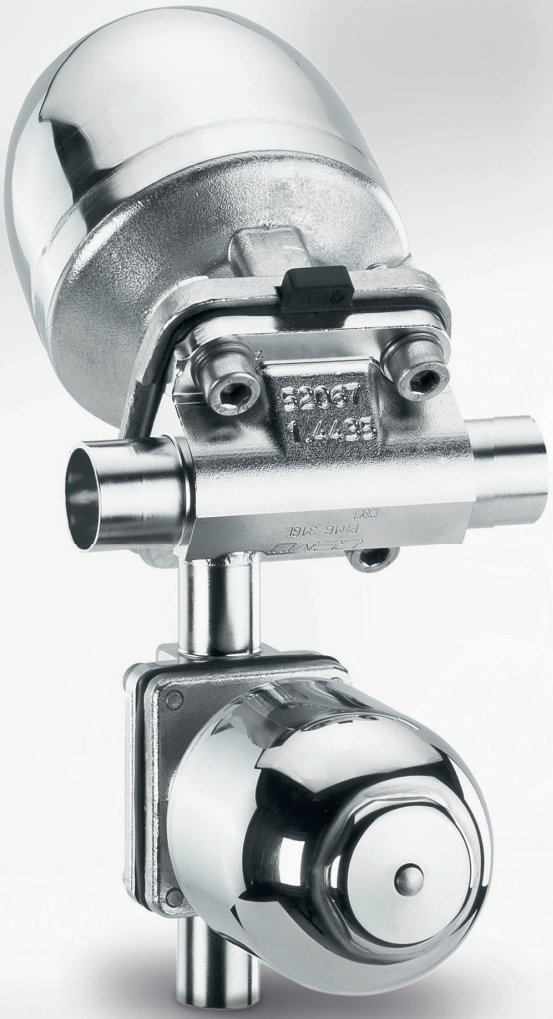
GEMÜ



# W600 Valve Configurations in stainless steel


**Leading the world in pharmaceutical and biotechnology industry sterilisation processes**

GEMÜ is one of the leading manufacturers of valves, measurement and control systems for sterile applications in the pharmaceutical and biotechnology industries. This position is based on GEMÜ's comprehensive investments in application-oriented research & development, amounting to more than 5% of the company's turnover. The versatile product range is supplemented with a wide range of advisory services provided by industry specialists and application experts.

**Customized solutions for your project business**

GEMÜ provides the optimal solution from a single source. As a system supplier of isolation, actuator and control technology, we can respond very flexibly to your individual project-specific needs.
Our worldwide sales network provides fast reaction times, customer oriented service and a committed project management team.

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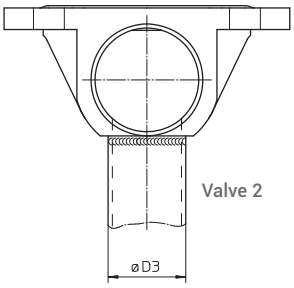
# W600 welding configurations

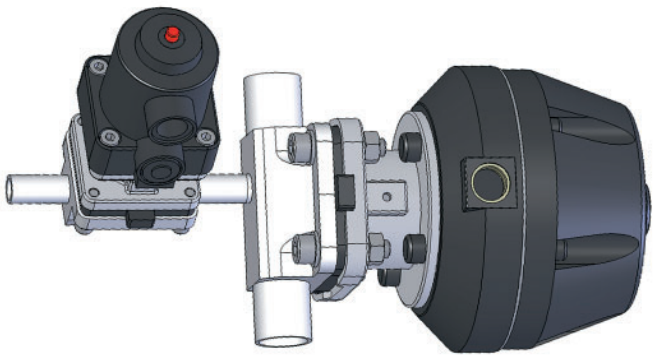
The arrangement of two valves welded together to suit the respective application provides maximum functionality in a restricted space. The assembly does without a T piece and thus the dead space between the valves is essentially reduced and two welds are no longer necessary. If more compact designs are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

**Features**

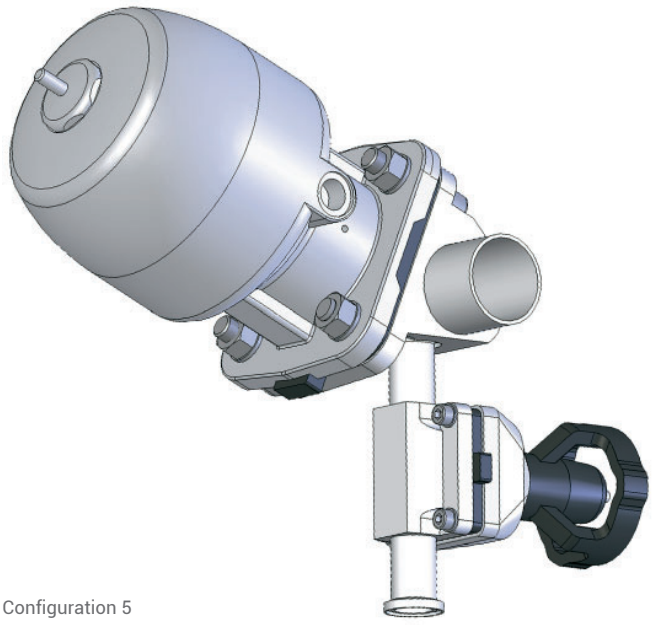
- Standard valve body material 1.4435 in investment cast, forged and block material design or 1.4539 in forged design (diaphragm sizes 8 to 50) and block material design
- Various connections selectable
- Various grades of surface finish available
- Operators from the GEMÜ modular system
- Cost effective
- No T piece required
- Valve 2 can be welded on with draining angle




Investment cast body (code 34):
ø D3 max. = 13.5 mm
(from diaphragm size 10 to 50)



