

GEMÜ diaphragms for industrial applications

The diaphragm can be considered the heart of any diaphragm valve. As the eponymous seal in the piping system, it regulates the volumetric flow of the working medium, ensuring separation between the valve's mechanical elements and the media wetted area.

Our customers' systems have the most varied of operating conditions, with regard to the working medium, pressure and temperature, for example, which means that the selection of each diaphragm material is of vital importance. The wide range of different materials combines to ensure the well-known, no-compromise GEMÜ quality which is also guaranteed by the following measures:

- Raw materials are sourced from selected suppliers
- Comprehensive testing of the raw materials in our in-house laboratory or accredited institutions
- Storage of raw materials under controlled conditions
- Automated testing and documentation processes during production
- State-of-the-art production facilities
- The diaphragms are tested on our own test rigs (including special test cycles)

PTFE/EPDM diaphragms

The GEMÜ PTFE/EPDM diaphragm consists of an elastomer backing (EPDM) and a thermoplastic face made of chemically modified second-generation PTFE (TFM) and offers maximum chemical resistance. These two components are either firmly (GEMÜ code 54) or flexibly (GEMÜ code 5M) connected with each other.

Areas of application

- Suitable for use at permanently high temperatures and for steam
- Resistant against virtually all chemicals, such as strong acids, alkalis and salts
- Insensitive to solvents, chlorine and aromatic hydrocarbons

Technical specifications

- Media temperature: -10 to 100 °C (liquid)
- Available in diaphragm sizes 8 to 150
- Continuous steam operation up to max. 150 °C
- Max. operating pressure: 10 bar
- Vacuum applications: Can be used up to a vacuum of 70 mbar (absolute)

One-piece diaphragm GEMÜ code 54 (replacement for code 52)

- Fabric reinforced EPDM backing (diaphragm size 25 to diaphragm size 100)
- Simple mounting thanks to vulcanized rubber pin (diaphragm size 8)
- Simple and defined mounting thanks to the threaded pin that is vulcanized in place with integrated screw-in stop (diaphragm size 10 to diaphragm size 150)
- Diaphragm sizes 8 | 10 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150
- Conformities and approvals

FDA

USP Class VI

1935/2004

BAM¹ oxygen

TA Luft²

¹ Institute for Materials Research and Testing, ² German Clean Air Act



Two-piece diaphragm GEMÜ code 5M (replacement for code 5E)

- 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 sizes 10 to 100)
- Diaphragm sizes 10 | 25 | 40 | 50 | 80 | 100
- *Code 5E in diaphragm sizes 125 and 150
- Conformities and approvals

FDA

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PTFE/FKM diaphragms (previously FPM)

The GEMÜ PTFE/FKM diaphragm consists of an elastomer backing (FKM) and a thermoplastic face made of chemically modified second-generation PTFE (TFM) and offers maximum chemical resistance. These two components are either firmly (GEMÜ code 56) or flexibly (GEMÜ code 5T) connected with each other.

Areas of application

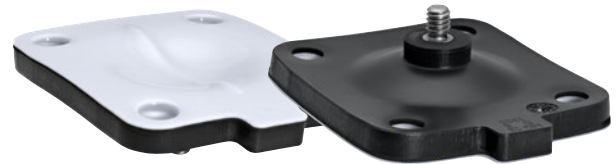
- Resistant against virtually all chemicals, such as strong acids and salts
- Insensitive to solvents, chlorine and aromatic hydrocarbons
- Excellent resistance for applications with diffused chemicals such as NaClO, ClO₂, HCl thanks to the FKM backing

GEMÜ code 56

- Diaphragm sizes: 10 | 20 | 25 | 40 | 50 | 80 | 100
- Media temperature: -10 to 100 °C
- Fabric reinforced FKM backing for optimal service life
- Tried and tested design concept with all known GEMÜ quality features such as tightness, setting behaviour, traceability

