

## GEMÜ 723

Motorized ball valve

### EN Operating instructions



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30.05.2023

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## 1 General information

### 1.1 Information

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

### 1.2 Symbols used

The following symbols are used in this document:

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

### 1.3 Definition of terms

#### Working medium

The medium that flows through the GEMÜ product.

### 1.4 Warning notes



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


SIGNAL WORD	
Possible symbol for the specific danger	<b>Type and source of the danger</b> <ul style="list-style-type: none"> <li>▶ Possible consequences of non-observance.</li> <li>● Measures for avoiding danger.</li> </ul>

Warning notes are always marked with a signal word and sometimes also with a symbol for the specific danger.





The following signal words and danger levels are used:

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

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

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

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

Symbol	Meaning
	Danger of explosion!
	Corrosive chemicals!
	Hot plant components!
	Risk of electric shock!

## 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 substances.

The safety information does not take into account:

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

**Prior to commissioning:**

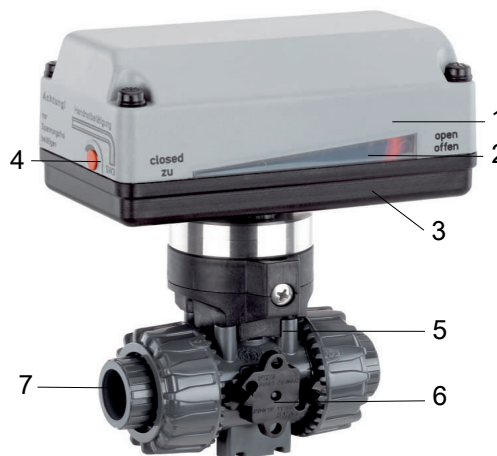
1. Transport and store the product correctly.
2. Do not paint the bolts and plastic parts of the product.
3. Carry out installation and commissioning using trained personnel.
4. Provide adequate training for installation and operating personnel.
5. Ensure that the contents of the document have been fully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

**During operation:**

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

**In cases of uncertainty:**

15. Consult the nearest GEMÜ sales office.

**3 Product description****3.1 Construction**

Item	Name	Material
1	Housing cover	Actuator versions 1006, 1015, 2006, 2015: PPE + 30 % glass fibre reinforced Actuator version 3035: PP + 20 % glass bead reinforced Actuator version 2070: ABS
2	Optical position indicator	PP-R natural
3	Housing base	Actuator versions 1006, 1015, 2006, 2015: PP + 30 % glass fibre reinforced Actuator version 3035: PP + 20 % glass bead reinforced Actuator version 2070: ABS
4	Connection for manual override	-
5	Ball valve body	PVC-U, PVC-C, ABS, PP-H or PVDF
6	Anti-twist protection	POM
7	Pipe connections	PVC-U, PVC-C, ABS, PP-H or PVDF
	Ball valve seals	FPM, EPDM, FFKM
	Ball valve seat seals	PTFE

**3.2 Description**

The 2/2 and/or 3/2-way GEMÜ 723 ball valve is motorized. It has a plastic actuator housing. A manual override and an optical position indicator are integrated as standard. The seat seal is made from PTFE and the O-ring seals can be made from either EPDM or FKM.

### 3.3 Function

The product is a 2/2 or 3/2-way plastic ball valve. It has a low maintenance electric actuator with a powerful DC motor. The reduction gear in the motor provides the rotation through 90°. The actuator has an optical position indicator and a manual override as standard.

The "OPEN" and "CLOSED" end positions are set via microswitches.

The emergency power supply for 24 V DC types is provided by means of an emergency power supply module GEMÜ 1570 (not with actuator version 2070). The opening and closing behaviour is independent of the operating pressure.

The threaded connection locking device enables the unions to be locked in place.

The ball valve body and the seal material are available in various designs as shown in the datasheet.

### 3.4 Port positions

The port position can be variably adjusted by the customer. The actuator must be removed in order to do this. The shaft extension of the mounting kit can be turned in any number of 90° increments, allowing for a customized port position. A tool with an appropriate wrench size is required to turn the shaft extension. This tool is not included in the scope of delivery. Once the desired adjustment has been made to the port position, the actuator can be refitted.

#### 3.4.1 T-port

	CLOSED end position	OPEN end position	Condition as supplied to customer OPEN
Delivery condition			
<b>Code T</b>			
Optional port positions, can be user adjusted			
<b>Code 2</b>			
<b>Code 3</b>			
<b>Code 4</b>			

#### 3.4.2 L-port

	CLOSED end position	OPEN end position	Condition as supplied to customer OPEN
Delivery condition			
<b>Code L</b>			
Optional port positions, can be user adjusted			
<b>Code 6</b>			

#### 3.4.3 Control ball

	Control ball	Scale
<b>Code R</b>		

For 0° - 90° control range, linear control characteristic between port position and percentage flow rate.

NOTE: Ball configuration (R) cannot be retrofitted to standard 2/2-way bodies at a later date.

### 4 Correct use

**⚠ DANGER**

**Danger of explosion!**

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

**⚠ WARNING**

**Improper use of the product!**

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

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

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

- Use the product in accordance with the technical data.

## 5 Order data

The order data provide an overview of standard configurations.

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

### Order codes

1 Type	Code
Ball valve, plastic, motorized	723

2 DN	Code
DN 10	10
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

3 Body configuration	Code
2/2-way body	D
Multi-port version	M

4 Connection type	Code
Union end with insert (solvent cement or weld socket) - DIN	2
Union end with flange EN 1092, PN 10, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1	4
Union end with inch insert - BS (socket)	33
Union end with flange ANSI Class 125/150 RF	39
Union end with inch insert – ASTM (socket)	3M
Union end with JIS insert (socket)	3T
Union end with insert (for IR butt welding) - DIN	78
Union end with insert (Rp threaded socket) - DIN	7R
Threaded socket NPT	31

5 Ball valve material	Code
PVC-U, grey	1
PVC-C	2
PVDF	20
ABS	4
PP-H, grey	5

6 Seal material	Code
FKM	4
EPDM	14

7 Voltage/Frequency	Code
12 VDC	B1
12 V 50/60 Hz	B4
24 VDC	C1
24 V 50/60 Hz	C4
24 - 240 V AC 24 - 135 V DC for model 20, 35, 55, 85, 140, 300	U5

8 Control module	Code
ON/OFF actuator, relay, not reversible	00
ON/OFF actuator, 2 additional potential-free limit switches, relay, not reversible	0E
ON/OFF actuator, potentiometer output, relay, not reversible	0P
ON/OFF actuator	A0
ON/OFF 3-position actuator, additional potential-free limit switches	A3
ON/OFF actuator, 2 additional potential-free limit switches, Class A (EN15714-2)	AE
ON/OFF actuator, 2 additional potential-free limit switches, BSR battery pack (NC)	AE1
ON/OFF actuator, 2 additional potential-free limit switches, BSR battery pack (NO)	AE2
ON/OFF actuator, potentiometer output, Class A (EN15714-2)	AP
ON/OFF actuator, 2 additional potential-free limit switches, potentiometer output 5 kOhm, Failsafe battery pack (NC), preferred direction adjustable	AP1
Control actuator, external set value 0-10 VDC	E1
Positioner DPS, external set value 0-10V, BSR battery pack (NC)	E11
Control actuator, external set value 0/4-20 mA	E2
Positioner DPS, external set value 4-20mA, BSR battery pack (NC)	E21

9 Actuator version	Code
Actuator, motorized, operating time 4s, torque 6Nm, GEMUE, size 1 supply voltage B1, C1, B4, C4	1006
Actuator, motorized, operating time 11s, torque 15Nm, GEMUE, size 1 supply voltage B1, C1	1015
Actuator, motorized, operating time 11s, torque 15Nm, GEMUE, size 2 supply voltage B4, C4	2015
Actuator, motorized, operating time 15s, torque 35Nm, GEMUE, size 3 supply voltage C1	3035
Actuator, motorized, operating time 15s, torque 70Nm, GEMUE, size 2 supply voltage C1	2070
Actuator, motorized, operating time 10s, torque 20Nm, J+J, type J4 heating, IP67	J4C20

9 Actuator version	Code
Actuator, motorized, operating time 10s, torque 35Nm, J+J, type J4 heating, IP67	J4C35
Actuator, motorized, operating time 13s, torque 55Nm, J+J, type J4 heating, IP67	J4C55
Actuator, motorized, operating time 29s, torque 85Nm, J+J, type J4 heating, IP67	J4C85

10 Ball config./port position	Code
<b>2/2-way body</b>	
R ball (control ball) for 0°- 90° control range linear control characteristic between port position and percentage flow rate	R
<b>Multi-port version</b>	
L-port, standard end position "Open", connection 2 and 3 open, L-port, standard end position "Closed", connection 1 and 3 open	L

10 Ball config./port position	Code
T-port, standard end position "Open", connection 1, 2 and 3 open, T-port, standard end position "Closed", connection 1 and 3 open	T
T-port, end position "Open", connection 1 and 3 open, T-port, end position "Closed", connection 1 and 2 open	2
T-port, end position "Open", connection 1 and 2 open, T-port, end position "Closed", connection 2 and 3 open	3
T-port, end position "Open", connection 2 and 3 open, T-port, end position "Closed", connection 1, 2 and 3 open	4
L-port, end position "Open", connection 1 and 3 open, L-port, end position "Closed", connection 1 open	6

11 Special specification	Code
Without	
Insert in PE	1187

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

### Order example

Ordering option	Code	Description
1 Type	723	Ball valve, plastic, motorized
2 DN	15	DN 15
3 Body configuration	M	Multi-port design
4 Connection type	33	Union end with inch insert - BS (socket)
5 Ball valve material	1	PVC-U, grey
6 Seal material	14	EPDM
7 Voltage/Frequency	C1	24 VDC
8 Control module	A0	ON/OFF actuator
9 Actuator version	1006	Actuator, motorized, operating time 4s, torque 6Nm, GEMUE, size 1 supply voltage B1, C1, B4, C4
10 Ball config./port position	T	T-port, standard end position "Open", connection 1, 2 and 3 open, T-port, standard end position "Closed", connection 1 and 3 open
11 Special specification		Without
12 CONEXO		Without



## 6 Technical data

### 6.1 Ball valve

#### 6.1.1 Medium

**Working medium:** Corrosive, inert, gaseous and liquid media and steam which have no negative impact on the physical and chemical properties of the body and seal material.

#### 6.1.2 Temperature

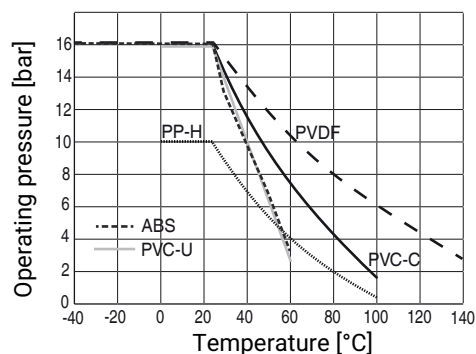
**Media temperature:** see Pressure / temperature diagram

Seal material: FPM: -15 – 210 °C  
EPDM: -20 – 95 °C

**Ambient temperature:** Valve body ABS: -20 to 60 °C  
Valve body PP-H: 5 to 60 °C  
Valve body PVC-U, PVC-C: 10 to 50 °C  
Valve body PVDF: -5 to 50 °C

#### 6.1.3 Pressure

**Operating pressure:** Pressure / temperature diagram



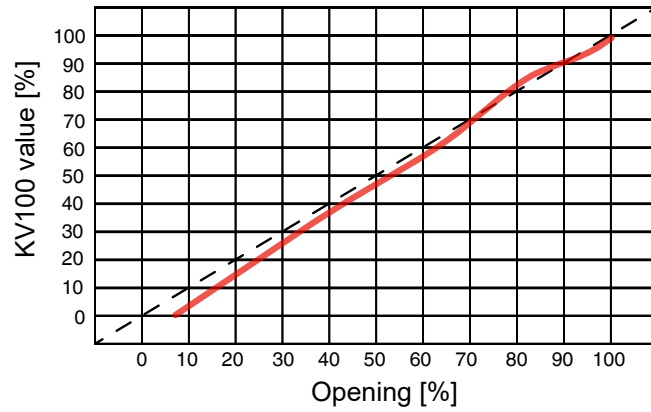
Data for extended temperature ranges on request. Please note that the ambient temperature and media temperature generate a combined temperature at the valve body which must not exceed the above values.

**Kv values:**

DN	Body configuration						
	2/2-way		Multi-port (code M)				
	(code D)	(code R)	T-port	T-port	T-port	T-port	L-port
10	4.8	4.98	2.2	1.5	2.4	4.7	2.9
15	12.0	5.28	3.3	2.1	3.9	11.7	4.4
20	23.1	8.10	8.1	5.7	8.7	22.8	9.0
25	46.2	15.36	12.3	8.4	14.7	45.6	15.9
32	66.0	28.68	23.4	16.2	27.6	63.0	28.5
40	105.0	35.52	28.5	19.8	36.0	102.0	37.2
50	204.0	64.08	54.0	37.2	72.0	192.0	73.2
65	315.0	-	-	-	-	-	-
80	426.0	-	-	-	-	-	-
100	570.0	-	-	-	-	-	-

Kv values in m<sup>3</sup>/h

**Control diagram:** with control ball (code R)



For 0°- 90° control range, linear control characteristic between port position and percentage flow rate.

NOTE: Ball configuration (R) cannot be retrofitted to standard 2/2-way bodies at a later date.

