GEMÜ®

# Angle Seat Globe Valve, Metal

## Construction

The GEMÜ 514 pneumatically operated 2/2-way angle seat globe valve has a low maintenance aluminium piston actuator.
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. The wiper ring fitted in front of the gland packing protects it against contamination and damage.

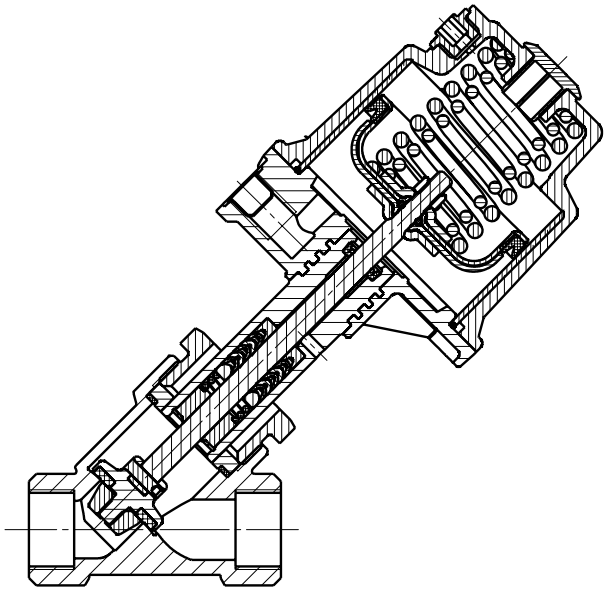
## Features

- Substantially reduced installation dimensions when using the body with male threads which can be removed using union nuts
- Suitable for high operating temperatures and pressures
- Control medium connection can be rotated through 360°

## Advantages

- Various valve body connections:
  threaded sockets, threaded spigots, butt weld spigots
- Good flow capability due to angle seat design
- Extensive range of accessories
- Versions with bellows available
- Special connections and materials on request
- Optionally suitable for contact with food according to Regulation (EC) No. 1935/2004 (K-No. 1935)

## Sectional drawing



GEMÜ® 514

# Technical data

## Working medium

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

| | |
|---|---|
| Max. perm. pressure of working medium | see table |
| Medium temperature | -10 °C to 180 °C |
| Max. permissible viscosity | 600 $mm^2/s$ (cSt) |

Other versions for lower/higher temperatures and viscosities on request.

## Leakage rate

Leakage rate A to P11/P12 EN 12266-1

## Control medium

Inert gases

| | | |
|---|---|---|
| Max. perm. temperature of control medium: | | 60 °C |
| Filling volume | Actuator size 0 and 3: | 0.05 $dm^3$ |
| | Actuator size 1 and 4: | 0.125 $dm^3$ |
| | Actuator size 5: | 0.248 $dm^3$ |
| | Actuator size 2: | 0.625 $dm^3$ |

## Ambient conditions

| | |
|---|---|
| Max. ambient temperature | 60 °C |

## Flow direction

See page 4

| Nominal size | Max. operating pressure [bar] Normally closed | | | | | | Control pressure [bar] Normally closed | | | | | | Kv value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | Actuator size 0 piston ø 50 mm | Actuator size 3 piston ø 50 mm | Actuator size 1 piston ø 70 mm | Actuator size 4 piston ø 70 mm | Actuator size 5 piston ø 100 mm | Actuator size 2 piston ø 120 mm | Actuator size 0 | Actuator size 3 | Actuator size 1 | Actuator size 4 | Actuator size 5 | Actuator size 2 | [$m^3/h$] |
| 10 | 12.0 | 10 | 25.0 | 10 | - | - | 4.7 - 10 | min. control pressure see diagram max. control pressure 7 bar | 5.5 - 10 | min. control pressure see diagram max. control pressure 8 bar | - | - | 4.5 |
| 15 | 12.0 | 10 | 25.0 | 10 | - | - | 4.7 - 10 | | 5.5 - 10 | | - | - | 5.4 |
| 20 | 6.0 | 10 | 20.0 | 10 | - | 25 | 4.7 - 10 | | 5.5 - 10 | | - | 4.0 - 8 | 10.0 |
| 25 | 2.5 | 10 | 10.0 | 10 | - | 25 | 4.7 - 10 | | 5.5 - 10 | | - | 4.0 - 8 | 15.2 |
| 32 | - | - | 7.0 | 10 | 12 | 22 | - | | 5.5 - 10 | | 4.0 - 8 | 4.0 - 8 | 23.0 |
| 40 | - | - | 4.5 | 10 | 9 | 12 | - | | 5.5 - 10 | | 4.0 - 8 | 4.0 - 8 | 41.0 |
| 50 | - | - | 3.0 | 10 | 7 | 10 | - | | 5.5 - 10 | | 4.2 - 8 | 5.5 - 8 | 68.0 |
| 65 | - | - | - | - | - | 7 | - | | - | | - | 5.5 - 8 | 95.0 |
| 80 | - | - | - | - | - | 5 | - | | - | | - | 5.5 - 8 | 130.0 |

