

# Self-operated Pressure Regulators Type 2405 Pressure Reducing Valve



Translation of original instructions

## Mounting and Operating Instructions

**EB 2520 EN**

Edition June 2017



## 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 ([www.samson.de](http://www.samson.de)) > Product documentation. You can enter the document number or type number in the [Find:] field to look for a document.

## 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 measures

## Intended use

The Type 2405 Pressure Reducing Valve is used to control the pressure of flammable gases used as a source of energy, e.g. in boilers, driers, vaporizers, heat exchangers or industrial ovens. Alternatively, it can control the compressed air supply in process engineering applications.

The device is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the device is only used in applications that meet the specifications used for sizing the device 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 device is not suitable for use outside the limits defined during sizing and in the technical data. Furthermore, the following activities do not comply with the intended use:

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

## Qualifications of operating personnel

The device 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.

### Personal protective equipment

We recommend wearing the following protective equipment depending on the process medium:

- Protective clothing, gloves, and eyewear in applications with hot, cold, and/or corrosive media
- Check with the plant operator for details on further protective equipment.

### Revisions and other modifications

Revisions, conversions or other modifications to 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, operators and operating personnel must prevent hazards that could be caused in the device by the process medium and operating pressure 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.

### 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 hazard statements, warning and caution notes specified in them. 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 devices 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 declaration of conformity is included in the Appendix of these instructions (see section 9.2).

Non-electric valve versions whose bodies are not lined with an insulating material coating do not have their own potential ignition source according to the risk assessment stipulated in EN 13463-1: 2009, section 5.2, even in the rare incident of an operating fault. Therefore, such valve versions 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).

## 1.1 Notes on possible severe personal injury

### DANGER

#### **Risk of bursting in pressure equipment.**

Control valves and pipelines are pressure equipment. Improper opening can lead to valve components bursting.

- Before starting any work on the control valve, depressurize all plant sections concerned as well as the valve.
- To prevent uncontrolled excess pressure, make sure that suitable overpressure protection is installed on site in the plant section.
- Drain the process medium from all the plant sections concerned as well as the valve.
- Wear personal protective equipment.

## 1.2 Notes on possible personal injury

### WARNING

#### **Risk of personal injury due to residual process medium in the valve.**

While working on the valve, 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 valve.
- 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, valve 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 ► <http://www.samson.de/reach-en.html>.

## 1.3 Notes on possible property damage

**ⓘ NOTICE**

**Risk of valve 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.
- Observe the maximum permissible pressure for valve and plant.

**Risk of valve damage due to unsuitable medium properties.**

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

- Only use the process medium specified for sizing the valve.

**! NOTICE****Risk of leakage and valve damage due to excessively high or low tightening torques.**

Observe the specified torques on tightening valve components.

Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.

→ Observe the specified tightening torques.

**Risk of regulator damage due to incorrectly attached lifting equipment.**

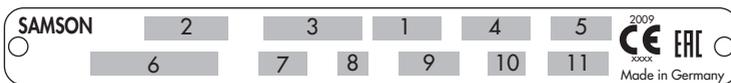
→ Do not attach lifting equipment to mounting parts (e.g. adjusting screw or control line).

**i Note**

*Conversion from chromate coating to iridescent passivation*

*We at SAMSON are converting the surface treatment of passivated steel parts in our production. As a result, you may receive a device assembled from parts that have been subjected to different surface treatment methods. This means that the surfaces of some parts show different reflections. Parts can have an iridescent yellow or silver color. This has no effect on corrosion protection. For further information go to ► [www.samson.de/chrome-en.html](http://www.samson.de/chrome-en.html).*

## 2 Markings on the device



- |   |                                                         |    |                                                      |
|---|---------------------------------------------------------|----|------------------------------------------------------|
| 1 | Type designation (2405)                                 | 7  | Nominal size                                         |
| 2 | Max. perm. operating pressure at the actuator $p_{max}$ | 8  | Nominal pressure                                     |
| 3 | Configuration ID                                        | 9  | Permissible differential pressure (across the valve) |
| 4 | Order number or date                                    | 10 | Perm. temperature                                    |
| 5 | $K_{VS}$ coefficient                                    | 11 | Body material                                        |
| 6 | Set point range/spring force                            |    |                                                      |

### **i** Note

*The CE marking only exists for versions in nominal sizes DN 32 to 50.*

**Fig. 1:** Nameplate

### 3 Design and principle of operation

The medium flows through the valve in the direction indicated by the arrow. The position of the plug (3) determines the cross-sectional area of flow between the plug and seat (2).

