

operating instructions**sliding gate-pressure regulator series SG17/SG18/SG29/SG30**

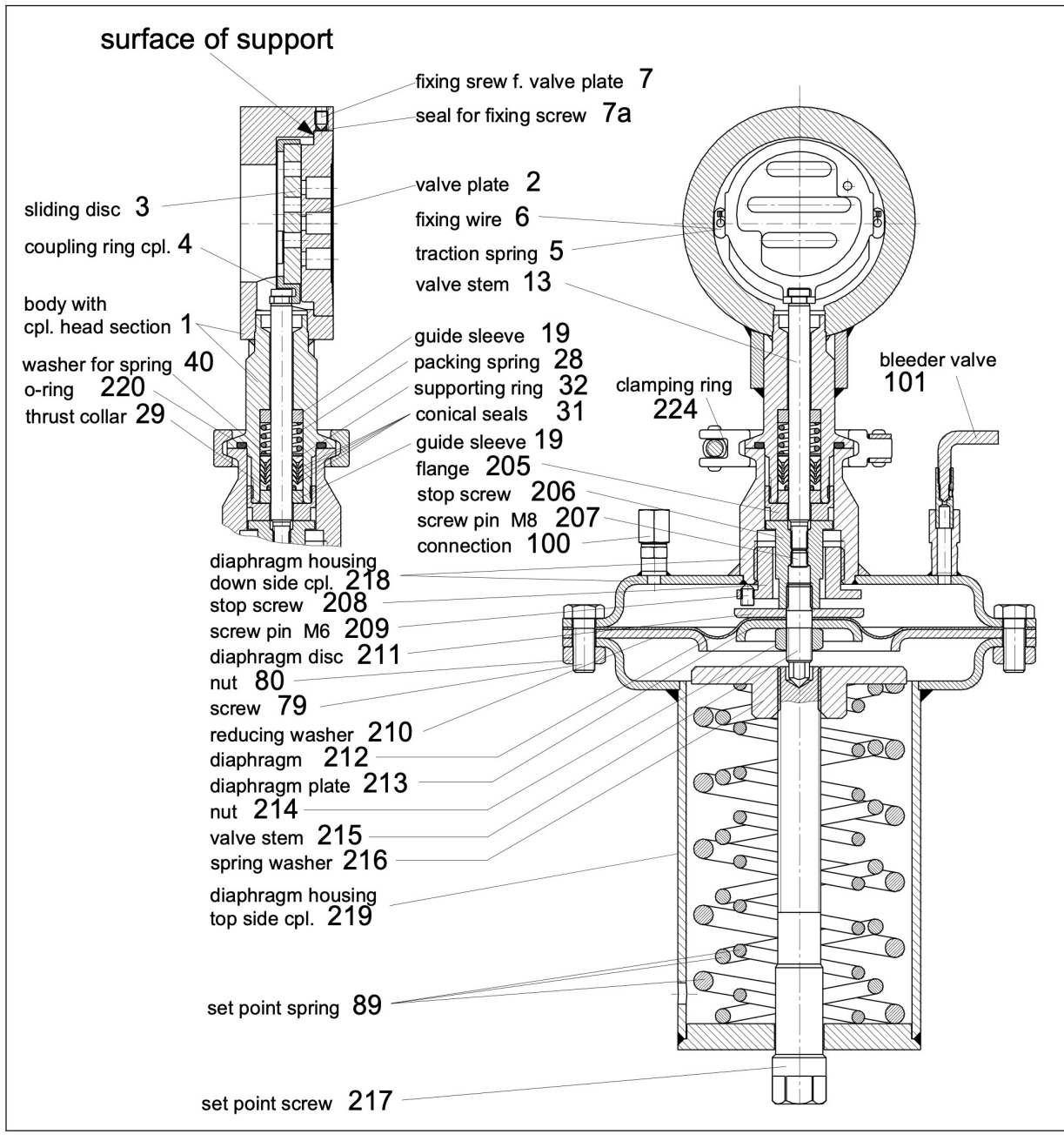
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2.1 Spare Parts List

