

## GEMÜ 643

### Manually operated tank valve



#### Features

- Compact design
- Operator rotatable 360°
- A shaft extension for the handwheel can be mounted by the user
- The temperature resistant plastic handwheel prevents burns injuries at high operating temperatures

#### Description

The GEMÜ 643 2/2-way tank bottom valve has a manual side mounted gear operator with a plastic handwheel. An integral optical position indicator is standard. The stainless steel valve body is machined from a single block (monoblock, no welded components). The metal distance piece and the operator housing are made from stainless steel.

#### Technical specifications

- **Media temperature :** -10 to 100 °C
- **Sterilization temperature:** Max. 150 °C
- **Ambient temperature:** 0 to 60 °C
- **Operating pressure :** 0 to 10 bar
- **Nominal sizes:** DN 15 to 40
- **Body configurations:** Tank valve body
- **Connection types:** Spigot
- **Connection standards :** ANSI | ASME | DIN | EN | ISO | SMS
- **Body materials:** (316L), forging material | 1.4435 (BN2), forged material
- **Diaphragm materials:** EPDM | PTFE/EPDM
- **Conformities:** BSE/TSE | CRN | EAC | FDA | Functional safety | Pressure Equipment Directive | Regulation (EC) No. 1935/2004 | TA Luft (German Clean Air Act) | USP

Technical data depends on the respective configuration



further information  
webcode: GW-643



## Product description

### Construction



Item	Name	Materials
1	Valve body	1.4435 (F316L), forged body 1.4435 (BN2), forged body, $\Delta$ Fe < 0.5%
2	Diaphragm	EPDM, PTFE/EPDM (two-piece)
3	Handwheel	Temperature-resistant plastic
4	Side-mounted gear operator	Stainless steel
5	CONEXO actuator RFID chip (see Conexo information)	
6	CONEXO diaphragm RFID chip (see Conexo information)	
7	CONEXO body RFID chip (see Conexo information)	

## GEMÜ CONEXO

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.



Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

**For further information on GEMÜ CONEXO please visit:**

[www.gemu-group.com/conexo](http://www.gemu-group.com/conexo)

### Ordering

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

## Availability

### Range overview of surface finishes

#### Internal surface finishes for forged and block material bodies <sup>1)</sup>

Process contact surfaces	Mechanically polished <sup>2)</sup>		Electropolished	
	Hygiene class DIN 11866	Code	Hygiene class DIN 11866	Code
Ra ≤ 0.80 µm	H3	1502	HE3	1503
Ra ≤ 0.60 µm	-	1507	-	1508
Ra ≤ 0.40 µm	H4	1536	HE4	1537
Ra ≤ 0.25 µm <sup>3)</sup>	H5	1527	HE5	1516

Press contact surfaces in accordance with ASME BPE 2016 <sup>4)</sup>	Mechanically polished <sup>2)</sup>		Electropolished	
	ASME BPE surface designation	Code	ASME BPE surface designation	Code
Ra max. = 0.76 µm (30 µinch)	SF3	SF3	-	-
Ra max. = 0.64 µm (25 µinch)	SF2	SF2	SF6	SF6
Ra max. = 0.51 µm (20 µinch)	SF1	SF1	SF5	SF5
Ra max. = 0.38 µm (15 µinch)	-	-	SF4	SF4

Ra acc. to DIN EN ISO 4288 and ASME B46.1

- 1) Surface finishes of customized valve bodies may be limited in special cases.
- 2) Or any other finishing method that meets the Ra value (acc. to ASME BPE).
- 3) The smallest possible Ra finish for pipe connections with an internal pipe diameter < 6 mm is 0.38 µm.
- 4) When using these surfaces, the bodies are marked according to the specifications of ASME BPE.  
The surfaces are only available for valve bodies which are made of materials (e.g. GEMÜ material codes 40, 41, F4, 44) and use connections (e.g. GEMÜ connection codes 59, 80, 88) according to ASME BPE.

