

# Diaphragm Valve, Metal

## Construction

The GEMÜ 695 pneumatically operated 2/2-way diaphragm valve has a low maintenance membrane actuator which can be controlled by inert gaseous media. Normally Closed, Normally Open and Double Acting control functions are available.

## Features

- Suitable for inert and corrosive\* liquid and gaseous media
- Insensitive to particulate media
- Valve body and diaphragm available in various materials and designs
- Surface finishes down to 0.25 µm, electropolished
- Versions according to ATEX on request
- Optical position indicator is standard for control function 1

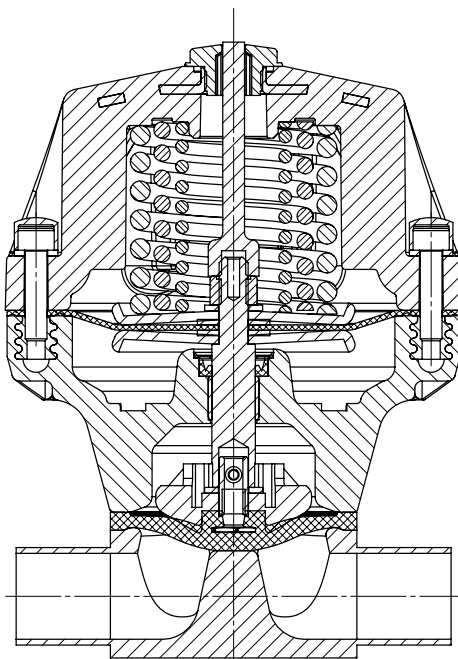
## Advantages

- Optional flow direction
- Installation for an optimized draining is possible
- Weight-saving design
- Optional accessories:
  - Stroke limiter
  - Optical position indicator control function 2 + 3
  - Manual override (GEMÜ 1002, GEMÜ 1004)
  - Pilot valve with manual override (GEMÜ 0322 - 0326)
  - Electrical position indicator

\*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.

The valve will seal in both flow directions up to full operating pressure. (All pressures are gauge pressures.)

### Temperatures

<b>Medium temperature</b>	-10 ... 80 °C
<b>Ambient temperature</b>	0 ... 60 °C

### Control medium

**Max. perm. temperature of control medium** 40 °C

#### Filling volume

Actuator size	Control function 1	Control function 2
1/N	0,17 dm <sup>3</sup>	0,11 dm <sup>3</sup>
2/N	0,38 dm <sup>3</sup>	0,23 dm <sup>3</sup>
3/N	1,10 dm <sup>3</sup>	0,54 dm <sup>3</sup>

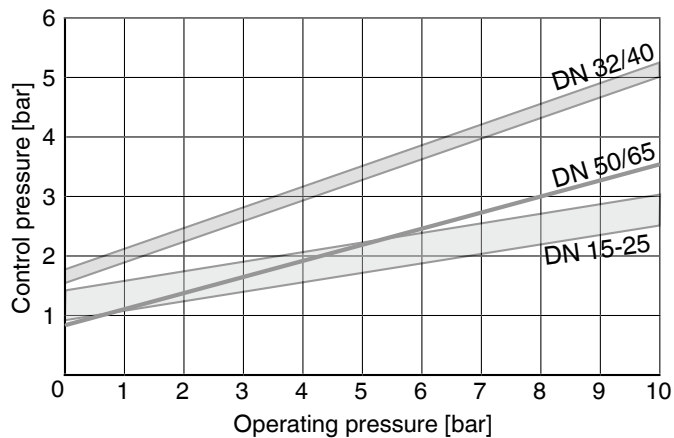
C.f. 3 = for filling volume in open position see c.f. 1, for filling volume in closed position see c.f. 2

Diaphragm size	DN	Operating pressure [bar]		Control pressure [bar]		
		EPDM / FPM	PTFE	Control function 1	Control function 2	Control function 3
25	15, 20, 25	0 - 10	0 - 6	5.5 - 7.0	max. 5.5	max. 5.5
40	32, 40	0 - 10	0 - 6	5.5 - 7.0	max. 5.5	max. 5.5
50	50, 65	0 - 10	0 - 6	5.5 - 7.0	max. 5.0	max. 5.0

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.

