

Bedienungsanleitung

Instruction manual

Manuel d'utilisation

Manual de instrucciones

Druckreduzierventil Typ 582

Pressure Reducing Valve Type 582

Réducteur de pression type 582

Válvula reductora de presión tipo 582

Druckhalteventil Typ 586

Pressure Retaining Valve Type 586

Détendeur de pression type 586

Válvula de retención de presión tipo 586



Translation of the original instructions

Disclaimer

The technical data are not binding. They neither constitutes expressly warranted characteristics nor guaranteed properties nor a guaranteed durability. They are subject to modification. Our General Terms of Sale apply.

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 have instruction manual available by the product.
- ▶ Give instruction manual to all subsequent users of the product.

Contents

Contents.....	28
1 About this document.....	29
1.1 Warnings.....	29
1.2 Further symbols and labels.....	29
1.3 Other related documents.....	29
2 Safety and responsibility	30
2.1 Intended use.....	30
2.2 Safety information.....	30
3 Transport and storage.....	30
4 Design.....	31
4.1 Pressure reducing valve	31
4.2 Pressure retaining valve.....	32
4.3 Manometer	33
5 Function.....	33
5.1 Pressure reducing valve	33
5.2 Pressure holding valve	33
6 Identification.....	34
6.1 Valve type/sealing material (O-rings).....	34
7 Technical specifications	34
8 Required tools.....	35
9 Installation	35
10 Operation.....	38
10.1 Pressure test.....	38
10.2 Setting the working pressure.....	38
11 Maintenance.....	40
11.1 Replacing diaphragm and O-ring.....	41
11.1.1 Disassembly.....	41
11.1.2 Assembly.....	43
11.2 Cleaning the inner body.....	45
12 Troubleshooting	46
13 Spare Parts.....	48
14 Accessories	48
15 Disposal.....	48
16 EC Manufacturer's declaration	49

1 About this document

1.1 Warnings

In this instruction manual, warnings are used, which shall warn you of death, injuries or material damage. Always read and observe these warnings!

Warning symbol	Meaning
 DANGER	Imminent danger! Non-observance of these warnings can result in death or extremely severe injuries. ► Measures to avoid the danger.
 WARNING	Possible imminent danger! Non-observance of these warnings can result in severe injuries. ► Measures to avoid the danger.
 CAUTION	Dangerous situation! Non-observance of these warnings can result in minor injuries. ► Measures to avoid the danger.
CAUTION	Dangerous situation! Non-observance of these warnings can result in material damage. ► Measures to avoid the danger.

1.2 Further symbols and labels

Symbol	Meaning
	Remarks: Contain especially important information for better understanding.
	Call for action: Here, you have to do something.
1.	Call for action in a certain order: Here, you have to do something.

1.3 Other related documents

- Georg Fischer planning fundamentals industry

These documents can be obtained via the agency of GF Piping Systems or under www.gfps.com.

2 Safety and responsibility

2.1 Intended use

Pressure reducing valves type 582 and the pressure retaining valves type 586 are intended to be operated with pure, non-abrasive liquid media. The product and all of its components are intended to be used within the permitted pressure and temperature limits and in accordance with their chemical resistance.

Pressure reducing valve type 582

The pressure reducing valves type 582 are intended to reduce the system pressure, after installation into a piping system, and to keep it constant at the specified value to the greatest possible extent.

Pressure retaining valve type 586

The pressure retaining valves of type 586 are intended to keep the system pressure, after installation into a piping system, and to keep it constant at the specified value to the greatest possible extent.

Foreseeable misuse

The pressure reducing valves type 582 and the pressure retaining valves type 586 are **not** intended to be used as shut-off devices.

The pressure reducing valves type 582 and the pressure retaining valves type 586 are **not** intended to be operated with gases or other compressible media.

2.2 Safety information

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

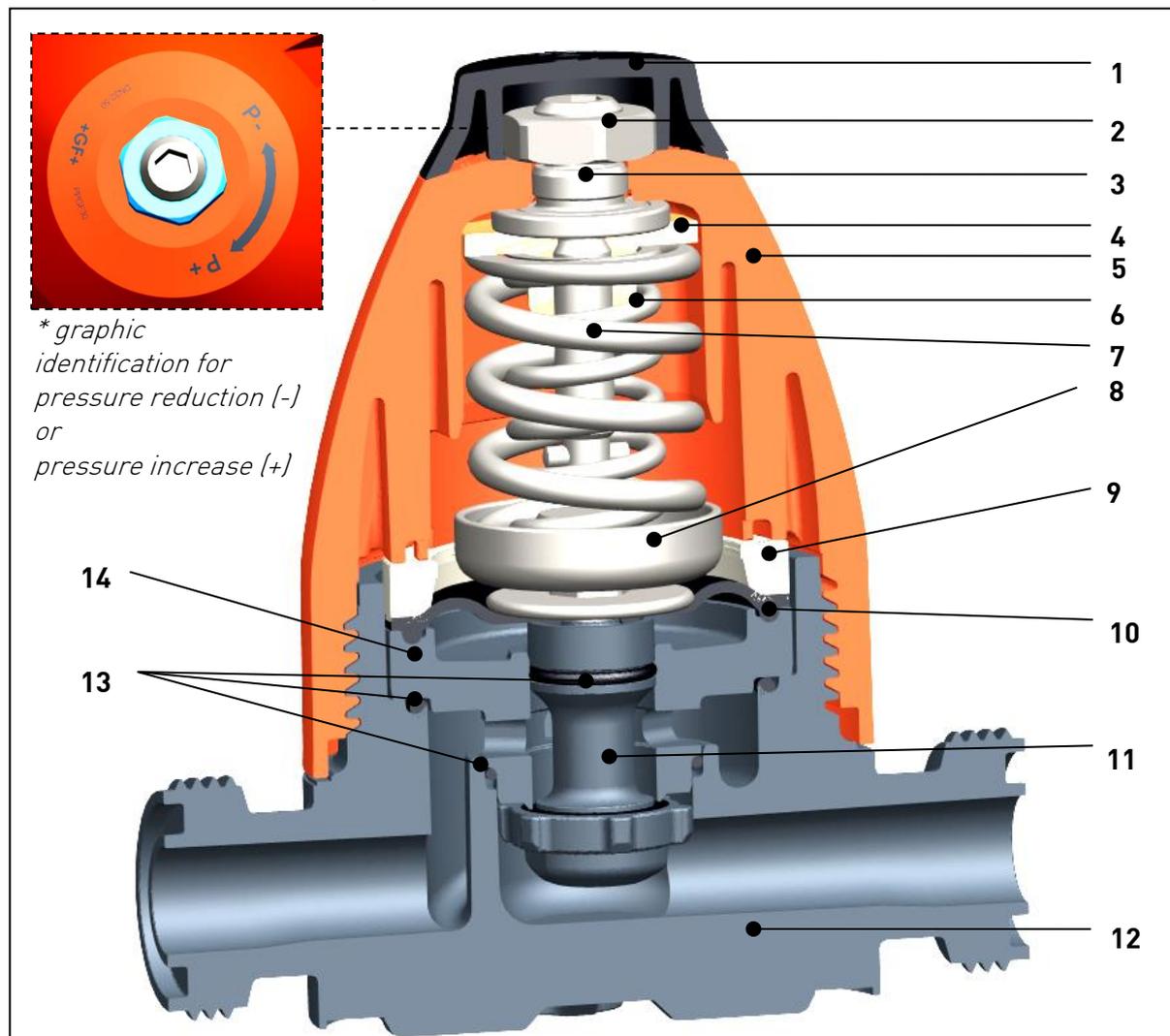
- ▶ Only use product as intended, see intended use.
- ▶ Do not use any damaged or faulty product. Sort out any damaged product immediately.
- ▶ Make sure that the piping system has been installed professionally and is inspected regularly.
- ▶ Product and accessories shall only be installed by persons who have the required training, knowledge or experience.
- ▶ Regularly train personnel on all questions pertaining to the locally applicable regulations on occupational safety and environmental protection, especially on pressure-retaining pipelines.