In the pressureless state (control line not connected and no pressure applied) the valve is opened by the force of the set point springs (7).

The downstream pressure  $p_2$  to be controlled is tapped downstream of the regulator and transmitted over an external control line to the control line connection (9) on the actuator housing (6) where it is converted into a

positioning force by the diaphragm plate with operating diaphragm (5). This force is used to move the plug stem (4) and the valve plug depending on the force of the set point springs. The spring force can be adjusted at the set point adjuster (8).

When the force resulting from the downstream pressure  $p_2$  rises above the spring force adjusted at the set point springs, the valve closes proportionally to the change in pressure.

In the version with pressure balancing, the forces produced by the upstream and downstream pressures acting on the plug are eliminated by the balancing diaphragm (10). The plug is fully balanced.

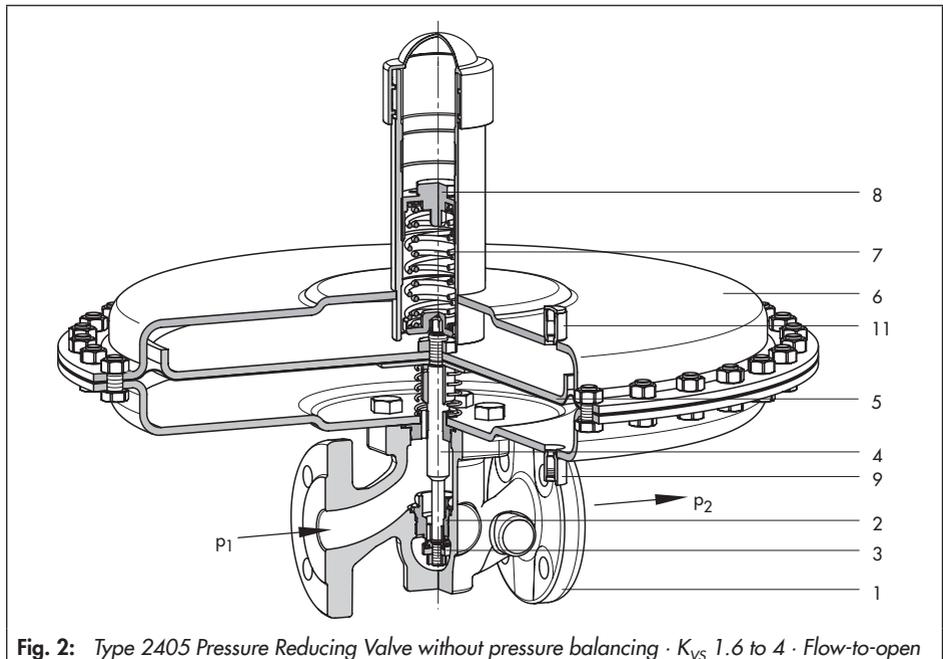
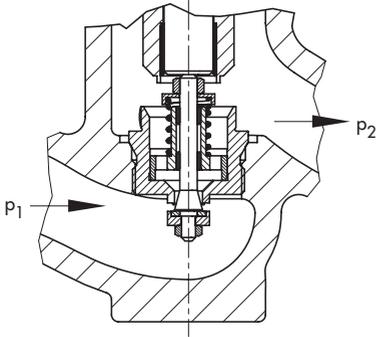
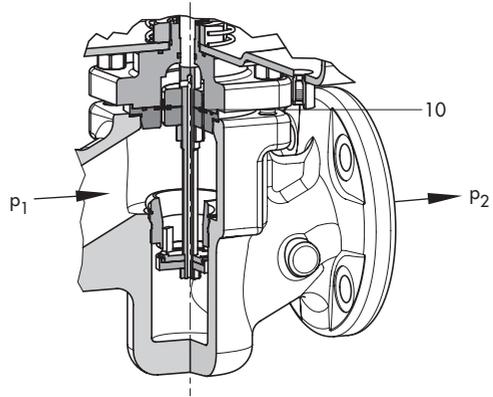


