# Valves
for Sterile Applications


GEMÜ® VALVES, MEASUREMENT AND CONTROL SYSTEMS

# Innovative technology

GEMÜ is a leading world-wide manufacturer of high quality valves, measurement and control systems.
Fritz Müller established GEMÜ in 1964, and since then, the company developed internationally with a large number of production centres, subsidiaries and trading companies on every continent.

GEMÜ provides engineered control solutions for a large number of process and engineering plant, such as:

- Industrial plant and machine construction
- Automobile industry
- Water / waste water treatment
- Chemical industry
- Steel works
- Mining and metal extraction
- Power stations
- Petrochemical industry
- Paper industry
- Pharmaceutical and biotechnological industries
- Foodstuff and beverage industries
- Microelectronics and semiconductor industries


*Headquarters in Ingelfingen-Criesbach*


*Research and Development Centre in Niedernhall-Waldzimmern*

State-of-the-art factory equipment and machinery plus a motivated team ensure the best service through our world-wide network of distributors and stockholding subsidiaries. We are constantly making investments in order to optimise our existing products and to develop new products. Thus we can provide technical solutions for individual applications.

GEMÜ - your valve and instrumentation partner.

# Contents

# Innovative technology

You work successfully in the field of pharma, food or biotech industry. As a designer, original equipment manufacturer or operator you attach great importance to having satisfied customers. Your products are of the highest possible quality and the equipment you design, construct or operate is subject to strict safety requirements in hygienic and aseptic processes. Every minute of lost production, or unwanted variations in quality, mean loss of image, production and capital.
Don't take chances with your valve selection and use GEMÜ as your partner in aseptic valve systems and instrumentation.
State-of-the-art factory equipment and machinery plus a motivated team ensure the best service through our world-wide network of distributors and stockholding subsidiaries. We are constantly making investments in order to optimise our existing products and to develop new products. Thus we can provide technical solutions for individual applications.
Keeping close to our customers is of the utmost importance.

# Sterile valves – Health-essential cleanliness

The purity and quality of our food and medicines have improved tremendously over recent years. In addition to stringent regulations and licensing conditions, GEMÜ has played an important role in this development.

Thanks to the aseptic sterile GEMÜ valves, today's processes are purer and cleaner than they were 40 years ago. Our diaphragm valves find just as much use in yoghurt or toothpaste manufacture as in eye ointment, insulin or monoclonal antibodies production.

Ultra pure media for the semiconductor and microelectronics segments use aseptic stainless steel valves as well as, for example, fine chemicals. Depending on the model, the valves are suitable for ultra pure water (WFI), ultra high purity chemicals, and semi-manufactured and finished products in pharmaceutical, biotechnology, food processing and chemical industries. The valve technical design makes them sterilisable and autoclavable. Aseptic diaphragm valves also make very good control valves. Incidentally, we are today's market leader for multi-port valve blocks, and these units are becoming smaller, more compact and easier to sterilise.

## Basic details of the stainless steel aseptic valve product range

| | |
|---|---|
| Operating pressure | 0 – 10 bar |
| Operating temperature | -10 to 150°C |
| Nominal size | DN 4 - 100 (larger nominal sizes on request) |
| Body materials | Stainless steel (investment casting, forged body, block material), special materials |
| Seal materials | EPDM, EPDM/PTFE (other versions available on request) |
| Connections | Butt weld spigots, clamps and union ends, flanges Connections are available in a wide variety of standards (ISO, DIN, SMS, ASME BPE, JIS etc.) |
| Operation | Manually operated, remotely operated (pneumatically, hydraulically) and motorized |
| Body configuration | 2/2-way body (2/2-way valve), T valve (3/2-way valve), tank valve (B600), weld configuration (GMP-SAP valve configuration, W600), multi-port valve (M600) |
| Surfaces | Surface qualities of stainless steel bodies down to 0.25 µm Ra with and without electro-polishing |

**Automation:**
We also manufacture a series of accessories for integrating the valves into modern automated lines:

- Electrical position indicators
- Pilot valves and valve manifolds
- Positioners and process controllers
- AS-Interface field bus components

# Applications

## Eye ointment manufacturing machine

An AS-interface field bus system controls the entire machine using GEMÜ 650 2/2-way diaphragm valves and multi-port valve blocks, fitted with GEMÜ 4222 combi switchboxes. GEMÜ 554 globe valves also fitted with GEMÜ 4222, control the sterile steam.

## Ice tea filling machine

The filling of ice tea in this plant is via GEMÜ 625 aseptic diaphragm valves. The plastic actuators enable high and fast cycle duties and are easy to clean.

## Brewing

GEMÜ 1436 cPos mounted on the butterfly valves (other brand) control the pressure in the fermentation tank. These controllers are available purely as positioners or as process controllers with integrated positioners.

## Pharmaceutical filling machine

GEMÜ 650 diaphragm valves are used in numerous machines for sterile filling of liquid medicines of all kinds.

## DE-CIP installation for pharmacy

The decentralised CIP machine ensures residueless cleaning of preparation tanks, pipes, storage tanks, etc. . The cleaning liquids are prepared in the preparation tank. GEMÜ 625 T valves dose the DI water.

## Liquid media production plant

The plant is divided into the areas of raw material supply, preparation of liquids, stacking liquids and cleaning. The DI water and various alcohols are fed through GEMÜ 688s with two stage actuators. Combined with a mass flow counter it is possible to ensure quick and precise dosage. Other valves used are the GEMÜ 612 manual valves and the GEMÜ 687 pneumatic valves.

# Manually operated and motorized diaphragm valves for sterile applications and high purity media, DN 4 - DN 100

| |  |  |  |  |  |
|---|---|---|---|---|---|
| **Type** | **601** | **602** | **612** | **673** | **653** |
| **Operator top** | Stainless steel | Stainless steel | Stainless steel | Stainless steel | Stainless steel |
| **Handwheel (manual) /actuator (motorized)** | Plastic, with optical position indicator and seal adjuster | Stainless steel, with optical position indicator and seal adjuster | Plastic, with optical position indicator and seal adjuster | Plastic, with optical position indicator and seal adjuster | Plastic, with optical position indicator, stroke limiter/seal adjuster, lockable, mounting for electrical position indicator |
| **Autoclavable** | ● | ● | ● | ● | ● |
| **Operating temperature** | 0 - 150°C | 0 - 150°C | 0 - 150°C | 0 - 150°C | 0 - 150°C |
| **Operating pressure** | 0 - 10 bar | 0 - 10 bar | 0 - 10 bar | 0 - 10 bar | 0 - 10 bar |
| **Supply voltage** | - | - | - | - | - |
| **DN** | 4 - 15 | 4 - 15 | 10 - 20 | 15 - 50 | 10 - 100 |
| **Diaphragm size 8** | ● | ● | - | - | - |
| **Diaphragm size 10** | - | - | ● | ● | ● |
| **Diaphragm size 25** | - | - | - | ● | ● |
| **Diaphragm size 40** | - | - | - | ● | ● |
| **Diaphragm size 50** | - | - | - | ● | ● |
| **Diaphragm size 80** | - | - | - | - | ● |
| **Diaphragm size 100** | - | - | - | - | ● |

## Diaphragms

**Elastomer diaphragms**
EPDM

## Valve body versions

**2/2-way body**
investment casting
2/2-way version to all international standard butt weld connections

**2/2-way body**
forged version
2/2-way version to all international standard butt weld connections

**i-body**

## Connections

**Clamps**
to all common standards

**Aseptic unions**
to all common standards

**Aseptic flanges**
to all common standards

| | | | motorized | | |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| **654** | **611** | **671** | **618** | **618** | **698** |
| Stainless steel | Plastic | Plastic | Plastic | Plastic | Plastic |
| Stainless steel, with optical position indicator, stroke limiter/seal adjuster, lockable, mounting for electrical position indicator | Plastic, with optical position indicator | Plastic, with optical position indicator, optional electrical position indicator | Plastic, with stainless steel distance piece, optical position indicator | Plastic, without stainless steel distance piece, optical position indicator | Plastic, with stainless steel distance piece, optical position indicator and manual override |
| ● | - | - | - | - | - |
| 0 - 150°C | 0 - 80°C | 0 - 80°C | 0 - 150°C | 0 - 80°C | 0 - 80°C |
| 0 - 10 bar | 0 - 10 bar | 0 - 10 bar | 0 - 6 bar | 0 - 6 bar | 0 - 6 bar |
| - | - | - | 24 V, 120 V, 230 V 50/60 Hz | 24 V, 120 V, 230 V 50/60 Hz | 24 V, 120 V, 230 V 50/60 Hz |
| 4 - 100 | 10 - 20 | 15 - 100 | 4 - 20 | 10 - 20 | 15 - 50 |
| ● | - | - | ● | - | - |
| ● | ● | - | ● | ● | - |
| ● | - | ● | - | - | ● |
| ● | - | ● | - | - | ● |
| ● | - | ● | - | - | ● |
| ● | - | ● | - | - | - |
| ● | - | ● | - | - | - |

**PTFE diaphragms**
PTFE/EPDM, PTFE/FPM

**W600**
Valve configurations

**T valves**
e.g. for minimal deadleg ring mains

**B600 Tank valves**
for stainless steel containers and tanks

**M600 Multi-port valves**
application-specific

# Pneumatically operated diaphragm valves for sterile applications and high purity media, DN 4 - DN 100

| |  |  |  |  |
|---|---|---|---|---|
| **Type** | **605** | **625** | **687** | **650** |
| **Actuator** | Plastic, with stainless steel distance piece, optical position indicator | Plastic, with stainless steel distance piece, optical position indicator | Plastic, with stainless steel distance piece | Stainless steel, with optical position indicator, optionally autoclavable |
| **Operating temperature** | 0 - 150°C | 0 - 150°C | 0 - 150°C | 0 - 150°C |
| **Operating pressure** | 0 - 8 bar | 0 - 6 bar | 0 - 10 bar | 0 - 10 bar |
| **DN** | 4 - 15 | 10 - 20 | 10 - 100 | 4 - 50 |
| **Diaphragm size 8** | ● | - | - | ● |
| **Diaphragm size 10** | - | ● | ● | ● |
| **Diaphragm size 25** | - | - | ● | ● |
| **Diaphragm size 40** | - | - | ● | ● |
| **Diaphragm size 50** | - | - | ● | ● |
| **Diaphragm size 80** | - | - | ● | - |
| **Diaphragm size 100** | - | - | ● | - |

## Diaphragms

**Elastomer diaphragms**
EPDM

## Valve body versions

**2/2-way body**
investment casting
2/2-way version to all international standard butt weld connections

**2/2-way body**
forged version
2/2-way version to all international standard butt weld connections

**i-bodies**

## Connections

**Clamps**
to all common standards

**Aseptic unions**
to all common standards

**Aseptic flanges**
to all common standards

| 651 | 658/688 | 660 | 615 | 695 |
|---|---|---|---|---|
| Stainless steel, with integrated automation module | Two-stage actuator, stainless steel | Filling valve, stainless steel with optical position indicator | Plastic | Plastic |
| 0 - 150°C | 0 - 150°C | 0 - 150°C | 0 - 80°C | 0 - 80°C |
| 0 - 10 bar | 0 - 10 bar | 0 - 5 bar | 0 - 6 bar | 0 - 6 bar |
| 4 - 25 | 10 - 50 | 4 - 25 | 10 - 20 | 15 - 50 |
| ● | - | ● | - | - |
| ● | ● | ● | ● | - |
| ● | ● | ● | - | ● |
| - | ● | - | - | ● |
| - | ● | - | - | ● |
| - | - | - | - | - |
| - | - | - | - | - |

**PTFE diaphragms**
PTFE/EPDM, PTFE/FPM

**W600**
Valve configurations

**T valves**
e.g. for minimal deadleg ring mains

**B600 Tank Valves**
for stainless steel containers and tanks

**M600 Multi-port valves**
application-specific

# Butt weld spigot bodies

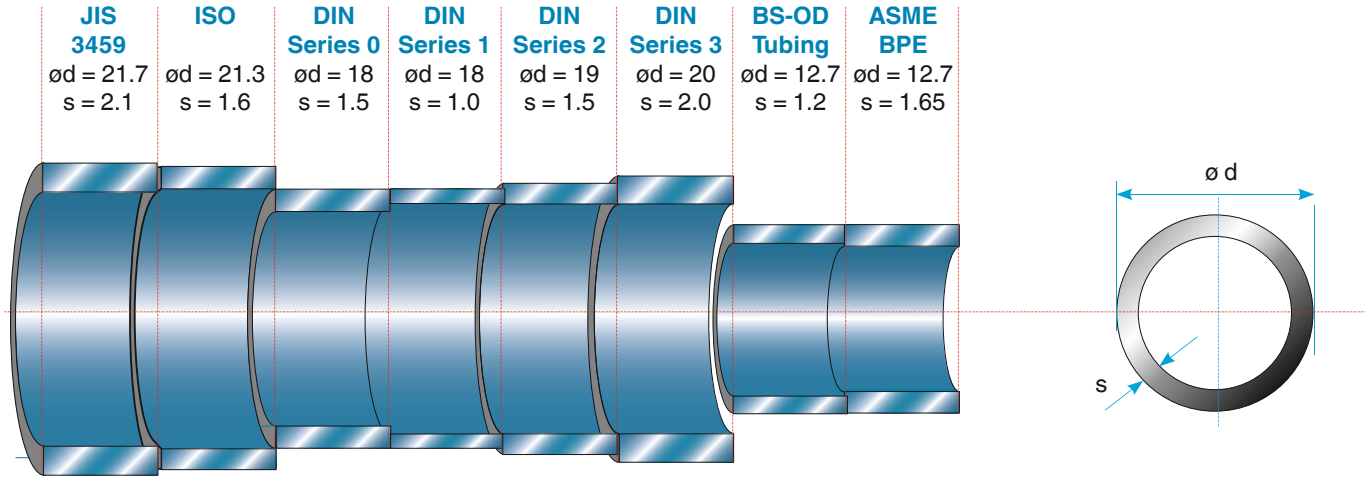
The ISO + ASME BPE butt weld spigots are popular connections in the GEMÜ aseptic valve range but also other standard butt weld spigots such as DIN series 0, DIN 11850 series 1, DIN 11850 series 2, DIN 11850 series 3, BS O.D. Tubing, ASME-BPE, JIS and SMS 3008 are available as standard products.
The lengths of our butt weld spigot bodies are designed to provide the optimum for automatic orbital welding.

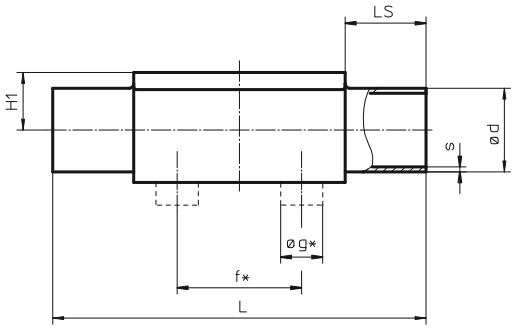
The butt weld spigot lengths guarantee trouble-free mounting and welding in an orbital welding machine using the collets and welding heads commonly used in the Biopharm industry. We recommend this type of welding to achieve the best possible weld quality, which should be carried out by suitably qualified and certified welders.

| Butt weld spigots | Code |
|---|---|
| Butt weld spigots DIN | 0 |
| Butt weld spigots DIN 11850, series 1 | 16 |
| Butt weld spigots DIN 11850, series 2 | 17 |
| Butt weld spigots DIN 11850, series 3 | 18 |
| Butt weld spigots DIN 11866, series A | 1A |
| Butt weld spigots DIN 11866, series B | 1B |
| Butt weld spigots JIS-G 3447 | 35 |
| Butt weld spigots JIS-G 3459 | 36 |
| Butt weld spigots SMS 3008 | 37 |
| Butt weld spigots BS 4825 Part 1 | 55 |
| Butt weld spigots ASME BPE | 59 |
| Butt weld spigots EN ISO 1127 | 60 |
| Butt weld spigots ANSI/ASME B36.19M, Schedule 10s | 63 |
| Butt weld spigots ANSI/ASME B36.19M, Schedule 40s | 65 |


For further information please refer to our brochure “2/2-Way Valve Bodies for Sterile Applications“

## The difference between tube specifications (Example DN 15)




* only for investment cast body

Optimum draining angle see brochure
“2/2-Way Valve Bodies for Sterile Applications“

Dimensions in mm

| | | | | | | | | | DIN | | DIN 11850 | | | | | | DIN 11866 | | | | EN ISO 1127 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Series 0 Code 0 | | Series 1 Code 16 | | Series 2 Code 17 | | Series 3 Code 18 | | Series A Code 1A | | Series B Code 1B | | Code 60 | |
| MG | DN | NPS | f* | øg* | L | c | H1* | H1** | ød | s | ød | s | ød | s | ød | s | ød | s | ød | s | ød | s |
| 8 | 4 | - | - | - | 72 | 20 | 8.5 | | 6 | 1.0 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 6 | - | - | - | 72 | 20 | 8.5 | | 8 | 1.0 | - | - | - | - | - | - | 8 | 1.0 | 10.2 | 1.6 | 10.2 | 1.6 |
| | 8 | ¼" | - | - | 72 | 20 | 8.5 | | 10 | 1.0 | - | - | - | - | - | - | 10 | 1.0 | 13.5 | 1.6 | 13.5 | 1.6 |
| | 10 | ⅜" | - | - | 72 | 20 | 8.5 | | - | - | 12 | 1.0 | 13 | 1.5 | 14 | 2.0 | 13 | 1.5 | - | - | - | - |
| | 15 | ½" | - | - | 72 | 20 | 8.5 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | 10 | ⅜" | 30 | 13.5 | 108 | 25 | 12.5 | | - | - | 12 | 1.0 | 13 | 1.5 | 14 | 2.0 | 13 | 1.5 | 17.2 | 1.6 | 17.2 | 1.6 |
| | 15 | ½" | 30 | 13.5 | 108 | 25 | 12.5 | | 18 | 1.5 | 18 | 1.0 | 19 | 1.5 | 20 | 2.0 | 19 | 1.5 | 21.3 | 1.6 | 21.3 | 1.6 |
| | 20 | ¾" | 30 | 13.5 | 108 | 25 | 12.5 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25 | 15 | ½" | 40 | 13.5 | 120 | 25 | 13.0 | 19.0 | 18 | 1.5 | 18 | 1.0 | 19 | 1.5 | 20 | 2.0 | 19 | 1.5 | 21.3 | 1.6 | 21.3 | 1.6 |
| | 20 | ¾" | 40 | 13.5 | 120 | 25 | 16.0 | 19.0 | 22 | 1.5 | 22 | 1.0 | 23 | 1.5 | 24 | 2.0 | 23 | 1.5 | 26.9 | 1.6 | 26.9 | 1.6 |
| | 25 | 1" | 40 | 13.5 | 120 | 25 | 19.0 | 19.0 | 28 | 1.5 | 28 | 1.0 | 29 | 1.5 | 30 | 2.0 | 29 | 1.5 | 33.7 | 2.0 | 33.7 | 2.0 |
| 40 | 32 | 1 ¼" | 68 | 13.5 | 153 | 25 | 24.0 | 26.0 | 34 | 1.5 | 34 | 1.0 | 35 | 1.5 | 36 | 2.0 | 35 | 1.5 | 42.4 | 2.0 | 42.4 | 2.0 |
| | 40 | 1 ½" | 75 | 13.5 | 153 | 25 | 26.0 | 26.0 | 40 | 1.5 | 40 | 1.0 | 41 | 1.5 | 42 | 2.0 | 41 | 1.5 | 48.3 | 2.0 | 48.3 | 2.0 |
| 50 | 50 | 2" | 90 | 13.5 | 173 | 30 | 32.0 | 32.0 | 52 | 1.5 | 52 | 1.0 | 53 | 1.5 | 54 | 2.0 | 53 | 1.5 | 60.3 | 2.0 | 60.3 | 2.0 |
| 80 | 65 | 2 ½" | - | - | 216 | 30 | - | 62.0 | - | - | - | - | 70 | 2.0 | - | - | 70 | 2.0 | 76.1 | 2.0 | 76.1 | 2.0 |
| | 80 | 3" | - | - | 254 | 30 | - | 62.0 | - | - | - | - | 85 | 2.0 | - | - | 85 | 2.0 | 88.9 | 2.3 | 88.9 | 2.3 |
| 100 | 100 | 4" | - | - | 305 | 30 | - | 76.0 | - | - | - | - | 104 | 2.0 | - | - | 104 | 2.0 | 114.3 | 2.3 | 114.3 | 2.3 |

MG = diaphragm size  * only for investment cast design  ** only for forged design

Dimensions in mm

| | | | | | | | | | JIS-G 3447 Code 35 | | JIS-G 3459 Code 36 | | SMS 3008 Code 37 | | BS 4825 Code 55 | | ASME BPE Code 59 | | ANSI/ASME B36.19M 10s Code 63 | | ANSI/ASME B36.19M 40s Code 65 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MG | DN | NPS | f* | øg* | L | c | H1* | H1** | ød | s | ød | s | ød | s | ød | s | ød | s | ød | s | ød | s |
| 8 | 4 | - | - | - | 72 | 20 | 8.5 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 6 | - | - | - | 72 | 20 | 8.5 | | - | - | 10.5 | 1.20 | - | - | - | - | - | - | 10.3 | 1.24 | 10.3 | 1.73 |
| | 8 | ¼" | - | - | 72 | 20 | 8.5 | | - | - | 13.8 | 1.65 | - | - | 6.35 | 1.2 | 6.35 | 0.89 | 13.7 | 1.65 | 13.7 | 2.24 |
| | 10 | ⅜" | - | - | 72 | 20 | 8.5 | | - | - | - | - | - | - | 9.53 | 1.2 | 9.53 | 0.89 | - | - | - | - |
| | 15 | ½" | - | - | 72 | 20 | 8.5 | | - | - | - | - | - | - | 12.70 | 1.2 | 12.70 | 1.65 | - | - | - | - |
| 10 | 10 | ⅜" | 30 | 13.5 | 108 | 25 | 12.5 | | - | - | 17.3 | 1.65 | - | - | 9.53 | 1.2 | 9.53 | 0.89 | 17.1 | 1.65 | 17.1 | 2.31 |
| | 15 | ½" | 30 | 13.5 | 108 | 25 | 12.5 | | - | - | 21.7 | 2.10 | - | - | 12.70 | 1.2 | 12.70 | 1.65 | 21.3 | 2.11 | 21.3 | 2.77 |
| | 20 | ¾" | 30 | 13.5 | 108 | 25 | 12.5 | | - | - | - | - | - | - | 19.05 | 1.2 | 19.05 | 1.65 | - | - | - | - |
| 25 | 15 | ½" | 40 | 13.5 | 120 | 25 | 13.0 | 19.0 | - | - | 21.7 | 2.10 | - | - | - | - | - | - | 21.3 | 2.11 | 21.3 | 2.77 |
| | 20 | ¾" | 40 | 13.5 | 120 | 25 | 16.0 | 19.0 | - | - | 27.2 | 2.10 | - | - | 19.05 | 1.2 | 19.05 | 1.65 | 26.7 | 2.11 | 26.7 | 2.87 |
| | 25 | 1" | 40 | 13.5 | 120 | 25 | 19.0 | 19.0 | 25.4 | 1.2 | 34.0 | 2.80 | 25.0 | 1.2 | - | - | 25.40 | 1.65 | 33.4 | 2.77 | 33.4 | 3.38 |
| 40 | 32 | 1 ¼" | 68 | 13.5 | 153 | 25 | 24.0 | 26.0 | 31.8 | 1.2 | 42.7 | 2.80 | 33.7 | 1.2 | - | - | - | - | 42.2 | 2.77 | 42.2 | 3.56 |
| | 40 | 1 ½" | 75 | 13.5 | 153 | 25 | 26.0 | 26.0 | 38.1 | 1.2 | 48.6 | 2.80 | 38.0 | 1.2 | - | - | 38.10 | 1.65 | 48.3 | 2.77 | 48.3 | 3.68 |
| 50 | 50 | 2" | 90 | 13.5 | 173 | 30 | 32.0 | 32.0 | 50.8 | 1.5 | 60.5 | 2.80 | 51.0 | 1.2 | - | - | 50.80 | 1.65 | 60.3 | 2.77 | 60.3 | 3.91 |
| 80 | 65 | 2 ½" | - | - | 216 | 30 | - | 62.0 | 63.5 | 2.0 | 76.3 | 3.00 | 63.5 | 1.6 | - | - | 63.50 | 1.65 | 73.0 | 3.05 | 73.0 | 5.16 |
| | 80 | 3" | - | - | 254 | 30 | - | 62.0 | 76.3 | 2.0 | 89.1 | 3.00 | 76.1 | 1.6 | - | - | 76.20 | 1.65 | 88.9 | 3.05 | 88.9 | 5.49 |
| 100 | 100 | 4" | - | - | 305 | 30 | - | 76.0 | 101.6 | 2.0 | 114.3 | 3.00 | 101.6 | 2.0 | - | - | 101.60 | 2.11 | 114.3 | 3.05 | 114.3 | 6.02 |

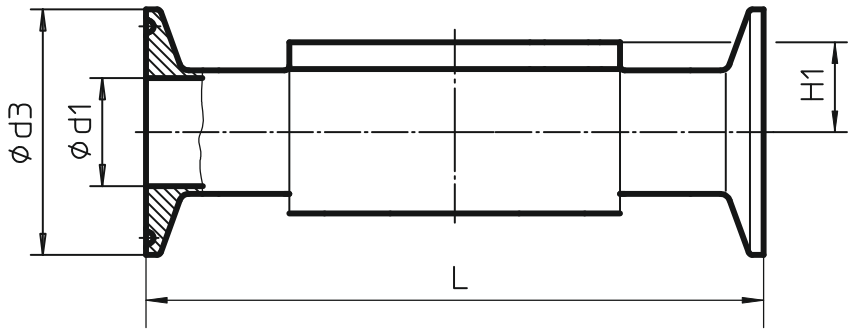
MG = diaphragm size  * only for investment cast design  ** only for forged design

# Clamp bodies

All clamp connections are machined according to the spigot dimensions e.g. to DIN 11850, SMS 3008 or ASME BPE. We ask our customers to state which version or standard the connections shall comply with.
Depending on the version, clamps are machined from the solid forged body, not welded on. Investment cast bodies have welded on clamps.

All welds are carried out by specially qualified and certified welders utilising state-of-the art welding technology. In principle, special connections requested by customers can be provided on GEMÜ butt weld spigot bodies and it is also possible to have different connections on one body.

| Clamp connections for forged 2/2-way bodies | Code |
|---|---|
| Clamps ASME BPE for pipe ASME BPE, short design | 80 |
| Clamps following ASME BPE for pipe EN ISO 1127, length EN 558-1, series 7 | 82 |
| Clamps ASME BPE for pipe ASME BPE, length EN 558-1, series 7 | 88 |
| Clamps DIN 32676 for pipe DIN 11850 length EN 558-1, series 7 | 8A |
| Clamps SMS 3017 for pipe SMS 3008 length EN 558-1, series 7 | 8E |
| Clamps IDF/ISO for pipe JIS-G 3447 length EN 558-1, series 7 | 8F |
| Clamps IDF/ISO for pipe JIS-G 3459 length EN 558-1, series 7 | 8H |




**Optimum draining angle see brochure "2/2-Way Valve Bodies for Sterile Applications"**

| Pipe | | | | Code 59 ASME-BPE | | | Code 60 EN ISO 1127 | | | Code 59 ASME-BPE | | | Code 16,17,18 DIN 11850 | | | Code 37 SMS3008 | | | Code 35 JIS-G3447 | | | Code 36 JIS-G3459 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clamp connection | | | | Code 80 | | | Code 82 | | | Code 88 | | | Code 8A | | | Code 8E | | | Code 8F | | | Code 8H | | |
| DN | NPS | MG | H1 | ød1 | ød3 | L | ød1 | ød3 | L | ød1 | ød3 | L | ød1 | ød3 | L | ød1 | ød3 | L | ød1 | ød3 | L | ød1 | ød3 | L |
| 8 | ¼" | 8 | 8 | 4.57 | 25 | 63.5 | 10.30 | 25.4 | 63.5 | - | - | - | - | - | - | - | - | - | - | - | - | 10.5 | 34 | 88.9 |
| 10 | ⅜" | | 8 | 7.75 | 25 | 63.5 | - | - | - | - | - | - | 10.00 | 34 | 88.9 | - | - | - | - | - | - | - | - | - |
| 15 | ½" | | 8 | 9.40 | 25 | 63.5 | - | - | - | 9.40 | 25 | 108 | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | ⅜" | 10 | 12.5 | - | - | - | 14.00 | 25.4 | 108 | - | - | - | 10.00 | 34 | 108 | - | - | - | - | - | - | 14.00 | 34 | 108 |
| 15 | ½" | | 12.5 | 9.40 | 25 | 88.9 | 18.10 | 50.5 | 108 | 9.40 | 25 | 108 | 16.00 | 34 | 108 | - | - | - | - | - | - | 17.50 | 34 | 108 |
| 20 | ¾" | | 12.5 | 15.75 | 25 | 101.6 | - | - | - | 15.75 | 25 | 117 | - | - | - | - | - | - | - | - | - | - | - | - |
| 15 | ½" | 25 | 19 | 9.40 | 25 | 101.6 | 18.10 | 50.5 | 108 | 9.40 | 25 | 108 | 16.00 | 34 | 108 | - | - | - | - | - | - | 17.50 | 34 | 108 |
| 20 | ¾" | | 19 | 15.75 | 25 | 101.6 | 23.70 | 50.5 | 117 | 15.75 | 25 | 117 | 20.00 | 34 | 117 | - | - | - | - | - | - | - | - | - |
| 25 | 1" | | 19 | 22.10 | 50.5 | 114.3 | 29.70 | 50.5 | 127 | 22.10 | 50.5 | 127 | 26.00 | 50.5 | 127 | 22.60 | 50.5 | 127 | 23.00 | 50.5 | 127 | - | - | - |
| 32 | 1 ¼" | 40 | 26 | - | - | - | 38.40 | 64 | 146 | - | - | - | 32.00 | 50.5 | 146 | 31.30 | 50.5 | 146 | 29.40 | 50.5 | 146 | - | - | - |
| 40 | 1 ½" | | 26 | 34.80 | 50.5 | 139.7 | 44.30 | 64 | 159 | 34.80 | 50.5 | 159 | 38.00 | 50.5 | 159 | 35.60 | 50.5 | 159 | 35.70 | 50.5 | 159 | - | - | - |
| 50 | 2" | 50 | 32 | 47.50 | 64 | 158.75 | 56.30 | 77.5 | 190 | 47.50 | 64 | 190 | 50.00 | 64 | 190 | 48.60 | 64 | 190 | 47.80 | 64 | 190 | - | - | - |
| 65 | 2 ½" | 80 | 62 | 60.20 | 77.5 | 193.68 | 72.10 | 91 | 216 | 60.20 | 77.5 | 216 | 66.00 | 91 | 216 | 60.30 | 77.5 | 216 | 59.50 | 77.5 | 216 | - | - | - |
| 80 | 3" | | 62 | 72.90 | 91 | 222.25 | 84.30 | 106 | 254 | 72.90 | 91 | 254 | 81.00 | 106 | 254 | 72.90 | 91 | 254 | 72.30 | 91 | 254 | - | - | - |
| 100 | 4" | 100 | 76 | 97.38 | 119 | 292.1 | 109.70 | 144.5 | 305 | 97.38 | 119 | 305 | 100.00 | 119 | 305 | 97.60 | 119 | 305 | 97.60 | 119 | 305 | - | - | - |

Dimensions in mm
MG = diaphragm size

# Dairy pipe and aseptic unions

The dairy pipe union to DIN 11851 and the aseptic union to DIN 11864-1-A are also standard connections.
Some of the variations are listed and the code is given. Other types of Dairy Union connections are also available.

| Unions to DIN 11851 | Code |
|---|---|
| Threaded spigot on both sides | 6 |
| Threaded spigot on one side, cone spigot with union nut on the other side | 62 |

| Aseptic unions DIN 11864-1-A | Code |
|---|---|
| GS-A for pipe DIN 11850 (aseptic threaded spigot on both sides) | C1 |
| BS-A for pipe DIN 11850 (aseptic union with union nut on both sides) | C2 |
| V-A for pipe DIN 11850 (one side aseptic threaded spigot, other side aseptic union with union nut) | C3 |

# Aseptic flanges

Aseptic flanges to DIN 11864 are standard connections. Flanges are welded onto the basic DIN butt weld spigot body on both sides.
If the valve is to have a flange on one side and a butt weld spigot or any other connection on the other side, this combination is also possible.

| Aseptic flange DIN 11864-2-A | Code |
|---|---|
| NF-A for pipe DIN 11850 (grooved flange on both sides) | A1 |
| BF-A for pipe DIN 11850 (loose flange on both sides) | A2 |
| F-A for pipe DIN 11850 (one side grooved flange, other side loose flange) | A3 |

# Kv value

## Kv value

In order to make the different geometries, designs, sizes and flow features of different devices and valves comparable with each other, they are always tested and measured under the same conditions. The result is a comparison characteristic value (Kv) which serves as calculation basis for the different working situations of the valve.

