

# Diaphragm Valve, Metal

## Construction

The GEMÜ 620 pneumatically operated 2/2-way diaphragm valve has a low maintenance membrane actuator which can be controlled by inert gaseous media.

## Features

- Suitable for inert and corrosive\* liquid and gaseous media
- Insensitive to particulate media
- Valve body and diaphragm available in various materials and designs
- Versions according to ATEX on request

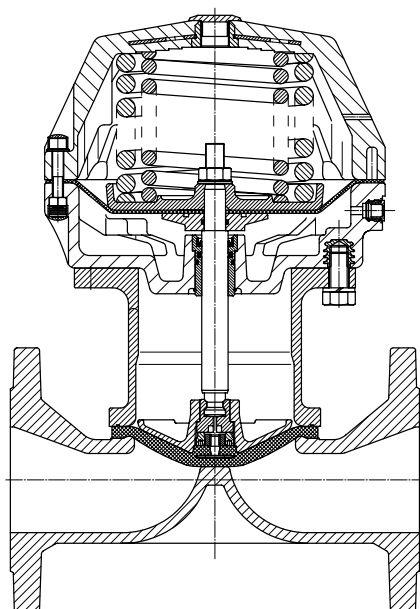
## Advantages

- Optional flow direction
- Good flow capability
- Accessories:
  - Stroke limiter
  - Optical position indicator
  - Manual override (GEMÜ 1002, GEMÜ 1004)
  - Pilot valve with manual override (GEMÜ 0322 - 0326)
  - Electrical position indicator
  - Pneumatic or electro-pneumatic positioners

\* see information on working medium on page 2



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 diaphragm material.

Max. perm. temperature of working medium 150 °C  
(depending on medium, diaphragm and valve body material)

### Ambient conditions

Ambient temperature 0 to 60 °C

### Control medium

Inert gases

Max. perm. temperature of control medium 40 °C

### Filling volume

Actuator size 0 0.15 dm<sup>3</sup>

Actuator size 1 0.35 dm<sup>3</sup>

Actuator size 2 1.10 dm<sup>3</sup>

Actuator size 3 2.5 dm<sup>3</sup>

Actuator size 4 6.8 dm<sup>3</sup>

## Operating pressure, Control pressure [bar]

		Control function 1			
		Actuator size	Operating pressure		Control pressure for max. stroke
MG	DN	Code	EPDM/FPM	PTFE	
25	15	0/N	0 - 10	0 - 6	5.5 - 7.0
	20				
	25				
40	32	1/N	0 - 10	0 - 6	5.5 - 7.0
	40				
50	50	2/N	0 - 10	0 - 6	5.5 - 7.0
65	65	3/1	0 - 3	0 - 2	2.6 - 7.0
	65	3A1	0 - 3	0 - 2	3.0 - 7.0
	65	3/2	0 - 6	0 - 4	4.5 - 7.0
	65	3A2	0 - 6	0 - 4	4.5 - 7.0
	65	3/3	0 - 10	0 - 6	5.5 - 7.0
	65	3A3	0 - 10	0 - 6	6.0 - 7.0
80	80	3/2	0 - 3	0 - 2	4.5 - 7.0
	80	3A2	0 - 3	0 - 2	5.0 - 7.0
	80	3/3	0 - 7	0 - 5	5.6 - 7.0
	80	3A3	0 - 7	0 - 5	6.5 - 7.0
	80	4A2	0 - 10	0 - 6	3.5 - 7.0
100	100	3/3	0 - 6	0 - 4	6.2 - 7.0
	100	3A3	0 - 6	0 - 4	6.5 - 7.0
	100	4A3	0 - 10	0 - 6	4.5 - 7.0
125	125	4A2	0 - 5	0 - 3	4.0 - 7.0
	125	4A3	0 - 8	0 - 5	5.5 - 7.0
150	150	4A3	0 - 6	0 - 4	5.5 - 7.0

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side of a closed valve. Sealing at the valve seat and atmospheric sealing is ensured for the given values.

Information on operating pressures applied on both sides and for high purity media on request.