Fig. 2: Type 2405 Pressure Reducing Valve without pressure balancing ·  $K_{VS}$  1.6 to 4 · Flow-to-open



- 1 Valve body
- 2 Seat
- 3 Plug
- 4 Plug stem
- 5 Diaphragm plate with operating diaphragm
- 6 Actuator housing

**Fig. 3:** Type 2405 Pressure Reducing Valve without pressure balancing ·  $K_{VS}$  0.016 to 1 · Flow-to-close



- 7 Set point spring
- 8 Set point adjuster (screw SW 27)
- 9 Control line connection, G ¼ fitting
- 10 Balancing diaphragm
- 11 Leakage line connection (special version), G ¼ fitting

**Fig. 4:** Type 2405 Pressure Reducing Valve with pressure balancing ·  $K_{VS}$  6.3 to 32

### 3.1 Versions

Type 2405 Pressure Reducing Valve to control gases

#### Standard

- Temperature range from  $-20$  to  $+60$  °C
- Set points from 5 mbar to 10 bar
- Nominal size DN 15 to 50
- PN 16 to 40
- Flanges

#### Options

- With pressure balancing (see Fig. 4)
- Pressure tapping directly at the valve instead of over an external control line with 0.8 to 2.5 bar, 2 to 5 bar, and 4.5 to 10 bar
- Temperature range from 0 to 150 °C for unbalanced versions with FKM diaphragm and FKM soft seal

## 3.2 Technical data

**Table 1:** *Technical data*

Nominal size		DN 15	DN 20	DN 25	DN 32, 40, 50
Nominal pressure (valve)		PN 16 · PN 25 · PN 40			
K <sub>VS</sub> coefficients	Standard	4	6.3	8	32
	Reduced K <sub>VS</sub> coefficients	0.016 · 0.04 0.1 · 0.25 · 0.4 1 · 1.6 · 2.5	0.016 · 0.04 0.1 · 0.25 · 0.4 1 · 1.6 · 2.5 · 4	0.016 · 0.04 0.1 · 0.25 · 0.4 1 · 1.6 · 2.5 · 4 6.3	1.6 · 2.5 · 4 6.3 · 8 · 16 20
	Max. permissible differential pressure	10 bar · 12 bar <sup>1)</sup>			
Max. permissible temperature range (medium temperature)		-20 to +60 °C (0 to +150 °C) <sup>2)</sup>			
Leakage class according to IEC 60534-4		Soft-seated, minimum Class IV			
Set point ranges		5 to 15 mbar · 10 to 30 mbar · 25 to 60 mbar · 50 to 200 mbar · 0.1 to 0.6 bar · 0.2 to 1 bar · 0.8 to 2.5 bar · 2 to 5 bar · 4.5 to 10 bar			
Max. perm. pressure at operating diaphragm	1200 cm <sup>2</sup>	0.5 bar			
	640 cm <sup>2</sup>	1 bar			
	320 cm <sup>2</sup>	2 bar · 10 bar <sup>3)</sup>			
	160 cm <sup>2</sup>	3 bar · 16 bar <sup>3)</sup>			
	80 cm <sup>2</sup>	5 bar · 16 bar <sup>3)</sup>			
	40 cm <sup>2</sup> · 2 to 5 bar	10 bar · 16 bar <sup>3)</sup>			
	40 cm <sup>2</sup> · 4.5 to 10 bar	15 bar · 16 bar <sup>3)</sup>			
Pressure balancing	K <sub>VS</sub> = 0.016 to 4	Without balancing diaphragm			
	K <sub>VS</sub> = 6.3 to 32	With balancing diaphragm			
Pressure tapping		External <sup>4)</sup>			
Control line connection		G 1/4			

1) Version with set points from 0.1 to 10 bar

2) For unbalanced versions with FKM diaphragm and FKM soft seal

3) Version with force limiter

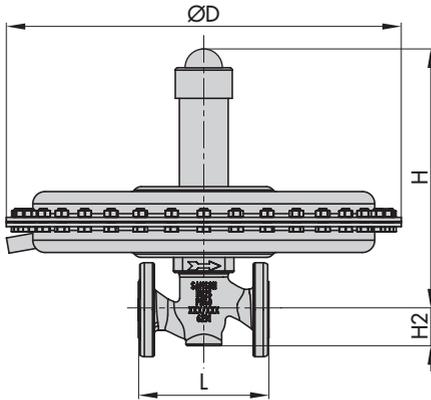
4) Special version with pressure tapping directly at the valve (see section 3.1)

