

GEMÜ 650 BioStar

Pneumatically operated diaphragm valve

EN

Operating instructions



webcode: GW-650



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1 General information

1.1 Notes

- 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

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:

Symbol	Meaning
	Danger of explosion!
	The equipment is subject to pressure!
	Corrosive chemicals!
	Hot plant components!
	Risk of crushing!
	Leakage!

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:

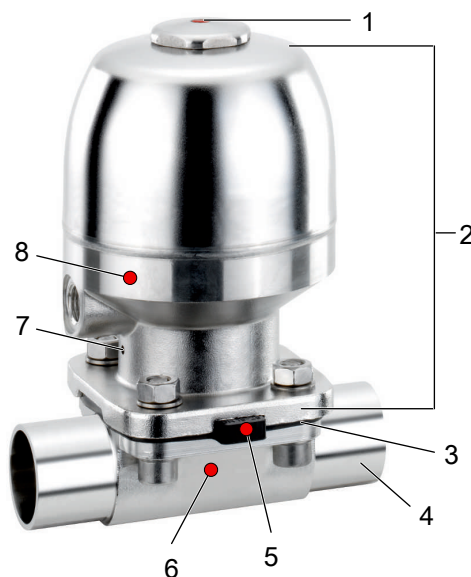
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not 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 Configuration



Item	Name	Materials
1	Optical position indicator	PP red stainless steel (from diaphragm size 80 in control function 2 and 3)
2	Piston actuator	Stainless steel
3	Diaphragm	EPDM PTFE/EPDM (one-piece, two-piece) PTFE/PVDF/EPDM (three-piece)
4	Valve body	1.4408, investment casting 1.4408, PFA lined 1.4435, investment casting 1.4435 (F316L), forged body 1.4435 (F316L), block material 1.4435 (BN2), forged body, Δ Fe < 0.5% 1.4435 (BN2), block material, Δ Fe < 0.5% 1.4539, forged body 1.4539, block material 2.4602, Alloy 22 block material 3.7035, titanium
5	CONEXO diaphragm RFID chip (see Conexo information)	
6	CONEXO body RFID chip (see Conexo information)	

Item	Name	Materials
7	Leak detection hole*	
8	CONEXO actuator RFID chip (see Conexo information)	

* The leak detection hole is always in-line with flow direction.

Note: The distance piece has a leak detection hole to provide a visible indication of medium escaping in the event of a diaphragm leakage or break. The leak detection hole drains leaking medium to the outside. The leak detection hole is in-line with flow direction.

3.2 Description

The GEMÜ 650 BioStar 2/2-way diaphragm valve has a stainless steel piston actuator and is pneumatically operated. The valve is designed for use in a sterile environment. All actuator parts are made from stainless steel (except seals). The compression springs of diaphragm sizes 80 and 100 are made of epoxy-coated spring steel. Normally Closed (NC), Normally Open (NO) and Double Acting (DA) control functions are available. An integrated optical position indicator is standard.

3.3 Function

The product is designed for use in piping. It can be closed or opened by a control medium, which is how it controls the flow.

3.4 Product label

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

Device version	Design in accordance with order data	
GEMÜ Fritz-Müller-Str. 6-8 D-74693 Ingelfingen	650 25D59405M12T1 SF3 PS 10,0 bar PST 5,0- 7,0 bar	Device-specific data
	00 DE 2024	Year of manufacture
Item number	Traceability number	Consecutive number
	88636415 - XXXXXXXX YYYY	

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

4 GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.



Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

For further information on GEMÜ CONEXO please visit:
www.gemu-group.com/conexo

5 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. Please note the flow direction on the valve body.

5.1 Product with special function Y

The product with the special version Y order option is intended for use in potentially explosive areas up to zone 0 (inside) with gases, mists or vapours and up to zone 20 with combustible dusts in accordance with EU Directive 2014/34/EU (ATEX).

The explosion protection markings can be found in the document entitled "Operating conditions and explosion protection markings for the Type 650 diaphragm valve with special function Y".

5.2 Product without special function Y

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

6 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, stainless steel piston actuator electropolished, optical position indicator	650

2 DN	Code
4	4
DN 6	6
DN 8	8
DN 10	10
DN 12	12
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 150	150

3 Body configuration	Code
Floor drain	B
Body configuration code B: Dimensions and designs on request	
2/2-way body	D
2/2-way body, optimized flow and weight	F
T-body	T
Body configuration code T: Dimensions on request	

4 Connection type	Code
Spigot	
DIN spigot	0
Spigots DIN EN 10357 Series B (2014 edition; formerly DIN 11850 Series 1)	16
Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2	17
Spigot DIN 11850 Series 3	18
Spigot JIS-G 3459 schedule 5s	32
Spigot JIS-G 3447	35
Spigot JIS-G 3459 Schedule 10s	36
SMS 3008 spigot	37
Spigot BS 4825, Part 1	55
Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C	59
Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B	60
Spigot ANSI/ASME B36.19M Schedule 10s	63
Spigot ANSI/ASME B36.19M Schedule 5s	64

4 Connection type	Code
ANSI/ASME B36.19M Schedule 40s spigot	65
Threaded connection	
Threaded socket DIN ISO 228	1
Threaded socket DIN ISO 228 body length (FTF): 75 mm	1L
Threaded spigot DIN 11851	6
Tapered connector and union nut DIN 11851	6K
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 JIS B2220, 10K, RF, Overall length FTF EN 558 Series 1, ISO 5752, basic series 1, Overall length only for housing form D	34
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
Note: Connection code 8, 34, 38, 39 only possible in conjunction with actuator version control air connector 90° offset to flow direction (e.g. 2B1/1R1)	
Clamp	
Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F	80
Clamp DIN 32676 Series B, Overall length FTF EN 558 Series 7, Overall length only for housing type D	82
Clamp for tube BS 4825 Part 1, DN 15 and DN 20, clamp OD 25.0 mm, face-to-face dimension FTF EN 558 series 7, length only for body configuration D	84
Clamp DIN 32676 series A	86
Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F	88
Clamp DIN 32676 Series A, Overall length FTF according to EN 558 Series 7, Overall length only for housing type D	8A
Clamp ISO 2852 for pipe ISO 2037, Clamp SMS 3017 for pipe SMS 3008 Overall length FTF EN 558 Series 7, Overall length only for housing type D	8E
Clamp IDF/ISO for tube JIS-G 3447, face-to-face dimension FTF EN 558 series 7, length only for body configuration D	8F

4 Connection type	Code
Clamp IDF/ISO for tube JIS-G 3459, face-to-face dimension FTF EN 558 series 7, length only for body configuration D	8H
Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F	8P
Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F	8T
Aseptic connections	
Flange	
Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 Series A and EN 10357 Series A, overall length FTF EN 558 Series 1, overall length only for housing form D	A1
Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 Series A and EN 10357 Series A, overall length FTF EN 558 Series 1, overall length only for housing form D	A2
Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 series B and EN ISO 1127, overall length FTF EN 558 series 1, overall length only for housing form D	A4
Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 series B and EN ISO 1127 Overall length FTF EN 558 series 1, Overall length only for housing form D	A5
Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 series C and ASME BPE, face-to-face dimension FTF EN 558 series 1, length only for body configurations D & F	A7
Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 series C and ASME BPE, face-to-face dimension FTF EN 558 series 1, length only for body configurations D & F	A8
Threaded connection	
Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 Series A and EN 10357 Series A	C1
Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 Series A and EN 10357 Series A	C2
Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 series B and EN ISO 1127	C4
Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 series B and EN ISO 1127	C5
Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 series C and ASME BPE	C7
Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 series C and ASME BPE	C8
Clamp	
Aseptic grooved clamp DIN 11864-NKS, for pipe DIN 11866 series A and EN 10357 series A, overall length FTF EN 558 series 7, overall length only for housing form D	E1
Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series A and EN 10357 series A, overall length FTF EN 558 series 7, overall length only for housing form D	E2

4 Connection type	Code
Grooved clamp DIN 11864-NKS, for pipe DIN 11866 series B and EN ISO 1127, overall length FTF EN 558 series 7, overall length only for housing form D	E4
Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series B and EN ISO 1127, overall length FTF EN 558 series 7, overall length only for housing form D	E5
Aseptic grooved clamp DIN 11864-NKS, for pipe DIN 11866 series C/ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F	E7
Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series C/ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F	E8

5 Valve body material	Code
Investment casting material	
1.4408, investment casting	37
1.4408, PFA lining	39
1.4435, investment casting	C3
Forged material	
1.4435 (F316L), forged body	40
1.4435 (BN2), forged body, Δ Fe < 0.5%	42
1.4539 / UNS N08904, forged body	F4
Block material	
1.4435 (316L), block material	41
1.4435 (BN2), block material, Δ Fe < 0.5%	43
1.4539 / UNS N08904, block material	44
3.7035, titanium	A1
2.4602, block material Alloy 22, (NiCr21Mo14W)	A3

6 Diaphragm material	Code
Elastomer	
EPDM	3A
FKM	4
FKM	4A
EPDM	13
EPDM	17
EPDM	19
Note: The EPDM diaphragm (code 3A) is only available in diaphragm size 8.	
PTFE	
PTFE/EPDM one-piece	54
PTFE/EPDM two-piece	5M
PTFE/EPDM two-piece	5Q
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 5Q) is available for diaphragm size 150.	

6 Diaphragm material	Code
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 4 - 15, diaphragm size 8	
Actuator size 0T1 control air connector in-line with flow direction	0T1
Actuator size 0R1 control air connector 90° offset to flow direction	0R1
Actuator size 0TA control air connector in-line with flow direction for higher operating pressures	0TA
Actuator size 0RA control air connector 90° offset to flow direction for higher operating pressures	0RA
DN 10–20, diaphragm size 10	
Actuator size 1T1 control air connector in-line with flow direction	1T1
Actuator size 1R1 control air connector 90° offset to flow direction	1R1
Actuator size 1D1 control air connector in-line with flow direction	1D1
Actuator size 1B1 control air connector 90° offset to flow direction	1B1
DN 15 - 25, diaphragm size 25	
Actuator size 2T1 control air connector in-line with flow direction	2T1
Actuator size 2R1 control air connector 90° offset to flow direction	2R1
Actuator size 2D1 control air connector in-line with flow direction	2D1
Actuator size 2B1 control air connector 90° offset to flow direction	2B1
DN 32 - 40, diaphragm size 40	
Actuator size 3T1 control air connector in-line with flow direction	3T1
Actuator size 3R1 control air connector 90° offset to flow direction	3R1
Actuator size 3TA control air connector in-line with flow direction for higher operating pressures	3TA
Actuator size 3RA control air connector 90° offset to flow direction for higher operating pressures	3RA
Actuator size 3D1 control air connector in-line with flow direction	3D1
Actuator size 3B1 control air connector 90° offset to flow direction	3B1

8 Actuator version	Code
DN 50–65, diaphragm size 50	
Actuator size 4T1 control air connector in-line with flow direction	4T1
Actuator size 4R1 control air connector 90° offset to flow direction	4R1
Actuator size 4D1 control air connector in-line with flow direction	4D1
Actuator size 4B1 control air connector 90° offset to flow direction	4B1
DN 65–80, diaphragm size 80	
Actuator size 5T1 control air connector in-line with flow direction	5T1
Actuator size 5R1 control air connector 90° offset to flow direction	5R1
Actuator size 5TA control air connector in-line with flow direction for higher operating pressures	5TA
Actuator size 5RA control air connector 90° offset to flow direction for higher operating pressures	5RA
Actuator size 5TB control air connector in-line with flow direction for higher operating pressures	5TB
Actuator size 5RB control air connector 90° offset to flow direction for higher operating pressures	5RB
DN 100, diaphragm size 100	
Actuator size 6T1 control air connector in-line with flow direction	6T1
Actuator size 6R1 diaphragm size 100 control air connector 90° offset to flow direction	6R1
Actuator size 6TA control air connector in-line with flow direction for higher operating pressures	6TA
Actuator size 6RA control air connector 90° offset to flow direction for higher operating pressures	6RA
DN 150, diaphragm size 150	
Actuator size 8TA control air connector in-line with flow direction	8TA

9 Surface	Code
Ra ≤ 6.3 µm for surfaces in contact with media, mechanically polished on the inside	1500
Ra ≤ 0.8 µm for surfaces in contact with media, in accordance with DIN 11866 H3 mechanically polished on the inside	1502
Ra ≤ 0.8 µm for surfaces in contact with media, in accordance with DIN 11866 HE3, electropolished inside/outside	1503
Ra ≤ 0.6 µm for surfaces in contact with media, mechanically polished on the inside	1507
Ra ≤ 0.6 µm for surfaces in contact with media, electropolished inside/outside	1508
Ra ≤ 0.4 µm for surfaces in contact with media, in accordance with DIN 11866 H4, mechanically polished on the inside	1536

9 Surface	Code
Ra ≤ 0.4 µm for surfaces in contact with media, in accordance with DIN 11866 HE4, electropolished inside/outside	1537
Ra ≤ 0.25 µm for surfaces in contact with media *), in accordance with DIN 11866 H5, mechanically polished on the inside, *) for pipe inner Ø < 6 mm, Ra ≤ 0.38 µm in the spigot	1527
Ra ≤ 0.25 µm for surfaces in contact with media *), in accordance with DIN 11866 HE5, electropolished inside/outside, *) for pipe inner diameter < 6 mm, Ra ≤ 0.38 µm in the spigot	1516
Ra max. 0.51 µm (20 µin.) for surfaces in contact with media, in accordance with ASME BPE SF1, internally mechanically polished	SF1
Ra max. 0.64 µm (25 µin.) for surfaces in contact with media, in accordance with ASME BPE SF2, internally mechanically polished	SF2
Ra max. 0.76 µm (30 µin.) for surfaces in contact with media, in accordance with ASME BPE SF3, mechanically polished interior	SF3

9 Surface	Code
Ra max. 0.38 µm (15 µin.) for surfaces in contact with media, in accordance with ASME BPE SF4, electropolished inside/outside	SF4
Ra max. 0.51 µm (20 µin.) for surfaces in contact with media, in accordance with ASME BPE SF5, electropolished inside/outside	SF5
Ra max. 0.64 µm (25 µin.) for surfaces in contact with media, in accordance with ASME BPE SF6, electropolished inside/outside	SF6

10 Special version	Code
Special version for 3A	M
Special version for oxygen applications. Operating temperature restricted according to product label. Media wetted materials cleaned. Seals and oxygen grease used tested according to DIN EN 1797 / ISO 21010	S
ATEX marking following testing by IBExU	Y

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

Order example

Ordering option	Code	Description
1 Type	650	Diaphragm valve, pneumatically operated, stainless steel piston actuator electropolished, optical position indicator
2 DN	50	DN 50
3 Body configuration	D	2/2-way body
4 Connection type	60	Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B
5 Valve body material	40	1.4435 (F316L), forged body
6 Diaphragm material	5M	PTFE/EPDM two-piece
7 Control function	1	Normally closed (NC)
8 Actuator version	4T1	Actuator size 4T1 control air connector in-line with flow direction
9 Surface	1503	Ra ≤ 0.8 µm for surfaces in contact with media, in accordance with DIN 11866 HE3, electropolished inside/outside
10 Special version	M	Special version for 3A
11 CONEXO		Without

7 Technical data

7.1 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. The valve will seal in both flow directions up to full operating pressure (gauge pressure). For special oxygen version (code S): only gaseous oxygen
Control medium:	Inert gases

7.2 Temperature

Media temperature:

MG	Diaphragm material	Valve body material	Standard	Special version for oxygen
8, 10, 25, 40, 50, 80, 100	EPDM (code 3A/13)	1.4408, investment casting (code 37) 1.4435, investment casting (code C3) 1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 1.4539, forged body (code F4) 1.4539, block material (code 44) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-10 – 100 °C	0 – 60 °C
10, 25, 40, 50, 80, 100	FKM (code 4A/4)	1.4408, investment casting (code 37) 1.4408, PFA lined (code 39) 1.4435, investment casting (code C3) 1.4435, forged body (code 40, 42) 1.4539, forged body (code F4) 1.4435, block material (code 41, 43) 1.4539, block material (code 44)	-10 – 90 °C	-
8, 10, 25, 40, 50, 80, 100	EPDM (code 17)	1.4408, investment casting (code 37) 1.4435, investment casting (code C3) 1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 1.4539, forged body (code F4) 1.4539, block material (code 44) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-20 – 100 °C	0 – 60 °C
8, 10, 25, 40, 50, 80, 100	EPDM (code 19)	1.4435, investment casting (code C3) 1.4539, forged body (code F4) 1.4539, block material (code 44)	-10 – 100 °C	0 – 60 °C
8, 10, 25, 40, 50, 80, 100	EPDM (code 19)	1.4408, investment casting (code 37) 1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 2.4602, Alloy 22 block material (code A3)	-20 – 130 °C*	0 – 60 °C
		3.7035, titanium (code A1)	-10 – 130 °C*	
25, 40, 50, 80, 100	EPDM (code 19)	1.4408, PFA lined (code 39)	-20 – 100 °C*	-
8, 10, 25, 40, 50, 80, 100	PTFE/EPDM (code 54)	1.4435, investment casting (code C3) 1.4539, forged body (code F4) 1.4539, block material (code 44)	-10 – 130 °C*	0 – 60 °C
8, 10, 25, 40, 50, 80, 100	PTFE/EPDM (code 54)	1.4408, investment casting (code 37)	-30 – 130 °C*	0 – 60 °C
		1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 2.4602, Alloy 22 block material (code A3)	-30 – 130 °C*	0 – 60 °C
		3.7035, titanium (code A1)	-10 – 130 °C*	
25, 40, 50, 80, 100	PTFE/EPDM (code 54)	1.4408, PFA lined (code 39)	-20 – 100 °C*	-
25, 40, 50, 80, 100	PTFE/PVDF/EPDM (code 71)	1.4408, PFA lined (code 39)	-10 – 100 °C	-
10, 25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	1.4435, investment casting (code C3) 1.4539, forged body (code F4) 1.4539, block material (code 44)	-10 – 130 °C*	0 – 60 °C
10, 25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	1.4408, investment casting (code 37)	-20 – 130 °C*	-

MG	Diaphragm material	Valve body material	Standard	Special version for oxygen
		1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 2.4602, Alloy 22 block material (code A3)	-30 – 130 °C*	-
		3.7035, titanium (code A1)	-10 – 130 °C*	-
25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	1.4408, PFA lined (code 39)	-20 – 100 °C*	-
25	PTFE/EPDM (code 5Y)	1.4408, PFA lined (code 39)	-10 – 100 °C	-
150	PTFE/EPDM (code 5Q)	1.4435, block material (code 41, 43) 1.4539, block material (code 44)	-10 – 100 °C	0 – 60 °C

MG = diaphragm size

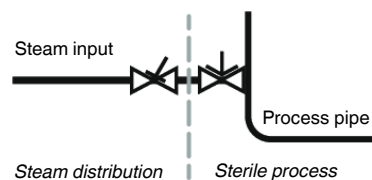
* The service life of the diaphragms is reduced at temperatures below -10 °C and above +100 °C. The maintenance cycles must be carried out in shorter time intervals accordingly.