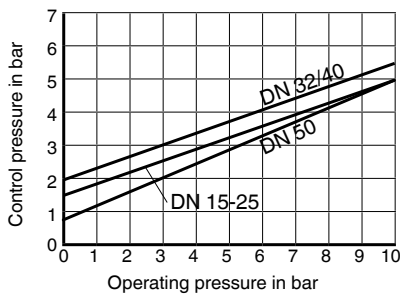
MG = diaphragm size

## Technical data

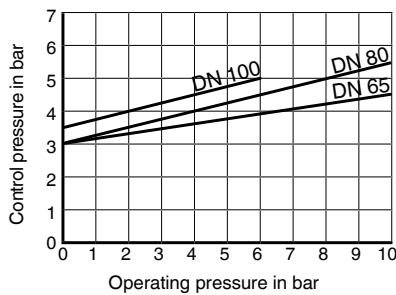
Operating pressure, Control pressure [bar]													
		Control function 2				Control function 3							
		Actuator size	Operating pressure		Control pressure see diagram	Actuator size	Operating pressure		Control pressure see diagram				
MG	DN	Code	EPDM/ FPM	PTFE		Code	EPDM/ FPM	PTFE					
25	15	0/F			max. 5.5	0/D			max. 5.5				
	20									0 - 10	0 - 6	0 - 10	0 - 6
	25												
40	32	1/F			max. 5.5	1/D			max. 5.5				
	40									0 - 10	0 - 6	0 - 10	0 - 6
50	50	2/F			max. 5.0	2/D			max. 5.0				
65	65	3/F 3AF			max. 4.5	3/D 3AD			max. 4.0				
	65									0 - 10	0 - 6	0 - 10	0 - 6
	65												
	65												
	65												
80	80	3/F 3AF			max. 5.5	3/D 3AD			max. 5.0				
	80									0 - 10	0 - 6	0 - 10	0 - 6
	80												
	80												
	80												
100	100	3/F	0 - 6	0 - 4	max. 5.0	3/D	0 - 6	0 - 4	max. 4.5				
	100	3AF	0 - 6	0 - 4	max. 5.0	3AD	0 - 6	0 - 4	max. 4.5				
	100	4AF	0 - 10	0 - 6	max. 3.5	4AD	0 - 10	0 - 6	max. 3.0				
125	125	4AF			max. 4.5	4AD			max. 4.0				
	125									0 - 10	0 - 6	0 - 10	0 - 6
150	150	4AF	0 - 8	0 - 5	max. 4.5	4AD	0 - 8	0 - 5	max. 4.0				

All pressures are gauge pressures. Operating pressure values were determined with static operating pressure applied on one side of a closed valve. Sealing at the valve seat and atmospheric sealing is ensured for the given values.  
Information on operating pressures applied on both sides and for high purity media on request.  
MG = diaphragm size

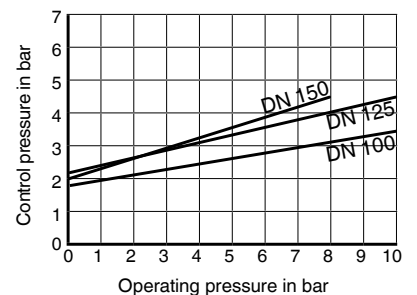
**Operating pressure - Control pressure**  
Actuator 0/F, 1/F, 2/F



**Operating pressure - Control pressure**  
Actuator 3/F, 3A/F



**Operating pressure - Control pressure**  
Actuator 4A/F



**Note:** In the above diagrams, for normally open actuators (c.f. 2) the minimum necessary control pressure is given in accordance with the operating pressure.

## Technical data

Kv Value [m <sup>3</sup> /h]				
MG	DN	GG 25	PFA / PP	Hard rubber
25	15	7	5	6
	20	14	9	11
	25	20	13	15
40	32	36	23	29
	40	40	26	32
50	50	80	47	64
65	65	100	72	80
	65			
	65			
	65			
	65			
80	80	160	110	128
	80			
	80			
	80			
100	100	238	177	190
	100			
	100			
125	125	270	214	230
	125			
150	150	480	365	397

Kv values determined acc. to DIN EN 60534, inlet pressure 5 bar,  $\Delta p$  1 bar, with flanges EN 1092 length EN 558 series 1 and soft elastomer diaphragm.

The Kv values for other product configurations (e.g. other diaphragm or body materials) may differ. In general, all diaphragms are subject to the influences of pressure, temperature, the process and their tightening torques. Therefore the Kv values may exceed the tolerance limits of the standard.

