MOUNTING AND
OPERATING INSTRUCTIONS

EB 3132-3 EN

Translation of original instructions

Type 2479/2430 Differential Pressure and Temperature Regulator with Flow Limitation

Self-operated Regulators

Edition June 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. The images shown in these instructions are for illustration purposes only. The actual product may vary.

➔ 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 (aftersalesservice@samsongroup.com).

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.samsongroup.com > 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

1 Safety instructions and measures

Intended use

The SAMSON Type 2479/2430 Regulator is a differential pressure and temperature regulator with flow limitation. It consists of a Type 2479 Valve and a Type 2430 Control Thermostat. The valve and control thermostat are delivered separately and must be assembled according to the instructions in these mounting and operating instructions.
The self-operated regulator is mainly used to control the temperature and differential pressure as well as limit the flow rate in district heating supply networks. Liquids and gases can be controlled by the regulator.
The regulator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the regulator is only used in operating conditions that meet the specifications used for sizing the regulator at the ordering stage. In case operators intend to use the regulators 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
– Use outside the limits defined by the additional fittings mounted on the regulator

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

– Use of non-original spare parts
– Performing service and repair work not described

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 must 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.

Personal protective equipment

We recommend checking the hazards posed by the process medium being used (e.g. ▶ GESTIS (CLP) hazardous substances database). Depending on the process medium and/or the activity, the protective equipment required includes:

- ➔ Protective clothing, safety gloves and eye protection in applications with hot, cold and/or corrosive media
- ➔ Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.
- ➔ Hard hat
- ➔ Safety harness when working at height
- ➔ Safety footwear, ESD (electrostatic discharge) footwear, if necessary
- ➔ Check with the plant operator for details on further protective equipment.

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 regulator by the process medium, the operating pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warning and caution notes in these mounting and operating instructions.

Hazards resulting from the special working conditions at the installation site of the regulator must be identified in a risk assessment and prevented through the corresponding safety instructions drawn up by the operator.

We also recommend checking the hazards posed by the process medium being used (e.g. ▶ GESTIS (CLP) hazardous substances database).

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

Safety features

The Type 2479/2430 Regulator does not have any special safety features.

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.

Responsibilities of the operator

Operators are responsible for proper use 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, operators must ensure that operating personnel or third parties are not exposed to any danger.
Operators are additionally responsible for ensuring that the limits for the product defined in the technical data are observed. This also applies to the start-up and shutdown procedures. Start-up and shutdown procedures fall within the scope of the operator's duties and, as such, are not part of these mounting and operating instructions. SAMSON is unable to make any statements about these procedures since the operative details (e.g. differential pressures and temperatures) vary in each individual case and are only known to the operator.

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, operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

Referenced standards, directives and regulations

The regulators comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Regulators 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 'Certificates' section.

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 0165-1).

Referenced documentation

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

– Mounting and operating instructions for

e.g.	**Type 1 N/NI Strainer**	▶ EB 1010
e.g.	**Type 2 N/NI Strainer**	▶ EB 1015
e.g.	**Type 2430 Control Thermostat**	▶ EB 2430

– Data sheets for

e.g.	**Accessories for Series 43 Regulators**	▶ T 2176

– Mounting and operating instructions as well as data sheets for additional fittings (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. Impermissible pressure or improper opening can lead to regulator components bursting.

➔ Observe the maximum permissible pressure for regulator and plant.

➔ Before starting any work on the regulator, depressurize all plant sections affected as well as the regulator.

➔ Drain the process medium from all the plant sections affected as well as the regulator.

➔ If necessary, a suitable overpressure protection must be installed in the plant section.

➔ Wear personal protective equipment.

1.2 Notes on possible personal injury

⚠ WARNING

Risk of personal injury through incorrect operation, use or installation as a result of information on the regulator being illegible.

Over time, markings, labels and nameplates on the regulator may become covered with dirt or become illegible in some other way. As a result, hazards may go unnoticed and the necessary instructions not followed. There is a risk of personal injury.

➔ Keep all relevant markings and inscriptions on the device in a constantly legible state.

➔ Immediately renew damaged, missing or incorrect nameplates or labels.

Risk of hearing loss or deafness due to loud noise.

The noise emissions depend on the valve version, plant facilities and process medium.

➔ Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.

Risk of personal injury due to pressurized components and process medium being discharged.

Incorrect opening of pressure equipment or mounting parts may lead to the process medium escaping to the atmosphere.

➔ Do not loosen the control line while the valve is pressurized.

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 warm up to the ambient temperature.

➔ Wear protective clothing and safety gloves.

⚠ WARNING

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 ▶ www.samsongroup.com/en/about-samson/material-compliance/reach-regulation/

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 affected and the regulator.

➔ Wear protective clothing, safety gloves and eye protection.

1.3 Notes on possible property damage

NOTICE

Risk of regulator damage due to incorrectly attached slings.

➔ Do not attach load-bearing slings to the actuator housing.

Risk of regulator damage due to unsuitable medium properties.

The regulator is designed for a process medium with defined properties.

➔ Only use the process medium specified for sizing.

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 the use of unsuitable lubricants.

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

➔ 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 when tightening regulator components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

➔ Observe the specified tightening torques (see 'Tightening torques' in Annex).

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.

NOTICE

Risk of the process medium being contaminated through the use of unsuitable lubricants and/or contaminated tools and components.

➔ Keep the regulator and the tools used free from solvents and grease.

➔ Make sure that only suitable lubricants are used.

Risk of excess pressure damaging plant sections due to construction-related seat leakage through the regulator.

➔ Always install a safety device (e.g. safety excess pressure valve or safety relief valve) in the plant.

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 plug or control thermostat stem guide.

➔ 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. See the 'Installation' section.

Risk of irreparable regulator damage caused by the regulator components being taken apart.

The control thermostat is an inseparable hydraulic unit consisting of a control thermostat, capillary tube and temperature sensor. If these components are dismantled (e.g. removal of the capillary tube), the regulator will be irreparably damaged and will no longer be able to fulfill its control task.

➔ Do not dismantle the regulator.

➔ Only perform allowed activities on the regulator.

➔ Contact SAMSON's After-sales Service before replacing spare parts.

Note

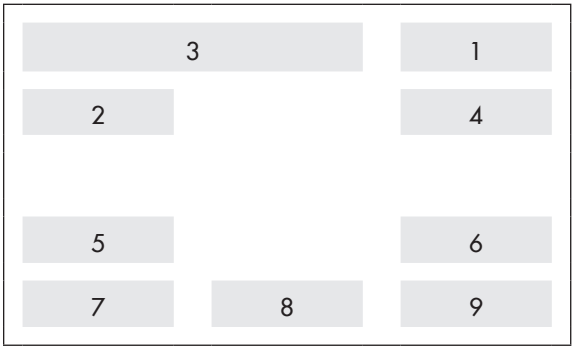
SAMSON's After-sales Service can support you concerning lubricant, tightening torques and tools approved by SAMSON.

2 Markings on the device

Several nameplates are affixed to the device. The nameplates are used to identify the separate regulator components (see section 2.1 and section 2.2).

2.1 Nameplate of Type 2479 Valve

Nameplate on bodies made of red brass or spheroidal graphite iron



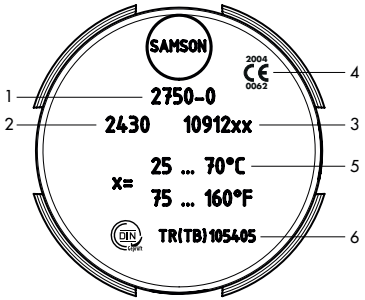
Nameplate for Type 2479 Valve

1	Order number or year of manufacture
2	Type designation
3	Model number and material number
4	Flow rate set point range in m^3/h
5	Differential pressure at the restriction in bar
6	Max. perm. differential pressure Δp in bar
7	Flow coefficient K_{VS}
8	Max. perm. temperature in °C
9	Pressure rating PN

Valve size, pressure rating and the arrow indicating the direction of flow are cast into the body.

Fig. 2-1: *Nameplate for Type 2479 Valve*

2.2 Nameplate of Type 2430 Control Thermostat



1	Model number
2	Type designation
3	Material number
4	CE marking
5	Temperature range in °C and °F
6	Register number (type test according to DIN EN 14597)

Fig. 2-2: *Nameplate of the Type 2430 Control Thermostat*

2.3 Location of the nameplate on valve and control thermostat

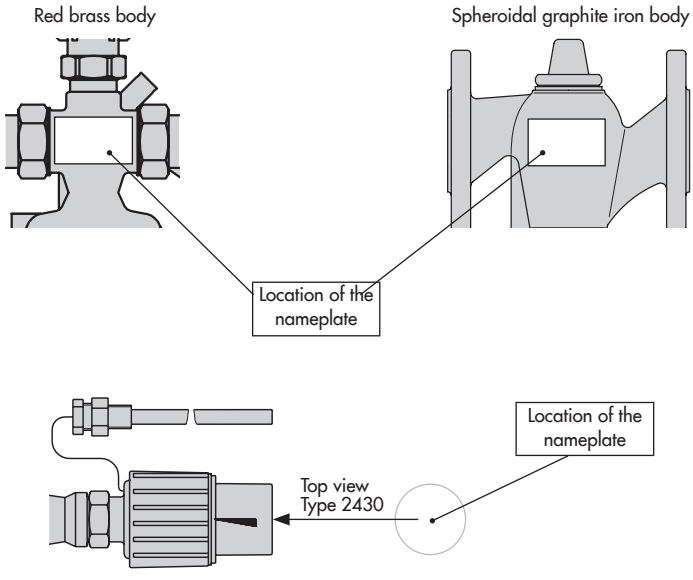


Fig. 2-3: *Locations of the nameplates on the body*

2.4 Material identification number

2.4.1 Type 2479 Valve

The material is indicated on the body. Specifying the material number, you can contact us to find out more details. This is specified on the nameplate (item 3).
For more details on the nameplate, see section 2.1.

2.4.2 Type 2430 Control Thermostat

Specifying the material number, you can contact us to find out which material is used. This is specified on the nameplate (item 3).
For more details on the nameplate, see section 2.2.

3 Design and principle of operation

➔ See Fig. 3-1 and Fig. 3-2

The regulator consists of the **Type 2479 Valve** with restriction, seat and plug and the closing actuator with operating diaphragm as well as the **Type 2430 Control Thermostat** with set point adjuster, capillary tube and temperature sensor.

The regulator is used to maintain the differential pressure and temperature to their adjusted set points. The flow rate can be limited by the restriction (1.2) integrated in the valve body.

