

GEMÜ sterile sampling systems

safe, reliable, durable



Sterile sampling systems

On the safe side with GEMÜ...



Hygienic design

- GEMÜ valve bodies made out of 1.4435 stainless steel, electropolished, down to 0.25 µm Ra
- Sump-free valve bodies with minimal deadleg
- Optimized draining characteristics when installed in appropriate position (2/2-way valves and multi-port valve blocks)

Sterilizable seals / diaphragms

- FDA-compliant materials
- Tried and tested, EHEDG-certified GEMÜ diaphragm sealing system
- CIP/SIP-cleanable seal materials



USP
Class VI



Sterile sampling systems

On the safe side with GEMÜ...



Solutions for different plant sections

- GEMÜ products for tanks, piping, ring mains etc.
- Valve connections available to ISO, DIN, ASME/BPE, JIS, SMS and to customer requirement (clamps, flanges etc.)
- Any nominal connection sizes available from DN4

Manual or automated sampling

- GEMÜ valves with manual, pneumatic or motorized operators
- GEMÜ position indicators and measurement/control technology

Sterile sampling systems

Ensuring quality with GEMÜ...



Functionalities

- Sampling valve optionally CIP/SIP-capable (steam treatment possibility)
- Sampling valve for condensate/steam sampling
- Mobile sampling bottle systems
- Multi-functional sampling systems (multi-port valve blocks with customized functions)

GEMÜ T-valves

Standard version

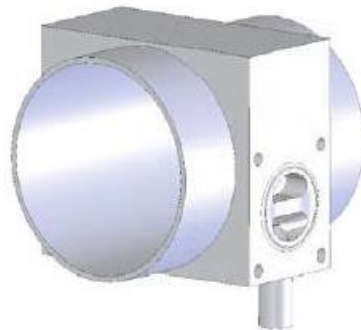
- Vertical removal of medium for sampling, almost deadleg free
- Various connections available
- Compact design
- Valve body material 1.4435 (316L), other materials on request
- Milled from block material, no welding seams



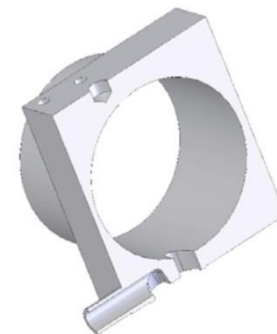
GEMÜ T-valves

Body version A (available in MG8 and MG10)

- Specially designed for large ring mains with small outlets
- Milled from block material
- Minimal deadleg, as seat is offset to main pipe
- Excellent draining characteristics (even if installed at an angle)



Installation position for sampling



Installation position as drain valve
(minimized deadleg)

GEMÜ tank valves

Tank bottom valves and tank wall valves

- Machined from block material
- Can be welded to the bottom, walls or cover of a tank
- Compact design for tight spaces
- Optimized geometry with minimal deadleg



GEMÜ tank valves

Tank bottom valves



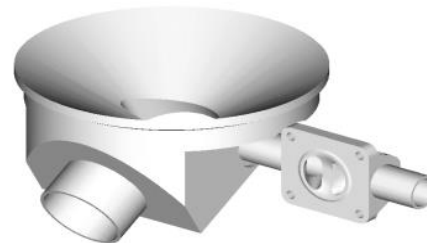
Sampling at tank bottom



Tank bottom valve with integrated CIP/SIP valve



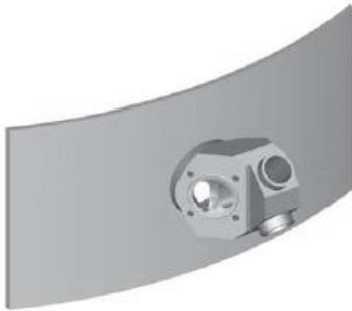
Tank bottom valve body with integrated sampling through 2nd seat



Tank bottom valve with sampling valve; sampling valve available in different configurations