### Control functions 2 + 3



The values shown relate to control function 2 (with opening spring).  
For control function 3 (without opening spring) control pressure is approx. 1 bar lower.

## Technical data

### Kv values [m<sup>3</sup>/h]

MG	DN	DIN	EN 10357 Series B	EN 10357 Series A	DIN 11850 Series 3	SMS 3008	ASME BPE	ISO 1127 / EN 10357 Series C Code 60
		Code 0	Code 16	Code 17	Code 18	Code 37	Code 59	
25	15	4.1	4.7	4.7	4.7	-	-	7.4
	20	6.3	7.0	7.0	7.0	-	4.4	13.2
	25	13.9	15.0	15.0	15.0	12.6	12.2	16.2
40	32	25.3	27.0	27.0	27.0	26.2	-	30.0
	40	29.3	30.9	30.9	30.9	30.2	29.5	32.8
50	50	46.5	48.4	48.4	48.4	51.7	50.6	55.2
	65	-	-	-	-	62,2	61,8	-

Kv values determined acc. to DIN EN 60534, inlet pressure 5 bar,  $\Delta p$  1 bar, stainless steel valve body 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 body	D

Connection	Code
<b>Butt weld spigots</b>	
Spigots DIN	0
Spigots EN 10357 series B	16
Spigots EN 10357 series A	17
Spigots DIN 11850 series 3	18
Spigots DIN 11866 series A	1A
Spigots DIN 11866 series B	1B
Spigots JIS-G 3447	35
Spigots JIS-G 3459	36
Spigots SMS 3008	37
Spigots BS 4825 part 1	55
Spigots ASME BPE	59
Spigots ISO 1127 / EN 10357 series C	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 sockets NPT	31
Threaded spigots DIN 11851	6
One side threaded spigot, other side cone spigot and union nut, DIN 11851	62
Aseptic unions on request	
<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
<b>Clamp connections</b>	
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 7	82
Clamps ASME BPE for pipe ASME BPE, length EN 558, series 7	88
Clamps DIN 32676 series A for pipe DIN 11850, length EN 558, series 7	8A
Clamps SMS 3017 for pipe SMS 3008, length EN 558, series 7	8E
Aseptic clamps on request	

For overview of available valve bodies for GEMÜ 695 see page 11

Valve body material	Code
EN-GJL-250, (GG25) (Cast iron)	8
EN-GJS-400-18-LT (S.G. Iron 40.3), PFA lined	17
EN-GJS-400-18-LT (S.G. Iron 40.3), PP lined	18
1.4435 - BN2 (CF3M), investment casting Fe<0.5%	32
1.4435 (ASTM A 351 CF3M $\triangle$ 316L), investment casting	34
1.4408, investment casting	37
1.4408, PFA lined	39
1.4435 (316L), forged body	40
1.4435 (BN2), forged body Fe<0.5%	42
EN-GJS-400-18-LT (S.G. Iron 40.3), hard rubber lined	83
1.4539, forged body	F4

Diaphragm material	Code
NBR	2
FPM	4
EPDM	13
EPDM	14
EPDM	17
PTFE/EPDM convex, PTFE loose	5E
PTFE/EPDM, PTFE lamin.	52
Material complies with FDA requirements, except codes 2, 4 and 14	
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.	

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

Actuator size	Code
Diaphragm size 25	1/N
Diaphragm size 40	2/N
Diaphragm size 50	3/N

Order example	695	25	D	60	34	17	1	1/N	1500
Type	695								
Nominal size		25							
Body configuration (code)			D						
Connection (code)				60					
Valve body material (code)					34				
Diaphragm material (code)						17			
Control function (code)							1		
Actuator size (code)								1/N	
Surface finish (code see page 5)									1500

