

MOUNTING AND OPERATING INSTRUCTIONS



EB 3128 EN

Translation of original instructions



Type 45-9 Flow Regulator Self-operated Regulators

Edition November 2020



Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

- For the safe and proper use of these instructions, read them carefully and keep them for later reference.
- If you have any questions about these instructions, contact SAMSON's After-sales Service Department (aftersaleservice@samson.de).



The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > **Service & Support** > **Downloads** > **Documentation**.

Definition of signal words

DANGER

Hazardous situations which, if not avoided, will result in death or serious injury

WARNING

Hazardous situations which, if not avoided, could result in death or serious injury

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

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1 Safety instructions and safety measures

Intended use

The Type 45-9 Regulator is used for flow control. It is mainly used in district heating supply networks and industrial plants. The regulator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the controller is only used in operating conditions that meet the specifications used for sizing the controller at the ordering stage. In case operators intend to use the device in other applications or conditions than specified, contact SAMSON.

SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

→ Refer to the technical data and nameplate for limits and fields of application as well as possible uses.

Reasonably foreseeable misuse

The regulator is not suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data

Furthermore, the following activities do not comply with the intended use:

- Use of non-original spare parts
- Performing service and repair work not described in these instructions

Qualifications of operating personnel

The regulator must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Safety instructions and safety measures

Personal protective equipment

We recommend checking the hazards posed by the process medium being used (e.g.

▶ GESTIS (CLP) hazardous substance database).

- Provide protective equipment (e.g. safety gloves, eye protection) appropriate for the process medium used.
- Wear hearing protection when working near the valve.
- Check with the plant operator for details on further protective equipment.

Revisions and other modifications

Revisions, conversions or other modifications of the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

Warning against residual hazards

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the device by the process medium, the operating pressure or by moving parts by taking appropriate precautions. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up and service work.

We also recommend checking the hazards posed by the process medium being used (e.g.

▶ GESTIS (CLP) hazardous substance database).

- Observe safety measures for handling the device as well as fire prevention and explosion protection measures.

Safety features

The Type 45-9 Regulator does not have any special safety features. When relieved of pressure, the regulator is opened by the force of the set point springs.

Responsibilities of the operator

The operator is responsible for proper operation and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions as well as the referenced documents to the operating personnel and to instruct them in proper operation. Furthermore, the operator must ensure that operating personnel or third persons are not exposed to any danger.

Responsibilities of operating personnel

Operating personnel must read and understand these mounting and operating instructions as well as the referenced documents and observe the specified hazard statements, warnings and caution notes. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

Referenced standards and regulations

The regulators comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Devices with a CE marking have an EU declaration of conformity, which includes information about the applied conformity assessment procedure. This EU declaration of conformity is included in the Annex of these instructions (see section 10.2).

According to the ignition risk assessment performed in accordance with EN 13463-1:2009, section 5.2, the non-electrical regulators do not have their own potential ignition source even in the rare incident of an operating fault. As a result, they do not fall within the scope of Directive 2014/34/EU.

→ For connection to the equipotential bonding system, observe the requirements specified in section 6.4 of EN 60079-14 (VDE 0165 Part 1).

Referenced documentation

The following documents apply in addition to these mounting and operating instructions:

- Mounting and operating instructions for
e.g. **Type 1 N and Type 1 NI Strainers** ▶ EB 1010 EN
- Mounting and operating instructions as well as data sheets for additional components (e.g. shut-off valves, pressure gauges etc.).

1.1 Notes on possible severe personal injury

DANGER

Risk of bursting in pressure equipment.

Regulators and pipelines are pressure equipment. Improper opening can lead to device components bursting.

- Observe the maximum permissible pressure for regulator and plant.
- Before starting any work on the device, depressurize all plant sections concerned as well as the regulator.
- Drain the process medium from all the plant sections concerned as well as the regulator.
- If necessary, a suitable overpressure protection must be installed on site in the plant section.
- Wear personal protective equipment.

1.2 Notes on possible personal injury

WARNING

Risk of personal injury due to residual process medium in the regulator.

While working on the regulator, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

- If possible, drain the process medium from all the plant sections concerned and the regulator.
- Wear protective clothing, safety gloves and eyewear.

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

Depending on the process medium, regulator components and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or heat up.
- Wear protective clothing and safety gloves.

Damage to health relating to the REACH regulation.

If a SAMSON device contains a substance which is listed as being a substance of very high concern on the candidate list of the REACH regulation, this circumstance is indicated on the SAMSON delivery note.

- Information on safe use of the part affected, see ► www.samson.de/reach-en.html.

1.3 Notes on possible property damage

ⓘ NOTICE

Risk of regulator damage due to contamination (e.g. solid particles) in the pipeline.

The plant operator is responsible for cleaning the pipelines in the plant.

- Flush the pipelines before start-up.

Risk of regulator damage due to unsuitable medium properties.

The regulator is designed for process media with defined properties.

- Only use process media specified for sizing the valve.

Risk of regulator damage due to incorrectly attached slings.

- Do not attach load-bearing slings to the regulator.

! NOTICE

Risk of regulator damage due to the use of unsuitable lubricants.

The lubricants to be used depend on the regulator material. Unsuitable lubricants may corrode and damage the surface.

→ Only use lubricants approved by SAMSON. When in doubt, consult SAMSON.

Risk of leakage and regulator damage due to excessively high or low tightening torques.

Observe the specified torques on tightening regulator components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.

→ Observe the tightening torques specified in section 7.5.

Risk of regulator damage due to the use of unsuitable tools.

Certain tools are required to work on the regulator.

→ Only use tools approved by SAMSON. When in doubt, consult SAMSON.

Incorrect control due to the formation of ice on the regulator.

Medium temperatures below 0 °C may cause ice to form on the regulator, depending on the air humidity. This may affect, in particular, the functioning of the actuator stem guide or set point adjuster.

→ Prevent the formation of ice by taking appropriate precautions (e.g. enclosure, trace heater etc.). The plant operator is responsible for selecting and implementing appropriate precautions.

Regulator damage due to condensed glycol.

In principle, the materials are also resistant to high concentrations of glycol. Nevertheless, glycol reacts when it comes into contact with metals and causes acids to form. We cannot prevent this reaction.

→ Use suitable inhibitors. The plant operator is responsible for selecting and using suitable inhibitors.

2 Markings on the device

2.1 Nameplate

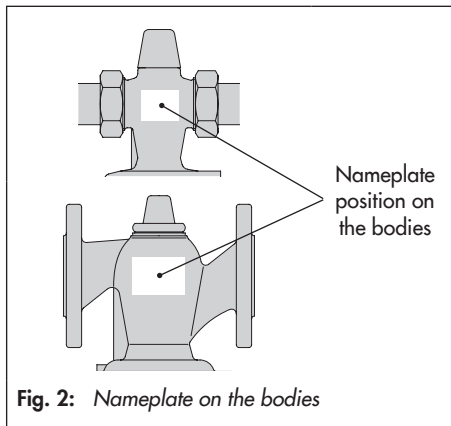
1	7	
2	3	8
4	5	9
6	10	

- 1 Configuration ID
- 2 Model number
- 3 Date of manufacture
- 4 K_{VS} coefficient
- 5 Pressure rating PN
- 6 Differential pressure set point range in bar
- 7 Type designation
- 8 Flow rate set point range in m^3/h
- 9 Maximum permissible temperature in $^{\circ}C$
- 10 Max. permissible differential pressure Δp in bar

Fig. 1: Nameplate

2.2 Nameplate position

The nameplate of all sizes is affixed to the body (see Fig. 2).



2.3 Material number

The material designation can be found on the cast body or you can contact us (the configuration ID specification is needed) to find out which material is used. The configuration ID is specified on the nameplate (1, configuration ID). For more details on the nameplate, see Fig. 1.

