GEMÜ 629 eSyLite

Motorized diaphragm valve

EN **Operating instructions**

further information
webcode: GW-629

Contents

1 General information

1.1 Information

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

1.2 Symbols used

The following symbols are used in this document:

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

1.3 Definition of terms

Working medium

The medium that flows through the GEMÜ product.

Diaphragm size

Uniform seat size of GEMÜ diaphragm valves for different nominal sizes.

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!
	Maximum permissible pressure exceeded!
	Damage to the product!
	Risk of crushing!

2 Safety information

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

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

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

The safety information does not take into account:

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

Prior to commissioning:

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

During operation:

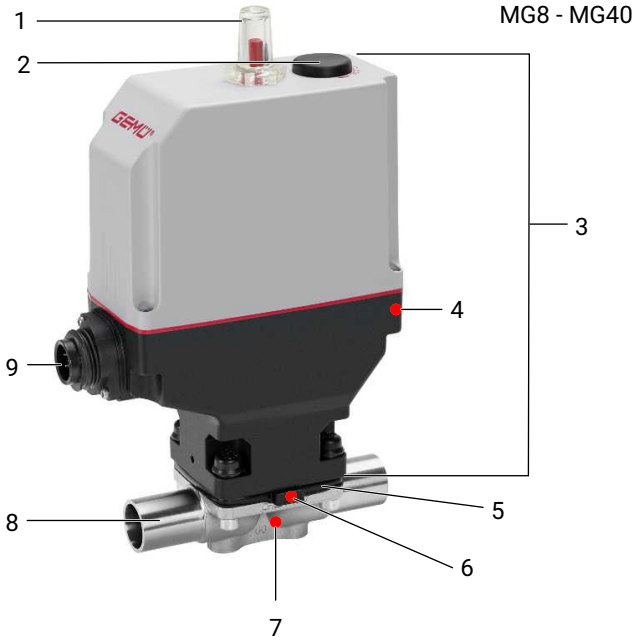
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not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

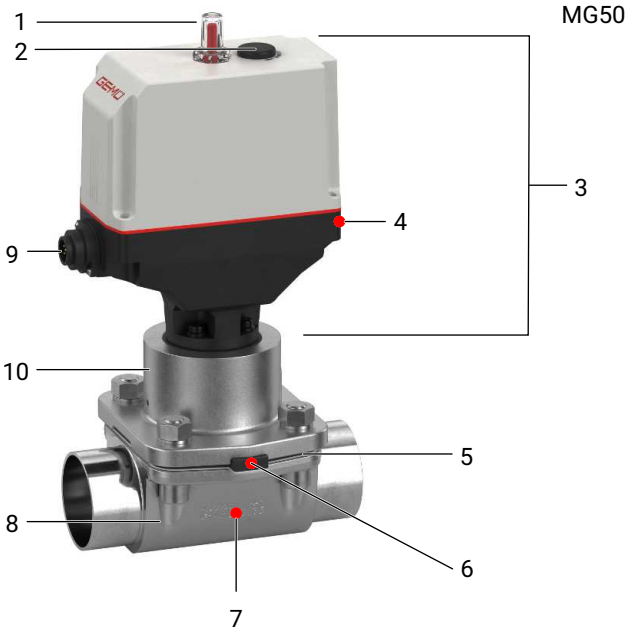
In cases of uncertainty:

15. Consult the nearest GEMÜ sales office.

3 Product description

3.1 Construction





Position	Description	Materials
1	Transparent cap, optical position indicator	PA 12
2	Manual override	
3	Motorized actuator	Reinforced polyamide
4	CONEXO RFID chip actuator	
5	Diaphragm	CR, EPDM, FKM, NBR, PTFE / EPDM
6	CONEXO RFID-Chip Diaphragm	

Position	Description	Materials
7	CONEXO RFID chip body	
8	Valve body	EN-GJS-400-18-LT (GGG 40.3) EN-GJS-400-18-LT (GGG 40.3), PFA lining EN-GJS-400-18-LT (GGG 40.3), PP lining EN-GJS-400-18-LT (GGG 40.3), hard rubber lining 1.4408, investment casting 1.4408, PFA lining 1.4435 (F316L), Forged body 1.4435 (BN2), forged body, Δ Fe < 0.5 % 1.4435, investment casting 1.4539, forged body CW614N, CW617N (brass)
9	Electrical connection	
10	Distance piece (only for MG 50 Code K3)	1.4408

3.2 Description

The GEMÜ 629 eSyLite 2/2-way diaphragm valve is motorized. It is available as an Open/Close version. An integrated optical position indicator is standard. The self-locking actuator holds its position in a stable manner in the event of power supply failure.

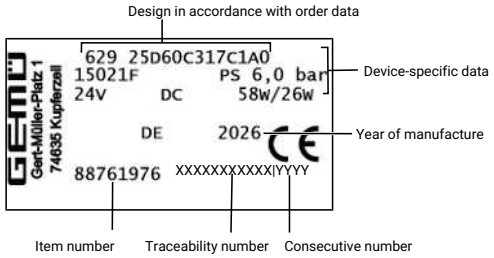
3.3 Function

The product controls a flowing medium by being closed or opened by a motorised actuator. The product is designed as an OPEN/CLOSED valve and is not intended for control applications.

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

3.4 Product label

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



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

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 Correct use

⚠ DANGER

Danger of explosion!

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

⚠ WARNING

Improper use of the product!

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

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

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

1. Use the product in accordance with the technical data.
2. The product is designed as an OPEN/CLOSED valve and is not intended for control applications. Due to the minimum actuation time, sufficiently accurate control is not possible.

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, electrically operated, eSyLite	629

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

3 Body configuration	Code
Floor drain	B
Body configuration code B: Dimensions and designs on request	
2/2-way body	D
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 3447	35
Spigot JIS-G 3459 Schedule 10s	36
SMS 3008 spigot	37
Spigot BS 4825, Part 1	55
Spigots ASME BPE / DIN EN 10357 Series C (from edition 2022) / DIN 11866 Series C	59
Spigots 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
ANSI/ASME B36.19M Schedule 40s spigot	65
Threaded connection	
Threaded socket DIN ISO 228	1
NPT female thread	31
Threaded spigot DIN 11851	6
Tapered connector and union nut DIN 11851	6K

4 Connection type	Code
Flange	
Flange EN 1092, PN 16, form B, Overall length FTF EN 558 series 1, ISO 5752, basic series 1, Overall length only for housing form 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, Overall length FTF MSS SP-88, Overall length only for housing type D	38
Flange ANSI Class 125/150 RF, Overall length FTF EN 558 Series 1, ISO 5752, basic series 1, Overall length only for housing form D	39
Clamp	
Clamp ASME BPE, Overall length FTF ASME BPE, Overall length only for housing type D	80
Clamp DIN 32676 Series B, Overall length FTF EN 558 Series 7, Overall length only for housing type D	82
Clamp ASME BPE, for pipe ASME BPE, Overall length FTF EN 558 Series 7, Overall length only for housing type D	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 DIN 32676 Series C, Overall length FTF ASME BPE, Overall length only for housing form D	8P
Clamp DIN 32676 Series C, Overall length FTF EN 558 Series 7, Overall length only for housing type D	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

4 Connection type	Code
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, overall length FTF EN 558 series 1, overall length only for housing form D	A7
Aseptic loose flange DIN 11864-BF, for pipe DIN 11866 series C and ASME BPE, overall length FTF EN 558 series 1, overall length only for housing form D	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
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
Grooved clamp DIN 11864-NKS, for pipe DIN 11866 series C / ASME BPE, overall length FTF EN 558 series 7, overall length only for housing form D	E7
Aseptic notched clamp DIN 11864-BKS, for pipe DIN 11866 series C / ASME BPE, overall length FTF EN 558 series 7, overall length only for housing form D	E8

5 Valve body material	Code
SG iron material	
EN-GJS-400-18-LT (GGG 40.3), PFA lining	17
EN-GJS-400-18-LT (GGG 40.3), PP lining	18
EN-GJS-400-18-LT (GGG 40.3), hard rubber lining	83
EN-GJS-400-18-LT (GGG 40.3)	90

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

6 Diaphragm material	Code
Elastomer	
NBR	2
EPDM	3A
FKM	4
FKM	4A
CR	8
EPDM	13
EPDM	17
EPDM	19
EPDM	28
EPDM	29
Note: The EPDM diaphragm code 3A and FKM diaphragm code 4A are available in diaphragm size 8.	
PTFE	
PTFE/EPDM one-piece	54
PTFE/EPDM two-piece	5M
PTFE/EPDM two-piece for lining body	5Y
PTFE/PVDF/EPDM three-piece	71
Note: The PTFE/EPDM diaphragm (code 5M) is available from diaphragm size 25.	

7 Voltage/Frequency	Code
24 V DC	C1

8 Control module	Code
OPEN/CLOSE actuator (economy)	A0
OPEN/CLOSE drive (economy) Emergency power supply module (NC)	A1
OPEN/CLOSE drive (economy) Emergency power supply module (NO)	A2
OPEN/CLOSE control with built-in traceability number GEMÜ 1235	Y0
OPEN/CLOSE control with integrated feedback device GEMÜ 1235 Emergency power supply module (NC)	Y1
OPEN/CLOSE control with integrated feedback device GEMÜ 1235 Emergency power supply module (NO)	Y2
OPEN/CLOSE control with built-in traceability number GEMÜ 1215	Z0
OPEN/CLOSE control with integrated feedback device GEMÜ 1215 Emergency power supply module (NC)	Z1

8 Control module	Code
OPEN/CLOSE control with integrated feedback device GEMÜ 1215 Emergency power supply module (NO)	Z2

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
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 HE5, electropolished inside/outside, *) for pipe inner diameter < 6 mm, Ra ≤ 0.38 µm in the spigot	1516
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 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

9 Surface	Code
Ra max. 0.76 µm (30 µin.) for surfaces in contact with media, in accordance with ASME BPE SF3, mechanically polished interior	SF3
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 Actuator version	Code
Actuator size 0 diaphragm size 8	0B
Actuator size 1 Diaphragm size 10	1C
Actuator size 1 Diaphragm size 25	1F
Actuator size 3 Diaphragm size 40	3H
Actuator size 3 Diaphragm size 50 with distance piece	K3

11 Special version	Code
Without	
BELGAQUA certification	B
Special design for oxygen, maximum medium temperature: 60°C	S

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

Order example

Ordering option	Code	Description
1 Type	629	Diaphragm valve, electrically operated, eSyLite
2 DN	40	DN 40
3 Body configuration	D	2/2-way body
4 Connection type	60	Spigots 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 Voltage/Frequency	C1	24 V DC
8 Control module	A0	OPEN/CLOSE actuator (economy)
9 Surface	1503	Ra ≤ 0.8 µm for surfaces in contact with media, in accordance with DIN 11866 HE3, electropolished inside/outside

Ordering option	Code	Description
10 Actuator version	3H	Actuator size 3 Diaphragm size 40
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).

7.2 Temperature

Media temperature:

-10 — 80 °C

Ambient temperature:

-10 — 60 °C

If the emergency power supply module (control module code A1, A2, Y1, Y2, Z1, Z2) is used, the maximum ambient temperature is reduced to 40 °C.

Storage temperature:

0 — 40 °C

7.3 Pressure

Operating pressure:

0 — 6 bar

Pressure rating:

PN 16

Leakage rate:

Leakage rate A to P11/P12 EN 12266-1

Kv values:

MG	DN	Connection type code								
		0	16	17	18	37	59	60	1	31
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
	20	6.3	7.0	7.0	7.0	-	4.4	13.2	10.0	10.0
	25	13.9	15.0	15.0	15.0	12.6	12.2	16.2	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
50	50	46.5	48.4	48.4	48.4	51.7	50.6	55.2	60.0	60.0
	65	-	-	-	-	62.2	61.8	-	-	-

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.

