

Angle Seat Globe Control Valve, Metal

Construction

The GEMÜ 554 2/2-way angle seat globe control valve is designed for demanding flow control applications. It can be paired with the GEMÜ 1434 µPos, GEMÜ 1435 ePos positioners or the GEMÜ 1436 cPos positioner and process controller dependent on the control requirements (for features see page 12). The positioners are specially designed for GEMÜ valves and achieve optimum results when used as a system. The valve spindle is sealed by a self-adjusting gland packing providing low maintenance and reliable sealing even after a long service life with high cycle duties. A wiper ring protects the gland packing against contamination and damage.

Features

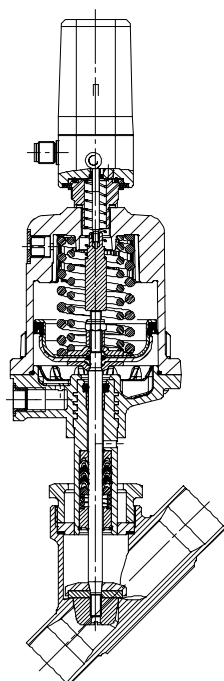
- Linear or modified equal-percentage control characteristics
- Kv values from approx. 0.16 - 60.0 m³/h, depending on nominal size, valve seat and regulating cone design
- PID control system can be implemented with GEMÜ 1436
- Suitable for inert, corrosive*, liquid and gaseous media and steam
- Max. operating pressure 25 bar
- Max. operating temperature 180°C

Advantages

- Simple and fast commissioning
- Good flow capability and compact design
- Valve and positioner are optimally adapted to each other.
(For positioner details please refer to the relevant data sheets)
- Optionally suitable for contact with food according to Regulation (EC) No. 1935/2004 (K-No. 1935)

*see information on working medium on page 2

Sectional drawing



GEMÜ 554
+ 1434 µPos



GEMÜ 554
+ 1435 ePos



GEMÜ 554
+ 1436 cPos

Technical data

Working medium

Corrosive, inert, gaseous and liquid media and steam 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
Media temperature	-10° to 180°C
Max. permissible viscosity	600 mm ² /s (cSt)

Leakage rate

DIN IEC 60534-4 VI L 1	PTFE seal
DIN IEC 60534-4 IV L 1	metal seal

Control medium

Inert gases, max. 60°C		
Filling volume	Actuator size 0:	0.050 dm ³
	Actuator size 1:	0.125 dm ³
	Actuator size 2:	0.625 dm ³

Ambient conditions

Max. ambient temperature	60°C
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Control pressure [bar]

Normally closed (NC)	
Actuator size	
0	4.8 - 7.0
1	5.5 - 7.0
2	4 - 7 (DN 20 - 40) 5 - 7 (DN 50)
Normally open (NO) / Double acting (DA)	
0, 1, 2	max. 7 bar (for values see diagram)

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 (to DN 50)	9	16.0	16.0	16.0	16.0	13.5	-	-
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
80, 88 (to DN 65)	34	13.8	13.1	11.9	11.4**	-	-	-
82, 86 (to DN 65)	34	16.0	16.0	16.0	16.0***	-	-	-
47	34	19.0	19.0	16.0	14.8	13.6	12.1	10.2

* The valves can be used down to -10°C ** max. temperature 121 °C *** max. temperature 140 °C
 RT = Room Temperature All pressures are gauge pressures.

Correlation* Kv value, operating pressure, regulating cone number Valve body material: RG 5 (code 9), 1.4435 (code 34), 1.4408 (code 37)

Nominal size DN	Kv value [m ³ /h]	Operating pressure [bar]	Actuator size	Regulating cone number	
				linear	equal-percentage (mod.)
15	5	12	0	RS001	RS011
	5	25	1	RS000	RS010
20	10	6	0	RS002	RS012
	10	20	1	RS003	RS013
25	15	10	1	RS004	RS014
32	24	20	2	RS005	RS015
40	38	12	2	RS006	RS016
50	60	10	2	RS007	RS017

