

# GEMÜ 560

Check valve, angle seat design

EN

## Operating instructions



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## 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.

### 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.

### 1.4 Warning notes

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

| SIGNAL WORD                             |                                                  |
|-----------------------------------------|--------------------------------------------------|
| Possible symbol for the specific danger | Type and source of the danger                    |
|                                         | ►Possible consequences in case of non-compliance |
|                                         | ●Measures for avoiding danger                    |

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

The following signal words and danger levels are used:

|  <b>DANGER</b>  |                                                   |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------|
|                 | <b>Imminent danger!</b>                           |
|                                                                                                    | ► Non-observance can cause death or severe injury |
|  <b>WARNING</b> |                                                   |
|                 | <b>Potentially dangerous situation!</b>           |
|                                                                                                    | ► Non-observance can cause death or severe injury |

|  <b>CAUTION</b> |                                                     |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------|
|                   | <b>Potentially dangerous situation!</b>             |
|                                                                                                    | ► Non-observance can cause moderate to light injury |

| <b>NOTICE</b>                                                                     |                                               |
|-----------------------------------------------------------------------------------|-----------------------------------------------|
|  | <b>Potentially dangerous situation!</b>       |
|                                                                                   | ► Non-observance can cause damage to property |

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

| Symbol                                                                              | Meaning                                |
|-------------------------------------------------------------------------------------|----------------------------------------|
|    | Danger of explosion!                   |
|    | The equipment is subject to pressure!  |
|   | Corrosive chemicals!                   |
|  | Hot plant components!                  |
|  | Maximum permissible pressure exceeded! |
|  | Leakage!                               |

## 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 materials

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:

1. Keep this document available at the place of use.
2. Observe the safety information.
3. Operate the product in accordance with this document.
4. Operate the product in accordance with the specifications.
5. Maintain the product correctly.
6. Do not carry out any maintenance work and repairs not described in this document without consulting the manufacturer first.

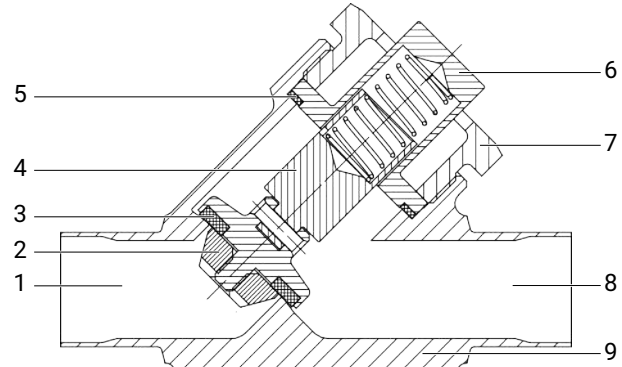
#### In cases of uncertainty:

1. Consult the nearest GEMÜ sales office.

## 3 Product description

### 3.1 Construction

The GEMÜ 560 check valve comprises an angle seat valve body in stainless steel. The valve has either a PTFE or PFA seat for tight shut off. The valve is available with various connection types.



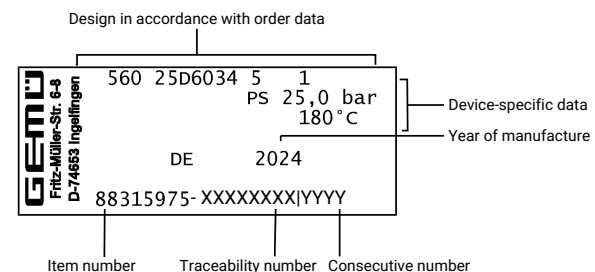
| Item | Name                  |
|------|-----------------------|
| 1    | Working medium inlet  |
| 2    | Retaining washer      |
| 3    | Seat seal             |
| 4    | Spindle               |
| 5    | Seal                  |
| 6    | Seat-spring unit      |
| 7    | Union nut             |
| 8    | Working medium outlet |
| 9    | Valve body            |

### 3.2 Description

The GEMÜ 560 check valve comprises an angle seat valve body in stainless steel. The valve has either a PTFE or PFA seat for tight shut off. The valve is available with various connection types.

### 3.3 Function

### 3.4 Product label



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

#### 4 Intended use

|  <b>DANGER</b> |                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <b>Danger of explosion!</b> <ul style="list-style-type: none"><li>▶ Risk of death or severe injury</li><li>● Do <b>not</b> use the product in potentially explosive zones.</li></ul> |

|  <b>WARNING</b>                                                                                                                                                                                                                           |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Improper use of the product!</b> <ul style="list-style-type: none"><li>▶ Risk of severe injury or death</li><li>▶ Manufacturer liability and guarantee will be void.</li><li>● Only use the product in accordance with the operating conditions specified in the contract documentation and in this document.</li></ul> |  |

The GEMÜ metal check valve, spring-loaded, is designed for use with a single medium. It prevents the backflow of medium.

The check valve is suitable for liquid media which have no negative impact on the physical properties of the valve body and seal material.

The valves are not suitable for media containing solids. They are actuated by an integrated spring. The check valve must be used in accordance with the technical data.

