

# Instruction manual

## Butterfly valve Type 567/578



### Observe instruction manual

The instruction manual is part of the product and an important element within the safety concept.

- Read and observe instruction manual.
- Always keep instruction manual available close to the product.
- Pass on instruction manual to all subsequent users of the product.

### 1. Intended use

After being installed into a piping system, butterfly valves type 567/ 578 are exclusively meant to block or convey media within the approved pressure and temperature limits, and to regulate the flow.

The maximum time of operation is 25 years. The valve is intended to be used within the chemical stability of the entire valve and all its components.

Butterfly valves are not recommended for media with solid matters. Cavitation has to be avoided during normal operation.

In case of degreasing or jamming media, butterfly valves can only be used after consulting a GF Piping Systems representative.

- Use type 567 only as intermediate butterfly valve.
- Use type 578 as intermediate or end-of-line butterfly valve.

See «Georg Fischer's planning criteria» for approved pressure areas of all approved temperatures for all housing materials. These documents also contain the „list of chemical resistance“ for the different valve materials.

### 2. Regarding this document

This document contains all necessary information for the installation, operation and service of the product.

#### 2.1 Related documents

- Georg Fischer planning fundamentals
- Instruction manual for expanding the BFV 567/ 578 for further functions:

Instruction manual	GMST number
Quick Guide	-
Electrical actuator	5886/1, 4
Pneumatic actuator PA30- PA90	5377/1, 2, 4d
Integrated Electric Feedback	5939/1, 4
Intermediate Element for BUW 567/578	5918/1, 4

These documents can be obtained from the GF Piping Systems representative or under [www.piping.georgfischer.com](http://www.piping.georgfischer.com)

### 2.2 Abbreviations

Abbreviation	Meaning
BFV	Butterfly Valve
Type 567/ 578	Butterfly Valve 567/ 578
DN	Nominal diameter
PN	Pressure rate
SFA	Socket flange adaptor
BFA	Butt fusion flange adaptor

### 3. Safety and warning instructions

This manual contains warning instructions that shall warn against injuries or material losses. Always read and observe those warning instructions.

	<ul style="list-style-type: none"> <li>• Imminent danger! Non-observance may result in major injuries or death.</li> </ul>
	<ul style="list-style-type: none"> <li>• Possible danger! Non-observance may result in major injuries.</li> </ul>
	<ul style="list-style-type: none"> <li>• Dangerous situation! Non-observance may result in minor injuries</li> </ul>
	<ul style="list-style-type: none"> <li>• Dangerous situation! Non-observance may result in material losses.</li> </ul>

### 4. Safety and responsibility

In order to provide safety in the plant, the operator is responsible for the following measures:

- Products may only be used for its intended purpose, see intended purpose
- Never use a damaged or defective product. Immediately sort out damaged product.
- Make sure that the piping system has been installed professionally and serviced regularly.
- Products and equipment shall only be installed by personnel who have the required training, knowledge or experience.
- Regularly train personnel in all relevant questions regarding locally applicable regulations regarding safety at work, environmental protection especially for pressurised pipes.

The personnel is responsible for the following measures:

- Know, understand and observe the instruction manual and the advices therein.

The same safety guidelines apply for butterfly valves as for the piping system into which they are built. To operate the butterfly valves, the torques as indicated in table 1 are sufficient.

- At high flow velocity we recommend to use a gear operator instead of a hand lever.
- A butterfly valve is not self-locking. The actuating device shall not be disassembled, as long as the valve is flowed or pressurised.

### EC declaration of conformity

The manufacturer Georg Fischer Rohrleitungssysteme AG, 8201 Schaffhausen (Switzerland) explains that the butterfly valves types 567/ 578 according to the harmonised construction type standards EN-593

1. are pressure-maintaining components in terms of the EG Pressure Equipment Directive 97/23/EG and comply with the requirements of this directive that apply to valves,

2. comply with the applicable requirements of the Construction Products Directive 89/106/EG for valves

The CE sign on the valve proves this compliance (according to the Pressure Equipment Directive, only valves with a ND larger than 25 shall be indicated with CE).

The operation of these butterfly valves is not allowed until the conformity of the entire system, in which the butterfly valves have been installed has been explained with one of the mentioned EG Directives.

