GEMÜ R480 Victoria

Butterfly valve with bare shaft

EN **Operating instructions**

webcode: GW-R480

Contents

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.

Control function

The possible actuation functions of the GEMÜ product.

Control medium

The medium whose increasing or decreasing pressure causes the GEMÜ product to be actuated and operated.

1.4 Warning notes

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

SIGNAL WORD	
Possible symbol for the specific danger	Type and source of the danger ▶Possible consequences in case of non-compliance ●Measures for avoiding danger

Warning notes are always labelled 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!

▶ Non-observance can cause death or severe injury

⚠ WARNING

Potentially dangerous situation!

▶ Non-observance can cause death or severe injury

⚠ CAUTION

Potentially dangerous situation!

▶ Non-observance can cause moderate to light injury

NOTICE

Potentially dangerous situation!

▶ Non-observance can cause damage to property

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

Symbol	Meaning
	The equipment is subject to pressure!
	Corrosive chemicals!
	GEMÜ products without an actuating element!
	Hot plant components!
	Leakage!
	Maximum permissible pressure exceeded!
	Use as an end-of-line valve!
	Risk of crushing!

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 materials

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:

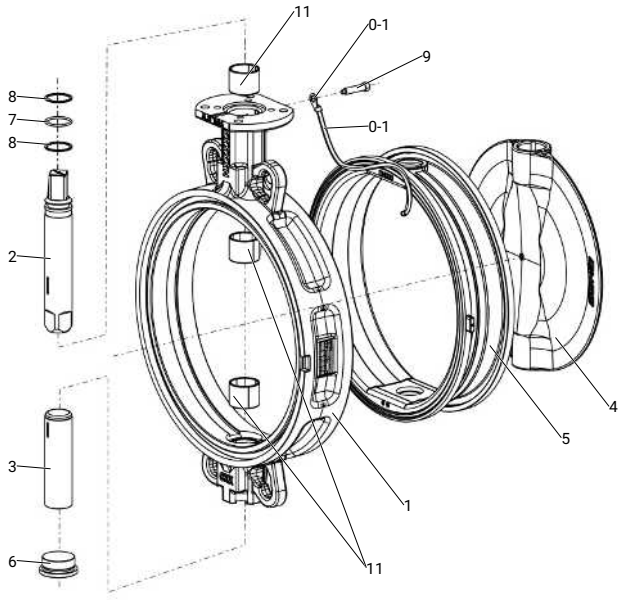
9. Keep this document available at the place of use.
10. Observe the safety information.
11. Operate the product in accordance with this document.
12. Operate the product in accordance with the specifications.
13. Maintain the product correctly.
14. Do not carry out any maintenance work and repairs not 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
1	Body	SG iron 5.3106, epoxy coated (RAL 5021)
2	Shaft	1.4021
3	Axis	1.4021
4	Disc	Various materials (see order data)
5	Liner	Various materials (see order data)
6	Threaded plug	1.4408
7	O-ring	NBR
8	Support rings	PTFE
9	Hexagon head bolts	Stainless steel A2-70
0	Earthing kit for Ex version	
0-1	Cable lug (Ex version)	
0-2	Stranded wire (Ex version)	
10	CONEXO RFID chip	

Item	Name	Materials
1	Body	SG iron 5.3106, epoxy coated (RAL 5021)
2	Shaft	1.4021
3	Axis	1.4021
4	Disc	Various materials (see order data)
5	Liner	Various materials (see order data)
6	Threaded plug	1.4408
7	O-ring	NBR
8	Support rings	PTFE
9	Hexagon head bolts	Stainless steel A2-70

Item	Name	Materials
0	Earthing kit for Ex version	
0-1	Cable lug (Ex version)	
0-2	Stranded wire (Ex version)	
10	CONEXO RFID chip	

Item	Name	Materials
1	Body	SG iron 5.3106, epoxy coated (RAL 5021)
2	Shaft	1.4021
3	Axis	1.4021
4	Disc	Various materials (see order data)
5	Liner	Various materials (see order data)
6	Threaded plug	1.4408
7	O-ring	NBR
8	Support rings	PTFE
9	Hexagon head bolts	Stainless steel A2-70
0	Earthing kit for Ex version	
0-1	Cable lug (Ex version)	
0-2	Stranded wire (Ex version)	
10	CONEXO RFID chip	

3.2 Description

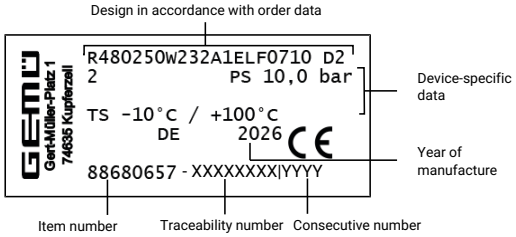
The GEMÜ R480 Victoria soft seated metal butterfly valve is equipped with a bare shaft with top flange in accordance with EN ISO 5211. The butterfly valve is available in nominal sizes DN 50 to 300 and in standardized installation lengths ISO 5752/20 | EN 558-1/20 | API 609 category A (DIN 3202 K1) in wafer and lug body versions.

3.3 Function

The product controls a flowing medium after a manual, pneumatic or motorized actuator has been mounted.

3.4 Product label

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



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 Correct use

⚠ 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.

NOTICE

Explosion protection (ATEX)

- ► The product is free from potential ignition sources and does not fall under the ATEX Directive 2024/34/EU. It is suitable for use in potentially explosive areas. See the manufacturer's declaration.

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

- ● Use the product in accordance with the technical data.

5 Order data

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

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
Butterfly valve, bare shaft, body with C5-M coating (min. 250 µm) and integrated leakage groove, blow-out proof shaft with dust protection, multiple bearings through PTFE bushing, multiple sealing system with insertion slope, material easy to read when installed	R480

2 DN	Code
DN 25	25
DN 32	32
DN 40	40
DN 50	50
DN 65	65
DN 80	80
DN 100	100
DN 125	125
DN 150	150
DN 200	200
DN 250	250
DN 300	300
DN 350	350
DN 400	400
DN 450	450
DN 500	500
DN 600	600

3 Body configuration	Code
Flange-mounted design (lug), face-to-face dimension FTF EN 558 series 20	L
Double flange design (U section), face-to-face dimension FTF EN 558, series 20	U
Wafer-type flange design, face-to-face dimension FTF EN 558 series 20	W

4 Operating pressure	Code
3 bar	0
6 bar	**1**
10 bar	2
16 bar	**3**

5 Connection type	Code
PN 6/flange EN 1092, face-to-face dimension FTF EN 558 series 20	1
PN 10/flange EN 1092, face-to-face dimension FTF EN 558 series 20	2
PN 16/flange EN 1092, face-to-face dimension FTF EN 558 series 20	3
ANSI B16.5, class 150, face-to-face dimension FTF EN 558 series 20	D

5 Connection type	Code
Flange BS 10 Tab E, face-to-face dimension FTF EN 558, series 20	S
Flange AS 2129 Tab D, face-to-face dimension FTF EN 558, series 20	T
Flange AS 2129 Tab E, face-to-face dimension FTF EN 558, series 20	U
Flange BS 10 Tab D, face-to-face dimension FTF EN 558, series 20	H
JIS 10 K, face-to-face dimension FTF EN 558, series 20	G
JIS 16 K, face-to-face dimension FTF EN 558, series 20	J

6 Body material	Code
EN-GJS-400-15 (GGG-40), epoxy coated 250 µm	**2**
EN-GJS-400-18-LT (GGG-40.3), epoxy coated 250 µm	3

7 Disc material	Code
1.4408/ASTM A351 CF8M	**A**
1.4408, polished, roughness Ra 0.6–3.2, except disc marking	B
1.4408, HALAR coated	**C**
1.4469/ASTM GR5A	**D**
EN-GJS-400-15 (GGG-40), epoxy coated	E
EN-GJS-400-15 (GGG-40), HALAR coated	P
EN-GJS-400-15 (GGG-40), RILSAN PA11 coated	**R**
2.0975/CC333G	G
1.4435/ASTM A351/CF3M/AISI 316L	I

8 Shaft material	Code
1.4021/AISI 420	1

9 Shut-off seal material	Code
EPDM	**E**
SBR-AB/P (abrasion resistant)	F
CSM	H
NR (FDA/1935-2004 certification), white AB/W	I
NBR (DVGW Gas certification)	J
EPDM (FDA/1935-2004 certification), white	M
NBR	**N**
FKM +	O
EPDM-SHT (steam)	T
NBR (FDA/1935-2004 certification), white	U
FKM	**V**
EPDM (drinking water compliant)	**W**
EPDM-HT (FDA/1935-2004 certification)	**Z**

10 Liner fixing	Code
Liner bonded into body	B
Loose liner	L

11 Type of design	Code
Without	
Media-wetted area cleaned to ensure suitability for paint applications, parts sealed in plastic bag	0101
Valve free of oil and grease, media-wetted area cleaned and packed in PE bag	0107
Stainless steel valve disc, without lettering, mechanically polished to 1.6 µm and electropolished, spigot internally polished to 1.6 µm, no polishing of internal threads	1782
Butterfly valve body powder coated, RAL 5015, sky blue	1892
Butterfly valve body powder coated, RAL 1023, traffic yellow	1925
Mounting parts in A4 quality. Caution! Danger of galling! Customer must take the necessary precautions for this!	5143
Thermal separation between actuator and valve body via mounting kit	5222
Thermal separation between actuator and valve body via dew point barrier	5226
Aluminium product label, black anodized, lasered marking, riveted to the body	6061

12 Special version	Code
Without	

12 Special version	Code
ACS certification	A
BELGAQUA certification	B
DVGW Water certification	D
Country of origin Germany	E
DVGW Gas certification	G
NSF 61 Water certification	N
Special version for oxygen Maximum temperature for medium: 100 °C, Operating pressure limited in accordance with product label data Media-wetted materials cleaned, and grease and seal tested in accordance with DIN EN 1797/ISO 21010	O
ASME B31.3	P
DNV GL certification	S
WRAS certification	W
ATEX certification	X
ATEX certification (in the piping system)	Y

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

Order example - standard version

Ordering option	Code	Description
1 Type	R480	Butterfly valve, bare shaft, body with C5-M coating (min. 250 µm) and integrated leakage groove, blow-out proof shaft with dust protection, multiple bearings through PTFE bushing, multiple sealing system with insertion slope, material easy to read when installed
2 DN	80	DN 80
3 Body configuration	W	Wafer-type flange design, face-to-face dimension FTF EN 558 series 20
4 Operating pressure	3	16 bar
5 Connection type	3	PN 16/flange EN 1092, face-to-face dimension FTF EN 558 series 20
6 Body material	2	EN-GJS-400-15 (GGG-40), epoxy coated 250 µm
7 Disc material	A	1.4408/ASTM A351 CF8M
8 Shaft material	1	1.4021/AISI 420
9 Shut-off seal material	E	EPDM
10 Liner fixing	L	Loose liner
11 Type of design		Without
12 Special version		Without
13 CONEXO		Without

6 Technical data

6.1 Medium

Working medium:

Gaseous and liquid media which have no negative impact on the physical and chemical properties of the disc and seat material.