* not for connection code 37, 59, 80 and 88; standard regulating cone - see following table

Correlation* Kv value, operating pressure, regulating cone number
Valve body material: 1.4435 (code 34)

Nominal size DN	Kv value [m ³ /h]	Operating pressure [bar]	Actuator size	Regulating cone number	
				linear	equal-percentage (mod.)
15	2.7	12	0	RS051	RS041
	2.7	25	1	RS050	RS040
20	6.3	6	0	RS052	RS042
	6.3	20	1	RS053	RS043
25	13.3	10	1	RS054	RS044
40	35.6	12	2	RS056	RS046
50	58.0	10	2	RS057	RS047

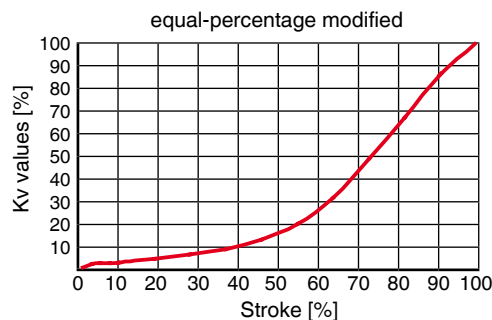
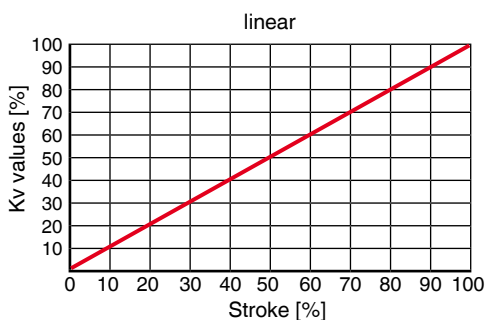
* only for connection code 37, 59, 80 and 88;

Correlation Kv value, operating pressure, regulating cone number
Valve body material: 1.4435 (code 34) , 1.4408 (code 37)¹⁾

Nominal size DN	Kv value [m ³ /h]	Operating pressure [bar]	Actuator size	Regulating cone no.	
				linear	equal-percentage (mod.)
15	0.16 ²⁾	25	1	RB201	RA402
	0.25 ²⁾	25	1	RB202	RB401
	0.40 ²⁾	25	1	RB203	RB402
	0.63 ²⁾	25	1	RC201	RC401
	1.00 ²⁾	25	1	RC202	RC402
	1.60	25	1	RD201	RD401
	2.50 ³⁾	25	1	RE201	RE401
20	1.60	25	1	RD202	RD402
	2.50	25	1	RE202	RE402
	4.00	25	1	RF201	RF401
	6.30 ³⁾	25	1	RG201	RG401
25	2.50	25	1	RE203	RE403
	4.00	25	1	RF202	RF402
	6.30	25	1	RG202	RG402
	10.00 ³⁾	15	1	RH201	RH401
32	4.00	25	1	RF203	RF403
	6.30	25	1	RG203	RG403
	10.00	16	1	RH202	RH402
	16.00	11	1	RJ201	RJ401
40	6.30	25	1	RG204	RG404
	10.00	18	1	RH203	RH403
	16.00	11	1	RJ202	RJ402
	25.00	18	2	RK201	RK401
50	10.00	18	1	RH204	RH404
	16.00	12	1	RJ203	RJ403
	25.00	24	2	RK202	RK402
	40.00	15	2	RM201	RM401

¹⁾ only for connection code 1 ²⁾ Standard - metal seated (with no soft seat) ³⁾ not for connection code 37, 59, 80 and 88

Example Kv value diagram



The adjacent diagram shows the approximate curve of the Kv value characteristic. The characteristic may deviate dependent on valve body, nominal size, regulating cone and valve stroke.

