



Wafer Check Valve Type 369

Operating Instructions

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Delivery contents

- The delivery contents include:
- Wafer Check Valve Type 369
 - Instruction manual
 - Supporting eyelet
 - Reset spring, depending on the version

Safety Instructions

Explanations of Warning Symbols

Hazard notices are used in this instruction manual to warn you of possible injuries or damages to property. Please read and abide by these warnings at all times!

WARNING!

Possible acute danger! Failure to comply could result in serious injury.

CAUTION!

Dangerous situation! Failure to comply could lead to injury or damage to property.

NOTE!

Dangerous situation! Non-observance may result in material losses.

Requirements Placed on the User and Operator's Due Care

It is the responsibility of the piping systems engineer / installer and of the operator of such systems into which the wafer check valve is built to warrant that:

- ▶ the wafer check valve is only used according to the specifications for which it has been intended (see next paragraph),
- ▶ the piping system is installed by professionals and its functionality checked regularly,
- ▶ only technical correct and functional wafer check valves must be installed and the security advice is attended,
- ▶ only qualified and authorized personnel installs, operates, services and repairs the wafer check valve,
- ▶ instruction of the employees is being held on a regular basis in all the aspects of work safety and environmental protection – in particular those to pressure-bearing piping,
- ▶ the employees are familiar with the instruction manual and adhere to the information contained therein.

Intended Use

These GF wafer check valves type 369 are intended exclusively for prevention the reflow of media in the allowable pressure and temperature or for controlling flow in piping systems into which they have been installed.

The wafer check valves are available with or without reset springs made of stainless steel V4A or Hastelloy C. The valves are suitable for a horizontal or vertical installation.

CAUTION!

- ▶ Wafer check valves are not recommended for media containing solids. In control operations cavitations have to be avoided.

WARNING!

- ▶ The allowable pressure range for all allowable temperatures for every housing material is illustrated in diagrams in the «Georg Fischer Planning Fundamentals»(Chapter wafer check valves).
- ▶ This documentation also contains the «Chemical Resistance List» for the different type of valve materials.

Special Hazards

DANGER!

- ▶ Pressure strokes have to be avoided, because they can cause damages on the valve.

The following hazardous situations may occur during dismantling of the check valve:

DANGER!

- ▶ the medium may exit uncontrollably from the pipe or the valve, whether under pressure or not,
- ▶ the medium may flow out of the open pipe,
- ▶ the valve may contain residues or remnants of aggressive, hazardous, flammable or explosive media.

Therefore prior opening the pipe and dismantling the valve, it is necessary to:

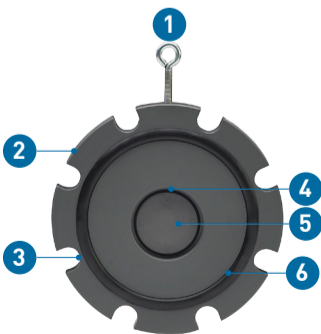
- ▶ remove all pressure from the piping system,
- ▶ empty the piping system completely,
- ▶ rinse the piping system, if aggressive, hazardous, flammable or explosive media are inside the system,
- ▶ to drain the wafer check valve completely when it has been dismantled. For that, put the valve in vertical position and drain it completely until it is empty.

Transport and Storage

The wafer check valve must be handled, transported and stored with care:

- ▶ Transport and store the wafer check valves in its original packaging.
- ▶ If the wafer check valve needs to be stored before installation, it must be protected from harmful influences such as dirt, dust, humidity, especially heat and UV radiation.
- ▶ The connecting ends of the wafer check valve in particular may not be damaged mechanically or in any other way.

Design



- 1 Supporting eyelets
- 2 Housing
- 3 Cut-out for centering
- 4 Fastening for disc
- 5 Disc
- 6 Sealing

The technical data are not binding. They are not expressly warranted characteristics of the goods and are subject to change. Please consult our General Conditions of Supply.

EC and UKCA Declaration of Conformity

The manufacturer GF Piping Systems, 8201 Schaffhausen (Switzerland) declares that the industrial valves listed below are pressure retaining equipment according to the Harmonised design standards listed below in the sense of the EC Pressure Equipment Directive 2014/68/EU, Category I, Module A, and that they comply with the requirements of this directive that apply to industrial valves. The CE marking on the industrial valves indicates this conformity.

According to the Pressure Equipment Directive (Art.4, Par.3), industrial valves with a DN less than or equal to 25 must not bear the CE marking. The commissioning of these industrial valves is prohibited the entire plant in which the industrial valves are installed has been declared to be in conformity with the mentioned EC directive.

Product group	Type designation	Harmonized design standards
Thermoplastic backflow preventers	Wafer check valve type 369	EN ISO 16137

Schaffhausen, 09.12.2024

Bastian Lübke
Head of Global R&D



List of abbreviation

Abbreviation	Explanation
Type 369	Wafer check valve type 369
DN	Nominal diameter
PN	Pressure rate
d	Diameter



Installation in the piping system

1. Notes for the Installation

WARNING!