## Availability of valve bodies

MG	DN	Connection type (code) <sup>1)</sup>									
		0	16	17	18	37	59	60	63	64	65
		Material (code)									
		40, 42	40, 42	40, 42	40, 42	40, 42	40, 42	40, 42	40, 42	40, 42	40, 42
25	15	X	X	X	X	-	-	X	X	X	X
	20	X	X	X	X	-	X	X	X	X	X
	25	X	X	X	X	X	X	X	X	X	X
40	32	X	X	X	X	X	-	X	X	X	X
	40	X	X	X	X	X	X	X	X	X	X

MG = diaphragm size

### 1) Connection type

Code 0: DIN spigot

Code 16: Spigots DIN EN 10357 Series B (2014 edition; formerly DIN 11850 Series 1)

Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 18: Spigot DIN 11850 Series 3

Code 37: SMS 3008 spigot

Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 issue)/DIN 11866 series C

Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 issue)/DIN 11866 series B

Code 63: Spigot ANSI/ASME B36.19M Schedule 10s

Code 64: Spigot ANSI/ASME B36.19M Schedule 5s

Code 65: ANSI/ASME B36.19M Schedule 40s spigot

## Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

## Order codes

1 Type	Code
Tank bottom diaphragm valve, manually operated, side-mounted gear actuator, plastic handwheel, stainless steel distance piece, stainless steel actuator housing, optical position indicator	643

2 DN	Code
DN 15	15
DN 20	20
DN 25	25
DN 32	32
DN 40	40

3 Body configuration	Code
Floor drain	B

4 Connection type	Code
Spigot	
DIN spigot	0
Spigots DIN EN 10357 Series B (2014 edition; formerly DIN 11850 Series 1)	16
Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2	17
Spigot DIN 11850 Series 3	18
SMS 3008 spigot	37
Spigot ASME BPE/DIN EN 10357 series C (from 2022 issue)/DIN 11866 series C	59
Spigot ISO 1127/DIN EN 10357 series C (2014 issue)/DIN 11866 series B	60
Spigot ANSI/ASME B36.19M Schedule 10s	63
Spigot ANSI/ASME B36.19M Schedule 5s	64
ANSI/ASME B36.19M Schedule 40s spigot	65

5 Valve body material	Code
1.4435 (F316L), forged body	40
1.4435 (BN2), forged body, $\Delta Fe < 0.5\%$	42

6 Diaphragm material	Code
Elastomer	
EPDM	13
EPDM	17
EPDM	19
PTFE	
PTFE/EPDM two-piece	5M

7 Control function	Code
Manually operated	0

8 Actuator version	Code
Actuator size 2AT, actuator type 643 MG 25 for ATEX	2AT

8 Actuator version	Code
Actuator size 3AT, actuator type 643 MG 40 for ATEX	3AT

9 Surface	Code
Ra $\leq 0.8 \mu\text{m}$ for surfaces in contact with media, in accordance with DIN 11866 H3 mechanically polished on the inside	1502
Ra $\leq 0.8 \mu\text{m}$ for surfaces in contact with media, in accordance with DIN 11866 HE3, electropolished inside/outside	1503
Ra $\leq 0.6 \mu\text{m}$ for surfaces in contact with media, mechanically polished on the inside	1507
Ra $\leq 0.6 \mu\text{m}$ for surfaces in contact with media, electropolished inside/outside	1508
Ra $\leq 0.25 \mu\text{m}$ for surfaces in contact with media *), in accordance with DIN 11866 HE5, electropolished inside/outside, *) for pipe inner diameter $< 6 \text{ mm}$ , Ra $\leq 0.38 \mu\text{m}$ in the spigot	1516
Ra $\leq 0.25 \mu\text{m}$ for surfaces in contact with media *), in accordance with DIN 11866 H5, mechanically polished on the inside, *) for pipe inner $\varnothing < 6 \text{ mm}$ , Ra $\leq 0.38 \mu\text{m}$ in the spigot	1527
Ra $\leq 0.4 \mu\text{m}$ for surfaces in contact with media, in accordance with DIN 11866 H4, mechanically polished on the inside	1536
Ra $\leq 0.4 \mu\text{m}$ for surfaces in contact with media, in accordance with DIN 11866 HE4, electropolished inside/outside	1537
Ra max. $0.51 \mu\text{m}$ (20 $\mu\text{in.}$ ) for surfaces in contact with media, in accordance with ASME BPE SF1, internally mechanically polished	SF1
Ra max. $0.64 \mu\text{m}$ (25 $\mu\text{in.}$ ) for surfaces in contact with media, in accordance with ASME BPE SF2, internally mechanically polished	SF2
Ra max. $0.76 \mu\text{m}$ (30 $\mu\text{in.}$ ) for surfaces in contact with media, in accordance with ASME BPE SF3, mechanically polished interior	SF3
Ra max. $0.38 \mu\text{m}$ (15 $\mu\text{in.}$ ) for media wetted surfaces, in accordance with ASME BPE SF4, electropolished internal/external	SF4
Ra max. $0.51 \mu\text{m}$ (20 $\mu\text{in.}$ ) for surfaces in contact with media, in accordance with ASME BPE SF5, electropolished inside/outside	SF5
Ra max. $0.64 \mu\text{m}$ (25 $\mu\text{in.}$ ) for surfaces in contact with media, in accordance with ASME BPE SF6, electropolished inside/outside	SF6