GEMÜ tank valves

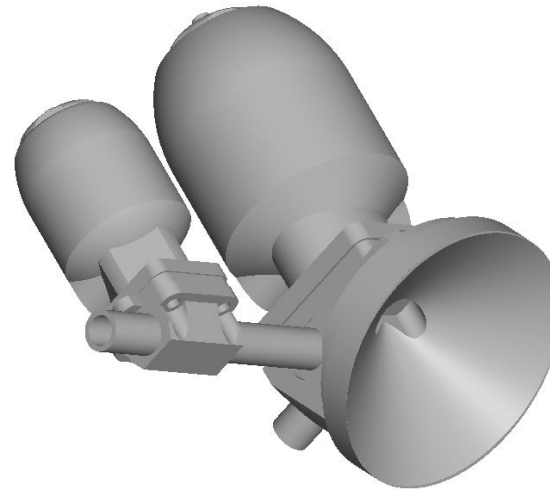
Wall valves



Wall valve bodies
welded in to tank wall,
with optional CIP/SIP
possibility



Sampling valve with fully
machined tank radius



Sampling valve with
steam valve

Welding discs of valve body
are adapted to fit the tank
radius

GEMÜ W600

Welding configurations

- Various configurations available
- Low space requirement
- T-fitting savings
- Reduction of one weld seam per T-fitting



Example of branch

GEMÜ i-bodies

Integrated sampling, steam and condensate valves

- Reduced weight
- No manual weld seam required in media area
- Minimal deadleg
- Forged or block material body combined with second seat
- Available seat size combinations: 8/8, 10/8, 25/8, 40/8, 50/8, 80/10, 100/10
- Special materials on request
- Cost-effective alternative to M-block
- Reduction of two weld seams per T-fitting
- Available in different configurations

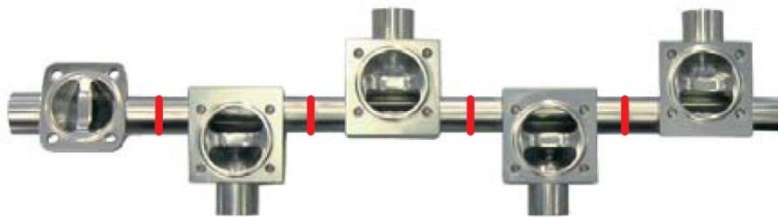


GEMÜ multi-port valve block systems

M600

Process and product reliability

- Produced from a single block of material (including spigots)
- Fittings largely integrated in block
- Standard welded ends for orbital welding
- Mounts for measurement sensors can be integrated



Conventional welding configuration



Identical function / identical flow chart as a block

GEMÜ multi-port valve block systems

M600

Cost and process optimization

- Requires less space due to compact design
- Smaller wetted area and lower hold-up volume
- Easier assembly, welding and validation
- Customized solutions
- Diaphragm, actuators and other process components of the GEMÜ modular system



Configuration examples

GEMÜ multi-port valve block systems

M600



GEMÜ 650TL

Manual sampling valve with automatic closing function



Locking of manual operator as soon as monitored measurement variables are exceeded or undershot (e.g. temperature, flow velocity, pressure, conductivity, TOC value)

→ Protection for **employees** against scalding

→ Protection of **system** in event of super or sub-critical pressure

→ Protection of **product** in event of excessive conductivity

→ Protection of **product** in event of excessive TOC* values

incl. proximity switches for monitoring the valve handwheel position (closed) or valve-piston position (closed)

* TOC value = sum parameter denoting the total amount of organically bound carbon in a sample

GEMÜ 650 with 1010 attachment

For diaphragm size 8 / DN4 to DN15



GEMÜ 650 with 1010 attachment as autoclave version (in held-closed position)

Advantages

- Uncomplicated sampling due to hand lever operation
- Increased diaphragm service life due to defined closing force
- Hand lever freely rotatable through 360°