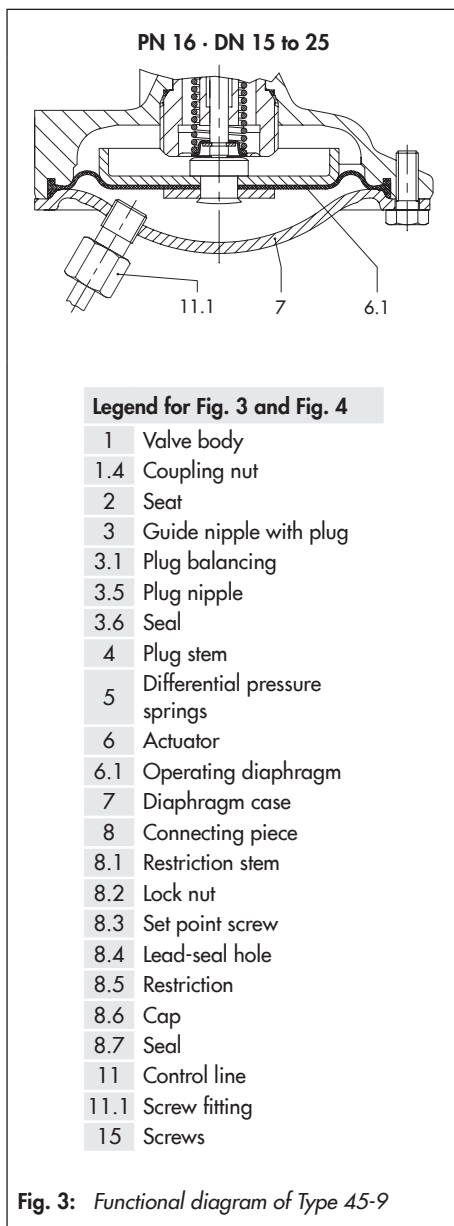
3 Design and principle of operation

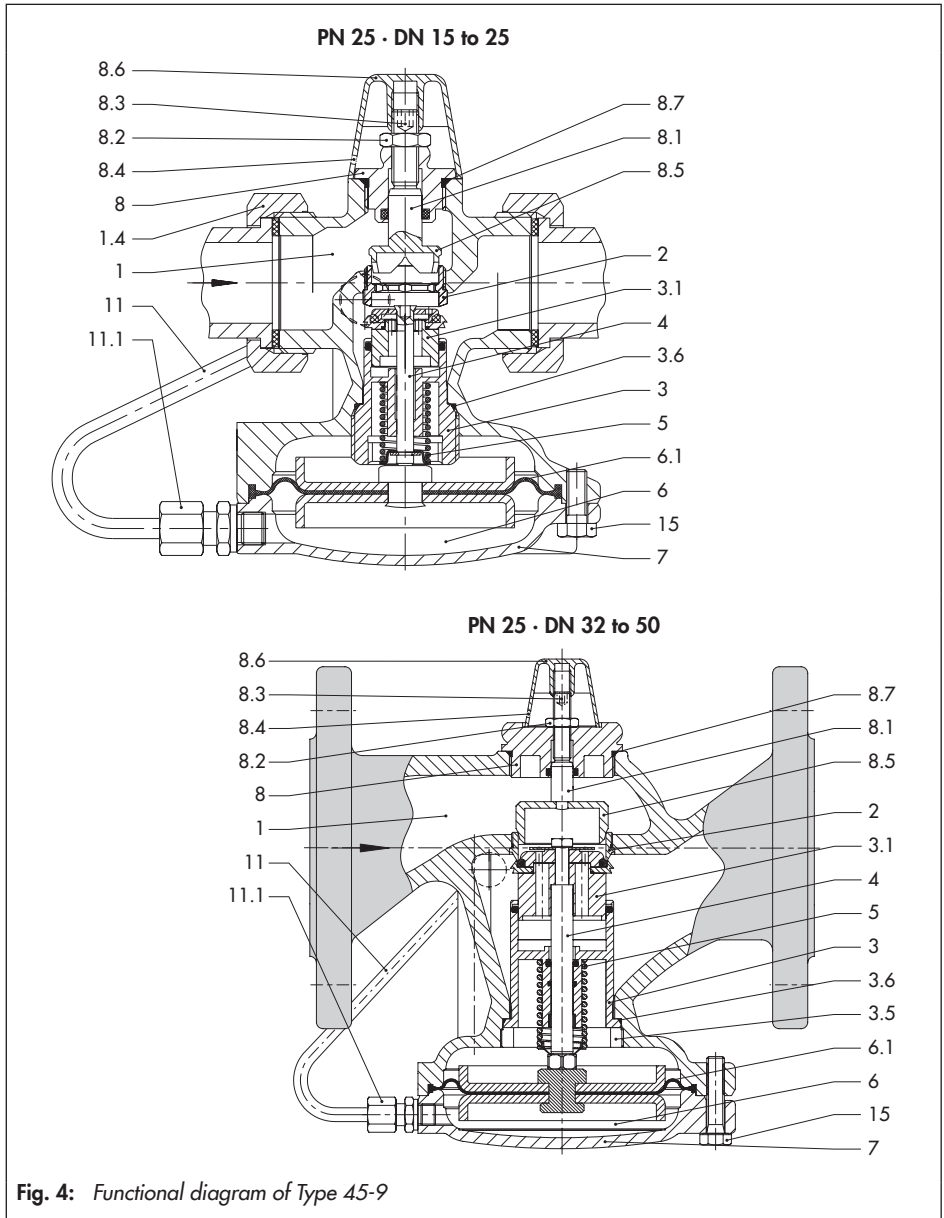
The flow regulator basically consists of a valve body (1) with restriction (8.5), balanced plug (3) as well as a closing actuator (6) with an operating diaphragm (6.1). The differential pressure springs (5) installed in the valve body determine the flow rate.

The regulator is designed to maintain the flow rate at the adjusted set point in heating and district heating systems. The valve closes when the flow rate rises.

The medium flows through the regulator in the direction indicated by the arrow. The areas released by the adjustable restriction (8.5) and the valve plug (3) determine the flow rate. The differential pressure springs (5) determine the differential pressure across the restriction of 0.2 bar.

The upstream pressure is transmitted to the upstream pressure side of the operating diaphragm (6.1) in the actuator over the control line (11). The pressure downstream of the restriction (8.5) is transmitted through a hole in the plug to the downstream pressure side of the operating diaphragm. The resulting differential pressure creates a positioning force at the operating diaphragm (6.1) which moves the plug depending on the force of the differential pressure spring (5). The maximum flow rate is adjusted at the restriction (8.5) using the set point screw (8.3). The cross-section of the valve is changed in such a way that the differential pressure and the differential pressure created at the restriction are identical when the required maximum flow rate exists.





3.1 Technical data

3.1.1 Process medium and scope of application

Flow control for district heating systems, extended piping systems and industrial applications

- **Suitable for gases and liquids**
- Max. temperature for liquids ¹⁾ **150 °C**
- Max. temperature for gases **80 °C · 150 °C**²⁾
- Flow range, max. **14.1 m³/h**
- Differential pressure across the restriction $\Delta p_{\text{restriction}}$ **0.2 bar**
- Valve size **DN 15 to 50**
- Pressure rating **PN 16 and 25**

The valve closes when the flow rate exceeds the adjusted set point.

- ¹⁾ The materials used in the regulator are also resistant to high concentrations of glycol. Nevertheless, glycol reacts when it comes into contact with metals and causes acids to form. We cannot prevent this reaction. Therefore, prevent it by using suitable inhibitors.
- ²⁾ Suitable for air and nitrogen with diaphragm Luft and seals made of FKM and PN 25 version

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the regulator version, plant facilities, process medium and operating conditions.

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Wear hearing protection when working near the regulator.


i Note

The Type 45-9 Regulator is not a safety valve. If necessary, a suitable overpressure protection must be installed on site in the plant section.

Dimensions in mm · Weights in kg

The lengths and heights in the dimensional drawings are shown in page 17 onwards.

Table 1: Technical data

Valve size	DN	15				20	25	32 ²⁾	40 ²⁾	50 ²⁾
K_{VS} coefficient		0.4 ¹⁾	1.0 ¹⁾	2.5	4.0 ¹⁾	6.3	8.0	12.5	16.0	20.0
Flanged body		-						12.5	20.0	25.0
x_{FZ} value		0.6					0.55	0.5		0.45
Flanged body		-						0.45		0.40
Pressure rating		PN 16 · PN 25						PN 25		
Max. permissible differential pressure Δp across the valve		10 bar ³⁾ /20 bar						16 bar		
Max. permissible medium temperature		Liquids 130 °C (PN 16) · 150 °C (PN 25) · Nitrogen and air 80 °C · 150 °C ⁴⁾								
Permissible ambient temperature		0 to +50 °C								
Compliance										
Flow rate set point ranges for water in m³/h										
Diff. pressure at the restriction $\Delta p_{restriction}$	0.2 bar	-	-	-	0.1 to 1.3 ⁵⁾	0.1 to 2.3 ⁵⁾	0.1 to 3.5 ⁵⁾	0.3 to 5.8 ⁵⁾	0.4 to 9.1 ⁵⁾	0.4 to 14.1 ⁵⁾
		0.01 to 0.2	0.02 to 0.64	0.02 to 1.2	0.1 to 2.5	0.1 to 3.6	0.1 to 4.2	0.3 to 10	0.4 to 12.5	0.4 to 15
	0.3 bar	-	-	-	0.1 to 3	-	0.1 to 5	-	-	-

3) Special versions

4) Additional version: Valve with flanged body made of spheroidal graphite iron

5) For PN 16 version

6) Diaphragm and seals made of FKM (PN 25 only)

7) An increase in noise level can be expected when the specified flow rates are exceeded, even if cavitation does not occur.