**Table 2: Dimensions in mm**

Nominal size		DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	
Length L		130	150	160	180	200	230	
Height H2		Forged steel	53	–	70	–	92	98
		Other materials	44			72		
Set point range	5 to 15 mbar	Height H	Without balancing	325		370		
			With balancing	352		377		
	Actuator		ØD = 490 mm, A = 1200 cm <sup>2</sup>					
	10 to 30 mbar	Height H	Without balancing	318		366		
			With balancing	345		370		
	Actuator		ØD = 380 mm, A = 640 cm <sup>2</sup>		ØD = 490 mm, A = 1200 cm <sup>2</sup>			
	25 to 60 mbar	Height H	Without balancing	318		366		
			With balancing	345		370		
	Actuator		ØD = 380 mm, A = 640 cm <sup>2</sup>					
	50 to 200 mbar	Height H	Without balancing	318		366		
			With balancing	345		370		
	Actuator		ØD = 285 mm, A = 320 cm <sup>2</sup>					
	0.1 to 0.6 bar	Height H	Without balancing	318		366		
			With balancing	345		370		
	Actuator		ØD = 285 mm, A = 320 cm <sup>2</sup>					
	0.2 to 1 bar	Height H	Without balancing	318		366		
			With balancing	345		370		
	Actuator		ØD = 225 mm, A = 160 cm <sup>2</sup>					
	0.8 to 2.5 bar	Height H	Without balancing	330		365		
			With balancing	356		369		
	Actuator		ØD = 170 mm, A = 80 cm <sup>2</sup>					
	2 to 5 bar	Height H	Without balancing	333		368 mm		
			With balancing	359		373 mm		
	Actuator		ØD = 170 mm, A = 40 cm <sup>2</sup>					
4.5 to 10 bar	Height H	Without balancing	437		485			
		With balancing	463		489			
Actuator		ØD = 170 mm, A = 40 cm <sup>2</sup>						

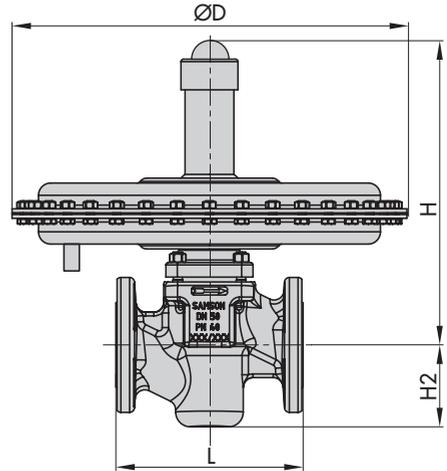
Dimensional drawings

DN 15 to 25



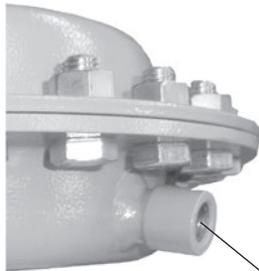
Control line connection G ¼, for A = 40, 80, 160, and 320 cm<sup>2</sup>

DN 32 to 50

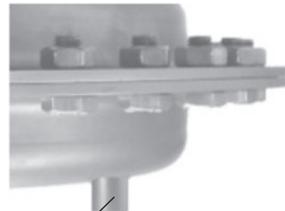


Control line connection G ¼, for A = 640 and 1200 cm<sup>2</sup>

The control line connection is turned by 90° in the drawing. The connection is normally located opposite the side with the arrow indicating the direction of flow.



Control line connection at the side of the actuator housing



Control line connection on the bottom of the actuator housing

G ¼ fitting

**Table 3:** *Weights in kg*

Nominal size		DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
Set point range	5 to 15 mbar		28			40	
	10 to 30 mbar		18			40	
	25 to 60 mbar		14			30	
	50 to 200 mbar		14			26	
	0.1 to 0.6 bar		14			26	
	0.2 to 1 bar		10			22	
	0.8 to 2.5 bar		8			20	
	2 to 5 bar		8			20	
	4.5 to 10 bar		9			21	

<sup>1)</sup> Body made of cast steel 1.0619: +10 %

## 4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received against 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

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

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 device (e.g. to install it into the pipeline).