Kv values:

MG	DN	Cast body without lining		Rubber lining	Plastic lining
		Threaded body	Flanged body		
		Material code 90		Material code 83	Material code 17, 18, 39
25	**15**	8.0	10.0	6.0	5.0
	20	11.5	14.0	11.0	9.0
	25	11.5	17.0	15.0	13.0
40	**32**	28.0	36.0	29.0	23.0
	40	28.0	40.0	32.0	26.0
50	**50**	60.0	68.0	53.0	47.0
	65	-	68.0	53.0	47.0

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

Machinery Directive: 2006/42/EC

Pressure Equipment Directive: 2014/68/EU

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

Oxygen: Testing of the seal material based on DIN EN 1797 and ISO 21010:2017 – Cryogenic vessels – Gas/material compatibility (special version code S)

EMC Directive: 2014/30/EU

Drinking water: Belgaqua*

RoHS Directive: 2011/65/EU

* depending on version and/or operating parameters

7.5 Mechanical data

Protection class: IP 65 acc. to EN 60529

Actuating speed: Max. 3 mm/s

Flow direction: Optional

Installation position: Optional

Observe the angle of rotation for optimized draining when it comes to installation.
See separate document, "Angle of rotation technical information".

Weight:

Actuator

Actuator version 0B	0.41 kg
Actuator version 1C	0.8 kg
Actuator version 1F	0.94 kg
Actuator version 3H	1.4 kg
Actuator version K3	2.8 kg

Body

Connection type Code		0, 16, 17, 18, 35, 36, 37, 55, 59, 60, 63, 64, 65	1	1	1, 31	31	6, 6K	8, 38, 39	80, 82, 88, 8A, 8E, 8P, 8T
Valve body		Spigot	Threaded socket				Threaded spigot	Flange	Clamp
Material code			12	37	90	37			
MG	DN								
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	0.17	-	-	-	-	-
	15	0.30	0.26	0.26	-	-	0.35	-	0.43
	20	-	-	-	-	-	-	-	0.43
25	15	0.62	-	0.32	0.50	0.32	0.71	1.50	0.75
	20	0.58	-	0.34	0.60	0.34	0.78	2.20	0.71
	25	0.55	-	0.39	0.90	0.39	0.79	2.80	0.63
40	32	1.45	-	0.88	1.40	0.88	1.66	3.40	1.62
	40	1.32	-	0.93	1.90	0.93	1.62	4.50	1.50
50	50	2.25	-	1.56	2.70	1.56	2.70	6.30	2.50
	65	2.20	-	-	-	-	-	10.30	2.30

MG = diaphragm size, weight in kg

Mechanical environmental conditions:	Class 4M8 acc. to EN 60721-3-4:1998
Vibration:	5g acc. to IEC 60068-2-6 Test Fc
Shock:	25g acc. to 60068-2-27 Test Ea

7.6 Actuator duty cycle and service life

Service life:	Class A acc. to EN 15714-2 Minimum 100,000 switching cycles at room temperature and permissible duty cycle.
Duty cycle:	max. 30% duty

7.7 Electrical data

Supply voltage:	24 V DC Tolerance ± 10 %
Operating time:	MG 8: 1.7 s MG 10: 2.5 s MG 25: 4.0 s MG 40: 4.5 s MG 50: 7.0 s
Close tight current / rated current:	MG 8: 0.4 A MG 10: 0.5 A MG 25: 1.3 A MG 40: 2.3 A MG 50: 2.3 A
Starting current / maximum current:	MG 8: Approx. 0.7 A MG 10: Approx. 2.4 A MG 25: Approx. 2.4 A MG 40: Approx. 4.5 A MG 50: Approx. 4.5 A
Standby current consumption:	approx. 10 mA

7.7.1 Digital input signals

Input voltage:	max. 30 V DC ≥ 56 kΩ
High level:	≥ 18 V DC
Low level:	≤ 5 V DC
Minimum actuation duration:	600 ms
Input current:	< 0.6 mA

7.7.2 Emergency power supply module

Charging current:	MG 8: Max. 0.1 A MG 10, MG 25: Max. 0.16 A MG 40: 0.32 A MG 50: Not available
Charging time:	approx. 13 min

Service life:

For actuator size 1 (AG1 – MG10 and MG25) and actuator size 3 (AG3 – MG40):

Guide value at 25 °C ambient temperature, approx. 3 years

For actuator size 0 (AG0 - MG8):

Ambient temperature Drive AG0	Service life of emergency power supply module
60 °C	approx. 2.5 years
50 °C	approx. 6 years
40 °C and below	More than 10 years

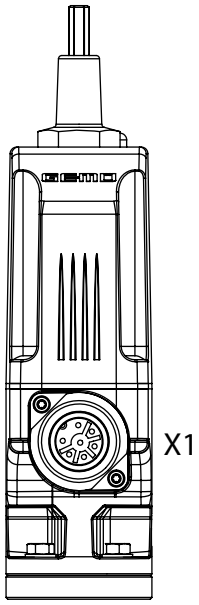
8 Electrical connection

NOTICE

Appropriate cable socket/appropriate mating connector

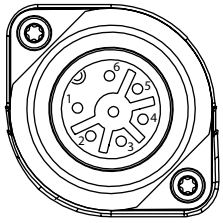
► The appropriate connector is included for X1.

8.1 Position of the connectors



8.2 Electrical connection

Connection X1



7-pin plug, Binder, type 693

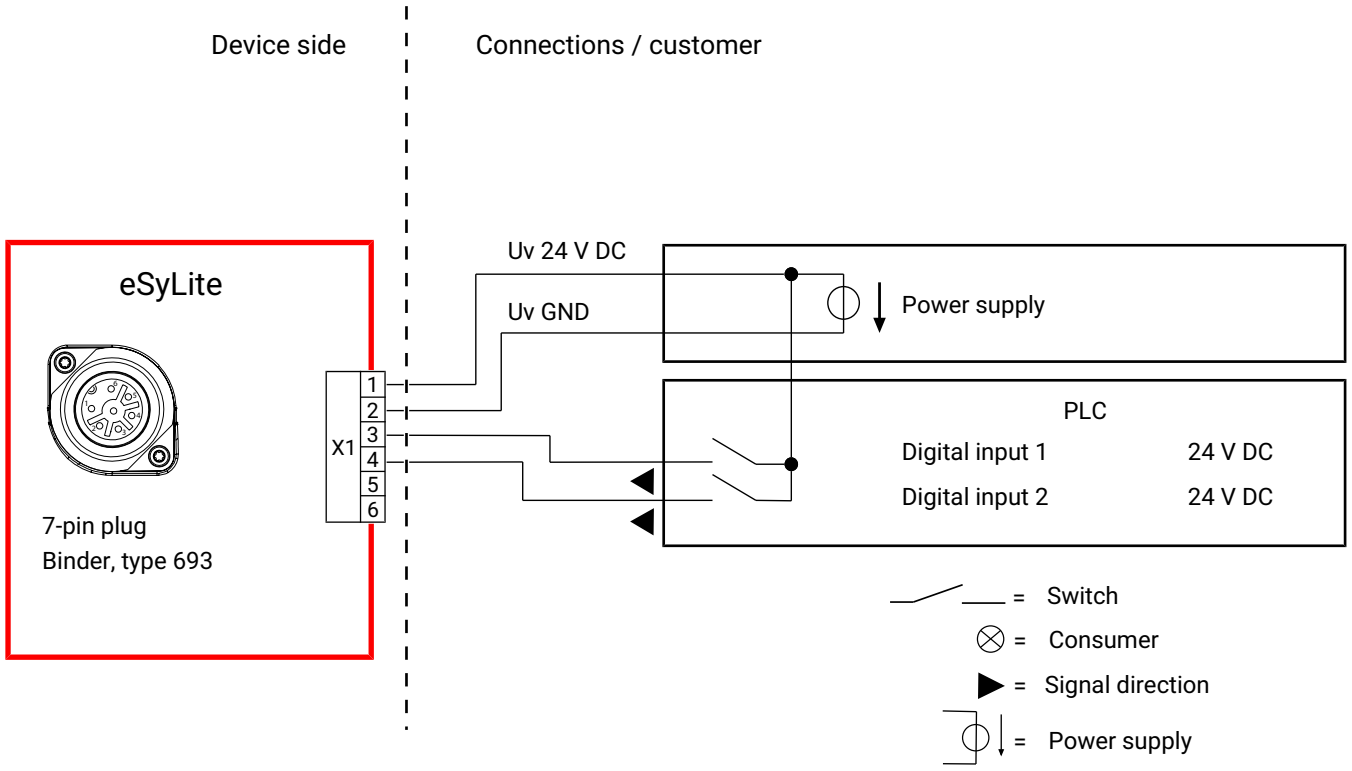
Pin	Signal name
1	24 V supply voltage
2	GND
3	Digital input OPEN
4	Digital input CLOSED
5	n.c.
6	n.c.
7	n.c.

Preferred direction if both digital inputs are present for device version 00 (see operating instructions – Product label)	
Control module ordering option	Preferred direction
A0, Y0, Z0	OPEN
A1, Y1, Z1	CLOSED

Preferred direction if both digital inputs are present for device version 00 (see operating instructions – Product label)	
A2, Y1, Z2	OPEN

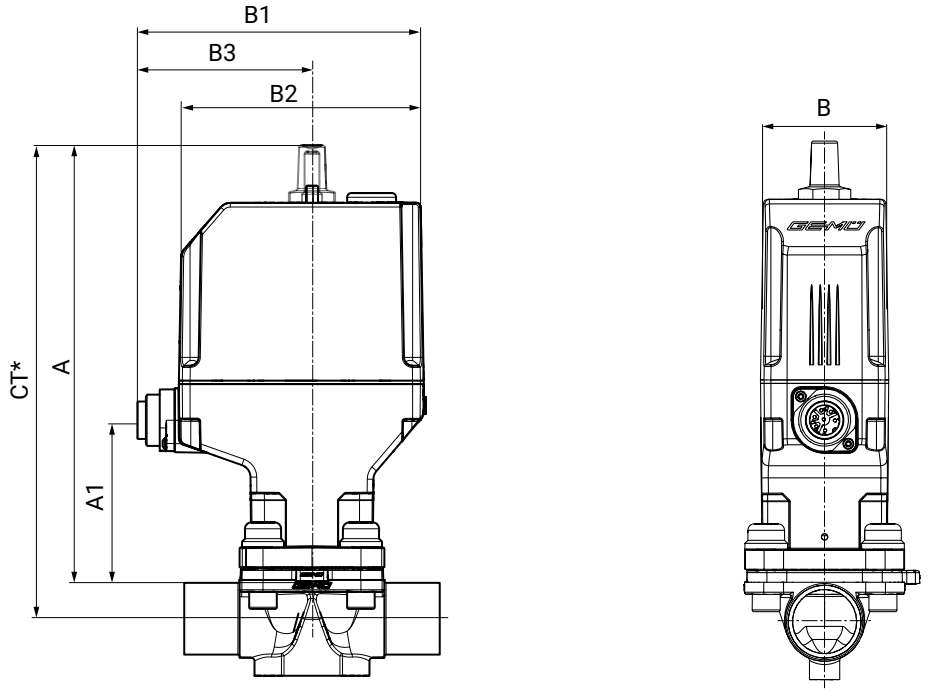
Preferred direction if both digital inputs are present for device version 01 (see operating instructions – Product label)	
Control module ordering option	Preferred direction
A0, Y0, Z0	OPEN
A1, Y1, Z1	OPEN
A2, Y2, Z2	CLOSED