Sterilization temperature:	EPDM (code 3A/13)	max. 150 °C, max. 60 min per cycle
	EPDM (code 17)	max. 150 °C, max. 180 min per cycle
	EPDM (code 19)	max. 150 °C, max. 180 min per cycle
	PTFE/EPDM (code 54)	max. 150 °C, constant temperature per cycle
	PTFE/PVDF/EPDM (code 71)	not applicable
	PTFE/EPDM (code 5M)	max. 150 °C, constant temperature per cycle
	PTFE/EPDM (code 5Q)	max. 150 °C, constant temperature per cycle
	PTFE/EPDM (Code 5Y)	Max. 150 °C, constant temperature per cycle

The sterilization temperature is only valid for steam (saturated steam) or superheated water.

If the sterilization temperatures listed above are applied to the EPDM diaphragms for longer periods of time, the service life of the diaphragms will be reduced. In these cases, maintenance cycles must be adapted accordingly.

PTFE diaphragms can also be used as steam barriers; however, this will reduce their service life. This also applies to PTFE diaphragms exposed to high temperature fluctuations. The maintenance cycles must be adapted accordingly. GEMÜ 555 and 505 globe valves are particularly suitable for use in the area of steam generation and distribution. The following valve arrangement for interfaces between steam pipes and process pipes has proven itself over time: A globe valve for shutting off steam pipes and a diaphragm valve as an interface to the process pipes.



Ambient temperature:

MG	Diaphragm material	Valve body material	Standard	Special version for oxygen
8, 10, 25, 40, 50, 80, 100	EPDM (code 3A/13)	1.4408, investment casting (code 37) 1.4435, investment casting (code C3) 1.4435, forged body (code 40, 42) 1.4539, forged body (code F4) 1.4435, block material (code 41, 43) 1.4539, block material (code 44) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-10 – 60 °C	Max. 60 °C
10, 25, 40, 50, 80, 100	EPDM (code 4A/4)	1.4408, investment casting (code 37) 1.4408, PFA lined (code 39) 1.4435, investment casting (code C3) 1.4435, forged body (code 40, 42) 1.4539, forged body (code F4) 1.4435, block material (code 41, 43) 1.4539, block material (code 44) 2.4602, Alloy 22 block material (code A3)	0 – 60 °C	-
8, 10, 25, 40, 50, 80, 100	EPDM (code 17)	1.4408, investment casting (code 37) 1.4435, investment casting (code C3) 1.4435, forged body (code 40, 42) 1.4539, forged body (code F4) 1.4435, block material (code 41, 43) 1.4539, block material (code 44) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-10 – 60 °C	Max. 60 °C
8, 10, 25, 40, 50, 80, 100	EPDM (code 19)	1.4435, investment casting (code C3) 1.4539, block material (code 44) 1.4539, forged body (code F4) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-10 – 60 °C	Max. 60 °C
8, 10, 25, 40, 50, 80, 100	EPDM (code 19)	1.4408, investment casting (code 37) 1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	Max. 60 °C
25, 40, 50, 80, 100	EPDM (code 19)	1.4408, PFA lined (code 39) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	-
8, 10, 25, 40, 50, 80, 100	PTFE/EPDM (code 54)	1.4435, investment casting (code C3) 1.4539, block material (code 44) 1.4539, forged body (code F4) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-10 – 60 °C	Max. 60 °C
8, 10, 25, 40, 50, 80, 100	PTFE/EPDM (code 54)	1.4408, investment casting (code 37) 1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	Max. 60 °C
25, 40, 50, 80, 100	PTFE/EPDM (code 54)	1.4408, PFA lined (code 39) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	-
25, 40, 50, 80, 100	PTFE/PVDF/EPDM (code 71)	1.4408, PFA lined (code 39) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	-
10, 25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	1.4435, investment casting (code C3) 1.4539, block material (code 44) 1.4539, forged body (code F4) 3.7035, titanium (code A1) 2.4602, Alloy 22 block material (code A3)	-10 – 60 °C	Max. 60 °C

MG	Diaphragm material	Valve body material	Standard	Special version for oxygen
10, 25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	1.4408, investment casting (code 37) 1.4435, forged body (code 40, 42) 1.4435, block material (code 41, 43) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	Max. 60 °C
25, 40, 50, 80, 100	PTFE/EPDM (code 5M)	1.4408, PFA lined (code 39) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	-
25	PTFE/EPDM (code 5Y)	1.4408, PFA lined (code 39) 2.4602, Alloy 22 block material (code A3)	-20 – 60 °C	-
150	PTFE/EPDM (code 5Q)	1.4435, block material (code 41, 43) 1.4539, block material (code 44) 2.4602, Alloy 22 block material (code A3)	0 – 60 °C	Max. 60 °C

MG = diaphragm size

For ATEX versions, the ambient temperature specifications in the "Supplement acc. to ATEX" and the specifications on the ATEX marking on the product apply.

Control medium temperature: 0 – 70 °C
For versions with special function S max. 60 °C

Storage temperature: 0 – 40 °C

Autoclavability:

Actuator version	Autoclavability
0T1, 0TA, 0R1, 0RA 1T1, 1B1, 1D1, 1R1 2T1, 2B1, 2D1, 2R1	autoclavable
3T1, 3TA, 3B1, 3D1, 3R1, 3RA 4T1, 4B1, 4D1, 4R1	with special version
5T1, 5TA, 5TB, 5R1, 5RA, 5RB 6T1, 6TA, 6R1, 6RA 8TA	not possible

7.3 Pressure

Operating pressure:

Elastomer diaphragms

MG	DN	Control function	Actuator size	Elastomer	
				Diaphragm material	All valve body materials
8	4 - 15	1	0T1, 0R1	3A, 4, 4A, 17, 19	0 - 8
			0TA, 0RA		0 - 10
		2 + 3	0T1, 0TA, 0R1, 0RA		0 - 10
10	10 - 20	1	1T1, 1R1	4, 4A, 13, 17, 19	0 - 10
			1D1, 1B1		0 - 10
		2 + 3	1T1, 1R1		0 - 10
			1D1, 1B1		0 - 10
25	15 - 25	1	2T1, 2R1	4, 4A, 13, 17, 19	0 - 10
			2D1, 2B1		0 - 10
		2 + 3	2T1, 2R1		0 - 10
			2D1, 2B1		0 - 10
40	32 - 40	1	3T1, 3B1, 3D1, 3R1	4, 4A, 13, 17, 19	0 - 10
		2 + 3	3T1, 3R1		0 - 10
			3D1, 3B1		0 - 10
50	50 - 65	1	4T1, 4R1	4, 4A, 13, 17, 19	0 - 10
			4D1, 4B1		0 - 10
		2 + 3	4T1, 4R1		0 - 10
			4D1, 4B1		0 - 10
80	65 - 80	1	5T1, 5R1	4, 4A, 13, 17, 19	0 - 8
			5TB, 5RB		0 - 10
		2 + 3	5T1, 5R1		0 - 10
100	100	1	6T1, 6R1	4, 4A, 13, 17, 19	0 - 6
			6TA, 6RA		0 - 10
		2 + 3	6T1, 6R1		0 - 10

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.

Operating pressure:**PTFE diaphragms**

MG	DN	Control function	Actuator size	PTFE			
				Diaphragm material	Forged body	Investment cast body	Block material
8	4 - 15	1	0R1, 0T1	54	0 - 6	0 - 6	0 - 6
			0RA, 0TA		0 - 10	0 - 6	0 - 10
		2 + 3	0R1, 0RA, 0T1, 0TA		0 - 10	0 - 6	0 - 10
10	10 - 20	1	1R1, 1T1	54, 5M	0 - 10	0 - 6	0 - 10
			1D1, 1B1		0 - 6	0 - 6	0 - 6
		2 + 3	1R1, 1T1		0 - 10	0 - 6	0 - 10
			1D1, 1B1		0 - 6	0 - 6	0 - 6
25	15 - 25	1	2R1, 2T1	54, 5M, 5Y	0 - 10	0 - 6	0 - 10
			2D1, 2B1		0 - 6	0 - 6	0 - 6
		2 + 3	2R1, 2T1		0 - 10	0 - 6	0 - 10
			2D1, 2B1		0 - 6	0 - 6	0 - 6
40	32 - 40	1	3B1, 3D1, 3R1, 3T1	54, 5M	0 - 6	0 - 6	0 - 6
			3RA, 3TA		0 - 10	0 - 6	0 - 10
		2 + 3	3R1, 3T1		0 - 10	0 - 6	0 - 10
			3D1, 3B1		0 - 6	0 - 6	0 - 6
50	50 - 65	1	4R1, 4T1	54, 5M	0 - 10	0 - 6	0 - 10
			4D1, 4B1		0 - 6	0 - 6	0 - 6
		2 + 3	4R1, 4T1		0 - 10	0 - 6	0 - 10
			4D1, 4B1		0 - 6	0 - 6	0 - 6
80	65 - 80	1	5R1, 5T1	54, 5M	0 - 5	-	0 - 5
			5RA, 5TA		0 - 10	-	0 - 10
		2 + 3	5R1, 5T1		0 - 10	-	0 - 10
100	100	1	6R1, 6T1	54, 5M	0 - 4	-	0 - 4
			6RA, 6TA		0 - 10	-	0 - 10
		2 + 3	6R1, 6T1		0 - 10	-	0 - 10
150	150	1 + 2 + 3	8TA	5Q	-	-	0 - 10

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.

High vacuum: 0.05 mbar (absolute)*

* The service life of the diaphragms is reduced in a high vacuum. The maintenance cycles must be carried out in shorter time intervals accordingly.

Available under the following conditions:

- Control function 1 MG 8 to MG 150
- Control function 2 MG 8 to MG 80
- Diaphragm codes 54, 5M/ 5Q, 17 and 19
- Diaphragm sizes 8–150
- Valve body material codes 40, 42, F4, 41, 43, 44

Pressure rating: PN 16

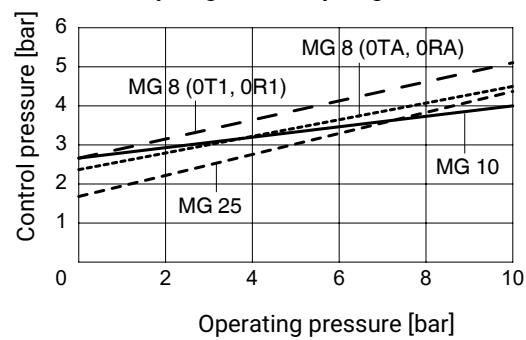
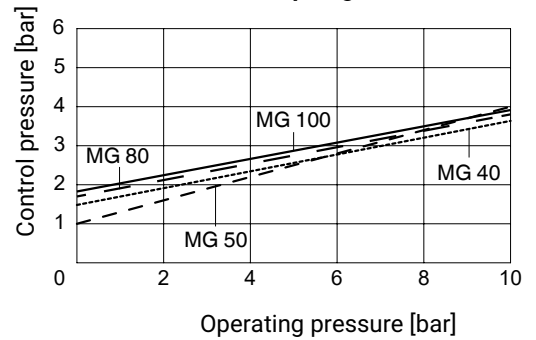
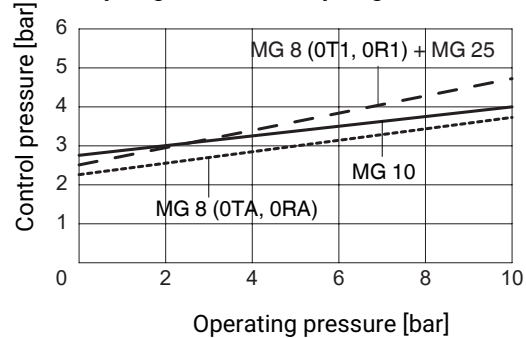
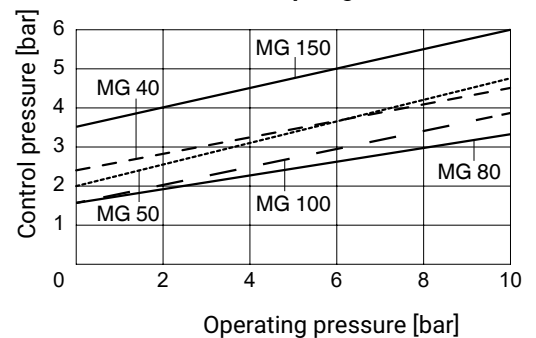
Leakage rate: Leakage rate A to P11/P12 EN 12266-1

Control pressure:

MG	DN	Control function	Actuator size	Control pressure
8	4 - 15	1	0R1, 0T1	5.0 - 7.0
			0RA, 0TA	3.5 - 7.0
		2 + 3	0R1, 0T1	max. 5.5*
			0RA, 0TA	max. 4.5*
10	10 - 20	1	1B1, 1D1, 1R1, 1T1	4.5 - 7.0
		2 + 3		max. 4.5*
25	15 - 25	1	2B1, 2D1, 2R1, 2T1	5.0 - 7.0
		2 + 3		max. 4.5*
40	32 - 40	1	3B1, 3D1, 3R1, 3T1	4.5 - 7.0
			3RA, 3TA	3.5 - 7.0
		2 + 3	3B1, 3D1, 3R1, 3T1	max. 4.5*
50	50 - 65	1	4B1, 4D1, 4R1, 4T1	4.5 - 7.0
		2 + 3		max. 4.5*
80	65 - 80	1	5R1, 5T1	3.5 - 7.0
			5RA, 5TA	4.5 - 7.0
			5RB, 5TB	4.0 - 7.0
		2 + 3	5R1, 5T1	max. 4.0*
100	100	1	6R1, 6T1	3.5 - 7.0
			6RA, 6TA	5.0 - 7.0
		2 + 3	6R1, 6T1	max. 4.0*
150	150	1	8TA	7.0 - 8.0
		2 + 3		3.5 - 6.0*

All pressures are gauge pressures.

* As a guide for operating the system with low wear on the diaphragm, refer to the control pressure – operating pressure diagrams below.

Control pressure:**GEMÜ 650 design: Control pressure – operating pressure – diagram – control function 2 and 3****Elastomer diaphragm****Diaphragm size 8–25****Diaphragm size 40–100****PTFE diaphragm****Diaphragm size 8–25****Diaphragm size 40–150**

The control pressure depending on the prevailing operating pressure, as shown in the diagram, is intended as a guide for operating the system with low wear on the diaphragm.

Filling volume:

Diaphragm size	DN	Actuator size	Actuator version	Spring set	Control function 1	Control function 2
8	4–15	0	T/R	1	0.01	0.01
			T/R	A	0.02	0.01
10	10–20	1	T/R/D/B	1	0.03	0.07
25	15–25	2	T/R/D/B	1	0.13	0.22
40	32–40	3	T/R/D/B	1	0.23	0.50
			T/R	A	0.50	-
50	50–65	4	T/R/D/B	1	0.50	1.20
80	65–80	5	T/R	1	2.68	3.20
			T/R	A/B	2.13	-
100	100	6	T/R	1	2.78	3.40
			T/R	A	2.15	-
150	150	8	T	A	5.30	6.00

Filling volume in dm³

MG = diaphragm size

C.f. 3 = for filling volume in open position see c.f. 1, for filling volume in closed position see c.f. 2

Kv values:

MG	DN	Body configuration D									
		Connection type code									
		0	16	17	18	37	59	60	1, 1L	31	32
8	4	0.5	-	-	-	-	-	-	-	-	-
	6	-	-	1.1	-	-	-	1.2	-	-	-
	8	-	-	1.3	-	-	0.6	2.2	1.4	-	-
	10	-	2.1	2.1	2.1	-	1.3	-	-	-	-
	15	-	-	-	-	-	2.0	-	-	-	-
10	10	-	2.4	2.4	2.4	-	2.2	3.3	-	-	-
	12	-	-	-	-	-	-	-	3.2	-	-
	15	3.3	3.8	3.8	3.8	-	2.2	4.0	3.4	-	-
	20	-	-	-	-	-	3.8	-	-	-	-
25	15	4.1	4.7	4.7	4.7	-	-	7.4	6.5	6.5	9.0
	20	6.3	7.0	7.0	7.0	-	4.4	13.2	10.0	10.0	12.7
	25	13.9	15.0	15.0	15.0	12.6	12.2	16.2	14.0	14.0	14.0
40	32	25.3	27.0	27.0	27.0	26.2	-	30.0	26.0	26.0	-
	40	29.3	30.9	30.9	30.9	30.2	29.5	32.8	33.0	33.0	26.6
50	50	46.5	48.4	48.4	48.4	51.7	50.6	55.2	60.0	60.0	48.1
	65	-	-	-	-	62.2	61.8	-	-	-	-
80	65	-	-	77.0	-	68.5	68.5	96.0	-	-	-
	80	-	-	111.0	-	80.0	87.0	111.0	-	-	-
100	100	-	-	194.0	-	173.0	188.0	214.0	-	-	-
150	150	-	-	-	-	-	570.0	-	-	-	-

MG = diaphragm size, Kv values in m³/h

Kv values determined in accordance with DIN EN 60534 standard, inlet pressure 5 bar, Δp 1 bar, stainless steel valve body 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.