Design and principle of operation

The minimum required differential pressure Δp_{\min} across the valve is calculated as follows:

$$\Delta p_{\min} = \Delta p_{\text{restriction}} + \left(\frac{\dot{V}}{K_{VS}} \right)^2$$

Δp_{\min}	Minimum differential pressure in bar across the valve
$\Delta p_{\text{restriction}}$	Differential pressure created at the restriction for measuring the flow rate
\dot{V}	Adjusted flow rate in m ³ /h
K_{VS}	Valve flow coefficient in m ³ /h

Table 2: Materials

Body		Red brass CC499K (Rg 5) · Spheroidal graphite iron EN-GJS-400-18-LT ¹⁾
Seat		Stainless steel 1.4305
Plug	PN 25	Brass (resistant to dezincification) with EPDM ²⁾ soft seal
	PN 16	Brass, resistant to dezincification and plastic with EPDM soft seal
Diaphragm case	PN 25	Red brass CC499K (Rg 5) · Spheroidal graphite iron EN-GJS-400-18-LT ¹⁾
	PN 16	Stainless steel 1.4301
Valve spring		Stainless steel 1.4310
Restriction		Brass, free of dezincification
Operating diaphragm		EPDM ²⁾ with fabric reinforcement
Seals		EPDM ²⁾

¹⁾ Additional version in DN 32, 40 and 50: valve with flanged body made of spheroidal graphite iron

²⁾ Special version in PN 25, e.g. for mineral oils: FKM

Dimensional drawings

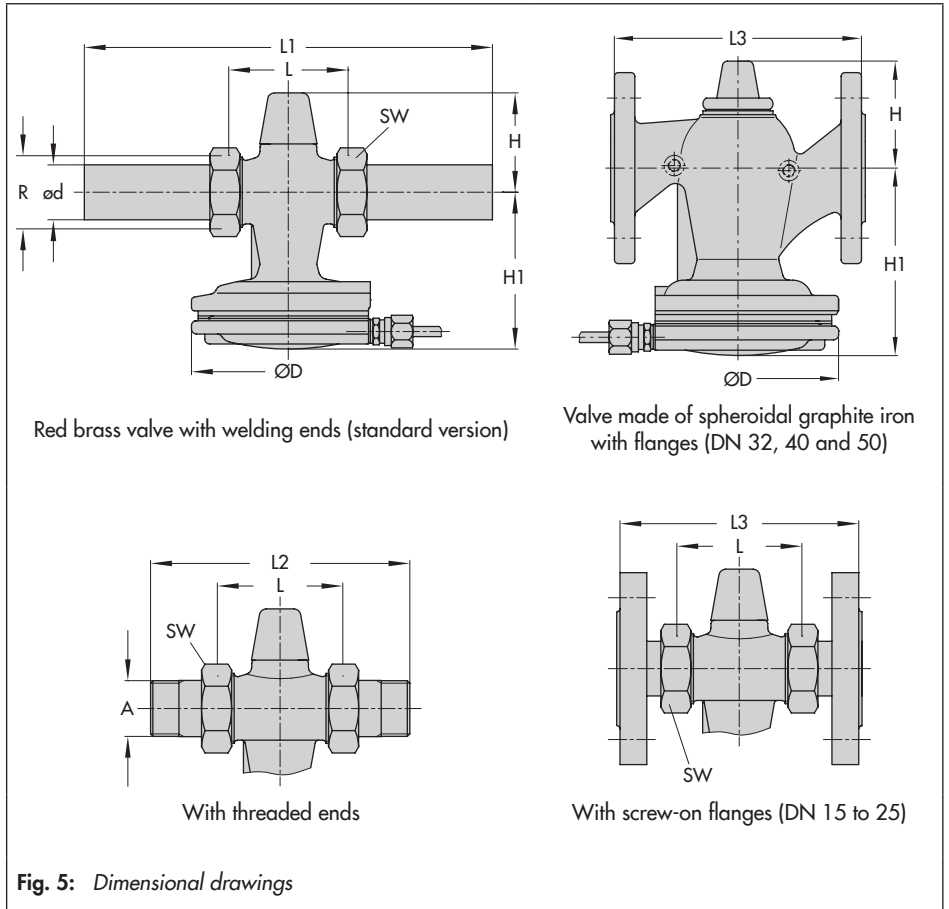


Fig. 5: Dimensional drawings

Design and principle of operation

Table 3: Regulator **with** connecting parts · Dimensions in mm and weights in kg

Valve size	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
With welding ends						
Length L1	210	234	244	268	294	330
Weight, approx. kg	1.6	1.7	1.8	3	5.5	6
With threaded ends						
Length L2	129	144	159	192	206	228
Male thread A	G 1½	G ¾	G 1	G 1¼	G 1½	G 2
Weight, approx. kg	1.6	1.7	1.8	3	5.5	6
With flanges ¹⁾ or with flanged body (DN 32 to 50)						
Length L3	130	150	160	180	200	230
Weight, approx. kg	3	3.7	4.3	6.2	9.5	11

¹⁾ PN 16/25

The dimensions and weights of valves with flanged bodies (DN 32, 40 and 50) are the same as valves with screwed-on flanges.

Table 4: Regulators **without** connecting parts · Dimensions in mm

Valve size	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
Connecting thread R	G ¾	G 1	G 1¼	G 1¾	G 2	G 2½
Pipe Ød	21.3	26.8	32.7	42	48	60
Width across flats SW	30	36	46	59	65	82
Length L	65	70	75	100	110	130
H	65	65	65	85	85	85
H1	85	85	85	105	140	140
ØD	116	116	116	116	160	160

4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received with the delivery note.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.1 Unpacking

⚠ NOTICE

Risk of regulator damage due to foreign particles entering the valve.

The protective caps fitted on the valve's inlet and outlet prevent foreign particles from entering the valve and damaging it.

Do not remove the protective caps until immediately before installing the valve into the pipeline.

i Note

Do not remove the packaging until immediately before installation.

Proceed as follows to lift and install the device:

1. Remove the packaging from the device.
2. Dispose of the packaging in accordance with the valid regulations.

4.2 Transporting and lifting

Due to the low service weight, lifting equipment is not required to lift and transport the regulator (e.g. to install it into the pipeline).

Transport instructions

- Protect the device against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the device against moisture and dirt.
- Observe the permissible ambient temperatures (see section 3.1).

4.3 Storage

⚠ NOTICE

Risk of regulator damage due to improper storage.

- *Observe storage instructions.*
- *Avoid long storage times.*
- *Contact SAMSON in case of different storage conditions or long storage periods.*

i Note

We recommend regularly checking the device and the prevailing storage conditions during long storage periods.

Mounting and start-up

Storage instructions

- Protect the device against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the device against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- Observe the permissible ambient temperatures (see section 3.1).
- Do not place any objects on the device.

Special storage instructions for elastomers

Elastomer, e.g. diaphragm

- To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.
- We recommend a storage temperature of 15 °C for elastomers.
- Store elastomers away from lubricants, chemicals, solutions and fuels.



Tip

SAMSON's After-sales Service can provide more detailed storage instructions on request.

5 Mounting and start-up

5.1 Preparation for installation

Proceed as follows:

- Flush the pipelines.

i Note

The plant operator is responsible for cleaning the pipelines in the plant.

i Note

Any impurities carried along by the process medium may impair the proper functioning of the regulator. We recommend installing a strainer (e.g. SAMSON Type 1 NI) upstream of the flow regulator.