8.3 Connection diagram



9 Dimensions

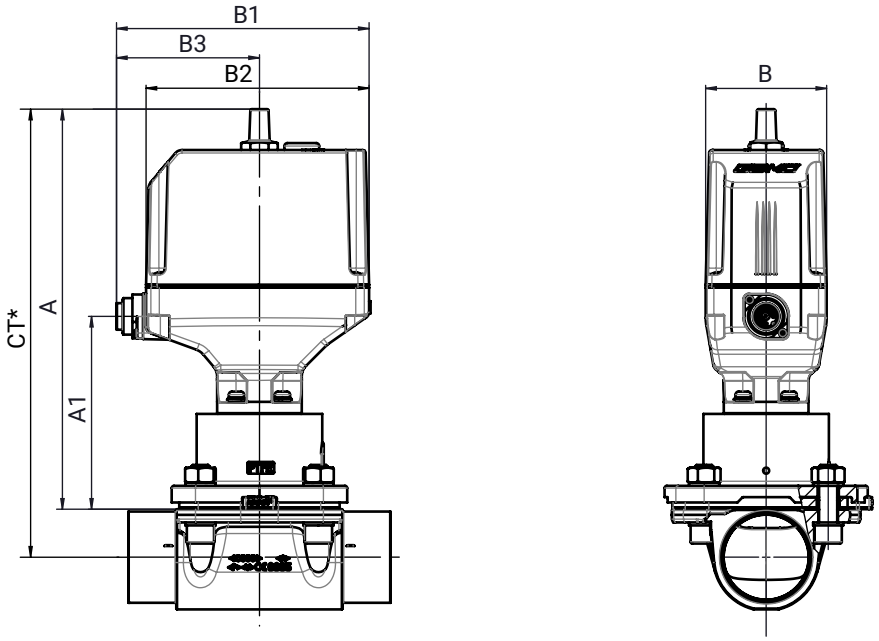
9.1 Actuator dimensions



MG	A	A1	B	B1	B2	B3
8	157.0	43.5	43.0	112.5	93.5	72.0
10	192.0	63.0	59.5	134.5	115.0	82.0
25	204.0	75.0	59.5	134.5	115.0	82.0
40	228.0	91.0	80.0	167.0	147.5	94.5

Dimensions in mm
MG = diaphragm size
* CT = A + H1 (see body dimensions)

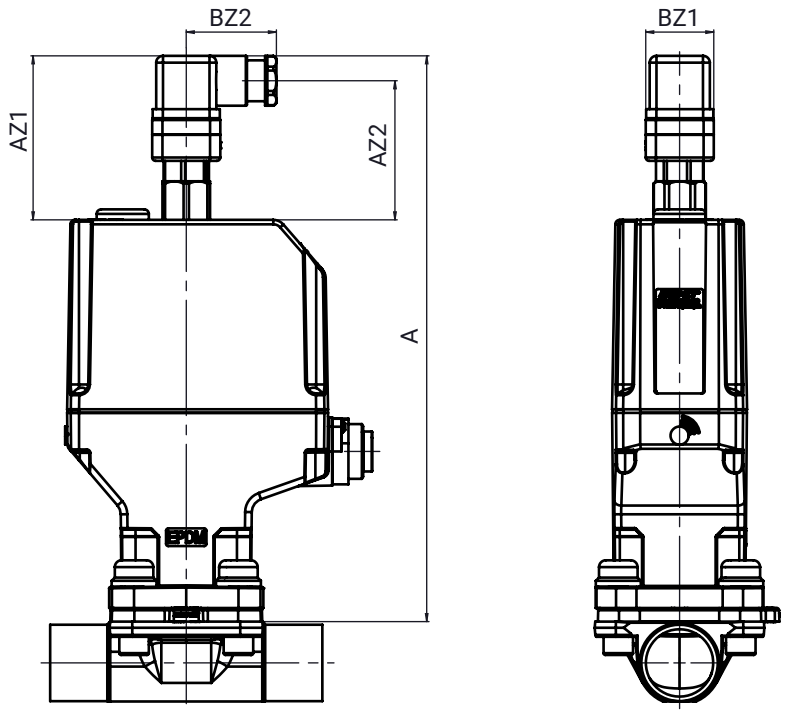
9.2 Actuator dimensions with distance piece



MG	A	A1	B	B1	B2	B3
50	265.0	128.0	80.0	167.0	147.5	94.5

Dimensions in mm
MG = diaphragm size
* CT = A + H1 (see body dimensions)
MG 50 with metal distance piece

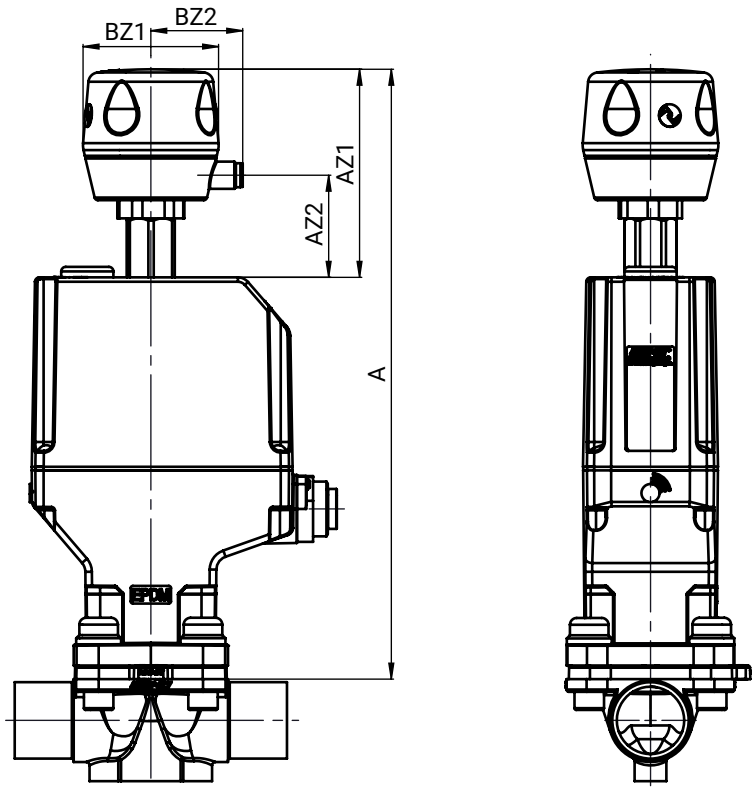
9.3 Actuator dimensions with GEMÜ 1215 position indicator



MG	A	AZ1	AZ2	BZ1	BZ2
8	203.0	72.0	61.0	30.0	40.0
10	237.0	72.0	61.0	30.0	40.0
25	249.0	72.0	61.0	30.0	40.0
40	273.0	72.0	61.0	30.0	40.0
50	310.0	72.0	61.0	30.0	40.0

Dimensions in mm
MG = diaphragm size
MG 50 with metal distance piece

9.4 Actuator dimensions with GEMÜ 1235 position indicator

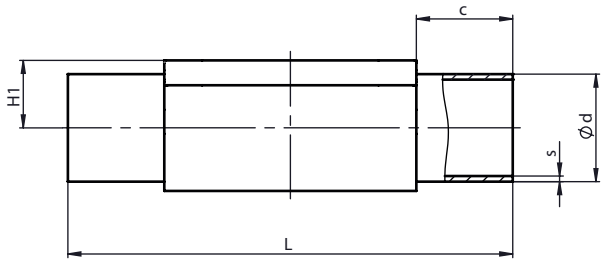


MG	A	AZ1	AZ2	Dia. BZ1	BZ2
8	222.0	92.0	45.0	60.0	40.5
10	257,0	92,0	45,0	60,0	40,5
25	269,0	92,0	45,0	60,0	40,5
40	293,0	92,0	45,0	60,0	40,5
50	330,0	92,0	45,0	60,0	40,5

Dimensions in mm
MG = diaphragm size
MG 50 with metal distance piece

9.5 Body dimensions

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



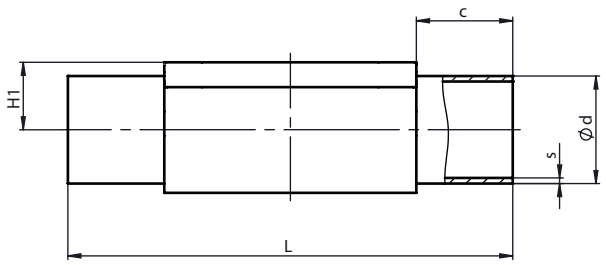
Connection type spigot DIN/EN/ISO (code 0, 16, 17, 18, 60) [1], forged material (code 40, 42, F4) [2]

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

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: Spigots 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 F4: 1.4539 / UNS N08904, forged body
Code A1: 3.7035, titanium



Connection type spigot DIN/EN/ISO (code 0, 17, 60) [1], investment casting material (code C3) [2]

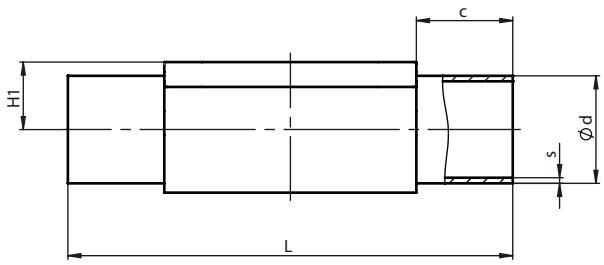
MG	DN	NPS	c (min)	ød			H1	L	s		
				Connection type					Connection type		
				0	17	60			0	17	60
8	**4**	**-**	20.0	6.0	-	-	8.5	72.0	1.0	-	-
	6	**-**	20.0	-	8.0	-	8.5	72.0	-	1.0	-
	8	**1/4"**	20.0	-	10.0	13.5	8.5	72.0	-	1.0	1.6
	10	**3/8"**	20.0	-	13.0	-	8.5	72.0	-	1.5	-
10	**10**	**3/8"**	25.0	-	13.0	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: Spigots ISO 1127 / DIN EN 10357 Series C (2014 edition) / DIN 11866 Series B

2) **Valve body material**
Code C3: 1.4435, investment casting

9.5.2 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) [2]

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	-	-	-

Connection type spigot ASME BPE (code 59) [1], investment casting material (code C3) [2]

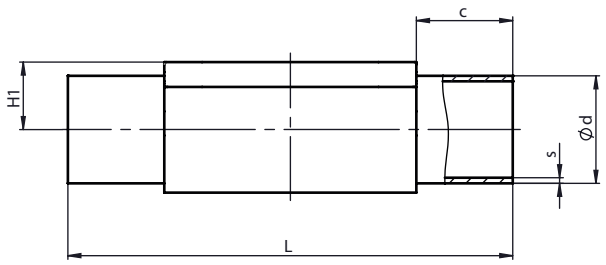
MG	DN	NPS	c (min)	ød	H1	L	s
8	8	1/4"	20.0	6.35	8.5	72.0	0.89
	10	3/8"	20.0	9.53	8.5	72.0	0.89
	15	1/2"	20.0	12.70	8.5	72.0	1.65
10	20	3/4"	25.0	19.05	12.5	108.0	1.65
25	20	3/4"	25.0	19.05	16.0	120.0	1.65
	25	1"	25.0	25.40	19.0	120.0	1.65
40	40	1½"	30.5	38.10	26.0	153.0	1.65
50	50	2"	30.0	50.80	32.0	173.0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

Dimensions in mm
MG = diaphragm size

1) **Connection type**
Code 55: Spigot BS 4825, Part 1
Code 59: Spigots ASME BPE / DIN EN 10357 Series C (from edition 2022) / 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 C3: 1.4435, investment casting
Code F4: 1.4539 / UNS N08904, forged body
Code A1: 3.7035, titanium