10 Special version	Code
Without	
Special design for oxygen, maximum medium temperature: 60°C	S

11 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	C

### Order example

Ordering option	Code	Description
1 Type	643	Tank bottom diaphragm valve, manually operated, side-mounted gear actuator, plastic handwheel, stainless steel distance piece, stainless steel actuator housing, optical position indicator
2 DN	25	DN 25
3 Body configuration	B	Floor drain
4 Connection type	60	Spigot ISO 1127/DIN EN 10357 series C (2014 issue)/DIN 11866 series B
5 Valve body material	40	1.4435 (F316L), forged body
6 Diaphragm material	13	EPDM
7 Control function	0	Manually operated
8 Actuator version	2AT	Actuator size 2AT, actuator type 643 MG 25 for ATEX
9 Surface	1503	Ra ≤ 0.8 µm for surfaces in contact with media, in accordance with DIN 11866 HE3, electropolished inside/outside
10 Special version		Without
11 CONEXO		Without

## Technical data

### Medium

**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.

### Temperature

**Media temperature:**

Diaphragm material	Standard	Special version for oxygen
EPDM (code 13)	-10 – 100 °C	0 – 60 °C
EPDM (code 17)	-10 – 100 °C	-
EPDM (code 19)	-10 – 100 °C	0 – 60 °C
PTFE/EPDM (code 5M)	-10 – 100 °C	0 – 60 °C

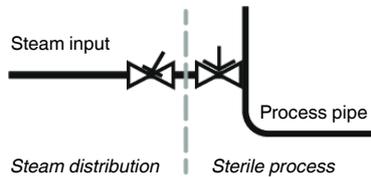
**Sterilization temperature:**

EPDM (code 13)	max. 150 °C, max. 60 min per cycle
EPDM (code 17)	max. 150 °C, max. 180 min per cycle
EPDM (code 19)	max. 150 °C, max. 180 min per cycle
PTFE/EPDM (code 5M)	max. 150 °C, constant temperature per cycle

The sterilization temperature is only valid for steam (saturated steam) or superheated water.

If the sterilization temperatures listed above are applied to the EPDM diaphragms for longer periods of time, the service life of the diaphragms will be reduced. In these cases, maintenance cycles must be adapted accordingly.

PTFE diaphragms can also be used as steam barriers; however, this will reduce their service life. This also applies to PTFE diaphragms exposed to high temperature fluctuations. The maintenance cycles must be adapted accordingly. GEMÜ 555 and 505 globe valves are particularly suitable for use in the area of steam generation and distribution. The following valve arrangement for interfaces between steam pipes and process pipes has proven itself over time: A globe valve for shutting off steam pipes and a diaphragm valve as an interface to the process pipes.



**Ambient temperature:** 0 – 60 °C

**Storage temperature:** 0 – 40 °C

### Pressure

**Operating pressure:** 0 – 10 bar

**Pressure rating:** PN 16

**Leakage rate:** Leakage rate A to P11/P12 EN 12266-1

## Product compliance

**Machinery Directive:** 2006/42/EC

**Pressure Equipment Directive:** 2014/68/EU

**Food:** Regulation (EC) No. 1935/2006  
 FDA\*  
 USP\* Class VI  
 \* depending on version and/or operating parameters

**TA Luft (German Clean Air Act):** The product meets the following requirements under the maximum permissible operating conditions:  
 - Tightness or compliance with the specific leak rate as defined in TA Luft (German Clean Air Act) and VDI 2440 and VDI 2290  
 - Compliance with the requirements in accordance with DIN EN ISO 15848-1, Table C.2, Class BH

**Explosion protection:** The product does not fall within the scope of Directive 2014/34/EU, as there is no potential ignition source. The basis for this is Section 38 of the ATEX Guideline (5th edition, April 2024). For further details, see the manufacturer's declaration in accordance with EU Directive 2014/34/EU (ATEX).