Operating pressure for seal material PTFE (code 5), for seal material steel (code 10) only 60% of the values indicated above.
Kv values determined acc. to IEC 534 standard, body with threaded sockets DIN ISO 228. The Kv value data refers to control function 1 (NC) and the largest actuator for each nominal size. Kv values may be different for other combinations. Consult GEMÜ.

| Nominal size | Max. operating pressure [bar] Normally open/ Double acting | | Control pressure [bar] Normally open/ Double acting | |
|---|---|---|---|---|
| DN | Actuator size 1 piston ø 70 mm | Actuator size 2 piston ø 120 mm | Actuator size 1 | Actuator size 2 |
| 10 | 25 | - | max. 7 bar for values see diagram | max. 7 bar for values see diagram |
| 15 | 25 | - | | |
| 20 | 25 | 25 | | |
| 25 | 25 | 25 | | |
| 32 | 20 | 25 | | |
| 40 | 12 | 25 | | |
| 50 | 8 | 25 | | |
| 65 | - | 18 | | |
| 80 | - | 10 | | |

For max. operating pressures the pressure/temperature correlation must be observed (see table on page 3).
All pressures are gauge pressures.

## Pressure / temperature correlation for angle seat globe valve bodies

| Connection code | Material code | Max. allowable operating pressures in bar at temperature °C* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | RT | 50 | 100 | 150 | 200 | 250 | 300 |
| 1, 3C, 3D, 9 (up to DN 50) | 9 | 16.0 | 16.0 | 16.0 | 16.0 | 13.5 | - | - |
| 1, 3C, 3D, 9 (from DN 65) | 9 | 10.0 | 10.0 | 10.0 | 10.0 | 8.5 | - | - |
| 1, 9, 17, 37, 59, 60, 3C, 3D | 37 | 25.0 | 23.7 | 21.3 | 19.2 | 17.7 | 16.4 | 15.4 |
| 0, 13, 16, 17, 18, 37, 59, 60 | 34 | 25.0 | 24.2 | 21.2 | 19.3 | 17.9 | 16.8 | 15.9 |
| 47 | 34 | 19.0 | 19.0 | 16.0 | 14.8 | 13.6 | 12.1 | 10.2 |
| 1A, 1B | C2 | 25.0 | 24.2 | 21.2 | 19.3 | 17.9 | 16.8 | 15.9 |

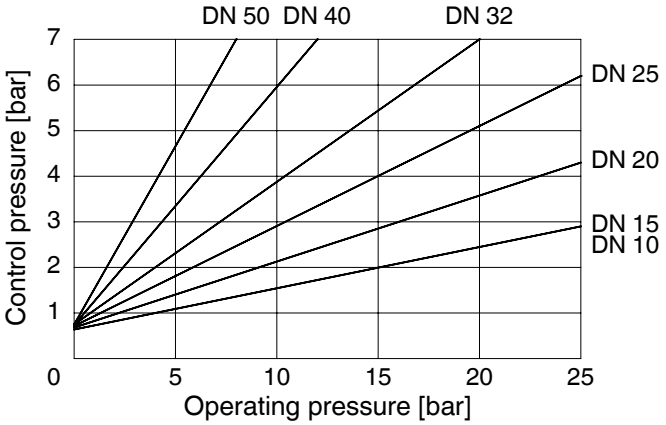
* The valves can be used down to -10°C  RT = Room Temperature  All pressures are gauge pressures.