## Order data

### Valve body surface finish, internal contour

	Hygienic class DIN 11866	Designation ASME BPE (2014)	Forged body Code 40, 42, F4	Investment casting Code 32, 34	Code
Ra ≤ 6,3 μm (250 μinch) for media wetted surfaces, blasted internal/external	-	-	-	X	1500
Ra ≤ 0,8 μm (30 μinch) for media wetted surfaces, mechanically polished internal	H3	SF3	X	X	1502
Ra ≤ 0,8 μm (30 μinch) for media wetted surfaces, electropolished internal/external	HE3	-	X	-	1503
Ra ≤ 0,6 μm (25 μinch) for media wetted surfaces, mechanically polished internal	-	SF2	X*	X*	1507
Ra ≤ 0,6 μm (25 μinch) for media wetted surfaces, electropolished internal/external	-	SF6	X*	-	1508
Ra ≤ 0,5 μm (20 μinch) for media wetted surfaces, mechanically polished internal	-	SF1	X*	-	1927
Ra ≤ 0,5 μm (20 μinch) for media wetted surfaces, electropolished internal/external	-	SF5	X*	-	1928
Ra ≤ 0,4 μm (15 μinch) for media wetted surfaces, mechanically polished internal	H4	-	X*	-	1536
Ra ≤ 0,4 μm (15 μinch) for media wetted surfaces, electropolished internal/external	HE4	-	X*	-	1537
Ra ≤ 0,4 μm (15 μinch) for media wetted surfaces, electropolished internal/external	-	SF4	X*	-	1929
Ra ≤ 0,25 μm (10 μinch) for media wetted surfaces, electropolished internal/external	HE5	-	X*	-	1516
Ra ≤ 0,25 μm (10 μinch) for media wetted surfaces, mechanically polished internal	H5	-	X*	-	1527

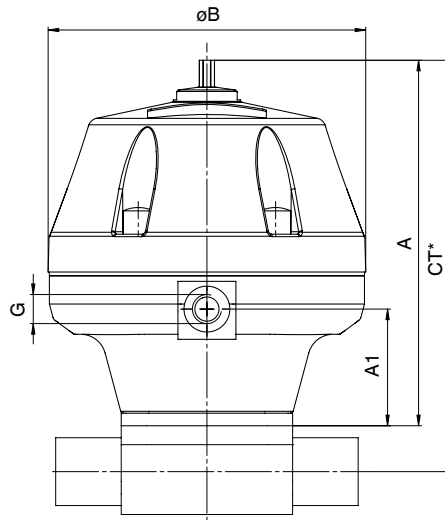
Ra acc. to DIN 4768; at defined reference points.

\* For pipe inside diameter < 6 mm, the surface inside the spigot is Ra ≤ 0.8 μm.

## Actuator dimensions [mm]

### Control function 1

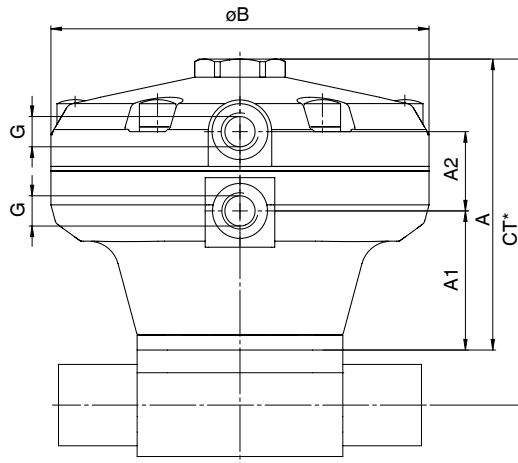
MG	DN	ø B	A	A1	G	Weight [kg]
25	15 - 25	125	145	47	G 1/4	1,5
40	32 - 40	155	194	75	G 1/4	3,0
50	50 - 65	210	240	90	G 1/4	5,5



\* CT = A + H1 (see body dimensions)

### Control function 2 + 3

MG	DN	ø B	A	A1	A2	G	Weight [kg]
25	15 - 25	125	98	47	27	G 1/4	1,0
40	32 - 40	155	135	75	27	G 1/4	2,1
50	50 - 65	210	164	90	29	G 1/4	3,6



\* CT = A + H1 (see body dimensions)



## Body dimensions [mm]

### Butt weld spigots, connection code 0, 16, 17, 18 Valve body material: Investment casting (code 34), forged body (code 40, F4)