**6.1.4 Mechanical data**

**Torques:**

DN	2/2-way code D				Multi-port code M		
	Optional	Standard		Optional	Optional	Standard	
	PS 6	PS 10	PS 16	PS 16	PS 10	PS 10	PS 16
	Material code <sup>1)</sup>						
	1, 2, 4, 5, 20	5	1, 2, 20	4	1, 2	5	1, 2
<b>10</b>	-	2.4	3.6	3.0	-	-	-
<b>15</b>	-	2.4	3.6	3.0	2.4	2.4	3.6
<b>20</b>	-	3.6	4.0	4.0	3.6	3.6	4.8
<b>25</b>	-	4.8	6.0	6.0	5.0	5.0	5.4
<b>32</b>	-	7.2	7.2	7.2	7.2	7.2	11.5
<b>40</b>	-	8.6	10.0	10.0	9.6	10.0	14.8
<b>50</b>	-	12.4	16.0	16.0	14.8	14.8	23.3
<b>65</b>	20.0	25.0	30.0	30.0	-	-	-
<b>80</b>	25.0	35.0	45.0	45.0	-	-	-
<b>100</b>	40.0	55.0	65.0	65.0	-	-	-

Torques in Nm

- 1) **Ball valve material**
- Code 1: PVC-U, grey
- Code 2: PVC-C
- Code 4: ABS
- Code 5: PP-H, grey
- Code 20: PVDF

## 6.2 GEMÜ 9428, 9468 actuators

### 6.2.1 Product compliance

**Machinery Directive:** 2006/42/EC

**EMC Directive:** 2014/30/EU

**Low Voltage Directive:** 2014/35/EU

### 6.2.2 Electrical data

**Rated voltage:** 24 V AC or DC (+10/-15 %)  
12 V / 24 V AC or DC ( $\pm 10\%$ )

**Rated frequency:** 50/60 Hz (at AC rated voltage)

**Power consumption:**

Actuator version (code)	Control module (code)	12 V DC (code B1)	12 V AC (code B4)	24 V DC (code C1)	24 V AC (code C4)
1006	A0, AE	30.0	30.0	30.0	30.0
1015	A0, AE	30.0	-	30.0	-
2015	A0, AE	-	30.0	-	30.0
3035	A0, AE	-	-	30.0	-
2070	00, 0E, 0P	-	-	63.0	-

Power consumption in W

**Current consumption:**

Actuator version (code)	Control module (code)	12 V DC (code B1)	12 V AC (code B4)	24 V DC (code C1)	24 V AC (code C4)
1006	A0, AE	2.2	2.0	1.20	1.5
1015	A0, AE	2.2	-	1.20	-
2015	A0, AE	-	2.0	-	1.2
3035	A0, AE	-	-	1.30	-
2070	00, 0E, 0P	-	-	2.60	-

Current data in A

**Max. switching current:**

Actuator version (code)	Control module (code)	12 V DC (code B1)	12 V AC (code B4)	24 V DC (code C1)	24 V AC (code C4)
1006	A0, AE	6.3	2.4	4.0	1.8
1015	A0, AE	9.2	-	3.8	-
2015	A0, AE	-	2.3	-	1.8
3035	A0, AE	-	-	3.3	-
2070	00, 0E, 0P	-	-	14.0	-

Current data in A

**Duty cycle:** Continuous duty

**Electrical protection:** **GEMÜ 9428**  
Motor protective system by customer

#### **GEMÜ 9468**

Internal for functional module 0x

Actuator version 2070: MT 6.3 A

Actuator version 4100, 4200: MT 10.0 A

Motor protective system by customer, see "Recommended motor protection"

**Recommended motor protection:****GEMÜ 9428**

Voltage	12 V DC	24 V DC
<b>Motor protection switch type</b>	Siemens 3RV 1011-1CA10	Siemens 3RV 1011-1BA10
<b>Set current</b>	2.20	1.70

Current data in A

**GEMÜ 9468**

Motor protection switch      Siemens 3RV 1011-1FA10  
 type:  
 Set current:                      4.0 A

**6.2.3 Mechanical data**

**Nominal travel:**            90°  
**Max. travel:**                93°  
**Setting range:**            0 to 20° (limit switch Min.)  
                                      70 to 93° (limit switch Max.)

**Installation position:**    Optional

**Protection class:**        IP 65 acc. to EN 60529

**Weight:****Actuator**

Actuator version 1006, 1015, 2015:	1.0
Actuator version 3035:	2.4
Actuator version 2070:	4.6

Weights in kg

**Operating time:**

Actuator version 1006:	4.0
Actuator version 1015, 2015:	11.0
Actuator version 2070, 3035:	15.0

Operating times in s

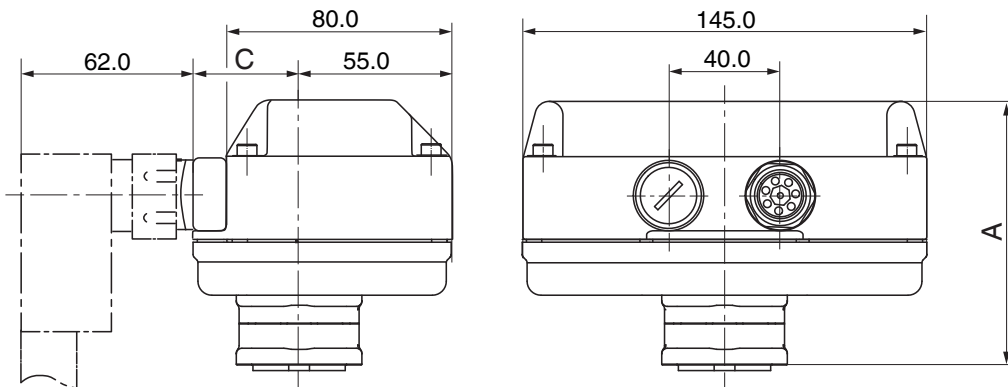
**6.3 J+J actuators**

Note: For technical data see manufacturer's original datasheets

## 7 Dimensions

### 7.1 GEMÜ 9428, 9468 actuators

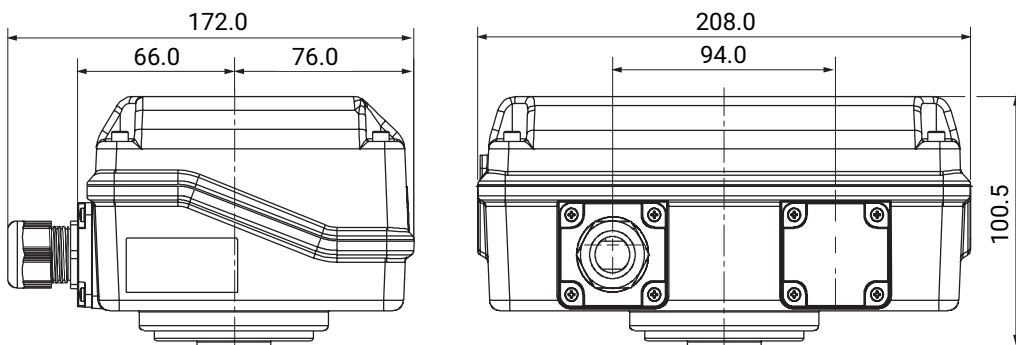
#### 7.1.1 Actuator version 1006, 1015, 2015



Actuator version	A	C
<b>1006, 1015</b>	94.0	49.0
<b>2015</b>	122.0	53.0

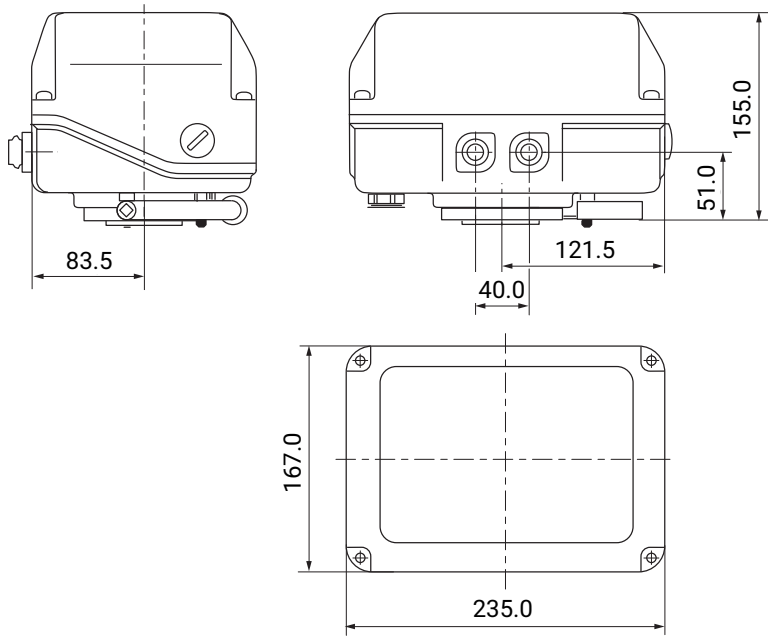
Dimensions in mm

#### 7.1.2 Actuator version 3035



Dimensions in mm

**7.1.3 Actuator version 2070**

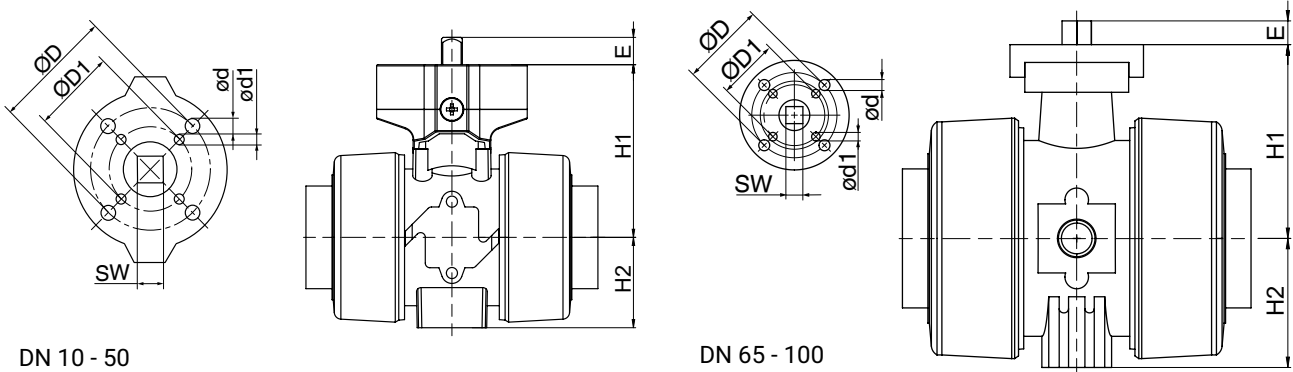


Dimensions in mm

**7.2 J+J actuators**

For more detailed information on third-party actuators, refer to the manufacturers' documentation

**7.3 Connection flange**



DN	SW	E	H1	H2	$\text{ØD} \times \text{ød}$	$\text{ØD1} \times \text{ød1}$
10	11.0	12.0	58.0	29.0	F03 x 5.5	F04 x 5.5
15	11.0	12.0	58.0	29.0	F03 x 5.5	F04 x 5.5
20	11.0	12.0	69.0	35.0	F03 x 5.5	F05 x 6.5
25	11.0	12.0	74.0	39.0	F03 x 5.5	F05 x 6.5
32	14.0	16.0	91.0	46.0	F05 x 6.5	F07 x 8.5
40	14.0	16.0	78.0	52.0	F05 x 6.5	F07 x 8.5
50	14.0	16.0	114.0	62.0	F05 x 6.5	F07 x 8.5
65	14.0	16.0	131.0	87.0	F07 x 9.0	F05 x 6.5
80	14.0	16.0	131.0	105.0	F07 x 9.0	F05 x 6.5
100	17.0	19.0	149.0	129.0	F07 x 9.0	F05 x 6.5

Dimensions in mm

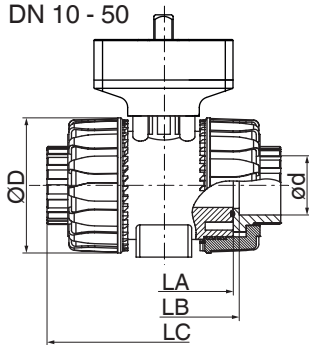
## 7.4 Body dimensions

### 7.4.1 Valve body material PVC-U (code 1), body configuration D

Socket

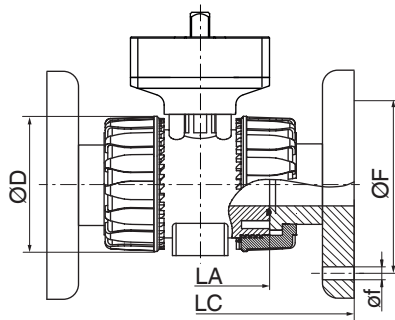
Connection type code 2, 31, 33, 3M, 3T, 7R

DN 10 - 50



Flange

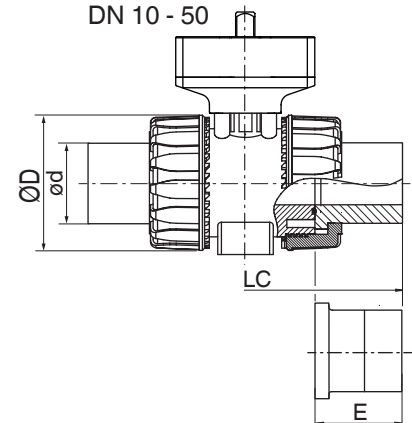
Connection type code 4, 39



Butt weld spigot

Connection type code 78, 78\*

DN 10 - 50



DN	NPS	ød	ØD	A	LA	Connection type code <sup>1)</sup>							
						4	39	78*	4	39	4	39	78*
						LC			øf		ØF		E
15	1/2"	20.0	54.0	40.0	65.0	130.0	143.0	175.0	14.0	15.9	65.0	60.3	55.0
20	3/4"	25.0	65.0	49.0	70.0	150.0	172.0	210.0	14.0	15.9	75.0	69.9	70.0
25	1"	32.0	73.0	49.0	78.0	160.0	187.0	226.0	14.0	15.9	85.0	79.4	74.0
32	1 1/4"	40.0	86.0	64.0	88.0	180.0	190.0	243.0	18.0	15.9	100.0	88.9	78.0
40	1 1/2"	50.0	98.0	64.0	93.0	200.0	212.0	261.0	18.0	15.9	110.0	98.4	84.0
50	2"	63.0	122.0	76.0	111.0	230.0	234.0	293.0	18.0	19.1	125.0	120.7	91.0
65	2 1/2"	75.0	164.0	175.0	133.0	290.0	290.0	356.0	17.0	18.0	145.0	139.7	111.0
80	3"	90.0	203.0	272.0	149.0	310.0	310.0	390.0	17.0	18.0	160.0	152.4	118.0
100	4"	110.0	238.0	330.0	167.0	350.0	350.0	431.0	17.0	18.0	180.0	190.5	132.0