- Check the regulator to make sure it is clean.
- Check the regulator for damage.
- Check to make sure that the type designation, valve size, material, pressure rating and temperature range of the regulator match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).
- Check any mounted pressure gauges to make sure they function.

5.2 Checking the installation conditions

5.2.1 Mounting position

→ Install the regulator in a horizontal pipe-line with the actuator (6) facing downward (see Fig. 3 and Fig. 4).

The regulator in valve sizes DN 15 to 25 can also be installed in vertical pipes.

→ Install a strainer upstream of the regulator (see section 5.3).

→ Make sure the direction of flow matches the direction indicated by the arrow on the body.

→ Install the regulator free of stress.

→ Make sure that the regulator remains freely accessible after the plant has been completed.

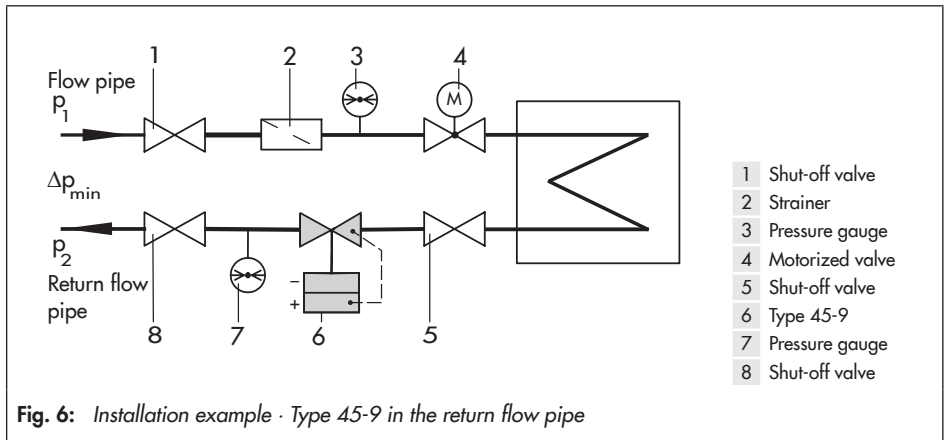
NOTICE

Do not attach supports to the regulator.

NOTICE

Possible malfunction and damage due to adverse weather conditions (temperature, humidity).

- Do not install the device outdoors or in rooms prone to frost.
- Protect the regulator against frost if it is used to control freezing media.
- Either heat the regulator or remove it from the plant and completely drain the residual medium.
- In district heating plants, only install the regulators in return flow pipes.



5.3 Additional fittings

→ See Fig. 6

Strainer

A strainer (2) installed upstream in the flow pipe holds back any dirt or other foreign particles carried along by the medium. For example, the SAMSON Type 1 NI Strainer is suitable (▶ T 1010).

The following points must be observed during installation of the strainer:

- Do not use the strainer to permanently filter the process medium.
- Install the strainer upstream of the regulator.
- Select a strainer (mesh size) suitable for the process medium.
- The direction of flow must correspond to the arrow on the valve body.
- The filter element must be installed to hang downward.
- Install strainers in vertical pipelines with the medium flowing upward with the drain plug facing upward.
- Allow sufficient space to remove the filter.

i Note

Check the strainer at regular intervals and clean it, if necessary.

Shut-off valve

Install a hand-operated shut-off valve both upstream of the strainer and at the outlet of the return flow pipe. This allows the plant to be shut down for cleaning and maintenance, and when the plant is not used for longer periods of time.

Pressure gauges

Install a pressure gauge at a suitable point to monitor the pressures prevailing in the plant.

Mounting parts

Welding ends, threaded ends or screw-on flanges are required to install the regulator in the pipeline (see section 7.6).

6 Start-up and operation

→ See Fig. 3 and Fig. 4

6.1 Start-up

⚠ DANGER

Risk of personal injury due to process medium escaping under pressure.

– First start up the regulator after mounting all parts.

⚠ WARNING

Risk of burn injuries due to hot or very cold components and pipelines.

Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

Wear protective clothing and safety gloves.

Once installed in the pipeline, the regulator can be put into operation.

6.1.1 Installing the regulator

1. Close the shut-off valves upstream and downstream of the regulator while the regulator is being installed.
 2. Remove the protective caps from the valve ports, if fitted, before installing the valve.
 3. Make sure that the correct gaskets are used.
 4. Bolt the pipe to the valve free of stress.
 5. Open the shut-off valves slowly over a time period of several minutes, preferably starting from the return flow pipe.
- First start up the regulator after mounting all parts.
- Make sure that the restriction (8.5) is open while filling the plant. Turn the set point screw (8.3) counterclockwise (⤵) as far as it will go.
-

⚠ NOTICE

Risk of valve damage due to a sudden pressure increase and resulting high flow velocities.

Slowly open the shut-off valve in the pipeline starting from the return flow pipe side during start-up.

6.1.2 Pipeline flushing

→ See Fig. 3 and Fig. 4

We recommend additionally flushing the pipeline with installed regulator before start-up.

→ Observe the mesh size of the upstream strainer for the maximum particle size. Use strainers to suit the process medium.

Rinsing the plant

1. After filling the plant, first completely open the consumer
2. Adjust the maximum flow rate. Undo lock nut (8.2) and turn the set point screw (8.3) counterclockwise (↺) as far as it will go.
3. Rinse out the pipeline at full flow rate for several minutes.
4. Check the strainer (e.g. measure the pressure drop) and clean it, if necessary.

If the regulator malfunctions due to clogging after flushing the pipeline, proceed as described in Table 7.

6.1.3 Pressure test

⚠ NOTICE

Risk of damage to the diaphragm actuator due to impermissible excess pressure.

The test pressure must not exceed the nominal pressure at the actuator by 1.5 times on testing the pressure of the plant when the regulator is already installed.

i Note

The plant operator is responsible for performing the pressure test. SAMSON's After-sales Service can support you to plan and perform a pressure test for your plant.

⚠ NOTICE

Risk of valve damage due to a sudden pressure increase and resulting high flow velocities.

– Slowly open the shut-off valves.

All plant components must be designed for the test pressure. Remove the regulator from the pipeline, if necessary.

6.2 Operation

The regulator is ready for use when mounting and start-up have been completed.

⚠ WARNING

Risk of burn injuries due to hot or very cold components and pipelines.

Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

Wear protective clothing and safety gloves.

6.3 Starting up the plant

- See Fig. 3 and Fig. 4
- Start up the regulator after mounting all parts.
- Fill the plant **slowly** with the process medium. Avoid pressure surges.
- Starting on the upstream side, open the shut-off valves slowly over a time period of several minutes. Afterwards, open all the valves downstream of the regulator.
- Make sure that the pressure rises simultaneously upstream and downstream of the regulator to avoid damaging the plug balancing mechanism.

6.4 Adjusting the set point

→ See Fig. 3 and Fig. 4

! NOTICE

Set point adjustment is always based on a closed restriction (1.2).

How to proceed:

1. To achieve the maximum flow rate, all control and shut-off valves as well as all consumers including the motorized valve must be open (to ensure minimum drag in the plant).
2. Close the bypass valve, if installed.
3. Unscrew the cap (8.6).
4. Undo the lock nut (8.2) and adjust the set point screw (8.3).
Turning it clockwise (↻) closes the restriction; the flow rate drops.
Turning it counterclockwise (↺) opens the restriction; the flow rate rises.

The adjustment diagrams (Fig. 8 or Fig. 9) can be used as a guide to adjust the flow rate. The required number of turns of the set point screw (8.3) is based on a closed restriction (8.5).

Refer to the nameplate on the regulator or to Table 5 to find out the adjustable set point range of the relevant nominal size.

All flow rate curves refer to a differential pressure across the restriction of 0.2 bar, except for the dotted curve which refers to a differential pressure of 0.3 bar.

Start-up and operation

Different K_{VS} coefficients are available for valve size DN 15 to provide several flow set point ranges.

Retighten the lock nut and screw the cap (8.6) back on after the required flow rate is reached.

Type 45-9 Flow Regulator in special version with external scaled cap (five scale divisions) for adjustment of the flow rate set point

The set point can be adjusted directly using the scaled cap (one marked scale division

corresponds to one turn of the set point screw).