Changes to the butterfly valve that could effect the stated technical data and the intended purpose, void this declaration of conformity. Additional information can be found in „Georg Fischer's planning fundamentals“.

Schaffhausen, 01 July 2013

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### Operating torque (average value) for opening / closing the BFV (standard valves in new condition)

DN	50	65	80	100	125	150	200	250	300
Inch	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
Nm 5bar	6	8	14	19	25	33	50	70	90
Nm 10 bar	12	17	28	38.5	50	61	90	115	145

Remark: Depending on the application the operating torque can increase up to 4 times.

**CAUTION**  
Damage to the butterfly valves through the use of auxiliary equipment to increase the coupling moment.

- Operate valve only with the intended actuating means (lever, transmission, actuator).
- If an increased actuating torque occurs, check valve for damage/wear and tear.

When dismantling the butterfly valve, the following risks can emerge:

**WARNING**  
When dismantling the butterfly valve, there is a risk of injury through the uncontrolled leakage of the medium and/or subsequent flow of the medium from an open pipeline and/or the butterfly valve.

If the pressure has not been relieved completely and the pipeline has not been emptied completely, the medium can leak uncontrollably.

There is a risk of injury depending on the type of the medium.

- Completely relieve pressure from the pipeline before dismantling.
- In case of harmful, inflammable or explosive media, completely empty and flush pipeline. After dismantling the butterfly valve, also let the valve run dry while putting it in a vertical position. Consider possible residues.
- Guarantee the safe catching of the medium (e.g. mounting of a catchment tank) and avoid splashing through appropriate measures.
- Make sure that opening and closing the pipe is not done jerkily and that pressure surges in the piping system are avoided. This has to be observed especially when operating the pipe with a hand lever.

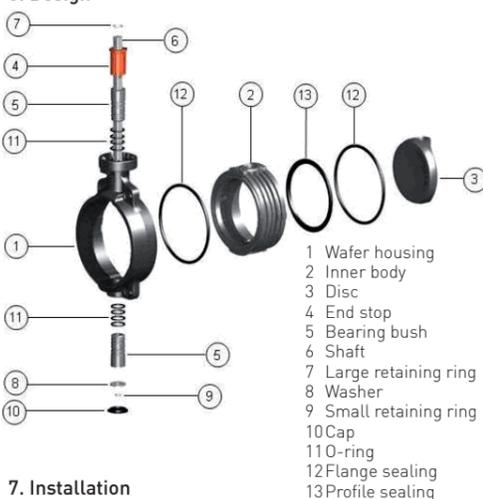
### 5. Transport and storage

- Transport and/or store product in unopened original packaging.
- Protect product from dust, dirt, dampness as well as thermal and UV radiation.
- Make sure that the product has not been damaged neither by mechanical nor thermal influences.
- Store product in the same idle position as it has been delivered.
- Check product for transport damages prior to the installation.

### Gaskets

- All gaskets/collars (material e.g. EPDM, FPM) are organic materials and react to environmental conditions. Therefore, store cool, dry and dark in its original packaging.
- Check gaskets/collars for possible ageing damages such as tearing or rigidification prior to the installation.
- Sort out defective gaskets/collars.

### 6. Design



### 7. Installation

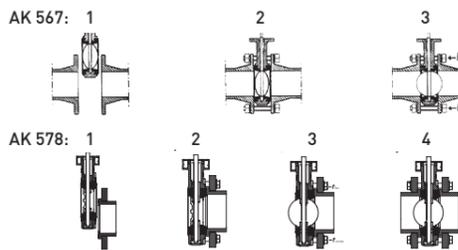
#### Installation into the pipeline

- Butterfly valves type 567 only as intermediate butterfly valves
- Use butterfly valves type 578 as intermediate or end-of-line butterfly valves

As connecting part we recommend socket flange adaptor (SFA) or butt fusion flange adaptor (BFA) with flat sealing surface in connection with flanges of PVC-U, PP-V or PP/steel. When SFA / BFA with serrated sealing surface are used, in individual cases a flat gasket needs to be added.

#### Prior to the installation

- Make sure that only butterfly valves are installed whose pressure category, connection type, connection dimensions and materials correspond to the operating conditions
- Carry out function test. To do so, close and reopen butterfly valve.
- Only install butterfly valves without functional disturbances.



- 1. Allow for sufficient spacing between the flange ends. Note that the BFV opens counterclockwise.

