

## Angle Seat Globe Valve, Metal

### Construction

The GEMÜ 514 pneumatically operated 2/2-way valve has a robust 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.

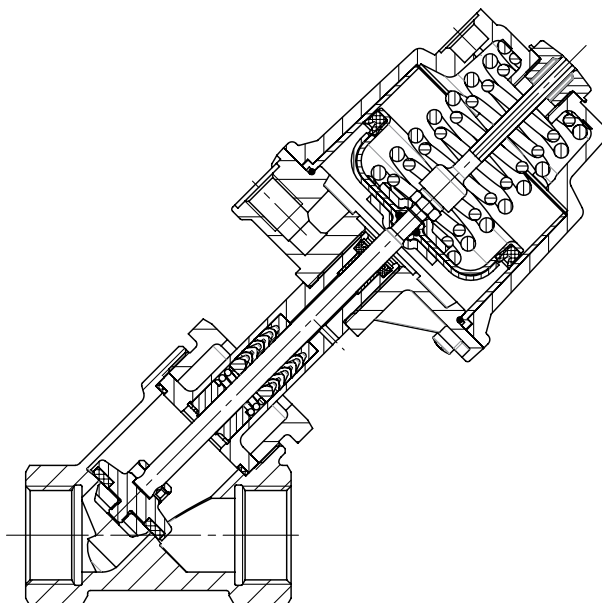
### Features

- Substantially reduced installation dimensions when using the body with male threads which can be removed using union nuts
- Standard floating plug on spindle ensures excellent seat sealing
- 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. 2013)
- Standard gland packing suitable for vacuum up to 20 mbar (abs.)

Sectional drawing



## 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<sup>2</sup>/s (cSt)

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

### Control medium

Inert gases

Max. perm. temperature of control medium: 60 °C

Filling volume Actuator size 0 and 3: 0.05 dm<sup>3</sup>  
Actuator size 1 and 4: 0.125 dm<sup>3</sup>  
Actuator size 2: 0.625 dm<sup>3</sup>

### Flow direction

See page 5

### Ambient conditions

Max. ambient temperature 60 °C

### Maximum permissible seat leakage rate

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

Nominal size	Max. operating pressure [bar] Normally closed					Control pressure [bar] Normally closed					Kv value [m <sup>3</sup> /h]
	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 2 piston ø 120 mm	Actuator size 0	Actuator size 3	Actuator size 1	Actuator size 4	Actuator size 2	
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 7 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	22	-		5.5 - 10		4.0 - 8	23.0
40	-	-	4.5	10	15	-		5.5 - 10		4.0 - 8	41.0
50	-	-	3.0	10	10	-		5.5 - 10		5.5 - 8	68.0
65	-	-	2.0	-	7	-		5.5 - 10		5.5 - 8	95.0
80	-	-	1.0	-	5	-	5.5 - 10	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 DIN EN 60534, 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. The Kv values for other product configurations (e.g. other connections or body materials) may differ.

## Technical data

Nominal size	Max. operating pressure [bar] Normally open/ Double acting		Control pressure [bar] Normally open/ Double acting	
	Actuator size 1 piston ø 70 mm	Actuator size 2 piston ø 120 mm	Actuator size 1	Actuator size 2
10	25,0	-	max. 5 bar	max. 7 bar  for values see diagram
15	25,0	-		
20	25,0	25,0	max. 7 bar	
25	25,0	25,0		
32	20,0	25,0	for values see diagram	
40	12,0	25,0		
50	8,0	25,0	max. 7 bar	
65	5,0	18,0		
80	3,5	10,0		

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	100	150	200	250	300
1, 3D, 9 (up DN 50)	9	16.0	16.0	16.0	13.5	-	-
1, 9 (from DN 65)	9	10.0	10.0	10.0	8.5	-	-
1, 9, 17, 37, 60, 63, 3C, 3D	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
13 (DN 15 - DN 50)	34	25.0	23.6	21.5	19.8	18.6	17.2
47 (DN 15 - DN 50)	34	15.9	13.3	12.0	11.1	10.2	9.7
17, 59, 60	C2	25.0	21.2	19.3	17.9	16.8	15.9