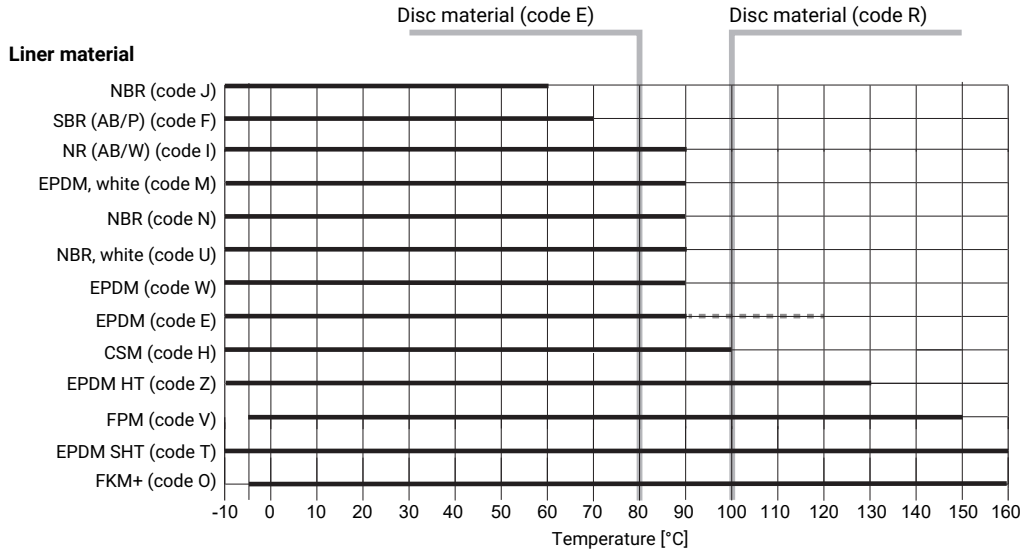
For special version for oxygen (code O): Only gaseous oxygen.

6.2 Temperature

Media temperature:

-10 — 160 °C

Depending on the liner and disc material or the type of liner fixing



FKM material not suitable for water/steam applications above 100 °C,
Observe Pressure/Temperature diagram.
FKM material not suitable for water/steam applications above 100 °C,
Observe Pressure/Temperature diagram.

For the medium gaseous oxygen (special version code O): Media temperature max. 100 °C.

Ambient temperature:

-10 — 70 °C

Storage temperature:

-20 — 40 °C

6.3 Pressure

Operating pressure:

DN 25–200: 0–16 bar
DN 250–600: 0–10 bar

Observe pressure/temperature diagram

Use as an end-of-line valve:

DN 25–200: 10 bar
DN 250–600: 6 bar

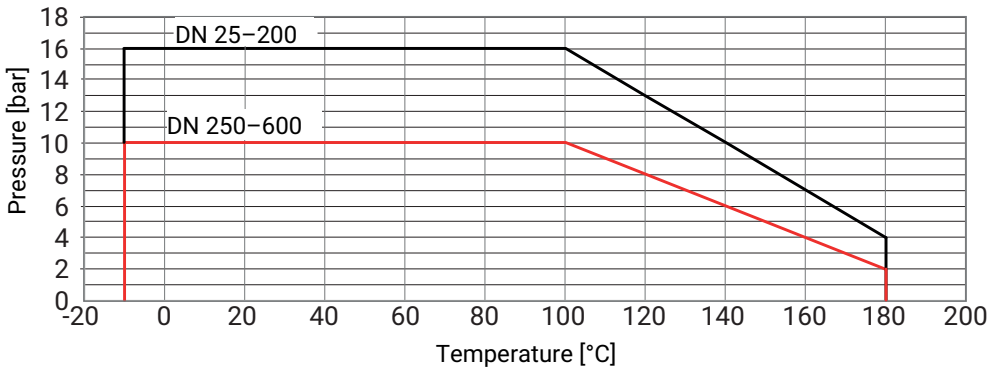
For the medium gaseous oxygen (special version code O): Operating pressure limited in accordance with product label data.

Vacuum:

Can be used up to a vacuum of 800 mbar (abs) with replaceable liner or with bonded liner up to a vacuum of 2 mbar (abs) through a leakage rate at 10^{-3} [mbar l/sec]

These values apply to room temperature and air. The values may deviate for other media and other temperatures.

Pressure/temperature diagram:



Pressure rating:

PN 3
PN 6
PN 10
PN 16

Kv values:

DN	PS	Cv values at opening angle							
	[bar]	20°	30°	40°	50°	60°	70°	80°	90°
25	16	0.7	2.0	4.1	7.2	11.0	14.5	16.6	17.2
40	16	2.5	7.0	14.4	25.1	38.3	50.6	57.8	60.0
50	16	3.0	9.0	20.0	33.0	65.0	110.0	124.0	125.0
65	16	9.0	15.0	30.0	64.0	118.0	195.0	214.0	222.0
80	16	19.0	40.0	66.0	117.0	196.0	321.0	353.0	363.0
100	16	29.0	75.0	137.0	213.0	316.0	487.0	584.0	618.0
125	16	48.0	100.0	185.0	315.0	550.0	895.0	1060.0	1120.0
150	16	60.0	150.0	281.0	450.0	789.0	1280.0	1630.0	1730.0
200	3 /16	110.0	281.0	472.0	759.0	1480.0	2880.0	3710.0	3900.0
250	3/ 10	200.0	444.0	738.0	1190.0	2110.0	3880.0	5180.0	5410.0
300	3/ 10	250.0	682.0	1060.0	1670.0	3120.0	6360.0	8620.0	8930.0
350	3/ 10	322.0	672.0	1180.0	1960.0	3230.0	5230.0	7980.0	9490.0
400	3/ 10	360.0	823.0	1510.0	2560.0	4180.0	6820.0	10700.0	12800.0
450	3/ 10	459.0	1040.0	1900.0	3220.0	5280.0	8680.0	14100.0	17500.0
500	3/ 10	530.0	1230.0	2290.0	3890.0	6430.0	10600.0	17200.0	21800.0
600	3/ 10	767.0	1770.0	3290.0	5610.0	9330.0	15600.0	25800.0	31600.0

Kv values in m³/h
When the opening angle is below 30° no regulation should be made!

6.4 Product conformity

Pressure equipment standards:

ASME GEMÜ B31.3

2014/68/EU

The butterfly valve fulfils the technical requirements of pressure equipment categories I and II and can be used under the following conditions.

Areas of use for R480 butterfly valve as in-line valve (classification as per Pressure Equipment Directive 2014/68/EC Article 4 and Annex II)				
	Media of fluid group 1 (dangerous)		**Media of fluid group 2 (other)**	
PS	**Gases** (Section 4 (1) c) i), diagram 6)	**Liquids** (Section 4 (1) c) ii), diagram 8)	**Gases** (Section 4 (1) c) i), diagram 7)	**Liquids** (Section 4 (1) c) ii), diagram 9)
16	DN 25–200	DN 25–200*	DN 25–200*	DN 25–200*
10	DN 25–350	DN 25–600	DN 25–500	DN 25–600
6	DN 25–350	DN 25–600	DN 25–600	DN 25–600
3	DN 25–350	DN 25–600	DN 25–600	DN 25–600

* Limit of the technical specification

When used as an end-of-line valve, a mating flange must be fitted.

Special conditions of use as an end-of-line valve: See section 7.3.

Food:

FDA

Regulation (EC) No. 1935/2004

Drinking water:

DVGW

ACS

WRAS

Belgaqua

NSF

Oxygen:

Testing of the seal material based on DIN EN 1797 and ISO 21010:2017 (special version code O)

Gas:

DVGW

Ship approval:

DNV GL

Explosion protection:

The product does not fall within the scope of Directive 2014/34/EU, as it does not have its own potential source of ignition. This is based on Section 38 of the ATEX Guideline (5th edition, April 2024).

TA Luft (German Clean Air Act):

The product meets the following requirements under the max. permissible operating conditions:

- Tightness or compliance with the specific leak rate within the sense of TA-Luft as well as VDI 2440
- Compliance with the requirements in accordance with DIN EN ISO 15848-1, Table C.2, Class BH

6.5 Mechanical data

Torques:

DN	PS			
	3 bar	6 bar	10 bar	16 bar*
25	-	-	-	4.0
40	-	-	-	7.0
50	3.0	5.0	7.0	9.0
65	8.0	10.0	13.0	15.0
80	10.0	15.0	20.0	25.0
100	15.0	20.0	30.0	40.0
125	25.0	35.0	45.0	60.0
150	40.0	50.0	80.0	100.0
200	100.0	-	-	160.0
250	140.0	-	200.0	-
300	200.0	-	330.0	-
350	255.0	-	430.0	-
400	580.0	-	1035.0	-
450	600.0	-	1150.0	-
500	860.0	-	1250.0	-
600	1441.0	-	2140.0	-

* Standard
Torques in Nm
Working medium water (20 °C) and optimal operating conditions

Tightening torques:

Bolt size	Tightening torque [Nm]
M5	5–6
M6	10–11
M8	23–25
M10	48–52
M12	82–86
M14	132–138
M16	200–210
M20	390–410
M24	675–705

Weight:

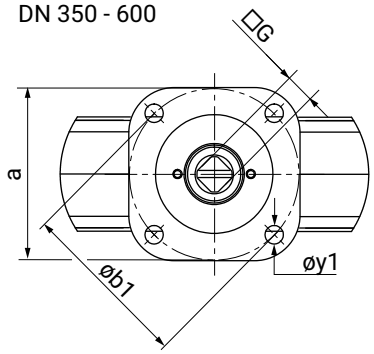
DN	Wafer	Lug	U section
25	1.2	-	-
40	1.5	-	-
50	1.7	2.2	-
65	2.5	2.9	-
80	3.2	4.4	-
100	4.4	6.2	-
125	5.9	8.1	-
150	7.7	10.1	-
200	13.9	18.4	-
250	19.6	28.7	-
300	27.3	36.8	-
350	48.0	66.0	-
400	72.0	110.0	107.0
450	95.0	-	125.0
500	120.0	-	164.0
600	192.0	-	261.0