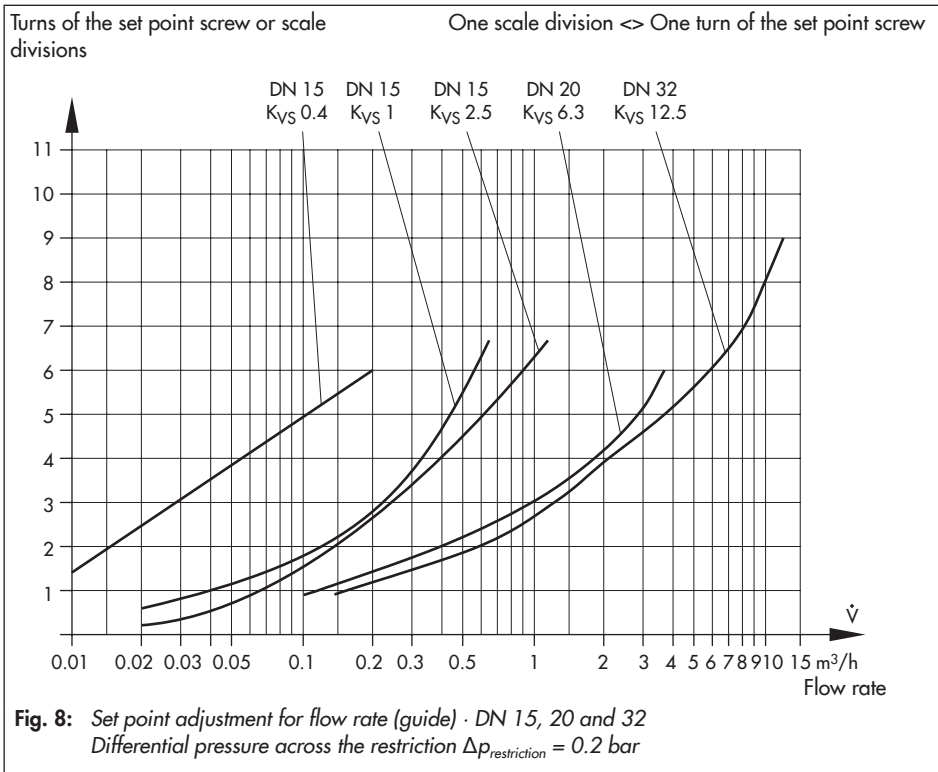
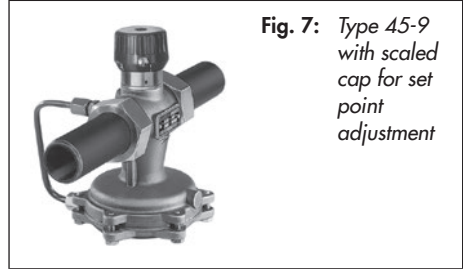
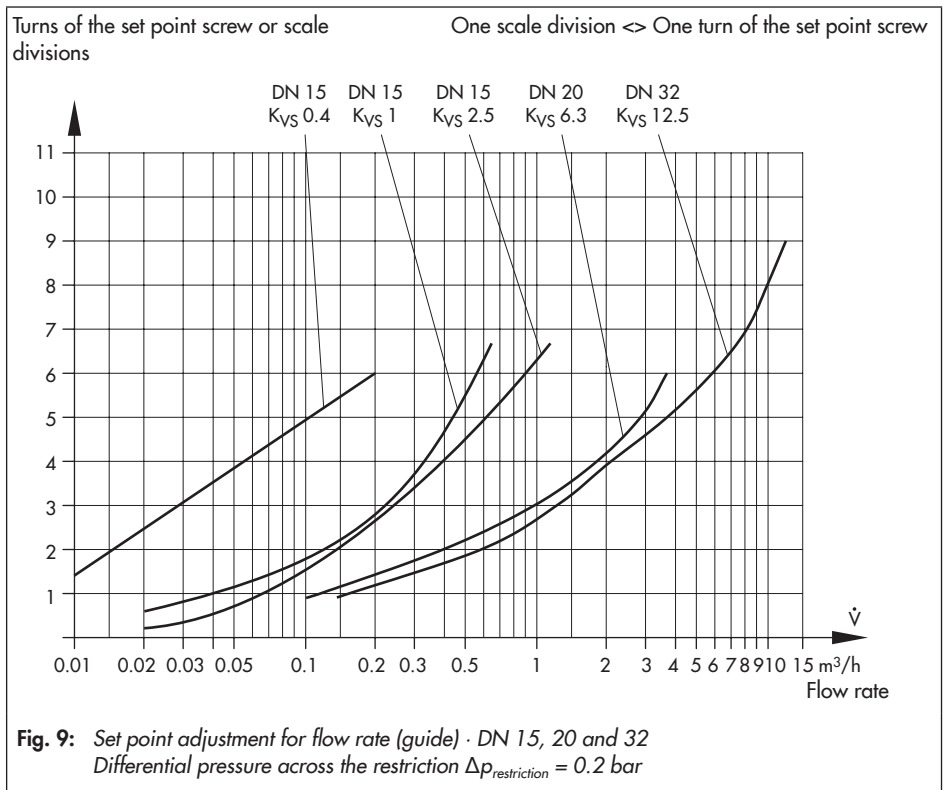


Table 5: Flow rate set points in m³/h for water

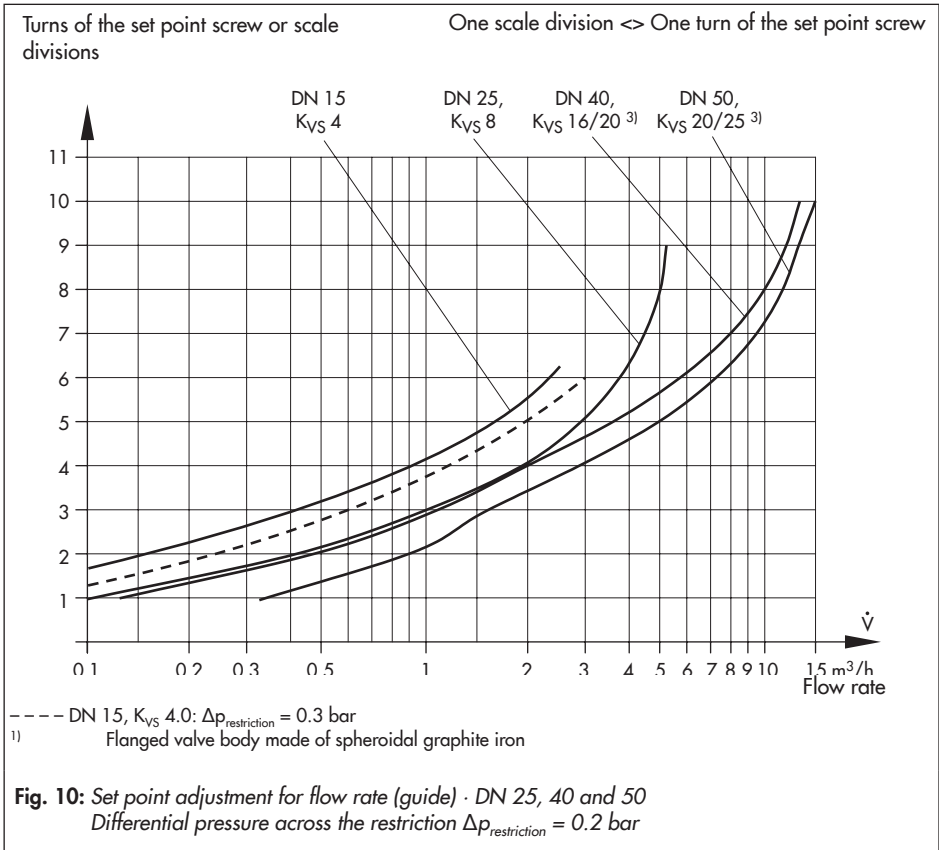
Valve size DN	DN 15				DN 20	DN 25	DN 32	DN 40	DN 50	
K _{VS} coefficient	0.4 ¹⁾	1.0 ¹⁾	2.5 ¹⁾	4.0	6.3	8.0	12.5	16.0 20.0 ²⁾	20.0 25.0 ²⁾	
Flow rate set point range in m ³ /h at a diff. pressure across the restriction ...	0.2 bar	0.01 to 0.2	0.12 to 0.64	0.2 to 1.2	0.1 to 2.5	0.1 to 3.6	0.1 to 4.2	0.3 to 10	0.4 to 12.5	0.4 to 15
	0.3 bar	–	–	–	0.1 to 3	–	0.1 to 5	–	–	–

2) Special versions

3) K_{VS} coefficient with flanged valve body



Start-up and operation



7 Maintenance

The regulator does not require any maintenance. Nevertheless, it is subject to natural wear, particularly at the seat, plug and operating diaphragm. Depending on the operating conditions, check the regulator at regular intervals to avoid possible malfunctions. Operators are responsible for drawing up an inspection and test plan.