MG = diaphragm size

## Order data

Body configuration	Code
2/2-way	D

Connection	Code
<b>Threaded connections</b>	
Threaded sockets DIN ISO 228	1
<b>Flanges</b>	
Flanges EN 1092 / PN16 / form B, length EN 558, series 1, ISO 5752, basic series 1	8
Flanges ANSI Class 150 RF, length MSS SP-88	38
Flanges ANSI Class 125/150 RF, length EN 558, series 1, ISO 5752, basic series 1	39
Flanges BS 10 Table "E", length EN 558, series 7, ISO 5752, basic series 7	51
Flanges EN 1092 / PN16 / form A, length EN 558, series 7, ISO 5752, basic series 7	53
Flanges ANSI Class 125/150 RF, length EN 558, series 7, ISO 5752, basic series 7	56
Flange ratings refer to flange class only. For valve operating pressures see Technical data on page 2.	

Valve body material	Code
EN-GJL-250 (GG 25 Cast iron)	8
EN-GJS-400-18-LT (GGG 40.3 SG iron) PFA lined	17
EN-GJS-400-18-LT (GGG 40.3 SG iron) PP lined	18
EN-GJS-500-7 (GGG 50 Ductile iron) PFA lined	81
EN-GJS-400-18-LT (GGG 40.3 SG iron) Hard rubber lined	83
EN-GJS-500-7 (GGG 50 Ductile iron) PP lined	91

Diaphragm material	Code
NBR	2
FPM	4
CR	8
EPDM	14
PTFE/EPDM, fully laminated	52
PTFE/EPDM convex, PTFE loose	5E*
PTFE/EPDM	5M*
The combination of PFA lining with 5E diaphragms is only conditionally suitable for gaseous media. If low seat leakage rates are required for gaseous media, other combinations are preferable.	
*For use with valve bodies see page 11	

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

Actuator version					Code
<b>Material of actuator cover: Plastic</b>					
<b>MG</b>	<b>DN</b>	<b>C. f. 1</b>	<b>C. f. 2</b>	<b>C. f. 3</b>	
25	15 - 25	0/N	0/F	0/D	
40	32 + 40	1/N	1/F	1/D	
50	50	2/N	2/F	2/D	
65 - 100	65 - 100	3/1, 3/2, 3/3	3/F	3/D	
<b>Material of actuator cover: Metal</b>					
<b>MG</b>	<b>DN</b>	<b>C. f. 1</b>	<b>C. f. 2</b>	<b>C. f. 3</b>	
65 - 100	65 - 100	3A1, 3A2, 3A3	3AF	3AD	
80 - 150	80 - 150	4A2, 4A3	4AF	4AD	
MG = Diaphragm size					

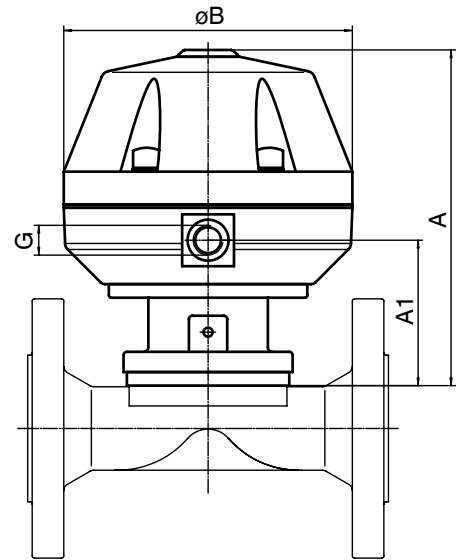
Order example	620	80	D	8	8	14	1	3/3
Type	620							
Nominal size		80						
Body configuration (Code)			D					
Connection (Code)				8				
Valve body material (Code)					8			
Diaphragm material (Code)						14		
Control function (Code)							1	
Actuator version (Code)								3/3

Other connections, valve body materials, linings and diaphragm materials upon request.

