GEMÜ®

# Tank Bottom Valve, Metal

## Construction

The 2/2-way metal tank bottom valve GEMÜ 643 is manually operated with a side mounted gear which has an optical position indicator as standard. The stainless steel valve body is machined from a single block (no welds) and is designed for welding directly into a tank bottom. The distance piece and the gearbox housing are made of stainless steel.

## Features

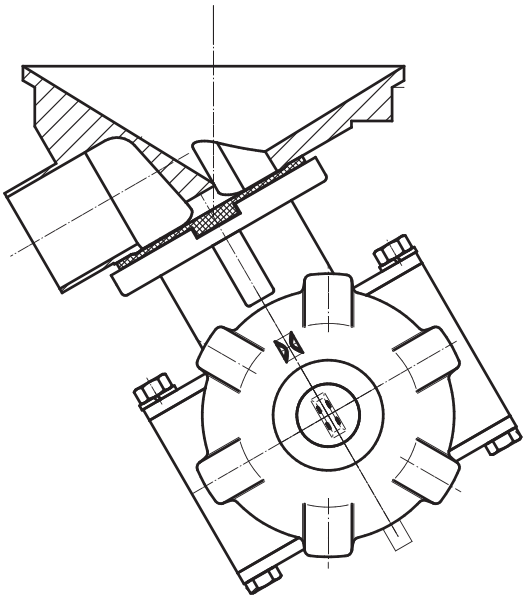
- Suitable for inert and corrosive* liquid and gaseous media
- CIP/SIP cleaning and sterilizing capabilities

## Advantages

- Tanks can be optimally drained, cleaned and sterilized by using the GEMÜ 643
- The temperature resistant plastic handwheel prevents burns injuries at high operating temperatures
- Compact design (ideal when space is at a premium)
- Tank bottom valve body also available with pneumatic or motorized actuator on request
- Bonnet can be rotated through 360°
- Versions according to ATEX on request
- Handwheel shaft extension by the user is possible

*see information on working medium on page 2

**GEMÜ 643**



GEMÜ® 643

# Technical data

## Working medium

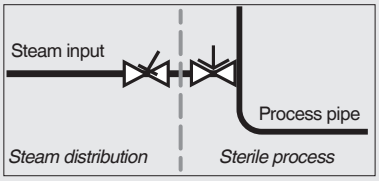
Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

| | |
|---|---|
| Maximum permissible pressure of working medium, applied upstream | 10 bar |

## Temperatures

| | |
|---|---|
| **Media temperature** | -10 ... 100 °C |
| **Sterilisation temperature** [1] | |
| EPDM (Code 13) | max. 150 °C [2], max. 60 min per cycle |
| EPDM (Code 17) | max. 150 °C [2], max. 180 min per cycle |
| PTFE/EPDM (Code 54) | max. 150 °C [2], no time limit per cycle |
| PTFE/EPDM (Code 5M) | max. 150 °C [2], no time limit per cycle |

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




| | |
|---|---|
| **Ambient temperature** | 0 ... 60 °C |

| Nominal size | Bonnet | Operating pressure [bar] | | Weight |
|---|---|---|---|---|
| [mm] | Code | EPDM | PTFE | [kg] |
| 15 | 2AT | 0 - 10 | 0 - 10 | 3.0 |
| 20 | 2AT | 0 - 10 | 0 - 10 | 3.0 |
| 25 | 2AT | 0 - 10 | 0 - 10 | 3.0 |
| 32 | 3AT | 0 - 10 | 0 - 10 | 6.0 |
| 40 | 3AT | 0 - 10 | 0 - 10 | 6.0 |

## Order data

| Body configuration | Code |
|---|---|
| Tank valve body | B |

| Connection | Code |
|---|---|
| **Butt weld spigots** | |
| Spigots DIN | 0 |
| Spigots EN 10357 series B (formerly DIN 11850 series 1) | 16 |
| Spigot EN 10357 series A (formerly DIN 11850 series 2) / DIN 11866 series A | 17 |
| Spigots DIN 11850 series 3 | 18 |
| Spigots SMS 3008 | 37 |
| Spigot ASME BPE / DIN 11866 series C | 59 |
| Spigot ISO 1127 / EN 10357 series C / DIN 11866 series B | 60 |
| Spigots ANSI/ASME B36.19M Schedule 10s | 63 |
| Spigots ANSI/ASME B36.19M Schedule 5s | 64 |
| Spigots ANSI/ASME B36.19M Schedule 40s | 65 |

| Valve body material | Code |
|---|---|
| 1.4435 (F316L), forged body | 40 |
| 1.4435 (BN2), forged body Δ Fe<0.5 % | 42 |