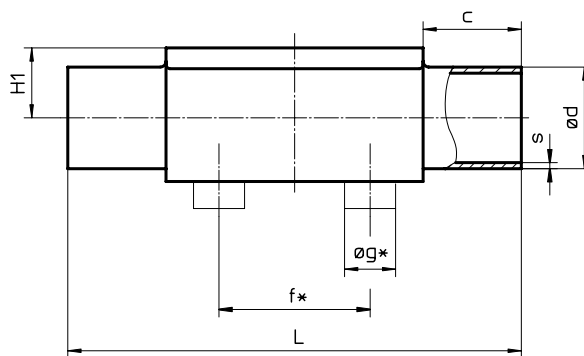
MG	DN	NPS	f*	øg*	L	c	H1*	H1**	DIN Series 0 Code 0		EN 10357 Series B Code 16		EN 10357 Series A Code 17		DIN 11850 Series 3 Code 18		Weight [kg]
									ød	s	ød	s	ød	s	ød	s	
25	15	1/2"	40	13.5	120	25	13.0	19.0	18	1.5	18	1.0	19	1.5	20	2.0	0.62
	20	3/4"	40	13.5	120	25	16.0	19.0	22	1.5	22	1.0	23	1.5	24	2.0	0.58
	25	1"	40	13.5	120	25	19.0	19.0	28	1.5	28	1.0	29	1.5	30	2.0	0.55
40	32	1 1/4"	68	13.5	153	25	24.0	26.0	34	1.5	34	1.0	35	1.5	36	2.0	1.45
	40	1 1/2"	75	13.5	153	25	26.0	26.0	40	1.5	40	1.0	41	1.5	42	2.0	1.32
50	50	2"	90	13.5	173	30	32.0	32.0	52	1.5	52	1.0	53	1.5	54	2.0	2.25

\* only for investment cast design      \*\* only for forged design      MG = diaphragm size  
For materials see overview on page 12

### Butt weld spigots, connection code 1A, 1B, 60 Valve body material: Investment casting (code 34), forged body (code 40, F4)

MG	DN	NPS	f*	øg*	L	c	H1*	H1**	DIN 11866 Series A Code 1A		DIN 11866 Series B Code 1B		ISO 1127 / EN 10357 Series C Code 60		Weight [kg]
									ød	s	ød	s	ød	s	
25	15	1/2"	40	13.5	120	25	13.0	19.0	19	1.5	21.3	1.6	21.3	1.6	0.62
	20	3/4"	40	13.5	120	25	16.0	19.0	23	1.5	26.9	1.6	26.9	1.6	0.58
	25	1"	40	13.5	120	25	19.0	19.0	29	1.5	33.7	2.0	33.7	2.0	0.55
40	32	1 1/4"	68	13.5	153	25	24.0	26.0	35	1.5	42.4	2.0	42.4	2.0	1.45
	40	1 1/2"	75	13.5	153	25	26.0	26.0	41	1.5	48.3	2.0	48.3	2.0	1.32
50	50	2"	90	13.5	173	30	32.0	32.0	53	1.5	60.3	2.0	60.3	2.0	2.25

\* only for investment cast design      \*\* only for forged design      MG = diaphragm size  
For materials see overview on page 12





## Body dimensions [mm]

### Butt weld spigots, connection code 35, 36, 37 Valve body material: Investment casting (code 34), forged body (code 40, F4)