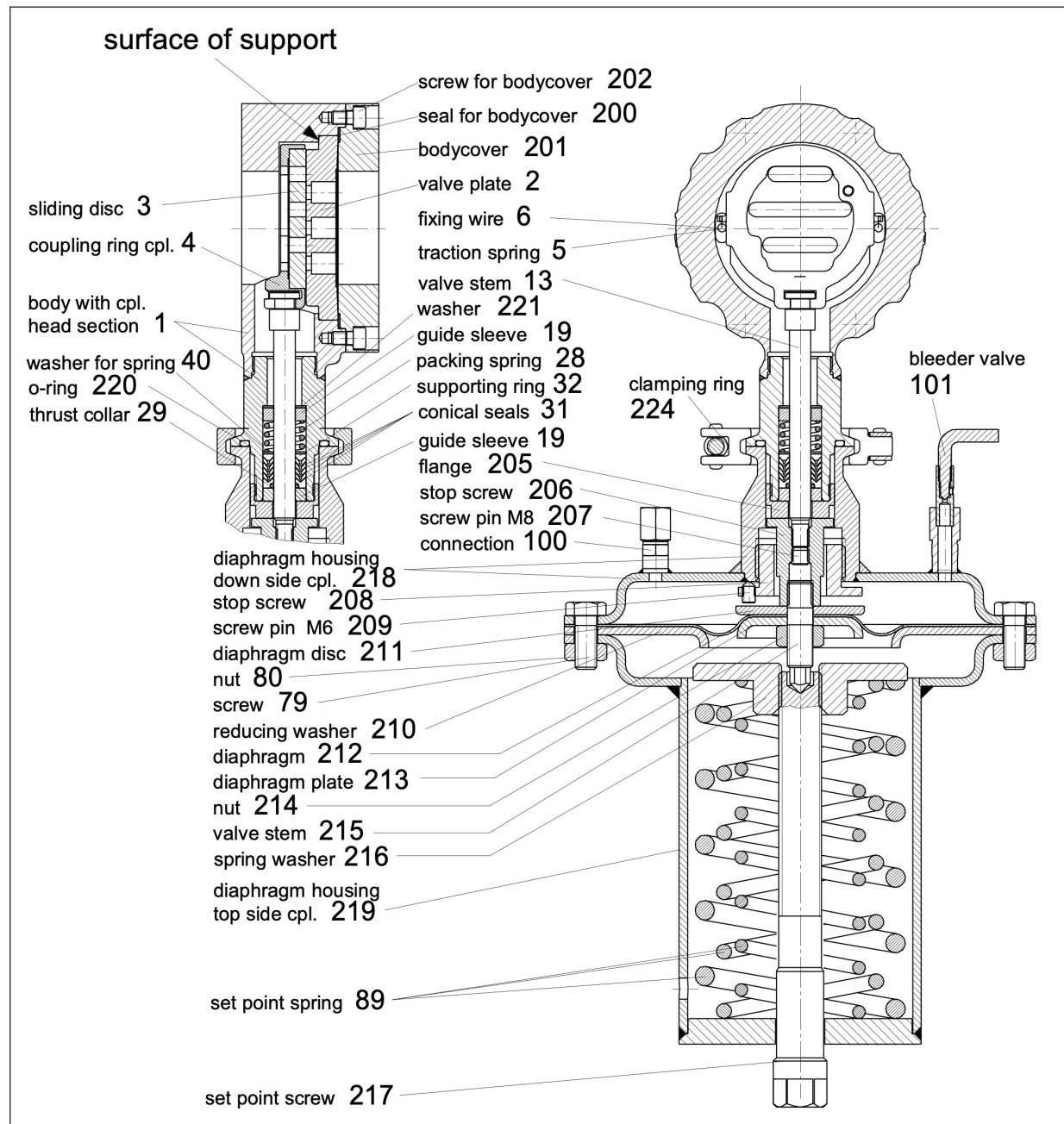
2.1.1 Spare Parts List Series GS1



(Use original Schubert & Salzer Control Systems spare parts only!)



2.1.2 Spare Parts List Series GS3



2.2 Technical Data

wafer-type design (body length acc. DIN EN 558-1 series 20)		
wafer-type design		
DN 15 to DN 150 (1/2"up to 6")		
PN 40 (fits also to PN 10-25)	DN 15 - DN 150 (1/2" - 6")	
ANSI 150 (GS3 series only)	DN 15 - DN 150 (1/2" - 6")	
ANSI 300 (GS3 series only)	DN 15 - DN 150 (1/2" - 6")	
0,5 up to 10 bar (7 up to 145 psi) see datasheet		
-60°C up to +230°C (-75°F up to +446°F)		
Diaphragm material		
CR:	-20°C up to +80°C	(-4°F up to +176°F)
EPDM:	-30°C up to +130°C	(-22°F up to +266°F)
FKM:	-15°C up to +150°C	(5°F up to +302°F)
Disc pair Carbon-stainless steel < 0.0001	Disc pair SFC < 0.0005	Disc pair STN2 < 0.001

