

## GEMÜ 655

Manually operated full bore diaphragm valve

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EN **Operating instructions**



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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.
- A supplement to Directive 2014/34/EU (ATEX Directive) is included with the product, provided that it was ordered in accordance with ATEX.

### 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	<p>Type and source of the danger</p> <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>	
	<p><b>Imminent danger!</b></p> <ul style="list-style-type: none"> <li>▶ Non-observance can cause death or severe injury.</li> </ul>

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

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

<b>NOTICE</b>	
	<p><b>Potentially dangerous situation!</b></p> <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!

## 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:

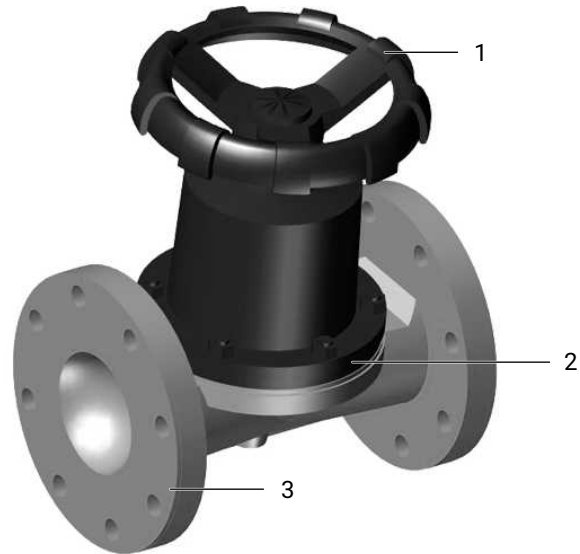
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not 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	Materials
1	Actuator	Cast iron
2	Diaphragm	CR EPDM IIR NBR NR
3	Valve body	EN-GJL-250 (GG 25) EN-GJL-250 (GG 25), soft rubber lined EN-GJL-250 (GG 25), hard rubber lined EN-GJL-250 (GG 25), butyl lined EN-GJS-400-18-LT (GGG 40.3), soft rubber lined EN-GJS-400-18-LT (GGG 40.3), hard rubber lined EN-GJS-400-18-LT (GGG 40.3), butyl lined EN-GJS-500-7 (GGG 50), soft rubber lined EN-GJS-500-7 (GGG 50), hard rubber lined EN-GJS-500-7 (GGG 50), butyl lined

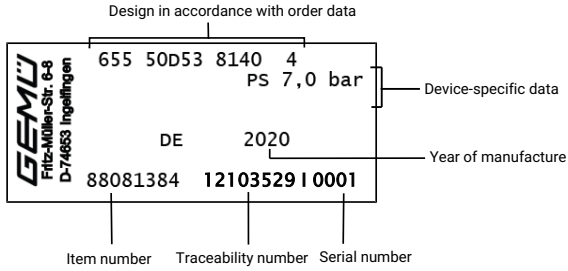
### 3.2 Description

The GEMÜ 655 2/2-way diaphragm valve has a metal handwheel and is manually operated. The valve body has a full bore design.

### 3.3 Function

The product is designed for use in piping. It controls a flowing medium by manual operation. The valve body and the diaphragm are available in various designs as shown in the data-sheet. The valve can be retrofitted with a pneumatic actuator (GEMÜ 9656).

3.4 Product label



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

4 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](http://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.

- Use the product in accordance with the technical data.

## 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
Full bore diaphragm valve, manually operated, metal handwheel, metal bonnet	655

2 DN	Code
DN 25	25
DN 40	40
DN 50	50
DN 65	65
DN 80	80
DN 100	100
DN 125	125
DN 150	150
DN 200	200
DN 250	250
DN 300	300

3 Body configuration	Code
2/2-way body	D

4 Connection type	Code
Flange EN 1092, PN 10, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1	4
Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1	8
Flange ANSI Class 125/150 RF, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1	39
Flange EN 1092, PN 10, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7	52
Flange EN 1092, PN 16, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7	53
Flange ANSI Class 125/150 FF, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7	58

5 Valve body material	Code
<b>Cast iron material</b>	
EN-GJL-250 (GG 25)	8
EN-GJL-250 (GG 25), hard rubber lined	13
EN-GJL-250 (GG 25), soft rubber lined	52
EN-GJL-250 (GG 25), butyl lined	58
<b>SG iron material</b>	
EN-GJS-500-7 (GGG-50), hard rubber lined	16
EN-GJS-400-18-LT (GGG 40.3), soft rubber lined	82

5 Valve body material	Code
EN-GJS-400-18-LT (GGG 40.3), hard rubber lined	83
EN-GJS-400-18-LT (GGG 40.3), butyl lined	88
EN-GJS-500-7 (GGG 50), soft rubber lined	92
EN-GJS-500-7 (GGG 50), butyl lined	98

6 Diaphragm material	Code
NBR	2
IIR	6
CR	8
EPDM	14
NR	15

7 Control function	Code
Manually operated	0

8 Actuator version	Code
Actuator size 2, for DN 25 and 40	2
Actuator size 4, for DN 50 and 65	4
Actuator size 6, for DN 80 and 100	6
Actuator size 7, for DN 125 and 150	7
Actuator size 8, for DN 200	8
Actuator size 9, for DN 250	9
Actuator size A, for DN 300 and 350	A

**Order example**

Ordering option	Code	Description
1 Type	655	Full bore diaphragm valve, manually operated, metal handwheel, metal bonnet
2 DN	50	DN 50
3 Body configuration	D	2/2-way body
4 Connection type	53	Flange EN 1092, PN 16, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7
5 Valve body material	8	EN-GJL-250 (GG 25)
6 Diaphragm material	14	EPDM
7 Control function	0	Manually operated
8 Actuator version	4	Actuator size 4, for DN 50 and 65



## 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.

### 7.2 Temperature

**Media temperature:** 0 – 100 °C

**Ambient temperature:** 0 – 60 °C

**Storage temperature:** 0 – 40 °C

### 7.3 Pressure

**Operating pressure:**

MG	DN	NPS	Operating pressure
40	25	1"	0 - 7.0
	40	1½"	0 - 7.0
65	50	2"	0 - 7.0
	65	2½"	0 - 7.0
100	80	3"	0 - 7.0
	100	4"	0 - 7.0
150	125	5"	0 - 5.5
	150	6"	0 - 5.5
200	200	8"	0 - 3.5
250	250	10"	0 - 3.5
350	300	12"	0 - 3.0

MG = diaphragm size

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side of a closed valve. Sealing at the valve seat and atmospheric sealing is ensured for the given values.