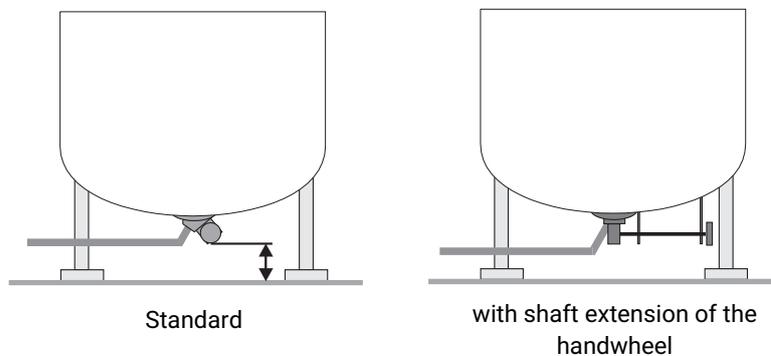
## Mechanical data

**Weight:**

MG	DN	Actuator	Weight
25	15 – 25	2AT	3.0
40	32 – 40	3AT	6.0

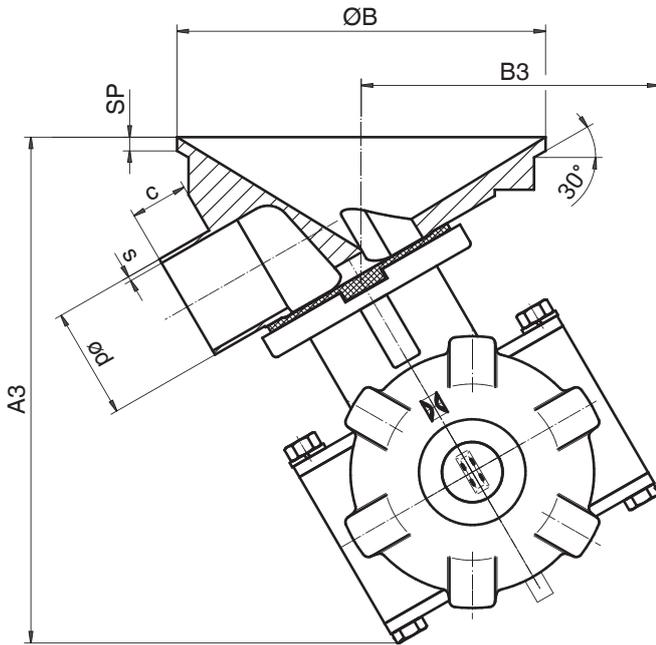
Weights in kg  
 MG = diaphragm size

**Installation position:**



## Dimensions

### Spigot (code 0, 16, 17, 18, 60)



Connection type spigot DIN/EN/ISO (code 0, 16, 17, 18, 60)<sup>1)</sup>, forged material (code 40, 42)

MG	DN	A3	B3	Ø B	c	ød					s					SP
						Connection type					Connection type					
						0	16	17	18	60	0	16	17	18	60	
25	15	166.0	104.0	120.0	25.0	18.0	18.0	19.0	20.0	21.3	1.5	1.0	1.5	2.0	1.6	6.0
	20	166.0	104.0	120.0	25.0	22.0	22.0	23.0	24.0	26.9	1.5	1.0	1.5	2.0	1.6	6.0
	25	166.0	104.0	120.0	25.0	28.0	28.0	29.0	30.0	33.7	1.5	1.0	1.5	2.0	2.0	6.0
40	32	190.0	110.0	160.0	25.0	34.0	34.0	35.0	36.0	42.4	1.5	1.0	1.5	2.0	2.0	6.0
	40	190.0	110.0	160.0	25.0	40.0	40.0	41.0	42.0	48.3	1.5	1.0	1.5	2.0	2.0	6.0

Dimensions in mm

MG = diaphragm size

1) **Connection type**

Code 0: DIN spigot

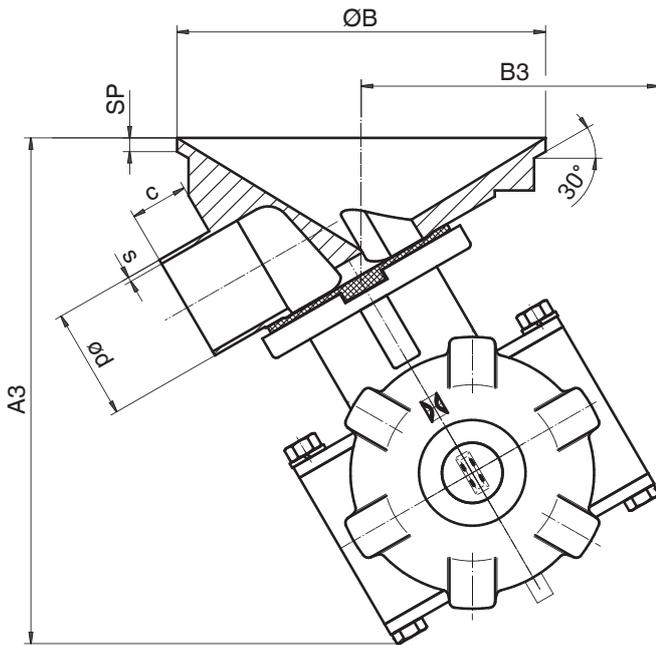
Code 16: Spigots DIN EN 10357 Series B (2014 edition; formerly DIN 11850 Series 1)