2.3 Installation

- Remove all packing materials from the valve.
- Prior to the installation the pipeline should be checked for contamination and foreign particles and cleaned if necessary.
- Before fitting check whether the regulator is suitable for the required operating function:
- A **pressure regulator** is **opened** when not pressurised.
- An **overflow valve** is **closed** when not pressurised.
- The control valve has to be mounted to the pipeline according to the direction of flow which is indicated by an arrow on the valve body. The sliding gate valve only shuts off the fluid in the direction of flow (direction of arrow). In case of operating conditions in which the inlet pressure falls below the outlet pressure, we recommend the installation of check valves in the outlet pressure pipeline.
- Use flange seals acc. to DIN EN 1514-1 or ANSI B16.21 in the respective nominal pressure.
- We recommend flange seals made from pure graphite with a stainless steel backup.
- Pressure regulators should be fitted generally with the actuator hanging down, as in steam service this allows a condensate column to be built up protecting the diaphragm from high temperatures. Furthermore this eases venting the actuator completely. At very high steam temperatures we recommend using a separation vessel.
- Permitted differential pressure and the spring-adjustable control pressure range are stated on the type label.
- If contamination in the pipeline (rust, welding remnants) cannot be avoided a strainer should be used.
- Install a stop valve upstream of the regulator.
- Connect the pilot line via connection (100) with the diaphragm actuator G- or NPT-Thread connection pipe dia. 8 mm).
- On pressure regulators the downstream pressure (p2) is connected to the pilot line.
- On overflow valves the upstream pressure (p1) is connected to the pilot line.
- For pressure regulators the pressure port should be located from the valve at least at 20 times the pipe diameter, for overflow valves at least 5 times the pipe diameter.

2.4 Initial operation

1. To avoid burning the diaphragm by hot steam it has to be protected when starting up the installation initially. Preferably this is done by filling water to the pressurised part (102) of the actuator via the pilot line.
2. If a separation vessel (103) is used it has to be filled with water too.
3. Venting the valve is carried out using the bleeder valve (101).
4. For pressure regulators the upstream stop valve should be opened slowly when starting up the installation. This avoids the inlet pressure getting through to the reduction side passing the primarily open regulator.
5. If that the required pressure does not correspond to the actual value turn the set point screw (91) clockwise for increasing it and counter-clockwise for reducing it.

2.5 Explosion protection according to ATEX 2014/34/EU



WARNING

The instructions for operating the valve in potentially explosive atmospheres, as detailed in this chapter, must be observed without fail!

The valve type 8011 has been subjected to an ignition hazard assessment for non-electrical devices in accordance with the ATEX directive. This results in the following marking



II 2G Ex h IIC T6...T2 X Gb

II 2D Ex h IIIC 85°C...230°C X Db

This marking indicates differences in the individual variants, which must be observed for safe operation in a potentially explosive atmosphere.

Limitations of the operating range

- The expected surface temperature of the valve depends on the media temperature and can reach the media temperature at the most.
- The maximum permitted media temperature depends on the valve version and can be taken from the data sheet.
- In the case of switching frequencies of more than 0.5 Hz, an additional heating of the actuator by 10K above the media temperature must be taken into account. Switching frequencies higher than 2 Hz are not permitted in potentially explosive atmospheres.

The temperature classes are assigned to the maximum surface temperature in accordance with EN ISO 80079-36 6,2,5 Table 2:

Temperature class	Maximum surface temperature
T1	≤ 450°C / 842°F
T2	≤ 300°C / 572°F
T3	≤ 200°C / 392°F
T4	≤ 135°C / 275°F
T5	≤ 100°C / 212°F
T6	≤ 85°C / 185°F

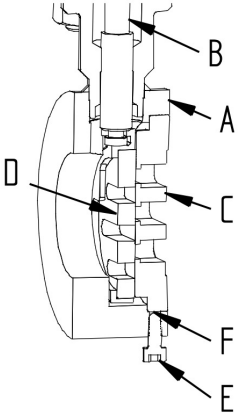
The marking applies to all valves from the listed series including actuator, but only in the standard versions, which are listed in the data sheets. Special versions and other actuators must be subjected to a separate conformity assessment according to ATEX.

All electrical and mechanical accessories (e.g. positioners, limit signal transmitters, solenoid valves, etc.) must be subjected to their own conformity assessment according to ATEX.

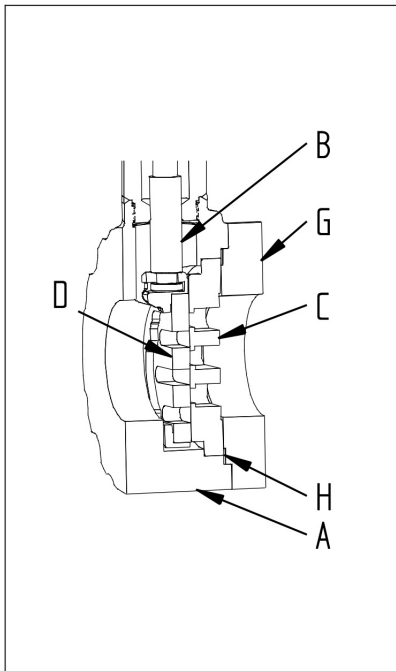
In case of doubt, it is advisable to contact the manufacturer.