Versions for safety equipment are additionally equipped with a Type 2403 Safety Thermostat (as safety temperature monitor DPR/TR/STM) or with a Type 2439 Safety Temperature Limiter (as safety temperature limiter DPR/TR/STL). See documents listed under 'Referenced documentation' in the 'Safety instructions and measures' section.

The medium flows through the valve in the direction indicated by the arrow on the valve body. The flow rate is determined by the area released by the plug (3) and the adjustable restriction (1.2).

The high pressure of the plant (flow pipe) is transmitted to the high-pressure side of the actuator through the control line (11) mounted on site. The low pressure downstream of the restriction acts on the low-pressure side of the operating diaphragm (6.1) through a hole in the plug.

The differential pressure generated across the restriction is converted into a positioning force by the operating diaphragm. This force is used to move the plug depending on the force of the set point spring (5).

The temperature of the medium creates a pressure in the temperature sensor. This pressure is transferred to an operating bellows (23) through a capillary tube (24) where it is converted into a positioning force. This force moves the plug (3) over the pin of the operating element (8), dependent on the force of the spring (21) loaded by the set point adjuster (22).

The largest signal is always used to control the regulator.

The valve closes as the controlled variable rises.

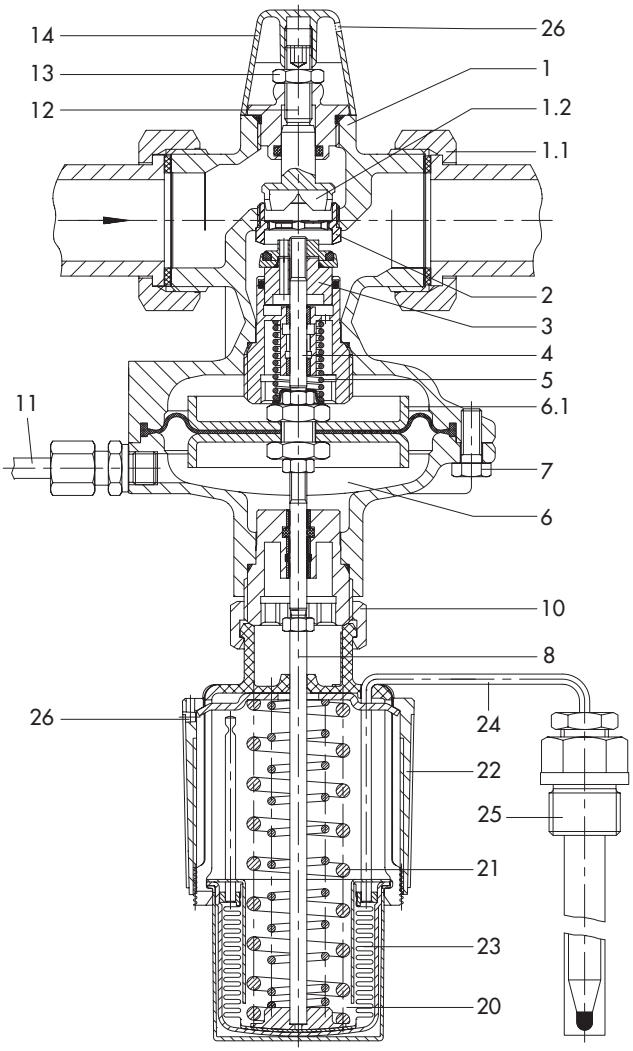


Fig. 3-1: *Functional diagram of regulator, DN 32 to 50*

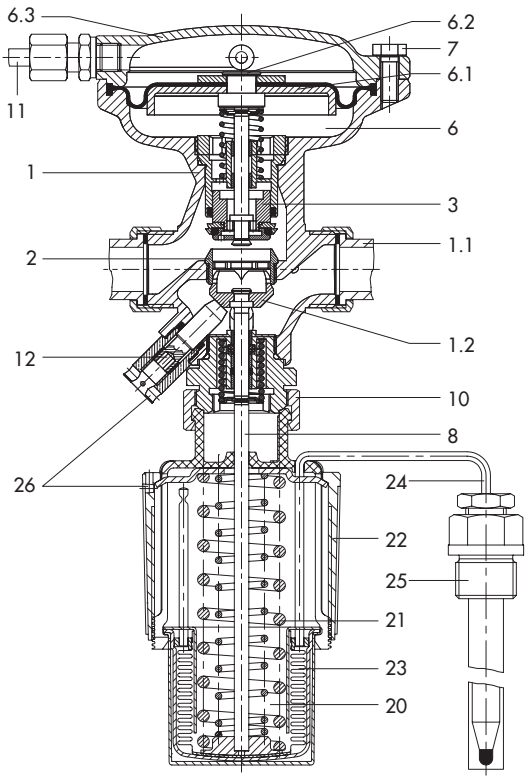


Fig. 3-2: *Functional diagram of regulator, DN 15 to 25*

Legend for Fig. 3-1 and Fig. 3-2

1	Valve body
1.1	Connection nut with seal and welding end
1.2	Restriction
2	Seat
3	Guide nipple with plug section
4	Plug stem
5	Set point spring
6	Actuator
6.1	Operating diaphragm unit
6.2	Overload protection
6.3	Actuator cover
7	Housing screws
8	Pin of operating element
10	Coupling nut
11	Control line
12	Set point screw
13	Lock nut
14	Cap
20	Control thermostat
21	Set point spring
22	Set point adjuster (temperature)
23	Operating bellows
24	Capillary tube
25	Temperature sensor with packing
26	Lead-seal hole

3.1 Additional fittings

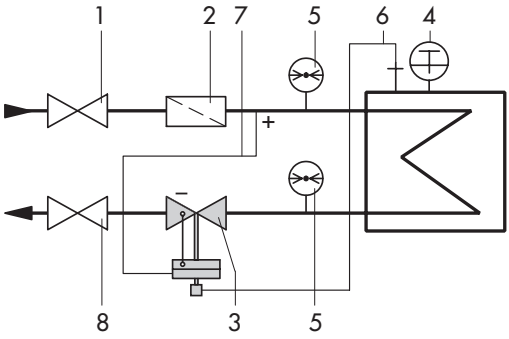
➔ See Fig. 3-3

Pressure gauges

Install a pressure gauge (3 and 5) at suitable points to monitor the pressures prevailing in the plant.

Bypass and shut-off valves

We recommend installing a shut-off valve (1 and 6) both upstream of the strainer and downstream of the regulator and installing a bypass line. The bypass ensures that the plant does not need to be shut down for service and repair work on the regulator.



Legend

1	Shut-off valve	5	Pressure gauge (return flow pipe)	8	Temperature sensor with capillary tube
2	Strainer	6	Shut-off valve		
3	Pressure gauge (flow pipe)	7	Control line mounted on site		
4	Type 2479/2430				

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

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

Δp_{min}	Minimum differential pressure across the valve in bar
$\Delta p_{restriction}$	Differential pressure created at the restriction for measuring the flow rate in the regulator
$\dot{V}$	Adjusted flow rate in m³/h
K_{VS}	Valve flow coefficient in m³/h

Fig. 3-3: *Type 2479/2430 (installation example)*

Strainer

We recommend installing a SAMSON strainer (2) upstream of the valve. It prevents solid particles in the process medium from damaging the regulator.

➔ Do not use the strainer to permanently filter the process medium.

➔ Select a strainer (mesh size) suitable for the process medium.

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 pressure reducing valve (▶ EB 1010).

Insulation

Regulators can be insulated to reduce heat energy transfer.
Refer to the instructions in the 'Installation' section.

i Note

The Type 2479/2430 Regulator is not a safety valve. If necessary, a suitable overpressure protection must be installed on site in the plant section.

3.2 Technical data

The valve and control thermostat nameplates provide information on the valve and actuator versions (see the 'Markings on the device' section).

i Note

More information is available in Data Sheet ▶ T 3132.

Conformity

The Type 2479/2430 Regulator bears the mark of conformity.

CE

Process medium and scope of application

The Type 2479/2430 Differential Pressure and Temperature Regulator with Flow Limitation is designed to maintain the differential pressure and temperature in a plant to an adjusted set point and to limit the flow rate.

– Suitable for **gases and liquids**
– Max. temperature **150 °C**
– Temperature set points from **0 to 150 °C**
– Limit signals **up to 120 °C**
– Valve size **DN 15 to 50**
– Pressure rating PN 25

The valve **closes** when the **differential pressure, flow rate or temperature rises**.

Leakage class

The soft-seated regulator has the leakage class IV according to IEC 60534-4.

Temperature range

Depending on how the regulator is configured, it can be used up to temperatures of 150 °C (see Fig. 3-1). The minimum temperature is limited by the accessories used and the actuator's diaphragm material (▶ T 3132).

Noise emissions

SAMSON is unable to make general statements about noise emissions. The noise emissions depend on the regulator version, plant facilities, process medium and operating conditions.

Dimensions and weights

Table 3-5 provides a summary of the dimensions and weights. The lengths and heights in the dimensional drawings are shown on page 3-9.

Table 3-1: ***Technical data · Valve*** · *All pressures in bar (gauge)*

Valve size	**DN**	**15**				**20**	**25**	**32** [1]	**40** [1]	**50** [1]
K_{VS} coefficient	Body with screwed ends	0.4 [2]	1.0 [2]	2.5	4.0 [2]	6.3	8.0	12.5	16.0	20.0
	Flanged body	–						12.5	20.0	25.0
x_{FZ} value	Body with screwed ends	0.6					0.55	0.5		0.45
	Flanged body	–						0.45		0.4
Pressure rating		PN 25								
Max. permissible differential pressure Δp across the valve		20 bar							16 bar	
Max. permissible valve temperature		Liquids 150 °C								
Differential pressure set point		Adjusted to 0.2 bar								
Conformity		CE								

[1] Additional version: valve with flanged body made of spheroidal graphite iron (EN-GJS-400-18-LT)
[2] Special version

Table 3-2: ***Flow rate set point ranges***

Flow rate set point ranges $\dot{V}$ for water in m^3/h											
$\Delta p_{set\ point}$	**Δp_{plant}**	**$\Delta p_{restriction}$**	**DN**	**15**				**20**	**25**	**32**	**40**	**50**
Δp_{plant} + $\Delta p_{restriction}$	Calculation for plant	Differential pressure across the restriction	**K_{VS}**	0.4 [1]	1.0 [1]	2.5	4.0 [1]	6.3	8.0	12.5	16.0	20.0
			$\dot{V}$ min.	0.01	0.12	0.2	0.5	0.8	0.8	2	3	4
0.2 bar	0.1 bar	0.1 bar	**$\dot{V}$ max.**	0.14	0.45	0.85	1.8	2.6	3.6	7.1	8.5	10.7
0.3 bar	0.1 bar	0.2 bar	**$\dot{V}$ max.**	0.2	0.64	1.2	2.5	3.6	4.2	10.0	12.5	15.0
				–			1.3 [2]	2.3 [2]	3.5 [2]	5.8 [2]	9.1 [2]	14.1 [2]

[1] Special version
[2] An increase in noise level can be expected when the specified flow rate is exceeded, even if cavitation does not occur (see AGFW (German District Heating Association) document FW 514).

