

Diaphragm Valve Two Stage Actuator Metal

Construction

The GEMÜ 658/688 2/2 way or multi-port metal diaphragm valve has a two stage actuator. The actuator has a stainless steel housing and is controlled by two pistons working independently of each other (for function see page 2).

Features

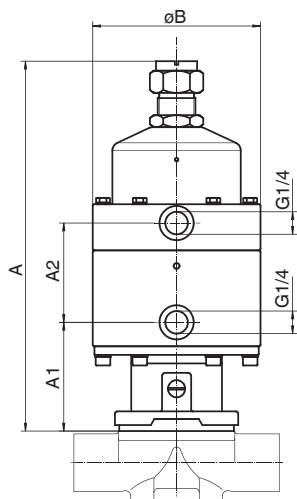
- Suitable for inert, corrosive*, liquid and gaseous media
- Chemical resistance of actuator
- CIP / SIP cleaning and sterilizing capabilities
- An adjusting screw in the actuator head enables the setting of the opening and closing function and also the setting of a part stroke (for reduced flow)
- Quick ON/OFF operation and the possibility for precision dosing of the working medium
- Insensitive to particulate media
- Valve body and diaphragm available in various materials and designs
- Various connections available
- Compact design

Advantages

- Optional flow direction, will seal in either flow direction up to full working pressure
- Optional mounting position
- Can be individually used. Space consuming piping systems and valve wiring are no longer necessary
- Extensive range of accessories (e.g. pilot valves, limit switches, field bus connections)

* see information on working medium on page 2

Actuator dimensions / version [mm]						
Diaphragm size	Type	Version	øB	A	A1	A2
10	658	1T1	61	169	27	51
25	688	1V1	98	216	64	50
40	688	2V1	168	320	76	95
50	688	2V1	168	320	84	95



GEMÜ 658



GEMÜ 688

Technical data

Working medium

Corrosive, inert, liquid and gaseous media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

The valve will seal against flow in either direction up to full working pressure (gauge pressure).

Working temperature max. 150°C
(depending on medium wetted materials)

Control medium

Inert gases

Max. permissible temperature of control medium 60°C

Ambient conditions

Ambient temperature max. 60°C

			Operating pressure [bar]		Control pressure	Weight
MG	DN	Type	EPDM/FPM	PTFE	[bar]	[kg]
10	10	658	0 - 10	0 - 6	4.5 - 6.0	1.6
	15					
25	15	688	0 - 10	0 - 6	5.5 - 7.0	4.9
	20					
40	25	688	0 - 10	0 - 6	3.5 - 7.0	19.0
	32					
50	40	688	0 - 10	0 - 6	5.5 - 7.0	19.6
	50					

All pressures are given as gauge pressures, when applied upstream only.

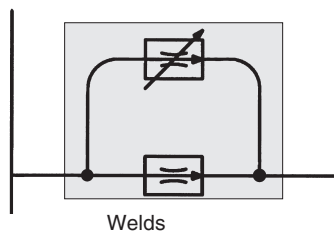
MG = Diaphragm size

Kv values [m³/h]

MG	DN	DIN Code 0	DIN 11850 serie 1 Code 16	DIN 11850 serie 2 Code 17	DIN 11850 serie 3 Code 18	SMS 3008 Code 37	ASME BPE Code 59	EN ISO 1127 Code 60
10	15	3.3	3.8	3.8	3.8	-	2.2	4.0
	20	-	-	-	-	-	3.8	-
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

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

Application example

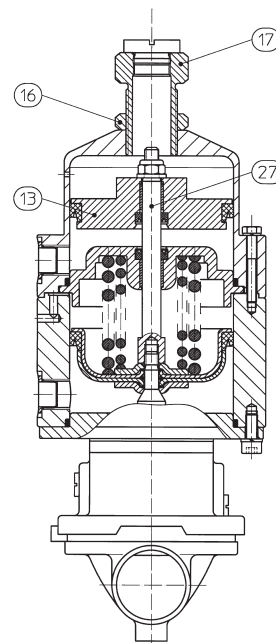


Functional description

When control pressure is applied, the lower actuator piston strokes 100%. The stroke of the upper part of the actuator, however, can be steplessly limited from 0% to 100% by means of the stroke limiter (item 17) and secured by the locking nut (item 16).

When a stroke limiter is used, the actuator piston (item 13) moves against the stroke limiter (item 17) and flow restriction is possible.

If the lower part of the actuator is under control pressure, the valve fully opens, pushing the spindle (item 27) upwards through the upper actuator piston.