3 Transport and storage

- ▶ Protect the product against external force during transport (impact, stroke, vibrations etc.).
- ▶ Transport and/or store product in its unopened original packaging.
- ▶ Protect the product from dust, dirt, moisture as well as heat and ultraviolet radiation.
- ▶ Ensure that the product has not been damaged neither by mechanical nor thermal influences.
- ▶ Check the product prior to assembly on transport damages.

4 Design

4.1 Pressure reducing valve



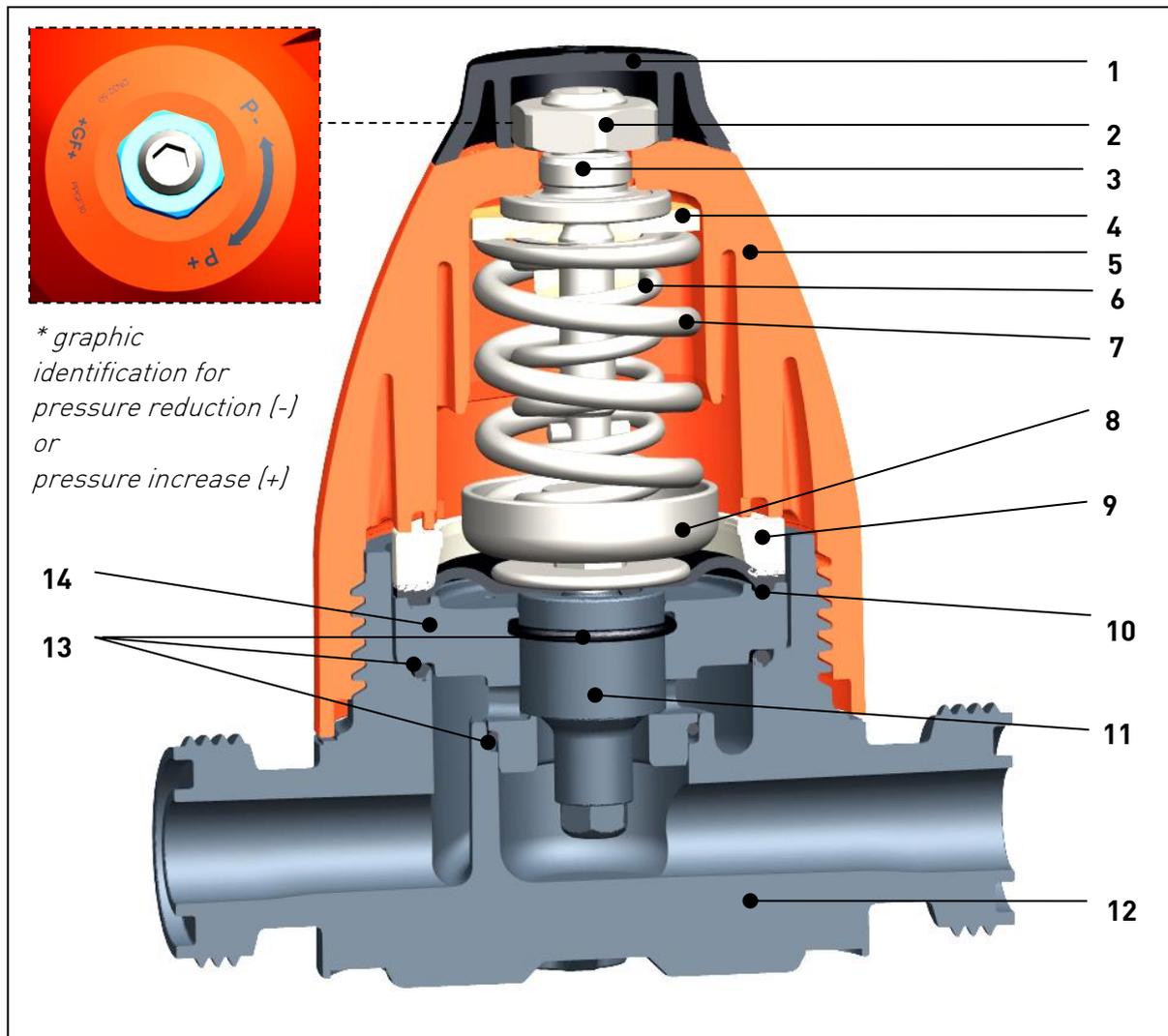
** graphic identification for pressure reduction (-) or pressure increase (+)*

1	Cap	8	Compression piece
2	Locking nut	9	Retaining ring
3	Spindle/adjusting screw	10	Diaphragm
4	Spring retainer	11	Piston
5	Bonnet assembly (top part) *	12	Body
6	Inner spring	13	O-rings
7	Outer spring	14	Inner body



Diaphragm, O-rings, diaphragm washer, inner body and piston constitute the cartridge.

4.2 Pressure retaining valve

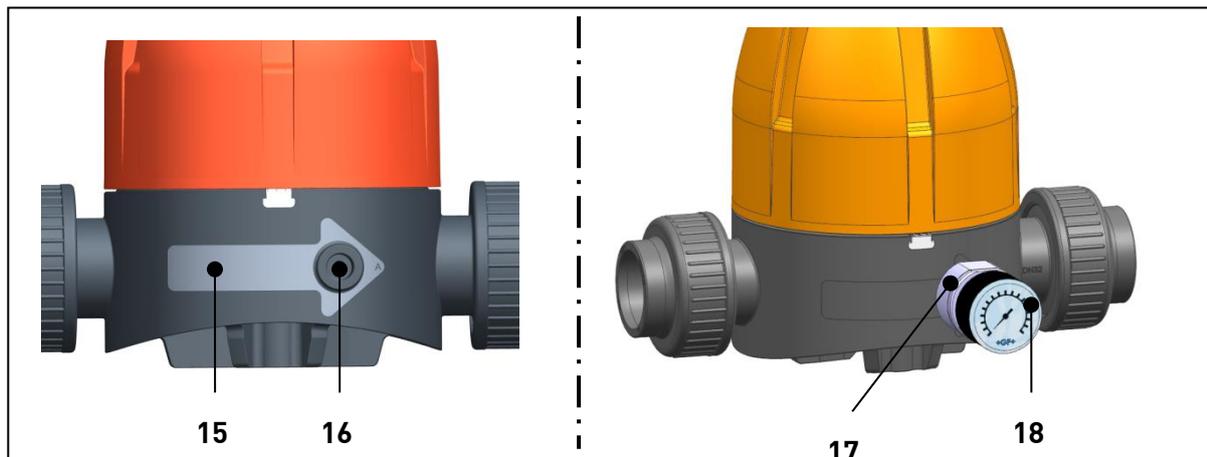


1	Cap	8	Pressure piece
2	Locking nut	9	Retaining ring
3	Spindle/adjusting screw	10	Diaphragm
4	Spring retainer	11	Piston
5	Bonnet assembly (top part)*	12	Body
6	Inner spring	13	O-rings
7	Outer spring	14	Inner body



Diaphragm, O-rings, diaphragm washer, inner body and piston constitute the cartridge.

4.3 Manometer



15	Indication of flow direction	17	Manometer adaptor (optional)
16	Manometer socket	18	Manometer



If pressure reducing valve type 582/pressure retaining valve type 586 is a manometer version, then the manometer is already fitted at the factory.