## Operating pressure / Control pressure characteristics

**Actuator size 1**
**Normally open (NO)**
**Double acting (DA)**

Min. control pressure dependent on operating pressure

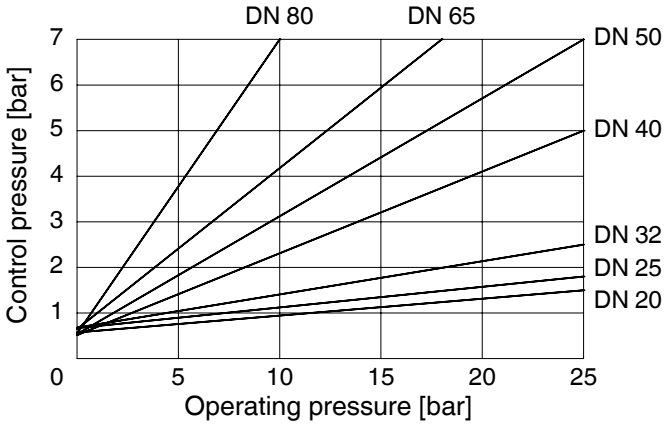
(Flow direction: under the seat)




**Actuator size 2**
**Normally open (NO)**
**Double acting (DA)**

Min. control pressure dependent on operating pressure

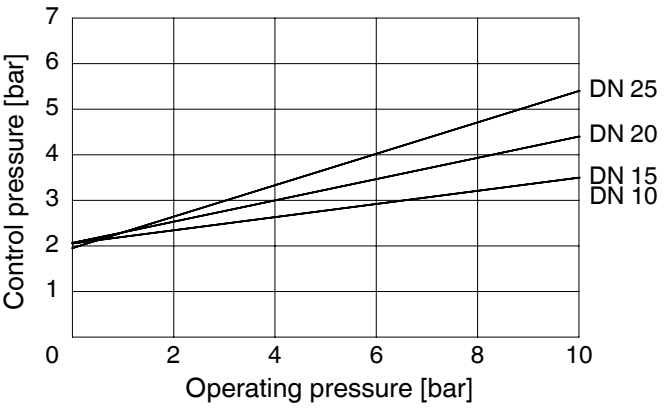
(Flow direction: under the seat)




**Actuator size 3**
**Normally closed (NC)**

Min. control pressure dependent on operating pressure

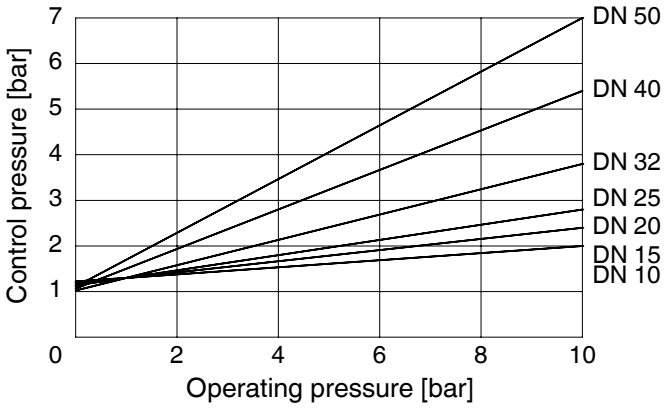
(Flow direction: over the seat)




**Actuator size 4**
**Normally closed (NC)**

Min. control pressure dependent on operating pressure

(Flow direction: over the seat)