MG	DN	Body configuration Code F
		Connection type Code 59
80	65	119.0
80	80	147.0
100	100	244.0

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.

Kv values:

MG	DN	Plastic lining
		Material code 17, 18, 39
25	15	5.0
	20	9.0
	25	13.0
40	32	23.0
	40	26.0
50	50	47.0
	65	47.0
80	80	110.0
100	100	177.0

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.

7.4 Product compliance

Pressure Equipment Directive:	2014/68/EU	
Machinery Directive:	2006/42/EC	
Food:	FDA Regulation (EC) No. 1935/2004 (only for material code C3, 40, 42, 41, 43, A1) Regulation (EC) No. 10/2011 USP Class VI 3A (special version code M)	
Oxygen:	Testing of the seal material based on DIN EN 1797 and ISO 21010:2017 – Cryogenic vessels – Gas/material compatibility (special version code S)	
TA Luft (German Clean Air Act):	The product meets the following requirements under the maximum permissible operating conditions: - Tightness or compliance with the specific leak rate as defined in TA Luft (German Clean Air Act) and VDI 2440 and VDI 2290 - Compliance with the requirements in accordance with DIN EN ISO 15848-1, Table C.2, Class BH	
SIL:	Product description: Architectonic limitation type: Fail safe function:	Diaphragm valve GEMÜ 650 A Due to the fail safe function, the valve is placed in the closed position (with control function 1) or open position (with control function 2), or it seals tightly (with control function 1). For further information, see the associated safety manual and SIL certificate "SIL Certificate_GEMÜ 650_Exida GEM 2404104 C001_2024-10".
EAC:	The product is declared in accordance with EAC.	
EHEDG:	Certification granted for pneumatically operated diaphragm valves with forged bodies (code 40) and PTFE/EPDM diaphragms (code 5M) in sizes DN10 to DN100	
Explosion protection:	ATEX (2014/34/EU), order code special version Y The product's ATEX marking is dependent on the respective product configuration with valve body and actuator. This can be found in the document entitled "GEMÜ Operating conditions and explosion protection markings for the Type 650 diaphragm valve with special function Y" and the ATEX marking on the product. EU type examination certificate for special function Y: IBExU26ATEX1011 X	

7.5 Mechanical data

Actuator version "T"



Actuator version "D"

Weight:**Actuator**

MG	Actuator version	Version D	Version T
8	0T1, 0R1	-	0.5
	0TA, 0RA	-	0.5
10	1T1, 1B1, 1D1, 1R1	1.1	0.9
25	2T1, 2B1, 2D1, 2R1	2.5	1.9
40	3T1, 3B1, 3D1, 3R1	5.0	3.0
	3TA, 3RA	-	7.3
50	4T1, 4B1, 4D1, 4R1	9.5	7.7
80	5T1, 5R1	-	18.5
	5TA, 5TB, 5RA, 5RB	-	23.7
100	6T1, 6R1	-	20.0
	6TA, 6RA	-	28.0
150	8TA	-	95.0

MG = diaphragm size

Weights in kg

Weight:**Body**

MG	DN	Body configuration D				
		Spigot	Threaded socket	Threaded spigot, cone spigot	Flange	Clamp
		Connection type code				
		0, 16, 17, 18, 35, 36, 37, 55, 59, 60, 63, 64, 65	1, 1L	6, 6K	8, 34, 38, 39	80, 82, 84, 86, 88, 8A, 8E, 8F, 8H, 8P, 8T
8	4	0.09	-	-	-	-
	6	0.09	-	-	-	-
	8	0.09	0.09	-	-	0.15
	10	0.09	-	0.21	-	0.18
	15	0.09	-	-	-	0.18
10	10	0.30	-	0.33	-	0.30
	12	-	0.17	-	-	-
	15	0.30	0.26	0.35	-	0.43
	20	-	-	-	-	0.43
25	15	0.62	0.32	0.71	1.50	0.75
	20	0.58	0.34	0.78	2.20	0.71
	25	0.55	0.39	0.79	2.80	0.63
40	32	1.45	0.88	1.66	3.40	1.62
	40	1.32	0.93	1.62	4.50	1.50
50	50	2.25	1.56	2.70	6.30	2.50
	65	2.20	-	-	10.30	2.30
80	65	8.60	-	9.22	10.20	8.90
	80	8.00	-	9.20	13.80	8.50
100	100	24.10	-	-	20.80	24.80
150	150	42.00	-	-	-	43.10

Weights in kg

MG = diaphragm size

Solid material body on request

MG	DN	Body configuration F	
		Spigot	Clamp
		Connection type code	
		59	80, 88, 8P, 8T
80	65	4.25	4.55
	80	3.65	9.15
100	100	8.10	8.80

Weights in kg

MG = diaphragm size

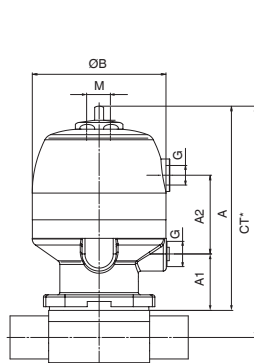
Installation position:

Optional

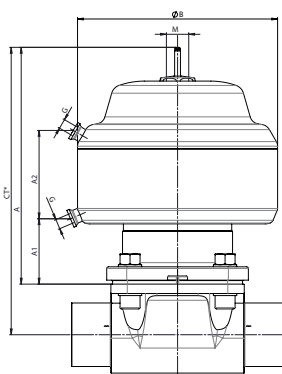
Observe the angle of rotation to achieve an installation for optimized draining

8 Dimensions

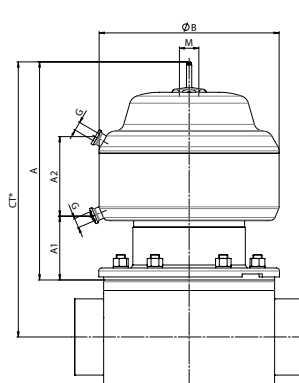
8.1 Actuator dimensions



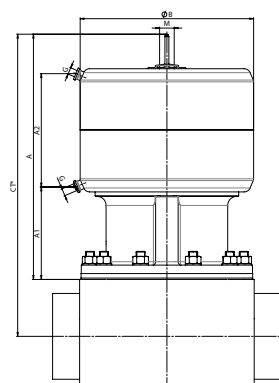
MG 8-50



MG 80



MG 100



MG 150

MG	DN	Actuator version	A	A1	A2	ø B	G	M
8	4 - 15	0T1, 0R1	80.5	28.0	37.8	42.0	G 1/8	M12x1
		0TA, 0RA	89.5	28.0	39.1	47.0	G 1/8	M12x1
10	10 - 20	1T1, 1R1, 1D1, 1B1	116.0	37.0	42.5	61.0	G 1/4	M16x1
25	15 - 25	2T1, 2R1, 2D1, 2B1	137.5	38.0	53.0	90.0	G 1/4	M16x1
40	32, 40	3T1, 3R1, 3D1, 3B1	173.0	53.0	56.5	114.0	G 1/4	M16x1
		3TA, 3RA	223.0	52.0	-	144.0	G 1/4	M16x1
50	50, 65	4T1, 4R1, 4D1, 4B1	223.0	52.0	70.5	144.0	G 1/4	M16x1
80	65, 80	5T1, 5R1	283.0	78.0	106.0	240.0	G 1/4	M26x1.5
		5TA, 5TB, 5RA, 5RB	297.0	80.0	-	240.0	G 1/4	M26x1.5
100	100	6T1, 6R1	298.0	87.0	106.0	240.0	G 1/4	M26x1.5
		6TA, 6RA	355.0	133.0	-	240.0	G 1/4	M26x1.5
150	150	8TA	513.0 436.0 (C.f.2)	166.0	201.0	308.0	G 1/4	M26x1.5

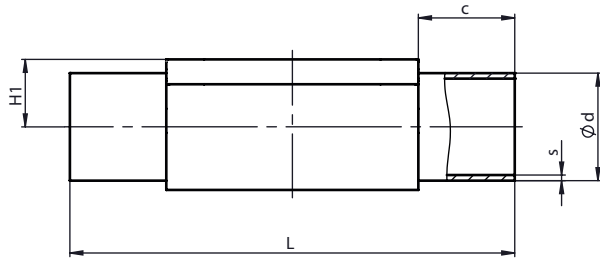
Dimensions in mm, MG = diaphragm size, C.f. = control function

* CT = A + H1 (see body dimensions)

The upper control air connector is only available for control functions 2 and 3.

8.2 Body dimensions

8.2.1 Spigot DIN/EN/ISO (code 0, 16, 17, 18, 60)



Connection type: Spigot DIN/EN/ISO (code 0, 16, 17, 18, 60)¹⁾, forged material (code 40, 42, F4), block material (code 44, A1, A3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød					H1	L	s				
				Connection type							Connection type				
				0	16	17	18	60			0	16	17	18	60
8	4	-	20.0	6.0	-	-	-	-	8.5	72.0	1.0	-	-	-	-
	6	-	20.0	-	-	8.0	-	10.2	8.5	72.0	-	-	1.0	-	1.6
	8	1/4"	20.0	-	-	10.0	-	13.5	8.5	72.0	-	-	1.0	-	1.6
	10	3/8"	20.0	-	12.0	13.0	14.0	-	8.5	72.0	-	1.0	1.5	2.0	-
10	10	3/8"	25.0	-	12.0	13.0	14.0	17.2	12.5	108.0	-	1.0	1.5	2.0	1.6
	15	1/2"	25.0	18.0	18.0	19.0	20.0	21.3	12.5	108.0	1.5	1.0	1.5	2.0	1.6
25	15	1/2"	25.0	18.0	18.0	19.0	20.0	21.3	19.0	120.0	1.5	1.0	1.5	2.0	1.6
	20	3/4"	25.0	22.0	22.0	23.0	24.0	26.9	19.0	120.0	1.5	1.0	1.5	2.0	1.6
	25	1"	25.0	28.0	28.0	29.0	30.0	33.7	19.0	120.0	1.5	1.0	1.5	2.0	2.0
40	32	1¼"	25.0	34.0	34.0	35.0	36.0	42.4	26.0	153.0	1.5	1.0	1.5	2.0	2.0
	40	1½"	30.5	40.0	40.0	41.0	42.0	48.3	26.0	153.0	1.5	1.0	1.5	2.0	2.0
50	50	2"	30.0	52.0	52.0	53.0	54.0	60.3	32.0	173.0	1.5	1.0	1.5	2.0	2.0
80	65	2½"	30.0	-	-	70.0	-	76.1	62.0	216.0	-	-	2.0	-	2.0
	80	3"	30.0	-	-	85.0	-	88.9	62.0	254.0	-	-	2.0	-	2.3
100	100	4"	30.0	-	-	104.0	-	114.3	76.0	305.0	-	-	2.0	-	2.3

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 0: DIN spigot

Code 16: Spigots DIN EN 10357 Series B (2014 edition; formerly DIN 11850 Series 1)

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

Code 18: Spigot DIN 11850 Series 3

Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

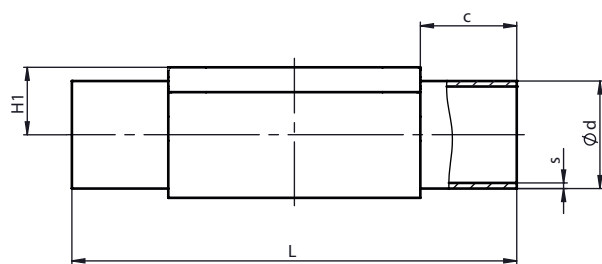
Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.



Connection type: Spigot DIN/EN/ISO (code 0, 17, 60)¹⁾, investment casting material (code C3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød			H1	L	s		
				Connection type					Connection type		
				0	17	60			0	17	60
8	4	-	20.0	6.0	-	-	8.5	72.0	1.0	-	-
	6	-	20.0	-	8.0	-	8.5	72.0	-	1.0	-
	8	1/4"	20.0	-	10.0	13.5	8.5	72.0	-	1.0	1.6
	10	3/8"	20.0	-	13.0	-	8.5	72.0	-	1.5	-
10	10	3/8"	25.0	-	13.0	17.2	12.5	108.0	-	1.5	1.6
	15	1/2"	25.0	-	19.0	21.3	12.5	108.0	-	1.5	1.6
25	15	1/2"	25.0	-	19.0	21.3	13.0	120.0	-	1.5	1.6
	20	3/4"	25.0	-	23.0	26.9	16.0	120.0	-	1.5	1.6
	25	1"	25.0	-	29.0	33.7	19.0	120.0	-	1.5	2.0
40	32	1¼"	25.0	-	35.0	42.4	24.0	153.0	-	1.5	2.0
	40	1½"	30.5	-	41.0	48.3	26.0	153.0	-	1.5	2.0
50	50	2"	30.0	-	53.0	60.3	32.0	173.0	-	1.5	2.0

Dimensions in mm

MG = diaphragm size

1) **Connection type**

Code 0: DIN spigot

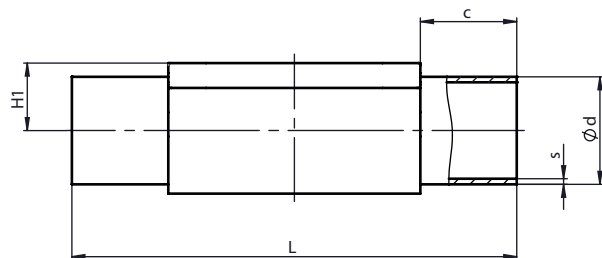
Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) **Valve body material**

Code C3: 1.4435, investment casting

8.2.2 Spigot ASME/BS (code 55, 59, 63, 64, 65)



Connection type: Spigot ASME/BS (code 55, 59, 63, 64, 65)¹⁾, forged material (code 40, 42, F4), block material (code 44, A1, A3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød					H1	L	s				
				Connection type							Connection type				
				55	59	63	64	65			55	59	63	64	65
8	6	-	20.0	-	-	10.3	-	10.3	8.5	72.0	-	-	1.24	-	1.73
	8	1/4"	20.0	6.35	6.35	13.7	-	13.7	8.5	72.0	1.2	0.89	1.65	-	2.24
	10	3/8"	20.0	9.53	9.53	-	-	-	8.5	72.0	1.2	0.89	-	-	-
	15	1/2"	20.0	12.70	12.70	-	-	-	8.5	72.0	1.2	1.65	-	-	-
10	10	3/8"	25.0	9.53	9.53	17.1	-	17.1	12.5	108.0	1.2	0.89	1.65	-	2.31
	15	1/2"	25.0	12.70	12.70	21.3	21.3	21.3	12.5	108.0	1.2	1.65	2.11	1.65	2.77
	20	3/4"	25.0	19.05	19.05	-	-	-	12.5	108.0	1.2	1.65	-	-	-
25	15	1/2"	25.0	-	-	21.3	21.3	21.3	19.0	120.0	-	-	2.11	1.65	2.77
	20	3/4"	25.0	19.05	19.05	26.7	26.7	26.7	19.0	120.0	1.2	1.65	2.11	1.65	2.87
	25	1"	25.0	-	25.40	33.4	33.4	33.4	19.0	120.0	-	1.65	2.77	1.65	3.38
40	32	1¼"	25.0	-	-	42.2	42.2	42.2	26.0	153.0	-	-	2.77	1.65	3.56
	40	1½"	30.5	-	38.10	48.3	48.3	48.3	26.0	153.0	-	1.65	2.77	1.65	3.68
50	50	2"	30.0	-	50.80	60.3	60.3	60.3	32.0	173.0	-	1.65	2.77	1.65	3.91
	65	2½"	30.0	-	63.50	-	-	-	34.0	173.0	-	1.65	-	-	-
80	65	2½"	30.0	-	63.50	73.0	73.0	73.0	62.0	216.0	-	1.65	3.05	2.11	5.16
	80	3"	30.0	-	76.20	88.9	88.9	88.9	62.0	254.0	-	1.65	3.05	2.11	5.49
100	100	4"	30.0	-	101.60	114.3	114.3	114.3	76.0	305.0	-	2.11	3.05	2.11	6.02

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 55: Spigot BS 4825, Part 1

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

Code 63: Spigot ANSI/ASME B36.19M Schedule 10s

Code 64: Spigot ANSI/ASME B36.19M Schedule 5s

Code 65: ANSI/ASME B36.19M Schedule 40s spigot

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

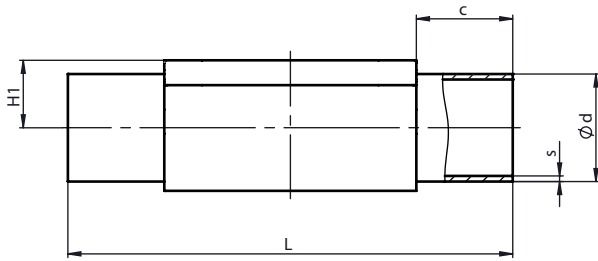
Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.