#### ! NOTICE

*Risk of valve damage due to incorrectly attached lifting equipment.*

*Do not attach lifting equipment to mounting parts (e.g. adjusting screw or control line).*

### 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 3.2).

### 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.*

### 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 3.2).
- Do not place any objects on the device.

### 4.4 Preparation for installation

→ Flush the pipelines.

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#### **i** Note

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

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- Ensure that there is no liquid, e.g. condensed water, inside the regulator. If necessary, blow out the connecting parts with clean compressed air.
- Check the valve to make sure it is clean.
- Check the valve for damage.
- Check to make sure that the type designation, valve size, material, pressure rating, and temperature range of the valve match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).

## 5 Mounting and start-up

### 5.1 Installing the valve into the pipeline

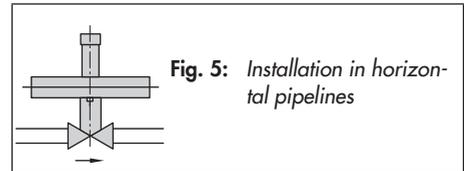
#### 5.1.1 Installation conditions

- Choose a place of installation that allows you to freely access the regulator even after the entire plant has been completed.
- The type and dimensions of the pipeline and tank connections must suit the regulator.
- Make sure the direction of flow matches the direction indicated by the arrow on the body.
- Install the regulator free of stress and with the least amount of vibrations as possible. If necessary, support the pipeline near to the connecting flanges. Do not attach supports directly to the valve or actuator.
- Protect the regulator from icing up when controlling media that can freeze. Remove the regulator from the pipeline when the plant is shut down if the regulator is not installed areas free from frost.
- Observe the permissible ambient temperatures (see section 3.2).

#### 5.1.2 Mounting position

##### Standard

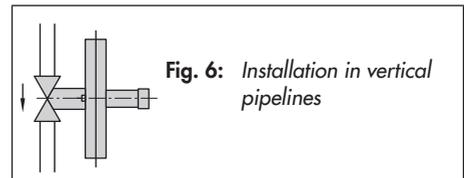
Preferably install the regulator in a horizontal pipeline. The actuator housing with set point adjuster must face upwards.



- ➔ Install the control line to the tapping point with an approx. 10 % slope to allow any condensing liquid to flow back into the tank or pipe.

##### Options

Alternatively, the valve can be installed in a vertical pipeline. The actuator housing with set point adjuster must face sideways.



##### ! NOTICE

*Control deviations due to alternative installation.*

*System deviations may arise when the regulator is installed in vertical pipelines.*

### 5.1.3 Additional fittings

#### Strainer

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

- Install the strainer upstream of the temperature regulator. The arrow on the valve indicates the direction of flow.
- For installation in vertical pipeline: install the strainer with the filter element facing downwards.
- Install the filter with sufficient space available to remove the filter.

- 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 downstream of the regulator. 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 both upstream and downstream of the regulator to monitor the pressures prevailing in the plant.