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



Connection type spigot JIS/SMS (code 35, 36, 37) [1], forged material (code 40, 42, F4) [2]

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

Connection type spigot SMS (code 37) [1], investment casting material (code C3) [3]

MG	DN	NPS	c (min)	ød	H1	L	s
25	25	1"	25.0	25.0	19.0	120.0	1.2
40	40	1½"	30.5	38.0	26.0	153.0	1.2
50	50	2"	30.0	51.0	32.0	173.0	1.2

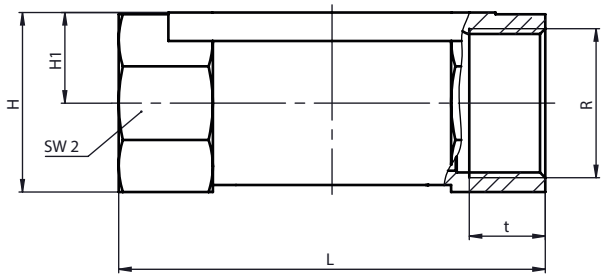
Dimensions in mm
MG = diaphragm size

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 C3: 1.4435, investment casting
Code F4: 1.4539 / UNS N08904, forged body
Code A1: 3.7035, titanium

3) **Valve body material**
Code C3: 1.4435, investment casting

9.5.4 Threaded socket DIN (code 1)



Connection type threaded socket (code 1) [1], brass material (code 12) [2]

MG	DN	NPS	H	H1	L	n	R	SW 2	t
10	**12**	**3/8"**	23.0	11.0	55.0	2	G 3/8	22.0	13.0
	15	**1/2"**	29.0	14.0	75.0	2	G 1/2	25.0	15.0

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

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	**12**	**3/8"**	25.0	13.0	55.0	2	G 3/8	22.0	12.0
	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**	**1¼"**	51.3	26.3	120.0	8	G 1¼	50.0	20.0
	40	**1½"**	56.3	28.8	140.0	8	G 1½	55.0	18.0
50	**50**	**2"**	71.3	36.0	165.0	8	G 2	70.0	26.0

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

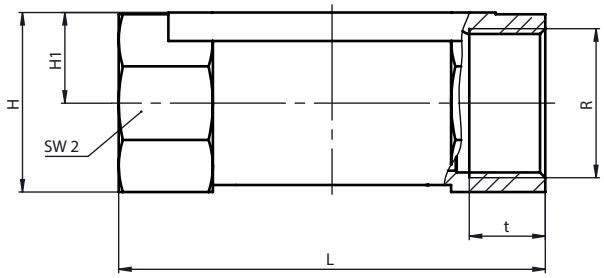
MG	DN	NPS	H	H1	L	n	R	SW 2	t
25	**15**	**1/2"**	32.7	16.7	85.0	6	G 1/2	32	15.0
	20	**3/4"**	42.0	21.5	85.0	6	G 3/4	41	16.3
	25	**1"**	46.7	23.7	110.0	6	G 1	46	19.1
40	**32**	**1¼"**	56.0	28.5	120.0	6	G 1¼	55	21.4
	40	**1½"**	66.0	33.5	140.0	6	G 1½	65	21.4
50	**50**	**2"**	76.0	38.5	165.0	6	G 2	75	25.7

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

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

2) **Valve body material**
Code 12: CW614N, CW617N (brass)
Code 37: 1.4408, investment casting
Code 90: EN-GJS-400-18-LT (GGG 40.3)

9.5.5 Threaded socket NPT (code 31)



Connection type threaded socket NPT (code 31) [1], investment casting material (code 37) [2]

MG	DN	NPS	H	H1	L	n	R	SW 2	t
25	**15**	**1/2"**	28.3	14.8	85.0	6	NPT 1/2	27.0	14.0
	20	**3/4"**	33.3	17.3	85.0	6	NPT 3/4	32.0	14.0
	25	**1"**	42.3	21.8	110.0	6	NPT 1	41.0	17.0
40	**32**	**1¼"**	51.3	26.3	120.0	8	NPT 1¼	50.0	17.0
	40	**1½"**	56.3	28.8	140.0	8	NPT 1½	55.0	17.0
50	**50**	**2"**	71.3	36.3	165.0	8	NPT 2	70.0	18.0

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

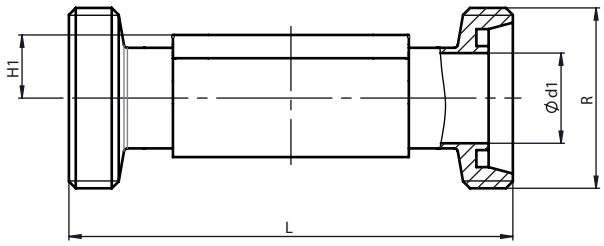
MG	DN	NPS	H	H1	L	n	R	SW 2	t
25	**15**	**1/2"**	32.7	16.7	85.0	6	NPT 1/2	32	13.6
	20	**3/4"**	42.0	21.5	85.0	6	NPT 3/4	41	14.1
	25	**1"**	46.7	23.7	110.0	6	NPT 1	46	16.8
40	**32**	**1¼"**	56.0	28.5	120.0	6	NPT 1¼	55	17.3
	40	**1½"**	66.0	33.5	140.0	6	NPT 1½	65	17.3
50	**50**	**2"**	76.0	38.5	165.0	6	NPT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

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

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

2) **Valve body material**
Code 37: 1.4408, investment casting
Code 90: EN-GJS-400-18-LT (GGG 40.3)

9.5.6 Threaded spigot DIN (code 6)



Connection type threaded spigot DIN (code 6) [1], forged material (code 40, 42) [2]

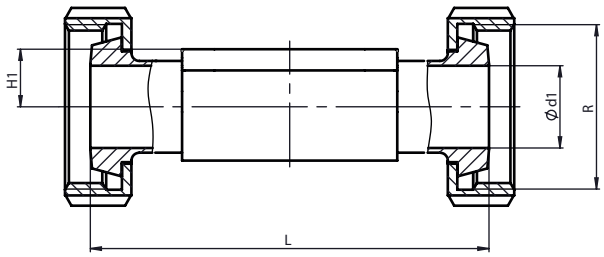
MG	DN	NPS	ød1	H1	L	R
8	**10**	**3/8"**	10.0	8.5	92.0	Rd 28 x 1/8
10	**10**	**3/8"**	10.0	12.5	118.0	Rd 28 x 1/8
	15	**1/2"**	16.0	12.5	118.0	Rd 34 x 1/8
25	**15**	**1/2"**	16.0	19.0	118.0	Rd 34 x 1/8
	20	**3/4"**	20.0	19.0	118.0	Rd 44 x 1/6
	25	**1"**	26.0	19.0	128.0	Rd 52 x 1/6
40	**32**	**1¼"**	32.0	26.0	147.0	Rd 58 x 1/6
	40	**1½"**	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

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 A1: 3.7035, titanium

9.5.7 Cone spigot DIN (code 6K)



Connection type cone spigot DIN (code 6K)[1], forged material (code 40, 42)[2]

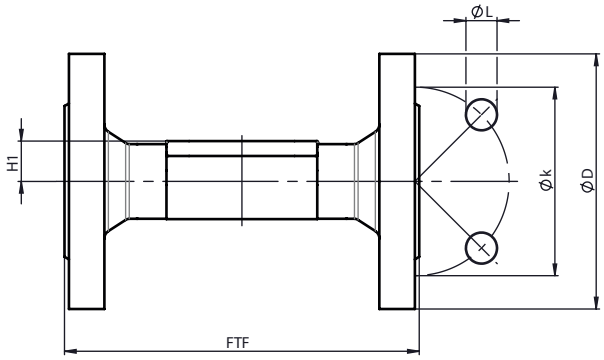
MG	DN	NPS	ød1	H1	L	R
8	**10**	**3/8"**	10.0	8.5	90.0	Rd 28 x 1/8
10	**10**	**3/8"**	10.0	12.5	116.0	Rd 28 x 1/8
	15	**1/2"**	16.0	12.5	116.0	Rd 34 x 1/8
25	**15**	**1/2"**	16.0	19.0	116.0	Rd 34 x 1/8
	20	**3/4"**	20.0	19.0	114.0	Rd 44 x 1/6
	25	**1"**	26.0	19.0	127.0	Rd 52 x 1/6
40	**32**	**1¼"**	32.0	26.0	147.0	Rd 58 x 1/6
	40	**1½"**	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

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 A1: 3.7035, titanium

9.5.8 Flange EN (code 8)



Connection type flange, length EN 558 (code 8) [1], SG iron material (code 17, 18, 83, 90) [2], investment casting material (code 39, C3) [2], forged material (code 40, 42) [2]

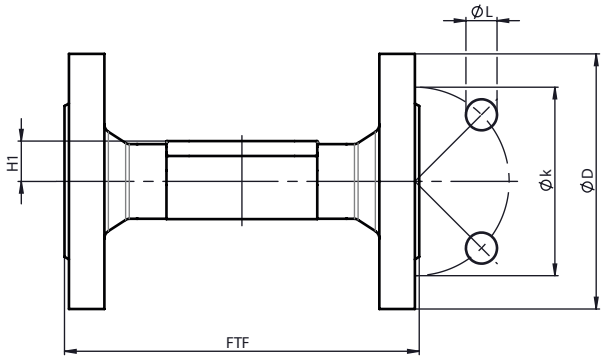
MG	DN	NPS	øD	FTF		H1				øk	øL	n
				Material		Material						
				17, 18, 39, 83, 90	40, 42, C3	17, 18, 39, 83	40, 42	C3	90			
25	**15**	**1/2"**	95.0	130.0	150.0	18.0	19.0	13.0	14.0	65.0	14.0	4
	20	**3/4"**	105.0	150.0	150.0	20.5	19.0	16.0	16.5	75.0	14.0	4
	25	**1"**	115.0	160.0	160.0	23.0	19.0	19.0	19.5	85.0	14.0	4
40	**32**	**1¼"**	140.0	180.0	180.0	28.7	26.0	24.0	23.0	100.0	19.0	4
	40	**1½"**	150.0	200.0	200.0	33.0	26.0	26.0	27.0	110.0	19.0	4
50	**50**	**2"**	165.0	230.0	230.0	39.0	32.0	32.0	32.0	125.0	19.0	4
	65	**2½"**	185.0	290.0	-	51.0	-	-	38.7	145.0	19.0	4

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

1) **Connection type**
Code 8: Flange EN 1092, PN 16, form B, Overall length FTF EN 558 series 1, ISO 5752, basic series 1, Overall length only for housing form D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 18: EN-GJS-400-18-LT (GGG 40.3), PP lining
Code 39: 1.4408, PFA lining
Code 40: 1.4435 (F316L), forged body
Code 42: 1.4435 (BN2), forged body, Δ Fe < 0,5 %
Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lining
Code 90: EN-GJS-400-18-LT (GGG 40.3)
Code C3: 1.4435, investment casting

9.5.9 Flange JIS (code 34)



Connection type flange, length 558 (code 34)[1], investment casting material (code 39)[2]

