# GEMÜ 550

Pneumatically operated angle seat globe valve

EN **Operating instructions**

further information
webcode: GW-550

## Contents

# 1 General information

## 1.1 Information

- The descriptions and instructions apply to the standard versions. For special versions not described in this document the basic information contained herein applies in combination with any additional special documentation.
- Correct installation, operation, maintenance and repair work ensure faultless operation of the product.
- Should there be any doubts or misunderstandings, the German version is the authoritative document.
- Contact us at the address on the last page for staff training information.
- A supplement to Directive 2014/34/EU (ATEX Directive) is included with the product, provided that it was ordered in accordance with ATEX.

## 1.2 Symbols used

The following symbols are used in this document:

| Symbol | Meaning |
|---|---|
| ● | Tasks to be performed |
| ▶ | Response(s) to tasks |
| – | Lists |

## 1.3 Definition of terms

**Working medium**

The medium that flows through the GEMÜ product.

**Control function**

The possible actuation functions of the GEMÜ product.

**Control medium**

The medium whose increasing or decreasing pressure causes the GEMÜ product to be actuated and operated.

## 1.4 Warning notes

Wherever possible, warning notes are organised according to the following scheme:

| SIGNAL WORD | |
|---|---|
| Possible symbol for the specific danger | Type and source of the danger<br>▶ Possible consequences of non-observance.<br>● Measures for avoiding danger. |

Warning notes are always marked with a signal word and sometimes also with a symbol for the specific danger.

The following signal words and danger levels are used:

**⚠ DANGER**

**Imminent danger!**

▶ Non-observance can cause death or severe injury.

**⚠ WARNING**

**Potentially dangerous situation!**

▶ Non-observance can cause death or severe injury.

**⚠ CAUTION**

**Potentially dangerous situation!**

▶ Non-observance can cause moderate to light injury.

**NOTICE**

**Potentially dangerous situation!**

▶ Non-observance can cause damage to property.

The following symbols for the specific dangers can be used within a warning note:

| Symbol | Meaning |
|---|---|
|  | Danger - hot surfaces |
|  | Danger - corrosive materials |

## 2 Safety information

The safety information in this document refers only to an individual product. Potentially dangerous conditions can arise in combination with other plant components, which need to be considered on the basis of a risk analysis. The operator is responsible for the production of the risk analysis and for compliance with the resulting precautionary measures and regional safety regulations.

The document contains fundamental safety information that must be observed during commissioning, operation and maintenance. Non-compliance with these instructions may cause:

- Personal hazard due to electrical, mechanical and chemical effects.
- Hazard to nearby equipment.
- Failure of important functions.
- Hazard to the environment due to the leakage of dangerous substances.

The safety information does not take into account:

- Unexpected incidents and events, which may occur during installation, operation and maintenance.
- Local safety regulations which must be adhered to by the operator and by any additional installation personnel.

**Prior to commissioning:**

1. Transport and store the product correctly.
2. Do not paint the bolts and plastic parts of the product.
3. Carry out installation and commissioning using trained personnel.
4. Provide adequate training for installation and operating personnel.
5. Ensure that the contents of the document have been fully understood by the responsible personnel.
6. Define the areas of responsibility.
7. Observe the safety data sheets.
8. Observe the safety regulations for the media used.

**During operation:**

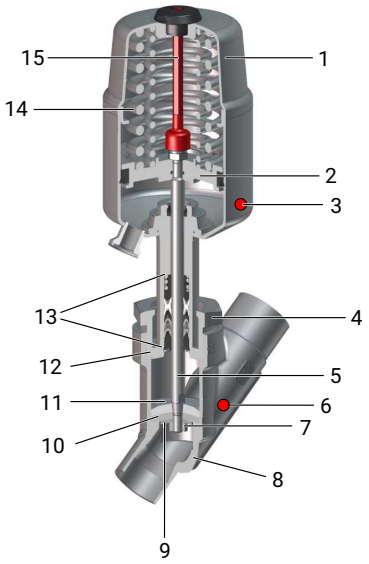
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not described in this document without consulting the manufacturer first.

**In cases of uncertainty:**

15. Consult the nearest GEMÜ sales office.

## 3 Product description

### 3.1 Construction




| Item | Name | Materials |
|---|---|---|
| 1 | Actuator* | Stainless steel |
| 2 | Piston | |
| 3 | CONEXO actuator RFID chip (see Conexo information) | |
| 4 | Union nut | |
| 5 | Spindle | |
| 6 | CONEXO body RFID chip (see Conexo information) | |
| 7 | Nut | |
| 8 | Valve body* | 1.4408 investment casting 1.4435 investment casting 1.4435 (F316L), forged body |
| 9 | Washer | |
| 10 | Seat seal* | PTFE, 1.4404 |
| 11 | Valve plug | |
| 12 | Gasket* | |
| 13 | Gland packing | |
| 14 | Compression spring(s) | |
| 15 | Optical position indicator | |

*These components are available as spare parts (see operating instructions chapter "Spare parts (see Chapter 14.2, page 41)").

### 3.2 Description

The GEMÜ 550 2/2-way angle seat globe valve has a low-maintenance stainless steel piston actuator and is pneumatically operated. The valve spindle is sealed by a self-adjusting

gland packing providing low-maintenance and reliable valve spindle sealing even after a long service life. A wiper ring fitted in front of the gland packing protects the seal against contamination and damage.

## 3.3 Function

The product controls a flowing medium by being closed or opened by a control medium.

The product has an optical position indicator as standard. The optical position indicator indicates the OPEN and CLOSED positions.

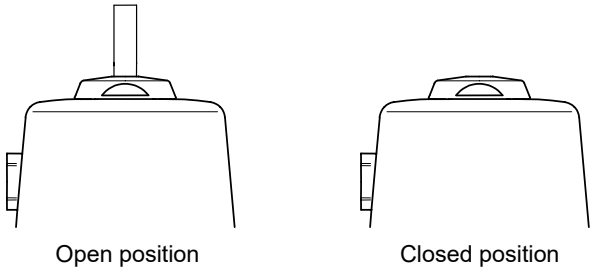



*Fig. 2: Optical position indicator*

## 3.4 Control function

The following control functions are available:

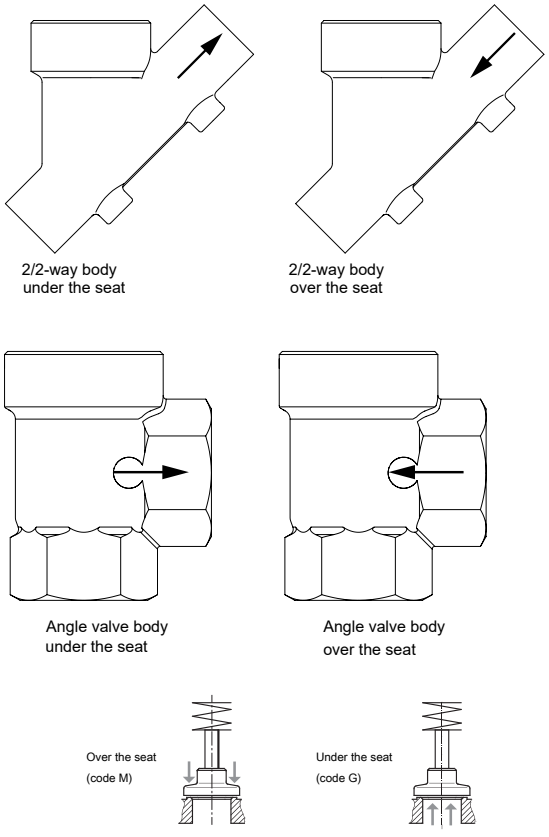
**Control function 1:** Normally closed (NC)

**Control function 2:** Normally open (NO)

**Control function 3:** Double acting (DA)

## 3.5 Flow direction

The flow direction is indicated by an arrow on the valve body.

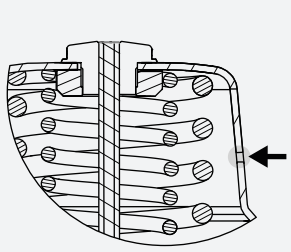
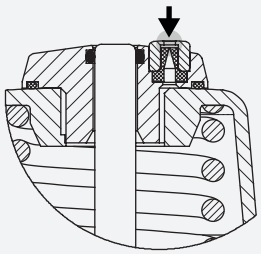



Under the seat (code G) is the preferred flow direction with incompressible liquid media to avoid water hammer

Over the seat (code M) only with control function - Normally closed (NC)

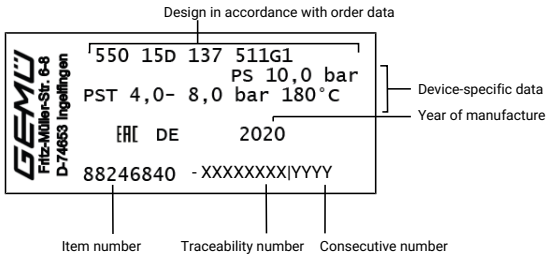
## 3.6 Vent hole in the actuator

To vent the control medium, the pneumatic actuator has a vent hole that is located on the side of the actuator housing (control function normally closed). In certain areas of application (e.g. the foodstuff industry), dirty water or cleaning media could enter through this vent hole and penetrate the actuator, thereby adversely affecting correct operation. A special vent system with lip check valve is available for these applications, which prevents such functional impairment. The vent hole at the side is then closed.

| | |
|---|---|
|  |  |
| Standard vent hole | Special vent system K-no. 6996 |

## 3.7 Product label

The product label is located on the actuator. Product label data (example):




The month of manufacture is encoded in the traceability number and can be obtained from GEMÜ. The product was manufactured in Germany.

The operating pressure stated on the product label applies to a media temperature of 20 °C. The product can be used up to the maximum stated media temperature. You can find the pressure/temperature correlation in the technical data.

## 4 Correct use

**⚠ DANGER**

**Danger of explosion!**

- ► Risk of severe injury or death
- ● If there is no corresponding declaration of conformity, the product must not be used in potentially explosive atmospheres!
- ● Only use the product in potentially explosive zones confirmed in the declaration of conformity.

**⚠ WARNING**

**Improper use of the product!**

- ► Risk of severe injury or death
- ► Manufacturer liability and guarantee will be void.
- ● Only use the product in accordance with the operating conditions specified in the contract documentation and in this document.

The product is designed for installation in piping systems and for controlling a working medium.

1. Use the product in accordance with the technical data.
2. Note the supplement acc. to ATEX
3. Please note the flow direction on the valve body.

# 5 Order data

The order data provide an overview of standard configurations.

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

## Order codes

| 1 Type | Code |
|---|---|
| Angle seat globe valve, pneumatically operated, stainless steel piston actuator | 550 |

| 2 DN | Code |
|---|---|
| DN 6 | 6 |
| DN 8 | 8 |
| DN 10 | 10 |
| DN 15 | 15 |
| DN 20 | 20 |
| DN 25 | 25 |
| DN 32 | 32 |
| DN 40 | 40 |
| DN 50 | 50 |
| DN 65 | 65 |
| DN 80 | 80 |

| 3 Body configuration | Code |
|---|---|
| 2/2-way body | D |
| Angle valve body | E |

| 4 Connection type | Code |
|---|---|
| **Spigot** | |
| Spigot DIN | 0 |
| Spigot DIN EN 10357 series B (2014 edition; formerly DIN 11850 series 1) | 16 |
| Spigot EN 10357 series A/DIN 11866 series A formerly DIN 11850 series 2 | 17 |
| Spigot SMS 3008 | 37 |
| Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C | 59 |
| Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/ DIN 11866 series B | 60 |
| **Threaded connection** | |
| Threaded socket DIN ISO 228 | 1 |
| Threaded socket Rc ISO 7-1, EN 10226-2, JIS B 0203, BS 21, end-to-end dimension ETE DIN 3202-4 series M8 | 3C |
| Threaded socket NPT, end-to-end dimension ETE DIN 3202-4 series M8 | 3D |
| Threaded spigot DIN ISO 228 | 9 |
| **Flange** | |
| Flange EN 1092, PN 25, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1 | 10 |
| Flange EN 1092, PN 25, form B | 13 |
| Flange ANSI Class 150 RF | 47 |
| **Clamp** | |
| Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 1 | 82 |

| 4 Connection type | Code |
|---|---|
| Clamp DIN 32676 series A, face-to-face dimension FTF EN 558 series 1 | 86 |
| Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 1 | 88 |