Connection type: Spigot ASME/BS (code 59)¹⁾, forged material (code 40)²⁾, body configuration F

MG	DN	NPS	c (min)	ød	H1	L	s
80	65	2½"	30.0	63.50	43	216.0	1.65
	80	3"	30.0	76.20	43	254.0	1.65
100	100	4"	30.0	101.60	60,0	305.0	2.11

Dimensions in mm

MG = diaphragm size

1) Connection type

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

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Connection type: Spigot ASME BPE (code 59)¹⁾, investment casting material (code C3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød	H1	L	s
8	8	1/4"	20.0	6.35	8.5	72.0	0.89
	10	3/8"	20.0	9.53	8.5	72.0	0.89
	15	1/2"	20.0	12.70	8.5	72.0	1.65
10	20	3/4"	25.0	19.05	12.5	108.0	1.65
25	20	3/4"	25.0	19.05	16.0	120.0	1.65
	25	1"	25.0	25.40	19.0	120.0	1.65
40	40	1½"	30.5	38.10	26.0	153.0	1.65
50	50	2"	30.0	50.80	32.0	173.0	1.65

Dimensions in mm

MG = diaphragm size

1) Connection type

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

2) Valve body material

Code C3: 1.4435, investment casting

Connection type: Spigot ASME BPE (code 59)¹⁾, block material (code 41, 43, A1, A3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød	H1	L	s
150	150	6"	48.0	152.40	101.0	406.0	2.77

Dimensions in mm

MG = diaphragm size

1) Connection type

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

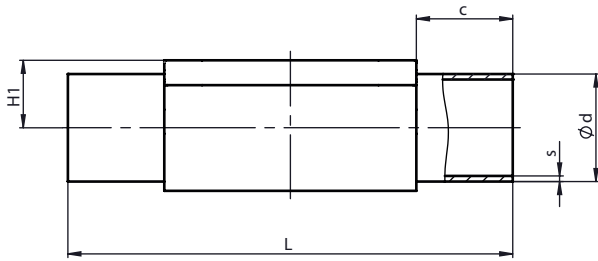
2) Valve body material

Code 41: 1.4435 (316L), block material

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

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)



Connection type: Spigot ASME/BS (code 59, 63, 64, 65)¹⁾, block material (code 44, A1, A3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød		H1	L	s			
				Connection type				Connection type			
				59	63, 64, 65			59	63	64	65
80	65	2½"	30.0	63.50	73.0	62.0	216.0	1.65	3.05	2.11	5.16
	80	3"	30.0	76.20	88.9	62.0	254.0	1.65	3.05	2.11	5.49
100	100	4"	30.0	101.60	114.3	76.0	305.0	2.11	3.05	2.11	6.02
150	150	6"	48.0	152.40	-	101.0	406.0	2.77	-	-	-

Dimensions in mm

MG = diaphragm size

1) **Connection type**

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

Code 63: Spigot ANSI/ASME B36.19M Schedule 10s

Code 64: Spigot ANSI/ASME B36.19M Schedule 5s

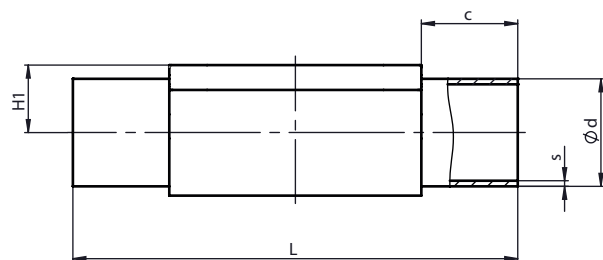
Code 65: ANSI/ASME B36.19M Schedule 40s spigot

2) **Valve body material**

Code 44: 1.4539 / UNS N08904, block material

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

8.2.3 Spigot JIS/SMS (code 35, 36, 37)

Connection type: Spigot JIS/SMS (code 35, 36, 37)¹⁾, forged material (code 40, 42, F4), block material (code 44, A1, A3)²⁾, body configuration D

MG	DN	NPS	c (min)	ød			H1	L	s		
				Connection type					Connection type		
				35	36	37			35	36	37
8	6	-	20.0	-	10.5	-	8.5	72.0	-	1.20	-
	8	1/4"	20.0	-	13.8	-	8.5	72.0	-	1.65	-
10	10	3/8"	25.0	-	17.3	-	12.5	108.0	-	1.65	-
	15	1/2"	25.0	-	21.7	-	12.5	108.0	-	2.10	-
25	15	1/2"	25.0	-	21.7	-	19.0	120.0	-	2.10	-
	20	3/4"	25.0	-	27.2	-	19.0	120.0	-	2.10	-
	25	1"	25.0	25.4	34.0	25.0	19.0	120.0	1.2	2.80	1.2
40	32	1¼"	25.0	31.8	42.7	33.7	26.0	153.0	1.2	2.80	1.2
	40	1½"	30.5	38.1	48.6	38.0	26.0	153.0	1.2	2.80	1.2
50	50	2"	30.0	50.8	60.5	51.0	32.0	173.0	1.5	2.80	1.2
	65	2½"	30.0	63.5	-	63.5	34.0	173.0	2.0	-	1.6
80	65	2½"	30.0	63.5	76.3	63.5	62.0	216.0	2.0	3.00	1.6
	80	3"	30.0	76.3	89.1	76.1	62.0	254.0	2.0	3.00	1.6
100	100	4"	30.0	101.6	114.3	101.6	76.0	305.0	2.0	3.00	2.0

Connection type: Spigot SMS (code 37)¹⁾, investment casting material (code C3)³⁾, body configuration D

MG	DN	NPS	c (min)	Ød	H1	L	s
25	25	1"	25.0	25.0	19.0	120.0	1.2
40	40	1 1/2"	30.5	38.0	26.0	153.0	1.2
50	50	2"	30.0	51.0	32.0	173.0	1.2

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 35: Spigot JIS-G 3447

Code 36: Spigot JIS-G 3459 Schedule 10s

Code 37: SMS 3008 spigot

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

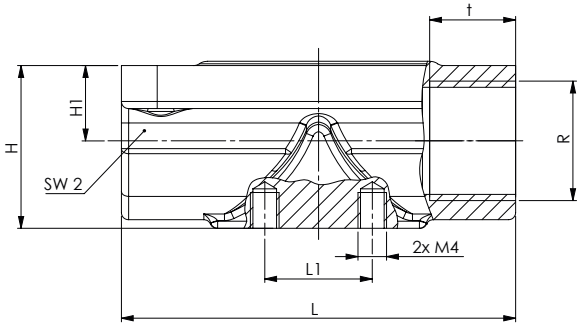
Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

3) Valve body material

Code C3: 1.4435, investment casting

Material code F4 only up to MG 50, from MG 80 material code 44.

8.2.4 Threaded socket DIN (code 1, 1L)



Connection type threaded socket (code 1) ¹⁾, investment casting material (code 37) ²⁾

MG	DN	NPS	H	H1	L	n	R	SW2	t	L1
10	12	3/8	22.7	10.5	55	2	G3/8	28	12	15

Connection type threaded socket (code 1L) ¹⁾, investment casting material (code 37) ²⁾

MG	DN	NPS	H	H1	L	n	R	SW2	t	L1
10	15	1/2	28.1	13	75	2	G1/2	32	15	15

Dimensions in mm

MG = diaphragm size

n = number of flats

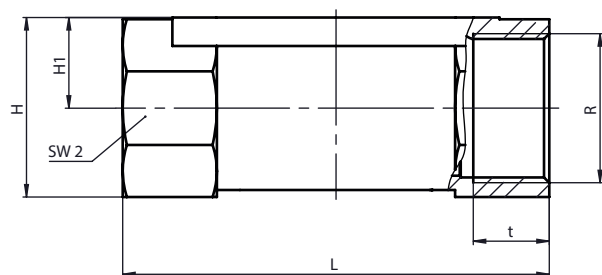
1) Connection type

Code 1: Threaded socket DIN ISO 228

Code 1L: Threaded socket DIN ISO 228 body length (FTF): 75 mm

2) Valve body material

Code 37: 1.4408, investment casting

8.2.5 Threaded socket DIN ISO 228 (code 1)**Connection type threaded socket (code 1)¹⁾, investment casting material (code 37)²⁾, body configuration D**

MG	DN	NPS	H	H1	L	n	R	SW 2	t
8	8	1/4"	19.0	9.0	72.0	6	G 1/4	18.0	11.0
10	15	1/2"	30.0	15.0	68.0	2	G 1/2	27.0	15.0
25	15	1/2"	28.3	14.8	85.0	6	G 1/2	27.0	15.0
	20	3/4"	33.3	17.3	85.0	6	G 3/4	32.0	16.0
	25	1"	42.3	21.8	110.0	6	G 1	41.0	19.0
40	32	1 1/4"	51.3	26.3	120.0	8	G 1 1/4	50.0	20.0
	40	1 1/2"	56.3	28.8	140.0	8	G 1 1/2	55.0	18.0
50	50	2"	71.3	36.0	165.0	8	G 2	70.0	26.0

Dimensions in mm

MG = diaphragm size

n = number of flats

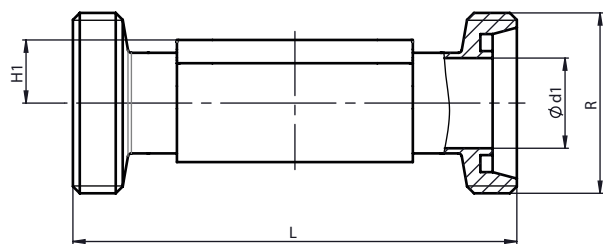
1) Connection type

Code 1: Threaded socket DIN ISO 228

2) Valve body material

Code 37: 1.4408, investment casting

8.2.6 Threaded spigot DIN 11851 (code 6)



Connection type: Threaded spigot DIN (code 6)¹⁾, forged material (code 40, 42, F4), block material (44, A1, A3)²⁾, body configuration D

MG	DN	NPS	Ød1	H1	L	R
8	10	3/8"	10.0	8.5	92.0	Rd 28 x 1/8
10	10	3/8"	10.0	12.5	118.0	Rd 28 x 1/8
	15	1/2"	16.0	12.5	118.0	Rd 34 x 1/8
25	15	1/2"	16.0	19.0	118.0	Rd 34 x 1/8
	20	3/4"	20.0	19.0	118.0	Rd 44 x 1/6
	25	1"	26.0	19.0	128.0	Rd 52 x 1/6
40	32	1 1/4"	32.0	26.0	147.0	Rd 58 x 1/6
	40	1 1/2"	38.0	26.0	160.0	Rd 65 x 1/6
50	50	2"	50.0	32.0	191.0	Rd 78 x 1/6
80	65	2 1/2"	66.0	62.0	246.0	Rd 95 x 1/6
	80	3"	81.0	62.0	256.0	Rd 110 x 1/4

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 6: Threaded spigot DIN 11851

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

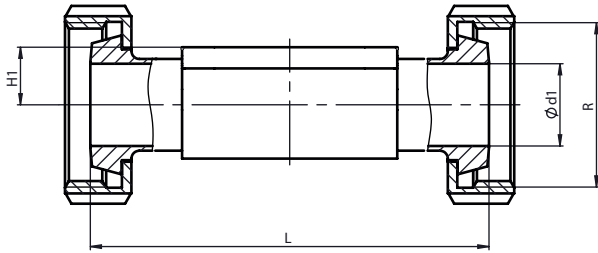
Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.

8.2.7 Cone spigot DIN 11851 (code 6K)

Connection type: Cone spigot DIN (code 6K)¹⁾, forged material (code 40, 42, F4), block material (44, A1, A3)²⁾, body configuration D

MG	DN	NPS	Ød1	H1	L	R
8	10	3/8"	10.0	8.5	90.0	Rd 28 x 1/8
10	10	3/8"	10.0	12.5	116.0	Rd 28 x 1/8
	15	1/2"	16.0	12.5	116.0	Rd 34 x 1/8
25	15	1/2"	16.0	19.0	116.0	Rd 34 x 1/8
	20	3/4"	20.0	19.0	114.0	Rd 44 x 1/6
	25	1"	26.0	19.0	127.0	Rd 52 x 1/6
40	32	1 1/4"	32.0	26.0	147.0	Rd 58 x 1/6
	40	1 1/2"	38.0	26.0	160.0	Rd 65 x 1/6
50	50	2"	50.0	32.0	191.0	Rd 78 x 1/6
80	65	2 1/2"	66.0	62.0	246.0	Rd 95 x 1/6
	80	3"	81.0	62.0	256.0	Rd 110 x 1/4

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 6K: Tapered connector and union nut DIN 11851

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

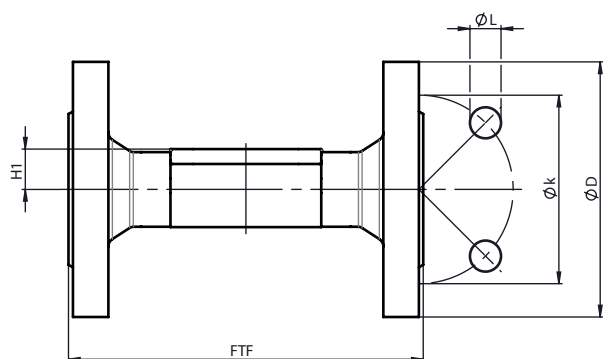
Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.

8.2.8 Flange EN 1092 (code 8)



Connection type: Flange, length EN 558 (code 8)¹⁾, investment casting material (code 39, C3), forged material (code 40, 42, F4), block material (code 44, A1, A3)²⁾, body configuration D

MG	DN	NPS	øD	FTF			H1			øk	øL	n
				Material			Material					
				39	C3	40, 42, A1	39	C3	40, 42, A1			
25	15	1/2"	95.0	130.0	150.0	150.0	18.0	13.0	19.0	65.0	14.0	4
	20	3/4"	105.0	150.0	150.0	150.0	20.5	16.0	19.0	75.0	14.0	4
	25	1"	115.0	160.0	160.0	160.0	23.0	19.0	19.0	85.0	14.0	4
40	32	1¼"	140.0	180.0	180.0	180.0	28.7	24.0	26.0	100.0	18.0	4
	40	1½"	150.0	200.0	200.0	200.0	33.0	26.0	26.0	110.0	18.0	4
50	50	2"	165.0	230.0	230.0	230.0	39.0	32.0	32.0	125.0	18.0	4
	65	2½"	185.0	290.0	-	-	51.0	-	-	145.0	18.0	4
80	65	2½"	185.0	-	-	290.0	-	-	62.0	145.0	18.0	4
	80	3"	200.0	310.0	-	310.0	59.5	-	62.0	160.0	18.0	8
100	100	4"	220.0	350.0	-	350.0	73.0	-	76.0	180.0	18.0	8

Dimensions in mm

MG = diaphragm size

n = number of bolts

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 39: 1.4408, PFA lining

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

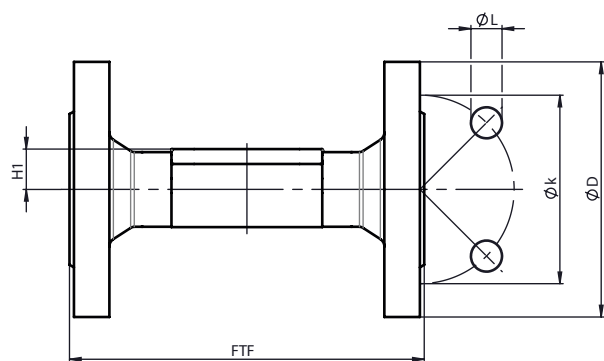
Code 44: 1.4539 / UNS N08904, block material

Code C3: 1.4435, investment casting

Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

8.2.9 Flange JIS B2220 (code 34)

Connection type: Flange, length 558 (code 34)¹⁾, investment casting material (code 39)²⁾, body configuration D

MG	DN	NPS	øD	øk	øL	n	H1	FTF
25	15	1/2"	95.0	70.0	15.0	4	18.0	130.0
	20	3/4"	100.0	75.0	15.0	4	20.5	150.0
	25	1"	125.0	90.0	19.0	4	23.0	160.0
40	32	1¼"	135.0	100.0	19.0	4	28.7	180.0
	40	1½"	140.0	105.0	19.0	4	33.0	200.0
50	50	2"	155.0	120.0	19.0	4	39.0	230.0

Dimensions in mm

MG = diaphragm size

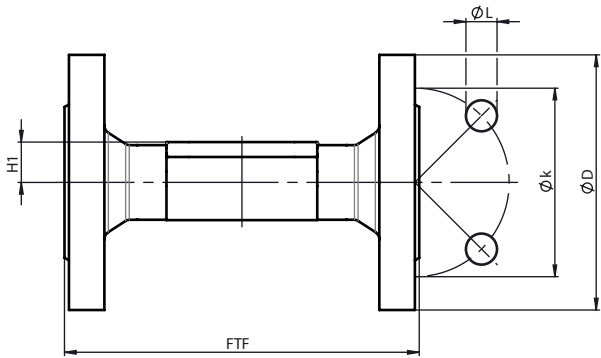
1) Connection type

Code 34: Flange JIS B2220, 10K, RF, Overall length FTF EN 558 Series 1, ISO 5752, basic series 1, Overall length only for housing form D

2) Valve body material

Code 39: 1.4408, PFA lining

8.2.10 Flange ANSI Class 150 RF (code 38)



Connection type: Flange, length MSS SP-88 (code 38) ¹⁾, investment casting material (code 39) ²⁾, body configuration D