Order data

Body configuration	Code
2/2-way body	D

Seat seal	Code
PTFE	5
PTFE, glass reinforced	5G
Steel (standard up to Kv value 1.00 m ³ /h)	10*
* R-No. on request	

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 SMS 3008	37
Spigots ASME BPE	59
Spigots EN ISO 1127	60

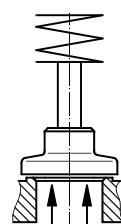
Control function	Code
Normally closed (NC)	1
Double acting (DA)	3*
Double acting (normally open)	8*
* R-No. on request	

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

Actuator size	Flow	Code
Actuator 0 piston ø 50 mm	under the seat	0
Actuator 1 piston ø 70 mm	under the seat	1
Actuator 2 piston ø 120 mm	under the seat	2

Flanges	
Flanges EN 1092 / PN25 / form B	13
Flanges ANSI CLASS 125/150 RF	47

Clamp connections	
Clamps ASME BPE for pipe ASME BPE, length ASME BPE	80
Clamps DIN 32676 series B for pipe EN ISO 1127, length EN 558, series 1	82
Clamps DIN 32676 series A for pipe DIN 11850, length EN 558, series 1	86
Clamps ASME BPE for pipe ASME BPE, length EN 558, series 1	88



Flow under the seat

Valve body material	Code
(Rg 5) CC499K, Cast bronze	9
1.4435 (ASTM A 351 CF3M \approx 316L), Investment casting	34
1.4408, Cast stainless steel	37

Regulating cone	R-No.
For the regulating cone no. (R-No.) - linear or equal-percentage (mod.) please refer to the table	

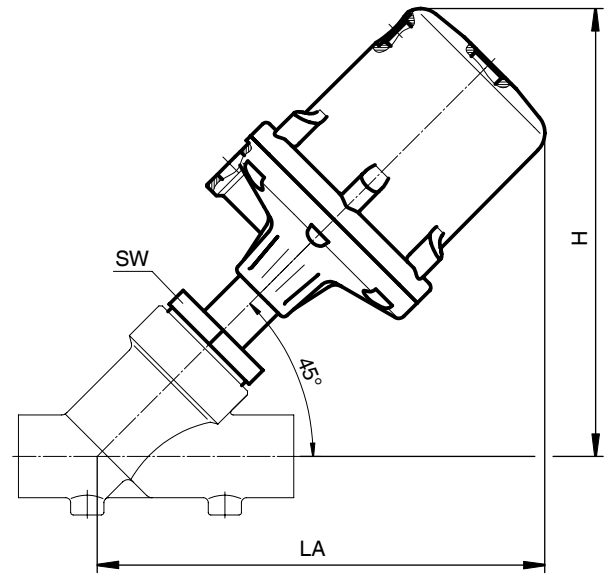
Order example	554	25	D	9	37	5	1	1	RS014
Type	554								
Nominal size		25							
Body configuration (code)			D						
Connection (code)				9					
Valve body material (code)					37				
Seat seal (code)						5			
Control function (code)							1		
Actuator size (code)								1	
Regulating cone (R-No.)									RS014

For the technical data and order data of the positioners please refer to data sheets GEMÜ 1434, 1435 and 1436. Please also note the table on the last page.

Dimensions - GEMÜ 554 [mm]

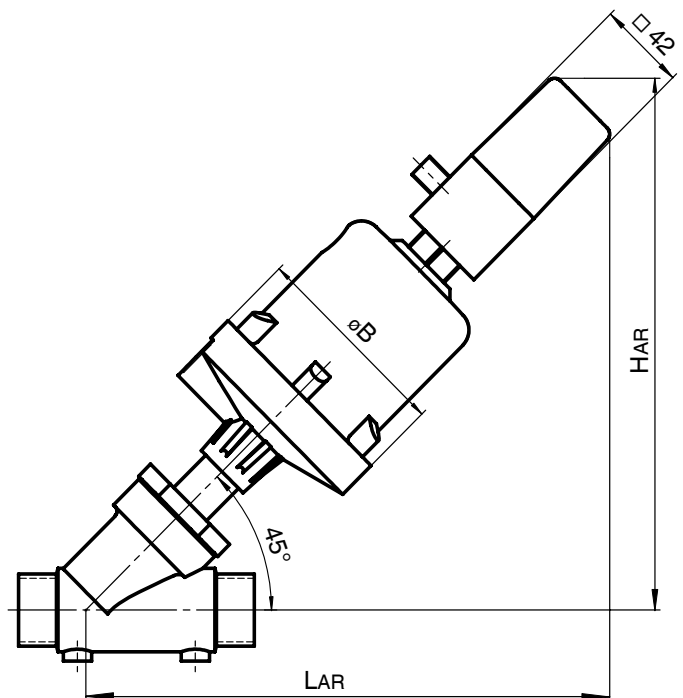
GEMÜ 554 without positioner [mm] / Weight [kg]