2.6 Replacing the Functional Unit

2.6.1 Series GS1

	<u>Dismantling</u> 1. Remove fixing screw (E). 2. Lower valve stem (B). 3. Press functional unit out of body (A). 4.  (CAUTION: Do not strike the valve plates (C and D) with a hammer or similar hard tool.) 5. Remove seal (F). <u>Assembling</u>  Pay attention to lubrication and bonding plan. 1. Clean face of valve plate (C) and in body (A) and, if necessary, remove particle and seal residues. 2. Refit the functional unit in the body. Check if the slots in the valve plates are parallel when closing. If necessary, rotate the valve plate (C) as needed. 3. Place seal (F) in the body. 4. The function unit has to be inserted plane-parallel into the valve body. The lower part of the valve has to be clamped between the faces into a vice if necessary. Secure the fixing screw (E) with 2,5 Nm. The valve plate has to be parallel after tightening the screw.
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2.6.2 Series GS2 and GS3



Dismantling

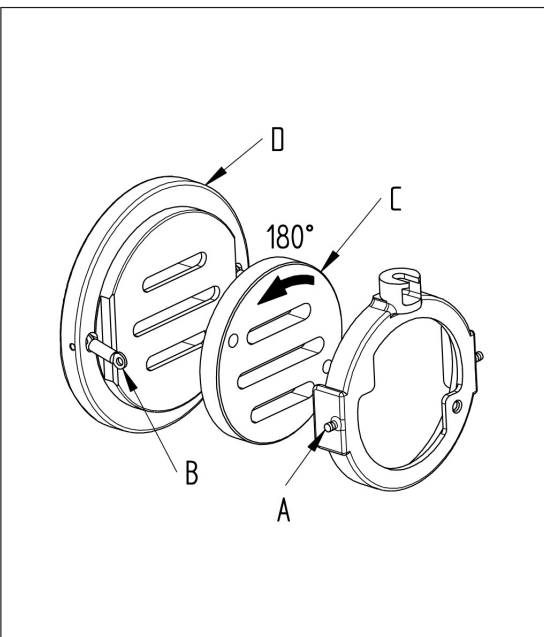
1. Lower valve stem (B).
2. Loosen screws in cover (G).
3. Remove cover (G) and cover seal (H).
4. Press functional unit out of body.
5.  (CAUTION: Do not strike the valve plates (C and D) with a hammer or similar hard tool.)

Assembling

 **Pay attention to lubrication and bonding plan.**

1. Clean face of valve plate (C) and in body (A) and, if necessary, remove particle and seal residues.
2. Refit the functional unit in the body (A).
3. Insert seal (H) and cover (G). Check if the slots in the valve plates are parallel when closing. If necessary, rotate the valve plate (C) as needed.
4. Screw the cover to the body and tighten the screws.

2.7 Changing the Valve Function



The valve's closing action can be reversed by turning the movable valve plate.

Pressure regulator → Overflow valve

Overflow valve → Pressure regulator

In addition, the control line connection must be changed.

For pressure regulators, the outlet pressure (p2) is connected to the control line.

For overflow valves, the inlet pressure (p1) is connected to the control line

- Unfasten springs (B) from coupling ring (A).
- Rotate valve plate (C) through 180°.
-  In valves with an equal percentage characteristic, the stationary valve plate (D) must also be rotated by 180°.

2.8 Dismantling and Assembling the Valve



Note lubrication and bonding plan!
Use original Schubert & Salzer Control Systems spare parts only!

2.8.1 Dismantling the Actuator from the Lower Valve Part

1. Release set-point screw (217).
2. Remove screws (79) and nuts (80).
3. Remove diaphragm housing top (219).
4. Loosen nut (214) and screw valve stem (215) out.
5. Remove diaphragm plate (213), diaphragm (212) and diaphragm disc (211).
6. Loosen clamping ring (224) and take off lower diaphragm housing (218).

2.8.2 Dismantling the Lower Valve Part

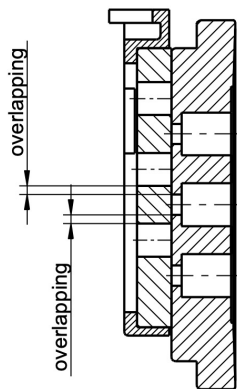
1. Remove functional unit (see chapter 2.6).
2. Unscrew screw pin (207), stop screw (206) and flange (205).
3. Pull out valve stem (13) completely with packing from the body (1).

2.8.3 Assembling the Lower Valve Part

1. Clean all valve parts with white spirit or some other suitable solvent.
2. Insert valve stem (13) to valve body (1).
3. Push complete packing into the body (1) from the top, ensuring it is in the right order.
4. Screw flange (205) tightly.
5. Insert functional unit (see chapter 2.6).
6. Fit stop screw (206), adjust the lower valve stop or overlap (see table below) and lock with screw pin (207).