| 5 Valve body material | Code |
|---|---|
| **Investment casting material** | |
| 1.4435, investment casting | 34 |
| 1.4408, investment casting | 37 |
| 1.4435, investment casting | C2 |
| **Forged material** | |
| 1.4435 (F316L), forged body | 40 |
| **Note:** A surface finish from the order code table "Type of design"" must be specified for valve body material C2. | |

| 6 Seat seal | Code |
|---|---|
| PTFE | 5 |
| PTFE, glass fibre reinforced | 5G |
| PTFE FDA compliant, USP class VI | 5P |
| 1.4404 | 10 |

| 7 Control function | Code |
|---|---|
| Normally closed (NC) | 1 |
| Normally open (NO) | 2 |
| Double acting (DA) | 3 |

| 8 Actuator version | Code |
|---|---|
| Actuator size 0G1 | 0G1 |
| Actuator size 0M1 | 0M1 |
| Actuator size 1G1 | 1G1 |
| Actuator size 1M1 | 1M1 |
| Actuator size 2G1 | 2G1 |
| Actuator size 2M1 | 2M1 |
| Actuator size 3G1 | 3G1 |
| Actuator size 3M1 | 3M1 |
| Actuator size 4G1 | 4G1 |
| Actuator size 5G1 | 5G1 |

| 9 Type of design | Code |
|---|---|
| Standard | |
| For higher operating temperatures | 2023 |
| Special bleed system integrated in actuator | 6996 |
| Ra ≤ 0.6 µm (25 µinch) for media wetted surfaces, in accordance with ASME BPE SF2 + SF3 mechanically polished internal | 1903 |

| 9 Type of design | Code |
|---|---|
| Ra ≤ 0.8 µm (30 µinch) for media wetted surfaces, in accordance with DIN 11866 H3, mechanically polished internal | 1904 |
| Ra ≤ 0.4 µm (15 µinch) for media wetted surfaces, in accordance with DIN 11866 H4, ASME BPE SF1 mechanically polished internal | 1909 |
| Ra ≤ 0.6 µm for media wetted surfaces, in accordance with ASME BPE SF6, electropolished internal/external | 1953 |
| Ra ≤ 0.8 µm for media wetted surfaces, in accordance with DIN 11866 HE3, electropolished internal/external | 1954 |
| Ra ≤ 0.4 µm for media wetted surfaces, in accordance with DIN 11866 HE4/ASME BPE SF5, electropolished internal/external | 1959 |

| 10 Special version | Code |
|---|---|
| Standard | |
| Certified to DIN EN 161, class A | G |
| Special version for oxygen, (max. temperature 60 °C; max. operating pressure 10 bar), flow direction only possible under the seat! Media-wetted seal materials and auxiliary materials with BAM testing | S |

| 11 CONEXO | Code |
|---|---|
| Without | |

## *Order codes*

| Ordering option | Code | Description |
|---|---|---|
| 1 Type | 550 | Angle seat globe valve, pneumatically operated, stainless steel piston actuator |
| 2 DN | 15 | DN 15 |
| 3 Body configuration | D | 2/2-way body |
| 4 Connection type | 1 | Threaded socket DIN ISO 228 |
| 5 Valve body material | 37 | 1.4408, investment casting |
| 6 Seat seal | 5 | PTFE |
| 7 Control function | 1 | Normally closed (NC) |
| 8 Actuator version | 1G1 | Actuator size 1G1 |
| 9 Type of design | | Standard |
| 10 Special version | | Standard |
| 11 CONEXO | | Without |

# 6 Technical data

## 6.1 Medium

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

**Control medium:** Inert gases

**Max. permissible viscosity:** 600 mm²/s (cSt)
Other versions for lower/higher temperatures and higher viscosities on request.

## 6.2 Temperature

**Media temperature:** -10 — 180 °C
-10 — 210 °C only with design ordering option (code 2023)
-10 — 60 °C only with special function ordering option (code G)
-10–60 °C only with special function ordering option (code S)
For material code 37 (and 34 only with 3.2. certificate): -40–180 °C

**Ambient temperature:** -10 — 60 °C
For material code 37 (and 34 only with 3.2. certificate): -40–60 °C

**Control medium temperature:** 0 — 60 °C

**Storage temperature:** -30 — 60 °C

## 6.3 Pressure

**Operating pressure:** **Control function 1 (NC) - Flow direction under the seat**

| Actuator version code | 0G1 | 1G1 | 2G1 | 3G1 | 4G1 | 5G1 |
|---|---|---|---|---|---|---|
| DN | | | | | | |
| **6** | 10.0 | - | - | - | - | - |
| **8** | 10.0 | 10.0 | - | - | - | - |
| **10** | 10.0 | 10.0 | 22.0 | - | - | - |
| **15** | 10.0 | 10.0 | 22.0 | - | - | - |
| **20** | - | 6.0 | 12.0 | 25.0 | - | - |
| **25** | - | 3.5 | 7.0 | 16.0 | 25.0 | - |
| **32** | - | - | 4.0 | 10.0 | 18.0 | 25.0 |
| **40** | - | - | 2.5 | 6.0 | 12.0 | 20.0 |
| **50** | - | - | - | 3.0 | 7.0 | 15.0 |
| **65** | - | - | - | - | - | 10.0 |
| **80** | - | - | - | - | - | 7.0 |

All pressures are gauge pressures. When the flow is over the seat (M), there may be the danger of water hammer with liquid media! For max. operating pressures the pressure/temperature correlation must be observed.

**Operating pressure:**

**Control function 1 (NC) - Flow direction over the seat**

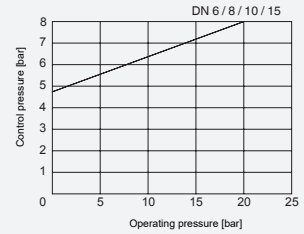
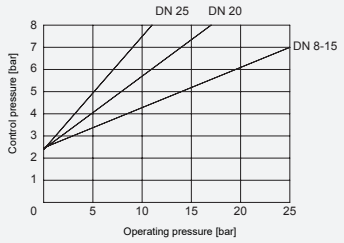
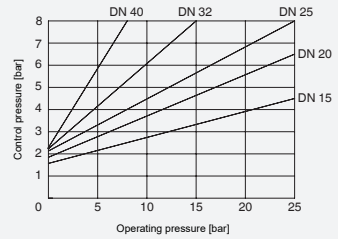
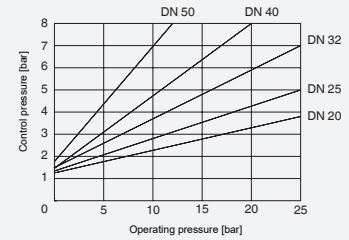
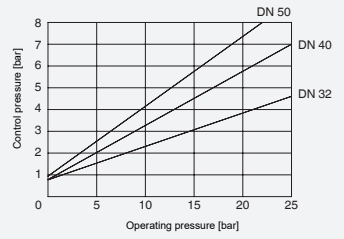
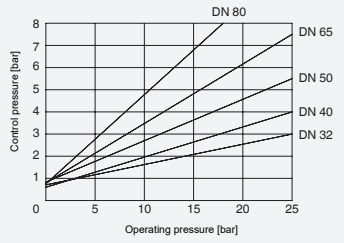
| Actuator version code | 0M1 | 1M1 | 2M1 | 3M1 |
|---|---|---|---|---|
| DN | | | | |
| **6** | 10.0 | - | - | - |
| **8** | 10.0 | 10.0 | - | - |
| **10** | 10.0 | 10.0 | - | - |
| **15** | 10.0 | 10.0 | 10.0 | - |
| **20** | - | 10.0 | 10.0 | 10.0 |
| **25** | - | 10.0 | 10.0 | 10.0 |
| **32** | - | - | 10.0 | 10.0 |
| **40** | - | - | 8.0 | 10.0 |
| **50** | - | - | 5.0 | 10.0 |
| **65** | - | - | - | - |
| **80** | - | - | - | - |

All pressures are gauge pressures. When the flow is over the seat (M), there may be the danger of water hammer with liquid media! For max. operating pressures the pressure/temperature correlation must be observed.

**Pressure rating:** PN 16

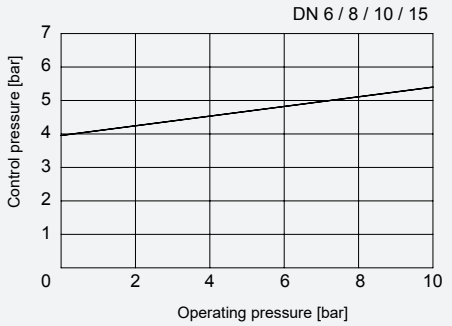
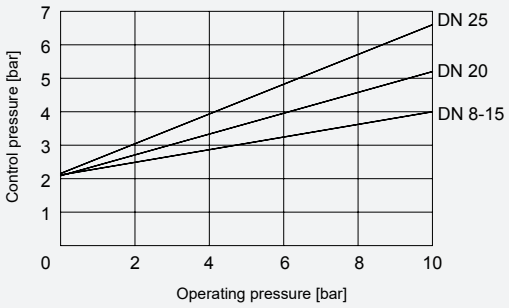
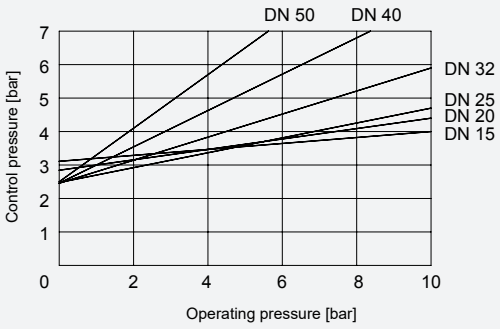
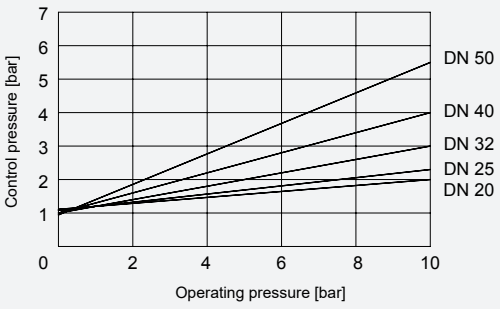
**Control pressure:**

**Flow direction: under the seat**

| Actuator version code | Control function 1 normally closed (NC) | Control function 2 and 3 normally open (NO) and double acting (DA) |
|---|---|---|
| 0G1 | 4 – 8 bar |  |
| 1G1 | 4 – 8 bar |  |
| 2G1 | 4 – 8 bar |  |
| 3G1 | 4 – 8 bar |  |
| 4G1 | 4 – 8 bar |  |
| 5G1 | 5 – 8 bar |  |

**Control pressure:**

**Flow direction: over the seat**

| Actuator version code | Control function 1 normally closed (NC) |
|---|---|
| 0M1 | 5 – 8 bar   |
| 1M1 | 5 – 8 bar   |
| 2M1 | 5 – 8 bar   |
| 3M1 | 5 – 8 bar   |

**Filling volume:**

| Actuator version code | Filling volume | Piston diameter |
|---|---|---|
| **0G1, 0M1** | 0.006 dm³ | 28 mm |
| **1G1, 1M1** | 0.025 dm³ | 42 mm |
| **2G1, 2M1** | 0.084 dm³ | 60 mm |
| **3G1, 3M1** | 0.245 dm³ | 80 mm |
| **4G1** | 0.437 dm³ | 100 mm |
| **5G1** | 0.798 dm³ | 130 mm |

**Leakage rate:**

| Seat seal | Standard | Test procedure | Leakage rate | Test medium |
|---|---|---|---|---|
| Metal | DIN EN 12266-1 | P12 | F | Air |
| PTFE | DIN EN 12266-1 | P12 | A | Air |