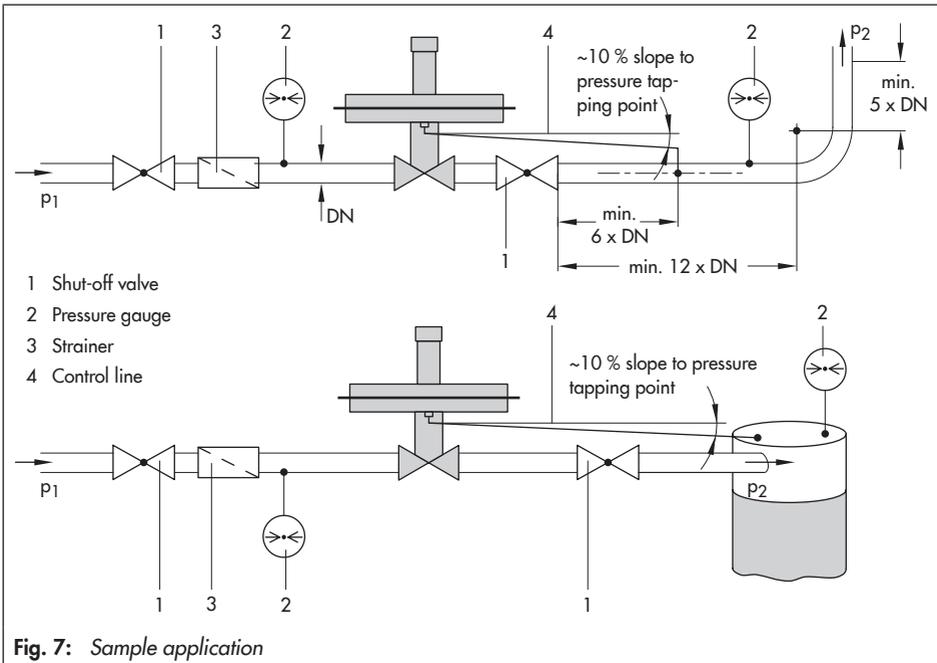


Fig. 7: Sample application

### Control line

G ¼ fitting (9) on the actuator housing.  
Route control line on site preferably using a 8x1 mm (stainless) steel pipe (with min. 6 mm inside diameter).

Always connect the control line connection for pressure tapping (see Fig. 7) directly to the tank or vessel as the medium is in the expanded state and no turbulence occurs at this point.

If the pressure is to be tapped at a straight pipeline section, the largest possible distance to the regulator must be kept (at least 6 x DN). Connect the control line at the side or on top of the horizontally running main pipeline. If possible, place the point of pressure tapping in a pipe expansion.

Install any pipe fittings (e.g. restrictions, bends, manifolds or branches), that may cause turbulence in the flow, sufficiently far away from the control line connection (at least 6 x DN).

Regulators in special versions (set point range 0.8 to 2.5 bar, 2 to 5 bar and 4.5 to 10 bar) are supplied with the control line already connected to the valve body (see Fig. 8).



Fig. 8: Control line

### NOTICE

*Regulator damage due to condensed water. In applications in which the gas can liquefy, condensate may form in the control line, causing damage to the regulator. To allow condensate to run back into the tank, install the control line with an approximate 10 % slope to the pressure tapping point at the tank or pipeline (see Fig. 7).*

### Leakage line connection

The regulator in the special version is delivered with a leakage line connection. In this version, the opening to the set point adjustment is additionally sealed by a cap.

Connect the leakage line to the G ¼ female thread fitting on top of the actuator housing.



Fig. 9: Leakage line connection G ¼

In the event of a defective diaphragm (diaphragm rupture) in the actuator, any process medium that escapes is fed through a leakage line to a safe location.

## 5.2 Quick check

### Pressure test

A pressure test of the plant with the regulator already installed is only permissible up to the nominal pressure of the valve (see Table 1). The pressure at the operating diaphragm must not exceed the maximum permissible pressure. If this cannot be guaranteed, proceed as follows: unscrew the control line at the actuator and seal the open control line. In case pressure surges are expected to occur during start-up or during operation, install a regulator with integrated force limiter (special version, see Table 1).

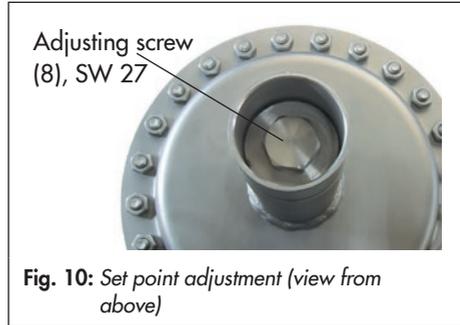
All plant components must be designed for the test pressure.

## 5.3 Putting the regulator into operation

1. Make sure the control line is correctly connected and free of dirt. The cross-sectional area of flow must be open.
2. Slowly open the shut-off valves on the upstream pressure side.
3. Open all the valves on the consumer side (downstream of the regulator). Avoid pressure surges.

## 5.4 Adjusting the set point

The regulator in the delivered state does not have a defined pressure set point. The set point spring is released of tension. The set point must be adjusted on starting up the plant.