**5 Range overview**

| DN | Spigot          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Threaded connection |    |
|----|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------|----|
|    | Connection code |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                     |    |
|    | 0               |    | 16 |    | 17 |    |    | 37 | 59 |    |    | 60 |    |    |    | 1  | 9                   |    |
|    | Material code   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                     |    |
|    | 34              | 40 | 34 | 40 | 34 | 37 | 40 | C2 | 34 | 34 | 40 | C2 | 34 | 37 | 40 | C2 | 37                  | 37 |
| 6  | -               | X* | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -                   | -  |
| 8  | -               | X* | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | X* | X  | -                   | -  |
| 10 | -               | -  | X  | X* | X  | -  | X* | X  | -  | -  | X* | -  | X  | -  | -  | X  | X                   | -  |
| 15 | X               | -  | X  | -  | X  | X  | -  | X  | -  | X  | X* | X  | X  | X  | -  | X  | X                   | X  |
| 20 | X               | -  | X  | -  | X  | X  | -  | X  | -  | X  | -  | X  | X  | X  | -  | X  | X                   | X  |
| 25 | X               | -  | X  | -  | X  | X  | -  | X  | X  | X  | -  | X  | X  | X  | -  | X  | X                   | X  |
| 32 | -               | -  | X  | -  | X  | X  | -  | X  | -  | -  | -  | -  | X  | X  | -  | X  | X                   | X  |
| 40 | X               | -  | X  | -  | X  | X  | -  | X  | X  | X  | -  | X  | X  | X  | -  | X  | X                   | X  |
| 50 | X               | -  | X  | -  | X  | X  | -  | X  | X  | X  | -  | X  | X  | X  | -  | X  | X                   | X  |

\* only with actuator size 0

## 6 Order data

The order data provide an overview of standard configurations.

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

Products ordered with **bold marked ordering options** are so-called preferred series. Depending on the nominal size, these are available more quickly.

### Order codes

| 1 Type                 | Code |
|------------------------|------|
| Angle seat check valve | 560  |

| 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   |

| 3 Housing configuration | Code |
|-------------------------|------|
| 2/2-way body            | D    |

| 4 Connection type                                                                                        | Code |
|----------------------------------------------------------------------------------------------------------|------|
| <b>Spigot</b>                                                                                            |      |
| Spigot DIN                                                                                               | 0    |
| Spigot DIN EN 10357 series B (2014 issue; 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 issue)/DIN 11866 series C                               | 59   |
| Spigot ISO 1127/DIN EN 10357 series C (2014 issue)/DIN 11866 series B                                    | 60   |
| <b>Threaded connection</b>                                                                               |      |
| 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    |
| <b>Flange</b>                                                                                            |      |
| 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   |
| <b>Clamp</b>                                                                                             |      |
| Clamp DIN 32676 series B, face-to-face dimension FTF EN 558 series 1                                     | 82   |
| Clamp DIN 32676 series A, face-to-face dimension FTF EN 558 series 1                                     | 86   |

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

| 5 Valve body material       | Code |
|-----------------------------|------|
| 1.4435, investment casting  | 34   |
| 1.4408, investment casting  | 37   |
| 1.4435 (F316L), forged body | 40   |
| 1.4435, investment casting  | C2   |

| 6 Seat seal                         | Code |
|-------------------------------------|------|
| PTFE                                | 5    |
| PTFE<br>FDA compliant, USP class VI | 5P   |
| PFA                                 | 30   |

| 7 Actuator version | Code |
|--------------------|------|
| Actuator size 0    | 0    |
| Actuator size 1    | 1    |

| 8 Type of design                                                                                                               | Code |
|--------------------------------------------------------------------------------------------------------------------------------|------|
| Ra ≤ 0.6 µm (25 µinch) for media wetted surfaces, in accordance with ASME BPE SF2 + SF3 mechanically polished internal         | 1903 |
| 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 |
| Without                                                                                                                        |      |

| 9 CONEXO                                                            | Code |
|---------------------------------------------------------------------|------|
| Without                                                             |      |
| Integrated RFID chip for electronic identification and traceability | C    |



**Order example**

| Ordering option         | Code | Description                                                             |
|-------------------------|------|-------------------------------------------------------------------------|
| 1 Type                  | 560  | Angle seat check valve                                                  |
| 2 DN                    | 25   | DN 25                                                                   |
| 3 Housing configuration | D    | 2/2-way body                                                            |
| 4 Connection type       | 60   | Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B |
| 5 Valve body material   | 34   | 1.4435, investment casting                                              |
| 6 Seat seal             | 5    | PTFE                                                                    |
| 7 Actuator version      | 1    | Actuator size 1                                                         |
| 8 Type of design        |      | Without                                                                 |
| 9 CONEXO                |      | Without                                                                 |

## 7 Technical data

### 7.1 Medium

**Working medium:** Corrosive, inert and liquid media which have no negative impact on the physical and chemical properties of the respective valve body and seal material.  
Not suitable for gaseous media.