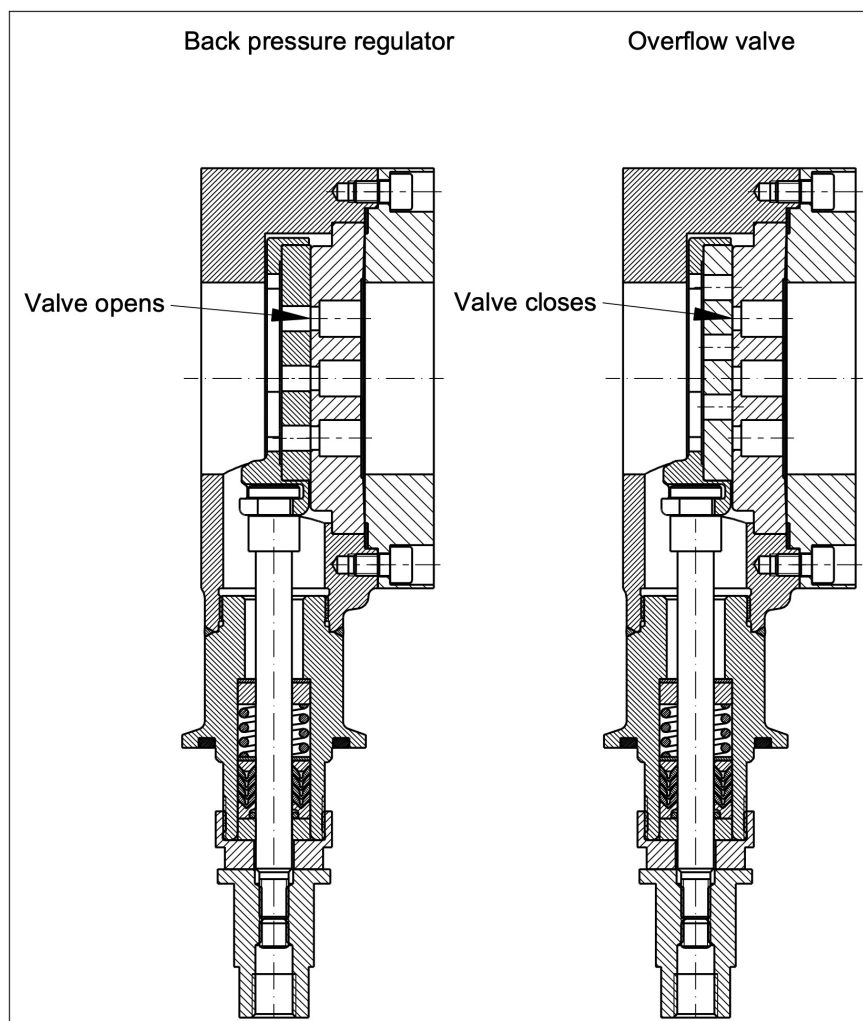
2.8.4 Assembling the Complete Valve

1. Place O-ring (220) in the valve body (1).
2. Place lower diaphragm housing (218) on the body (1) and secure with clamping ring (224).
3. Screw stop screw (208) into the lower diaphragm housing (218), adjust the stroke and lock with the screw pin (209) (see table below for valve strokes).
4. Tighten valve stem (215) with stop screw (206).
5. Tighten diaphragm disc (211), diaphragm (212) and diaphragm plate (213) with nut (214).
6. Turn the screws (79) through the lower diaphragm housing (218) and the diaphragm (212). Attention! Do not push the screws in, but turn them in by hand!
7. Place set point spring (89) in the upper diaphragm housing (219), insert spring washer (216) and slightly tighten the spring set with the set point screw (217).
8. Place the pre-assembled set on the lower diaphragm housing (218) and on the diaphragm (if required, place on the reducing washer (210)) and tighten the actuator firmly with screws (79) and nuts (80).
9. Check function (overlap and stroke).



DN	Overlap		Valve stroke	
	mm	inch	mm	inch
15 - 1/2"	1,0	0.059	6,25	0.246
20 - 3/4"	1,5	0.059	6,25	0.246
25 - 1"	1,5	0.059	6,25	0.246
32 - 1 1/4"	1,5	0.059	6,25	0.246
40 - 1 1/2"	1,5	0.059	6,25	0.246
50 - 2"	1,5	0.059	8,25	0.325
65 - 2 1/2"	1,5	0.059	8,25	0.325
80 - 3"	1,5	0.059	8,25	0.325
100 - 4"	1,5	0.059	8,75	0.325
125 - 5"	1,5	0.059	8,75	0.325
150 - 6"	2,0	0.079	8,75	0.344