Technical specifications

- Media temperature: -10 to 100 °C (liquid)
- Available in diaphragm sizes 10 to 100
- Max. operating pressure: 10 bar
- Vacuum applications: Can be used up to a vacuum of 70 mbar (absolute)



GEMÜ code 56
diaphragm size 25

GEMÜ code 5T (replacement for code 5F)

- Diaphragm sizes: 10 | 25 | 40 | 50 | 80 | 100
- Base GEMÜ code 5M, FKM backing material instead of EPDM
- Very good long-term tightness
- High vacuum compatibility thanks to improved geometry



GEMÜ code 5T
diaphragm size 10

PTFE / PVDF / EPDM diaphragms

The GEMÜ code 71 diaphragm is a three-piece diaphragm that has been developed for use in industrial applications. The diaphragm is made up of a PTFE face, a PVDF intermediate layer and an EPDM backing. The diaphragm is based on the tried and tested design and dimensions of the code 5M diaphragm with regard to the PTFE face. The diaphragm shows excellent permeation properties against gases. The diaphragm is extremely resistant to chlorine (wet) due to the PVDF intermediate layer and the titanium mounting pin.

GEMÜ code 71

Areas of application

- Very good permeation properties, therefore suitable for industrial gases
- Excellent resistance against chlorine (wet), bromine and halogenated joints
- Resistant against virtually all chemicals, such as volatile acids, oxidizing agents and salts
- Suitable for use at permanently high temperatures

Features

- PVDF layer with 1 mm thickness offers a good permeation block (confirmed in tests based on DIN EN 1779, carried out by an external laboratory by TÜV SÜD)
- Good resistance against wet chlorine (confirmed in tests based on ISO 1817, carried out by TÜV SÜD)
- Mounting pin made of grade 7 titanium offers tried and tested corrosion resistance against chlorine, bromine and their derivatives
- Simple and defined mounting thanks to the threaded pin that is sintered in place with integrated screw-in stop
- Tried and tested GEMÜ design concept offers all known GEMÜ quality features such as optimized setting behaviour, high wear resistance and traceability
- The diaphragm has no leakage holes in the EPDM backing in order to improve the permeation properties

Technical specifications

- Media temperature: -20 to 100 °C (liquid)
- Diaphragm sizes: 10 | 25 | 40 | 50 | 80 | 100
- Continuous steam operation up to max. 150 °C
- Vacuum applications: Can be used up to a vacuum of 70 mbar (absolute)



GEMÜ code 71
diaphragm size 25

EPDM diaphragms

The one-piece EPDM diaphragms are made of an elastomer rubber mixture and are created by peroxide curing. This permits the diaphragms to be used safely, even at high media temperatures. The GEMÜ EPDM diaphragms are suitable for use with abrasive media. The diaphragms are specifically compounded for GEMÜ and manufactured within the GEMÜ Group.

Areas of application

- High level of insensitivity to mechanically contaminated working media (e.g. cellular lumps, solid matter or catalytic solid matter)
- Suitable for abrasive media
- Resistant to many acids, alkalis and diluted saline solutions
- Suitable for inert industrial gases and many other industrial gases
- Only conditionally suitable for oils and greases

GEMÜ code 29 (replacement for code 14)

- Diaphragm size 10 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200
- Fabric reinforced, thus retaining the contour accuracy of the diaphragm
- Low signs of wear and optimized setting behaviour
- High performance capability thanks to improved positioning of the fabric insert
- Greatly reduced adhesive behaviour (no sticking on the valve seat) of the diaphragm as a result of new material compounding
- Extremely long service life thanks to good material properties
- Simple and defined mounting thanks to the threaded pin that is vulcanized in place with integrated screw-in stop

Technical specifications

- Media temperature: -10 to 100 °C
- Available in diaphragm sizes 8 to 200
- Continuous steam operation up to max. 150 °C
- Vacuum up to 70 mbar (absolute)



