

# MOUNTING AND OPERATING INSTRUCTIONS



## EB 2178 EN

Translation of original instructions



## Type 43-8 and Type 43-8 N Temperature Regulators with Hydraulic Controller

Edition July 2024



## 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 ([aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com)).



Documents relating to the device, such as the mounting and operating instructions, are available on our website at [www.samsongroup.com](http://www.samsongroup.com) > **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*

<b>1</b>	<b>Safety instructions and measures</b> .....	<b>4</b>
1.1	Notes on possible severe personal injury .....	7
1.2	Notes on possible personal injury .....	7
1.3	Notes on possible property damage .....	8
<b>2</b>	<b>Markings on the device</b> .....	<b>10</b>
2.1	Inscription .....	10
2.2	Location of the inscription .....	11
2.3	Material identification number .....	11
<b>3</b>	<b>Design and principle of operation</b> .....	<b>12</b>
3.1	Technical data .....	13
3.1.1	Process medium and scope of application .....	13
<b>4</b>	<b>Measures for preparation</b> .....	<b>17</b>
4.1	Unpacking .....	17
4.2	Transporting and lifting .....	17
4.3	Storage .....	17
4.4	Preparation for installation .....	18
<b>5</b>	<b>Mounting and start-up</b> .....	<b>18</b>
5.1	Assembling the valve, hydraulic controller and control thermostat .....	18
5.2	Mounting positions .....	19
5.2.1	Installing the valve and hydraulic controller .....	19
5.2.2	Installing the control thermostat .....	21
5.3	Additional fittings .....	22
5.4	Start-up .....	23
<b>6</b>	<b>Operation</b> .....	<b>24</b>
6.1	Adjusting the set point at the control thermostat .....	24
<b>7</b>	<b>Servicing</b> .....	<b>25</b>
7.1	Tightening torques and lubricant .....	25
7.2	Preparation for return shipment .....	25
<b>8</b>	<b>Malfunctions</b> .....	<b>25</b>
<b>9</b>	<b>Decommissioning and removal</b> .....	<b>27</b>
9.1	Decommissioning .....	28
9.2	Disposal .....	28
<b>10</b>	<b>Appendix</b> .....	<b>29</b>
10.1	After-sales service and spare parts .....	29
<b>11</b>	<b>Certificates</b> .....	<b>29</b>

# 1 Safety instructions and measures

### Intended use

The Type 43-8 and Type 43-8 N (version for local heat supply) Temperature Regulator consist of the Type 2432 or 2432 N Valve, the Type 2438 Hydraulic Controller and the Type 2430 Control Thermostat. The regulator is designed for temperature control of the energy supply to heat generators (e.g. heat exchangers) by closing the valve. The regulator is mainly used to control the temperature in instantaneous water heaters in small district heating units.

The devices are designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the devices are only used in operating conditions that meet the specifications used for sizing the devices at the ordering stage. In case operators intend to use the devices in applications or conditions other than those 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 inscription on the device for limits and fields of application as well as possible uses.

### Reasonably foreseeable misuse

The devices are not suitable for use outside the limits defined during configuration and by the technical data. Furthermore, the following activities do not comply with the intended use:

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

### Qualifications of operating personnel

The devices 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

SAMSON recommends checking the hazards posed by the process medium being used (e.g. ► GESTIS (CLP) hazardous substances database).

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

### Revisions and other modifications

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

### Warning against residual hazards

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the 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, warnings 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.

SAMSON also recommends 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.

These mounting and operating instructions deal with the standard version of the device. Components of the device that differ to those used for the standard version described in this document can be exchanged with other certain SAMSON components. The residual hazards of these components are described in the associated mounting and operating instructions (see 'Referenced documents' chapter).

## Safety instructions and measures

### 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 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 EU declaration of conformity is included in the Appendix of these instructions (see Chapter 11).

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 hazard assessment stipulated in Clause 5.2 of ISO 80079-36, 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 Clause 6.4 of EN 60079-14 (VDE 0165-1).