DN	SW	Actuator size					
		0		1		2	
		H/LA	Weight	H/LA	Weight	H/LA	Weight
15	36	155	0.9	182	1.4	-	-
20	41	165	1.1	192	1.6	279	-
25	46	165	1.3	192	1.8	279	-
32	55	-	-	200	2.4	287	5.1
40	60	-	-	206	2.7	293	6.0
50	75	-	-	214	3.4	301	6.9



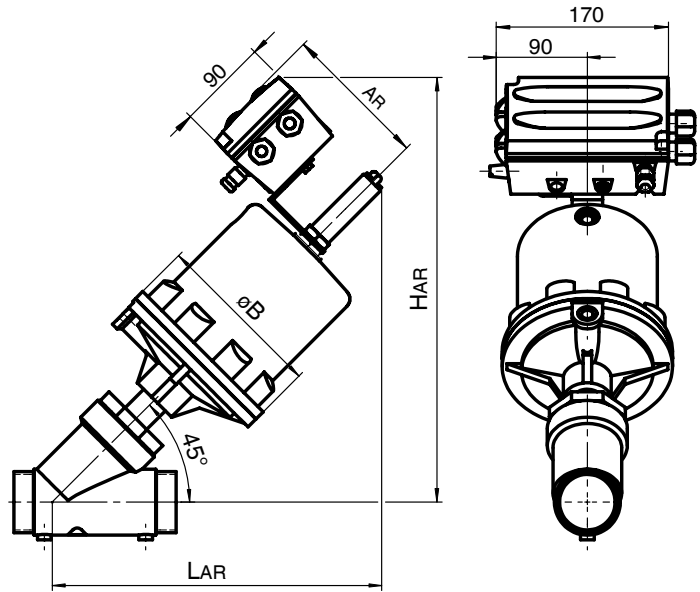
GEMÜ 554 with 1434 μ Pos

DN	Actuator size	Control function	ϕB	LAR / HAR
15	0	1	72	225
	1	1	96	245
20	0	1	72	235
	1	1	96	255
25	0	1	72	235
	1	1	96	255
32	1	1	96	263
40	1	1	96	269
50	1	1	96	276