See Fig. 3-3 to calculate the minimum required differential pressure **Δpmin** between the **flow pipe and return flow pipe**.

Table 3-3: *Technical data · Control thermostats/safety thermostats*

Type 2430 Control Thermostat		
Set point range	Continuously adjustable: 0 to 35 °C, 25 to 70 °C, 40 to 100 °C, 50 to 120 °C, 70 to 150 °C	
Permissible ambient temperature range	–20 to +80 °C [1]	
Max. perm. temperature at the sensor	50 K above the adjusted set point	
Max. perm. pressure at sensor	40 bar	
Capillary tube length	2 m [2]	
Safety thermostat …	**Type 2403 for STM**	**Type 2439 for STL**
Adjustment range of limit value	60 to 75 °C · 75 to 100 °C · 100 to 120 °C	10 to 95 °C · 20 to 120 °C
Max. permissible ambient temperature	50 °C	80 °C (with electric signal transmitter 60 °C)
Max. perm. temperature at the sensor	25 K above the adjusted set point	20 K above the adjusted set point
Max. permissible pressure at sensor with thermowell	40 bar	
Capillary tube length	5 m	2 m [2]

1) At temperatures below freezing: ice formation may damage the plant and especially the valve.
2) Special version: Type 2430 with 5 m and 10 m capillary tube · Type 2439 with 5 m capillary tube

Table 3-4: *Materials · Material number according to DIN EN*

Type 2479 Valve		
Body		Red brass CC499K (Rg 5) · Spheroidal graphite iron EN-GJS-400-18-LT [1]
Seat		Stainless steel 1.4305
Plug		Brass (resistant to dezincification) [3] with EPDM [2] soft seal
Valve spring		Stainless steel 1.4310
Operating diaphragm		EPDM with fabric reinforcement
Seals		EPDM [2]
Type 2430 Thermostat		
Sensor	Capillary tube	Copper
	Thermowell	Nickel-plated copper or stainless steel 1.4571

1) Additional version in DN 32 to 50: valve with flanged body made of spheroidal graphite iron
2) Special version, e.g. for mineral oils: FKM
3) When K_{VS} 0.4 and 1.0: 1.4305

Table 3-5: *Dimensions in mm · Weights in kg*

Type 2479 Valve							
Valve size	**DN**	**15**	**20**	**25**	**32**	**40**	**50**
Length **L**	mm	65	70	75	100	110	130
Pipe Ød	mm	21.3	26.9	33.7	42.4	48.3	60.3
Connection **R**		G ¾	G 1	G 1¼	G 1¾	G 2	G 2½
Width across flats SW	mm	30	36	46	59	65	82
Height **H** [1]	mm	85					
Height **H1** [1]	mm	280			265	295	
Actuator housing ØD	mm	116			160		
Version with welding ends							
Length L1	mm	210	234	244	268	294	330
Weight	kg (approx.)	2.4	2.5	2.7	6.1	6.6	7.1
Version with **threaded ends**							
Length L2	mm	129	144	159	192	206	228
Male thread A		G ½	G ¾	G 1	G 1¼	G 1½	G 2
Weight	kg (approx.)	2.2	2.3	2.5	5.9	6.4	6.9
Version with **screwed-on flanges** or with **flanged body** (DN 32 to 50 only)							
Length L3	mm	–			180	200	230
Weight	kg (approx.)	–			9.1	10.4	11.9
Type 2430 Control Thermostat							
For valve size	**DN**	**15 to 25**			**32 to 50**		
Screw gland **S**		G ½			G ¾		
Length L_{FT}	mm	185			220		
Ø $\mathbf{d_F}$	mm	9.5			16		
Ø $\mathbf{d_T}$	mm	12			19		

[1] Add minimum clearance of approx. 50 mm for mounting and removal.

Dimensional drawings

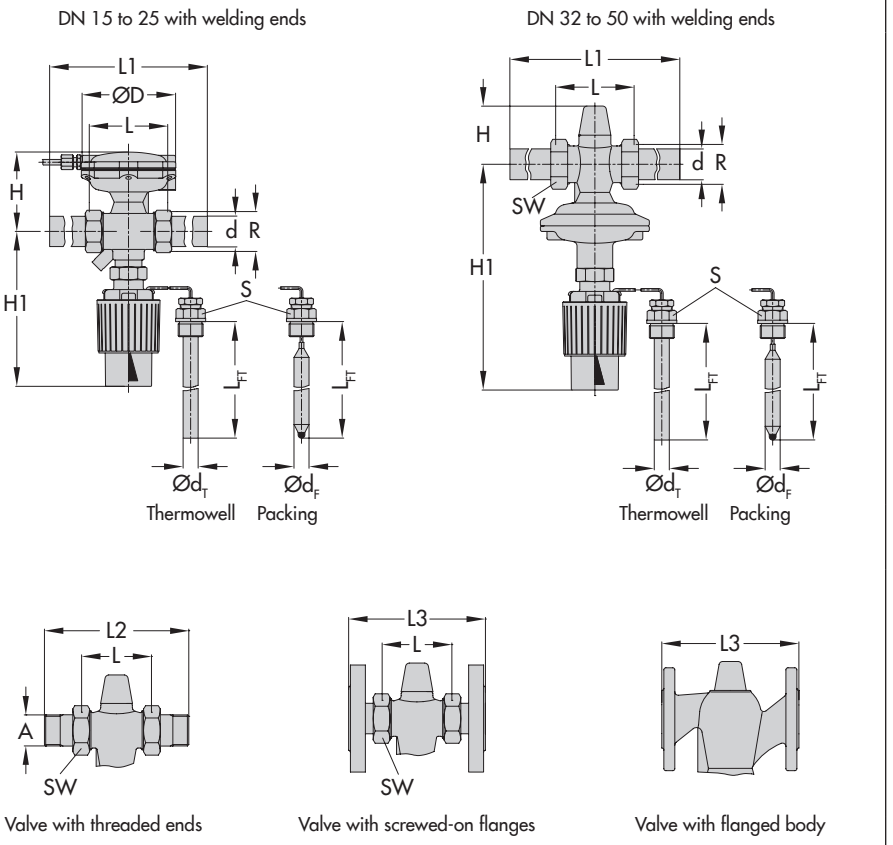


Fig. 3-4: *Dimensions*

4 Shipment and on-site transport

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Check that the specifications on the valve and control thermostat nameplate match the specifications in the delivery note. See the 'Markings on the device' section for nameplate details.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).
3. Determine the weight and dimensions of the units to be lifted and transported in order to select the appropriate lifting equipment and lifting accessories. Refer to the transport documents and the 'Design and principle of operation' section.

4.2 Removing the packaging from the regulator

The components (valve, control thermostat and, if applicable, thermowell) of the regulator are delivered separately.
Proceed as follows to lift and install the valve:

➔ Do not open or remove the packaging until immediately before lifting to install the regulator into the pipeline.

➔ Leave the regulator components in its transport container or on the pallet to transport it on site.

➔ Do not remove the protective caps from the inlet and outlet until immediately before installing the valve with flanges into the pipeline. They prevent foreign particles from entering the valve.

➔ Dispose and recycle the packaging in accordance with the local regulations.

4.3 Transporting and lifting the regulator

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).

➔ Leave the regulator in its transport container or on the pallet to transport it.

➔ Observe the transport instructions.

Transport instructions

➔ Protect the regulator against external influences (e.g. impact).

➔ Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

➔ Protect the regulator against moisture and dirt.

➔ The permissible ambient temperature of standard regulators is –20 to +80 °C.

4.4 Storing the regulator

NOTICE

Risk of regulator damage due to improper storage.

➔ *Observe the storage instructions.*

➔ *Avoid long storage times.*

➔ *Contact SAMSON in case of different storage conditions or longer storage times.*

Note

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

Storage instructions

➔ Protect the regulator against external influences (e.g. impact).

➔ Secure the regulator in the stored position against slipping or tipping over.

➔ Do not place any objects on the regulator.

➔ Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

➔ Protect the regulator 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.

➔ The permissible storage temperature of standard regulators is –20 to +65 °C.

Special storage instructions for elastomers

Elastomer, e.g. operating diaphragm

➔ To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.

➔ Store elastomers away from lubricants, chemicals, solutions and fuels.

➔ We recommend a storage temperature of 15 °C for elastomers.

Tip

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

5 Installation

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.
Valve and control thermostat can be assembled before or after the valve has been installed in the pipeline. We recommend first installing the valve without the control thermostat into the pipeline.

5.1 Installation conditions

Work position

The work position for the regulator is the front view onto all operating controls on the regulator (including any additional fittings) seen from the position of operating personnel.
Plant operators must ensure that, after installation of the device, the operating personnel can perform all necessary work safely and easily access the device from the work position.

Pipeline routing

The inlet and outlet lengths vary depending on several variables and process conditions and are intended as recommendations. Contact SAMSON if the lengths are significantly shorter than the recommended lengths.
To ensure that the regulator functions properly, proceed as follows:

➔ Observe the inlet and outlet lengths (see Table 5-2). Contact SAMSON if the regulator conditions or state of the medium process deviate.

➔ Install the regulator free of stress and with the least amount of vibrations as possible. Read information under 'Mounting position' and 'Temperature sensor' in this section.

➔ Install the regulator allowing sufficient space to remove the actuator and valve or to perform service work on them.

Mounting position

To ensure that the regulator functions properly, proceed as follows:

DN 15 to 25

➔ When the medium temperature is **110 °C or lower**, the regulator can be installed in **horizontal or vertical pipes**. The control thermostat can face **upward, sideways or downward** (see Fig. 5-1).

➔ When the medium temperature is **above 110 °C**, the regulator can only be installed in **horizontal pipes**. **The control thermostat** must be suspended to hang **downward.**

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

➔ Contact SAMSON if the mounting position is not as specified above.

DN 32 to 50

➔ The regulator can only be installed in **horizontal pipes. The control thermostat** must be suspended to hang **downward** (see Fig. 5-1).

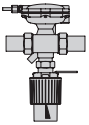
➔ Make sure the direction of flow matches the direction indicated by the arrow on the body.

➔ Contact SAMSON if the mounting position is not as specified above.

NOTICE

Damage due to freezing.

Protect the regulator from icing up when controlling media that can freeze. Unless the regulator is installed in locations where no frost occurs, remove the regulator from the pipeline when the plant is shut down.