5 Function

5.1 Pressure reducing valve

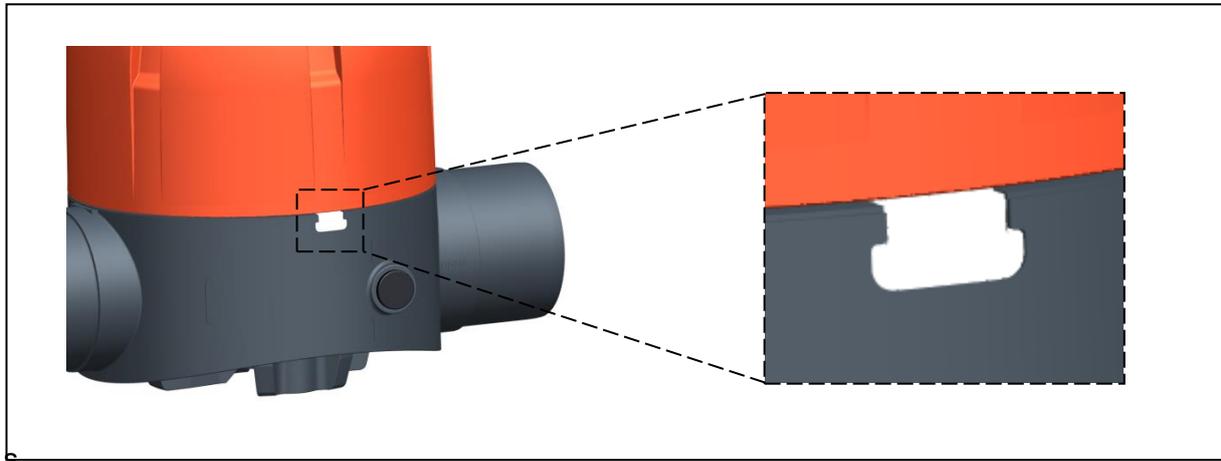
On the side of the valve outlet, the pressure acts via the diaphragm on the adjustable spring. A balance of forces is established via the preloaded spring, which is set with the adjusting screw at the valve. If the outlet pressure increases above the specified value, the piston is lifted against the spring force. The valve closes, and the outlet pressure is reduced. If the outlet pressure decreases below the value, the piston is pushed down by the spring resistance. The valve begins to open, until the balance is reached again. Independent of an increasing or decreasing inlet pressure, the outlet pressure remains constant to the greatest possible extent, because it is not directly related to the inlet pressure.

5.2 Pressure holding valve

The desired pressure in the valve inlet pipe is set by the adjustable spring force. If the inlet pressure rises above the set value, e.g. due to an over capacity of the pump, the valve piston is lifted against the spring force. Consequently, the valve opens, and there is a reduction of pressure in the outlet. If the pressure decreases in the valve inlet pipe, the spring resistance pushes the piston down in the direction of the valve seat and closes, as soon as the inlet pressure sinks below the preset spring tension. In this way, a constant pressure in the supply line is ensured.

6 Identification

6.1 Valve type/sealing material (O-rings)



Valve type	Sealing material	Colour of index plate
Pressure reducing valve type 582	EPDM	white
Pressure reducing valve type 582	FKM	green
Pressure retaining valve type 586	EPDM	black
Pressure retaining valve type 586	FKM	red

7 Technical specifications

Dimensions	DN 10-50 (3/8" – 2")
Materials	PVC-U, PVC-C, PP-H, PVDF
Diaphragm	EPDM/PTFE
Gaskets	EPDM, FKM
Connections	Fittings, spigots
Pressure level (nominal pressure)	PN 10
Adjustable pressure ranges	0.5 - 9 bar / optional 0.3 - 3 bar (7 - 130 psi / optional 4 - 44 psi)
Hysteresis	max. 0.5 bar (max. 6 psi)
Pressure difference	Pressure difference between inlet and outlet: min. 1 bar

8 Required tools

Tool	DN 10/15	DN 20/25	DN 32/40/50
Allen wrench	AF 6	AF 8	AF 10
Open-end wrench	AF 19	AF 24	AF 30
Hook wrench or strap wrench	80 - 90 mm	95 - 100 mm	135 - 145 mm
Screw driver	Size 1		
Fixing unit, e.g. jaw vice	no difference		

9 Installation

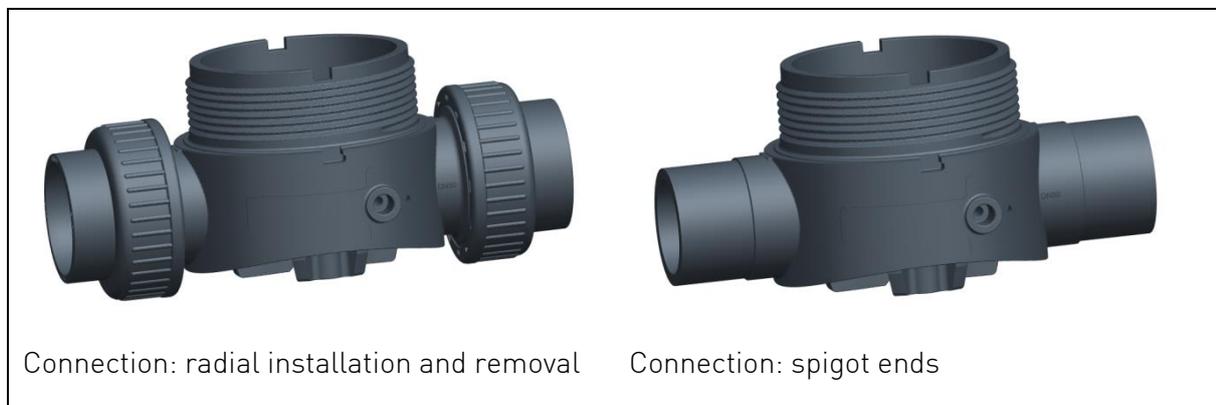


WARNING – ONLY FOR MANOMETER VERSION

**Danger of material damage and/or injury due to changes of the manometer!
Valid for versions with and without adaptor.**

- ▶ The manometer is installed, preset and checked at the factory. Therefore, ensure that no changes are made at the manometer.

The valve bodies are suited for various connection types:



Pressure reducing valves type 582/pressure retaining valves type 586 are supplied with released spring.

- ▶ Ensure that pressure reducing valve type 582/pressure retaining valve type 586 is suited for operating conditions, see label.
- ▶ Check pressure reducing valve type 582/pressure retaining valve type 586 on damages before installation. Do not use any damaged or faulty product.
- ▶ Ensure that the installation of pressure reducing valve type 582/pressure retaining valve type 586 is carried out without tension.
- ▶ In order to ensure an optimum flow rate, ensure that
 - pressure reducing valve type 582/pressure retaining valve type 586 is installed in a section of the pipeline that is not subjected to turbulent flow and that
 - bends, restrictions, shut-off devices have a minimum distance of 10 x DN from pressure reducing valve type 582/pressure retaining valve type 586.
- ▶ Observe the flow direction, see arrow on body (Fig. 1)