Dimensions in mm

\* Inserts according to valve body material,  
special version: PE insert, design code 1187

#### 1) Connection type

Code 4: Union end with flange EN 1092, PN 10, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

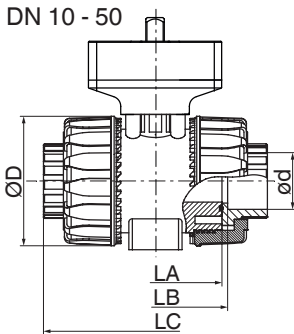
Code 39: Union end with flange ANSI Class 125/150 RF

Code 78: Union end with insert (for IR butt welding) - DIN

**7.4.2 Valve body material PVC-U (code 1), body configuration D**

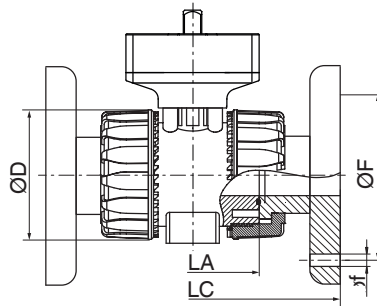
**Socket**

Connection type code 2, 31, 33, 3M, 3T, 7R



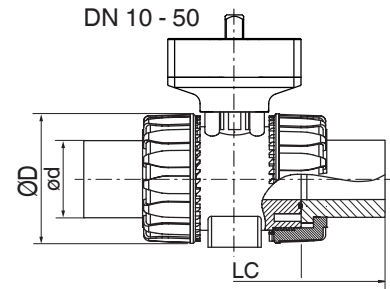
**Flange**

Connection type code 4, 39



**Butt weld spigot**

Connection type code 78, 78\*



DN	NPS	ød	ØD	A	LA	Connection type code <sup>1)</sup>										
						3M	2	33	3M	3T	7R	2	33	3M	3T	7R
						ød	LB					LC				
10	3/8"	16.0	54.0	40.0	65.0	-	75.0	74.0	-	-	-	103.0	103.0	-	-	-
15	1/2"	20.0	54.0	40.0	65.0	21.5	71.0	70.0	72.0	71.0	80.0	103.0	103.0	117.0	131.0	110.0
20	3/4"	25.0	65.0	49.0	70.0	26.9	77.0	77.0	78.0	77.0	83.5	115.0	115.0	129.0	147.0	116.0
25	1"	32.0	73.0	49.0	78.0	33.7	84.0	83.0	84.6	84.0	96.0	128.0	128.0	142.0	164.0	134.0
32	1 1/4"	40.0	86.0	64.0	88.0	42.4	94.0	94.0	98.0	94.0	110.0	146.0	146.0	162.0	182.0	153.0
40	1 1/2"	50.0	98.0	64.0	93.0	48.4	102.0	104.0	102.0	102.0	113.0	164.0	164.0	172.0	212.0	156.0
50	2"	63.0	122.0	76.0	111.0	60.5	123.0	127.0	122.6	122.0	134.5	199.0	199.0	199.0	248.0	186.0
65	2 1/2"	75.0	164.0	175.0	133.0	75.3	147.0	147.0	146.0	145.0	174.5	235.0	235.0	235.0	267.0	235.0
80	3"	90.0	203.0	272.0	149.0	89.1	168.0	168.0	174.0	165.0	203.5	270.0	270.0	270.0	294.0	270.0
100	4"	110.0	238.0	330.0	167.0	114.5	186.0	182.0	193.0	202.0	229.5	308.0	308.0	308.0	370.0	308.0

Dimensions in mm

**1) Connection type**

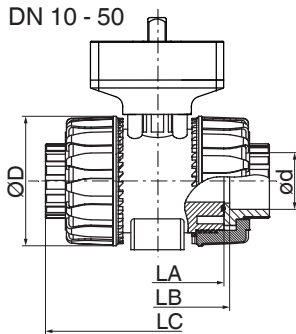
- Code 2: Union end with insert (solvent cement or weld socket) - DIN
- Code 33: Union end with inch insert - BS (socket)
- Code 3M: Union end with inch insert - ASTM (socket)
- Code 3T: Union end with JIS insert (socket)
- Code 7R: Union end with insert (Rp threaded socket) - DIN



### 7.4.3 Valve body material PVC-C (code 2), body configuration D

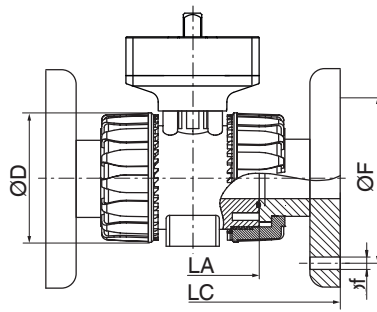
#### Socket

Connection type code 2, 31, 33, 3M, 3T, 7R



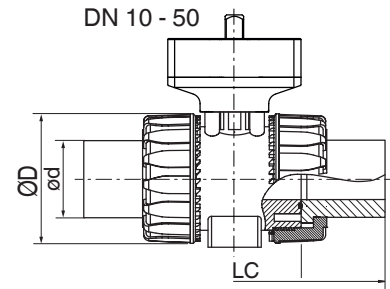
#### Flange

Connection type code 4, 39



#### Butt weld spigot

Connection type code 78, 78\*



DN	NPS	ød	øD	A	LA	Connection type code <sup>1)</sup>										
						3M	2	3M	2	4	39	3M	4	39	4	39
						ød	LB	LC		øf		ØF				
10	3/8"	16.0	54.0	40.0	65.0	-	75.0	-	103.0	-	-	-	-	-	-	-
15	1/2"	20.0	54.0	40.0	65.0	21.5	71.0	72.0	103.0	130.0	143.0	117.0	14.0	15.9	65.0	60.3
20	3/4"	25.0	65.0	49.0	70.0	26.9	77.0	78.0	115.0	150.0	172.0	129.0	14.0	15.9	75.0	69.9
25	1"	32.0	73.0	49.0	78.0	33.7	84.0	84.6	128.0	160.0	187.0	142.0	14.0	15.9	85.0	79.4
32	1 1/4"	40.0	86.0	64.0	88.0	42.4	94.0	98.0	146.0	180.0	190.0	162.0	18.0	15.9	100.0	88.9
40	1 1/2"	50.0	98.0	64.0	93.0	48.4	102.0	102.0	164.0	200.0	212.0	172.0	18.0	15.9	110.0	98.4
50	2"	63.0	122.0	76.0	111.0	60.5	123.0	122.6	199.0	230.0	234.0	199.0	18.0	19.1	125.0	120.7
65	2 1/2"	75.0	164.0	175.0	133.0	75.3	147.0	146.0	235.0	290.0	290.0	235.0	17.0	18.0	145.0	139.7
80	3"	90.0	203.0	272.0	149.0	89.1	168.0	174.0	270.0	310.0	310.0	270.0	17.0	18.0	160.0	152.4
100	4"	110.0	238.0	330.0	167.0	114.5	186.0	193.0	308.0	350.0	350.0	308.0	17.0	18.0	180.0	190.5

Dimensions in mm

#### 1) Connection type

Code 2: Union end with insert (solvent cement or weld socket) - DIN

Code 4: Union end with flange EN 1092, PN 10, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

Code 39: Union end with flange ANSI Class 125/150 RF

Code 3M: Union end with inch insert - ASTM (socket)

**7.4.4 Valve body material ABS (code 4), body configuration D**

Socket

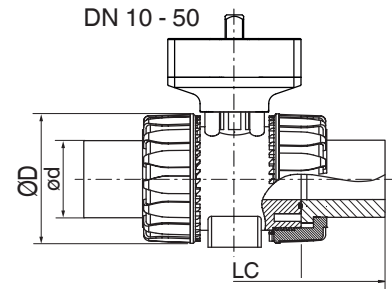
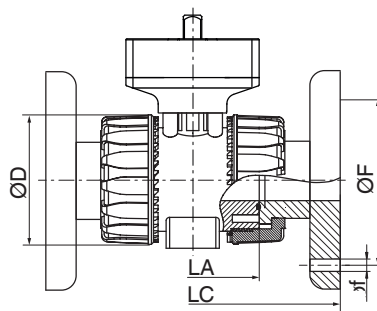
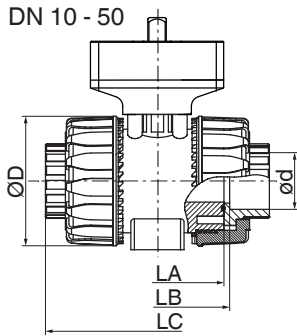
Connection type code 2, 31, 33, 3M, 3T, 7R

Flange

Connection type code 4, 39

Butt weld spigot

Connection type code 78, 78\*



DN	NPS	ød	øD	A	LA	H	Connection type code <sup>1)</sup>				
							2	7R	33	2, 33	7R
							LB			LC	
10	3/8"	15.0	55.0	40.0	65.0	49.0	75.0	-	75.0	103.0	-
15	1/2"	20.0	55.0	40.0	65.0	49.0	71.0	80.0	71.0	103.0	110.0
20	3/4"	25.0	66.0	49.0	70.0	59.0	77.0	83.4	77.0	115.0	116.0
25	1"	32.0	75.0	49.0	78.0	66.0	84.0	95.8	84.0	128.0	134.0
32	1 1/4"	40.0	87.0	64.0	88.0	75.0	94.0	110.2	94.0	146.0	153.0
40	1 1/2"	50.0	100.0	64.0	93.0	87.0	102.0	113.2	102.0	164.0	156.0
50	2"	63.0	122.0	76.0	111.0	101.0	123.0	134.6	123.0	199.0	186.0
65	2 1/2"	75.0	164.0	175.0	133.0	164.0	147.0	-	147.0	235.0	-
80	3"	90.0	203.0	272.0	149.0	177.0	168.0	-	168.0	270.0	-
100	4"	110.0	238.0	330.0	167.0	195.0	186.0	-	186.0	308.0	-

Dimensions in mm

1) **Connection type**

Code 2: Union end with insert (solvent cement or weld socket) - DIN

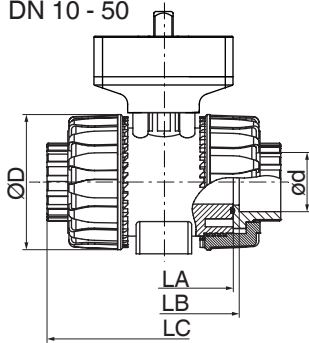
Code 33: Union end with inch insert - BS (socket)

Code 7R: Union end with insert (Rp threaded socket) - DIN

### 7.4.5 Valve body material PP-H (code 5), body configuration D

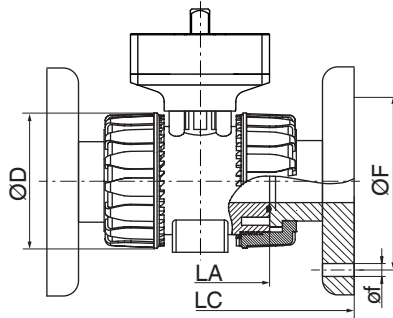
#### Socket

Connection type code 2, 31, 33, 3M, 3T, 7R DN 10 - 50



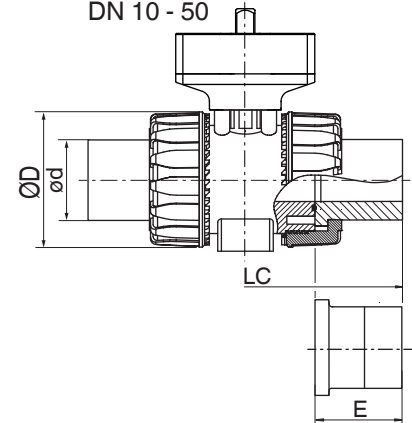
#### Flange

Connection type code 4, 39



#### Butt weld spigot

Connection type code 78, 78\* DN 10 - 50



DN	NPS	$\varnothing d$	$\varnothing D$	A	LA	Connection type code <sup>1)</sup>											
						2	7R	2	4	39	7R	78/78*	78/78*	4	39	4	39
						LB		LC				E	$\varnothing f$		$\varnothing F$		
10	3/8"	16.0	54.0	40.0	65.0	75.0	-	102.0	-	-	-	-	-	-	-	-	-
15	1/2"	20.0	54.0	40.0	65.0	73.0	80.0	102.0	130.0	143.0	175.0	110.0	55.0	14.0	15.9	65.0	60.3
20	3/4"	25.0	65.0	49.0	70.0	82.0	83.0	114.0	150.0	172.0	210.0	116.0	70.0	14.0	15.9	75.0	69.9
25	1"	32.0	73.0	49.0	78.0	90.0	96.0	126.0	160.0	187.0	226.0	134.0	77.0	14.0	15.9	85.0	79.4
32	1 1/4"	40.0	86.0	64.0	88.0	100.0	110.0	141.0	180.0	190.0	243.0	153.0	78.0	18.0	15.9	100.0	88.9
40	1 1/2"	50.0	98.0	64.0	93.0	117.0	113.0	164.0	200.0	212.0	261.0	156.0	84.0	18.0	15.9	110.0	98.4
50	2"	63.0	122.0	76.0	111.0	144.0	134.0	199.0	230.0	234.0	293.0	186.0	91.0	18.0	15.9	125.0	120.7
65	2 1/2"	75.0	164.0	175.0	133.0	153.0	-	213.0	290.0	290.0	356.0	-	111.0	17.0	18.0	145.0	139.7
80	3"	90.0	203.0	272.0	149.0	173.0	-	239.0	310.0	310.0	390.0	-	118.0	17.0	18.0	160.0	152.4
100	4"	110.0	238.0	330.0	167.0	199.0	-	268.0	350.0	350.0	431.0	-	132.0	17.0	18.0	180.0	190.5

Dimensions in mm

\* Inserts according to valve body material,  
special version: PE insert, design code 1187

#### 1) Connection type

Code 2: Union end with insert (solvent cement or weld socket) - DIN

Code 4: Union end with flange EN 1092, PN 10, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