\* The valves can be used down to -10°C

RT = Room Temperature

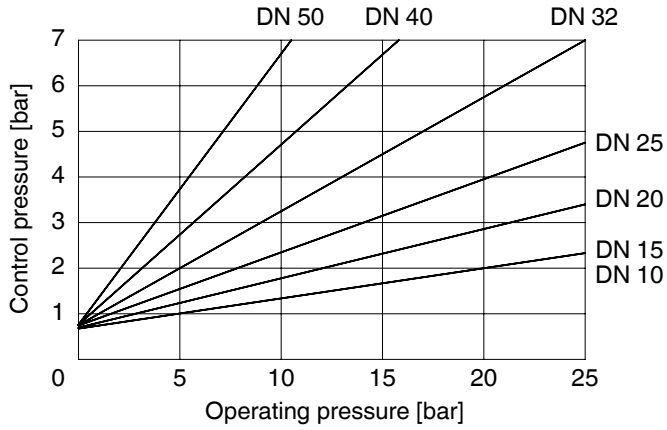
All pressures are gauge pressures.

## Technical data

### Operating pressure / Control pressure characteristics

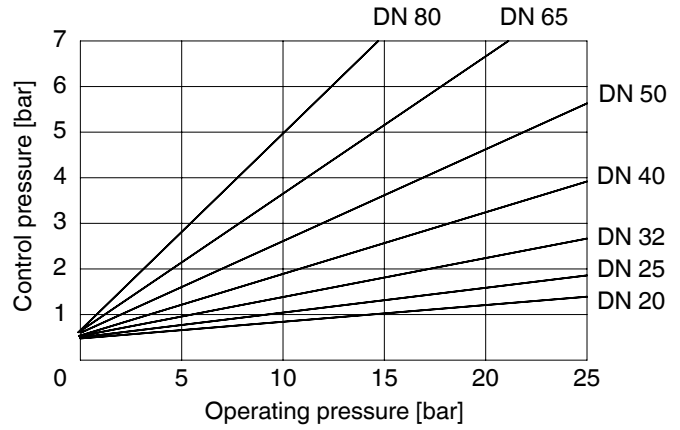
#### Actuator size 1 Normally open (NO) Double acting (DA)

Min. control pressure dependent on operating pressure  
(Flow direction: under the seat)



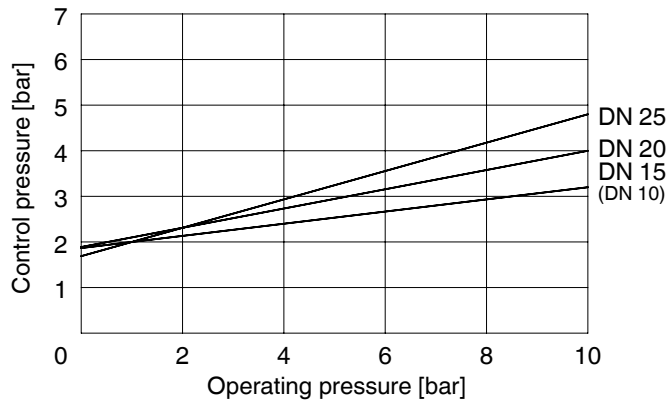
#### Actuator size 2 Normally open (NO) Double acting (DA)

Min. control pressure dependent on operating pressure  
(Flow direction: under the seat)



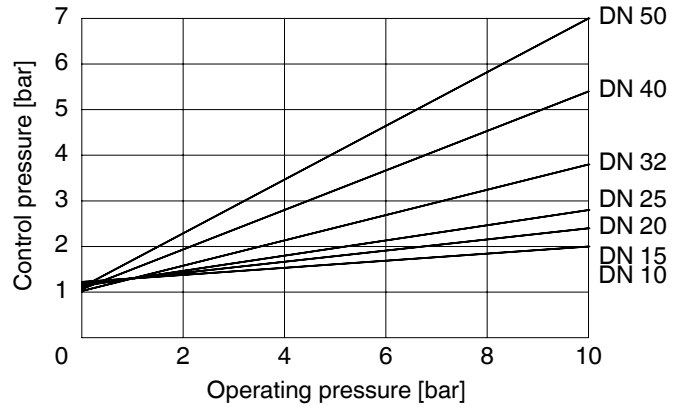
#### Actuator size 3 Normally closed (NC)