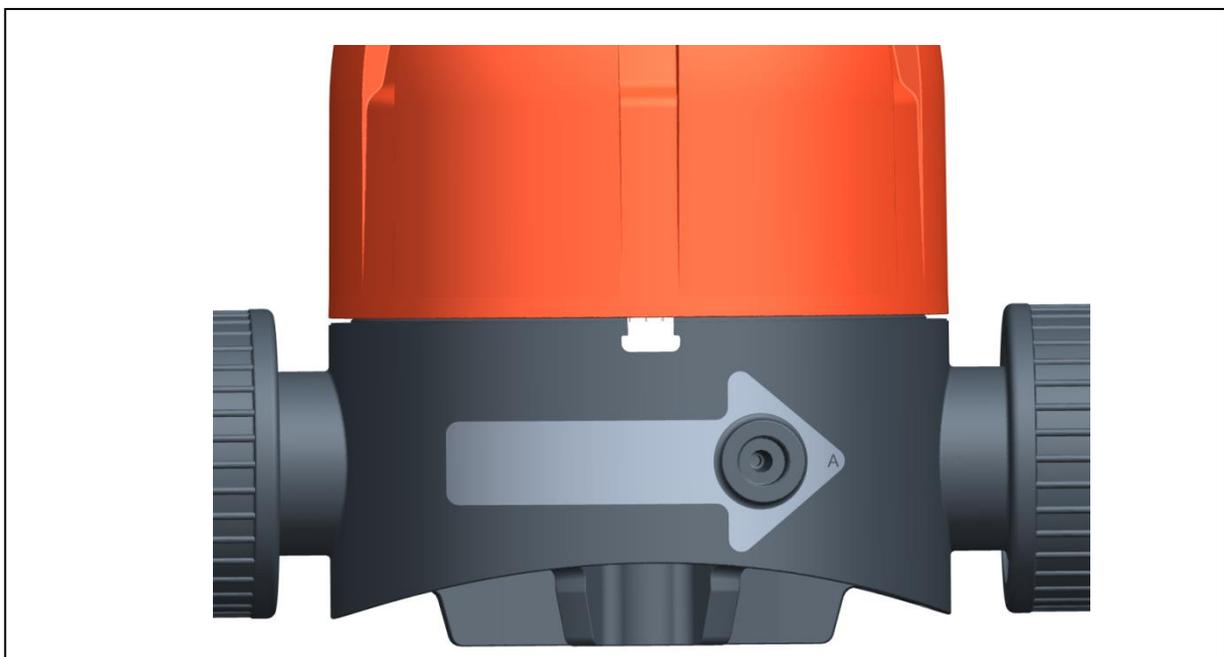


Fig. 1

- ▶ Observe connection types, see versions of „radial installation and removal“ and „spigot ends“.

Type „Radial installation and removal“:

- ▶ Loosen the coupling nut and slide it on the intended pipe end.
- ▶ Connect the connection parts with the pipe ends. For instructions concerning the different connection types, see planning fundamentals.
- ▶ Put pressure reducing valve type 582/pressure retaining valve type 586 between the connection parts.
- ▶ Tighten the coupling nuts by hand.

„Spigot ends“:

- ▶ If adapted to flange version, observe the tightening torques of the flanges, see „Georg Fischer planning fundamentals“.



In order to protect against soiling and premature wear and tear by erosion, we recommend installing a strainer on the inlet side of pressure reducing valve type 582/pressure retaining valve type 586.

Cemented connection

- ▶ Only join identical materials.
- ▶ After the curing time of the joint has elapsed, rinse the pipe section as quickly as possible with pressure-less water, see Chapter „Jointing techniques“ in the „Georg Fischer planning fundamentals“

Welded connection

- ▶ Only join identical materials, see Chapter „Jointing techniques“ in the „Georg Fischer planning fundamentals“.

10 Operation

10.1 Pressure test

- ▶ Ensure that the test pressure does not exceed 1.1 times the max. set back pressure.

10.2 Setting the working pressure

- ▶ Remove the cap from the bonnet assembly (top part), see Fig. 2. To do so, position the screw driver in the notch of the cap.

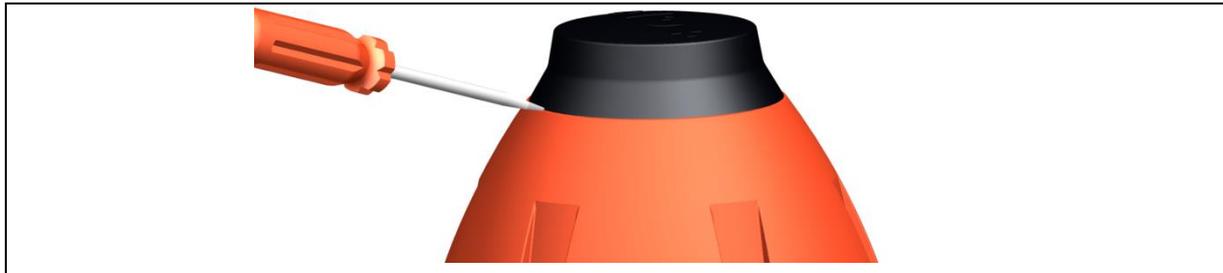


Fig. 2

- ▶ Loosen the locking nut, see Fig. 3

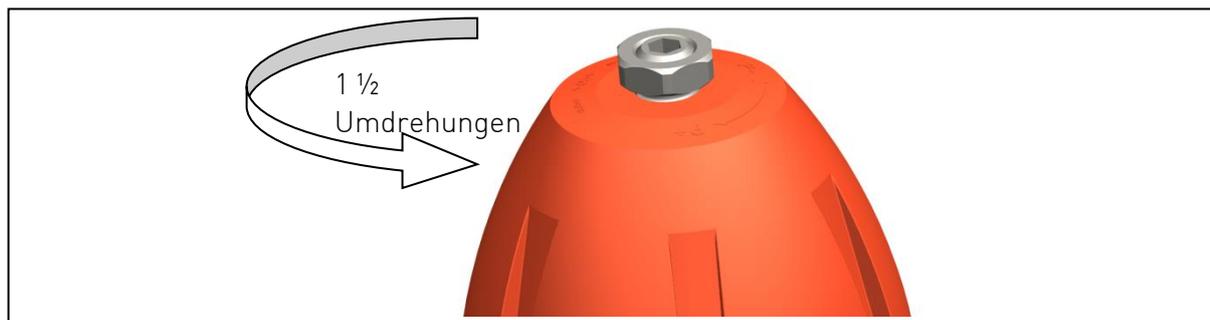


Fig. 3

- ▶ In order to increase the setpoint value: Tense the spring. To do so, turn the spindle clockwise, see Fig. 4

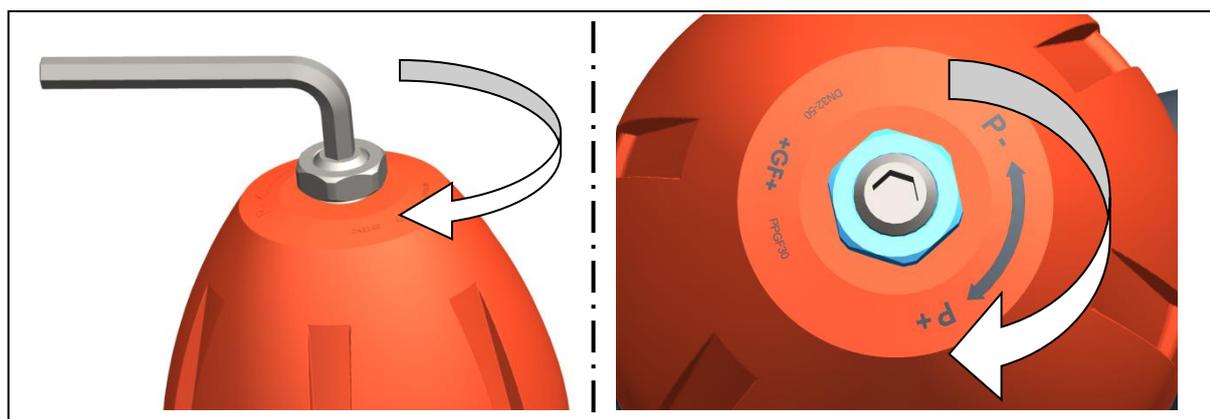


Fig. 4

- ▶ In order to decrease the set point value: Relax the spring. To do so, turn the spindle counterclockwise, see Fig. 5