Weights in kg

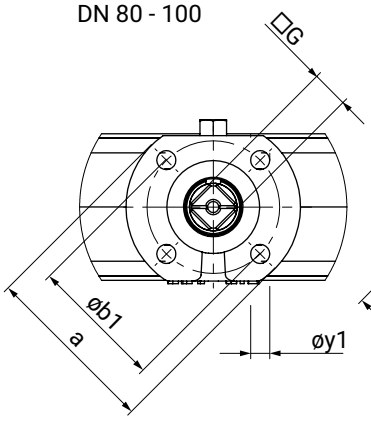
7 Dimensions

7.1 Actuator flange

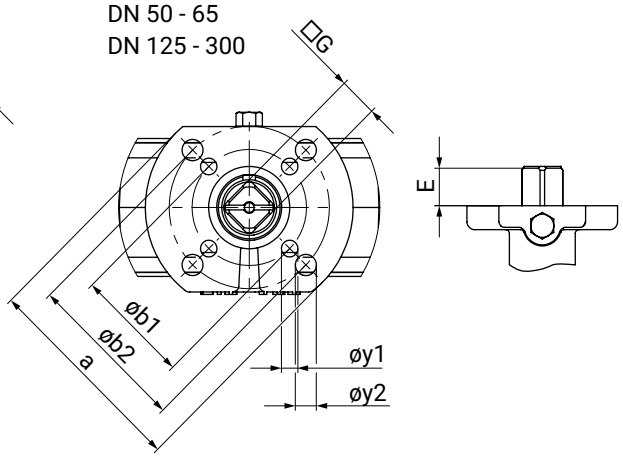
DN 25 - 40
DN 350 - 600



DN 80 - 100



DN 50 - 65
DN 125 - 300



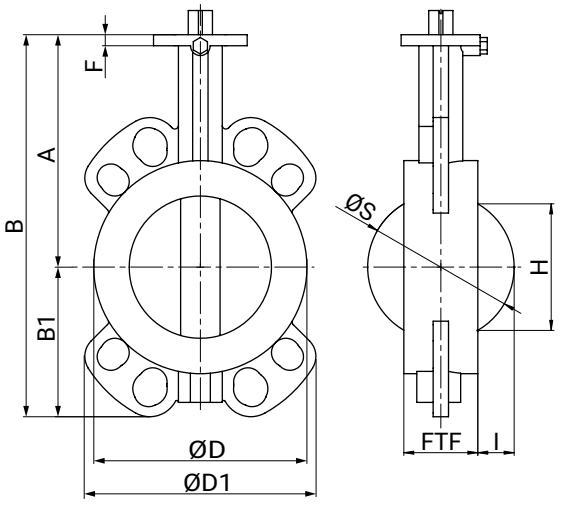
DN	ISO 5211	a	øb1	øy1	øb2	øy2	E		□G		Code
							PS3	PS10/ PS16	PS3	PS10/ PS16	
25	F05	□50.0	50.0	7.0	-	-	-	19.0	-	9.0	05 D09
32	F05	□50.0	50.0	7.0	-	-	-	19.0	-	9.0	05 D09
40	F05	□50.0	50.0	7.0	-	-	-	19.0	-	9.0	05 D09
50	F03 | F05	ø65.0	36.0	6.0	50.0	7.0	-	19.0	-	9.0	05 D09
65	F03 | F05	ø65.0	36.0	6.0	50.0	7.0	-	19.0	-	11.0	05 D11
80	F05	ø65.0	50.0	7.0	-	-	-	19.0	-	11.0	05 D11
100	F05	ø65.0	50.0	7.0	-	-	-	19.0	-	14.0	05 D14
125	F05 | F07	ø90,0	50.0	7.0	70.0	9.0	-	25.0	-	17.0	07 D17
150	F05 | F07	ø90,0	50.0	7.0	70.0	9.0	-	25.0	-	17.0	07 D17
200	F07 | F10	ø125.0	70.0	9.0	102.0	11.0	17.0*	32.0	17.0*	22.0	10 D22
250	F07 | F10	ø125.0	70.0	9.0	102.0	11.0	17.0*	32.0	17.0*	22.0	10 D22
300	F07 | F10	ø125.0	70.0	9.0	102.0	11.0	17.0*	32.0	17.0*	22.0	10 D22
350	F12	□130.0	125.0	13.0	-	-	22.0*	28.0	22.0*	27.0	12 D27
400	F14	□160.0	140.0	17.0	-	-	27.0*	37.0	27.0*	36.0	14 D36
450	F14	□160.0	140.0	17.0	-	-	27.0*	37.0	27.0*	36.0	14 D36
500	F14	□160.0	140.0	17.0	-	-	27.0*	37.0	27.0*	36.0	14 D36
600	F16	□200.0	165.0	21.0	-	-	36.0*	47.0	36.0*	46.0	16 D46

Dimensions in mm

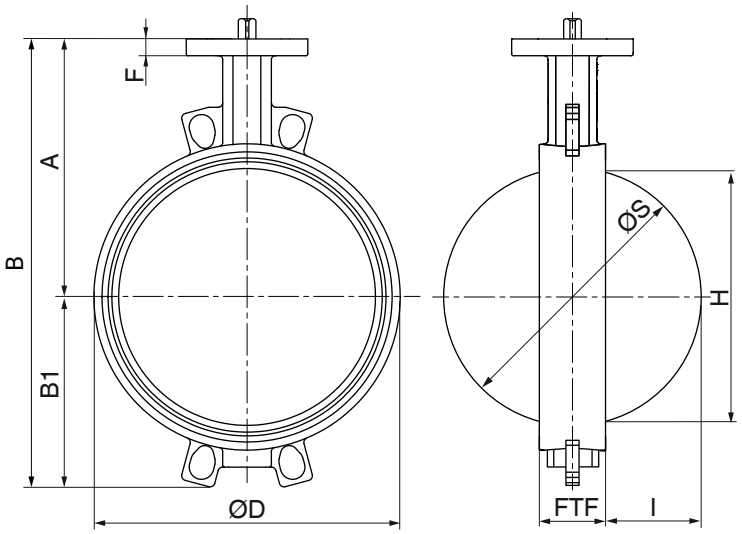
7.2 Body

7.2.1 Wafer body configuration

DN 25 - 100



DN 125 - 600



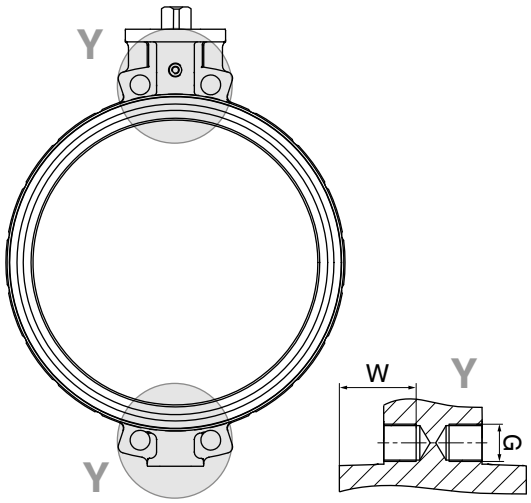
DN	A	B	B1	ØD	ØD1	F	FTF	H*	ØS	I
25	100.0	141.3	41.3	59.5	88.6	12.0	25.0	16.0	26.5	0.5
32	120.0	173.8	53.8	75.8	109.8	12.0	33.0	24.5	41.5	4.0
40	120.0	176.0	56.0	73.0	111.0	12.0	33.0	24.0	41.0	4.0
50	120.0	182.0	62.0	90.0	118.0	12.0	43.0	29.0	52.0	5.0
65	137.0	218.0	81.0	108.0	133.0	12.0	46.0	48.0	67.0	10.0
80	145.0	231.0	87.0	130.0	141.0	12.0	46.0	68.0	82.0	18.0
100	166.0	271.0	105.0	150.0	163.0	14.0	52.0	88.0	102.0	25.0
125	187.0	304.0	117.0	175.0	120.0	16.0	56.0	114.0	127.0	35.0
150	200.0	332.0	132.0	207.0	129.0	16.0	56.0	141.0	152.0	48.0
200	240.0	413.0	173.0	263.0	157.0	17.0	60.0	193.0	202.0	71.0
250	265.0	466.0	201.0	317.0	185.0	17.0	68.0	242.0	252.0	92.0
300	290.0	531.0	241.0	366.0	164.0	17.0	78.0	291.0	302.0	112.0
350	321.0	587.0	266.0	440.0	440.0	15.0	78.0	329.0	337.4	130.0
400	347.0	655.0	308.0	485.0	485.0	20.0	102.0	379.0	391.4	145.0
450	372.0	705.0	333.0	541.0	541.0	20.0	144.0	428.0	441.4	164.0
500	398.0	756.0	358.0	600.0	600.0	20.0	127.0	478.0	493.4	183.5
600	470.0	912.0	442.0	700.0	700.0	24.0	154.0	574.0	593.4	220.0

Dimensions in mm

* Please note dimension H to prevent disc binding on internal pipe

Please note: chamfer flanges for plastic pipelines if necessary

7.2.1.1 Threaded hole



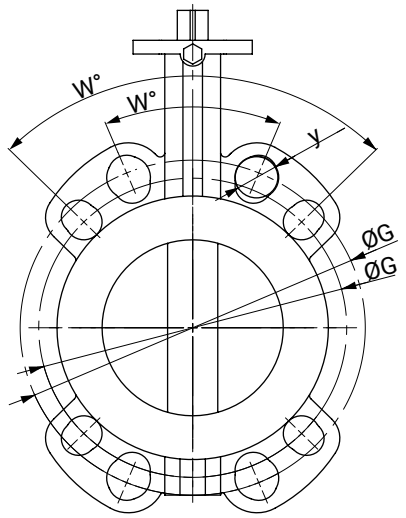
Threaded hole (detail Y)

DN	Connection type code [1]					
	2		3		D	
	G	W	G	W	G	W
450	M24	46	M27	46	Ø 31,7	-

Dimensions in mm

1) **Connection type**
Code 2: PN 10/flange EN 1092, face-to-face dimension FTF EN 558 series 20
Code 3: PN 16/flange EN 1092, face-to-face dimension FTF EN 558 series 20
Code D: ANSI B16.5, class 150, face-to-face dimension FTF EN 558, series 20, For lug bodies/threaded holes with UNC thread

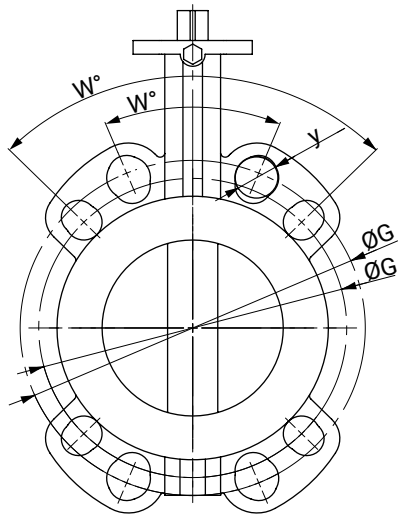
7.2.1.2 Connections



Connection EN1092, ANSI B16.5

DN	INCH	Connection (code)															
		EN1092-1 PN6 (code 1)				EN1092-1 PN10 (code 2)				EN1092-1 PN16 (code 3)				ANSI B16.5/CL150 (code D)			
DIN	ANSI	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y
25	**1"**	90.0	4	75.0	M10	90.0	4	85.0	M12	90.0	4	85.0	M12	90.0	4	79.0	1/2"
32	**1¼"**	90.0	4	90.0	M12	90.0	4	100.0	M16	90.0	4	100.0	M16	90.0	4	89.0	1/2"
40	**1½"**	90.0	4	100.0	M12	90.0	4	110.0	M16	90.0	4	110.0	M16	90.0	4	98.0	1/2"
50	**2"**	90.0	4	110.0	M12	90.0	4	125.0	M16	90.0	4	125.0	M16	90.0	4	121.0	5/8"
65	**2½"**	90.0	4	130.0	M12	45.0	8	145.0	M16	90.0	8	145.0	M16	90.0	4	140.0	5/8"
80	**3"**	90.0	4	150.0	M16	45.0	8	160.0	M16	45.0	8	160.0	M16	90.0	4	152.0	5/8"
100	**4"**	90.0	4	170.0	M16	45.0	8	180.0	M16	45.0	8	180.0	M16	45.0	8	191.0	5/8"
125	**5"**	45.0	8	200.0	M16	45.0	8	210.0	M16	45.0	8	210.0	M16	45.0	8	216.0	3/4"
150	**6"**	45.0	8	225.0	M16	45.0	8	240.0	M20	45.0	8	240.0	M20	45.0	8	241.0	3/4"
200	**8"**	45.0	8	280.0	M16	45.0	8	295.0	M20	30.0	12	295.0	M20	45.0	8	298.0	3/4"
250	**10"**	30.0	12	335.0	M16	30.0	12	350.0	M20	30.0	12	355.0	M24	30.0	12	362.0	7/8"
300	**12"**	30.0	12	395.0	M20	30.0	12	400.0	M20	30.0	12	410.0	M24	30.0	12	432.0	7/8"
350	**14"**	-	-	-	-	22.5	16	460.0	M20	22.5	16	470.0	M24	30.0	12	476.0	1"
400	**16"**	-	-	-	-	22.5	16	515.0	M24	22.5	16	525.0	M27	22.5	16	540.0	1"
450	**18"**	-	-	-	-	18.0	20	565.0	M24	18.0	20	585.0	M27	22.5	16	578.0	1⅛"
500	**20"**	-	-	-	-	18.0	20	620.0	M24	18.0	20	650.0	M30	18.0	20	635.0	1⅛"
600	**24"**	-	-	-	-	18.0	20	725.0	M27	18.0	20	770.0	M33	18.0	20	749.0	1¼"