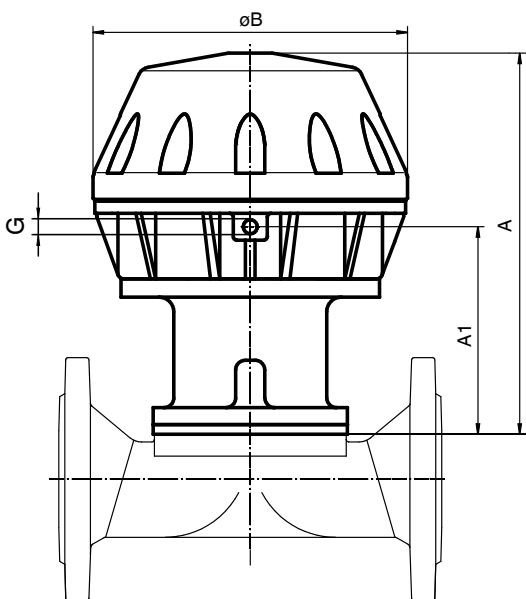
## Actuator dimensions [mm]

### Control function code 1

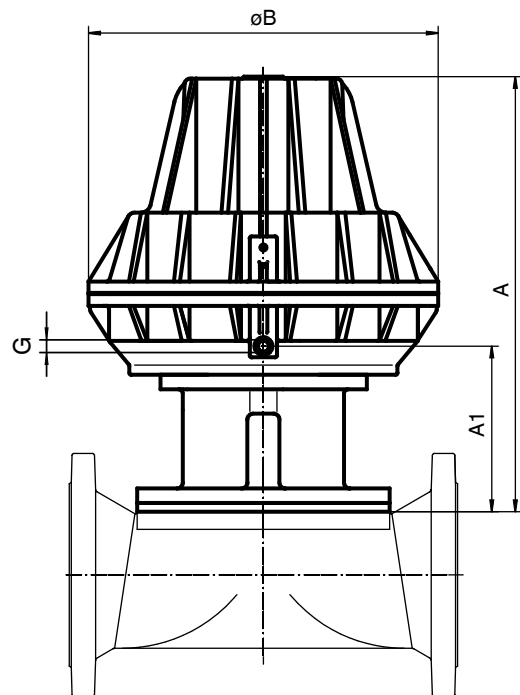
Actuator size Code	Dia-phragm size	DN	ø B	A	A1	G	Weight [kg]
0/N	25	15 - 25	128	152	65	G 1/4	2.1
1/N	40	32 + 40	158	187	86	G 1/4	4.2
2/N	50	50	213	221	97	G 1/4	7.0
3/1	65	65	259	333	173	G 1/4	14.4
3/2			259	333	173		15.1
3/3			259	333	173		15.8
3A1			256	307	172		23.8
3A2			256	307	172		24.6
3A3			256	307	172		25.8
3/2			80	80	259		333
3/3	259	333			173	17.2	
3A2	256	307			172	26.4	
3A3	256	307			172	27.4	
4A2	360	439			159	54.7	
3/3	100	100	259	333	173	G 1/4	17.8
3A3			256	307	172		28.1
4A3			360	439	159		63.3
4A2	125	125	360	451	171	G 1/4	58.0
4A3			360	451	171		66.0
4A3	150	150	360	440	160	G 1/4	67.0



