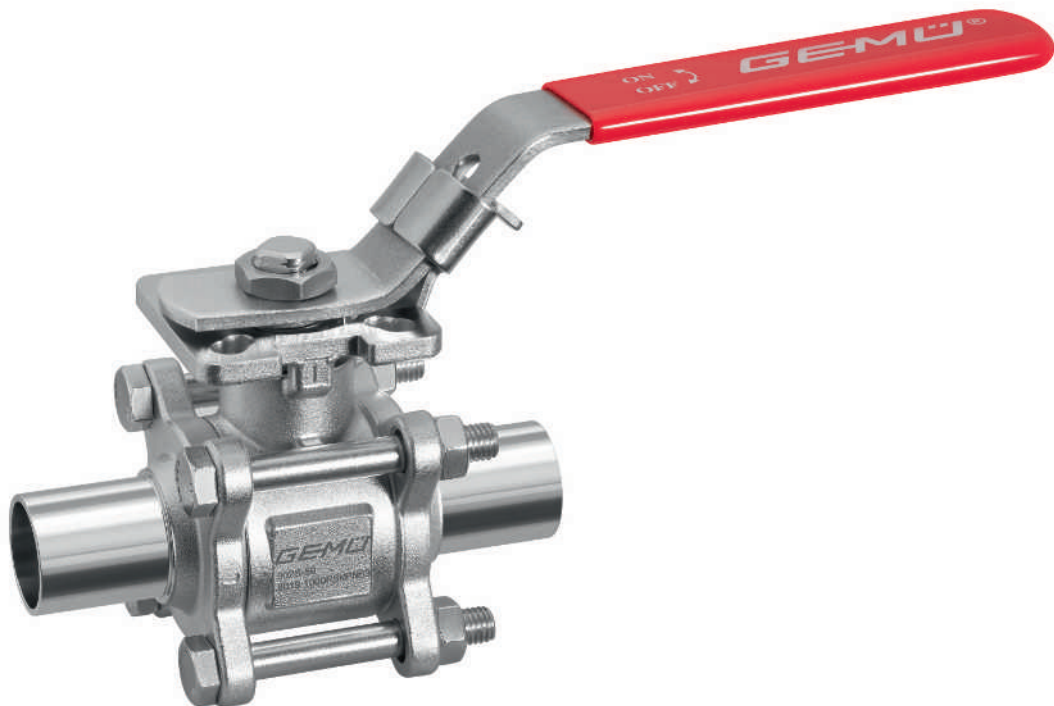


GEMÜ B24

Manually operated ball valve

EN **Operating instructions**



further information
webcode: GW-B24



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26.06.2024

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1 General information

1.1 Information

- The descriptions and instructions apply to the standard versions. For special versions not described in this document the basic information contained herein applies in combination with any additional special documentation.
- Correct installation, operation, maintenance and repair work ensure faultless operation of the product.
- Should there be any doubts or misunderstandings, the German version is the authoritative document.
- Contact us at the address on the last page for staff training information.

1.2 Symbols used

The following symbols are used in this document:

Symbol	Meaning
●	Tasks to be performed
▶	Response(s) to tasks
–	Lists

1.3 Definition of terms

Working medium

The medium that flows through the GEMÜ product.

1.4 Warning notes


Wherever possible, warning notes are organised according to the following scheme:


SIGNAL WORD	
Possible symbol for the specific danger	Type and source of the danger <ul style="list-style-type: none"> ▶ Possible consequences of non-observance. ● Measures for avoiding danger.

Warning notes are always marked with a signal word and sometimes also with a symbol for the specific danger.



The following signal words and danger levels are used:

⚠ DANGER	
	Imminent danger! <ul style="list-style-type: none"> ▶ Non-observance can cause death or severe injury.
⚠ WARNING	
	Potentially dangerous situation! <ul style="list-style-type: none"> ▶ Non-observance can cause death or severe injury.

⚠ CAUTION	
	Potentially dangerous situation! <ul style="list-style-type: none"> ▶ Non-observance can cause moderate to light injury.

NOTICE	
	Potentially dangerous situation! <ul style="list-style-type: none"> ▶ Non-observance can cause damage to property.

The following symbols for the specific dangers can be used within a warning note:

Symbol	Meaning
	Corrosive chemicals!
	Hot plant components!

2 Safety information

The safety information in this document refers only to an individual product. Potentially dangerous conditions can arise in combination with other plant components, which need to be considered on the basis of a risk analysis. The operator is responsible for the production of the risk analysis and for compliance with the resulting precautionary measures and regional safety regulations.

The document contains fundamental safety information that must be observed during commissioning, operation and maintenance. Non-compliance with these instructions may cause:

- Personal hazard due to electrical, mechanical and chemical effects.
- Hazard to nearby equipment.
- Failure of important functions.
- Hazard to the environment due to the leakage of dangerous substances.

The safety information does not take into account:

- Unexpected incidents and events, which may occur during installation, operation and maintenance.
- Local safety regulations which must be adhered to by the operator and by any additional installation personnel.

Prior to commissioning:

1. Transport and store the product correctly.
2. Do not paint the bolts and plastic parts of the product.
3. Carry out installation and commissioning using trained personnel.
4. Provide adequate training for installation and operating personnel.
5. Ensure that the contents of the document have been fully understood by the responsible personnel.
6. Define the areas of responsibility.
7. Observe the safety data sheets.
8. Observe the safety regulations for the media used.

During operation:

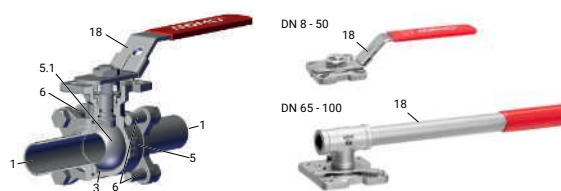
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not described in this document without consulting the manufacturer first.

In cases of uncertainty:

15. Consult the nearest GEMÜ sales office.

3 Product description

3.1 Construction



Item	Name	Materials
5	Ball valve body	ASTM A351/1.4435 (316L)
1	Pipe connections	ASTM A351/1.4435 (316L)
5.1	Ball	ASTM A351/1.4435 (316L)
18	Hand lever	304
6	Bolt	A2 70
3	Seal	PTFE

3.2 Description

The GEMÜ B24 3-piece body 2/2-way metal ball valve is manually operated. The 1.4435 stainless steel alloy material composition used for the ball valve body (compliant with 316L) with a low delta ferrite proportion of < 3% is particularly suited to applications in the supply sector for the pharmaceutical, foodstuffs processing and biotechnology (such as water treatment and sterile steam generation) industries. Only those plastics which are compliant with FDA, USP Class VI and Regulation (EU) No.10/2011 are used for the seals.

3.3 Function

The product is made of metal and is equipped with a plastic sleeved hand lever and a stainless steel top flange.

The product can be continuously opened or closed.

The product can be secured in the end positions ("fully open" and "fully closed") with a suitable lock (e.g. padlock). This lock is not included in the scope of delivery.

3.4 Product label

The product label is located on the actuator. Product label data (example):

Design in accordance with order data		
B24 15D60C35TL		
SF5		PS 63,0 bar
TS -10 °C / +220 °C		
DE		2020
88671433 - XXXXXXXXYYYY		
Item number	Traceability number	Consecutive number

Device-specific data
Year of manufacture

The month of manufacture is encoded in the traceability number and can be obtained from GEMÜ. The product was manufactured in Germany.

The operating pressure stated on the product label applies to a media temperature of 20 °C. The product can be used up to the maximum stated media temperature. You can find the pressure/temperature correlation in the technical data.