Code 39: Union end with flange ANSI Class 125/150 RF

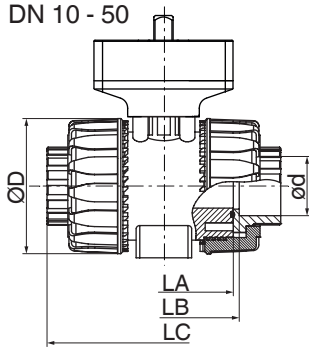
Code 78: Union end with insert (for IR butt welding) - DIN

Code 7R: Union end with insert (Rp threaded socket) - DIN

**7.4.6 Valve body material PVDF (code 20), body configuration D**

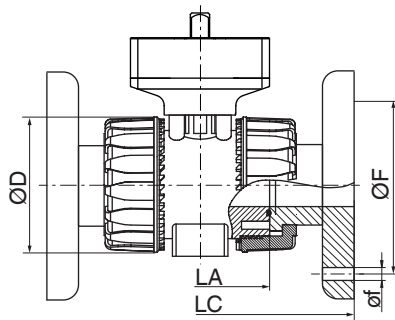
Socket

Connection type code 2, 31, 33, 3M, 3T, 7R  
DN 10 - 50



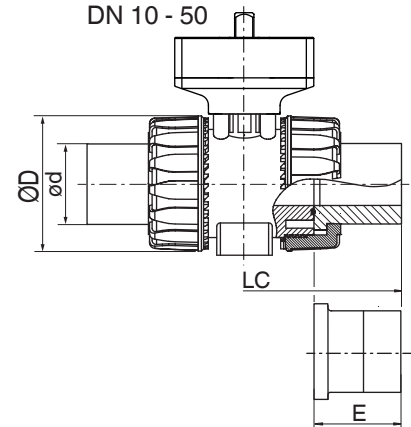
Flange

Connection type code 4, 39



Butt weld spigot

Connection type code 78, 78\*  
DN 10 - 50



DN	NPS	$\varnothing d$	$\varnothing D$	A	LA	Connection type code <sup>1)</sup>								
						2	2	4	78	4	39	4	39	78*
						LB	LC		$\varnothing f$		$\varnothing F$		E	
10	3/8"	16.0	54.0	40.0	65.0	74.5	102.0	-	-	-	-	-	-	-
15	1/2"	20.0	54.0	40.0	65.0	73.0	102.0	130.0	124.0	14.0	15.9	65.0	60.5	30.0
20	3/4"	25.0	65.0	49.0	70.0	82.0	114.0	150.0	144.0	14.0	15.9	75.0	70.0	37.0
25	1"	32.0	73.0	49.0	78.0	90.0	126.0	160.0	154.0	14.0	15.9	85.0	79.5	39.5
32	1 1/4"	40.0	86.0	64.0	88.0	100.0	141.0	180.0	174.0	18.0	15.9	100.0	89.0	44.5
40	1 1/2"	50.0	98.0	64.0	93.0	117.0	164.0	200.0	194.0	18.0	15.9	110.0	98.5	51.5
50	2"	63.0	122.0	76.0	111.0	144.0	199.0	230.0	224.0	18.0	19.1	134.0	121.0	58.0
65	2 1/2"	75.0	164.0	175.0	133.0	147.0	235.0	290.0	355.0	18.0	18.0	145.0	140.0	110.5
80	3"	90.0	203.0	272.0	149.0	173.0	239.0	310.0	389.0	18.0	18.0	160.0	152.5	118.5
100	4"	110.0	238.0	330.0	167.0	186.0	308.0	350.0	427.0	18.0	18.0	180.0	190.5	130.5

Dimensions in mm

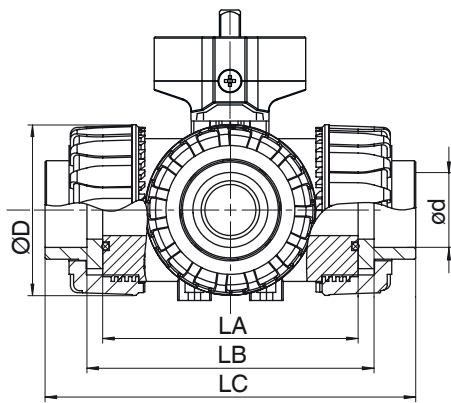
\* Inserts according to valve body material, special version: PE insert, design code 1187

1) Connection type

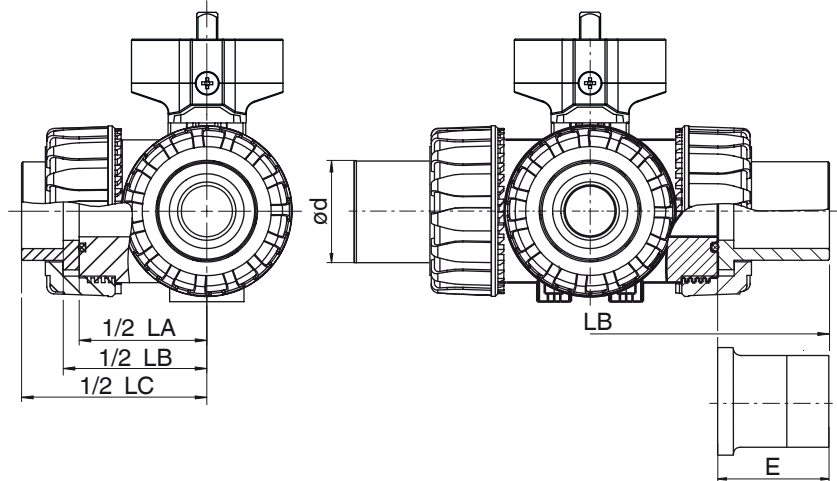
- Code 2: Union end with insert (solvent cement or weld socket) - DIN
- Code 4: Union end with flange EN 1092, PN 10, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1
- Code 39: Union end with flange ANSI Class 125/150 RF
- Code 78: Union end with insert (for IR butt welding) - DIN

### 7.4.7 Valve body material PVC-U (code 1), body configuration M

Connection type  
code 2, 33, 3M, 3T, 7R



Connection type  
code 78, 78\*



DN	NPS	ød	ØD	A	LA	Connection type code <sup>1)</sup>												
						3M	2	33	3M	3T	7R	2, 33	3M	3T	7R	78*	78*	
						ød	LB				LC				E			
10	3/8"	16.0	54.0	40.0	80.0	-	90.0	-	-	-	-	118.0	-	-	-	-	-	
15	1/2"	20.0	54.0	40.0	80.0	21.5	86.0	85.0	87.2	86.0	95.0	118.0	132.2	146.0	125.0	190.0	55.0	
20	3/4"	25.0	65.0	49.0	100.0	26.9	107.0	106.8	108.2	107.0	114.0	145.0	159.2	177.0	146.0	240.0	70.0	
25	1"	32.0	73.0	49.0	110.0	33.7	116.0	115.0	116.6	116.0	129.0	160.0	174.0	196.0	166.0	258.0	74.0	
32	1 1/4"	40.0	86.0	64.0	131.0	42.4	136.5	136.6	141.0	137.0	151.0	188.5	205.0	225.0	195.5	287.0	78.0	
40	1 1/2"	50.0	98.0	64.0	148.0	48.4	157.0	159.0	157.6	157.2	166.0	219.0	227.6	267.2	211.0	316.0	84.0	
50	2"	63.0	122.0	76.0	179.0	60.5	190.5	194.2	190.6	190.0	199.0	266.5	267.0	316.0	253.5	361.0	91.0	

Dimensions in mm

\* Inserts according to valve body material,  
special version: PE insert, design code 1187

#### 1) Connection type

Code 2: Union end with insert (solvent cement or weld socket) - DIN

Code 33: Union end with inch insert - BS (socket)

Code 3M: Union end with inch insert - ASTM (socket)

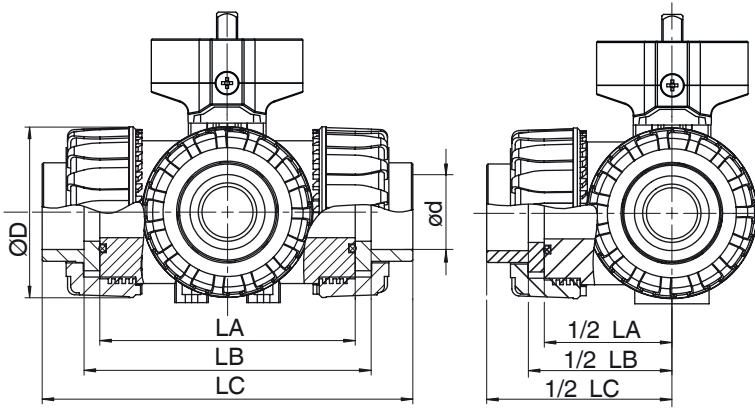
Code 3T: Union end with JIS insert (socket)

Code 78: Union end with insert (for IR butt welding) - DIN

Code 7R: Union end with insert (Rp threaded socket) - DIN

**7.4.8 Valve body material PVC-C (code 2), body configuration M**

Connection type  
code 2, 33, 3M, 3T, 7R



DN	NPS	ØD	A	LA	Connection type code <sup>1)</sup>					
					2	3M	2	3M	2	3M
					ød		LB		LC	
10	3/8"	54.0	40.0	80.0	16.0	-	90.0	-	118.0	-
15	1/2"	54.0	40.0	80.0	20.0	21.5	86.0	87.2	118.0	132.2
20	3/4"	65.0	49.0	100.0	25.0	26.9	107.0	108.2	145.0	159.2
25	1"	73.0	49.0	110.0	32.0	33.7	116.0	116.6	160.0	174.0
32	1 ¼"	86.0	64.0	131.0	40.0	42.4	136.5	141.0	188.5	205.0
40	1 ½"	98.0	64.0	148.0	50.0	48.4	157.0	157.6	219.0	227.6
50	2"	122.0	76.0	179.0	63.0	60.5	190.5	190.6	266.5	267.0

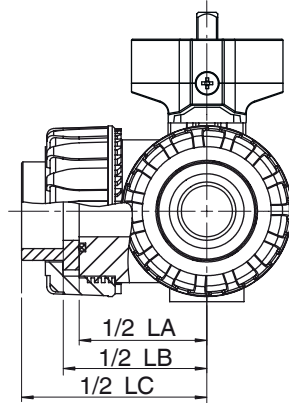
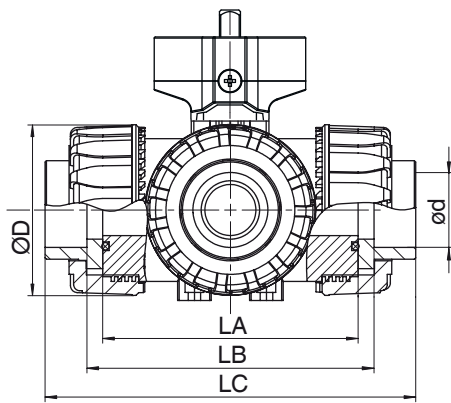
Dimensions in mm

1) **Connection type**

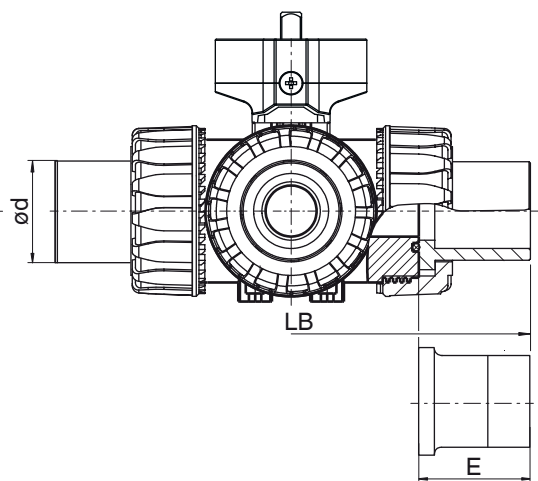
Code 2: Union end with insert (solvent cement or weld socket) - DIN  
Code 3M: Union end with inch insert – ASTM (socket)

### 7.4.9 Valve body material PP-H (code 5), body configuration M

Connection type  
code 2, 33, 3M, 3T, 7R



Connection type  
code 78, 78\*



DN	NPS	ød	ØD	A	LA	Connection type code <sup>1)</sup>					
						2	7R	2	7R	78, 78*	78, 78*
						LB 1		LC		E	
15	1/2"	20.0	54.0	40.0	80.0	88.0	87.0	117.0	117.0	190.0	55.0
20	3/4"	25.0	65.0	49.0	100.0	112.0	114.0	144.0	143.0	240.0	70.0
25	1"	32.0	69.5	49.0	110.0	122.0	120.0	158.0	157.0	258.0	74.0
32	1 1/4"	40.0	82.5	64.0	131.0	142.5	140.0	183.5	184.5	287.0	78.0
40	1 1/2"	50.0	89.0	64.0	148.0	172.0	172.0	216.0	217.0	316.0	84.0
50	2"	63.0	108.0	76.0	179.0	211.5	211.0	266.5	265.5	361.0	91.0

Dimensions in mm

#### 1) Connection type

Code 2: Union end with insert (solvent cement or weld socket) - DIN

Code 78: Union end with insert (for IR butt welding) - DIN

Code 7R: Union end with insert (Rp threaded socket) - DIN

## 8 Manufacturer's information

### 8.1 Delivery

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

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

### 8.2 Packaging

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

### 8.3 Transport



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

### 8.4 Storage

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

## 9 Installation in piping

### 9.1 Preparing for installation

<b>⚠ WARNING</b>	
<b>The equipment is subject to pressure!</b>	
<ul style="list-style-type: none"> <li>▶ Risk of severe injury or death</li> <li>● Depressurize the plant.</li> <li>● Completely drain the plant.</li> </ul>	
<b>⚠ WARNING</b>	
	<b>Corrosive chemicals!</b>
<ul style="list-style-type: none"> <li>▶ Risk of caustic burns</li> <li>● Wear appropriate protective gear.</li> <li>● Completely drain the plant.</li> </ul>	
<b>⚠ CAUTION</b>	
	<b>Hot plant components!</b>
<ul style="list-style-type: none"> <li>▶ Risk of burns</li> <li>● Only work on plant that has cooled down.</li> </ul>	
<b>⚠ CAUTION</b>	
<b>Exceeding the maximum permissible pressure.</b>	
<ul style="list-style-type: none"> <li>▶ Damage to the product</li> <li>● Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer).</li> </ul>	
<b>⚠ CAUTION</b>	
<b>Use as step.</b>	
<ul style="list-style-type: none"> <li>▶ Damage to the product</li> <li>▶ Risk of slipping-off</li> <li>● Choose the installation location so that the product cannot be used as a foothold.</li> <li>● Do not use the product as a step or a foothold.</li> </ul>	
<b>NOTICE</b>	
<b>Suitability of the product!</b>	
<ul style="list-style-type: none"> <li>▶ The product must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions.</li> </ul>	