The Kvs values stated below are only valid for 2/2-way valves.

## Kvs value

The KVS value is the KV value when the valve is fully open (100%) (to DIN IEC 534).
The KVS value is also known as KV100.

**Medium:** Water ($H_20$)

**Temperature:** 5 - 40°C

**Flow rate:** The differential pressure Δp between the pressure input and pressure output side is 1 bar.

**Measurement unit:** Measured in $m^3/h$

**Cv value:** measured in US gallons per minute, at a differential pressure Δp of 1 PSI with water.

**1 Cv = 1.17 x Kv** **1 Kv = 0.86 x Cv**

| Diaphragm size | DN | Size | Butt weld spigots according to pipe standard | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | DIN Code 0 Kvs [$m^3/h$] | DIN 11850 Series 1 Code 16 Kvs [$m^3/h$] | DIN 11850 Series 2 Code 17 Kvs [$m^3/h$] | DIN 11850 Series 3 Code 18 Kvs [$m^3/h$] | SMS3008 Code 37 Kvs [$m^3/h$] | ASME BPE Code 59 Kvs [$m^3/h$] | EN ISO 1127 Code 60 Kvs [$m^3/h$] |
| MG 8 | 4 | ⅛" | 0.5 | - | - | - | | - | - |
| | 6 | 1/6" | 1.1 | - | - | - | | - | 1.2 |
| | 8 | ¼" | 1.3 | - | - | - | - | 0.6 | 2.2 |
| | 10 | ⅜" | - | 2.1 | 2.1 | 2.1 | - | 1.3 | - |
| | 15 | ½" | - | - | - | - | - | 2 | - |
| MG 10 | 10 | ⅜" | - | 2.4 | 2.4 | 2.4 | - | 2.2 | 3.3 |
| | 15 | ½" | 3.3 | 3.8 | 3.8 | 3.8 | - | 2.2 | 4 |
| | 20 | ¾" | - | - | - | - | - | 3.8 | - |
| MG 25 | 15 | ½" | 4.1 | 4.7 | 4.7 | 4.7 | - | - | 7.4 |
| | 20 | ¾" | 6.3 | 7 | 7 | 7 | - | 4.4 | 13.2 |
| | 25 | 1" | 13.9 | 15 | 15 | 15 | 12.6 | 12.2 | 16.2 |
| MG 40 | 32 | 1¼" | 25.3 | 27 | 27 | 27 | 26.2 | - | 30 |
| | 40 | 1½" | 29.3 | 30.9 | 30.9 | 30.9 | 30.2 | 29.5 | 32.8 |
| MG 50 | 50 | 2" | 46.5 | 48.4 | 48.4 | 48.4 | 51.7 | 50.6 | 55.2 |
| MG 80 | 65 | 2½" | - | - | 77 | - | 68.5 | 68.5 | 96 |
| | 80 | 3" | - | - | 111 | - | 80 | 87 | 111 |
| MG 100 | 100 | 4" | - | - | 194 | - | 173 | 188 | 214 |

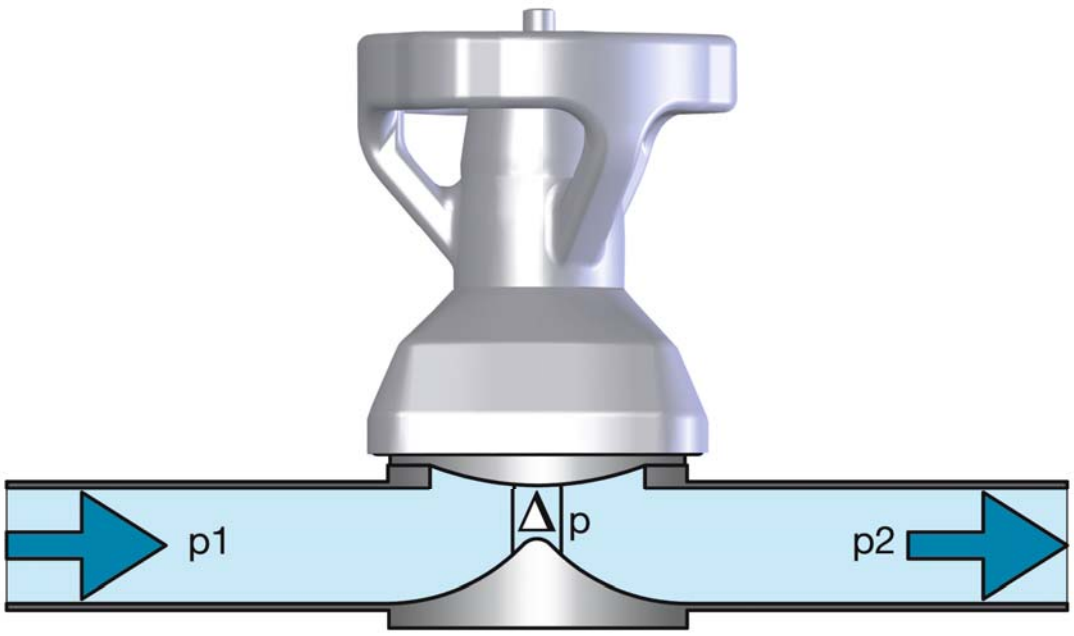
BS 4825 (Code 55): as the pipe internal diameters are almost identical the Kvs values are the same or slightly higher than ASME BPE
JIS-G 3459 (Code 36): as the pipe internal diameters are almost identical the Kvs values are the same or slightly lower than EN ISO 1127
Kvs values for clamp connections always refer to the corresponding pipe standard.

Kvs values were determined with water at 20°C, P1 = 6bar, P2 = 5bar, EPDM Code 13 diaphragm, tolerance ± 10%.
Kvs values for PTFE diaphragms may be lower especially at lower operating pressures as the material is stiffer.

The operating pressure influences the Kv value.

| Pressure loss | Kv | for water | for liquid | for steam | for gases |
|---|---|---|---|---|---|
| $\Delta p < \frac{p_1}{2}$ <br> $\left(p_2 > \frac{p_1}{2}\right)$ | Kv | $= \frac{Q}{\sqrt{\Delta p}}$ | $= \frac{Q}{31.6} \cdot \sqrt{\frac{\rho_1}{\Delta p}}$ | $= \frac{\dot{M}}{31.6} \cdot \sqrt{\frac{v'}{\Delta p}}$ | $= \frac{Q_n}{514} \cdot \sqrt{\frac{\rho_n \cdot T_1}{\Delta p \cdot p_2}}$ |
| $\Delta p > \frac{p_1}{2}$ <br> $\left(p_2 < \frac{p_1}{2}\right)$ | Kv | $= \frac{Q}{\sqrt{\Delta p}}$ | $= \frac{Q}{31.6} \cdot \sqrt{\frac{\rho_1}{\Delta p}}$ | $= \frac{\dot{M}}{31.6} \cdot \sqrt{\frac{2 \cdot v''}{p_1}}$ | $= \frac{Q_n}{257 \cdot p_1} \cdot \sqrt{\rho_n \cdot T_1}$ |

| | | | | | |
|---|---|---|---|---|---|
| Kv | $m^3/h$ | flow coefficient of the valve | $\rho_1$ | $kg/m^3$ | density of the material in the operating state T1 and p2 |
| Q | $m^3/h$ | flow rate | $\rho n$ | $kg/m^3$ | density of the gas at 0°C and 1014 mbar |
| Qn | $m^3/h$ | volumetric flow of the gas at 0°C and 1014 mbar | v' | $m^3/kg$ | spec. steam volume at T1 and p2 |
| $M_{max}$ | kg/h | ($M_{min}$) - maximum (minimum) weight flow to be controlled | v" | $m^3/kg$ | spec. steam volume at $\frac{p_1}{2}$ and $T_1$ |
| $p_1$ | bar | absolute pressure before the valve (at Q) | $\dot{M}$ | kg/h | mass flow |
| $p_2$ | bar | absolute pressure after the valve (at Q) | $T_1$ | K | medium temperature |
| $\Delta p$ | bar | ($\Delta p$) - pressure differential p1 - p2 at Q | | | |



# T-valve bodies

T valve bodies are ideal for welding into ring mains enabling the working medium to be vertically taken or fed almost deadleg free.

### Product features

- GEMÜ seal system is EHEDG certified
- Made from block material, no welded components
- Fitted with butt weld spigots as standard, i.e. reduction of validation times
- Compact construction, GMP-compliant design
- Internal surface contour mechanically polished and/or electropolished down to Ra 0.25 µm
- Standard valve body material 1.4435 (316L).
- Other materials on request
- Clamps, unions and flanges as well as other connections on request
- Available with manual, pneumatic or motorized operators


For further information please refer to our brochure “T Valves for Sterile Applications“.

## Selection of materials

**Investment cast:**

| | | | |
|---|---|---|---|
| Material codes: | 32: | 1.4435-BN2 (316L) | Fe < 0.5% |
| | 34: | 1.4435 (ASTM A 351 CF3M)* *Material equivalency 316 L | |

Special materials on request

**Block material:**

| | | | |
|---|---|---|---|
| Material codes: | 41: | 1.4435 (316L) | |
| | 43: | 1.4435-BN2 (316L) | Fe < 0.5% |

Special materials on request

| Valve body material | Code |
|---|---|
| 1.4435 (BN2), Investment casting Fe<0.5% | 32 |
| 1.4435 (ASTM A 351 CF3M)* | 34 |
| 1.4435 (316L), Block material | 41 |
| 1.4435 (BN2), Block material Fe<0.5% | 43 |

* Material equivalency 316 L

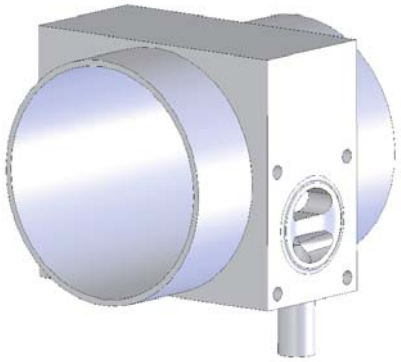
| Butt weld spigots | Code |
|---|---|
| Butt weld spigots DIN | 0 |
| Butt weld spigots DIN 11850, series 1 | 16 |
| Butt weld spigots DIN 11850, series 2 | 17 |
| Butt weld spigots DIN 11850, series 3 | 18 |
| Butt weld spigots DIN 11866, series A | 1A |
| Butt weld spigots DIN 11866, series B | 1B |
| Butt weld spigots JIS-G 3447 | 35 |
| Butt weld spigots JIS-G 3459 | 36 |
| Butt weld spigots SMS 3008 | 37 |
| Butt weld spigots BS 4825 Part 1 | 55 |
| Butt weld spigots ASME BPE | 59 |
| Butt weld spigots EN ISO 1127 | 60 |
| Butt weld spigots ANSI/ASME B36.19M, Schedule 10s | 63 |
| Butt weld spigots ANSI/ASME B36.19M, Schedule 40s | 65 |

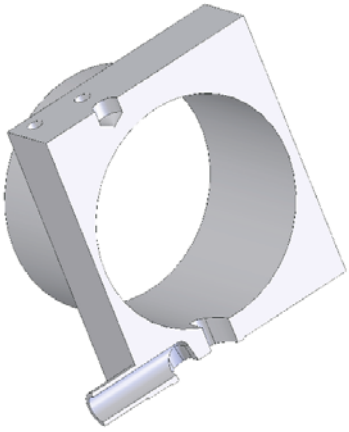
# T valve bodies for sampling (body version "A")

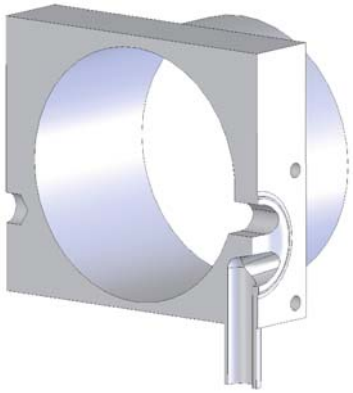
T valve bodies for sampling take optimized deadleg conditions into account. These were specially designed for large ring mains with small branches. Ideal for ring mains cross sections ≥ DN50, outlet branches ≤ DN15 and seat sizes MG8 and MG10.

**Advantages**

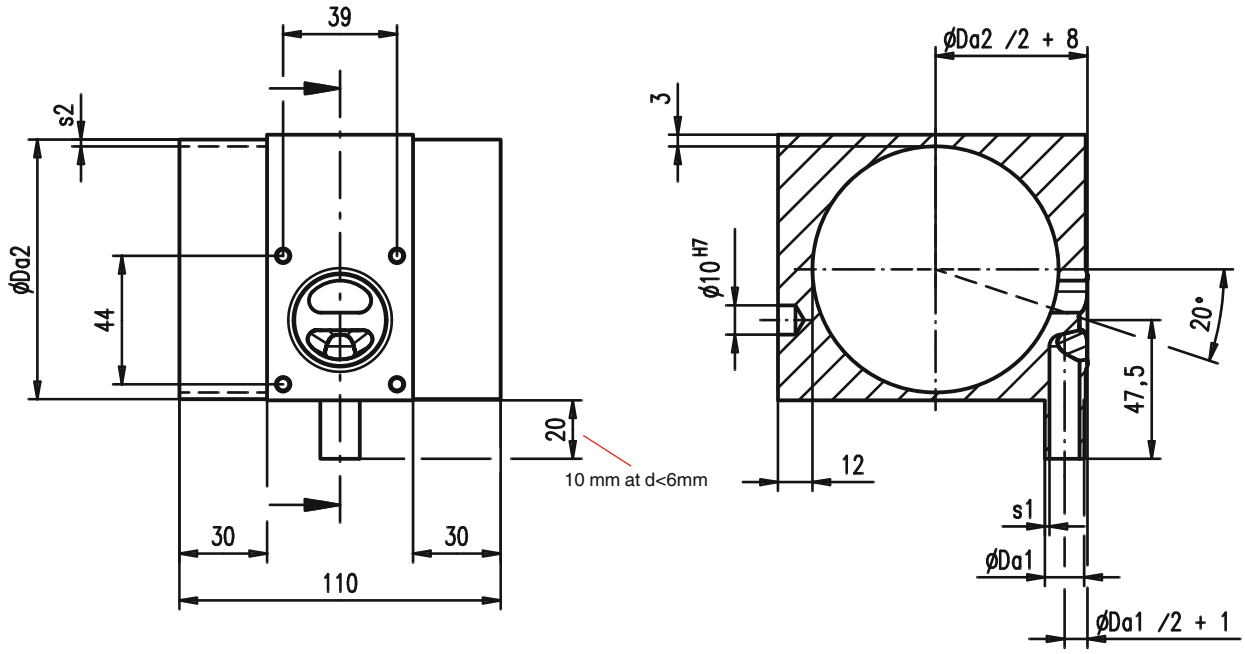
- Cavity fully shaped, deadleg ratio < 1 x D
- Compact construction
- Self-draining if installed at an angle







## Dimension example for diaphragm size 10



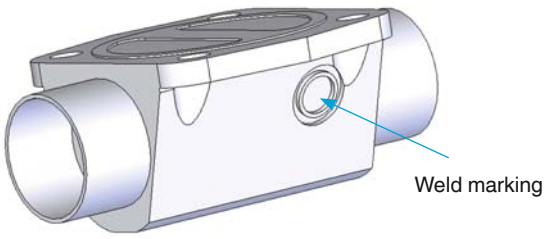
# W600 valve configurations

The arrangement of two valves welded together to suit the respective application provides maximum functionality in a restricted space. The assembly does without a T piece and thus the dead space between the valves is essentially reduced and two welds are no longer necessary. If superior designs are required, we recommend using multi-port valve blocks from the GEMÜ M600 series which are machined from a single block.

Configuration 2

Configuration 5

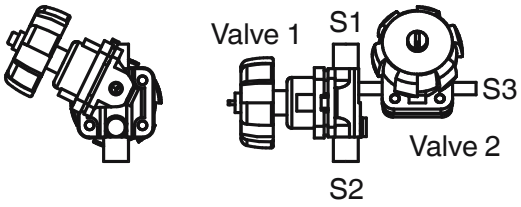

For further information please refer to our brochure “W600 Valve Configurations“.



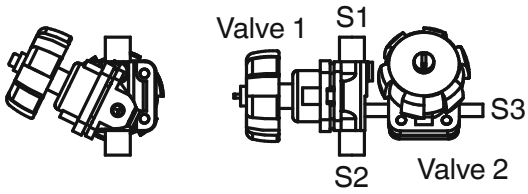

**GEMÜ welding procedures for valve configurations**

Connecting the two valve bodies always considers minimising deadleg effects between both valves. Whenever the valve and actuator configuration permits, no additional tubes or extensions are used for welding. To allow the 2/2-way body accept the second body there is a weld marking where the bodies can be put together (see illustration).

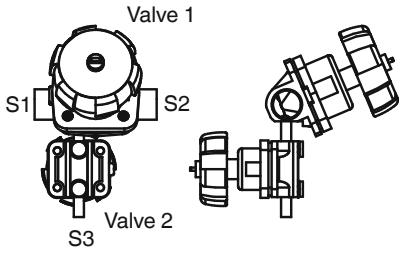
## Examples of function:



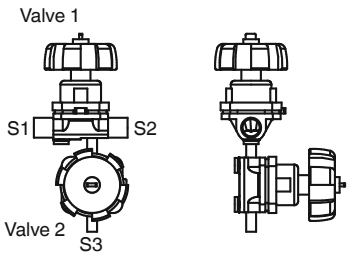

**Configuration 1**




**Configuration 4**

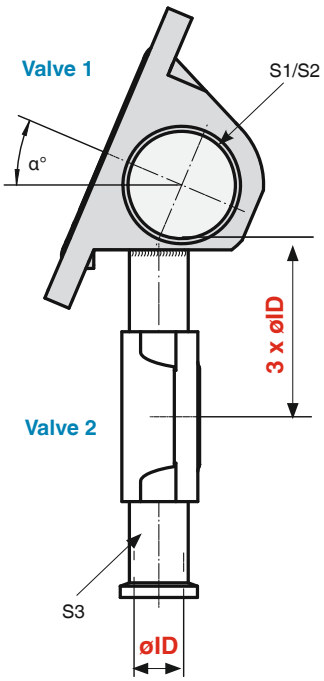


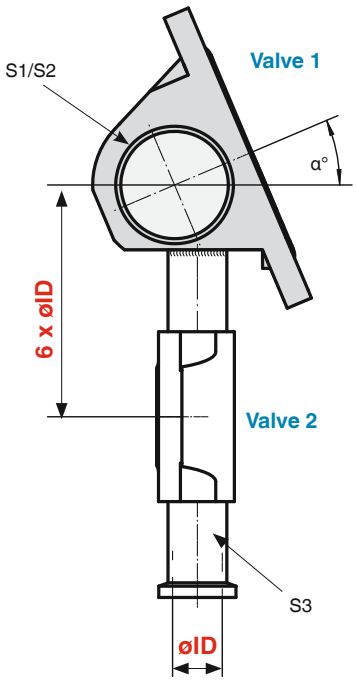

**Configuration 6**

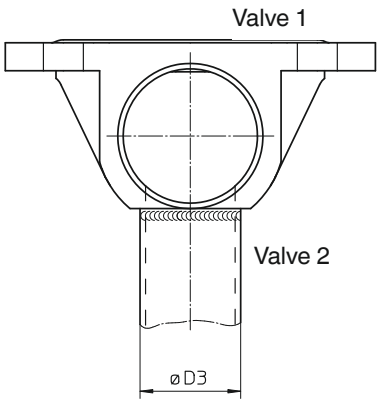



**Configuration 13**

Complete overview on request.




Investment cast body (Code 34):
øD3 max. = 13.5 mm
(diaphragm size 10 to 50)

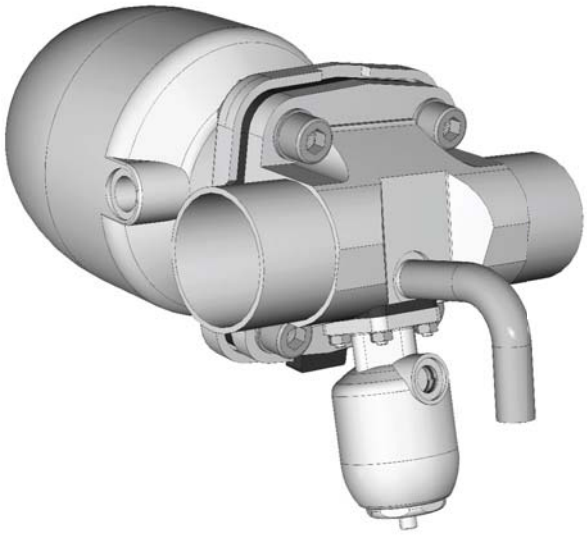
# i-bodies

The evolution from welded SAP valve configurations according to the 6D- or 3D-rule to modern M-blocks shows the advantages of M-blocks very clearly. The GEMÜ i-body (integrated sampling valve) machined from either forged or solid material can be seen as an intermediate step to full GEMÜ M-block design. It offers a low cost and good alternative to the M-block for a number of combinations. The i-body already exhibits two essential features of an M-block. It has a greatly reduced dead volume and no welds in the product area. The drain or supply spigot is only welded on behind the valve seat.

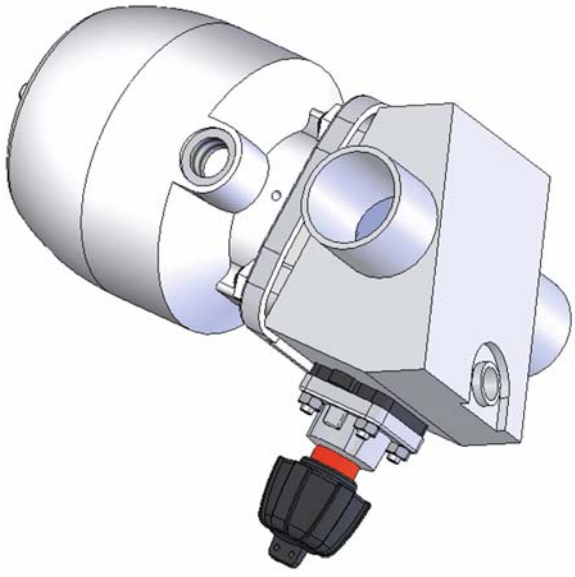
"i"-bodies are a special construction type of the classical 2/2-way bodies. "i" stands for integrated sampling, steam and condensate valve. The valve bodies have two valve seats and 3 pipe connections and are manufactured from a forging blank or a piece of block material. The major advantages of i-bodies compared to standard sampling or condensate valve bodies are as follows:

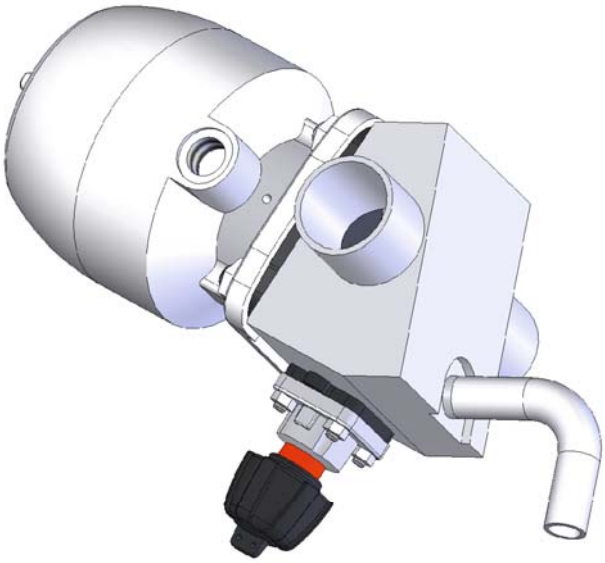
- Compact construction and reduced weight
- Minimal deadlegs
- No weld in the product area
- Horizontal spigot available
- No rear mounted operators
- Cost effective
- Draining in vertical mounting position possible if adhering to the 3D-rule
- Better drainability than with welded combinations
- Pneumatic and manual operators are available for both valve seats


Further information, dimensions and advice on request.



i-bodies made from a forged body





i-bodies made from block material

# M600 Multi-port valves

GEMÜ M600 multi-port valves are the most progressive solution for meeting the high demands of the pharmaceutical industry. Complex processes using welded fabrications are often still being implemented today, more than 15 years after the market launch of the first M-blocks. The valves, fittings and pipe components used for this require a lot of space, a greater installation and welding effort on site and lead to a correspondingly high validation expense. Not to mention a high hold-up volume and larger deadlegs in compliance with the conventional 6D or 3D rules.

To make processes safer, increase the availability of the plant and reduce the life cycle costs of a plant within the scope of a total cost of ownership concept, GEMÜ has implemented more than 400 different designs and thousands of customized variants of multi-port valves over the years. We support our customers with ideas and initial drafts at the planning phase. The drafts are then implemented constructively in our 3D CAD system, agreed in close co-operation with the customer and then machined in our highly efficient machine park. We machine several thousand blocks weighing between 0.1 kg and 500 kg per year on multi-axis machining centres. Every day, our Design Centre turns out new customized block designs.

GEMÜ M600

Welded assembly

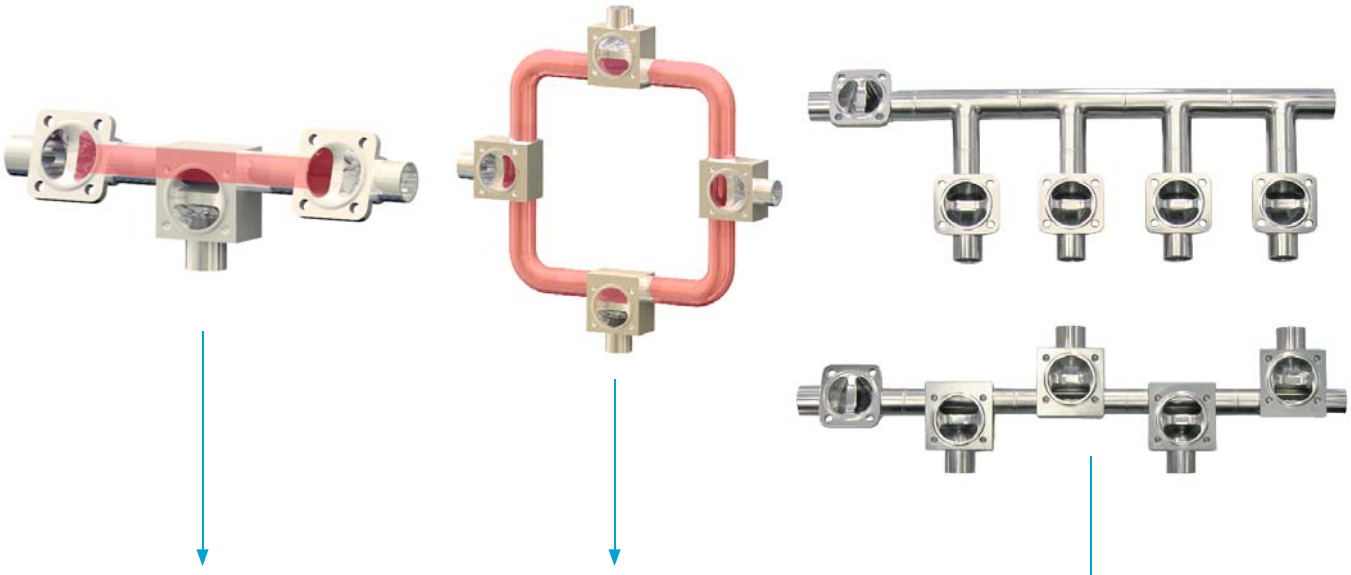



For further information please refer to our brochure “M600 Multi-Port Valves for Sterile Applications“.

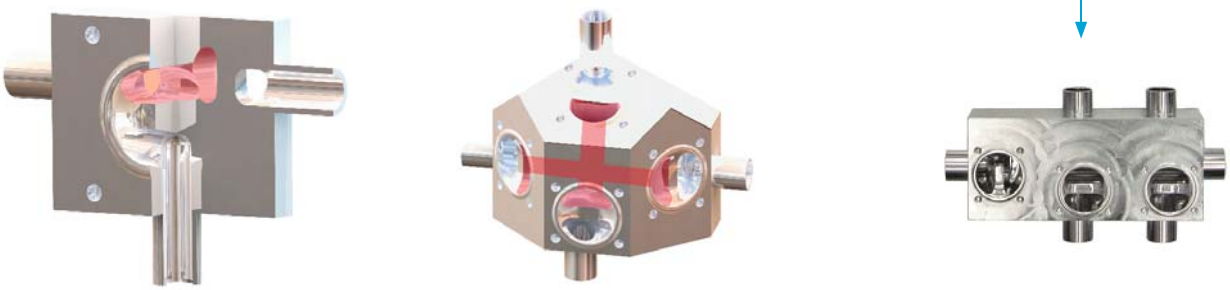
**Advantages of M600 multi-port valves**

- individual customized and very flexible design
- compact – low space requirements
- low hold-up volume, small wetted area
- greatly reduced deadlegs
- all blocks are designed for optimised draining
- machined from one block of material
- much greater product reliability
- no internal welds
- fewer fittings, welds and radiographic inspections
- standard welded ends for orbital welding
- reduced total cost of ownership
- operators and diaphragms from the proven GEMÜ modular system can be used
- reduced and simple validation
- made to customer specification

## Conventional design



## M-block design



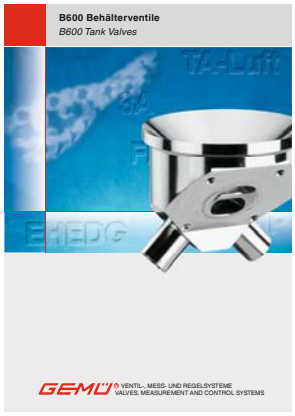
The red coloured line sections mark the hold-up volume.

# B600 Tank Valves

Today tank valves are available in a large number of versions which can be installed or welded into the tank cover, tank wall or tank bottom. Their main functions are for filling, sampling and draining the tank contents. Sometimes these functions are combined in one valve for reasons of process safety and sometimes even extra functions are added such as integrated CIP/SIP connections.
All these GEMÜ valves have one thing in common. They are diaphragm valves whose sealing weir is as close as possible to the tank wall to avoid deadlegs in the tank. The internal of the tank bottom valve body has a specially designed cavity which promotes optimum draining of the tank contents and improves their cleanability and sterilisation.

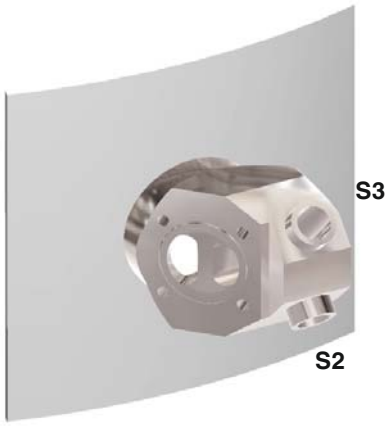
**Product features**

- Being very compact, the B600 tank valves are ideal for applications where space is at a premium
- Minimal dead leg and optimized draining capabilities
- The valve body is machined from a single piece of block material. (Monoblock - no welding)
- The valve has CIP / SIP and sterilizing capabilities
- The internal surface contour of the valve body is available mechanically and/or electropolished down to Ra 0.25 µm
- The valve has optimized flow geometry
- Pipe connections such as butt weld spigots, clamps and threaded connections are available in accordance with industrial standards
- Valve body materials are 1.4435/316L, other alloys are available to customer specification or test requirements (AD 2000 WZ)
- Welding into the tank bottom is simplified by a welding neck (standard 6 mm)
- Both the tank bottom valve and the tank wall valve are available with a manual, pneumatic or motorized operator
- Optical and/or electrical position indicators are available as actuator instrumentation




For further information please refer to our brochure “B600 Tank Valves“.