4 GEMÜ CONEXO

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



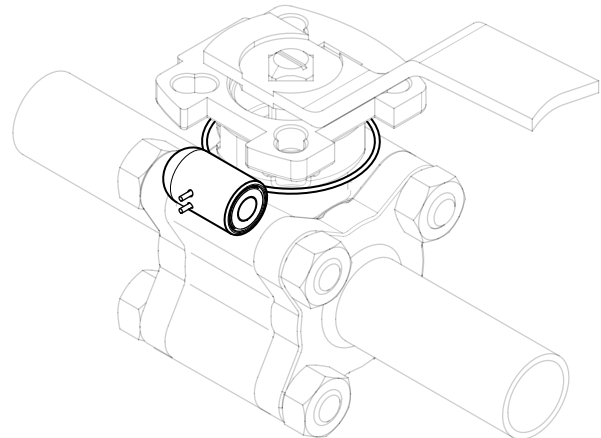
Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves 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

Installing the RFID chip

In the corresponding design with CONEXO, this product has an RFID chip for electronic identification purposes. The position of the RFID chip can be seen below.



5 Correct use

Ball valves are used to isolate media flows.

Only clean, liquid or gaseous media must be used, and the body and seal materials used must be resistant to and suitable for this. Contaminated media and / or applications outside of the pressure and temperature data may lead to damage to the body and, in particular, to the seals on the ball valve.

The "Technical data" chapter describes the permissible pressure / temperature range for these ball valves.

⚠ WARNING**Improper use of the product!**

- ▶ Risk of severe injury or death
- ▶ Manufacturer liability and guarantee will be void.
- Only use the product in accordance with the operating conditions specified in the contract documentation and in this document.

The product is designed for installation in piping systems and for controlling a working medium.

1. Use the product in accordance with the technical data.
2. Note the supplement acc. to ATEX

Due to the design, in the open and closed position, a low volume of medium may be trapped within the ball or between the ball and the body.

Expansion of the medium due to temperature differences, change in state or a chemical response may lead to a high pressure build-up. In order to prevent unacceptable pressure increases, a special version with pressure-relief hole in the ball is available on request for this case.

NOTICE**Build-up of lint!**

- ▶ For soft-seated ball valves, due to the relative rotations of the stainless steel ball to the seat seal, slight wear of the PTFE seals must always be anticipated. Despite this, the safety of the ball valve is not affected by any potential build-up of lint and the seal materials are compliant in accordance with FDA directives.

6 Order data

The order data provide an overview of standard configurations.

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

Products ordered with **bold marked ordering options** are so-called preferred series. Depending on the nominal size, these are available more quickly.

Order codes

1 Type	Code
Ball valve, metal, manually operated, three-piece body, sanitary, checked delta ferrite material and media wetted surfaces according to ASME SF5, ISO 5211, top flange, lockable hand lever, low maintenance spindle seal and blow-out proof shaft, with antistatic unit	B24

2 DN	Code
DN 8	8
DN 10	10
DN 15	15
DN 20	20
DN 25	25
DN 32	32
DN 40	40
DN 50	50
DN 65	65
DN 80	80
DN 100	100

3 Body/ball configuration	Code
2/2-way body	D

4 Connection type	Code
Spigot EN 10357 series A/DIN 11866 series A formerly DIN 11850 series 2	17
Spigot SMS 3008	37
Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C	59
Spigot ISO 1127/DIN EN 10357 series C (2014 edition)/DIN 11866 series B	60
Clamp ASME BPE	80
On one side, clamp ASME BPE corresponding to code 80, on the other side, butt weld spigot code 59, for pipe ASME BPE	93

5 Ball valve material	Code
1.4435/ASTM A351, low ferrite <3% (equivalent to 316L Δ Fe<3%) (body, connection, ball), 1.4409/SS316L (spindle)	C3

6 Seal material	Code
PTFE (FDA certification)	5T
PTFE (FDA certification), cavity filled	5H

7 Control function	Code
Manually operated, hand lever, lockable	L

8 Type of design	Code
Standard	
Ra \leq 0.4 μ m (15 μ in.) for media wetted surfaces *), in accordance with DIN 11866 HE4, electropolished internal/external, *) for inner pipe diameter \leq 6 mm, in spigot Ra \leq 0.8 μ m	1537
K-NO SF5, K-NO 7056, SF5 – Ra max. 0.51 μ m (20 μ in.) electropolished internal/external, 7056 – drilled shaft, shortened hand lever	7137
K-NO SF5, K-NO 0101, SF5 – Ra max. 0.51 μ m (20 μ in.) electropolished internal/external, 0101 – media wetted area cleaned to ensure suitability for paint applications	7140
K-NO SF5, K-NO 0104, SF5 – Ra max. 0.51 μ m (20 μ in.) electropolished internal/external, 0104 – media wetted parts cleaned for high purity media and packed in plastic bag	7141
K-NO SF5, K-NO 0107, SF5 – Ra max. 0.51 μ m (20 μ in.) electropolished internal/external, 0107 – valve free of oil and grease, media wetted area cleaned	7142
Ra max. 0.38 μ m (15 μ in.) for media wetted surfaces, in accordance with ASME BPE SF4, electropolished internal/external	SF4
Ra max. 0.51 μ m (20 μ in.) for media wetted surfaces, in accordance with ASME BPE SF5, electropolished internal/external	SF5

9 Special version	Code
Without	
ATEX version	X

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

Order example

Ordering option	Code	Description
1 Type	B24	Ball valve, metal, manually operated, three-piece body, sanitary, checked delta ferrite material and media wetted surfaces according to ASME SF5, ISO 5211, top flange, lockable hand lever, low maintenance spindle seal and blow-out proof shaft, with antistatic unit
2 DN	15	DN 15
3 Body/ball configuration	D	2/2-way body
4 Connection type	59	Spigot ASME BPE/DIN EN 10357 series C (from 2022 edition)/DIN 11866 series C
5 Ball valve material	C3	1.4435/ASTM A351, low ferrite <3% (equivalent to 316L Δ Fe<3%) (body, connection, ball), 1.4409/SS316L (spindle)
6 Seal material	5T	PTFE (FDA certification)
7 Control function	L	Manually operated, hand lever, lockable
8 Type of design		Standard
9 Special version		Without
10 CONEXO		Without

7 Technical data

7.1 Medium

Working medium: Corrosive, inert, gaseous and liquid media and steam which have no negative impact on the physical and chemical properties of the body and seal material.

7.2 Temperature

Media temperature: -10 – 220 °C

Ambient temperature: -20 – 60 °C

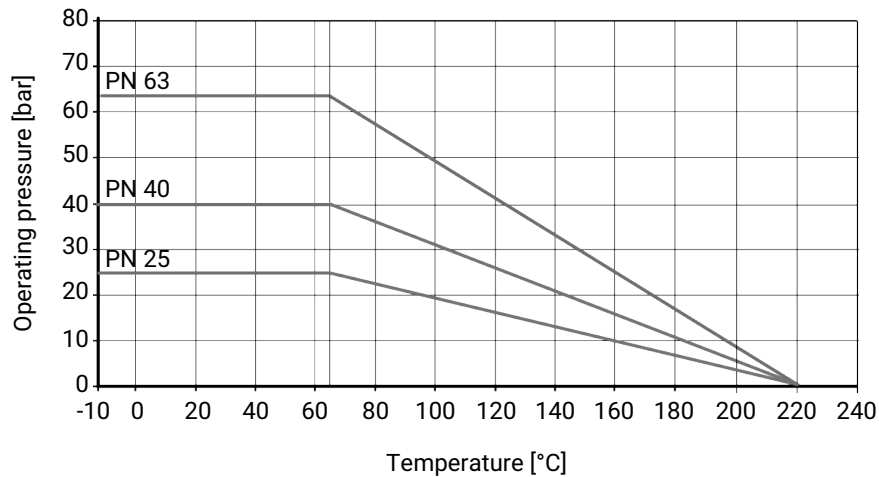
Storage temperature: -60 – 60 °C

7.3 Pressure

Operating pressure: 0 – 63 bar

Vacuum: Can be used up to a vacuum of 50 mbar (absolute)
These values apply to room temperature and air. The values may deviate for other media and other temperatures.