### 7.2 Temperature

**Media temperature:** **Seal material:**  
 PTFE seat seal, code 5: -10 °C to 180 °C  
 PTFE seat seal, FDA-compliant, USP class VI, code 5P: -10 °C to 180 °C  
 PFA seat seal, code 30: -10 °C to 160 °C  
 Others materials available on request.

**Ambient temperature:** -10 to 60 °C

### 7.3 Pressure

| Operating pressure: | Nominal size  | Actuator size | Operating pressure |
|---------------------|---------------|---------------|--------------------|
|                     | DN 6 to DN 15 | 0             | 25                 |
|                     | DN 8 to DN 40 | 1             | 25                 |
|                     | DN 50         | 1             | 20                 |

Pressures in bar

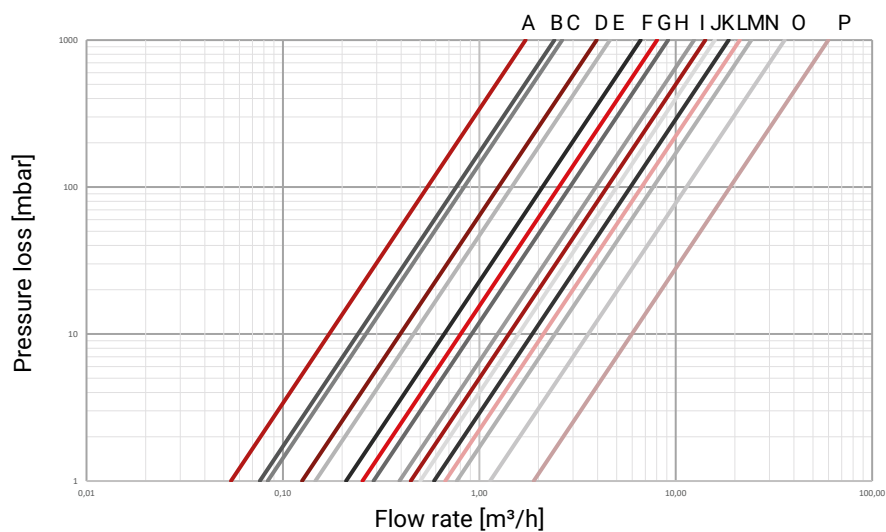
**Leakage rate:** Leakage rate according to EN12266, 6 bar air, leakage rate A

**Open pressure:** Approx. 0.2 bar

| Pressure/temperature correlation: | Connection code           | Material code | Room temperature in °C | Permissible operating pressures in bar |      |      |      |      |
|-----------------------------------|---------------------------|---------------|------------------------|----------------------------------------|------|------|------|------|
|                                   |                           |               |                        | 100                                    | 150  | 200  | 250  | 300  |
|                                   | 1, 9, 17, 60, 63          | 37            | 25.0                   | 23.8                                   | 21.4 | 18.9 | 17.5 | 16.1 |
|                                   | 0, 16, 17, 37, 59, 60, 65 | 34            | 25.0                   | 24.5                                   | 22.4 | 20.3 | 18.2 | 16.1 |
|                                   | 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 |

**Pressure loss:**

| Group | Nominal size | Code  | Group | Nominal size | Code  |
|-------|--------------|-------|-------|--------------|-------|
| A     | 8            | D137  | K     | 25           | D1737 |
| B     | 15           | D59C2 |       | 25           | D6037 |
| C     | 8            | D60C2 |       | 25           | D60C2 |
|       | 10           | D17C2 | L     | 32           | D1737 |
| D     | 10           | D137  |       | 32           | D17C2 |
|       | 10           | D60C2 |       | 32           | D60C2 |
|       | 15           | D137  | M     | 32           | D137  |
|       | 15           | D17C2 | N     | 32           | D6037 |
| E     | 15           | D1737 |       | 40           | D1737 |
|       | 15           | D6037 |       | 40           | D17C2 |
|       | 15           | D60C2 |       | 40           | D59C2 |
| F     | 20           | D59C2 |       | 40           | D60C2 |
| G     | 20           | D137  | O     | 40           | D137  |
|       | 20           | D17C2 |       | 40           | D6037 |
| H     | 20           | D1737 |       | 50           | D1737 |
|       | 20           | D6037 |       | 50           | D17C2 |
|       | 20           | D60C2 |       | 50           | D59C2 |
| I     | 25           | D59C2 |       | 50           | D60C2 |
| J     | 25           | D137  | P     | 50           | D137  |
|       | 25           | D17C2 |       | 50           | D6037 |



**7.4 Product compliance****Machinery Directive:** 2006/42/EC**Pressure Equipment Directive:** 2014/68/EU**Food:** FDA\*

**TA Luft (German Clean Air Act):** The product meets the following requirements under the max. permissible operating conditions:

- Tightness or compliance with the specific leak rate within the sense of TA-Luft as well as VDI 2440
- Compliance with the requirements in accordance with DIN EN ISO 15848-1, Table C.2, Class BH

**Explosion protection:** ATEX (2014/34/EU)

\* This feature is not possible for all versions.