Configuration 2



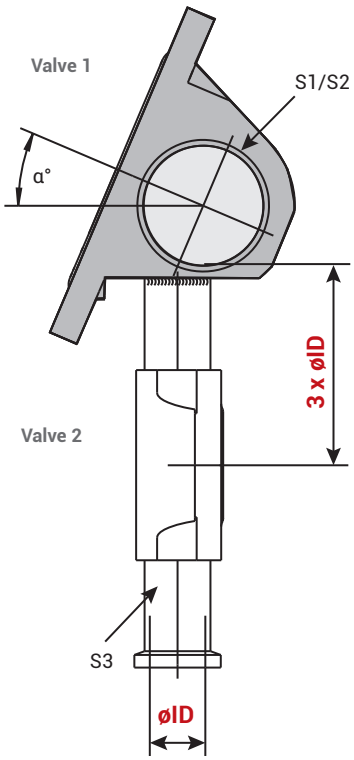
Configuration 5

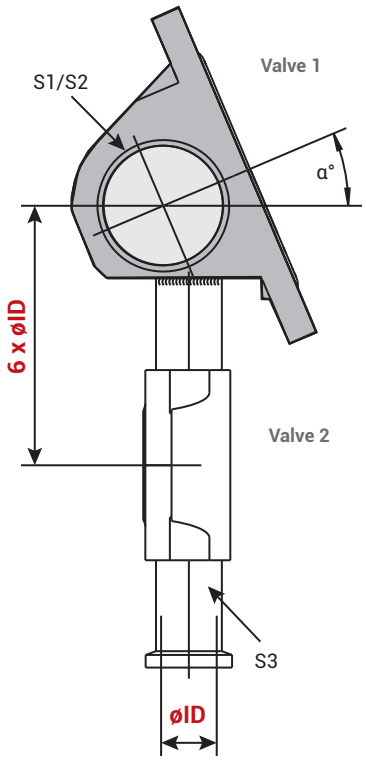
# 3D and 6D rule

Various regulations form the basis for plant designs. Plant operators are normally concerned with the FDA/GMP directives and the ASME/BPE standard. Both regulatory codes define
exact geometric reference points for valve configurations. This rule describes the maximum permissible pipe section with a non-turbulent flow in a valve configuration between valve 1 and valve 2. This is either designated as the 3D (3 x dia. ID) rule or the 6D (6 x dia. ID) rule.

**3D rule**
The longitudinal distance from the main valve inside diameter lower edge to the welded-on sampling valve body sealing weir centre may not exceed 3-times the welded-on sampling valve body inside diameter.

**6D rule**
The longitudinal distance from the main valve inside diameter centre axis to the welded on sampling valve body sealing weir centre may not exceed 6-times the welded-on sampling valve body inside diameter.

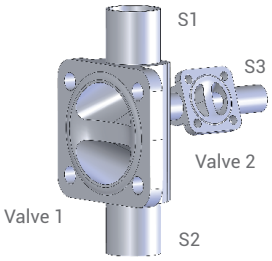


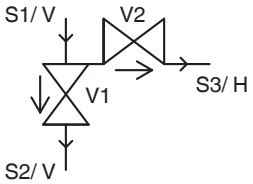



# Welding configurations

## Selection table

### Configuration 1

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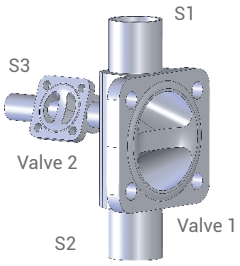


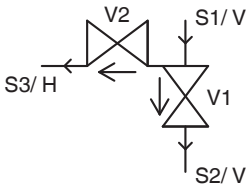


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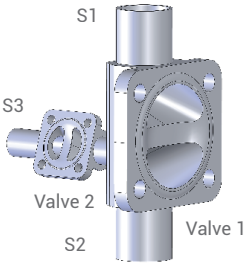


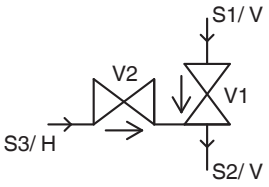


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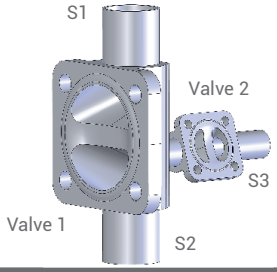


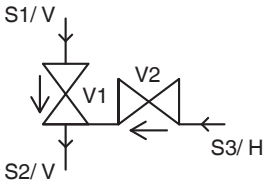


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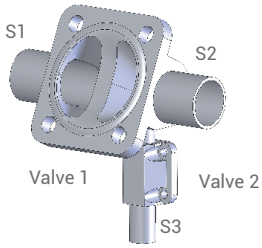


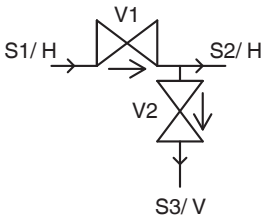


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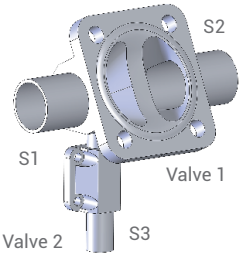


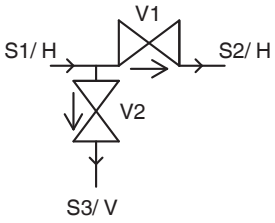


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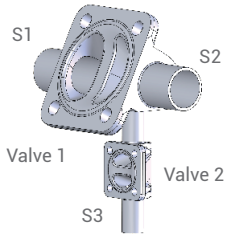


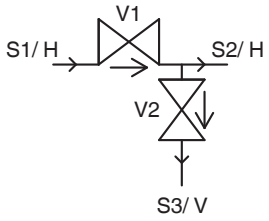


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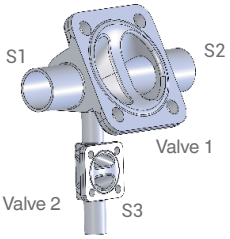


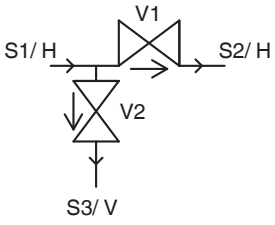


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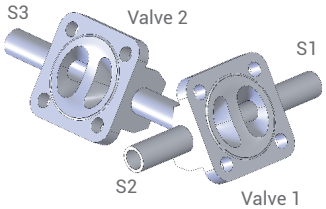


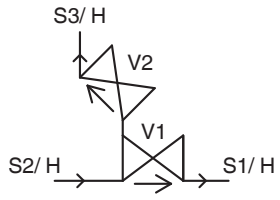


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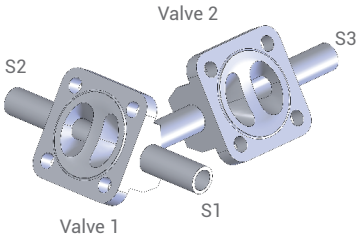


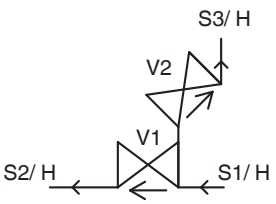

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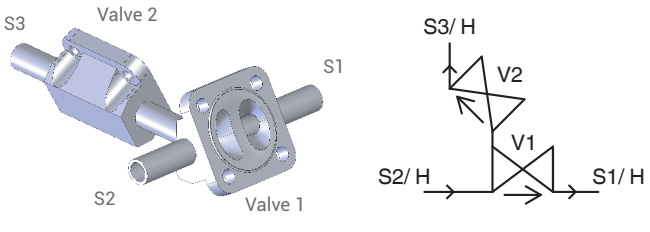