## Sterile sampling from a tank


## Tank wall valve can be welded into the wall surface of the tank


# Surface finish

Modern, ergonomically shaped workstations and trained polishing staff give us the ability to provide high quality surface finishes. Depending on the required application, surface finishes from Ra 0.8 µm down to 0.25 µm can be achieved by polishing, electro polishing or a special process, we call “elysieren“.
Mechanical hand polishing is carried out at our works to ensure our high quality standard.

| Valve body surface finish, internal contour | | | |
|---|---|---|---|
| | Forged body Code 40, 42 | Investment casting Code 32, 34 | Code |
| Ra ≤ 6.3 µma, blasted internal/external | - | X | 1500 |
| Ra ≤ 6.3 µm, electropolished internal/external | - | X | 1509 |
| Ra ≤ 0.8 µm, mechanically polished internal, blasted external | X | X | 1502 |
| Ra ≤ 0.8 µm, electropolished internal/external | X | - | 1503 |
| Ra ≤ 0.6 µm, mechanically polished internal, blasted external | X | X | 1507 |
| Ra ≤ 0.6 µm, electropolished internal/external | X | - | 1508 |
| Ra ≤ 0.4 µm, mechanically polished internal, blasted external | X | - | 1536 |
| Ra ≤ 0.4 µm, electropolished internal/external | X | - | 1537 |
| Ra ≤ 0.25 µm, mechanically polished internal, blasted external | X | - | 1527 |
| Ra ≤ 0.25 µm, electropolished internal/external | X | - | 1516 |

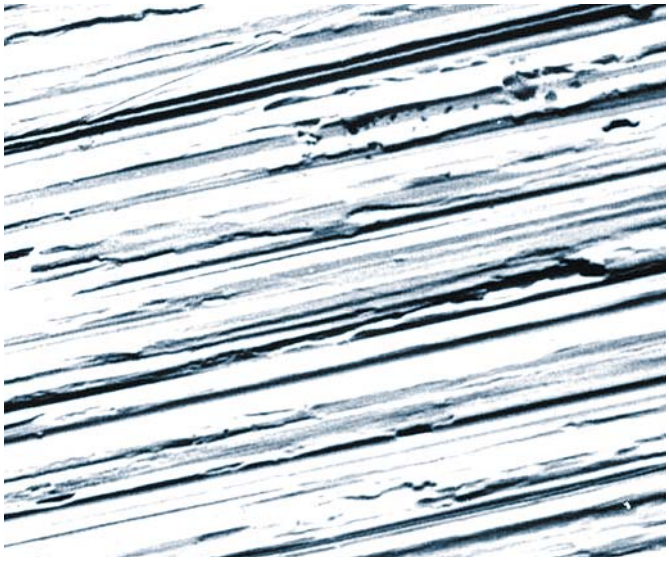
Ra acc. to DIN 4768; at defined reference points
Surface finish data refer to medium wetted surfaces

| GEMÜ Germany | | DIN 11866 | | GEMÜ USA | | BPE Surface | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Ra Average (Note 1) | | Ra max | |
| Code | *Ra µm | Hygiene class | *Ra µm | Code | µinch | Designation | µinch | µm | µinch | µm |
| - | - | - | - | 3 | 35 | - | - | - | - | - |
| 1502 | ≤ 0.8 | H3/HE 3c | < 0.8 | 5 | 25 | SFV 3 | 25 | 0.625 | 30 | 0.7 |
| 1508 | ≤ 0.6 | - | - | 6 | 20 | SFV 6 | 20 | 0.5 | 25 | 0.625 |
| 1507 | ≤ 0.6 | - | - | 7 | 20 | SFV 2 | 20 | 0.5 | 25 | 0.625 |
| 1537 | ≤ 0.4 | H4/HE 4c | < 0.4 | 8 | 15 | SFV 5 | 15 | 0.375 | 20 | 0.5 |
| 1536 | ≤ 0.4 | - | - | 9 | 11 | SFV 1 | 15 | 0.375 | 20 | 0.5 |
| 1516 | ≤ 0.25 | H4/HE 5c | < 0.25 | 10 | 10 | SFV 4 | 10 | 0.25 | 15 | 0.375 |

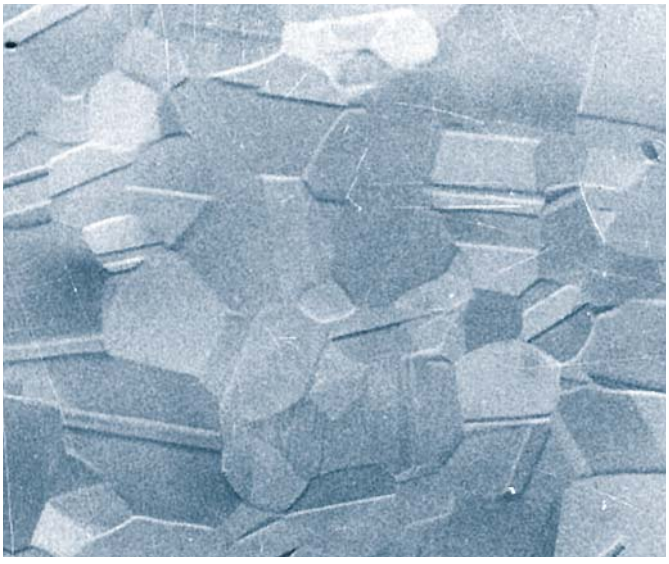
**General note:** All Ra readings are taken across the grain.

**Note: (Note 1)** The average Ra is derived from two readings taken at different locations.

* Ra acc. to DIN 4768; at defined reference points



Material 1.4435 polished with 400 grit.
Magnification = 650fold.



Material 1.4435 polished with 400 grit and electropolished.
Magnification = 650fold.

# The original GEMÜ seal system

As a recognised diaphragm valve specialist, GEMÜ are familiar with almost all industrial sectors and applications. We are the leading supplier of stainless steel valves for sterile applications in the pharmaceutical industry, biotechnology industry, as well as the foodstuff and beverage industries. As well as this, our valves also stand for reliability and a high standard of quality in the chemical and processing industries. The diaphragm, a central sealing element in the piping system is of major importance. Only the diaphragm and the valve body are in contact with the medium. At the same time, they also guarantee external hermetic sealing of the pipeline.

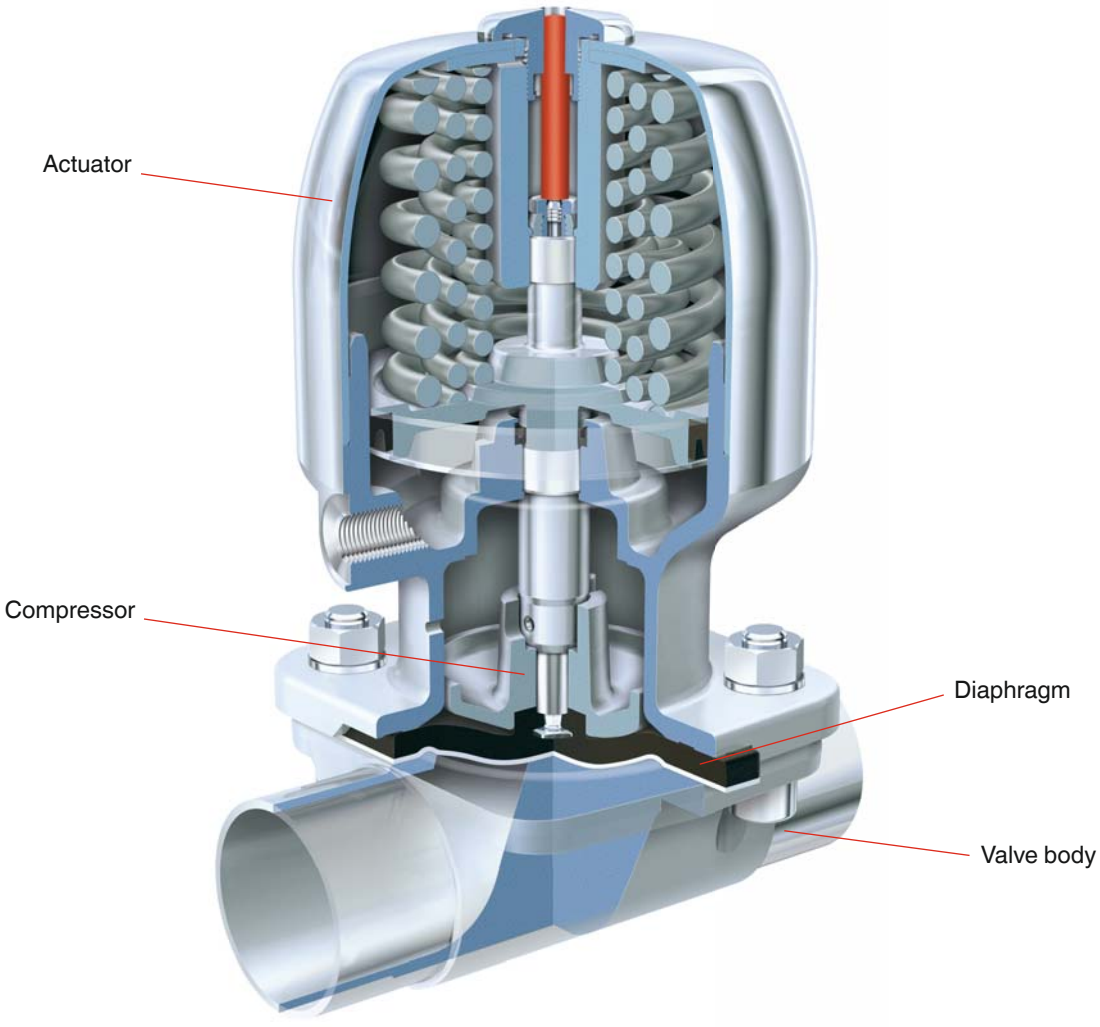
## The system is more than the sum of the individual parts

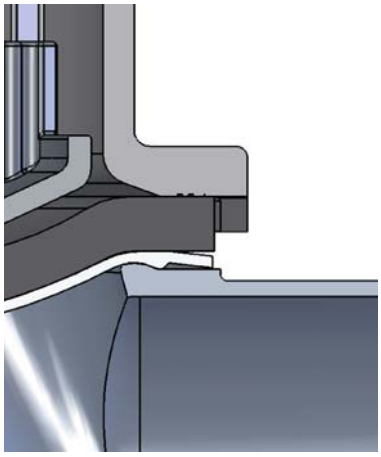
The outstanding characteristics of the diaphragm valve are the result of the perfect interaction of tuned components. These are the valve body, the shut-off diaphragm, the diaphragm fixing, the compressor as well as the actuator. Our many years of experience and intensive dialogue with plant operators has enabled us to continue optimising the diaphragm valve design and its individual components.

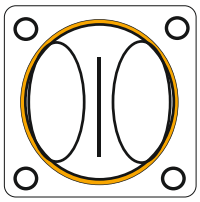
## Diaphragm and valve body are inseparable

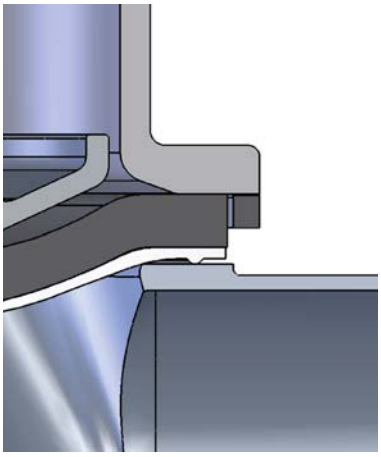
GEMÜ valve bodies have a raised circular sealing bead on the inside diameter, in contrast to the valve bodies of other manufacturers. This results in a defined external sealing point. This measure reduces the ring-shaped gap between diaphragm and valve body in the external sealing area. This special feature makes GEMÜ diaphragm valves suitable for sterile applications. We also consider this crucial design and functional characteristic, which was developed by GEMÜ, during the development of our diaphragms. Only this ensures that our customers can rely on the valve as a complete unit.

GEMÜ diaphragms have been developed, tested, and approved for applications with GEMÜ valve bodies. GEMÜ do not recommend or guarantee the use of other manufacturers diaphragms with GEMÜ valve bodies due to the unique original GEMÜ design and sealing system. We shall not accept any liability resulting from the use of diaphragms of other manufacturers inside GEMÜ diaphragm valves.

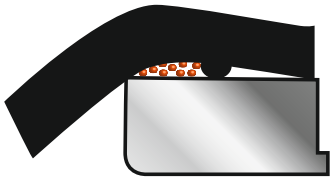








GEMÜ seal system



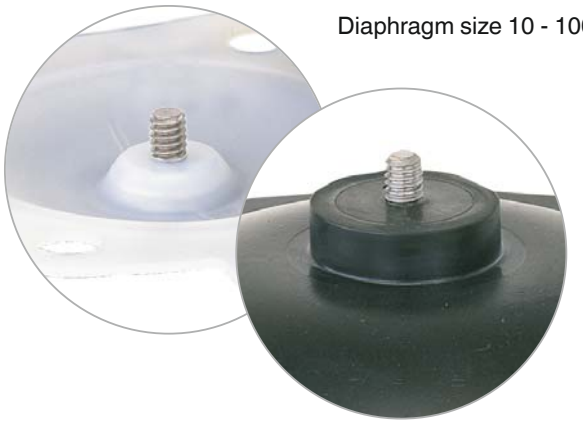
Conventional seal systems

As a leading manufacturer world-wide we had the GEMÜ diaphragm seal system certified in 2002 and were granted the EHEDG certificate.

## GEMÜ flexible diaphragm fixing

The diaphragm is uniformly fixed in the compressor by means of a threaded pin. The only exception is the smallest diaphragm size (Diaphragm size 8), which is pushed in with a rubber pin. The uniform fixing method applies both to soft elastomer and PTFE diaphragms. The largest advantage of fixing by means of a threaded pin, e.g. in comparison to a bayonet fitting, is that the force transfer is distributed onto the large area of the flanks of the screw thread. This prevents damage to the mechanical connection between compressor and diaphragm especially under vacuum operating conditions. The uniform fixing of elastomer and PTFE diaphragms permits subsequent replacement of the diaphragms at any time without having to exchange the actuator because its mounting is different like other manufacturers.

Diaphragm size 10 - 100



Diaphragm size 8

# Selection of diaphragms

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 characteristics 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.

| Diaphragm | Material/Design | MG | Temperature range [°C] | | | Mechanical load capacity | Code |
|---|---|---|---|---|---|---|---|
| | | | Liquid media | | Steam | | |
| | | | Min. | Max. | (Sterilisation) | | |
| EPDM | Ethylene-propylene-diene rubber | 8 - 100 | -10 | 90 | 150°C max. 60 min. | *** | 13/3A |
| EPDM | Ethylene-propylene-diene rubber | 8 - 50 | -10 | 90 | 150°C max. 60 min. | *** | 16/6A |
| EPDM | Ethylene-propylene-diene rubber | 8 - 100 | -10 | 90 | 150°C max. 180 min. | ** | 17 |
| PTFE | Fully laminated PTFE diaphragm with EPDM back | 8, 10, 100 | -10 | 90 | Constant temperature [1] 150°C | * | 52/5A |
| PTFE | Convex two-piece PTFE diaphragm with loose EPDM back | 25, 40, 50, 80 | -10 | 90 | Constant temperature [1] 150°C | ** | 5E |

***** Highest mechanical load capacity

[1] The diaphragms are applicable as a moisture barrier. The valves concerned must be serviced regularly if steam is applied continuously.

**Note**:

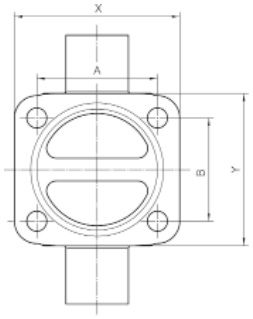
Since plastics and elastomers are subject to natural aging, we recommend observing the GEMÜ storage conditions for shut-off diaphragms. You thereby guarantee maximum storage and service life of the diaphragms.

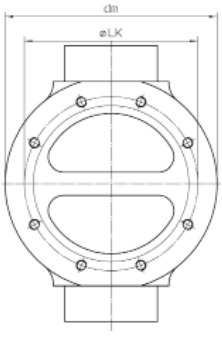
The temperature values are indicated irrespective of operating pressure and diaphragm size and apply to water and/or inert gases. The permissible operating pressure decreases with rising temperature and nominal size. Only specially designated diaphragms should be used for steam. The permissible operating pressure results from the steam pressure diagram.

| Exchangeability of diaphragms | | |
|---|---|---|
| **Diaphragm size** | **Soft elastomer diaphragms (Code)** | **PTFE diaphragms (Code)** |
| Diaphragm size 8 | 3A, 6A, 17 | 5A |
| Diaphragm size 10 + 100 | 13, 16*, 17 | 52 |
| Diaphragm size 25 - 80 | 13, 16*, 17 | 52, 5E |

* only diaphragm size 10 - 50

| Certificates and approvals* | | | | | Compatibility with media | Special features |
|---|---|---|---|---|---|---|
| FDA compliant | USP Class VI | EHEDG | TA-Luft | $O_2$ BAM | | |
| ● | ● | ● | ● | ● | Very good all-round elastomer, resistant to many acidic and alkaline media, demineralised and deionised hot water, inert and many other industrial gases. | Suitable for vacuum, low gas permeability, applicable for steam sterilisation. |
| ● | ● | ● | ● | | | Higher mechanical stability and service life in comparison to the diaphragm Code 13/3A during steam sterilisation, suitable for vacuum, low gas permeability. |
| ● | ● | ● | | | | Compound and construction of the diaphragm have been specially optimised for steam applications, clearly improved service life in comparison to the diaphragm Code 16/6A. |
| ● | ● | ● | ● | | Resistant to nearly all chemicals, such as strong acids, alkalis and salts, also at high temperatures, steam, WFI as well as pharmaceuticals. Good resistance to solvents, chlorine, and aromatic hydrocarbons. | Fully laminated diaphragm, can be used in steam. Low gas permeability. |
| ● | ● | ● | ● | ● | | Convex two-piece diaphragm with loose PTFE face for higher switching cycles, can be used for permanent steam application. Special compounding and production by GEMÜ. Special seal contour for external sealing on the bottom of the diaphragm. Low gas permeability. |




| MG | Valve types | A | B | X | Y | øLK | dm |
|---|---|---|---|---|---|---|---|
| 8 | 601 / 602 / 605 / 650 / 654 | 22 | 22 | 32 | 32 | - | - |
| 10 | 611 / 612 / 615 / 625 / 650 / 653 / 654 / 660 | 39 | 44 | 50 | 55 | - | - |
| 25 | 671 / 673 / 687 / 695 / 650 / 653 / 654 / 660 | 54 | 46 | 74 | 68 | - | - |
| 40 | 671 / 673 / 687 / 695 / 650 / 653 / 654 | 70 | 65 | 102 | 92 | - | - |
| 50 | 671 / 673 / 687 / 695 / 650 / 653 / 654 | 82 | 78 | 125 | 110 | - | - |
| 80 | 671 / 687 / 653 / 654 | 127 | 114 | 192 | 162 | - | - |
| 100 | 671 / 687 / 653 / 654 | - | - | - | - | 194 | 234 |

* MG = Diaphragm size

# Soft elastomer diaphragms

Soft elastomer diaphragms consist of rubber mixtures, which are cross-linked (vulcanised) with each other. The diaphragms are provided with different technical features according to the mixture used, vulcanisation temperature and pressure as well as the duration of the cross-linking process. The following statement applies in principle to soft elastomer materials: the higher the temperature load capacity, the lower the service life is in relationship to the mechanical stress. Both the temperature load and the deformability must be implemented optimally for valve diaphragms. For this reason, there are different constructional designs for different applications.

Soft elastomer diaphragms are characterised by a high insensitivity in the case of mechanically contaminated working media, e.g. cellular lumps, solid matter or catalytic solid matter. Slurries usually do not affect the function of the valve or the seal on the valve weir. Different materials can be selected according to the operating/sterilisation temperatures and the chemical characteristics of the working media. (EPDM Code 13/3A, 16/6A).

## GEMÜ EPDM Diaphragm Code 17

GEMÜ has developed a new EPDM diaphragm especially for use at high temperatures and with steam for pharmaceutical and biotechnological applications as well as for the food and beverage industries. It is FDA compliant according to title 21 paragraph 177, 2600, certified according to USP Class VI, is free from animal ingredients and ROHS compliant. The compound is peroxide cured and an up to 300% higher service life than diaphragms identical in construction has been verified according to accomplished tests.

- Original GEMÜ diaphragm for sterile diaphragm valves
- Tested on our own steam test rig
- Special compound according to original GEMÜ specifications
- Production and quality control according to high GEMÜ standards
- Certified production takes place within the GEMÜ group

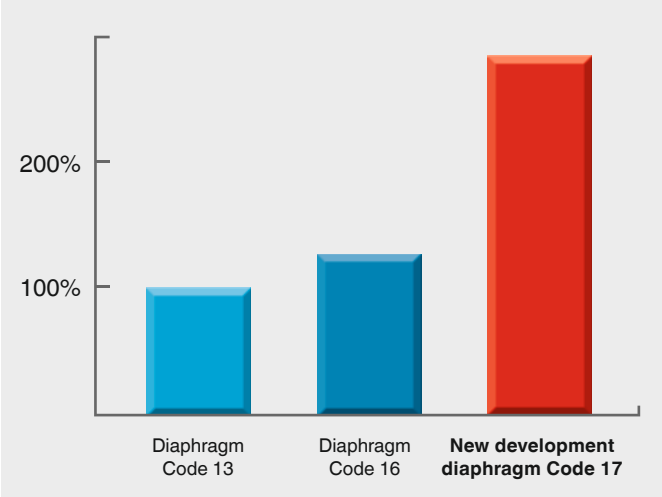
**Advantages:**

- Three times longer service life during steam application
- Higher thermal load capability heat/cold
- Improved sealing due to contour optimisation

**Technical Data and Features:**

- -20°C to +90°C with liquid media
- Max. +150°C steam sterilisation for max. 180 minutes
- Available in diaphragm size 8 – 100, identification code 17 for all sizes
- Suitable for all GEMÜ stainless steel diaphragm valve bodies
- Copolymer made of ethylene and propylene monomers
- Special compounding and production by GEMÜ
- Further improved long-term sealing due to contour optimisation (complies with Pressure Equipment Directive and TA Luft)

## Service life test results with steam at 150°C




# PTFE diaphragms

Our diaphragms, made of a modified second-generation PTFE, provide maximum chemical resistance. Under steam conditions, PTFE diaphragms age much more slowly than elastomer diaphragms. The relatively rough structure of PTFE materials requires appropriately larger bonding thicknesses, stiffening the diaphragm, than compared to pure elastomer products. This concerns in particular the laminated diaphragms (Code 52/5A), since the firmly connected materials PTFE and elastomer are mechanically connected by means of the different modules of elasticity. The service life of the diaphragm with regard to the switching frequency is reduced due to the higher rigidity.

## GEMÜ PTFE/EPDM two-piece diaphragm, Code 5E

The solution is the GEMÜ Code 5E flexible PTFE diaphragm. This product unites all the advantages of PTFE with the flexibility of elastomer diaphragms. In order to optimise the entire system again, both the PTFE face as well as the diaphragm back are compounded for GEMÜ and produced by GEMÜ in house.

**Technical Data and Features:**

- -20°C to +90°C continuous operation with liquid media
- max. 150°C in continuous operation with steam
- Available in diaphragm size 25 – 100
- Special compounding and production by GEMÜ
- Special sealing contour for external sealing on the bottom of the diaphragm

Code 5E
Diaphragm size 25 - 80

## Diaphragm PTFE/EPDM fully laminated, Code 5A/52

The two-piece diaphragm design (5E) is not available in the small diaphragm sizes 8 (Code 5A) and 10 (Code 52). Due to the low valve stroke of these sizes there is a clearly reduced mechanical stress in comparison to larger nominal sizes so that the sandwich effect is extremely low. The diaphragms Code 5A and Code 52 are used to supplement the diaphragm Code 5E in these two sizes.

Code 5A
Diaphragm size 8

Code 52
Diaphragm size 10 - 100

# GEMÜ 601

## Diaphragm valve, manually operated

**Operator:** Handwheel, plastic, with seal adjuster and optical position indicator

**Nominal sizes:** DN 4 - DN 15 (diaphragm size MG 8)
DN 10-20 (MG10) see GEMÜ 612,
DN 15-50 (MG 25-50) see GEMÜ 673

**Control function:** Manually operated

**Valve body:** Bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Standard:** Autoclavable

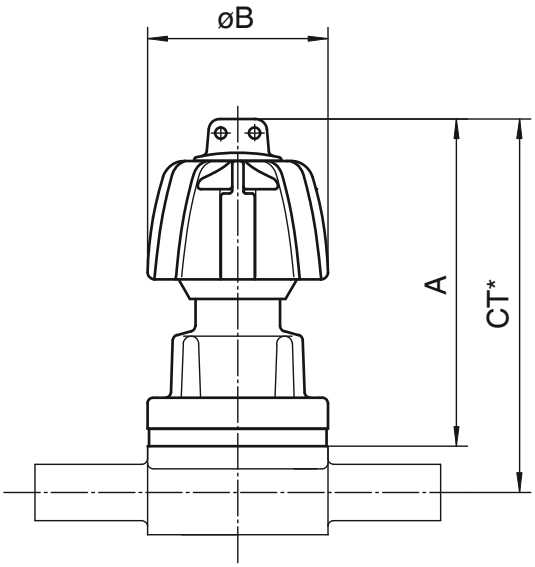
| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 8 | 4 - 15 | EPDM | 150° C | 0 - 10 |
| | | PTFE (5A) | | 0 - 6 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

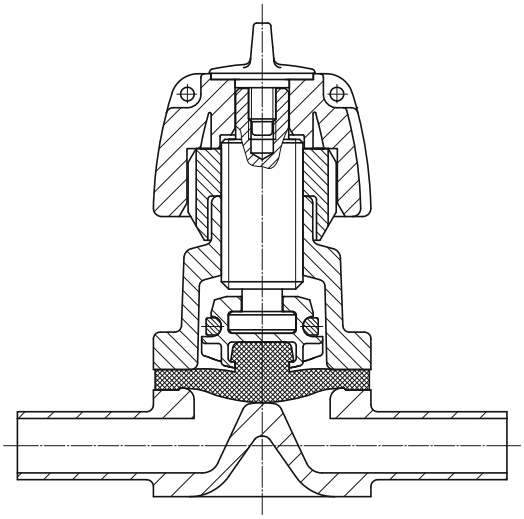
**Bonnet dimensions GEMÜ 601 [mm]**

| Diaphragm size | A | Ø B |
|---|---|---|
| 8 | 58 | 32 |

* CT = A + H1 (see table on page 13)




**Sectional drawing GEMÜ 601**



# GEMÜ 602

## Diaphragm valve, manually operated

**Operator:** Handwheel, stainless steel, with seal adjuster with optical position indicator

**Nominal sizes:** DN 4 - DN 15 (diaphragm size MG 8)
DN 10-20 (MG10) see GEMÜ 612,
DN 15-50 (MG 25-50) see GEMÜ 673

**Control function:** Manually operated

**Valve body:** Bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Standard:** Autoclavable

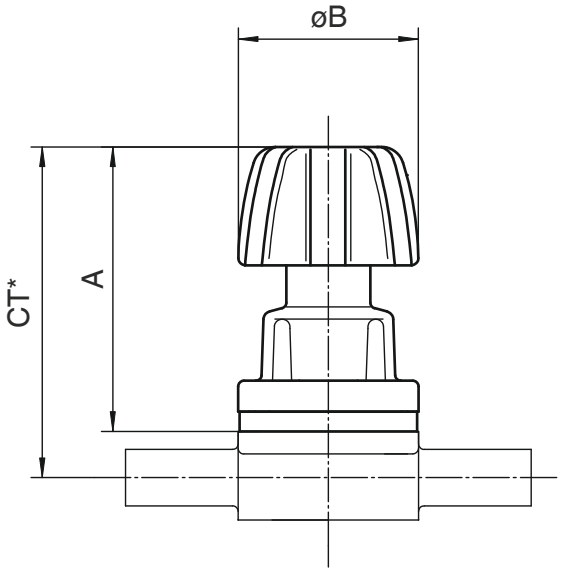
| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 8 | 4 - 15 | EPDM | 150° C | 0 - 10 |
| | | PTFE (5A) | | 0 - 6 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

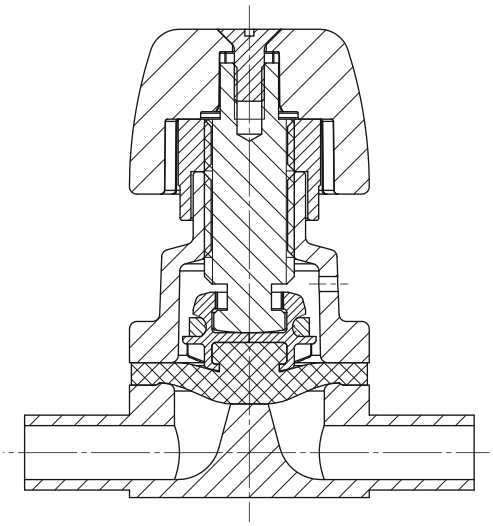
**Bonnet dimensions GEMÜ 602 [mm]**

| Diaphragm size | A | Ø B |
|---|---|---|
| 8 | 54 | 32 |

* CT = A + H1 (see table on page 13)




**Sectional drawing GEMÜ 602**



# GEMÜ 612

## Diaphragm valve, manually operated

**Operator:** Handwheel, plastic, with seal adjuster and optical position indicator

**Nominal sizes:** DN 10 - DN 20 (diaphragm size MG 10)
DN 4-15 (MG 8) see GEMÜ 601/602,
DN 15-50 (MG 25-50) see GEMÜ 673

**Control function:** Manually operated

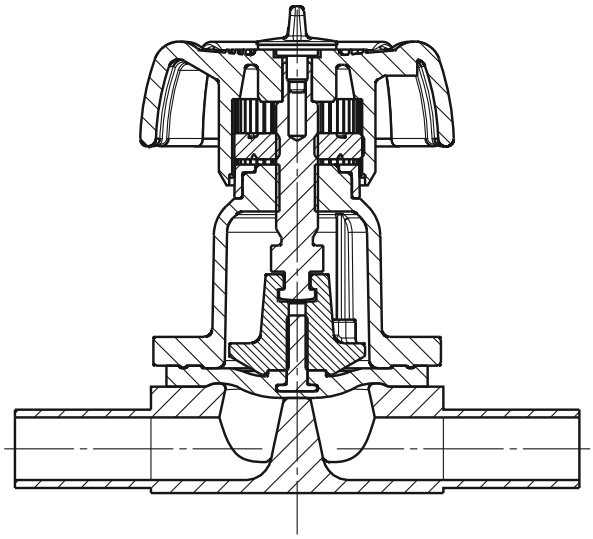
**Valve body:** Bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Standard:** Autoclavable

| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 10 | 10 - 20 | EPDM | 150° C | 0 - 10 |
| | | PTFE (52) | | 0 - 6 |

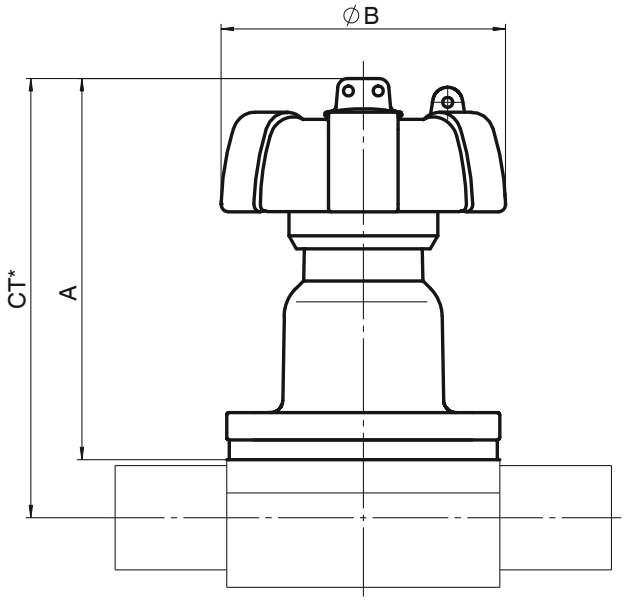
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

### Sectional drawing GEMÜ 612



| Bonnet dimensions GEMÜ 612 [mm] | | |
|---|---|---|
| Diaphragm size | A | Ø B |
| 10 | 80 | 60 |

* CT = A + H1 (see table on page 13)



# GEMÜ 673

## Diaphragm valve, manually operated

**Operator:** Handwheel, plastic, with seal adjuster and optical position indicator

**Nominal sizes:** DN 15 - DN 50 (diaphragm size MG 25-50)
DN 4-15 (MG 8) see GEMÜ 601/602,
DN 10-20 (MG 10) see GEMÜ 612

**Control function:** Manually operated

**Valve body:** Bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Standard:** Autoclavable

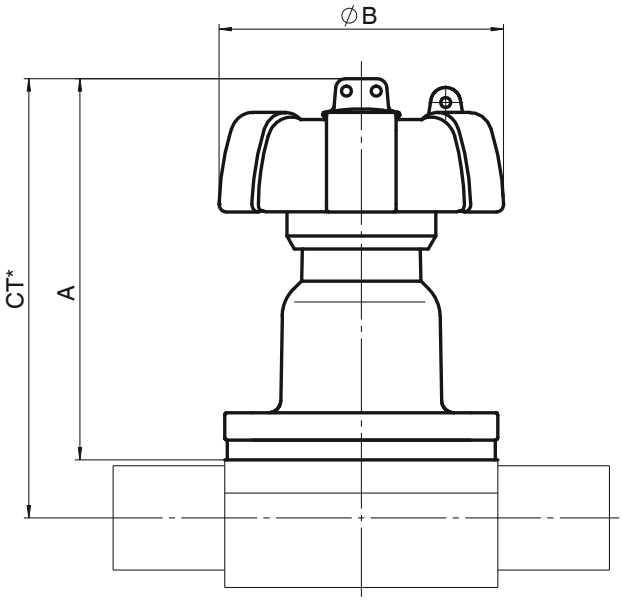
| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 25 - 50 | 15 - 50 | EPDM | 150° C | 0 - 10 |
| | | PTFE (52) | | 0 - 6 |
| | | PTFE (5E, 5S) | | 0 - 6 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