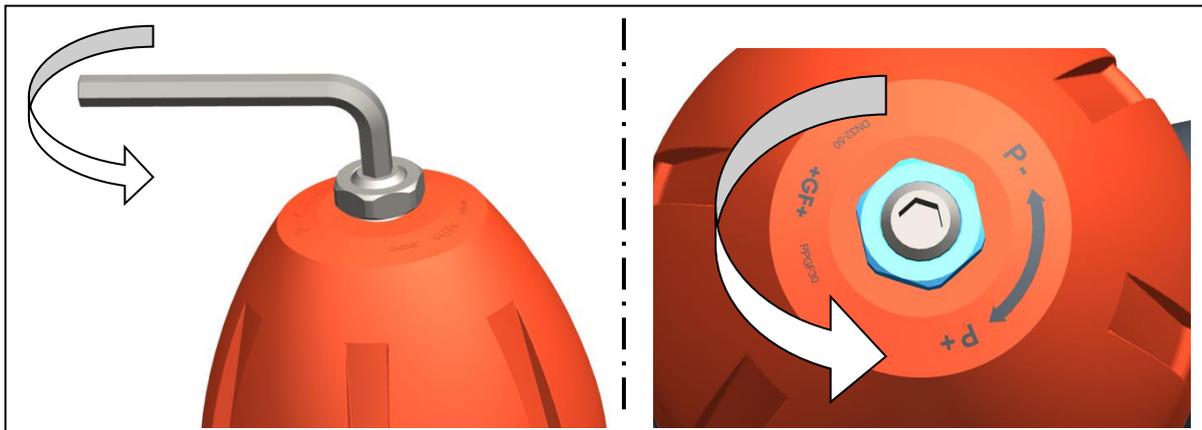


Fig. 5

- ▶ Ensure that the set point value is set. To do so, read the set point value at the manometer or the corresponding indicator.

**CAUTION**

**Displacement of the set point value of pressure reducing valve type 582/
pressure retaining valve type 586 due to wrong locking.**

- ▶ Fix the spindle with Allen wrench and simultaneously tighten the locking nut with a suited tool, see Fig 6

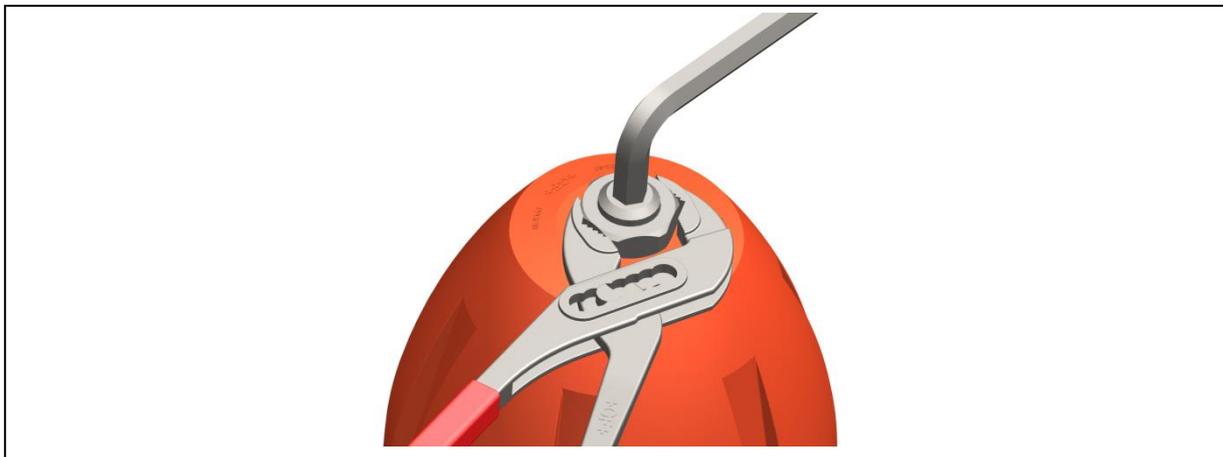


Fig. 6

- ▶ Put the cap onto the bonnet assembly (top part).

11 Maintenance



WARNING

Risk of injury due to uncontrolled evasion of the medium!

If the pressure was not relieved completely, the medium can evade uncontrolled.

- ▶ Completely relieve pressure in the pipes prior to dismantling/maintenance/dismantling.
- ▶ In case of harmful, flammable, or explosive media: Completely empty and rinse pipe prior to dismantling. Pay attention to potential residues.
- ▶ Make sure that the medium is caught safely with the appropriate measures.



Difficult opening, due to pretensioned spring. Make sure that the spring is completely relaxed before opening the bonnet assembly (top part). To do so, turn the spindle counterclockwise (P-), up to the end position.



CAUTION

Risk of injury and missing product quality through use of spare parts that have not been provided by GF Piping Systems!

- ▶ Only use the listed spare parts, see Chapter List of Spare Parts.

- ▶ Set maintenance intervals as per the conditions of use (e.g. actuating cycles, medium, ambient temperature).
- ▶ As part of the regular system inspection, carry out the following maintenance activities.

Maintenance interval	Maintenance activity
regular	▶ Check sealing element, piston, diaphragm on functionality and replace, if necessary
regular	▶ Check tightness of housing, pipe connection and control line.
regular	▶ Clean the inner body

11.1 Replacing diaphragm and O-ring

- ▶ Remove the valve from the pipeline and bring it into horizontal position.

11.1.1 Disassembly

- ▶ Prior to dismantling: Mark the position of bonnet assembly (top part) to body on the housing.
- ▶ Remove the cap from the bonnet assembly (top part), see Fig. 2. To do so, use a screw driver.
- ▶ Relax the spring. To do so, turn the spindle counterclockwise (P-), up to the end position.
- ▶ Fix the body with a suited tool and loosen the bonnet assembly (top part). To do so, turn the bonnet assembly (top part) counterclockwise, see Fig. 7. During this, the seal sticker will be broken.



Fig. 7

- ▶ Remove Pressure piece, springs and retaining ring, see Fig. 8
- ▶ Optional version 0.3 - 3 bar (4 - 44 psi): one spring