### During the installation

- 2: Put the valve disc at closed position.
- Move the butterfly valve with the seals (O-rings or flat gaskets) between both flange ends
- 3: Realign the pipeline. Make sure that the disc can be fully opened
- Fasten the butterfly valve with flange screws [see table 1]

### NOTICE

- 4. If you install Type 578 as an end-of-line BFV, mount a counter flange also on the free connection side.
- Both sides must be tightened with an equal, increasing torque [ max. torque see table ].

#### Maximum closing torques for installing the BFV Type 567

DN	Inch	Nm	Inch-lbs
50	2"	30	256
65	2 1/2"	35	310
80	3"	40	352
100	4"	45	398
125	5"	50	442
150	6"	60	531
200	8"	75	664
250	10"	75	664
300	12"	80	708

#### Indexes for fastening the BFV type 567 with flange screws

d	DN	Inch	Total no. of screws	Max. torque [Nm]
63	50	2	4 x M16 x 140mm	25
75	65	2 1/2	4 x M16 x 140mm	25
90	80	3	8 x M16 x 150mm	25
110	100	4	8 x M16 x 180mm	30
140	125	5	8 x M16 x 200mm	35
160	150	6	8 x M20 x 220mm	40
225	200	8	8 x M20 x 240mm	50
280	250	10	8 x M20 x 300mm	80
315	300	12	12 x M20 x 300mm	80

#### Indexes for fastening the BFV type 578 with flange screws

ISO	SFA - BFA with the various flanges						Max. fastening torque in Nm		
	DN	Quantity of screws	PP		PVC-U/PVC-C/ABS			PVDF	
PP-V			PP/steel	PVC-U	PP-V	PP/steel	PP-V	PP/steel	
50	8xM16	60	55	50	55	50	55	50	20
65	8xM16	65	55	50	60	50	60	50	20
80	16xM16	70	60	55	65	55	65	55	20
100	16xM16	70	65	60	70	60	70	60	25
125	16xM16	80	80	70	75	70	80	70	30
150	16xM20	90	80	80	80	70	80	70	35
200	16xM20	100	90	90	90	90	90	80	45
250	24xM20	130	120	110	120	110	110	110	50
300	24xM20	130	120	120	120	120	120	110	50

ANSI	SFA - BFA with the various flanges						Max. fastening torque in Nm		
	Inch	Quantity of screws	PP		PVC-U/PVC-C/ABS			PVDF	
PP-V			PP/steel	PVC-U	PP-V	PP/steel	PP-V	PP/steel	
2	8xUNC 5/8	60	55	50	55	50	55	50	20
2 1/2	8xUNC 5/8	65	55	50	60	50	60	50	20
3	8xUNC 5/8	70	60	55	65	55	65	55	20
4	16xUNC 5/8	70	65	60	70	60	70	60	25
5	16xUNC 3/4	80	80	70	75	70	80	70	30
6	16xUNC 3/4	90	80	80	80	70	80	70	35
8	16xUNC 3/4	100	90	90	90	90	90	80	45
10	24xUNC 7/8	130	120	110	120	110	110	110	50
12	24xUNC 7/8	130	120	120	120	120	120	110	50

### NOTICE

To avoid fretting of the joint, apply suitable anti-seize assembly paste on the thread when using stainless steel screws.

### After installing

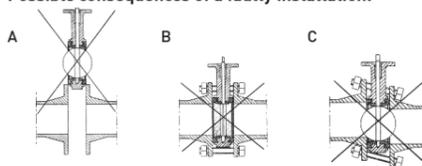
- Do another function test also after installing.

### Chamfering of the SFA / BFA

If SFA/BFA of Georg Fischer are used, chamfering is not necessary, because the disc doesn't touch the SFA/BFA or the BFA already have a chamfer.

If you install a SFA/BFA of another manufacturer, please observe that the inside diameter (Int-) of the SFA/BFA are larger than the disc outlet diameter (Q1). If necessary you may chamfer the SFA/BFA as shown in this table below.

### Possible consequences of a faulty installation:



### Prior to installation

- A:** Not enough space between the two flanged pipe sides or disc is open
- B:** The butterfly valve gets stuck in the pipeline
- C:** Pipeline is not well aligned or not at all

### 8. Disassembly/ Assembly

- Note that there are arrows Δ on various parts of the butterfly valves, which enable a quick and correct assembly. Pictures according to the steps, see „Quick Guide“.