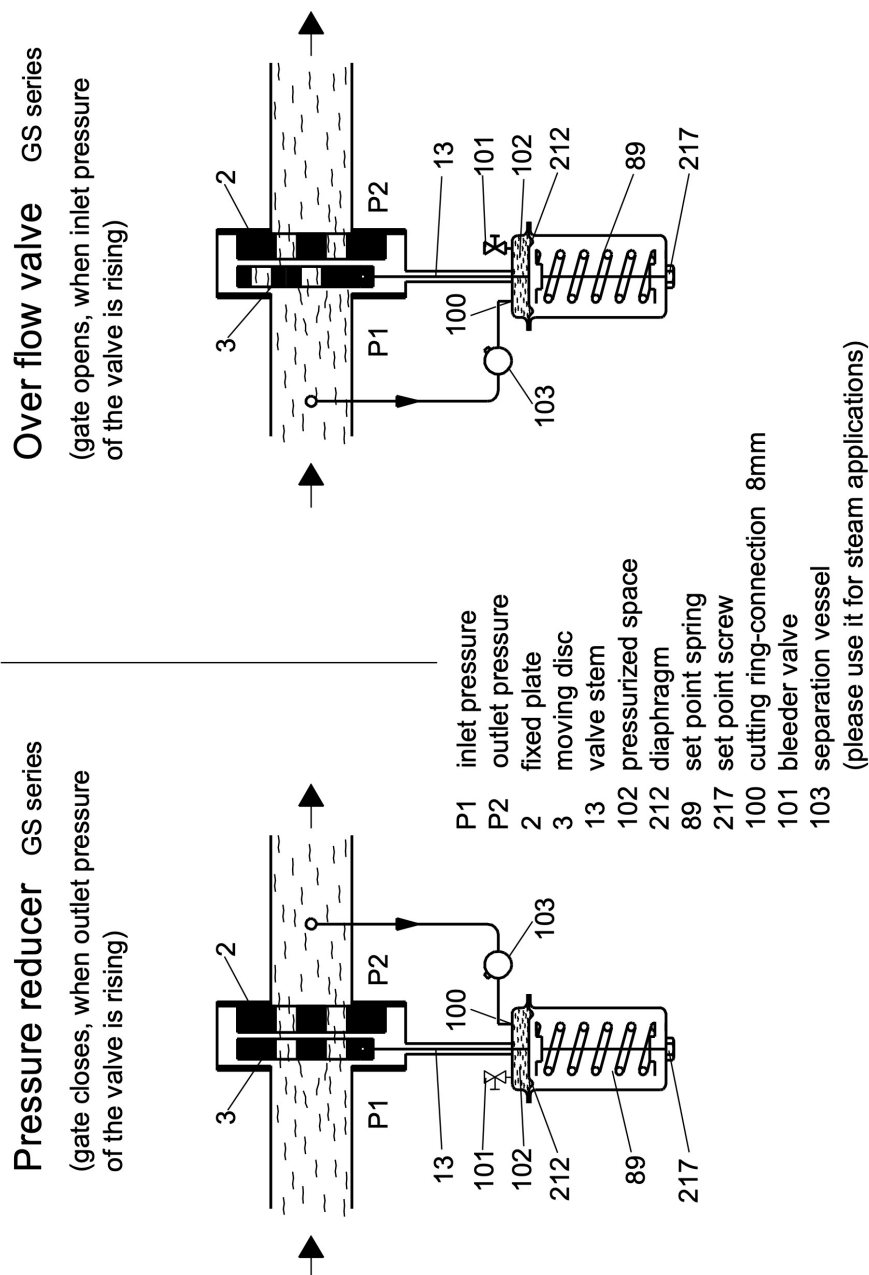
Pressure regulator and overflow valve in deactivated position:



2.9 Disposal

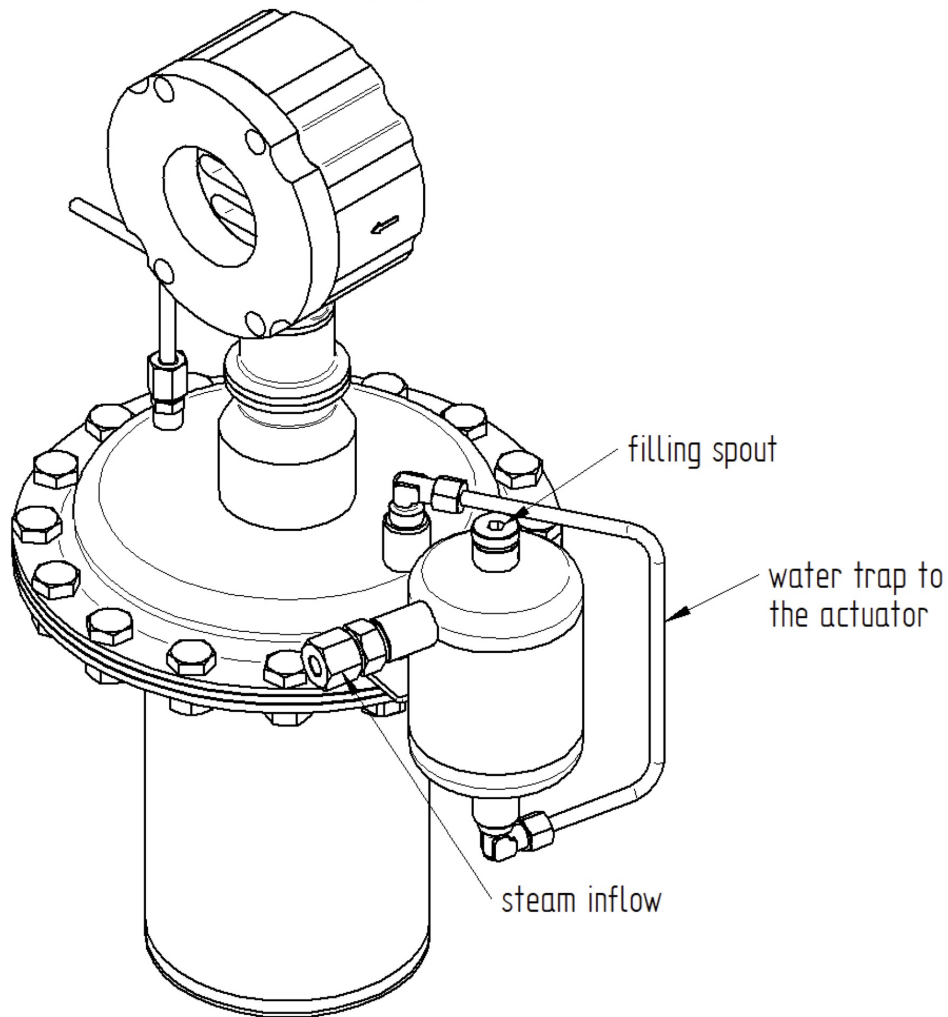
The device and packaging must be disposed of in accordance with the relevant laws and directives in the respective country.