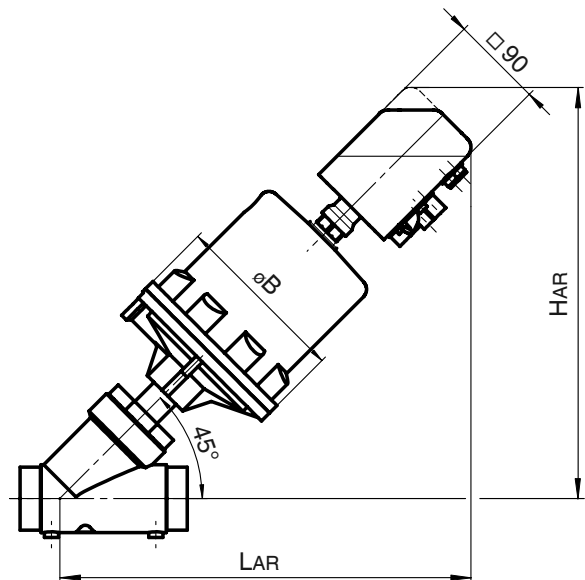
GEMÜ 554 with 1435 ePos

DN	Actuator size	Control function	øB	LAR	HAR	AR
15	0	1	72	189	283	118
	1	1	96	208	303	118
20	0	1	72	198	293	118
	1	1	96	218	312	118
		2	1	168	304	397
	8	168	334	427	138	
25	0	1	72	198	293	118
	1	1	96	218	312	118
		2	1	168	304	397
	8	168	334	427	138	
32	1	1	96	226	320	118
	2	1	168	312	405	138
		8	168	342	435	138
40	1	1	96	232	326	118
	2	1	168	318	411	138
		8	168	348	441	138
50	1	1	96	239	334	118
	2	1	168	326	418	138
		8	168	356	448	138



GEMÜ 554 with 1436 cPos

DN	Actuator size	Control function	øB	LAR / HAR
15	0	1, 3, 8	72	279
	1	1	96	282
		8	96	299
20	0	1, 3, 8	72	289
	1	1	96	292
		8	96	309
	2	1	168	379
8		168	392	
25	0	1, 3, 8	72	289
	1	1	96	292
		8	96	309
	2	1	168	379
8		168	392	
32	1	1	96	300
		8	96	317
	2	1	168	386
8		168	399	
40	1	1	96	306
		8	96	322
	2	1	168	392
8		168	405	
50	1	1	96	313
		8	96	330
	2	1	168	400
8		168	413	

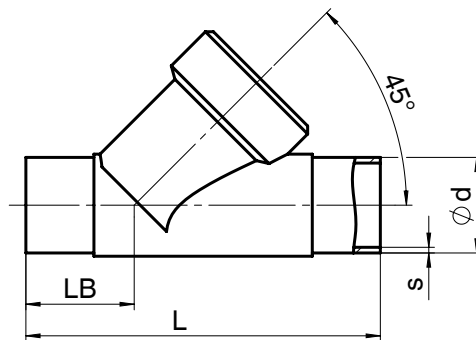


Body dimensions [mm]

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

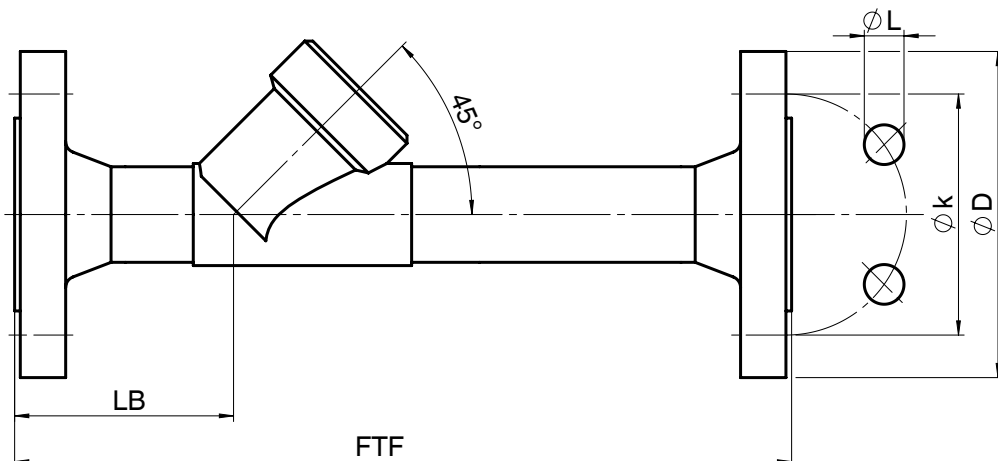
					Connection code													
Material code 34		Material code 37			0		16		17		18		37		59		60	
DN	L	LB	L	LB	ø d	s	ø d	s	ø d	s	ø d	s	ø d	s	ø d	s	ø d	s
15	105	35.5	100	33	18	1.5	18	1.0	19	1.5	20	2.0	-	-	12.70	1.65	21.3	1.6
20	120	39.0	108	33	22	1.5	22	1.0	23	1.5	24	2.0	-	-	19.05	1.65	26.9	1.6
25	125	38.5	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