| Diaphragm material | Code |
|---|---|
| EPDM | 13 |
| EPDM | 17 |
| EPDM | 19 |
| PTFE/EPDM, two-piece | 5M |
| Material complies with FDA requirements | |

| Control function | Code |
|---|---|
| Manually operated | 0 |

| Bonnet size | | Code |
|---|---|---|
| Bonnet size 2AT | (DN 15 - 25) | 2AT |
| Bonnet size 3AT | (DN 32 - 40) | 3AT |

| Surface finish | Code |
|---|---|
| Code see page 4 | |

| Order example | 643 | 25 | B | 60 | 40 | 13 | 0 | 2AT | 1503 |
|---|---|---|---|---|---|---|---|---|---|
| Type | 643 | | | | | | | | |
| Nominal size | | 25 | | | | | | | |
| Body configuration (code) | | | B | | | | | | |
| Connection (code) | | | | 60 | | | | | |
| Valve body material (code) | | | | | 40 | | | | |
| Diaphragm material (code) | | | | | | 13 | | | |
| Control function (code) | | | | | | | 0 | | |
| Bonnet size (code) | | | | | | | | 2AT | |
| Surface finish (code see page 4) | | | | | | | | | 1503 |

## Order data

### Internal surface finishes for forged bodies [1]

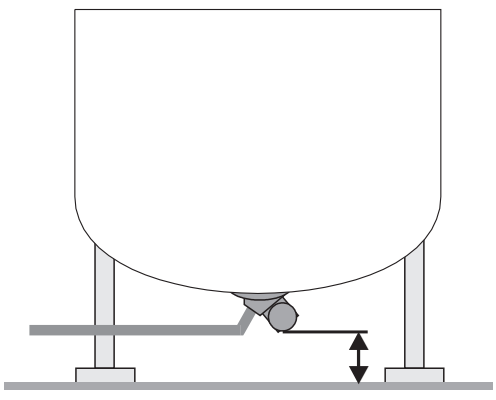
| Readings for Process Contact Surfaces | Mechanically polished [2] | | Electropolished | |
|---|---|---|---|---|
| | Hygienic class DIN 11866 | Code | Hygienic class DIN 11866 | Code |
| Ra ≤ 0.80 µm | H3 | 1502 | HE3 | 1503 |
| Ra ≤ 0.60 µm | - | 1507 | - | 1508 |
| Ra ≤ 0.40 µm | H4 | 1536 | HE4 | 1537 |
| Ra ≤ 0.25 µm [3] | H5 | 1527 | HE5 | 1516 |

| Readings for Process Contact Surfaces acc. to ASME BPE 2016 [4] | Mechanically polished [2] | | Electropolished | |
|---|---|---|---|---|
| | ASME BPE Surface Designation | Code | ASME BPE Surface Designation | Code |
| Ra Max. = 0.76 µm (30 µinch) | SF3 | SF3 | - | - |
| Ra Max. = 0.64 µm (25 µinch) | SF2 | SF2 | SF6 | SF6 |
| Ra Max. = 0.51 µm (20 µinch) | SF1 | SF1 | SF5 | SF5 |
| Ra Max. = 0.38 µm (15 µinch) | - | - | SF4 | SF4 |

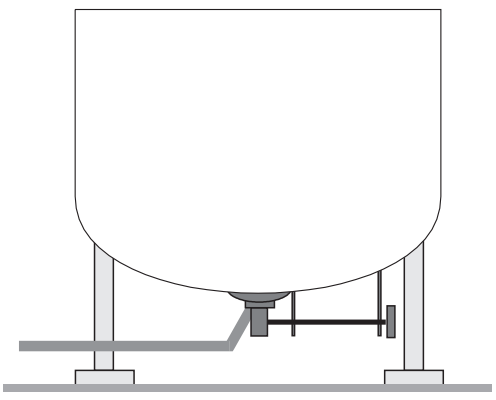
[1] Surface finishes of customized valve bodies may be limited in special cases.
[2] Or any other finishing method that meets the Ra value (acc. to ASME BPE).
[3] The smallest possible Ra finish for pipe connections with an internal pipe diameter < 6 mm is 0.38 µm.
[4] When using these surfaces, the bodies are marked according to the specifications of ASME BPE.
The surfaces are only available for valve bodies which are made of materials (e.g. GEMÜ material codes 40, 41, 44) and use connections (e.g. GEMÜ connection codes 59, 80, 88) according to ASME BPE.