Information on operating pressures applied on both sides and for high purity media on request.

Valve not suitable for vacuum applications

**Kv values:**

MG	DN	NPS	Kv values
40	25	1"	35
	40	1½"	38
65	50	2"	108
	65	2½"	114
100	80	3"	284
	100	4"	298
150	125	5"	650
	150	6"	680
200	200	8"	1790
250	250	10"	2920
350	300	12"	5180

MG = diaphragm size, Kv values in m<sup>3</sup>/h

Kv values determined in accordance with EN 60534, inlet pressure 5 bar, Δp 1 bar, valve body material cast iron EN-GJL-250 with connection flange EN 1092 length EN 558 series 7 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 duration of use.

**7.4 Product compliance**

**Pressure Equipment Directive:** 2014/68/EU

**EAC:** TR CU 010/2011

**7.5 Mechanical data**

**Weight:**

**Actuator**

Actuator version	Weight
2	2.0
4	7.0
6	13.0
7	34.0
8	55.0
9	97.0
A	222.0

Weights in kg

**Body**

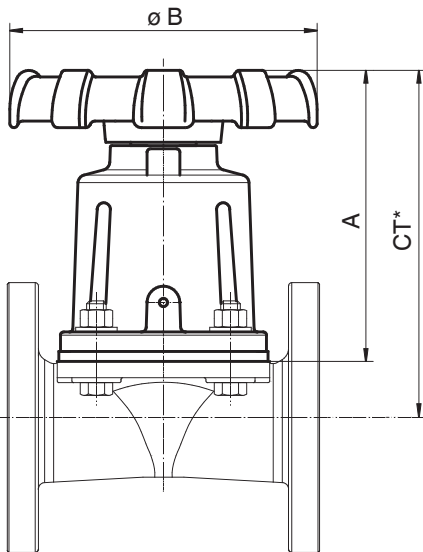
MG	DN	Weight
<b>40</b>	<b>25</b>	2.2
	<b>40</b>	5.4
<b>65</b>	<b>50</b>	6.3
	<b>65</b>	8.3
<b>100</b>	<b>80</b>	12.0
	<b>100</b>	17.1
<b>150</b>	<b>125</b>	28.4
	<b>150</b>	31.9
<b>200</b>	<b>200</b>	76.6
<b>250</b>	<b>250</b>	99.2
<b>350</b>	<b>300</b>	181.6

MG = diaphragm size

Weights in kg

## 8 Dimensions

### 8.1 Actuator dimensions



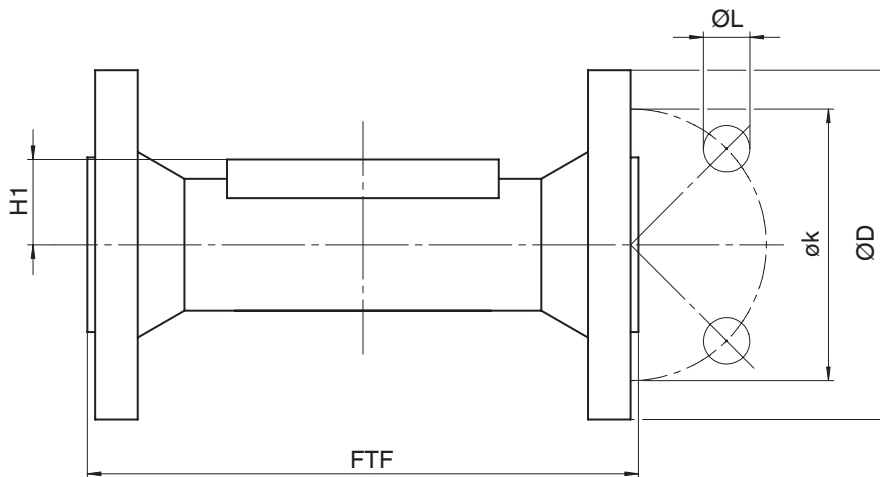
MG	DN	NPS	Actuator version	A	$\varnothing B$
40	25 - 40	1" - 1½"	2	130.0	118.0
65	50 - 65	2" - 2½"	4	178.0	188.0
100	80 - 100	3" - 4"	6	229.0	238.0
150	125 - 150	5" - 6"	7	307.0	316.0
200	200	8"	8	359.0	416.0
250	250	10"	9	484.0	416.0
350	300	12"	A	562.0	700.0

\*  $CT = A + H1$  (see body dimensions)

Dimensions in mm

## 8.2 Body dimensions

### 8.2.1 Flange EN (code 4)



Connection type flange, length EN 558 (code 4)<sup>1)</sup>, SG iron material (code 82, 83, 88)<sup>2)</sup>