### Referenced documents

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

- Mounting and operating instructions for the valve ► EB 2171
- Mounting and operating instructions for the control thermostat ► EB 2430-3

## 1.1 Notes on possible severe personal injury

### DANGER

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

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

- Before starting any work on the valve, depressurize all plant sections affected as well as the valve.
- Drain the process medium from the plant sections affected as well as from 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. burns.

- If possible, drain the process medium from the plant sections affected and from the valve.
- Wear protective clothing, safety gloves and eye protection.

#### **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 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 listed as a substance of very high concern on the candidate list of the REACH regulation, this is indicated on the SAMSON delivery note.

- Information on the safe use of the part affected
  - ▶ [www.samsongroup.com/en/about-samson/environment-social-governance/material-compliance/](http://www.samsongroup.com/en/about-samson/environment-social-governance/material-compliance/)

## 1.3 Notes on possible property damage

### **NOTICE**

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

The thermostat, set point adjuster and capillary tube form an inseparable hydraulic unit. 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 monitoring and control task.

- Do not dismantle the regulator.
- Only perform allowed activities on the regulator.
- Contact SAMSON's After-sales Service before replacing spare parts.

#### **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 equipment.

**!** NOTICE

**Risk of leakage and valve damage due to over- or under-torquing.**

Observe the specified torques when tightening valve components.

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

→ Observe the specified tightening torques.

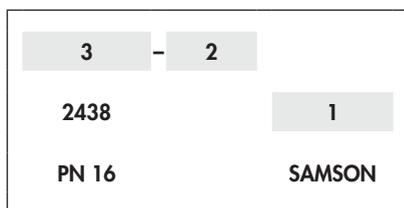
## 2 Markings on the device

There are several inscriptions on the device. The inscriptions are used to identify the separate regulator components (see Fig. 1 to Fig. 3).

The inscription shown was up to date at the time of publication of this document. The inscription on the device may differ from the one shown.

### 2.1 Inscription

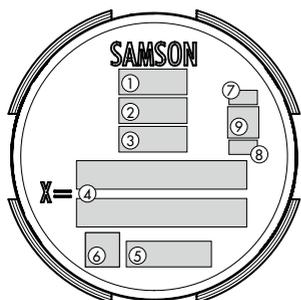
#### Inscription on the hydraulic controller



- 1 Date of manufacture
- 2 Device index
- 3 Material number/configuration ID

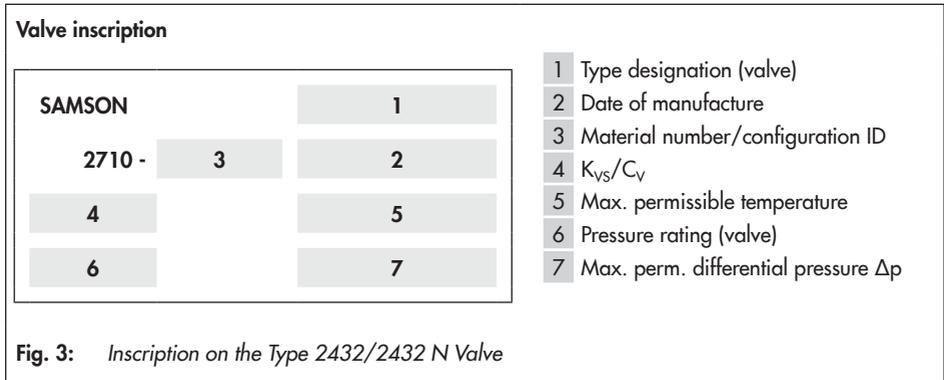
Fig. 1: Inscription on the Type 2438 Hydraulic Controller