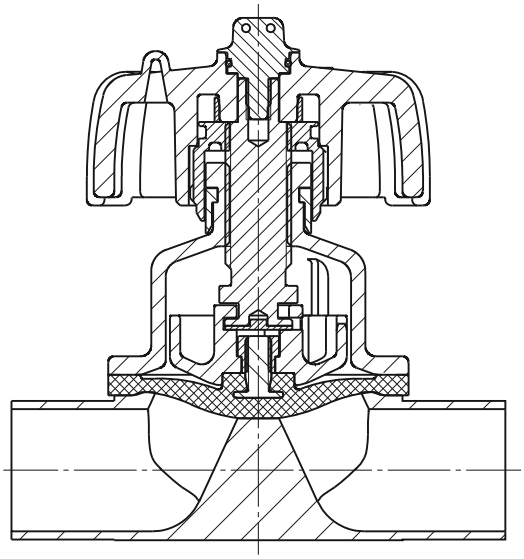
**Bonnet dimensions GEMÜ 673 [mm]**

| Diaphragm size | A | Ø B |
|---|---|---|
| 25 | 102 | 90 |
| 40 | 119 | 114 |
| 50 | 136 | 140 |

* CT = A + H1 (see table on page 13)




**Sectional drawing GEMÜ 673**



# GEMÜ 653 *BioStar*®

## Diaphragm valve, manually operated

**Operator:** Handwheel, plastic, with optical position indicator

**Nominal sizes:** DN 10 - DN 100 (diaphragm size MG 10-100)

**Control function:** Manually operated

**Valve body:** D bonnet only for 2/2-way bodies, T bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Standard:** Autoclavable

**Option:** Handwheel with mechanical or electrical locking device, proximity switches

T bonnet shown with optional manual locking device

| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 10 | 10 | EPDM<br>PTFE (52)<br>PTFE (5E, 5S) | 150° C | 0 - 10<br>0 - 6<br>0 - 6 |
| | 15 | | | |
| 25 | 15 | | | |
| | 20 | | | |
| | 25 | | | |
| 40 | 25 | | | |
| | 40 | | | |
| 50 | 50 | | | |
| 80 | 65 | | | |
| | 80 | | | |
| 100 | 100 | | | |

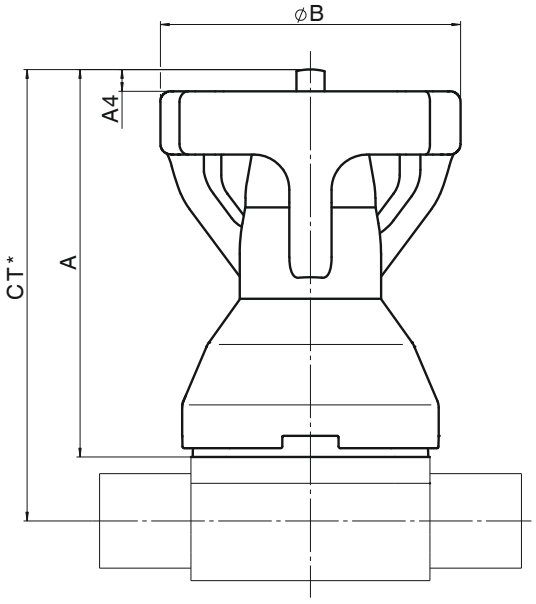
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

| Bonnet function** | Code |
|---|---|
| With seal adjuster and stroke limiter (diaphragm size 10 - 50) | H |
| Without seal adjuster and without stroke limiter | N |
| With seal adjuster (diaphragm size 80 - 100) | S |

For further bonnet functions see technical data sheet.

| Bonnet dimensions GEMÜ 653 *BioStar*® [mm] | | | | | | |
|---|---|---|---|---|---|---|
| MG | øB | A | | | A4 | | |
| Bonnet function:** | | H | N | S | H | N | S |
| 10 | 63 | 86 | | - | 2.0 | | - |
| 25 | 92 | 108 | | - | 5.0 | | - |
| 40 | 114 | 145 | | - | 9.0 | | - |
| 50 | 132 | 171 | | - | 21.0 | | - |
| 80 | 211 | 202 | | 231 | 18.0 | | 33 |
| 100 | 211 | 223 | | 255 | 28.0 | | 43 |

MG = diaphragm size * CT = A + H1 (see table on page 13)



# GEMÜ 654 *BioStar*®

## Diaphragm valve, manually operated

**Operator:** Handwheel, stainless steel, with optical position indicator

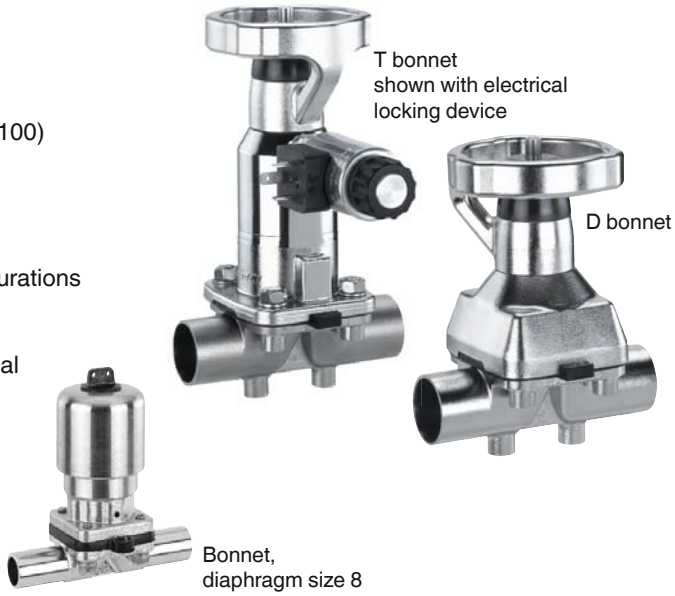
**Nominal sizes:** DN 8 - DN 100 (diaphragm size MG 8-100)

**Control function:** Manually operated

**Valve body:** D bonnet only for 2/2-way bodies, T bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Standard:** Autoclavable

**Option:** Handwheel with mechanical or electrical locking device




| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 8 | 4 | PTFE (5A)** EPDM PTFE (52) PTFE (5E, 5S) | 150° C | 0 - 10 0 - 6 0 - 6 |
| | 6 | | | |
| | 8 | | | |
| | 10 | | | |
| | 15 | | | |
| 10 | 10 | | | |
| | 15 | | | |
| 25 | 15 | | | |
| | 20 | | | |
| | 25 | | | |
| 40 | 25 | | | |
| | 40 | | | |
| 50 | 50 | | | |
| 80 | 65 | | | |
| | 80 | | | |
| 100 | 100 | | | |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side. 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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

** only for diaphragm size 8

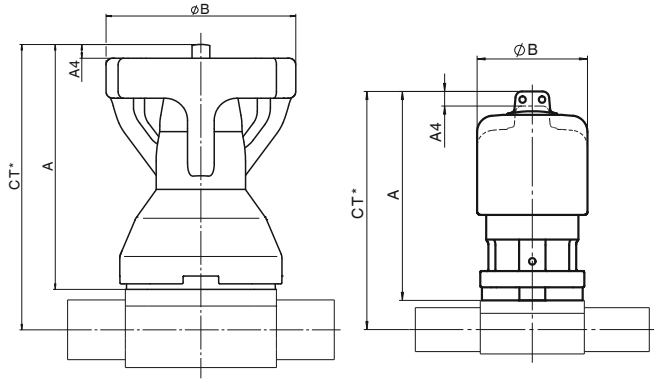
| Bonnet function** | Code |
|---|---|
| With seal adjuster and stroke limiter (diaphragm size 8 - 50) | H |
| Without seal adjuster and without stroke limiter | N |
| With seal adjuster (diaphragm size 80 - 100) | S |

For further bonnet functions see technical data sheet.

**Bonnet dimensions GEMÜ 654 *BioStar*® [mm]**

| MG | øB | A | | | A4 | | |
|---|---|---|---|---|---|---|---|
| Bonnet function:** | | H | N | S | H | N | S |
| 8 | 36 | 85 | 65 | - | 4.5 | | - |
| 10 | 63 | 86 | | - | 2,0 | | - |
| 25 | 92 | 108 | | - | 5,0 | | - |
| 40 | 114 | 145 | | - | 9,0 | | - |
| 50 | 132 | 171 | | - | 21,0 | | - |
| 80 | 211 | 231 | | 231 | 33,0 | | 33 |
| 100 | 211 | 255 | | 255 | 43,0 | | 43 |

MG = diaphragm size * CT = A + H1 (see table on page 13)



# GEMÜ 643

## Diaphragm valve, manually operated

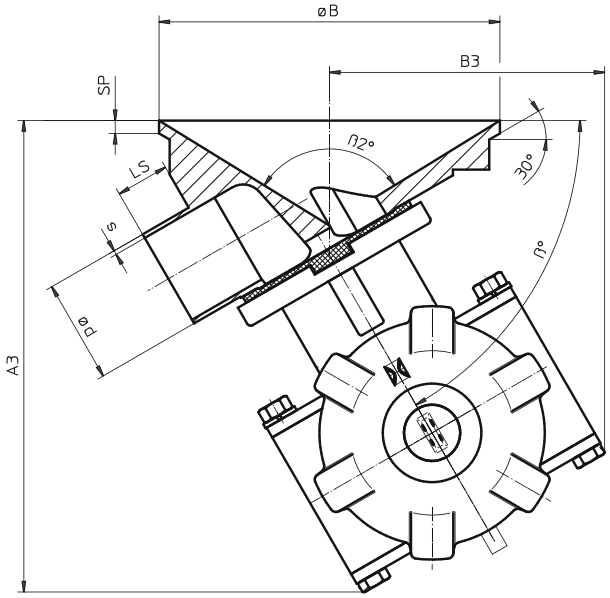
| | |
|---|---|
| **Operator:** | Angular gear with plastic handwheel |
| **Nominal sizes:** | DN 15 - DN 40 (diaphragm size MG 25-40) |
| **Control function:** | Manually operated |
| **Ambient temperature:** | max. 60° C |
| **Valve body:** | Bonnet for tank valves |

| Diaphragm size | DN | Diaphragm material | Sterilization temp.* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 25 - 40 | 15 - 40 | EPDM<br>PTFE (52)<br>PTFE (5E, 5S) | 150° C | 0 - 10<br>0 - 6<br>0 - 6 |

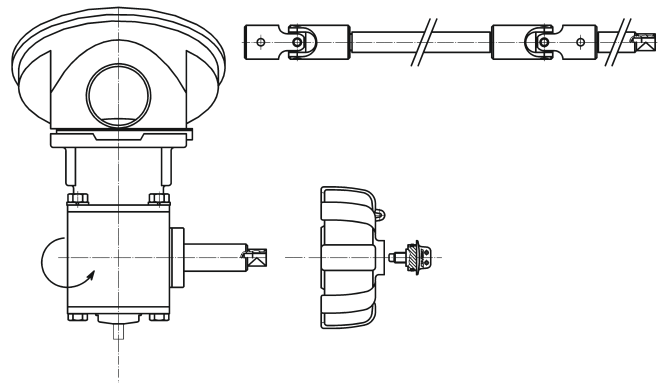
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

**Bonnet dimensions GEMÜ 643 [mm]**

| MG | DN | A3 | B3 | øB | SP |
|---|---|---|---|---|---|
| 25 | 15 - 25 | 166 | 104 | 120 | 6 |
| 40 | 32 - 40 | 190 | 110 | 160 | 6 |




**Shaft extension (by user)**



# GEMÜ 605

## Diaphragm valve, pneumatically operated

**Operator:** Piston actuator, plastic, with optical position indicator

**Nominal sizes:** DN 4 - DN 15 (diaphragm size MG 8)

**Control function:** Normally closed (NC), Code 1
Normally open (NO), Code 2
Double acting (DA), Code 3

**Ambient temperature:** max. 60° C

**Control medium:** Inert gases, max. 40°C

**Valve body:** Actuator for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Option:** 3A-version

**Accessories:** Stroke limiter, electrical position indicator, positioner and process controller

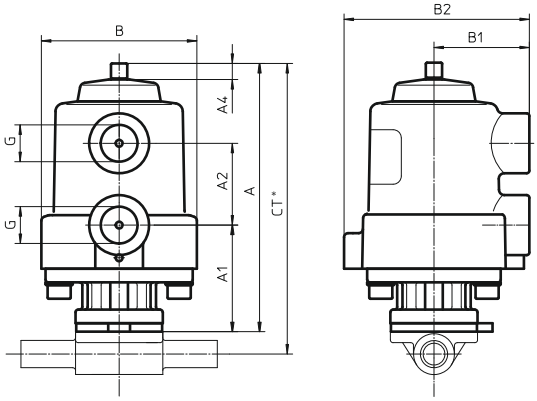
| Dia-phragm size | DN | Diaphragm material | Sterilization temperature* | Oper-ating pressure | Control pressure- C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] | [bar] |
| 8 | 4 - 15 | EPDM<br>PTFE (5A) | 150° C | 0 - 8<br>0 - 6 | 4 - 7 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

**Actuator dimensions GEMÜ 605 [mm]**

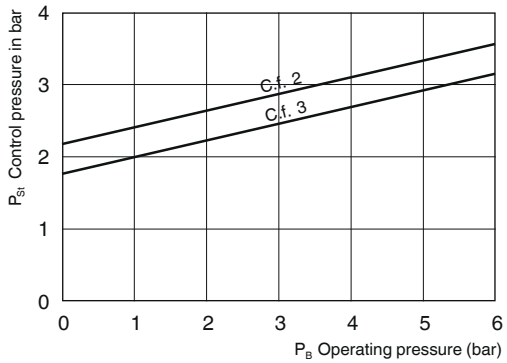
| MG | A | A1 | A2 | B | B1 | B2 | A4 | G |
|---|---|---|---|---|---|---|---|---|
| 8 | 98 | 39 | 30 | 57 | 35 | 68 | 5.5 | G 1/4 |

MG = diaphragm size
* CT = A + H1 (see table on page 13)

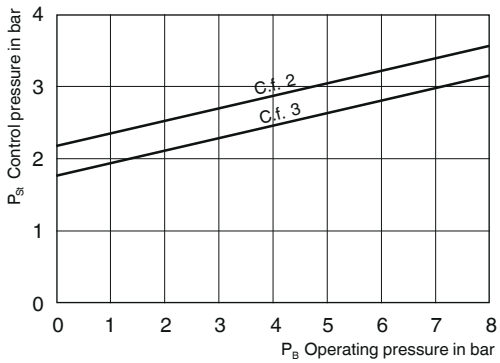



## Operating pressure / Control pressure characteristics

### Control function 2 (NO) + 3 (DA) with PTFE diaphragm




### Control function 2 (NO) + 3 (DA) with EPDM diaphragm



# GEMÜ 625

## Diaphragm valve, pneumatically operated

**Operator:** Piston actuator, plastic,
with optical position indicator

**Nominal sizes:** DN 10 - DN 20 (diaphragm size MG 10)

**Control function:** Normally closed (NC), Code 1
Normally open (NO), Code 2
Double acting (DA), Code 3

**Ambient temperature:** max. 60° C

**Control medium:** Inert gases, max. 40°C

**Valve body:** Actuator for 2/2-way bodies, T bodies,
M blocks, tank valves and valve configurations

**Option:** 3A-version

**Accessories:** Stroke limiter,
electrical position indicator,
positioner and process controller

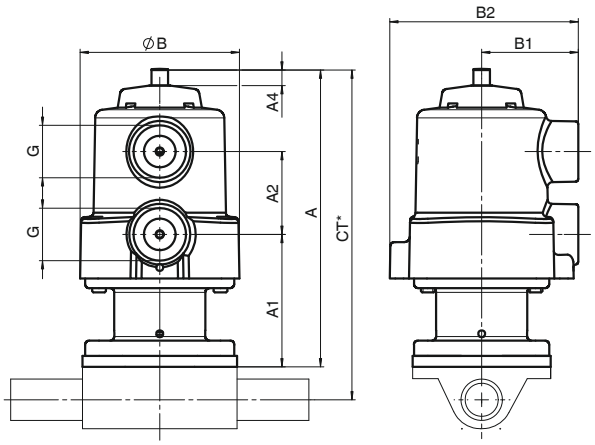
| Dia-phragm size | DN | Diaphragm material | Sterilization-temperature* | Oper-ating pressure | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] | [bar] |
| 10 | 10 - 20 | EPDM<br>PTFE (52) | 150° C | 0 - 6 | 5 - 7 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

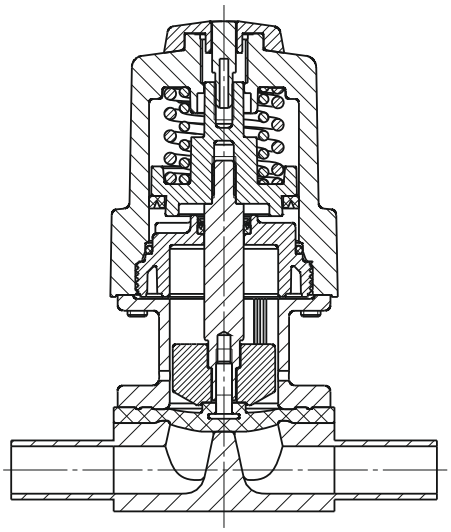
**Actuator dimensions GEMÜ 625 [mm]**

| MG | A | A1 | A2 | B | B1 | B2 | A4 | G |
|---|---|---|---|---|---|---|---|---|
| 10 | 108 | 49 | 30 | 57 | 35 | 68 | 6 | G 1/4 |

MG = diaphragm size
* CT = A + H1 (see table on page 13)




## Sectional drawing GEMÜ 625



# GEMÜ 650 *BioStar*®

## Diaphragm valve, pneumatically operated

**Operator:** Piston actuator, stainless steel, electropolished with optical position indicator

**Nominal sizes:** DN 8 - DN 50 (diaphragm size MG 8 - 50)

**Control function:** Normally closed (NC), Code 1
Normally open (NO), Code 2
Double acting (DA), Code 3

**Ambient temperature:** max. 60° C

**Control medium:** Inert gases, max. 70°C

**Valve body:** D actuator only for 2/2-way bodies,
T actuator for 2/2-way bodies, T bodies,
M blocks, tank valves and valve configurations

**Option:** Autoclavable (actuator sizes 0, 1, 2)
3A-version

**Accessories:** Stroke limiter and seal adjuster,
electrical position indicator,
positioner and process controller

D actuator

T actuator

| Actuator size | | Code |
|---|---|---|
| Actuator size 0 | (diaphragm size 8) | 0* |
| Actuator size 1 | (diaphragm size 10) | 1* |
| Actuator size 2 | (diaphragm size 25) | 2* |
| Actuator size 3 | (diaphragm size 40) | 3 |
| Actuator size 4 | (diaphragm size 50) | 4 |

* standard autoclave capability

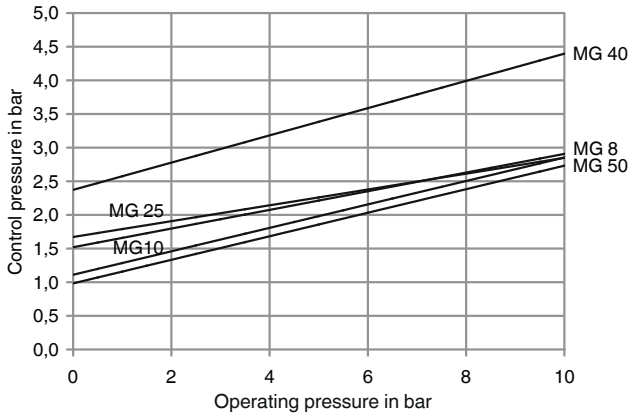
| Diaphragm size | Actuator | DN | Diaphragm material | Sterilization temperature* | Operating pressure (C.f. 2 + 3 see diagrams) | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|---|
| MG | Code | [mm] | Code | [°C] | [bar] | [bar] |
| 8 | 0T1 | 4 - 10 | EPDM | 150° C | 0 - 8 | 5.0 - 7 |
| | | | PTFE (5A) | | 0 - 6 | |
| 8 | 0TA | 4 - 10 | EPDM | 150° C | 0 - 10 | 3.5 - 7 |
| | | | PTFE (5A) | | 0 - 6 | |
| 10 | 1 | 10 - 20 | EPDM | 150° C | 0 - 10 | 4.5 - 7 |
| | | | PTFE (52) | | 0 - 6 | |
| 25 | 2 | 15 - 25 | EPDM | 150° C | 0 - 10 | 5.0 - 7 |
| | | | PTFE (5E, 5S) | | 0 - 6 | |
| 40 | 3 | 32 - 40 | EPDM | 150° C | 0 - 10 | 4.5 - 7 |
| | | | PTFE (5E, 5S) | | 0 - 6 | |
| 50 | 4 | 50 | EPDM | 150° C | 0 - 10 | 4.5 - 7 |
| | | | PTFE (5E, 5S) | | 0 - 6 | |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

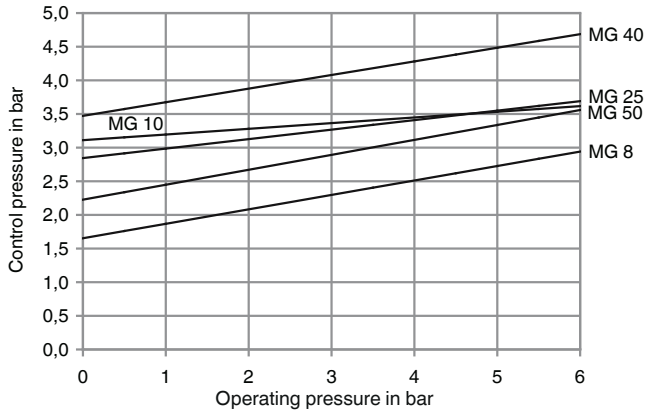
# GEMÜ 650 *BioStar*®

## Operating pressure / Control pressure characteristics

**Control function 2 (NO) + 3 (DA) with Elastomer diaphragm**



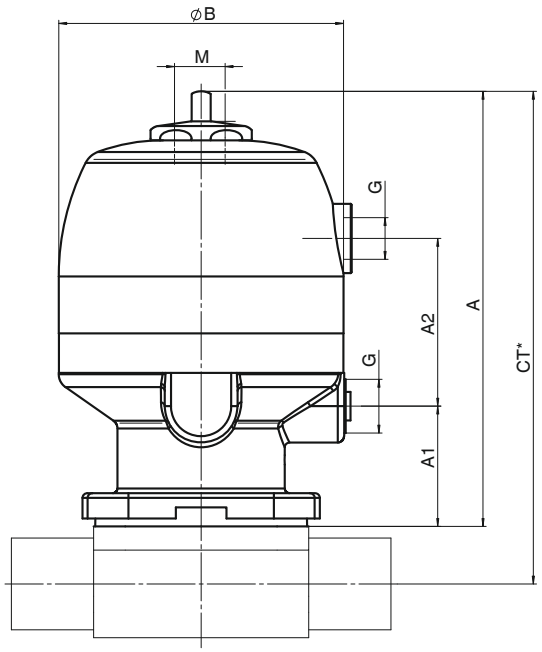

**Control function 2 (NO) + 3 (DA) with PTFE diaphragm**




**Actuator dimensions GEMÜ 650 *BioStar*® [mm]**

| Actuator size | MG | A | A1 | A2 | ø B | G | M |
|---|---|---|---|---|---|---|---|
| 0T1 | 8 | 80.5 | 28 | 37.8 | 42 | G1/8 | M12x1 |
| 0TA | 8 | 89.5 | 28 | - | 47 | G1/8 | M12x1 |
| 1 | 10 | 116.0 | 37 | 42.5 | 61 | G1/4 | M16x1 |
| 2 | 25 | 137.5 | 38 | 53.0 | 90 | G1/4 | M16x1 |
| 3 | 40 | 173.0 | 53 | 56.5 | 114 | G1/4 | M16x1 |
| 4 | 50 | 223.0 | 52 | 70.5 | 144 | G1/4 | M16x1 |

MG = diaphragm size
* CT = A + H1 (see table on page 13)



# GEMÜ 651

## Diaphragm valve, pneumatically operated

**Operator:** Piston actuator, stainless steel, with fully integrated automation module, pilot valves and position feedback for e.g. AS-Interface

**Nominal sizes:** DN 4 - DN 25 (diaphragm size MG 8 - 25)

**Control function:** Normally closed (NC), Code 1
Normally open (NO), Code 2

**Ambient temperature:** max. 50° C

**Control medium:** Lubricated/unlubricated air 5µm, max. 50°C

**Valve body:** Actuator for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Accessories:** Exhaust silencer

| Actuator size | | Code |
|---|---|---|
| Actuator size 0 | (diaphragm size 8) | 0 |
| Actuator size 1 | (diaphragm size 10) | 1 |
| Actuator size 2 | (diaphragm size 25) | 2 |

| Diaphragm size | Actuator | DN | Diaphragm material | Sterilization temperature* | Operating pressure | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|---|
| MG | Code | [mm] | Code | [°C] | [bar] | [bar] |
| 8 | 0TA | 4 - 15 | EPDM | 150° C | 0 - 10 | 3.5 - 7 |
| | | | PTFE (5A) | | 0 - 6 | |
| 10 | 1 | 10 - 15 | EPDM | 150° C | 0 - 10 | 4.5 - 7 |
| | | | PTFE (52) | | 0 - 6 | |
| 25 | 2 | 15 - 25 | EPDM | 150° C | 0 - 10 | 5.0 - 7 |
| | | | PTFE (5E, 5S) | | 0 - 6 | |

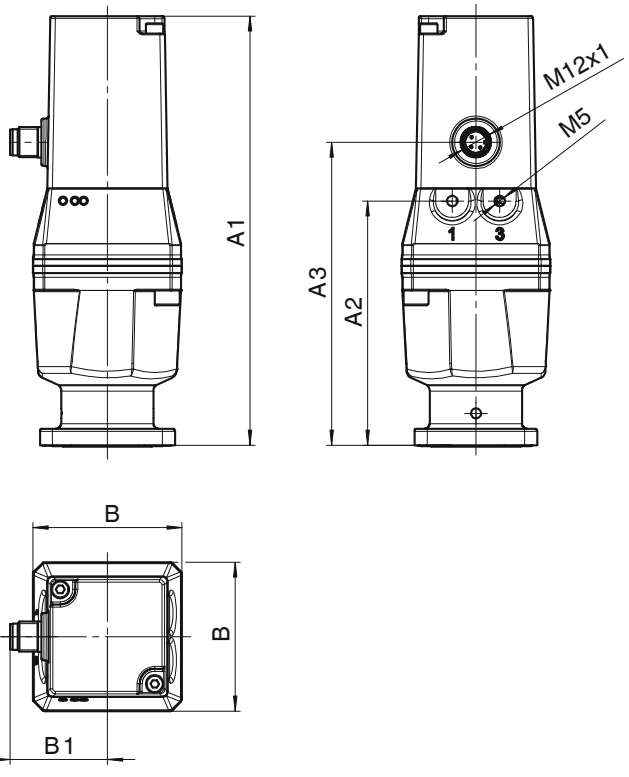
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

# GEMÜ 651

| Electrical data | |
|---|---|
| **Automation module Code B01** | |
| **Approvals** | |
| AS-Interface specification | 3.0 |
| AS-Interface certificate no.: 65202 | |
| **Power supply** | |
| Power supply $U_V$ | 26.5 ... 31.6 V DC acc. to AS-Interface specification |
| Current consumption | max. 120 mA |
| Rating | continuously rated |
| Reverse battery protection | yes |
| **Electrical connection** | |
| Electrical connection | M12 5-pin plug |
| **AS-Interface profile** | |
| Configuration | Extended addressing mode, 62 bus slaves |
| AS-Interface profile | S 7.A.E |
| I/O configuration | 7 |
| ID code | A |
| ID2 code | E |

**Actuator dimensions GEMÜ 651 [mm]**

| Actuator size | Diaphragm size | A1 | A2 | A3 | B | B1 |
|---|---|---|---|---|---|---|
| 0 | 8 | 160 | 72.0 | 85.0 | 49 | 35 |
| 1 | 10 | 185 | 96.5 | 109.5 | 60 | 36 |
| 2 | 25 | 182 | 140.0 | 116.5 | 91 | 59 |



# GEMÜ 658 / GEMÜ 688

## Diaphragm valve, pneumatically operated

**Operator:** Two-stage actuator, stainless steel

**Nominal sizes:** GEMÜ 658: DN 10 - DN 20 (diaphragm size MG 10)
GEMÜ 688: DN 15 - DN 50 (diaphragm size MG 25-50)

**Control function:** Normally closed (NC), Code 1

**Ambient temperature:** max. 60° C

**Control medium:** Inert gases, max. 60°C

**Valve body:** Actuator for 2/2-way bodies, T bodies,
M blocks, tank valves and valve configurations

**Accessories:** Pilot valves,
limit switches

GEMÜ 688

GEMÜ 658

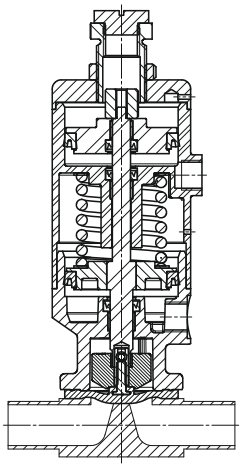
| Diaphragm size | Actuator | DN | Diaphragm material | Sterilization temperature* | Operating pressure | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|---|
| MG | Code | [mm] | Code | [°C] | [bar] | [bar] |
| 10 | 1T1 | 10 - 20 | EPDM<br>PTFE (52) | 150° C | 0 - 10<br>0 - 6 | 4.5 - 6 |
| 25 | 1V1 | 15 - 25 | EPDM<br>PTFE | | 0 - 10<br>0 - 6 | 5.5 - 7 |
| 40 | 2V1 | 32 - 40 | EPDM<br>PTFE | | 0 - 10<br>0 - 6 | 3.5 - 7 |
| 50 | 2V1 | 50 | EPDM<br>PTFE | | 0 - 10<br>0 - 6 | 5.5 - 7 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

# GEMÜ 658 / GEMÜ 688

| Version | Code |
|---|---|
| Diaphragm size 10<br>Control air connector positioned in-line with flow direction | 1T1 |
| Diaphragm size 25<br>Control air connector 90° offset to flow direction | 1V1 |
| Diaphragm size 40 + 50<br>Control air connector 90° offset to flow direction | 2V1 |

## Sectional drawings

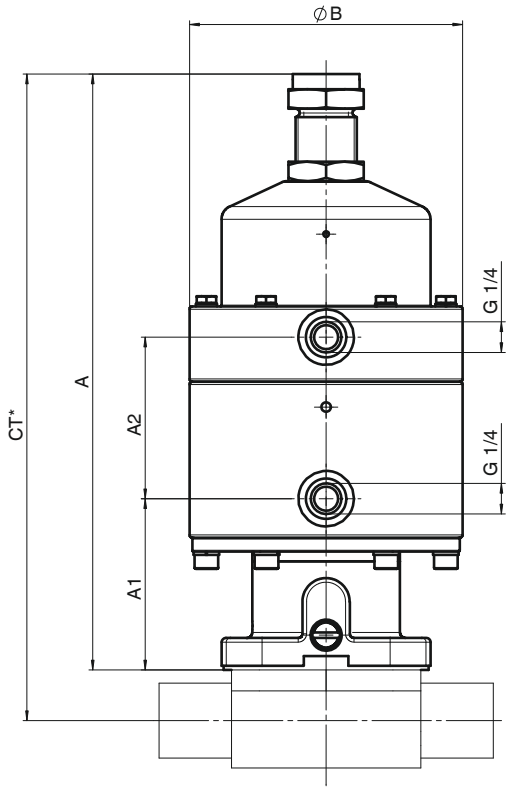


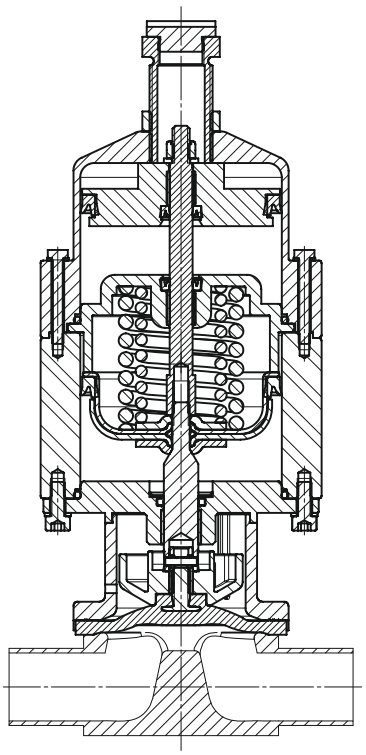
GEMÜ 658

## Actuator dimensions GEMÜ 658/GEMÜ 688 [mm]

| MG | Version | øB | A | A1 | A2 |
|---|---|---|---|---|---|
| 10 | 1T1 | 61 | 169 | 35 | 63 |
| 25 | 1V1 | 98 | 216 | 64 | 50 |
| 40 | 2V1 | 168 | 320 | 76 | 95 |
| 50 | 2V1 | 168 | 328 | 84 | 95 |

MG = diaphragm size
* CT = A + H1 (see table on page 13)



GEMÜ 688

# GEMÜ 660

## Diaphragm valve, pneumatically operated

| | |
|---|---|
| **Operator:** | Piston actuator, stainless steel, electropolished with optical position indicator and integrated stroke limiter/seal adjuster |
| **Nominal sizes:** | DN 4 - DN 25 (diaphragm size MG 8 - 25) |
| **Control function:** | Normally closed (NC), Code 1<br>Normally open (NO), Code 2<br>Double acting (DA), Code 3 |
| **Ambient temperature:** | max. 60° C |
| **Control medium:** | Inert gases, max. 60°C |
| **Valve body:** | Actuator for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations |
| **Option:** | 3A-version |