Actuator size 0 - 2



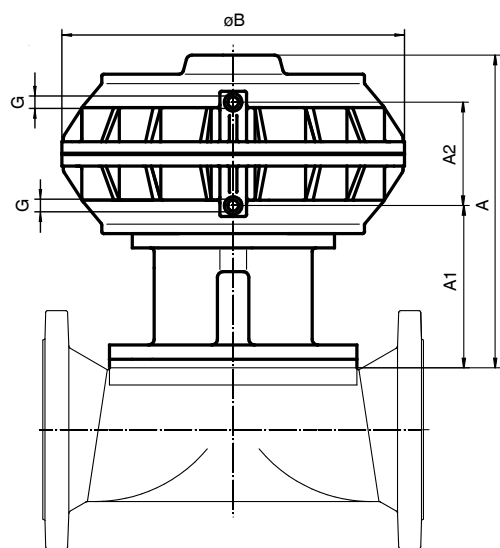
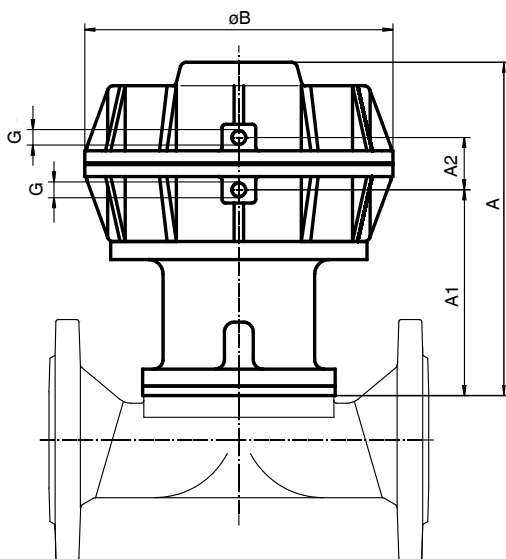
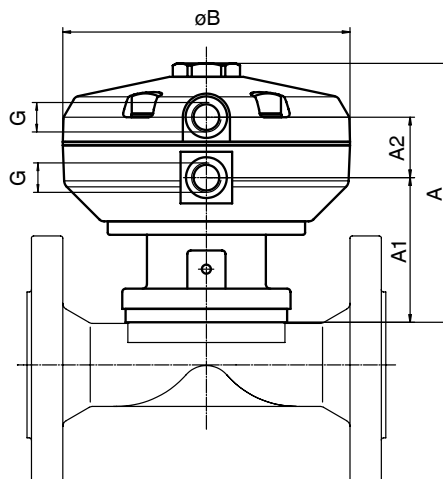
Actuator size 3



Actuator size 4

## Actuator dimensions [mm]

Control function code 2 + 3								
Actuator size Code	Diaphragm size	DN	ø B	A	A1	A2	G	Weight [kg]
0/F - 0/D	25	15 - 25	128	117	66	28	G 1/4	1.6
1/F - 1/D	40	32 + 40	158	143	84	27	G 1/4	3.2
2/F - 2/D	50	50	213	167	96	28	G 1/4	5.1
3/F - 3/D	65	65	258	284	170	45	G 1/4	14.0
3AF - 3AD								18.2
3/F - 3/D	80	80	256	282	169	45	G 1/4	15.2
3AF - 3AD								20.0
3/F - 3/D	100	100	256	282	169	45	G 1/4	16.0
3AF - 3AD								21.0
4AF - 4AD								35.0
4AF - 4AD	125	125	360	334	168	109	G 1/4	35.0
4AF - 4AD	150	150	360	323	156	109	G 1/4	45.0



## Body dimensions [mm]

### Flanges - DIN EN 1092 - series 1, connection code 8 Valve body material: GG 25 (code 8), GGG 40.3 (code 17, 18, 83)

MG	DN	øD	øk	øL	Number of bolt	H1		FTF	Weight [kg]
						Material code 8	Material code 17, 18, 83		
25	15	95	65	14	4	19.0	18.0	130.0	1.9
	20	105	75	14	4	19.0	20.5	150.0	2.4
	25	115	85	14	4	19.0	23.0	160.0	2.9
40	32	140	100	19	4	28.0	28.7	180.0	4.9
	40	150	110	19	4	28.0	33.0	200.0	5.7
50	50	165	125	19	4	35.0	39.0	230.0	7.5
65	65	185	145	19	4	27.5	51.0	290.0	10.2
80	80	200	160	19	8	33.0	59.5	310.0	14.2
100	100	220	180	19	8	43.0	73.0	350.0	21.0
125	125	250	210	19	8	65.0	87.0	400.0	30.0
150	150	285	240	23	8	58.0	109.0	480.0	35.0

MG = diaphragm size

For materials see overview on page 11

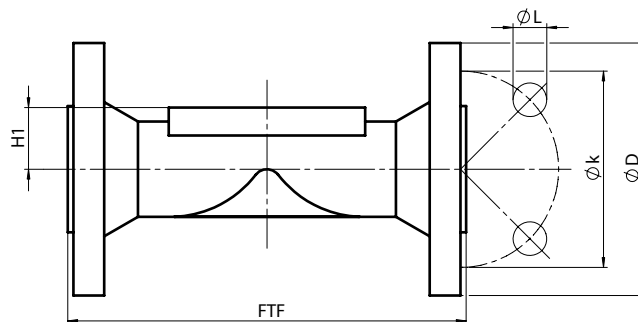
### Flanges - DIN EN 1092 - series 7, connection code 53 Valve body material: GG 25 (code 8), GGG 40.3 (code 17)