- ▶ The wafer check valve is approved for PN6.
- ▶ No direct installation on pump flange or bend allowed.

- ▶ Make sure that only wafer check valves will be installed which correspond to the pressure class, type of connection, dimension and materials of the particular application.

- ▶ A stabilization zone of at least 5 times nominal diameter (DN) should be provided before and after the wafer check.

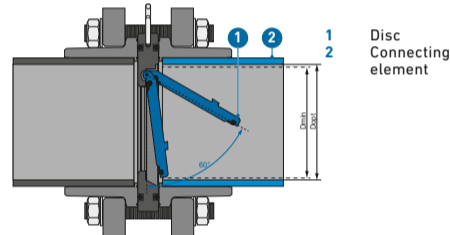
- ▶ Carry out a functional test: close the wafer check valve and open it again.

- ▶ Don't install a wafer check valve which has a functional failure.

- ▶ Keep enough space between both flanges.
- ▶ Function and tightness testing (reset spring and seals).
- ▶ Fixing of supporting eyelet in the provided thread.

NOTE!

Socket flange adaptor or butt fusion flange adaptor in conjunction with flanges made of PVC-U, PP-V or PP-steel are recommended as connecting elements.



Flange dimension		ISO/DIN		ANSI/BS	
D (mm)	d (mm)	Dmin (mm)	Dopt (mm)	Dmin (mm)	Dopt (mm)
DN32	40	1 1/4"	34	37	
DN40	50	1 1/2"	39	43	39
DN50	63	2"	53.5	54	53.5
DN65	75	2 1/2"	69	70	69
DN80	90	3"	81	82	81
DN100	110	4"	104	106	104
DN125	140	5"	125.5	131	
DN150	160	6"	142	144	144
DN200	225	8"	201	207	201
DN250	280	10"	250	260	250
DN300	315	12"	300	309	300

Dopt:

Optimum inner diameter of connecting element

Opening angle of the disc approx. 60° (maximum flow).

- Minimized mechanical stress
- Ideal Kv value

Dmin:

Minimum inner diameter of mounting bracket

Minimum inner diameter at which the disc opens properly.

NOTE!

Since the disc is in contact with the inside of the pipe of the connecting element when it is open, the inside diameter of the connecting element can influence the Kv value.

CAUTION!

Non-compatible flange connections!

Incorrect diameters of the connecting elements can have a negative influence on the Kv value and lead to increased wear of the valve.

- ▶ Select suitable connection elements according to the specified tables or the online tool at www.gfps.com/perfectflangeconnection.

2. Installing



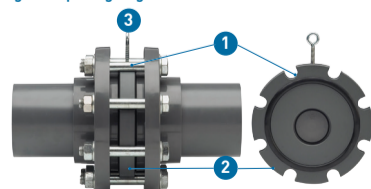
- 1 Screw and washer
- 2 Flange
- 3 Socket flange adaptor / butt fusion flange adaptor
- 4 Special flange gasket
- 5 Wafer check valve type 369
- 6 Nut and washer

- ▶ Put the wafer check valve in closed position.
- ▶ Attention on the wanted flow direction.
- ▶ Move the wafer check valve with the seals between both flange ends.
- ▶ Realign the pipeline. Make sure that the disc can be fully opened and that the disk attach on the inner pipe wall.
- ▶ Tighten the Wafer Check Valve using the flange screws.

NOTE!

- ▶ Torques for fastening has to be taken out of paragraph «Standard Values for the Screw Fixing».

3. Centering and Opening Angle of The Valve



- 1 Cut-out
- 2 External diameter
- 3 Supporting eyelet

CAUTION!

Make sure that the disk attach on the inner pipe wall. It is not allowed that the disk attach on the limit stop of the valve.

The geometry of the wafer check valve ensures an optimal positioning and mounting between ISO/DIN and also of ANSI/BS flange adaptors. The supporting eyelets will help during centering the valve.

Wafer check valve PVC-U

- Centring on ISO/DIN adaptors over the cut-out
- Centring on ANSI/BS over the external diameter of the valve

Wafer check valves PP and PVDF

- Centring over the external diameter of the valve

Pressure Test and Commissioning

- ▶ Do another functional test.
- ▶ Carry out an leakage test.

CAUTION!

- ▶ For pressure testing of the wafer check valve use the same instructions as for the piping system.

WARNING!

- ▶ Check all valves if they are in the required open or closed position.
- ▶ Fill the piping system and bleed it completely.
- ▶ Pressure may not exceed the value of 1.5 x PN.
- ▶ During the pressure test the valves and connections should be checked for leakages.

CAUTION!

Maximum permissible test pressure!

For the pressure test of valves in open position, the same instructions apply as for the piping system (max. 1.5 x PN, and max. PN + 5 bar), but the test pressure in closed valve position must not exceed max. 1.1 x PN.