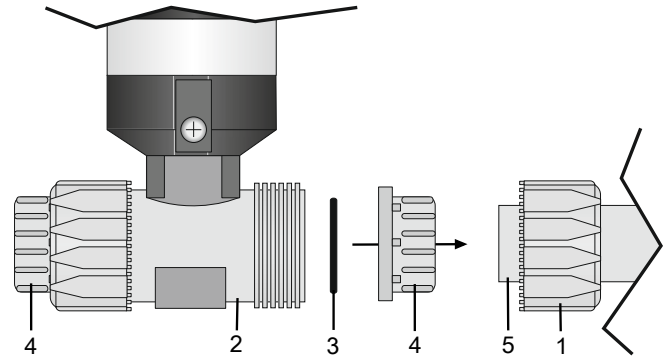


**NOTICE****Tools**

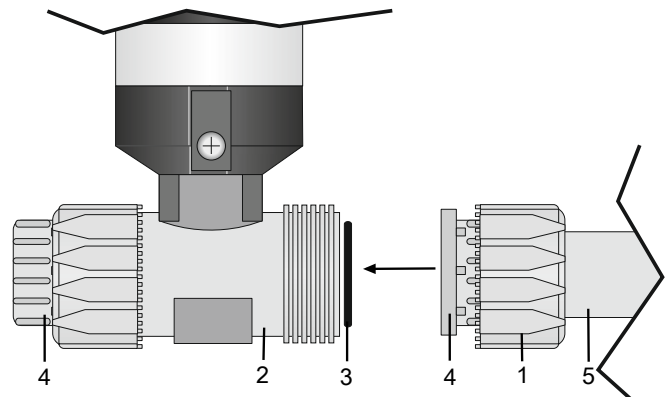
- ▶ The tools required for installation and assembly are not included in the scope of delivery.
  - Use appropriate, functional and safe tools.
1. Ensure the product is suitable for the relevant application.
  2. Check the technical data of the product and the materials.
  3. Keep appropriate tools ready.
  4. Use 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 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 from vibrations and tension.
  13. Only install the product between matching aligned pipes (see chapters below).
  14. Please note the flow direction (see chapter "Flow direction").
  15. Pay attention to the installation position. The valve can be installed in any installation position in the piping. Overhead mounting of the actuator on the valve is also permissible in a suitable environment.

**9.2 Installation with inserts for solvent cementing****NOTICE**

- ▶ The solvent cement is not included in the scope of delivery.
  - Only use suitable solvent cement!
1. Carry out preparations for installation (see chapter "Preparing for installation").



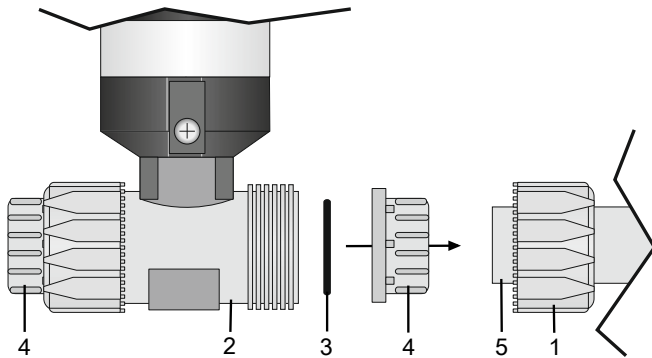
2. Unscrew the union nut **1** from the ball valve body **2**.
3. Reinsert the gasket **3** if necessary.



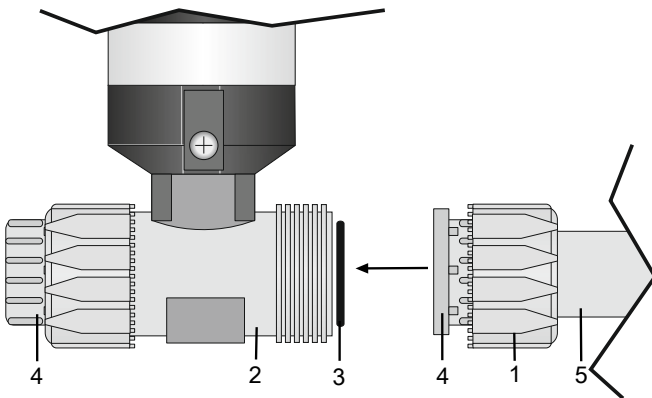
4. Push the union nut **1** over the piping **5**.
5. Prepare solvent cementing surfaces as specified by the solvent cement manufacturer.
6. Apply solvent cement on the inside of the insert **4** and on the outside of the piping **5** as specified by the solvent cement manufacturer.
7. Push the piping **5** into the insert **4**.
8. Screw the union nut **1** to the ball valve body **2** again.
9. Connect the other connections of the ball valve body **2** with the piping **5** in the same manner.

### 9.3 Installation with inserts for welding

1. Carry out preparations for installation (see chapter "Preparing for installation").
2. Adhere to good welding practices!



3. Unscrew the union nut 1 from the ball valve body 2.
4. Reinsert the gasket 3 if necessary.



5. Push the union nut 1 over the piping 5.
6. Push the piping 5 into the insert 4.
7. Weld the piping 5 to the insert 4 with a suitable welding method and appropriate welding parameters and allow to cool down.
8. Screw the union nut 1 to the ball valve body 2 again.
9. Connect the other connections of the ball valve body 2 with the piping 5 in the same manner.

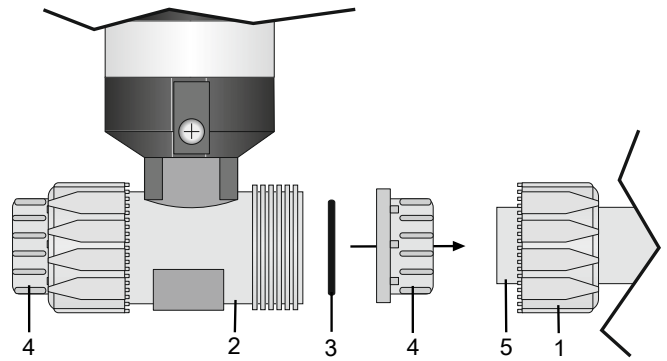
### 9.4 Installation with screw-type inserts

#### NOTICE

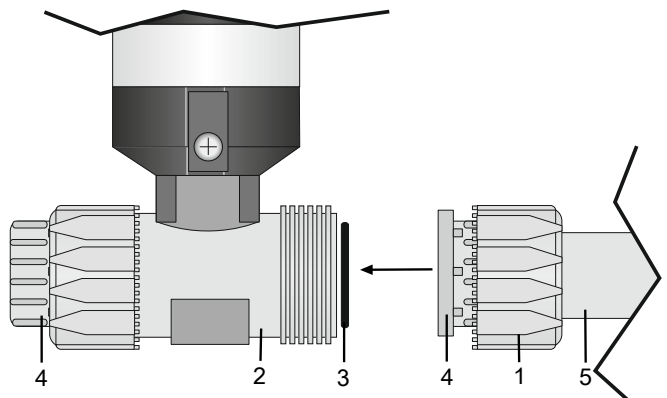
##### Thread sealant

- ▶ 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. Unscrew the union nut 1 from the ball valve body 2.
4. Reinsert the gasket 3 if necessary.



5. Push the union nut 1 over the piping 5.
6. Apply thread sealant on connection thread.
7. Screw the insert 4 into the piping 5.
8. Screw the union nut 1 to the ball valve body 2 again.
9. Connect the other connections of the ball valve body 2 with the piping 5 in the same manner.

### 9.5 Installation with flanged connection

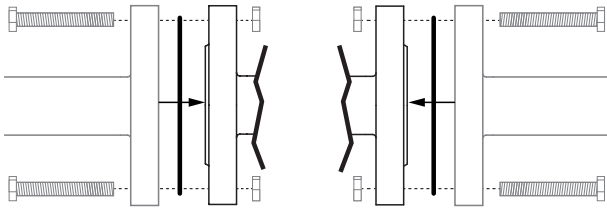


Fig. 1: Flanged connection

#### NOTICE

##### Sealing material

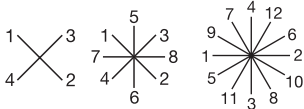
- ▶ The sealing material is not included in the scope of delivery.
- Only use appropriate sealing material.

#### NOTICE

##### Connector elements

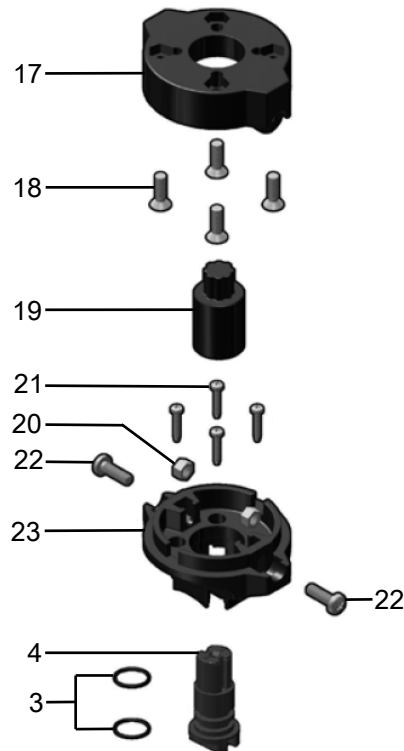
- ▶ The connector elements are not included in the scope of delivery.
- Only use connector elements made of approved materials.
- Observe permissible tightening torque of the bolts.

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



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

### 9.6 Fixing the mounting kit onto the actuator and body



1. Use the bolts **18** to fit the cover of mounting kit **17** onto the actuator.
2. Use the bolts **21** to fit the base of mounting kit **23** onto the body.
3. Push spindle adapter **19** onto the spindle of body **4**.
4. Push the actuator plus the mounted cover of mounting kit **17** onto the body plus the mounted base of mounting kit **23** and bolt together with bolts **22** and nuts **20**.

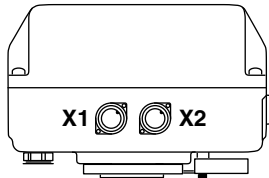
## 10 Electrical connection

### 10.1 GEMÜ 9428, 9468 actuators

#### 10.1.1 Connection/wiring diagram

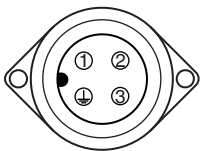
##### 10.1.1.1 On/Off actuator with relay (code 00), 24 V DC (code C1)

###### 10.1.1.1.1 Position of the connectors



Actuator version 2070

###### 10.1.1.1.2 Electrical connection



Plug assignment X1

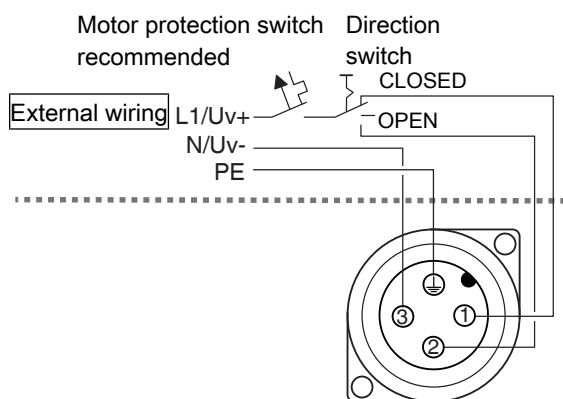
Pin	Description
1	L1 / Uv+, direction of travel CLOSED
2	L1 / Uv+, direction of travel OPEN
3	N / Uv-, neutral conductor
⊕	PE, protective earth conductor

N / L- signals in the unit are separated.

The potential must be assigned by the user.

When the OPEN and CLOSED switches are operated simultaneously the actuator "CLOSES".

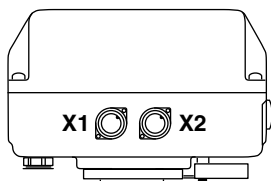
###### 10.1.1.1.3 Connection diagram



Connection assignment X1

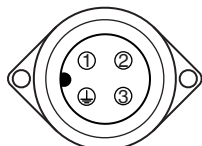
**10.1.1.2 On/Off actuator with 2 additional potential-free limit switches, with relay (code 0E), 24 V DC (code C1)**

**10.1.1.2.1 Position of the connectors**



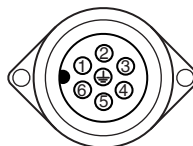
Actuator version 2070

**10.1.1.2.2 Electrical connection**



Plug assignment X1

Pin	Description
1	L1 / Uv+, direction of travel CLOSED
2	L1 / Uv+, direction of travel OPEN
3	N / Uv-, neutral conductor
⊕	PE, protective earth conductor

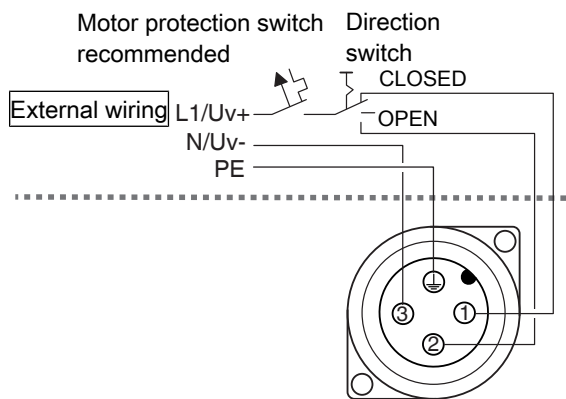


Plug assignment X2

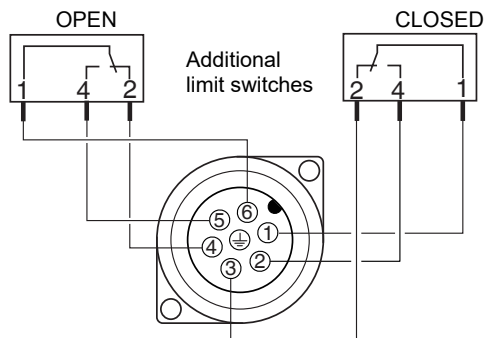
Pin	Description
1	Change-over contact limit switch CLOSED
2	Make contact limit switch CLOSED
3	Break contact limit switch CLOSED
4	Break contact limit switch OPEN
5	Make contact limit switch OPEN
6	Change-over contact limit switch OPEN
⊕	PE, protective earth conductor

N / L- signals in the unit are separated.  
 The potential must be assigned by the user.  
 When the OPEN and CLOSED switches are operated simultaneously the actuator "CLOSES".