GEMÜ code 29
diaphragm size 25

GEMÜ code 17

- Diaphragm size 8 | 10 | 20 | 25 | 40 | 50 | 80 | 100
- Fabric-reinforced
- High tear resistance/low cracking
- High thermal load capability (hot/cold)
- Simple mounting thanks to the rubber pin that is vulcanized in place (diaphragm size 8)
- Simple and defined mounting thanks to the threaded pin that is vulcanized in place with integrated screw-in stop
- Conformities and approvals



GEMÜ code 17
diaphragm size 25

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NBR diaphragms

The GEMÜ NBR diaphragm code 2 has been developed for use in industrial applications, for example in the chemical industry, environmental engineering or the processing industry. The diaphragm is made of nitrile rubber.

GEMÜ code 2

Areas of application

- Good resistance to mineral oils, greases and petrol
- Unsuitable for oxidative media

Features

- Simple and defined mounting thanks to the threaded pin that is vulcanized in place with integrated screw-in stop
- Tried and tested GEMÜ design concept offers all known GEMÜ quality features such as optimized setting behaviour, high wear resistance and traceability

Technical specifications

- Media temperature: -20 to 100 °C (liquid)
- Diaphragm sizes: 10 | 25 | 40 | 50 | 80 | 100
- Vacuum applications: Can be used up to a vacuum of 70 mbar (absolute)



GEMÜ code 2
diaphragm size 50

FKM diaphragms

The GEMÜ FKM diaphragm code 4A / 4 has been developed for industrial processes with corrosive and highly permeating media. The diaphragm is made of fluorinated rubber.

GEMÜ code 4A/4

Areas of application

- Resistant against hydrocarbons and strong acids, aromatic solvents, ozone, gaseous chlorine and chlorinated solvents
- Suitable for use at permanently high temperatures and for steam

Features

- Simple and defined mounting thanks to the threaded pin that is vulcanized in place with integrated screw-in stop, code 4 in diaphragm sizes 10 to 150
- Simple mounting is facilitated by a rubber pin that is vulcanized in place, code 4A diaphragm size 8

Technical specifications

- Media temperature: -10 to 90 °C
- Vacuum: up to 70 mbar (absolute)
- Diaphragm sizes for code 4: 10 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150
- Diaphragm size for code 4A: 8



GEMÜ code 4A / 4
diaphragm size 25

Butyl diaphragms (IIR)

The GEMÜ IIR diaphragm code 6 has been developed for use in industrial applications, for example in mining, ore processing and hydrometallurgy, in the fertiliser industry/phosphate production/phosphoric acid manufacturing. The diaphragm is made of isobutene isoprene rubber.

GEMÜ code 6

Areas of application

- Good resistance to diluted inorganic acids, alkalis and saline solutions.
- Good weather resistance and very suitable for water and ozone.
- Low gas permeability. Unsuitable for oils and hydrocarbon

Technical specifications

- Media temperature: -5 to 100 °C
- Diaphragm sizes: 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200



GEMÜ code 6
diaphragm size 50

CR diaphragms

The GEMÜ CR diaphragm code 8 has been developed for use in industrial applications, for example in fertiliser production and water treatment. The diaphragm is made of chloroprene rubber. This material is also known as neoprene in English-speaking countries.

GEMÜ code 8

Areas of application

- Resistant against various chemicals, diluted solutions of inorganic acids, alkalis and salts
- Ozone and weather resistant. Very suitable for abrasive media
- Not resistant against aromatic hydrocarbons

Features

- Very suitable for abrasive media
- Ozone and weather resistant
- Simple and defined mounting thanks to the threaded pin that is vulcanized in place with integrated screw-in stop

Technical specifications

- Media temperature: -10 to 100 °C
- Diaphragm sizes: 25 | 40 | 50 | 80 | 100



GEMÜ code 8
diaphragm size 50