## Order data

| Body configuration | Code |
|---|---|
| 2/2-way body | D |

| Connection | Code |
|---|---|
| **Butt weld spigots** | |
| Spigots DIN | 0 |
| Spigots DIN 11850, series 1 | 16 |
| Spigots DIN 11850, series 2 | 17 |
| Spigots DIN 11850, series 3 | 18 |
| Spigots DIN 11866, series A | 1A |
| Spigots DIN 11866, series B | 1B |
| Spigots SMS 3008 | 37 |
| Spigots ASME BPE | 59 |
| Spigots EN ISO 1127 | 60 |
| **Threaded connections** | |
| Threaded sockets DIN ISO 228 | 1 |
| Threaded sockets BS 21 Rc length DIN 3202-4 series M8 | 3C |
| Threaded spigots DIN ISO 228 | 9 |
| Threaded sockets NPT length DIN 3202-4 series M8 | 3D |
| **Flanges** | |
| Flanges EN 1092 / PN25 /form B, length see body dimensions | 13 |
| Flanges ANSI CLASS 125/150 RF, length see body dimensions | 47 |
| Bodies with clamp connections available on request | |

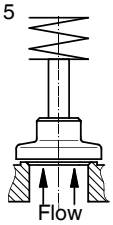
| Valve body material | Code |
|---|---|
| (Rg 5) CC499K, Cast bronze | 9 |
| 1.4435 (ASTM A 351 CF3M ≙ 316L), Investment casting | 34 |
| 1.4408, Cast stainless steel | 37 |
| 1.4435, Investment casting Material equivalency 316L | C2* |
| * A surface finish from the order code table “K number“ must be specified for valve body material C2. | |

| Seat seal | Code |
|---|---|
| PTFE | 5 |
| PTFE, glass reinforced | 5G |
| Steel | 10 |
| Other seat seals on request | |

| Control function | | Code |
|---|---|---|
| Normally closed | (NC) | 1 |
| Normally open | (NO) | 2* |
| Double acting | (DA) | 3* |
| *not with piston ø 50 mm and ø 100 mm | | |

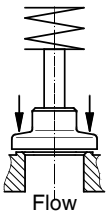
| Actuator size | | Flow | Code |
|---|---|---|---|
| Actuator 0 | piston ø 50 mm | Flow under the seat | 0* |
| Actuator 1 | piston ø 70 mm | Flow under the seat | 1* |
| Actuator 2 | piston ø 120 mm | Flow under the seat | 2* |
| Actuator 5 | piston ø 100 mm | Flow under the seat | 5* |
| Actuator 3 | piston ø 50 mm | Flow over the seat | 3** |
| Actuator 4 | piston ø 70 mm | Flow over the seat | 4** |
| * Preferred flow direction with incompressible liquid media to avoid “water hammer“ | | | |
| ** only control function NC | | | |

GEMÜ 514
Actuators 0, 1, 2, 5




Flow
under the seat

GEMÜ 514
Actuators 3, 4

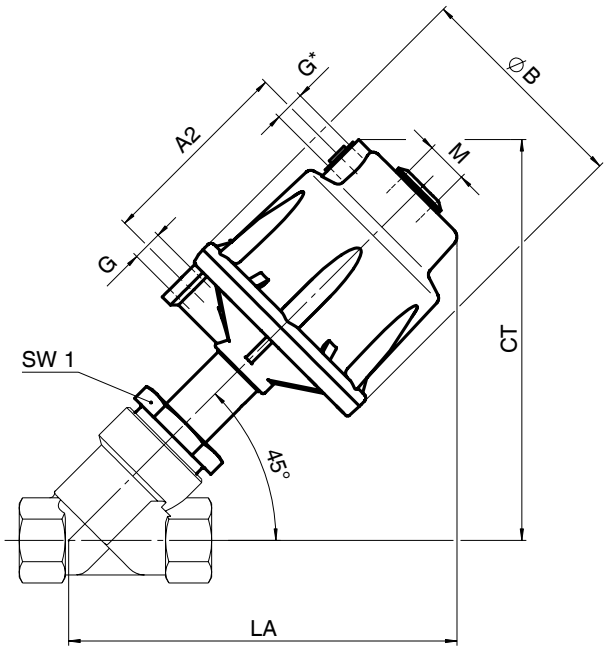



Flow
over the seat

| K number | Code |
|---|---|
| Surface finish for valve body material C2 | |
| external surface electrolytically gloss polished / mechanically polished internal Ra ≤ 0.6 µm | 1903 |
| external surface electrolytically gloss polished / mechanically polished internal Ra ≤ 0.8 µm | 1904 |
| external surface electrolytically gloss polished / mechanically polished internal Ra ≤ 0.4 µm | 1909 |