MG	DN	NPS	øD	FTF	H1	øk	øL	n
200	200	8"	340.0	600.0	64.0	295.0	22.0	8

Dimensions in mm

MG = diaphragm size

n = number of bolts

#### 1) Connection type

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

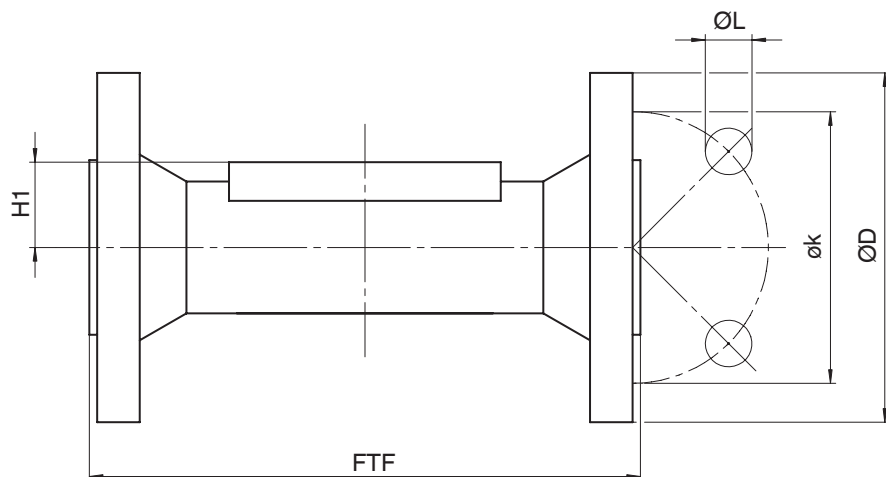
#### 2) Valve body material

Code 82: EN-GJS-400-18-LT (GGG 40.3), soft rubber lined

Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lined

Code 88: EN-GJS-400-18-LT (GGG 40.3), butyl lined

### 8.2.2 Flange EN (code 8)



Connection type flange, length EN 558 (code 8)<sup>1)</sup>, SG iron material (code 82, 83, 88)<sup>2)</sup>

MG	DN	NPS	øD	FTF	H1	øk	øL	n
40	25	1"	115.0	160.0	24.0	85.0	14.0	4
	40	1½"	150.0	200.0	24.0	110.0	18.0	4
65	50	2"	165.0	230.0	32.0	125.0	18.0	4
	65	2½"	185.0	290.0	32.0	145.0	18.0	4
100	80	3"	200.0	310.0	40.0	160.0	18.0	8
	100	4"	220.0	350.0	40.0	180.0	18.0	8
150	125	5"	250.0	400.0	55.0	210.0	18.0	8
	150	6"	285.0	480.0	55.0	240.0	22.0	8

Dimensions in mm

MG = diaphragm size

n = number of bolts

#### 1) Connection type

Code 8: Flange EN 1092, PN 16, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

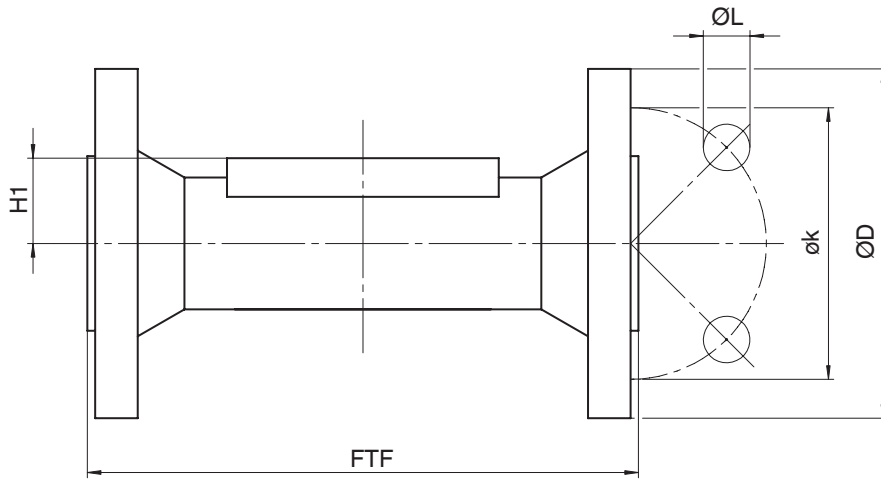
#### 2) Valve body material

Code 82: EN-GJS-400-18-LT (GGG 40.3), soft rubber lined

Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lined

Code 88: EN-GJS-400-18-LT (GGG 40.3), butyl lined

**8.2.3 Flange EN (code 52)**



**Connection type flange, length EN 558 (code 52)<sup>1)</sup>, cast iron material (code 8), SG iron material (code 16, 92, 98)<sup>2)</sup>**

MG	DN	NPS	øD	FTF		H1	øk	øL	n
				Material		Material			
				8	16, 92, 98	8, 16, 92, 98			
<b>200</b>	<b>200</b>	<b>8"</b>	340.0	521.0	521.0	59.0	295.0	22.0	8

**Connection type flange, length EN 558 (code 52)<sup>1)</sup>, cast iron material (code 8, 13, 52, 58)<sup>2)</sup>**

MG	DN	NPS	øD	FTF		H1	øk	øL	n
				Material		Material			
				8	13, 52, 58	8, 13, 52, 58			
<b>250</b>	<b>250</b>	<b>10"</b>	400.0	635.0	647.0	78.0	350.0	22.0	12
<b>350</b>	<b>300</b>	<b>12"</b>	455.0	749.0	761.0	119.0	400.0	22.0	12

Dimensions in mm

MG = diaphragm size

n = number of bolts

**1) Connection type**

Code 52: Flange EN 1092, PN 10, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7

**2) Valve body material**

Code 8: EN-GJL-250 (GG 25)