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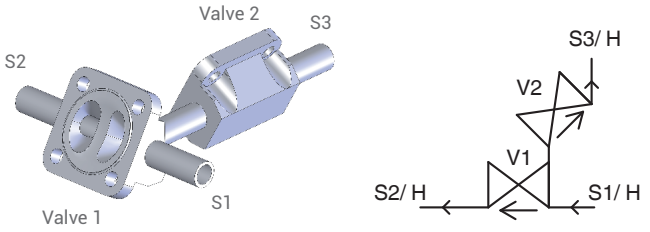


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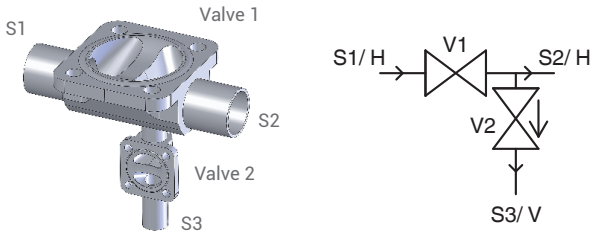


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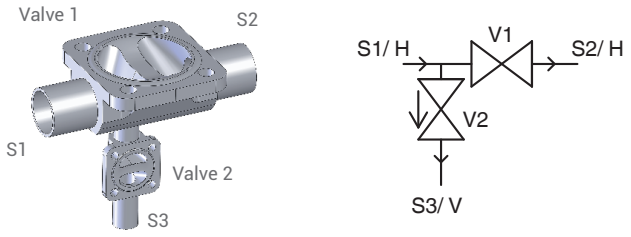
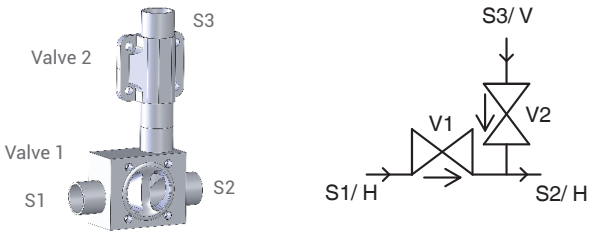


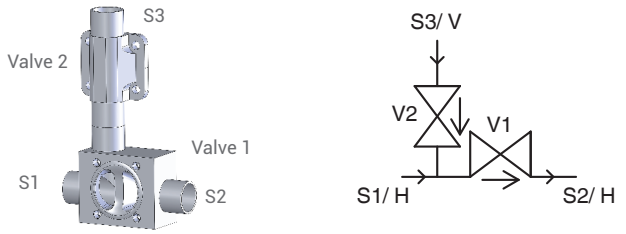

## Configuration 15

Main body M600, M600 03-01.ER



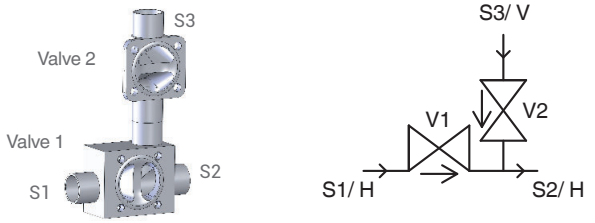

## Configuration 16

Main body M600, M600 03-01.EL




## Configuration 17

Main body M600, M600 03-01.ER




## Configuration 18

Main body M600, M600 03-01.EL


Notes:

- Since the max. diameter that can be welded on is limited, we ask that the GEMÜ specification sheet (see page 22) is always used to request the desired combinations
- The illustrations show recommended installation positions
- The arrows in the flow charts are examples

S1, S2, S3: Spigots

V1, V2: Valve seat

H: Horizontal orientation

V: Vertical orientation

→ : Flow direction

→ : Draining direction

# GMP / SAP configuration

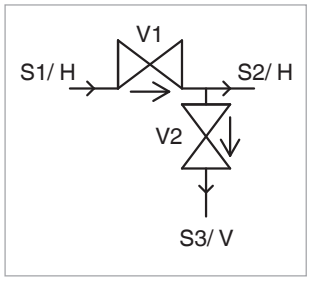
As a rule, the nominal sizes of the two valves differ for GMP and SAP valve configurations. Combinations with the same nominal sizes can, however, also be produced. However, due to the valve geometries and the available space situation (e.g. relating to the actuator dimensions and body), there are also limitations. In these cases, GEMÜ is also able to offer multi-port valve blocks (series M600) manufactured from a single piece as a further customised solution.

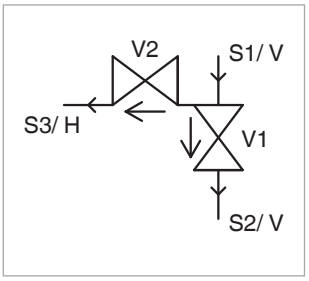
## SAP valve

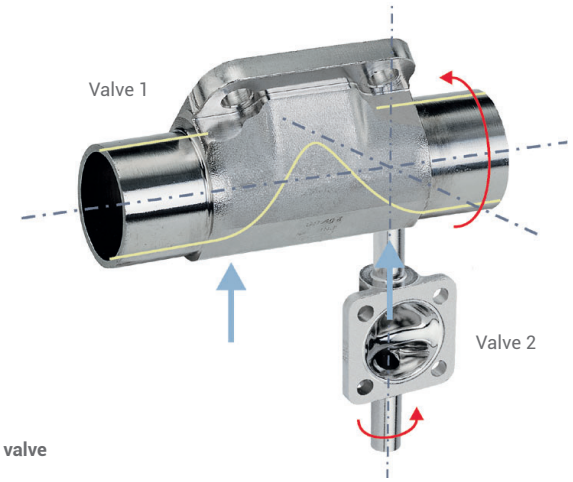
The term SAP (Sterile Access Port) valve defines a configuration of two valves welded together, with the 2/2-way valve (1) being arranged horizontally. The valve (2) is welded on vertically in front of or behind the 2/2-way valve (1) sealing weir depending on the application.

## GMP valve

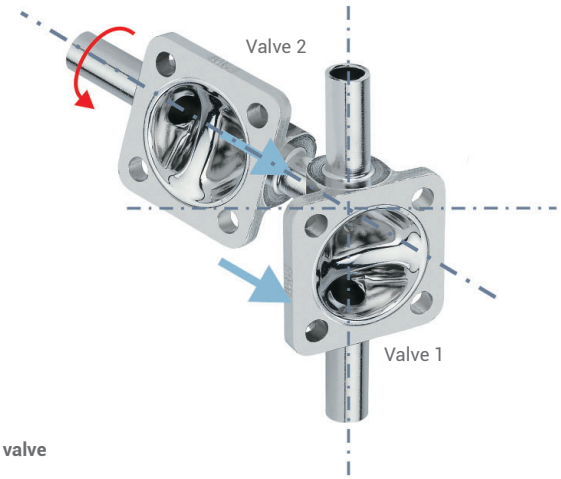
The term (Good Manufacturing Practice) valve defines a configuration of two valves welded together, with the 2/2-way valve (1) being arranged vertically. The valve (2) is welded on horizontally in front of or behind the 2/2-way valve (1) sealing weir depending on the application. It is twisted axially to the extent that its sealing weir is turned away from the volumetric flow and that the working medium can flow out unhindered even under depressurised conditions.