Pressure/temperature diagram:



Pressure/temperature data in accordance with diagram refers to static operating conditions. Strongly fluctuating or fast-changing parameters can lead to a reduction of the service life. Special applications must be talked through with your technical contact person in advance.

Use the clamped union with the correct pressure rating for a safe and correct pipeline design. Pressure ratings of the clamp alone are generally higher, but do not take into account the fully clamped assembly with gasket

Leakage rate: Leakage rate according to ANSI FCI70 – B16.104
Leakage rate according to EN12266, 6 bar air, leakage rate A

Cv values:

DN	NPS	Connection type (code)		
		17	37, 59, 80, 93	60
8	1/4"	7.0	-	7.0
10	3/8"	7.0	-	7.0
15	1/2"	18.0	9.0	18.0
20	3/4"	43.0	26.0	43.0
25	1"	77.0	56.0	77.0
32	1¼"	95.0	-	95.0
40	1½"	206.0	172.0	206.0
50	2"	344.0	327.0	344.0
65	2½"	602.0	516.0	602.0
80	3"	844.0	817.0	844.0
100	4"	1462.0	1376.0	1462.0

Cv values in m³/h**Pressure rating:**

DN	Connection type (code)			
	17	37, 59	60	80, 93
8	-	-	PN63	-
10	PN63	-	PN63	-
15	PN63	PN63	PN63	PN25
20	PN63	PN63	PN63	PN25
25	PN63	PN63	PN63	PN25
32	PN63	-	PN63	-
40	PN63	PN63	PN63	PN25
50	PN63	PN63	PN63	PN16
65	PN40	PN40	PN40	PN16
80	PN40	PN40	PN40	PN10
100	PN25	PN25	PN25	PN10

For clamp connections, the permissible pressures are designed for a temperature of -10 to 140 °C when using suitable clamps and sealing materials.

7.4 Product conformities

Pressure Equipment Directive: 2014/68/EU

Food: FDA
Regulation (EC) No. 1935/2004
Regulation (EC) No. 10/2011

Explosion protection: ATEX (2014/34/EU), order code Special version X

ATEX assessment:

External
Gas: Zone 1, 2 IIC
Dust: Zone 21, 22 IIIC

Internal
Up to DN 32
Gas: Zone 1, 2 IIC
Dust: Zone 21, 22 IIIC

DN 40 to 100
Gas: Zone 1, 2 IIB
Dust: Zone 21, 22 IIIB

7.5 Mechanical data**Torques:**

DN	NPS	Seal material (code)	
		5T	5H
8	1/4"	4	4
10	3/8"	4	4
15	1/2"	8	12
20	3/4"	8	12
25	1"	13	19
32	1¼"	16	22
40	1½"	32	47
50	2"	34	51
65	2½"	91	105
80	3"	104	120
100	4"	140	209

Free of oil and grease incl. 25% safety
Torques in Nm

Weight:**Ball valve**

DN	NPS	Connection type (code)			
		17	37, 59	60	80, 93
8	1/4"	-	-	0.5	-
10	3/8"	-	-	0.5	-
15	1/2"	0.8	0.5	0.5	0.5
20	3/4"	0.8	0.5	0.8	0.5
25	1"	1.1	1.0	1.1	1.1
32	1¼"	1.6	-	1.6	-
40	1½"	2.7	2.1	2.7	2.2
50	2"	4.2	3.5	4.2	3.5
65	2½"	8.2	7.0	8.2	7.1
80	3"	11.6	11.0	11.6	11.8
100	4"	24.0	20.0	24.0	20.5

Weights in kg

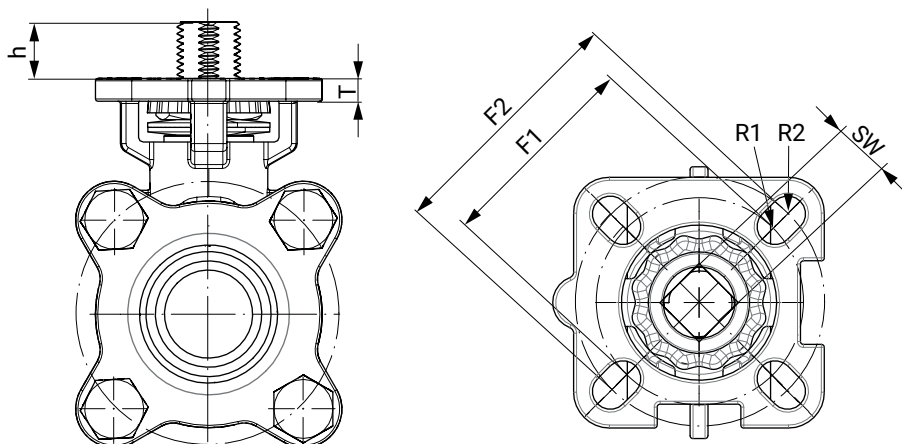
Hand lever

DN	Designation	Weight
8 - 20	AB24 20D	0.122
25 - 32	AB24 32D	0.165
40 - 50	AB24 50D	0.398
65 - 80	AB24 80D	0.78
100	AB24100D	0.96