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
Angle body only in material code 37 (DN 15 - 50)	E

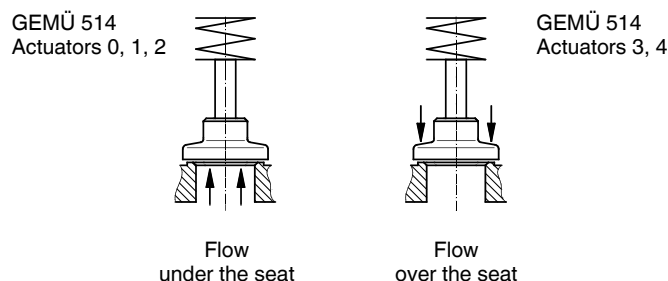
Seat seal	Code
PTFE	5
PTFE, glass fibre reinforced	5G
Steel	10
Other seat seals on request	

Connection	Code
<b>Butt weld spigots</b>	
Spigots DIN	0
Spigots EN 10357 series B	16
Spigots EN 10357 series A (formerly DIN 11850 series 2) / DIN 11866 series A	17
Spigots SMS 3008	37
Spigots ASME BPE	59
Spigots ISO 1127 / EN 10357 series C / DIN 11866 series B	60
Spigots ANSI/ASME B36.19M Schedule 10s	63
Spigots ANSI/ASME B36.19M Schedule 40s	65
<b>Threaded connections</b>	
Threaded sockets 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 spigots DIN ISO 228	9
Threaded sockets NPT length DIN 3202-4 series M8	3D
<b>Flanges</b>	
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	

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

Valve body material	Code
(Rg 5) CC499K, Cast bronze	9
1.4435 (ASTM A 351 CF3M $\cong$ 316L), Investment casting	34
1.4408, Investment casting	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.	



Version	Code
Gland packing PTFE / PTFE suitable for contact with food according to EU Regulation 1935/2004	2013
Media temperature -10 to 210 °C (only with seat seal Code 5G and 10)	2023
Surface finish for valve body material C2	
Ra $\leq$ 0.6 $\mu$ m (25 $\mu$ inch) for process contact surfaces, in accordance with ASME BPE SF2 + SF3, mechanically polished internal	1903
Ra $\leq$ 0.8 $\mu$ m (30 $\mu$ inch) for process contact surfaces, in accordance with DIN 11866 H3, mechanically polished internal	1904
Ra $\leq$ 0.4 $\mu$ m (15 $\mu$ inch) for process contactsurfaces, in accordance with DIN 11866 H4, ASME BPE SF1, mechanically polished internal	1909

## Order data

Special version	Code
Rigid plug fixing, special version for oxygen	B
Rigid plug fixing	C
Special version for oxygen (max. temperature 60 °C, max. operating pressure 10 bar), Flow direction: under the seat	S

Order example	514	25	D	1	9	5	1	1	1903	B
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			
Actuator size (code)								1		
Version (code)									1903	
Special version (code)										B

### Version for food contact

For food contact, the product must be ordered with the following ordering options:

Version code 2013

Seat seal code 5, 5G, 10

Valve body material code 34, 37, C2

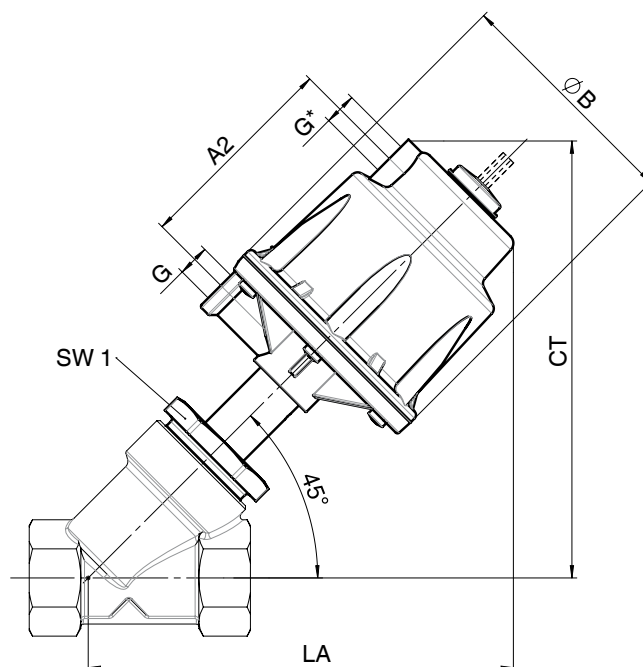
## Actuator dimensions / Installation dimensions - Valve with 2/2-way body [mm]