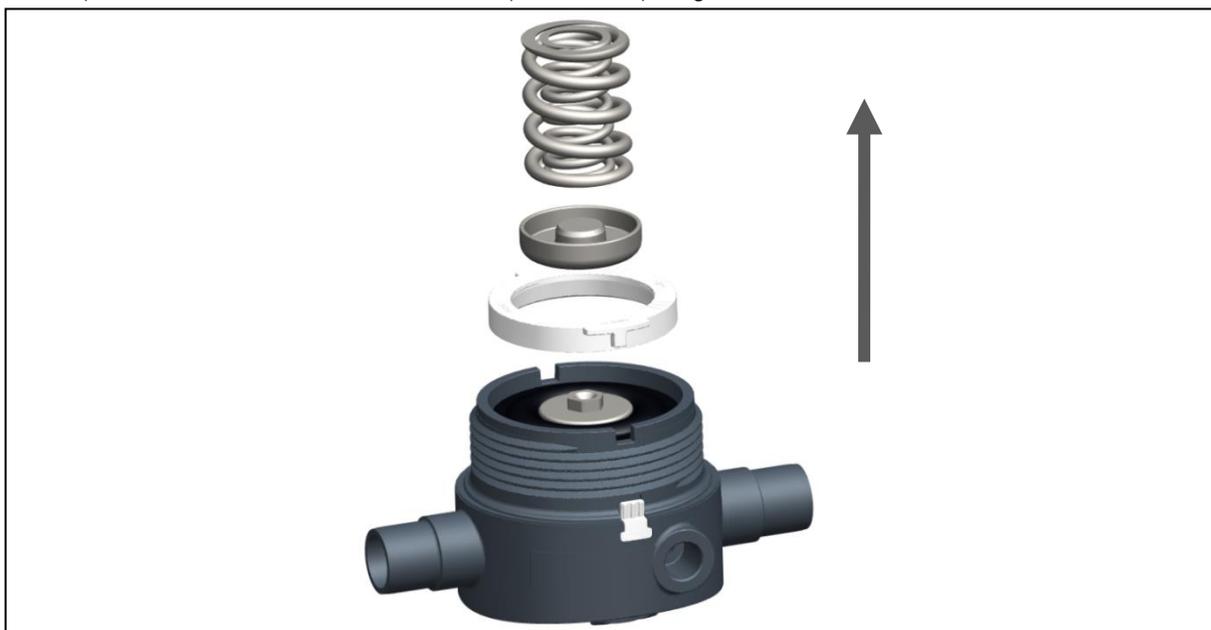


Fig. 8

- ▶ Remove cartridge from body with suited tool (e.g. pliers), see Fig. 9



Fig. 9

- ▶ Remove 2 O-rings from body, see Fig. 10

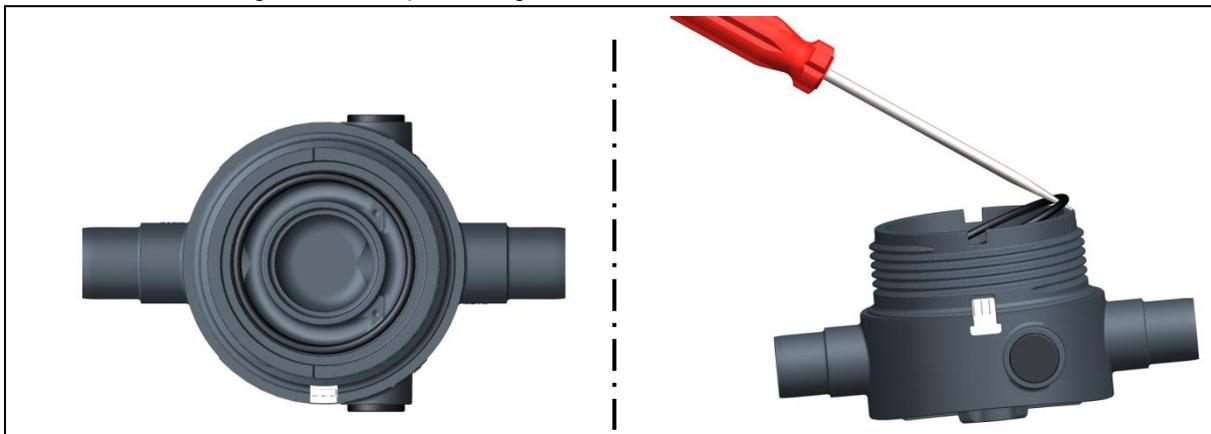


Fig. 10

- ▶ In order to replace diaphragm: Replace cartridge, see [Chapter "spare parts"](#)

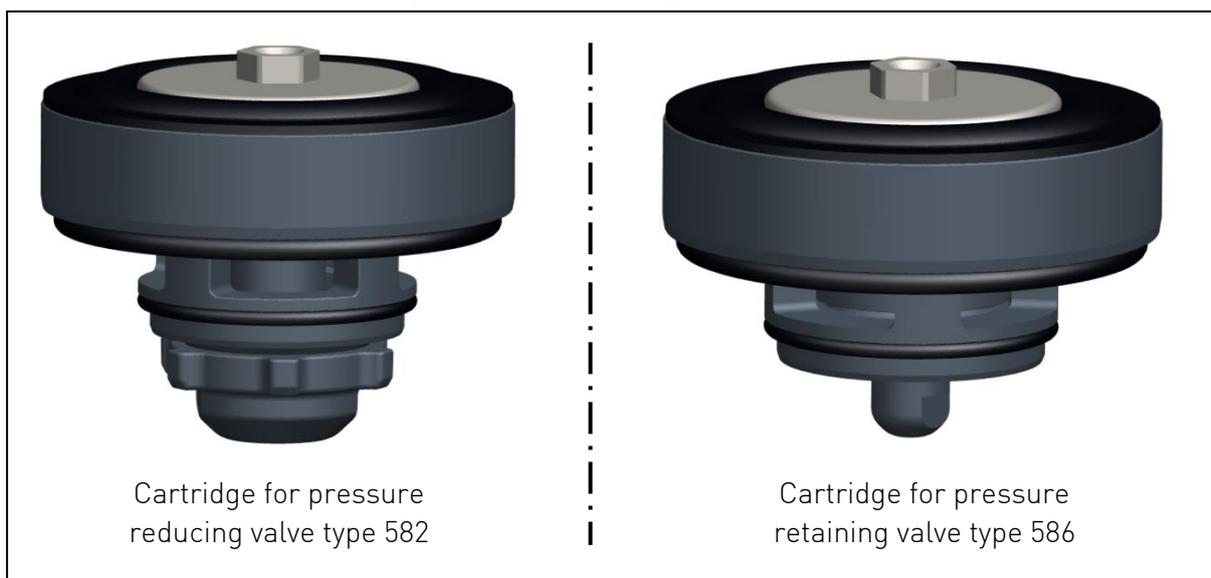


Fig. 11

11.1.2 Assembly

- ▶ Ensure that 2 O-rings sit correctly in the body.
- ▶ Position the cartridge in the body and push in, see Fig. 12
- ▶ Replace the index plate in case of valve type or elastomer change

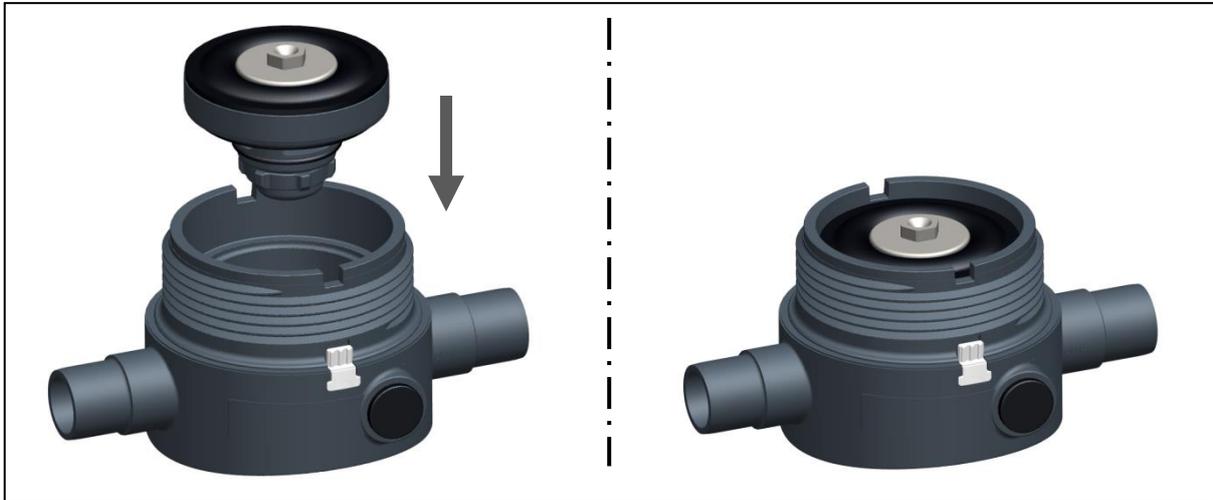


Fig. 12

- ▶ Place the retaining ring. During this, ensure that both projections of the retaining ring lie in the notches of the body, see Fig. 13