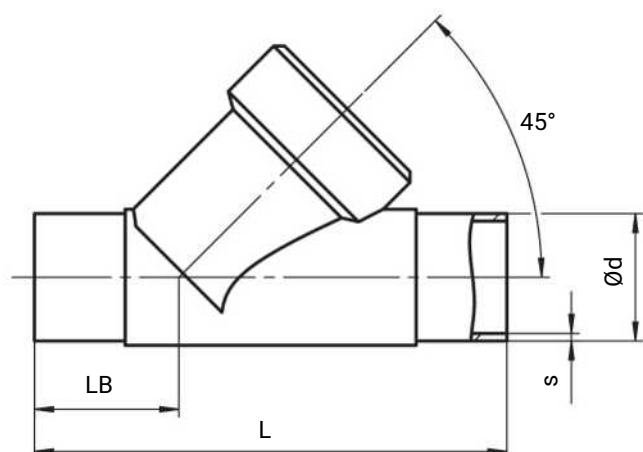
**7.5 Mechanical data****Weight:**

| Nominal size | Actuator size | Weight |
|--------------|---------------|--------|
| 6 - 15       | 0             | 0.21   |
| 8 - 15       | 1             | 0.48   |
| 20           | 1             | 0.70   |
| 25           | 1             | 0.78   |
| 32           | 1             | 1.53   |
| 40           | 1             | 1.74   |
| 50           | 1             | 2.70   |

Weights in kg

## 8 Dimensions

### 8.1 Butt weld spigot



#### 8.1.1 Material code 34 and 37

##### Connection codes 0, 16, 17

| DN | Material code 34 |       | Material code 37 |       | Connection code |      |       |      |       |      |
|----|------------------|-------|------------------|-------|-----------------|------|-------|------|-------|------|
|    |                  |       |                  |       | 0               |      | 16    |      | 17    |      |
|    | L                | LB    | L                | LB    | Ød              | s    | Ød    | s    | Ød    | s    |
| 10 | 105.00           | 35.50 | -                | -     | -               | -    | 12.00 | 1.00 | 13.00 | 1.50 |
| 15 | 105.00           | 35.50 | 100.00           | 33.00 | 18.00           | 1.50 | 18.00 | 1.00 | 19.00 | 1.50 |
| 20 | 120.00           | 39.00 | 108.00           | 33.00 | 22.00           | 1.50 | 22.00 | 1.00 | 23.00 | 1.50 |
| 25 | 125.00           | 38.50 | 112.00           | 32.00 | 28.00           | 1.50 | 28.00 | 1.00 | 29.00 | 1.50 |
| 32 | 155.00           | 48.00 | 137.00           | 39.00 | -               | -    | 34.00 | 1.00 | 35.00 | 1.50 |
| 40 | 160.00           | 47.00 | 146.00           | 40.00 | 40.00           | 1.50 | 40.00 | 1.00 | 41.00 | 1.50 |
| 50 | 180.00           | 48.00 | 160.00           | 38.00 | 52.00           | 1.50 | 52.00 | 1.00 | 53.00 | 1.50 |

Dimensions in mm

##### Connection codes 37, 59, 60

| DN | Material code 34 |       | Material code 37 |       | Connection code |      |       |      |       |      |
|----|------------------|-------|------------------|-------|-----------------|------|-------|------|-------|------|
|    |                  |       |                  |       | 37              |      | 59    |      | 60    |      |
|    | L                | LB    | L                | LB    | Ød              | s    | Ød    | s    | Ød    | s    |
| 10 | 105.00           | 35.50 | -                | -     | -               | -    | -     | -    | 17.20 | 1.60 |
| 15 | 105.00           | 35.50 | 100.00           | 33.00 | -               | -    | 12.70 | 1.65 | 21.30 | 1.60 |
| 20 | 120.00           | 39.00 | 108.00           | 33.00 | -               | -    | 19.05 | 1.65 | 26.90 | 1.60 |
| 25 | 125.00           | 38.50 | 112.00           | 32.00 | 25.00           | 1.20 | 25.40 | 1.65 | 33.70 | 2.00 |
| 32 | 155.00           | 48.00 | 137.00           | 39.00 | -               | -    | -     | -    | 42.40 | 2.00 |
| 40 | 160.00           | 47.00 | 146.00           | 40.00 | 38.00           | 1.20 | 38.10 | 1.65 | 48.30 | 2.00 |
| 50 | 180.00           | 48.00 | 160.00           | 38.00 | 51.00           | 1.20 | 50.80 | 1.65 | 60.30 | 2.00 |

Dimensions in mm

**8.1.2 Material code 40**

| DN  | L     | LB    | Connection code |      |       |      |       |      |       |      |       |      |
|-----|-------|-------|-----------------|------|-------|------|-------|------|-------|------|-------|------|
|     |       |       | 0               |      | 16    |      | 17    |      | 59    |      | 60    |      |
|     |       |       | Ød              | s    | Ød    | s    | Ød    | s    | Ød    | s    | Ød    | s    |
| 6*  | 80.00 | 26.50 | 8.00            | 1.00 | -     | -    | -     | -    | -     | -    | -     | -    |
| 8*  | 80.00 | 26.50 | 10.00           | 1.00 | -     | -    | -     | -    | -     | -    | 13.50 | 1.60 |
| 10* | 80.00 | 26.50 | -               | -    | 12.00 | 1.00 | 13.00 | 1.50 | 9.53  | 0.89 | -     | -    |
| 15* | 80.00 | 26.50 | -               | -    | -     | -    | -     | -    | 12.70 | 1.65 | -     | -    |