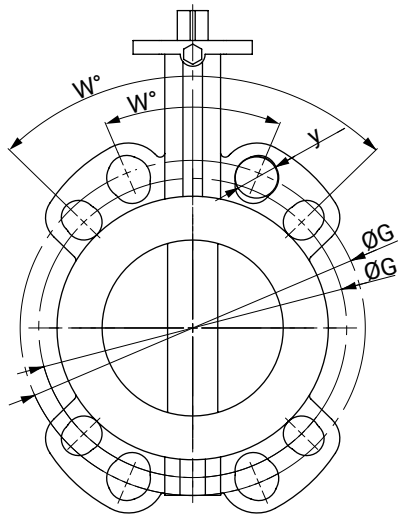
Dimensions in mm
n = number of bolts



Connection AS2129, BS10

DN	INCH	Connection (code)															
		AS 2129 D (code T)				AS 2129 E (code U)				BS10 D (code H)				BS10 E (code S)			
DIN	ANSI	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y
25	**1"**	90.0	4	83.0	M12	90.0	4	83.0	M12	90.0	4	83.0	M12	90.0	4	83.0	M12
32	**1¼"**	90.0	4	87.0	M12	90.0	4	87.0	M12	90.0	4	87.0	M12	90.0	4	87,0	M12
40	**1½"**	90.0	4	98.0	M12	90.0	4	98.0	M12	90.0	4	98.0	M12	90.0	4	98.0	M12
50	**2"**	90.0	4	114.0	M16	90.0	4	114.0	M16	90.0	4	114.0	M16	90.0	4	114.0	M16
65	**2½"**	90.0	4	127.0	M16	90.0	4	127.0	M16	90.0	4	127.0	M16	90.0	4	127.0	M16
80	**3"**	90.0	4	146.0	M16	90.0	4	146.0	M16	90.0	4	146.0	M16	90.0	4	146.0	M16
100	**4"**	90.0	4	178.0	M16	45.0	8	178.0	M16	90.0	4	178.0	M16	45.0	8	178.0	M16
125	**5"**	45.0	8	210.0	M16	45.0	8	210.0	M16	45.0	8	210.0	M16	45.0	8	210.0	M16
150	**6"**	45.0	8	235.0	M16	45.0	8	235.0	M20	45.0	8	235.0	M16	45.0	8	235.0	M20
200	**8"**	45.0	8	292.0	M16	45.0	8	292.0	M20	45.0	8	292.0	M16	45.0	8	292.0	M20
250	**10"**	45.0	8	356.0	M20	30.0	12	356.0	M20	45.0	8	356.0	M20	30.0	12	356.0	M20
300	**12"**	30.0	12	406.0	M20	30.0	12	406.0	M22	30.0	12	406.0	M20	30.0	12	406.0	M22
350	**14"**	30.0	12	470.0	M22	30.0	12	470.0	M27	30.0	12	470.0	M22	30.0	12	470.0	M27
400	**16"**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450	**18"**	-	-	-	-	22.5	16	584.0	M24	-	-	-	-	22.5	16	584.0	M24
500	**20"**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
600	**24"**	22.5	16	756.0	M27	22.5	16	756.0	M30	22.5	16	756.0	M27	22.5	16	756.0	M30

Dimensions in mm
n = number of bolts



Connection JIS K10, K16

DN	INCH	Connection (code)							
		JIS-K10 (code G)				JIS-K16 (code J)			
DIN	ANSI	w°	n	ØG	y	w°	n	ØG	y
25	**1"**	90	4	90.0	M16	90	4	90.0	M16
32	**1¼"**	90	4	100.0	M16	90	4	100.0	M16
40	**1½"**	90	4	105.0	M16	90	4	105.0	M16
50	**2"**	90.0	4	120.0	M16	45.0	8	120.0	M16
65	**2½"**	90.0	4	140.0	M16	45.0	8	140.0	M16
80	**3"**	45.0	8	150.0	M16	45.0	8	160.0	M20
100	**4"**	45.0	8	175.0	M16	45.0	8	185.0	M20
125	**5"**	45.0	8	210.0	M20	-	-	-	-
150	**6"**	45.0	8	240.0	M20	-	-	-	-
200	**8"**	30.0	12	290.0	M20	30.0	12	305.0	M24
250	**10"**	30.0	12	355.0	M24	-	-	-	-
300	**12"**	22.5	16	400.0	M24	-	-	-	-
350	**14"**	-	-	-	-	-	-	-	-
400	**16"**	22.5	16	510.0	M24	-	-	-	-
450	**18"**	18	20	565.0	M24	-	-	-	-
500	**20"**	18	20	620.0	M24	-	-	-	-
600	**24"**	15	24	730.0	M30	-	-	-	-

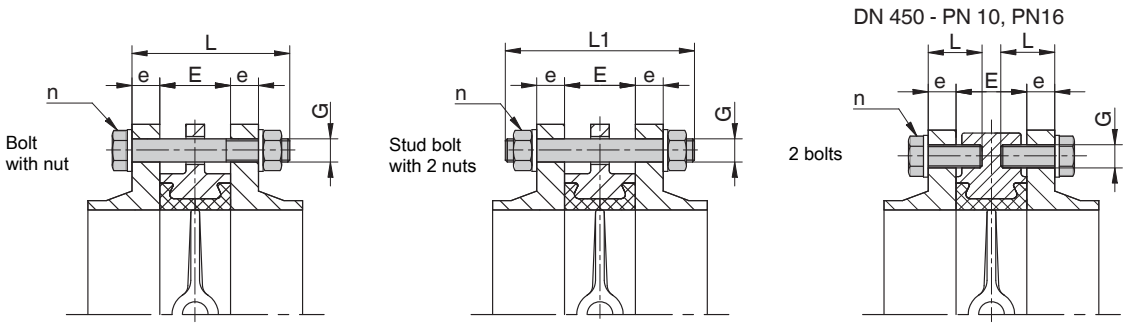
Dimensions in mm
n = number of bolts

Availabilities

Wafer																	
Flange	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
EN1092-1 PN6	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-
EN1092-1 PN10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
EN1092-1 PN16	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
ANSI B16.5/CL150	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
AS 2129 D	T	T	T	T	T	T	T	T	T	T	T	T	T	-	-	-	T
AS 2129 E	U	U	U	U	U	U	U	U	U	U	U	U	U	-	U	-	U
JIS 5 K	K	K	K	-	K	K	-	K	K	K	K	-	-	-	-	-	-
JIS-K10	G	G	G	G	G	G	G	G	G	G	G	G	-	G	G	G	G
JIS-K16	J	J	J	J	J	J	J	-	-	J	-	-	-	-	-	-	-
BS10 D	H	H	H	H	H	H	H	H	H*	H*	H	H*	H	-	-	-	H
BS10 E	S	S	S	S	S	S	S	S	S	S*	S*	S	S	-	S	-	S

* Note: It is important to centrically align the butterfly valve during installation

7.2.1.3 Connection – screws, bolts

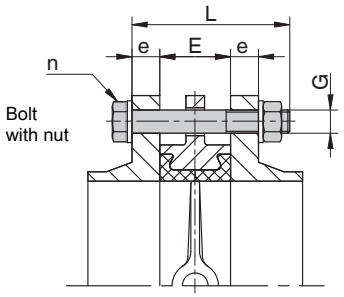


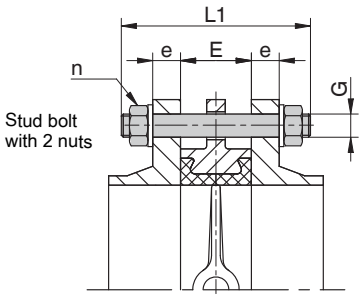
n = number of bolts

n/2 = number of eyes (flange eyes)

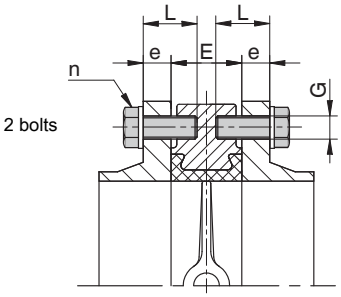
DN	E	Connection (code)									
		EN1092-1 PN10 (code 2)					EN1092-1 PN16 (code 3)				
		e	L	L1	n	G	e	L	L1	n	G
25	25	18	85	100	4	M12	18	85	100	4	M12
32	33	18	90	110	4	M12	18	90	110	4	M16
40	33	18	90	110	4	M12	18	90	110	4	M16
50	43	18	100	120	4	M16	18	100	120	4	M16
65	46	18	100	120	4	M16	18	100	120	4	M16
80	46	20	110	130	8	M16	20	110	130	8	M16
100	52	20	110	130	8	M16	20	110	130	8	M16
125	56	22	120	140	8	M16	22	120	140	8	M16
150	56	22	130	150	8	M20	22	130	150	8	M20
200	60	24	130	160	8	M20	24	130	160	12	M20
250	68	26	150	170	12	M20	26	150	170	12	M24
300	78	26	160	180	12	M20	28	160	180	12	M24
350	78	26	170	180	16	M20	30	170	190	16	M24
400	102	26	180	210	16	M24	32	200	220	16	M27
450	114	26	190	220	16	M24	32	210	240	16	M27
	114	26	60	-	8	M24	32	60	-	8	M27
500	127	28	210	230	20	M24	34	230	260	20	M30
600	154	28	240	270	20	M27	36	260	290	20	M33

Dimensions in mm





DN 450 - PN 10, PN16



n = number of bolts

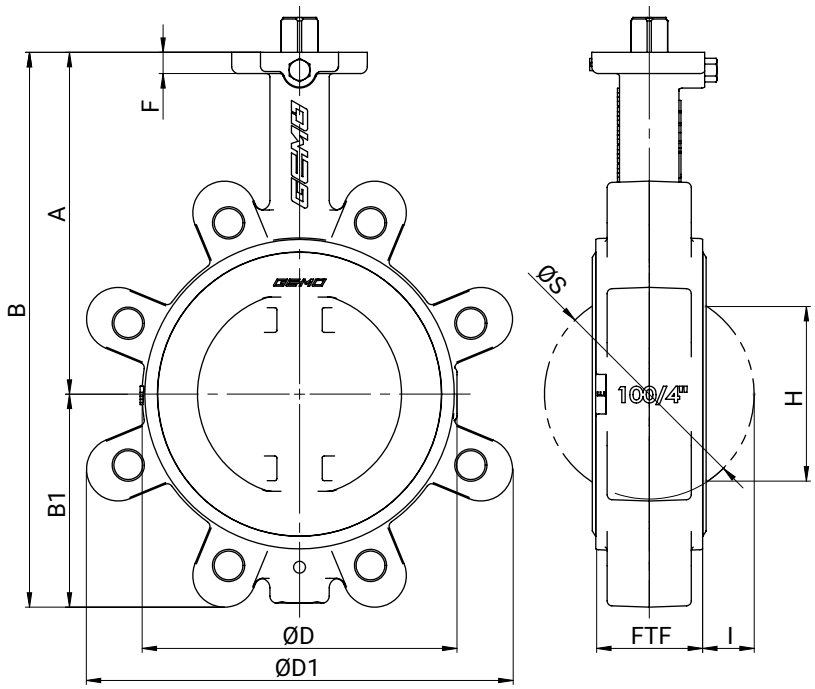
n/2 = number of eyes (flange eyes)

DN	E	ANSI B16.5/CL150 (code D)				
		e	L	L1	n	G [1]
25	25	14.3	85	100	4	1/2"-13
32	33	17.5	90	110	4	1/2"-13
40	33	17.5	90	110	4	1/2"-13
50	43	19.0	100	120	4	5/8"-11
65	46	22.2	110	130	4	5/8"-11
80	46	23.8	110	130	4	5/8"-11
100	52	23.8	120	140	8	5/8"-11
125	56	23.8	130	150	8	3/4"-10
150	56	25.4	130	150	8	3/4"-10
200	60	28.6	140	160	8	3/4"-10
250	68	30.2	160	180	12	7/8"- 9
300	78	31.7	170	190	12	7/8"- 9
350	78	34.9	180	200	12	1"- 8
400	102	36.5	210	230	16	1"- 8
450	114	39.7	230	250	16	1 1/8"-7
450	114	39.7	230	250	16	1 1/8"-7
500	127	46.0	250	280	20	1 1/8"-7
600	154	47.6	280	310	20	1 1/4"-7