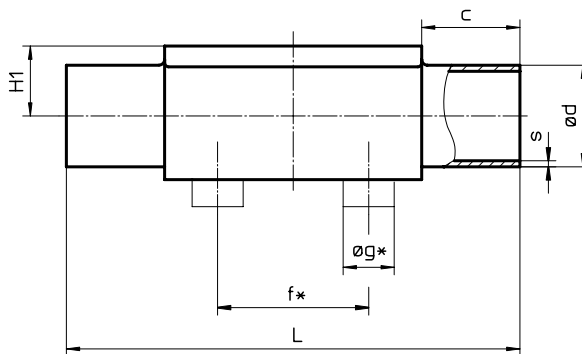
MG	DN	NPS	f*	øg*	L	c	H1*	H1**	JIS-G 3447 Code 35		JIS-G 3459 Code 36		SMS 3008 Code 37		Weight [kg]
									ød	s	ød	s	ød	s	
25	15	1/2"	40	13.5	120	25	13.0	19.0	-	-	21.7	2.1	-	-	0.62
	20	3/4"	40	13.5	120	25	16.0	19.0	-	-	27.2	2.1	-	-	0.58
	25	1"	40	13.5	120	25	19.0	19.0	25.4	1.2	34.0	2.8	25.0	1.2	0.55
40	32	1 1/4"	68	13.5	153	25	24.0	26.0	31.8	1.2	42.7	2.8	33.7	1.2	1.45
	40	1 1/2"	75	13.5	153	25	26.0	26.0	38.1	1.2	48.6	2.8	38.0	1.2	1.32
50	50	2"	90	13.5	173	30	32.0	32.0	50.8	1.5	60.5	2.8	51.0	1.2	2.25
	65	2 1/2"	-	-	173	30	-	34.0	63.5	2.0	-	-	63.5	1.6	2.20

\* only for investment cast design      \*\* only for forged design      MG = diaphragm size  
For materials see overview on page 12

### Butt weld spigots, connection code 55, 59, 63, 65 Valve body material: Investment casting (code 34), forged body (code 40, F4)

MG	DN	NPS	f*	øg*	L	c	H1*	H1**	BS 4825 Code 55		ASME BPE Code 59		ANSI/ASME B36.19M 10s Code 63		ANSI/ASME B36.19M 40s Code 65		Weight [kg]
									ød	s	ød	s	ød	s	ød	s	
25	15	1/2"	40	13.5	120	25	13.0	19.0	-	-	-	-	21.3	2.11	21.3	2.77	0.62
	20	3/4"	40	13.5	120	25	16.0	19.0	19.05	1.2	19.05	1.65	26.7	2.11	26.7	2.87	0.58
	25	1"	40	13.5	120	25	19.0	19.0	-	-	25.40	1.65	33.4	2.77	33.4	3.38	0.55
40	32	1 1/4"	68	13.5	153	25	24.0	26.0	-	-	-	-	42.2	2.77	42.2	3.56	1.45
	40	1 1/2"	75	13.5	153	25	26.0	26.0	-	-	38.10	1.65	48.3	2.77	48.3	3.68	1.32
50	50	2"	90	13.5	173	30	32.0	32.0	-	-	50.80	1.65	60.3	2.77	60.3	3.91	2.25
	65	2 1/2"	-	-	173	30	-	34.0	-	-	63.50	1.65	-	-	-	-	2.10

\* only for investment cast design      \*\* only for forged design      MG = diaphragm size  
For materials see overview on page 12



## Body dimensions [mm]

**Flanges - DIN EN 1092, connection code 8**  
**Valve body material: GG25 (code 8), S.G. Iron 40.3 (code 17, 18, 83),**  
**1.4435 (code 34, 40), 1.4408 (code 39)**

MG	DN	øD	øk	øL	Number of bolt	H1				FTF	Weight [kg]
						Material code 8	Material code 17, 18, 39, 83	Material code 34	Material code 40		
25	15	95	65	14	4	19.0	18.0	13.0	19.0	130*	1.85
	20	105	75	14	4	19.0	20.5	16.0	19.0	150	2.35
	25	115	85	14	4	19.0	23.0	19.0	19.0	160	2.85
40	32	140	100	19	4	28.0	28.7	24.0	26.0	180	4.90
	40	150	110	19	4	28.0	33.0	26.0	26.0	200	5.65
50	50	165	125	19	4	35.0	39.0	32.0	32.0	230	7.45

\*Material code 34, 40 FTF = 150 (no DIN length)