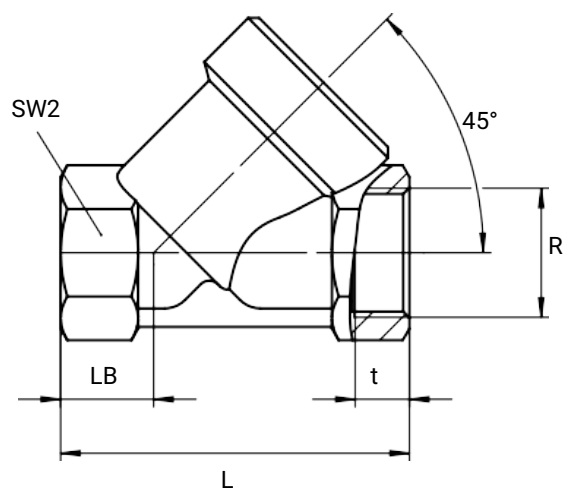
Dimensions in mm

\* only with actuator size 0

**8.1.3 Material code C2**

| DN | L      | LB    | Connection code |      |       |      |       |      |
|----|--------|-------|-----------------|------|-------|------|-------|------|
|    |        |       | 17              |      | 59    |      | 60    |      |
|    |        |       | Ød              | s    | Ød    | s    | Ød    | s    |
| 8  | 105.00 | 35.50 | -               | -    | -     | -    | 13.50 | 1.60 |
| 10 | 105.00 | 35.50 | 13.00           | 1.50 | -     | -    | 17.20 | 1.60 |
| 15 | 105.00 | 35.50 | 19.00           | 1.50 | 12.70 | 1.65 | 21.30 | 1.60 |
| 20 | 120.00 | 39.00 | 23.00           | 1.50 | 19.05 | 1.65 | 26.90 | 1.60 |
| 25 | 125.00 | 39.50 | 29.00           | 1.50 | 25.40 | 1.65 | 33.70 | 2.00 |
| 32 | 155.00 | 48.00 | 35.00           | 1.50 | -     | -    | 42.40 | 2.00 |
| 40 | 160.00 | 47.00 | 41.00           | 1.50 | 38.10 | 1.65 | 48.30 | 2.00 |
| 50 | 180.00 | 48.00 | 53.00           | 1.50 | 50.80 | 1.65 | 60.30 | 2.00 |

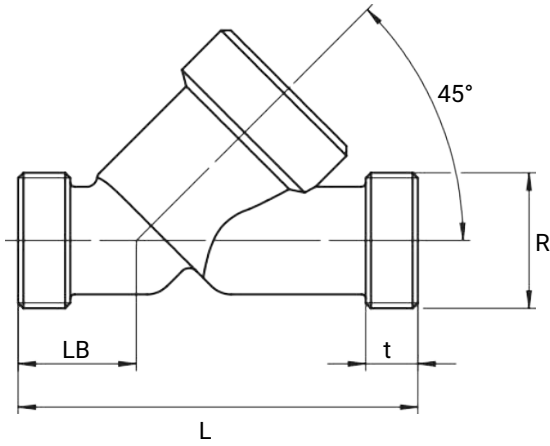
Dimensions in mm

**8.2 Threaded socket**

| DN | Connection code 1<br>Material code 37 |       |         |       |       |      |
|----|---------------------------------------|-------|---------|-------|-------|------|
|    | L                                     | LB    | R       | t     | SW2   |      |
| 15 | 65.00                                 | 16.50 | G 1/2   | 15.00 | 27.00 | 6-kt |
| 20 | 75.00                                 | 17.50 | G 3/4   | 16.30 | 32.00 | 6-kt |
| 25 | 90.00                                 | 24.00 | G 1     | 19.10 | 41.00 | 6-kt |
| 32 | 110.00                                | 33.00 | G 1 1/4 | 21.40 | 50.00 | 8-kt |
| 40 | 120.00                                | 30.00 | G 1 1/2 | 21.40 | 55.00 | 8-kt |
| 50 | 150.00                                | 40.00 | G 2     | 25.70 | 70.00 | 8-kt |

Dimensions in mm

### 8.3 Threaded spigot



| DN | Connection code 9<br>Material code 37 |       |         |       |
|----|---------------------------------------|-------|---------|-------|
|    | L                                     | LB    | R       | t     |
| 10 | 90.00                                 | 25.00 | G1/2    | 12.45 |
| 15 | 90.00                                 | 25.00 | G 3/4   | 12.00 |
| 20 | 110.00                                | 30.00 | G 1     | 15.00 |
| 25 | 118.00                                | 30.00 | G 1 1/4 | 15.00 |
| 32 | 130.00                                | 38.00 | G 1 1/2 | 13.00 |
| 40 | 140.00                                | 35.00 | G 1 3/4 | 13.00 |
| 50 | 175.00                                | 50.00 | G 2 3/8 | 15.00 |

Dimensions in mm

## 9 Manufacturer's information

### 9.1 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.

### 9.2 Condition as supplied to customer

The product is supplied as a separately packed component.