### Actuator dimensions

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

### Installation dimensions / Weight [kg]

DN	Wrench size SW1	Actuator size 0 and 3		Actuator size 1 and 4		Actuator size 2	
		CT/LA	Weight	CT/LA	Weight	CT/LA	Weight
8	36	150	-	161	-	-	-
10	36	150	0.9	161	1.4	-	-
15	36	153	0.9	164	1.4	-	-
20	41	163	1.1	174	1.6	241	-
25	46	163	1.3	174	1.8	241	-
32	55	-	-	182	2.4	249	4.6
40	60	-	-	187	2.7	254	5.5
50	75	-	-	195	3.4	262	6.4
65	75	-	-	-	-	275	8.5
80	75	-	-	-	-	292	9.6



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

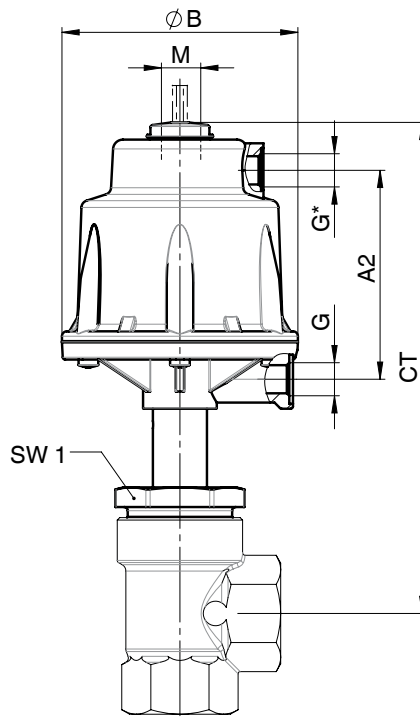
**Actuator dimensions / Installation dimensions - Valve with angle body [mm]**

**Actuator dimensions**

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

**Installation dimensions / Weight [kg]**

DN	Wrench size SW1	Actuator size 0 and 3		Actuator size 1 and 4		Actuator size 2	
		CT	Weight	CT	Weight	CT	Weight
15	36	179	0.9	189	1.4	-	-
20	41	182	1.1	192	1.6	261	-
25	46	186	1.3	196	1.8	265	-
32	55	-	-	199	2.4	268	4.6
40	60	-	-	204	2.7	273	5.5
50	75	-	-	211	3.4	280	6.4



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



## Body dimensions [mm]

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

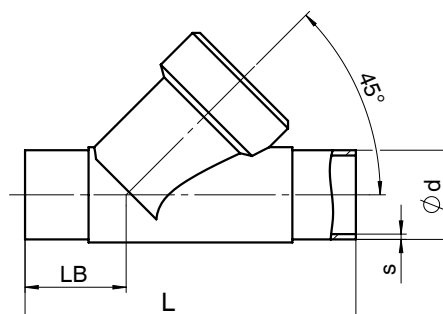
		Connection code													
		Material code 34		Material code 37		0		16		17		37		60	
DN	L	LB	L	LB	ø d	s	ø d	s	ø d	s	ø d	s	ø d	s	
10	105	35.5	-	-	-	-	12	1.0	13	1.5	-	-	17.2	1.6	
15	105	35.5	100	33	18	1.5	18	1.0	19	1.5	-	-	21.3	1.6	
20	120	39.0	108	33	22	1.5	22	1.0	23	1.5	-	-	26.9	1.6	
25	125	38.5	112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