Actuator size 1
Control function 1 (NC)

Actuator size 2
Control function 2 (NO)

| Actuator size | | Code |
|---|---|---|
| Actuator size 0 | (diaphragm size 8) | 0 |
| Actuator size 1 | (diaphragm size 10) | 1 |
| Actuator size 2 | (diaphragm size 25) | 2 |

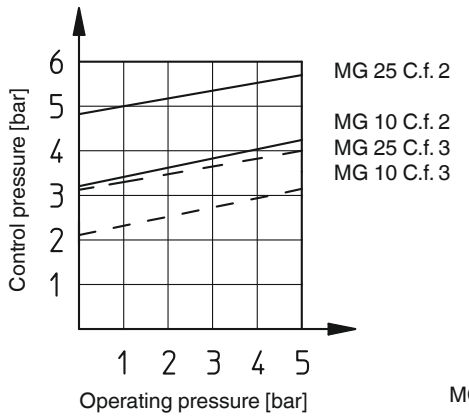
| Actuator version | Code |
|---|---|
| Control air connectors in flow direction | T |
| Control air connectors 90° offset to flow direction | R |

| Diaphragm size | Actuator | DN | Diaphragm material | Sterilization temperature* | Operating pressure | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|---|
| MG | Code | [mm] | Code | [°C] | [bar] | [bar] |
| 8 | 0 | 4 - 15 | EPDM (3A)<br>PTFE (5A) | 150° C | 0 - 5 | 5.0 - 7.0 |
| 10 | 1 | 10 - 15 | EPDM (13)<br>PTFE (52) | 150° C | 0 - 5 | 5.0 - 7.0 |
| 25 | 2 | 15 - 25 | EPDM (13)<br>PTFE (52) | 150° C | 0 - 5 | 4.0 - 7.0 |

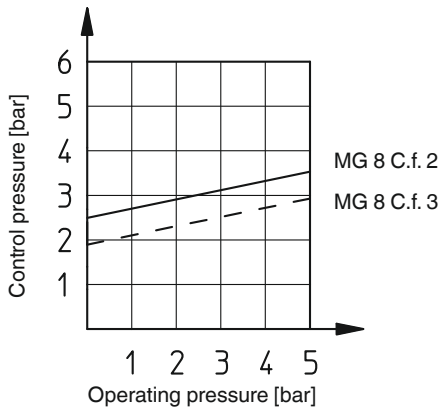
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request. Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

### Operating pressure / Control pressure characteristics

**Control function 2 (NO) + 3 (DA)**

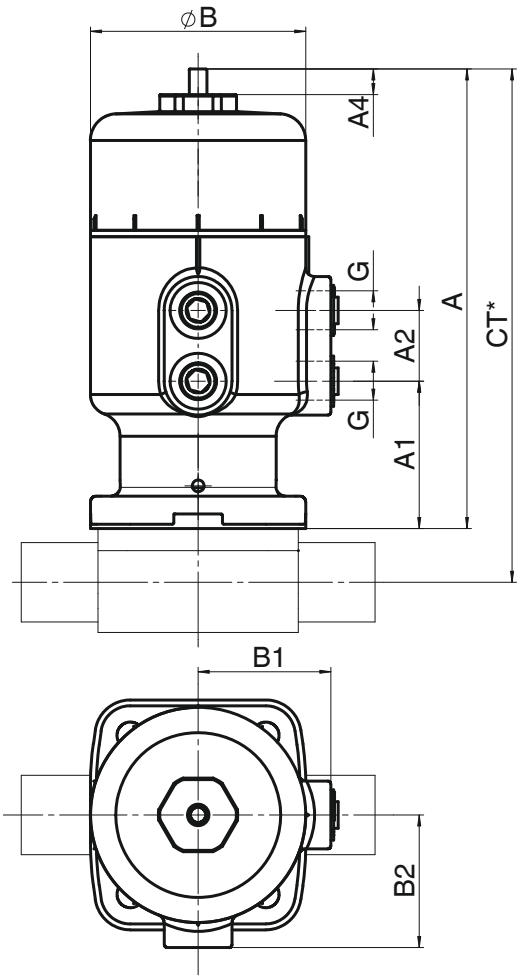



MG = diaphragm size

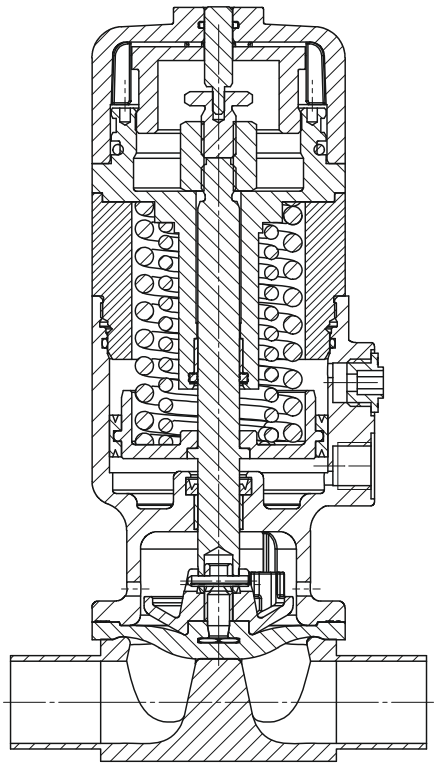


# GEMÜ 660

| Actuator dimensions GEMÜ 660 [mm] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Diaphragm size | Control function | Actuator version | A | A1 | A2 | A4 | B | B1 | B2 | G |
| 8 | 1 | T | 109 | 50 | 21 | 4.5 | 38 | 28 | 28 | M5 |
| | | R | | | | | | | | |
| | 2 + 3 | T | 92 | 50 | 21 | 4.5 | 38 | 28 | 28 | |
| | | R | | | | | | | | |
| 10 | 1 | T | 139 | 37 | 27 | 6.5 | 50 | 34 | 26 | G ⅛ |
| | | R | | | | | | | 37 | |
| | 2 + 3 | T | 120 | 37 | 27 | 6.5 | 50 | 34 | 26 | |
| | | R | | | | | | | 37 | |
| 25 | 1 | T | 183 | 50 | 24 | 9.0 | 73 | 45 | 39 | G ¼ |
| | | R | | | | | | | 51 | |
| | 2 + 3 | T | 148 | 50 | 24 | 9.0 | 73 | 45 | 39 | |
| | | R | | | | | | | 51 | |




Sectional drawing GEMÜ 660



* CT = A + H1 (see table on page 13)

# GEMÜ 687

## Diaphragm valve, pneumatically operated

**Operator:** Membrane actuator, plastic

**Nominal sizes:** DN 10 - DN 100 (diaphragm size MG 10 - 100)

**Control function:** Normally closed (NC), Code 1
Normally open (NO), Code 2
Double acting (DA), Code 3

**Ambient temperature:** max. 60° C

**Control medium:** Inert gases, max. 40°C

**Valve body:** Actuator for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Option:** 3A-version, optical position indicator

**Accessories:** Optical position indicator,
stroke limiter,
manual override,
electrical position indicator,
positioner and process controller

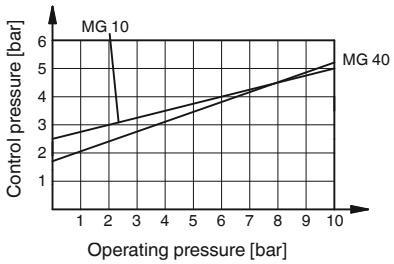
| Diaphragm size | DN | Diaphragm material | Sterilization temperature* | Operating pressure (C.f. 2 (NO) + 3 (DA) see diagrams) | Control pressure Control function 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] | [bar] |
| 10 | 10 - 20 | EPDM | 150° C | 0 - 10 | 3.5 - 7.0 |
| | | PTFE (52) | | 0 - 6 | |
| 25 | 15 - 25 | EPDM | 150° C | 0 - 10 | 5.5 - 7.0 |
| | | PTFE (5E, 5S) | | 0 - 6 | |
| 40 | 32 - 40 | EPDM | 150° C | 0 - 10 | 5.5 - 7.0 |
| | | PTFE (5E, 5S) | | 0 - 6 | |
| 50 | 50 | EPDM | 150° C | 0 - 10 | 5.5 - 7.0 |
| | | PTFE (5E, 5S) | | 0 - 6 | |
| 80 | 65 - 80 | EPDM | 150° C | 0 - 8 | 5.0 - 7.0 |
| | | PTFE (5E, 5S) | | 0 - 5 | |
| 100 | 100 | EPDM | 150° C | 0 - 6 | 5.5 - 7.0 |
| | | PTFE (52) | | 0 - 4 | |

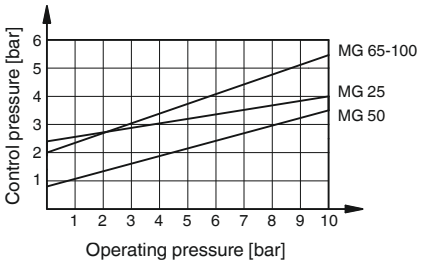
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

# GEMÜ 687

## Operating pressure / Control pressure characteristics

### Control function 2 (NO) + 3 (DA)




The values shown relate to control function 2 (with lifting spring).
For control function 3 DN 15 - 25 (without lifting spring) control pressure is approx. 1.5 bar lower.
For control function 3 DN 32 - 100 (without lifting spring) control pressure is approx. 1 bar lower.

**Actuator dimensions GEMÜ 687 Control function 1 (NC) [mm]**

| MG | Actuator size | ø B | B1 | A | A1 | G |
|---|---|---|---|---|---|---|
| 10 | B/N | 67 | 44 | 125 | 62 | G ¼ |
| 25 | 1/N | 128 | - | 152 | 66 | G ¼ |
| 40 | 2/N | 158 | - | 187 | 86 | G ¼ |
| 50 | 3/N | 213 | - | 221 | 97 | G ¼ |
| 80 | 4/N | 259 | - | 332 | 172 | G ¼ |
| 100 | 5/N | 259 | - | 328 | 169 | G ¼ |

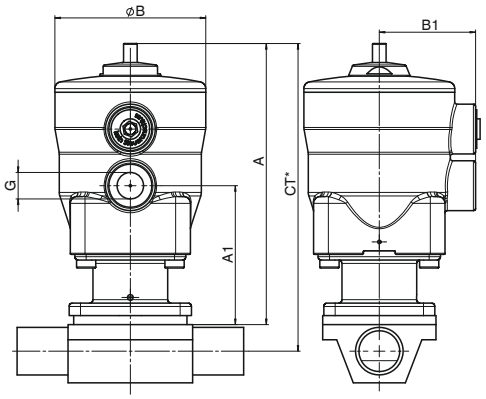
MG = diaphragm size

**Actuator dimensions GEMÜ 687 Control function 2 (NO) + 3 (DA) [mm]**

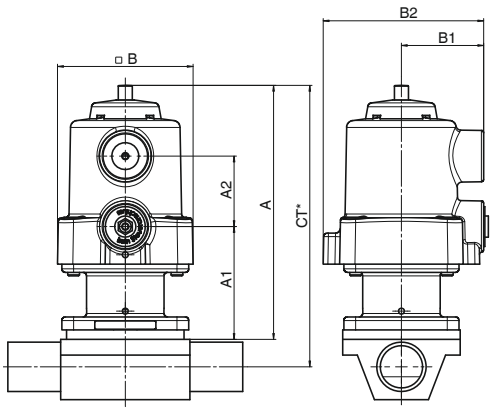
| MG | Actuator size | ø B | A | A1 | A2 | B1 | B2 | G |
|---|---|---|---|---|---|---|---|---|
| 10 | B/N | 57 | 110 | 49 | 30 | 35 | 68 | G ¼ |
| 25 | 1/N | 128 | 117 | 66 | 28 | - | - | G ¼ |
| 40 | 2/N | 158 | 143 | 84 | 27 | - | - | G ¼ |
| 50 | 3/N | 213 | 167 | 96 | 28 | - | - | G ¼ |
| 80 | 4/N | 258 | 282 | 170 | 45 | - | - | G ¼ |
| 100 | 5/N | 258 | 278 | 165 | 45 | - | - | G ¼ |

MG = diaphragm size

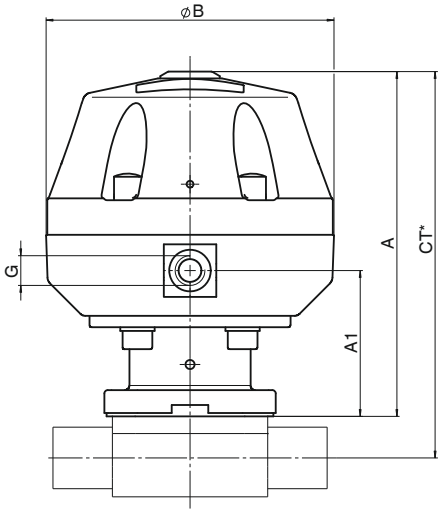
Control function 1 - Diaphragm size 10



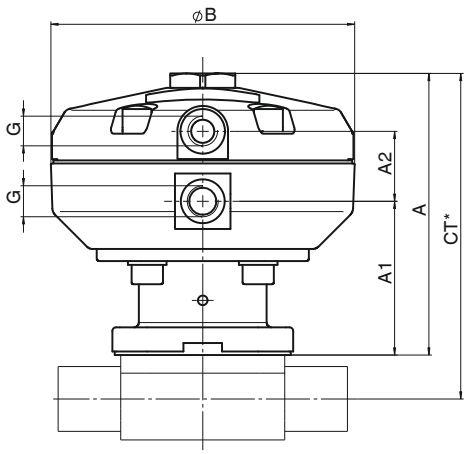

Control function 2 +3 - Diaphragm size 10




Control function 1 - Diaphragm size 25 - 100




Control function 2 +3 - Diaphragm size 25 - 100




* CT = A + H1 (see table on page 13)

# GEMÜ 618

## Diaphragm valve, motorized

**Operator:** Plastic actuator with optical position indicator

**Nominal sizes:** DN 4 - DN 20 (diaphragm size MG 8-10)

**Supply voltage:** 24 V, 120 V, 230 V 50/60 Hz

**Ambient temperature:** -15 to + 55°C

**Valve body:** Actuator for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

**Option:** Position control, process variable control, LON Works field bus connection

| Dia-phragm size | DN | Diaphragm material | Sterilization temperature* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 8 | 4 - 15 | EPDM | 150° C | 0 - 6 |
| 10 | 10 - 20 | PTFE | | |

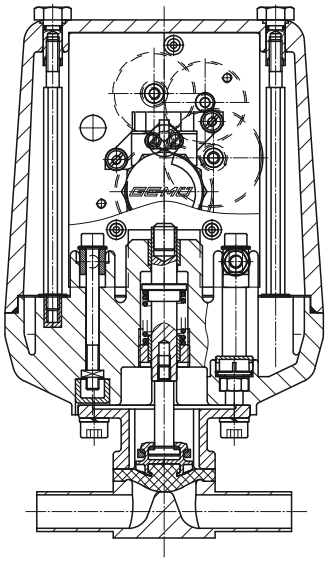
All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side. Sealing at the valve seat and atmospheric sealing is ensured for the given values.
Information on operating pressures applied on both sides and for high purity media on request.
* Sterilization temperature is only valid for steam and superheated water, valve only sterilizable with actuator 1 + 3.

| Medium temperature | |
|---|---|
| Direct mounting | +60° C |
| With distance piece | +130° C |

| Protection class |
|---|
| IP 65 to DIN 40050 |

| Operating time | |
|---|---|
| See actuator version (following page) | approx. 17 or 45 s |

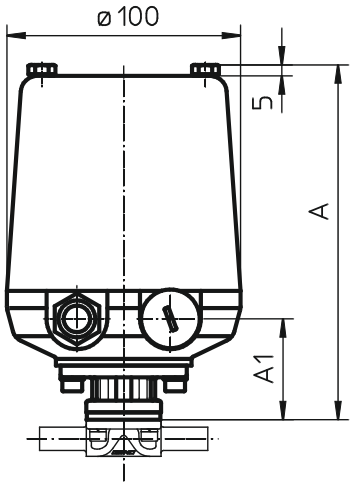
### Sectional drawing GEMÜ 618



# GEMÜ 618

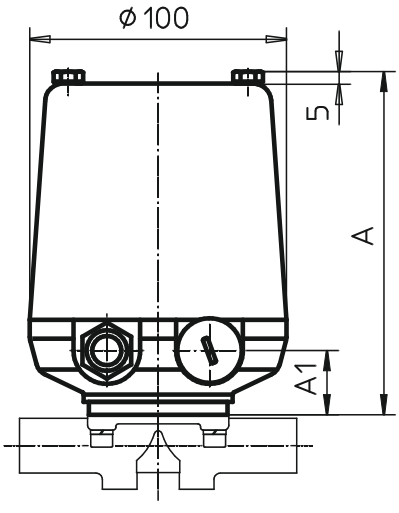
| Actuator version | Code |
|---|---|
| Operating time 17 sec. (not possible for diaphragm size 8) | A0 |
| Operating time 45 sec. (not possible for diaphragm size 8) | A1 |
| Operating time 17 sec., with distance piece | B0 |
| Operating time 45 sec., with distance piece | B1 |

| Actuator dimensions GEMÜ 618 [mm] | | | | |
|---|---|---|---|---|
| **Diaphragm size** | **DN** | **Actuator version** | **A** | **A1** |
| 8 | 004 - 015 | B0, B1 | 152 | 44 |

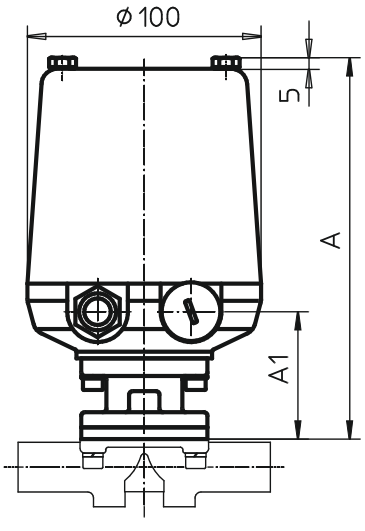



**Actuator version B0, B1**
with metal distance piece
for max. 130°C

| Actuator dimensions GEMÜ 618 [mm] | | | | |
|---|---|---|---|---|
| **Diaphragm size** | **DN** | **Actuator version** | **A** | **A1** |
| 10 | 10 - 20 | A0, A1 | 134 | 25 |
| | 10 - 20 | B0, B1 | 164 | 55 |




**Actuator version A0, A1**
for max. 60°C




**Actuator version B0, B1**
with metal distance piece
for max. 130°C

# GEMÜ 698

## Diaphragm valve, motorized

| | |
|---|---|
| **Operator:** | Plastic actuator with optical position indicator and manual override |
| **Nominal sizes:** | DN 15 - DN 50 (diaphragm size MG 25-50) |
| **Supply voltage:** | 24 V, 120 V, 230 V, 50/60 Hz |
| **Ambient temperature:** | max. 55° C |
| **Valve body:** | Actuator for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations |
| **Option:** | Electrical position feedback via potentiometer |

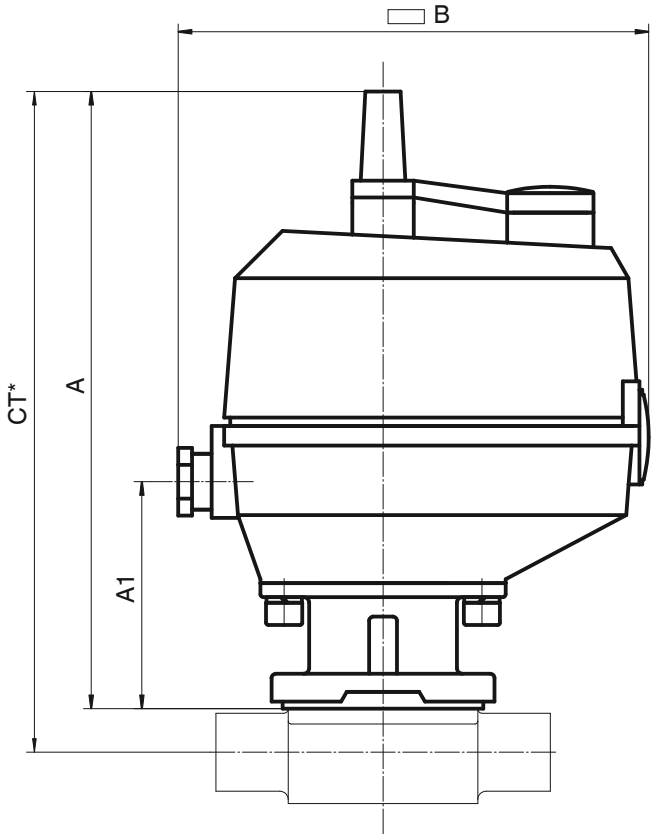
| Diaphragm size | DN | Diaphragm material | Sterilization temperature* | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 25 | 15 - 25 | EPDM | 150° C | 0 - 10 |
| | | PTFE (5E, 5S) | | 0 - 6 |
| 40 | 32 - 40 | EPDM | | 0 - 6 |
| | | PTFE (5E, 5S) | | |
| 50 | 50 | EPDM | | 0 - 6 |
| | | PTFE (5E, 5S) | | 0 - 4 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.
Continuous service temperature for liquid media: 90°C.
* Sterilization temperature is only valid for steam and superheated water.

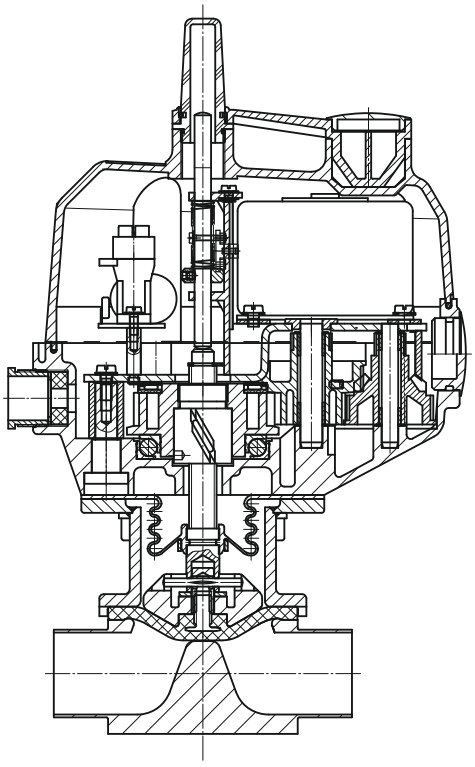
# GEMÜ 698

| Actuator dimensions GEMÜ 698 [mm] | | | | |
|---|---|---|---|---|
| **Diaphragm size** | **DN** | **□ B** | **A** | **A1** |
| 25 | 15 - 25 | 169 x 135 | 222 | 82 |
| 40 | 32 - 40 | 169 x 135 | 271 | 131 |
| 50 | 50 | 169 x 135 | 278 | 138 |

* CT = A + H1 (see table on page 13)




Sectional drawing GEMÜ 698



# GEMÜ 611

## Diaphragm valve, manually operated

**Operator:** Handwheel, plastic, with optical position indicator

**Nominal sizes:** DN 10 - DN 20 (diaphragm size MG 10)

**Control function:** Manually operated

**Ambient temperature:** max. 60° C

**Valve body:** Bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

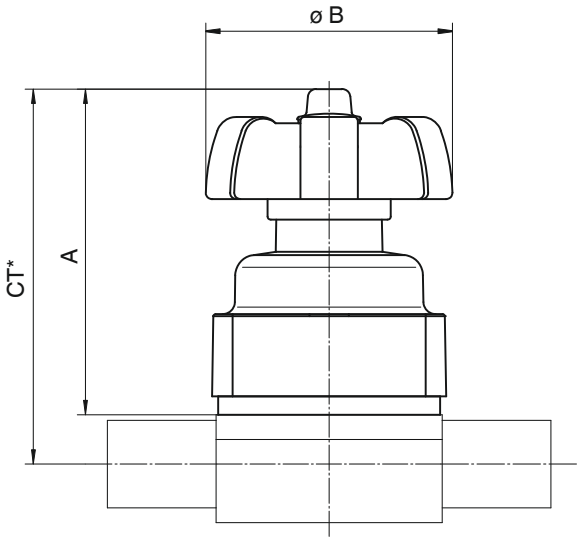
| Diaphragm size | DN | Diaphragm material | Operating temperature | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 10 | 10 - 20 | EPDM | 0 - 80 | 0 - 10 |
| | | PTFE | | 0 - 6 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side. 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.

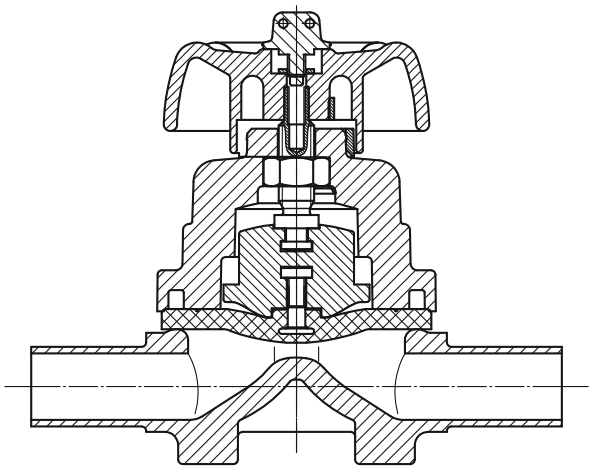
**Bonnet dimensions GEMÜ 611 [mm]**

| Diaphragm size | Ø B | A |
|---|---|---|
| 10 | 60 | 73 |

* CT = A + H1 (see table on page 13)




**Sectional drawing GEMÜ 611**



# GEMÜ 671

## Diaphragm valve, manually operated

**Operator:** Handwheel, plastic, with optical position indicator

**Nominal sizes:** DN 15 - DN 100 (diaphragm size MG 25-100)

**Control function:** Manually operated

**Ambient temperature:** max. 60° C

**Valve body:** Bonnet for 2/2-way bodies, T bodies, M blocks, tank valves and valve configurations

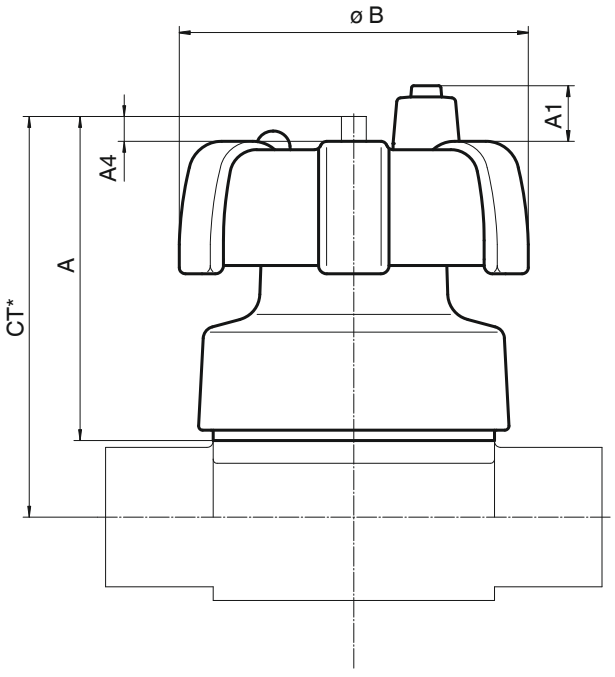
**Accessories:** Electrical remote indication that the valve is in the open position, lockable handwheel clamp

| Diaphragm size | DN | Diaphragm material | Operating temperature | Operating pressure |
|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] |
| 25 | 15 - 25 | EPDM | 0 - 80 | 0 - 10 |
| | | PTFE (5E, 5S) | | 0 - 6 |
| 40 | 32 - 40 | EPDM | | 0 - 10 |
| | | PTFE (5E, 5S) | | 0 - 6 |
| 50 | 50 | EPDM | | 0 - 10 |
| | | PTFE (5E, 5S) | | 0 - 6 |
| 80 | 65 - 80 | EPDM | | 0 - 10 |
| | | PTFE (5E, 5S) | | 0 - 6 |
| 100 | 100 | EPDM | | 0 - 10 |
| | | PTFE (52) | | 0 - 6 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.

| Bonnet dimensions GEMÜ 671 [mm] | | | | |
|---|---|---|---|---|
| Diaphragm size | Ø B | A | A1 | A4 |
| 25 | 90 | 85 | 14 | 8 |
| 40 | 114 | 102 | 14 | 13 |
| 50 | 140 | 120 | 8 | 13 |
| 80 | 214 | 166 | 17 | 25 |
| 100 | 214 | 222 | 25 | 37 |

* CT = A + H1 (see table on page 13)



# GEMÜ 615

## Diaphragm valve, pneumatically operated

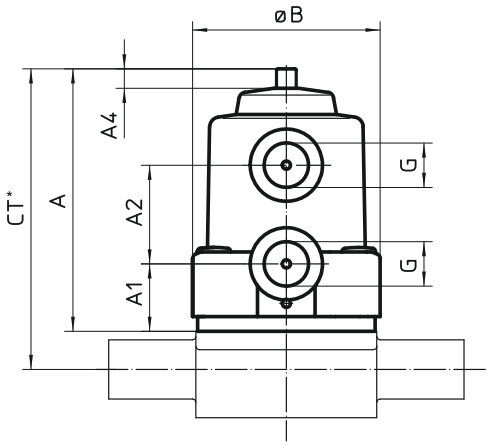
| | |
|---|---|
| **Operator:** | Piston actuator, plastic, with optical position indicator |
| **Nominal sizes:** | DN 10 - DN 20 (diaphragm size MG 10) |
| **Control function:** | Normally closed (NC), Code 1<br>Normally open (NO), Code 2<br>Double acting (DA), Code 3 |
| **Ambient temperature:** | max. 60° C |
| **Control medium:** | Inert gases, max. 40°C |
| **Valve body:** | Actuator for 2/2-way bodies, T bodies,<br>M blocks, tank valves and valve configurations |
| **Accessories:** | Stroke limiter,<br>electrical position indicator,<br>positioner and process controller |

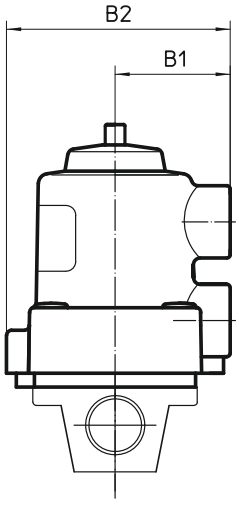
| Dia-phragm size | DN | Diaphragm material | Operating temperature | Oper-ating pressure | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] | [bar] |
| 10 | 10 - 20 | EPDM<br>PTFE (52) | 0 - 80 | 0 - 6 | 5 - 7 |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.

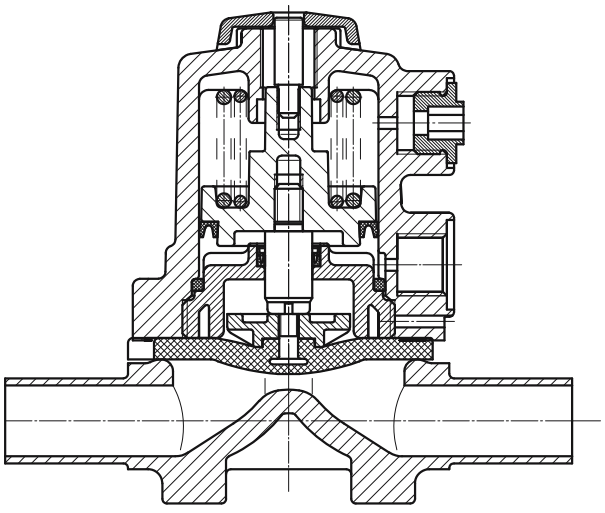
**Actuator dimensions GEMÜ 615 [mm]**

| Diaphragm size | A | A1 | A2 | B | B1 | B2 | A4 | G |
|---|---|---|---|---|---|---|---|---|
| 10 | 80 | 21 | 30 | 57 | 35 | 68 | 5.5 | G ¼ |




**Sectional drawing GEMÜ 615**



# GEMÜ 695

## Diaphragm valve, pneumatically operated

**Operator:** Membrane actuator, plastic

**Nominal sizes:** DN 15 - DN 50 (diaphragm size MG 25-50)

**Control function:** Normally closed (NC), Code 1
Normally open (NO), Code 2
Double acting (DA), Code 3

**Ambient temperature:** max. 60° C

**Control medium:** Inert gases, max. 40°C

**Valve body:** Actuator for 2/2-way bodies, T bodies,
M blocks, tank valves and valve configurations

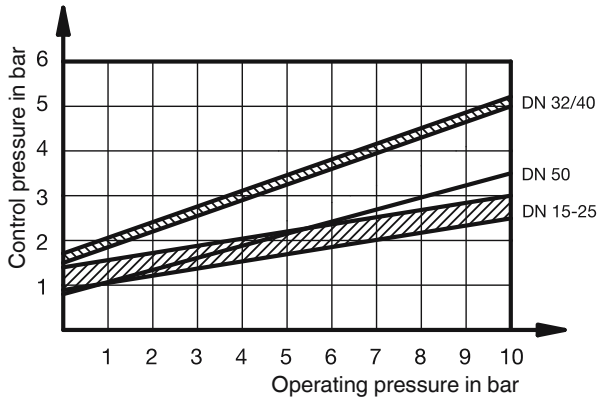
**Accessories:** Stroke limiter,
manual override,
electrical position indicators,
positioner and process controller,
optical position indicator

| Diaphragm size | DN | Diaphragm material | Operating temperature | Operating pressure C.f. 2 (NO) + 3 (DA) see diagram | Control pressure C.f. 1 (NC) EPDM/PTFE |
|---|---|---|---|---|---|
| MG | [mm] | Code | [°C] | [bar] | [bar] |
| 25 | 15 - 25 | EPDM<br>PTFE (5E, 5S) | 0 - 80 | 0 - 10<br>0 - 6 | 5.5 - 7 |
| 40 | 32 - 40 | EPDM<br>PTFE (5E, 5S) | | 0 - 10<br>0 - 6 | |
| 50 | 50 | EPDM<br>PTFE (5E, 5S) | | 0 - 10<br>0 - 6 | |

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side.
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.