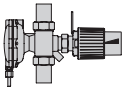


Standard mounting position, control thermostat suspended to hand downward

All versions.

Alternative mounting position, control thermostat on top

All versions, DN 15 to 25. Maximum medium temperature 110 °C



Alternative mounting position, vertical pipeline

All versions, DN 15 to 25. Maximum medium temperature 110 °C

Fig. 5-1: *Mounting position*

Temperature sensor

NOTICE

Galvanic corrosion due to incorrectly selected materials of the mounting parts.

On installing the sensor or thermowell, only combine the same kind of materials (e.g. stainless steel with stainless steel or copper together with other copper materials).

The temperature sensor (25), even together with a thermowell, can be installed in any position as required. However, make sure its entire length is immersed in the process medium to be controlled. It must be installed in a location where overheating or considerable idling times cannot occur.

Note

If the sensor is to be used with a thermowell, only use original SAMSON thermowells.

Weld a welding socket with G ½ or G ¾ female thread (to match the screw gland) at the place of installation.

➔ Seal the screw gland of the sensor.

Installation with thermowell

When a thermowell is used, a welding socket with G 1 female thread must be used.

1. Seal the thermowell into the welding socket.
2. Insert the sensor and tighten it with the clamping screw.

i ***Note***

For temperature regulators with safety temperature limiter (TR/STL), install the sensor of the limiter near the control thermostat sensor.

Dynamic behavior of Type 2430 Control Thermostat

The dynamics of the regulator are mainly determined by the response of the sensor with its characteristic time constant. Table 5-1 shows the dynamic behavior of the Type 2430 Control Thermostat measured in water.

Capillary tube

Carefully run the capillary tube without bending or twisting it. Avoid locations with considerable ambient temperature fluctuations along the entire length of the tube.

i ***Note***

Do not damage or shorten the capillary tube. Roll up any capillary tube that is not used. The smallest permissible bending radius is 50 mm.

Support and suspension

i ***Note***

The plant engineering company is responsible for selecting and implementing a suitable support or suspension of the installed regulator and the pipeline.

Depending on the regulator version and mounting position, the valve, actuator and pipeline must be supported or suspended.

! ***NOTICE***

Do not attach supports directly to the regulator.

Control line (to be provided on site)

Route the control line on site preferably using a 6x1 mm (stainless) steel pipe.

The control line for tapping pressure from the pipeline (for Type 2479/2430) must be installed upstream of the consumer. The pressure tapping point must at least three times the nominal size (DN) away from any pipe fittings (e.g. restrictions, bends or branches), that may cause turbulence in the flow. How the lines are routed generally depends on the installation site.

➔ Preferably connect the control line to the side of the main pipe (see Fig. 5-3).

➔ Do not change the pipe diameter of the main pipeline with an eccentric reducer.

5.2 Preparation for installation

The valve and control thermostat of regulators that have not yet been assembled can be assembled before or after the valve has been installed in the pipeline. We recommend first installing the valve without the control thermostat into the pipeline.

Before installation, make sure the following conditions are met:

– The valve and control thermostat are clean.
– The valve, control thermostat and thermowell (if used) are not damaged.
– Install a strainer upstream of the valve.
– The valve and control thermostat data on the nameplates (type designation, valve size, material, pressure rating and temperature range) match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.). See the 'Markings on the device' section for nameplate details.
– The requested or required additional fittings (see the 'Design and principle of operation' section) have been installed or prepared as necessary before installing the valve.

Proceed as follows:

➔ Lay out the necessary material and tools to have them ready during installation work.

➔ Flush the pipeline **before** installing the regulator.
The plant operator is responsible for cleaning the pipelines in the plant.

➔ Check any mounted pressure gauges to make sure they function properly.

i ***Note***

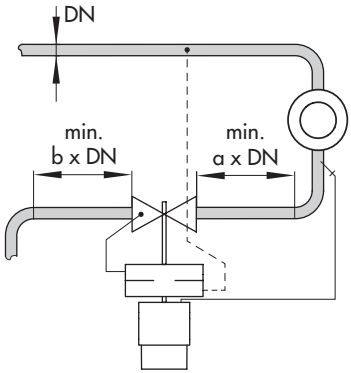
The plant operator is responsible for cleaning the pipelines in the plant.

Table 5-1: *Dynamic behavior of Type 2430 Control Thermostat (adsorption principle)*

Type 2430	Sensor Ø	Time constant [s]	
		Without thermowell	With thermowell
Adsorption principle	9.5 mm	15	40
	16 mm	30	80
	Air sensor	8	– [1]

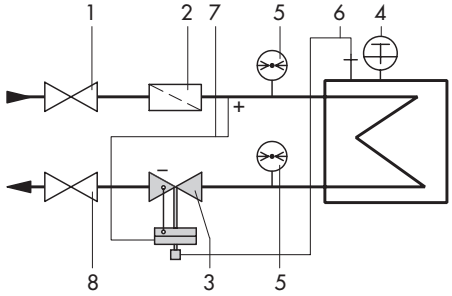
[1] Thermowell not possible

Table 5-2: *Inlet and outlet lengths*



a Inlet length
b Outlet length

State of process medium	Valve conditions	Inlet length a	Outlet length b
Gas	Ma ≤ 0.3	2	4
Liquid	Free of cavitation/w < 3 m/s	2	4



1 Shut-off valve
2 Strainer
3 Type 2479/2430
4 Thermometer
5 Pressure gauge
6 Temperature sensor
7 Control line
8 Shut-off valve

Fig. 5-2: *Type 2479/2430 (installation example)*

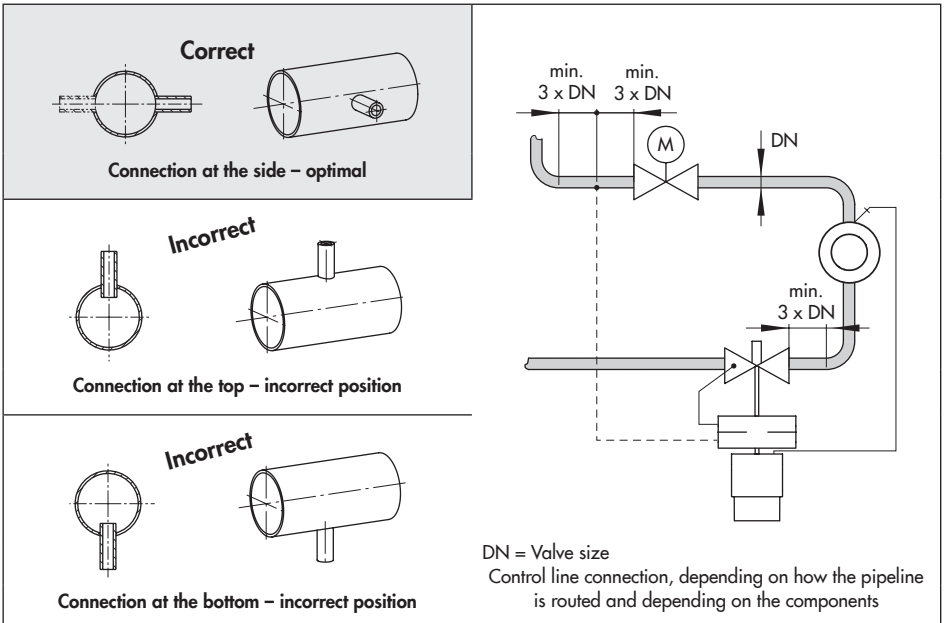


Fig. 5-3: *Control line connection*

5.3 Installation

The components (valve, control thermostat and, if applicable, thermowell) of the SAMSON regulator are delivered separately. The activities listed below are necessary for installation and before start-up of the regulator.

NOTICE

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

Observe the specified torques when tightening regulator components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

➔ *Observe the specified tightening torques (see 'Tightening torques' in Annex).*

NOTICE

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

➔ *Only use tools approved by SAMSON (see 'Tools' in Annex).*

NOTICE

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

➔ *Only use lubricants approved by SAMSON (see 'Lubricants' in Annex).*

5.3.1 Installing the regulator

The regulator can be installed into the downstream pressure pipe (return flow pipe) or the upstream pressure pipe (flow pipe) of the plant. See installation examples in Fig. 5-2.

1. Close the shut-off valves (1, 8) upstream and downstream of the regulator while the regulator is being installed.
2. Remove the protective caps from the valve ports of flanged valves before installing the valve.
3. Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
4. Make sure that the correct gaskets are used.
5. Bolt the pipe to the valve free of stress.
6. Mount the control thermostat.

– Fasten the control thermostat on the valve by tightening the coupling nut (10). Observe the specified tightening torques (see 'Tightening torques' in Annex).

7. Mount the control line. Observe the specified tightening torques (see 'Tightening torques' in Annex).
8. Slowly open the shut-off valves in the pipeline after the valve has been installed.

5.3.2 Cleaning the pipeline

We recommend additionally flushing the pipeline without the installed regulator before start-up. In this case, install a suitable length of pipe into the pipeline in place of the regulator.

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

➔ Check the strainer for dirt each time the pipeline is flushed and clean it, if necessary.

5.4 Testing the regulator

⚠ DANGER

Risk of bursting due to incorrect opening of pressurized equipment or components.

Regulators and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death.

Before working on the regulator:

➔ *Depressurize all plant sections concerned and the regulator.*

➔ *Disconnect the control line.*

➔ *Drain the process medium from all the plant sections concerned as well as the valve.*

⚠ DANGER

Risk of personal injury due to process medium escaping.

➔ *Do not start up the regulator until all parts have been mounted.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

⚠ 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.*

SAMSON regulators are delivered ready for use. To test the regulator functioning before start-up or putting back the regulator into operation, perform the following tests:

5.4.1 Leak test

The plant operator is responsible for performing the leak test and selecting the test method. The leak test must comply with the requirements of the national and international standards that apply at the site of installation.

Tip

SAMSON's After-sales Service can support you to plan and perform a leak test for your plant.

1. Slowly open the shut-off valve (1) installed upstream of the regulator.
2. Apply the required test pressure.
3. Check the regulator for leakage to the atmosphere.
4. Check the screw gland of the sensor or thermowell for leakage.
5. Depressurize the pipeline section and valve.
6. Rework any parts that leak and repeat the leak test.

5.4.2 Pressure test

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.

During the pressure test, make sure the following conditions are met:

➔ Do not allow the pressure to exceed the 1.5 times the pressure rating of the valve body.

➔ The valve must remain open.
Therefore, the control thermostat must be removed from the valve.

➔ Make sure that the pressure rises simultaneously upstream and downstream of the regulator to avoid damaging the balancing plug.

5.5 Insulation

To insulate cold systems, we recommend first filling the plant and carefully rinsing it. The regulator must not yet be insulated at this stage.