MG	DN	NPS	øD	FTF	H1	øk	øL	n
25	20	3/4"	100.0	146.0	20.5	69.9	15.9	4
	25	1"	110.0	146.0	23.0	79.4	15.9	4
40	40	1½"	125.0	175.0	33.0	98.4	15.9	4
50	50	2"	150.0	200.0	39.0	120.7	19.0	4
	65	2½"	180.0	226.0	51.0	139.7	19.0	4
80	80	3"	190.0	260.0	59.5	152.4	19.0	4
100	100	4"	230.0	327.0	73.0	190.5	19.0	8

Dimensions in mm

MG = diaphragm size

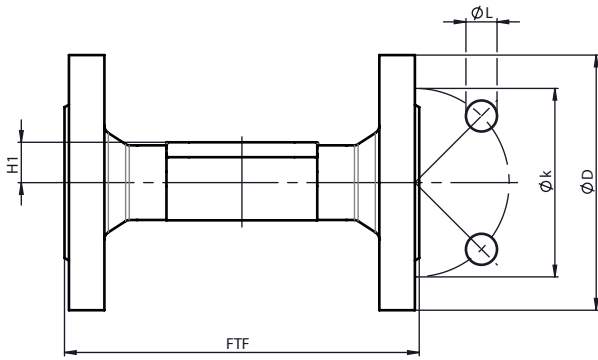
n = number of bolts

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 39: 1.4408, PFA lining



Connection type: Flange, length EN 558 (code 39)¹⁾, investment casting material (code 39, C3), forged material (code 40, 42), block material (code A1, A3)²⁾, body configuration D

MG	DN	NPS	øD	FTF			H1			øk	øL	n
				Material			Material					
				39	C3	40, 42, A1, A3	39	C3	40, 42, A1, A3			
25	15	1/2"	90.0	130.0	150.0	150.0	-	13.0	19.0	60.3	15.9	4
	20	3/4"	100.0	150.0	150.0	150.0	20.5	16.0	19.0	69.9	15.9	4
	25	1"	110.0	160.0	160.0	160.0	23.0	19.0	19.0	79.4	15.9	4
40	32	1¼"	115.0	180.0	180.0	180.0	28.7	24.0	26.0	88.9	15.9	4
	40	1½"	125.0	200.0	200.0	200.0	33.0	26.0	26.0	98.4	15.9	4
50	50	2"	150.0	230.0	230.0	230.0	39.0	32.0	32.0	120.7	19.0	4
	65	2½"	180.0	290.0	-	-	51.0	-	-	139.7	19.0	4
80	65	2½"	180.0	-	-	290.0	-	-	62.0	139.7	19.0	4
	80	3"	190.0	310.0	-	310.0	59.5	-	62.0	152.4	19.0	4
100	100	4"	230.0	350.0	-	350.0	73.0	-	76.0	190.5	19.0	8

Dimensions in mm

MG = diaphragm size

n = number of bolts

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 39: 1.4408, PFA lining

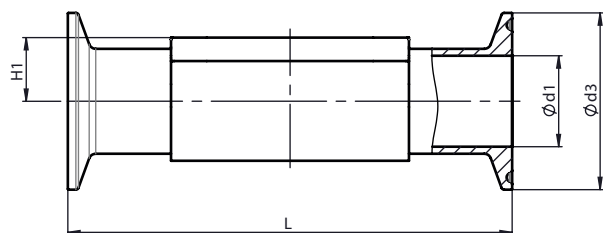
Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code C3: 1.4435, investment casting

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

8.2.11 Clamp (code 80, 82, 84, 86, 88, 8A, 8E, 8F, 8H, 8P, 8T)

Connection type: Clamp DIN/ASME (code 80, 88, 8P, 8T)¹⁾, forged material (code 40, 42, F4), block material (code A1), body configuration D

MG	DN	NPS	ød1		ød3		H1	L	
			Connection type		Connection type			Connection type	
			80, 8P	88, 8T	80, 8P	88, 8T		80, 8P	88, 8T
8	8	1/4"	4.57	-	25.0	-	8.5	63.5	-
	10	3/8"	7.75	-	25.0	-	8.5	63.5	-
	15	1/2"	9.40	9.40	25.0	25.0	8.5	63.5	108.0
10	10	3/8"	7.75	-	25.0	-	12.5	88.9	-
	15	1/2"	9.40	9.40	25.0	25.0	12.5	88.9	108.0
	20	3/4"	15.75	15.75	25.0	25.0	12.5	101.6	117.0
25	20	3/4"	15.75	15.75	25.0	25.0	19.0	101.6	117.0
	25	1"	22.10	22.10	50.5	50.5	19.0	114.3	127.0
40	40	1½"	34.80	34.80	50.5	50.5	26.0	139.7	159.0
50	50	2"	47.50	47.50	64.0	64.0	32.0	158.8	190.0
	65	2½"	60.20	60.20	77.5	77.5	34.0	193.8	216.0
80	65	2½"	60.20	60.20	77.5	77.5	62.0	193.8	216.0
	80	3"	72.90	72.90	91.0	91.0	62.0	222.3	254.0
100	100	4"	97.38	97.38	119.0	119.0	76.0	292.1	305.0

Dimensions in mm

MG = diaphragm size

1) **Connection type**

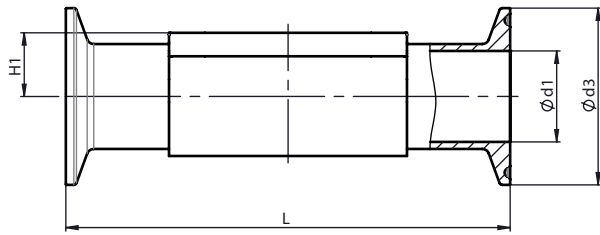
Code 80: Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code 8P: Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 8T: Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Material code F4 only up to MG 50, from MG 80 material code 44.



Connection type: Clamp DIN/ASME (code 80, 88, 8P, 8T)¹⁾, forged material (code 40)²⁾, body configuration F

MG	DN	NPS	ød1		ød3		H1	L	
			Connection type		Connection type			Connection type	
			80, 8P	88, 8T	80, 8P	88, 8T		80, 8P	88, 8T
80	65	2½"	60.20	60.20	77.5	77.5	43.0	193.8	216.0
	80	3"	72.90	72.90	91.0	91.0	43.0	222.3	254.0
100	100	4"	97.38	97.38	119.0	119.0	60.0	292.1	305.0

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 80: Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code 8P: Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 8T: Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Connection type: Clamp DIN/ASME (code 88, 8T)¹⁾, block material (code 41, 43, A1, A3)²⁾, body configuration D

MG	DN	NPS	ød1	ød3	H1	L
150	150	6"	146.86	167.0	101.0	406.0

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code 8T: Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 41: 1.4435 (316L), block material

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

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Connection type: Clamp DIN/ASME (code 80, 88, 8P, 8T)¹⁾, block material (code 44, A1)²⁾, body configuration D

MG	DN	NPS	ød1	ød3	H1	L	
						Connection type	
						80, 8P	88, 8T
80	65	2½"	60.20	77.5	62.0	193.8	216.0
	80	3"	72.90	91.0	62.0	222.3	254.0
100	100	4"	97.38	119.0	76.0	292.1	305.0

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 80: Clamp ASME BPE, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

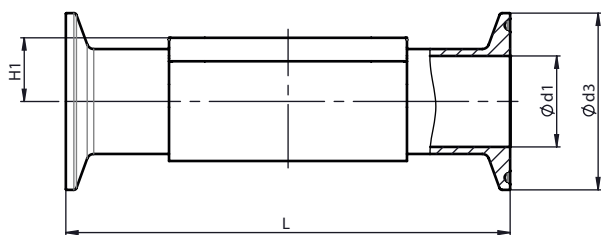
Code 8P: Clamp DIN 32676 series C, face-to-face dimension FTF ASME BPE, length only for body configurations D & F

Code 8T: Clamp DIN 32676 series C, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 44: 1.4539 / UNS N08904, block material

Code A1: 3.7035, titanium



Connection type: Clamp DIN/ISO (code 82, 86, 8A, 8E)¹⁾, forged material (code 40, 42, F4), block material (code 44, A1, A3)²⁾, body configuration D

MG	DN	NPS	ød1				ød3				H1	L			
			Connection type				Connection type					Connection type			
			82	86	8A	8E	82	86	8A	8E		82	86	8A	8E
8	6	1/8"	7.0	-	6.0	-	25.0	-	25.0	-	8.5	63.5	-	63.5	-
	8	1/4"	10.3	-	8.0	-	25.0	-	25.0	-	8.5	63.5	-	63.5	-
	10	3/8"	-	10.0	10.0	-	-	34.0	34.0	-	8.5	-	115.0	88.9	-
10	10	3/8"	14.0	10.0	10.0	-	25.0	34.0	34.0	-	12.5	108.0	151.0	108.0	-
	15	1/2"	18.1	16.0	16.0	-	50.5	34.0	34.0	-	12.5	108.0	151.0	108.0	-
25	15	1/2"	18.1	16.0	16.0	-	50.5	34.0	34.0	-	19.0	108.0	165.0	108.0	-
	20	3/4"	23.7	20.0	20.0	-	50.5	34.0	34.0	-	19.0	117.0	165.0	117.0	-
	25	1"	29.7	26.0	26.0	22.6	50.5	50.5	50.5	50.5	19.0	1270	165.0	127.0	127.0
40	32	1¼"	38.4	32.0	32.0	31.3	64.0	50.5	50.5	50.5	26.0	146.0	198.0	146.0	146.0
	40	1½"	44.3	38.0	38.0	35.6	64.0	50.5	50.5	50.5	26.0	159.0	198.0	159.0	159.0
50	50	2"	56.3	50.0	50.0	48.6	77.5	64.0	64.0	64.0	32.0	190.0	218.0	190.0	190.0
	65	2½"	-	-	-	60.3	-	-	-	77.5	34.0	-	-	-	216.0
80	65	2½"	72.1	66.0	66.0	60.3	91.0	910	91.0	77.5	62.0	216.0	250.0	216.0	216.0
	80	3"	84.3	81.0	81.0	72.9	106.0	106.0	106.0	91.0	62.0	254.0	299.0	254.0	254.0
100	100	4"	109.7	100.0	100.0	97.6	130.0	119.0	119.0	119.0	76.0	305.0	365.0	305.0	305.0

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 82: Clamp DIN 32676 Series B, Overall length FTF EN 558 Series 7, Overall length only for housing type D

Code 86: Clamp DIN 32676 series A

Code 8A: Clamp DIN 32676 Series A, Overall length FTF according to EN 558 Series 7, Overall length only for housing type D

Code 8E: Clamp ISO 2852 for pipe ISO 2037, Clamp SMS 3017 for pipe SMS 3008 Overall length FTF EN 558 Series 7, Overall length only for housing type D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

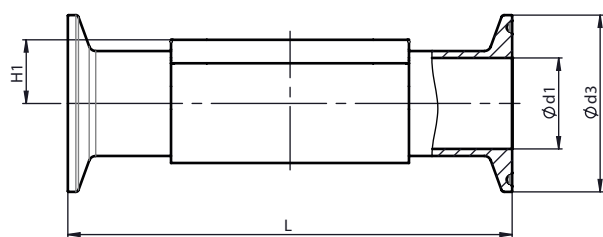
Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.



Connection type: Clamp DIN/ISO (code 82, 8A, 8E)¹⁾, block material (code 44, A1)²⁾, body configuration D

MG	DN	NPS	ød1			ød3			H1	L
			Connection type			Connection type				
			82	8A	8E	82	8A	8E		
80	65	2½"	72.1	66.0	60.3	91.0	91.0	77.5	62.0	216.0
	80	3"	84.3	81.0	72.9	106.0	106.0	91.0	62.0	254.0
100	100	4"	109.7	100.0	97.6	130.0	119.0	119.0	76.0	305.0

Dimensions in mm

MG = diaphragm size

1) **Connection type**

Code 82: Clamp DIN 32676 Series B, Overall length FTF EN 558 Series 7, Overall length only for housing type D

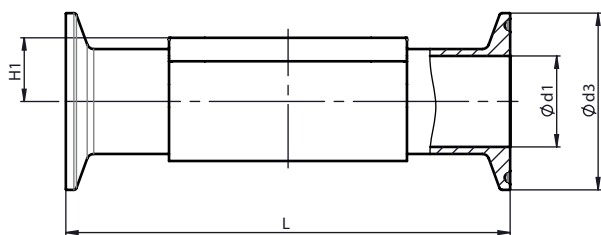
Code 8A: Clamp DIN 32676 Series A, Overall length FTF according to EN 558 Series 7, Overall length only for housing type D

Code 8E: Clamp ISO 2852 for pipe ISO 2037, Clamp SMS 3017 for pipe SMS 3008 Overall length FTF EN 558 Series 7, Overall length only for housing type D

2) **Valve body material**

Code 44: 1.4539 / UNS N08904, block material

Code A1: 3.7035, titanium



Connection type: Clamp BS/JIS (code 84, 8F, 8H) ¹⁾, forged material (code 40, 42, F4), block material (code 44, A1, A3) ²⁾, body configuration D

MG	DN	NPS	ød1			ød3			H1	L		
			Connection type							Connection type		
			84	8F	8H	84	8F	8H		84	8F	8H
8	8	1/4"	-	-	10.5	-	-	34.0	8.5	-	-	88.9
	10	3/8"	-	-	-	-	-	-	8.5	-	-	-
	15	1/2"	10.3	-	-	25.0	-	-	8.5	108.0	-	-
10	10	3/8"	-	-	14.0	-	-	34.0	12.5	-	-	108.0
	15	1/2"	10.3	-	17.5	25.0	-	34.0	12.5	108.0	-	108.0
	20	3/4"	16.7	-	-	25.0	-	-	12.5	117.0	-	-
25	15	1/2"	10.3	-	17.5	25.0	-	34.0	19.0	108.0	-	108.0
	20	3/4"	16.7	-	-	25.0	-	-	19.0	117.0	-	-
	25	1"	-	23.0	-	-	50.5	-	19.0	-	127.0	-
40	32	1¼"	-	29.4	-	-	50.5	-	26.0	-	146.0	-
	40	1½"	-	35.7	-	-	50.5	-	26.0	-	159.0	-
50	50	2"	-	47.8	-	-	64.0	-	32.0	-	190.0	-
	65	2½"	-	-	-	-	-	-	34.0	-	-	-
80	65	2½"	-	59.5	-	-	77.5	-	62.0	-	216.0	-
	80	3"	-	72.3	-	-	91.0	-	62.0	-	254.0	-
100	100	4"	-	97.6	-	-	119.0	-	76.0	-	305.0	-

Dimensions in mm

MG = diaphragm size

1) Connection type

Code 84: Clamp for tube BS 4825 Part 1, DN 15 and DN 20, clamp OD 25.0 mm, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 8F: Clamp IDF/ISO for tube JIS-G 3447, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

Code 8H: Clamp IDF/ISO for tube JIS-G 3459, face-to-face dimension FTF EN 558 series 7, length only for body configuration D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

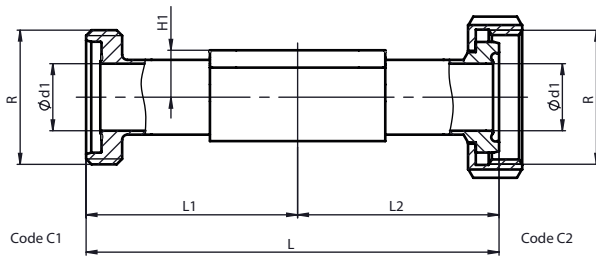
Code A1: 3.7035, titanium

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.

8.3 Aseptic connections

8.3.1 Aseptic union DIN



Aseptic union end DIN, series A (code C1, C2)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	Ød1	Thread	Connection type (code)			
					C1		C2	
					R	L	L1, L2	L
8	10	8.5	10.0	RD 28 x 1/8	88.0	44.0	84.0	42.0
10	10	12.5	10.0	RD 28 x 1/8	120.0	60.0	116.0	58.0
	15	12.5	16.0	RD 34 x 1/8	120.0	60.0	116.0	58.0
25	15	19.0	16.0	RD 34 x 1/8	120.0	60.0	116.0	58.0
	20	19.0	20.0	RD 44 x 1/6	144.0	72.0	138.0	69.0
	25	19.0	26.0	RD 52 x 1/6	164.0	82.0	156.0	78.0
40	32	26.0	32.0	RD 58 x 1/6	192.0	96.0	182.0	91.0
	40	26.0	38.0	RD 65 x 1/6	214.0	107.0	204.0	102.0
50	50	32.0	50.0	RD 78 x 1/6	244.0	122.0	242.0	121.0
80	65	62.0	66.0	RD 95 x 1/6	314.0	157.0	310.0	155.0
	80	62.0	81.0	RD 110 x 1/4	342.0	171.0	334.0	167.0
100	100	76.0	100.0	RD 130 x 1/4	398.0	199.0	390.0	195.0

MG = diaphragm size

Dimensions in mm

1) Connection type

Code C1: Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 Series A and EN 10357 Series A

Code C2: Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 Series A and EN 10357 Series A

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

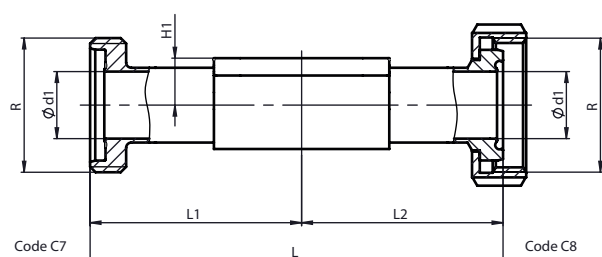
Material code F4 only up to MG 50, from MG 80 material code 44.