For materials see overview on page 9



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

DN	FTF	LB	ø D	ø L	ø k	Number of bolt holes
15	210	72	95	14	65	4
20	280	78	105	14	75	4
25	280	77	115	14	85	4
32	310	89	140	18	100	4
40	320	91	150	18	110	4
50	330	95	165	18	125	4



Body dimensions [mm]

Threaded sockets DIN, connection code 1 Valve body material: Cast bronze (code 9), 1.4408 (code 37)

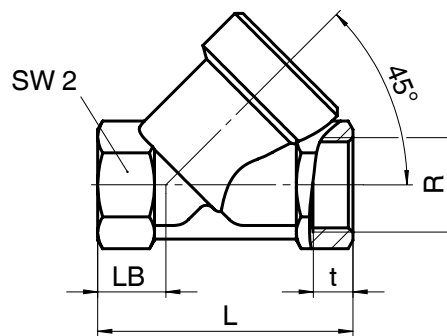
DN	L	LB	R	t	SW2	
15	65	16.5	G 1/2	15.0	27	hexagonal
20	75	17.5	G 3/4	16.3	32	hexagonal
25	90	24.0	G 1	19.1	41	hexagonal
32	110	33.0	G 1 1/4	21.4	50	octagonal
40	120	30.0	G 1 1/2	21.4	55	octagonal
50	150	40.0	G 2	25.7	70	octagonal

For materials see overview on page 9

Threaded sockets NPT, BS 21 Rc, connection code 3C, 3D Valve body material: Cast bronze (code 9), 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	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

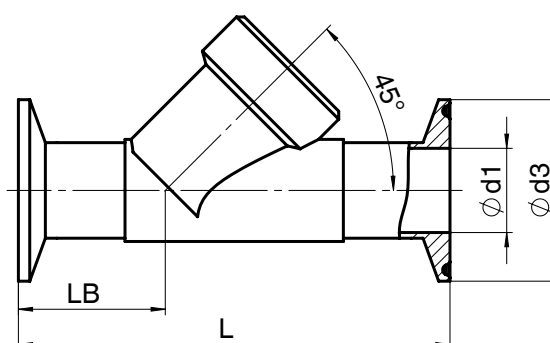
For materials see overview on page 9



Body dimensions [mm]

Clamp connections, connection code 80, 82, 86, 88 Valve body material: 1.4435 (code 34)

DN	NPS	Connection code											
		LB	L	82		86		88		80			
				ø d1	ø d3	ø d1	ø d3	ø d1	ø d3	LB	L	ø d1	ø d3
15	1/2"	35.5	130	18.1	50.5	16	34.0	9.40	25.0	33.5	101.6	9.40	25.0
20	3/4"	39.0	150	23.7	50.5	20	34.0	15.75	25.0	30.0	101.6	15.75	25.0
25	1"	38.5	160	29.7	50.5	26	50.5	22.10	50.5	33.0	114.3	22.10	50.5
32	1 1/4"	48.0	180	38.4	64.0	32	50.5	-	-	-	-	-	-
40	1 1/2"	47.0	200	44.3	64.0	38	50.5	34.80	50.5	37.0	139.7	34.80	50.5
50	2"	48.0	230	56.3	77.5	50	64.0	47.50	64.0	36.5	158.8	47.50	64.0



Overview of metal bodies for GEMÜ 554

Connection code	Threaded connections								Flanges	
	1		3C		9		3D		13	47
	9	37	9	37	9	37	9	37	34	34
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

Overview of metal bodies for GEMÜ 554

Connection code	Spigots								Clamps				
	0	16	17		18	37	59	60		80	82	86	88
	34	34	34	37	34	34	34	34	37	34	34	34	34
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