1. Start up the plant and adjust the set point (see the 'Start-up' section).
2. Shut down the plant again and let it heat up until the condensation water has dried off.
3. Insulate the regulator and pipes conveying the process medium using insulation material with a water vapor barrier. If a control line is to be routed through the insulation, special care must be taken with the sealing since slight changes in shape may occur. The insulation thickness depends on the medium temperature and the ambient conditions. 50 mm is a typical thickness.

NOTICE

Risk of regulator damage due to incorrect insulation.

➔ *The regulator must only be insulated up to the control thermostat at the most for medium temperatures above 80 °C.*

6 Start-up

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of personal injury due to process medium escaping.

➔ *Do not start up the regulator until all parts have been mounted.*

⚠ 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 warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

⚠ WARNING

Risk of personal injury due to pressurized components and process medium being discharged.

➔ *Do not loosen the control line while the valve is pressurized.*

Before start-up or putting the device back into service, make sure the following conditions are met:

– The regulator is properly installed into the pipeline (see the 'Installation' section).
– The leak and function tests have been completed successfully (see the 'Testing the regulator' section).
– The prevailing conditions in the plant section concerned meet the regulator sizing requirements (see information under 'Intended use' in the 'Safety instructions and measures' section).

6.1 Start-up and putting the device back into operation

1. Depending on the field of application, allow the regulator to cool down or warm up to reach ambient temperature before start up.
2. Slowly open the shut-off valves in the pipeline. Slowly opening these valves prevents a sudden surge in pressure and high flow velocities which can damage the valve.
3. Check the regulator to ensure it functions properly.

Before starting up the plant, make sure the following conditions are met:

➔ The control line is connected correctly.

6.2 Starting up the plant

1. Open the shut-off valves slowly preferably starting from the upstream pressure side. Afterwards, open all the valves on the consumer side (downstream of the regulator).
2. Fill the plant **slowly** with the process medium. Avoid pressure surges.
3. Make sure that the pressure rises simultaneously upstream and downstream of the regulator to avoid damaging the balancing plug.

i ***Note***

On filling the plant, make sure the restriction (1.2) is open by turning the set point screw (12) counterclockwise (↺) as far as it will go.

4. Put the regulator into operation by **slowly** opening the shut-off valves preferably starting from the return flow pipe.
5. Check the adjusted temperature set point at the thermometer installed near the temperature sensor.

7 Operation

Immediately after completing start-up or placing the regulator back into service (see the 'Start-up' section), the regulator is ready for use.

⚠ 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 warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Risk of personal injury due to pressurized components and process medium being discharged.

➔ *Do not loosen the control line while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

7.1 Adjusting the set points

The flow rate and temperature can be adjusted separately from each other.

7.2 Adjustment of the flow rate

➔ The control and shut-off valves as well as all consumers or a bypass valve (if installed) must be open to ensure that the maximum flow rate is reached.

➔ Unscrew the control thermostat.

➔ Set the required flow rate by adjusting the restriction (1.2), while watching, for example the reading of a flow rate measuring unit at the heat meter.

➔ The flow rate can be adjusted with the aid of the adjustment diagrams for water (Fig. 7-2 to Fig. 7-4). Calibration with a heat meter is essential afterwards.

! *NOTICE*

Risk of damage to the restriction stem through one-side loading (DN 15 to 25) while turning the adjustment screw clockwise.

*Completely close the restriction **only** by turning the set point adjuster (22) at the control thermostat or using the manual adjuster Ba43 (see documents listed under 'Referenced documentation' in the 'Safety instructions and measures' section).*

Adjustment

For valve sizes DN 15 to 25, adjust the flow rate at the side adjustment screw (12)
For valve sizes DN 32 to 50, adjust the flow rate at the adjustment screw (12) underneath the cap using a 4 mm hex wrench. Proceed as follows:

DN 15 to 25

➔ For valve sizes DN 15 to 25, the regulator is delivered with an open restriction (1.2).

1. Close the restriction (1.2) by turning the set point adjuster (22) or manual adjuster Ba43 clockwise (↻).
2. Fix the restriction (1.2) by turning the set point screw (12) clockwise (↻).
3. Determine the number of turns of the screw or adjuster required to achieve the desired flow set point from the relevant adjustment diagram.
   For **DN 15**, the adjustment curve that corresponds with the flow coefficient K_{VS} indicated on the nameplate must be selected.
4. Based on a closed restriction (1.2), turn the set point screw (12) counterclockwise (↺) to adjust the flow rate set point. Check the flow rate at the heat meter and correct it, if necessary.
5. Guide the wire through the lead-seal hole (26) and lead-seal it to fix the adjusted flow rate.

NOTICE

Risk of damage to the restriction stem through one-side loading (DN 15 to 25) while turning the adjustment screw clockwise.

*Completely close the restriction **only** by turning the set point adjuster (22) at the control thermostat or using the manual adjuster Ba43.*

Do not use the side adjustment screw (12).

After reaching the closed position, fix this position with the side adjustment screw (12) and remove the manual adjuster Ba43 or control thermostat again. Adjust the flow rate at the adjustment screw (12).

DN 32 to 50

1. Unscrew the cap (14) and undo the lock nut (13).
2. Close the restriction (1.2) by turning the set point screw (12) clockwise (↻).
3. Determine the number of turns required to achieve the desired flow set point from the relevant adjustment diagram.
4. Based on a closed restriction (1.2), turn the set point screw (12) counterclockwise (↺) to adjust the flow rate set point. Check the flow rate at the heat meter and correct it, if necessary.
5. After the required flow rate is adjusted, secure the set point screw (12) using the lock nut (13). Screw cap (14) back on.
6. Guide the wire through the lead-seal hole (26) on the valve and lead-seal it to fix the adjusted flow rate.

i Note

Adjustment is always based on the closed restriction.

i Note

Observe the differential pressure across the restriction $\Delta p_{restriction}$ of 0.2 bar or 0.5 bar. It is determined by the differential pressure springs installed in the actuator (see the 'Markings on the device' section).

i Note

For special versions with a scaled cap, the limit can be adjusted directly using the scaled cap (one marked scale division corresponds to one turn of the set point screw).

➔ To determine the flow limitation to be adjusted, the differential pressure across the restriction must be added to the known pressure drop across the plant. From experience, the differential pressure at the restriction is assumed to be 0.2 bar.

➔ Fig. 7-1 shows an example of flow rate adjustment.

7.3 Adjusting the temperature

Adjust the set point by turning the black plastic ring (set point adjuster, 22) while watching the reference thermometer installed in the plant (▶ EB 2430).

1. Turn clockwise (↻) to reduce the temperature
   Turn counterclockwise (↺) to increase the temperature
2. Guide the wire through the lead-seal hole (26) at the control thermostat and lead-seal it to fix the adjusted temperature.

Example: flow rate adjustment

The Type 2479/2430 Regulator, DN 15, flow rate range K_{VS} = 0.25 to 0.64 m³/h is to be used to limit the flow rate in the plant to **0.63 m³/h**. The pressure loss across the plant is **0.4 bar**.

To which value is the flow set point to be limited and how many turns of the set point adjuster (22) are required to adjust the restriction?

Solution:

➔ Sequence: points A to E in diagram (Fig. 7-1).

The calculation is based on the pressure drop Δp across the plant, therefore, this value must be known.

Δp = 0.4 bar is specified in the example and corresponds with **point A** in the diagram.

Include the **differential pressure across the restriction** assumed to be **0.2 bar**. A line representing this value is drawn from **point A** across to the right and results in **point B**.

Point B is situated on the same straight line for the differential pressure of **0.6 bar** to be set.

A vertical line is drawn from **point B** until it reaches the limiting curve for the flow rate (**0.63 m³/h**). This is **point C**.

The horizontal line is drawn from **point C** across to the curve relevant for the valve size (DN); this is **point D**.

When a line is drawn vertically upwards from **point D**, this results in **point E** which indicates how many turns of the set point adjuster (22) are required.

Based on a closed restriction, almost **7 turns** of the screw counterclockwise are required.