MG	DN	H1	Ød1	Thread	Connection type (code)			
					C4		C5	
				R	L	L1, L2	L	L1, L2
8	8	8.5	10.3	RD 28 x 1/8	88.0	44.0	84.0	42.0
10	10	12.5	14.0	RD 34 x 1/8	120.0	60.0	116.0	58.0
	15	12.5	18.1	RD 44 x 1/6	120.0	60.0	116.0	58.0
25	15	19.0	18.1	RD 44 x 1/6	120.0	60.0	116.0	58.0
	20	19.0	23.7	RD 52 x 1/6	144.0	72.0	138.0	69.0
	25	19.0	29.7	RD 58 x 1/6	164.0	82.0	156.0	78.0
40	32	26.0	38.4	RD 65 x 1/6	192.0	96.0	182.0	91.0
	40	26.0	44.3	RD 78 x 1/6	214.0	107.0	204.0	102.0
50	50	32.0	56.3	RD 95 x 1/6	244.0	122.0	242.0	121.0
80	65	62.0	72.1	RD 110 x 1/4	314.0	157.0	310.0	155.0
	80	62.0	84.3	RD 130 x 1/4	342.0	171.0	334.0	167.0

1) **Connection type**
Code C4: Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 series B and EN ISO 1127
Code C5: Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 series B and EN ISO 1127

Code 40: 1.4435 (F316L), forged body
Code 42: 1.4435 (BN2), forged body, $\Delta \text{Fe} < 0.5\%$
Code 44: 1.4539 / UNS N08904, block material
Code F4: 1.4539 / UNS N08904, forged body
Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

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Aseptic union end DIN, series C (code C7, C8)¹⁾, forged body (code 40, 42, F4), block material (code 44, A1, A3)²⁾, body configuration D

Configuration B

MG	DN	H1	Ød1	Thread	Connection type (code)			
					C7		C8	
				R	L	L1, L2	L	L1, L2
8	15	8.5	9.4	RD 28 x 1/8	88.0	44.0	84.0	42.0
10	15	12.5	9.4	RD 28 x 1/8	120.0	60.0	116.0	58.0
	20	12.5	15.75	RD 34 x 1/8	144.0	72.0	138.0	69.0
25	15	19.0	9.4	RD 28 x 1/8	120.0	60.0	116.0	60.0
	20	19.0	15.75	RD 34 x 1/8	144.0	72.0	138.0	69.0
	25	19.0	22.1	RD 52 x 1/6	164.0	82.0	156.0	78.0
40	40	26.0	34.8	RD 65 x 1/6	214.0	107.0	204.0	102.0
50	50	32.0	47.5	RD 78 x 1/6	244.0	122.0	242.0	121.0
	65	32.0	60.2	RD 95 x 1/6	314.0	157.0	310.0	155.0
80	65	62.0	60.2	RD 95 x 1/6	314.0	157.0	310.0	155.0
	80	62.0	72.9	RD 110 x 1/4	342.0	171.0	334.0	167.0
100	100	76.0	97.38	RD 130 x 1/4	398.0	199.0	390.0	195.0

MG = diaphragm size

Dimensions in mm

1) Connection type

Code C7: Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 series C and ASME BPE

Code C8: Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 series C and ASME BPE

2) Valve body material

Code 40: 1.4435 (F316L), forged body

Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.

Aseptic union end DIN, series C (code C7, C8)¹⁾, forged body (code 40)²⁾, body configuration F

MG	DN	H1	Ød1	Thread	Connection type (code)			
					C7		C8	
					R	L	L1, L2	L
80	65	43.0	60.2	RD 95 x 1/6	314.0	157.0	310.0	155.0
	80	43.0	72.9	RD 110 x 1/4	342.0	171.0	334.0	167.0
100	100	60.0	97.38	RD 130 x 1/4	398.0	199.0	390.0	195.0

MG = diaphragm size

Dimensions in mm

1) Connection type

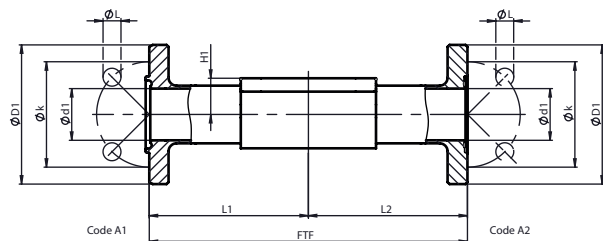
Code C7: Aseptic threaded spigot DIN 11864-GS, for pipe DIN 11866 series C and ASME BPE

Code C8: Aseptic union nipple with groove cap nut DIN 11864-BS, for pipe DIN 11866 series C and ASME BPE

2) Valve body material

Code 40: 1.4435 (F316L), forged body

8.3.2 Aseptic flange DIN



Aseptic flange DIN, series A (code A1, A2)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	Ød1	ØD1	Øk	ØL	Connection type (code)			
							A1		A2	
							FTF	L1, L2	FTF	L1, L2
8	10	8.5	10.0	54.0	37.0	4 x 9	100.0	50.0	100.0	50.0
10	10	12.5	10.0	54.0	37.0	4 x 9	130.0	65.0	130.0	65.0
	15	12.5	16.0	59.0	42.0	4 x 9	130.0	65.0	130.0	65.0
25	15	19.0	16.0	59.0	42.0	4 x 9	130.0	65.0	130.0	65.0
	20	19.0	20.0	64.0	47.0	4 x 9	150.0	75.0	150.0	75.0
	25	19.0	26.0	70.0	53.0	4 x 9	160.0	80.0	160.0	80.0
40	32	26.0	32.0	76.0	59.0	4 x 9	180.0	90.0	180.0	90.0
	40	26.0	38.0	82.0	65.0	4 x 9	200.0	100.0	200.0	100.0
50	50	32.0	50.0	94.0	77.0	4 x 9	230.0	115.0	230.0	115.0
80	65	62.0	66.0	113.0	95.0	8 x 9	290.0	145.0	290.0	145.0
	80	62.0	81.0	133.0	112.0	8 x 11	310.0	155.0	310.0	155.0
100	100	76.0	100.0	159.0	137.0	8 x 11	350.0	175.0	350.0	175.0

MG = diaphragm size

Dimensions in mm

1) Connection type

Code A1: Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 Series A and EN 10357 Series A, overall length FTF EN 558 Series 1, overall length only for housing form D

Code A2: Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 Series A and EN 10357 Series A, overall length FTF EN 558 Series 1, overall length only for housing form D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

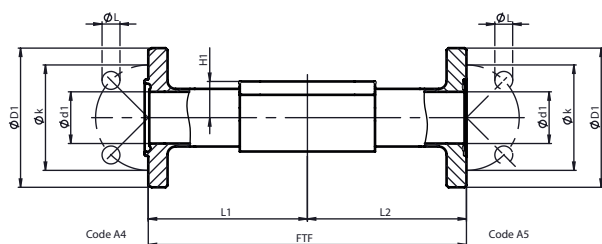
Code 42: 1.4435 (BN2), forged body, $\Delta Fe < 0.5\%$

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.



Aseptic flange DIN, series B (code A4, A5)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	Ød1	ØD1	Øk	ØL	Connection type (code)			
							A4		A5	
							FTF	L1, L2	FTF	L1, L2
8	8	8.5	10.3	54.0	37.0	4 x 9.0	100.0	50.0	100.0	50.0
10	10	12.5	14.0	59.0	42.0	4 x 9.0	130.0	65.0	130.0	65.0
	15	12.5	18.1	62.0	45.0	4 x 9.0	130.0	65.0	130.0	65.0
25	15	19.0	18.1	62.0	45.0	4 x 9.0	130.0	65.0	130.0	65.0
	20	19.0	23.7	69.0	52.0	4 x 9.0	150.0	75.0	150.0	75.0
	25	19.0	29.7	74.0	57.0	4 x 9.0	160.0	80.0	160.0	80.0
40	32	26.0	38.4	82.0	65.0	4 x 9.0	180.0	90.0	180.0	90.0
	40	26.0	44.3	88.0	71.0	4 x 9.0	200.0	100.0	200.0	100.0
50	50	32.0	56.3	103.0	85.0	4 x 9.0	230.0	115.0	230.0	115.0
80	65	62.0	72.1	125.0	104.0	8 X 11.0	290.0	145.0	290.0	145.0
	80	62.0	84.3	137.0	116.0	8 X 11.0	310.0	155.0	310.0	155.0
100	100	76.0	109.7	168.0	146.0	8 X 11.0	350.0	175.0	350.0	175.0

MG = diaphragm size

Dimensions in mm

1) Connection type

Code A4: Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 series B and EN ISO 1127, overall length FTF EN 558 series 1, overall length only for housing form D

Code A5: Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 series B and EN ISO 1127 Overall length FTF EN 558 series 1, Overall length only for housing form D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

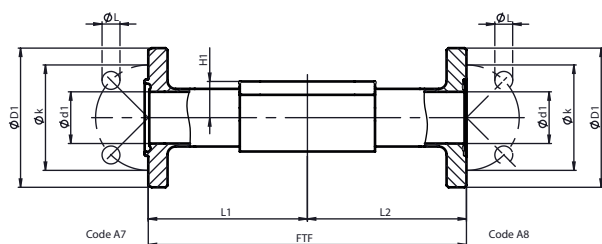
Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.



Aseptic flange DIN, series C (code A7, A8)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	Ød1	ØD1	Øk	ØL	Connection type (code)			
							A7		A8	
							FTF	L1, L2	FTF	L1, L2
8	15	8.5	9.4	54.0	37.0	4 x 9.0	100.0	50.0	100.0	50.0
10	15	12.5	9.4	54.0	37.0	4 x 9.0	130.0	65.0	130.0	65.0
	20	12.5	15.8	59.0	42.0	4 x 9.0	150.0	75.0	150.0	75.0
25	15	19.0	9.4	54.0	37.0	4 x 9.0	130.0	65.0	130.0	65.0
	20	19.0	15.8	59.0	42.0	4 x 9.0	150.0	75.0	150.0	75.0
	25	19.0	22.1	66.0	49.0	4 x 9.0	160.0	80.0	160.0	80.0
40	40	26.0	34.8	79.0	62.0	4 x 9.0	200.0	100.0	200.0	100.0
50	50	32.0	47.5	92.0	75.0	4 x 9.0	230.0	115.0	230.0	115.0
	65	32.0	60.2	107.0	89.0	8 x 9.0	290.0	145.0	290.0	145.0
80	65	62.0	60.2	107.0	89.0	8 x 9.0	290.0	145.0	290.0	145.0
	80	62.0	72.9	125.0	104.0	8 x 11.0	310.0	155.0	310.0	155.0
100	100	76.0	97.4	157.0	135.0	8 x 11.0	350.0	175.0	350.0	175.0

MG = diaphragm size

Dimensions in mm

1) Connection type

Code A7: Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 series C and ASME BPE, face-to-face dimension FTF EN 558 series 1, length only for body configurations D & F

Code A8: Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 series C and ASME BPE, face-to-face dimension FTF EN 558 series 1, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

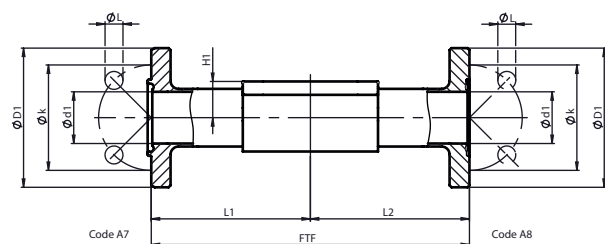
Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.


Aseptic flange DIN, series C (code A7, A8)¹⁾, forged body (code 40)²⁾, body configuration F

MG	DN	H1	Ød1	ØD1	Øk	ØL	Connection type (code)			
							A7		A8	
							FTF	L1, L2	FTF	L1, L2
80	65	43.0	60.2	107.0	89.0	8 x 9.0	290.0	145.0	290.0	145.0
	80	43.0	72.9	125.0	104.0	8 x 11.0	310.0	155.0	310.0	155.0
100	100	60.0	97.4	157.0	135.0	8 x 11.0	350.0	175.0	350.0	175.0

MG = diaphragm size

Dimensions in mm

1) Connection type

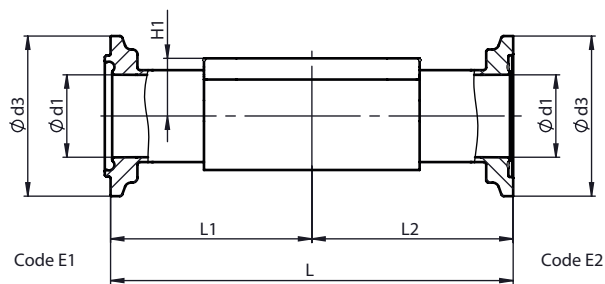
Code A7: Aseptic grooved flange DIN 11864-NF, for pipe DIN 11866 series C and ASME BPE, face-to-face dimension FTF EN 558 series 1, length only for body configurations D & F

Code A8: Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 series C and ASME BPE, face-to-face dimension FTF EN 558 series 1, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

8.3.3 Aseptic clamp DIN



Aseptic clamp DIN, series A (code E1, E2)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	Ød1	Ød3	Connection type (code)			
					E1		E2	
					L	L1, L2	L	L1, L2
8	10	8.5	10.0	34.0	88.9	44.5	88.9	44.5
10	10	12.5	10.0	34.0	108.0	54.0	108.0	54.0
	15	12.5	16.0	34.0	108.0	54.0	108.0	54.0
25	15	19.0	16.0	34.0	108.0	54.0	108.0	54.0
	20	19.0	20.0	50.5	117.0	58.5	117.0	58.5
	25	19.0	26.0	50.5	127.0	63.5	127.0	63.5
40	32	26.0	32.0	50.5	146.0	73.0	146.0	73.0
	40	26.0	38.0	64.0	159.0	79.5	159.0	79.5
50	50	32.0	50.0	77.5	190.0	95.0	190.0	95.0
80	65	62.0	66.0	91.0	216.0	108.0	216.0	108.0
	80	62.0	81.0	106.0	254.0	127.0	254.0	127.0
100	100	76.0	100.0	130.0	305.0	152.5	305.0	152.5

MG = diaphragm size

Dimensions in mm

1) Connection type

Code E1: Aseptic grooved clamp DIN 11864-NKS, for pipe DIN 11866 series A and EN 10357 series A, overall length FTF EN 558 series 7, overall length only for housing form D

Code E2: Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series A and EN 10357 series A, overall length FTF EN 558 series 7, overall length only for housing form D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

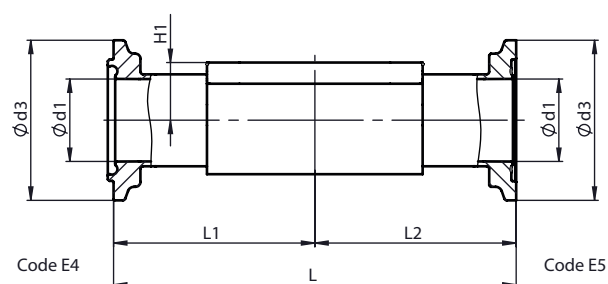
Code 42: 1.4435 (BN2), forged body, $\Delta Fe < 0.5\%$

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.



Aseptic clamp DIN, series B (code E4, E5)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	$\varnothing d1$	$\varnothing d3$	Connection type (code)			
					E4		E5	
					L	L1, L2	L	L1, L2
8	8	8.5	10.3	34.0	88.9	44.5	88.9	44.5
10	10	12.5	14.0	34.0	108.0	54.0	108.0	54.0
	15	12.5	18.1	34.0	108.0	54.0	108.0	54.0
25	15	19.0	18.1	34.0	108.0	54.0	108.0	54.0
	20	19.0	23.7	50.5	117.0	58.5	117.0	58.5
	25	19.0	29.7	50.5	127.0	63.5	127.0	63.5
40	32	26.0	38.4	64.0	146.0	73.0	146.0	73.0
	40	26.0	44.3	64.0	159.0	79.5	159.0	79.5
50	50	32.0	56.3	91.0	190.0	95.0	190.0	95.0
80	65	62.0	72.1	106.0	216.0	108.0	216.0	108.0
	80	62.0	84.3	130.0	254.0	127.0	254.0	127.0

MG = diaphragm size

Dimensions in mm

1) Connection type

Code E4: Grooved clamp DIN 11864-NKS, for pipe DIN 11866 series B and EN ISO 1127, overall length FTF EN 558 series 7, overall length only for housing form D

Code E5: Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series B and EN ISO 1127, overall length FTF EN 558 series 7, overall length only for housing form D

2) Valve body material

Code 40: 1.4435 (F316L), forged body

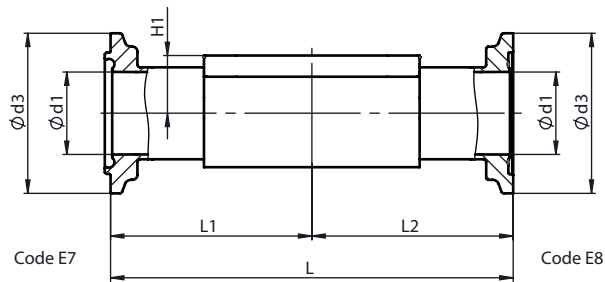
Code 42: 1.4435 (BN2), forged body, $\Delta Fe < 0.5\%$

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.