MG	DN	øD		øk	øL	Number of bolt	H1		FTF		Weight [kg]
		Material code 8	Material code 17				Material code 8	Material code 17			
25	15	95	-	65	14	4	19.0	-	117.0	-	1.9
	20	105	-	75	14	4	19.0	-	117.0	-	2.4
	25	115	-	85	14	4	19.0	-	127.0	-	2.9
40	32	140	-	100	19	4	28.0	-	-	-	4.9
	40	150	-	110	19	4	28.0	-	159.0	-	5.7
50	50	165	-	125	19	4	35.0	-	191.0	-	7.5
65	65	185	-	145	19	4	27.5	-	216.0	-	10.2
80	80	200	-	160	19	8	33.0	-	254.0	-	14.2
100	100	220	-	180	19	8	43.0	-	305.0	-	21.0
125	125	250	-	210	19	8	65.0	-	356.0	-	30.0
150	150	285	280*	240	23	8	58.0	109.0	406.0	416.0	35.0

\* Diameter differs from standard

MG = diaphragm size

For materials see overview on page 11





## Body dimensions [mm]

### Flanges - ANSI CLASS 125/150 RF, connection code 38, 39 Valve body material: GG 25 (code 8), GGG 40.3 (code 17, 18, 83)

MG	DN	øD	øk	øL	Number of bolt	H1		FTF			Weight [kg]
						Connection code 38, 39		Connection code 38		Connection code 39	
						Material code 8	Material code 17, 18, 83	Material code 17, 18	Material code 83	Material code 8, 17, 18, 83	
25	15	90	60.3	15.9	4	19.0	18.0	-	-	130.0	1.9
	20	100	69.9	15.9	4	19.0	20.5	146.0	146.4	150.0	2.4
	25	110	79.4	15.9	4	19.0	23.0	146.0	146.4	160.0	2.9
40	32	115	88.9	15.9	4	28.0	28.7	-	-	180.0	4.9
	40	125	98.4	15.9	4	28.0	33.0	175.0	171.4	200.0	5.7
50	50	150	120.7	19.0	4	35.0	39.0	200.0	197.4	230.0	7.5
65	65	180	139.7	19.0	4	27.5	51.0	226.0	222.4	290.0	10.2
80	80	190	152.4	19.0	4	33.0	59.5	260.0	260.4	310.0	14.2
100	100	230	190.5	19.0	8	43.0	73.0	327.0	324.4	350.0	21.0
125	125	255	215.9	22.2	8	65.0	87.0	-	-	400.0	30.0
150	150	280	241.3	22.2	8	58.0	109.0	416.0	416.0	480.0	35.0

MG = diaphragm size

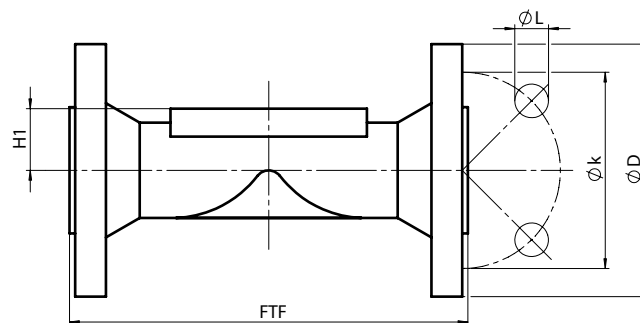
For materials see overview on page 11

### Flanges - ANSI CLASS 125/150 RF, connection code 56 Valve body material: GGG 40.3 (code 17), GGG 50 (code 81, 91)

MG	DN	øD	øk	øL	Number of bolt	H1	FTF	Weight [kg]
25	25	110	79.4	15.9	4	23.0	127.0	2.9
40	40	125	98.4	15.9	4	32.0	165.0	5.7
50	50	150	120.7	19.0	4	40.0	191.0	7.5
80	80	190	152.4	19.0	4	58.0	254.0	14.2
100	100	230	190.5	19.0	8	70.0	311.0	21.0
150	150	280	241.3	22.2	8	109.0	416.0	35.0