Code 13: EN-GJL-250 (GG 25), hard rubber lined

Code 16: EN-GJS-500-7 (GGG-50), hard rubber lined

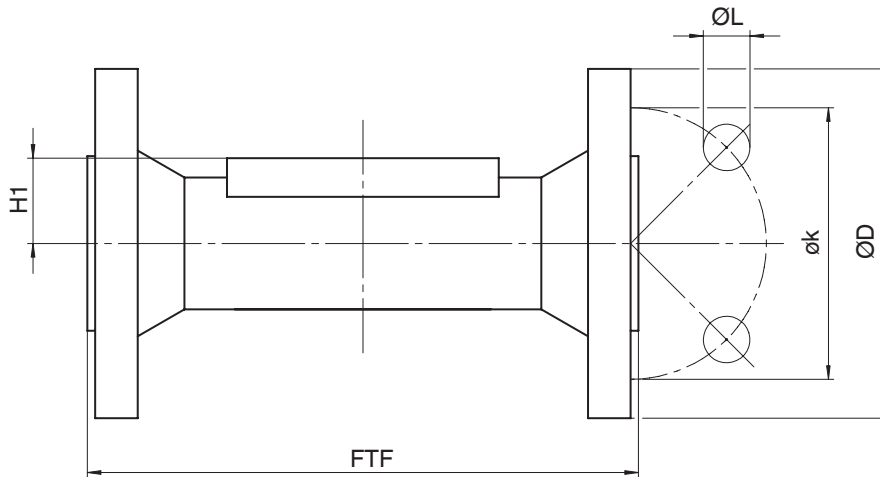
Code 52: EN-GJL-250 (GG 25), soft rubber lined

Code 58: EN-GJL-250 (GG 25), butyl lined

Code 92: EN-GJS-500-7 (GGG 50), soft rubber lined

Code 98: EN-GJS-500-7 (GGG 50), butyl lined

### 8.2.4 Flange EN (code 53)



Connection type flange, length EN 558 (code 53)<sup>1)</sup>, cast iron material (code 8), SG iron material (code 16, 92, 98)<sup>2)</sup>

MG	DN	NPS	øD	FTF		H1		øk	øL	n
				Material		Material				
				8	16, 92, 98	8	16, 92, 98			
40	25	1"	115.0	127.0	127.0	20.0	22.0	85.0	14.0	4
	40	1½"	150.0	159.0	159.0	18.0	24.0	110.0	18.0	4
65	50	2"	165.0	191.0	191.0	39.0	32.0	125.0	18.0	4
	65	2½"	185.0	216.0	216.0	28.0	32.0	145.0	18.0	4
100	80	3"	200.0	254.0	254.0	40.0	40.0	160.0	18.0	8
	100	4"	220.0	305.0	305.0	40.0	40.0	180.0	18.0	8
150	125	5"	250.0	356.0	366.0	50.0	55.0	210.0	18.0	8
	150	6"	285.0	406.0	406.0	52.0	55.0	240.0	22.0	8

MG = diaphragm size

Dimensions in mm

n = number of bolts

#### 1) Connection type

Code 53: Flange EN 1092, PN 16, form A, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7

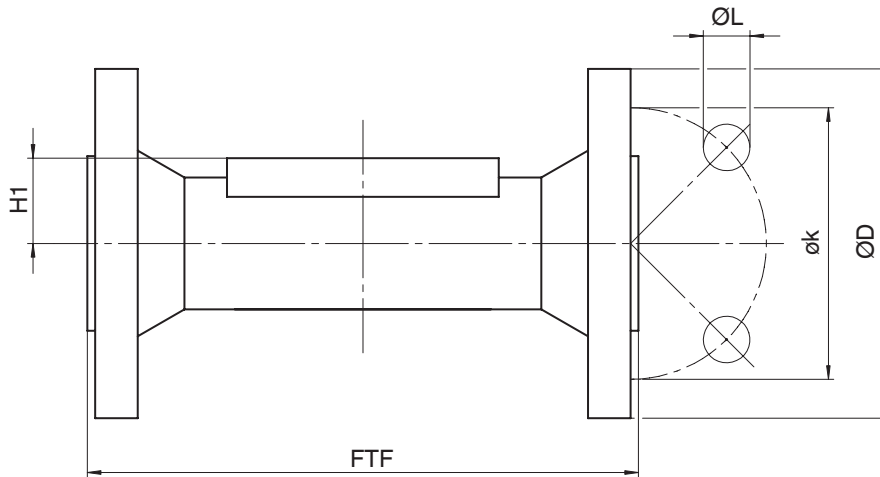
#### 2) Valve body material

Code 8: EN-GJL-250 (GG 25)

Code 16: EN-GJS-500-7 (GGG-50), hard rubber lined

Code 92: EN-GJS-500-7 (GGG 50), soft rubber lined

Code 98: EN-GJS-500-7 (GGG 50), butyl lined

**8.2.5 Flange ANSI Class (code 39)**

Connection type flange, length EN 558 (code 39)<sup>1)</sup>, SG iron material (code 82, 83, 88)<sup>2)</sup>

MG	DN	NPS	øD	FTF	H1	øk	øL	n
40	25	1"	108.0	160.0	24.0	79.4	15.9	4
	40	1½"	127.0	200.0	24.0	98.4	15.9	4
65	50	2"	152.4	230.0	32.0	120.7	19.0	4
	65	2½"	177.8	290.0	32.0	139.7	19.0	4
100	80	3"	190.5	310.0	40.0	152.4	19.0	4
	100	4"	220,0 <sup>3)</sup>	350.0	40.0	190.5	19.0	8
150	125	5"	254.0	400.0	55.0	215.9	22.2	8
	150	6"	279.0	480.0	55.0	241.3	22.2	8
200	200	8"	342.9	600.0	64.0	298.5	22.2	8

Dimensions in mm

MG = diaphragm size

n = number of bolts

1) **Connection type**

Code 39: Flange ANSI Class 125/150 RF, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