Aseptic clamp DIN, series C (code E7, E8)¹⁾, forged body (code 40, 42, F4), block material (code 44, A3)²⁾, body configuration D

MG	DN	H1	Ød1	Ød3	Connection type (code)			
					E7		E8	
					L	L1, L2	L	L1, L2
8	15	8.5	9.4	34.0	88.9	44.5	88.9	44.5
10	15	12.5	9.4	34.0	108.0	54.0	108.0	54.0
	20	12.5	15.8	34.0	108.0	54.0	108.0	54.0
25	15	19.0	9.4	34.0	108.0	54.0	108.0	54.0
	20	19.0	15.8	34.0	117.0	58.5	117.0	58.5
	25	19.0	22.1	50.5	127.0	63.5	127.0	63.5
40	40	26.0	34.8	64.0	159.0	79.5	159.0	79.5
50	50	32.0	47.5	77.5	190.0	95.0	190.0	95.0
	65	32.0	60.2	91.0	216.0	108.0	216.0	108.0
80	65	62.0	60.2	91.0	216.0	108.0	216.0	108.0
	80	62.0	72.9	106.0	254.0	127.0	254.0	127.0
100	100	76.0	97.38	130.0	305.0	152.5	305.0	152.5

MG = diaphragm size

Dimensions in mm

1) Connection type

Code E7: Aseptic grooved clamp DIN 11864-NKS, for pipe DIN 11866 series C/ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code E8: Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series C/ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

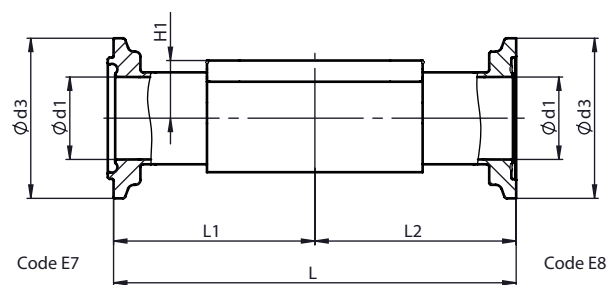
Code 42: 1.4435 (BN2), forged body, Δ Fe < 0.5%

Code 44: 1.4539 / UNS N08904, block material

Code F4: 1.4539 / UNS N08904, forged body

Code A3: 2.4602, block material Alloy 22, (NiCr21Mo14W)

Material code F4 only up to MG 50, from MG 80 material code 44.


Aseptic clamp DIN, series C (code E7, E8)¹⁾, forged body (code 40)²⁾, body configuration F

MG	DN	H1	Ød1	Ød3	Connection type (code)			
					E7		E8	
					L	L1, L2	L	L1, L2
80	65	43.0	60.2	91.0	216.0	108.0	216.0	108.0
	80	43.0	72.9	106.0	254.0	127.0	254.0	127.0
100	100	60.0	97.38	130.0	305.0	152.5	305.0	152.5

MG = diaphragm size

Dimensions in mm

1) Connection type

Code E7: Aseptic grooved clamp DIN 11864-NKS, for pipe DIN 11866 series C/ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

Code E8: Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series C/ASME BPE, face-to-face dimension FTF EN 558 series 7, length only for body configurations D & F

2) Valve body material

Code 40: 1.4435 (F316L), forged body

9 Manufacturer's information

9.1 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

9.2 Packaging

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

9.3 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.

9.4 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.

10 Installation in piping

10.1 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.

CAUTION



Hot plant components!

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

CAUTION



Risk of crushing!

- Risk of crushing for version without a valve fitted and with an open spigot.
- Do not reach into the spigot.

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.

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.

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").

10.2 Installation position

The installation position of the product is optional.

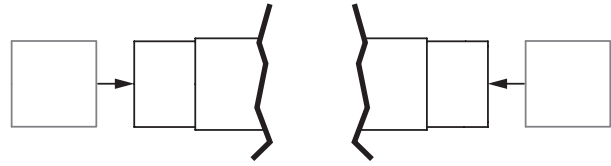
10.3 Installation with butt weld spigots

Fig. 1: Butt weld spigots

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

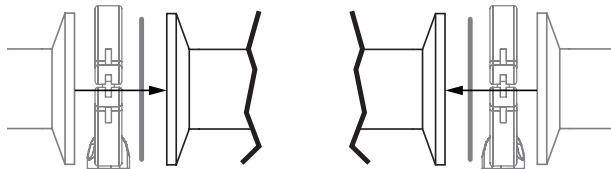
10.4 Installation with clamp connections

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.

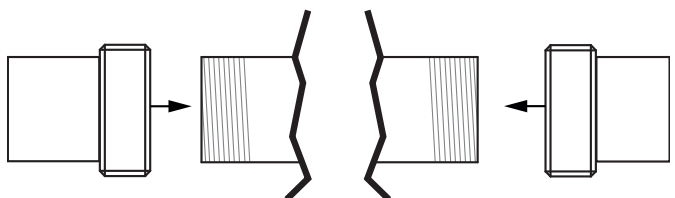
10.5 Installation with threaded spigots

Fig. 3: Threaded spigots

NOTICE**Thread sealant!**

- The thread sealant is not included in the scope of delivery.
- Only use appropriate thread sealant.

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

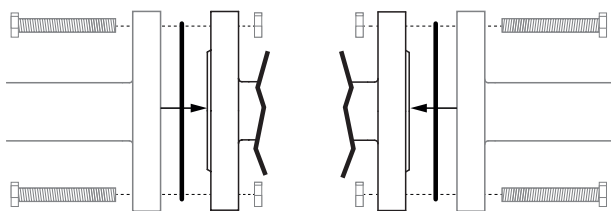
10.6 Installation with flanged connection

Fig. 4: 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. Re-attach or reactivate all safety and protective devices.
10. Tighten the bolts diagonally.

**10.7 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.
- Retighten the bolts and nuts at the very latest after the first sterilization process.
- Re-attach or reactivate all safety and protective devices.

11 Pneumatic connections

11.1 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

Connector 2



Control function 2+3

Connector 4

Connector 2



Control function	Connections	
	2	4
1 (NC)	+	-
2 (NO)	-	+
3 (DA)	+	+
+ = available / - = not available (see figures for connectors 2/4)		

11.2 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:

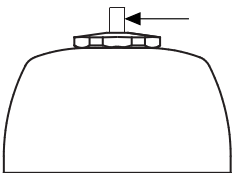
Diaphragm size 8: G1/8

Diaphragm size 10–100: G1/4

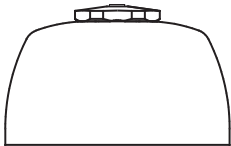
Control function		Connections
1	Normally closed (NC)	2: Control medium (open)
2	Normally open (NO)	4: Control medium (close)
3	Double acting (DA)	2: Control medium (open) 4: Control medium (close)
See images for connectors 2/4 on the left		

12 Operation

The product has an optical position indicator as standard. The optical position indicator indicates the OPEN and CLOSED positions.



Valve open



Valve closed

13 Commissioning

WARNING



Corrosive chemicals!

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

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

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 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.
4. Commissioning of actuators in accordance with the enclosed instructions.

14 Operation

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

15 Troubleshooting

Error	Error cause	Troubleshooting
Control medium escaping from connector 2* (for control function NO) or from connector 4* for control function NC	Piston faulty	Replace the actuator
Control medium escaping from leak detection hole**	Spindle seal leaking	Replace the actuator and check the control medium for impurities
Working medium escaping from leak detection hole	Shut-off diaphragm faulty	Check the shut-off diaphragm for potential damage, replace the diaphragm if necessary
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	Check and replace pilot valve
	Actuator defective	Replace the actuator
	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
	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 faulty or corroded	Check the valve body for potential damage, replace the valve body if necessary

* see the "Control function" chapter

** see the "Construction" chapter

16 Inspection and maintenance

⚠ 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



Risk of crushing!

- ▶ Risk of crushing for version without a valve fitted and with an open spigot.
- Do not reach into the spigot.

⚠ CAUTION

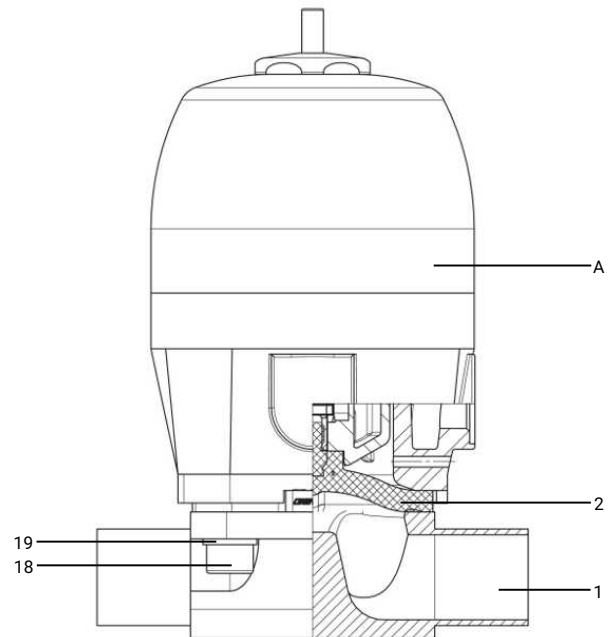
- Servicing and maintenance work must only be performed by trained personnel.
- Do not extend hand lever. GEMÜ shall assume no liability for damages caused by improper handling or third-party actions.
- In case of doubt, contact GEMÜ prior to commissioning.

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").

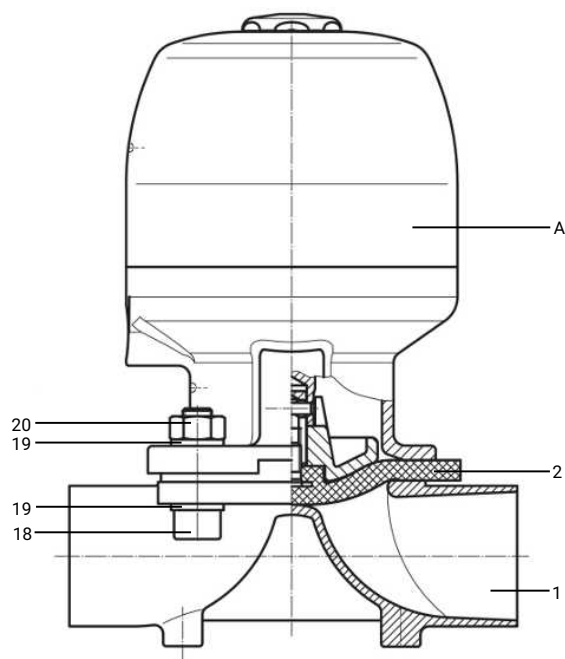
16.1 Spare parts

16.1.1 Spare parts MG 10-50; actuator design D



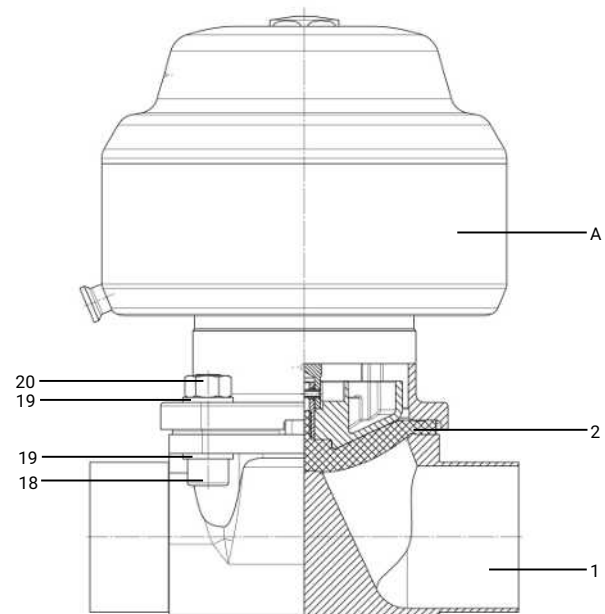
Item	Name	Order designation
A	Actuator	9650
1	Body	K600
2	Diaphragm	Code 5M Code 13 Code 17 Code 19 Code 54 Code 71
18,19	Mounting set	650 S30

16.1.2 Spare parts MG 8-50, actuator design T

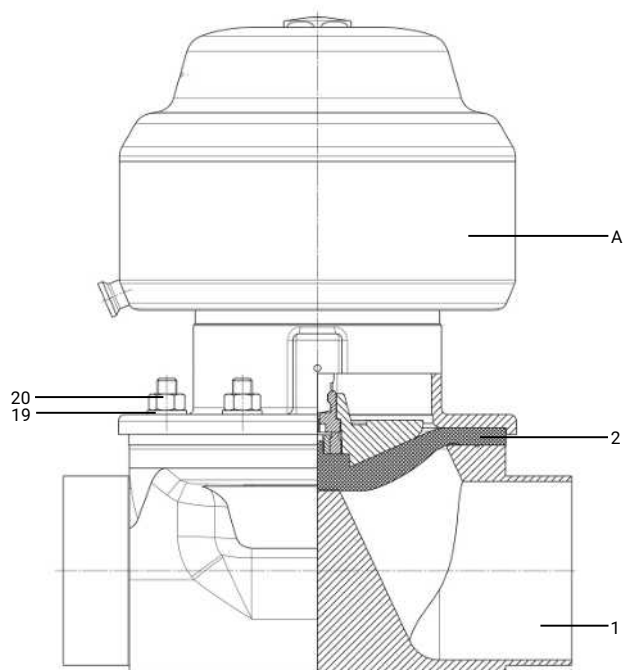


Item	Name	Order designation
A	Actuator	9650
1	Body	K600
2	Diaphragm	Code 3A Code 5M Code 13 Code 19 Code 54 Code 71
18,19,20	Mounting set	650 S30

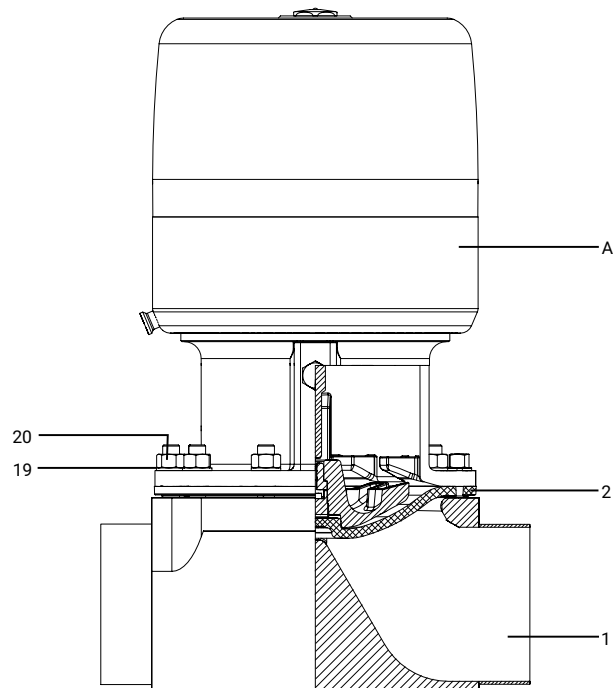
16.1.3 Spare parts MG 80; actuator design T



Item	Name	Order designation
A	Actuator	9650
1	Body	K600
2	Diaphragm	Code 5M Code 13 Code 17 Code 19 Code 54 Code 71
18,19,20	Mounting set	650 S30

16.1.4 Spare parts MG 100; actuator design T

Item	Name	Order designation
A	Actuator	9650
1	Body	K600
2	Diaphragm	Code 5M Code 13 Code 17 Code 19 Code 54 Code 71
19,20	Mounting set	650 S30

16.1.5 Spare parts MG 150; actuator design T

Item	Name	Order designation
A	Actuator	9650
1	Body	K600
2	Diaphragm	Code 5Q
19,20	Mounting set	650 S30

16.2 Fitting/removing spare parts

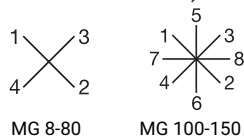
16.2.1 Valve disassembly (removing the actuator from the body)

CAUTION

Falling actuator!

- Risk of injury!
- Depending on the installation position: Check to make sure that the actuator does not fall down when the final screw is undone.

1. Move the actuator **A** to the open position.
2. Loosen the fastening elements between the valve body **1** and the actuator **A** diagonally and remove them (pay attention to the order).



3. For heavy actuators, use an appropriate lifting tool.
4. For MG150, use an assembly aid (swivel block with GEMÜ 650150SNR special bush).
5. Remove actuator **A** from valve body **1**.
6. Move the actuator **A** to the closed position.
7. Clean all parts of contamination (do not damage parts during cleaning).
8. Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

16.2.2 Removing the diaphragm

1. Remove the actuator (see "Valve disassembly") (removing the actuator from the body)).
2. Move the actuator **A** to the closed position.
3. Unscrew the diaphragm or pull it out (diaphragm size 8).
4. Clean all parts of contamination (do not damage parts during cleaning).
5. Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

16.2.3 Mounting the diaphragm

NOTICE

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

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

NOTICE

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

16.2.3.1 Mounting the compressor

16.2.3.1.1 Diaphragm size 8 (DN 4–10)

NOTICE

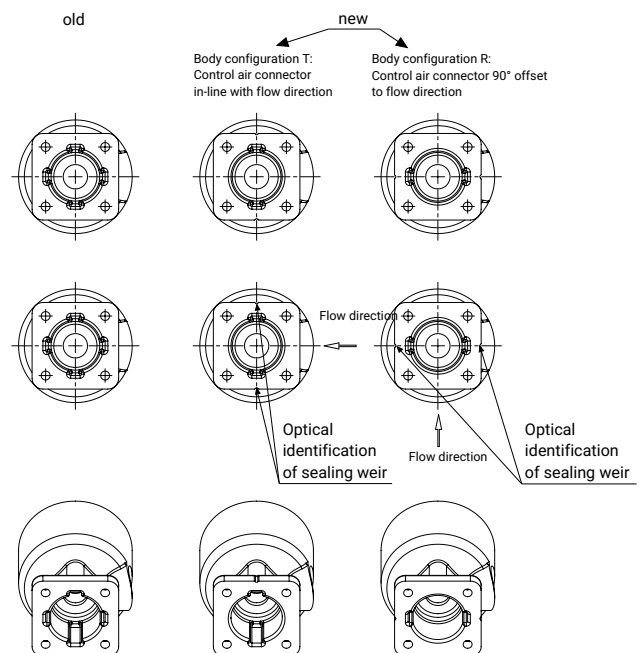
Compressor

- For diaphragm size 8, the compressor is screwed in tight.