**10.1.1.2.3 Connection diagram**



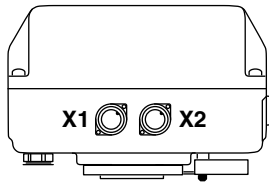
Connection assignment X1



Connection assignment X2

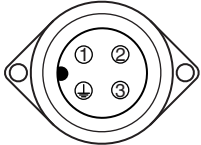
**10.1.1.3 On/Off actuator with potentiometer output, with relay (code 0P), 24 V DC (code C1)**

**10.1.1.3.1 Position of the connectors**



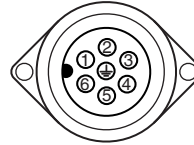
Actuator version 2070

**10.1.1.3.2 Electrical connection**



Plug assignment X1

Pin	Description
1	L1 / Uv+, direction of travel CLOSED
2	L1 / Uv+, direction of travel OPEN
3	N / Uv-, neutral conductor
⊕	PE, protective earth conductor

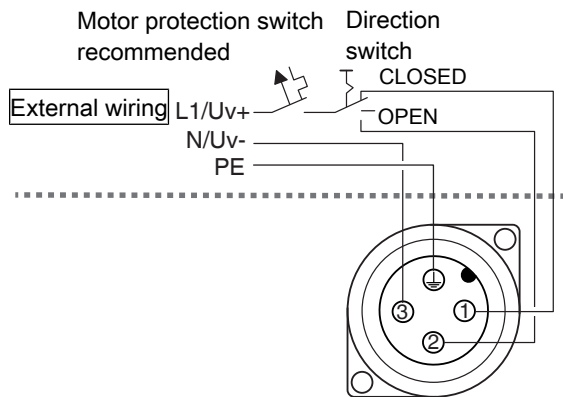


Plug assignment X2

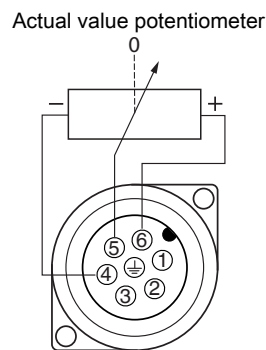
Pin	Description
1	n. c.
2	n. c.
3	n. c.
4	Us-, actual value potentiometer signal voltage minus
5	Us ⊥, actual value potentiometer signal output
6	Us+, actual value potentiometer signal voltage plus
⊕	PE, protective earth conductor

N / L- signals in the unit are separated.  
 The potential must be assigned by the user.  
 When the OPEN and CLOSED switches are operated simultaneously the actuator "CLOSES".

**10.1.1.3.3 Connection diagram**



Connection assignment X1



Connection assignment X2

**10.2 J+J actuators**

Note: For technical data see manufacturer's original datasheets

## 11 Commissioning

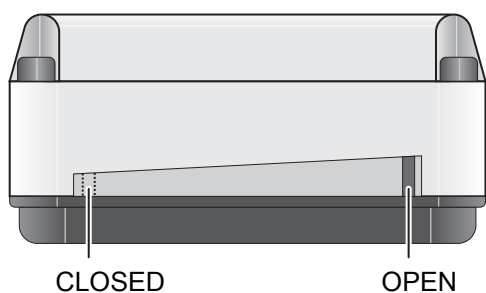
1. Check the tightness and the function of the product (close and reopen the product). Due to the setting behavior of elastomers, the bolts may need to be retightened following the installation and commissioning of the valve.
2. Flush the piping system of new plant and following repair work (the product must be fully open).
  - ⇒ Harmful foreign matter has been removed.
  - ⇒ The product is ready for use.
3. Commission the product.

## 12 Operation

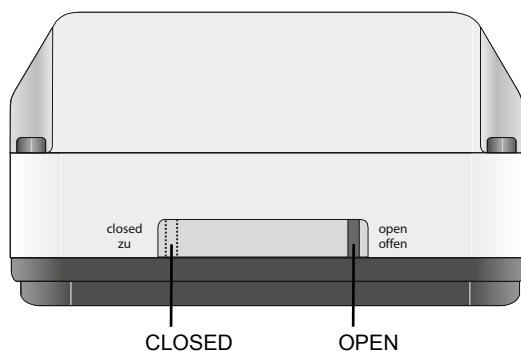
### 12.1 Optical position indicator

The actuator has an optical position indicator which indicates the position of the actuator.

Actuator versions 1006, 1015, 2006, 2015, 3035



Actuator version 2070



### 12.2 Setting the limit switches

#### **⚠ DANGER**



#### **Risk of electric shock!**

- ▶ Risk of injury or death (if operating voltage is higher than safe extra low voltage).
- ▶ Adjustments are made with the actuator cover removed.
- ▶ Electric shock can cause severe burns and fatal injury.
- **Always** disconnect the product from power supply!
- Therefore, have all work performed only by qualified electricians.

#### **⚠ CAUTION**

#### **Destruction of the actuator!**

- ▶ Do not move the right limit switch too far to the right and the left limit switch too far to the left, otherwise the actuator will continue running in the end position (i.e. the limit switch cannot be actuated by the lever and the actuator continues to run).

#### **NOTICE**

#### **Tools required for setting the limit switches:**

- Allen key SW3
- Small Philips head screw driver

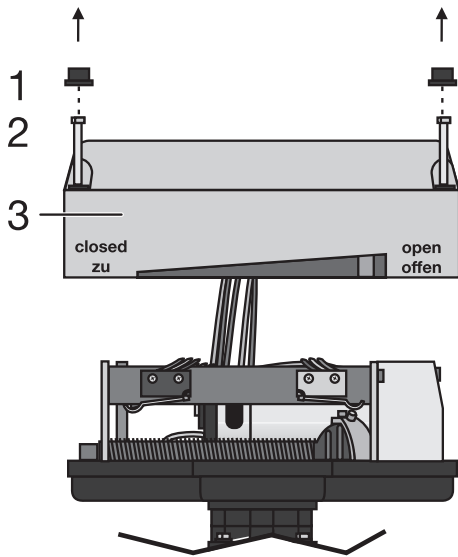
#### **NOTICE**

- Always switch the limit switch for signal so that the motor switch is actuated first.
- ⇒ Limit switches for signal and motor are already preset.

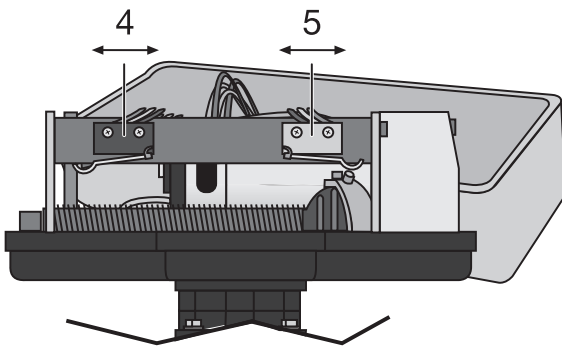
The GEMÜ 9428 motorized actuator is delivered in open position.

#### **The following drawings differ depending on the actuator version!**

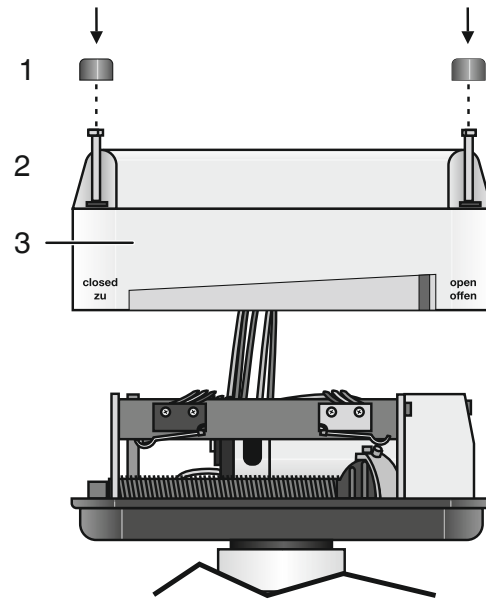
1. Disconnect the plant from power supply and secure against recommissioning.



2. Remove the protective caps 1.
3. Undo screws 2.
4. Disassemble the cover of the actuator 3.



5. Undo screws at the respective limit switch (4 = "CLOSED", 5 = "OPEN").
6. Move limit switches to the desired position.
7. Tighten limit switch screws.



8. Put on cover of actuator 3.
  9. Tighten cover 3.
  10. Put on protective caps 1.
- ⇒ Limit switches are set.

### 12.3 Manual override

**⚠ CAUTION**

**Only actuate the manual override when the power is switched off.**

- ▶ Damage to the actuator!

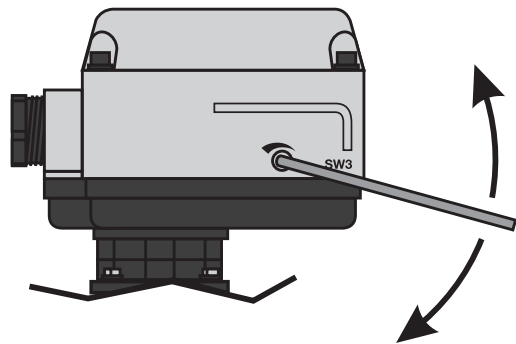
**⚠ CAUTION**

**Set the actuator position to "centred" after using the manual override!**

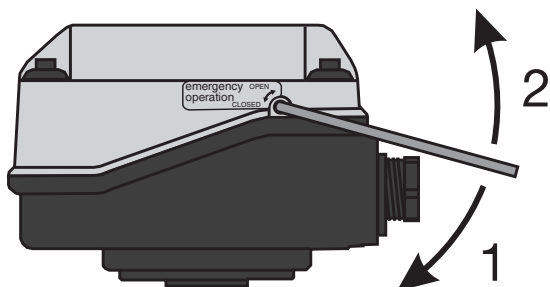
- ▶ Trip cams may be outside the limit switches as the limit switch position was manually exceeded by the manual override.
- ▶ Damage to the actuator.
- Set the actuator position to "centred" before electrical operation.



### Actuator versions 1006, 1015, 2006, 2015, 3035



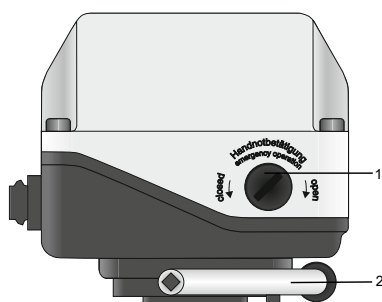
Actuator versions  
1006, 1015, 2006, 2015



Actuator version 3035

1. Disconnect the plant from power supply and secure against recommissioning.
2. Remove red protective cap.
3. To open the valve, turn the Allen key (SW3) clockwise **1** until the position indicator shows "open".
4. To close the valve turn the Allen key (SW3) anti-clockwise **2** until the position indicator shows "closed".
5. Reinsert red protective cap.

### Actuator version 2070



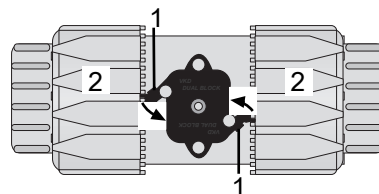
On the side of the actuator there is a **black** protective cap below which is the manual override. The crank handle for manual override is located on the base of the actuator. Actuation of the manual override additionally actuates a switch that shuts off power to the actuator.

If manual override is required, take the following steps:

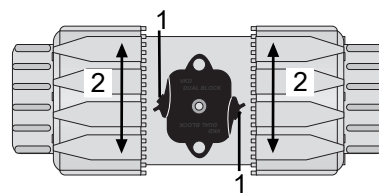
1. Remove **black** protective cap **1** using a screw driver.
2. Insert crank handle **2** and crank into the desired valve position manually (direction according to imprint).
3. Reinsert **black** protective cap **1**.

### 12.4 Threaded connection locking devices

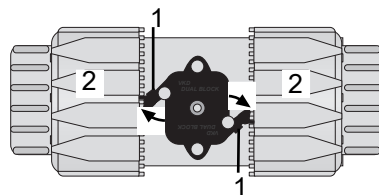
#### 2/2-way ball valve DN 10 - 50



1. Press the latches **1** together and hold in position.
  - ⇒ The teeth of the threaded connection locking device are retracted.

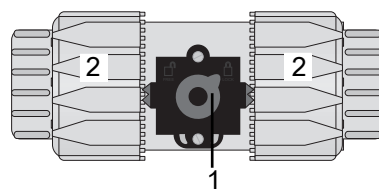


2. Turn the union nuts **2** to the desired position.

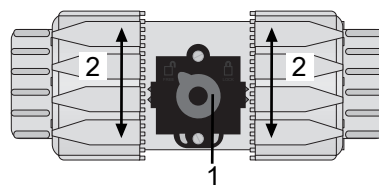


3. Release the latches **1** of the threaded connection locking device.
  - ⇒ The teeth of the threaded connection locking device engage with the teeth of the union nuts **2** and fix them in place.

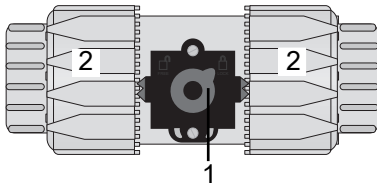
#### 2/2-way ball valve DN 65 - 100



4. Turn the red blocking knob anticlockwise to the **FREE** position.
  - ⇒ The teeth of the threaded connection locking device are retracted.