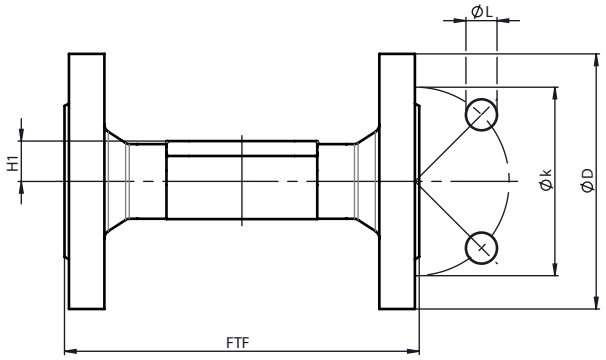
MG	DN	NPS	øD	øk	øL	n	H1	FTF
25	15	1/2"	95.0	70.0	15.0	4	18.0	130.0
	20	3/4"	100.0	75.0	15.0	4	20.5	150.0
	25	1"	125.0	90.0	19.0	4	23.0	160.0
40	32	1¼	135.0	100.0	19.0	4	28.7	180.0
	40	1½"	140.0	105.0	19.0	4	33.0	200.0
50	50	2"	155.0	120.0	19.0	4	39.0	230.0

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

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

9.5.10 Flange ANSI Class (code 38, 39)



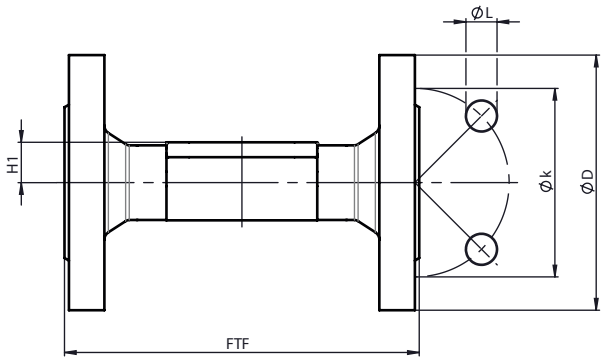
Connection type flange, length MSS SP-88 (code 38) [1], SG iron material (code 17, 18, 83) [2], investment casting material (code 39) [2]

MG	DN	NPS	øD	FTF		H1	øk	øL	n
				Material					
				17, 18, 39	83				
25	**20**	**3/4"**	100.0	146.0	146.4	20.5	69.9	15.9	4
	25	**1"**	110.0	146.0	146.4	23.0	79.4	15.9	4
40	**40**	**1½"**	125.0	175.0	171.4	33.0	98.4	15.9	4
50	**50**	**2"**	150.0	200.0	197.4	39.0	120.7	19.0	4
	65	**2½"**	180.0	226.0	222.4	51.0	139.7	19.0	4

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

1) **Connection type**
Code 38: Flange ANSI Class 150 RF, Overall length FTF MSS SP-88, Overall length only for housing type D

2) **Valve body material**
Code 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 18: EN-GJS-400-18-LT (GGG 40.3), PP lining
Code 39: 1.4408, PFA lining
Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lining



Connection type flange, length EN 558 (code 39) [1], SG iron material (code 17, 18, 83, 90) [2], investment casting material (code 39, C3) [2], forged material (code 40, 42) [2]

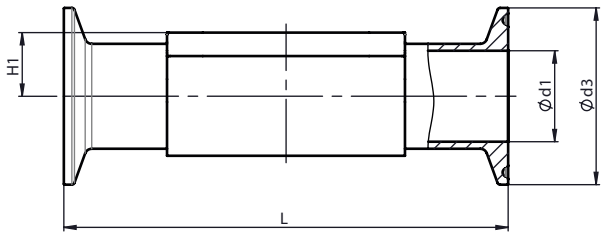
MG	DN	NPS	øD	FTF		H1				øk	øL	n
				Material		Material						
				17, 18, 39, 83, 90	40, 42, C3	17, 18, 39, 83	C3	40, 42	90			
25	**15**	**1/2"**	90.0	130.0	150.0	-	13.0	19.0	14.0	60.3	15.9	4
	20	**3/4"**	100.0	150.0	150.0	20.5	16.0	19.0	16.5	69.9	15.9	4
	25	**1"**	110.0	160.0	160.0	23.0	19.0	19.0	19.5	79.4	15.9	4
40	**32**	**1¼"**	115.0	180.0	180.0	28.7	24.0	26.0	23.0	88.9	15.9	4
	40	**1½"**	125.0	200.0	200.0	33.0	26.0	26.0	27.0	98.4	15.9	4
50	**50**	**2"**	150.0	230.0	230.0	39.0	32.0	32.0	32.0	120.7	19.0	4
	65	**2½"**	180.0	290.0	-	51.0	-	-	38.7	139.7	19.0	4

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

1) **Connection type**
Code 39: Flange ANSI Class 125/150 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 17: EN-GJS-400-18-LT (GGG 40.3), PFA lining
Code 18: EN-GJS-400-18-LT (GGG 40.3), PP lining
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 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lining
Code 90: EN-GJS-400-18-LT (GGG 40.3)
Code C3: 1.4435, investment casting

9.5.11 Clamp (code 80, 82, 88, 8A, 8E, 8P, 8T)



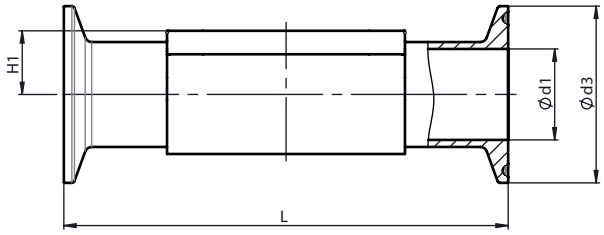
Connection type clamp DIN/ASME (code 80, 88, 8P, 8T) [1], **forged material (code 40, 42, F4)** [2]

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	**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

Dimensions in mm
MG = diaphragm size

1) **Connection type**
Code 80: Clamp ASME BPE, Overall length FTF ASME BPE, Overall length only for housing type D
Code 88: Clamp ASME BPE, for pipe ASME BPE, Overall length FTF EN 558 Series 7, Overall length only for housing type D
Code 8P: Clamp DIN 32676 Series C, Overall length FTF ASME BPE, Overall length only for housing form D
Code 8T: Clamp DIN 32676 Series C, 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 F4: 1.4539 / UNS N08904, forged body
Code A1: 3.7035, titanium



Connection type clamp DIN/ISO (code 82, 8A, 8E) [1], forged material (code 40, 42, F4) [2]

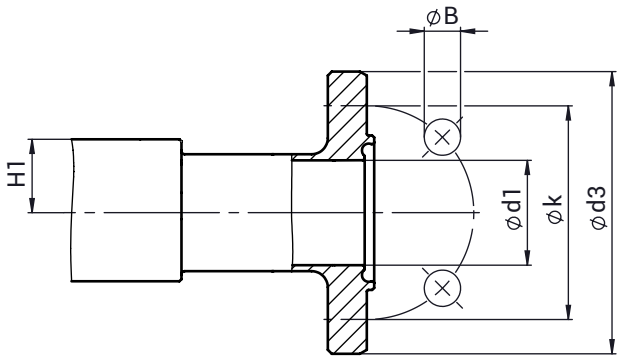
MG	DN	NPS	ød1			ød3			H1	L		
			Connection type			Connection type				Connection type		
			82	8A	8E	82	8A	8E		82	8A	8E
8	**6**	**1/8"**	7.0	6.0	-	25.0	25.0	-	8.5	63.5	63.5	-
	8	**1/4"**	10.3	8.0	-	25.0	25.0	-	8.5	63.5	63.5	-
	10	**3/8"**	-	10.0	-	-	34.0	-	8.5	-	88.9	-
10	**10**	**3/8"**	14.0	10.0	-	25.0	34.0	-	12.5	108.0	108.0	-
	15	**1/2"**	18.1	16.0	-	50.5	34.0	-	12.5	108.0	108.0	-
25	**15**	**1/2"**	18.1	16.0	-	50.5	34.0	-	19.0	108.0	108.0	-
	20	**3/4"**	23.7	20.0	-	50.5	34.0	-	19.0	117.0	117.0	-
	25	**1"**	29.7	26.0	22.6	50.5	50.5	50.5	19.0	1270	127.0	127.0
40	**32**	**1¼"**	38.4	32.0	31.3	64.0	50.5	50.5	26.0	146.0	146.0	146.0
	40	**1½"**	44.3	38.0	35.6	64.0	50.5	50.5	26.0	159.0	159.0	159.0
50	**50**	**2"**	56.3	50.0	48.6	77.5	64.0	64.0	32.0	190.0	190.0	190.0
	65	**2½"**	-	-	60.3	-	-	77.5	34.0	-	-	216.0

Dimensions in mm
MG = diaphragm size

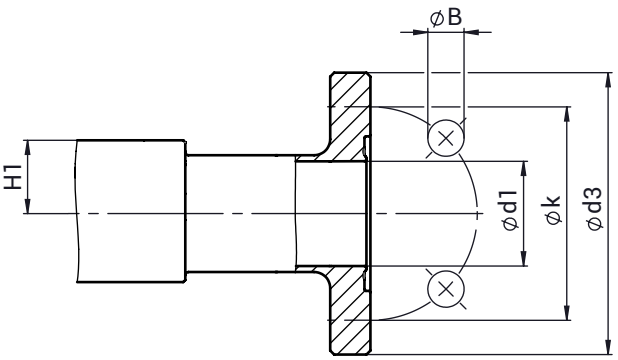
1) **Connection type**
Code 82: Clamp DIN 32676 Series B, Overall length FTF EN 558 Series 7, Overall length only for housing type D
Code 8A: Clamp DIN 32676 Series A, Overall length FTF according to EN 558 Series 7, Overall length only for housing type D
Code 8E: Clamp ISO 2852 for pipe ISO 2037, Clamp 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 40: 1.4435 (F316L), forged body
Code 42: 1.4435 (BN2), forged body, Δ Fe < 0,5 %
Code F4: 1.4539 / UNS N08904, forged body

9.5.12 Aseptic flanged connection (code A1, A2, A4, A5, A7, A8)



Connection code A1, A4, A7 – grooved flange



Connection code A2, A5, A8 – loose flange

Connection type: Aseptic flange connection DIN 11864-2 (Code A1, A2, A4, A5, A7, A8) [1], **Full material (Code 41, 43, 44)** [2]

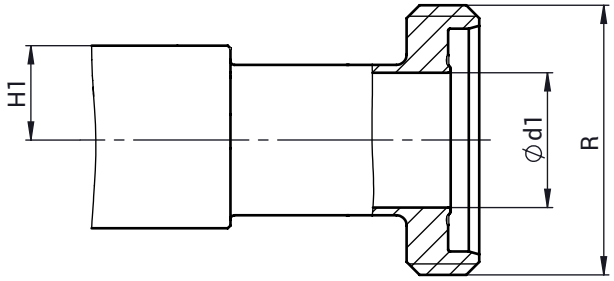
Pipe connection for aseptic flange					EN 10357 Series A (formerly DIN 11850 Series 2) / DIN 11866 Series A				ISO 1127 / EN 10357 Series C / DIN 11866 Series B				ASME BPE / DIN 11866 Series C			
Connection code Pipe					17				60				59			
Aseptic flange connection					DIN 11864-2											
Connection code					A1, A2				A4, A5				A7, A8			
MG	DN	NPS	H1	n	ød1	øD	øk	øL	ød1	øD	øk	øL	ød1	øD	øk	øL
8	8	1/4"	8.5	4	-	-	-	-	10.3	54.0	37.0	9.0	-	-	-	-
	10	3/8"	8.5	4	10.0	54.0	37.0	9.0	-	-	-	-	-	-	-	-
	15	1/2"	8.5	4	-	-	-	-	-	-	-	-	9.4	54.0	37.0	9.0
10	10	3/8"	12.5	4	10.0	54.0	37.0	9.0	14.0	59.0	42.0	9.0	-	-	-	-
	15	1/2"	12.5	4	16.0	59.0	42.0	9.0	18.1	62.0	45.0	9.0	9.4	54.0	37.0	9.0
	20	3/4"	12.5	4	-	-	-	-	-	-	-	-	15.75	59.0	42.0	9.0
25	15	1/2"	19.0	4	16.0	59.0	42.0	9.0	18.1	62.0	45.0	9.0	-	-	-	-
	20	3/4"	19.0	4	20.0	64.0	47.0	9.0	23.7	69.0	52.0	9.0	15.75	59.0	42.0	9.0
	25	1"	19.0	4	26.0	70.0	53.0	9.0	29.7	74.0	57.0	9.0	22.1	66.0	49.0	9.0
40	32	1 1/4"	26.0	4	32.0	76.0	59.0	9.0	38.4	82.0	65.0	9.0	-	-	-	-
	40	1 1/2"	26.0	4	38.0	82.0	65.0	9.0	44.3	88.0	71.0	9.0	34.8	79.0	62.0	9.0
50	50	2"	32.0	4	50.0	94.0	77.0	9.0	56.3	103.0	85.0	9.0	47.5	92.0	75.0	9.0
	65	2 1/2"	32.0	-	-	-	-	-	-	-	-	-	60.2	107.0	89.0	9.0