Order data

Body configuration	Code
Tank bottom valve body	B**
Straight through	D
Multi-port design	M**
T valve 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	
Flanges DIN	
Flanges EN 1092 / PN16 / form B, length EN 558, series 1, ISO 5752, basic series 1	8
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
Clamps 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
For overview of available valve bodies see page 6	

Valve body material	Code
1.4435 BN 2 (CF3M), Investment casting Fe < 0,5%	32
1.4435 (ASTM A 351 CF3M \triangle 316 L), Investment casting	34
1.4408 Investment casting	37
1.4435 (316 L), Forged body	40
1.4435 (BN 2), Forged body Fe < 0,5%	42

Diaphragm material	Code
FPM	4
EPDM max. 130°C	12
EPDM max. 150°C	13
EPDM max. 150°C	16
EPDM max. 150°C	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**
* for diaphragm size 25 - 50 ** for diaphragm size 10	
Material complies with FDA requirements, except code 4 and 5F	

Control function	Code
Normally closed (NC)	1

Design	Code
Diaphragm size 10	1T1
Diaphragm size 25	1V1
Diaphragm size 40 + 50	2V1

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	

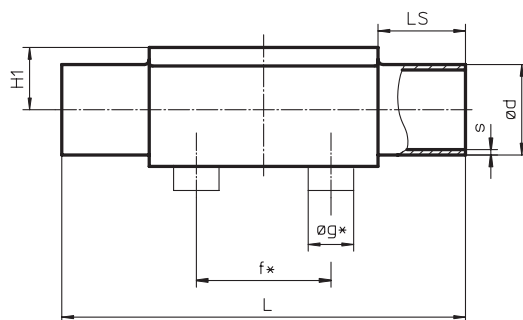
Order example	688	25	D	60	34	13	1	1V1	1503
Type	688								
Nominal size		25							
Body configuration (code)			D						
Connection (code)				60					
Valve body material (code)					34				
Diaphragm material (code)						13			
Control function (code)							1		
Design (code)								1V1	
Surface finish (code)									1503

Body dimensions

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)

MG	DN	NPS	f*	g*	L	LS	H1*	H1**	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	
									ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s	ød	s
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	-	-	
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	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

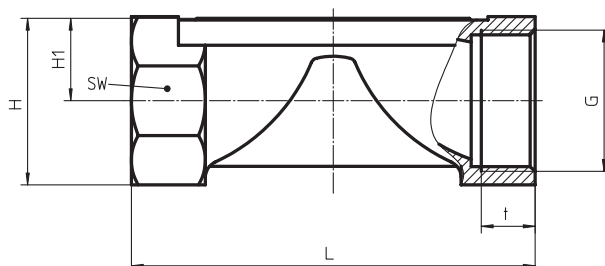
* valid for investment cast design ** valid for forged design MG = Diaphragm size For materials see overview on last page



Threaded sockets, connection code 1 [mm]
Valve body material: investment casting (code 34, 37)

Diaphragm size	DN	G	H	H1	t	L	SW	Number of flats
10	12	G 3/8	23	10.5	13	55	22	2
	15	G 1/2	29	13.5	15	68	24	
25	15	G 1/2	30	16.0	9	85	27	6
	20	G 3/4	33	17.0	10	85	32	
	25	G 1	37	17.0	13	110	41	
40	32	G 1 1/4	50	25.0	16	120	50	8
	40	G 1 1/2	52	25.0	18	140	55	
50	50	G 2	69	34.0	18	165	70	8

For materials see overview on last page

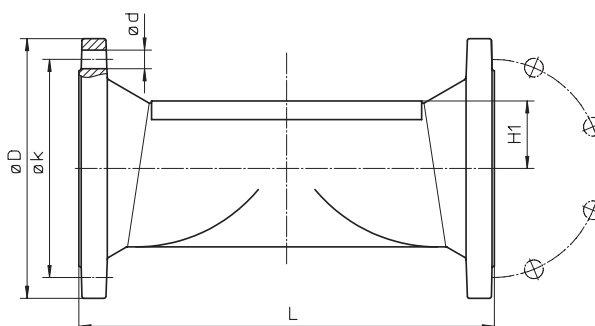


Body dimensions

Flanges, connection code 8 [mm] Valve body material: investment casting (code 34)

Diaphragm size	DN	NPS	L	H	H1	ØD	Ød	Øk	Number of bolt holes
25	15	1/2"	130*	30	13	95	14	65	4
	20	3/4"	150	36	16	105	14	75	
	25	1"	160	43	19	115	14	85	
40	32	1 1/4"	180	52	24	140	18	100	4
	40	1 1/2"	200	57	26	150	18	110	
50	50	2"	230	69	32	165	18	125	4

