

Diaphragm Valve, Metal

Construction

The GEMÜ 601, 612 and 673 manually operated diaphragm valves have a temperature resistant plastic handwheel. Bonnet and internals are made all of stainless steel. An integral optical position indicator and a seal adjuster to increase service life of the diaphragm are included as standard. GEMÜ 602 has a stainless steel handwheel and an integral optical position indicator.

Features

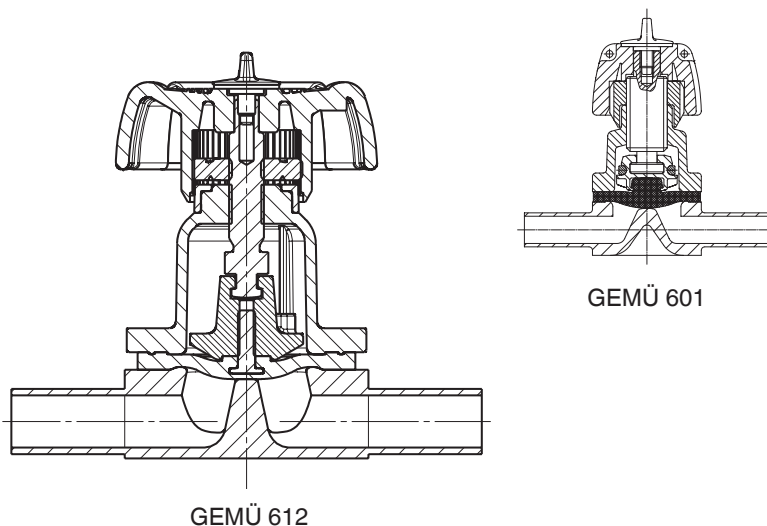
- Suitable for inert and corrosive* liquid and gaseous media
- Chemical resistance of bonnet
- CIP/SIP cleaning and sterilizing capabilities
- Autoclave capability
- Insensitive to particulate media
- Valve body and diaphragm available in various materials and designs
- Compact design (ideal when space is at a premium)
- Stepless minimum flow regulation due to seal adjuster

Advantages

- Hermetic separation between medium and actuator
- Optional flow direction, will seal in either flow direction up to full operating pressure
- Optional mounting position
- Long service life of the diaphragm due to patented seal adjuster (US-Pat. 5 377 956)
- Valve body also available in multi-port designs (M-block and T-body) or as tank bottom valve body

*see information on working medium on page 2

Sectional drawing



GEMÜ 601



GEMÜ 602



GEMÜ 612



GEMÜ 673

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.

Ambient conditions

Max. ambient temperature 60° C

Operating temperature

Liquids max. 90° C

Steam max. 150° C

(dependent on diaphragm material)

Valve	Diaphragm size	Nominal size DN	Max. operating pressure [bar]		Valve weight* [g]
			EPDM	PTFE	
GEMÜ 601/602	8	4, 6, 8, 10, 15	10	6	GEMÜ 601 - 160 GEMÜ 602 - 220
GEMÜ 612	10	10	10	6	450
		12			500
		15			680
		20			690
GEMÜ 673	25	15	10	6	1100
		20			1200
		25			1300
		32			2500
	40	40			2600
		40			2600
		50			3800
		50			3800

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.

*Valve weight determined with valve body material code 34 and connection code 60.

Kv values [m³/h]

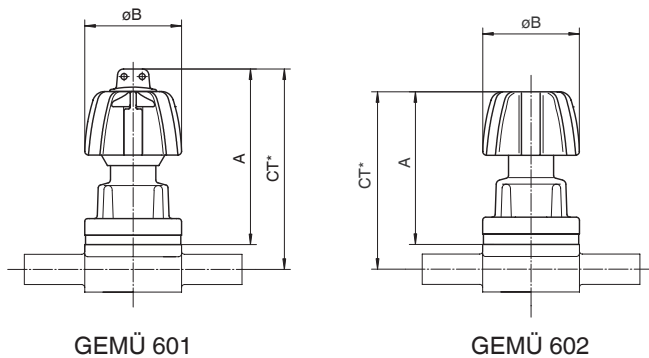
Valve	MG	DN	DIN Code 0	DIN 11850 Series 1 Code 16	DIN 11850 Series 2 Code 17	DIN 11850 Series 3 Code 18	SMS 3008 Code 37	ASME BPE Code 59	EN ISO 1127 Code 60
GEMÜ 601/602	8	4	0.5	-	-	-	-	-	-
		6	1.1	-	-	-	-	-	1.2
		8	1.3	-	-	-	-	0.6	2.2
		10	-	2.1	2.1	2.1	-	1.3	-
		15	-	-	-	-	-	2.0	-
GEMÜ 612	10	10	-	2.4	2.4	2.4	-	2.2	3.3
		15	3.3	3.8	3.8	3.8	-	2.2	4.0
		20	-	-	-	-	-	3.8	-
GEMÜ 673	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
		32	25.3	27.0	27.0	27.0	26.2	-	30.0
	40	40	29.3	30.9	30.9	30.9	30.2	29.5	32.8
		40	29.3	30.9	30.9	30.9	30.2	29.5	32.8
		50	46.5	48.4	48.4	48.4	51.7	50.6	55.2
		50	46.5	48.4	48.4	48.4	51.7	50.6	55.2