**Pressure/temperature correlation:**

| Connection type code | Material code | Max. allowable operating pressures in bar at temperature in °C | | | | | |
|---|---|---|---|---|---|---|---|
| | | RT | 100 | 150 | 200 | 250 | 300 |
| **1, 9, 17, 37, 60, 3C, 3D** | **37** | 25.0 | 23.8 | 21.4 | 18.9 | 17.5 | 16.1 |
| **0, 16, 17, 37, 59, 60** | **34** | 25.0 | 24.5 | 22.4 | 20.3 | 18.2 | 16.1 |
| **13 (DN 15 - 50)** | **34** | 25.0 | 23.6 | 21.5 | 19.8 | 18.6 | 17.2 |
| **88 (DN 15 – DN 40)** | **34** | 25.0 | 21.2 | 19.3 | - | - | - |
| **88 (DN 15 – DN 80)** | **34** | 16.0 | 16.0 | 16.0 | - | - | - |
| **82 (DN 15 - 32)** | **34** | 25.0 | 21.2 | 19.3 | - | - | - |
| **82 (DN 40 - 65)** | **34** | 16.0 | 16.0 | 16.0 | - | - | - |
| **86 (DN 15 - 40)** | **34** | 25.0 | 21.2 | 19.3 | - | - | - |
| **86 (DN 50 - 65)** | **34** | 16.0 | 16.0 | 16.0 | - | - | - |
| **10 (DN 15 - 50)** | **37** | 25.0 | 25.0 | 22.7 | 21.0 | 19.8 | 18.5 |
| **47 (DN 15 - 50)** | **34** | 15.9 | 13.3 | 12.0 | 11.1 | 10.2 | 9.7 |
| **0, 16, 17, 59, 60** | **40** | 25.0 | 20.6 | 18.7 | 17.1 | 15.8 | 14.8 |
| **17, 59, 60** | **C2** | 25.0 | 21.2 | 19.3 | 17.9 | 16.8 | 15.9 |

* max. temperature 140 °C
RT = room temperature
All pressures are gauge pressures.
The valves are suitable for temperatures as low as -10 °C

**Cv values:**

| DN | Butt weld spigot DIN 11850 | Butt weld spigot DIN 11866 | Threaded socket DIN ISO 228 |
|---|---|---|---|
| **6** | 1.6 | - | - |
| **8** | 1.8 | 2.2 | - |
| **10** | 2.4 | 4.5 | 4.5 |
| **15** | 2.4 | 5.5 | 5.4 |
| **20** | - | 11.7 | 10.0 |
| **25** | - | 20.5 | 15.2 |
| **32** | - | 33.0 | 23.0 |
| **40** | - | 51.0 | 41.0 |
| **50** | - | 61.0 | 68.0 |
| **65** | - | 110.0 | 95.0 |
| **80** | - | 117.0 | 130.0 |

Kv values in $m^3/h$
Kv values determined in accordance with EN 60534. The Kv value data refers to control function 1 (NC) and the largest actuator for each nominal size. The Kv values for other product configurations (e.g. other connection types or body materials) may differ.

## 6.4 Product conformity

| | |
|---|---|
| **Food:** | Regulation (EC) No. 1935/2004*<br>Regulation (EC) No. 10/2011*<br>FDA*<br>* depending on version and/or operating parameters |
| **Pressure Equipment Directive:** | 2014/68/EU |
| **Machinery Directive:** | 2006/42/EC |
| **Gas:** | EN 161<br>EN 16678 |
| **Gas identification:** | Valve group: 2<br>Valve class: A |
| **Explosion protection:** | ATEX (2014/34/EU) on request |
| **SIL:** | **Product description:** Angle seat globe valve GEMÜ 550<br>**Device type:** A<br>**Safety function:** Due to the safety function, the globe valve or angle seat globe valve is placed in the closed position (with control function 1) or in the open position (with control function 2).<br>**HFT (Hardware Fault Tolerance):** 0<br>**MTTR (Mean Time To Restoration):** 24 hours |

## 6.5 Mechanical data

**Weight:**

Actuator

| DN | Actuator size | | | | | |
|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 |
| **6** | 0.24 | - | - | - | - | - |
| **8** | 0.24 | 0.62 | 0.90 | - | - | - |
| **10** | 0.24 | 0.62 | 0.90 | - | - | - |
| **15** | 0.24 | 0.66 | 0.97 | - | - | - |
| **20** | - | 0.73 | 1.00 | 1.70 | - | - |
| **25** | - | - | 1.10 | 1.80 | 3.20 | - |
| **32** | - | - | 1.30 | 2.00 | 3.40 | 6.50 |
| **40** | - | - | 1.60 | 2.10 | 3.50 | 6.60 |
| **50** | - | - | - | 2.30 | 3.70 | 6.80 |
| **65** | - | - | - | - | - | 7.40 |
| **80** | - | - | - | - | - | 8.10 |

Weights in kg

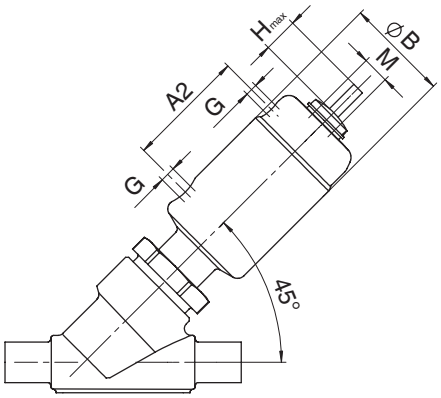
Body

| DN | Spigot K514 | Threaded socket | Threaded spigot | Flange K514 | Clamp |
|---|---|---|---|---|---|
| | Connection type code | | | | |
| | 0, 16, 17, 37, 59, 60 | 1, 3C, 3D | 9 | 10, 13, 47 | 82, 86, 88 |
| **6** | 0.12 | - | 0.14 | - | - |
| **8** | 0.12 | 0.25 | 0.12 | - | - |
| **10** | 0.12 | 0.25 | 0.14 | - | - |
| **15** | 0.16 | 0.25 | 0.14 | - | - |
| **10** | 0.25 | 0.25 | - | - | - |
| **15** | 0.24 | 0.35 | 0.31 | 1.80 | 0.37 |
| **20** | 0.50 | 0.35 | 0.50 | 2.50 | 0.63 |
| **25** | 0.50 | 0.35 | 0.65 | 3.10 | 0.63 |
| **32** | 0.90 | 0.75 | 1.00 | 4.60 | 1.08 |
| **40** | 1.10 | 0.98 | 1.30 | 5.10 | 1.28 |
| **50** | 1.80 | 1.70 | 1.80 | 7.20 | 2.07 |
| **65** | 3.40 | 3.20 | 3.40 | - | 3.69 |
| **80** | 4.20 | 4.10 | 4.40 | - | 4.60 |

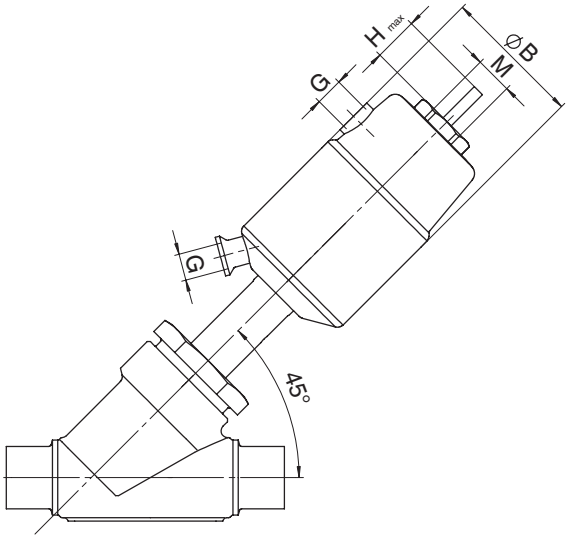
Weights in kg

# 7 Dimensions

## 7.1 Actuator dimensions




Actuator size 0, 1



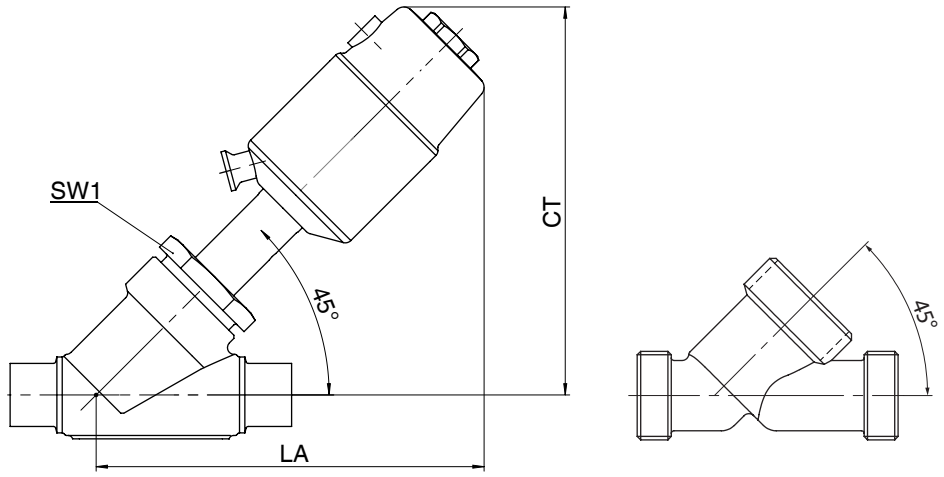

Actuator size 2–5

| Actuator size | øB | M | H max* | G | A2 |
|---|---|---|---|---|---|
| **0** | 32.0 | M 12 x 1 | 6.0 | M 5 | 35.4 |
| **1** | 46.0 | M 16 x 1 | 12.0 | G 1/8 | 53.0 |
| **2** | 63.0 | M 16 x 1 | 22.0 | G 1/8 | - |
| **3** | 84.0 | M 16 x 1 | 28.0 | G 1/4 | - |
| **4** | 104.0 | M 22 x 1.5 | 32.0 | G 1/4 | - |
| **5** | 135.0 | M 22 x 1.5 | 41.0 | G 1/4 | - |

Dimensions in mm
H max*: Depends on the nominal size

## 7.2 Installation dimensions

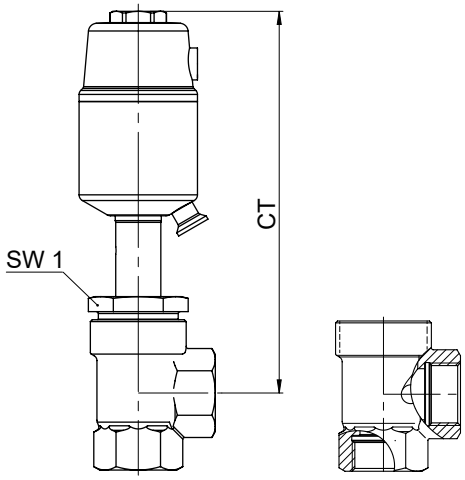
### 7.2.1 Valve with 2/2-way body




| Actuator size | | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| DN | SW | CT/LA | CT/LA | CT/LA | CT/LA | CT/LA | CT/LA |
| **6** | **24** | 91.0 | - | - | - | - | - |
| **8** | **24** | 91.0 | - | - | - | - | - |
| **10** | **24** | 91.0 | - | - | - | - | - |
| **15** | **24** | 91.0 | - | - | - | - | - |
| **8** | **36** | - | 134.0 | 171.0 | - | - | - |
| **10** | **36** | - | 134.0 | 171.0 | - | - | - |
| **15** | **36** | - | 137.0 | 174.0 | - | - | - |
| **20** | **41** | - | 143.0 | 180.0 | 198.0 | - | - |
| **25** | **46** | - | - | 184.0 | 202.0 | 235.0 | - |
| **32** | **55** | - | - | 192.0 | 210.0 | 243.0 | 269.0 |
| **40** | **60** | - | - | 187.0 | 215.0 | 248.0 | 274.0 |
| **50** | **55** | - | - | - | 223.0 | 256.0 | 282.0 |
| **65** | **75** | - | - | - | - | - | 295.0 |
| **80** | **75** | - | - | - | - | - | 312.0 |

Dimensions in mm
The specified dimensions refer to control function 1 (normally closed NC).
The dimensions are smaller for control function 2 (normally open NO).

### *7.2.2 Valve with angle valve body*

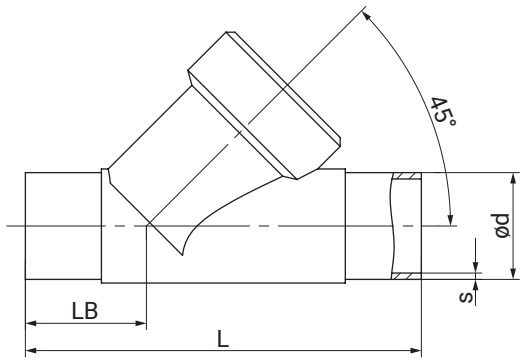



| Actuator size | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| DN | SW | CT/LA | CT/LA | CT/LA | CT/LA | CT/LA |
| **15** | **36** | 149.0 | 195.0 | - | - | - |
| **20** | **41** | 152.0 | 198.0 | 214.0 | - | - |
| **25** | **46** | - | 202.0 | 218.0 | 256.0 | - |
| **32** | **55** | - | 205.0 | 221.0 | 259.0 | 286.0 |
| **40** | **60** | - | - | 226.0 | 264.0 | 291.0 |
| **50** | **55** | - | - | 233.0 | 271.0 | 298.0 |

Dimensions in mm
The specified dimensions refer to control function 1 (normally closed NC).
The dimensions are smaller for control function 2 (normally open NO).