Dimensions in mm

1) Thread acc. to UNC

7.2.2 Lug body configuration



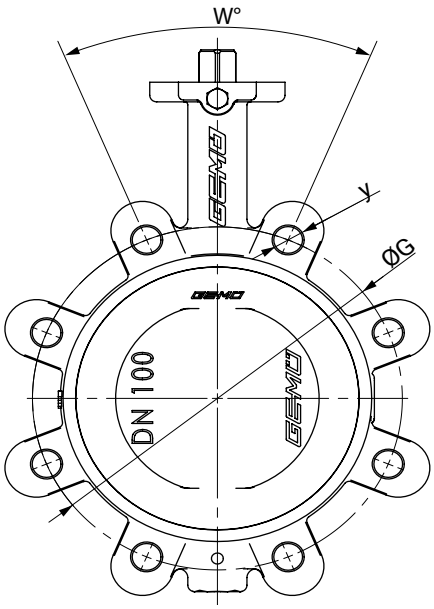
DN	A	B	B1	ØD	ØD1	F	FTF	H*	ØS	I
50	120.0	182.0	62.0	91.0	116.0	12.0	44.0	29.0	52.0	4.0
65	137.0	219.0	82.0	109.0	126.0	12.0	46.0	48.0	67.0	10.0
80	145.0	234.0	89.0	131.0	177.0	12.0	46.0	68.0	82.0	18.0
100	166.0	270.0	104.0	153.0	207.0	14.0	52.0	88.0	102.0	25.0
125	187.0	305.0	118.0	175.0	231.0	16.0	56.0	114.0	127.0	36.0
150	200.0	333.0	133.0	208.0	255.0	16.0	56.0	141.0	152.0	48.0
200	240.0	415.0	175.0	264.0	325.0	17.0	60.0	193.0	202.0	71.0
250	265.0	467.0	202.0	317.0	386.0	17.0	68.0	242.0	252.0	92.0
300	290.0	531.0	241.0	366.0	459.0	17.0	78.0	291.0	302.0	112.0
350	321.0	581.0	260.0	520.0	520.0	15.0	78.0	329.0	337.4	130.0
400	347.0	647.0	300.0	596.0	596.0	20.0	102.0	379.0	391.4	145.0

Dimensions in mm

* Please note dimension H to prevent disc binding on internal pipe

Please note: chamfer flanges for plastic pipelines if necessary

7.2.2.1 Connections

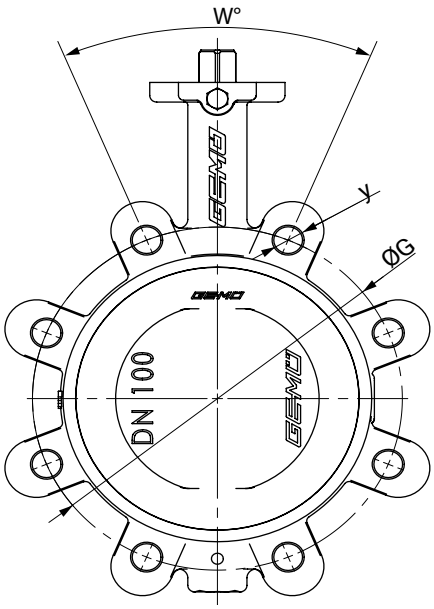


Connection EN1092, ANSI B16.5

DN	INCH	Connection (code)															
		EN1092-1 PN6 (code 1)				EN1092-1 PN10 (code 2)				EN1092-1 PN16 (code 3)				ANSI B16.5/CL150 (code D)			
DIN	ANSI	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y
50	**2"**	90.0	4	110.0	M12	90.0	4	125.0	M16	90.0	4	125.0	M16	90.0	4	120.6	5/8"
65	**2½"**	90.0	4	130.0	M12	90.0	4*	145.0	M16	90.0	8*	145.0	M16	90.0	4	139.7	5/8"
80	**3"**	90.0	4	150.0	M16	45.0	8	160.0	M16	45.0	8	160.0	M16	90.0	4	152.4	5/8"
100	**4"**	90.0	4	170.0	M16	45.0	8	180.0	M16	45.0	8	180.0	M16	45.0	8	190.5	5/8"
125	**5"**	45.0	8	200.0	M16	45.0	8	210.0	M16	45.0	8	210.0	M16	45.0	8	215.9	3/4"
150	**6"**	45.0	8	225.0	M16	45.0	8	240.0	M20	45.0	8	240.0	M20	45.0	8	241.3	3/4"
200	**8"**	45.0	8	280.0	M16	45.0	8	295.0	M20	30.0	12	295.0	M20	45.0	8	298.5	3/4"
250	**10"**	30.0	12	335.0	M16	30.0	12	350.0	M20	30.0	12	355.0	M24	30.0	12	362.0	7/8"
300	**12"**	30.0	12	395.0	M20	30.0	12	400.0	M20	30.0	12	410.0	M24	30.0	12	431.8	7/8"
350	**14"**	30.0	12	445.0	M20	22.5	16	460.0	M20	22.5	16	470.0	M24	30.0	12	476.0	1"
400	**16"**	22.5	16	495.0	M20	22.5	16	515.0	M24	22.5	16	525.0	M27	22.5	16	540.0	1"

Dimensions in mm
n = number of bolts

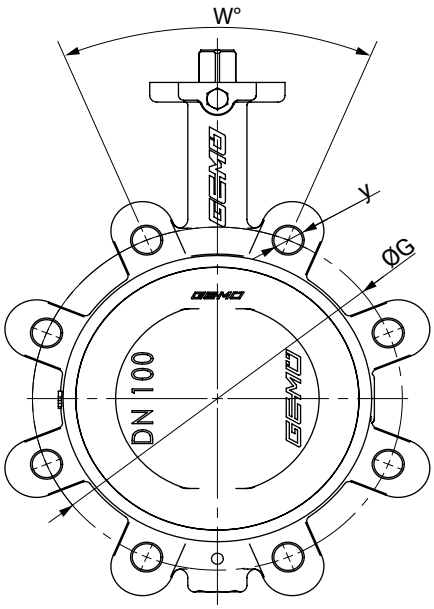
* Standard: 8 holes code 3 (PN16); if 4 holes are required, select code 2 (PN10);



Connection AS 2129, BS10

DN	INCH	Connection (code)															
		AS 2129 D (code T)				AS 2129 E (code U)				BS10 D (code H)				BS10 E (code S)			
DIN	ANSI	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y
50	**2"**	90.0	4	114.0	M16	90.0	4	114.0	M16	90.0	4	114.3	M16	90.0	4	114.3	M16
65	**2½"**	90.0	4	127.0	M16	90.0	4	127.0	M16	90.0	4	127.0	M16	90.0	4	127.0	M16
80	**3"**	90.0	4	146.0	M16	90.0	4	146.0	M16	90.0	4	146.1	M16	90.0	4	146.1	M16
100	**4"**	90.0	4	178.0	M16	45.0	8	178.0	M16	90.0	4	177.8	M16	45.0	8	177.8	M16
125	**5"**	45.0	8	210.0	M16	45.0	8	210.0	M16	45.0	8	209.6	M16	45.0	8	209.6	M16
150	**6"**	45.0	8	235.0	M16	45.0	8	235.0	M20	45.0	8	235.0	M16	45.0	8	235.0	M20
200	**8"**	45.0	8	292.0	M16	45.0	8	292.0	M20	45.0	8	292.1	M16	45.0	8	292.1	M20
250	**10"**	45.0	8	356.0	M20	30.0	12	356.0	M20	45.0	8	355.6	M20	30.0	12	355.6	M20
300	**12"**	30.0	12	406.0	M20	30.0	12	406.0	M22	30.0	12	406.4	M20	30.0	12	406.4	M22
350	**14"**	30,0	12	470,0	M22	30,0	12	470,0	M27	30,0	12	470,0	M22	30,0	12	470,0	M27

Dimensions in mm
n = number of bolts



Connection JIS-K10

DN	INCH	Connection (code)			
		JIS-K10 (code G)			
DIN	ANSI	w°	n	ØG	y
50	**2"**	90.0	4	120.0	M16
65	**2½"**	90.0	4	140.0	M16
80	**3"**	45.0	8	150.0	M16
100	**4"**	45.0	8	175.0	M16
125	**5"**	45.0	8	210.0	M20
150	**6"**	45.0	8	240.0	M20
200	**8"**	30.0	12	290.0	M20
250	**10"**	30.0	12	355.0	M24
300	**12"**	22.5	16	400.0	M24
350	**14"**	22.5	16	445.0	M22
400	**16"**	22.5	16	510.0	M24

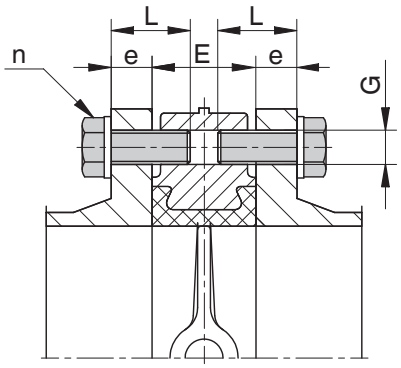
Dimensions in mm
n = number of bolts

Availabilities

	Lug										
Flange	50	65	80	100	125	150	200	250	300	350	400
EN1092-1 PN6	1	1	1	1	1	1	1	1	1	-	-
EN1092-1 PN10	3	3*	3	3	3	3	2	2	2	2	2
EN1092-1 PN16	3	3*	3	3	3	3	3	3	3	3	3
ANSI B16.5/CL150	D	D	D	D	D	D	D	D	D	D	D
AS 2129 D	T	-	T	T	T	T	T	-	T	-	-
AS 2129 E	U	-	U	U	U	U	U	U	U	-	-
JIS-K10	G	G	G	G	G	G	G	G	-	G	G
BS10 D	H	-	H	H	H	H	H	-	H	-	-
BS10 E	S	-	S	S	S	S	S	S	S	-	-

* drilled, with four threaded holes

7.2.2.2 Connection – screws, bolts



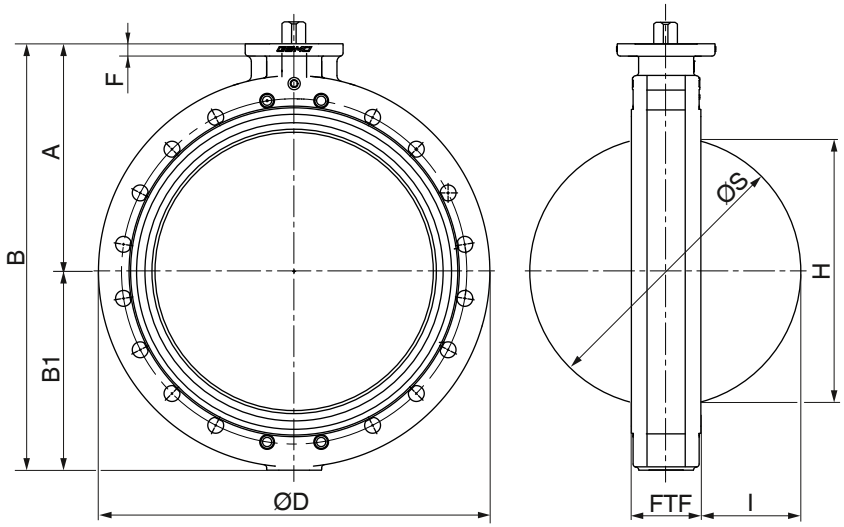
n = number of bolts (thread)

DN	E	Connection (code)											
		EN1092-1 PN10 (code 2)				EN1092-1 PN16 (code 3)				ANSI B16.5/CL150 (code D)			
		e	L	n	G	e	L	n	G	e	L	n	G [1)]
50	43	18	35	8	M16	18	40	8	M16	19	40	8	5/8"-11
65	46	18	40	8	M16	18	40	8	M16	22.2	45	8	5/8"-11
80	46	20	40	16	M16	20	40	16	M16	23.8	45	8	5/8"-11
100	52	20	45	16	M16	20	45	16	M16	23.8	50	16	5/8"-11
125	56	22	45	16	M16	22	45	16	M16	23.8	55	16	3/4"-10
150	56	22	45	16	M20	22	45	16	M20	25.4	55	16	3/4"-10
200	60	24	50	16	M20	24	50	24	M20	28.6	65	16	3/4"-10
250	68	26	55	24	M20	26	55	24	M24	30.2	70	24	7/8"- 9
300	78	26	60	24	M20	28	65	24	M24	31.7	80	24	7/8"- 9
350	78	26	60	32	M20	30	60	32	M24	34.9	75	24	1"- 8
400	102	26	65	32	M24	32	65	32	M27	36.5	85	32	1"- 8