2) **Valve body material**

Code 82: EN-GJS-400-18-LT (GGG 40.3), soft rubber lined

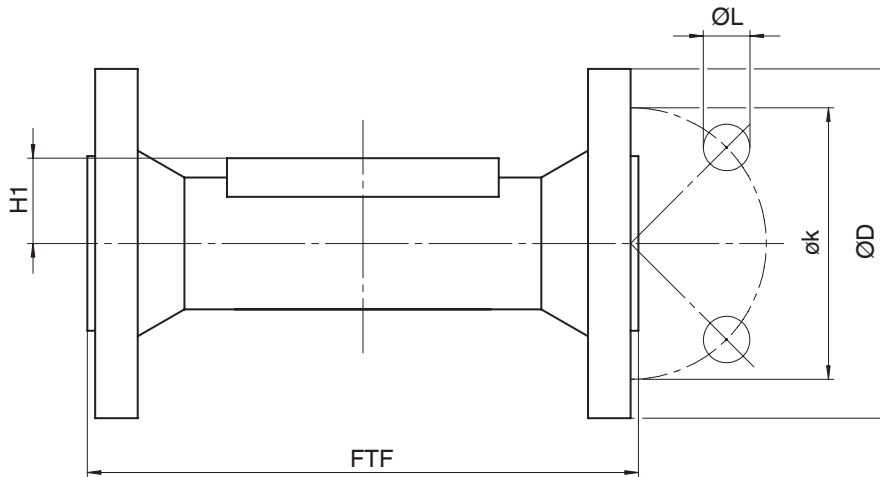
Code 83: EN-GJS-400-18-LT (GGG 40.3), hard rubber lined

Code 88: EN-GJS-400-18-LT (GGG 40.3), butyl lined

3) not according to ASME standard



### 8.2.6 Flange ANSI Class (code 58)



Connection type flange, length EN 558 (code 58)<sup>1)</sup>, cast iron material (code 8), SG iron material (code 16, 92, 98)<sup>2)</sup>

MG	DN	NPS	øD	FTF		H1		øk	øL	n
				Material		Material				
				8	16, 92, 98	8	16, 92, 98			
40	25	1"	108.0	127.0	127.0	20.0	24.0	79.4	15.9	4
	40	1½"	127.0	159.0	159.0	18.0	24.0	98.4	15.9	4
65	50	2"	152.4	191.0	191.0	39.0	32.0	120.7	19.0	4
	65	2½"	177.8	216.0	216.0	28.0	32.0	139.7	19.0	4
100	80	3"	190.5	254.0	254.0	40.0	40.0	152.4	19.0	4
	100	4"	228.6	305.0	305.0	40.0	40.0	190.5	19.0	8
150	125	5"	254.0	356.0	366.0	50.0	55.0	215.9	22.2	8
	150	6"	279.0	406.0	406.0	52.0	55.0	241.3	22.2	8
200	200	8"	342.9	521.0	521.0	59.0	64.0	298.5	22.2	8

Connection type flange, length EN 558 (code 58)<sup>1)</sup>, cast iron material (code 8, 13, 52, 58)<sup>2)</sup>

MG	DN	NPS	øD	FTF		H1		øk	øL	n
				Material		Material				
				8	13, 52, 58	8	13, 52, 58			
250	250	10"	406.0	635.0	647.0	78.0	72.0	362.0	25.4	12
350	300	12"	482.0	749.0	761.0	119.0	125.0	431.8	25.4	12

Dimensions in mm

MG = diaphragm size

n = number of bolts

#### 1) Connection type

Code 58: Flange ANSI Class 125/150 FF, face-to-face dimension FTF EN 558 series 7, ISO 5752, basic series 7

#### 2) Valve body material

Code 8: EN-GJL-250 (GG 25)

Code 13: EN-GJL-250 (GG 25), hard rubber lined

Code 16: EN-GJS-500-7 (GGG-50), hard rubber lined

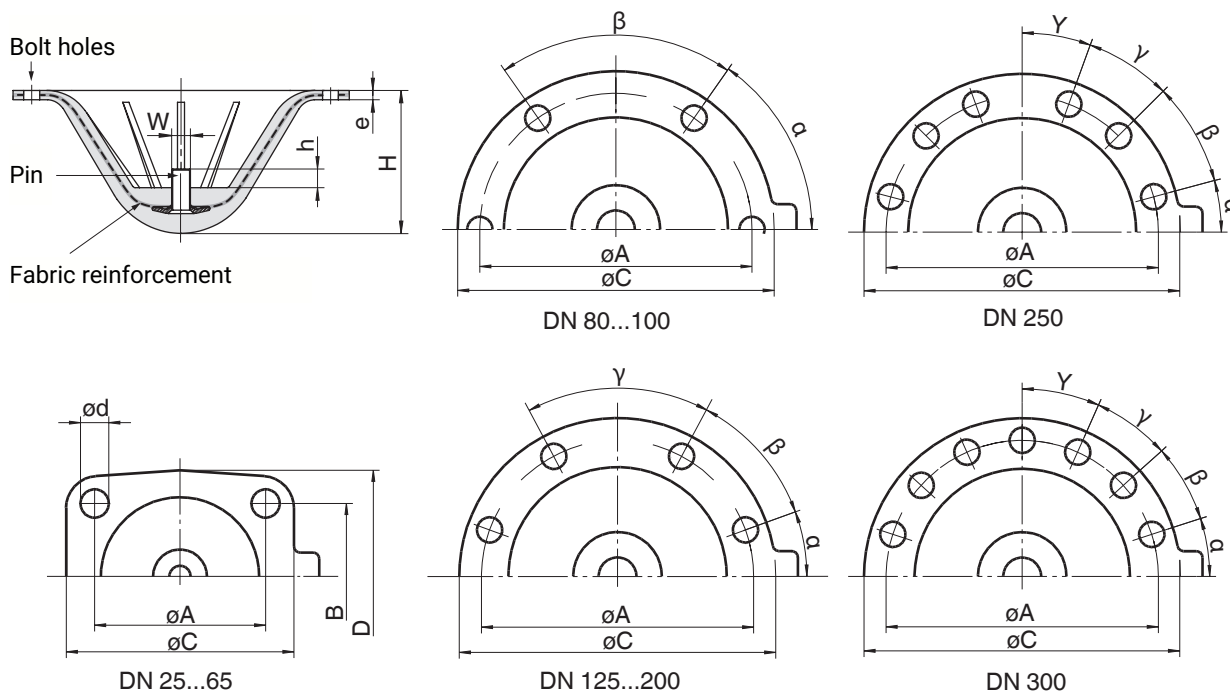
Code 52: EN-GJL-250 (GG 25), soft rubber lined

