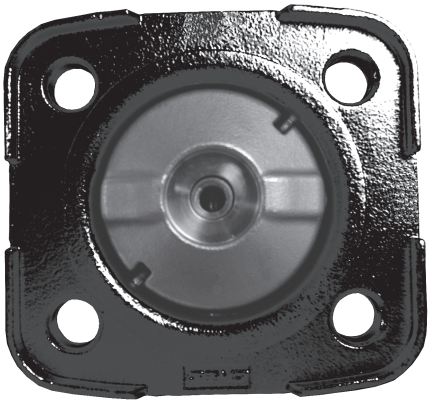
► An incorrectly mounted diaphragm may cause valve leakage/emission of medium. In this case, remove the diaphragm, check the complete valve and diaphragms and reassemble again proceeding as described above.

The compressor is loose on diaphragm sizes 25–50 (DN 15–50).

For diaphragm sizes 65–150 (DN 65–150), the compressor is fixed to the spindle.

Diaphragm size 25–50 (DN 15–50):

Compressor and actuator flange seen from below



Place the compressor loosely on the actuator spindle, fit the recesses into the guides (arrows).

Diaphragm size 65, 80 (DN 65, 80):

Compressor and actuator flange seen from below:

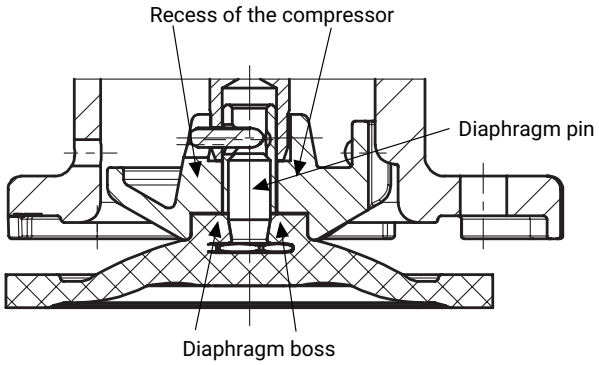
Diaphragm size 100, 125 (DN 100, 125):

Compressor and actuator flange seen from below:

Diaphragm size 150 (DN 150):

Compressor and actuator flange seen from below:

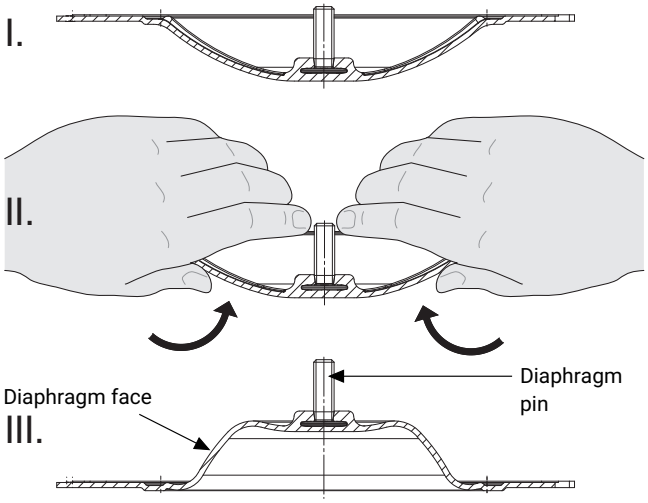
14.2.3.2 Mounting a concave diaphragm



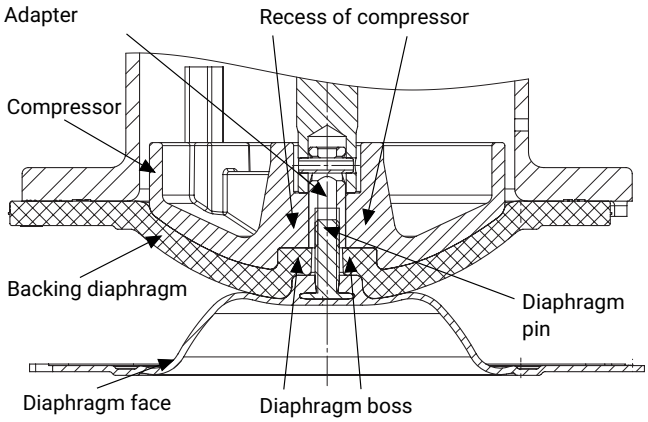
1. Move the actuator **A** to the closed position.
2. For diaphragm sizes 25–50 (DN 15–50), place the compressor loosely on the actuator spindle, fit the recesses into the guides. (see “General information“, page 36)
3. Check whether the compressor is resting in the guides.
4. Manually screw the new diaphragm into the compressor tightly.
5. Check whether the diaphragm boss is in the recess of the compressor.
6. If it is difficult to screw it in, check the thread and 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.