Dimensions in mm

1) Thread acc. to UNC

7.2.3 U section body configuration



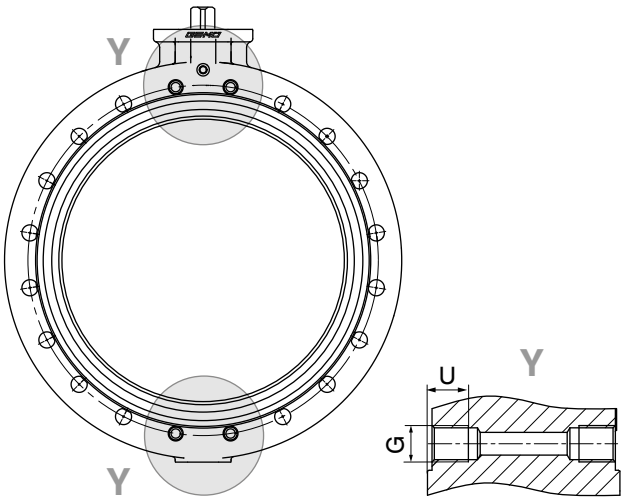
DN	A	B	B1	ØD	F	FTF	H*	I	ØS
400	347.0	662.0	315.0	596.0	20.0	102.0	379.0	145.0	391.4
450	372.0	712.0	340.0	640.0	20.0	114.0	428.0	164.0	441.4
500	398.0	763.0	365.0	715.0	20.0	127.0	478.0	183.5	493.4
600	470.0	917.0	447.0	840.0	24.0	154.0	574.0	220.0	593.4

Dimensions in mm

* Please note dimension H to prevent disc binding on internal pipe

Please note: chamfer flanges for plastic pipelines if necessary

7.2.3.1 Threaded hole



Threaded hole (detail Y)

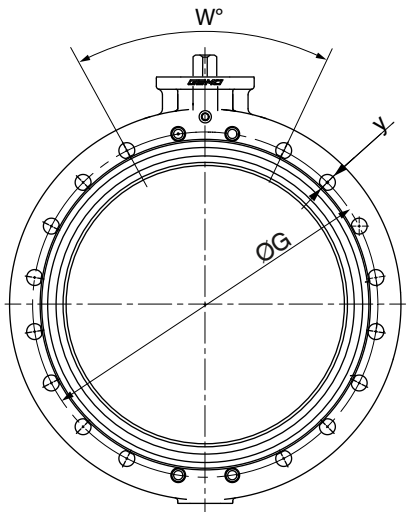
DN	Connection type code [1]					
	2		3		D	
	G	U	G	U	G [2]	U
400	M24	24	M27	27	1"-8	-
450	M24	24	M27	27	1 1/8"-7	30
500	M24	24	M30	30	1 1/8"-7	30
600	M27	27	M33	33	1 1/4"-7	33

Dimensions in mm

1) **Connection type**
Code 2: PN 10/flange EN 1092, face-to-face dimension FTF EN 558 series 20
Code 3: PN 16/flange EN 1092, face-to-face dimension FTF EN 558 series 20
Code D: ANSI B16.5, class 150, face-to-face dimension FTF EN 558, series 20, For lug bodies/threaded holes with UNC thread

2) Thread acc. to UNC

7.2.3.2 Connections



DN	INCH	Connection (code)											
		EN1092-1 PN10 (code 2)				EN1092-1 PN16 (code 3)				ANSI B16.5/CL150 (code D)			
DIN	ANSI	w°	n	ØG	y	w°	n	ØG	y	w°	n	ØG	y
400	**16"**	22.5	16.0	515.0	M24	22.5	16.0	525.0	M27	22.5	16.0	540.0	1"
450	**18"**	18.0	20.0	565.0	M24	18.0	20.0	585.0	M27	22.5	16.0	578.0	1⅛"
500	**20"**	18.0	20.0	620.0	M24	18.0	20.0	650.0	M30	18.0	20.0	635.0	1⅛"
600	**24"**	18.0	20.0	725.0	M27	18.0	20.0	770.0	M33	18.0	20.0	749.0	1¼"

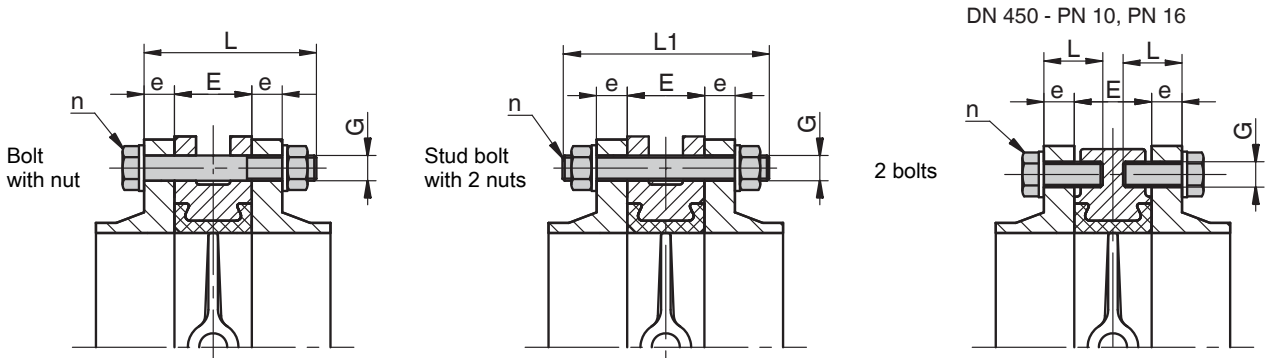
Dimensions in mm

Availabilities

U section				
Flange	400	450	500	600
EN1092-1 PN6	1*	1*	1*	1*
EN1092-1 PN10	2	2	2	2
EN1092-1 PN16	3	3	3	3
ANSI B16.5/CL150	D	D	D	D
AS 2129 E	-	U	-	-
BS10 D	-	-	-	H
BS10 E	-	S	-	-

* only available with threaded holes

7.2.3.3 Connection – screws, bolts



n = number of bolts

DN	E	Connection (code)									
		EN1092-1 PN10 (code 2)					EN1092-1 PN16 (code 3)				
		e	L	L1	n	G	e	L	L1	n	G
400	102	26	180	210	12	M24	32	200	220	12	M27
	102	26	50	210	8	M24	32	55	220	8	M27
450	114	26	190	220	16	M24	32	210	240	16	M27
	114	26	50	220	8	M24	32	55	240	8	M27
500	127	28	210	230	16	M24	34	230	260	16	M30
	127	28	50	230	8	M24	34	60	260	8	M30
600	154	28	240	270	16	M27	36	260	290	16	M33
	154	28	50	270	8	M27	36	60	290	8	M33

Dimensions in mm

DN	E	ANSI B16.5/CL150 (code D)				
		e	L	L1	n	G [1)]
400	102	36.5	210	230	12	1"- 8
	102	36.5	210	230	8	1"- 8
450	114	39.7	230	250	16	1 1/8"-7
	114	39.7	65	250	8	1 1/8"-7
500	127	46.0	250	280	16	1 1/8"-7
	127	46.0	70	280	8	1 1/8"-7
600	154	47.6	280	310	16	1 1/4"-7
	154	47.6	70	310	8	1 1/4"-7

Dimensions in mm

1) Thread acc. to UNC

8 Manufacturer's information

8.1 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.

8.2 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.

8.3 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. Close the compressed air connections with protection caps or sealing plugs.

9 Installation in piping

9.1 Preparing for installation

⚠ 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.

⚠ WARNING

Corrosive chemicals!

► Risk of caustic burns
- Wear appropriate protective gear.
- Completely drain the plant.

⚠ WARNING

GEMÜ products without an actuating element!

► Risk of severe injury or death
- Do not apply pressure to GEMÜ products installed in piping without an actuating element.

⚠ CAUTION

Hot plant components!

► Burns
- Only work on plant that has cooled down.
- Wear protective gear.

⚠ CAUTION

Leakage!

► Emission of dangerous materials
- Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

⚠ CAUTION

Maximum permissible pressure exceeded!

► Damage to the product!
- Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

⚠ CAUTION

Use as an end-of-line valve!

► Damage to the GEMÜ product
- When using the GEMÜ product as an end-of-line valve, a mating flange must be fitted.

⚠ CAUTION

Risk of crushing!

► Risk of severe injury
- Before performing any work on the GEMÜ product, depressurize the plant.

⚠ CAUTION

Risk of crushing!

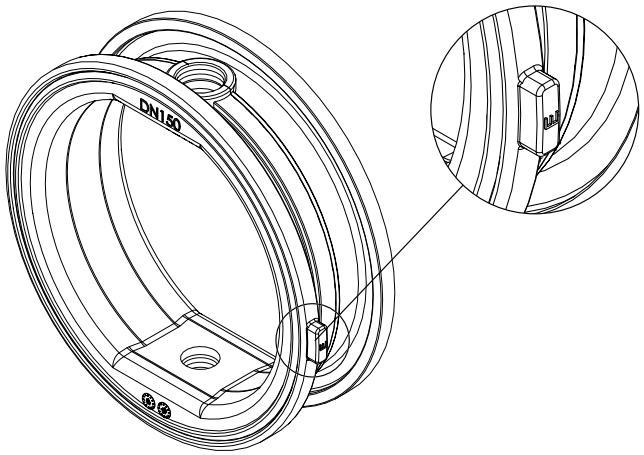
► Severe injury due to crushing of the fingers between the valve body and butterfly disc.
- Depressurize the plant before performing any work on the butterfly valve, and unscrew the control medium line(s) of the butterfly valve.
- Ensure that the butterfly disc is in the respective end position (closed for NC or open for NO).
- Do not reach into the crushing area between the valve body and butterfly disc.

NOTICE

Suitability of the product!

► The product must be appropriate for the piping system operating conditions (medium, medium concentration, temperature and pressure) and the prevailing ambient conditions.

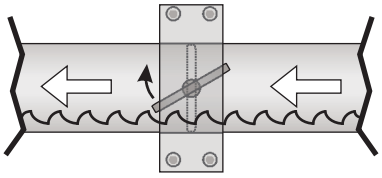
1. Ensure the product is suitable for the relevant application.
2. Check the technical data of the product and the materials.
3. The external pressure must not exceed 1 bar PSa.
4. Pressure surges are not permissible. The plant operator must plan appropriate precautionary measures.
5. The pressure differential must not exceed the maximum operating pressure.
6. The butterfly valve may only be used with a bonded liner up to 0.2 bar abs.
7. The plant operator must ensure fire protection is in place. Regularly service electrical equipment designed for preventive fire protection in compliance with DIN VDE 0100-610 (IEC/EN 61557).
8. Keep appropriate tools ready.
9. Use appropriate protective gear as specified in plant operator's guidelines.
10. Observe appropriate regulations for connections.
11. Installation work must be performed by trained personnel.
12. Shut off plant or plant component.
13. Secure the plant or plant component against recommissioning.
14. Depressurize the plant or plant component.
15. Completely drain the plant or plant component and allow it to cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
16. Decontaminate, rinse and ventilate the plant or plant component properly.
17. Lay piping so that the product is protected against transverse and bending forces, and also from vibrations and tension.
18. Only install the product between matching aligned pipes (see following chapters).
19. Please note the flow direction (see chapter "Installation location").
20. Please note the installation position (see chapter "Installation location").
21. The valve is not designed for loads caused by earthquakes.
22. The plant operator must take into account loads and torques for the bearing elements.
    For valves with a nominal size > DN xx, suitable bearing elements may need to be used. Design weights and dimensions can be found in the datasheets.
23. Match the coloured marking of the liner to the material (see table):