2.10 Fitting Arrangement



2.11 Installation of a condensation chamber

In steam applications it is advantageous to use a condensation chamber with hydraulic seal. The condensation chamber of the company Mankenberg is to be installed as follows.



Installation position:

- The valve has to be assembled hanging with
- the condensation chamber installed higher than the ventilation of the actuator.

Putting into operation:

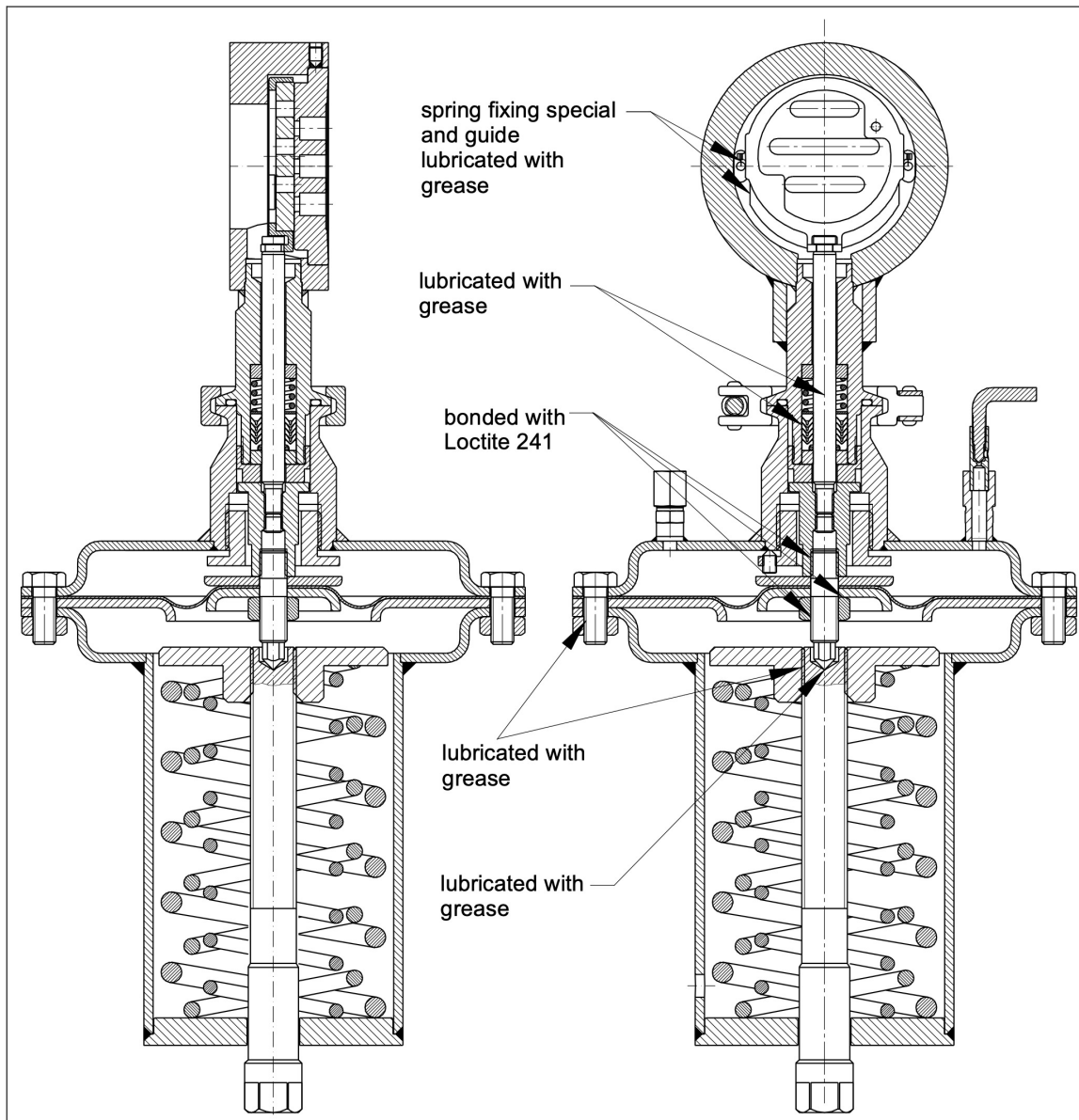
-  Attention: The piping must be free of pressure.
- Open the ventilation of the Actuator.
- Remove the sealing plug off the condensation chamber.
- Insert Water into the filling spout until it exits the bleeder valve of the pressure regulator.
- Close the ventilation.
- Plug the filling spout.