Ra acc. to DIN EN ISO 4288 and ASME B46.1

### Mounting position



### Mounting position (with handwheel shaft extension by user)



## Dimensions [mm]

### Butt weld spigots, connection code 0, 16, 17, 18, 60
### Valve body material: Forged body (code 40)

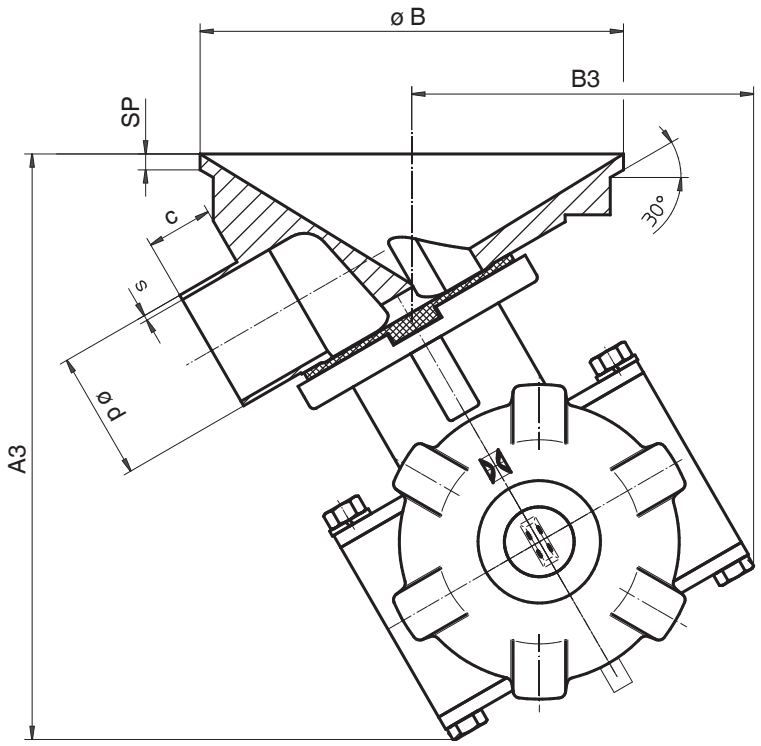
| Pipe standard | | | | | | | DIN | | EN 10357 series B (formerly DIN 11850 series 1) | | EN 10357 series A (formerly DIN 11850 series 2) / DIN 11866 series A | | DIN 11850 Series 3 | | ISO 1127 / EN 10357 series C / DIN 11866 series B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection code | | | | | | | 0 | | 16 | | 17 | | 18 | | 60 | |
| MG | DN | A3 | B3 | ø B | SP | c | ød | s | ød | s | ød | s | ød | s | ød | s |
| 25 | 15 | 166 | 104 | 120 | 6 | 25 | 18 | 1.5 | 18 | 1.0 | 19 | 1.5 | 20 | 2.0 | 21.3 | 1.6 |
| | 20 | 166 | 104 | 120 | 6 | 25 | 22 | 1.5 | 22 | 1.0 | 23 | 1.5 | 24 | 2.0 | 26.9 | 1.6 |
| | 25 | 166 | 104 | 120 | 6 | 25 | 28 | 1.5 | 28 | 1.0 | 29 | 1.5 | 30 | 2.0 | 33.7 | 2.0 |
| 40 | 32 | 190 | 110 | 160 | 6 | 25 | 34 | 1.5 | 34 | 1.0 | 35 | 1.5 | 36 | 2.0 | 42.4 | 2.0 |
| | 40 | 190 | 110 | 160 | 6 | 25 | 40 | 1.5 | 40 | 1.0 | 41 | 1.5 | 42 | 2.0 | 48.3 | 2.0 |

MG = diaphragm size

### Butt weld spigots. connection code 37, 59, 63, 64, 65
### Valve body material: Forged body (code 40)

| Pipe standard | | | | | | | SMS 3008 | | ASME BPE / DIN 11866 series C | | ANSI/ASME B36.19M Schedule 10s | | ANSI/ASME B36.19M Schedule 5s | | ANSI/ASME B36.19M Schedule 10s | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection code | | | | | | | 37 | | 59 | | 63 | | 64 | | 65 | |
| MG | DN | A3 | B3 | ø B | SP | c | ød | s | ød | s | ød | s | ød | s | ød | s |
| 25 | 15 | 166 | 104 | 120 | 6 | 25 | - | - | - | - | 21.3 | 2.11 | 21.3 | 1.65 | 21.3 | 2.77 |
| | 20 | 166 | 104 | 120 | 6 | 25 | - | - | 19.05 | 1.65 | 26.7 | 2.11 | 26.7 | 1.65 | 26.7 | 2.87 |
| | 25 | 166 | 104 | 120 | 6 | 25 | 25.0 | 1.2 | 25.40 | 1.65 | 33.4 | 2.77 | 33.4 | 1.65 | 33.4 | 3.38 |
| 40 | 32 | 190 | 110 | 160 | 6 | 25 | 33.7 | 1.2 | - | - | 42.2 | 2.77 | 42.2 | 1.65 | 42.2 | 3.56 |
| | 40 | 190 | 110 | 160 | 6 | 25 | 38.0 | 1.2 | 38.10 | 1.65 | 48.3 | 2.77 | 48.3 | 1.65 | 48.3 | 3.68 |