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

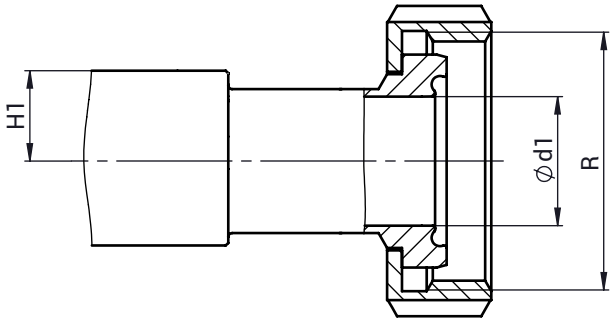
1) **Connection type, spigot 1**
Code A1: Aseptic flange DIN 11864-NF, for pipe DIN 11866 series A and EN 10357 series A
Code A2: Aseptic flange DIN 11864-BF, for pipe DIN 11866 series A and EN 10357 series A
Code A4: Aseptic flange DIN 11864-NF, for pipe DIN 11866 series B and EN ISO 1127
Code A5: Aseptic flange DIN 11864-BF, for pipe DIN 11866 series B and EN ISO 1127
Code A7: Aseptic flange DIN 11864-NF, for pipe DIN 11866 series C and ASME BPE
Code A8: Aseptic flange DIN 11864-BF, for pipe DIN 11866 series C and ASME BPE

2) **Valve body material**
Code 41: 1.4435 (316L), block material
Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%
Code 44: 1.4539, block material

9.5.13 Aseptic pipe union (code C1, C2, C4, C5, C7, C8)



Connection code C1, C4, C7 – threaded spigot



Connection code C2, C5, C8 – female union

Connection type Aseptic pipe union DIN 11864-1 (Code C1, C2, C4, C5, C7, C8) [1], Block material (Code 41, 43, 44) [2]

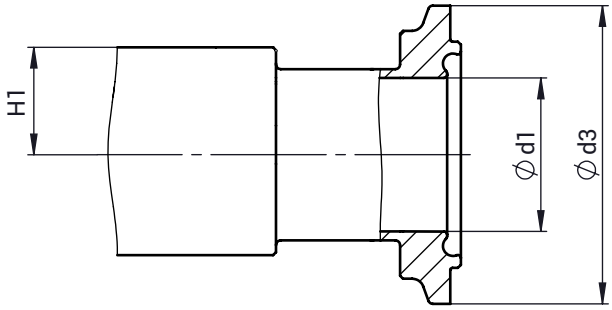
Pipe connection for aseptic pipe union				EN 10357 Series A (formerly DIN 11850 Series 2) / DIN 11866 Series A		ISO 1127 / EN 10357 Series C / DIN 11866 Series B		ASME BPE / DIN 11866 Series C	
Connection code Pipe				17		60		59	
Aseptic pipe union				DIN 11864-1					
Connection code				C1, C2		C4, C5		C7, C8	
MG	DN	NPS	H1	ød1	R	ød1	R	ød1	R
8	8	1/4"	8.5	-	-	10.3	Rd 28 × 1/8	-	-
	10	3/8"	8.5	10.0	Rd 28 × 1/8	-	-	-	-
	15	1/2"	8.5	-	-	-	-	9.4	Rd 28 × 1/8
10	10	3/8"	12.5	10.0	Rd 28 × 1/8	10.3	Rd 28 × 1/8	-	-
	15	1/2"	12.5	16.0	Rd 34 × 1/8	14.0	Rd 34 × 1/8	9.4	Rd 28 × 1/8
	20	3/4"	12.5	-	-	-	-	15.75	Rd 34 × 1/8
25	15	1/2"	19.0	16.0	Rd 34 × 1/8	14.0	Rd 34 × 1/8	-	-
	20	3/4"	19.0	20.0	Rd 44 × 1/6	18.1	Rd 44 × 1/6	15.75	Rd 34 × 1/8
	25	1"	19.0	26.0	Rd 52 × 1/6	23.7	Rd 52 × 1/6	22.1	Rd 52 × 1/6
40	32	1 1/4"	26.0	32.0	Rd 58 × 1/6	29.7	Rd 58 × 1/6	-	-
	40	1 1/2"	26.0	38.0	Rd 65 × 1/6	38.4	Rd 65 × 1/6	34.8	Rd 65 × 1/6
50	50	2"	32.0	50.0	Rd 78 × 1/6	44.3	Rd 78 × 1/6	47.5	Rd 78 × 1/6
	65	2 1/2"	32.0	-	-	-	-	60.2	Rd 95 × 1/6

Dimensions in mm
MG = diaphragm size

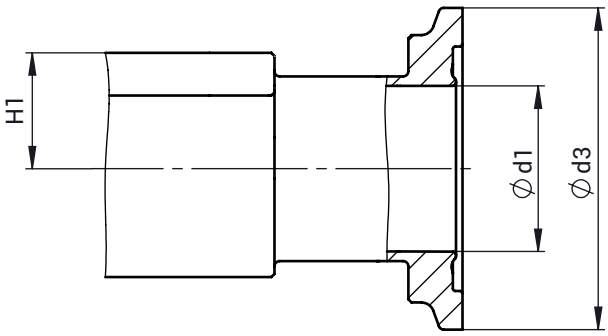
1) **Connection type, spigot 1**
Code C1: Aseptic union DIN 11864-GS, for pipe DIN 11866 series A and EN 10357 series A
Code C2: Aseptic union DIN 11864-BS, for pipe DIN 11866 series A and EN 10357 series A
Code C4: Aseptic union DIN 11864-GS, for pipe DIN 11866 series B and EN ISO 1127
Code C7: Aseptic pipe union DIN 11864-GS for pipe DIN 11866 series C and ASME BPE
Code C8: Aseptic union DIN 11864-BS for pipe DIN 11866 series C and ASME BPE

2) **Valve body material**
Code 41: 1.4435 (316L), block material
Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%
Code 44: 1.4539, block material

9.5.14 Aseptic clamp connector (code E1, E2, E4, E5, E7, E8)



Connection code E1, E4, E7 – grooved clamp



Connection code E2, E5, E8 – notched clamp

Aseptic clamp connection DIN 11864-3 (Code E1, E2, E4, E5, E7, E8) [1], **Block material (Code 41, 43, 44)** [2]

Pipe connection for aseptic clamp connection				EN 10357 Series A (formerly DIN 11850 Series 2) / DIN 11866 Series A		ISO 1127 / EN 10357 Series C / DIN 11866 Series B		ASME BPE / DIN 11866 Series C	
Connection code Pipe				17		60		59	
Aseptic clamp connection				DIN 11864-3					
Connection code				E1, E2		E4, E5		E7, E8	
MG	DN	NPS	H1	ød1	ød3	ød1	ød3	ød1	ød3
8	8	1/4"	8.5	-	-	10.3	34.0	-	-
	10	3/8"	8.5	10.0	34.0	-	-	-	-
	15	1/2"	8.5	-	-	-	-	9.4	34.0
10	10	3/8"	12.5	10.0	34.0	14.0	34.0	-	-
	15	1/2"	12.5	16.0	34.0	18.1	34.0	9.4	34.0
	20	3/4"	12.5	-	-	-	-	15.75	34.0
25	15	1/2"	19.0	16.0	34.0	18.1	34.0	-	-
	20	3/4"	19.0	20.0	50.5	23.7	50.5	15.75	34.0
	25	1"	19.0	26.0	50.5	29.7	50.5	22.1	50.5
40	32	1 1/4"	26.0	32.0	50.5	38.4	64.0	-	-
	40	1 1/2"	26.0	38.0	64.0	44.3	64.0	34.8	64.0
50	50	2"	32.0	50.0	77.5	56.3	91.0	47.5	77.5
	65	2 1/2"	32.0	-	-	-	-	60.2	91.0

Dimensions in mm
MG = diaphragm size

1) **Connection type, spigot 1**
Code E1: Aseptic clamp DIN 11864-NKS, for pipe DIN 11866 series A and EN 10357 series A
Code E2: Aseptic clamp DIN 11864-BKS, for pipe DIN 11866 series A and EN 10357 series A
Code E4: Aseptic clamp DIN 11864-NKS, for pipe DIN 11866 series B and EN ISO 1127
Code E5: Aseptic clamp DIN 11864-BKS, for pipe DIN 11866 series B and EN ISO 1127
Code E7: Aseptic clamp DIN 11864-NKS, for pipe DIN 11866 series C/ASME BPE
Code E8: Aseptic clamp DIN 11864-BKS, for pipe DIN 11866 series C/ASME BPE

2) **Valve body material**
Code 41: 1.4435 (316L), block material
Code 43: 1.4435 (BN2), block material, Δ Fe < 0.5%
Code 44: 1.4539, block material

10 Manufacturer's information

10.1 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.

10.2 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.

10.3 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.

11 Installation in piping

11.1 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

Maximum permissible pressure exceeded!

- ► Damage to the product!
- ● Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

⚠ CAUTION

Use as step!

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

NOTICE

Corrosion!

- ► Damage to the product.
- ● Only operate the product with suitable media.

NOTICE

Suitability of the product!

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

NOTICE

Tools!

► The tools required for installation and assembly are not included in the scope of delivery.

● Use appropriate, functional and safe tools.

1. Ensure the product is suitable for the relevant application.
2. Check the technical data of the product and the materials.
3. Keep appropriate tools ready.
4. Wear appropriate protective gear as specified in the plant operator's guidelines.
5. Comply with appropriate regulations for the connections.
6. Installation work must be performed by trained personnel.
7. Shut off the plant or plant component.
8. Secure the plant or plant component against recommissioning.
9. Depressurize the plant or plant component.
10. Completely drain the plant or plant component and allow it to cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
11. Correctly decontaminate, rinse and ventilate the plant or plant component.
12. Lay piping so that the product is protected against transverse and bending forces, and also vibrations and tension.
13. Only install the product between matching aligned pipes (see chapters below).
14. Pay attention to the installation position (see "Installation position" chapter).

11.2 Installation position

The installation position of the product is optional.

11.3 Installation with clamp connections

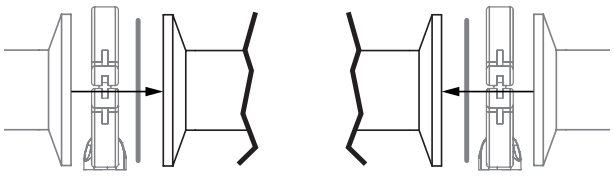


Fig. 1: Clamp connection

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.

11.4 Installation with butt weld spigots

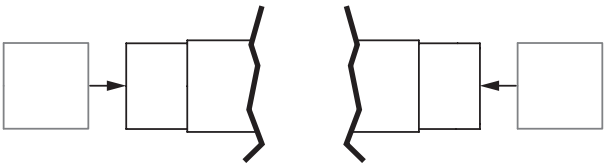


Fig. 2: Butt weld spigots

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.