14.2.3.3 Mounting a convex diaphragm

1. Move the actuator **A** to the closed position.
2. For diaphragm sizes 25–50 (DN 15–50), place the compressor loosely on the actuator spindle, fit the recesses into the guides. (see “General information“, page 36)
3. Check whether the compressor is resting in the guides.
4. Invert the new diaphragm face manually; for larger diameters, use a clean, padded mat.



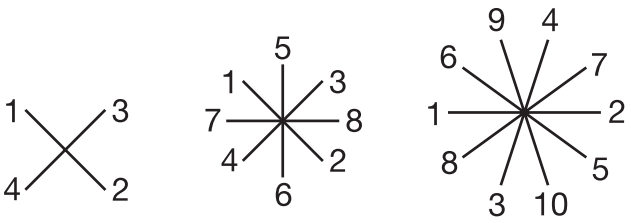
5. Position the new backing diaphragm on the compressor.
6. Position the diaphragm face on the backing diaphragm.
7. Manually screw the diaphragm face into the compressor tightly. The diaphragm boss must be in the recess of the compressor.



8. If it is difficult to screw it in, check the thread and replace any 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.

14.2.4 Mounting the actuator on the valve body

1. Move the actuator **A** to the open position.
2. Position the actuator **A** with the mounted diaphragm **2** on the valve body **1**. Take care to align the compressor weir and valve body weir.
3. Tighten the bolts **18**, washers **19** and nuts **20** by hand.
4. Move the actuator **A** to the closed position.
5. Fully tighten the bolts **18** with nuts **20** diagonally.



6. Ensure that the diaphragm **2** is compressed evenly (approx. 10–15%, visible by an even outer bulge).
7. Check the fully assembled valve for leaks.

NOTICE

► Service and maintenance:
Diaphragms set over the course of time. After fitting/removing the valve, check that the bolts **18** on the body are mechanically secured and retighten if necessary.

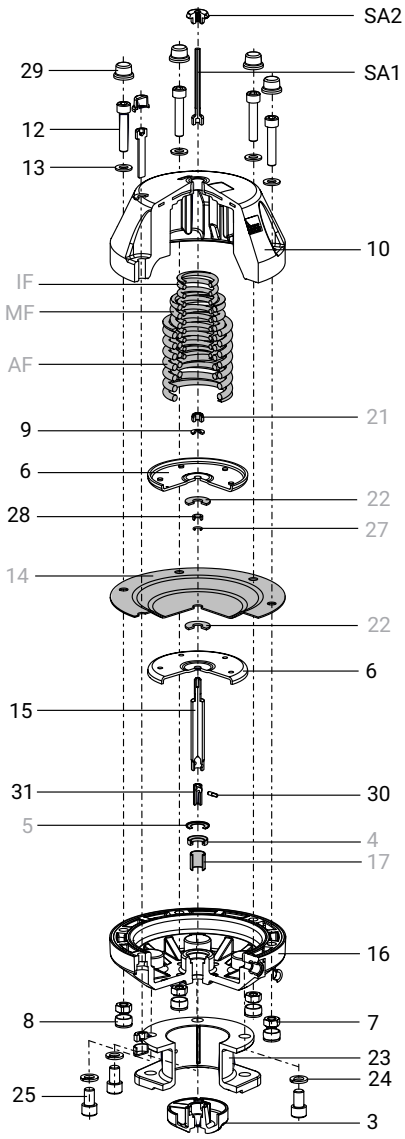
15 Removal from piping

1. Remove in reverse order to installation.
2. Deactivate the control medium.
3. Disconnect the control medium line(s).
4. Disassemble the product. Observe warning notes and safety information.

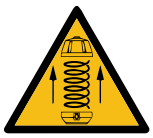
16 Disposal

1. Look for adhered residual material and gas diffusion from penetrated media.
2. Dispose of all parts according to relevant local or national disposal regulations/environmental protection laws.

16.1 Disassembly for disposal for control function 1



⚠ WARNING



Actuator under spring pressure!

► Risk of severe injury or death

● Only open the actuator under a press.

1. Disconnect the actuator from the control medium.
2. Remove the loose compressor **3**.
3. Remove protective cap **SA2**.
4. Remove optical position indicator **SA1**.
5. Remove protective caps **29**.
6. Clamp the actuator in a press.

⚠ CAUTION

Applied pressure too high!

► Risk of breakage of actuator top **10**!
● Only use minimum required pressure.

7. Undo and remove the bolts **12** with the washers **13** between the actuator top **10** and the actuator base **16**.
8. Slowly release the press.
9. Remove actuator top **10**.
10. Remove the spring set comprising the compression springs **IF**, **MF** and **AF** from the actuator base **16**.