- ▶ For detailed information, see the Georg Fischer Planning Fundamentals.
- ▶ After successful pressure test: Remove test medium.
- ▶ Record the results.

Normal Operation and Maintenance

Normally the wafer check valves don't need maintenance. It is enough to control periodically, if there is a leakage. If you have a leakage in the flange connections, refasten these acc. to the table in chapter "Standard Values for the Screw Fixing" or if it is necessary replace the flange gaskets.

Handling of sealings

CAUTION!

- ▶ All sealings (material e.g. EPDM, FKM) are of organic materials and react to environment influences. They must be stored in their original packing if possible in a cool, dry and dark place. The sealings have to be assayed on possible ageing damages as fissures and hardenings before installing.
- ▶ Damaged sealings and spare parts must not come into operation.

Choice of the lubricant

CAUTION!

- ▶ The use of inadequate lubricants can affect the material of the wafer check valve or of the sealings. Lubricants on the base of mineral oil or of Vaseline (petrolatum) must not be used at all. For clean silicone-free wafer check valves we refer to the special manufacturer's information.
- ▶ All sealings need to be lubricated with lubricants on the base of silicone or polycole. Other lubricants are not allowed!

Standard Values for the Screw Fixing

ISO/DIN flange adaptors

Valve dimension (DN)	Flange dimension (Inch)	Flange dimension (d)	Quantity of screws	Screw dimension (ISO)	Torque (Nm)	Torque (lbf in)
DN32	1 1/4"	40	4	M16 x 85 mm	15	133
DN40	1 1/2"	50	4	M16 x 85 mm	15	133
DN50	2"	63	4	M16 x 95 mm	20	177
DN65	2 1/2"	75	4	M16 x 100 mm	25	221
DN80	3"	90	8	M16 x 110 mm	25	221
DN100	4"	110	8	M16 x 130 mm	30	266
DN125	5"	140	8	M16 x 130 mm	35	310
DN150	6"	160	8	M20 x 180 mm	40	354
DN200	8"	225	8	M20 x 180 mm	50	442
DN250	10"	280	12	M20 x 180 mm	55	487
DN300	12"	315	12	M20 x 180 mm	60	531

ANSI/BS flange adaptors , PVC-U wafer check valves only

Valve dimension (DN)	Flange dimension (Inch)	Flange dimension (d)	Quantity of screws	Screw dimension (ANSI/BS)	Torque (Nm)	Torque (lbf in)
DN40	2"	50	4	UNC 3/8" x 3 1/2"	20	177
DN50	2 1/2"	63	4	UNC 3/8" x 4"	25	221
DN65	3"	75	4	UNC 3/8" x 4"	25	221
DN80	4"	90	8	UNC 3/8" x 4 1/2"	30	266
DN100	4"	110	8	UNC 3/8" x 4 1/2"	30	266
DN150	6"	160	8	UNC 3/4" x 5"	40	354
DN200	8"	225	8	UNC 3/4" x 6"	50	442
DN250	10"	280	12	UNC 3/8" x 6 1/2"	55	487
DN300	12"	315	12	UNC 3/8" x 7"	60	531

Possible Faults and Problems During Installation

Faults/Problems	Reason	Effect	Solution
Valve does not fit between the flanges	• Wrong dimensioning • Flange ends are too close to each other	Installation not possible	• Selection of the correct dimension on base of the technical documentation • Press apart flanges with spreader
Disc does not open	• Disc larger as the opening of the chosen adaptor • Incorrect centring	No flow possible after installation	• Selection of the correct dimension on base of the technical documentation • Demounting and chamfer of the pipe • Correct centring
Disc does not attach on the inside of the pipe	• Incorrect centring • Wrong dimensioning	Disc could break	• Correct centring • Selection of the correct dimension on base of the technical documentation
Other problems during installation	• Wrong dimensioning of the components	Installation not possible	• Selection of the correct dimension on base of the technical documentation

Help in Case of Failures

In case of failures please consider chapter „Possible Faults and Problems During Installation“. If there is a leakage in the pipe or to the outside, dismount the wafer check valves and replace defect gaskets. Orders for spare parts for the wafer check valve should include a detailed specification, i.e. details given on the type plate. Only the prescribed original spare parts from GF may be used.

Kind of failure	Measures
Leakage on the outside of the flange adaptor	Connection retightening
Leakage in the pass	Demounting of the valve and replace the disc and sealing. Order spare parts with the description from the type label
Other function failures	Displace the sealings Order spare parts with the description from the type label

Piping strengths, especially these caused by thermal expansion/ANSI/BSon, could be the reason for the malfunction. The support of the piping should be improved.

If there is a indication after dismantling, that the materials of the body, the disc or the sealings are not resistant enough, choose a better suited material from the chemical resistance list, which you will find in our planning fundamentals.