## 7.3 Body dimensions

### 7.3.1 Spigot DIN/EN/ISO/ASME (code 0, 16, 17, 59, 60), actuator size 0




**Connection type spigot DIN/EN/ISO/ASME (code 0, 16, 17, 59, 60) [1], forged material (code 40) [2]**

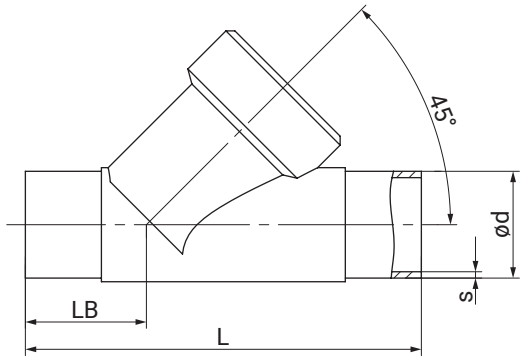
| DN | NPS | ød | | | | | L | LB | s | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Connection type | | | | | | | Connection type | | | | |
| | | 0 | 16 | 17 | 59 | 60 | | | 0 | 16 | 17 | 59 | 60 |
| **6** | **1/8"** | 8.0 | - | - | - | - | 80.0 | 26.5 | 1.0 | - | - | - | - |
| **8** | **1/4"** | 10.0 | - | - | - | 13.5 | 80.0 | 26.5 | 1.0 | - | - | - | 1.6 |
| **10** | **3/8"** | - | 12.0 | 13.0 | 9.53 | - | 80.0 | 26.5 | - | 1.0 | 1.5 | 0.89 | - |
| **15** | **1/2"** | - | - | - | 12.70 | - | 80.0 | 26.5 | - | - | - | 1.65 | - |

Dimensions in mm

1) **Connection type**
Code 0: Spigot DIN
Code 16: Spigot DIN EN 10357 series B (2014 edition; formerly DIN 11850 series 1)
Code 17: Spigot EN 10357 series A/DIN 11866 series A formerly DIN 11850 series 2
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C
Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) **Valve body material**
Code 40: 1.4435 (F316L), forged body

### *7.3.2 Spigot DIN/EN/ISO/ANSI/ASME/SMS (code 0, 16, 17, 37, 59, 60), actuator size 1, 2, 3, 4, 5*




**Connection type spigot DIN/EN/ISO (code 0, 16, 17, 60) [1], investment casting material (code 34) [2]**

| DN | NPS | ød | | | | L | LB | s | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Connection type | | | | | | Connection type | | | |
| | | 0 | 16 | 17 | 60 | | | 0 | 16 | 17 | 60 |
| **10** | **3/8"** | - | 12.0 | 13.0 | 17.2 | 105.0 | 35.5 | - | 1.0 | 1.5 | 1.6 |
| **15** | **1/2"** | 18.0 | 18.0 | 19.0 | 21.3 | 105.0 | 35.5 | 1.5 | 1.0 | 1.5 | 1.6 |
| **20** | **3/4"** | 22.0 | 22.0 | 23.0 | 26.9 | 120.0 | 39.0 | 1.5 | 1.0 | 1.5 | 1.6 |
| **25** | **1"** | 28.0 | 28.0 | 29.0 | 33.7 | 125.0 | 38.5 | 1.5 | 1.0 | 1.5 | 2.0 |
| **32** | **1¼"** | - | 34.0 | 35.0 | 42.4 | 155.0 | 48.0 | - | 1.0 | 1.5 | 2.0 |
| **40** | **1½"** | 40.0 | 40.0 | 41.0 | 48.3 | 160.0 | 47.0 | 1.5 | 1.0 | 1.5 | 2.0 |
| **50** | **2"** | 52.0 | 52.0 | 53.0 | 60.3 | 180.0 | 48.0 | 1.5 | 1.0 | 1.5 | 2.0 |

**Connection type spigot ANSI/ASME/SMS (code 37, 59) [1], investment casting material (code 34) [2]**

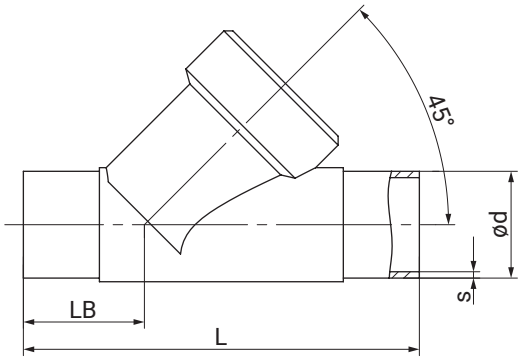
| DN | NPS | ød | | L | LB | s | |
|---|---|---|---|---|---|---|---|
| | | Connection type | | | | Connection type | |
| | | 37 | 59 | | | 37 | 59 |
| **15** | **1/2"** | - | 12.70 | 105.0 | 35.5 | - | 1.65 |
| **20** | **3/4"** | - | 19.05 | 120.0 | 39.0 | - | 1.65 |
| **25** | **1"** | 25.0 | 25.40 | 125.0 | 38.5 | 1.2 | 1.65 |
| **32** | **1¼"** | - | - | 155.0 | 48.0 | - | - |
| **40** | **1½"** | 38.0 | 38.10 | 160.0 | 47.0 | 1.2 | 1.65 |
| **50** | **2"** | 51.0 | 50.80 | 180.0 | 48.0 | 1.2 | 1.65 |

Dimensions in mm

1) **Connection type**
Code 0: Spigot DIN
Code 16: Spigot DIN EN 10357 series B (2014 edition; formerly DIN 11850 series 1)
Code 17: Spigot EN 10357 series A/DIN 11866 series A formerly DIN 11850 series 2
Code 37: Spigot SMS 3008
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C
Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) **Valve body material**
Code 34: 1.4435, investment casting

### *7.3.3 Spigot EN/ISO/ANSI/ASME/SMS (code 17, 37, 59, 60), actuator size 1, 2, 3, 4, 5*




**Connection type spigot EN/ISO/ASME (code 17, 60) [1], investment casting material (code 37) [2]**

| DN | NPS | ød | | L | LB | s | |
|---|---|---|---|---|---|---|---|
| | | Connection type | | | | Connection type | |
| | | 17 | 60 | | | 17 | 60 |
| **15** | **1/2"** | 19.0 | 21.3 | 100.0 | 33.0 | 1.5 | 1.6 |
| **20** | **3/4"** | 23.0 | 26.9 | 108.0 | 33.0 | 1.5 | 1.6 |
| **25** | **1"** | 29.0 | 33.7 | 112.0 | 32.0 | 1.5 | 2.0 |
| **32** | **1¼"** | 35.0 | 42.4 | 137.0 | 39.0 | 1.5 | 2.0 |
| **40** | **1½"** | 41.0 | 48.3 | 146.0 | 40.0 | 1.5 | 2.0 |
| **50** | **2"** | 53.0 | 60.3 | 160.0 | 38.0 | 1.5 | 2.0 |
| **65** | **2½"** | 70.0 | 76.1 | 290.0 | 96.0 | 2.0 | 2.0 |
| **80** | **3"** | 85.0 | 88.9 | 310.0 | 95.0 | 2.0 | 2.3 |

**Connection type spigot ASME/SMS (code 37, 59) [1], investment casting material (code 37) [2]**

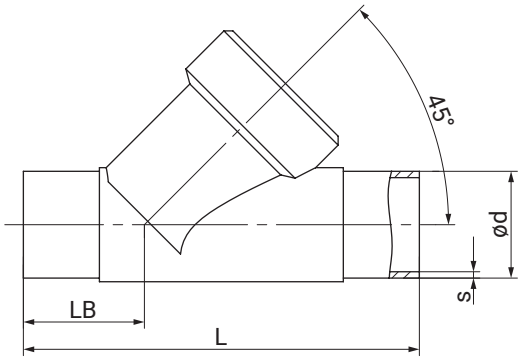
| DN | NPS | d dia. | | L | LB | s | |
|---|---|---|---|---|---|---|---|
| | | Connection type | | | | Connection type | |
| | | 37 | 59 | | | 37 | 59 |
| **65** | **2½"** | 63.5 | 63.5 | 290.0 | 96.0 | 1.6 | 1.65 |
| **80** | **3"** | 76.1 | 76.0 | 310.0 | 95.0 | 1.6 | 1.65 |

Dimensions in mm

1) **Connection type**
Code 17: Spigot EN 10357 series A/DIN 11866 series A formerly DIN 11850 series 2
Code 37: Spigot SMS 3008
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C
Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) **Valve body material**
Code 37: 1.4408, investment casting

### *7.3.4 Spigot EN/ISO/ASME (code 17, 59, 60), actuator size 1, 2, 3, 4, 5*




**Connection type spigot EN/ISO/ASME (code 17, 59, 60) [1], investment casting material (code C2) [2]**

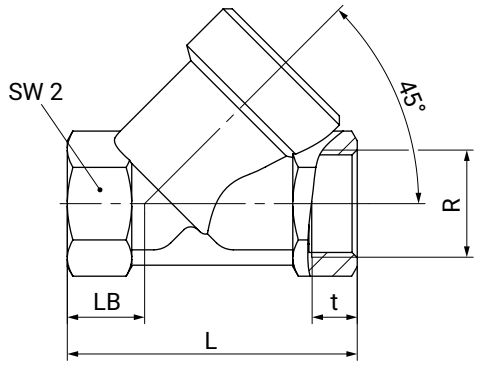
| DN | NPS | ød | | | L | LB | s | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Connection type | | | | | Connection type | | |
| | | 17 | 59 | 60 | | | 17 | 59 | 60 |
| **8** | **1/4"** | - | - | 13.5 | 105.0 | 35.5 | - | - | 1.6 |
| **10** | **3/8"** | 13.0 | - | 17.2 | 105.0 | 35.5 | 1.5 | - | 1.6 |
| **15** | **1/2"** | 19.0 | 12.70 | 21.3 | 105.0 | 35.5 | 1.5 | 1.65 | 1.6 |
| **20** | **3/4"** | 23.0 | 19.05 | 26.9 | 120.0 | 39.0 | 1.5 | 1.65 | 1.6 |
| **25** | **1"** | 29.0 | 25.40 | 33.7 | 125.0 | 39.5 | 1.5 | 1.65 | 2.0 |
| **32** | **1¼"** | 35.0 | - | 42.4 | 155.0 | 48.0 | 1.5 | - | 2.0 |
| **40** | **1½"** | 41.0 | 38.10 | 48.3 | 160.0 | 47.0 | 1.5 | 1.65 | 2.0 |
| **50** | **2"** | 53.0 | 50.80 | 60.3 | 180.0 | 48.0 | 1.5 | 1.65 | 2.0 |
| **65** | **2½"** | 70.0 | 63.50 | 76.1 | 290.0 | 96.0 | 2.0 | 1.65 | 2.0 |
| **80** | **3"** | 85.0 | 76.20 | 88.9 | 310.0 | 95.0 | 2.0 | 1.65 | 2.3 |

Dimensions in mm

1) **Connection type**
Code 17: Spigot EN 10357 series A/DIN 11866 series A formerly DIN 11850 series 2
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C
Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B

2) **Valve body material**
Code C2: 1.4435, investment casting

### *7.3.5 Threaded socket DIN/NPT body configuration D (code 1, 3C, 3D) actuator size 0*




**Connection type threaded socket DIN/NPT (code 1, 3C, 3D) [1], investment casting material (code 37) [2]**

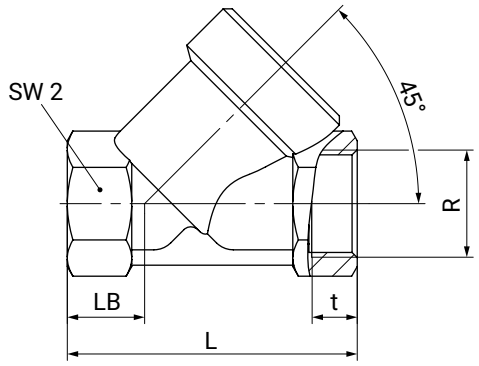
| DN | NPS | L | LB | | | R | | | SW2 | t | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Connection type | | | Connection type | | | | Connection type | | |
| | | | 1 | 3C | 3D | 1 | 3C | 3D | | 1 | 3C | 3D |
| **8** | **1/4"** | 65.0 | 19.0 | - | 19.0 | G 1/4 | - | 1/4" NPT | 17 | 12.0 | - | 10.1 |
| **10** | **3/8"** | 65.0 | 19.0 | 27.0 | 27.0 | G 3/8 | G 3/8 | 3/8" NPT | 24 | 12.0 | 11.4 | 10.4 |
| **15** | **1/2"** | 65.0 | 19.0 | - | 27.0 | G 1/2 | - | 1/2" NPT | 24 | 11.4 | - | 13.6 |