#### 8.1 Disassembly BFV 567/ 578

1. Turn disc to ca. 45°
2. Remove cap.
3. Remove the small retaining ring and take out the washer.
4. Remove the large retaining ring and take out the washer and end stop.
5. Pull the shaft of the butterfly valve up to the upper bearing bush.
6. Hold the shaft and turn disk to ca. 30°. Pull out shaft completely.
7. Insert shaft from above at a 15°-position and push out the upper bearing bush.
8. Pull the shaft of the butterfly valve up to the lower bearing bush.
9. Hold shaft and turn disc to ca. 30°. Pull out shaft completely.
10. Insert shaft from above at a 45°-position and push out the lower bearing bush.
11. Pull out shaft completely and remove the disc.
12. Press out the inner body from the notchless side.

#### 8.2 Assembly BFV 567/ 578

1. Mount large safety ring, mechanical end stop and upper bearing bush on shaft.

2. Insert inner body into the housing (observe position of arrow and cam) and move it to the limit stop
3. Insert disc in the open position of 90° (observe position of arrow).
4. Insert shaft and move it to the limit stop. Watch at the shape of the shaft when inserting it:
  - The notch on the upper side of the shaft indicates the position of the disc.
  - In addition two chamfers at the haft are larger, which avoids a faulty assembly
5. Insert lower bearing bush and push it into the limit stop.
6. Insert washer and secure it with the small retaining ring.
7. Mount cap and flange sealings (o-rings).

### 8.3 Assembly hand lever



1. Hand lever should be assembled with disc closed. By the indication of the shaft and the end stop a clear assembly is ensured.
2. With view of the moulded GF logo on the wafer housing, the hand lever stands to the right, in closed position of the disc.

Closing torque for hand lever assembly 15 Nm

### 8.4 Turn of the hand lever

To turn the hand lever by 180 degrees take the following steps:

1. Butterfly valve is in closed position. Slightly loosen nuts at the hand lever. Do not remove it completely.
2. Open the lever clip with a screwdriver. Additionally by the dimensions DN200-300 unscrew the bolts between handlever and end stop.
3. Bring the screwdriver between raster element and hand lever. Afterwards move the screwdriver upwards to unlock the end stop.
4. Release nut and washer completely from the hand lever.
5. Turn hand lever and raster element by 180 degrees. End stop remains on the shaft.
6. Reassemble hand lever and raster element at the butterfly valve.
7. Assemble the hand lever in closed position of the disc. Lock the hand lever clip.
8. Finish the assembly of the hand lever with nut and washer.

### 9. Maintenance

During normal operation, butterfly valves do not need servicing. But it is recommended to maintain the butterfly valves latest after 5000 cycles. The following measures must be taken:

- Periodic inspection to make sure that there is no leakage of medium to the outside. If medium is exiting at the flanged connectors, they have to be tightened according to Table 2. In case of leaks or other disturbances, Chapters 1 to 5 must be observed.
- It is recommended to operate butterfly valves, which are always in the same position, once or twice a year in order to test their functionality.
- Depending on the operating conditions, the collars should be periodically lubricated with grease (silicone-based).
- It is recommended that the o-rings of the bearing bushes are checked and exchanged if necessary after each disassembly.

### 10. Troubleshooting List

In case of leakage, dismount butterfly valves and replace damaged gaskets/collars. Order spare parts for butterfly valves with complete specifications, e.g. all details regarding the type plates. Only use original parts of GF Piping Systems.

Problem	Consequence	Cause	Solution
BFV does not fit between the flanges	Installation not possible	Flanges are too close to each other Disc is open	• Push flange apart with spreading tool • Close disc
Disc cannot be opened completely	Flow rate too low	Disc touches SFA/BFA	• Bevel SFA/ BFA according to Table
BFV can hardly be opened/ closed or cannot be opened/ closed at all	actuating torque too high	Operating conditions such as media, temperature and pressure are possible outside of the specifications	• Replace valve • Contact manufacturer
Leaky BFV / connecting elements	Medium is exiting	Gasket is damaged irregular tightening of the flange screws	• Replace gasket • Evenly tighten flange screws criss-cross according to Table Screw fixation
		SFA/BFA with fluted sealing face	• Use SFA/BFA with even sealing face