

## GEMÜ Code 5M

### PTFE/EPDM diaphragm



### Features

- Fabric reinforced EPDM backing
- Excellent long-term tightness and vacuum compatibility thanks to improved geometry
- Extremely long service life
- Leak detection holes in the EPDM backing
- Easy-to-read identification
- Simple and defined mounting thanks to the threaded pin that is sintered in place with integrated screw-in stop (diaphragm size 10 to diaphragm size 100)

### Description

The GEMÜ Code 5M diaphragm has a two-piece design and comprises a PTFE face and a peroxide cured EPDM backing. An FKM backing is also available for highly permeating media (GEMÜ Code 5F). This material offers maximum chemical resistance and also features a considerably lower level of wear under steam conditions. In order to optimize the entire system in turn, both the PTFE face and the diaphragm backing are compounded for GEMÜ and manufactured within the GEMÜ Group.

### Technical specifications

- **Media temperature :** -10 to 100 °C
- **Sterilization temperature:** max. 150 °C
- **Diaphragm materials:** PTFE/EPDM
- **Diaphragm sizes:** 10 | 25 | 40 | 50 | 80 | 100
- **Conformities:** BSE/TSE | EHEDG | FDA | Oxygen | Ozone resistance | Reg. (EU) No. 10/2011 | Regulation (EC) No. 1935/2004 | TA Luft (German Clean Air Act) | USP

Technical data depends on the respective configuration



## Product comparison



|   | GEMÜ Code<br>3A/13 | GEMÜ Code<br>17 | GEMÜ Code<br>19 | GEMÜ Code<br>29  | GEMÜ Code<br>36 | GEMÜ Code<br>54 | GEMÜ Code<br>5M |
|---|--------------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| <b>Media temperature</b>                      | -10 to 100 °C      | -10 to 100 °C   | -10 to 100 °C   | -10 to 100 °C    | -10 to 100 °C   | -10 to 100 °C   | -10 to 100 °C   |
| <b>Sterilization temperature<sup>1)</sup></b> | max. 150 °C        | max. 150 °C     | max. 150 °C     | Not sterilizable | max. 150 °C     | max. 150 °C     | max. 150 °C     |
| <b>Diaphragm materials</b>                    |                    |                 |                 |                  |                 |                 |                 |
| EPDM  | ●                  | ●               | ●               | ●                | ●               | -               | -               |
| PTFE/EPDM                                     | -                  | -               | -               | -                | -               | ●               | ●               |
| <b>Diaphragm sizes</b>                        |                    |                 |                 |                  |                 |                 |                 |
| 8   | ●                  | ●               | ●               | -                | ●               | ●               | -               |
| 10  | ●                  | ●               | ●               | ●                | ●               | ●               | ●               |
| 20  | -                  | ●               | -               | ●                | -               | ●               | -               |
| 25  | ●                  | ●               | ●               | ●                | ●               | ●               | ●               |
| 40  | ●                  | ●               | ●               | ●                | ●               | ●               | ●               |
| 50  | ●                  | ●               | ●               | ●                | ●               | ●               | ●               |
| 65  | -                  | -               | -               | ●                | -               | ●               | -               |
| 80  | ●                  | ●               | ●               | ●                | -               | ●               | ●               |
| 100   | ●                  | ●               | ●               | ●                | -               | ●               | ●               |
| 125   | -                  | -               | -               | ●                | -               | ●               | -               |
| 150   | -                  | -               | -               | ●                | -               | ●               | -               |
| 200   | -                  | -               | -               | ●                | -               | -               | -               |
| <b>Conformities</b>                           |                    |                 |                 |                  |                 |                 |                 |
| BSE/TSE                                       | ●                  | ●               | ●               | ●                | ●               | ●               | ●               |
| EHEDG   | -                  | -               | -               | -                | -               | -               | ●               |
| FDA   | ●                  | ●               | ●               | -                | ●               | ●               | ●               |
| Oxygen  | ●                  | -               | ●               | -                | -               | ●               | ●               |
| Ozone resistance                              | ●                  | ●               | ●               | -                | ●               | ●               | ●               |
| Reg. (EU) No. 10/2011                         | -                  | -               | -               | -                | -               | ●               | ●               |
| Regulation (EC) No. 1935/2004                 | ●                  | ●               | ●               | -                | ●               | ●               | ●               |
| TA Luft (German Clean Air Act)                | ●                  | ●               | ●               | -                | ●               | ●               | ●               |
| USP   | ●                  | ●               | ●               | -                | ●               | ●               | ●               |

1) The duration of sterilization is limited for some diaphragms; see technical data.