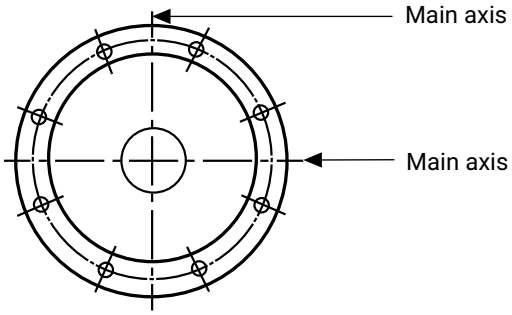
Material	Code	Colour
EPDM	EL	-
EPDM (drinking water)	WL	Orange
EPDM white	ML	-
EPDM-HT	TL	Grey
NBR	NL	Blue
FPM	VL	Yellow
Flucast AB/P	FL	Red

9.2 Installation location

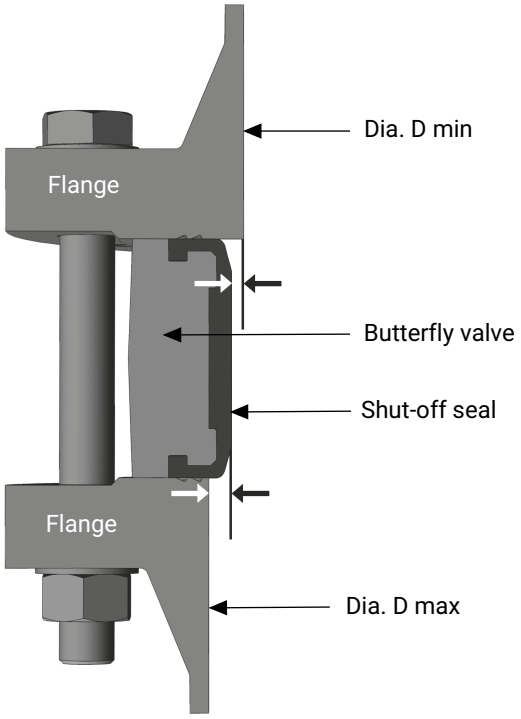
1. You can choose the installation position of the GEMÜ product. If media is contaminated and DN ≥ 300, install GEMÜ R480 horizontally, so that the lower edge of the disc opens in-line with flow direction.



2. You can choose the flow direction of the GEMÜ product.
3. Arrange the bolt holes of piping and valves so that they are not on the two main axes (but rather symmetrical to them).



4. The inside diameter of the piping must match the nominal diameter of the GEMÜ product.
5. The diameter of the pipe flanges should be, in compliance with the respective nominal size, between "D max" and "D min" (see table).



DN	D max	D min
25	32.0	13.0
40	47.0	29.0
50	60.0	33.0
65	74.0	53.0
80	96.0	72.0
100	113.0	92.0
125	140.0	118.0
150	169.0	146.0
200	223.0	197.0
250	273.0	247.0
300	323.0	297.0
350	363.0	335.0
400	417.0	384.0
450	465.0	432.0
500	518.0	485.0
600	618.0	580.0

Dimensions in mm

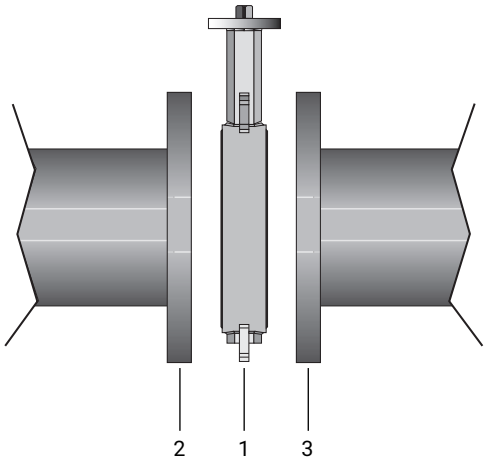
9.3 Installation of the standard version

⚠ CAUTION

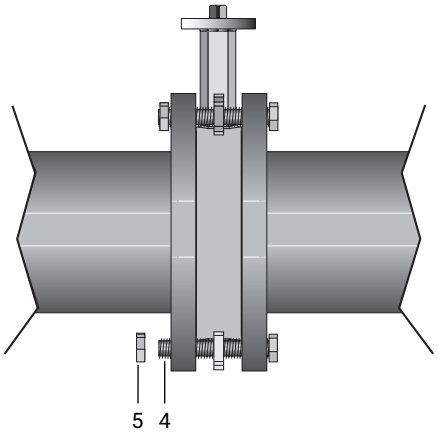
Damage!

► Before carrying out any welding on the piping, remove the butterfly valve to prevent damage to the liner.

1. Shut off plant or plant component.
2. Secure against recommissioning.
3. Depressurize the plant or plant component.
4. Completely drain the plant or plant component and allow it to cool down until the temperature is below the media vaporization temperature and cannot cause scalding.
5. Decontaminate, rinse and ventilate the plant or plant component properly.
6. Check flange faces for potential damage.
7. Remove any rough areas (rust, dirt, etc.) from the pipe flanges.
8. Sufficiently spread the pipe flanges.
9. Do not use any flange seals.
10. Clamp the butterfly valve **1** centrally between the pipes with flanges **2** and **3**.

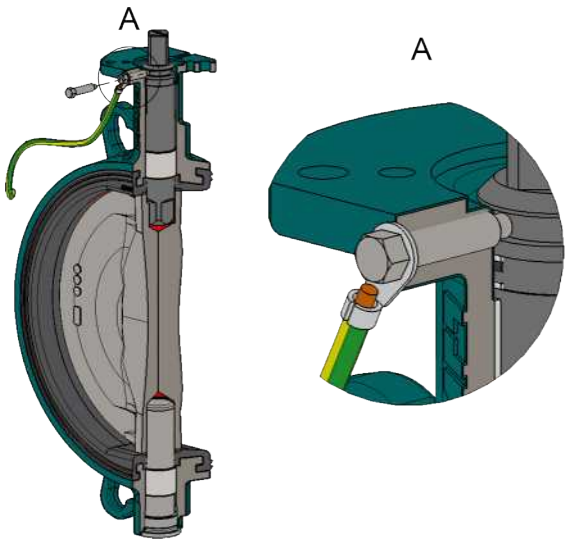


11. Slightly open the butterfly valve **1**. The disc must not project from the body.
12. Insert bolts **4** in all holes in the flange.



13. Slightly tighten the bolts **4** and nuts **5** diagonally.
14. Fully open the disc and check the alignment of the piping.
15. Tighten the nuts **5** diagonally until the flanges fit tightly on the body.
    Observe the permissible tightening torque of the bolts (see "Mechanical data").

9.4 Installation of the Ex version



1. Install the butterfly valve, see chapter "Installation of the standard version".
2. Connect the earthing cable of the butterfly valve to the earth terminal of the plant.
3. Test the resistance between the earthing cable and actuator shaft (value <106 Ω, typical value <5 Ω).

10 Commissioning

⚠ WARNING

Corrosive chemicals!

- ► Risk of caustic burns
- ● Wear appropriate protective gear.
- ● Completely drain the plant.

⚠ CAUTION

Leakage!

- ► Emission of dangerous materials
- ● Provide for precautionary measures against exceeding the maximum permissible pressure that may be caused by pressure surges (water hammer).

⚠ CAUTION

Use as an end-of-line valve!

- ► Damage to the GEMÜ product
- ● When using the GEMÜ product as an end-of-line valve, a mating flange must be fitted.

⚠ CAUTION

Cleaning agent!

- ► Damage to the GEMÜ product
- ● The plant operator is responsible for selecting the cleaning material and performing the procedure.

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.
4. Commissioning of actuators in accordance with the enclosed instructions.

11 Operation

The product is operated via manual, pneumatic or motorized actuators.

12 Troubleshooting

Error	Possible cause	Troubleshooting
The product does not open or does not open fully	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	Foreign matter in the product	Remove and clean the product
	The actuator design is not suitable for the operating conditions	Use an actuator that is designed for the operating conditions
	Flange dimensions do not comply with specifications	Use correct flange dimensions
	Inside diameter of piping too small for nominal size of product	Install product with suitable nominal size
The product does not close or does not close fully	Operating pressure too high	Operate the product with operating pressure specified in datasheet
	The actuator design is not suitable for the operating conditions	Use an actuator that is designed for the operating conditions
	Foreign matter in the product	Remove and clean the product
Connection between valve body and piping leaking	Incorrect installation	Check installation of valve body in piping
	Threaded connections / unions loose	Tighten threaded connections / unions
Valve body leaking	Valve body leaking or corroded	Check valve body for damage, replace valve body if necessary
	Incorrect installation	Check installation of valve body in piping
Increased switching noises when opening the product	When the disc is in the closed position, this may cause a higher breakaway torque	Use the product regularly

13 Inspection and maintenance

⚠ 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.

NOTICE

Use of incorrect spare parts!

► Damage to the GEMÜ product

► The manufacturer liability and guarantee will be void.

● Use only genuine parts from GEMÜ.

⚠ CAUTION

Hot plant components!

► Burns

● Only work on plant that has cooled down.

● Wear protective gear.

NOTICE

Exceptional maintenance work!

► Damage to the GEMÜ product

● Any maintenance work and repairs not described in these operating instructions must not be performed without consulting the manufacturer first.

The operator must carry out regular visual examinations of the products, depending on the operating conditions and the potentially hazardous situations, in order to prevent leakage and damage.

1. Have servicing and maintenance work performed by trained personnel.
2. Wear appropriate protective gear as specified in the plant operator's guidelines.
3. Disconnect from power supply.
4. Shut off plant or plant component.
5. Secure plant or plant component against recommissioning.
6. Depressurize the plant or plant component.
7. Actuate products that are always in the same position four times a year.

13.1 Cleaning the product

- Clean the product with a damp cloth.
- Do **not** clean the product with a high pressure cleaning device.

13.2 Ex version

● Test the resistance between the earthing cable and actuator shaft at least once a year.
(Value <106 Ω, typical value <5 Ω)

13.3 Removing the butterfly valve from the piping

⚠ 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.

⚠ WARNING

Corrosive chemicals!

► Risk of caustic burns

● Wear appropriate protective gear.

● Completely drain the plant.

⚠ CAUTION

Hot plant components!

► Burns

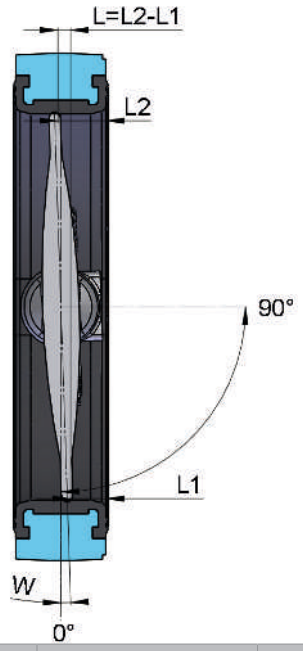
● Only work on plant that has cooled down.

● Wear protective gear.

1. Maintenance work must only be performed by trained personnel.
2. Use appropriate protective gear as specified in plant operator's guidelines.
3. Move the butterfly valve to a slightly open position. The disc must not project from the body.
4. Loosen and remove flange bolts and nuts.
5. Spread the piping flanges.
6. Remove the butterfly valve.

13.4 Presetting the butterfly valves

1. Move the butterfly disc to the closed position.
2. Determine the L1 and L2 dimensions and use them to calculate the L dimension.
3. The butterfly disc must be turned out of the seal seat in the closed position. (Anticlockwise)
4. Comply with the L dimension when setting.
5. If readjustment is necessary, open the butterfly disc and adapt the presetting.
6. Repeat steps 1 to 4 until the L dimension has been reached.
7. In the open position, the disc must be set to 90°, otherwise the Kv value will be reduced.