Information - Specifications

Specification sheet for designing regulating cones for globe valves

Project (customer) _____ Calculation number (GEMÜ) _____

Date _____ Telephone _____

Contact person _____ E-Mail _____

Technical requirements

Medium ¹⁾ _____

Requirement characteristic	1st operating point maximum flow	2nd operating point medium flow	3rd operating point minimum flow
Media temperature ⁴⁾	°C	°C	°C
Inlet pressure	bar(g)	bar(g)	bar(g)
Outlet pressure	bar(g)	bar(g)	bar(g)
Flow rate ^{2, 3)}			
in [m ³ /h] for liquids	m ³ /h	m ³ /h	m ³ /h
Gases	Nm ³ /h	Nm ³ /h	Nm ³ /h
in [kg/h] for steam	kg/h	kg/h	kg/h
Accuracy requirement ⁶⁾			
for flow	% full flow	% full flow	% full flow

Valve body / Actuator	Type _____		
	Required valve DN _____		
	Max. operating pressure _____		
	Ambient temperature ⁵⁾ _____		
	Max. media temperature _____		
	Connection _____		
	Body material _____		
	Seat seal	<input type="checkbox"/> PTFE	<input type="checkbox"/> Other _____
	Control function	<input type="checkbox"/> NC	<input type="checkbox"/> DA <input type="checkbox"/> Double acting (normally open)
	Regulating cone	<input type="checkbox"/> linear	
<input type="checkbox"/> Other _____			

- 1) Liquid or gas?
For media other than water or air, it is useful to give data for the viscosity of liquids and the density of gases. Otherwise we will assume data for standard conditions.
- 2) For steam especially, the minimum or maximum flow rate should be assigned to the appropriate inlet or outlet pressure. The temperature of the medium should also be taken into account.
- 3) GEMÜ recommends a positioning ratio of 1: 10 (e.g. minimum flow rate is 10 m³/h and the maximum flow rate is 100 m³/h). Please note that the valve only controls reliably from a flow of about 10% of the max. Kv value on account of the valve opening behaviour. Other positioning ratios are possible on request or in the selection of standard regulating cones, see overleaf.
- 4) The media temperature range must be specified for steam applications. T = 20°C is assumed unless specified otherwise.
- 5) This data is not absolutely necessary. A room temperature of 20° C is assumed unless specified otherwise.
- 6) The accuracy of our control valves for the flow over the whole characteristic is a standard +/- 10% f.f. (=full flow). Greater accuracies are available on request.

GEMÜ standard regulating cones

DN	Kv value* [m ³ /h]	GEMÜ 514			GEMÜ 550			GEMÜ 554		
		Actuator size	Regulating cone number		Actuator size	Regulating cone number		Actuator size	Regulating cone number	
			linear	equal-% (mod.)		linear	equal-% (mod.)		linear	equal-% (mod.)
15	5	0	R S601	R S611	1G1	R S101	R S111	0	R S001	R S011
		1	R S600	R S610	2G1	R S100	R S110	1	R S000	R S010
20	10	0	R S602	R S612	2G1	R S102	R S112	0	R S002	R S012
		1	R S603	R S613				1	R S003	R S013
25	15	1	R S604	R S614	2G1	R S103	R S113	1	R S004	R S014
32	24	2	R S605	R S615	3G1	R S104	R S114	2	R S005	R S015
40	38	2	R S606	R S616	3G1	R S105	R S115	2	R S006	R S016
50	60	2	R S607	R S617	4G1	R S106	R S116	2	R S007	R S017

* Not for connection code 37 (butt weld spigots SMS 3008), 59 (butt weld spigots ASME BPE), 80 (Clamps ASME BPE for pipe ASME BPE, short design) and 88 (clamps ASME BPE for pipe ASME BPE, length EN 558, series 1).