| Order example | 514 | 25 | D | 1 | 9 | 5 | 1 | 1 | 1903 |
|---|---|---|---|---|---|---|---|---|---|
| Type | 514 | | | | | | | | |
| Nominal size | | 25 | | | | | | | |
| Body configuration (code) | | | D | | | | | | |
| Connection (code) | | | | 1 | | | | | |
| Valve body material (code) | | | | | 9 | | | | |
| Seat seal (code) | | | | | | 5 | | | |
| Control function (code) | | | | | | | 1 | | |
| Control function (code) | | | | | | | | 1 | |
| K-Number (code) | | | | | | | | | 1903 |

## Actuator dimensions / Installation dimensions [mm]




* Connection only for actuator sizes 1, 2 and 5; c.f. 2 and 3

| Actuator dimensions [mm] | | | | |
|---|---|---|---|---|
| **Actuator size** | **ø B** | **M** | **A2** | **G** |
| 0 + 3 | 71 | M 16x1 | - | G 1/4 |
| 1 + 4 | 96 | M 16x1 | 85.5 | G 1/4 |
| 2 | 164 | M 22x1.5 | 123.0 | G 1/4 |
| 5 | 140 | M 22x1.5 | 117.0 | G 1/4 |

| Installation dimensions / Weight [kg] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Actuator size 0 and 3** | | **Actuator size 1 and 4** | | **Actuator size 2** | | **Actuator size 5** | |
| **DN** | **Wrench size SW1** | **CT/LA** | **Weight** | **CT/LA** | **Weight** | **CT/LA** | **Weight** | **CT/LA** | **Weight** |
| 10 | 36 | 148 | 0.9 | 159 | 1.4 | - | - | - | - |
| 15 | 36 | 151 | 0.9 | 162 | 1.4 | - | - | - | - |
| 20 | 41 | 161 | 1.1 | 172 | 1.6 | 239 | - | - | - |
| 25 | 46 | 161 | 1.3 | 172 | 1.8 | 239 | - | - | - |
| 32 | 55 | - | - | 180 | 2.4 | 247 | 4.6 | 237 | 3.7 |
| 40 | 60 | - | - | 186 | 2.7 | 253 | 5.5 | 243 | 4.6 |
| 50 | 75 | - | - | 194 | 3.4 | 261 | 6.4 | 251 | 5.5 |
| 65 | 75 | - | - | - | - | 273 | 8.5 | - | - |
| 80 | 75 | - | - | - | - | 290 | 9.6 | - | - |

## Body dimensions [mm]

**Butt weld spigots, connection code 0, 16, 17, 18, 37, 59, 60**
**Valve body material: 1.4435 (code 34), 1.4408 (code 37)**