**Fig. 10:** Set point adjustment (view from above)

Adjust the required set point (see Fig. 10) by tensioning the set point springs (7) at the set point adjuster (8) using a suitable socket wrench (width across flats 27).

1. Remove the cap (12).
2. Use a socket wrench (SW 27) to turn the screw (8).  
Turn clockwise (↻) to increase the pressure set point (the downstream pressure increases).  
Turn counterclockwise (↺) to reduce the pressure set point (the downstream pressure drops).

### NOTICE

*Incorrect control due to a set point adjuster being turned too far.  
If the set point adjuster is turned too far, the regulator becomes blocked and closed-loop control is no longer possible.  
Only screw the set point adjuster up to the point where the spring tension can still be felt.*

3. Remount the cap (12).

The pressure gauge (Fig. 7) installed on the downstream side on site allows the adjusted set point to be monitored.

## 6 Servicing

The regulators do not require any maintenance. Nevertheless, they are subject to natural wear, particularly at the seat, plug, and operating diaphragm.

### DANGER

*Risk of bursting in pressure equipment.*

*Control valves and pipelines are pressure equipment. Improper opening can lead to valve components bursting.*

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

### WARNING

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

*While working on the valve, 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 valve.*
- *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, valve 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.*

### Note

*The device was checked by SAMSON before it left the factory.*

- *Certain test results (seat leakage and leak test) certified by SAMSON lose their validity when the valve body or actuator housing is opened.*
- *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 department.*
- *Only use original spare parts by SAMSON, which comply with the original specifications.*

## 6.1 Preparation for return shipment

Defective valves can be returned to SAMSON for repair.

Proceed as follows to return devices to SAMSON:

1. Put the control valve out of operation (see section 8).
2. Decontaminate the valve. Remove any residual process medium.

3. Fill in the Declaration on Contamination, which can be downloaded from our website at ► [www.samson.de](http://www.samson.de) > Services > Check lists for after sales service > Declaration on Contamination.
4. Send the valve together with the filled-in form to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at ► [www.samson.de](http://www.samson.de) > Contact.

## 6.2 Ordering spare parts and operating supplies

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

### 7 Malfunctions

Depending on the operating conditions, check the regulator at certain intervals to prevent possible failure before it can occur. Operators are responsible for drawing up an inspection plan.

#### Tip

*SAMSON's After-sales Service department can support you to draw up an inspection plan for your plant.*

### 7.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Pressure fluctuations and vibrations	Pressure tapping incorrectly routed.	Check the pressure tapping of the control line (see section 5.1.3 on Control line). If necessary, relocate the point of tapping.
	Insufficient throttling.	Screw SAMSON Venturi nozzle into the fitting for the control line connection (9). Order no.: 1991-71 14 for A = 1200 or 640 cm <sup>2</sup> 1991-71 13 for A = 320 or 160 cm <sup>2</sup>
	Improper sizing of the regulator.	Check the sizing data used for the regulator. If necessary, change the $K_{VS}$ coefficient, seat diameter or diaphragm area.

#### Note

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

## 8 Decommissioning and disassembly

### **⚠ DANGER**

*Risk of bursting in pressure equipment. Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.*

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

### **⚠ WARNING**

*Risk of personal injury due to residual process medium in the valve. While working on the valve, 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.*

*Valve 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.

## 8.1 Decommissioning

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

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

## 8.2 Removing the valve from the pipeline

1. Put the regulator out of operation (see section 8.1).
2. Unbolt the flange joint.
3. Remove the valve from the pipeline.

## 8.3 Disposal

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

## 9 Annex

### 9.1 After-sales service

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

#### E-mail

You can reach the After-sales Service Department at [aftersaleservice@samson](mailto:aftersaleservice@samson).

#### Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives, and service facilities worldwide can be found on the SAMSON website or in all SAMSON product catalogs.

#### Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size, and valve version
- Upstream and downstream pressure
- Temperature and process medium
- Min. and max. flow rate in m<sup>3</sup>/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.)

### 9.2 Certificates

The declaration of conformity is provided on the next page.



**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 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)		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 Qualitätssicherungsystems“ 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

*Klaus Hörtschen*  
Klaus Hörtschen  
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\_B01H\_04\_Modul-A\_DEU\_Rev.03\_2017-02-08.docx







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