Dimensions in mm

1) **Connection type**
Code 1: Threaded socket DIN ISO 228
Code 3C: Threaded socket Rc ISO 7-1, EN 10226-2, JIS B 0203, BS 21, end-to-end dimension ETE DIN 3202-4 series M8
Code 3D: Threaded socket NPT, end-to-end dimension ETE DIN 3202-4 series M8

2) **Valve body material**
Code 37: 1.4408, investment casting

### *7.3.6 Threaded socket DIN/Rc/NPT body configuration D (code 1, 3C, 3D) actuator size 1, 2, 3, 4, 5*




**Connection type threaded socket DIN (code 1) [1], investment casting material (code 37) [2]**

| DN | NPS | L | LB | R | SW2 | t |
|---|---|---|---|---|---|---|
| **10** | **3/8"** | 65.0 | 16.5 | G 3/8 | 27 | 11.4 |
| **15** | **1/2"** | 65.0 | 16.5 | G 1/2 | 27 | 15.0 |
| **20** | **3/4"** | 75.0 | 17.5 | G 3/4 | 32 | 16.3 |
| **25** | **1"** | 90.0 | 24.0 | G 1 | 41 | 19.1 |
| **32** | **1¼"** | 110.0 | 33.0 | G 1¼ | 50 | 21.4 |
| **40** | **1½"** | 120.0 | 30.0 | G 1½ | 55 | 21.4 |
| **50** | **2"** | 150.0 | 40.0 | G 2 | 70 | 25.7 |
| **65** | **2½"** | 190.0 | 46.0 | G 2½ | 85 | 30.2 |
| **80** | **3"** | 220.0 | 50.0 | G 3 | 100 | 33.3 |

**Connection type threaded socket Rc/NPT (code 3C, 3D) [1], investment casting material (code 37) [2]**

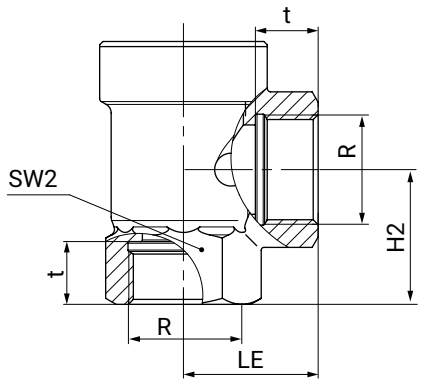
| DN | NPS | L | LB | R | | SW2 | t | |
|---|---|---|---|---|---|---|---|---|
| | | | | Connection type | | | Connection type | |
| | | | | 3C | 3D | | 3C | 3D |
| **15** | **1/2"** | 65.0 | 16.5 | Rc 1/2 | 1/2" NPT | 27 | 15.0 | 13.6 |
| **20** | **3/4"** | 75.0 | 17.5 | Rc 3/4 | 3/4" NPT | 32 | 16.3 | 14.1 |
| **25** | **1"** | 90.0 | 24.0 | Rc 1 | 1" NPT | 41 | 19.1 | 17.0 |
| **32** | **1¼"** | 110.0 | 33.0 | Rc 1¼ | 1¼" NPT | 50 | 21.4 | 17.5 |
| **40** | **1½"** | 120.0 | 30.0 | Rc 1½ | 1½" NPT | 55 | 21.4 | 17.3 |
| **50** | **2"** | 150.0 | 40.0 | Rc 2 | 2" NPT | 70 | 25.7 | 17.8 |
| **65** | **2½"** | 190.0 | 46.0 | Rc 2½ | 2½" NPT | 85 | 30.2 | 23.7 |
| **80** | **3"** | 220.0 | 50.0 | Rc 3 | 3" NPT | 100 | 33.3 | 25.8 |

Dimensions in mm

1) **Connection type**
Code 1: Threaded socket DIN ISO 228
Code 3C: Threaded socket Rc ISO 7-1, EN 10226-2, JIS B 0203, BS 21, end-to-end dimension ETE DIN 3202-4 series M8
Code 3D: Threaded socket NPT, end-to-end dimension ETE DIN 3202-4 series M8

2) **Valve body material**
Code 37: 1.4408, investment casting

### *7.3.7 Threaded socket DIN/NPT body configuration E (code 1, 3D)*




**Connection type threaded socket DIN/NPT (code 1, 3D) [1], investment casting material (code 37) [2]**

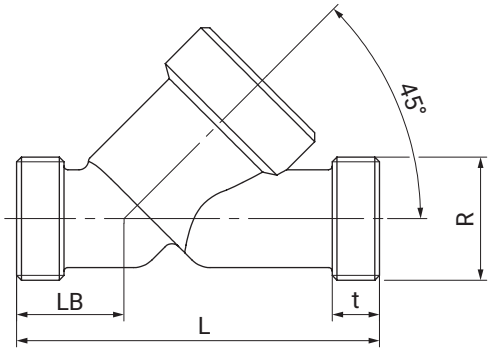
| DN | NPS | H2 | LE | SW2 | R | | t | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Connection type | | Connection type | |
| | | | | | 1 | 3D | 1 | 3D |
| **15** | **1/2"** | 30.0 | 30.0 | 27 | G 1/2 | 1/2" NPT | 15.0 | 13.6 |
| **20** | **3/4"** | 37.5 | 35.0 | 32 | G 3/4 | 3/4 " NPT | 16.3 | 14.1 |
| **25** | **1"** | 41.0 | 41.0 | 41 | G 1 | 1" NPT | 19.1 | 17.0 |
| **32** | **1¼"** | 48.0 | 50.0 | 50 | G 1¼ | 1¼" NPT | 21.4 | 17.5 |
| **40** | **1½"** | 55.0 | 50.0 | 55 | G 1½ | 1½" NPT | 21.4 | 17.3 |
| **50** | **2"** | 62.0 | 60.0 | 70 | G 2 | 2" NPT | 25.7 | 17.8 |

Dimensions in mm

1) **Connection type**
Code 1: Threaded socket DIN ISO 228
Code 3D: Threaded socket NPT, end-to-end dimension ETE DIN 3202-4 series M8

2) **Valve body material**
Code 37: 1.4408, investment casting

### *7.3.8 Threaded spigot DIN (code 9), actuator size 0*




**Connection type threaded spigot DIN (code 9) [1], forged material (code 40) [2]**

| DN | L | LB | R | t |
|---|---|---|---|---|
| **6** | 65.0 | 19.0 | G 1/4 | 12.0 |

**Connection type threaded spigot DIN (code 9) [1], investment casting material (code 37) [2]**

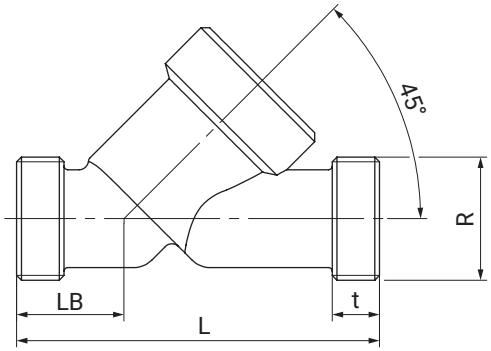
| DN | L | LB | R | t |
|---|---|---|---|---|
| **8** | 65.0 | 19.0 | G 3/8 | 12.0 |
| **10** | 65.0 | 19.0 | G 1/2 | 12.0 |
| **15** | 65.0 | 19.0 | G 3/4 | 12.0 |

Dimensions in mm

1) **Connection type**
Code 9: Threaded spigot DIN ISO 228

2) **Valve body material**
Code 37: 1.4408, investment casting
Code 40: 1.4435 (F316L), forged body

### *7.3.9 Threaded spigot DIN (code 9), actuator size 1, 2, 3, 4, 5*




**Connection type threaded spigot DIN (code 9) [1], investment casting material (code 37) [2]**

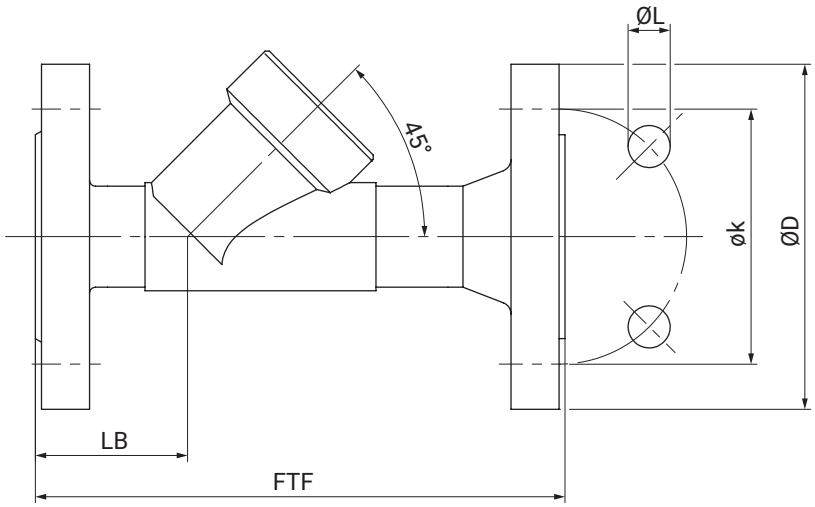
| DN | L | LB | R | t |
|---|---|---|---|---|
| **15** | 90.0 | 25.0 | G 3/4 | 12.0 |
| **20** | 110.0 | 30.0 | G 1 | 15.0 |
| **25** | 118.0 | 30.0 | G 1¼ | 15.0 |
| **32** | 130.0 | 38.0 | G 1½ | 13.0 |
| **40** | 140.0 | 35.0 | G 1¾ | 13.0 |
| **50** | 175.0 | 50.0 | G 2⅜ | 15.0 |
| **65** | 216.0 | 52.0 | G 3 | 15.0 |
| **80** | 254.0 | 64.0 | G 3½ | 18.0 |

Dimensions in mm

1) **Connection type**
Code 9: Threaded spigot DIN ISO 228

2) **Valve body material**
Code 37: 1.4408, investment casting

### *7.3.10 Flange EN (code 10), actuator size 1, 2, 3, 4, 5*




**Connection type flange EN (code 10) [1], investment casting material (code 37) [2]**

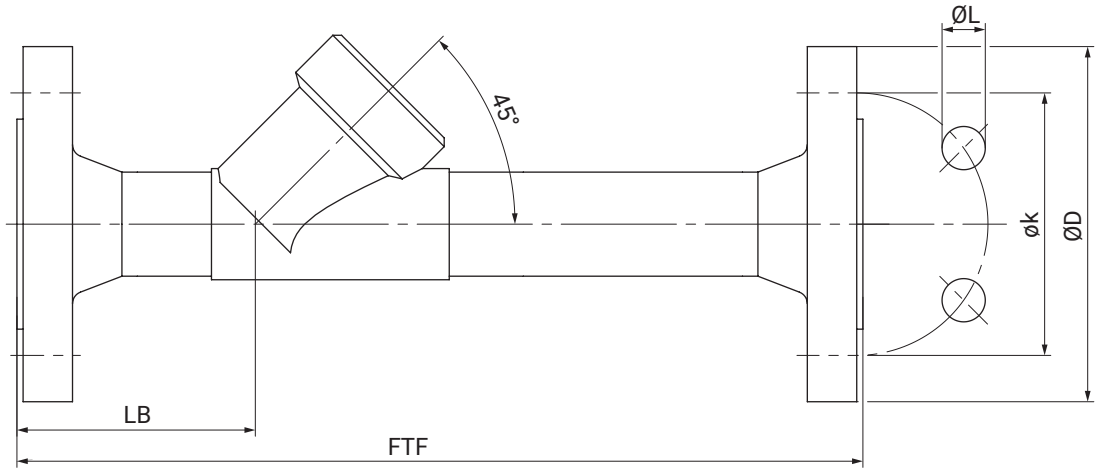
| DN | NPS | ø D | FTF | ø k | ø L | LB | n |
|---|---|---|---|---|---|---|---|
| **15** | **1/2"** | 95.0 | 130.0 | 65.0 | 14.0 | 33.0 | 4 |
| **20** | **3/4"** | 105.0 | 150.0 | 75.0 | 14.0 | 45.0 | 4 |
| **25** | **1"** | 115.0 | 160.0 | 85.0 | 14.0 | 44.0 | 4 |
| **32** | **1¼"** | 140.0 | 180.0 | 100.0 | 18.0 | 51.0 | 4 |
| **40** | **1½"** | 150.0 | 200.0 | 110.0 | 18.0 | 52.0 | 4 |
| **50** | **2"** | 165.0 | 230.0 | 125.0 | 18.0 | 50.0 | 4 |