### 9.3 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.

### 9.4 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.
5. Close the compressed air connections with protection caps or sealing plugs.

### 9.5 Tools required

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

## 10 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.
5. Close the compressed air connections with protection caps or sealing plugs.

## 11 Installation in piping

### 11.1 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.

#### CAUTION



##### Hot plant components!

- Burns
- Only work on plant that has cooled down.
- Wear protective gear.

#### CAUTION



##### Maximum permissible pressure exceeded!

- Damage to the product!
- Provide for precautionary measures against exceeding the maximum permissible pressure that may be 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.

##### Explosion protection!



- ✓ Continuous earthing in the piping system must be ensured on-site.
  - 1. Ensure that the product is suitable for the respective 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 the plant or plant component against recommissioning.
  - 9. Depressurize the plant or plant component.
  - 10. Completely drain the plant or plant component and allow it to 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. Please note the flow direction.
- The installation position of the product is optional.

#### Flow direction

### 11.2 Installation with butt weld spigots

1. Disassemble the seat-spring unit, see Disassembling the seat-spring unit and sealing ring (see Chapter 14.1.1, page 19).
2. Adhere to good welding practices!
3. Weld the product.
4. Allow butt weld spigots to cool down.
5. Assemble the body and seat-spring unit.

#### After the installation

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

### 11.3 Installation with threaded connection

1. Screw the threaded connections into the pipe in accordance with valid standards.
2. Screw the body of the product onto the piping using appropriate thread sealant.
3. Observe appropriate regulations for connections.

#### After the installation

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

## 12 Commissioning

| ⚠ WARNING                                                                           |                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>Corrosive chemicals!</b></p> <ul style="list-style-type: none"> <li>▶ Risk of caustic burns</li> <li>● Wear appropriate protective gear.</li> <li>● Completely drain the plant.</li> </ul> |

| ⚠ CAUTION                                                                         |                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>Leakage!</b></p> <ul style="list-style-type: none"> <li>▶ Emission of dangerous materials</li> <li>● Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).</li> </ul> |

| ⚠ CAUTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p><b>Cleaning agent!</b></p> <ul style="list-style-type: none"> <li>▶ Damage to the GEMÜ product</li> <li>● The plant operator is responsible for selecting the cleaning material and performing the procedure.</li> </ul>                                                                                                                                                                                                                                                                                      |  |
| <ol style="list-style-type: none"> <li>1. Check the tightness and the function of the product (close and reopen the product).</li> <li>2. Flush the piping system of new plant and following repair work (the product must be fully open).</li> </ol> <p>⇒ Harmful foreign matter has been removed.</p> <p>⇒ The product is ready for use.</p> <ol style="list-style-type: none"> <li>3. Commission the product.</li> <li>4. Commissioning of actuators in accordance with the enclosed instructions.</li> </ol> |  |

### 13 Troubleshooting

| Error                                                                    | Possible cause                                | Troubleshooting                                                                                                                |
|--------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| The product doesn't open or doesn't open fully                           | Seat-spring unit faulty                       | Replace the seat-spring unit                                                                                                   |
| The product is leaking downstream (doesn't close or doesn't close fully) | Seat-spring unit faulty                       | Replace the seat-spring unit                                                                                                   |
|                                                                          | Foreign matter between the seat seal and seat | Disassemble the seat-spring unit, remove the foreign matter, check the seat seal for potential damage and replace if necessary |
|                                                                          | Body is leaking or is damaged                 | Check body for potential damage, replace body if necessary                                                                     |
|                                                                          | Seat seal faulty                              | Check the seat seal for potential damage, replace the seat seal if required                                                    |
| The product is leaking between the seat-spring unit and the body         | Union nut loose                               | Retighten union nut                                                                                                            |
|                                                                          | Sealing ring faulty                           | Check the sealing ring and associated sealing surfaces for potential damage and replace parts if necessary                     |
|                                                                          | Faulty product                                | Replace the seat-spring unit or body                                                                                           |
| Connection between body and piping is leaking                            | Incorrect installation                        | Check installation of the product in piping                                                                                    |
| Body is leaking                                                          | Body is leaking or is corroded                | Check product for potential damage, replace product if necessary                                                               |