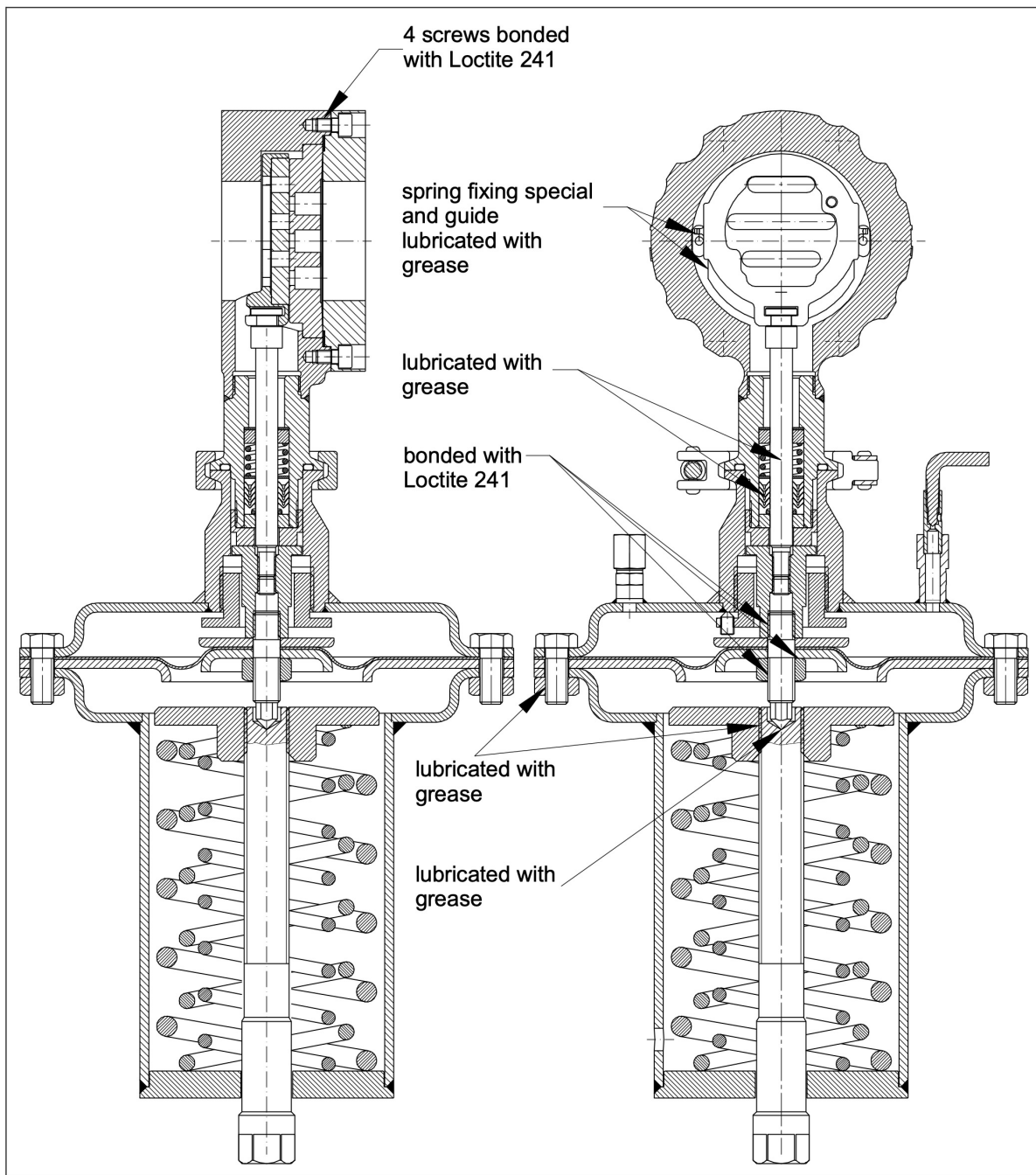
2.12 Lubrication and Bonding Plan



The lubrication and bonding plan is valid for all standard versions of this valve type.
Contact the manufacturer for suitable lubricants.
Special versions (e.g. silicon free, oxygen service or food applications) may require other lubricant qualities.

2.12.1 Series GS1





illustrations are non-binding