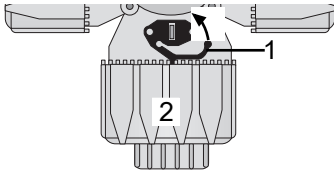


5. Turn the union nuts **2** to the desired position.

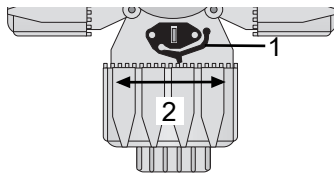


6. Turn the red blocking knob clockwise to the **LOCK** position.
- ⇒ The teeth of the threaded connection locking device engage with the teeth of the union nuts **2** and fix them in place.

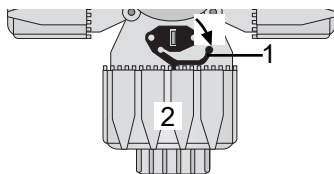
### 3/2-way ball valve



7. Press the latch **1** together and hold in position.
- ⇒ The tooth of the threaded connection locking device is retracted.



8. Turn the union nut **2** to the desired position.



9. Release the latch **1** of the threaded connection locking device.
- ⇒ The tooth of the threaded connection locking device engages with the teeth of the union nut **2** and fixes it in place.

## 13 Troubleshooting

Error	Possible cause	Troubleshooting
The product does not open or does not open fully	Actuator defective	Replace the actuator
	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	Voltage is not connected	Connect voltage
	Cable ends incorrectly wired	Wire cable ends correctly
	Foreign matter in the product	Remove and clean the product
	End positions incorrectly set	Correctly set the end positions
The product does not close or does not close fully	Actuator defective	Replace the actuator
	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
The product is leaking between actuator and ball valve body	Union between valve actuator and mounting kit loose	Retighten union between actuator and mounting kit
	Union between mounting kit and ball valve body loose	Tighten union between mounting kit and ball valve body
	Actuator/mounting kit/ball valve body damaged	Replace actuator/mounting kit/ball valve body
Joint between ball valve body and piping is leaking	Incorrect installation	Check installation of ball valve body in piping
	Flange bolting loose/thread leaking	Retighten flange bolting / reseal threads
	Sealing material faulty	Replace sealing material
Ball valve body leaking	Ball valve body faulty	Check ball valve body for potential damage and replace if necessary
No flow	Ball incorrectly adjusted	Turn ball to the correct position

## 14 Inspection and maintenance

### WARNING

#### The equipment is subject to pressure!

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

### CAUTION

#### Use of incorrect spare parts!

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

### CAUTION



#### Hot plant components!

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

### NOTICE

#### Exceptional maintenance work!

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

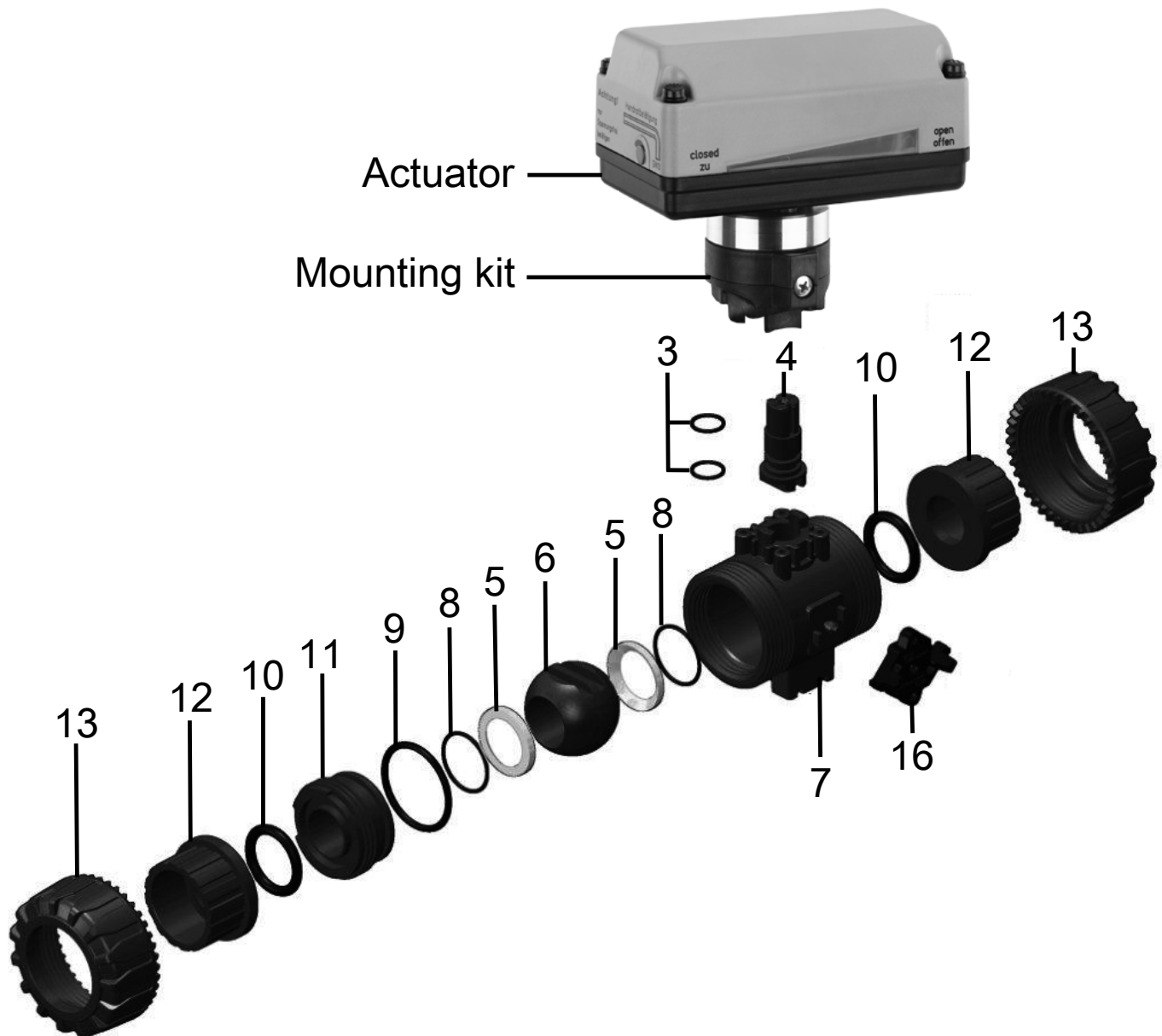
The operator must carry out regular visual examination of the GEMÜ products dependent on the operating conditions and the potential danger in order to prevent leakage and damage.

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

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

**14.1 Spare parts**

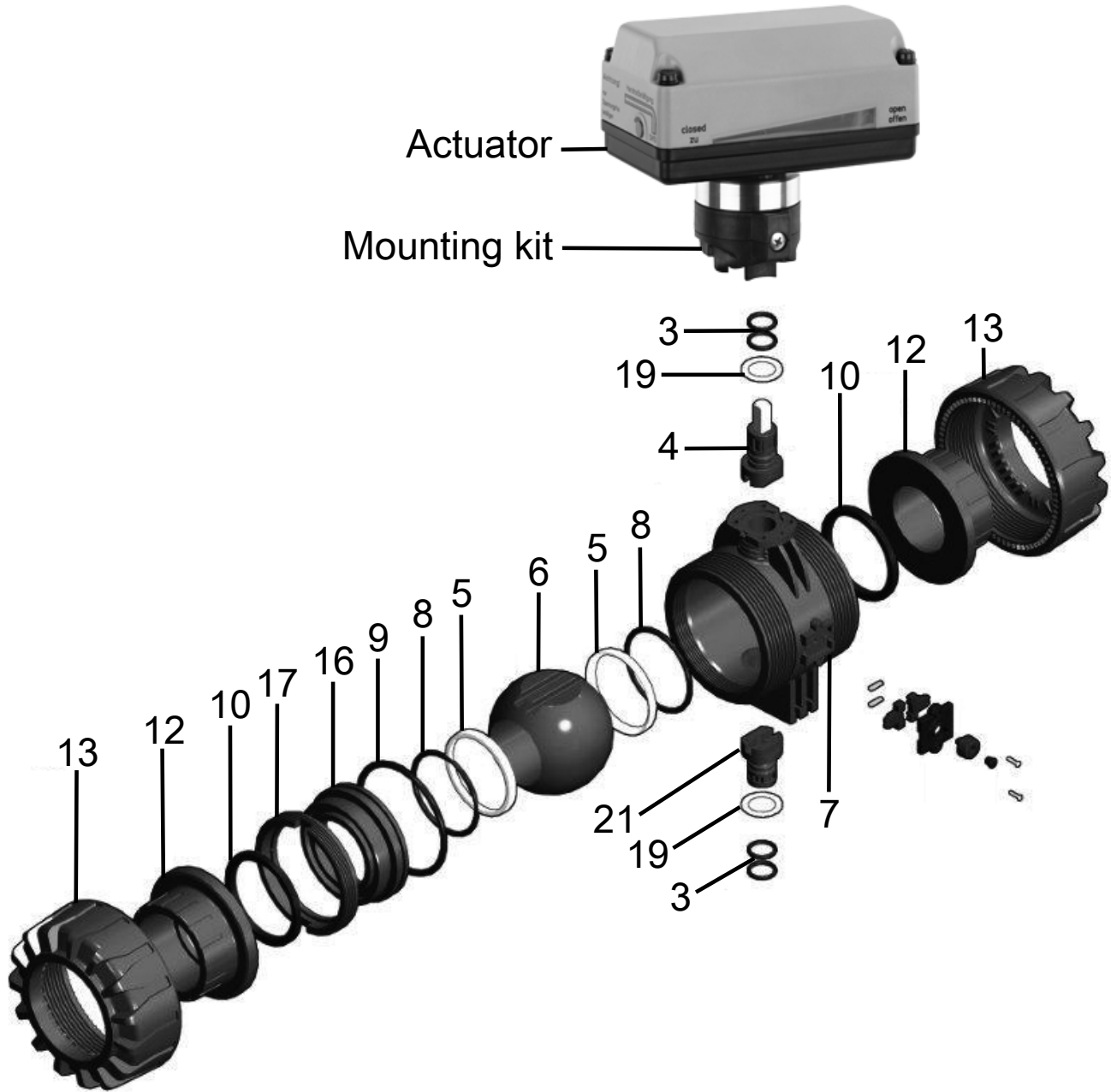
2/2-way ball valve DN 10 - 50



Item	Name	Design	Order description
3	Seal kit	DNXX, FPM DNXX, EPDM	717 XXSDS D4 717 XXSDS D14
5			
8			
9			
10			
4	Spindle	DNXX	717 XXPSP M
6	Ball, T-port	DNXX	717 XXPKUMT
	Ball, L-port	DNXX	717 XXPKUML
12	Insert	DNXX	717 XXPEL
13	Union nut	DNXX	717 XXPUM

XX - corresponds to nominal sizes DN 10 – 50.

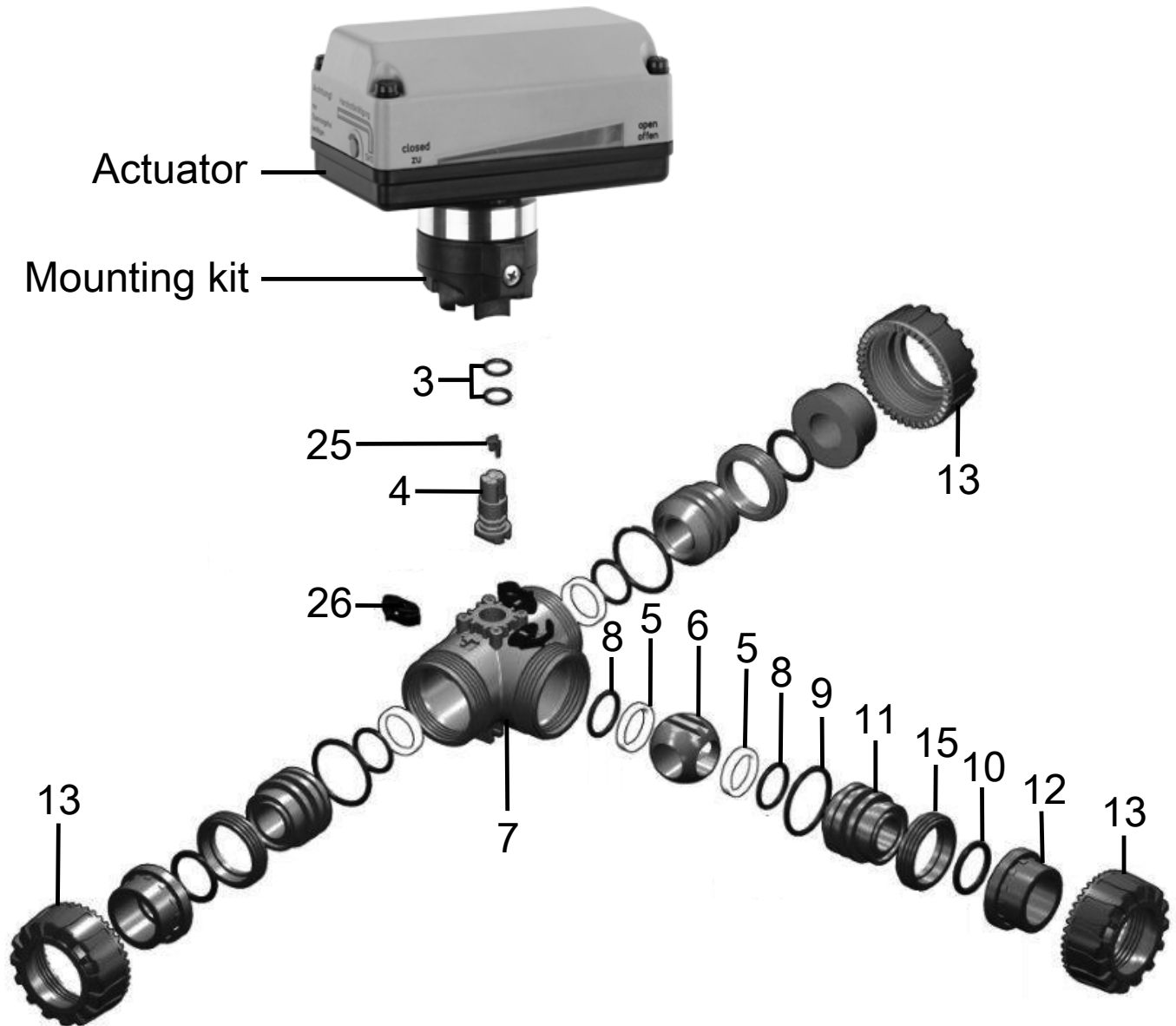
2/2-way ball valve DN 65 - 100



Item	Name	Design	Order description
3	Seal kit	DNXX, FPM DNXX, EPDM	717 XXSDS D4 717 XXSDS D14
5			
8			
9			
10			
19	Spindle	DNXX	717 XXPSP M
6	Ball, T-port	DNXX	717 XXPKUMT
	Ball, L-port	DNXX	717 XXPKUML
12	Insert	DNXX	717 XXPEL
13	Union nut	DNXX	717 XXPUM

XX - corresponds to nominal sizes DN 65 – 100.