SAP valve



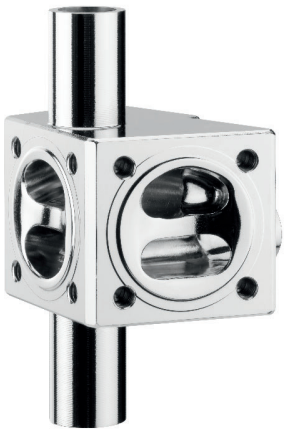

GMP valve

# W600 i-bodies

The GEMÜ i-body (integrated valve seat) can be seen as an intermediate step to full GEMÜ M-block design machined from a piece of block material. i-bodies are a special construction type of the classical 2/2-way valve bodies. The integrated valve seat of i-bodies is used for example as sampling, steam and condensate valve. The valve bodies have two valve seats and 3 pipe connections. They are manufactured from a forging blank or a piece of block material. The i-body offers a low cost and good alternative for a number of combinations. It already exhibits two essential features of an M-block. It has a greatly reduced dead volume and no internal weld. The drain or supply spigot is only welded on behind the valve seat.

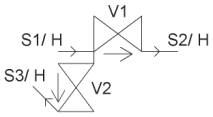
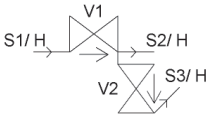
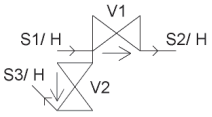
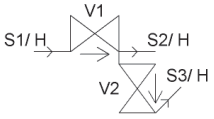
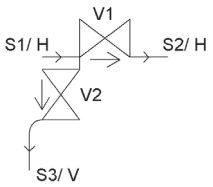
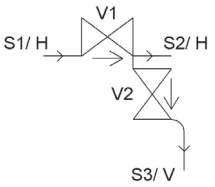
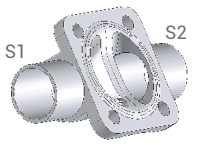
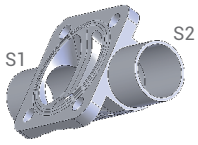
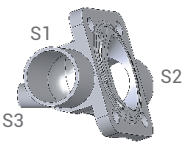
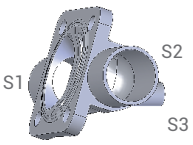
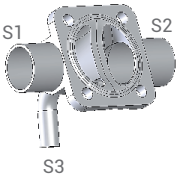
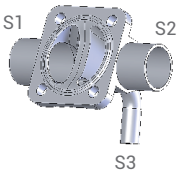
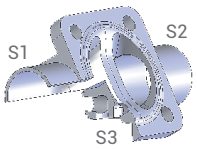
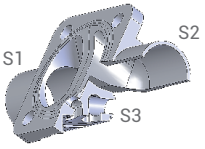
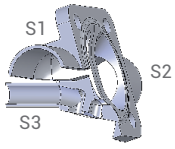
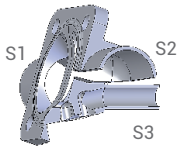
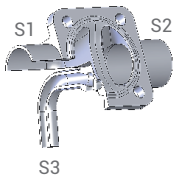
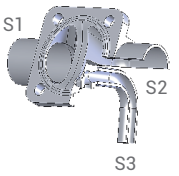
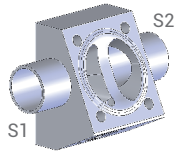
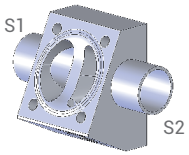
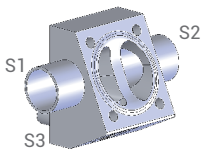
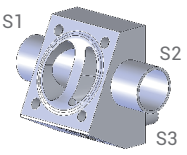
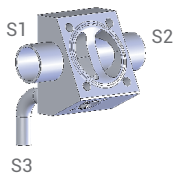
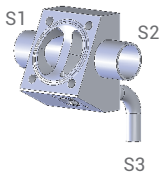
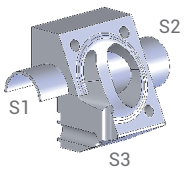
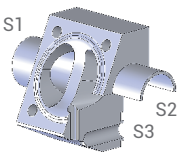
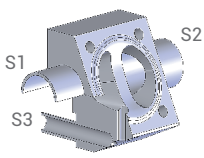
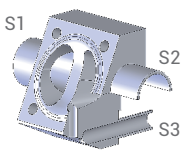
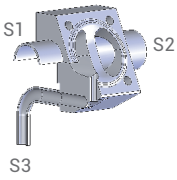
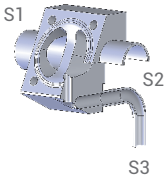
**Features**