Each application must be analysed before the selection of the diaphragm material. Since the most varied operating conditions often prevail within a plant at different locations, it can be necessary to use different valves and materials. In particular, the chemical properties and the temperature of the working media often lead to different interactions. The suitability of the materials used must therefore always be examined individually with regard to the current resistance list or checked by an authorised specialist. Only this procedure guarantees that the application will operate safely and economically for a longer period. Diaphragms are wearing parts. They need to be regularly inspected and replaced otherwise malfunctions can occur, possibly resulting in hazardous situations.

Please note: The maintenance intervals for inspecting and replacing diaphragms are application-dependent. In order to determine a suitable maintenance interval, the maintenance history and the stresses placed on the parts due to frequent sterilisation or frequent cycle duties must be taken into account.

## Product description

### Construction



| Item | Name   |
|------|--|
| 1    | Threaded pin sintered in place with integrated screw-in stop |
| 2    | Sealing bead for optimum external sealing                    |
| 3    | Tab  |
| 4    | PTFE face  |
| 5    | Sealing bead for reliable sealing on the valve weir          |
| 6    | EPDM backing   |

## 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)

### Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

For electronic identification purposes, each replaceable component contained in the product you have purchased is equipped with an RFID chip (1). Where you can find the RFID chip differs from product to product.

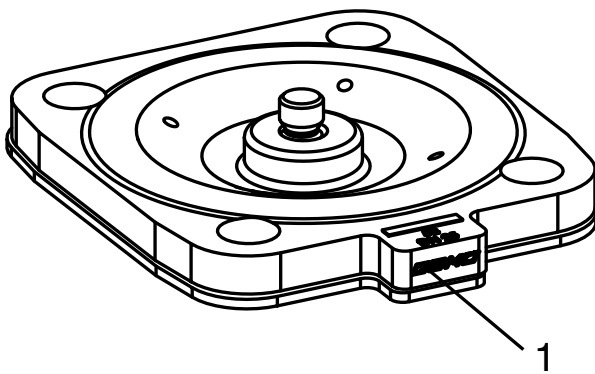


Fig. 1: Diaphragm RFID chip

**Availability**

| Special version | Packaging unit | Type of design |
|-----------------|----------------|----------------|
| Without         | Without        | Without        |
| S               | Without        | Without        |
| Without         | P01            | Without        |
| Without         | Without        | 0101           |
| Without         | Without        | 0104           |

## Order data

The order data provide an overview of standard configurations.

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

## Order codes

| 1 Type    | Code |
|-----------|------|
| Diaphragm | 600  |

| 2 Diaphragm size   | Code |
|--------------------|------|
| Diaphragm size 10  | 10   |
| Diaphragm size 25  | 25   |
| Diaphragm size 40  | 40   |
| Diaphragm size 50  | 50   |
| Diaphragm size 80  | 80   |
| Diaphragm size 100 | 100  |

| 3 Replacement diaphragm | Code |
|-------------------------|------|
| Replacement diaphragm   | M    |

| 4 Diaphragm material | Code |
|----------------------|------|
| PTFE/EPDM two-piece  | 5M   |

| 5 Packaging unit | Code |
|------------------|------|
| Without          |      |

| 5 Packaging unit   | Code |
|--|------|
| Packaging unit 1 piece for Pharma applications, including inspection certificate 3.1 and FDA certificate of conformity | P01  |

| 6 Type of design  | Code |
|---|------|
| Without   |      |
| Media wetted area cleaned to ensure suitability for paint applications, parts sealed in plastic bag | 0101 |
| Media wetted parts cleaned for high purity media and packed in plastic bag                          | 0104 |

| 7 Special version  | Code |
|--|------|
| Special version for oxygen, maximum medium temperature: 60°C | S    |

| 8 CONEXO  | Code |
|---|------|
| Without   |      |
| Integrated RFID chip for electronic identification and traceability | C    |

## Order example

| Ordering option         | Code | Description           |
|-------------------------|------|-----------------------|
| 1 Type                  | 600  | Diaphragm             |
| 2 Diaphragm size        | 25   | Diaphragm size 25     |
| 3 Replacement diaphragm | M    | Replacement diaphragm |
| 4 Diaphragm material    | 5M   | PTFE/EPDM two-piece   |
| 5 Packaging unit        |      | Without               |
| 6 Type of design        |      | Without               |
| 7 Special version       |      | Without               |
| 8 CONEXO                |      | Without               |

## Technical data

### Medium

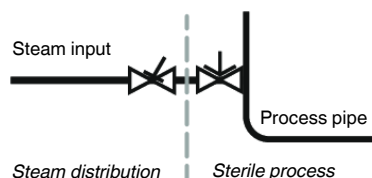
**Working medium:** Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the diaphragm material.