Weights in kg

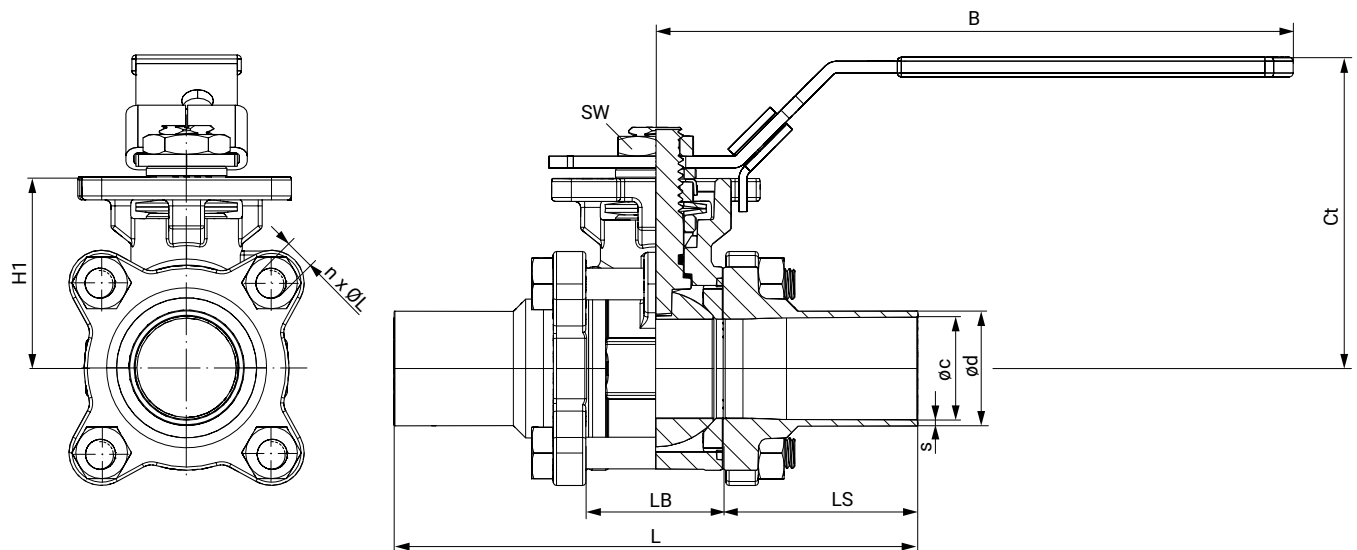
8 Dimensions

8.1 Actuator flange



DN	G	F1	ISO 5211 (F1)	R1	F2	ISO 5211 (F2)	R2	SW	h	T
8	1/4"	36.0	F03	3.0	42.0	F04	3.0	9.0	9.0	5.0
10	3/8"	36.0	F03	3.0	42.0	F04	3.0	9.0	9.0	5.0
15	1/2"	36.0	F03	3.0	42.0	F04	3.0	9.0	9.0	5.0
20	3/4"	36.0	F03	3.0	42.0	F04	3.0	9.0	7.5	5.0
25	1"	42.0	F04	3.0	50.0	F05	3.5	11.0	13.0	7.0
32	1 1/4"	42.0	F04	3.0	50.0	F05	3.5	11.0	13.0	7.0
40	1 1/2"	50.0	F05	3.5	70.0	F07	4.5	14.0	15.0	9.0
50	2"	50.0	F05	3.5	70.0	F07	4.5	14.0	16.0	9.0
65	2 1/2"	50.0	F07	3.5	70.0	F10	4.5	17.0	18.0	10.5
80	3"	70.0	F07	4.5	102.0	F10	5.5	17.0	18.0	10.5
100	4"	102.0	F10	4.5	125.0	F12	5.5	22.0	26.0	10.5

Dimensions in mm

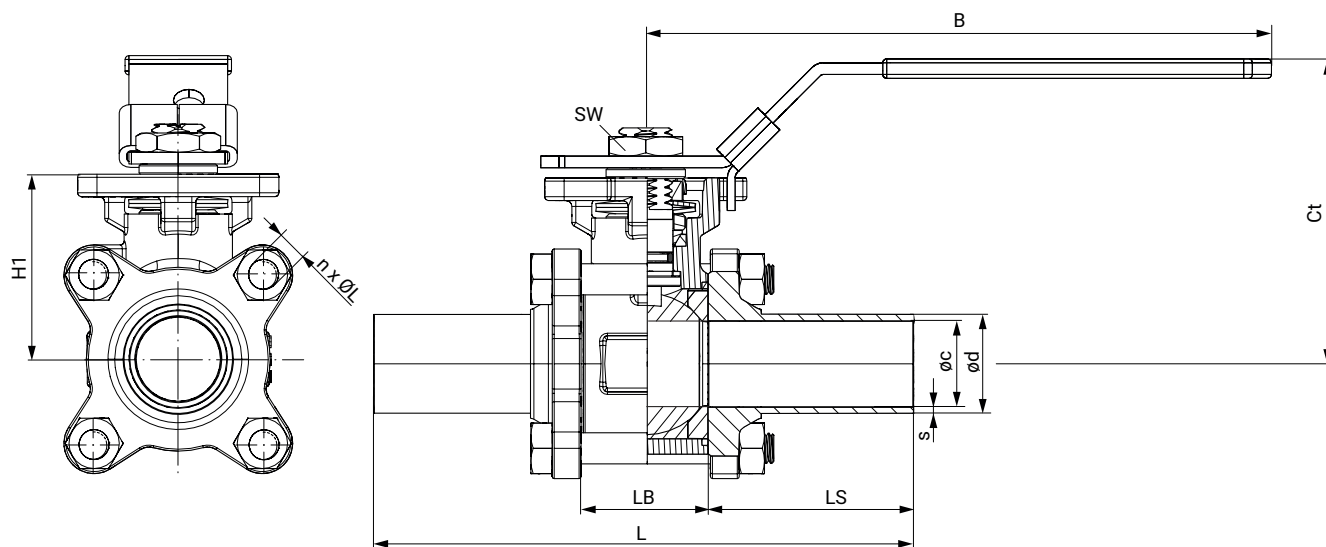
8.2 Spigot DIN EN 10357 (connection code 17)

DN	Øc	Ød	L	LB	LS	H1	n x ØL	s	SW	Ct	B
10	10.0	13.0	120.1	24.3	47.9	37.0	4 x M6	1.5	19.0	66.6	125.0
15	16.0	19.0	140.1	24.3	57.9	37.0	4 x M6	1.5	19.0	66.6	125.0
20	20.0	23.0	140.0	31.2	54.4	40.0	4 x M8	1.5	19.0	69.5	125.0
25	26.0	29.0	152.0	34.0	59.0	48.0	4 x M8	1.5	22.0	78.6	160.0
32	32.0	35.0	165.0	44.0	60.5	53.0	4 x M10	1.5	22.0	83.6	160.0
40	38.0	41.0	190.0	55.0	67.5	63.0	4 x M12	1.5	27.0	104.0	202.0
50	50.0	53.0	203.0	68.9	67.0	72.0	4 x M14	1.5	27.0	113.0	202.0
65	66.0	70.0	254.0	82.0	86.0	92.0	4 x M14	2.0	32.0	140.0	300.0
80	81.0	85.0	280.0	96.0	92.0	102.0	4 x M16	2.0	32.0	150.0	300.0
100	100.0	104.0	308.0	122.0	93.0	132.0	6 x M20	2.0	38.0	187.3	350.0

Dimensions in mm

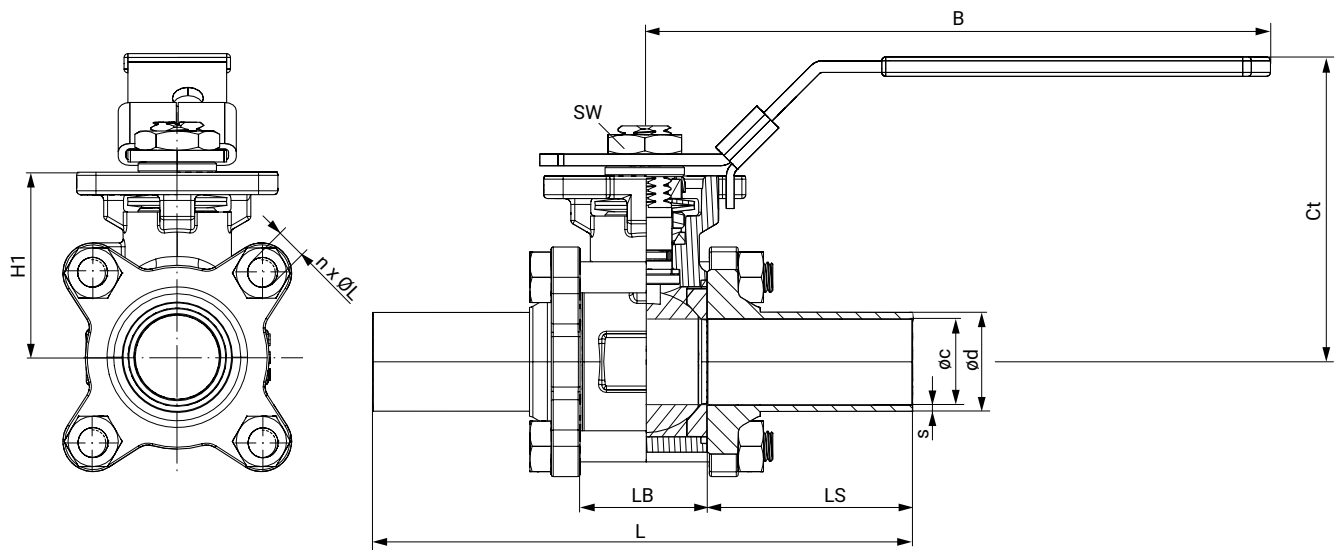
n = number of bolts

8.3 Spigot SMS 3008 (connection code 37)



DN	øc	ød	s	t	L	LB	LS	H1	n x ØL	Ct	B	SW
20	16.0	18.0	1.0	6.1	142.2	28.0	58.6	38.0	4 x M6	67.6	125.0	19.0
25	22.6	25.0	1.2	7.4	162.3	32.1	65.1	48.0	4 x M8	78.4	160.0	22.0
40	35.6	38.0	1.2	8.3	182.2	46.0	68.1	60.0	4 x M12	100.8	202.0	27.0
50	48.6	51.0	1.2	10.2	193.0	59.6	66.7	69.0	4 x M14	109.7	202.0	27.0
65	60.3	63.5	1.6	12.5	254.1	77.1	88.5	89.0	4 x M14	137.2	300.0	32.0
80	72.9	76.1	1.6	14.0	276.9	91.7	92.6	98.0	4 x M16	146.2	300.0	32.0
100	97.6	101.6	2.0	14.5	304.9	118.3	93.3	130.0	6 x M16	185.8	350.0	38.0