Diaphragm size 8:

Optimization of the actuator distance piece for diaphragm valves in diaphragm size 8

Compressor and actuator flange seen from below:



16.2.3.1.2 Diaphragm size 10–80 (DN 10–80)

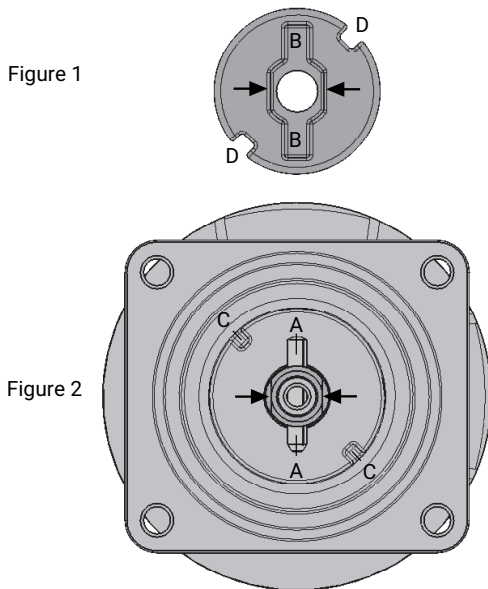
NOTICE

Compressor

- For diaphragm size 10–80, the compressor is loose.

Diaphragm size 10:

Compressor and actuator flange seen from below:



Anti-twist system of the spindle at the compressor

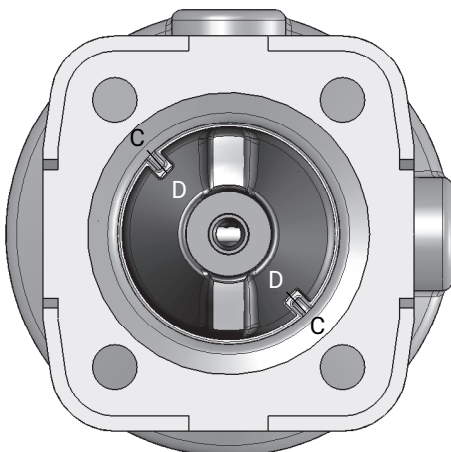
A double flat (arrows in figure 2) is fitted at the end of the actuator spindle to protect the actuator spindle against twisting. During assembly of the compressor, the double flats must be in correct alignment with the recess of the compressor back (arrows in figure 1).

If the actuator spindle is not in the correct position, it must be turned to the correct position. The position of **A** is offset by 45° to the position of **C**.

Place the compressor loosely on the actuator spindle, fit the recesses **D** into the guides **C** and **A** into **B**. It must be possible to move the compressor freely between the guides.

Diaphragm size 25–80:

Compressor and actuator flange seen from below:



Place the compressor loosely on the actuator spindle, fit the recesses **D** into the guides **C**. It must be possible to move the compressor freely between the guides.

16.2.3.1.3 Diaphragm size 100–150 (DN 100–150)

NOTICE

Compressor

- For diaphragm size 100–150, the compressor is screwed in tight.

Diaphragm size 100–150:

The compressor is fastened with a two hole nut **30**.

Compressor and actuator flange seen from below:

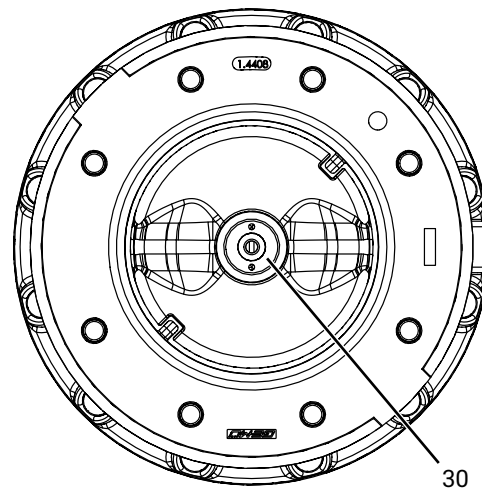


Fig. 5: MG 100

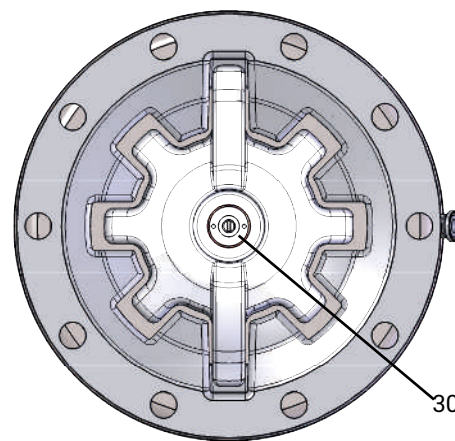


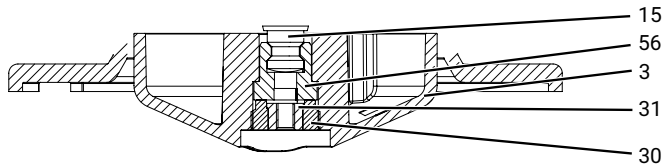
Fig. 6: MG 150

Mounting the compressor

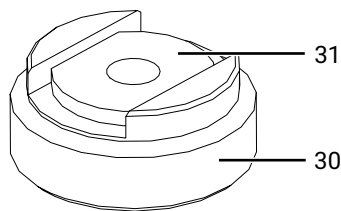
NOTICE**Compressor mounting!**

- For diaphragm size 100–150, the step "Mounting the compressor" is only necessary in special cases, such as a repair or if the two hole nut has become loose. The compressor is permanently installed, and does not usually need to be replaced (not a wearing part).

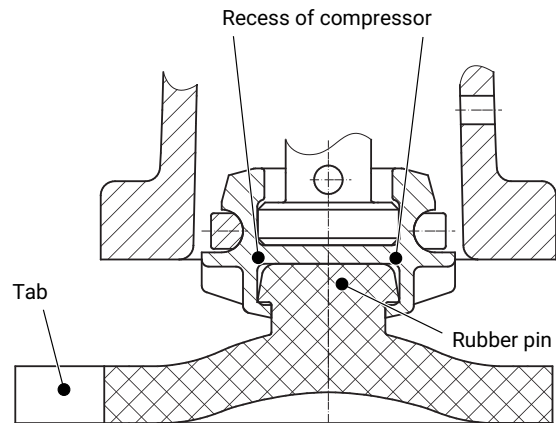
1. Before starting the mounting process, the actuator should be placed in an upright position (flange/distance piece directed downwards).



2. Push the compressor **3** over the actuator spindle **15** and hold it in place with one hand.
3. With the other hand, place the two half shells **56** on the actuator spindle **15** and let the compressor **3** slide down over the two half shells **56**.
 - ⇒ The compressor **3** is held in place by the two half shells **56**.
4. Insert the adapter for diaphragms **31** into the milled groove of the two hole nut **30**.



5. Wet the thread of the two hole nut **30** with "medium strength thread locking compound" (for example Loctite 242).
6. Screw the two hole nut **30** (including adapter for diaphragms **31**) into the compressor **3** and tighten it with an appropriate tool.

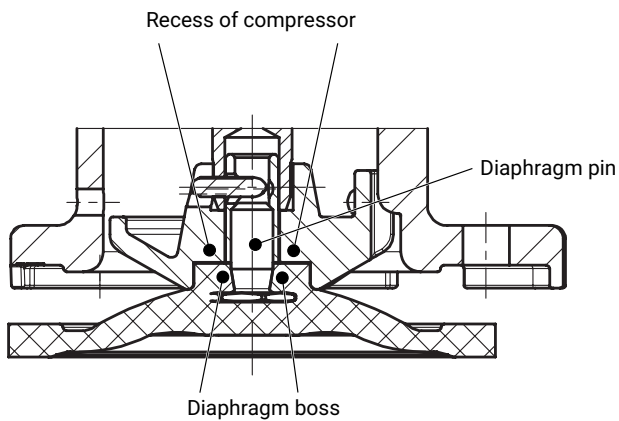
16.2.3.2 Mounting the concave diaphragm**Diaphragm size 8****Push-fit diaphragm:**

1. Move the actuator **A** to the closed position.
2. Place the diaphragm **2** with the formed rubber pin in an inclined position at the recess of the compressor.

NOTICE

- Do not use greases or lubricants.

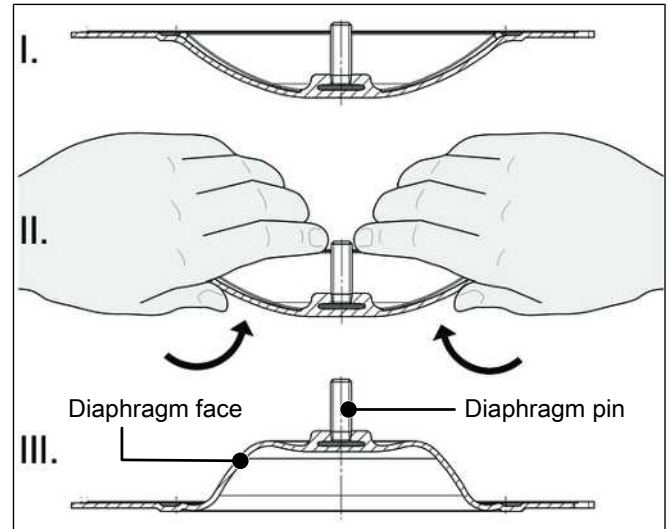
3. Turn the diaphragm as manual force is applied to push the spigot into the compressor.
4. Align the tab with the manufacturer and material identification in parallel to the compressor weir.

Diaphragm sizes 10–150**Threaded pin type diaphragm:**

5. Move the actuator **A** to the closed position.
6. Diaphragm size 10: Ensure that the compressor is engaged.
Diaphragm sizes 25–80: Place the compressor loosely on the actuator spindle, fit the recesses into the guides (see the "Mounting the compressor" chapter).
7. Check if the compressor is fitted in the guides.
8. Manually screw the new diaphragm into the compressor tightly.
9. Check if the diaphragm boss is in the recess of the compressor.
10. If it is difficult to screw it in, check the thread and replace damaged parts (only use genuine parts from GEMÜ).
11. 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.

16.2.3.3 Mounting the convex diaphragm

1. Move the actuator **A** to the closed position.
2. Mount the compressor (see "Mounting the compressor").
3. Check if the compressor is fitted in the guides.
4. Invert the new diaphragm face manually (use a clean, padded mat with larger nominal sizes).

*Fig. 7: Inverting the diaphragm face*

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

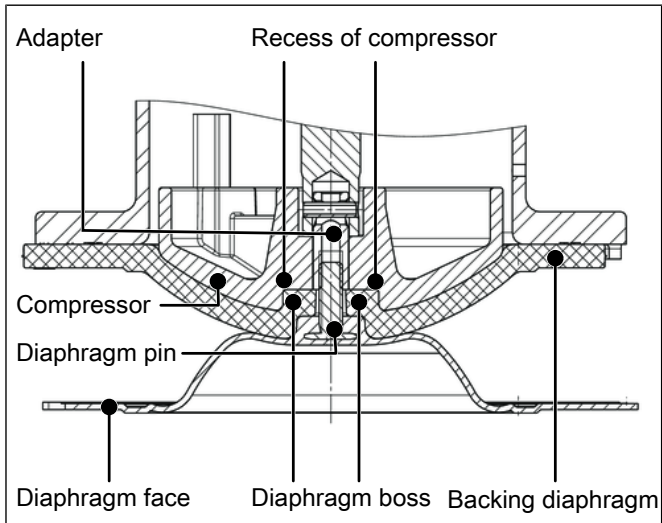


Fig. 8: Screwing in the diaphragm face

8. If it is difficult to screw it in, check the thread and replace damaged parts.
9. When clear resistance is felt, turn back the diaphragm face 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.
11. Align the weir of compressor and diaphragm in parallel.

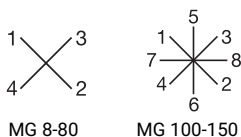
16.2.4 Mounting the actuator on the valve body

NOTICE

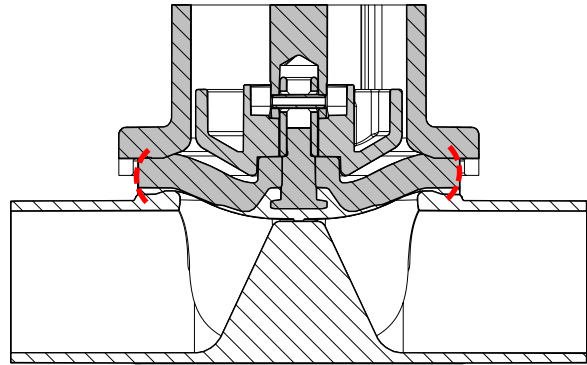
Diaphragms set in the course of time!

- Leakage
- After disassembly/assembly of the product, check that the bolts and nuts on the body are tight and retighten if required.
- Retighten the bolts and nuts at the very latest after the first sterilization process.

1. Move the actuator **A** to the open position.
2. Place actuator **A** with the mounted diaphragm on valve body **1**.
 - ⇒ Take care that the diaphragm is in the correct orientation.
3. Tighten the bolts **18**, washers **19** and nuts **20** by hand (hand tight only) (fastening elements may vary depending on the diaphragm size and/or valve body version).
4. Move the actuator **A** to the closed position.
5. Fully tighten the bolts **18** with nuts **20** diagonally (pay attention to the order).



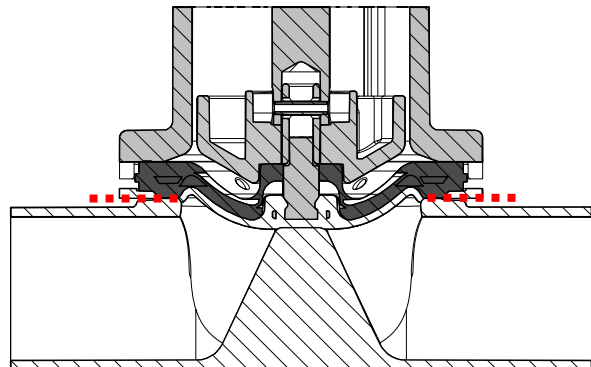
Diaphragm code 3A/13, 17, 19, 5Q, 54, 71



The diaphragm is tightened until a slight bulge can be seen.

6. Ensure even compression of the diaphragm (approx. 10 to 15%).
 - ⇒ Even compression is detected by an even outer bulge.

Diaphragm code 5M



The diaphragm lies level with and parallel to the valve body.

7. **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.
8. With the valve fully assembled, check the function and tightness.

17 Removal from piping

⚠ CAUTION	
	Hot plant components! ► Burns ● Only work on plant that has cooled down. ● Wear protective gear.
⚠ CAUTION	
	Risk of crushing! ► Risk of crushing for version without a valve fitted and with an open spigot. ● Do not reach into the spigot.

1. Remove in reverse order to installation.
2. Deactivate the control medium.
3. Disconnect the control medium line(s).
4. Ensure that the piping is flushed before disassembling the valve and it also needs to be empty, e.g. when using alkalis, etc.
5. Disassemble the product. Observe warning notes and safety information.

18 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.

19 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.

20 EU Declaration of Incorporation

Version 1

GEMÜ

Original EU-Einbauerklärung EU Declaration of Incorporation

Wir, die Firma

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Straße 6-8
74653 Ingelfingen
Deutschland

We, the company

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

Produkt: GEMÜ 650

Produktname: Pneumatisch betätigtes Membranventil

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.

Richtlinien:

MD 2006/42/EG¹⁾

Folgende harmonisierte Normen (oder Teile hieraus) wurden angewandt:

EN ISO 12100:2010

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

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.; 2.1.1.; 2.1.2.

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

Product: GEMÜ 650

Product name: Pneumatically operated diaphragm valve

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.

Guidelines:

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

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

¹⁾ MD 2006/42/EG

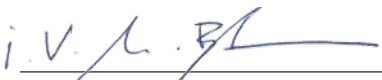
Bemerkungen:

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
Ingelfingen, 27.03.2025

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Straße 6-8, 74653 Ingelfingen, Deutschland

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

21 EU Declaration of Conformity



Version 1

GEMÜ

EU-Konformitätserklärung EU Declaration of Conformity

Wir, die Firma

We, the company

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Straße 6-8
74653 Ingelfingen
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 650

Product: GEMÜ 650

Produktname: Pneumatisch betätigtes Membranventil

Product name: Pneumatically operated diaphragm valve

Richtlinien:

Guidelines:

PED 2014/68/EU¹⁾

Folgende harmonisierte Normen (oder Teile hieraus) wurden angewandt:

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

EN 13397:2001

Weitere angewandte Normen:

Further applied norms:

AD 2000

¹⁾ PED 2014/68/EU

Benannte Stelle:
TUV 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.

Bemerkungen:

Der Einsatz des Produkts in Kategorie III gemäß Druckgeräterichtlinie 2014/68/EU sowie die Verwendung mit instabilen Gasen ist nicht zulässig.

¹⁾ PED 2014/68/EU

Notified body:
TUV 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.

Remarks:

Use of the product in category III in accordance with Pressure Equipment Directive 2014/68/EU and use with unstable gases are not permissible.

i.V. M. Barghoorn
Leiter Globale Technik

Ingelfingen, 27.03.2025

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Fritz-Müller-Straße 6-8, 74653 Ingelfingen, Deutschland

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