### Temperature

**Media temperature:** -10 – 100 °C  
for special function S: -10 – 60 °C

**Sterilization temperature:** max. 150 °C<sup>1)</sup>, no time limit per cycle<sup>2)</sup>

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



**Storage temperature:** -10 °C – 25 °C (preferably 15 °C) must be observed

### Pressure

**Operating pressure:** max. 10 bar (dependent on the diaphragm valve used)

**Vacuum:** Can be used up to a vacuum of 70 mbar (absolute)

### Product compliance

**Food:** Regulation (EC) No. 1935/2004  
Regulation (EC) No. 2023/2006  
Regulation (EC) No. 10/2011  
FDA 21 CFR 177.1550  
USP Class VI Title 87  
USP Class VI Title 88 (50 °C and 121 °C)  
Japanese Food Contact Material Act

**Ozone resistance:** Diaphragm material is resistant to a maximum concentration of ozone of 0.2 mg/l (dissolved in water)

**TA Luft (German Clean Air Act):** The product complies with the equivalence requirements of section 5.2.6.4 of the German Clean Air Act (TA Luft / VDI 2440 according to section 3.3.1.3)

**Oxygen:** BAM compliant, the product is suitable for application with oxygen

**BSE/TSE:** The product conforms to EMA/410/01 revision 3 and is free of animal substances

**Unused components:** Asbestos  
Natural or synthetic latex  
PVC  
2-Mercaptobenzothiazole  
Bis(2-ethylhexyl) phthalate (DEHP)  
Bis(n-butyl) phthalate (DnBP DBP)  
Bisphenol-A (SPA)  
Butyl benzyl phthalate (BBP)  
Diethyl phthalate (DEP)  
Diisodecyl phthalate (DIDP)  
Diisononyl phthalate (DINP)  
Dimethyl phthalate (DMP)  
Di-n-octyl phthalate (DNOP)  
N-nitrosamines

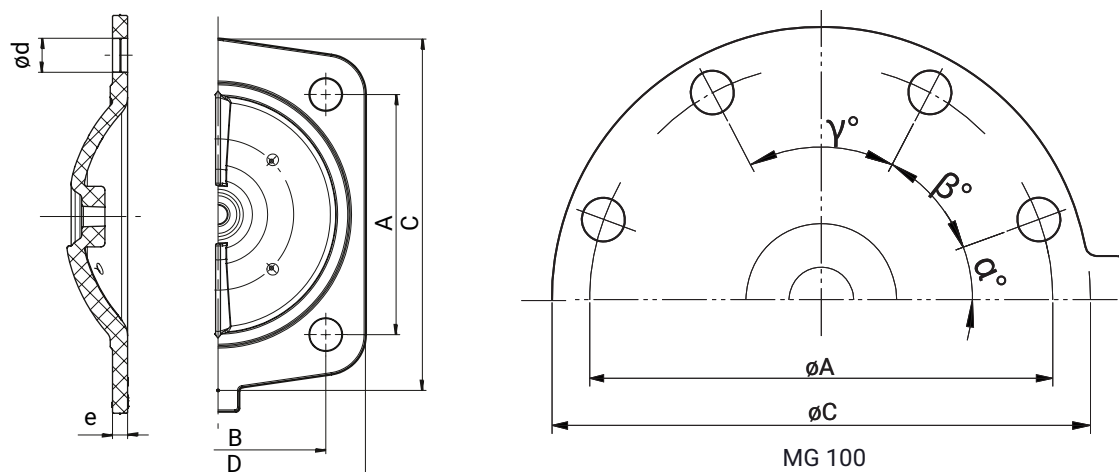


## Mechanical data

**Service life:** Max. recommended service life, 8 years  
 The service life is the sum of the storage life and operating life.  
 Note the Technical Information "Service life, storage and marking of GEMÜ diaphragms".