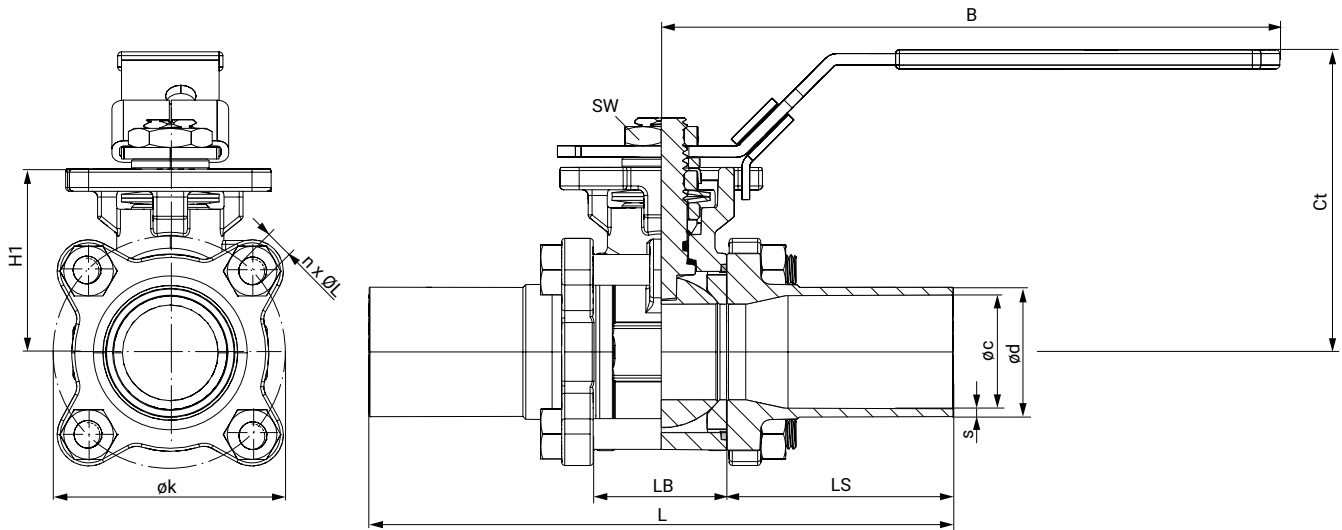
Dimensions in mm
n = number of bolts

8.4 Spigot ASME BPE (connection code 59)

DN	øc	ød	s	L	LB	LS	H1	n x ØL	Ct	B	SW
15	9.40	12.70	1.65	124.40	25.00	49.70	38.00	4 x M6	67.60	125.00	19.00
20	15.70	19.05	1.65	142.20	28.00	58.60	38.00	4 x M6	67.60	125.00	19.00
25	22.10	25.40	1.65	162.30	32.10	65.10	48.00	4 x M8	78.40	160.00	22.00
40	34.80	38.10	1.65	182.20	46.00	68.10	60.00	4 x M12	100.80	202.00	27.00
50	47.50	50.80	1.65	193.00	59.60	66.70	69.00	4 x M14	109.70	202.00	27.00
65	60.20	63.50	1.65	254.10	77.10	88.50	89.00	4 x M14	137.20	300.00	32.00
80	72.90	76.20	1.65	276.90	91.70	92.60	98.00	4 x M16	146.20	300.00	32.00
100	97.40	101.60	2.10	304.90	118.30	93.30	130.00	6 x M16	185.80	350.00	38.00

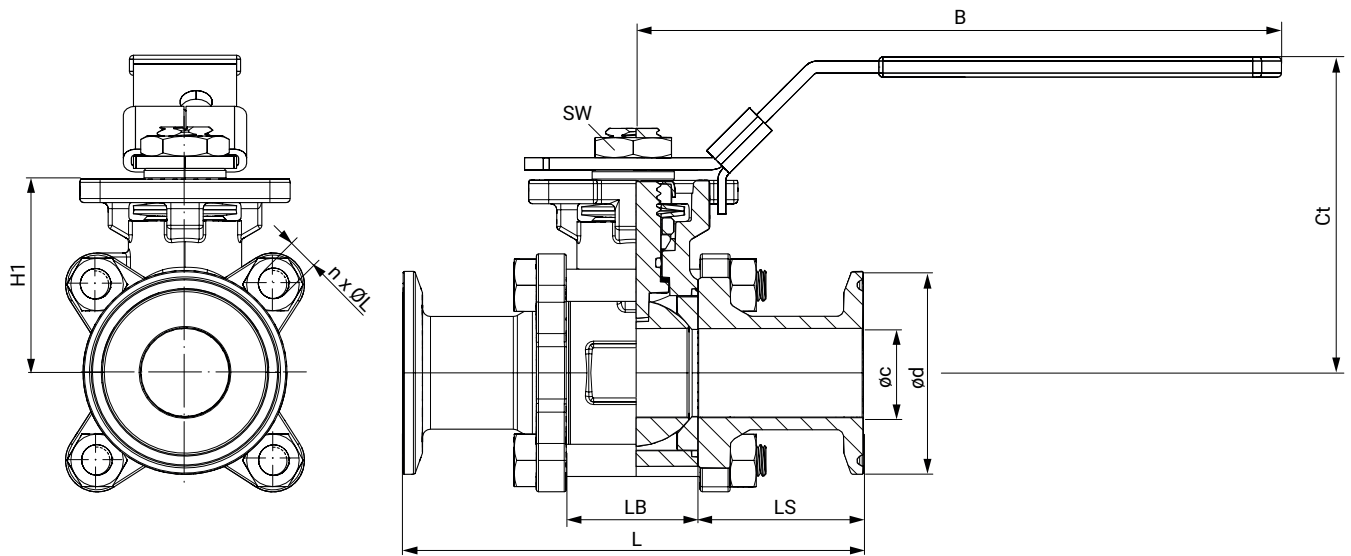
Dimensions in mm
n = number of bolts

8.5 Spigot ISO 1127 / EN 10357 (connection code 60)



DN	ϕc	ϕd	s	L	LB	LS	H1	n x ϕL	Ct	B	SW
8	10.3	13.5	1.6	120.1	24.3	47.9	37.0	4 x M6	66.6	125.0	19.0
10	14.0	17.2	1.6	120.1	24.3	47.9	37.0	4 x M6	66.6	125.0	19.0
15	18.1	21.3	1.6	140.1	24.3	57.9	37.0	4 x M6	66.6	125.0	19.0
20	23.7	26.9	1.6	140.0	31.2	54.4	40.0	4 x M8	69.5	125.0	19.0
25	29.7	33.7	2.0	152.0	34.0	59.0	48.0	4 x M8	78.6	160.0	22.0
32	38.4	42.4	2.0	165.0	44.0	60.5	53.0	4 x M10	83.6	160.0	22.0
40	44.3	48.3	2.0	190.0	55.0	67.5	63.0	4 x M12	104.0	202.0	27.0
50	56.3	60.3	2.0	203.0	68.9	67.0	72.0	4 x M14	113.0	202.0	27.0
65	72.1	76.1	2.0	254.0	82.0	86.0	92.0	4 x M14	140.0	300.0	32.0
80	84.3	88.9	2.3	280.0	96.0	92.0	102.0	4 x M16	150.0	300.0	32.0
100	109.7	114.3	2.3	308.0	122.0	93.0	132.0	6 x M20	187.3	350.0	38.0