11.5 Installation with threaded sockets

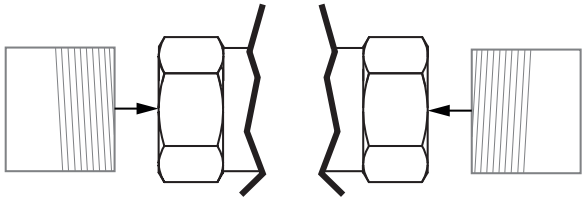


Fig. 3: Threaded socket

NOTICE

Sealing material!

► The sealing material is not included in the scope of delivery.

● Only use appropriate sealing material.

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

11.6 Installation with threaded spigots

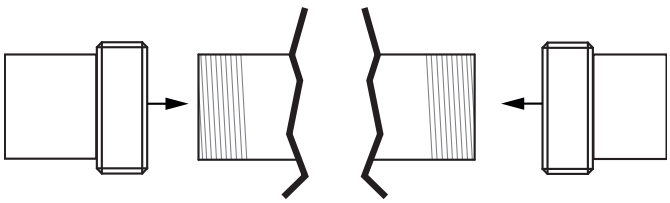


Fig. 4: Threaded spigots

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.

11.7 Installation with flanged connection

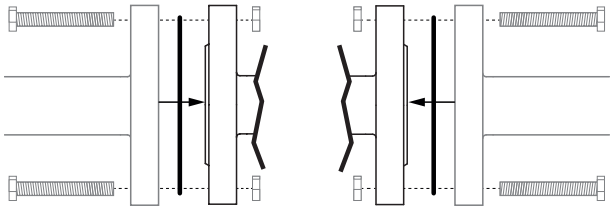


Fig. 5: Flanged connection

NOTICE

Sealing material!

► The sealing material is not included in the scope of delivery.

● Only use appropriate sealing material.

NOTICE

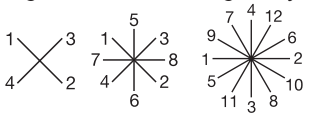
Connector elements!

► 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 pipes with flanges.
6. Centre the gaskets.
7. Connect the valve flange and the piping flange using appropriate sealing materials and matching bolting.
8. Use all flange holes.
9. Tighten the bolts diagonally.



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

12 Operation

12.1 Manual override

⚠ WARNING

Damage to the product!

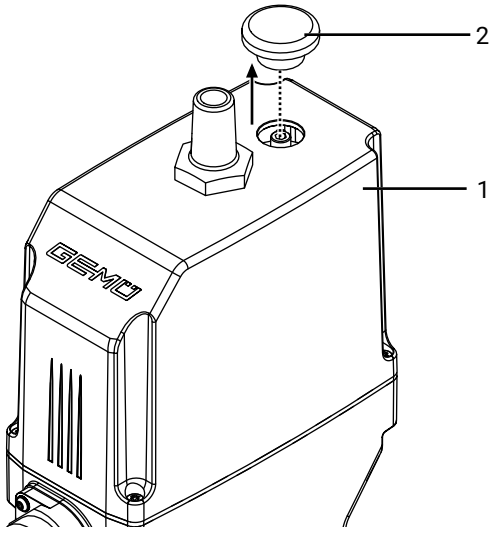
► Risk of damage to the product

► Manufacturer liability and guarantee will be void.

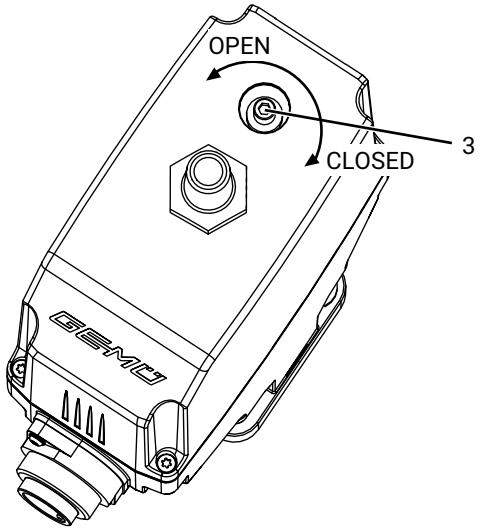
● Only operate the manual override **by hand**, because there is no mechanical stop.

NOTICE

► Manual override may only be used in extreme emergencies, as there is a risk of damage to the valve actuator. Incorrect use of the manual override will void the manufacturer's liability.



1. Remove the sealing plug **2** from the actuator cover **1** using an appropriate tool.



2. Operate the manual override **3** with the hexagon socket (WAF3).
   ⇨ Turn clockwise to close the valve.
   ⇨ Turn anticlockwise to open the valve.
3. After actuation, the plug must be reinserted, otherwise the IP protection is no longer guaranteed and the actuator may be damaged.

13 Troubleshooting

Error	Possible cause	Troubleshooting
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
	Foreign matter between shut-off diaphragm and valve body	Remove the actuator, remove foreign matter, check diaphragm and valve body for potential damage, replace damaged parts if necessary
	Valve body leaking or damaged	Carry out initialisation, check valve body for damage, replace valve body if necessary.
	Shut-off diaphragm faulty	Check shut-off diaphragm for potential damage, replace the shut off diaphragm if necessary
The product does not open or does not open fully	Actuator defective	Replace the actuator
	Shut-off diaphragm incorrectly mounted	Remove the actuator, check the diaphragm mounting, replace the shut-off diaphragm if necessary
	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	Foreign matter in the product	Remove and clean the product
	The actuator design is not suitable for the operating conditions	Use an actuator that is designed for the operating conditions
	Voltage is not connected	Connect voltage
	Cable ends incorrectly wired	Wire cable ends correctly
The product does not close or does not close fully	The actuator design is not suitable for the operating conditions	Use an actuator that is designed for the operating conditions
	Foreign matter in the product	Remove and clean the product
	Voltage is not connected	Connect voltage
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
The product is leaking between actuator flange and valve body	Mounting parts loose	Retighten mounting parts
	Valve body / actuator damaged	Replace valve body/actuator
Valve body of the GEMÜ product is leaking	Valve body of the GEMÜ product is faulty or corroded	Check valve body of the GEMÜ product for potential damage, replace valve body if necessary
Body of the GEMÜ product is leaking	Incorrect installation	Check installation of valve body in piping
Valve body connection to piping leaking	Incorrect installation	Check installation of valve body in piping

14 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.

NOTICE

Use of incorrect spare parts!

► Damage to the GEMÜ product

► The manufacturer liability and guarantee will be void.

● Use only genuine parts from GEMÜ.

⚠ CAUTION

Hot plant components!

► Burns

● Only work on plant that has cooled down.

● Wear protective gear.

NOTICE

Exceptional maintenance work!

► Damage to the GEMÜ product

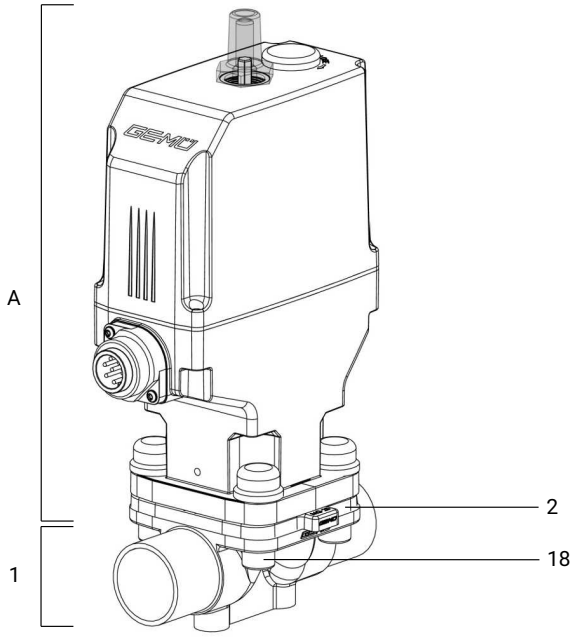
● Any maintenance work and repairs not described in these operating instructions must not be performed without consulting the manufacturer first.

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

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

1. Have servicing and maintenance work performed by trained personnel.
2. Wear appropriate protective gear as specified in plant operator's guidelines.
3. Shut off plant or plant component.
4. Secure the plant or plant component against recommissioning.
5. Depressurize the plant or plant component.
6. Actuate GEMÜ products which are always in the same position four times a year.
7. If necessary, the end position counter **User** can be reset after maintenance or other changes under parameter Cycle Counter.

14.1 Spare parts



Position	Description	Order reference
A	Actuator	9629...
1	Valve body	K600...
2	Diaphragm	600...M...
18	Mounting kit	629...S30...

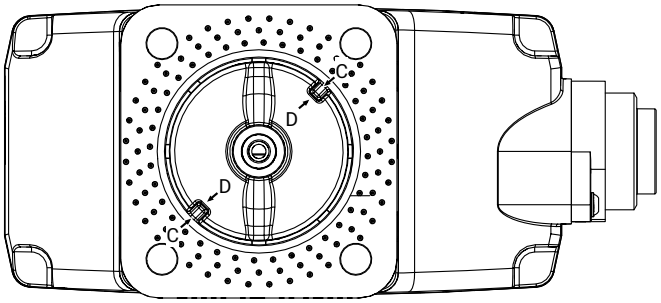
14.2 Removing the actuator

1. Move the actuator **A** to the open position.
2. Loosen the fastening elements between actuator **A** and valve body **1** diagonally and remove them.
3. Lift actuator **A** off valve body **1**.
4. Move the actuator **A** to the closed position.
5. Clean all parts of contamination (do not damage parts during cleaning).
6. Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

14.3 Removing the diaphragm

1. Remove actuator **A** (see chapter "Removing the actuator").
2. Unscrew the diaphragm.
   ⇨ Please note: Depending on the version, the compressor may fall out.
3. Clean all parts of contamination (do not damage parts during cleaning).
4. Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

14.4 Mounting the compressor



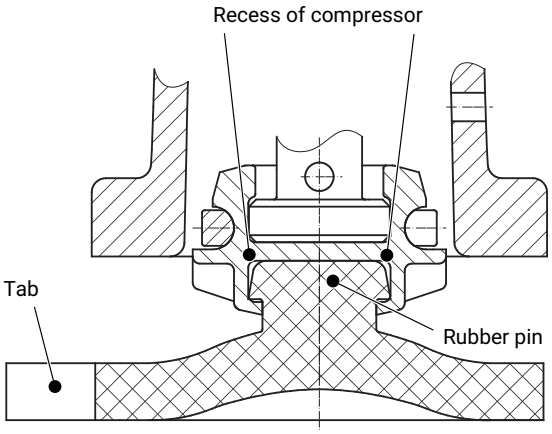
1. Place the compressor loosely on the actuator spindle.
2. Fit recesses **D** into guides **C**.

⇨ The compressor must be able to be moved freely between the guides.

14.5 Mounting the diaphragm

14.5.1 Mounting the concave diaphragm

Diaphragm size 8
Diaphragms for knotting:



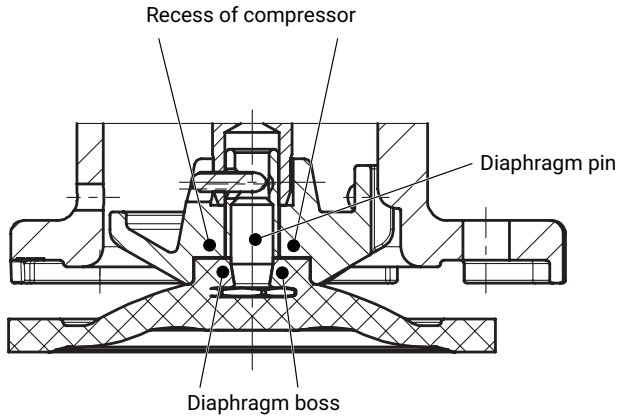
1. Move actuator **A** to the closed position.
2. Place diaphragm **2** with moulded rubber pin at an angle to the pressure piece recess.