17 Returns

Legal regulations for the protection of the environment and personnel require that the completed and signed return delivery note is included with the dispatch documents. Returned goods can be processed only when this note is completed. If no return delivery note is included with the product, GEMÜ cannot process credits or repair work but will dispose of the goods at the operator's expense.

1. Clean the product.
2. Request a return delivery note from GEMÜ.
3. Complete the return delivery note.
4. Send the product with a completed return delivery note to GEMÜ.

18 EU Declaration of Incorporation

Version 1.0

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 620	**Product:**	GEMÜ 620
Produktname:	Pneumatisch betätigtes Membranventil	**Product name:**	Pneumatically operated diaphragm valve

Inbetriebnahme der unvollständigen Maschine ist nur zulässig, wenn die Gesamtmaschine den Anforderungen der Maschinenrichtlinie 2006/42/EG entspricht.

Commissioning of the incomplete machine is only permitted if the complete machine complies with the requirements of the Machinery Directive 2006/42/EC.

Richtlinien/Verordnungen: / **Directives/Regulations:**

MD 2006/42/EG[1)]

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.; 1.5.3.; 1.5.4.; 1.5.5.; 1.5.8.; 1.5.9.; 1.6.1.; 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
Bemerkungen:
Ferner wird erklärt, dass die speziellen technischen Unterlagen gemäß Anhang VII Teil B erstellt wurden.
Der Hersteller verpflichtet sich, einzelstaatlichen Stellen auf begründetes Verlangen die speziellen technischen Unterlagen zu der unvollständigen Maschine zu übermitteln. Diese Übermittlung erfolgt elektronisch.
Die gewerblichen Schutzrechte bleiben hiervon unberührt!

[1)] MD 2006/42/EG
Remarks:
We also declare that the specific technical documents have been created in accordance with part B of Annex VII.
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.
This does not affect the industrial property rights.

i.V. M. Barghoorn
Leiter Globale Technik

Kupferzell, 10.02.2026

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Gert-Müller-Platz 1, 74635 Kupferzell, Deutschland
www.gemu-group.com
info@gemue.de

19 EU Declaration of Conformity

CE Version 1.0

GEMÜ

EU-Konformitätserklärung

EU Declaration of Conformity

Wir, die Firma / We, the company

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
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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 620	**Product:**	GEMÜ 620
Produktname:	Pneumatisch betätigtes Membranventil	**Product name:**	Pneumatically operated diaphragm valve

Richtlinien/Verordnungen: / **Directives/Regulations:**

PED 2014/68/EU[1)]

Folgende harmonisierte Normen (oder Teile hieraus) wurden angewandt: / **The following harmonized standards (or parts thereof) have been applied:**

EN 13397:2001

[1)] PED 2014/68/EU
Einteilung gemäß Druckgeräterichtlinie 2014/68/EU, Artikel 4 und Anhang II:
Fluidklasse 1 (gasförmig oder flüssig),
Diagramm 6, Kategorie I
Instabile Gase sind ausgeschlossen.
Benannte Stelle:
TÜV Rheinland Industrie Service GmbH
Am Grauen Stein 1
51105 Köln
Kennnummer der benannten Stelle: 0035
Nr. des QS-Zertifikats: 01 202 926/Q-02 0036
Angewandte(s) Konformitätsbewertungsverfahren: Modul H
Hinweis für Produkte mit einer Nennweite ≤ DN 25:
Die Produkte werden entwickelt und produziert nach GEMÜ eigenen Verfahrensanweisungen und Qualitätsstandards, welche die Forderungen der ISO 9001 und der ISO 14001 erfüllen. Die Produkte dürfen gemäß Artikel 4, Absatz 3 der Druckgeräterichtlinie 2014/68/EU keine CE-Kennzeichnung tragen.

[1)] PED 2014/68/EU
Classification acc. Pressure Equipment Directive 2014/68/EU, Article 4 and Annex II:
Class 1 fluid (gaseous or liquid)
Chart 6, Category I
Unstable gases are excluded.
Notified body:
TÜV Rheinland Industrie Service GmbH
Am Grauen Stein 1
51105 Cologne, Germany
ID number of the notified body: 0035
No. of the QA certificate: 01 202 926/Q-02 0036
Conformity assessment procedure(s) applied: Module H
Information for products with a nominal size ≤ DN 25:
The products are developed and produced according to GEMÜ's in-house process instructions and standards of quality which comply with the requirements of ISO 9001 and ISO 14001. According to Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU, these products must not be identified by a CE-marking.

i.V. M. Barghoorn
Leiter Globale Technik

Ingelfingen, 10.02.2026

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www.gemu-group.com
info@gemue.de

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Gert-Müller-Platz 1, 74635 Kupferzell, Germany
Phone +49 (0) 7940 1230 · info@gemue.de
www.gemu-group.com

Subject to alteration

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