Code 17: Spigot EN 10357 series A/DIN 11866 series A, formerly DIN 11850 series 2

Code 18: Spigot DIN 11850 Series 3

Code 60: Spigot ISO 1127/DIN EN 10357 series C (2014 issue)/DIN 11866 series B

**Spigot (code 37, 59, 63, 64, 65)**



**Connection type spigot (code 37, 59, 63, 64, 65)<sup>1)</sup>, forged material (code 40, 42)**

MG	DN	A3	B3	ø B	c	ød					s					SP
						Connection type					Connection type					
						37	59	63	64	65	37	59	63	64	65	
25	15	166.0	104.0	120.0	25.0	-	-	21.3	21.3	21.3	-	-	2.11	1.65	2.77	6.0
	20	166.0	104.0	120.0	25.0	-	19.05	26.7	26.7	26.7	-	1.65	2.11	1.65	2.87	6.0
	25	166.0	104.0	120.0	25.0	25.0	25.4	33.4	33.4	33.4	1.2	1.65	2.77	1.65	3.38	6.0
40	32	190.0	110.0	160.0	25.0	33.7	-	42.2	42.2	42.2	1.2	-	2.77	1.65	3.56	6.0
	40	190.0	110.0	160.0	25.0	38.0	38.1	48.3	48.3	48.3	1.2	1.65	2.77	1.65	3.68	6.0

Dimensions in mm

MG = diaphragm size

**1) Connection type**

Code 37: SMS 3008 spigot

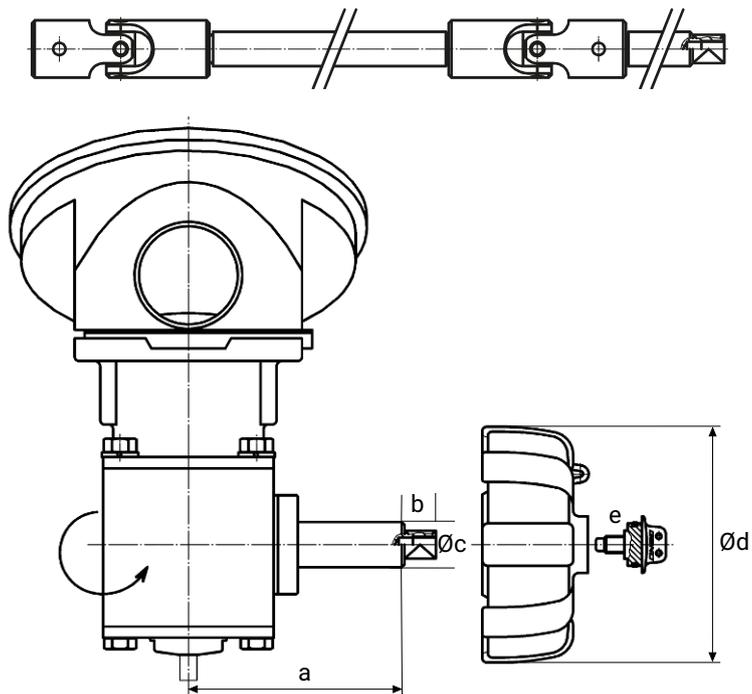
Code 59: Spigot ASME BPE/DIN EN 10357 series C (from 2022 issue)/DIN 11866 series C

Code 63: Spigot ANSI/ASME B36.19M Schedule 10s

Code 64: Spigot ANSI/ASME B36.19M Schedule 5s

Code 65: ANSI/ASME B36.19M Schedule 40s spigot

**Shaft extension**



DN	Actuator size	a	b	øc	ød	e
15-25	2AT	76	10.5	16	90	M6
32-40	3AT			WAF: 10	114	

Dimensions in mm



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