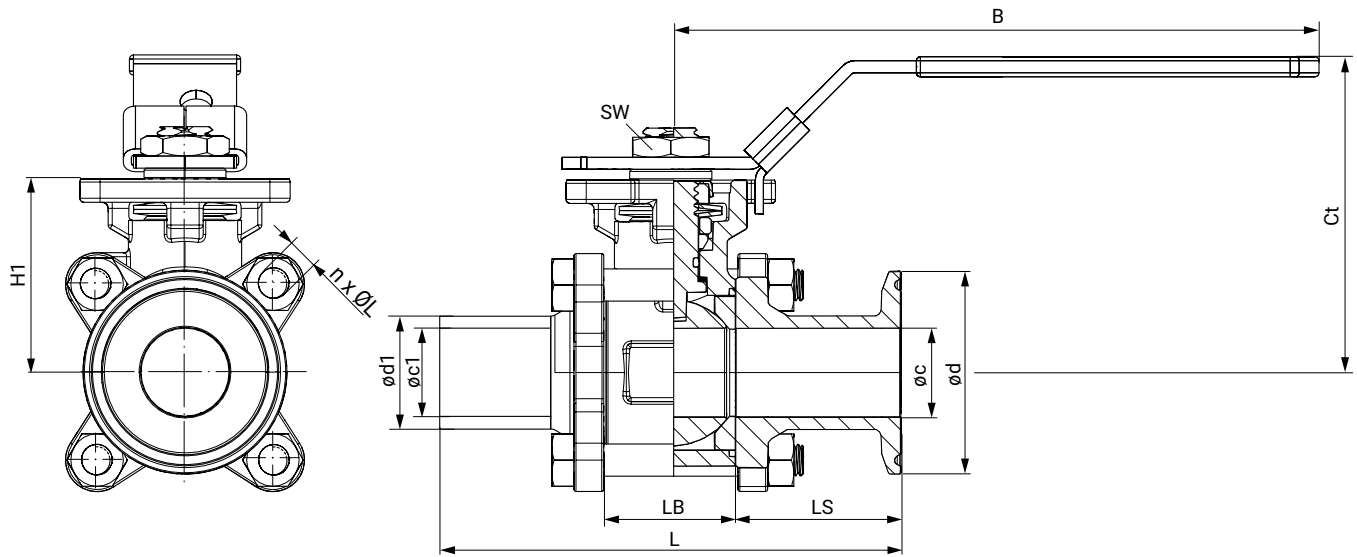
Dimensions in mm
n = number of bolts

8.6 Clamp ASME BPE (connection code 80)

DN	Øc	Ød	s	L	LB	LS	H1	n x ØL	Ct	B	SW
15	9.4	25.0	1.65	88.8	25.0	31.9	38.0	4 x M6	67.6	125.0	19.0
20	15.8	25.0	1.65	101.6	25.0	38.3	38.0	4 x M6	67.6	125.0	19.0
25	22.1	50.4	1.65	114.3	32.1	41.1	48.0	4 x M8	78.4	160.0	22.0
40	34.8	50.4	1.65	139.8	46.0	46.9	60.0	4 x M12	100.8	202.0	27.0
50	47.5	63.9	1.65	158.8	59.6	49.6	69.0	4 x M14	109.7	202.0	27.0
65	60.2	77.4	1.65	171.5	77.1	47.2	89.0	4 x M14	137.2	300.0	32.0
80	72.9	90.9	1.65	196.3	91.7	52.3	98.0	4 x M16	146.2	300.0	32.0
100	97.4	118.9	2.1	241.3	118.3	61.5	130.0	6 x M16	185.8	350.0	38.0

Dimensions in mm
n = number of bolts

8.7 Mixed ends ASME BPE (connection code 93)



DN	øc	ød	øc1	ød1	s	t	L	LB	LS	H1	n x ØL	Ct	B	SW
15	9.4	25.0	9.4	12.7	1.65	6.1	106.6	25.0	49.7	38.0	4 x M6	67.6	125.0	19.0
20	15.8	25.0	15.8	19.0	1.65	6.1	121.9	28.0	58.6	38.0	4 x M6	67.6	125.0	19.0
25	22.1	50.4	22.1	25.4	1.65	7.4	138.3	32.1	65.1	48.0	4 x M8	78.4	160.0	22.0
40	34.8	50.4	34.8	38.1	1.65	8.3	161.0	46.0	68.1	60.0	4 x M12	100.8	202.0	27.0
50	47.5	63.9	47.5	50.8	1.65	10.2	175.9	59.6	66.7	69.0	4 x M14	109.7	202.0	27.0
65	60.2	77.4	60.2	63.5	1.65	12.5	212.8	77.1	88.5	89.0	4 x M14	137.2	300.0	32.0
80	72.9	90.9	72.9	76.2	1.65	14.0	236.6	91.7	92.6	98.0	4 x M16	146.2	300.0	32.0
100	97.4	118.9	97.4	101.6	2.10	14.5	273.1	118.3	93.3	130.0	6 x M16	185.8	350.0	38.0

Dimensions in mm
n = number of bolts

9 Manufacturer's information

9.1 Delivery

- Check that all parts are present and check for any damage immediately upon receipt.

The product's performance is tested at the factory. The scope of delivery is apparent from the dispatch documents and the design from the order number.

9.2 Packaging

The product is packaged in a cardboard box which can be recycled as paper.

9.3 Transport


1. Only transport the product by suitable means. Do not drop. Handle carefully.
2. After the installation dispose of transport packaging material according to relevant local or national disposal regulations / environmental protection laws.



9.4 Storage



1. Store the product free from dust and moisture in its original packaging.
2. Avoid UV rays and direct sunlight.
3. Do not exceed the maximum storage temperature (see chapter "Technical data").
4. Do not store solvents, chemicals, acids, fuels or similar fluids in the same room as GEMÜ products and their spare parts.
5. Store the ball valves in the "open" position.


10 Installation in piping

10.1 Preparing for installation

 WARNING	
The equipment is subject to pressure!	
<ul style="list-style-type: none"> ▶ Risk of severe injury or death ● Depressurize the plant or plant component. ● Completely drain the plant or plant component. 	

 WARNING	
	Corrosive chemicals!
	<ul style="list-style-type: none"> ▶ Risk of caustic burns ● Wear appropriate protective gear. ● Completely drain the plant.

 CAUTION	
	Hot plant components!
	<ul style="list-style-type: none"> ▶ Risk of burns ● Only work on plant that has cooled down.

 CAUTION	
Exceeding the maximum permissible pressure!	
<ul style="list-style-type: none"> ▶ Damage to the product ● Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer). 	

 CAUTION	
Use as step!	
<ul style="list-style-type: none"> ▶ Damage to the product ▶ Risk of slipping-off ● Choose the installation location so that the product cannot be used as a foothold. ● Do not use the product as a step or a foothold. 	

NOTICE	
Suitability of the product!	
<ul style="list-style-type: none"> ▶ The product must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions. 	

NOTICE	
Tools!	
<ul style="list-style-type: none"> ▶ The tools required for installation and assembly are not included in the scope of delivery. ● Use appropriate, functional and safe tools. 	