Details on faults and how to remedy them can be found in Table 7.

We recommend removing the regulator from the pipeline before performing any maintenance or service work.



Tip

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.



DANGER

Risk of bursting in pressure equipment.

Regulators and pipelines are pressure equipment. Improper opening can lead to device components bursting.

- Before starting any work on the device, depressurize all plant sections concerned as well as the regulator.
 - Drain the process medium from all the plant sections concerned as well as the regulator.
 - If necessary, a suitable overpressure protection must be installed on site in the plant section.
 - Wear personal protective equipment.
-



Risk of personal injury due to residual process medium in the regulator.

While working on the regulator, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

- If possible, drain the process medium from all the plant sections concerned and the regulator.
 - Wear protective clothing, safety gloves and eyewear.
-



Risk of burn injuries due to hot or cold components and pipelines.

Depending on the process medium, regulator components and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or heat up.
 - Wear protective clothing and safety gloves.
-



Risk of regulator damage due to incorrect servicing or repair.

Service and repair work must be performed by trained staff only.

NOTICE

Risk of regulator damage due to the use of unsuitable tools.

Only use tools approved by SAMSON.

NOTICE

Risk of regulator damage due to the use of unsuitable lubricants.

Only use lubricants approved by SAMSON.

Note

SAMSON's After-sales Service can support you concerning lubricant, tightening torques and tools approved by SAMSON.

NOTICE

Risk of regulator damage due to excessively high or low tightening torques.

Observe the specified torques on tightening regulator components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage. Observe the tightening torques specified in section 7.5.

Note

The regulator was checked by SAMSON before it left the factory.

- The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON's After-sales Service.
 - Only use original spare parts by SAMSON, which comply with the original specifications.
-

Tip

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.

7.1 Replacing the restriction

NOTICE

Risk of regulator damage due to excessively high or low tightening torques. Observe the specified torques on tightening regulator components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage. Observe the specified tightening torques.

NOTICE

Risk of damage to the facing of the seat and plug due to incorrect service or repair. Always replace both the seat and plug.

NOTICE

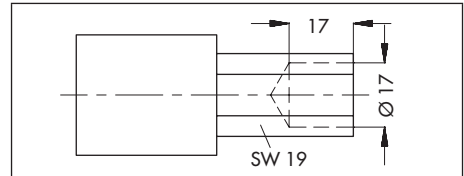
DN 15 to 25: Unscrew the adjusting screw (8.3) before removing the connecting piece (8).

Note

SAMSON's After-sales Service can support you concerning lubricant, tightening torques and tools approved by SAMSON.

Note

The socket wrench for DN 15 to 25 can also be made, for example from a GEDORE screwdriver bit (IN 19-19) by drilling a 17-mm-deep hole ($\varnothing 17$) into a 17 mm hexagon bit.



SAMSON order no. 1280-3001

Disassembly

1. Put the regulator out of operation (see section 9.1).
2. Unscrew the connecting piece (8) belonging to the restriction.
3. Remove the seal (8.7).

Assembly of the restriction

1. Renew the seal (8.7) and insert it into the body.
2. Screw the connecting piece (8). Observe the tightening torques specified in section 7.5.
3. Install the regulator into the pipeline.
4. Put the regulator into operation (see section 6.1).

7.2 Replacing the seat and plug

See Fig. 3 and Fig. 4.

NOTICE

Risk of regulator damage due to excessively high or low tightening torques.

Observe the specified torques on tightening regulator components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage. Observe the specified tightening torques.

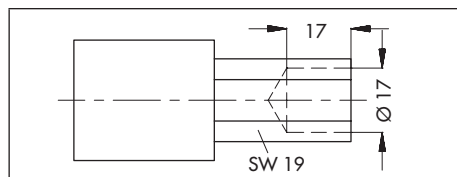
NOTICE

Risk of damage to the facing of the seat and plug due to incorrect service or repair.

Always replace both the seat and plug.

Note

The socket wrench for DN 15 to 25 can also be made, for example from a GEDORE screwdriver bit (IN 19-19) by drilling a 17-mm-deep hole (Ø17) into a 17 mm hexagon bit.



SAMSON order no. 1280-3001

Note

SAMSON's After-sales Service can support you concerning lubricant, tightening torques and tools approved by SAMSON.

Disassembly

1. Put the regulator out of operation (see section 9.1).
2. Unscrew the control line (11).
3. Unscrew the screws (15) and lift the diaphragm case (7) with operating diaphragm (6.1) off the valve body (1).
4. **DN 15 to 25:** unscrew and pull out the guide nipple of the plug (3) using a socket wrench.
DN 32 to 50: unscrew the plug nipple (3.5) and pull out the guide nipple of the plug (3).
5. Remove the seal (3.6).
6. Thoroughly clean the seat (2), plug (3) and balancing mechanism (3.1). Replace damaged parts with new ones. If the plug is damaged, replace the entire plug with a new one.
7. Check the control line (11) for any blockages.
8. Unscrew the seat (2) using a seat wrench if the seat facing is damaged.

Assembly

1. Screw in the seat (2) using a seat wrench. Observe the tightening torques specified in section 7.5.
2. Renew the seal (3.6) and insert it into the body.
3. **DN 15 to 25:** insert and screw in the guide nipple of the plug (3) using a socket wrench. Observe the tightening torques specified in section 7.5.

DN 32 to 50: insert the the guide nipple of the plug (3) and screw in the plug nipple (3.5). Observe the tightening torques specified in section 7.5.

4. Check the facings of the diaphragm case (7) and the valve body (1) for dirt and clean them, if necessary.
5. Place the operating diaphragm (6.1) with diaphragm case (7) onto the valve body (1).
6. Tighten the screws (1.5) in a crisscross pattern. Observe the tightening torques specified in section 7.5.
7. Screw on the control line (11). Observe the tightening torques specified in section 7.5.
8. Install the regulator into the pipeline.
9. Put the regulator into operation (see section 6.1).

7.3 Replacing the operating diaphragm

! NOTICE

Risk of regulator damage due to excessively high or low tightening torques.

Observe the specified torques on tightening regulator components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage. Observe the specified tightening torques.

i Note

SAMSON's After-sales Service can support you concerning lubricant, tightening torques and tools approved by SAMSON.

i Note

The operating diaphragm can only be replaced together with the diaphragm plates.

See Fig. 3 and Fig. 4.

Removal

1. Put the regulator out of operation (see section 9.1).
2. Unscrew the control line (11).
3. Unscrew the screws (1.5) and lift the diaphragm case (7) with operating diaphragm (6.1) off the valve body (1).

Assembly

i Note

Before refastening the actuator, make sure that the operating diaphragm has been inserted properly into the ring groove.

1. Check the facings of the valve body (1) and the diaphragm case (7) for dirt and clean them, if necessary.
2. Place the new operating diaphragm (6.1) with diaphragm case (7) onto the valve body (1).
3. Tighten the screws (15) in a crisscross pattern. Observe the tightening torques specified in section 7.5.
4. Screw on the control line (11). Observe the tightening torques specified in section 7.5.
5. Install the regulator into the pipeline.
6. Put the regulator into operation (see section 6.1).

7.4 Lubricants and sealants

i Note

SAMSON's After-sales Service can support you concerning lubricants and sealants approved by SAMSON.