### 14 Inspection and maintenance

|  <b>WARNING</b> |                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | <b>The equipment is subject to pressure!</b> <ul style="list-style-type: none"> <li>► Risk of severe injury or death</li> <li>● Depressurize the plant or plant component.</li> <li>● Completely drain the plant or plant component.</li> </ul> |
|  <b>WARNING</b> |                                                                                                                                                                                                                                                 |
|                 | <b>Corrosive chemicals!</b> <ul style="list-style-type: none"> <li>► Risk of caustic burns</li> <li>● Wear appropriate protective gear.</li> <li>● Completely drain the plant.</li> </ul>                                                       |

|  <b>CAUTION</b>                                                                                                                                                                             |                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                               | <b>Hot plant components!</b> <ul style="list-style-type: none"> <li>► Burns</li> <li>● Only work on plant that has cooled down.</li> <li>● Wear protective gear.</li> </ul> |
| <b>NOTICE</b>                                                                                                                                                                                                                                                                  |                                                                                                                                                                             |
| <b>Exceptional maintenance work!</b> <ul style="list-style-type: none"> <li>► Damage to the GEMÜ product</li> <li>● Any maintenance work and repairs not described in these operating instructions must not be performed without consulting the manufacturer first.</li> </ul> |                                                                                                                                                                             |

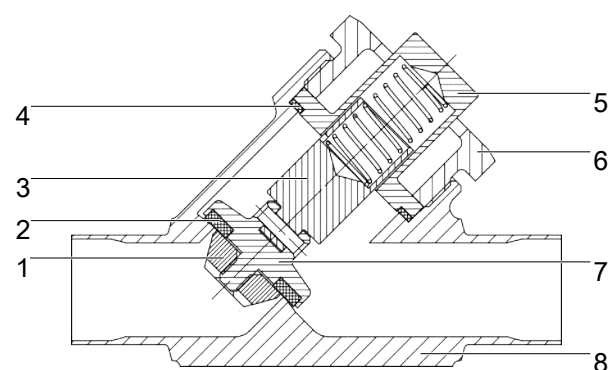
The operator must carry out regular visual examination of the GEMÜ products dependent on the operating conditions and the potential danger in order to prevent leakage and damage.

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 Spare parts



| Item | Name             | Order designation |
|------|------------------|-------------------|
| 1    | Retaining washer | -                 |
| 2    | Seat seal        | 560...SVS...      |
| 3    | Spindle          | -                 |
| 4    | Sealing ring     | 560...SVS...      |
| 5    | Seat-spring unit | 9560              |
| 6    | Union nut        | -                 |
| 7    | Valve plug       | -                 |
| 8    | Valve body       | K 514...          |

### 14.1.1 Disassembling the seat-spring unit and sealing ring

1. Loosen union nut.
2. Remove the seat-spring unit from the valve body.
3. Remove sealing ring.
4. Dispose of the sealing ring.
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).

### 14.1.2 Replacing the seat seal

1. Disassemble the seat-spring unit, see Disassembling the seat-spring unit and sealing ring (see Chapter 14.1.1, page 19).
2. Hold the spindle in place with an appropriate tool.
3. Undo the retaining washer on the spindle.
4. Remove the seat seal.
5. Clean all parts of contamination (do not damage parts during cleaning).
6. Insert the new seat seal.
7. Apply suitable thread locking compound to the spindle thread.
8. Hold the spindle in place with an appropriate tool.
9. Position and tighten the retaining washer.
10. Assemble the seat-spring unit, see Assembling the seat-spring unit and sealing ring (see Chapter 14.1.3, page 19).

### 14.1.3 Assembling the seat-spring unit and sealing ring

1. Place a new sealing ring in the product.
2. Lubricate the thread of the union nut using a suitable lubricant.
3. Place the seat-spring unit on the product and screw it on with the union nut until hand tight.
4. Tighten the union nut with an open-end wrench.
5. With the valve fully assembled, check the function and tightness.

| Nominal size | Actuator size | Torque [Nm] |
|--------------|---------------|-------------|
| 6-15         | 0             | 35          |
| 8            | 1             | 90          |
| 10           | 1             | 90          |
| 15           | 1             | 90          |
| 20           | 1             | 100         |
| 25           | 1             | 120         |
| 32           | 1             | 120         |
| 40           | 1             | 150         |
| 50           | 1             | 200         |

## 15 Disassembly

Disassembly is performed observing the same precautionary measures as for installation.

- Disassemble the product, see Disassembling the seat-spring unit and sealing ring (see Chapter 14.1.1, page 19).

## 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

Version 1.0



### Original EU-Einbauerklärung EU Declaration of Incorporation

Wir, die Firma

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG  
Gert-Müller-Platz 1  
74635 Kupferzell  
Deutschland

We, the company

erklären hiermit in alleiniger Verantwortung, dass die nachfolgend bezeichneten Produkte den Vorschriften der genannten Richtlinien entspricht.

**Produkt:** GEMÜ 560

**Produktname:** Rückschlagventil, Schrägsitzausführung

Inbetriebnahme der unvollständigen Maschine ist nur zulässig, wenn die Gesamtmaschine den Anforderungen der Maschinenrichtlinie bzw. der Maschinenverordnung entspricht.

**Richtlinien/Verordnungen:**

MD 2006/42/EG<sup>1)</sup>

**Folgende harmonisierte Normen (oder Teile hieraus) wurden angewandt:**

EN ISO 12100:2010

Folgende grundlegenden Sicherheits- und Gesundheitsschutzanforderungen der EG-Maschinenrichtlinie 2006/42/EG, Anhang I bzw. (EU) 2023/1230, Anhang III wurden angewandt und eingehalten:

1.1.2.; 1.1.3.; 1.1.5.; 1.3.2.; 1.3.3.; 1.3.4.; 1.3.7.; 1.5.4.; 1.5.5.; 1.6.1.; 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.

hereby declare under our sole responsibility that the below-mentioned products complies with the regulations of the mentioned Directives.