For materials see overview on last page * no EN length



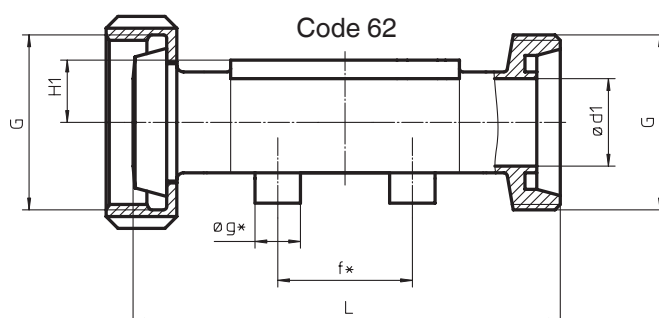
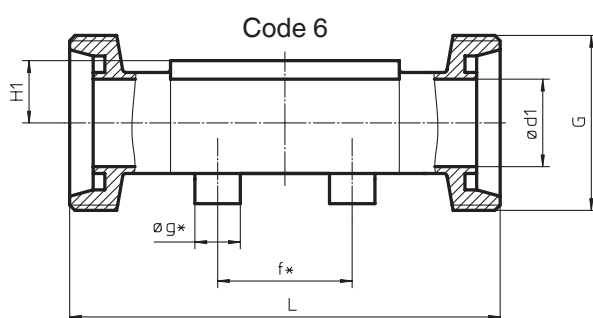
Threaded connections, connection code 6. 62 [mm] Valve body material: investment casting (code 34), forged body (code 40)

Diaphragm size	DN	H1*	H1**	f*	øg*	ød1*	G	L (code 6)	L (code 62)
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
25	15	13.0	19	40.0	13.5	16.0	RD 34 x 1/8	118	116
	20	16.0	19	40.0	13.5	20.0	RD 44 x 1/6	118	114
	25	19.0	19	40.0	13.5	26.0	RD 52 x 1/6	128	127
40	32	24.0	26	68.0	13.5	32.0	RD 58 x 1/6	147	147
	40	26.0	26	75.0	13.5	38.0	RD 65 x 1/6	160	160
50	50	32.0	32	90.0	13.5	50.0	RD 78 x 1/6	191	191

* valid for investment cast design

** valid for forged design

For materials see overview on last page

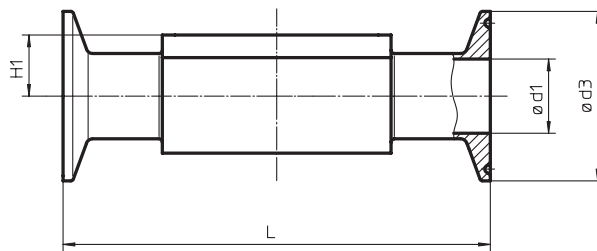


Clamp connections, connection code 80, 82, 88, 8A, 8E [mm]
Valve body material: forged body (code 40)

				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
10	10	3/8"	12.5	-	-	-	14.0	25.4	108	-	-	-	10	34.0	108.0	-	-	-
	15	1/2"	12.5	9.40	25.0	88.9	18.1	50.5	108	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	-	-	-	-	-	-
25	15	1/2"	19.0	-	-	-	18.1	50.5	108	-	-	-	16	34.0	108.0	-	-	-
	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	-	-	-
	25	1"	19.0	22.10	50.5	114.3	29.7	50.5	127	22.10	50.5	127	26	50.5	127.0	22.6	50.5	127
40	32	1 1/4"	26.0	-	-	-	38.4	64.0	146	-	-	-	32	50.5	146.0	31.3	50.5	146
	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	159.0	35.6	50.5	159
50	50	2"	32.0	47.50	64.0	158.8	56.3	77.5	190	47.50	64.0	190	50	64.0	190.0	48.6	64.0	190

For materials see overview below

MG = Diaphragm size



Overview of valve bodies for GEMÜ 658/688

		Threaded connections				Flanges	Spigots														Clamp															
Connection code		1	6	62	8		0	16	17	18	1A	35	36	37	55	59	60	80	82	88	8A	8E														
Material code		34	34	40	34	40	34	40	34	40	34	40	34	40	34	40	34	40	40	41	40	41	40	40	40											
MG	DN																																			
10	10	-	W	W	W	W	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	X	-	-	X	X	X	X	-	-	K	-	-	K	-	
	15	X	W	W	W	W	-	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	X	X	X	X	X	X	X	K	-	W	-	K	K	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	-	-	K	-	-	-	K	-	-	
25	15	-	W	W	W	W	X	X	X	X	X	X	-	X	X	-	-	X	-	-	-	-	-	-	X	X	-	-	W	-	-	K	-	-		
	20	-	W	W	W	W	X	X	X	X	X	X	-	X	X	-	-	X	X	X	X	X	X	X	X	X	X	X	K	-	K	-	K	K	-	
	25	-	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K	-	K	-	K	K	K	
40	32	-	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	40	-	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K	-	W	-	K	K	K	
50	50	-	W	W	W	W	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K	-	W	-	K	K	K	

X Standard
 K Connections completely machined (not welded) in material code 40
 V Block material
 W Welded construction

MG = Diaphragm size

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