

Special version "TL"

GEMÜ®

Diaphragm Valve, Metal

Construction

GEMÜ 650TL is a manual tapping valve with automatic closing function which is designed for use in sterile applications. This piston actuated diaphragm valve has a "keep-closed" override of manual operation. The valve can only be operated (opened / closed), if a control medium is applied to the actuator. When the control medium supply is switched off, the valve closes and can no longer be operated manually.

Example: If the flow velocity in a piping loop is reduced (e.g. if too many tapping points are open), flow may drop below a critical level. This special GEMÜ 650TL valve can be used to specifically close tapping points automatically via the central process control system in order to reduce the tapping quantity and thus to increase the piping loop flow velocity.

Features

- Suitable for inert and corrosive* liquid and gaseous media
- Valve body and diaphragm available in various materials and designs
- Compact design (ideal when space is at a premium)
- Various connections available
- CIP/SIP cleaning and sterilizing capabilities
- Versions according to ATEX on request
- Standard optical position indicator

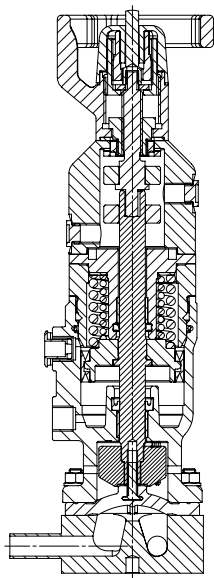
Advantages

- Hermetic separation between medium and actuator
- Optional flow direction
- Installation for an optimized draining is possible
- Control air connectors positioned in-line with piping, 90° offset optional
- Feedback of closed position (pneumatic piston and/or handwheel) via optionally available proximity switches

* see information on working medium on page 2



Sectional view



GEMÜ® 650TL

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 (gauge pressure).

Temperatures

Medium temperature -10 to 100 °C

Sterilisation temperature

EPDM (code 13/3A) 150 °C, max. 60 min

EPDM (code 17) 150 °C, max. 180 min

PTFE (code 52/5A) Constant temperature* 150 °C

PTFE (code 5E) Constant temperature* 150 °C

The sterilisation temperature is valid for steam or superheated water.

* The valves concerned must be serviced regularly if steam is applied continuously.

Ambient temperature 0 to 60 °C

Control medium

Inert gases

Max. permissible temperature of control medium 60 °C

Filling volume

Diaphragm size	DN	Actuator size	Piston diameter	Control function 1
8	4 ... 15	0	32 mm	0.01 dm ³
10	10 ... 20	1	50 mm	0.02 dm ³
25	15 ... 25	2	63 mm	0.06 dm ³

Actuator Code	MG	Operating pressure [bar]		Control pressure [bar]
		EPDM	PTFE	C.f.1
0	8	0 - 8	0 - 6	5 - 7
1	10	0 - 5	0 - 5	5 - 7
2	25	0 - 5	0 - 5	4 - 7

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

Order data

Body configuration	Code
Tank bottom 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	

Valve body material	Code
1.4435 - BN2 (CF3M), investment casting Fe<0.5%	32
1.4435 (ASTM A 351 CF3M \cong 316L), investment casting	34
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

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 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 EN ISO 1127	60
Spigots ANSI/ASME B36.19M, Schedule 10s	63
Spigots ANSI/ASME B36.19M, Schedule 40s	65
Threaded connections	
Threaded spigots DIN 11851	6
One side threaded spigot, other side cone spigot and union nut, DIN 11851	62
Aseptic unions on request	
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 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 650 TL see datasheet GEMÜ 650 standard	

Diaphragm material	Code
EPDM	13 3A*
EPDM	17
PTFE/EPDM convex, PTFE loose	5E
PTFE/EPDM, PTFE lamin.	52** 5A*
* for diaphragm size 8 ** for diaphragm size 10	
Material complies with FDA requirements	

Control function	Code
Normally closed (NC)	1

Actuator size	Code
Actuator size 0 (diaphragm size 8)	0
Actuator size 1 (diaphragm size 10)	1
Actuator size 2 (diaphragm size 25)	2

Actuator version	Code
Control air connectors in flow direction	T
Control air connectors 90° offset to flow direction	R

Actuator function	Code
Pneumatically operated with "keep-closed" override of manual operation"	L

For further order data see page 4

Valve body surface finish, internal contour

		Forged body Code 40, 42	Block material Code 41, 43	Investment casting Code 32, 34	Code
Ra ≤ 6.3 µm	blasted internal/external	-	-	X	1500
Ra ≤ 6.3 µm	optical electropolishing	-	-	X	1509
Ra ≤ 0.8 µm	mechanically polished internal, blasted external	X	X	X	1502
Ra ≤ 0.8 µm	electropolished internal/external	X	X	-	1503
Ra ≤ 0.6 µm	mechanically polished internal, blasted external	X	X	X	1507
Ra ≤ 0.6 µm	electropolished internal/external	X	X	-	1508
Ra ≤ 0.4 µm	mechanically polished internal, blasted external	X	X	-	1536
Ra ≤ 0.4 µm	electropolished internal/external	X	X	-	1537
Ra ≤ 0.25 µm	mechanically polished internal, blasted external	X	X	-	1527
Ra ≤ 0.25 µm	electropolished internal/external	X	X	-	1516

Ra acc. to DIN 4768; at defined reference points
Surface finish data refer to medium wetted surfaces