**Product:** GEMÜ 560

**Product name:** Check valve, angle seat design

Commissioning of the incomplete machine is only permitted if the complete machine complies with the requirements of the Machinery Directive resp. the Machinery Regulation (EU) 2023/1230.

**Directives/Regulations:**

**The following harmonized standards (or parts thereof) have been applied:**

The following essential health and safety requirements of the EC Machinery Directive 2006/42/EC, Annex I resp. (EU) 2023/1230, Annex III have been applied or adhered to:

<sup>1)</sup> MD 2006/42/EG

**Bemerkungen:**

Gültig ab 20. Januar 2027

Ferner wird erklärt, dass die speziellen technischen Unterlagen gemäß (EU) 2023/1230 Anhang IV Teil B erstellt wurden.

Der Hersteller verpflichtet sich, einzelstaatlichen Stellen auf begründetes Verlangen die speziellen technischen Unterlagen zu der unvollständigen Maschine zu übermitteln. Diese Übermittlung erfolgt elektronisch.

Die gewerblichen Schutzrechte bleiben hiervon unberührt!

<sup>1)</sup> MD 2006/42/EG

**Remarks:**

It is also declared that the specific technical documentation has been prepared in accordance with Annex VII, Part B resp. (EU) 2023/1230 Annex IV Part B.

The manufacturer undertakes to provide national authorities with the specific technical documentation relating to the partly completed machinery upon reasoned request. This documentation shall be provided electronically.

Industrial property rights remain unaffected by this!

i.V. M. Barghoorn  
Leiter Globale Technik

Ingelfingen, 20.04.2026

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG  
Gert-Müller-Platz 1, 74635 Kupferzell, Deutschland

www.gemu-group.com  
info@gemu.de

## 19 EU Declaration of Conformity



Version 1.0



## EU-Konformitätserklärung

### EU Declaration of Conformity

Wir, die Firma

We, the company

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG  
Gert-Müller-Platz 1  
74635 Kupferzell  
Deutschland

erklären hiermit in alleiniger Verantwortung, dass die nachfolgend bezeichneten Produkte den Vorschriften der genannten Richtlinien entspricht.

hereby declare under our sole responsibility that the below-mentioned products complies with the regulations of the mentioned Directives.

**Produkt:** GEMÜ 560**Product:** GEMÜ 560**Produktname:** Rückschlagventil, Schrägsitzausführung**Product name:** Check valve, angle seat design**Richtlinien/Verordnungen:****Directives/Regulations:**PED 2014/68/EU<sup>1)</sup>

**Folgende harmonisierte Normen (oder Teile hieraus) wurden angewandt:**

**The following harmonized standards (or parts thereof) have been applied:**

EN 16668:2016 + A1:2018

<sup>1)</sup> PED 2014/68/EU

**Einteilung gemäß Druckgeräterichtlinie 2014/68/EU, Artikel 4 und Anhang II:**  
Fluidklasse 1 (gasförmig oder flüssig),  
Diagramm 6, Kategorie I  
Instabile Gase sind ausgeschlossen.

**Notifizierte Stelle:**

TÜV Rheinland Industrie Service GmbH  
Am Grauen Stein 1  
51105 Köln

**Kennnummer der notifizierten Stelle:** 0035**Nr. des QS-Zertifikats:** 01 202 926/Q-02 0036**Angewandte(s) Konformitätsbewertungsverfahren:** Modul H**Hinweis für Produkte mit einer Nennweite ≤ DN 25:**

Die Produkte werden entwickelt und produziert nach GEMÜ eigenen Verfahrensanweisungen und Qualitätsstandards, welche die Forderungen der ISO 9001 und der ISO 14001 erfüllen. Die Produkte dürfen gemäß Artikel 4, Absatz 3 der Druckgeräterichtlinie 2014/68/EU keine CE-Kennzeichnung tragen.

<sup>1)</sup> PED 2014/68/EU

**Classification in accordance with the Pressure Equipment Directive 2014/68/EU, Article 4 and Annex II:**

Fluid class 1 (gaseous or liquid),  
Diagram 6, Category I  
Unstable gases are excluded.

**Notified body:**

TÜV Rheinland Industrie Service GmbH  
Am Grauen Stein 1  
51105 Cologne

**Identification number of the notified body:** 0035**QA certificate number:** 01 202 926/Q-02 0036**Applied conformity assessment procedures:** Module H**Note for products with a nominal size ≤ DN 25:**

The products are developed and manufactured in accordance with GEMÜ's own process instructions and quality standards, which meet the requirements of ISO 9001 and ISO 14001. In accordance with Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU, the products are not permitted to bear the CE mark.

i.V. M. Barghoorn  
Leiter Globale Technik  
Kupferzell, 20.04.2026

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG  
Gert-Müller-Platz 1, 74635 Kupferzell, Deutschland

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