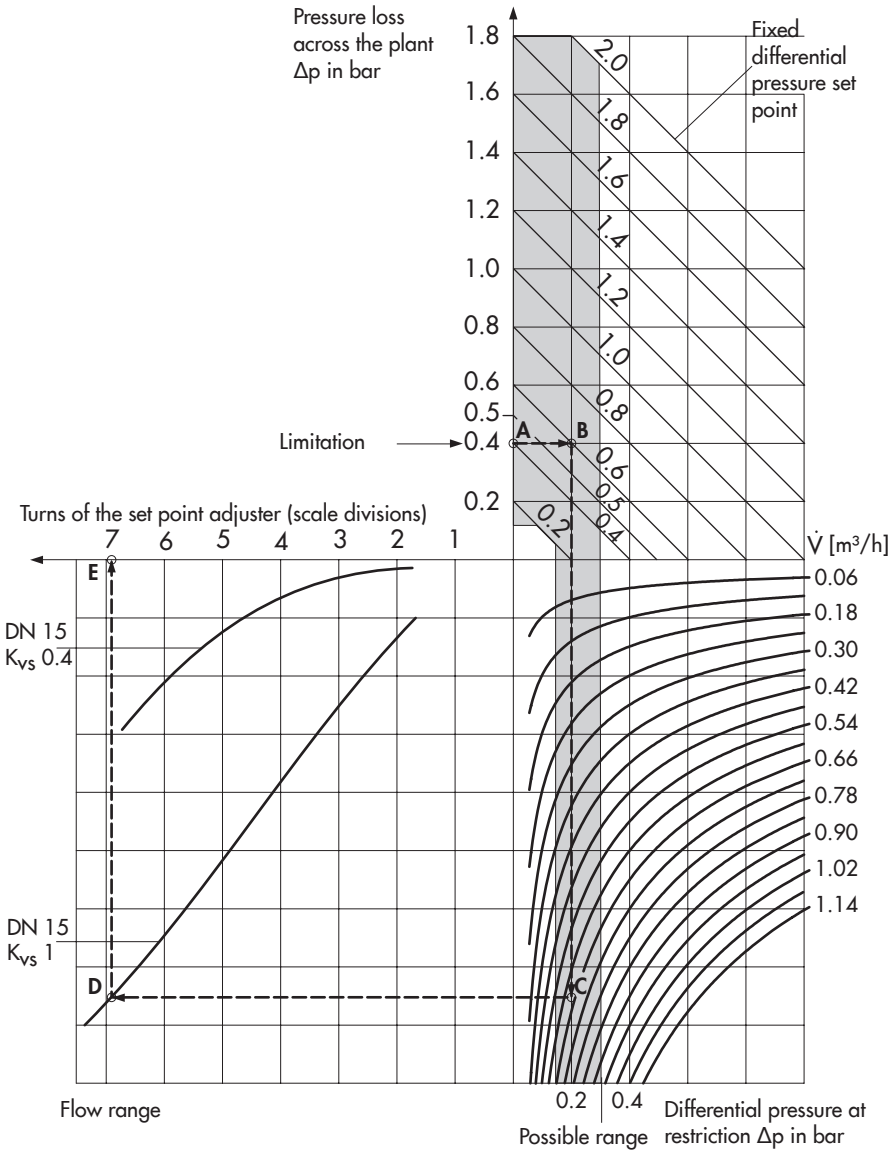


Fig. 7-1: *Adjustment diagram DN 15 with K_{VS} = 0.25 to 0.64*

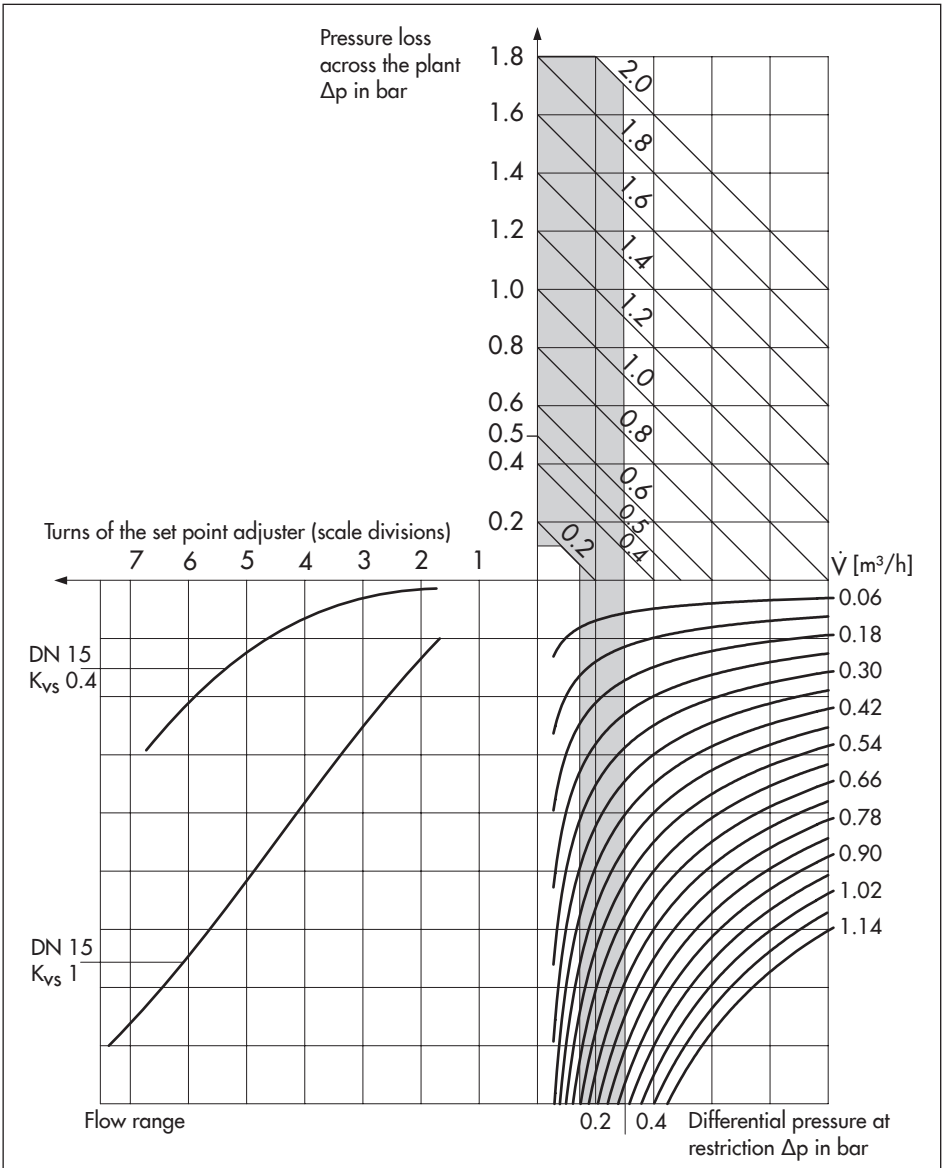


Fig. 7-2: *Adjustment diagram DN 15 (20, 25) with K_{VS} = 0.4 and 1*

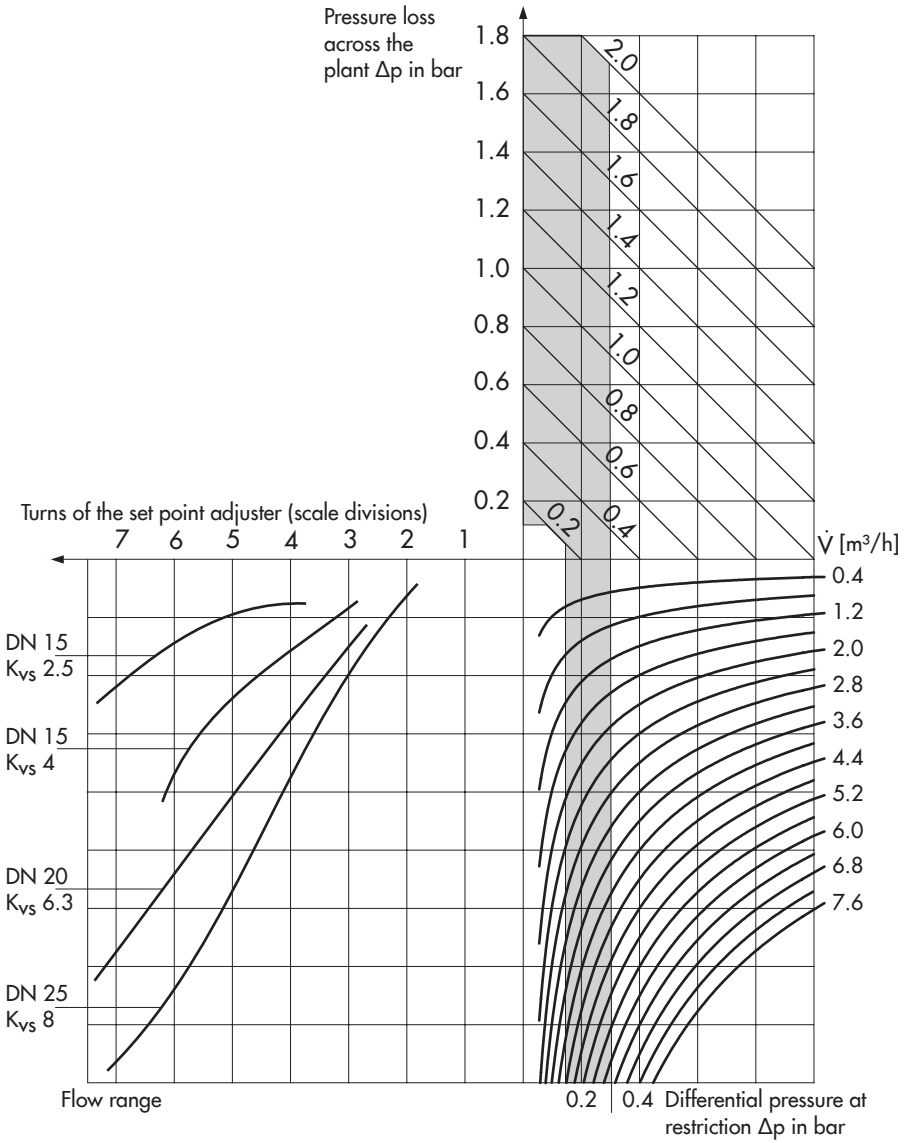


Fig. 7-3: *Adjustment diagram DN 15 to 25 with K_{VS} = 2.5 to 8*

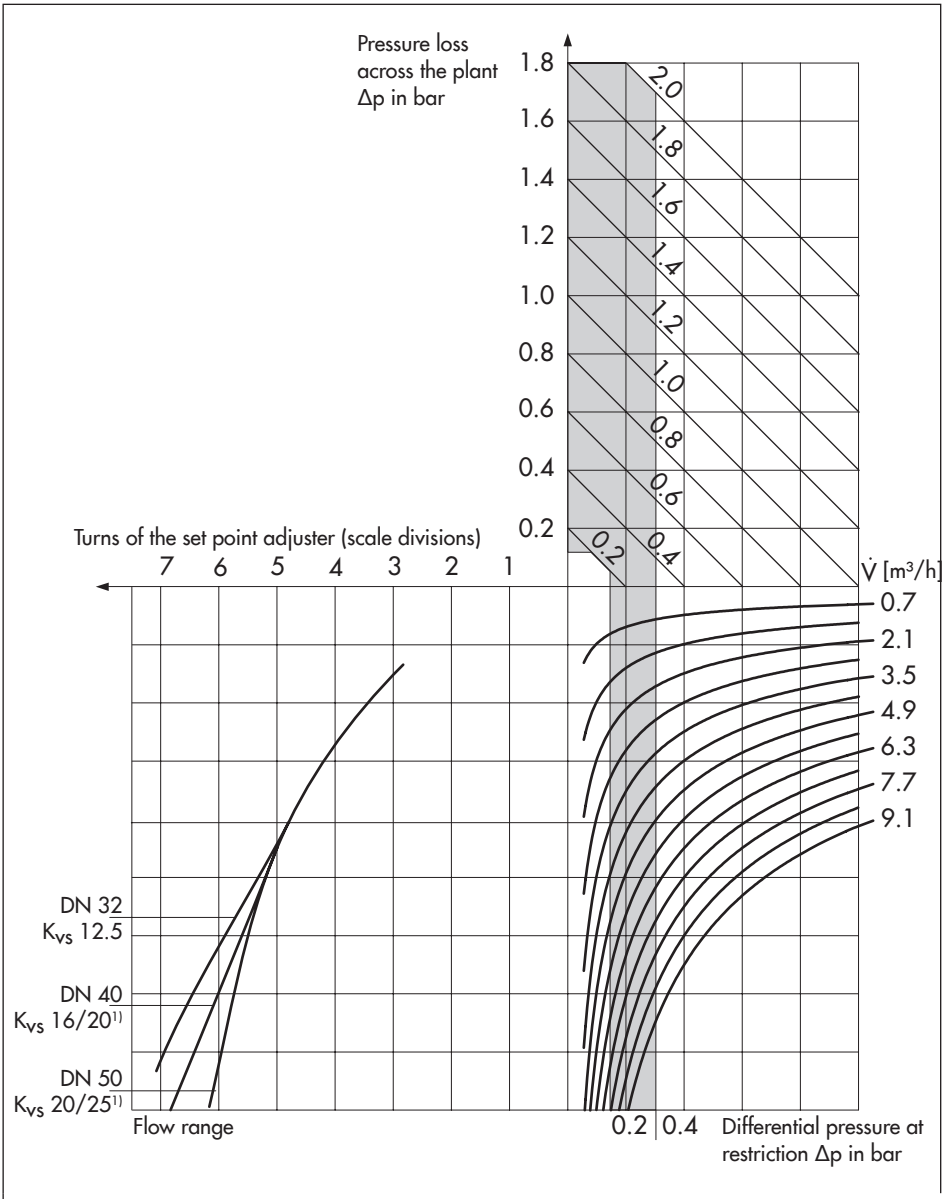


Fig. 7-4: *Adjustment diagram DN 32 to 50 with K_{VS} = 12.5 to 25*

8 Malfunctions

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Temperature at the sensor or the flow rate exceeds the set point.	Insufficient pressure pulses on the operating diaphragm	➔ Clean the control line 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.
	Valve too large for control task (flow rate) or too small (differential pressure)	➔ Check the sizing. ➔ Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. ➔ Contact SAMSON's After-sales Service.
	Defective operating diaphragm	➔ Replace damaged diaphragm.
	Seat and plug are worn or leak.	➔ Clean the seat and plug. ➔ Replace the damaged seat and plug. ➔ Contact SAMSON's After-sales Service.
	A safety device (e.g. STL or STM) has been triggered.	➔ Check plant. Unlock safety device (where necessary).
	Sensor installed in the wrong location.	➔ Change the mounting position.
	Sensor installed incorrectly.	➔ Immerse the temperature sensor with its entire immersion depth in the process medium. ➔ Avoid an installation site where idle times or heat buildup can occur.

Malfunction	Possible reasons	Recommended action
Temperature at the sensor or the flow rate does not reach the set point.	Regulator installed against the flow	➔ Install the regulator so that the direction of flow matches the direction indicated by the arrow on the body.
	Regulator or K_{VS}/C_V coefficient too small	➔ Check the sizing. ➔ Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. ➔ Contact SAMSON's After-sales Service.
	Incorrect set point range selected	➔ Check set point range. ➔ Contact SAMSON's After-sales Service.
	Safety device, e.g. pressure limiter, has been triggered	➔ Check plant. If necessary, unlock safety device.
	Plant differential pressure Δp too low	➔ Compare differential pressure in the plant with the plant's drag. Differential pressure across the plant: $\Delta p_{min} = \Delta p_{restriction} + (\dot{V}/K_{VS})^2$
	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 the strainer.
	Control thermostat defective	➔ Replace the control thermostat.
	Insufficient heating energy available	➔ Draw up an energy balance.
	Sensor installed in the wrong location.	➔ Change the mounting position.
	Sensor installed incorrectly.	➔ Immerse the temperature sensor with its entire immersion depth in the process medium. ➔ Avoid an installation site where idle times or heat buildup can occur.
Slow control response	Restriction in the screw joint of the actuator dirty or too small	➔ Clean screw joint or install larger screw joint.
	Dirt in the control line	➔ Clean the control line.
Jerky control response	Increased friction, e.g. due to foreign particles between seat and plug	➔ Remove foreign particles. ➔ Replace damaged parts. ➔ Contact SAMSON's After-sales Service.
Leakage at the actuator	Defective operating diaphragm	➔ Replace damaged diaphragm.

Malfunction	Possible reasons	Recommended action
Temperature at the sensor or the flow rate fluctuates.	Regulator or K_{VS}/C_V coefficient too large	➔ Check the sizing. ➔ Change K_{VS}/C_V coefficient, if necessary or install a different sized regulator. ➔ Contact SAMSON's After-sales Service.
	The restriction in the control line for pressure tapping is too large or missing.	➔ Install a restriction. ➔ Install a smaller restriction.
	Sensor installed in the wrong location.	➔ Change the mounting position.
	Sensor installed incorrectly.	➔ Immerse the temperature sensor with its entire immersion depth in the process medium. ➔ Avoid an installation site where idle times or heat buildup can occur.
Loud noises	High flow velocity, cavitation	➔ Check the sizing. ➔ Install larger regulator, if necessary.

i ***Note***

Contact SAMSON's After-sales Service for malfunctions not listed in the table.