Code 58: EN-GJL-250 (GG 25), butyl lined

Code 92: EN-GJS-500-7 (GGG 50), soft rubber lined

Code 98: EN-GJS-500-7 (GGG 50), butyl lined

**8.3 Diaphragm dimensions**



MG	DN	NPS	A	B	C	D	ød	e	h	W	H	α	β	γ	Y	n
40	25	1"	64.0	51.0	90.0	70.0	9.0	5.0	8.0	1/4"	36.0	-	-	-	-	4
	40	1 1/2"	64.0	51.0	90.0	70.0	9.0	5.0	8.0	1/4"	36.0	-	-	-	-	4
65	50	2"	101.0	82.0	159.0	128.0	13.5	6.0	10.0	5/16"	64.0	-	-	-	-	4
	65	2 1/2"	101.0	82.0	159.0	128.0	13.5	6.0	10.0	5/16"	64.0	-	-	-	-	4
100	80	3"	175.0	-	223.0	-	13.5	6.0	12.0	5/16"	80.0	56°	34°	-	-	6
	100	4"	175.0	-	223.0	-	13.5	6.0	12.0	5/16"	80.0	56°	34°	-	-	6
150	125	5"	255.0	-	287.0	-	13.5	8.0	16.0	5/8"	115.0	20°	40°	60°	-	8
	150	6"	255.0	-	287.0	-	13.5	8.0	16.0	5/8"	115.0	20°	40°	60°	-	8
200	200	8"	305.0	-	341.0	-	18.5	8.0	20.0	5/8"	145.0	30°	40°	40°	-	8
250	250	10"	381.0	-	410.0	-	17.0	10.0	20.0	5/8"	178.0	15°	30°	25°	20°	12
350	300	12"	528.0	-	576.0	-	22.0	12.0	25.0	1"	280.0	18°	24°	24°	24°	14

Dimensions in mm, MG = diaphragm size

n = number of bolts

The thread of the diaphragm pin "W" corresponds to Whitworth standard.

## 9 Manufacturer's information

### 9.1 Delivery

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

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

### 9.2 Packaging

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

### 9.3 Transport

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

### 9.4 Storage

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

## 10 Installation in piping

### 10.1 Preparing for installation

#### 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).

#### ⚠ WARNING



##### Corrosive chemicals!

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

#### ⚠ CAUTION



##### Hot plant components!

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

**CAUTION**

**Leakage**

- ▶ Emission of dangerous materials.
- Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer).

**CAUTION**

**Exceeding the maximum permissible pressure.**

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

**WARNING**

**The equipment is subject to pressure!**

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

**CAUTION**

**Use as step.**

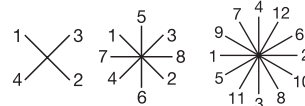
- ▶ Damage to the product
- ▶ Risk of slipping-off
- Choose the installation location so that the product cannot be used as a foothold.
- Do not use the product as a step or a foothold.

**NOTICE**

**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.

**10.2 Installation position**

The installation position of the product is optional.

**10.3 Installation with flanged connection**

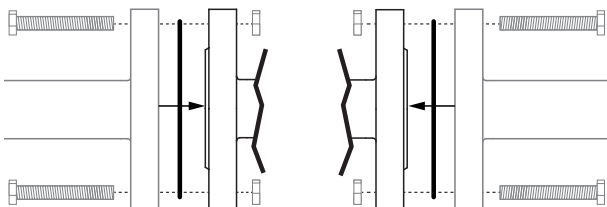


Fig. 1: Flanged connection

**NOTICE**

**Sealing material**

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

## 11 Commissioning

### WARNING



#### Corrosive chemicals!

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

### CAUTION

#### Leakage

- ▶ Emission of dangerous materials.
- Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer).

### CAUTION

#### Cleaning agent

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

1. Check the tightness and the function of the product (close and reopen the product).
2. Flush the piping system of new plant and following repair work (the product must be fully open).
  - ⇒ Harmful foreign matter has been removed.
  - ⇒ The product is ready for use.
3. Commission the product.
4. Commissioning of actuators in accordance with the enclosed instructions.

## 12 Operation

The product is manually operated.

**13 Troubleshooting**

Error	Possible cause	Troubleshooting
Working medium escapes from leak detection hole	Diaphragm faulty	Check diaphragm for potential damage, replace diaphragm if necessary
Valve doesn't open/close or doesn't open/close fully	Diaphragm incorrectly mounted	Remove actuator, check diaphragm mounting, replace diaphragm if necessary.
Valve does not open/close or does not open/close fully	Actuator defective	Replace the actuator
The product is leaking downstream (does not close or does not close fully)	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	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	Check valve body for potential 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 is leaking between actuator and valve body	Shut-off diaphragm incorrectly mounted	Remove the actuator, check the diaphragm mounting, replace the shut-off diaphragm if necessary
	Bolting between valve body and actuator loose	Tighten bolting between valve body and actuator
	Shut off diaphragm faulty	Check shut off diaphragm for potential damage, replace the shut off diaphragm if necessary
	Actuator/valve body damaged	Replace actuator/valve body
Connection between valve body and piping leaking	Incorrect installation	Check installation of valve body in piping
	Threaded connections / unions loose	Tighten threaded connections / unions
	Sealing material faulty	Replace sealing material
Valve body leaking	Valve body leaking or corroded	Check valve body for damage, replace valve body if necessary
Handwheel cannot be turned	Handwheel defective	Replace the handwheel

## 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 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).

### 14.2 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).

### 14.3 Mounting the diaphragm

#### 14.3.1 General information

### 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.

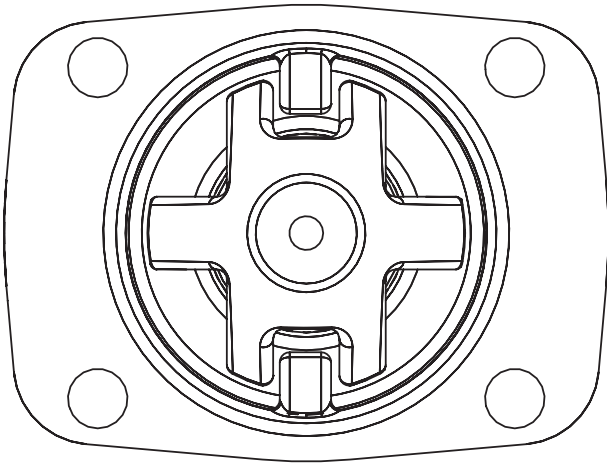
### NOTICE

- ▶ 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.