## Operating pressure / Control pressure characteristics

### Control function 2 (NO) + 3 (DA)

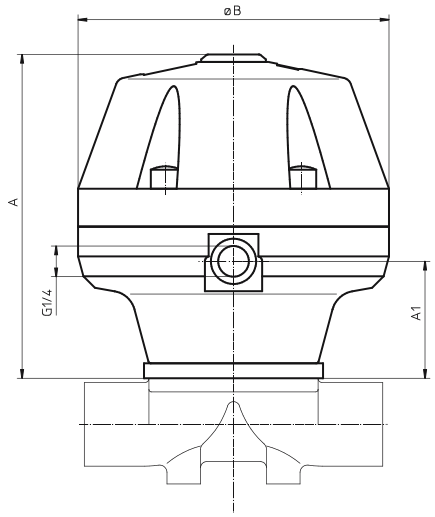



The values shown relate to control function 2 (with lifting spring).

For control function 3 (without lifting spring) control pressure is approx. 1 bar lower.

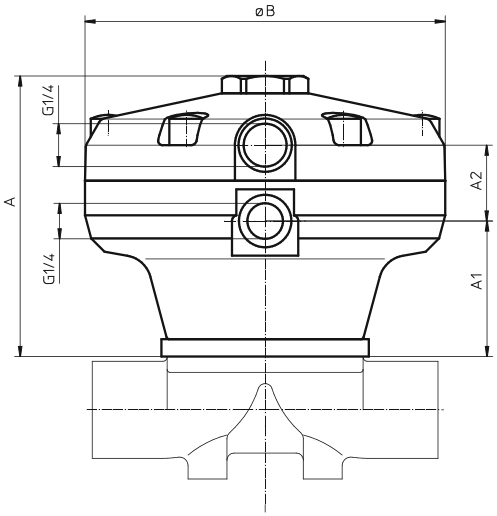
**Actuator dimensions GEMÜ 695**
**Control function 1 (NC) [mm]**

| Diaphragm size | DN | øB | A | A1 |
|---|---|---|---|---|
| 25 | 15 - 25 | 125 | 131 | 47 |
| 40 | 32 - 40 | 155 | 177 | 75 |
| 50 | 50 | 210 | 215 | 90 |




**Actuator dimensions GEMÜ 695**
**Control function 2 (NO) + 3 (DA) [mm]**

| Diaphragm size | DN | øB | A | A1 | A2 |
|---|---|---|---|---|---|
| 25 | 15 - 25 | 125 | 98 | 47 | 27 |
| 40 | 32 - 40 | 155 | 135 | 75 | 27 |
| 50 | 50 | 210 | 164 | 90 | 29 |



# Connections, valve body materials, availability of diaphragm valves DN 4 - DN 100, diaphragm size 8 - 100

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| **601/602** | **612** | **673** | **653** | **654** | **611** | **671** | **605** | **625** |
| Diaphragm size 8 DN 4 - 15 | Diaphragm size 10 DN 10 - 20 | Diaphragm size 25 - 50 DN 15 - 50 | Diaphragm size 10 - 100 DN 10 - 100 | Diaphragm size 8 - 100 DN 4 - 100 | Diaphragm size 10 DN 10 - 20 | Diaphragm size 25 - 100 DN 15 - 100 | Diaphragm size 8 DN 4 - 15 | Diaphragm size 10 DN 10 - 20 |

| Connection | Code |
|---|---|
| **Butt weld spigots** | |
| Butt weld spigots DIN | 0 |
| Butt weld spigots DIN 11850, series 1 | 16 |
| Butt weld spigots DIN 11850, series 2 | 17 |
| Butt weld spigots DIN 11850, series 3 | 18 |
| Butt weld spigots DIN 11866, series A | 1A |
| Butt weld spigots DIN 11866, series B | 1B |
| Butt weld spigots JIS-G 3447 | 35 |
| Butt weld spigots JIS-G 3459 | 36 |
| Butt weld spigots SMS 3008 | 37 |
| Butt weld spigots BS 4825, Part 1 | 55 |
| Butt weld spigots ASME BPE | 59 |
| Butt weld spigots EN ISO 1127 | 60 |
| Butt weld spigots ANSI/ASME B36.19M, Schedule 10s | 63 |
| Butt weld spigots ANSI/ASME B36.19M, Schedule 40s | 65 |
| **Clamp connections** | |
| Clamps ASME BPE for pipe ASME BPE , short design | 80 |
| Clamps following ASME BPE for pipe EN ISO 1127, length EN 558-1, series 7 | 82 |
| Clamps ASME BPE for pipe ASME BPE , length EN 558-1, series 7 | 88 |
| Clamps DIN 32676 for pipe DIN 11850 , length EN 558-1, series 7 | 8A |
| Clamps SMS 3017 for pipe SMS 3008 length EN 558-1, series 7 | 8E |
| Clamps IDF/ISO for pipe JIS-G 3447 length EN 558-1, series 7 | 8F |
| Clamps IDF/ISO for pipe JIS-G 3459 length EN 558-1, series 7 | 8H |

| Valve body material | Code |
|---|---|
| 1.4435 - BN2 (CF3M) - investment casting Fe<0.5% | 32 |
| 1.4435 (ASTM A 351 CF3M), investment casting* | 34 |
| 1.4435 (316L), forged body | 40 |
| 1.4435 (BN2), forged body Fe<0.5% | 42 |
| 1.4435 (316L), block material** | 41 |
| 1.4435 (BN2), block material Fe<0.5%** | 43 |

* Material equivalency 316 L
** only for body configuration B, M and T
Other materials on request.

**687**

Diaphragm
size 10 - 100
DN 10 - 100

**650**

Diaphragm
size 8 - 50
DN 4 - 50

**651**

Diaphragm
size 8 - 25
DN 4 - 25

**658/688**

Diaphragm
size 10 - 50
DN 10 - 50

**660**

Diaphragm
size 8 - 25
DN 4 - 25

**615**

Diaphragm
size 10 - 20
DN 10 - 20

**695**

Diaphragm
size 25 - 50
DN 15 - 50

**618**

Diaphragm
size 8 - 10
DN 4 - 20

**698**

Diaphragm
size 25 - 50
DN 15 - 50

## Overview of 2/2-way stainless steel valve bodies

| | | Butt weld spigots | | | | | | | | | | | | | | | | | | | | | | Clamps | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection code | | 0 | | 16 | | 17 | | 18 | | 1A | 1B | 35 | | 36 | 37 | | 55 | | 59 | | 60 | | 63 | 65 | 80 | | 82 | | 88 | 8A | 8E | 8F | 8H |
| Material Code | | 34 | 40 | 34 | 40 | 34 | 40 | 34 | 40 | 40 | 40 | 34 | 40 | 40 | 34 | 40 | 34 | 40 | 34 | 40 | 34 | 40 | 40 | 40 | 40 | 41 | 40 | 41 | 40 | 40 | 40 | 40 | 40 |
| MG | DN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 4 | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | | |
| | 6 | X | X | - | - | - | - | - | - | X | X | - | - | X | - | - | - | - | - | - | X | X | X | X | | | | | | | | | |
| | 8 | X | X | - | - | - | - | - | - | X | X | - | - | X | - | - | X | X | X | X | X | X | X | X | | V | V | | | | | | W |
| | 10 | - | - | X | X | X | X | X | X | X | - | - | - | - | - | - | X | X | X | X | - | - | - | - | | V | | | | W | | | |
| | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | X | X | X | X | - | - | - | - | | V | | | W | | | | |
| 10 | 10 | - | - | X | X | X | X | X | X | X | X | - | - | X | - | - | - | X | - | X | X | X | X | X | | | K | | | K | | | K |
| | 15 | X | X | X | X | X | X | X | X | X | X | - | - | X | - | - | X | X | - | X | X | X | X | X | K | | W | | K | K | | | K |
| | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | X | X | X | X | - | - | - | - | K | | | | K | | | | |
| 25 | 15 | X | X | X | X | X | X | - | X | X | X | - | - | X | - | - | - | - | - | - | X | X | X | X | K | | W | | K | K | | | K |
| | 20 | X | X | X | X | X | X | - | X | X | X | - | - | X | - | - | X | X | X | X | X | X | X | X | K | | K | | K | K | | | |
| | 25 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | - | X | X | X | X | X | X | K | | K | | K | K | K | K | |
| 40 | 32 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | X | X | X | X | | | W | | | K | K | K | |
| | 40 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | - | X | X | X | X | X | X | K | | W | | K | K | K | K | |
| 50 | 50 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | - | X | X | X | X | X | X | K | | W | | K | K | K | K | |
| 80 | 65 | - | - | - | - | - | X | - | - | X | X | - | X | X | - | X | - | - | - | X | - | X | X | X | K | | K | | K | K | K | K | |
| | 80 | - | - | - | - | - | X | - | - | X | X | - | X | X | - | X | - | - | - | X | - | X | X | X | K | | W | | K | W | W | K | |
| 100 | 100 | - | - | - | - | - | X* | - | - | X* | X* | - | X* | X* | - | X* | - | - | - | X* | - | X* | X* | X* | W | | W | | W | W | W | W | |

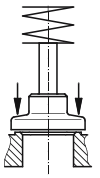
*Valve bodies are not suitable for use with diaphragm code 5E
X = Standard K = Connections completely machined (not welded) in material code 40
V = Block material W = Welded construction MG = diaphragm size

# Globe valves for steam applications

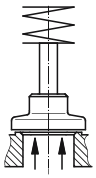
Sterile production plants normally use in-place sterilisation (SIP). Globe valves with simple on/off operation or more complex control functions control the steam. A valve with control function 1 (normally closed) is preferrably used so that it is only actuated for feeding steam. It is important when using globe valves that the valve spindle seal is always supplied with steam. This avoids external impurity ingress. The steam must always flow through the valve over the seat. To avoid water hammer with liquid media, exactly the opposite applies. Here the medium must flow under the seat.

Ideally, GEMÜ 550 and GEMÜ 554 angle seat globe valves should be used for controlling steam in sterile applications. Both valves can be fitted with electrical position indicators and controllers for automation. A variety of control tasks can be carried out in conjunction with regulating cones.

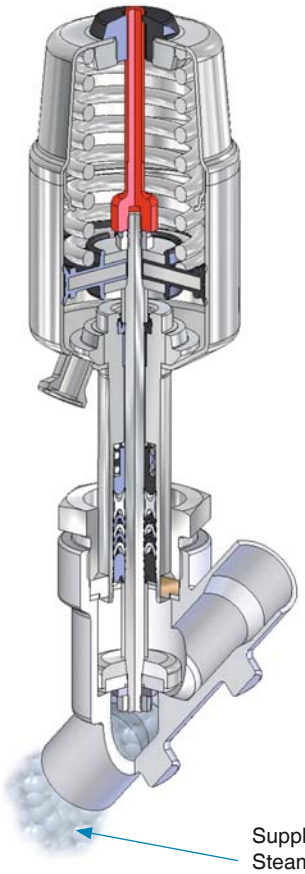
Other details on globe and control valves are to be found in our brochure "Globe valves - Automation and Control".



Flow
over the seat



Flow
under the seat

Supply:
Steam, gas

# GEMÜ 554

## 2/2-way angle seat globe valve, pneumatically operated

| | |
|---|---|
| **Operator:** | Piston actuator, plastic |
| **Nominal sizes:** | DN 10 – DN 80 |
| **Media temperature:** | -10 to 180°C |
| **Operating pressure:** | 0 - 25 bar |
| **Ambient temperature:** | max. 60° C |
| **Control medium:** | Inert gases, max. 40°C |
| **Option:** | Control version with regulating cone |
| **Explosion protection:** | According to EC directive 94/9/EC (ATEX 95a) for zone 1 and 2 on request |
| **Optional accessories:** | Position indicators, positioners and process controllers |

| Connection | Code |
|---|---|
| **Butt weld spigots** | |
| Spigots DIN | 0 |
| Spigots DIN 11850, series 1 | 16 |
| Spigots DIN 11850, series 2 | 17 |
| Spigots DIN 11850, series 3 | 18 |
| Spigots SMS 3008 | 37 |
| Spigots ASME BPE | 59 |
| Spigots EN ISO 1127 | 60 |
| **Threaded connections** | |
| Threaded sockets DIN ISO 228 | 1 |
| Threaded sockets BS 21 Rc | 3B |
| Threaded spigots DIN ISO 228 | 9 |
| Threaded sockets NPT | 31 |
| **Flanges** | |
| Flanges EN 1092 / PN25 / form B length see body dimensions | 13 |
| Flanges ANSI class 125/150 RF length see body dimensions | 47 |
| **Clamp connections** | |
| Clamps ASME BPE for pipe ASME BPE, short design | 80 |
| Clamps following ASME BPE for pipe EN ISO 1127, length EN 558-1, series 1 | 82 |
| Clamps DIN 32676 for pipe DIN 11850, length EN 558-1, series 1 | 86 |
| Clamps ASME BPE for pipe ASME BPE, length EN 558-1, series 1 | 88 |

| Valve body material | Code |
|---|---|
| Rg 5 cast bronze | 9 |
| 1.4435 (ASTM A 351 CF3M) investment casting* | 34 |
| 1.4408 investment casting | 37 |
| ASTM A 351 CF3M investment casting* | C1 |

* Material equivalency 316 L

| Seat seal | Code |
|---|---|
| PTFE | 5 |
| PTFE, glass reinforced | 5G |

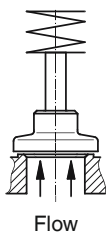
Other seat seals such as NBR, etc. available on request

| Control function | Code |
|---|---|
| Normally closed (NC) | 1 |
| Normally open (NO) | 2 |
| Double acting (DA) | 3 |

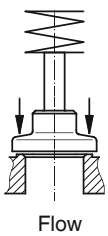
| Actuator size | Flow | Code |
|---|---|---|
| Actuator 0 piston ø 50 mm | under the seat* | 0* |
| Actuator 1 piston ø 70 mm | under the seat* | 1* |
| Actuator 2 piston ø 120 mm | under the seat* | 2* |
| Actuator 3 piston ø 50 mm | over the seat* | 3 |
| Actuator 4 piston ø 70 mm | over the seat* | 4 |

* Preferred flow direction with incompressible liquid media to avoid "water hammer"

Actuators 0, 1, 2



Flow under the seat



Actuators 3, 4

Flow over the seat

# GEMÜ 554

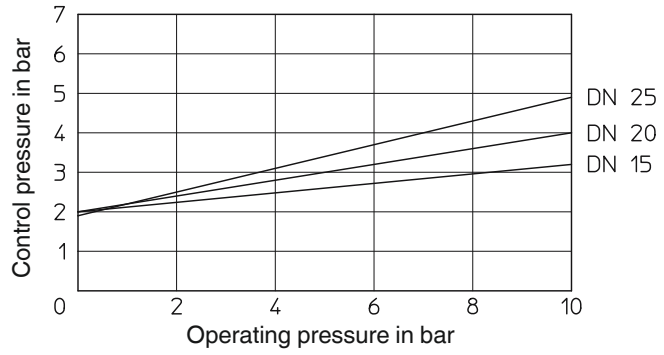
| Nominal size | Kv values | Max. operating pressure [bar] control function 1* | | | | | Min. control pressure C.f. 1 (NC) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [DN] | [m³/h] | Actuator size 0 piston ø 50 mm | Actuator size 3 piston ø 50 mm | Actuator size 1 piston ø 70 mm | Actuator size 4 piston ø 70 mm | Actuator size 2 piston ø 120 mm | Actuator size 0 | Actuator size 3 | Actuator size 1 | Actuator size 4 | Actuator size 2 |
| 10 | 4.5 | 12.0 | 10 | 25.0 | 10 | - | 4.8 - 7.0 | min. control pressure see diagram. max. control pressure 7 bar | 5.5 - 7.0 | min. control pressure see diagram. max. control pressure 7 bar | - |
| 15 | 5.4 | 12.0 | 10 | 25.0 | 10 | - | 4.8 - 7.0 | | 5.5 - 7.0 | | - |
| 20 | 10.0 | 6.0 | 10 | 20.0 | 10 | 25 | 4.8 - 7.0 | | 5.5 - 7.0 | | 4 - 7 |
| 25 | 15.2 | 2.5 | 10 | 10.0 | 10 | 25 | 4.8 - 7.0 | | 5.5 - 7.0 | | 4 - 7 |
| 32 | 23.0 | - | - | 7.0 | 10 | 16 | - | | 5.5 - 7.0 | | 4 - 7 |
| 40 | 41.0 | - | - | 4.5 | 10 | 12 | - | | 5.5 - 7.0 | | 4 - 7 |
| 50 | 68.0 | - | - | 3.0 | 10 | 10 | - | | 5.5 - 7.0 | | 5 - 7 |
| 65 | 95.0 | - | - | - | - | 7 | - | | - | | 5 - 7 |
| 80 | 130.0 | - | - | - | - | 5 | - | | - | | 5 - 7 |

* Please note that cast bronze valve bodies, when in pipe systems according to DIN are only suitable up to PN 16 max., cast stainless steel bodies up to PN 25. All pressures are gauge pressures. Min. control pressure for actuators 3 and 4 depends on operating pressure.
Kv values determined acc. to IEC 534 standard, body with threaded sockets DIN ISO 228.
The Kv value data refers to control function 1 (NC) and the largest actuator for each nominal size.
Kv values may be different for other combinations.

## Operating pressure / Control pressure characteristics

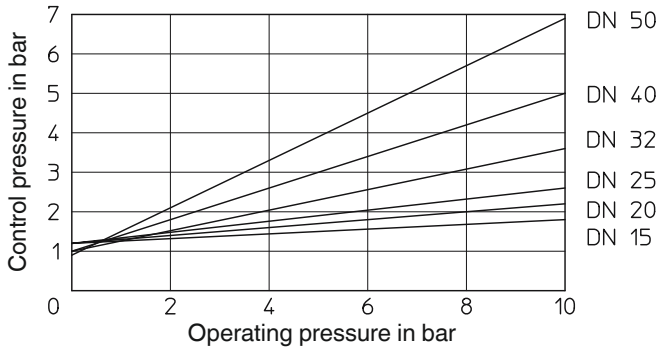
### Actuator size 3 / Normally closed (NC)

Min. control pressure dependent on operating pressure



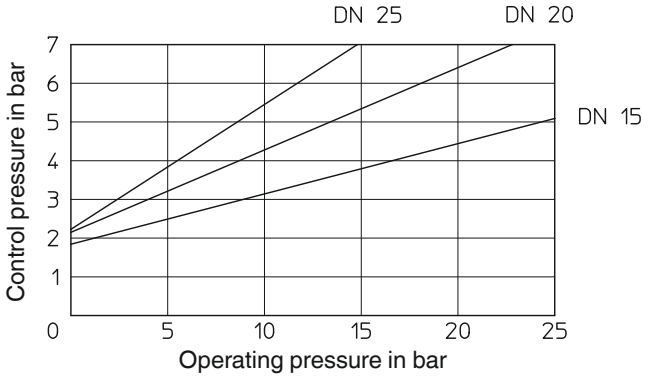

### Actuator size 4 / Normally closed (NC)

Min. control pressure dependent on operating pressure



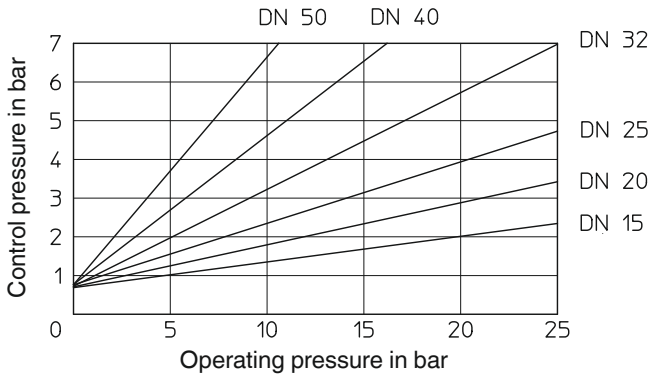

### Actuator size 0 / Normally open (NO)

Min. control pressure dependent on operating pressure




### Actuator size 1 / Normally open (NO)

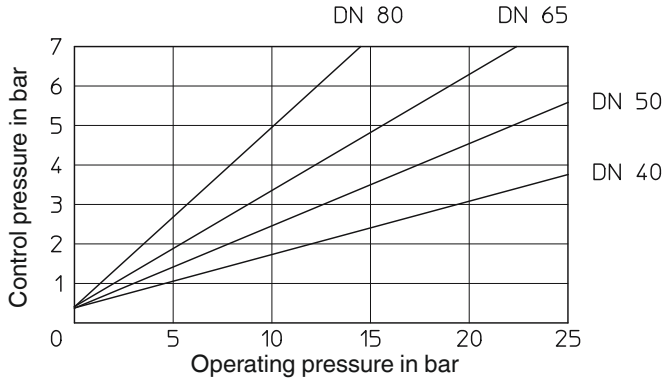
Min. control pressure dependent on operating pressure



## Operating pressure / Control pressure characteristics

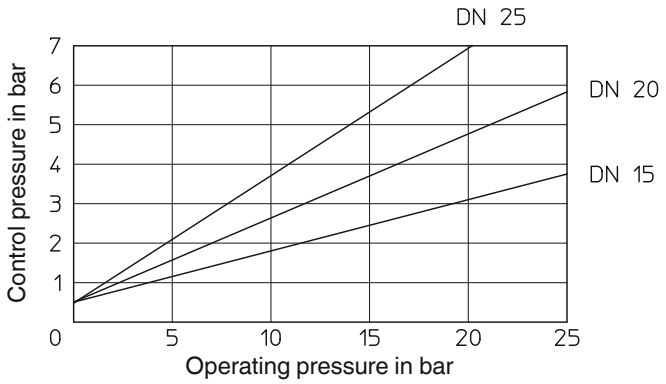
### Actuator size 2 / Normally open (NO)

Min. control pressure dependent on operating pressure



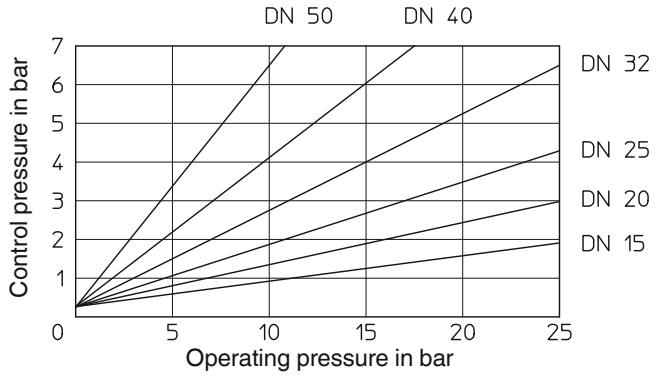

### Actuator size 0 / Double acting (DA)

Min. control pressure dependent on operating pressure



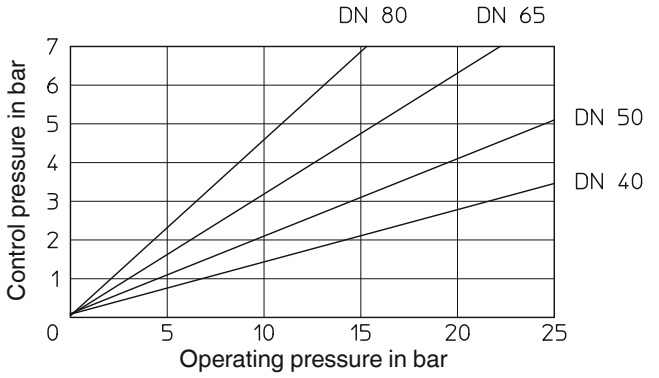

### Actuator size 1 / Double acting (DA)

Min. control pressure dependent on operating pressure



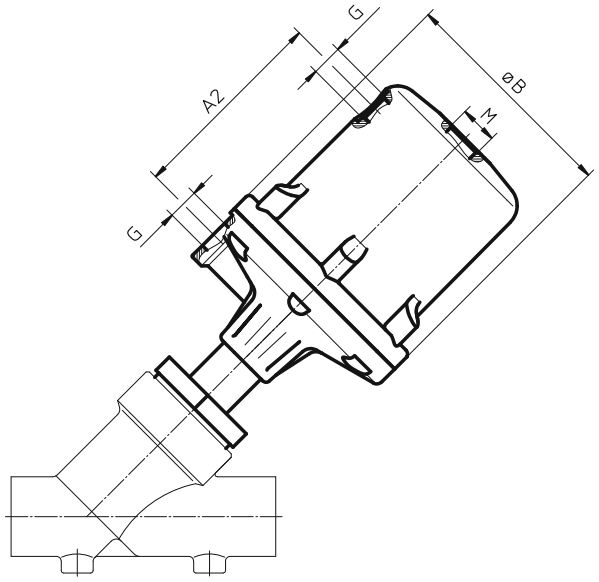

### Actuator size 2 / Double acting (DA)

Min. control pressure dependent on operating pressure



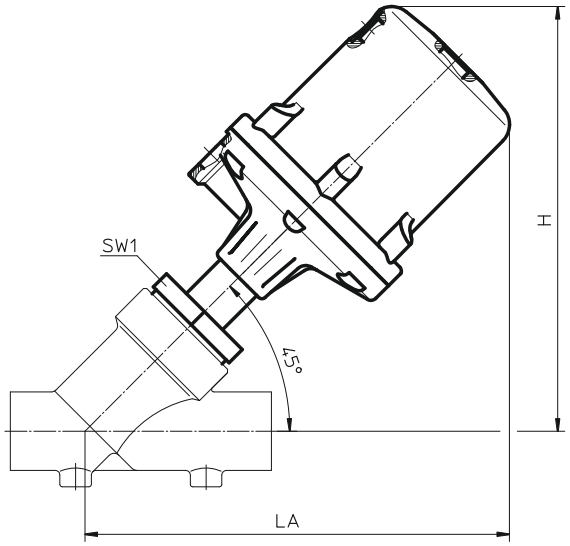

## Actuator dimensions GEMÜ 554 [mm]

| Actuator size | ø B | M | A2 | G |
|---|---|---|---|---|
| 0 + 3 | 72 | M 16x1 | 70 | ¼ |
| 1 + 4 | 96 | M 16x1 | 86 | ¼ |
| 2 | 168 | M 22x1.5 | 149 | ¼ |



# GEMÜ 554

| GEMÜ 554 - Installation dimensions [mm] / Weight [kg] | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Actuator size 0 and 3 | | Actuator size 1 and 4 | | Actuator size 2 | |
| DN | Wrench size SW1 | H/LA | Weight | H/LA | Weight | H/LA | Weight |
| 10 | 36 | 152 | - | - | - | - | - |
| 15 | 36 | 155 | 0.9 | 182 | 1.4 | - | - |
| 20 | 41 | 165 | 1.1 | 192 | 1.6 | 279 | - |
| 25 | 46 | 165 | 1.3 | 192 | 1.8 | 279 | - |
| 32 | 55 | - | - | 200 | 2.4 | 287 | 5.1 |
| 40 | 60 | - | - | 206 | 2.7 | 293 | 6.0 |
| 50 | 75 | - | - | 214 | 3.4 | 301 | 6.9 |
| 65 | 75 | - | - | - | - | 313 | 8.5 |
| 80 | 75 | - | - | - | - | 330 | 10.1 |




| Overview of metal bodies for GEMÜ 554 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection code | 1 | | 3B | | 9 | | 31 | | 13 | 47 | 0 | 16 | 17 | | 18 | 37 | | 59 | | 60 | | 80 | 82 | 86 | 88 |
| Material code | 9 | 37 | 9 | C1 | 9 | 37 | 9 | C1 | 34 | 34 | 34 | 34 | 34 | 37 | 34 | 34 | 37 | 34 | 37 | 34 | 37 | 34 | 34 | 34 | 34 |
| DN 10 | - | X | - | - | - | - | - | - | - | - | - | X | X | - | X | - | - | - | - | X | - | - | - | - | - |
| DN 15 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | - | X | - | X | X | X | X | X | X |
| DN 20 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | - | X | - | X | X | X | X | X | X |
| DN 25 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | X | - | X | X | X | X | X | X |
| DN 32 | X | X | X | - | - | X | X | - | X | X | - | X | X | X | X | - | - | - | - | X | X | - | X | X | - |
| DN 40 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | X | - | X | X | X | X | X | X |
| DN 50 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | X | - | X | X | X | X | X | X |
| DN 65 | X | X | X | - | X | X | X | - | - | - | - | - | - | X | - | - | X | - | X | - | X | - | - | - | - |
| DN 80 | X | X | X | - | X | X | X | - | - | - | - | - | - | X | - | - | X | - | X | - | X | - | - | - | - |

# GEMÜ 550

## 2/2-way angle seat globe valve, pneumatically operated

**Operator:** Piston actuator, stainless steel, blasted

**Nominal sizes:** DN 6 – DN 80

**Media temperature:** -10°C to 180 °C (Other versions for lower/higher temperatures on request.)

**Operating pressure:** 0 - 25 bar

**Ambient temperature:** max. 60° C

**Option:** Control version with regulating cone

**Explosion protection:** According to EC directive 94/9/EC (ATEX 95a) for zone 1 and 2 on request

**Optional accessories:** Stroke limiter, position indicators, positioners and process controllers

| Connection | Code |
|---|---|
| **Butt weld spigots** | |
| Spigots DIN | 0 |
| Spigots DIN 11850, series 1 | 16 |
| Spigots DIN 11850, series 2 | 17 |
| Spigots DIN 11850, series 3 | 18 |
| Spigots SMS 3008 | 37 |
| Spigots ASME BPE | 59 |
| Spigots EN ISO 1127 | 60 |
| **Threaded connections** | |
| Threaded sockets DIN ISO 228 | 1 |
| Threaded sockets BS 21 Rc | 3B |
| Threaded spigots DIN ISO 228 | 9 |
| Threaded sockets NPT | 31 |
| **Flanges** | |
| Flanges EN 1092 / PN16 / form B length EN 558-1, series 1 ISO 5752, basic series 1 | 8 |
| Flanges EN 1092 / PN25 / form B length EN 558-1, series 1 | 10 |
| **Clamp connections** | |
| Clamps following ASME BPE for pipe EN ISO 1127, length EN 558-1, series 1 | 82 |
| Clamps DIN 32676 for pipe DIN 11850, length EN 558-1, series 1 | 86 |
| Clamps ASME BPE for pipe ASME BPE, length EN 558-1, series 1 | 88 |

| Valve body material | Code |
|---|---|
| 1.4435 (ASTM A 351 CF3M) investment casting* | 34 |
| 1.4408 investment casting | 37 |
| 1.4435 (316L) forged body | 40 |
| ASTM A 351 CF3M investment casting* | C1 |

* Material equivalency 316 L

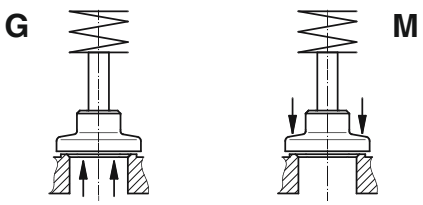
| Seat seal | Code |
|---|---|
| PTFE | 5 |
| PTFE, glass reinforced | 5G |

Other seat seals such as NBR, etc. available on request

| Control function | Code |
|---|---|
| Normally closed (NC) | 1 |
| Normally open (NO) | 2 |
| Double acting (DA) | 3 |

| Actuator size | | Code |
|---|---|---|
| Actuator 0 | piston ø 28 mm | 0 |
| Actuator 1 | piston ø 42 mm | 1 |
| Actuator 2 | piston ø 60 mm | 2 |
| Actuator 3 | piston ø 80 mm | 3 |
| Actuator 4 | piston ø 100 mm | 4 |
| Actuator 5 | piston ø 130 mm | 5 |

| Flow direction | Code |
|---|---|
| Under the seat* | G* |
| Over the seat | M |




* Preferred flow direction with incompressible liquid media to avoid "water hammer"

# GEMÜ 550

| Nominal size | Kv values | Max. operating pressure [bar] Normally closed (NC) Flow direction: under the seat | | | | | | Max. operating pressure [bar] Normally closed (NC) Flow direction: over the seat | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | [m³/h] | Actuator size 0G piston ø 28 mm | Actuator size 1G piston ø 42 mm | Actuator size 2G piston ø 60 mm | Actuator size 3G piston ø 80 mm | Actuator size 4G piston ø 100 mm | Actuator size 5G piston ø 130 mm | Actuator size 0M piston ø 28 mm | Actuator size 1M piston ø 42 mm | Actuator size 2M piston ø 60 mm | Actuator size 3M piston ø 80 mm |
| 8 | 2.1 | 10 | - | - | - | - | - | 10 | - | - | - |
| 10 | 2.4 | 10 | - | - | - | - | - | 10 | - | - | - |
| 15 | 2.4 | 10 | - | - | - | - | - | 10 | - | - | - |
| 10 | 4.5 | - | 15 | - | - | - | - | - | 10 | - | - |
| 15 | 5.4 | - | 11 | 25 | - | - | - | - | 10 | 10 | - |
| 20 | 10.0 | - | 6 | 15 | 25 | - | - | - | 10 | 10 | 10 |
| 25 | 15.2 | - | - | 8 | 16 | 25 | - | - | - | 10 | 10 |
| 32 | 23.0 | - | - | 5 | 10 | 18 | 25 | - | - | - | 10 |
| 40 | 41.0 | - | - | - | 6 | 12 | 20 | - | - | - | 10 |
| 50 | 68.0 | - | - | - | 3 | 7 | 15 | - | - | - | 10 |
| 65 | 95.0 | - | - | - | - | - | 10 | - | - | - | - |
| 80 | 130.0 | - | - | - | - | - | 8 | - | - | - | - |

All pressures are gauge pressures. When the flow is over the seat (M), there may be the danger of water hammer with liquid media! Please note that cast bronze valve bodies, when in pipe systems according to DIN are only suitable up to PN 16 max., cast stainless steel bodies up to PN 25.
Kv values determined acc. to IEC 534 standard, body with threaded sockets DIN ISO 228.
The Kv value data refers to control function 1 (NC) and the largest actuator for each nominal size.
Kv values may be different for other combinations.