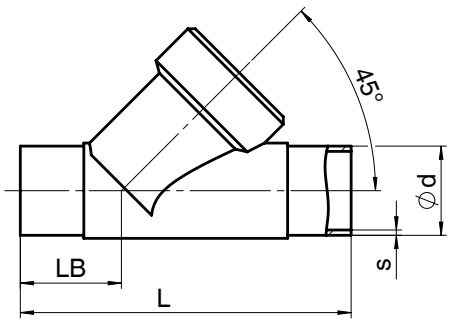
| | | | | | Connection code | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Material code 34 | | Material code 37 | | 0 | | 16 | | 17 | | 18 | | 37 | | 59 | | 60 | |
| DN | L | LB | L | LB | ø d | s | ø d | s | ø d | s | ø d | s | ø d | s | ø d | s | ø d | s |
| 10 | 105 | 35.5 | - | - | - | - | 12 | 1.0 | 13 | 1.5 | 14 | 2.0 | - | - | - | - | 17.2 | 1.6 |
| 15 | 105 | 35.5 | 100 | 33 | 18 | 1.5 | 18 | 1.0 | 19 | 1.5 | 20 | 2.0 | - | - | 12.70 | 1.65 | 21.3 | 1.6 |
| 20 | 120 | 39.0 | 108 | 33 | 22 | 1.5 | 22 | 1.0 | 23 | 1.5 | 24 | 2.0 | - | - | 19.05 | 1.65 | 26.9 | 1.6 |
| 25 | 125 | 38.5 | 112 | 32 | 28 | 1.5 | 28 | 1.0 | 29 | 1.5 | 30 | 2.0 | 25.0 | 1.2 | 25.40 | 1.65 | 33.7 | 2.0 |
| 32 | 155 | 48.0 | 137 | 39 | - | - | 34 | 1.0 | 35 | 1.5 | 36 | 2.0 | - | - | - | - | 42.4 | 2.0 |
| 40 | 160 | 47.0 | 146 | 40 | 40 | 1.5 | 40 | 1.0 | 41 | 1.5 | 42 | 2.0 | 38.0 | 1.2 | 38.10 | 1.65 | 48.3 | 2.0 |
| 50 | 180 | 48.0 | 160 | 38 | 52 | 1.5 | 52 | 1.0 | 53 | 1.5 | 54 | 2.0 | 51.0 | 1.2 | 50.80 | 1.65 | 60.3 | 2.0 |
| 65 | - | - | 290 | 96 | - | - | - | - | 70 | 2.0 | - | - | 63.5 | 1.6 | 63.50 | 1.65 | 76.1 | 2.0 |
| 80 | - | - | 310 | 95 | - | - | - | - | 85 | 2.0 | - | - | 76.1 | 1.6 | 76.20 | 1.65 | 88.9 | 2.3 |

For materials see overview on last page

**Butt weld spigots, connection code 1A, 1B, 59**
**Valve body material: 1.4435 (Code C2)**

| | | | Connection code | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1A | | 1B | | 59 | |
| DN | L | LB | ø d | s | ø d | s | ø d | s |
| 8 | 105* | 35.5* | - | - | 13.5 | 1.6 | - | - |
| 10 | 105 | 35.5 | 13 | 1.5 | 17.2 | 1.6 | - | - |
| 15 | 105 | 35.5 | 19 | 1.5 | 21.3 | 1.6 | 12.70 | 1.65 |
| 20 | 120 | 39.0 | 23 | 1.5 | 26.9 | 1.6 | 19.05 | 1.65 |
| 25 | 125 | 39.5 | 29 | 1.5 | 33.7 | 2.0 | 25.40 | 1.65 |
| 32 | 155 | 48.0 | 35 | 1.5 | 42.4 | 2.0 | - | - |
| 40 | 160 | 47.0 | 41 | 1.5 | 48.3 | 2.0 | 38.10 | 1.65 |
| 50 | 180 | 48.0 | 53 | 1.5 | 60.3 | 2.0 | 50.80 | 1.65 |
| 65 | 290 | 96.0 | 70 | 2.0 | 76.1 | 2.0 | 63.50 | 1.65 |
| 80 | 310 | 95.0 | 85 | 2.0 | 88.9 | 2.3 | 76.20 | 1.65 |

* Connection code 1A: L = 100, LB = 33,5



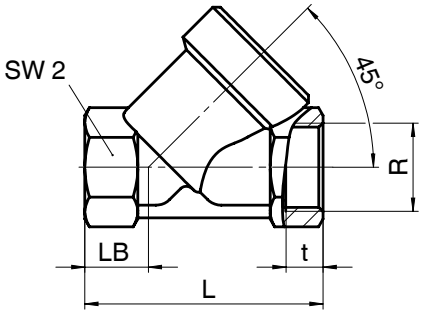
## Body dimensions [mm]