Kv values determined acc. to IEC 534 standard, inlet pressure 6 bar, Δ p 1 bar, stainless steel valve body and soft elastomer diaphragm. MG = diaphragm size

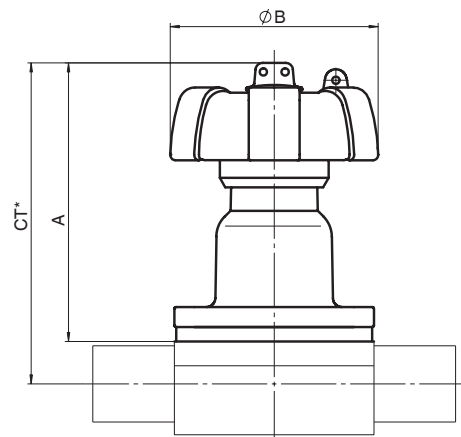
Bonnet dimensions [mm]

Type	Diaphragm size	A	Ø B
GEMÜ 601	8	58	32
GEMÜ 602		51	32
GEMÜ 612	10	80	60
GEMÜ 673	25	102	90
	40	119	114
	50	136	140

GEMÜ 601 / 602



GEMÜ 612 / 673



* CT = A + H1 (see body dimensions)

Order data

Valve type	Code
GEMÜ 601 diaphragm size 8	601
GEMÜ 602 diaphragm size 8 stainless st. handwheel	602
GEMÜ 612 diaphragm size 10	612
GEMÜ 673 diaphragm size 25 - 50	673

Body configuration	Code
Tank valve body	B**
2/2-way body	D
Multi-port design	M**
T body	T*
* For dimensions see T Valves brochure	
** Dimensions and versions on request or according to customer requirements	

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 JIS-G 3447	35
Spigots JIS-G 3459	36
Spigots SMS 3008	37
Spigots BS 4825, Part 1	55
Spigots ASME BPE	59
Spigots EN ISO 1127	60
Threaded connections	
Threaded sockets DIN ISO 228	1
Threaded spigots DIN 11851	6
One side threaded spigot, other side cone spigot and union nut, DIN 11851	62
Aseptic unions on request	
For overview of available valve bodies see page 8	

For further order data see page 4

Order data

Connection	Code
Clamp connections	
Clamps ASME BPE for pipe ASME BPE, short design	80
Clamps following ASME BPE for pipe EN ISO 1127, length EN 558, series 7	82
Clamp ASME BPE for pipe ASME BPE, length EN 558, series 7	88
Clamps DIN 32676 for pipe DIN 11850, length EN 558, series 7	8A
Clamps SMS 3017 for pipe SMS 3008, length EN 558, series 7	8E
Flanges (GEMÜ 673)	
Flanges EN 1092 / PN16 / form B, length EN 558, series 1, ISO 5752, basic series 1	8
Flanges ANSI class 125/150 RF, length MSS SP-88	38
Flanges ANSI class 125/150 RF, length EN 558, series 1, ISO 5752, basic series 1	39
For overview of available valve bodies see page 8	

Valve body material	Code
EN-GJS-400-18-LT (SG iron 40.3) PFA lined	17
EN-GJS-400-18-LT (SG 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
1.4435 (316L), forged body	40
1.4435 (BN2), forged body Fe<0.5%	42
1.4435 (316L), block material	41*
1.4435 (BN2), block material Fe<0.5%	43*
* only for body configurations B, M and T	