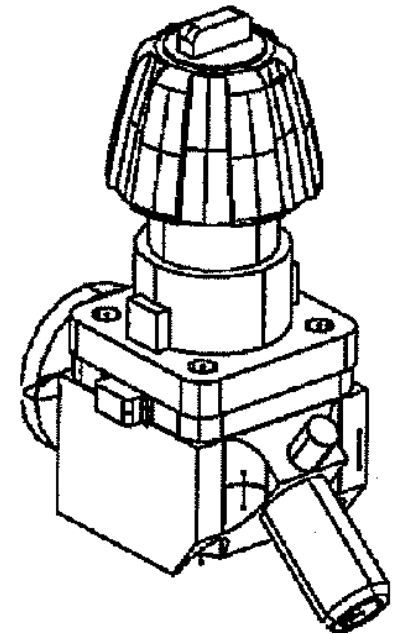
Versions

1. As "deadman's control": Valve closes immediately when lever is released
2. As autoclave version: "Hold-open" function using spring cotter pins for autoclaving entire valve

GEMÜ “Swickle valve” - sampling valve



- Made from block material
- Optionally with clamp connection or butt weld spigot



GEMÜ sampling bottle system

Advantages



- Tried and tested actuator design
- FDA-compliant seal materials (EPDM, PTFE, FEP)
- Three different basic designs/connections selectable
- Additional designs/connections on request

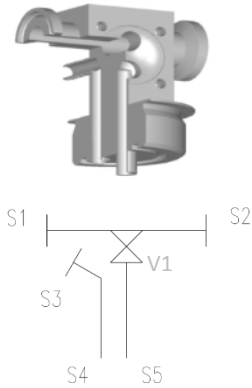


GEMÜ sampling bottle system

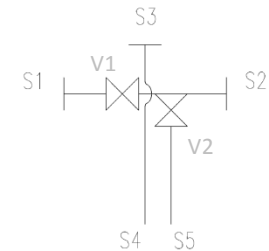
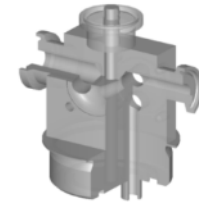
Designs



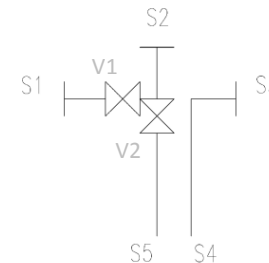
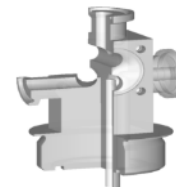
One valve seat
P600M 05-01.AP



Two valve seats
P600M 05-02.BP



Two valve seats
P600M 05-02.AP





Sterile sampling systems

Clever, superior operator designs



Manual and pneumatic operators

- Low maintenance, maximum service life
- Designs for intensive external cleaning (concealed bolt mounting on 2/2-way valves)
- Optional additional functions (e.g. travel stop on handwheels)
- Lockable designs
- Actuator change possible

Motorized actuators also available.

Manual GEMÜ operators



Type	601	602	612	673	673/P9 **	653
Handwheel	Plastic	Stainless steel	Plastic	Plastic	Plastic	Plastic
Autoclave-capable	X	X	X	X	X	X
Operating temperature *	0 – 150°C	0 – 150°C	0 – 150°C	0 – 150°C	0 – 150°C	0 – 150°C
Operating pressure *	0 – 10 bar	0 – 10 bar	0 – 10 bar	0 – 10 bar	0 – 10 bar	0 – 10 bar
DN	4 – 15	4 – 15	10 – 20	15 – 50	4 – 50	10 - 100
MG 8	X	X	-	-	X	-
MG 10	-	-	X	-	X	X
MG 25	-	-	-	X	X	X
MG 40	-	-	-	X	X	X
MG 50	-	-	-	X	X	X
MG 80	-	-	-	-	-	X
MG 100	-	-	-	-	-	X

* Dependent on version and/or operating parameters

** A sealing system made of silicone is the advantage of the special version P9 of the GEMÜ valve 673. With its increased tightness it is even suitable for applications such as immersion baths.