| Threaded sockets DIN, connection code 1<br>Valve body material: Cast bronze (code 9), 1.4408 (code 37) | | | | | | |
|---|---|---|---|---|---|---|
| **DN** | **L** | **LB** | **R** | **t** | **SW2** | |
| 10 | 65 | 16.5 | G 3/8 | 9.0 | 27 | hexagonal |
| 15 | 65 | 16.5 | G 1/2 | 15.0 | 27 | hexagonal |
| 20 | 75 | 17.5 | G 3/4 | 16.3 | 32 | hexagonal |
| 25 | 90 | 24.0 | G 1 | 19.1 | 41 | hexagonal |
| 32 | 110 | 33.0 | G 1 1/4 | 21.4 | 50 | octagonal |
| 40 | 120 | 30.0 | G 1 1/2 | 21.4 | 55 | octagonal |
| 50 | 150 | 40.0 | G 2 | 25.7 | 70 | octagonal |
| 65 | 190 | 46.0 | G 2 1/2 | 24.0 | 85 | octagonal |
| 80 | 220 | 50.0 | G 3 | 27.0 | 100 | octagonal |

For materials see overview on last page

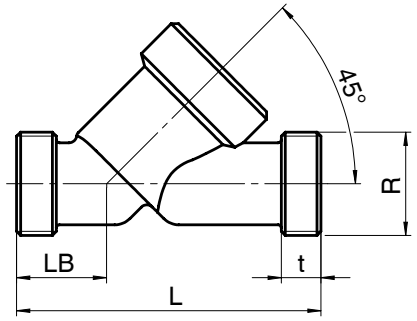
| Threaded sockets NPT, BS 21 Rc, connection code 3C, 3D<br>Valve body material: Cast bronze (code 9), 1.4408 (code 37) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | **Connection code** | | | |
| | | | | | **3C** | | **3D** | |
| **DN** | **L** | **LB** | **SW2** | | **R** | **t** | **R** | **t** |
| 15 | 65 | 16.5 | 27 | hexagonal | Rc 1/2 | 16.0 | 1/2” NPT | 16.0 |
| 20 | 75 | 17.5 | 32 | hexagonal | Rc 3/4 | 16.3 | 3/4” NPT | 16.3 |
| 25 | 90 | 24.0 | 41 | hexagonal | Rc 1 | 19.1 | 1” NPT | 17.0 |
| 32 | 110 | 33.0 | 50 | octagonal | Rc 1 1/4 | 21.4 | 1 1/4” NPT | 18.0 |
| 40 | 120 | 30.0 | 55 | octagonal | Rc 1 1/2 | 21.4 | 1 1/2” NPT | 18.0 |
| 50 | 150 | 40.0 | 70 | octagonal | Rc 2 | 25.7 | 2” NPT | 18.0 |

For materials see overview on last page.