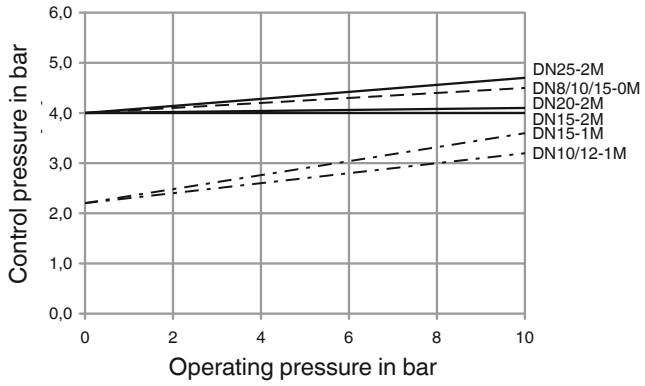
| Nominal size | Control pressure [bar] Normally closed (NC) Flow direction: under the seat | | | | | | Control pressure [bar] Normally closed (NC) Flow direction: over the seat | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DN | Actuator size 0G piston ø 28 mm | Actuator size 1G piston ø 42 mm | Actuator size 2G piston ø 60 mm | Actuator size 3G piston ø 80 mm | Actuator size 4G piston ø 100 mm | Actuator size 5G piston ø 130 mm | Actuator size 0M piston ø 28 mm | Actuator size 1M piston ø 42 mm | Actuator size 2M piston ø 60 mm | Actuator size 3M piston ø 80 mm |
| 8 | 4 - 8 | - | - | - | - | - | 5 - 8 | - | - | - |
| 10 | 4 - 8 | - | - | - | - | - | 5 - 8 | - | - | - |
| 15 | 4 - 8 | - | - | - | - | - | 5 - 8 | - | - | - |
| 10 | - | 4 - 8 | - | - | - | - | - | 5 - 8 | - | - |
| 15 | - | 4 - 8 | 4 - 8 | - | - | - | - | 5 - 8 | 5 - 8 | - |
| 20 | - | 4 - 8 | 4 - 8 | 4 - 8 | - | - | - | 5 - 8 | 5 - 8 | 5 - 8 |
| 25 | - | - | 4 - 8 | 4 - 8 | 4 - 8 | - | - | - | 5 - 8 | 5 - 8 |
| 32 | - | - | 4 - 8 | 4 - 8 | 4 - 8 | 5 - 8 | - | - | - | 5 - 8 |
| 40 | - | - | - | 4 - 8 | 4 - 8 | 5 - 8 | - | - | - | 5 - 8 |
| 50 | - | - | - | 4 - 8 | 4 - 8 | 5 - 8 | - | - | - | 5 - 8 |
| 65 | - | - | - | - | - | 5 - 8 | - | - | - | - |
| 80 | - | - | - | - | - | 5 - 8 | - | - | - | - |

Higher control pressures on request.

## Operating pressure / Control pressure characteristics

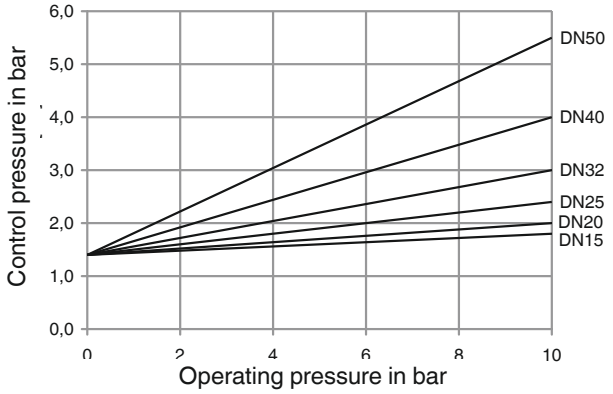
### Actuator size 1 0M, 1 1M, 1 2M / Normally closed (NC)

Min. control pressure dependent on operating pressure



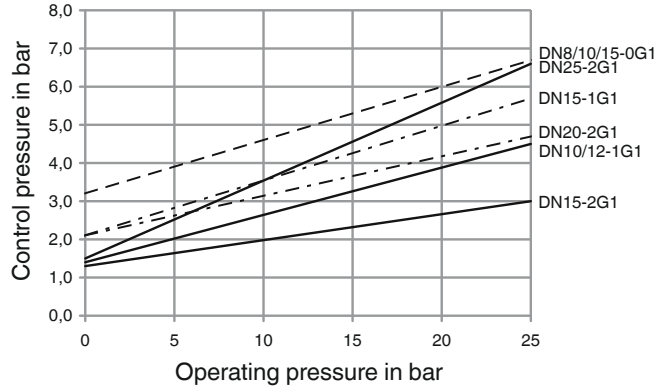

### Actuator size 1 3M / Normally closed (NC)

Min. control pressure dependent on operating pressure



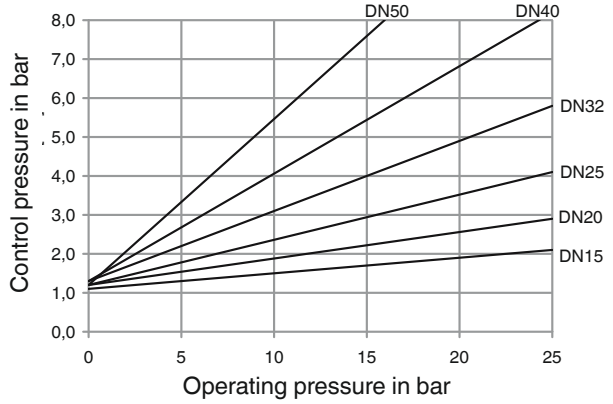

### Actuator size 2 0G1, 2 1G1, 2 2G1 / Normally open (NO)

Min. control pressure dependent on operating pressure



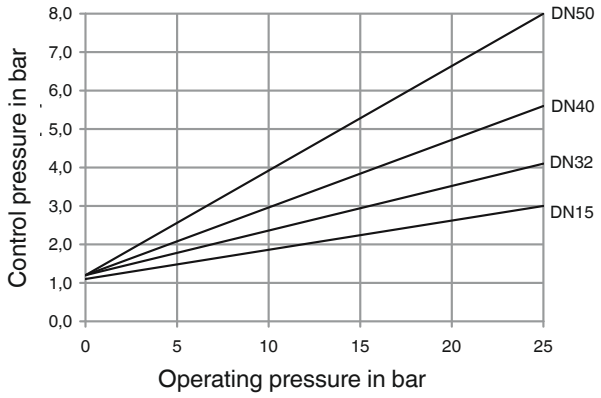

### Actuator size 2 3G1 / Normally open (NO)

Min. control pressure dependent on operating pressure



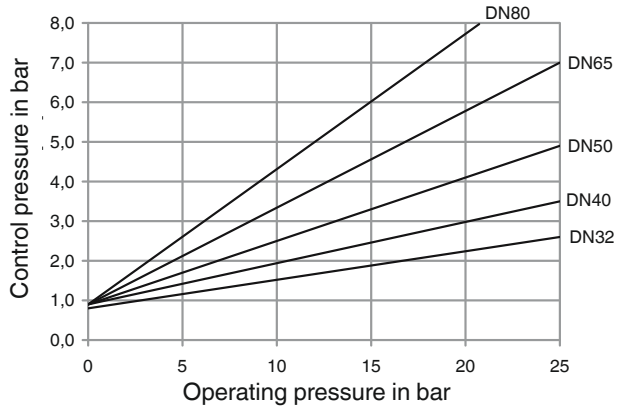

### Actuator size 2 4G1 / Normally open (NO)

Min. control pressure dependent on operating pressure




### Actuator size 2 5G1 / Normally open (NO)

Min. control pressure dependent on operating pressure

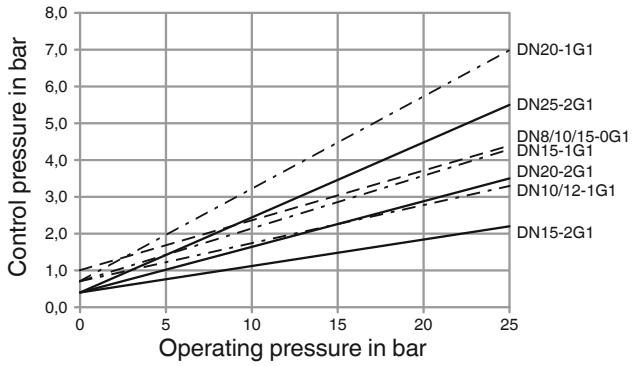


# GEMÜ 550

## Operating pressure / Control pressure characteristics

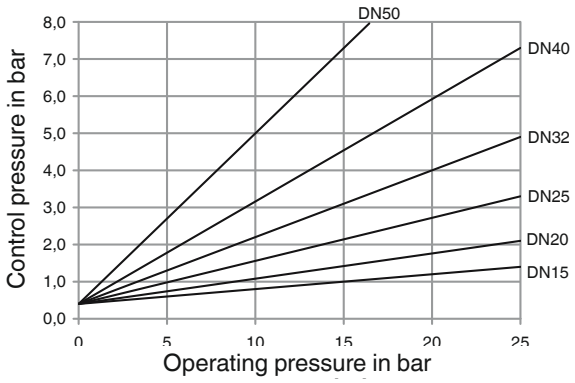
### Actuator size 3 0G1, 1G1, 2G1 / Double acting (DA)

Min. control pressure dependent on operating pressure



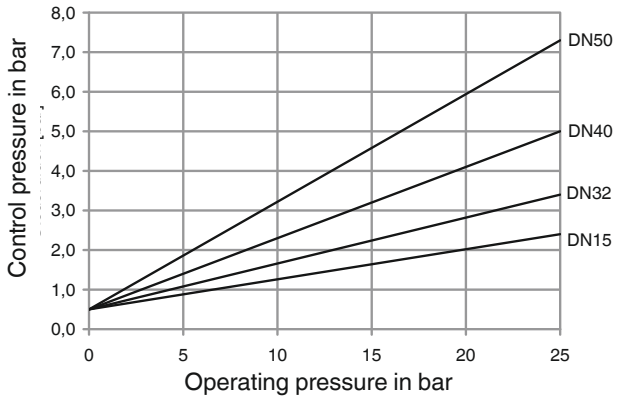

### Actuator size 3 3G1 / Double acting (DA)

Min. control pressure dependent on operating pressure



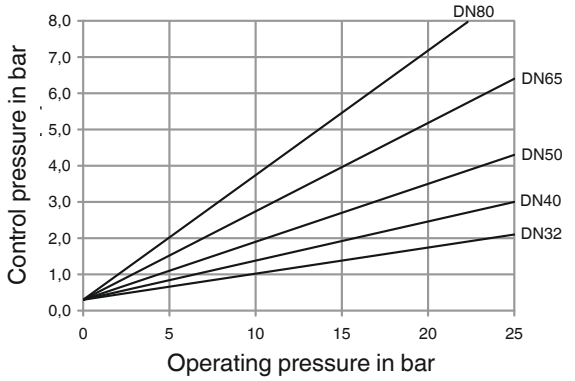

### Actuator size 3 4G1 / Double acting (DA)

Min. control pressure dependent on operating pressure




### Actuator size 3 5G1 / Double acting (DA)

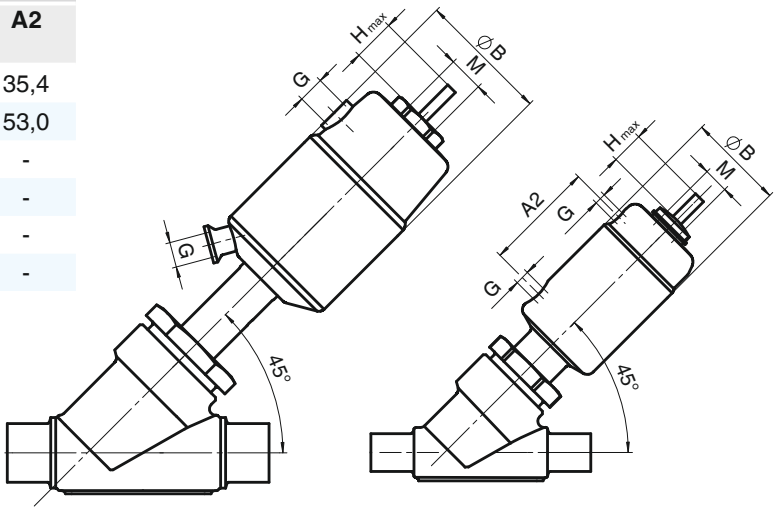
Min. control pressure dependent on operating pressure




## Actuator dimensions

| Actuator size | øB | M | H max* | G | A2 |
|---|---|---|---|---|---|
| 0 | 32 | M 12x1 | 6 | M5 | 35,4 |
| 1 | 46 | M 16x1 | 12 | G⅛ | 53,0 |
| 2 | 63 | M 16x1 | 22 | G⅛ | - |
| 3 | 84 | M 16x1 | 28 | G ¼ | - |
| 4 | 104 | M 22x1.5 | 32 | G ¼ | - |
| 5 | 135 | M 22x1.5 | 41 | G ¼ | - |

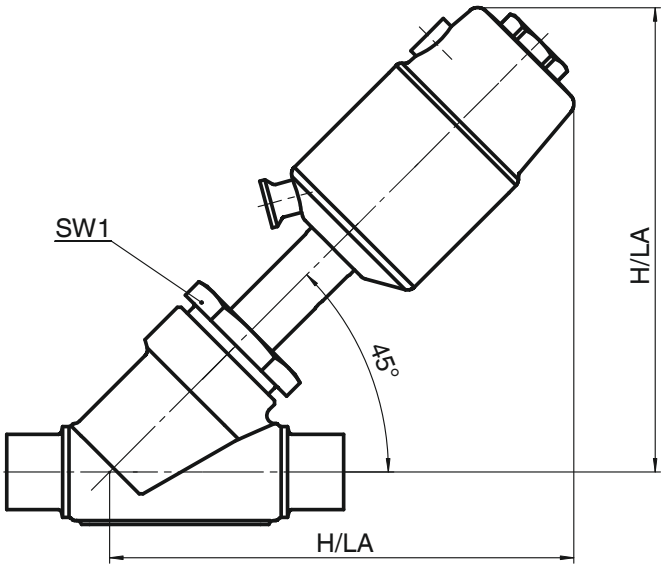
H max*: dependent on nominal size




Actuator size 2 - 5

Actuator size 0, 1

| Installation dimensions / Actuator weight (without body) [kg] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | Wrench size | Actuator size 0 | | Actuator size 1 | | Actuator size 2 | | Actuator size 3 | | Actuator size 4 | | Actuator size 5 | |
| | SW1 | H/LA | Weight | H/LA | Weight | H/LA | Weight | H/LA | Weight | H/LA | Weight | H/LA | Weight |
| 8 | 24 | 88 | 0.24 | - | - | - | - | - | - | - | - | - | - |
| 10 | 24 | 88 | 0.24 | - | - | - | - | - | - | - | - | - | - |
| 15 | 24 | 88 | 0.24 | - | - | - | - | - | - | - | - | - | - |
| 10 | 36 | - | - | 130 | 0.62 | - | - | - | - | - | - | - | - |
| 15 | 36 | - | - | 133 | 0.66 | 170 | 0.97 | - | - | - | - | - | - |
| 20 | 41 | - | - | 143 | 0.73 | 180 | 1.00 | 198 | 1.7 | - | - | - | - |
| 25 | 46 | - | - | - | - | 180 | 1.10 | 198 | 1.8 | 231 | 3.2 | - | - |
| 32 | 55 | - | - | - | - | 188 | 1.30 | 206 | 2.0 | 239 | 3.4 | 265 | 6.5 |
| 40 | 60 | - | - | - | - | - | - | 212 | 2.1 | 245 | 3.5 | 271 | 6.6 |
| 50 | 75 | - | - | - | - | - | - | 220 | 2.3 | 253 | 3.7 | 279 | 6.8 |
| 65 | 75 | - | - | - | - | - | - | - | - | - | - | 291 | 7.4 |
| 80 | 75 | - | - | - | - | - | - | - | - | - | - | 308 | 8.1 |




| Overview of metal bodies for GEMÜ 550 with actuator size 0 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Connection code | 1 | 9 | 31 | 0 | 16 | 17 | 18 | 59 | 60 |
| Material code | 37 | 37 | 37 | 40 | 40 | 40 | 40 | 40 | 40 |
| DN 8 | X | X | X | X | - | - | - | - | X |
| DN 10 | X | X | X | - | X | X | X | X | - |
| DN 15 | X | X | X | - | - | - | - | X | - |

| Overview of metal bodies for GEMÜ 550 with actuator size 1, 2, 3, 4, 5 | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection code | 1 | 3B | 9 | 31 | 0 | 16 | 17 | | 18 | 37 | | 59 | | 60 | | 80 | 82 | 86 | 88 | 8 | 10 | 13 | 47 |
| Material code | 37 | C1 | 37 | C1 | 34 | 34 | 34 | 37 | 34 | 34 | 37 | 34 | 37 | 34 | 37 | 34 | 34 | 34 | 34 | 37 | 37 | 34 | 34 |
| DN 10 | X | - | - | - | - | X | X | - | X | - | - | - | - | X | - | - | - | - | - | - | - | - | - |
| DN 15 | X | X | X | X | X | X | X | X | X | - | - | X | - | X | X | X | X | X | X | - | X* | X | X |
| DN 20 | X | X | X | X | X | X | X | X | X | - | - | X | - | X | X | X | X | X | X | - | X* | X | X |
| DN 25 | X | X | X | X | X | X | X | X | X | X | - | X | - | X | X | X | X | X | X | - | X* | X | X |
| DN 32 | X | - | X | - | - | X | X | X | X | - | - | - | - | X | X | - | X | X | - | - | - | X | X |
| DN 40 | X | X | X | X | X | X | X | X | X | X | - | X | - | X | X | X | X | X | X | - | X* | X | X |
| DN 50 | X | X | X | X | X | X | X | X | X | X | - | X | - | X | X | X | X | X | X | X* | - | X | X |
| DN 65 | X | - | X | - | - | - | - | X | - | - | X | - | X | - | X | - | - | - | - | - | - | - | - |
| DN 80 | X | - | X | - | - | - | - | X | - | - | X | - | X | - | X | - | - | - | - | - | - | - | - |

* Flange connections cannot be combined with all actuator sizes. For details see technical data sheet.

# Overview of GEMÜ positioners

In addition to the process parameters and the control system for which a positioner must be suitable, other technical functions and properties also play an important part in the selection of the right positioner.

To make your choice easier, we have placed the four GEMÜ positioners in a comparison based on important features.


**Positioners and process controllers**

Complete overview of the GEMÜ positioners.

| | Electro-pneumatic positioners for pneumatic actuators | | | 3-point controller for motorized actuators |
|---|---|---|---|---|
| |  |  |  |  |
| **Function / Features** | **1434 µPos** | **1435 ePos** | **1436 cPos** | **1283** |
| **Controller type** | | | | |
| Positioner | ● | ● | ● | ● |
| Process controller | | | ● | |
| **Control air flow** | | | | |
| Version 1 | 15 l/min | 50 l/min | 100 l/min | |
| Version 2 | | 90 l/min | 180 l/min | |
| **Operation** | | | | |
| Local display / keypad | | ● | ● | ● |
| Status display | ● | ● | ● | ● |
| Web browser user | | | ● | |
| Field bus option (Profibus DP, Device Net) | | | ● | |
| **Signal** | | | | |
| 24V DC / 3-wire | ● | ● | ● | ● |
| **Housing** | | | | |
| Plastic | ● | | ● | ● |
| Aluminium | | ● | | |
| **Functions** | | | | |
| Automatic initialisation | ● | ● | ● | ● |
| Alarm / error outputs | | ● | ● | |
| Min/max positions adjustable | | ● | ● | ● |
| **Mounting** | | | | |
| Direct mounting to linear actuators | ● | ● | ● | ● |
| Remote mounting to linear actuators | ● | ● | ● | ● |
| Direct mounting to quarter turn actuators | | ● | ● | |
| Remote mounting to quarter turn actuators | | ● | ● | |
| **Control function of valve actuator** | | | | |
| Control function 1, normally closed (NC) | ● | ● | ● | |
| Control function 2, normally open (NO) | ● | ● | ● | |
| Control function 3, double acting (DA) | | ● | ● | |
| Motorized actuators | | | | ● |

# GEMÜ 1434 µPos

## Electro-pneumatic positioner

### Construction

The GEMÜ 1434 µPos digital positioner detects the valve position via its longlife travel sensor. It was specially designed for small linear valve actuators and has a light, plastic and aluminium housing.

### Features/Functions

- Automatic initialisation by 24 VDC signal
- Automatically optimises the valve control during initialisation
- No air consumption when idle
- Suitable for single acting linear actuators
- Push-in pneumatic air connectors

### Advantages

- Compact construction, small dimensions
- Remote mounting of positioner and travel sensor is possible
- Integrated potentiometer
- Low investment costs
- Low operating costs, no air consumption when idle
- Fast commissioning, no need to open the housing
- Simple operation
- Easy mounting to GEMÜ valves and other makes
- Simple electrical and pneumatic connection
- Speed-$^{AP}$ function

## Technical data:

| | |
|---|---|
| **Air output:** | 15 l/min |
| **Connection:** | 3/4-wire |
| **Integrated travel sensor:** | 10 mm, 30 mm or external travel sensor |
| **Power supply:** | 24 VDC +10% / -5% |
| **Set value input:** | 4 - 20 mA (optional 0 - 20 mA, 0 - 10V) |
| **Initialisation input:** | 24 VDC |
| **Output signals:** | optional 0 - 20 mA<br>4 - 20 mA, 0 - 10V |
| **Control air:** | 0 - 10 bar |
| **Total error:** | < 1% |
| **Temperature range:** | 0°C to 60°C |

# GEMÜ 1435 ePos

## Electro-pneumatic positioner

### Construction

The GEMÜ 1435 ePos digital electro-pneumatic positioner detects the valve position via its longlife travel sensor. It has a solid metal housing with protected operating buttons and an easy to read LC display with background light. The operating times can be set by integrated throttles.

### Features/Functions

- Simple, self-explanatory menu
- Automatic initialisation function
- Automatically optimises the valve control during initialisation
- Fail safe function in case of compressed air and power supply failure
- No air consumption when idle
- Adjustable digital outputs for limit values
- Adjustable alarm functions
- Operation by fascia buttons
- Suitable for quarter turn or linear actuators
- Can be used for single or double acting actuators

### Advantages

- Remote mounting of positioner and travel sensor is possible
- Low operating costs, no air consumption when idle
- High air output for larger actuators
- Fast commissioning
- Simple operation
- Easy mounting to the valve
- Simple electrical connection by detachable terminals
- Speed-$^{AP}$ function



## Technical data:

| | |
|---|---|
| **Air output:** | 50 l/min, 90 l/min |
| **Connection:** | 3/4-wire |
| **Power supply:** | 24 VDC ±10% |
| **Set value input:** | 0/4 - 20 mA, 0 - 10 V |
| **Output signals:** | 0 - 10 V<br>(4-20 mA optional),<br>24 VDC, digital output |
| **Control air:** | 0 - 6 bar |
| **Total error:** | < 1% |
| **Temperature range:** | 0°C to 60°C (-20°C to 60°C with heating element) |

# Remote positioner mounting


# GEMÜ 1436 cPos

## Electro-pneumatic positioner with integrated process controller

### Construction

The GEMÜ 1436 cPos digital electro-pneumatic positioner with an integrated process controller is for the control of liquids, gases and steam.
The signals coming from the process sensor (e.g. flow, level, pressure, temperature) are detected by the optional process controller and adjusted according to the specified set value. The membrane keypad and the backlit display are arranged at the front. Pneumatic and electrical connections are at the rear. Integrated pneumatic throttles allow regulation of the control air to adapt the controller to different valve actuators and actuating speeds.

### Features/Functions

- PID process controller available
- Remote control
- Diagnostics, alarms, monitoring
- Integrated Web browser capability
- Parameter sets can be saved and reloaded
- User levels (access authorisation)
- Field bus: Profibus DP, Device Net
- Serial communication (notebook, industrial modem)
- Optional wireless communication via Bluetooth
- Simple, self-explanatory menu
- Automatically optimises the valve control during automatic initialisation
- Fail safe function in case of compressed air and power supply failure
- Optional digital inputs
- Freely configurable relay outputs

### Advantages

- Parameterisation during operation
- Remote mounting of positioner and travel sensor is possible
- Low operating costs, no air consumption when idle
- High air output for larger actuators
- Fast commissioning
- Simple operation
- No air consumption when idle
- Easy mounting to the valve
- Speed-$^{AP}$ function
- **e**.$^{sy}$-com interface


## Technical data:

| | |
|---|---|
| **Air output:** | 100 l/min, 180 l/min |
| **Connection:** | 3/4-wire |
| **Integrated travel sensor:** | 30 mm, 50 mm, 75 mm, 90° or external travel sensor |
| **Power supply:** | 24 VDC ±10% |
| **Set value input:** | 0/4 - 20 mA |
| **Actual value input for process controller:** | 0/4 - 20 mA |
| **Output signals:** | 4 - 20 mA, 24 VAC, digital output |
| **Interfaces:** | RS 232, Profibus DP, Device Net |
| **Control air:** | 0 - 7 bar |
| **Total error:** | < 1% |
| **Temperature range:** | 0°C to 60°C |

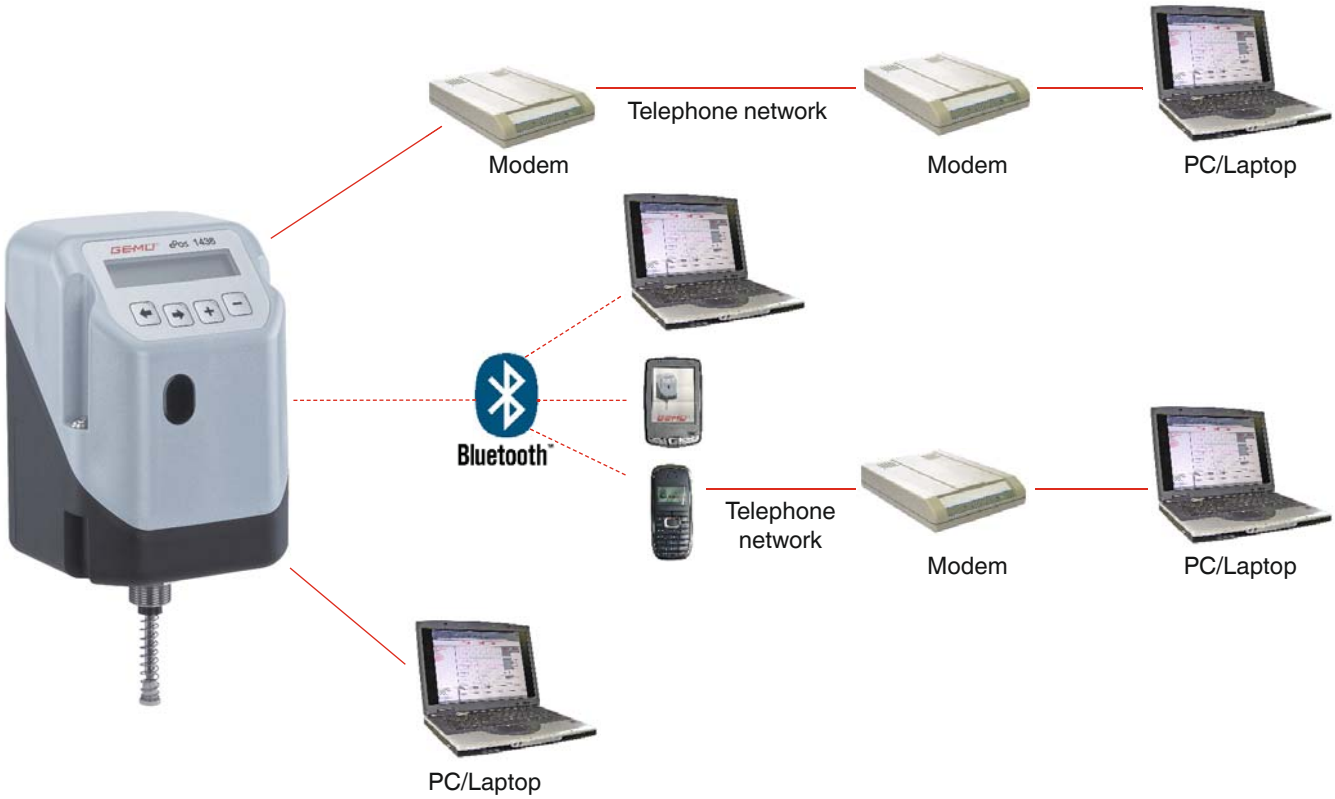
**Remote Control - Diagnostics - Monitoring**

With the **e.**sy-com interface it is possible to connect different equipment with the GEMÜ 1436 cPos.

Thanks to the integrated web browser, a user-friendly environment was created that enables use without software installation, and it only requires a standard internet browser (Opera, Windows Explorer, Firefox).

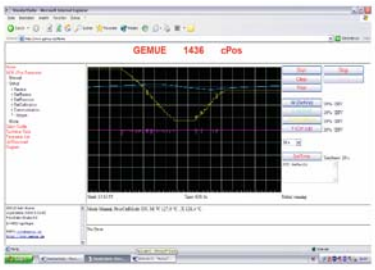
A number of different operating and monitoring possibilities for programming, evaluation and diagnostics are available to the user. The integration of graphical analysis in the software enables the representation of all relevant data for control in real time curves, supports the user in the exact analysis of his position and process control and helps him to set the PID parameters.

In addition, the **e.**sy-com gives the possibility to download all parameters of the GEMÜ 1436 cPos as a text file or as a parameter file and to save them on a PC or laptop. This parameter file can then be loaded on other controllers and accelerates the commissioning of identical plant or machine parts.




Intuitive operation

Upload and download function



Graphical analysis

# Direct and remote positioner mounting

# GEMÜ 1283

## 3-point controller

### Construction

The GEMÜ 1283 is used for the manual or automatic setting or regulation of motorized valves, e.g. GEMÜ 563/568, 613/618 and 693/698. The 3-point controller compares the set value entered via the fascia keys or a 0/4 - 20 mA standard signal with the actual detected value from the motorized valve. The valve adjustment Open/Closed is initiated by relays. These are energized until the difference between the actual and set value is less than the switching hysteresis.
The switch points are adjustable with the fascia keys as an opening or closing stroke limit over the whole control range.