DN	L [mm]	W [°]
25	2.0	9.1
40	2.0	5.7
50	2.0	4.6
65	2.0	3.5
80	2.0	2.9
100	2.0	2.3
125	2.0	1.8
150	7.7	3.0
200	8.9	2.6
250	10.0	2.3
300	11.0	2.1
350	11.8	1.9
400	12.6	1.8
450	13.4	1.7
500	14.1	1.6
600	15.5	1.5

14 Spare parts

14.1 Ordering spare parts

NOTICE

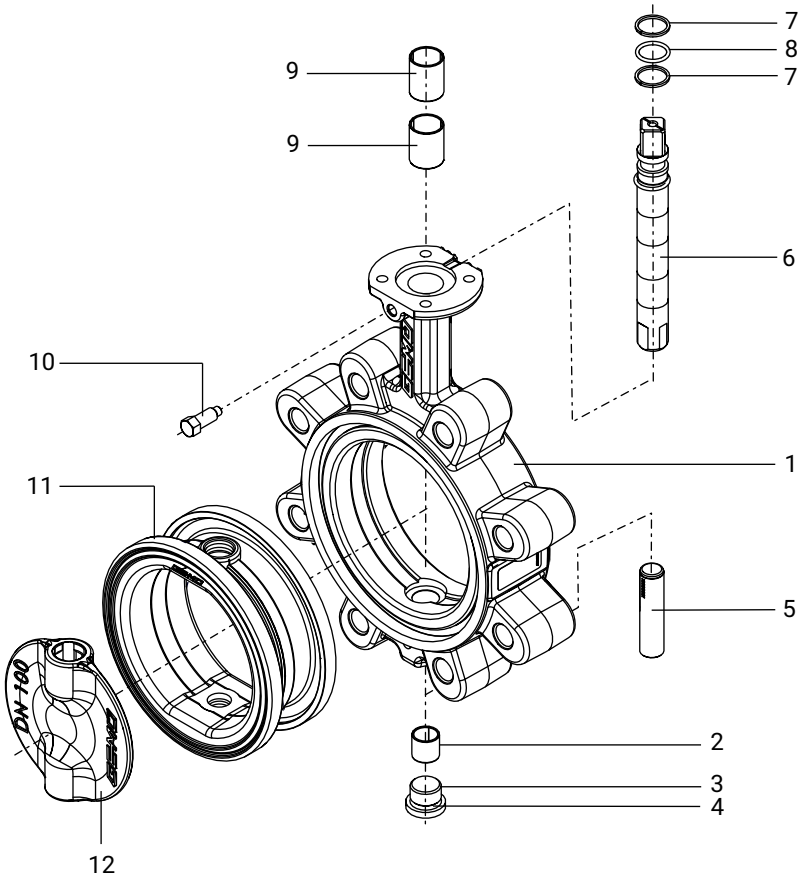
Use of incorrect spare parts!

- ► Damage to the GEMÜ product
- ► The manufacturer liability and guarantee will be void.
- ● Use only genuine parts from GEMÜ.

When ordering spare parts, please provide the following information:

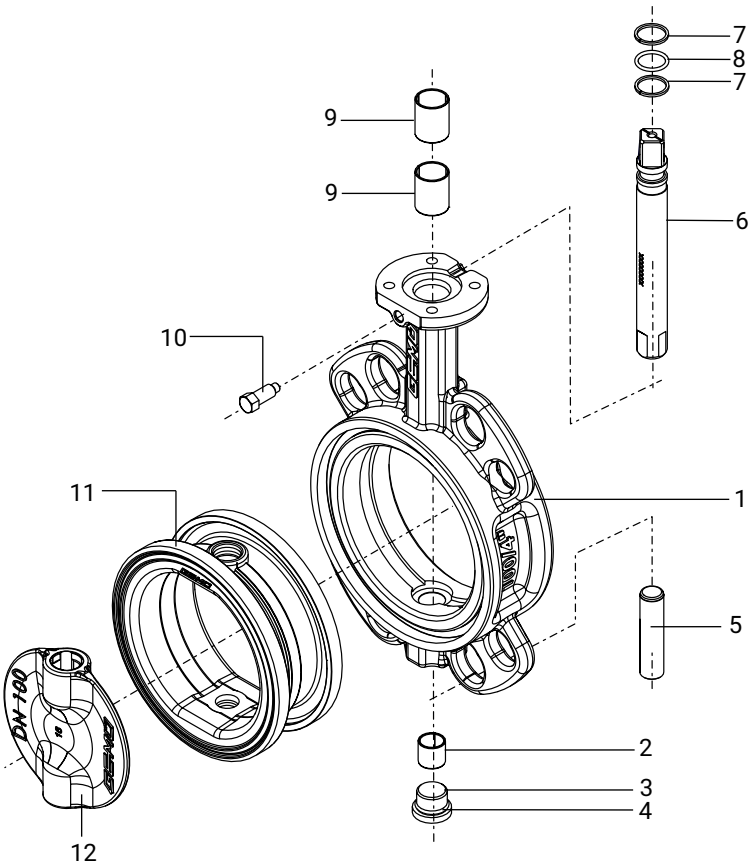
1. Complete order code
2. Item number
3. Traceability number
4. Name of spare part
5. Area of use (medium, temperatures and pressures)

14.2 Lug



Item	Name	Order designation
11	Liner	R480...SLN...
4	O-ring	R480...SLN...
8	O-ring	R480...SLN...
7	Support ring	R480...SLN...
2	Bush	R480...SVK...
9	Bush	R480...SVK...
10	Hexagon head bolt with pin	R480...SVK...
5	Axis	R480...SSH...
6	Shaft	R480...SSH...
12	Butterfly disc	R480...SDS...
1	Coated metallic valve body	
3	Threaded plug	

14.3 Wafer



Item	Name	Order designation
11	Liner	R480...SLN...
4	O-ring	R480...SLN...
8	O-ring	R480...SLN...
7	Support ring	R480...SLN...
2	Bush	R480...SVK...
9	Bush	R480...SVK...
10	Hexagon head bolt with pin	R480...SVK...
5	Axis	R480...SSH...
6	Shaft	R480...SSH...
12	Butterfly disc	R480...SDS...
1	Coated metallic valve body	
3	Threaded plug	

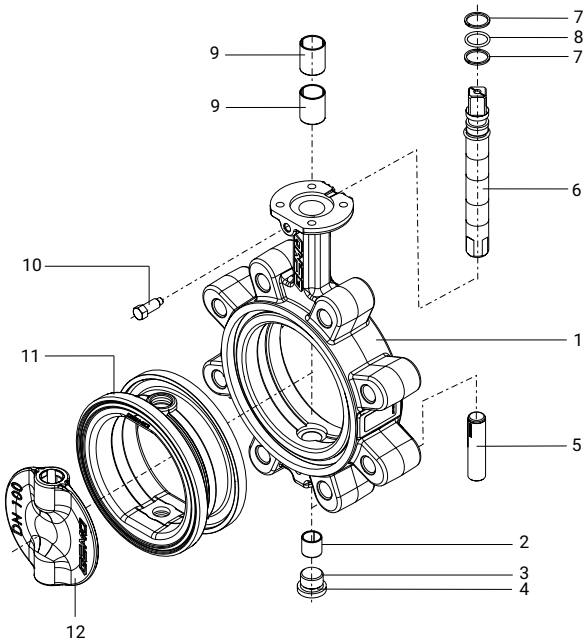
14.4 Replacement of spare parts

NOTICE

► Assembly instructions for replacing the wearing parts are included with every wearing parts kit.

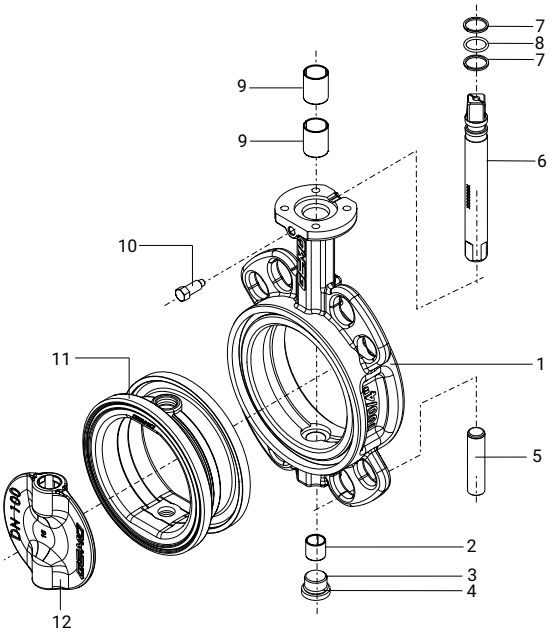
14.4.1 Replacing the SVK wearing parts kit

14.4.1.1 Lug



1. Loosen and remove the hexagon head bolt **10** with pin.
2. Remove the support ring **7**, O-ring **8** and bush **9**.
3. Pull the shaft **6** out upwards.
4. Undo the threaded plug **3**, remove the O-ring **4** and bush **2**.
5. Pull the axis **5** out downwards.
6. Assemble the wearing parts kit in reverse order.

14.4.1.2 Wafer



1. Loosen and remove the hexagon head bolt **10** with pin.
2. Remove the support ring **7**, O-ring **8** and bush **9**.
3. Pull the shaft **6** out upwards.
4. Undo the threaded plug **3**, remove the O-ring **4** and bush **2**.
5. Pull the axis **5** out downwards.
6. Assemble the wearing parts kit in reverse order.

14.4.2 Replacing the SDS wearing parts kit

1. Disassemble the SVK wearing parts kit (see chapter "Replacing the SVK wearing parts kit").
2. Remove the butterfly disc **12**.
3. Assemble the wearing parts kit in reverse order.

14.4.3 Replacing the SLN wearing parts kit

1. Disassemble the SVK wearing parts kit (see chapter "Replacing the SVK wearing parts kit").
2. Disassemble the SDS wearing parts kit (see chapter "Replacing SDS wearing parts kit").
3. Remove the liner **11**.
4. Assemble the wearing parts kit in reverse order.

15 Removal from piping

1. Disassemble the product. Observe warning notes and safety information.
2. Remove in reverse order to installation.

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.

18 EU Declaration of Conformity in accordance with 2014/68/EU (Pressure Equipment Directive)

EU Declaration of Conformity

in accordance with 2014/68/EU (Pressure Equipment Directive)

We, the company	GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG Fritz-Müller-Strasse 6–8 74653 Ingelfingen Germany

hereby declare under our sole responsibility that the below-mentioned product complies with the regulations of the above-mentioned Directive.

Product:	GEMÜ R480
Product name:	Butterfly valve with bare shaft
Notified body:	TÜV Rheinland Industrie Service GmbH Am Grauen Stein 1 51105 Cologne, Germany
ID number of the notified body:	0035
No. of the QA certificate:	01 202 926/Q-02 0036
Conformity assessment procedure(s) applied:	Module H
The following harmonized standards (or parts thereof) have been applied:	EN 593:2017

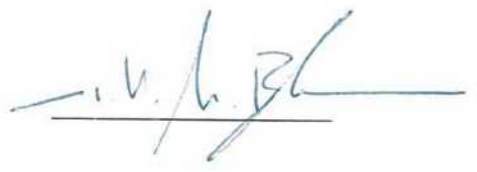
Information for products with a nominal size ≤ DN 25:

The products are developed and produced according to GEMÜ's in-house process instructions and standards of quality which comply with the requirements of ISO 9001 and ISO 14001. According to Article 4, Paragraph 3 of the Pressure Equipment Directive 2014/68/EU, these products must not be identified by a CE-marking.

Other applied technical standards / Remarks:

- DIN EN ISO 5211; DIN EN 558; AD 2000

Use of the product in category III in accordance with Pressure Equipment Directive 2014/68/EU and use with unstable gases are not permissible.



M. Barghoorn
Head of Global Technics

Ingelfingen, 21/02/2024

GEMÜ Gebr. Müller Apparatebau GmbH & Co. KG
Gert-Müller-Platz 1, 74635 Kupferzell, Germany
Phone +49 (0) 7940 1230 · info@gemue.de
www.gemu-group.com

Subject to alteration

07.2026 | 88711249