#### Inscription on the control thermostat

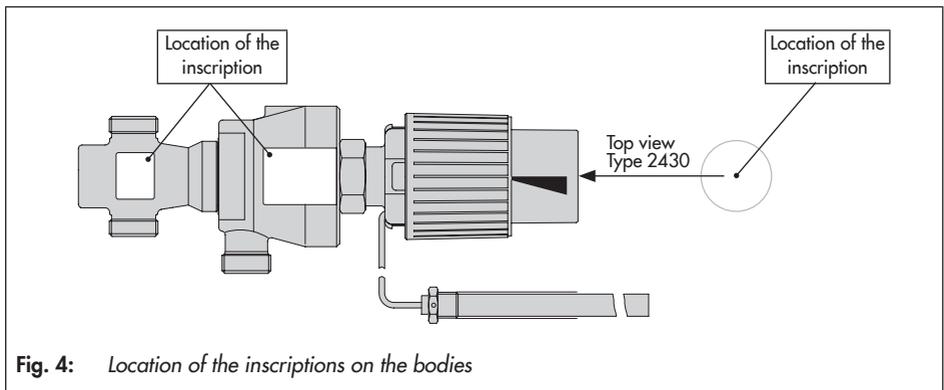


- 1 Model number
- 2 Type designation
- 3 Material number/configuration ID
- 4 Temperature range in °C and °F
- 5 Register number (device function)
- 6 DIN-tested marking
- 7 Year of manufacture
- 8 -
- 9 CE marking

Fig. 2: Inscription on the Type 2430 Control Thermostat



## 2.2 Location of the inscription



## 2.3 Material identification number

The material is indicated on the body of the valve. Specifying the material number, you can contact us to find out more details. The configuration ID (3) is specified on the inscription.

For more details on the inscription, see Chapter 2.1.

### 3 Design and principle of operation

The Type 43-8/43-8 N Regulator is used to control the temperature of instantaneous water heaters in small district heating units.

The devices consist of the Type 2430 Control Thermostat (30) operating according to the vapor pressure principle, the Type 2438 Hydraulic Controller (20) the Type 2432/2432 N Valve (1).

The temperature sensor is filled with a liquid which evaporates depending on the temperature. As a result, a pressure in proportion to the temperature is created in the sensor. This pressure is transferred through the capillary tube (8) to the operating element (13) and converted into a positioning force, which is compared to the force of the set point spring (10).

The force ratio causes the plug in the valve (1) to move. Depending on the valve travel, an annular gap forms between the seat (2) and the plug (3) that determines the flow rate of the heating water.

A temperature increase at the sensor causes the valve plug to close, thus reducing the flow rate of the heating water.

Upon tapping hot water, a pressure difference of  $\Delta p = p_1 - p_2$  is created above the baffle plate (6). The resulting force opposes the force of the compression spring (7) that acts in closing direction and causes the valve to open. Once hot water tapping has been completed, the pressure balance is restored.

The force of the compression spring causes the valve plug to move in the closing direction and the heat flow is interrupted. At the same time, the temperature set point of the thermostat drops by approx. 8 K (optionally 15 K) to reach the reduced idle temperature. This prevents reheating with temperature peaks as well as the supply lines from cooling down.

This ensures that hot water is immediately available for the next tapping.

**Table 1:** Domestic water quality

DHW	
pH	Min. 7/max. 10
Chloride concentration	Max. 150 mg/l
$\frac{\text{HCO}_3^-}{\text{SO}_4^{2-}}$	>1.5
Carbonate hardness	Min. 5° dH (German hardness)
Total hardness	Max. 12° dH

### 3.1 Technical data

#### 3.1.1 Process medium and scope of application

The Type 43-8/43-8 N Temperature Regulator is suitable for the control of liquids in instantaneous water heaters in small district heating units.

For a temperature range from **45 to 65 °C**  
 Valve **DN 15 · PN 25**<sup>1)</sup> · Suitable for hot water **up to 130 °C**<sup>1)</sup>

<sup>1)</sup> Type 43-8 N for local heat supply; PN 16 and 120 °C only

The valve closes when the temperature rises above the set point of the Type 2430 Control Thermostat.

#### Application range

The quality of the domestic water to be controlled determines the field of application of the regulator. The water quality must meet the following requirements (see Table 1).

#### Dimensions in mm · Weights in kg

The lengths and heights in the dimensional drawing are shown in Fig. 6.