Manual and pneumatic GEMÜ operators



Type	654	605	625	687	650	650TL with addit. handwheel
Operator top	Stainless steel	Plastic	Plastic	Plastic	Stainless steel	Stainless steel
Autoclave-capable	X	-	-	-	X (DN 4-25)	-
Operating temperature *	0 – 150°C	0 – 150°C	0 – 150°C	0 – 150°C	0 – 150°C	0 – 150°C
Operating pressure *	0 – 10 bar	0 – 8 bar	0 – 6 bar	0 – 10 bar	0 – 10 bar	0 – 8 bar
DN	4 – 100	4 – 15	10 – 20	10 – 100	4 – 50	DN 4 – 25
MG 8	X	X	-	-	X	X
MG 10	X	-	X	X	X	X
MG 25	X	-	-	X	X	X
MG 40	X	-	-	X	X	-
MG 50	X	-	-	X	X	-
MG 80	X	-	-	X	-	-
MG 100	X	-	-	X	-	-

*Dependent on version and/or operating parameters

Pneumatic and motorized GEMÜ actuators



Type	651	658/688 Two-stage valve	660 Filling valve	618	698
Operator top	Stainless steel (with automation module)	Stainless steel	Stainless steel	Plastic	Plastic
Autoclave-capable	-	-	-	-	-
Operating temperature *	0 – 150°C	0 – 150°C	0 – 150°C	0 – 130°C	0 – 150°C
Operating pressure *	0 – 10 bar	0 – 10 bar	0 – 5 bar	0 – 6 bar	0 – 10 bar
Supply voltage	-	-	-	24 V, 120 V, 230 V, 50/60 Hz	24 V, 120 V, 230 V, 50/60 Hz
DN	4 - 25	10 - 50	4 – 25	4 – 20	15 – 50
MG 8	X	-	X	X	-
MG 10	X	X	X	X	-
MG 25	X	X	X	-	X
MG 40	-	X	-	-	X
MG 50	-	X	-	-	X
MG 80	-	-	-	-	-
MG 100	-	-	-	-	-

*Dependent on version and/or operating parameters

Diaphragms

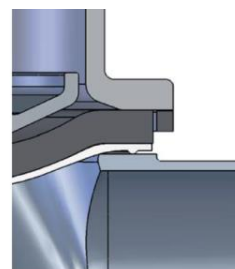


Diaphragm	Material / Design	Diaphragm size	Temperature range [°C]			Code	Certificates and approvals				
			Liquid media Min.	Max.	Sterilisation ¹		FDA compliant	USP Class VI	EHEDG	TA-Luft	O ₂ BAM
EPDM	Ethylene-propylene-diene rubber	8 - 100	-10	100	150 °C max. 60 min.	13 / 3A	X	X	X	X	X
EPDM	Ethylene-propylene-diene rubber	8 - 100	-10	100	150 °C max. 180 min.	17	X	X	X		
PTFE	Fully laminated PTFE diaphragm with EPDM back	8, 10, 100	-10	100	Constant temperature ² 150°C	52 / 5A	X	X	X	X	
PTFE	Convex two-piece PTFE diaphragm with loose EPDM back	25, 40, 50, 80	-10	100	Constant temperature ² 150°C	5E	X	X	X	X	X

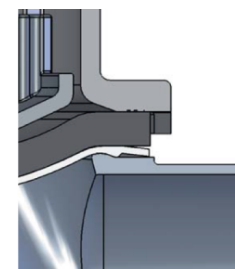
The diaphragms with code 3A and 5A are only available for the diaphragm size 8.

¹ The sterilization temperature applies to steam or superheated water.

² The diaphragms are applicable as a moisture barrier. The valves concerned must be serviced regularly if steam is applied continuously. For this application you can use the globe valves GEMÜ 555 and 505.



Conventional seal systems



GEMÜ seal system



**Thank you very much
for your attention**

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