Dimensions in mm
n = number of bolts

1) **Connection type**
Code 10: Flange EN 1092, PN 25, form B, face-to-face dimension FTF EN 558 series 1, ISO 5752, basic series 1

2) **Valve body material**
Code 37: 1.4408, investment casting

### *7.3.11 Flange special length EN/ANSI (code 13, 47), actuator size 1, 2, 3, 4, 5*




**Connection type flange, special length EN/ANSI (code 13, 47) [1], investment casting material (code 34) [2]**

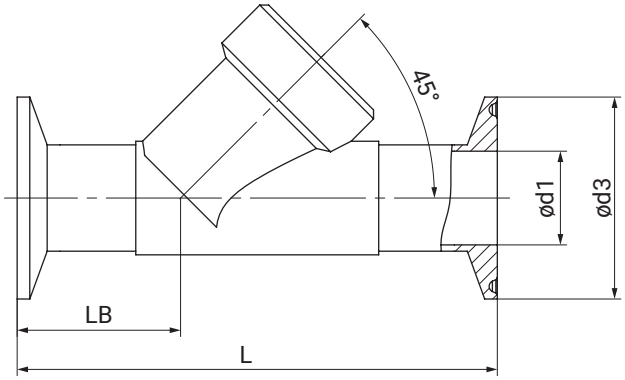
| DN | NPS | ØD | | FTF | øk | | ØL | | LB | n |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Connection type | | | Connection type | | Connection type | | | |
| | | 13 | 47 | | 13 | 47 | 13 | 47 | | |
| **15** | **1/2"** | 95.0 | 89.0 | 210.0 | 65.0 | 60.5 | 14.0 | 15.7 | 72.0 | 4 |
| **20** | **3/4"** | 105.0 | 98.6 | 280.0 | 75.0 | 69.8 | 14.0 | 15.7 | 78.0 | 4 |
| **25** | **1"** | 115.0 | 108.0 | 280.0 | 85.0 | 79.2 | 14.0 | 15.7 | 77.0 | 4 |
| **32** | **1¼"** | 140.0 | 117.3 | 310.0 | 100.0 | 88.9 | 18.0 | 15.7 | 89.0 | 4 |
| **40** | **1½"** | 150.0 | 127.0 | 320.0 | 110.0 | 98.6 | 18.0 | 15.7 | 91.0 | 4 |
| **50** | **2"** | 165.0 | 152.4 | 330.0 | 125.0 | 120.7 | 18.0 | 19.1 | 95.0 | 4 |

Dimensions in mm
n = number of bolts

1) **Connection type**
Code 13: Flange EN 1092, PN 25, form B
Code 47: Flange ANSI Class 150 RF

2) **Valve body material**
Code 34: 1.4435, investment casting

### *7.3.12 Clamp DIN/ASME (code 82, 86, 88), actuator size 1, 2, 3, 4, 5*




**Connection type clamp DIN/ASME (code 82, 86, 88)[1], investment casting material (code 34)[2]**

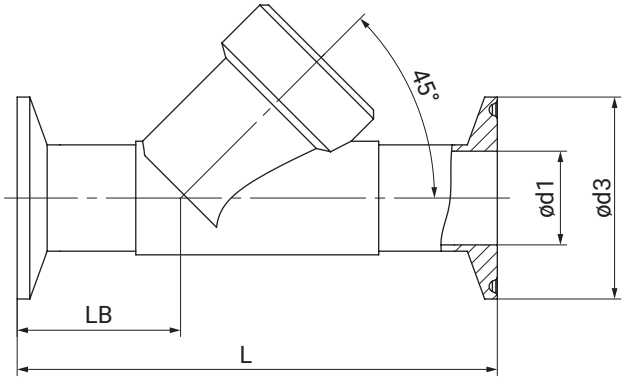
| DN | NPS | ød1 | | | ød3 | | | L | | | LB | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Connection type | | | Connection type | | | Connection type | | | Connection type | | |
| | | 82 | 86 | 88 | 82 | 86 | 88 | 82 | 86 | 88 | 82 | 86 | 88 |
| **15** | **1/2"** | 18.1 | 16.0 | 9.40 | 50.5 | 34.0 | 25.0 | 130.0 | 130.0 | 130.0 | 47.5 | 47.5 | 47.5 |
| **20** | **3/4"** | 23.7 | 20.0 | 15.75 | 50.5 | 34.0 | 25.0 | 150.0 | 150.0 | 150.0 | 54.0 | 54.0 | 54.0 |
| **25** | **1"** | 29.7 | 26.0 | 22.10 | 50.5 | 50.5 | 50.5 | 160.0 | 160.0 | 160.0 | 56.0 | 56.0 | 56.0 |
| **32** | **1¼"** | 38.4 | 32.0 | - | 64.0 | 50.5 | - | 180.0 | 180.0 | - | 62.0 | 62.0 | - |
| **40** | **1½"** | 44.3 | 38.0 | 34.80 | 64.0 | 50.5 | 50.5 | 200.0 | 200.0 | 200.0 | 67.0 | 67.0 | 67.0 |
| **50** | **2"** | 56.3 | 50.0 | 47.50 | 77.5 | 64.0 | 64.0 | 230.0 | 230.0 | 230.0 | 73.0 | 73.0 | 73.0 |

Dimensions in mm

1) **Connection type**
Code 82: Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 1
Code 86: Clamp DIN 32676 series A, face-to-face dimension FTF EN 558 series 1
Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 1

2) **Valve body material**
Code 34: 1.4435, investment casting

### *7.3.13 Clamp DIN/ASME (code 82, 86, 88), actuator size 1, 2, 3, 4, 5*




**Connection type clamp DIN/ASME (code 82, 86, 88) [1], investment casting material (code C2) [2]**

| DN | NPS | ød1 | | | ød3 | | | L | LB |
|---|---|---|---|---|---|---|---|---|---|
| | | Connection type | | | Connection type | | | | |
| | | 82 | 86 | 88 | 82 | 86 | 88 | | |
| **8** | **1/4"** | 10.3 | - | - | 25.0 | - | - | 130.0 | 47.5 |
| **10** | **3/8"** | 14.0 | 10.0 | - | 25.0 | 34.0 | - | 130.0 | 47.5 |
| **15** | **1/2"** | 18.1 | 16.0 | 9.40 | 50.5 | 34.0 | 25.0 | 130.0 | 47.5 |
| **20** | **3/4"** | 23.7 | 20.0 | 15.75 | 50.5 | 34.0 | 25.0 | 150.0 | 54.0 |
| **25** | **1"** | 29.7 | 26.0 | 22.10 | 50.5 | 50.5 | 50.5 | 160.0 | 56.0 |
| **32** | **1¼"** | 38.4 | 32.0 | - | 64.0 | 50.5 | - | 180.0 | 62.0 |
| **40** | **1½"** | 44.3 | 38.0 | 34.80 | 64.0 | 50.5 | 50.5 | 200.0 | 67.0 |
| **50** | **2"** | 56.3 | 50.0 | 47.50 | 77.5 | 64.0 | 64.0 | 230.0 | 73.0 |
| **65** | **2½"** | 72.1 | 66.0 | 60.20 | 91.0 | 91.0 | 77.5 | 290.0 | 120.0 |
| **80** | **3"** | 84.3 | 81.0 | 72.90 | 106.0 | 106.0 | 91.0 | 310.0 | 119.0 |

Dimensions in mm

1) **Connection type**
Code 82: Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 1
Code 86: Clamp DIN 32676 series A, face-to-face dimension FTF EN 558 series 1
Code 88: Clamp ASME BPE, for pipe ASME BPE, face-to-face dimension FTF EN 558 series 1

2) **Valve body material**
Code C2: 1.4435, investment casting

# 8 Manufacturer's information

## 8.1 Delivery

- Check that all parts are present and check for any damage immediately upon receipt.

The product's performance is tested at the factory. The scope of delivery is apparent from the dispatch documents and the design from the order number.

| Control function | Function | Condition as supplied to customer |
|---|---|---|
| 1 | Normally closed (NC) | closed |
| 2 | Normally open (NO) | open |
| 3 | Double acting (DA) | undefined |

## 8.2 Packaging

The product is packaged in a cardboard box which can be recycled as paper.

## 8.3 Transport

1. Only transport the product by suitable means. Do not drop. Handle carefully.
2. After the installation dispose of transport packaging material according to relevant local or national disposal regulations / environmental protection laws.

## 8.4 Storage

1. Store the product free from dust and moisture in its original packaging.
2. Avoid UV rays and direct sunlight.
3. Do not exceed the maximum storage temperature (see chapter "Technical data").
4. Do not store solvents, chemicals, acids, fuels or similar fluids in the same room as GEMÜ products and their spare parts.

# 9 Installation in piping

## 9.1 Use of strainers

If the valve is to be used in gas applications (order code Special function G) and if a strainer is to be fitted to the inlet of the valve, the following points must be observed:

- largest mesh size: max. 1.5 mm
- Test mandrel with diameter 1 mm must not pass through
- For valves with a nominal size of DN 25 and larger, the strainers must be accessible for cleaning and replacement without having to undo welded or threaded connections of the valve.

## 9.2 Preparing for installation

**⚠ WARNING**

**The equipment is subject to pressure!**

► Risk of severe injury or death
- Depressurize the plant or plant component.
- Completely drain the plant or plant component.

**⚠ WARNING**

**Corrosive chemicals!**

► Risk of caustic burns
- Wear appropriate protective gear.
- Completely drain the plant.

**⚠ WARNING**

**The actuator cover is under spring pressure!**

► Risk of severe injury or death!
- Do not open the actuator.

**⚠ CAUTION**

**Hot plant components!**

► Risk of burns
- Only work on plant that has cooled down.

**⚠ CAUTION**

**Leakage!**

► Emission of dangerous materials
- Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer).

**⚠ CAUTION**

**Exceeding the maximum permissible pressure!**

► Damage to the product
- Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer).

**⚠ CAUTION**

**Use as step!**

- ► Damage to the product
- ► Risk of slipping-off
- ● Choose the installation location so that the product cannot be used as a foothold.
- ● Do not use the product as a step or a foothold.

**NOTICE**

**Suitability of the product!**

- ► The product must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions.

**NOTICE**

**Tools!**

- ► The tools required for installation and assembly are not included in the scope of delivery.
- ● Use appropriate, functional and safe tools.

1. Ensure the product is suitable for the relevant application.
2. Check the technical data of the product and the materials.
3. Keep appropriate tools ready.
4. Wear appropriate protective gear, as specified in the plant operator's guidelines.
5. Observe appropriate regulations for connections.
6. Have installation work carried out by trained personnel.
7. Shut off plant or plant component.
8. Secure plant or plant component against recommissioning.
9. Depressurize the plant or plant component.
10. Completely drain the plant (or plant component) and let it cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
11. Correctly decontaminate, rinse and ventilate the plant or plant component.
12. Lay piping so that the product is protected against transverse and bending forces, and also from vibrations and tension.
13. Only install the product between matching aligned pipes (see chapters below).
14. Please note the flow direction (see chapter "Flow direction").
15. Please note the installation position (see chapter "Installation position").

## 9.3 Installation position

The installation position of the product is optional.

## 9.4 Installation with clamp connections

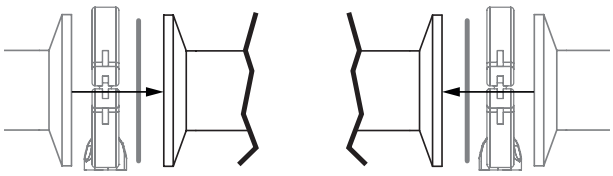


*Fig. 3: Clamp connection*

**NOTICE**

**Gasket and clamp!**

- ► The gasket and clamps for clamp connections are not included in the scope of delivery.