The compressor is fixed to the spindle for all nominal sizes.

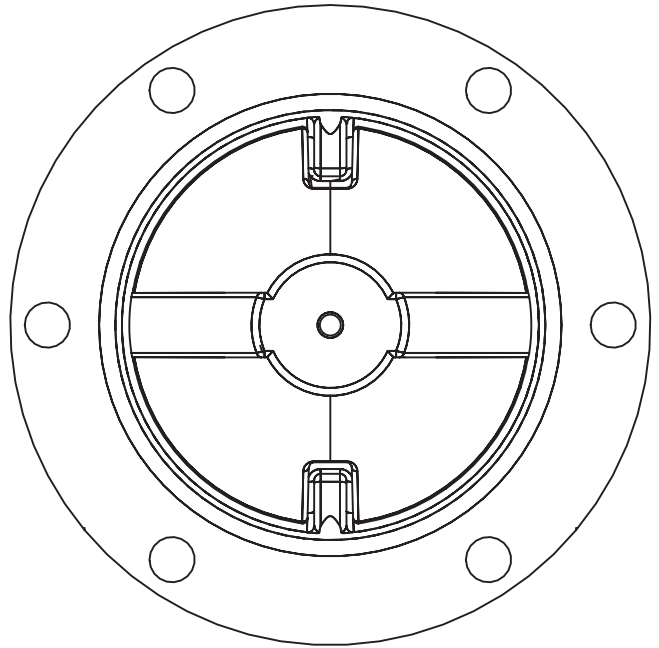
**DN 25 – 40:**

Compressor and actuator flange seen from below:



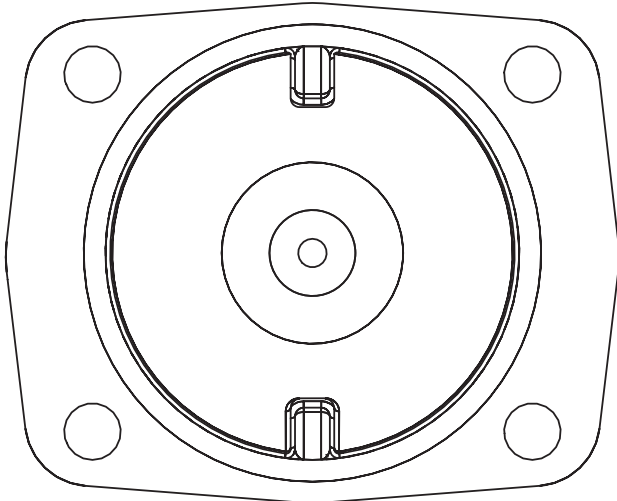
**DN 80 – 100:**

Compressor and actuator flange seen from below:



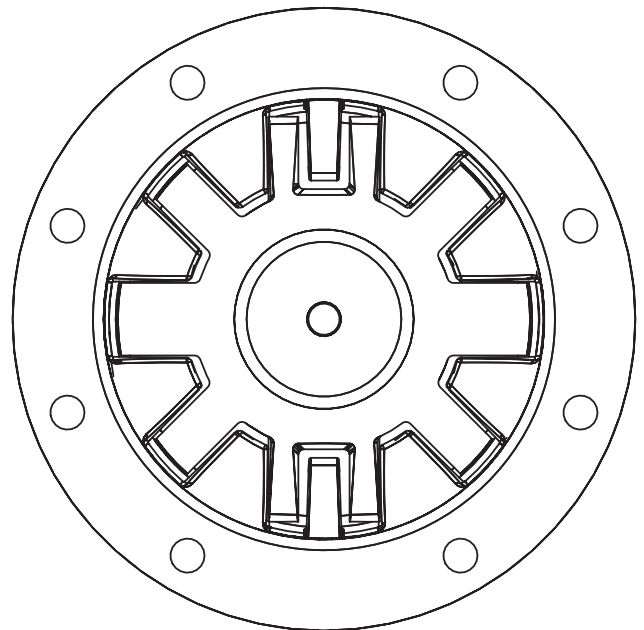
**DN 50 – 65:**

Compressor and actuator flange seen from below:



**DN 125 – 150:**

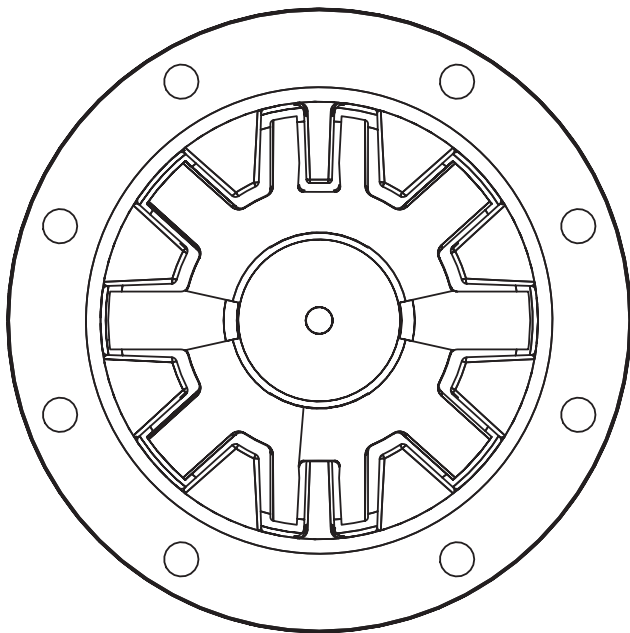
Compressor and actuator flange seen from below:



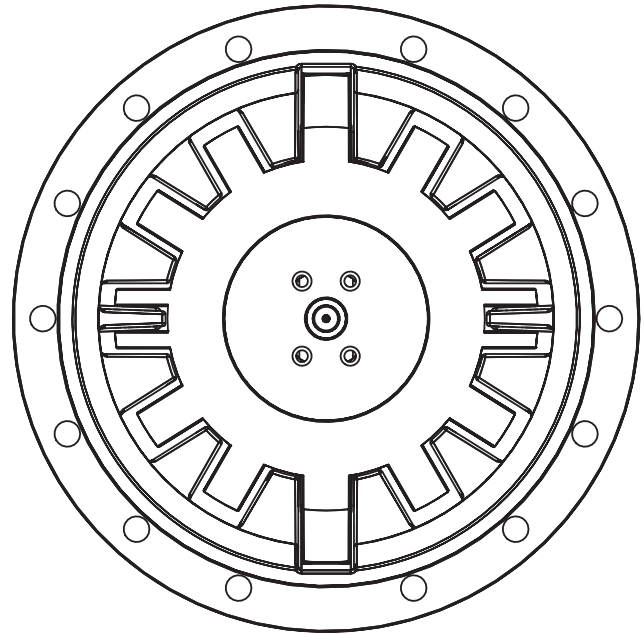


**DN 200:**

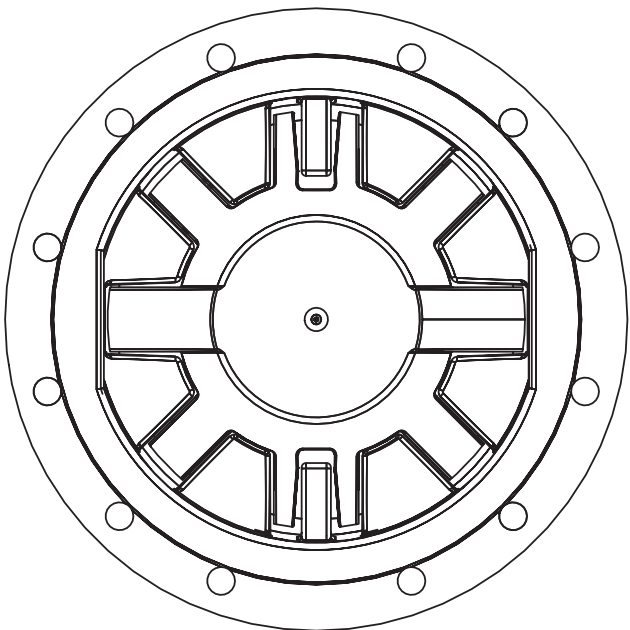
Compressor and actuator flange seen from below:

**DN 300:**

Compressor and actuator flange seen from below:

**DN 250:**

Compressor and actuator flange seen from below:

**14.3.2 Mounting the full bore diaphragm****NOTICE****Important:**

- ▶ Mount the correct diaphragm that suits the valve (suitable for medium, medium concentration, temperature and pressure).

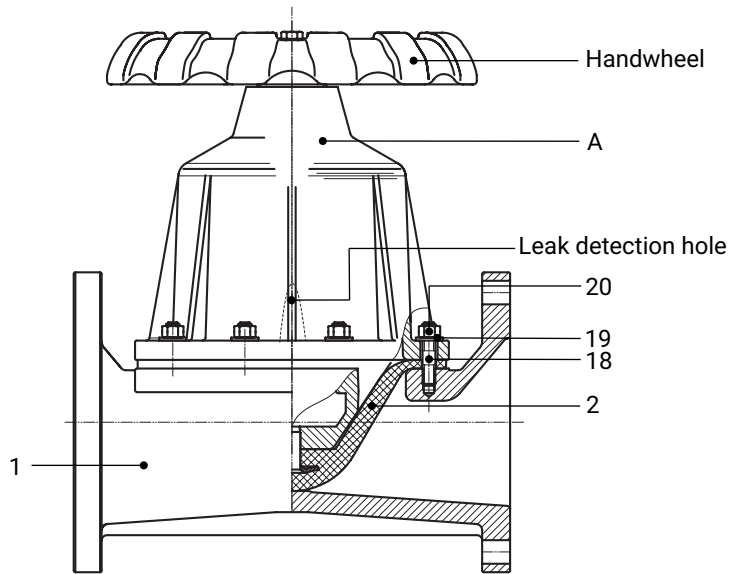
1. Before mounting the new diaphragm, please remove the actuator as described in chapter "Removing the diaphragm".
2. Close actuator **A** by approx. 75%.
3. Screw the diaphragm pin of the new diaphragm into the compressor of the actuator manually. When clear resistance is felt turn back the diaphragm anticlockwise until its bolt holes are in correct alignment with the bolt holes of the actuator.

**14.4 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. Position actuator **A** with the mounted diaphragm on the valve body **1**.
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. 50%.
- 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. With the valve fully assembled, check the function and tightness.

**15 Spare parts**

Item	Name	Order designation
1	Valve body	K655...
2	Full bore diaphragm	655...M...
18	Bolt	655...S30...
19	Washer	
20	Nut	
A	Actuator	9655...

### **16 Removal from piping**

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

### **17 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.

### **18 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.

**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 655  
**Notified body:** TÜV Rheinland Industrie Service GmbH  
**Number:** 0035  
**Certificate no.:** 01 202 926/Q-02 0036  
**Conformity assessment procedure:** Module H  
**Technical standard used:** 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.

2021-01-14



Joachim Brien  
Head of Technical Department



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Subject to alteration

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