## Dimensions

### EPDM backing

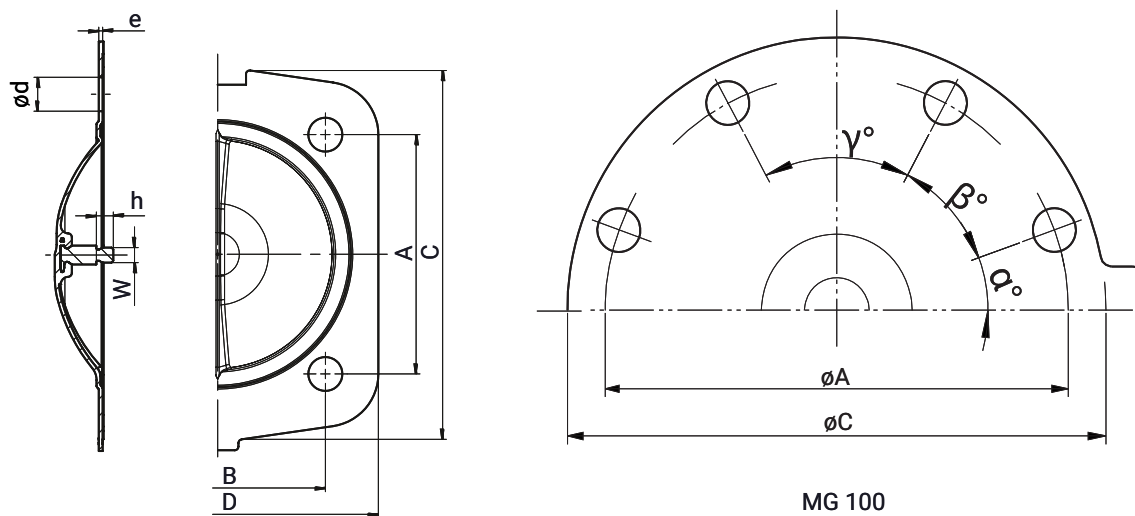


| MG  | DN      | NPS             | A     | B     | C     | D     | $\varnothing d$ | e   | n |
|-----|---------|-----------------|-------|-------|-------|-------|-----------------|-----|---|
| 10  | 10 - 20 | 3/8" - 3/4"     | 39.0  | 44.0  | 49.0  | 54.0  | 5.2             | 4.0 | 4 |
| 25  | 15 - 25 | 1/2" - 1"       | 54.0  | 46.0  | 72.0  | 67.0  | 9.0             | 6.0 | 4 |
| 40  | 32 - 40 | 1 1/4" - 1 1/2" | 70.0  | 65.0  | 100.0 | 90.0  | 11.0            | 6.0 | 4 |
| 50  | 50      | 2"              | 82.0  | 78.0  | 124.0 | 107.0 | 13.5            | 6.0 | 4 |
| 80  | 80      | 3"              | 127.0 | 114.0 | 186.0 | 156.0 | 18.0            | 8.0 | 4 |
| 100 | 100     | 4"              | 194.0 | -     | 228.0 | -     | 14.3            | 8.5 | 8 |

Dimensions in mm

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

**PTFE face**



| MG  | DN      | NPS             | A     | B     | C     | D     | ød            | e   | h   | W     | n |
|-----|---------|-----------------|-------|-------|-------|-------|---------------|-----|-----|-------|---|
| 10  | 10 - 20 | 3/8" - 3/4"     | 40.0  | 45.1  | 49.0  | 54.0  | 6.7           | 1.0 | 9.2 | M4    | 4 |
| 25  | 15 - 25 | 1/2" - 1"       | 54.0  | 46.0  | 80.0  | 75.0  | 9.0           | 1.5 | 6.0 | 1/4"  | 4 |
| 40  | 32 - 40 | 1 1/4" - 1 1/2" | 70.0  | 65.0  | 107.0 | 99.0  | 11.0          | 1.5 | 7.4 | 1/4"  | 4 |
| 50  | 50      | 2"              | 82.0  | 78.0  | 130.0 | 116.0 | 13.5          | 1.5 | 7.4 | 1/4"  | 4 |
| 80  | 80      | 3"              | 127.0 | 114.0 | 196.0 | 170.0 | 18.0          | 2.0 | 9.0 | 5/16" | 4 |
| 100 | 100     | 4"              | 194.5 | -     | 241.0 | -     | 2x13,<br>6x14 | 2.0 | 9.4 | 5/16" | 8 |

Dimensions in mm

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



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