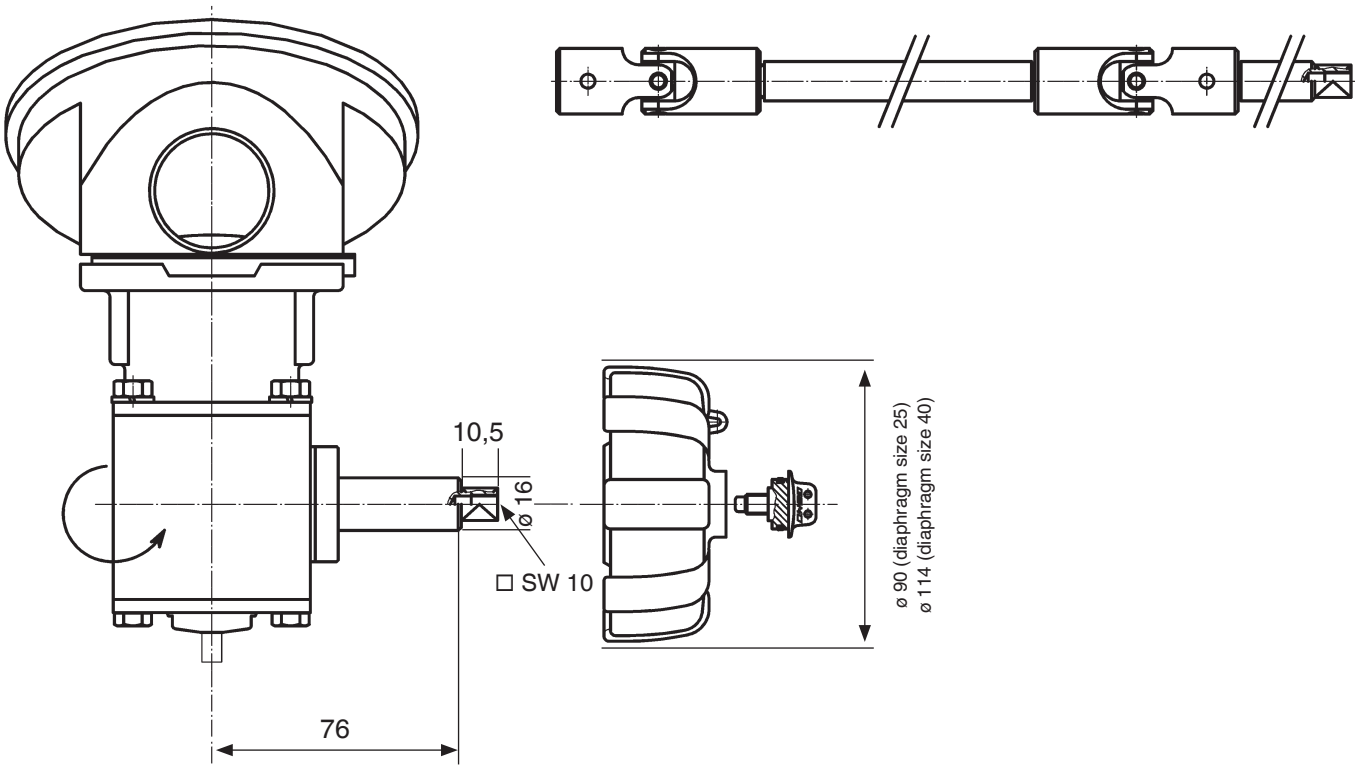
MG = diaphragm size



| Overview of valve bodies for GEMÜ 643 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Spigots | | | | | | | | | |
| Connection code | | 0 | 16 | 17 | 18 | 37 | 59 | 60 | 63 | 64 | 65 |
| Material code | | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| MG | DN | | | | | | | | | | |
| 25 | 15 | X | X | X | X | - | - | X | X | X | X |
| | 20 | X | X | X | X | - | X | X | X | X | X |
| | 25 | X | X | X | X | X | X | X | X | X | X |
| 40 | 32 | X | X | X | X | X | - | X | X | X | X |
| | 40 | X | X | X | X | X | X | X | X | X | X |

Availability of material code 42: same as code 40
MG = diaphragm size

## Shaft extension (by user)




### Attention!

When the user installs a handwheel extension care should be taken that it has sufficient bearing points.

### Torques for shaft extension:

Bonnet size 2AT 11 Nm
Bonnet size 3AT 14 Nm

For further metal diaphragm valves, accessories and other products,
please see our Product Range catalogue and Price List.
Contact GEMÜ.



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