## 3/2-way ball valve DN 10 - 50



Item	Name	Design	Order description
3	Seal kit	DNXX, FPM DNXX, EPDM	717 XXSDS D4 717 XXSDS D14
5			
8			
9			
10	Spindle	DNXX	717 XXPSP M
4			
6	Ball, T-port	DNXX	717 XXPKUMT
	Ball, L-port	DNXX	717 XXPKUML
12	Insert	DNXX	717 XXPEL
13	Union nut	DNXX	717 XXPUM

XX - corresponds to nominal sizes DN 10 – 50.

## 14.2 Replacement of spare parts

### NOTICE

- ▶ For an overview of spare parts see chapter "Spare parts".

#### 14.2.1 Disassembly of 2/2-way ball valve DN 10-50

1. Depressurize the plant or plant component.
2. Move the actuator to the off position.
3. Release the threaded connection locking device (see chapter "Threaded connection locking devices").

### NOTICE

- ▶ The threaded connection locking device can also be pulled off from the ball valve body when assembling or disassembling the ball valve.

4. Unscrew the union nuts **13** from the ball valve body **7**.
5. Remove the ball valve from the piping.
6. Remove the insert **12**.
7. Remove the gasket **10**.
8. Hold the ball valve vertically and open by 45°.
  - ⇒ The remaining residual liquid runs out.
9. Move the ball valve to the CLOSED position.
10. Undo the screws of the mounting kit.
11. Pull off the actuator from the mounting kit.
12. Remove O-ring **9**, O-ring **8** and gasket **5**.
13. Carefully press out the ball **6** (taking care not to scratch the ball).
14. Press the spindle(s) **4** (21) into the ball valve body and remove.
15. Refit all parts in the reverse order.

#### 14.2.2 Disassembly of 2/2-way ball valve DN 65-100

1. Depressurize the plant or plant component.
2. Move the actuator to the off position.
3. Release the threaded connection locking device (see chapter "Threaded connection locking devices").

### NOTICE

- ▶ The threaded connection locking device can also be pulled off from the ball valve body when assembling or disassembling the ball valve.

4. Unscrew the union nuts **13** from the ball valve body **7**.
5. Remove the ball valve from the piping.
6. Remove the gasket **10**.
7. Move the ball valve to the CLOSED position.
8. Undo the screws of the mounting kit.
9. Pull off the actuator from the mounting kit.
10. Remove O-ring **9**, O-ring **8** and gasket **5**.
11. Carefully press out the ball **6** (taking care not to scratch the ball).
12. Press the spindle(s) **4** (21) into the ball valve body and remove.
13. Refit all parts in the reverse order.

#### 14.2.3 Disassembly of 3/2-way ball valve DN 10-50

1. Depressurize the plant or plant component.
2. Move the actuator to the off position.
3. Release the threaded connection locking device (see chapter "Threaded connection locking devices").

### NOTICE

- ▶ The threaded connection locking device can also be pulled off from the ball valve body when assembling or disassembling the ball valve.

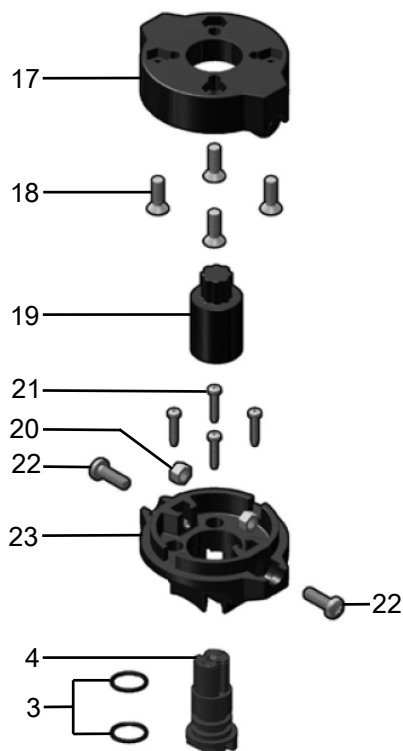
4. Unscrew the union nuts **13** from the ball valve body **7**.
5. Remove the ball valve from the piping.
6. Remove the insert **12**.
7. Remove the gasket **10**.
8. Hold the ball valve vertically and open by 45°.
  - ⇒ The remaining residual liquid runs out.
9. Move the ball valve to the CLOSED position.
10. Undo the screws of the mounting kit.
11. Pull off the actuator from the mounting kit.
12. Remove O-ring **9**, O-ring **8** and gasket **5**.
13. Carefully press out the ball **6** (taking care not to scratch the ball).
14. Press the spindle(s) **4** (21) into the ball valve body and remove.
15. Refit all parts in the reverse order.



### 14.3 Replacing the actuator

#### NOTICE

- ▶ The actuator can only be removed if the mounting kit is also removed.



1. Unscrew the bolts **22**.
2. Remove the actuator and cover of mounting kit **17** from the body and base of mounting kit **23**.
3. Remove the bolts **18** to remove the cover of mounting kit **17** from the actuator and use the bolts **18** to mount it onto the replacement actuator.
4. Place the replacement actuator plus the cover of mounting kit **17** onto the base of mounting kit **23** and bolt together with the bolts **22**.
  - ⇒ Remove the base of mounting kit **23** plus the bolts **21** and spindle adapter **19** of spindle **4** from the body if no other motorized actuator is to be fitted.

### 14.4 Cleaning the product

#### ⚠ CAUTION

##### Cleaning agent

- ▶ Damage to the GEMÜ product.
- The plant operator is responsible for selecting the cleaning material and performing the procedure.

- Clean the product with a damp cloth.
- Do **not** clean the product with a high pressure cleaning device.

### 15 Removal from piping

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

### 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.
3. Dispose of electronic components separately.

### 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 Declaration of Incorporation according to 2006/42/EC (Machinery Directive)**

# Declaration of Incorporation

**according to the EC Machinery Directive 2006/42/EC, Annex II, 1.B for partly completed machinery**

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

declare that the following product

Make: **Motorized ball valve**

Commercial name: **GEMÜ 723**

**meets the essential requirements of the Machinery Directive 2006/42/EC.**

**We also declare that the specific technical documentation has been compiled in accordance with part B of Annex VII.**

The manufacturer or his authorised representative undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place:

Electronically

Authorised documentation officer **GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG**  
**Fritz-Müller-Straße 6-8**  
**74653 Ingelfingen, Germany**

This does not affect the industrial property rights!

**Important note! The partly completed machinery may be put into service only if it was determined, where appropriate, that the machinery into which the partly completed machinery is to be installed meets the provisions of this Directive.**

11/08/2021



Joachim Brien  
Head of Technical Department

**19 Declaration of conformity according to 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

declare that the product listed below complies with the safety requirements of the Pressure Equipment Directive 2014/68/EU.

**Description of the pressure equipment:** GEMÜ 723  
**Notified body:** TÜV Rheinland Industrie Service GmbH  
**Number:** 0035  
**Certificate no.:** 01 202 926/Q-02 0036  
**Conformity assessment procedure:** Module H1  
**Technical standard used:** EN 1983, AD 2000

**Note for products with a nominal size  $\leq$  DN 25:**

The products are developed and produced according to GEMÜ process instructions and quality standards 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-label.

11/08/2021



Joachim Brien  
Head of Technical Department

**20 Declaration of conformity according to 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

declare that the product listed below complies with the safety requirements of the EMC Directive 2014/30/EU.

**Description of the product:** GEMÜ723


**Applied technical standards:**

- DIN EN 61326-1 (industrial processes)

**Interference resistance:** EN 61000-6-2

**Interference emission:** EN 61000-6-3

11/08/2021



Joachim Brien  
Head of Technical Department

**21 EU Declaration of conformity 2-way ball valve****DICHIARAZIONE / DECLARATION**

FIP dichiara che l'attrezzatura a pressione / *FIP declares that the pressure equipment:*

TIPO VALVOLA / *VALVE TYPE:* sfera, membrana, farfalla, non-ritorno / *ball, diaphragm, butterfly, check*  
 MODELLO / *MODEL:* VKD / VXE / VEE / TKD / VKR / VM / MK / DK / DM / FK / FE / VR / SXE / SSE / VA  
 / VZ / SR / VV / RV

GAMMA DN / *DN RANGE:* 32 ÷ 100

MATERIALE / *MATERIAL:* PVC-U, PVC-C, PPH, PVDF

secondo la Procedura di Valutazione della Conformità  
*according to the Assessment of Conformity Procedure:*  
 Modulo / *Module* A2

sorvegliato dall'Organismo Notificato / *inspected by the Notified Body:*

PASCAL (n° 1115)

Via Scarsellini, 13

I-20161 (MI)

ITALY

in accordo alla norma / *according to the standard:*

EN ISO 16135, EN ISO 16136, EN ISO 16137, EN ISO 16138 e / *and* ISO 9393

è conforme ai requisiti della Direttiva 2014/68/EU per le Attrezzature a Pressione.  
*is in conformity with the requirements of the Pressure Equipment Directive 2014/68/EU.*

Per quanto concerne la valvole con DN < 32 mm, sono conformi alla direttiva PED 2014/68/EU Art.4  
 Par.3, esse non possono essere marcate CE, ma sono progettate e collaudate secondo la stessa  
 procedura delle dimensioni maggiori quindi in accordo a / *For what concern the valve sizes lower than*  
*DN 32 mm, they meet the PED 2014/68/EU Art.4 Par.3, so they can't be CE marked but, they are*  
*designed and tested in the same way of bigger so, they completely fulfil the criteria of*

EN ISO 16135, EN ISO 16136, EN ISO 16137, EN ISO 16138 e / *and* ISO 9393

In fede / *Faithfully*

Casella, 8/7/2016

Ing. Oleg Clericuzio  
 QUALITY ASSURANCE MANAGER

**The underlined type (VKD) corresponds  
 to GEMÜ 723 (2-way ball valve)**

FIP - Formatura Iniezione Polimeri S.p.A.  
 Società Unipersonale - Soggetta a direzione e  
 coordinamento da parte di Aliaxis Holding Italia S.p.A.  
 Loc. Pian di Parata - 16015 Casella - Genova - Italia  
 Tel +39 (010) 96211 - Fax +39 (010) 9621209

[www.fipnet.it](http://www.fipnet.it)

C.F. - P.IVA - Iscrizione al Registro delle Imprese  
 di Genova Nr.: 00276860103  
 REA C.C.I.A.A. Genova Nr.: 196879  
 Capitale Sociale: €6.200.000

Dati bancari  
 IBAN: IT 53L 01 005 01400  
 00000024674  
 Swift/BIC: BNLIITRRGEX  
 Banca Nazionale del Lavoro

**22 EU Declaration of conformity 3-way ball valve**



**DICHIARAZIONE / DECLARATION**

FIP dichiara che l'attrezzatura a pressione / *FIP declares that the pressure equipment:*

TIPO VALVOLA / *VALVE TYPE:* sfera, membrana, farfalla, non-ritorno / *ball, diaphragm, butterfly, check*  
MODELLO / *MODEL:* VKD / VXE / VEE / TKD / VKR / VM / MK / DK / DM / FK / FE / VR / SXE / SSE / VA  
/ VZ / SR / VV / RV

GAMMA DN / *DN RANGE:* 32 ÷ 100

MATERIALE / *MATERIAL:* PVC-U, PVC-C, PPH, PVDF

secondo la Procedura di Valutazione della Conformità  
*according to the Assessment of Conformity Procedure:*  
Modulo / *Module* A2

sorvegliato dall'Organismo Notificato / *inspected by the Notified Body:*

PASCAL (n° 1115)

Via Scarsellini, 13

I-20161 (MI)

ITALY

in accordo alla norma / *according to the standard:*

EN ISO 16135, EN ISO 16136, EN ISO 16137, EN ISO 16138 e / *and* ISO 9393

è conforme ai requisiti della Direttiva 2014/68/EU per le Attrezzature a Pressione.  
*is in conformity with the requirements of the Pressure Equipment Directive 2014/68/EU.*

Per quanto concerne la valvole con DN < 32 mm, sono conformi alla direttiva PED 2014/68/EU Art.4  
Par.3, esse non possono essere marcate CE, ma sono progettate e collaudate secondo la stessa  
procedura delle dimensioni maggiori quindi in accordo a / *For what concern the valve sizes lower than*  
*DN 32 mm, they meet the PED 2014/68/EU Art.4 Par.3, so they can't be CE marked but, they are*  
*designed and tested in the same way of bigger so, they completely fulfil the criteria of*

EN ISO 16135, EN ISO 16136, EN ISO 16137, EN ISO 16138 e / *and* ISO 9393

In fede / *Faithfully*

Casella, 8/7/2016

Ing. Oleg Clericuzio  
QUALITY ASSURANCE MANAGER

The underlined type (TKD) corresponds  
to GEMÜ 723 (3-way ball valve)

FIP - Formatura Iniezione Polimeri S.p.A.  
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Loc. Pian di Parata - 16015 Casella - Genova - Italia  
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Dati bancari  
IBAN: IT 53L 01 005 01400  
00000024674  
Swift/BIC: BNLIITRRGEX  
Banca Nazionale del Lavoro



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Subject to alteration

05.2023 | 88594472