1. Ensure the product is suitable for the relevant application.
2. Check the technical data of the product and the materials.
3. Keep appropriate tools ready.
4. Wear appropriate protective gear, as specified in the plant operator's guidelines.
5. Observe appropriate regulations for connections.
6. Have installation work carried out by trained personnel.
7. Shut off plant or plant component.
8. Secure plant or plant component against recommissioning.
9. Depressurize the plant or plant component.
10. Completely drain the plant (or plant component) and let it cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
11. Decontaminate, rinse and ventilate the plant or plant component properly.
12. Lay piping so that the product is protected against transverse and bending forces, and also from vibrations and tension.
13. Only mount the product between matching aligned pipes (see following chapters).
14. Flow direction and installation position are optional.

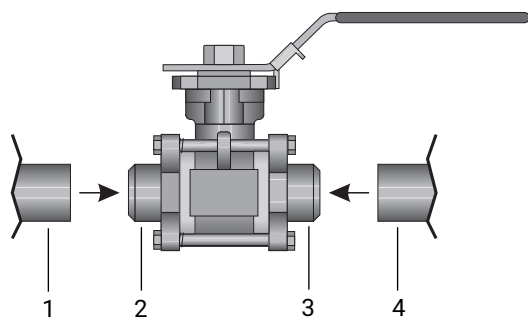
10.2 Installation with butt weld spigots

NOTICE

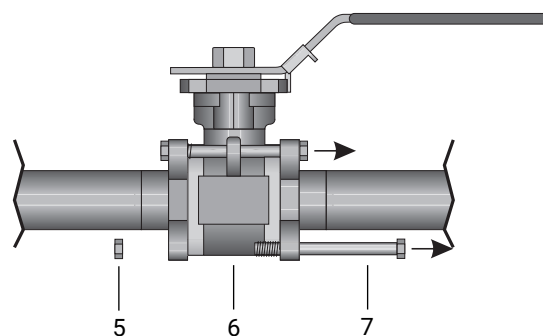
- Adhere to good welding practices.

1. Installation variant:

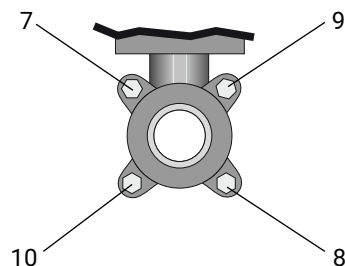
Undo one bolt, remove the other bolts and swivel the centre section aside instead of removing it.



2. Align the pipes **1** and **4** on the left and right with the butt weld spigots **2** and **3**, and attach them to the spigots.



3. Fully unscrew the nuts **5**. With the bolt that goes through the tab, only loosen the nut **5**.
4. Pull out the bolts **7**.
5. Swivel out the ball valve **6** with seat seals and flange seals.
6. Weld the pipes **1** and **4** on the left and right to the butt weld spigots **2** and **3**.
7. Allow the butt weld spigots to cool down.
8. Reinstall the ball valve between the butt weld spigots. Take care that the seat seal and flange seal are correctly positioned. Align the centre section **6** concentrically with butt weld spigots **2** and **3**.

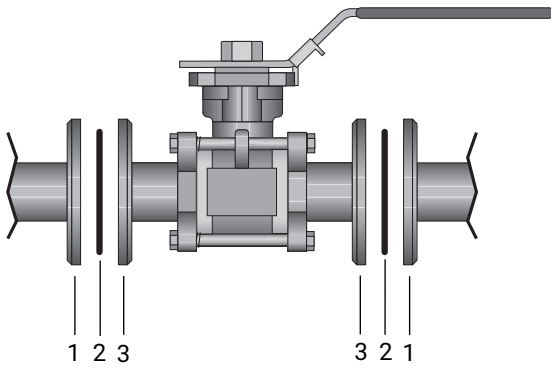


9. Tighten the nuts diagonally, counterhold with a wrench.

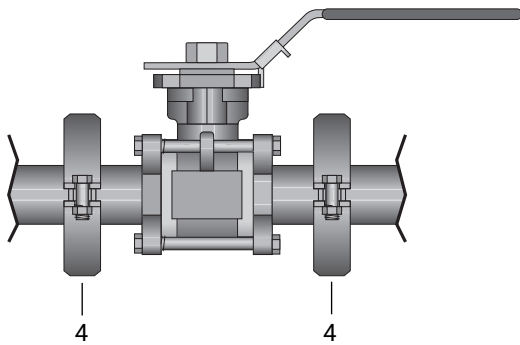
Nominal size	Torque [Nm]
DN8	8
DN10	8
DN15	8
DN20	14
DN25	14
DN32	20
DN40	23
DN50	28
DN65	45
DN80	60
DN100	75

10.3 Installation with clamp connections

1. Ensure sealing surfaces on the connection clamps are clean and undamaged.



2. Carefully align connection clamps 1 and 3 before connecting.
3. Centre the seals 2 accurately.




4. Connect the clamp of the ball valve and the clamp of the piping with the appropriate sealing clamp 4.
5. Only use connector elements made of approved materials!

10.4 After the installation

- Re-attach or reactivate all safety and protective devices.

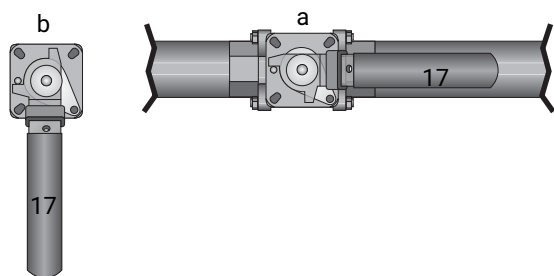
11 Commissioning

⚠ WARNING	
	<p>Corrosive chemicals!</p> <ul style="list-style-type: none"> ▶ Risk of caustic burns ● Wear appropriate protective gear. ● Completely drain the plant.

⚠ CAUTION	
Leakage!	
<ul style="list-style-type: none"> ▶ Emission of dangerous materials ● Provide precautionary measures against exceeding the maximum permitted pressures caused by pressure surges (water hammer). 	

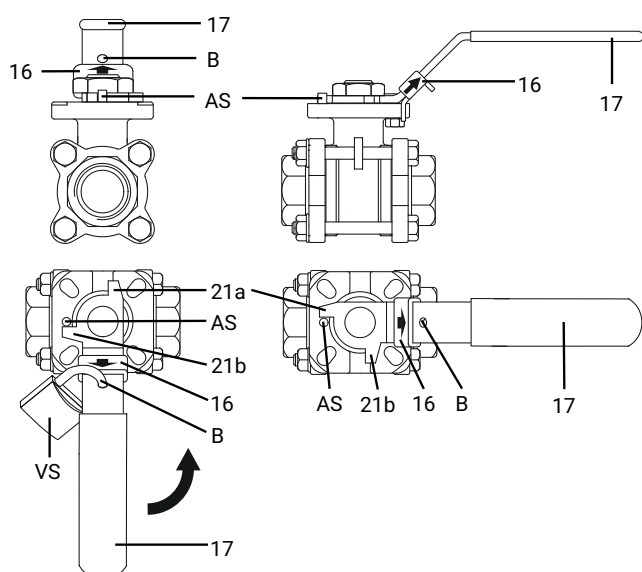
1. Check the tightness and the function of the product (close and reopen the product).
2. Flush the piping system of new plant and following repair work (the product must be fully open).
 - ⇒ Harmful foreign matter has been removed.
 - ⇒ The product is ready for use.
3. Commission the product.

12 Operation



17	Hand lever
a	Ball valve open
b	Ball valve closed

1. Move hand lever 17 to the desired position.



Ball valve fully open:

The hand lever 17 is located at the travel stop **21a** on the locking stop **AS**.

Ball valve fully closed:

The hand lever 17 is located at the travel stop **21b** on the locking stop **AS**.

NOTICE

- ▶ While the valve opening is continuously selectable, these intermediate positions are not lockable.