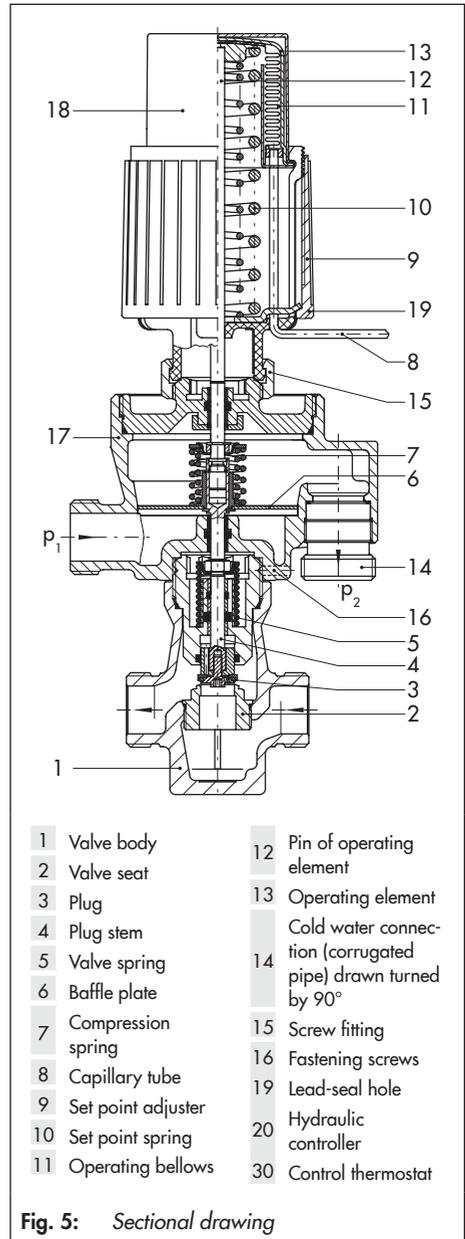


Fig. 5: Sectional drawing

## Design and principle of operation

**Table 2:** *Technical data*

	<b>Type 43-8</b>	<b>Type 43-8 N</b>
<b>Valve</b>	Type 2432	Type 2432 N
Nominal size	DN 15	
$K_{VS}$ coefficient	2.5	
Pressure rating	PN 25	PN 16
Max. perm. differential pressure $\Delta p$	20 bar	6 bar
Max. permissible valve temperature	130 °C	120 °C
<b>Control thermostat</b>	Type 2430	
Set point range	45 to 65 °C	
Capillary tube	2 m (5 m as special version)	
Max. perm. temperature at the sensor	30 K above the adjusted set point	
Max. perm. temperature at the set point adjuster	35 °C	
Perm. pressure at sensor	PN 40	
<b>Hydraulic controller</b>	Type 2438	
Required differential pressure (pressure loss) across the control unit on the cold water side	0.4 bar with a tapping rate up to 10 l/minute 0.5 bar with a tapping rate up to 20 l/minute	
Pressure rating	PN 16	
Idle temperature	Approx. 8 K (optional 15 K) below the adjusted set point	
Min. temperature difference between flow temperature and temperature set point	10 K	
Max. flow rate	20 l/minute	

**Table 3:** *Materials · Material numbers according to DIN EN*

	Type 43-8	Type 43-8 N
Body	CC499K (red brass, Rg 5)	CW602N (hot-pressed brass)
Valve seat	Stainless steel 1.4305	CW602N
Valve plug	1.4104 and brass, resistant to dezincification, with EPDM soft seal	
Valve spring and spring in Type 2438	Stainless steel 1.4310	
Baffle plate	POM	
Temperature sensor	Capillary tube	Copper
	Sensor	CrNiMo steel
Set point adjuster	PETP, glass fiber reinforced	

**Table 4:** *Dimensions in mm · Weights in kg*

		Type 43-8	Type 43-8 N
Length	L	65	
AF		30	
Height	H1	30	
Type 2432/Type 2432 N/ Type 2438/Type 2430	H	241	221
	kg (approx.)	3.7	3.4