7.5 Tightening torques and width across flats

Part	Width across flats	Valve size	Tightening torque
Coupling nut (1.4)	SW 30	DN 15	80 Nm
	SW 36	DN 20	95 Nm
	SW 46	DN 25	110 Nm
	SW 59	DN 32	130 Nm
	SW 65	DN 40	160 Nm
	SW 82	DN 50	180 Nm
Seat (2)	–	DN 15 to 25	45 Nm
	–	DN 32 to 50	110 Nm
Guide nipple with plug (3)	–	DN 15 to 25	70 Nm
Plug nipple (3.5)	–	DN 32 to 50	110 Nm
Connecting piece (8)	On request	DN 15 to 25	80 Nm
		DN 32 to 50	110 Nm
Set point screw (8.3)	Hexagon socket SW 4	–	
Screw fitting (11.1)	SW 12	All	22 Nm
Screws (15)	SW 10	DN 15 to 32	8 Nm
	SW 13	DN 40 to 50	18 Nm

7.6 Accessories and tools

Table 6: Order numbers for accessories and tools

Valve size	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
Welding ends ¹⁾	1400-6500	1400-6501	1400-6502	1400-6509	1400-6510	1400-6511
Threaded ends ¹⁾	1400-6503	1400-6504	1400-6505	1400-6512	1400-6513	1400-6514
Screwed-on flanges ¹⁾	1400-6506	1400-6507	1400-6508	1400-6515	1400-6516	1400-6517
Gasket	8413-3000	8413-3001	8413-3002	8413-3003	8413-3004	8413-3005
Wrench for seat (2)	1280-3012 ²⁾ · 1280-3013 ³⁾			1280-3014		
Wrench for guide nipple with plug (3)	1280-3001			–		
Wrench for plug nipple (3.5)	–			1280-3007		

¹⁾ Pair including flat gasket (packed unit)

²⁾ For K_{VS} 2.5 and higher

³⁾ For K_{VS} 3.2 and lower

7.7 Preparation for return shipment

Defective devices can be returned to SAMSON for repair. Proceed as follows to return devices to SAMSON:

1. Put the regulator out of operation (see section 9).
2. Decontaminate the regulator. Remove any residual process medium.
3. Fill in the Declaration on Contamination. The declaration form can be downloaded from our website at
▶ www.samsongroup.com > SERVICE & SUPPORT > After-sales Service > Returning goods.
4. Continue as described on our website at
▶ www.samsongroup.com > SERVICE & SUPPORT > After-sales Service > Returning goods.

7.8 Ordering spare parts and operating supplies

Contact your nearest SAMSON subsidiary or the SAMSON After-sales Service for information on spare parts, lubricants and tools.

8 Malfunctions

The malfunctions listed in Table 7 are caused by mechanical faults and incorrect regulator sizing. In the simplest case, the functioning can be restored following the recommended action. Special tools may be required for repair work.

Exceptional operating and installation conditions may lead to changed situations that may affect the control response and lead to malfunctions. For troubleshooting, the conditions, such as installation, process medium, temperature and pressure conditions, must be taken into account.

SAMSON's After-sales Service can help during troubleshooting. Further information is available in section 10.1.

Note

Contact SAMSON's After-sales Service for malfunctions not listed in the table and when the malfunction cannot be remedied as described.

Tip

SAMSON's After-sales Service can support you in drawing up an inspection and test plan for your plant.

Table 7: Troubleshooting

Malfunction	Possible reasons	Recommended action
Flow rate exceeds adjusted set point	Insufficient pressure pulses on the operating diaphragm.	→ Clean the control line, needle valve and screw fittings.
	Foreign particles blocking the plug	→ Remove foreign particles. → Replace damaged parts. → Contact SAMSON's After-sales Service.
	Seat and plug are worn or leak.	→ Replace the damaged seat and plug. → Contact SAMSON's After-sales Service.
	Regulator or K_{VS} coefficient too large	→ Check the sizing. → Change K_{VS} coefficient, if necessary or install a different sized regulator. → Contact SAMSON's After-sales Service.
	Defective operating diaphragm	→ Replace damaged operating diaphragm.
Flow set point not reached.	Safety device, e.g. pressure limiter, has been triggered.	→ Check plant. → Unlock safety device.
	Plant differential pressure too low.	→ Compare differential pressure in the plant with the plant's drag. → Contact SAMSON's After-sales Service.
	Regulator or K_{VS} coefficient too small	→ Check the sizing. → Change K_{VS} coefficient, if necessary or install a different sized regulator. → Contact SAMSON's After-sales Service.
	Foreign particles blocking the plug	→ Remove foreign particles. → Replace damaged parts. → Contact SAMSON's After-sales Service.
	Control line blocked	→ Clean the control line and screw fittings.
	Strainer blocked.	→ Clean strainer.
	Regulator installed against the flow.	→ Install the regulator so that the direction of flow matches the direction indicated by the arrow on the body.
Control loop hunts.	Regulator or K_{VS} coefficient too large	→ Check the sizing. → Change K_{VS} coefficient, if necessary or install a different sized regulator. → Contact SAMSON's After-sales Service.

9 Decommissioning and removal

⚠ DANGER

Risk of bursting in pressure equipment.

Regulators and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.

- Before starting any work on the regulator, depressurize all plant sections concerned as well as the control line.*
 - Drain the process medium from all the plant sections concerned as well as the regulator.*
 - Wear personal protective equipment.*
-

⚠ WARNING

Risk of personal injury due to residual process medium in the regulator and control line.

While working on the regulator and control line, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns.

Wear protective clothing, safety gloves and eyewear.

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipeline.

Regulator components and the pipeline may become very hot or cold. Risk of burn injuries.

- Allow components and pipelines to cool down or heat up.*
 - Wear protective clothing and safety gloves.*
-

9.1 Decommissioning

To decommission the regulator for service and repair work or disassembly, proceed as follows:

- Refer to Fig. 6
- 1. Close the shut-off valve (1) on the upstream side of the regulator.
- 2. Close the shut-off valve on the downstream side of the regulator.
- 3. If necessary, allow the pipeline and regulator to cool down or heat up.
- 4. Depressurize the plant.
- 5. Completely drain the pipelines and regulator.
- 6. Remove the regulator from the pipeline.

9.2 Disposal

- Observe local, national and international refuse regulations.
- Do not dispose of components, lubricants and hazardous substances together with your household waste.

10 Annex

10.1 After-sales service

Contact SAMSON's After-sales Service for support concerning service or repair work or when malfunctions or defects arise.

E-mail address

You can reach the After-sales Service at aftersaleservice@samsongroup.com.

Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON, its subsidiaries, representatives and service facilities worldwide can be found on our website (▶ www.samsongroup.com) or in all SAMSON product catalogs.

To assist diagnosis and in case of an unclear mounting situation, specify the following details (so far as possible). See section 2:

- Device type and nominal size
- Model number and configuration ID
- Upstream and downstream pressure
- Medium temperature and process medium
- Min. and max. flow rate
- Is a strainer installed?
- Installation drawing showing the exact location of the regulator and all the additionally installed components (shut-off valves, pressure gauge etc.)