Valve body surface finish, internal contour		Code
Ra \leq 6.3 μ m	blasted internal/external	1500*
Ra \leq 6.3 μ m	electropolished internal/external	1509*
Ra \leq 0.8 μ m	mechanically polished internal, blasted external	1502
Ra \leq 0.8 μ m	electropolished internal/external	1503
Ra \leq 0.6 μ m	mechanically polished internal, blasted external	1507
Ra \leq 0.6 μ m	electropolished internal/external	1508
Ra \leq 0.4 μ m	mechanically polished internal, blasted external	1536
Ra \leq 0.4 μ m	electropolished internal/external	1537
Ra \leq 0.25 μ m	mechanically polished internal, blasted external	1527
Ra \leq 0.25 μ m	electropolished internal/external	1516

Ra acc. to DIN 4768; at defined reference points

* only investment cast design

Order example	601	8	D	60	34	17	0	S	1500
Type	601								
Nominal size		8							
Body configuration (code)			D						
Connection (code)				60					
Valve body material (code)					34				
Diaphragm material (code)						17			
Control function (code)							0		
Bonnet version (code)								S	
Surface finish (code)									1500

Diaphragm material	Code
FPM	4 4A**
EPDM	max. 130°C* 12 -
EPDM	max. 150°C* 13 3A**
EPDM	max. 150°C* 16 6A**
EPDM	max. 150°C* 17 17**
PTFE/EPDM convex, PTFE loose	max. 150°C* 5E -
PTFE/FPM convex, PTFE loose	max. 150°C* 5F -
PTFE/EPDM, PTFE lamin.	max. 150°C* 52*** 5A**
* Steam sterilization temperature / 20 min	
** for diaphragm size 8 *** for diaphragm size 10	
** Material complies with FDA requirements, except codes 4, 4A and 5F	

Control function	Code
Manually operated	0

Bonnet version	Code
With seal adjuster, black handwheel	601, 612, 673 S*
With seal adjuster, white handwheel	601, 612, 673 W**
Without seal adjuster, stainless steel handwheel	602 *
* autoclave capability ** ultra high purity chemicals	

Body dimensions [mm]

Butt weld spigots, connection code 0, 16, 17, 18, 1A, 35, 36, 37, 55, 59, 60 [mm]
Valve body material: investment casting (code 34), forged body (code 40)

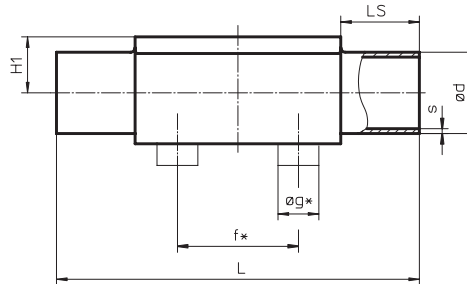
										DIN Series 0 Code 0	DIN 11850 Series 1 Code 16	DIN 11850 Series 2 Code 17	DIN 11850 Series 3 Code 18	DIN 11866 Series A Code 1A	JIS-G 3447 Code 35	JIS-G 3459 Code 36	SMS 3008 Code 37	BS 4825 Code 55	ASME BPE Code 59	EN ISO 1127 Code 60											
	MG	DN	NPS	f*	g*	L	LS	H1*	H1**	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s				
GEMÜ 601, 602	8	4	-	-	-	72	20	8.5		6	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		6	-	-	-	72	20	8.5		8	1.0	-	-	-	-	8	1.0	-	-	10.5	1.20	-	-	-	-	-	10.2	1.6			
		8	1/4"	-	-	72	20	8.5		10	1.0	-	-	-	-	10	1.0	-	-	13.8	1.65	-	-	6.35	1.2	6.35	0.89	13.5	1.6		
		10	3/8"	-	-	72	20	8.5		-	-	12	1.0	13	1.5	14	2.0	13	1.5	-	-	-	-	9.53	1.2	9.53	0.89	-	-		
		15	1/2"	-	-	72	20	8.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.70	1.2	12.70	1.65	-	-		
GEMÜ 612	10	10	3/8"	30	13.5	108	25	12.5		-	-	12	1.0	13	1.5	14	2.0	13	1.5	-	-	17.3	1.65	-	-	9.53	1.2	9.53	0.89	17.2	1.6
		15	1/2"	30	13.5	108	25	12.5		18	1.5	18	1.0	19	1.5	20	2.0	19	1.5	-	-	21.7	2.10	-	-	12.70	1.2	12.70	1.65	21.3	1.6
		20	3/4"	30	13.5	108	25	12.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.05	1.2	19.05	1.65	-	-
GEMÜ 673	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	19	1.5	-	-	21.7	2.10	-	-	-	-	-	21.3	1.6	
		20	3/4"	40	13.5	120	25	16.0	19.0	22	1.5	22	1.0	23	1.5	24	2.0	23	1.5	-	-	27.2	2.10	-	-	19.05	1.2	19.05	1.65	26.9	1.6
		25	1"	40	13.5	120	25	19.0	19.0	28	1.5	28	1.0	29	1.5	30	2.0	29	1.5	25.4	1.2	34.0	2.80	25.0	1.2	-	-	25.40	1.65	33.7	2.0
	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	35	1.5	31.8	1.2	42.7	2.80	33.7	1.2	-	-	-	-	42.4	2.0
		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	41	1.5	38.1	1.2	48.6	2.80	38.0	1.2	-	-	38.10	1.65	48.3	2.0
50	2"	90	13.5	173	30	32.0	32.0	52	1.5	52	1.0	53	1.5	54	2.0	53	1.5	50.8	1.5	60.5	2.80	51.0	1.2	-	-	50.80	1.65	60.3	2.0		