MG = diaphragm size

For materials see overview on page 11

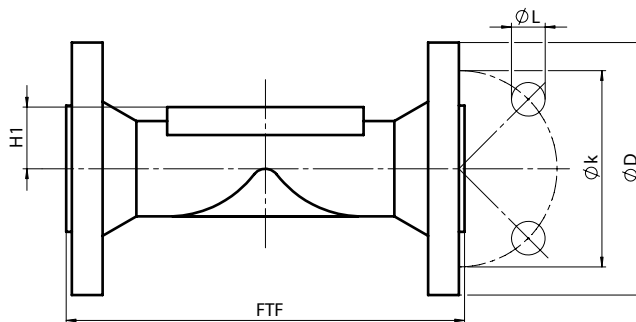


## Body dimensions [mm]

### Flanges - BS 10 Table "E", connection code 51 Valve body material: GGG 40.3 (code 17), GGG 50 (code 81, 91)

MG	DN	øD	øk	øL	Number of bolt	H1	FTF	Weight [kg]
25	25	114	83	14	4	23	127	2.9
40	40	125*	98	14	4	32	165	5.7
50	50	152	114	17	4	40	191	7.5
80	80	184	146	17	4	58	254	14.2
100	100	216	178	17	8	70	311	21.0
150	150	279	235	22	8	109	416	55.0

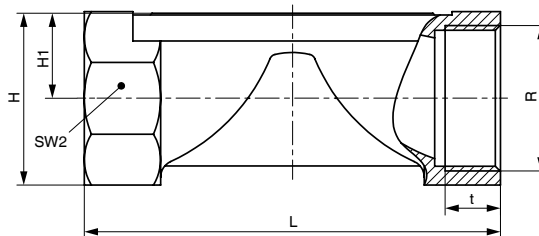
\* Diameter differs from standard BS 10      MG = diaphragm size      For materials see overview on page 11



### Threaded sockets - DIN ISO 228, connection code 1 Valve body material: GG 25 (code 8)

MG	DN	R	L	H	H1	t	SW2	Number of flats	Weight [kg]
25	15	G 1/2	85	35	19	12	32	6	0.5
	20	G 3/4	85	40	19	13	41	6	0.6
	25	G 1	110	42	19	16	46	6	0.9
40	32	G 1 1/4	120	56	28	16	55	6	1.2
	40	G 1 1/2	140	61	28	18	65	6	1.8
50	50	G 2	165	73	35	18	75	6	2.6

MG = diaphragm size



## Overview of valve bodies for GEMÜ 620

		Threaded connections	Flanges																		
Connection code		1	8				38			39				51			53		56		
Material code		8	8	17	18	83	17	18	83	8	17	18	83	17	81	91	8	17	17	81	91
MG	DN																				
	15	X	X*	X	X	X	-	-	-	X*	X	X	X	-	-	-	X*	-	-	-	-
25	20	X	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	X**	X*	-	-	X	X**
40	32	X	X*	X	X	X	-	-	-	X*	X	X	X	-	-	-	-	-	-	-	-
	40	X	X*	X	X	X	X	X**	X	X*	X	X	X	-	X	X**	X*	-	-	X	X**
50	50	X	X*	X	X	X	X	X**	X	X*	X	X	X	-	X	X**	X*	-	-	X	X**
65	65	-	X*	X*	X*	X*	X*	X*/**	X*	X*	X*	X*	X*	-	-	-	X*	-	-	-	-
80	80	-	X*	X***	X	X	X***	X**	X	X*	X***	X	X	-	X	X**	X*	-	-	X	X**
100	100	-	X*	X	X	X	X	X**	X	-	X	X	X	-	X	X**	X*	-	-	X	X**
125	125	-	X*	X	-	X	-	-	-	X*	X	-	X	-	-	-	X*	-	-	-	-
150	150	-	X*	X	-	X	X	-	X	X*	X	-	X	X	-	-	X*	X	X	-	-

\* Valve bodies are not suitable for use with diaphragm code 5E

\*\* Connection code 38 / material code 18 on request

\*\* Connection code 51 / material code 91 on request

\*\* Connection code 56 / material code 91 on request

\*\*\* When using PTFE diaphragms, only a diaphragm with code 5M is possible.

MG = diaphragm size

For further metal diaphragm valves, accessories and other products,  
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