DN	Kv value* [m ³ /h]	GEMÜ 514			GEMÜ 550			GEMÜ 554		
		Actuator size	Regulating cone number		Actuator size	Regulating cone number		Actuator size	Regulating cone number	
			linear	equal-% (mod.)		linear	equal-% (mod.)		linear	equal-% (mod.)
15	2,7	0	R S651	R S641	1G1	R S151	R S141	0	R S051	R S041
		1	R S650	R S640	2G1	R S150	R S140	1	R S050	R S040
20	6,3	0	R S652	R S642	2G1	R S152	R S142	0	R S052	R S042
		1	R S653	R S643				1	R S053	R S043
25	13,3	1	R S654	R S644	2G1	R S153	R S143	1	R S054	R S044
40	35,6	2	R S656	R S646	3G1	R S155	R S145	2	R S056	R S046
50	58	2	R S657	R S647	4G1	R S156	R S146	2	R S057	R S047

* Only for connection code 37 (butt weld spigots SMS 3008), 59 (butt weld spigots ASME BPE), 80 (Clamps ASME BPE for pipe ASME BPE, short design) and 88 (clamps ASME BPE for pipe ASME BPE, length EN 558, series 1).

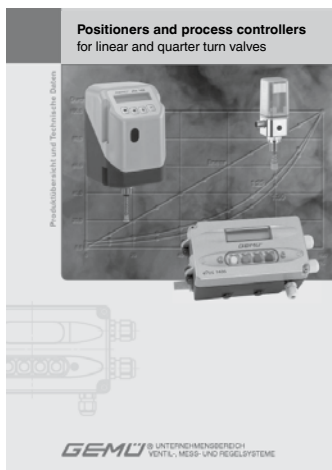
DN	Kv value [m ³ /h]	GEMÜ 532			GEMÜ 530			GEMÜ 534		
		Actuator size	Regulating cone number		Actuator size	Regulating cone number		Actuator size	Regulating cone number	
			linear	equal-% (mod.)		linear	equal-% (mod.)		linear	equal-% (mod.)
15	4	0	R S621	R S631	1G1	R S121	R S131	0	R S021	R S031
		1	R S620	R S630	2G1	R S120	R S130	1	R S020	R S030
20	6,3	0	R S622	R S632	2G1	R S122	R S132	0	R S022	R S032
		1	R S623	R S633				1	R S023	R S033
25	10	1	R S624	R S634	2G1	R S123	R S133	1	R S024	R S034
32	16	2	R S625	R S635	3G1	R S124	R S134	2	R S025	R S035
40	25	2	R S626	R S636	3G1	R S125	R S135	2	R S026	R S036
50	40	2	R S627	R S637	4G1	R S126	R S136	2	R S027	R S037

Notes for using standard regulating cones:

- 1) A tolerance of 10% of full flow is possible for the Kv value specifications according to the standard. This must be taken into account in the determination of the maximum Kv value. It is recommendable to allow for a reserve of at least 10%.
- 2) The regulating cone with the Kv value closest to the application should be selected. If regulating cones with too great Kv values are selected, inaccurate positioning and control properties result, especially in the lower Kv range.
- 3) It is possible that the selected valves may be able to regulate much smaller flows than assigned to the appropriate, specified, minimum Kv values. However, these values cannot be guaranteed on account of the mechanical production tolerances for standard control valves.
- 4) Standard regulating cones are only available with PTFE or Elastomer seals. Metal seals are not available.
- 5) Standard control function 1 (NC). Other control functions on request.

Positioner functions / features			
	1434 μ Pos	1435 ePos	1436 cPos
Controller type			
Positioner	X	X	X
Process controller			X
Control air flow			
Version 1	15 l/min	50 l/min	100 l/min
Version 2		90 l/min	180 l/min
Operation			
Local display / keypad		X	X
Status display	X	X	X
Web browser user			X
Field bus (Profibus DP, Device Net)			X
Signal			
24V DC / 3-wire	X	X	X
Body			
Plastic	X		X
Aluminium / industrial		X	
Functions			
Automatic initialisation	X	X	X
Alarm / error outputs		X	X
Min/max positions adjustable		X	X

GEMÜ 1434 μ Pos not available for actuator size 2



For detailed information on positioners and process controllers please refer to the adjacent brochure.

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

Other GEMÜ control valves



GEMÜ 514
+ 1436 cPos



GEMÜ 530
+ 1434 μ Pos



GEMÜ 532
+ 1435 ePos



GEMÜ 534
+ 1436 cPos



GEMÜ 550
+ 1434 μ Pos