### Features/Functions

- Suitable for panel mounting or direct mounting to the valve
- Two relay outputs for valve control
- Readjustment of the valve position
- Easy to read 7-segment display
- Automatic setting of end position
- Adjustable opening or closing stroke limitation
- Automatic initialisation
- Optional process control via second actual value input for process variables

### Advantages

- Simple menu
- Adjustable dead zone
- Adjustable min/max limitation of stroke position
- Reliable electronic system for maintenance-free function
- Compact construction
- Direct or remote mounting to motorized valves
- Fast commissioning


## Technical data:

| | |
|---|---|
| **Connection:** | 4-wire |
| **Power supply:** | 230 V AC |
| **Set value input:** | 0/4 - 20 mA, 0 - 10 V optional |
| **Actual value input 1 (motor position):** | Potentiometer (travel sensor) |
| **Output signals:** | 2x relay output |
| **Total error:** | < 1% |
| **Temperature range:** | 0°C to 60°C |
| **Actual value input 2 (optional actual value input for process variable):** | 0/4 - 20 mA |

# Instrumentation and accessories

### Electrical position indicators/combi switchboxes

Valves are frequently used in connection with electrical position indicators or combi switchboxes. GEMÜ provides the most varied designs to suit any automation concept. The following table gives you an overview of our range.
Please see the technical data sheets for detailed technical information, special versions available on request.

| | Combi switchboxes | | | | |
|---|---|---|---|---|---|
| |  | | | | |
| | with integrated pilot valves | | | | |
| **Selection criteria** | **4222** | **651** | **4242** | **4226** Ex | **4216** Ex |
| Valve stroke (in mm) | 3 - 30<br>6 - 50<br>9 - 75 | | 2 - 30 | | |
| Connection | M12 | M12 | M12 | | |
| Programmable | ● | ● | ● | | |
| Mechanically adjustable | | | | ● | ● |
| Field bus capable | ● | ● | ● | | |
| IO-Link Interface | | | ● | | |
| Integrated valve switching system via pilot valve | ● | ● | ● | ● | ● |
| Optical position indication via LEDs | ● | ● | ● | | |
| Optical position indication, mechanical | | | | | |
| Feedback OPEN or CLOSED | | | | | |
| Feedback OPEN and/or CLOSED | ● | ● | ● | ● | ● |

## Electrical position indicators

| Programmable | | | For explosion-proof areas | | | | With proximity switches | | With microswitches | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1234 | 1235/ 1236 | 4242 | 1205 Ex | 1211 Ex | 1231 Ex | 1215 Ex | 1214 | 1232 | 1201 | 1230 |
| 1 - 10 | 2 - 30<br>4 - 50<br>5 - 75 | 2 - 30 | 2 - 70 | 2 - 70 | 2 - 20 | | 2 - 70 | 2 - 20 | 2 - 70 | 2 - 20 |
| M12 | M12 | M12 | Cable gland | Cable gland | Cable gland | Cable gland | M12 option | M12 option | Cable gland | M12 option |
| ● | ● | ● | | | | | | | | |
| | | | ● | ● | ● | | ● | ● | ● | ● |
| ● | | ● | | | | | ● | ● | | |
| | ● | ● | | | | | | | | |
| | | | | | | | | | | |
| ● | ● | ● | | | | | ● | ● | | ● |
| | | | | | | ● | | | | |
| | | | | | | ● | | | | |
| ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● |

# Field bus components

Instrumentation for a field bus connection of valves is usually pre-assembled at the factory for delivery but is also easy to retrofit by the customer.

The devices are usually designed for AS-interface, LON, and Profibus DP.

## Control level

SPS

Profibus DP

**AS-Interface Master**

with integrated gateway

- Profibus DP
- ControlNet

stand alone version

**AS-Interface Master**
GEMÜ 4112 with software functions
**Coupling to control level**

**AS-Interface power supply unit** GEMÜ 4130

**AS-Interface extension plug**
GEMÜ 4150

**AS-Interface connector**
GEMÜ 4192

**AS-Interface cable**
GEMÜ 4170

GEMÜ 4190

**Field bus components**

GEMÜ 651

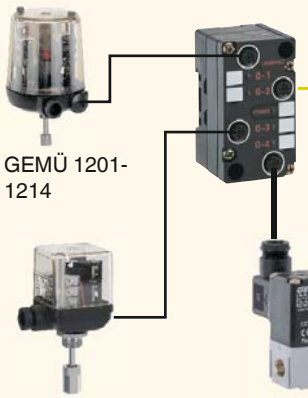
GEMÜ 4222

**Combi switchboxes**
with integrated pilot valve for linear and quarter turn actuators programmable/ teach mode

**Field level with AS-Interface**

- Simple commissioning
- Free network topology
- Monitoring and supervision
- No terminating resistor necessary
- Mechanically coded flat cable
- One cable for data end energy
- Self piercing connector
- Unshielded 2-wire cable
- Up to 62 slaves
- Master-slave principle

**Digital I/O modules**



GEMÜ 1201-1214

GEMÜ 4160

GEMÜ 1234

GEMÜ 1235

**Electrical position indicators**
for pneumatically operated valves programmable/ teach mode

# Pilot valves and valve manifolds

GEMÜ provides a wide range of pilot valves and valve manifolds. The range includes pilot valves for direct mounting to pneumatic valve actuators as well as single valves, valve batteries and complete valve manifolds for assembly in a control cabinet. In addition to the standard connection methods, pilot valves are also available for field bus connections (AS-interface, LON, Profibus, etc.).

**GEMÜ 0322 , 0324**
3/2-way plastic valves
Nominal size: DN 2
Air output approx. 1.2 l/min

**GEMÜ 332 – 336**
3/2-way plastic valves
Nominal size: DN 1
Air output approx. 0.8 l/min

**GEMÜ 8357**
3/2-way piston valve with aluminium body
Nominal size DN 6
Air output approx. 1,200 l/min

**GEMÜ 8458**
5/2-way piston valve with aluminium body
Nominal size: DN 6
Air output approx. 1,200 l/min

**GEMÜ 8505**
4/2-way piston valve with aluminium body
Nominal size: DN 4 / DN 7
Air output approx. 700 / 1,400 l/min

**GEMÜ 8506**
3/2 and 5/2-way piston valve with aluminium body
Nominal size: DN 6
Air output approx. 1,200 l/min

**Valve manifold MPA**
2/2, 3/2 or 5/2-way valves with plastic body
Nominal size: DN 10.5 - DN 21
Air output: 360 l/min., 700 l/min.
Field bus capable
Extendable with CPX

**Modular electrical terminal CPX**
For connection of valve manifolds to automation systems
Field bus capable
Can be combined with MPA

| | GEMÜ 0322, 0324 | GEMÜ 332 - 336 | GEMÜ 8357 | GEMÜ 8458 | GEMÜ 8505 | GEMÜ 8506 | Festo MPA |
|---|---|---|---|---|---|---|---|
| 2/2-way valve, plastic body | | | | | | | ● |
| 3/2-way valve, plastic body | ● | ● | | | | ● | ● |
| 5/2-way valve, plastic body | | | | | | | ● |
| 3/2-way valve, aluminium body | | | ● | | | | |
| 4/2-way valve, aluminium body | | | | ● | | | |
| 5/2-way valve, aluminium body | | | | | ● | ● | |
| Nominal size | DN 2 | DN 1 | DN 6 | DN 6 | DN 4 / DN 7 | DN 6 | |
| Air output in l/min | 1.2 | 0.8 | 1.200 | 1.200 | 700 / 1.400 | 1.200 | 360 / 720 |
| Single mounting | ● | ● | ● | ● | ● | ● | |
| Direct mounting to pneumatic actuator | ● | ● | ● | ● | ● | ● | |
| Battery mounting | ● | ● | | | | | |
| Valve manifold | | | | | | | ● |
| Manual operation | ● | ● | ● | ● | ● | ● | ● |
| Explosion-proof rating | ● | ● | | | | | ● |

# Instrumentation/accessories for pneumatic valves

● optional ○ standard
Other options and combinations of several accessories are possible, please enquire.

| | | |
|---|---|---|
| Optical position indicators | Optical position indicator with stroke limiter and manual override, control function "Normally closed" | **GEMÜ 1114** |
| | Optical position indicator with stroke limiter for control function "Normally open" | **GEMÜ 1151-1161** |
| | Optical position indicator variants for all control functions available | **GEMÜ 1300** |
| | Optical position indicator for mounting of proximity switches, control function "Normally closed" | **GEMÜ 1310** |
| Stroke limiters, seal adjuster | Stroke limiter with seal adjuster for control function "Normally open" | **GEMÜ 1106** |
| | Stroke limiter for control function "Normally closed" | **GEMÜ 1151** |
| | Stroke limiter for control function "Normally open" | **GEMÜ 1110-1161** |
| | Proximity switches mounted and adjustable | **GEMÜ 1216** |
| Electrical position indicators | Electrical position indicator (indication: valve open and/or closed) | **GEMÜ 1201-1214** |
| | Electrical position indicator ATEX | **GEMÜ 1205, 1211** |
| | Electrical position indicator (indication: valve open) | **GEMÜ 1215** |
| | Electrical position indicator (indication: valve open and/or closed) | **GEMÜ 1230, 1232** |
| | Electrical position indicator ATEX | **GEMÜ 1231** |
| | Electrical position indicators (programmable) | **GEMÜ 1235** |
| | Electrical position indicators (programmable / Field bus) | **GEMÜ 4242** |
| Combi switchboxes | Combi switchbox with integrated 3/2-way pilot valve | **GEMÜ 4222** |
| | Combi switchbox with integrated 3/2-way pilot valve | **GEMÜ 4242** |
| Positioners | Electro-pneumatic positioner For direct mounting to pneumatically operated valves (≤ DN 25) | **GEMÜ 1434 µ**Pos |
| | Electro-pneumatic positioner For direct or remote mounting to pneumatically operated valves | **GEMÜ 1435 e**Pos |
| | Electro-pneumatic positioner with integrated process controller For direct or remote mounting to pneumatically operated valves | **GEMÜ 1436 c**Pos |
| Manual override, Pilot valves | Pilot valve for direct mounting to pneumatically operated valves | **GEMÜ 0324, 334** |
| | Manual override with optical position indicator | **GEMÜ 1002** |
| | NAMUR mounting bracket with/without handwheel | **GEMÜ 1450, 1460** |

| GEMÜ 605 | GEMÜ 615 | GEMÜ 625 | GEMÜ 650 | GEMÜ 651 | GEMÜ 660 | GEMÜ 687 | GEMÜ 695 |
|---|---|---|---|---|---|---|---|
| | | | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ○ | ○ | ○ | ○ | | | ● | ● |
| | | | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| | | | ● | | | ● | ● |
| | | | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| | | | ● | ○ | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | | ● | ● |
| ● | ● | ● | ● | | ● | ● | ● |
| | | | ● | | | ● | ● |
| | | | | | | ● 1460 from DN 65 | ● 1460 from DN 65 |

# How to order / Type key

The GEMÜ order system is based on the following type key which enables you to clearly define the products required.
When you wish to define a valve, first choose the type, the nominal size, the body configuration, the connection, the valve body material etc. and then write down the corresponding code number in the given sequence. In order to avoid mistakes we suggest that you insert oblique strokes between the individual numbers.

| 673 | 25 | D | 60 | 34 | 17 | 0 | S | 1500 |
|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | K |

## A Type of valve

| | | |
|---|---|---|
| **601** | Metal diaphragm valve | manually operated |
| **602** | Metal diaphragm valve | manually operated |
| **605** | Metal diaphragm valve | pneumatically operated |
| **611** | Metal diaphragm valve | manually operated |
| **612** | Metal diaphragm valve | manually operated |
| **615** | Metal diaphragm valve | pneumatically operated |
| **618** | Metal diaphragm valve | motorized |
| **625** | Metal diaphragm valve | pneumatically operated |
| **643** | Metal diaphragm valve | manually operated<br>side mounted gear operator for tank bottom valve body |
| **650** | Metal diaphragm valve | pneumatically operated |
| **651** | Metal diaphragm valve | pneumatically operated |
| **653** | Metal diaphragm valve | manually operated,<br>with plastic handwheel |
| **654** | Metal diaphragm valve | manually operated,<br>with metal handwheel |
| **658** | Metal diaphragm valve | pneumatically operated,<br>two stage actuator |
| **660** | Metal diaphragm valve | pneumatically operated |
| **671** | Metal diaphragm valve | manually operated |
| **673** | Metal diaphragm valve | manually operated |
| **687** | Metal diaphragm valve | pneumatically operated |
| **688** | Metal diaphragm valve | pneumatically operated,<br>two stage actuator |
| **695** | Metal diaphragm valve | pneumatically operated |
| **698** | Metal diaphragm valve | motorized |

## B Nominal size DN

## C Body configuration

| | |
|---|---|
| **D** | 2/2-way body |
| **B** | Tank valve body * |
| **T** | T valve body |
| **A** | T valve body for sampling<br>(body version “A“) |
| **M** | Valve blocks in individual multi-port design * |
| **W** | Valve configurations * |
| **Y** | Y body |

**Special valve bodies**
T valve bodies are available for the following valve types:
**601, 602, 605, 612, 618, 625, 650, 653, 654, 658, 673, 687, 688, 698.**

The materials used are stainless steel alloys.

2/2-way tank bottom valve bodies are available for the following types:
**601, 602, 605, 612, 618, 625, 643, 650, 653, 654, 658, 673, 687, 688, 698.**

Stainless steel alloys are used for weld-in or flanged valves (option).

* Note: Separate order codes for tank valve bodies (B600), multi-port valves (M600) and valve configurations (W600)

## D Connection (body)

| | |
|---|---|
| **0** | Butt weld spigots, DIN |
| **6** | Threaded spigots DIN 11851 |
| **16** | Butt weld spigots DIN 11850, series 1 |
| **17** | Butt weld spigots DIN 11850, series 2 |
| **18** | Butt weld spigots DIN 11850, series 3 |
| **1A** | Butt weld spigots DIN 11866, series A |
| **1B** | Butt weld spigots DIN 11866, series B |
| **35** | Butt weld spigots JIS-G 3447 |
| **36** | Butt weld spigots JIS-G 3459 |
| **37** | Butt weld spigots SMS 3008 |
| **55** | Butt weld spigots to BS 4825 Part 1 |
| **59** | Butt weld spigots ASME - BPE |
| **60** | Butt weld spigots EN ISO 1127 |
| **62** | One side threaded spigot, other side cone spigot and union nut, to DIN 11851 |
| **63** | Butt weld spigots ANSI/ASME B36.19M, Schedule 10s |
| **65** | Butt weld spigots ANSI/ASME B36.19M, Schedule 40s |
| **80** | Clamps ASME BPE for pipe ASME BPE, short design |
| **82** | Clamps following ASME BPE for pipe EN ISO 1127, length EN 558-1, series 1 |
| **88** | Clamps ASME BPE for pipe ASME BPE, length EN 558-1, series 7 |
| **8A** | Clamps DIN 32676 for pipe DIN 11850, length EN 558-1, series 7 |
| **8E** | Clamps SMS 3017 for pipe SMS 3008 length EN 558-1, series 7 |
| **8F** | Clamps IDF/ISO for pipe JIS-G 3447 length EN 558-1, series 7 |
| **8H** | Clamps IDF/ISO for pipe JIS-G 3459 length EN 558-1, series 7 |
| **91** | Special connection |
| **A1** | Aseptic flanges DIN 11864-NF-A for pipe DIN 11850, length EN 558-1 series 1 |
| **A2** | Aseptic flanges DIN 11864-1-A BF-A for pipe DIN 11850; length EN 558-1, series 1 (loose flange on both sides) |
| **A3** | Aseptic flanges DIN 11864-1-A F-A for pipe DIN 11850; length EN 558-1, series 1 (one side grooved flange, other side loose flange) |
| **C1** | Aseptic unions DIN 11864-GS-A for pipe DIN 11850; (aseptic threaded spigot on both sides) |
| **C2** | Aseptic unions DIN 11864-BS-A for pipe DIN 11850; (aseptic unions with union nuts on both sides) |
| **C3** | Aseptic unions DIN 11864-V-A for pipe DIN 11850; (one side aseptic threaded spigot, other side aseptic union with union nut) |

## E Valve body material

### Stainless steel

| | | |
|---|---|---|
| **32** | 1.4435-BN2 (316L) Fe < 0.5% | investment casting |
| **34** | 1.4435 (ASTM A 351 CF3M) | investment casting* |
| **40** | 1.4435 (316L) | forged body |
| **41** | 1.4435 (316L) | block material |
| **42** | 1.4435-BN (316L) Fe < 0.5% | forged body |
| **43** | 1.4435-BN (316L) Fe < 0.5% | block material |
| **44** | 1.4539 block material | |
| **A0** | 2.4605, investment casting Alloy 59 (NiCr23Mo16Al) | |
| **A1** | 3.7035, titanium | |
| **A2** | 2.4602, investment casting Hastelloy (NiCr21Mo14W) | |
| **A3** | 2.4602, block material Hastelloy C 22 (NiCr21Mo14W) | |

* Material equivalency 316 L

# How to order / Type key

## F Diaphragm materials

| | | |
|---|---|---|
| **13**<br>**3A**** | EPDM | Ethylene-propylene-diene rubber, for saturated steam, max. 150°C dependent on cycle time |
| **16**<br>**6A**** | EPDM | Ethylene-propylene-diene rubber, for saturated steam, max. 150° C for longer sterilisation cycles |
| **17** | EPDM | Ethylene-propylene-diene rubber, for saturated steam, max. 150° C for longer sterilisation cycles |
| **52**<br>**5A**** | PTFE/EPDM | Polytetrafluoroethylene/ Ethylene-propylene-diene rubber, laminated |
| **5E** | PTFE/EPDM | Polytetrafluoroethylene/ Ethylene-propylene-diene rubber, 2-piece |
| **5S** | PTFE/Silicon | Polytetrafluoroethylene/Silicone, 2-piece |
| | ** **A** = | for diaphragm size 8: Diaphragm material identical, fixing only suitable for diaphragm size 8, (dependent on valve and operator size) |

**For certificates and approvals see page 35**

## G Control function for manual and pneumatic valves

| | |
|---|---|
| **0** | Manually operated |
| **1** | Pneumatically operated actuator, Normally closed (NC) |
| **2** | Pneumatically operated actuator, Normally open (NO) |
| **3** | Pneumatically operated actuator, Double acting (DA) |

## G Operating voltage/Frequency for motorized valves

See technical data sheet

## H Bonnet/actuator size for manual and pneumatic valves

See technical data sheet

## H Code for additional data for motorized valves

See technical data sheet

## I Nominal size DN 2 (for T valve bodies)

## J Connection DN 2 (for T valve bodies)

## K Additional data or surface finish

# GEMÜ angle gauge

GEMÜ has developed a patented angle gauge to simplify mounting 2/2-way stainless steel diaphragm valve bodies. The angle gauge enables quick and simple determination of the correct mounting position of a diaphragm valve body. The angle gauge is placed on the valve body so that its location spigots engage in the holes intended for actuator fixing. It is then locked by an eccentric cam at one of the location spigots. The flow direction is clearly identified to prevent incorrect positioning. The correct mounting angle, dependent on the valve body type, is indicated in the brochure "2/2-Way Valve Bodies for Sterile Applications". The given angle is set on the angle gauge. The valve body is rotated until the spirit is level. Then the body is mounted according to its connection type. The angle gauge is available for diaphragm sizes 8 - 80.

Please use the article numbers listed below when ordering:

Angle gauge for diaphragm size 8: 88278996

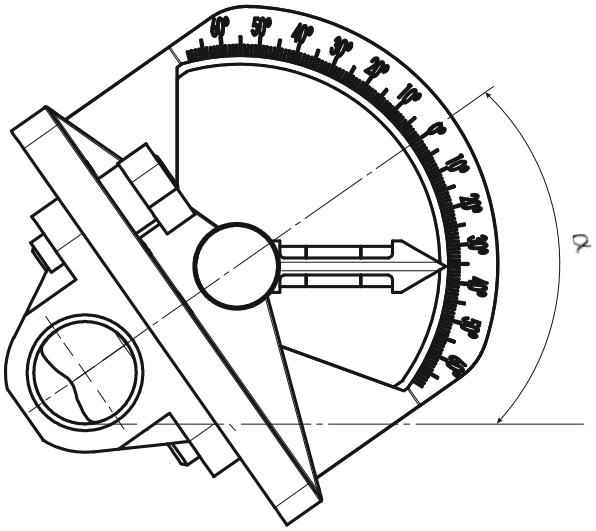
Angle gauge for diaphragm size 10: 88277372

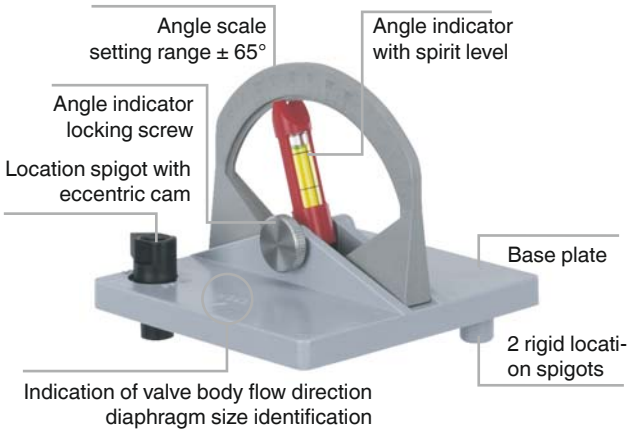
Angle gauge for diaphragm size 25: 88277373

Angle gauge for diaphragm size 40: 88277374

Angle gauge for diaphragm size 50: 88277375

Angle gauge for diaphragm size 80: 88277376





# How to order / Type key

## Order example for manual diaphragm valves:

| Valve type | Nominal size DN | Body configuration | Connection (body) | Valve body material | Diaphragm material | Control function | Bonnet size | Additional data |
|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | K |
| 673 | 25 | D | 60 | 40 | 16 | 0 | S | 1503 |

## Order example for pneumatic diaphragm valves:

| Valve type | Nominal size DN | Body configuration | Connection (body) | Valve body material | Diaphragm material | Control function | Actuator size | Design(actuator) | Spring set | Additional data |
|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I* | J* | K |
| 650 | 25 | D | 60 | 34 | 17 | 1 | 2 | D | 1 | 1503 |

*** only for T valves**

## Order example for motorized diaphragm valves:

| Valve type | Nominal size DN | Body configuration | Connection (body) | Valve body material | Diaphragm material | Supply voltage | Mains frequency | Design | Additional data |
|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | K |
| 698 | 25 | D | 60 | 40 | 17 | L | 4 | 6049 | 1500 |

# B600 specification

**Please complete this form and return it to your nearest GEMÜ office or to the address listed below!**

**Operating pressure:** _____ bar

**Medium temperature:** _____ °C

**Material of tank bottom valve body**

- 1.4435 ☐
- 1.4435 BN 2 (ΔFe < 0,5%) ☐
- 1.4539 ☐
- Other _____

**Tests:**

- AD 2000 W2 (Standard) [X]
- Inspection certificate 3.1* to EN 10204 (DIN 5049) for the body material ☐

**Diaphragm material:**

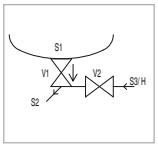
- EPDM Code _____
- PTFE Code _____
- Other _____

**Surface finish of tank valve body:**

| | | |
|---|---|---|
| 1502 | (Ra) ≤ 0.8 µm | ☐ |
| 1503 | (Ra) ≤ 0.8 µm e-pol. | ☐ |
| 1507 | (Ra) ≤ 0.6 µm | ☐ |
| 1508 | (Ra) ≤ 0.6 µm e-pol. | ☐ |
| 1536 | (Ra) ≤ 0.4 µm | ☐ |
| 1537 | (Ra) ≤ 0.4 µm e-pol. | ☐ |
| 1527 | (Ra) ≤ 0.25 µm | ☐ |
| 1516 | (Ra) ≤ 0.25 µm e-pol. | ☐ |

**Quantity:** ☐

***Example:* B600 03-02.A**



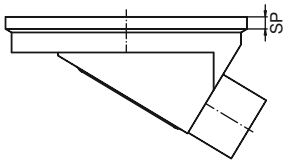

Please draw functional diagram.

**Note:** Please observe correspondence of table and functional diagram.

Please fill in version (e.g. B600 03-02.A):

Tank radius= mm

Welding neck thickness SP = mm
(Standard 6 mm)




Draining direction: →

Valve seat: ⋈

Intersection: ●

Spigot: S1, S2, ...

Preferred mounting position: **H**orizontal/**V**ertical

Flow direction (medium): →

| Spigot | Pipe connection | | | | Operator | | Other |
|---|---|---|---|---|---|---|---|
| Spigot no. | DN | s[mm] | ød(a)mm] | Code | Operator type | Control function | Comment / accessories |
| S1 | | | | | | | |
| S2 | | | | | | | |
| S3 | | | | | | | |
| S4 | | | | | | | |
| S5 | | | | | | | |
| S6 | | | | | | | |
| S7 | | | | | | | |

The technical details of each enquiry must be checked by GEMÜ.

**Contact (GEMÜ)**: _____

**Customer**: _____

Dept.: _____

Address: _____

_____

Phone: _____ e-mail: _____

Please do not write here!

Version:

990

LZ:

Price*:

*€/body

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info@gemue.de · www.gemu-group.com

**Multi-port valve no.**

# M600 Specification

**Please complete this form and return it to your nearest GEMÜ office or to the address listed below!**

**Operating pressure:** _____ bar

**Medium temperature:** _____ °C

**Multi-port valve material:**

- 1.4435 ☐
- 1.4435 BN 2 (ΔFe < 0.5%) ☐
- 1.4539 ☐
- Other _____

**Diaphragm material:**

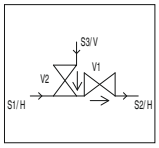
- EPDM Code _____
- PTFE Code _____
- Other _____

**Surface finish of M600 multi-port valve:**

- 1502 (Ra) ≤ 0.8 µm ☐
- 1503 (Ra) ≤ 0.8 µm electropolished ☐
- 1507 (Ra) ≤ 0.6 µm ☐
- 1508 (Ra) ≤ 0.6 µm electropolished ☐
- 1536 (Ra) ≤ 0.4 µm ☐
- 1537 (Ra) ≤ 0.4 µm electropolished ☐
- 1527 (Ra) ≤ 0.25 µm ☐
- 1516 (Ra) ≤ 0.25 µm electropolished ☐

**Quantity:** ☐

***Example:***




Please draw functional diagram.

**Note:** Please observe correspondence of table and functional diagram.

Spigot: S1, S2, ...

Preferred mounting position: **H**orizontal/**V**ertical

Flow direction (medium): →

Draining direction: →

Valve seat: ⋈

| Spigot | Pipe connection | | | | Operator | | Other |
|---|---|---|---|---|---|---|---|
| Spigot no. | DN | s[mm] | ød(a)mm] | Code | Operator type | Control function | Comment / accessories |
| S1 | | | | | | | |
| S2 | | | | | | | |
| S3 | | | | | | | |
| S4 | | | | | | | |
| S5 | | | | | | | |
| S6 | | | | | | | |
| S7 | | | | | | | |
| S8 | | | | | | | |
| S9 | | | | | | | |
| S10 | | | | | | | |
| S11 | | | | | | | |
| S12 | | | | | | | |

The technical details of each enquiry will be checked by GEMÜ.

**Contact (GEMÜ)**: _____

**Customer**: _____

Department: _____

Address: _____

_____

Phone: _____ e-mail: _____

Please do not write here!

Version:

990

LZ:

Price*:

*€/body

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# W600 specification

**Please complete this form and return it to your nearest GEMÜ office or to the address listed below!**

Configuration Nr.: _____

Quantity _____

Operating pressure _____ bar

Working medium temperature _____ °C

**Valve 1**

| | DN | s [mm] | $D_a$ [mm] | Code |
|---|---|---|---|---|
| Spigot S1 | | | | |
| Spigot S2 | | | | |

**Valve 2**

| | DN | s [mm] | $D_a$ [mm] | Code |
|---|---|---|---|---|
| Spigot S3 | | | | |

☐ **no deadleg requirement** ☐ **3xD - rule*** ☐ **6xD - rule***

* see figure on page 2

Operator type _____

Control function _____

Accessories _____

Comment _____

**Body material Main 2/2 way body**

Block material / Forged body

1.4435 ☐

1.4435 BN 2 (Δ Fe < 0,5%) ☐

1.4539 ☐

Other _____

**Body material Second 2/2 way body**

Block material / Forged body

1.4435 ☐

1.4435 BN 2 (Δ Fe < 0,5%) ☐

1.4539 ☐

Other _____

**Diaphragm material**

EPDM ☐ Code _____

PTFE ☐ Code _____

Other ☐ _____

**Diaphragm material**

EPDM ☐ Code _____

PTFE ☐ Code _____

Other ☐ _____

**Surface finish internal finish**

| | | |
|---|---|---|
| 1502 | (Ra) ≤ 0.8 µm | ☐ |
| 1503 | (Ra) ≤ 0.8 µm e-pol. | ☐ |
| 1507 | (Ra) ≤ 0.6 µm | ☐ |
| 1508 | (Ra) ≤ 0.6 µm e-pol. | ☐ |
| 1536 | (Ra) ≤ 0.4 µm | ☐ |
| 1537 | (Ra) ≤ 0.4 µm e-pol. | ☐ |
| 1527 | (Ra) ≤ 0.25 µm | ☐ |
| 1516 | (Ra) ≤ 0.25 µm e-pol. | ☐ |

**Surface finish internal finish**

| | | |
|---|---|---|
| 1502 | (Ra) ≤ 0.8 µm | ☐ |
| 1503 | (Ra) ≤ 0.8 µm e-pol. | ☐ |
| 1507 | (Ra) ≤ 0.6 µm | ☐ |
| 1508 | (Ra) ≤ 0.6 µm e-pol. | ☐ |
| 1536 | (Ra) ≤ 0.4 µm | ☐ |
| 1537 | (Ra) ≤ 0.4 µm e-pol. | ☐ |
| 1527 | (Ra) ≤ 0.25 µm | ☐ |
| 1516 | (Ra) ≤ 0.25 µm e-pol. | ☐ |

For GEMÜ use only!

Type key: _____

Angle of rotation α*: _____
(specified at works)

* Please contact us for an overview of angles of rotation, if required.

For GEMÜ use only!

Type key: _____

Angle of rotation α*: _____
(specified at works)

* Please contact us for an overview of angles of rotation, if required.

The technical details of each enquiry will be checked by GEMÜ.

**Contact (GEMÜ)**: _____

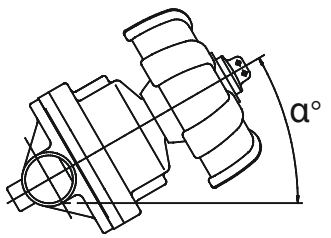
**Customer**: _____

Dept. _____

Address: _____

_____

Phone: _____ e-mail: _____

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# Product information


## 2/2-Way Valve Bodies for Sterile Applications

Partial overview of available GEMÜ 2/2-way valve bodies and their dimensions.


## T Valves for Sterile Applications

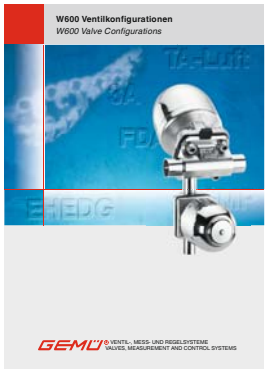
Partial overview of available GEMÜ T valves and their dimensions.


## M600 Multi-Port Valves for Sterile Applications

Partial overview of available GEMÜ M600 multi-port valves, variations and specification form.


## B600 Tank Valves

Partial overview of GEMÜ B600 tank valves, variations and specification form.




## W600 GMP/SAP Valve configurations

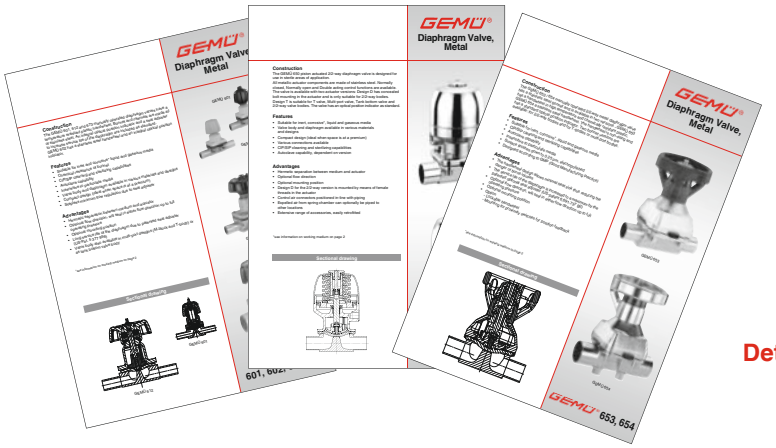
Partial overview of available GEMÜ W600 valve configurations, variations and specification form.


## Diaphragms

Overview of available GEMÜ diaphragms, materials used and areas of use for GEMÜ diaphragm valves.


## Globe and Control Valves

Complete globe valve range.
Includes an overview of the GEMÜ globe and control valves, available body configurations, connections, nominal sizes and accessories.




## Detailed technical data sheets

Please refer to www.gemu-group.com for brochures, technical data sheets and operating instructions.

Dear Customer,

When installing GEMÜ products all current standards, provisions, directives and regulatory codes must be followed.
The application of other technical regulations during installation may also depend on local or relevant industrial guidelines and is the responsibility of our customers.
GEMÜ cannot accept any liability for improper installations which do not comply with current legal and engineering practise.
We reserve the right to make technical alterations to products as a result of developments.
The technical data specified in this documentation serves only as a guideline to our product range. The application and the use of these products needs to be checked by the user in every case.

# Notes

# Notes

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CERT
ISO 9001

TÜVRheinland®
CERT
ISO 14001

Subject to alteration · 12/2012 · 88279738

GEMÜ® VALVES, MEASUREMENT AND CONTROL SYSTEMS

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