1. Keep ready gasket and clamp.
2. Carry out preparations for installation (see chapter "Preparing for installation").
3. Insert the corresponding gasket between the body of the product and the pipe connection.
4. Connect the gasket between the body of the product and the pipe connection using clamps.
5. Re-attach or reactivate all safety and protective devices.

## 9.5 Installation with butt weld spigots

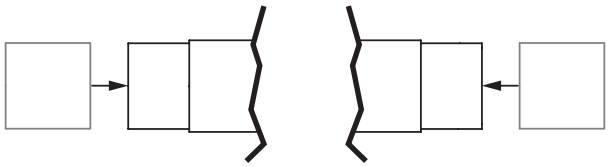


*Fig. 4: Butt weld spigots*

1. Carry out preparations for installation (see chapter "Preparing for installation").
2. Adhere to good welding practices!
3. Remove actuator **A** (see chapter "Removing the actuator").
4. Weld the body of the product in the piping.
5. Allow butt weld spigots to cool down.
6. Mount actuator **A** (see chapter "Mounting the actuator").
7. Re-attach or reactivate all safety and protective devices.
8. Flush the system.

## 9.6 Installation with threaded sockets

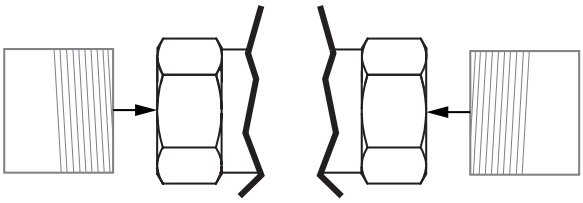


*Fig. 5: Threaded socket*

**NOTICE**

**Thread sealant!**

- ► The thread sealant is not included in the scope of delivery.
- ● Only use appropriate thread sealant.

1. Keep thread sealant ready.
2. Carry out preparations for installation (see chapter "Preparing for installation").
3. Screw the threaded connections into the pipe in accordance with valid standards.
4. Screw the body of the product onto the piping using appropriate thread sealant.
5. Re-attach or reactivate all safety and protective devices.

## 9.7 Installation with threaded spigots

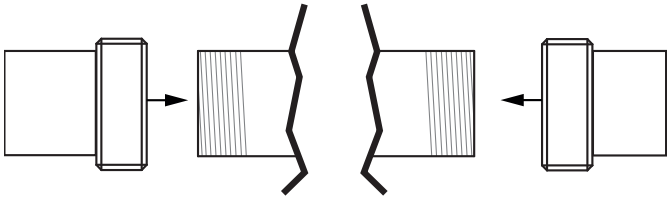


*Fig. 6: Threaded spigots*

**NOTICE**

**Thread sealant!**

- ► The thread sealant is not included in the scope of delivery.
- ● Only use appropriate thread sealant.

1. Keep thread sealant ready.
2. Carry out preparations for installation (see chapter "Preparing for installation").
3. Screw the pipe into the threaded connection of the valve body in accordance with valid standards.

   ⇨ Use appropriate thread sealant.
4. Re-attach or reactivate all safety and protective devices.

## 9.8 Installation with flanged connection

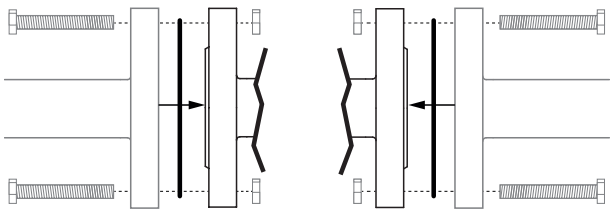


*Fig. 7: Flanged connection*

**NOTICE**

**Sealing material!**

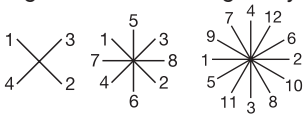
- ► The sealing material is not included in the scope of delivery.
- ● Only use appropriate sealing material.

**NOTICE**

**Connector elements!**

- ► The connector elements are not included in the scope of delivery.
- ● Only use connector elements made of approved materials.
- ● Observe permissible tightening torque of the bolts.

1. Keep sealing material ready.
2. Carry out preparations for installation (see chapter "Preparing for installation").
3. Ensure clean, undamaged sealing surfaces on the connection flanges.
4. Align flanges carefully before installing them.
5. Clamp the product centrally between the piping with flanges.
6. Centre the gaskets.
7. Connect the valve flange and the piping flange using appropriate sealing materials and matching bolting.
8. Use all flange holes.
9. Tighten the bolts diagonally.




10. Re-attach or reactivate all safety and protective devices.

## 10 Pneumatic connections

The product has 2 control medium connectors.

| Control function | Control medium connector 2 (open) | Control medium connector 4 (close) |
|---|---|---|
| 1 (NC) | + | - |
| 2 (NO) | – | + |
| 3 (DA) | + | + |

+ = available

– = not available

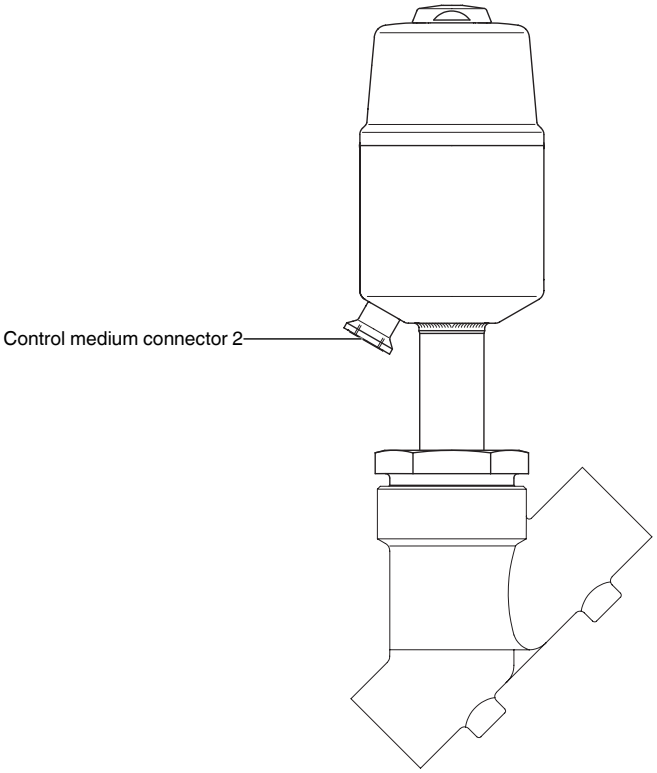



*Fig. 8: GEMÜ 550, control function 1*

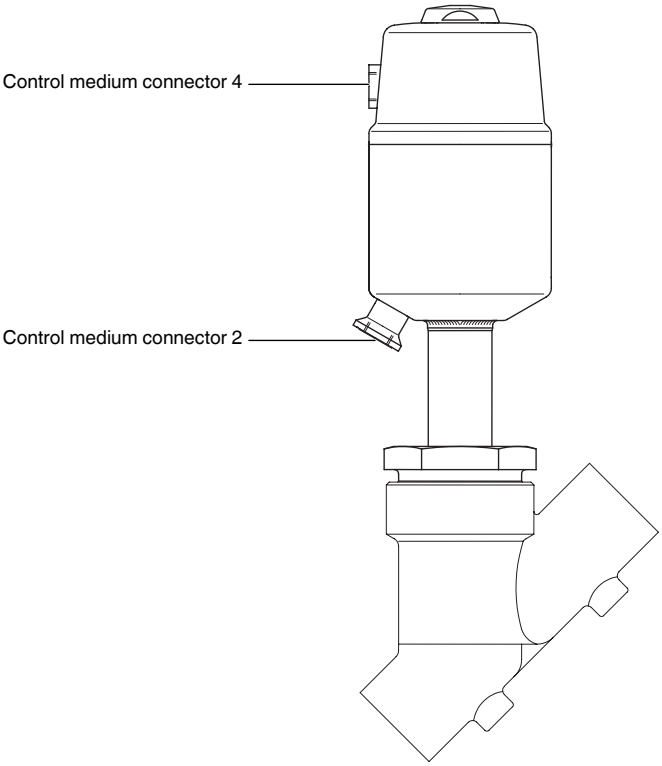



*Fig. 9: GEMÜ 550, control function 2 and 3*

1. Use suitable connectors.
2. Connect the control medium lines tension-free and without any bends or knots.
3. The actuator can be rotated 360°. The control medium connectors can be in any position.

| Actuator size | Thread size of the control medium connectors |
|---|---|
| 0 | M5 |
| 1, 2 | G 1/8 |
| 3, 4, 5 | G 1/4 |

### 10.1 Use of pilot valves in gas applications

When using the valve in gas applications (order code Special function G), the closing time must be less than 1 s.

GEMÜ recommends the GEMÜ 8500 pilot valve.

## 11 Commissioning

**⚠ WARNING**

**Corrosive chemicals!**

- ▶ Risk of caustic burns
- ● Wear appropriate protective gear.
- ● Completely drain the plant.

**⚠ CAUTION**

**Leakage**

► Emission of dangerous materials

● Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

**⚠ CAUTION**

**Cleaning agent!**

► Damage to the GEMÜ product

● The plant operator is responsible for selecting the cleaning material and performing the procedure.

1. Check the tightness and the function of the product (close and reopen the product).
2. Flush the piping system of new plant and following repair work (the product must be fully open).

⇨ Harmful foreign matter has been removed.

⇨ The product is ready for use.

3. Commission the product.
4. Commissioning of actuators in accordance with the enclosed instructions.

## 12 Operation

Operate the product according to the control function (see also chapter "Pneumatic connections").

### 12.1 Control function 1

In its resting position, the product is closed by spring force.

1. Activate the actuator via control medium connector 2.

   ⇨ The product opens.

2. Vent the actuator via control medium connector 2.

   ⇨ The product closes.

### 12.2 Control function 2

In its resting position the product is opened by spring force.

1. Activate the actuator via control medium connector 4.

   ⇨ The product closes.

2. Vent the actuator via control medium connector 4.

   ⇨ The product opens.

### 12.3 Control function 3

In its resting position the product has no defined normal position.

1. Activate the actuator via control medium connector 2.

   ⇨ The product opens.

2. Activate the actuator via control medium connector 4.

   ⇨ The product closes.

## 13 Troubleshooting

| Error | Error cause | Troubleshooting |
|---|---|---|
| Control medium escaping from vent hole* in the actuator cover for control function NO / connector 2* for control function NC | Control piston leaking | Replace the actuator and check control medium for impurities |
| Control medium escaping from leak detection hole | Spindle seal leaking | Replace the actuator and check control medium for impurities |
| Working medium escaping from leak detection hole | Gland packing faulty | Replace the actuator |
| The product does not open or does not open fully | Control pressure too low (for control function NC) | Operate the product with the control pressure specified in the datasheet |
| | Control medium not connected | Connect control medium |
| | Control piston or spindle seal leaking | Replace actuator and check control medium for impurities |
| | Actuator spring faulty (for control function NO) | Replace the actuator |
| The product is leaking downstream (does not close or does not close fully) | Operating pressure too high | Operate the product with operating pressure specified in datasheet |
| | Foreign matter between seat seal and seat | Remove actuator, remove foreign matter, check seat seal for damage and replace seat seal if necessary |
| | Valve body leaking or damaged | Check valve body for damage, replace valve if necessary |
| | Seat seal faulty | Check seat seal for damage and replace seat seal if necessary |
| | Actuator spring faulty (for control function NC) | Replace actuator |
| The product is leaking between actuator and valve body | Union nut loose | Retighten union nut |
| | Sealing washer faulty | Check sealing washer and the respective sealing surfaces for damage and replace parts if necessary |
| | Actuator/valve body damaged | Replace the actuator/valve body |
| Connection between valve body and piping leaking | Incorrect installation | Check installation of valve body in piping |
| | Threaded connections / unions loose | Tighten threaded connections / unions |
| | Sealing material faulty | Replace sealing material |
| Valve body leaking | Valve body leaking or corroded | Check valve body for damage, replace valve body if necessary |

* see chapter "Spare parts"

## 14 Inspection and maintenance

**⚠ WARNING**

**The equipment is subject to pressure!**

► Risk of severe injury or death

● Depressurize the plant or plant component.

● Completely drain the plant or plant component.

**⚠ WARNING**

**The actuator cover is under spring pressure!**

► Risk of severe injury or death!

● Do not open the actuator.

**⚠ CAUTION**

**Risk of crushing!**

► There is a risk of crushing when reaching into the valve.