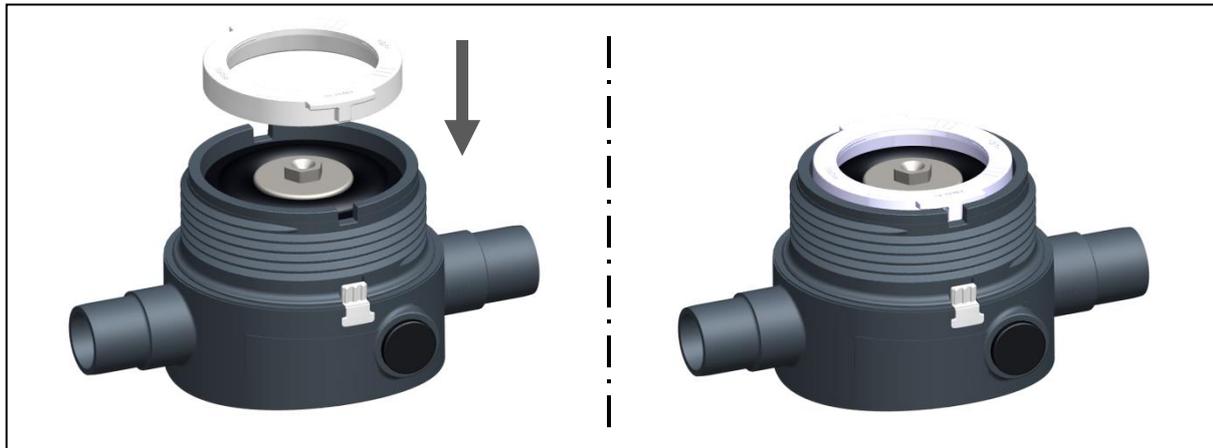


Fig. 13

- ▶ Put the Pressure piece on the cartridge, see Fig 14

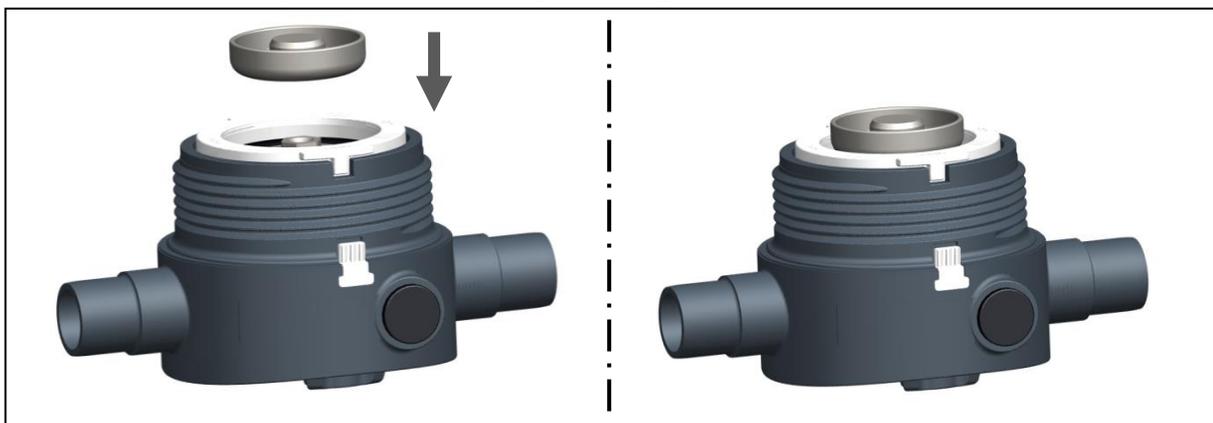


Fig. 14

- ▶ Put the springs on the Pressure piece, see Fig 15

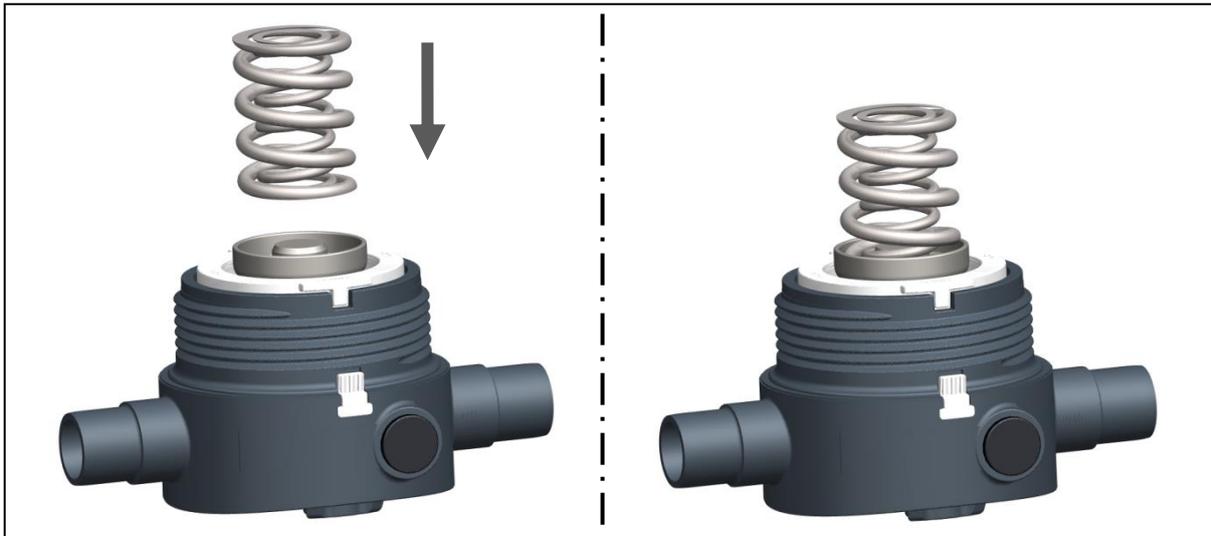


Fig. 15

- ▶ Put the bonnet assembly (top part) onto the body.
- ▶ Fix the body and tighten up to the marking/old seal sticker (see Chapter 11.1.1) +20°:

DN 10/15	DN 20/25	DN 32/40/50
50Nm	70Nm	120Nm

- ▶ Clearance check between top part and body

DN 10/15	DN 20/25	DN 32/40/50
0.5 mm	0.6 mm	0.9 mm

- ▶ Install the valve into the pipeline, see [Chapter 9 „Installation“](#)
- ▶ Fix the spindle with Allen wrench and simultaneously tighten the locking nut with a suited tool.
- ▶ Setting the working pressure, see [Chapter 10.2 "Setting the working pressure"](#)

11.2 Cleaning the inner body

- ▶ Dismantling, see [Chapter 11.1.1 "Disassembly"](#)
- ▶ Check and clean the area of the seat gasket, see Fig. 16