MG = diaphragm size

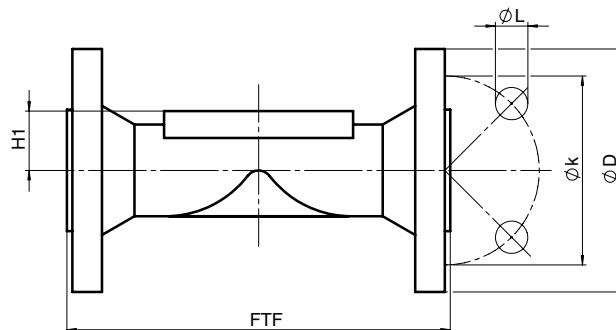
For materials see overview on page 12

**Flanges - ANSI Class 125/150 RF, connection code 38, 39**  
**Valve body material: GG25 (code 8), S.G. Iron 40.3 (code 17, 18, 83),**  
**1.4435 (code 34, 40), 1.4408 (code 39)**

MG	DN	øD	øk	øL	Number of bolt	H1				FTF		Weight [kg]	
						Connection code 38, 39				MSS Sp-88 Connection-code 38			EN 558 Series 1 Connection-code 39
										Material code 8	Material code 17, 18, 39, 83		Material code 34
25	15	90	60.3	15.9	4	19.0	18.0	13.0	19.0	-	-	130	1.85
	20	100	69.9	15.9	4	19.0	20.5	16.0	19.0	146	146.4	150	2.35
	25	110	79.4	15.9	4	19.0	23.0	19.0	19.0	146	146.4	160	2.85
40	32	115	88.9	15.9	4	28.0	28.7	24.0	26.0	-	-	180	4.90
	40	125	98.4	15.9	4	28.0	33.0	26.0	26.0	175	171.4	200	5.65
50	50	150	120.7	19.0	4	35.0	39.0	32.0	32.0	200	197.4	230	7.45

MG = diaphragm size

For materials see overview on page 12



## Body dimensions [mm]

### Threaded connections, connection code 6, 62 Valve body material: investment casting (code 34), forged body (code 40)

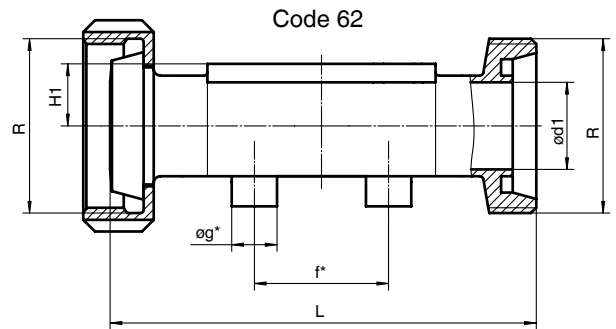
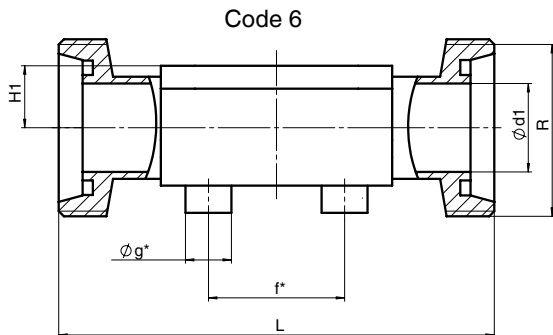
MG	DN	H1*	H1**	f*	øg*	ød1	Thread to DIN 405 R	Code 6 L	Code 62 L	Weight [kg]
25	15	13.0	19	40.0	13.5	16.0	RD 34 x 1/8	118	116	0.71
	20	16.0	19	40.0	13.5	20.0	RD 44 x 1/6	118	114	0.78
	25	19.0	19	40.0	13.5	26.0	RD 52 x 1/6	128	127	0.79
40	32	24.0	26	68.0	13.5	32.0	RD 58 x 1/6	147	147	1.66
	40	26.0	26	75.0	13.5	38.0	RD 65 x 1/6	160	160	1.62
50	50	32.0	32	90.0	13.5	50.0	RD 78 x 1/6	191	191	2.70