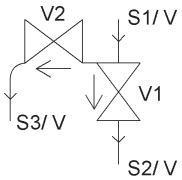
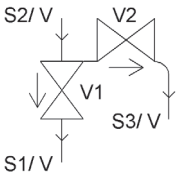
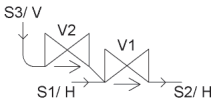
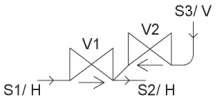
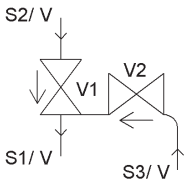
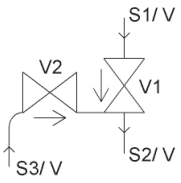
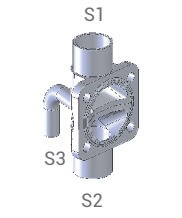
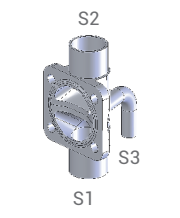
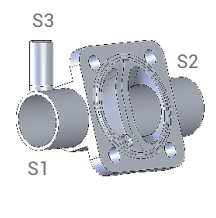
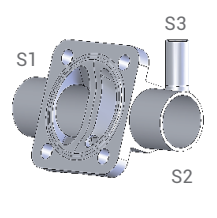
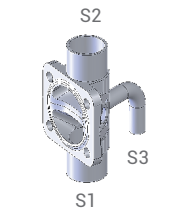
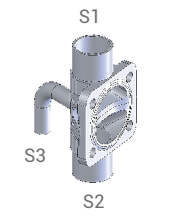
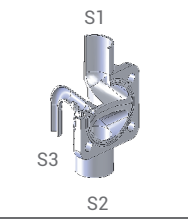
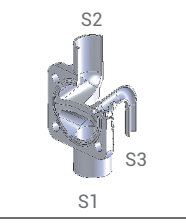
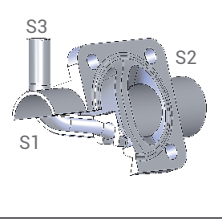
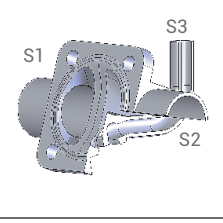
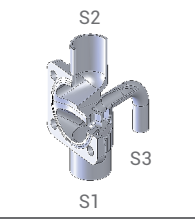
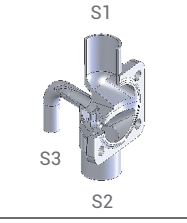
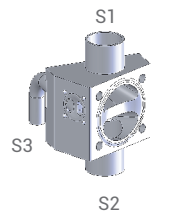
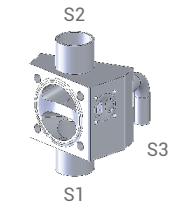
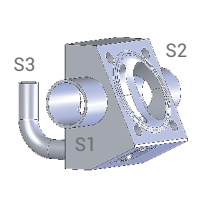
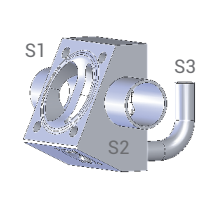
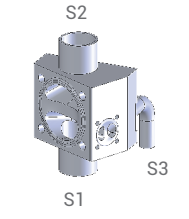
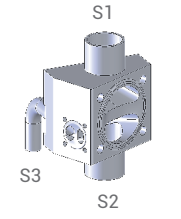
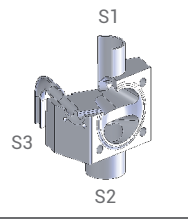
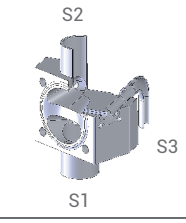
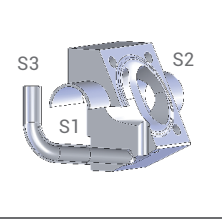
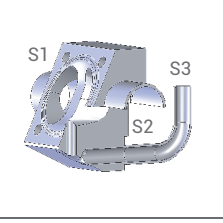
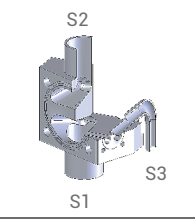
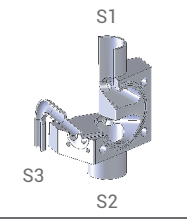
- Reduced weight
- Minimal deadleg
- No weld in the product area
- Compact
- Cost effective
- Available with spigots or elbows
- Draining in vertical installation position possible if adhering to the 3D-rule



# i-bodies

## Selection table

| | I0L | I0R | I1L | I1R | I2L | I2R |
|---|---|---|---|---|---|---|
| Weld-on parts | None | None | Pipe | Pipe | 90° elbow | 90° elbow |
| Flow chart |  |  |  |  |  |  |
| Forged bodies |  |  |  |  |  |  |
| |  |  |  |  |  |  |
| Block material bodies |  |  |  |  |  |  |
| |  |  |  |  |  |  |

| I3L | I3R | I4L | I4R | I5L | I5R |
|---|---|---|---|---|---|
| 90° elbow | 90° elbow | 90° elbow | 90° elbow | 90° elbow | 90° elbow |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Notes:
* Alternative installation positions are possible
* The arrows in the flow charts are examples

S1, S2, S3: Spigots

V1, V2: Valve seat

H: Horizontal orientation

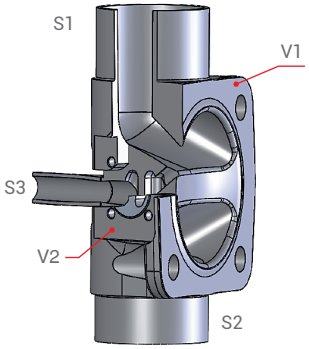
V: Vertical orientation

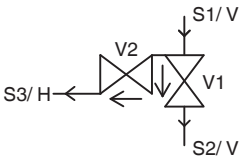
→ : Flow direction

→ : Draining direction

# Technical feasibility

## Alternative installation position



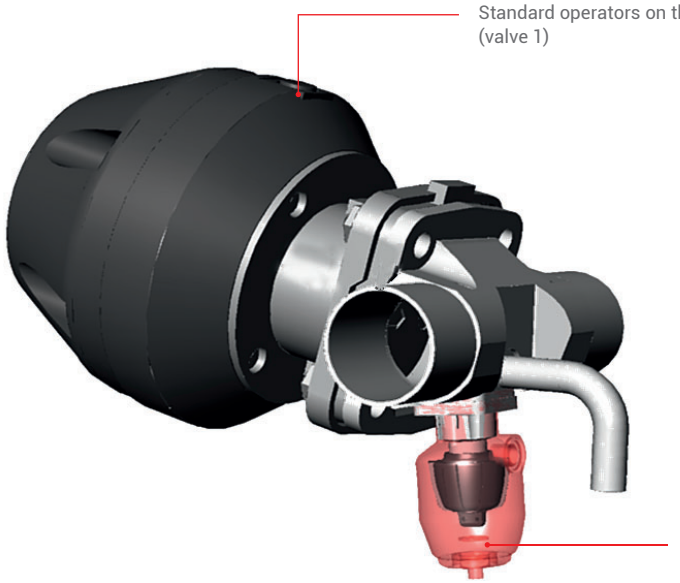




**Application examples:**

- Condensate valve
- Sampling valve

**Available seat sizes for material 1.4435:**

- Diaphragm size 8/8 block material body
- Diaphragm size 10/8 block material body
- Diaphragm size 25/8 forged body (forged body 1.4539 also possible)
- Diaphragm size 40/8 forged body (forged body 1.4539 also possible)
- Diaphragm size 50/8 forged body (forged body 1.4539 also possible)
- Diaphragm size 80/10 forged body
- Diaphragm size 100/10 forged body



# i-bodies with bypass

The bypass valve comprises a forged body with an integrated smaller valve seat. Compared to the i-bodies previously described, this seat is switched in parallel to the main seat. This valve type is particularly suitable for applications which require flow rates that change and that at the same time vary considerably – as is often the case on tank systems and filling machines.