The malfunctions listed in section 8.1 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 to rectify the fault.

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.

Tip

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

8.2 Emergency action

Plant operators are responsible for emergency action to be taken in the plant.

We recommend removing the regulator from the pipeline before repairing it.

In the event of a regulator malfunction:

1. Close the shut-off valves upstream and downstream of the regulator to stop the process medium from flowing through the regulator.
2. Perform troubleshooting (see section 8.1).
3. Rectify those malfunctions that can be remedied based on the instructions provided here. Contact SAMSON's After-sales Service in all other cases.

Putting the regulator back into operation after a malfunction

See the 'Start-up' section.

9 Servicing

The regulator does not require any maintenance. Nevertheless, it is subject to natural wear, particularly at the seat, plug, operating diaphragm and control thermostat. Depending on the operating conditions, check the regulator at regular intervals to avoid possible malfunctions. Plant operators are responsible for drawing up an inspection and test plan. Details on faults and how to remedy them can be found in the 'Malfunctions' section.

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

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

⚠ 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 warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ 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.

➔ *Wear protective clothing, safety gloves and eye protection.*

❗ NOTICE

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

Observe the specified torques when tightening regulator components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are too loose may cause leakage.

➔ *Observe the specified tightening torques (see 'Tightening torques' in Annex).*

❗ NOTICE

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

➔ *Only use tools approved by SAMSON (see 'Tools' in Annex).*

❗ NOTICE

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

➔ *Only use lubricants approved by SAMSON (see 'Lubricants' in Annex).*

Note

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

– Certain test results certified by SAMSON lose their validity when the regulator is opened. Such testing includes seat leakage and leak tests.

– 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.

9.1 Preparing the valve for service work

1. Lay out the necessary material and tools to have them ready for the service work.
2. Put the regulator out of operation (see the 'Decommissioning' section).

Tip

We recommend removing the regulator from the pipeline before performing any service work (see the 'Removing the regulator from the pipeline' section).

The following service work can be performed after preparation is completed:

– Replace the seat and plug (see section 9.3.1)

– Replace the actuator's operating diaphragm (see section 9.3.2)

– Replace the control thermostat (see section 9.3.3).

9.2 Installing the regulator after service work

➔ Put the regulator back into operation (see the 'Start-up' section). Make sure the requirements and conditions for start-up or putting the device back into operation are met.

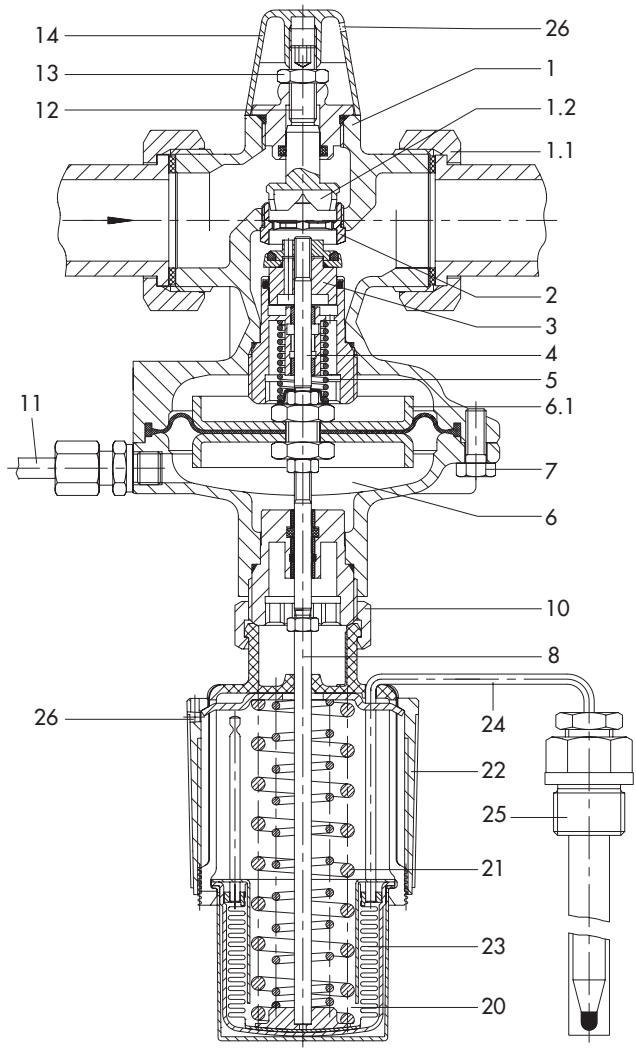


Fig. 9-1: *Functional diagram of regulator, DN 32 to 50*

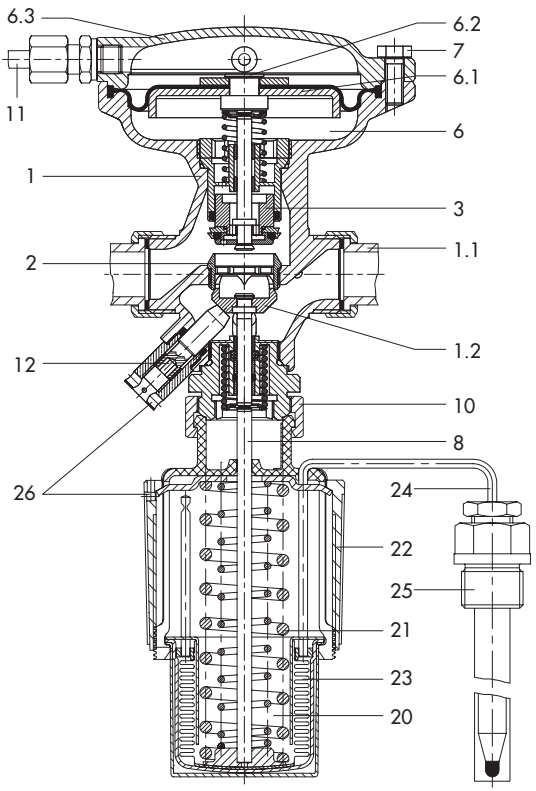


Fig. 9-2: *Functional diagram of regulator, DN 15 to 25*

Legend for Fig. 9-1 and Fig. 9-2

1 Valve body
1.1 Connection nut with seal and welding end
1.2 Restriction
2 Seat
3 Guide nipple with plug section
4 Plug stem
5 Set point spring
6 Actuator
6.1 Operating diaphragm unit
6.2 Overload protection
6.3 Actuator cover
7 Housing screws
8 Pin of operating element
10 Coupling nut
11 Control line
12 Set point screw
13 Lock nut
14 Cap
20 Control thermostat
21 Set point spring
22 Set point adjuster (temperature)
23 Operating bellows
24 Capillary tube
25 Temperature sensor with packing
26 Lead-seal hole

9.3 Service work

➔ Before performing any service work, preparations must be made to the regulator (see section 9.1).