10.2 Spare parts

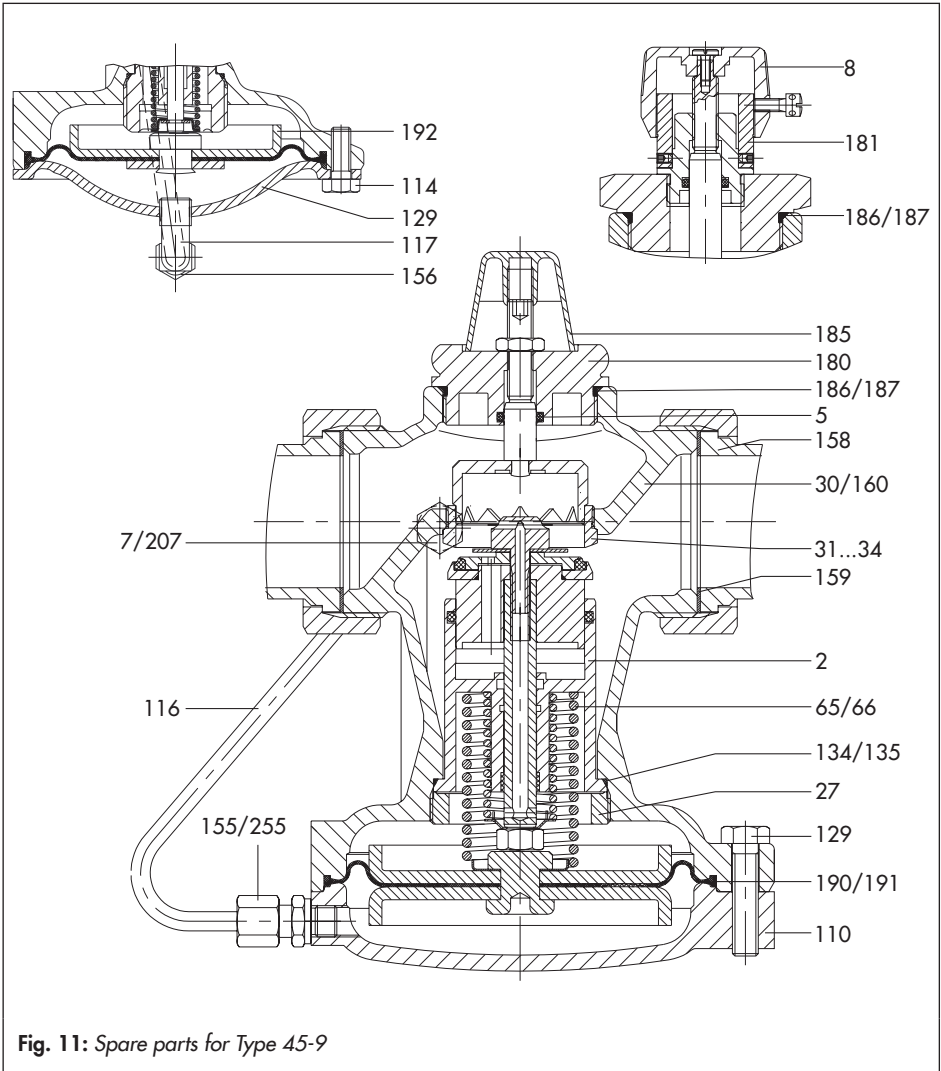


Fig. 11: Spare parts for Type 45-9

Legend for Fig. 11

2	Plug assembly
180/5	O-ring
7	Restriction assembly
8	Scaled cap
27	Stopper (DN 32 to 50)
30	Body (DN 15 to 25)
31-34	Threaded seat (DN 15 to 25)
65	Compression spring
66	Compression spring
110	Diaphragm case
114	Hex screw
116	Pipe
117	Pipe
129	Diaphragm case
134	O-ring
135	O-ring
155	Screw fitting
156	Screw fitting
158	Threaded ends
159	Seal
160	Body assembly (DN 32 to 50)
180	Restriction
181	Scaled orifice
185	Cap
186	O-ring
187	O-ring
190	Diaphragm
191	Diaphragm
192	Diaphragm

10.3 Certificates

The EU declaration of conformity is provided on the next page.



**EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY**

Modul H/Module H, Nr./No. / N° CE-PED-H-SAM 001-13-DEU-rev-A

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:/For the following products, SAMSON hereby declares under its sole responsibility:

Ventile für Druck-, Differenzdruck-, Temperatur- und Volumenstromregler/Valves for pressure, temperature, flowregulators and differential pressure regulators

Typ 2336, 2373, 2375, 44-1B, 44-2, 44-3, 44-4, 44-6B, 44-9, 45-1, 45-2, 45-3, 45-4, 45-6, (Erz.-Nr. 2720), 45-9, 47-4, 2488, 2489, (2730), 2405, 2406, 2421 (2811), 2412 (2812), 2417 (2817), 2422 (2814), 2423 (2823), 2423E (2823)

die Konformität mit nachfolgender Anforderung/the conformity with the following requirement

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt. 2014/68/EU vom 15.05.2014

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating of the making available on the market of pressure equipment (see also Articles 41 and 48). 2014/68/EU of 15 May 2014

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4(1)(c.i) erster Gedankenstrich. Modul siehe Tabelle durch Bureau Veritas S. A. (0062)
Conformity assessment procedure applied for fluids according to Article 4(1)(c.i), first indent See table for module certified by Bureau Veritas S. A. (0062)

Nenndruck Pressure rating	DN NPS	15	20	25	32	40	50	65	80	100	125	150	200	250	300	400	
		½	¾	1	1¼	1½	2	-	3	4	-	6	8	10	12	16	
PN 16		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		-	-	-	-	-	-	-	-	-	
PN 25		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		H									
PN 40		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		H									
PN 100 und PN 160		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		H									
Class 150		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		H									
Class 300		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		H									
Class 600 und Class 900		ohne/without ⁽¹⁾				A ⁽²⁾⁽³⁾		H									

- (1) Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie.
The CE marking affixed to the control valve is not valid in the sense of the Pressure Equipment Directive.
- (2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062).
The CE marking affixed to the control valve is valid without specifying the notified body (ID number 0062).
- (3) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.
The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.
Devices whose conformity has been assessed based on Module H refer to the certificate of approval for the quality management system issued by the notified body.

Dem Entwurf zu Grunde gelegt sind Verfahren aus:/The design is based on the methods of:
DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.1, ASME B16.24, ASME B16.34, ASME B16.42
Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:
The manufacturer's quality management system is monitored by the following notified body:

**Bureau Veritas S.A. Nr./No. 0062, Newtime, 52 Boulevard du Parc, Ile de la Jatte, 92200 Neuilly sur Seine, France
Hersteller:/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany**

Frankfurt am Main, 08. Februar 2017/08 February 2017

i.v. Klaus Hirschchen
Klaus Hirschchen
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / R&D, Valves and Actuators

Dr. Michael Heß
Dr. Michael Heß
Zentralabteilungsleiter / Head of Central Department
Product Management & Technical Sales

EU-Konformitätserklärung/Blatt/08_Modul-A_Modul-H_DE-EN_Rev.03_2017-02-08.docx



**EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY**

Modul H/Module H, Nr./No. / N° CE-0062-PED-H-SAM 001-16-DEU-rev-A

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:/For the following products, SAMSON hereby declares under its sole responsibility:

Ventile für Druck- Differenzdruck-, Volumenstrom- und Temperaturregler/Valves for pressure, differential pressure, volume flow and temperature regulators

2333 (Erz.-Nr./Model No. 2333), 2334 (2334), 2335 (2335), 2336, 2373, 2375, 44-0B, 44-1B, 44-2, 44-3, 44-6B, 44-7, 44-8, 45-1, 45-2, 45-3, 45-4, 45-5, 45-6, 2468, 2478 (2720), 45-9, 46-5, 46-6, 46-7, 46-9, 47-1, 47-4, 47-5, 47-9, 2487, 2488, 2489, 2491, 2494, 2495 (2730), 2405, 2406, 2421 (2811), 2392, 2412 (2812), 2114 (2814), 2417 (2817), 2422 (2814), 2423 (2823)

die Konformität mit nachfolgender Anforderung/the conformity with the following requirement.

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt. 2014/68/EU vom 15.05.2014

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating of the making available on the market of pressure equipment. 2014/68/EU of 15 May 2014

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4(1)(c.ii) und (c.i) zweiter Gedankenstrich. Modul siehe Tabelle durch certified by Bureau Veritas S. A. (0062)

Conformity assessment procedure applied for fluids according to Article 4(1)(c.ii) and (c.i), second indent See table for module

Nenndruck Pressure rating	DN NPS	15	20	25	32	40	50	65	80	100	125	150	200	250	300	400	
		½	¾	1	1¼	1½	2	-	3	4	-	6	8	10	12	16	
PN 16		ohne/without (1)						A (2)(3)				H					
PN 25		ohne/without (1)						A (2)(3)				H					
PN 40		ohne/without (1)						A (2)(3)				H					
PN 100 und PN 160		ohne/without (1)						H						-		-	
Class 150		ohne/without (1)						A (2)(3)				H					
Class 300		ohne/without (1)						A (2)(3)				H					
Class 600 und Class 900		ohne/without (1)						H						-			

- Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie. The CE marking affixed to the control valve is not valid in the sense of the Pressure Equipment Directive.
- Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062). The CE marking affixed to the control valve is valid without specifying the notified body (ID number 0062).
- Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A. The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.

Devices whose conformity has been assessed based on Module H refer to the certificate of approval for the quality management system issued by the notified body.

Dem Entwurf zu Grunde gelegt sind Verfahren aus/The design is based on the procedures specified in the following standards:

DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.1, ASME B16.24, ASME B16.34, ASME B16.42

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:

The manufacturer's quality management system is monitored by the following notified body:

**Bureau Veritas S.A. Nr./No. 0062, Newtime, 52 Boulevard du Parc, Ile de la Jatte, 92200 Neuilly sur Seine, France
Hersteller/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany**

Frankfurt am Main, 08. Februar 2017/08 February 2017

i.V. Klaus Hirsch
Klaus Hirsch
Zentralabteilungsleiter/Head of Central Department
Entwicklung Ventile und Antriebe/R&D, Valves and Actuators

Dr. Michael Heß
Dr. Michael Heß
Zentralabteilungsleiter/Head of Central Department
Product Management & Technical Sales

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