● When removed, do not reach between the valve plug and welding disc when the valve is moving.

**⚠ CAUTION**

**Use of incorrect spare parts!**

► Damage to the GEMÜ product

► Manufacturer liability and guarantee will be void

● Use only genuine parts from GEMÜ.

**⚠ CAUTION**

**Hot plant components!**

► Risk of burns

● Only work on plant that has cooled down.

**NOTICE**

**Exceptional maintenance work!**

► Damage to the GEMÜ product

● Any maintenance work and repairs not described in these operating instructions must not be performed without consulting the manufacturer first.

The operator must carry out regular visual examination of the GEMÜ products dependent on the operating conditions and the potential danger in order to prevent leakage and damage.

The product also must be disassembled and checked for wear in the corresponding intervals.

1. Have servicing and maintenance work performed by trained personnel.
2. Wear appropriate protective gear as specified in plant operator's guidelines.
3. Shut off plant or plant component.
4. Secure the plant or plant component against recommissioning.
5. Depressurize the plant or plant component.
6. Actuate GEMÜ products which are always in the same position four times a year.
7. After removing / installing the GEMÜ product check that the union nut **a** is mechanically secured and re-tighten if necessary.

   ⇨ Seals degrade in the course of time.

### 14.1 Components

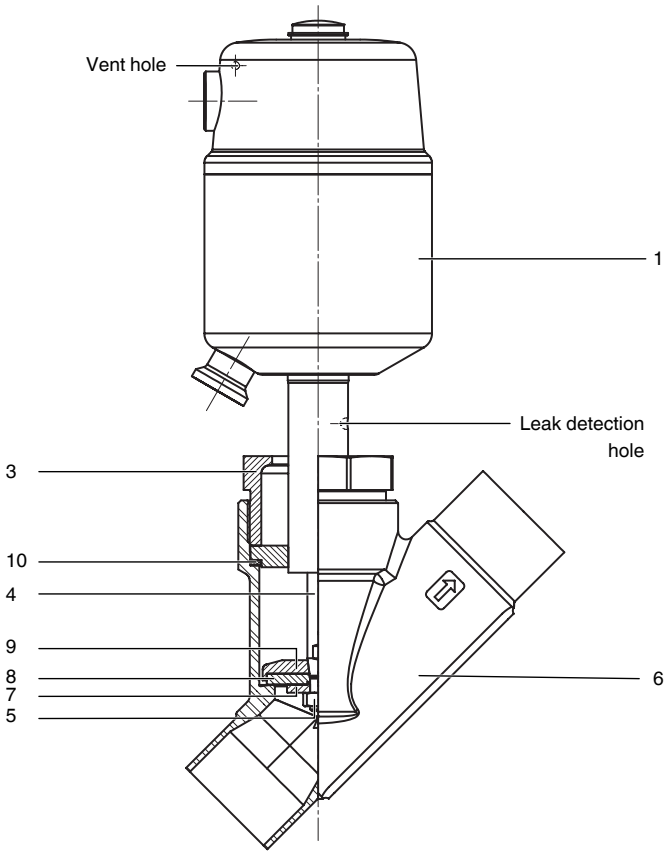



*Fig. 10: GEMÜ 550 components*

| Item | Parts list item | Name |
|---|---|---|
| 1 | A | Actuator |
| 3 | a | Union nut |
| 4 | b | Spindle |
| 5 | d | Nut |
| 6 | 1 | Valve body |
| 7 | e | Washer |
| 8 | 14 | Seat seal |

| Item | Parts list item | Name |
|---|---|---|
| 9 | c | Valve plug |
| 10 | 4 | Gasket |

## 14.2 Spare parts

| Parts list item | Name | Order designation |
|---|---|---|
| A | Actuator | 9550 |
| 1 | Valve body | K 500… |
| 4 | Gasket | 550…SVS… |
| 14 | Seat seal | |

## 14.3 Removing the actuator

1. Move the actuator **A** to the open position.
2. Undo union nut **a**.
3. Remove actuator **A** from valve body **1**.
4. Disconnect actuator **A** from the control medium lines.
5. Clean all parts of contamination (do not damage parts during cleaning).
6. Check parts for potential damage, replace if necessary (only use genuine parts from GEMÜ).

## 14.4 Replacing the seals

**NOTICE**

**Gasket!**

- Replace gasket **4** each time the actuator is disassembled/assembled.

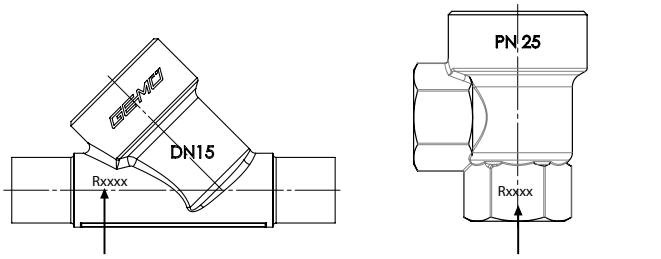
1. Remove actuator **A** (see chapter "Removing the actuator").
2. Remove sealing washer **4** from the valve body.
3. Loosen nut **e** on spindle **b** (hold spindle **b** with appropriate tool that will not damage the spindle surfaces).
4. Remove retaining washer **d**.
5. Remove seat seal **14**.
6. Clean all parts of contamination (do not damage parts during cleaning).
7. Insert new seat seal **14**.
8. Insert retaining washer **d**.
9. Apply appropriate thread locking compound on the thread of spindle **b**.
10. Fix spindle **b** in place with nut **e** (hold spindle **b** in place with appropriate tools which do not damage the spindle surfaces).
11. Insert new sealing washer **4** in valve body **1**.
12. Mount actuator **A** (see chapter "Mounting the actuator").

## 14.5 Mounting the actuator

**⚠ CAUTION**

**Incorrect combination of actuator and valve body!**

- ► Risk of damage to the actuator and valve body
- For control valves with a reduced valve seat, make sure that the combination of actuator and valve body is correct.
- Compare the product label of the actuator with the valve body marking.




Valve body marking 2/2-way body

Valve body marking: Angle valve body

*Fig. 11: Valve body marking*

| Actuator product label | Valve body marking |
|---|---|
| RAxxx | R002 |
| RBxxx | R004 |
| RCxxx | R006 |
| RDxxx | R008 |
| RExxx | R010 |
| RFxxx | R012 |
| RGxxx | R015 |
| RHxxx | R020 |
| RJxxx | R025 |
| RKxxx | R032 |
| RMxxx | R040 |

1. Move the actuator **A** to the open position.
2. Lubricate the thread of union nut **a** using a suitable lubricant.
3. Place actuator **A** on valve body **1** approx. 90° anticlockwise to the end position of the control medium connectors and screw it in hand tight using union nut **a**.
4. Tighten union nut **a** with an open-end wrench (for torques, see table). This rotates actuator **A** clockwise approx. 90° to the desired position.
5. Move the actuator **A** to the closed position.
6. With the valve fully assembled, check the function and tightness.

| Nominal size [DN] | Actuator size | Torque [Nm] |
|---|---|---|
| DN 6 | 0G / 0M | 35 |
| DN 8 | 0G / 0M | 35 |
| DN 10 | 0G / 0M | 35 |

| Nominal size [DN] | Actuator size | Torque [Nm] |
|---|---|---|
| DN 15 | 0G / 0M | 35 |
| DN 10 | 1G / 1M | 90 |
| DN 15 | 1G / 1M / 2G / 2M | 90 |
| DN 20 | 1G / 1M / 2G / 2M / 3G / 3M | 100 |
| DN 25 | 2G / 2M / 3G / 3M / 4G | 120 |
| DN 32 | 2G / 3G / 3M / 4G / 5G | 120 |
| DN 40 | 3G / 3M / 4G / 5G | 150 |
| DN 50 | 3G / 3M / 4G / 5G | 200 |
| DN 65 | 5G | 260 |
| DN 80 | 5G | 280 |

## 15 Removal from piping

1. Remove in reverse order to installation.
2. Deactivate the control medium.
3. Disconnect the control medium line(s).
4. Disassemble the product. Observe warning notes and safety information.

## 16 Disposal

1. Pay attention to adhered residual material and gas diffusion from penetrated media.
2. Dispose of all parts in accordance with the disposal regulations/environmental protection laws.

## 17 Returns

Legal regulations for the protection of the environment and personnel require that the completed and signed return delivery note is included with the dispatch documents. Returned goods can be processed only when this note is completed. If no return delivery note is included with the product, GEMÜ cannot process credits or repair work but will dispose of the goods at the operator's expense.

1. Clean the product.
2. Request a return delivery note from GEMÜ.
3. Complete the return delivery note.
4. Send the product with a completed return delivery note to GEMÜ.

## *18 EU Declaration of Incorporation according to the EC Machinery Directive 2006/42/EC, Annex II B*

# EU Declaration of Incorporation

### *according to the EC Machinery Directive 2006/42/EC, Annex II B*

We, the company

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Strasse 6–8
74653 Ingelfingen-Criesbach, Germany

hereby declare under our sole responsibility that the below-mentioned product complies with the relevant essential health and safety requirements in accordance with Annex I of the above-mentioned Directive.

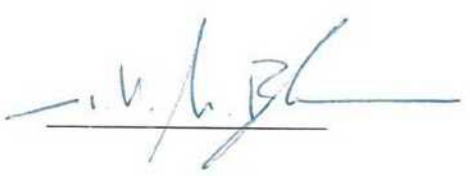
| | |
|---|---|
| **Product:** | GEMÜ 550 |
| **Product name:** | Pneumatically operated angle seat globe valve |
| **The following essential health and safety requirements of the EC Machinery Directive 2006/42/EC, Annex I have been applied or adhered to:** | 1.1.2.; 1.1.3.; 1.1.5.; 1.3.2.; 1.3.3.; 1.3.4.; 1.3.7.; 1.5.13.; 1.5.2.; 1.5.3.; 1.5.4.; 1.5.5.; 1.5.8.; 1.5.9.; 1.6.1.; 1.6.3.; 1.6.4.; 1.6.5.; 1.7.1.; 1.7.1.1.; 1.7.2.; 1.7.3.; 1.7.4.; 1.7.4.1.; 1.7.4.2.; 1.7.4.3. |
| **The following harmonized standards (or parts thereof) have been applied:** | EN ISO 12100:2010 |

We also declare that the specific technical documents have been created in accordance with part B of Annex VII.

The manufacturer undertakes to transmit relevant technical documents on the partly completed machinery to the national authorities in response to a reasoned request. This communication takes place electronically.

This does not affect the industrial property rights.

**The partly completed machinery may be commissioned only if it has been determined, if necessary, that the machinery into which the partly completed machinery is to be installed meets the provisions of the Machinery Directive 2006/42/EC.**



M. Barghoorn
Head of Global Technics

Ingelfingen, 27/11/2023

## *19 EU Declaration of Conformity in accordance with 2014/68/EU (Pressure Equipment Directive)*

# EU Declaration of Conformity

## *in accordance with 2014/68/EU (Pressure Equipment Directive)*

| | |
|---|---|
| We, the company | GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG<br>Fritz-Müller-Strasse 6–8<br>74653 Ingelfingen-Criesbach, Germany |

hereby declare under our sole responsibility that the below-mentioned product complies with the regulations of the above-mentioned Directive.

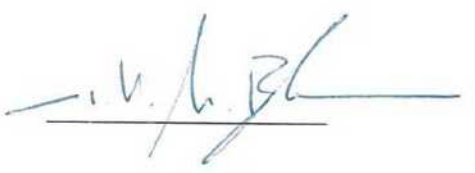
| | |
|---|---|
| **Product:** | GEMÜ 550 |
| **Product name:** | Pneumatically operated angle seat globe valve |
| **Notified body:** | TÜV Rheinland Industrie Service GmbH<br>Am Grauen Stein 1<br>51105 Cologne, Germany |
| **ID number of the notified body:** | 0035 |
| **No. of the QA certificate:** | 01 202 926/Q-02 0036 |
| **Conformity assessment procedure(s) applied:** | Module H |
| **The following harmonized standards (or parts thereof) have been applied:** | EN 12516-3:2002/AC:2003 |

**Information for products with a nominal size ≤ DN 25:**

The products are developed and produced according to GEMÜ's in-house process instructions and standards of quality which comply with the requirements of ISO 9001 and ISO 14001. According to Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU, these products must not be identified by a CE-marking.

**Other applied standards / remarks:**

- AD 2000



M. Barghoorn
Head of Global Technics

Ingelfingen, 10/06/2023

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