➔ After all service work is completed, check the regulator before putting it back into operation (see the 'Testing the regulator' section).

9.3.1 Replacing the seat and plug

To replace seat and plug, contact SAMSON's After-sales Service.

Further information is available in Annex ('After-sales service').

9.3.2 Replacing the actuator's operating diaphragm

Tip

The associated order number is written on the actual operating diaphragm.

➔ See Fig. 9-1 and Fig. 9-2

Removing the operating diaphragm

1. Put the regulator out of operation (see the 'Decommissioning' section).
2. Unscrew the control line (11).
3. Unscrew the coupling nut (10) from the valve (1) and remove the control thermostat (20).
4. Remove the valve from the pipeline.
5. Clamp the valve into a suitable fixture.
6. Unscrew nuts and bolts (7) from the actuator (6). Remove the actuator case (6.3).
7. Lift the operating diaphragm unit (6.1) together with the diaphragm off the guide nipple with plug section (3).

Mounting the operating diaphragm

1. Place a new operating diaphragm unit (6.1) on the guide nipple with plug section (3).
2. Place on the actuator case (6.3).
3. Insert screws (7) and tighten gradually in a crisscross pattern. Observe the specified tightening torques (see 'Tightening torques' in Annex).
4. Install the valve into the pipeline. Observe the specified tightening torques (see 'Tightening torques' in Annex).
5. Screw on the control line (17). Observe the specified tightening torques (see 'Tightening torques' in Annex).
6. Fasten the control thermostat (20) on the valve (1) with the coupling nut (10). Observe the specified tightening torques (see 'Tightening torques' in Annex).
7. Put the regulator back into operation (see the 'Start-up' section).

9.3.3 Replacing the control thermostat

Removing the control thermostat

1. Put the regulator out of operation (see the 'Decommissioning' section).
2. Unscrew the coupling nut (10) from the valve (1) and remove the control thermostat (20).

Mounting the control thermostat

3. Fasten the control thermostat (20) on the valve (1) with the coupling nut (10). Observe the specified tightening torques (see 'Tightening torques' in Annex).

i ***Note***

Do not damage or shorten the capillary tube. Roll up any capillary tube that is not used. The smallest permissible bending radius is 50 mm.

9.4 Ordering spare parts and operating supplies

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

Spare parts

See Annex for details on spare parts.

Lubricant

Contact SAMSON's After-sales Service for more information on lubricants.

Tools

Contact SAMSON's After-sales Service for more information on tools.

10 Decommissioning

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ DANGER

Risk of bursting due to incorrect opening of pressurized equipment or components.

Regulators and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death.

Before working on the regulator:

➔ *Depressurize all plant sections concerned and the regulator.*

➔ *Drain the process medium from all the plant sections concerned as well as the valve.*

⚠ 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 warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Risk of personal injury due to pressurized components and process medium being discharged.

➔ *Do not loosen the control line while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions.

➔ *Wear hearing protection when working near the valve. Follow the instructions given by the plant operator.*

⚠ 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.

➔ *Wear protective clothing, safety gloves and eye protection.*

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

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

11 Removal

The work described in this section is only to be performed by personnel appropriately qualified to carry out such tasks.

⚠ 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 warm up to the ambient temperature.*

➔ *Wear protective clothing and safety gloves.*

⚠ 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.

➔ *Wear protective clothing, safety gloves and eye protection.*

Before removing the valve, make sure the following conditions are met:

– The regulator is put out of operation (see the 'Decommissioning' section).

11.1 Removing the control thermostat

1. Pull the sensor out of the thermowell. In cases where a thermowell is not used, unscrew the screw gland and pull out the sensor.
2. Unscrew the control thermostat from the valve (width across flats 36).

11.2 Removing the regulator from the pipeline

1. Support the regulator to hold it in place when separated from the pipeline (see the 'Shipment and on-site transport' section).
2. Unbolt the pipe/flange joint.
3. Remove the regulator from the pipeline (see the 'Shipment and on-site transport' section).

12 Repairs

If the regulator does not function properly according to how it was originally sized or does not function at all, it is defective and must be repaired or exchanged.

NOTICE

Risk of regulator damage due to incorrect service or repair work.

➔ *Do not perform any repair work on your own.*

➔ *Contact SAMSON's After-sales Service for repair work.*

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

4. Exceptions apply concerning some special device models
   ▶ www.samsongroup.com > Service & Support > After-sales Service.
5. Send an e-mail
   ▶ retouren@samsongroup.com to register the return shipment including the following information:
   - Type
   - Material number
   - Item numbers of accessories
   - Original order
   - Completed Declaration on Contamination, which can be downloaded from our website at
     ▶ www.samsongroup.com > Service & Support > After-sales Service.

   After checking your registration, we will send you a return merchandise authorization (RMA).
6. Attach the RMA (together with the Declaration on Decontamination) to the outside of your shipment so that the documents are clearly visible.
7. Send the shipment to the address given on the RMA.

Note

Further information on returned devices and how they are handled can be found at
▶ www.samsongroup.com > Service & Support > After-sales Service.

13 Disposal

➔ Observe local, national and international refuse regulations.

➔ Do not dispose of components, lubricants and hazardous substances together with your household waste.

14 Certificates

The EU declarations of conformity are included on the next pages:

– EU declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU on page 14-2.

SMART IN FLOW CONTROL

SAMSON

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-, 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 certified by Bureau Veritas S. A. (0062)
Conformity assessment procedure applied for fluids according to Article 4(1)(c.i), first indent	See table for module	

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

Klaus Hörschken
Zentralabteilungsleiter / *Head of Central Department*
Entwicklung Ventile und Antriebe / *R&D, Valves and Actuators*

i.V. Dr. Heß

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

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main
Telefon: 069 4009-0 · Telefax: 069 4009-1507
E-Mail: samson@samson.de

Revision 03

SMART IN FLOW CONTROL

SAMSON

EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY

Modul H/Module H, Nr./No. / N° CE-0062-PED-H-SAM 001-20-DEU

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 Services SAS (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 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65 -	80 3	100 4	125 -	150 6	200 8	250 10	300 12	400 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							-			

(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 Services SAS gilt nicht für Modul A.
The identification number 0062 of Bureau Veritas Services SAS is not valid for module 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 Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE, France
Hersteller:/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 11. Mai 2020/11. May 2020

Thorsten Muth
Senior Director
Sales and After-sales

i.V. P. Scheermesser

Peter Scheermesser
Director Central Department
Product maintenance, contract development and ETO for valves and actuators

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E-Mail: samson@samson.de

Revision 04

15 Annex

15.1 Tightening torques

Table 15-1: *Tightening torque*

Component	Width across flats	Valve size/actuator area	Tightening torque in Nm
Body screws (7)	SW 10	DN 15 to 25	8
		DN 32	18
	SW 13	DN 40 and 50	
Coupling nut (10)	SW 36	DN 15 to 50	20
Control line connection (11)	–	DN 15 to 50	22

15.2 Lubricant

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

15.3 Tools

SAMSON's After-sales Service can support you concerning tools approved by SAMSON.

15.4 Spare parts

Legend for Fig. 15-1 and Fig. 15-2

2	Plug
4	Lock nut
7	Restriction
27	Stopper
30	Body
34	Seat
54	Guide bushing
110	Diaphragm case
129	Screws
134	Seal
182	Restriction
185	Cap
186	Seal
211	Nipple
212	Seal
220	Diaphragm

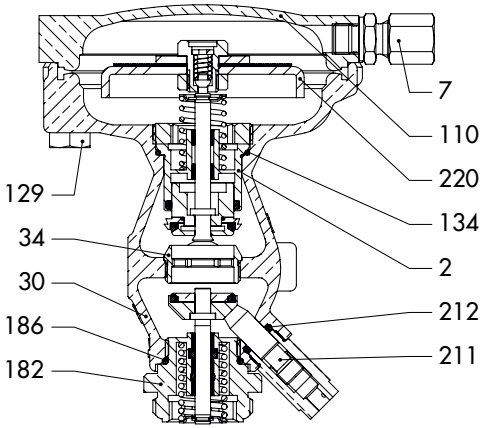

Fig. 15-1: *Type 2479 Valve, DN 15 to 25*

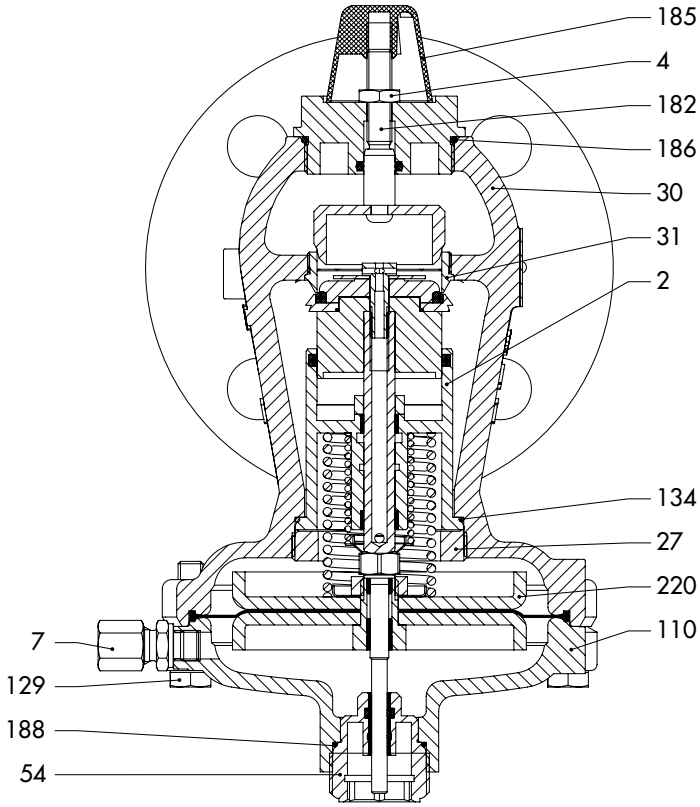

Fig. 15-2: *Type 2479 Valve, DN 32 to 50*

15.5 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 our after-sales service at aftersalesservice@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.

Required specifications

Please submit the following details:

- Device type and valve size
- Model number or material number
- Upstream and downstream pressure
- Temperature and process medium
- Min. and max. flow rate in m^3/h
- 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.)

EB 3132-3 EN

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