\* only for investment cast design

\*\* only for forged design

MG = diaphragm size

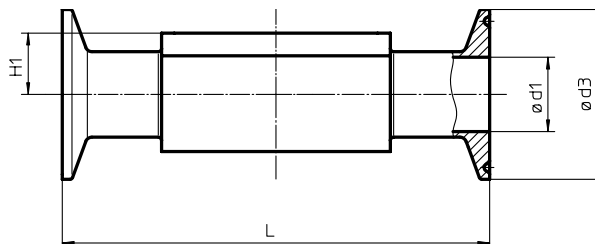
For materials see overview on page 12



### Clamp connections, connection code 80, 82, 88, 8A, 8E Valve body material: forged body (code 40, F4)

MG	DN	NPS	H1	for pipe ASME BPE Code 80			for pipe EN ISO 1127 Code 82			for pipe ASME BPE Code 88			for pipe DIN 11850 Code 8A			for pipe SMS 3008 Code 8E			Weight [kg]
				ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	
25	15	1/2"	19.0	-	-	-	18.1	50.5	108	-	-	-	16	34.0	108	-	-	-	0.75
	20	3/4"	19.0	15.75	25.0	101.6	23.7	50.5	117	15.75	25.0	117	20	34.0	117	-	-	-	0.71
	25	1"	19.0	22.10	50.5	114.3	29.7	50.5	127	22.10	50.5	127	26	50.5	127	22.6	50.5	127	0.63
40	32	1 1/4"	26.0	-	-	-	38.4	64.0	146	-	-	-	32	50.5	146	31.3	50.5	146	1.62
	40	1 1/2"	26.0	34.80	50.5	139.7	44.3	64.0	159	34.80	50.5	159	38	50.5	159	35.6	50.5	159	1.50
50	50	2"	32.0	47.50	64.0	158.8	56.3	77.5	190	47.50	64.0	190	50	64.0	190	48.6	64.0	190	2.50
	65	2 1/2"	34.0	60,20	77,5	193,8	-	-	-	60,20	77,5	216	-	-	-	60,3	77,5	216	2,30

MG = diaphragm size



## Overview of valve bodies for GEMÜ 695

		Spigots																							
Connection code		0		16		17		18		1A	1B	35		36	37		55		59		60		63	65	
Material code		34	40	34	40	34	40	34	40	40	40	34	40	40	40	34	40	34	40	34	40	34	40	40	40
MG	DN																								
25	15	X	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	X	X	X	X	X	X	
	25	X	X	X	X	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	X	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	X	X	X	X	
50	50	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	X	X	X	X	X	X	
	65	-	-	-	-	-	-	-	-	-	-	-	X	-	-	X	-	-	-	X	-	-	-	-	

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

X = Standard

MG = diaphragm size

Availability of material code 32: same as code 34, availability of material code 42, F4: same as code 40

		Threaded connections								Clamps					Flanges																				
Connection code		1	31	6	62	80	82	88	8A	8E	8							38				39													
Material code		8	37	37	34	40	34	40	40	40	40	40	40	40	8	17	18	34	39	40	83	17	18	39	83	8	17	18	34	39	40	83			
MG	DN																																		
25	15	X	X	X	W	W	W	W	-	W	-	K	-	X*	X	X	W	X	W	X	-	-	-	-	X*	X	X	W	X	W	X*				
	20	X	X	X	W	W	W	W	K	K	K	K	-	X*	X	X	W	X	W	X	X	X**	X	X*	X*	X	X	W	X	W	X*				
	25	X	X	X	W	W	W	W	K	K	K	K	K	X*	X	X	W	X	W	X	X	X**	X	X*	X*	X	X	W	X	W	X*				
40	32	X	X	X	W	W	W	W	-	W	-	K	K	X*	X	X	W	X	W	X	-	-	-	-	X*	X	X	W	X	W	X*				
	40	X	X	X	W	W	W	W	K	W	K	K	K	X*	X	X	W	X	W	X	X	X**	X	X*	X*	X	X	W	X	W	X*				
50	50	X	X	X	W	W	W	W	K	W	K	K	K	X*	X	X	W	X	W	X	X	X**	X	X*	X*	X	X	W	X	W	X*				
	65	-	-	-	-	-	-	-	W	-	W	-	W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

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

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

X = Standard

K = Connections completely machined (not welded)

W = Welded construction

MG = diaphragm size

Availability of material code 32: same as code 34, availability of material code 42, F4: same as code 40

For further metal diaphragm valves, accessories and other products, please see our Product Range catalogue and Price List.  
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