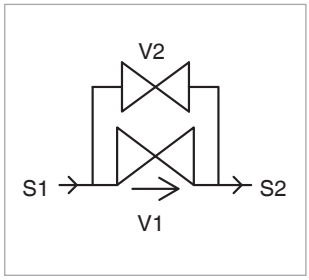
**Features**

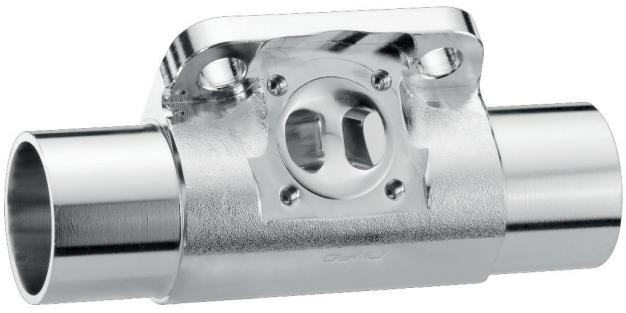
- Variable volumetric flow
- Continuous minimum flow rate
- Precise dosing option
- Large control range thanks to parallel connection of two different seat sizes in one valve
- Works like a static mixer
- Suitable as a sampling and tapping valve
- Different installation positions are possible

**Available seat sizes for material 1.4435:**

- Diaphragm size 25/8 forged body (forged body 1.4539 also possible)
- Diaphragm size 40/8 forged body (forged body 1.4539 also possible)
- Diaphragm size 50/8 forged body (forged body 1.4539 also possible)
- Diaphragm size 80/10 forged body
- Diaphragm size 100/10 forged body
- Diaphragm size 100/25 forged body
- Diaphragm size 100/40 forged body

Front view

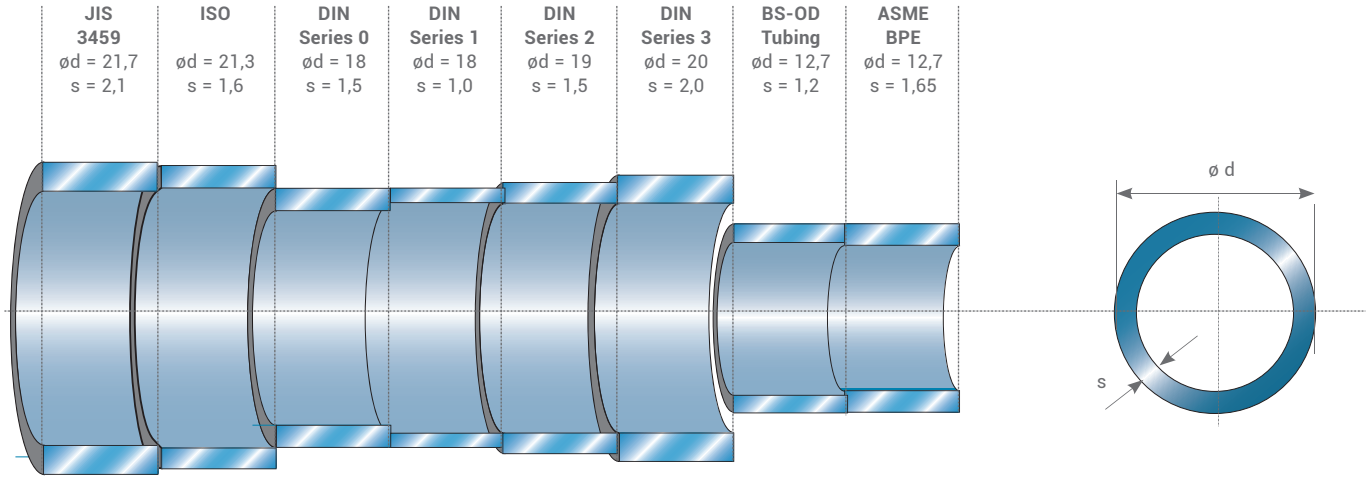


Rear view

# Butt weld spigot bodies

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

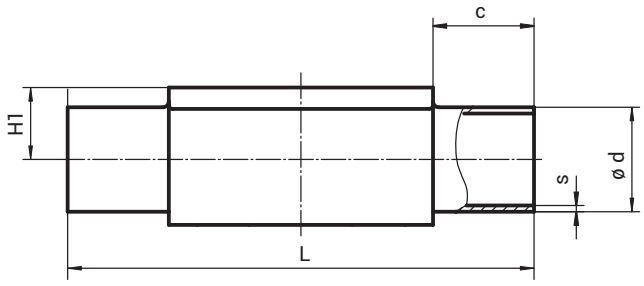



Dimensions in mm

| | | | | | | | DIN | | DIN EN 10357 * | | | | DIN 11850 | | DIN 11866 | | | | EN ISO 127 / DIN EN 10357 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Series 0 Code 0 | | Series B Code 16 | | Series A Code 17 | | Series 3 Code 18 | | Series A Code 1A | | Series B Code 1B | | Series C Code 60 | |
| MG | DN | NPS | L | LS | 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" | 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" | 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" | 108 | 25 | 12.5 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25 | 15 | ½" | 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" | 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" | 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" | 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" | 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" | 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
* replaces DIN 11850

Continued on the next page




Optimum draining angle see brochure „2/2-Way and T Valve Bodies in Stainless Steel"

| 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 | L | LS | 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" | 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" | 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" | 108 | 25 | 12.5 | | - | - | - | - | - | - | 19.05 | 1.2 | 19.05 | 1.65 | - | - | - | - |
| 25 | 15 | ½" | 120 | 25 | 13.0 | 19.0 | - | - | 21.7 | 2.10 | - | - | - | - | - | - | 21.3 | 2.11 | 21.3 | 2.77 |
| | 20 | ¾" | 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" | 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" | 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" | 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" | 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 |

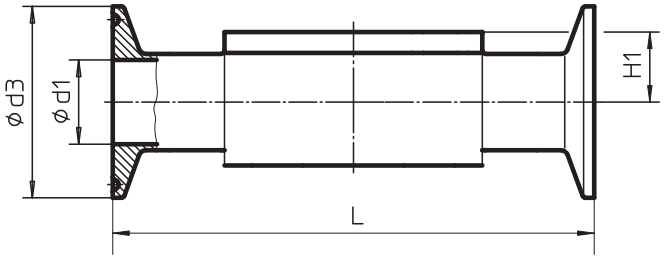
MG = diaphragm size

# Clamp bodies

All clamp connections are machined according to the spigot dimensions to DIN EN 10357 (replaces 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 or welded on. Investment cast bodies have welded on clamps as standard.
Welding is 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. Thus 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 |

Other versions on request




Optimum draining angle see brochure „2/2-Way and T Valve Bodies in Stainless Steel“

| Pipe | | | | Code 59 ASME-BPE | | | Code 60 EN ISO 1127 | | | Code 59 ASME-BPE | | | Code 16,17,18 DIN 11850 | | | Code 37 SMS 3008 | | | 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 | 25.0 | 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