2. Lift the hand lever locking device **16** so that hand lever **17** can be turned.
3. When the desired end position is reached, push the hand lever locking device **16** downwards and let it engage (only possible if the ball valve is fully open or fully closed). Travel stops **21a** and **21b** are both located at locking stop **AS**.
4. If the ball valve is fully open or fully closed with the hand lever **17** locked in place, the position can be secured on the hand lever **17** using an appropriate lock (e.g. padlock **VS**) in the bolt hole **B** above the hand lever locking device **16**.

13 Troubleshooting

Error	Possible cause	Troubleshooting
The product does not open or does not open fully	Foreign matter in the product	Remove and clean the product
	Hand lever locking device engaged	Disengage hand lever locking device
The product does not close or does not close fully	Foreign matter in the product	Remove and clean the product
	Hand lever locking device engaged	Disengage hand lever locking device
Connection between valve body and piping leaking	For clamp connections: Sealing clamp is loose	Retighten sealing clamp
	For clamp connections: Gasket faulty	Replace gasket
	Incorrect installation	Check installation of valve body in piping
Valve body leaking	Valve body leaking or corroded	Check valve body for damage, replace valve body if necessary
	Bolts of the ball valve body are loose	Retighten bolts

14 Inspection/maintenance

⚠ CAUTION



Hot plant components!

- ▶ Risk of burns
- Only work on plant that has cooled down.

⚠ WARNING

The equipment is subject to pressure!

- ▶ Risk of severe injury or death
- Depressurize the plant or plant component.
- Completely drain the plant or plant component.

⚠ CAUTION

- Servicing and maintenance work must only be performed by trained personnel.
- Do not extend hand lever. GEMÜ shall assume no liability whatsoever for damages caused by improper handling or third-party actions.
- In case of doubt, contact GEMÜ prior to commissioning.

1. Use appropriate protective gear as specified in plant operator's guidelines.
2. Shut off plant or plant component.
3. Secure against recommissioning.
4. Depressurize the plant or plant component.

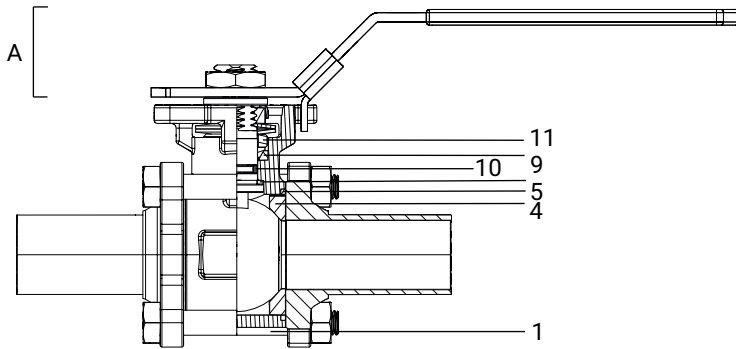
Ball valves are maintenance-free. No lubrication or routine maintenance of the ball valve shaft is required. The shaft is guided through a PTFE gland packing in the ball valve body. The shaft seal is pretensioned and self-adjusting. However, the operator must carry out regular visual examinations of the ball valves, dependent on the operating conditions and the potential danger in order to prevent leakage and damage.

If there is a leakage at the spindle nut, this can generally be rectified by retightening the spindle nut. However, overtightening the spindle nut must be avoided.

Usually, retightening by between 30° and 60° will be sufficient to rectify the leakage.

14.1 Spare parts

14.1.1 Spare parts for connection types 17, 60



Item	Name	Order designation
1	Ball valve body	B24
4	Seat seal (2 x)	BB04 SDS
5	Flange seal (2 x)	
9	Sealing washer spindle	
10	O-ring	
11	V-ring spindle packing	
A	Actuator	AB24

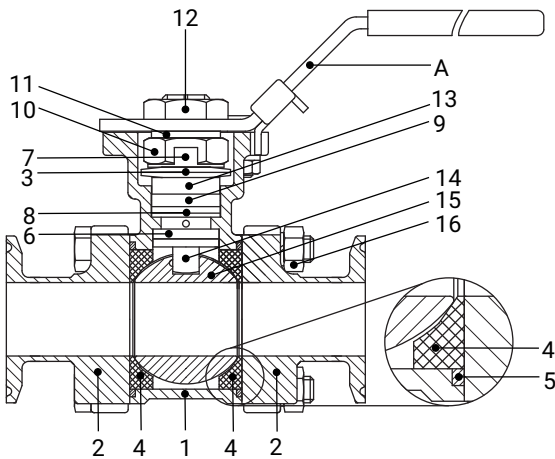
14.1.2 Spare parts for connection types 59, 80

Item	Name	Order designation
1	Ball valve body	B24
4	Seat seal (2 x)	BB04 SDS
5	Flange seal (2 x)	
9	Sealing washer spindle	
10	O-ring	
11	V-ring spindle packing	
A	Actuator	AB24

14.2 Replacement of spare parts

NOTICE

- If a spare part must be replaced, it is recommended to likewise replace all spare parts included in the wearing parts kit.



1. Unscrew the upper spindle nut **12**.
2. Lifting upwards, remove the hand lever **A** and washer **11**.
3. Bend the tab of the lock washer **7**.
4. Unscrew the lower spindle nut **10**.
5. Remove the spring washers (2 x) **3** and the stainless steel sleeve **13**.
6. Unscrew the nuts **16** from the flange connecting bolts.
7. Remove the lock washers, pull out the bolts, and carefully remove the flange **2** from the ball valve body **1**.
8. Remove the flange seals **5** and seat seals **4** from the ball valve body.
9. Turn the ball **15** with the spindle **14** to the "closed" position and remove the ball from the ball valve body with a slight rotating movement.
10. From outside, carefully press the spindle into the ball valve body and remove.
11. Remove the V-ring spindle packing **8** and **9**.
12. Replace the conical spindle seal **6** and reinsert the spindle into the ball valve body.
13. Push the new V-ring spindle packing **8** and **9**, the stainless steel sleeve **13**, the spring washers **3** and the lock washer **7** onto the spindle and tighten the lower spindle nut **10** until hand-tight.
14. Bend the tab of lock washer **7** upwards.
15. Turn the spindle so that the ball actuator runs alongside the direction of piping, and push the ball **15** onto the ball actuator with a slight rotating movement.
16. Insert the seat seals **4** and flange seals **5** from both sides.

17. Position the flange **2** on both sides, push the flange connecting bolts through the flange holes, attach the lock washers and tighten the nuts evenly (diagonally in several cycles).
18. Re-attach the hand lever **A** in reverse order to disassembly.
19. When doing so, ensure that the ball position and actuator position are in correct alignment with the initial position before disassembly.

Tightening torques for upper spindle nut item 12

Nominal size	Torque [Nm]
DN8	9
DN10	9
DN15	9
DN20	9
DN25	15
DN32	15
DN40	25
DN50	25
DN65	30
DN80	30
DN100	40

15 Removal from piping

1. Remove the clamp or screw connections in reverse order to installation.
2. Remove welded or solvent cemented connections using a suitable cutting tool.
3. Observe the safety information and accident prevention regulations.

16 Disposal

1. Pay attention to adhered residual material and gas diffusion from penetrated media.
2. Dispose of all parts in accordance with the disposal regulations/environmental protection laws.

17 Returns

Legal regulations for the protection of the environment and personnel require that the completed and signed return delivery note is included with the dispatch documents. Returned goods can be processed only when this note is completed. If no return delivery note is included with the product, GEMÜ cannot process credits or repair work but will dispose of the goods at the operator's expense.

1. Clean the product.
2. Request a return delivery note from GEMÜ.
3. Complete the return delivery note.
4. Send the product with a completed return delivery note to GEMÜ.



GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Fritz-Müller-Straße 6-8, 74653 Ingelfingen-Criesbach, Germany
Phone +49 (0) 7940 1230 · info@gemue.de
www.gemu-group.com

Subject to alteration

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