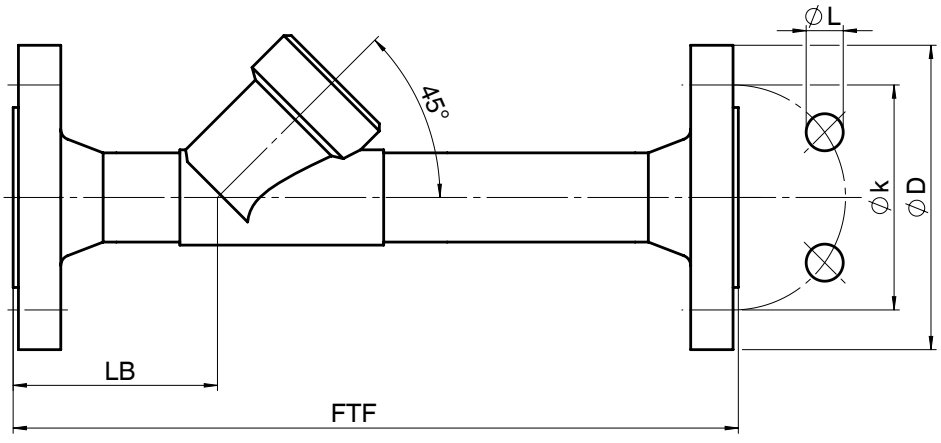


## Body dimensions [mm]

| Threaded spigots, connection code 9<br>Valve body material: Cast bronze (code 9), 1.4408 (code 37) | | | | |
|---|---|---|---|---|
| **DN** | **L** | **LB** | **t** | **R** |
| 15 | 90 | 25 | 12 | G 3/4 |
| 20 | 110 | 30 | 15 | G 1 |
| 25 | 118 | 30 | 15 | G 1 1/4 |
| 32 | 130 | 38 | 13 | G 1 1/2 |
| 40 | 140 | 35 | 13 | G 1 3/4 |
| 50 | 175 | 50 | 15 | G 2 3/8 |
| 65 | 216 | 52 | 15 | G 3 |
| 80 | 254 | 64 | 18 | G 3 1/2 |
| For materials see overview below | | | | |




| Flanges, connection code 13, 47<br>Valve body material: 1.4435 (code 34) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Connection code 13** | | | | **Connection code 47** | | | |
| **DN** | **FTF** | **LB** | **ø D** | **ø L** | **ø k** | **Number of bolts** | **ø D** | **ø L** | **ø k** | **Number of bolts** |
| 15 | 210 | 72 | 95 | 14 | 65 | 4 | 89.0 | 15.7 | 60.5 | 4 |
| 20 | 280 | 78 | 105 | 14 | 75 | 4 | 98.6 | 15.7 | 69.8 | 4 |
| 25 | 280 | 77 | 115 | 14 | 85 | 4 | 108.0 | 15.7 | 79.2 | 4 |
| 32 | 310 | 89 | 140 | 18 | 100 | 4 | 117.3 | 15.7 | 88.9 | 4 |
| 40 | 320 | 91 | 150 | 18 | 110 | 4 | 127.0 | 15.7 | 98.6 | 4 |
| 50 | 330 | 95 | 165 | 18 | 125 | 4 | 152.4 | 19.1 | 120.7 | 4 |



## Overview of metal bodies for GEMÜ 514

| | Spigots | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Connection code** | **0** | **16** | **17** | | **18** | **1A** | **1B** | **37** | | **59** | | | **60** | |
| **Material code** | **34** | **34** | **34** | **37** | **34** | **C2** | **C2** | **34** | **37** | **34** | **37** | **C2** | **34** | **37** |
| DN 10 | - | X | X | - | X | X | X | - | - | - | - | - | X | - |
| DN 15 | X | X | X | X | X | X | X | - | - | X | - | X | X | X |
| DN 20 | X | X | X | X | X | X | X | - | - | X | - | X | X | X |
| DN 25 | X | X | X | X | X | X | X | X | - | X | - | X | X | X |
| DN 32 | - | X | X | X | X | X | X | - | - | - | - | X | X | X |
| DN 40 | X | X | X | X | X | X | X | X | - | X | - | X | X | X |
| DN 50 | X | X | X | X | X | X | X | X | - | X | - | X | X | X |
| DN 65 | - | - | - | X | - | X | X | - | X | - | X | X | - | X |
| DN 80 | - | - | - | X | - | X | X | - | X | - | X | X | - | X |

## Overview of metal bodies for GEMÜ 514

| | Threaded connections | | | | | | | | Flanges | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Connection code** | **1** | | **3C** | | **9** | | **3D** | | **13** | **47** |
| **Material code** | **9** | **37** | **9** | **37** | **9** | **37** | **9** | **37** | **34** | **34** |
| DN 10 | - | X | - | - | - | - | - | - | - | - |
| DN 15 | X | X | X | X | X | X | X | X | X | X |
| DN 20 | X | X | X | X | X | X | X | X | X | X |
| DN 25 | X | X | X | X | X | X | X | X | X | X |
| DN 32 | X | X | X | X | - | X | X | X | X | X |
| DN 40 | X | X | X | X | X | X | X | X | X | X |
| DN 50 | X | X | X | X | X | X | X | X | X | X |
| DN 65 | X | X | - | - | X | X | - | - | - | - |
| DN 80 | X | X | - | - | X | X | - | - | - | - |

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





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