Order example	650	25	T	60	41	17	1	2	T	L	25	60	1503
Type	650												
Nominal size		25											
Body configuration (code)			T										
Connection (code)				60									
Valve body material (code)					41								
Diaphragm material (code)						17							
Control function (code)							1						
Actuator size (code)								2					
Actuator version (code)									T				
Actuator function (code)										L			
Nominal size (mm)*											25		
Connection (code)*												60	
Surface finish (Code see top of page 4)													1503

* only in T-valve version

For querying the positions of the pneumatic actuator and the handwheel, a proximity switch each must be ordered separately:

Order example - Proximity switches		
Version	Connection	Order code
3 - wire - PNP, make contact IP67, 10 - 60 V DC, 100 mA	2 m cable	1200 M08 Z 12 040 02M0 B J 001
	M12 x 1 plug	1200 M08 Z 12 060 M124 B J 002

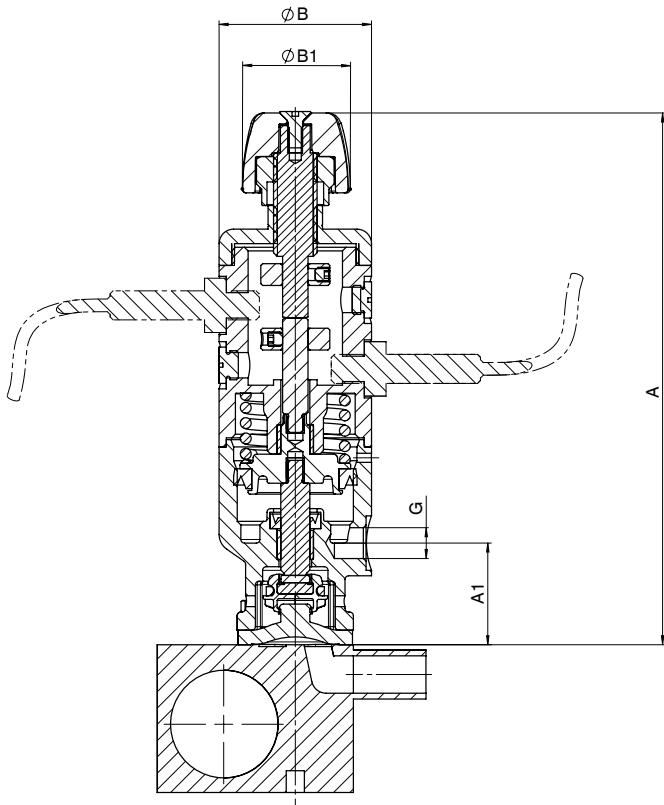
Other proximity switches on request

Dimensions [mm]

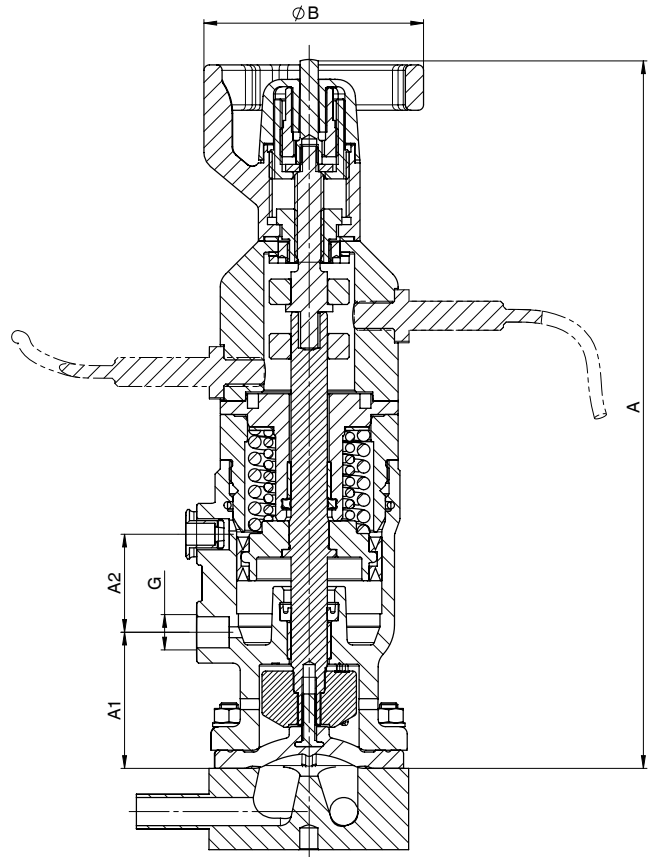
Actuator dimensions

Actuator size	Diaphragm size	A	A1	A2	øB	øB1	G
0	8	146	26.5	-	42	32	G 1/8
1	10	196	37.0	27	60	-	G 1/8
2	25	264	51.0	24	85	-	G 1/4

GEMÜ 650 0TL



GEMÜ 650 1TL / GEMÜ 650 2TL



Proximity switch M8x1 (flush mountable) not included in the scope of delivery (see bottom of page 4 GEMÜ type 1200)

Notes:

- For T body dimensions see brochures "T valves for sterile applications" (diaphragm size 8 - 25).
- 2/2-way bodies are also available for GEMÜ 650TL, see datasheet of type 650 (diaphragm size 8 - 25).
- GEMÜ 650TL can also be mounted to M600 and tank bottom valve bodies.

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