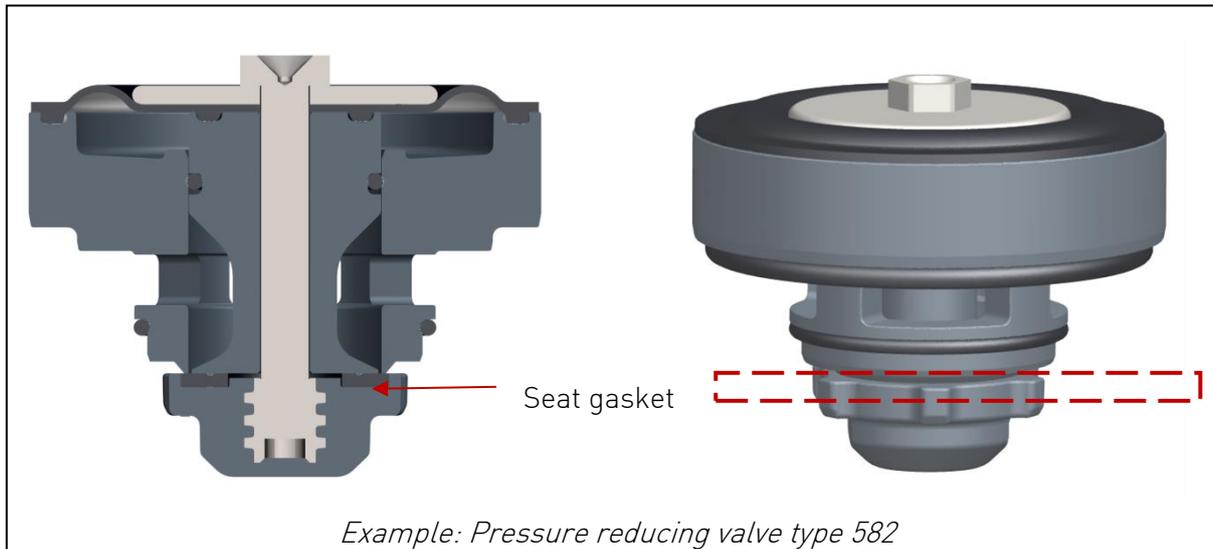


Fig. 16

- ▶ Clean the drill holes of the inner housing, see Fig. 17

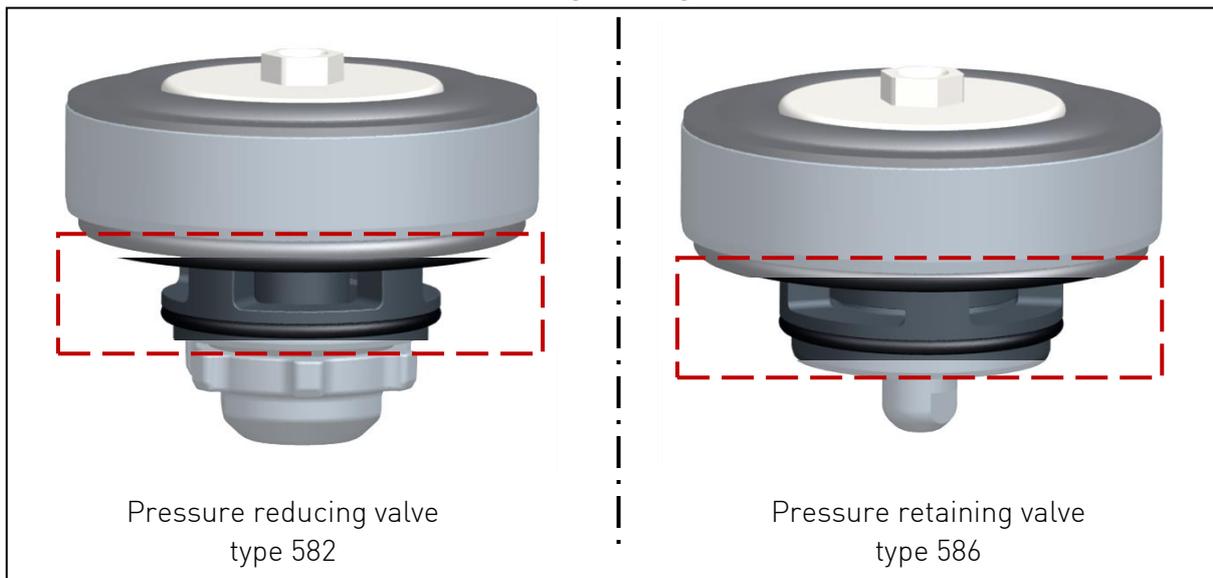


Fig. 17

12 Troubleshooting

Fault	Possible cause	Troubleshooting
Leak at pipe	Leaking connections	Check bonding or welding and repair, if necessary Check gaskets and replace, if necessary
Leak between top part and body	Retaining ring not correctly inserted	Position the retaining ring so both projections of the retaining ring lie in the notches of the body
	Bonnet assembly (top part) loose	Retighten bonnet assembly (top part)
Leak at bonnet assembly (top part)	Piston screw loose	Retighten piston screw
	Diaphragm damaged	Replace diaphragm, see Chapter 11
	Control element (diaphragm, piston, sealing element) defective	Replace cartridge.
Set point value not reached (only valid for pressure reducing valve type 582)	Foreign body jammed, preventing tight closing	Tense the spring, so the valve opens and the foreign body is flushed out (caution: pressure increase)
	Impure function parts	Clean pressure reducing valve type 582, see Chapter 11.2
Inertia too high, set point value not reached	Valve undersized	Check valve dimensioning (kvs value)
Valve does not react to compressed air	Valve is not dimensioned for compressed air, and therefore has no compressed air connection	Remove compressed air and select other valve (e.g. pneumatic diaphragm valve) for the application

Fault	Possible cause	Troubleshooting
Loud noise	Valve oversized. Thus, the valve only opens a minimum, leading to vibrations	Check valve dimensioning (kvs value)
	Valve undersized. This results in excessive flow velocities inside the valve	Check valve dimensioning (kvs value)
Excessive damage of pressure reducing valve type 582/pressure retaining valve type 586	Dirty medium, corrosion deposits or foreign matter.	Install strainer
Manometer does not indicate anything	Manometer defective	Replace manometer
	Buffer medium escaped from the manometer adaptor	Check manometer adaptor and replace, if necessary
Manometer stays on a constant value	Manometer defective	Replace manometer
	Drill holes in the cartridge clogged	Clean cartridge, see Chapter 11.2 „Cleaning the inner body“
Bonnet assembly (top part) cannot be screwed onto the body	<p>Spring not relieved Spring cap is not in the end stop, see Fig. 18</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Fig.18</p> </div> <div style="text-align: center;">  <p>Fig.19</p> </div> </div>	Screw spring cap into the end position, see Fig 19

13 Spare Parts

Order spare parts as follows:

- ▶ Identify valve type and sealing material by means of index plate, see Chapter 6.1. Sealing material.
- ▶ Read DN size at body.
- ▶ Read designation of spare part, see Chapter 4.1 or 4.2.
- ▶ Send the order with these details and the required quantity to the agency of GF Piping Systems.

14 Accessories

Designation	Article number		
	DN 10/15	DN 20/25	DN 32/40/50
Hook wrench	198 806 451	198 806 452	198 806 453
Manometer adaptor	198 806 650		
Manometer brass	198 806 651		
Manometer stainless steel	198 806 652		
Manometer sealing plug	198 806 653		

15 Disposal

- ▶ Before disposing of the different materials, separate them by recyclables, normal waste and special waste.
- ▶ Comply with local legal regulations and provisions when recycling or disposing of the product, the individual components and the packaging.
- ▶ Comply with national regulations, standards and directives.

**WARNING**

Parts of the product may be contaminated with media that are harmful for the health and the environment. Therefore, a simple cleaning is not sufficient!

Danger of personal injury and damage to the environment caused by those media.

Prior to disposing of the product:

- ▶ Collect leaking media and dispose of according to the local regulations.
Consult the safety data sheet.
- ▶ Neutralize possible media residues in the product.
- ▶ Separate materials (plastics, metals etc.) and dispose of according to the local regulations.

If you have questions regarding the disposal of your product, please contact your national GF Piping Systems representative.

16 EC Manufacturer's declaration

The manufacturer, Georg Fischer Rohrleitungssysteme AG, 8201 Schaffhausen (Switzerland), declares that, due to the exclusion of the use for flammable or gaseous media and because of their nominal diameter and pressure level, the pressure regulating valves are not subject to Pressure Equipment Directive 2014/68/EU.

Changes to the pressure regulating valve that could affect the stated technical specifications and the intended use, void this manufacturer's declaration.

Name: Bastian Lübke

Position: R&D Manager Georg Fischer Piping Systems

Date: 2017-02-22