* only for investment cast design

** only for forged design

MG = diaphragm size

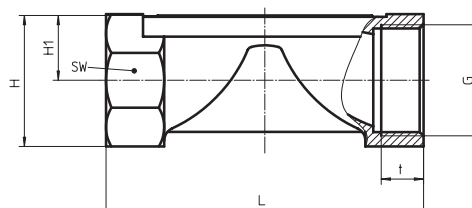
For materials see overview on last page



Threaded sockets, connection code 1, valve body material: investment casting (code 34, 37)

Valve	Diaphragm size	DN	G	H	H1	t	L	SW	Number of flats
GEMÜ 601, 602	8	8	G 1/4	19.0	8.5	12.0	72	17.0	2
GEMÜ 612	10	12	G 3/8	23.0	10.5	13.0	55	22.0	2
		15	G 1/2	29.0	13.5	15.0	68	24.0	2
GEMÜ 673	25	15	G 1/2	30.0	16.0	9.0	85	27.0	6
		20	G 3/4	33.0	17.0	10.0	85	32.0	6
		25	G 1	37.0	17.0	13.0	110	41.0	6
	40	32	G 1 1/4	50.0	25.0	16.0	120	50.0	8
		40	G 1 1/2	52.0	25.0	18.0	140	55.0	8
	50	50	G 2	69.0	34.0	18.0	165	70.0	8

For materials see overview on last page



Body dimensions [mm]

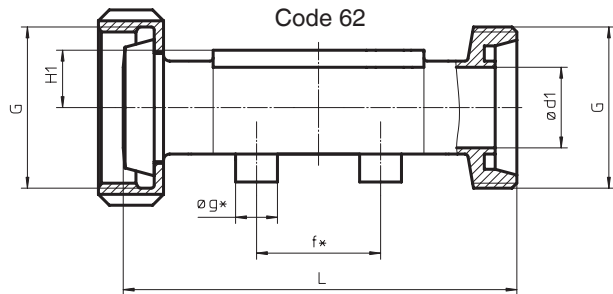
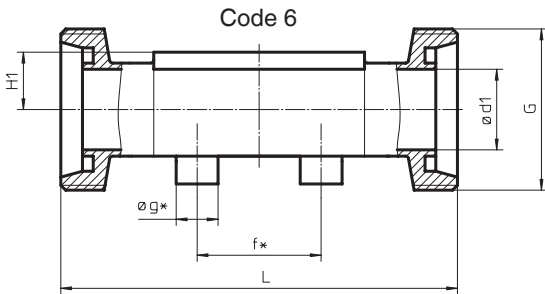
Threaded connections, connection code 6, 62 Valve body material: investment casting (code 34), forged body (code 40)

Valve	Diaphragm size	DN	H1*	H1**	f*	øg*	ød1*	G	L (Code 6)	L (Code 62)
GEMÜ 601, 602	8	10	8.5	-	-	-	10.0	Rd 28 x 1/8	92	90
GEMÜ 612	10	10	12.5	-	30.0	13.5	10.0	Rd 28 x 1/8	118	116
		15	12.5	-	30.0	13.5	16.0	Rd 34 x 1/8	118	116
GEMÜ 673	25	15	13.0	19.0	40.0	13.5	16.0	Rd 34 x 1/8	118	116
		20	16.0	19.0	40.0	13.5	20.0	Rd 44 x 1/6	118	114
		25	19.0	19.0	40.0	13.5	26.0	Rd 52 x 1/6	128	127
	40	32	24.0	26.0	68.0	13.5	32.0	Rd 58 x 1/6	147	147
		40	26.0	26.0	75.0	13.5	38.0	Rd 65 x 1/6	160	160
	50	50	32.0	32.0	90.0	13.5	50.0	Rd 78 x 1/6	191	191