# 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.
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.

| Valve body surface finish, internal contour | | | |
|---|---|---|---|
| | Forged body - Codes 40, 42, F4<br>Block material - Codes 41, 43 | Investment casting<br>Codes 32, 34 | Code |
| Ra ≤ 0.8 µm for media wetted surfaces, mechanically polished internal | X | X | 1502 |
| Ra ≤ 0.8 µm for media wetted surfaces, electropolished internal/external | X | - | 1503 |
| Ra ≤ 0.6 µm for media wetted surfaces, mechanically polished internal | X [1] | X [1] | 1507 |
| Ra ≤ 0.6 µm for media wetted surfaces, electropolished internal/external | X [1] | - | 1508 |
| Ra ≤ 0.25 µm for media wetted surfaces, electropolished internal/external | X [1] | - | 1516 |
| Ra ≤ 0.25 µm for media wetted surfaces, mechanically polished internal | X [1] | - | 1527 |
| Ra ≤ 0.4 µm for media wetted surfaces, mechanically polished internal | X [1] | - | 1536 |
| Ra ≤ 0.4 µm for media wetted surfaces, electropolished internal/external | X [1] | - | 1537 |
| Ra ≤ 0.51 µm (20 µinch) for media wetted surfaces, mechanically polished internal | X [1] | - | 1927 |
| Ra ≤ 0.51 µm (20 µinch) for media wetted surfaces, electropolished internal/external | X [1] | - | 1928 |
| Ra ≤ 0.38 µm (15 µinch) for media wetted surfaces, electropolished internal/external | X [1] | - | 1929 |

Ra in accordance with DIN 4768; at defined reference points. [1]For pipe inside diameter < 6 mm, surface in spigots Ra ≤ 0.8 µm.

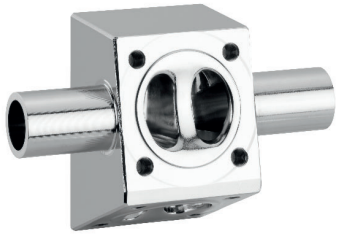
# Selection of operators

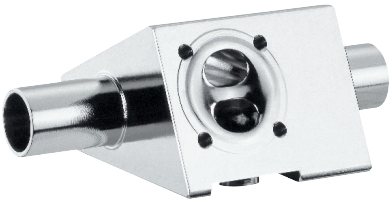
| | Manually operated | | | | | | Motorized | |
|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |
| **Type** | **9601**** | **9602**** | **9612**** | **9673** | **9653**** | **9654**** | **9618** | **9698** |
| **Material** | Stainless steel, plastic handwheel, with optical position indicator and seal adjuster | Stainless steel, with optical position indicator and seal adjuster | Stainless steel, plastic handwheel, with optical position indicator and seal adjuster | Stainless steel, plastic handwheel, with optical position indicator and seal adjuster | Stainless steel, plastic handwheel, with optical position indicator, stroke limiter/ seal adjuster, lockable, optional: electrical position indicator | Stainless steel, with optical position indicator, stroke limiter/ seal adjuster, lockable, optional: electrical position indicator | Plastic, with or without stainless steel distance piece, optical position indicator | Plastic, with or without stainless steel distance piece, optical position indicator and manual override |
| **Autoclavable** | ● | ● | ● | ● | ● | ● | - | - |
| **Operating temperature*** | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | 0 to 130 °C (without distance piece 15 to 60 °C) | 0 to 150 °C |
| **Operating pressure*** | 0 to 10 bar | 0 to 10 bar | 0 to 10 bar | 0 to 10 bar | 0 to 10 bar | 0 to 10 bar | 0 to 6 bar | 0 to 6 bar |
| **DN** | 4 to 15 | 4 to 15 | 10 to 20 | 15 to 50 | 10 to 100 | 4 to 100 | 4 to 15 | 15 to 50 |
| **Supply voltage** | - | - | - | - | - | - | 24 VAC, 120 VAC, 230 VAC, 50/60Hz | 24 VAC, 120 VAC, 230 VAC, 50/60Hz |
| **Diaphragm size 8** | ● | ● | - | - | - | ● | ● | - |
| **Diaphragm size 10** | - | - | ● | - | ● | ● | ● | - |
| **Diaphragm size 25** | - | - | - | ● | ● | ● | - | ● |
| **Diaphragm size 40** | - | - | - | ● | ● | ● | - | ● |
| **Diaphragm size 50** | - | - | - | ● | ● | ● | - | ● |
| **Diaphragm size 80** | - | - | - | - | ● | ● | - | - |
| **Diaphragm size 100** | - | - | - | - | ● | ● | - | - |

* dependent on diaphragm material, see technical datasheet
** also suitable for i-body for valve seat 2

| | Pneumatically operated | | | | | |
|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| **Type** | **9605** | **9625** | **9687** | **9650**** | **9658/9688** | **9660** |
| **Material** | 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 | Two stage actuator, stainless steel | Filling valve, stainless steel with optical position indicator |
| **Autoclavable** | - | - | - | (DN 4 to 25) | - | - |
| **Operating temperature*** | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C | -10 to 150 °C |
| **Operating pressure*** | 0 to 8 bar | 0 to 6 bar | 0 to 10 bar | 0 to 10 bar | 0 to 10 bar | 0 to 5 bar |
| **DN** | 4 to 15 | 10 to 20 | 10 to 100 | 4 to 100 | 10 to 50 | 4 to 25 |
| **Supply voltage** | - | - | - | - | - | - |
| **Diaphragm size 8** | ● | - | - | ● | ● | ● |
| **Diaphragm size 10** | - | ● | ● | ● | ● | ● |
| **Diaphragm size 25** | - | - | ● | ● | ● | ● |
| **Diaphragm size 40** | - | - | ● | ● | ● | - |
| **Diaphragm size 50** | - | - | ● | ● | ● | - |
| **Diaphragm size 80** | - | - | ● | ● | - | - |
| **Diaphragm size 100** | - | - | ● | ● | - | - |

* dependent on diaphragm material, see technical datasheet
** also suitable for i-body for valve seat 2