For materials see overview on last page

### Butt weld spigots, connection code 59, 63, 65 Valve body material: 1.4435 (code 34), 1.4408 (code 37)

		Connection code									
		Material code 34		Material code 37		59		63		65	
DN	L	LB	L	LB	ø d	s	ø d	s	ø d	s	
10	105	35.5	-	-	-	-	-	-	-	-	
15	105	35.5	100	33	12.70	1.65	21.3	2.11	21.3	2.77	
20	120	39.0	108	33	19.05	1.65	26.7	2.11	26.7	2.87	
25	125	38.5	112	32	25.40	1.65	33.4	2.77	33.4	3.88	
32	155	48.0	137	39	-	-	-	-	42.4	3.56	
40	160	47.0	146	40	38.10	1.65	48.3	2.77	48.3	3.68	
50	180	48.0	160	38	50.80	1.65	60.3	2.77	60.3	3.91	
65	-	-	290	96	63.50	1.65	73.0	3.05	-	-	
80	-	-	310	95	76.20	1.65	88.9	3.05	-	-	

For materials see overview on last page

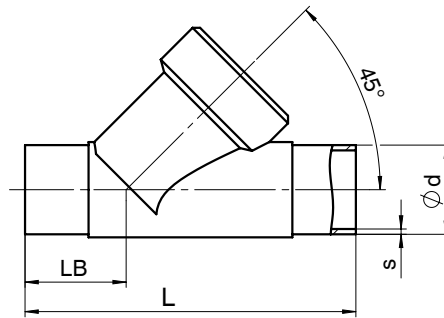


## Body dimensions [mm]

**Butt weld spigots, connection code 17, 59, 60**  
**Valve body material: 1.4435 (code C2)**

			Connection code					
			17		60		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 Valve body material: Cast bronze (code 9), 1.4408 (code 37)

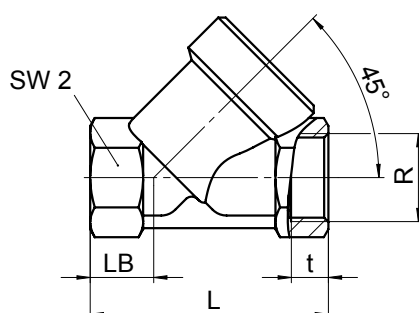
DN	L	LB	R	t	SW2	
10	65	16.5	G 3/8	11.4	27	hexagonal
15	65	16.5	G 1/2	15.0	27	hexagonal
20	75	17.5	G 3/4	16.3	32	hexagonal
25	90	24.0	G 1	19.1	41	hexagonal
32	110	33.0	G 1 1/4	21.4	50	octagonal
40	120	30.0	G 1 1/2	21.4	55	octagonal
50	150	40.0	G 2	25.7	70	octagonal
65	190	46.0	G 2 1/2	30.2	85	octagonal
80	220	50.0	G 3	33.3	100	octagonal

For materials see overview on last page

### Threaded sockets NPT, BS 21 Rc, connection code 3C, 3D Valve body material: 1.4408 (code 37)

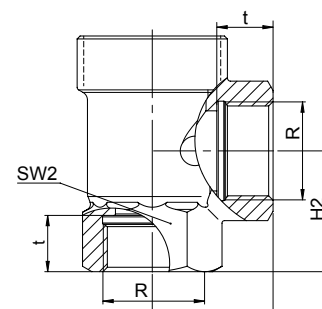
DN	L	LB	SW2	Connection code			
				3C		3D	
				R	t	R	t
15	65	16.5	27 hexagonal	Rc 1/2	15.0	1/2" NPT	13.6
20	75	17.5	32 hexagonal	Rc 3/4	16.3	3/4" NPT	14.1
25	90	24.0	41 hexagonal	Rc 1	19.1	1" NPT	17.0
32	110	33.0	50 octagonal	Rc 1 1/4	21.4	1 1/4" NPT	17.5
40	120	30.0	55 octagonal	Rc 1 1/2	21.4	1 1/2" NPT	17.3
50	150	40.0	70 octagonal	Rc 2	25.7	2" NPT	17.8
65	190	46.0	85 octagonal	Rc 2 1/2	30.2	2 1/2" NPT	23.7
80	220	50.0	100 octagonal	Rc 3	33.3	3" NPT	25.8

For materials see overview on last page.