* only for investment cast design

** only for forged design

For materials see overview on last page

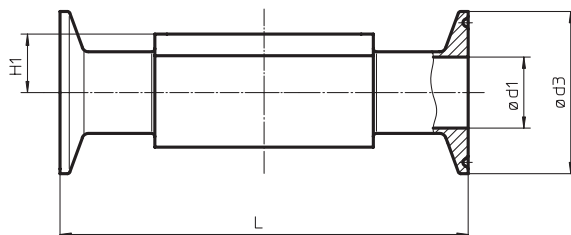


Clamp connections, connection code 80, 82, 88, 8A, 8E Valve body material: forged body (code 40), block material (code 41)

				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			
	MG*	DN	NPS	H1	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L	ød1	ød3	L
GEMÜ 601, 602	8	8	1/4"	8.5	4.57	25.0	63.5	10.30	25.4	63.5	-	-	-	-	-	-	-	-	-
		10	3/8"	8.5	7.75	25.0	63.5	-	-	-	-	-	-	10	34.0	88.9	-	-	-
		15	1/2"	8.5	9.40	25.0	63.5	-	-	-	9.40	25.0	108	-	-	-	-	-	-
GEMÜ 612	10	10	3/8"	12.5	-	-	-	14.00	25.4	108.0	-	-	-	10	34.0	108.0	-	-	-
		15	1/2"	12.5	9.40	25.0	88.9	18.10	50.5	108.0	9.40	25.0	108	16	34.0	108.0	-	-	-
		20	3/4"	12.5	15.75	25.0	101.6	-	-	-	15.75	25.0	117	-	-	-	-	-	-
GEMÜ 673	25	15	1/2"	19.0	-	-	-	18.10	50.5	108.0	-	-	-	16	34.0	108.0	-	-	-
		20	3/4"	19.0	15.75	25.0	101.6	23.70	50.5	117.0	15.75	25.0	117	20	34.0	117.0	-	-	-
		25	1"	19.0	22.10	50.5	114.3	29.70	50.5	127.0	22.10	50.5	127	26	50.5	127.0	22.60	50.5	127
	40	32	1 1/4"	26.0	-	-	-	38.40	64.0	146.0	-	-	-	32	50.5	146.0	31.30	50.5	146
		40	1 1/2"	26.0	34.80	50.5	139.7	44.30	64.0	159.0	34.80	50.5	159	38	50.5	159.0	35.60	50.5	159
	50	2"	32.0	47.50	64.0	158.8	56.30	77.5	190.0	47.50	64.0	190	50	64.0	190.0	48.60	64.0	190	

* Diaphragm size

For materials see overview on last page

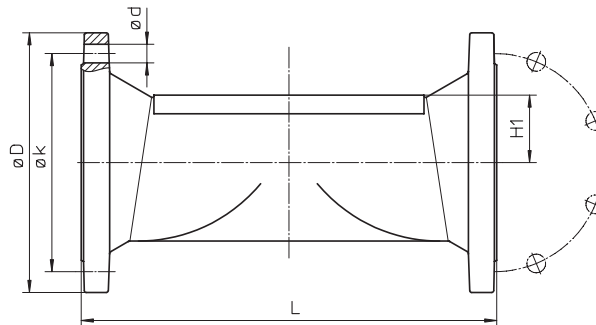


Body dimensions [mm]

Flanges - DIN EN 1092-2, connection code 8
Valve body material: GGG 40.3 (code 17, 18), 1.4435 (code 34, 40)

Valve	MG	DN	ød	øk	ød	Number of bolt holes	H1			L
							Material code 17, 18	Material code 34	Material code 40	
GEMÜ 673	25	15	95	65	14	4	18.0	13.0	19.0	130*
		20	105	75	14	4	20.5	16.0	19.0	150
		25	115	85	14	4	23.0	19.0	19.0	160
	40	32	140	100	18	4	28.7	24.0	26.0	180
		40	150	110	18	4	33.0	26.0	26.0	200
		50	165	125	18	4	39.0	32.0	32.0	230

*Material code 34, L = 150 (no DIN length) For materials see overview on last page MG = diaphragm size