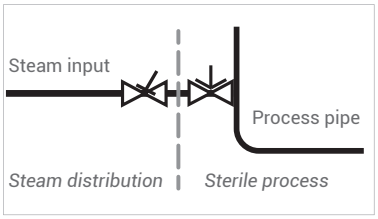


# Selection of diaphragms

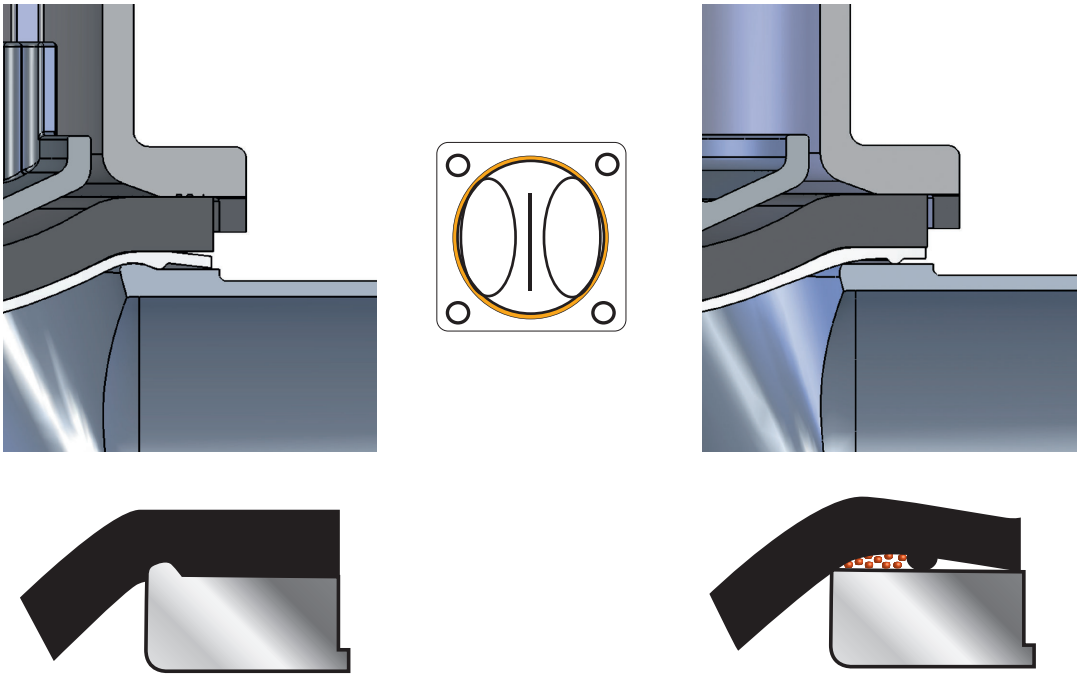
| Diaphragm | Material/Design | Dia-phragm size | Temperature range [°C] Liquid media Min. | Max. | Sterilisation [1] | Code | Certificates and approvals FDA compli-ant | USP Class VI | EHEDG | TA Luft (German Clean Air Act) | $O_2$ BAM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **EPDM** | Ethylene-propylene-diene rubber | 8 - 100 | -10 | 100 | max. 150 °C [2] max. 60 min. per cycle | 13/3A | ☒ | ☒ | ☒ | ☒ | ☒ |
| **EPDM** | Ethylene-propylene-diene rubber | 8 - 100 | -10 | 100 | max. 150 °C [2] max. 180 min. per cycle | 17 | ☒ | ☒ | ☒ | ☒ | |
| **PTFE/ EPDM** | Fully laminated PTFE diaphragm with EPDM back | 8, 10, 100 | -10 | 100 | max. 150 °C [2], no time limit per cycle | 52/5A | ☒ | ☒ | ☒ | ☒ | ☒ |
| | Convex two-piece PTFE diaphragm with loose EPDM back | 25, 40, 50, 80 | -10 | 100 | max. 150 °C [2], no time limit per cycle | 5E | ☒ | ☒ | ☒ | ☒ | ☒ |

[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 moisture 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.




## Das Original GEMÜ Dichtsystem



GEMÜ seal system

Conventional seal systems

# Materials and certificates

The table below provides an overview of the possible certificates which are generally available. The type of certificate and its content must be specified exactly before ordering to be able to provide the required documents. Later requests of certificates may not be possible or possible only under certain conditions.

Our specialists are happy to answer any questions you might have.

| Type | Designation of the test certificate in accordance with EN 10204 | Content of the certificate | Confirmation of the certificate by |
|---|---|---|---|
| 2.1 | Certificate of compliance with the order | Confirmation of compliance with the order | the manufacturer |
| 2.2 | Test report | Confirmation of compliance with the order with specification of results of non-specific testing | the manufacturer |
| 3.1 | Inspection certificate 3.1 | Confirmation of compliance with the order with specification of results of specific testing | the manufacturer acceptance officer independent of the production division |
| 3.2 | Inspection certificate 3.2 | Confirmation of compliance with the order with specification of results of specific testing | the manufacturer acceptance officer independent of the production division and the acceptance officer commissioned by the purchaser or the acceptance officer named in the official regulations |

# Specification W600 Valve configurations

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

**Configuration no.:**

**Quantity**

**Operating pressure** bar

**Medium temperature** °C

**Valve 1**

| | DN | Code | ød(a) [mm] | s [mm] |
|---|---|---|---|---|
| Spigot S1 | | | | |
| Spigot S2 | | | | |

○ only bored (make entries for dimensions for S3)

**Valve 2**

| | DN | Code | ød(a) [mm] | s [mm] |
|---|---|---|---|---|
| Spigot S3 | | | | |

○ **no deadleg requirement** ○ **3D rule** See sketch below ○ **6D rule** See sketch below

**Operator type**

**Diaphragm size**

**Control function**

**Accessories**

**Remark**

**Operator type**

**Diaphragm size**

**Control function**

**Accessories**

**Remark**

**Body material * Valve 1**

- ○ 1.4435
- ○ 1.4435 BN 2 (Δ Fe < 0,5%)
- ○ 1.4539
- Other

* Forged body as standard

**Body material * Valve 2**

- ○ 1.4435
- ○ 1.4435 BN 2 (Δ Fe < 0,5%)
- ○ 1.4539
- Other

* Forged body as standard

**Diaphragm material**

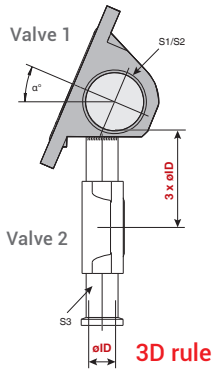
- EPDM ○ Code _____
- PTFE ○ Code _____
- Other ○ _____

**Diaphragm material**

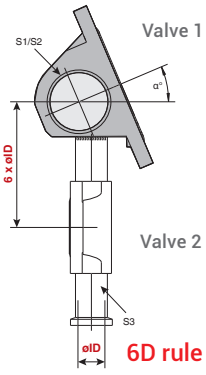
- EPDM ○ Code _____
- PTFE ○ Code _____
- Other ○ _____

**Surface finish Internal contour valve 1 and 2**

- 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 ○
- Other _____



3D rule



6D rule

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

**Contact (GEMÜ)**: _____

**Customer**: _____

Department: _____

Address: _____

_____

Phone: _____ E-mail: _____

**For internal notes**

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