### Threaded sockets DIN, connection code 1, 3D / Angle body Valve body material: 1.4408 (code 37)

DN	SW2	LE	H2	Connection code 1		Connection code 3D	
				R	t	R	t
15	27	30	30.0	G 1/2	15.0	1/2" NPT	13.6
20	32	35	37.5	G 3/4	16.3	3/4" NPT	14.1
25	41	41	41.0	G 1	19.1	1" NPT	17.0
32	50	50	48.0	G 1 1/4	21.4	1 1/4" NPT	17.5
40	55	50	55.0	G 1 1/2	21.4	1 1/2" NPT	17.3
50	70	60	62.0	G 2	25.7	2" NPT	17.8

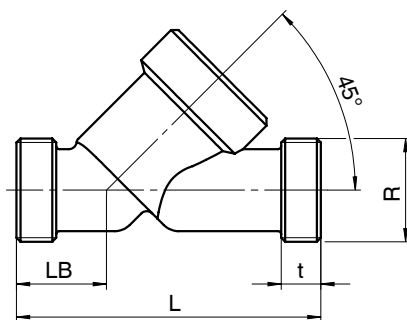


## Body dimensions [mm]

### Threaded spigots, connection code 9 Valve body material: Cast bronze (code 9), 1.4408 (code 37)

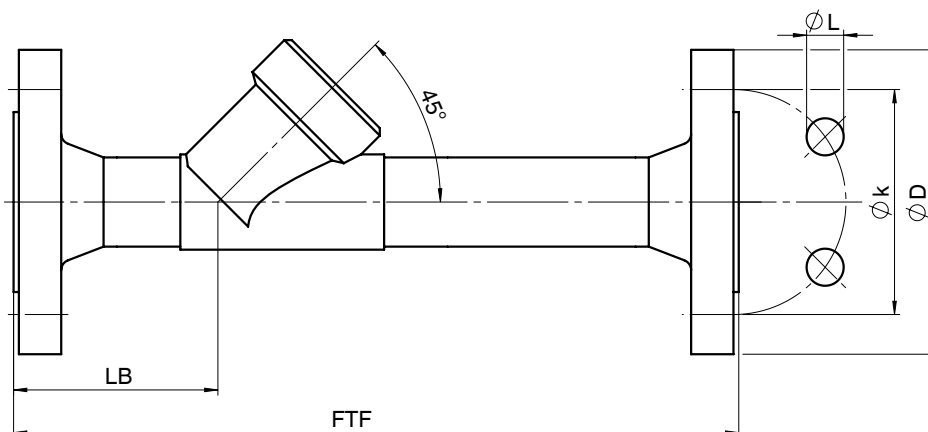
DN	L	LB	t	R
15	90	25	12	G 3/4
20	110	30	15	G 1
25	118	30	15	G 1 1/4
32	130	38	13	G 1 1/2
40	140	35	13	G 1 3/4
50	175	50	15	G 2 3/8
65	216	52	15	G 3
80	254	64	18	G 3 1/2

For materials see overview on last page



### Flanges, connection code 13, 47 Valve body material: 1.4435 (code 34)

DN	FTF	LB	Connection code 13				Connection code 47			
			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															
Connection code	Spigots														
	0	16	17			37		59			60			63	65
Material code	34	34	34	37	C2	34	37	34	37	C2	34	37	C2	37	34
DN 8	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-
DN 10	-	X	X	-	X	-	-	-	-	-	X	-	X	-	-
DN 15	X	X	X	X	X	-	-	X	-	X	X	X	X	X	X
DN 20	X	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	X
DN 32	-	X	X	X	X	-	-	-	-	-	X	X	X	-	X
DN 40	X	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	X
DN 65	-	-	-	X	X	-	X	-	X	X	-	X	X	X	-
DN 80	-	-	-	X	X	-	X	-	X	X	-	X	X	X	-

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Overview of metal bodies for GEMÜ 514											
Connection code	Threaded connections									Flanges	
	1			3C	9		3D			13	47
Material code	9	37	37	37	9	37	9	37	37	34	34
Body configuration		2/2-way body	Angle body					2/2-way body	Angle body		
DN 10	-	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
DN 32	X	X	X	X	-	X	X	X	X	X	X
DN 40	X	X	X	X	X	X	X	X	X	X	X
DN 50	X	X	X	X	X	X	X	X	X	X	X
DN 65	X	X	-	X	X	X	-	X	-	-	-
DN 80	X	X	-	X	X	X	-	X	-	-	-

Should there be any doubts or misunderstandings, the German version of this data sheet is the authoritative document!

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

**GEMÜ** VALVES, MEASUREMENT AND CONTROL SYSTEMS