NOTICE

► Do not use any greases or lubricants!

3. Screw/press in by hand.
4. Align the lug with the manufacturer and material identification parallel to the pressure piece web.

Diaphragm sizes 10 – 50
Screw-in diaphragms:



5. Move actuator **A** to the closed position.
6. Diaphragm size 10: Check whether the compressor is locked in place.
   Diaphragm sizes 25 - 80: Place the compressor loosely on the actuator spindle, align the recesses in the guides (see chapter 'Mounting the compressor').
7. Check that the compressor is positioned in the guides.
8. Screw the new diaphragm firmly into the compressor by hand.
9. Check whether the membrane is positioned in the recess of the pressure piece.
10. If operation is sluggish, check the thread and replace any damaged parts (use only original GEMÜ parts).
11. If you feel significant resistance, unscrew the diaphragm until the diaphragm hole pattern matches the drive hole pattern.

14.5.2 Mounting the convex 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.

NOTICE

► The compressor is loose and can fall out.

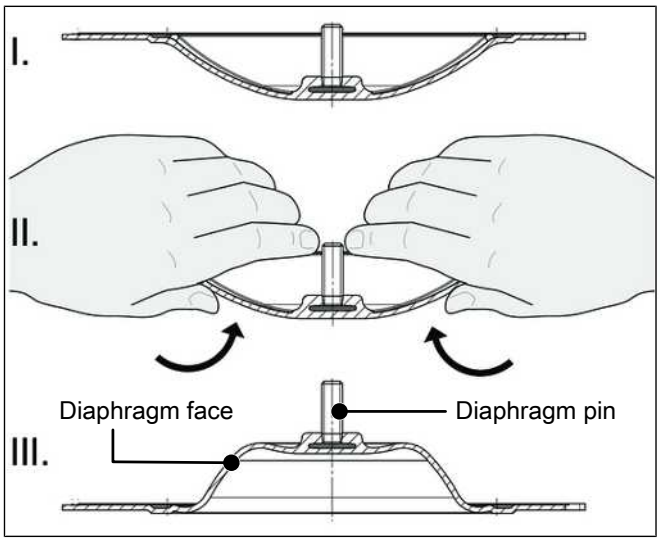


Fig. 6: Inverting the diaphragm face

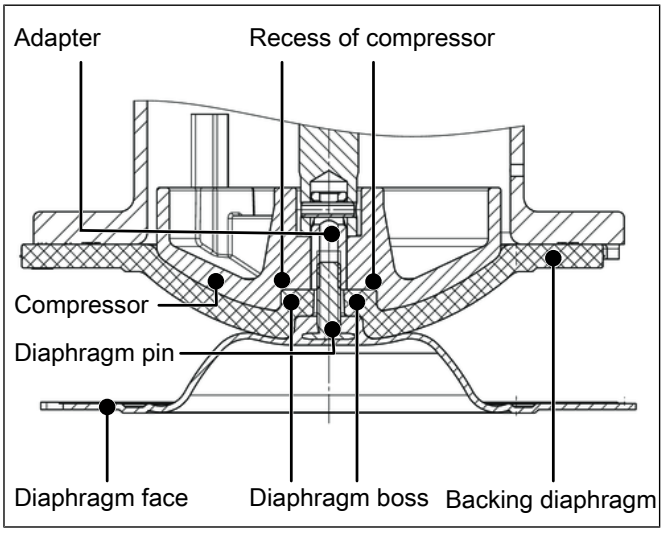


Fig. 7: Screwing in the diaphragm face

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).
5. Position the new backing diaphragm onto the compressor.
6. Position the diaphragm face onto the backing diaphragm.
7. Screw diaphragm face tightly into the compressor manually.
   ⇨ The diaphragm boss must fit closely in the recess of the compressor.
8. If it is difficult to screw it in, check the thread and replace damaged parts.
9. When definitive resistance is felt, turn back the diaphragm 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.

14.6 Mounting the actuator

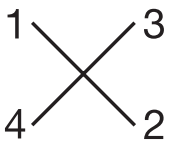
NOTICE

Diaphragms set in the course of time!

► Leakage

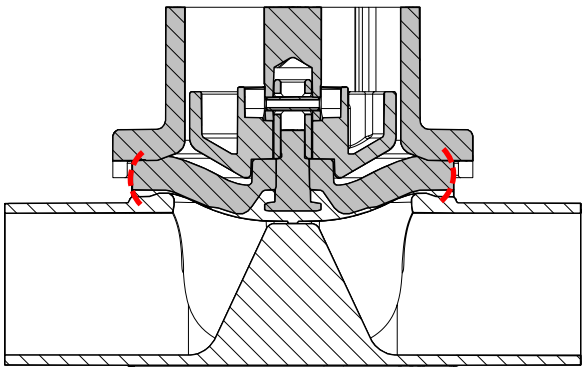
- After disassembly/assembly of the product, check that the bolts and nuts on the body are tight and retighten if required.
- Retighten the bolts and nuts at the very latest after the first sterilization process.

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. Screw in bolts, washers and nuts hand tight.
   ⇨ Fastening elements may vary depending on the diaphragm size and/or valve body version.
4. Move the actuator **A** to the closed position.
5. Open actuator **A** approx. 20%.
6. Fully tighten the bolts with nuts diagonally.



7. Ensure even compression of the diaphragm (approx. 10 to 15%).
   ⇨ Even compression is detected by an even outer bulge.
8. **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.

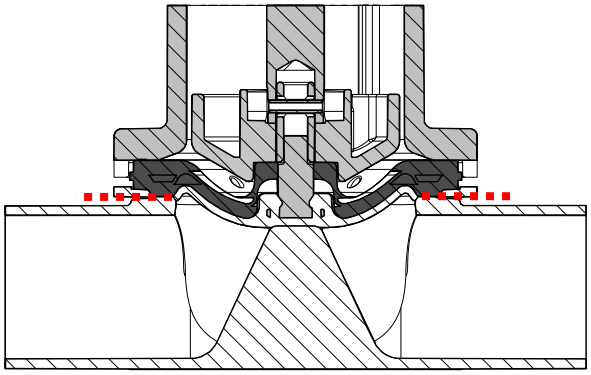
Diaphragm code 3A/13, 17, 19, 5Q, 54, 71



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

9. 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.

10. **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.
11. With the valve fully assembled, check the function and tightness.

15 Removal from piping

⚠ 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.

1. Remove in reverse order to installation.
2. Unscrew the electrical wiring.
3. Disassemble the product. Observe warning notes and safety information.

16 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.

17 Returns

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

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

18 EU Declaration of Incorporation according to the EC Machinery Directive 2006/42/EC, Annex II B

EU Declaration of Incorporation

according to the EC Machinery Directive 2006/42/EC, Annex II B

We, the company	GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG Fritz-Müller-Strasse 6–8 74653 Ingelfingen-Criesbach, Germany

hereby declare under our sole responsibility that the below-mentioned product complies with the relevant essential health and safety requirements in accordance with Annex I of the above-mentioned Directive.

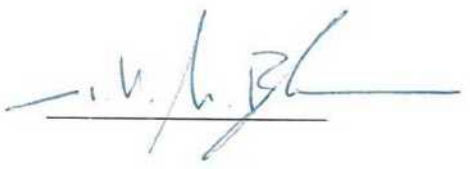
Product:	GEMÜ 629
Product name:	Motorized diaphragm valve
The following essential health and safety requirements of the EC Machinery Directive 2006/42/EC, Annex I have been applied or adhered to:	1.1.2.; 1.1.3.; 1.1.5.; 1.3.2.; 1.3.4.; 1.3.7.; 1.3.8.; 1.5.1.; 1.5.13.; 1.5.2.; 1.5.4.; 1.5.6.; 1.5.7.; 1.5.8.; 1.6.1.; 1.6.3.; 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.
The following harmonized standards (or parts thereof) have been applied:	EN ISO 12100:2010

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.

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.



M. Barghoorn
Head of Global Technics

Ingelfingen, 16/06/2023

19 EU Declaration of Conformity in accordance with 2014/68/EU (Pressure Equipment Directive)

EU Declaration of Conformity

in accordance with 2014/68/EU (Pressure Equipment Directive)

We, the company	GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG Fritz-Müller-Strasse 6–8 74653 Ingelfingen-Criesbach, Germany

hereby declare under our sole responsibility that the below-mentioned product complies with the regulations of the above-mentioned Directive.

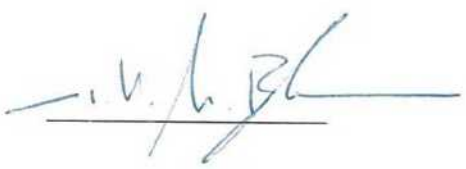
Product:	GEMÜ 629
Product name:	Motorized diaphragm valve
Notified body:	TÜV Rheinland Industrie Service GmbH Am Grauen Stein 1 51105 Cologne, Germany
ID number of the notified body:	0035
No. of the QA certificate:	01 202 926/Q-02 0036
Conformity assessment procedure:	Module H1
The following harmonized standards (or parts thereof) have been applied:	EN 13397:2001

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.

Other applied technical standards / Remarks:

- AD 2000



M. Barghoorn
Head of Global Technics

Ingelfingen, 16/06/2023

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Fritz-Müller-Straße 6-8 D-74653 Ingelfingen-Criesbach
www.gemu-group.com
info@gemue.de

20 EU Declaration of Conformity in accordance with 2014/30/EU (EMC Directive)

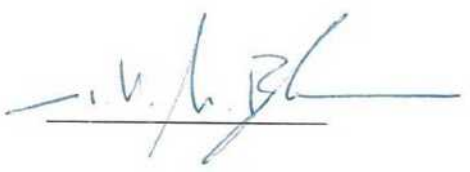
EU Declaration of Conformity

in accordance with 2014/30/EU (EMC Directive)

We, the company	GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG Fritz-Müller-Strasse 6–8 74653 Ingelfingen-Criesbach, Germany

hereby declare under our sole responsibility that the below-mentioned product complies with the regulations of the above-mentioned Directive.

Product:	GEMÜ 629
Product name:	Motorized diaphragm valve
The following harmonized standards (or parts thereof) have been applied:	EN 61000-6-4:2007/A1:2011; EN 61000-6-2:2005/AC:2005



M. Barghoorn
Head of Global Technics

Ingelfingen, 16/06/2023

21 EU Declaration of Conformity In accordance with 2011/65/EU (RoHS Directive)

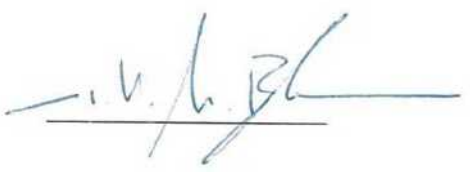
EU Declaration of Conformity

In accordance with 2011/65/EU (RoHS Directive)

We, the company	GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG Fritz-Müller-Strasse 6–8 74653 Ingelfingen-Criesbach, Germany

hereby declare under our sole responsibility that the below-mentioned product complies with the regulations of the above-mentioned Directive.

Product:	GEMÜ 629
Product name:	Motorized diaphragm valve
The following harmonized standards (or parts thereof) have been applied:	EN IEC 63000:2018



M. Barghoorn
Head of Global Technics

Ingelfingen, 16/06/2023

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