Flanges - ANSI B 16.5, connection code 38, 39
Valve body material: GGG 40.3 (code 17, 18), 1.4435 (code 34, 40)

Valve	MG	DN	ød	øk	ød	Number of bolt holes	H1			L	
							Material code 17, 18	Material code 34	Material code 40	Connection code 38	Connection code 39
GEMÜ 673	25	15	88.9	60.5	15.7	4	18.0	13.0	19.0	-	130
		20	98.6	69.9	15.7	4	20.5	16.0	19.0	146	150
		25	108.0	79.2	15.7	4	23.0	19.0	19.0	146	160
	40	32	117.3	88.9	15.7	4	28.7	24.0	26.0	-	180
		40	127.0	98.6	15.7	4	33.0	26.0	26.0	175	200
		50	152.4	120.7	19.1	4	39.0	32.0	32.0	200	230

For materials see overview on last page MG = diaphragm size

Overview of valve bodies for GEMÜ 601, 602, 612, 673																													
		Threaded connections								Spigots																			
Connection code		1		6		62		0		16		17		18		1A	35		36	37		55		59		60			
Material code		34	37	34	40	34	40	34	40	34	40	34	40	34	40	34	40	34	40	40	34	40	34	40	34	40	34	40	
MG		DN																											
GEMÜ 601, 602	8	4	-	-	-	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		6	-	-	-	-	-	X	X	-	-	-	-	-	-	-	X	-	-	X	-	-	-	-	-	-	-	X	X
		8	X	-	-	-	-	X	X	-	-	-	-	-	-	-	X	-	-	X	-	-	X	X	X	X	X	X	X
		10	-	-	W	W	W	W	-	-	X	X	X	X	X	X	X	-	-	-	-	-	X	X	X	X	-	-	-
		15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-
GEMÜ 612	10	10	-	-	W	W	W	W	-	-	X	X	X	X	X	X	X	-	-	X	-	-	-	X	-	X	X	X	
		12	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		15	X	-	W	W	W	W	X	X	X	X	X	X	X	X	X	-	-	X	-	-	X	X	-	X	X	X	X
		20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	-
GEMÜ 673	25	15	-	X	W	W	W	W	X	X	X	X	X	X	-	X	X	-	-	X	-	-	-	-	-	-	X	X	
		20	-	X	W	W	W	W	X	X	X	X	X	X	-	X	X	-	-	X	-	-	X	X	X	X	X	X	
		25	-	X	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	X	X	X
	40	32	-	X	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	X	X	X
		40	-	X	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	X	X	X
		50	-	X	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	X	X	X

X Standard W Welded construction MG = diaphragm size

Overview of valve bodies for GEMÜ 601, 602, 612, 673																			
		Clamps								Flanges									
Connection code		80		82		88	8A	8E	8				38		39				
Material code		40	41	40	41	40	40	40	17	18	34	40	17	18	17	18	34	40	
MG		DN																	
GEMÜ 601, 602	8	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		8	-	V	-	V	-	-	-	-	-	-	-	-	-	-	-	-	-
		10	-	V	-	-	-	W	-	-	-	-	-	-	-	-	-	-	-
		15	-	V	-	-	W	-	-	-	-	-	-	-	-	-	-	-	-
GEMÜ 612	10	10	-	-	K	-	-	K	-	-	-	-	-	-	-	-	-	-	
		12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		15	K	-	W	-	K	K	-	-	-	-	-	-	-	-	-	-	
		20	K	-	-	-	K	-	-	-	-	-	-	-	-	-	-	-	
GEMÜ 673	25	15	-	-	W	-	-	K	-	X	X	W	W	-	-	X	X	W	W
		20	K	-	K	-	K	K	-	X	X	W	W	X	X	X	X	W	W
		25	K	-	K	-	K	K	K	X	X	W	W	X	X	X	X	W	W
	40	32	-	-	W	-	-	K	K	X	X	W	W	-	-	X	X	W	W
		40	K	-	W	-	K	K	K	X	X	W	W	X	X	X	X	W	W
50	50	K	-	W	-	K	K	K	X	X	W	W	X	X	X	X	W	W	

X Standard
K Connections completely machined (not welded) in material code 40
V Connections completely machined from block material code 41
W Welded construction MG = diaphragm size

Availability of material code 32: same as code 34, availability of material code 43: same as code 41

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



GEMÜ® VALVES, MEASUREMENT AND CONTROL SYSTEMS