Dimensional drawings

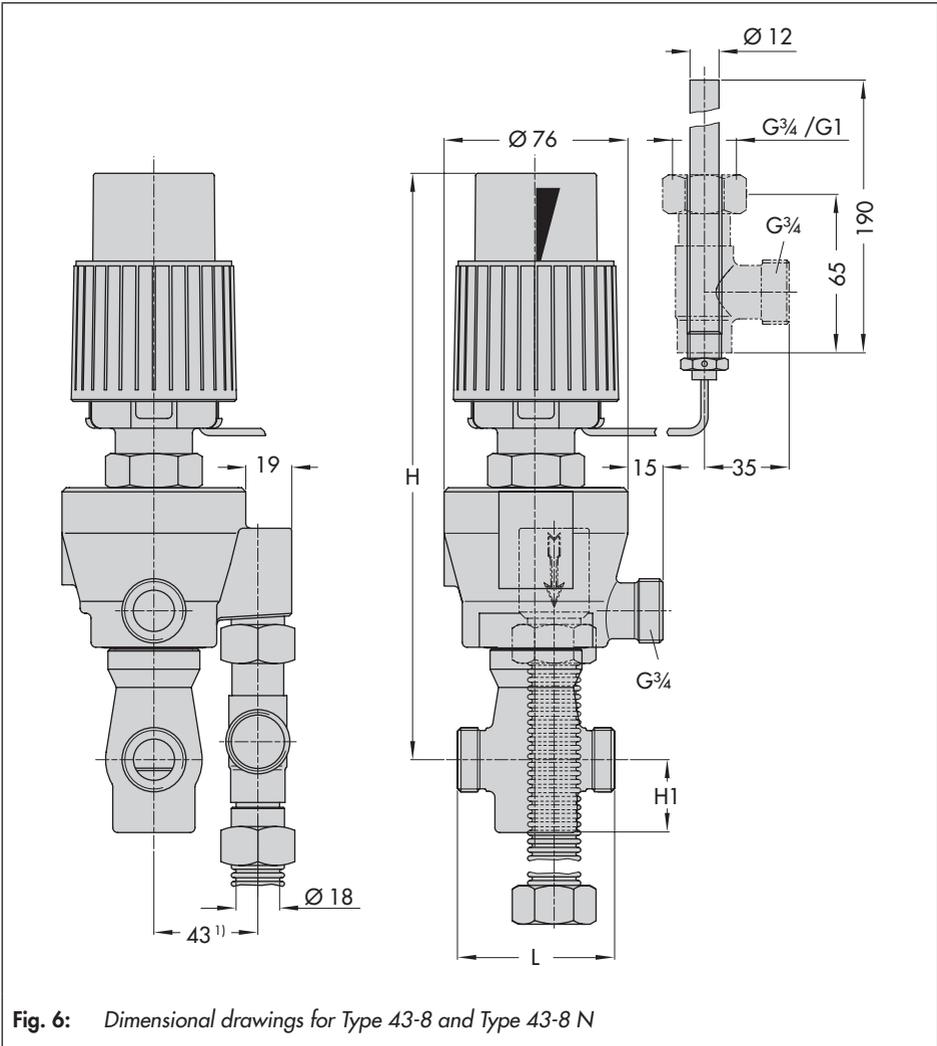


Fig. 6: Dimensional drawings for Type 43-8 and Type 43-8 N

## 4 Measures for preparation

After receiving the shipment, proceed as follows:

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

### 4.1 Unpacking

#### **i** Note

*Do not remove the packaging until immediately before installation.*

Proceed as follows to lift and install the device:

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

### 4.2 Transporting and lifting

Due to the low service weight, lifting equipment is not required to transport and lift the Type 43-8 and Type 43-8 N Temperature Regulators.

#### **Transport instructions**

- Protect the device against external influences (e.g. impact).
- Protect the device against moisture and dirt.

- Observe the permissible ambient temperatures (see Chapter 3.1).

### 4.3 Storage

#### **i** NOTICE

**Risk of temperature regulator *damage due to improper storage.***

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

#### **i** Note

*SAMSON recommends to regularly check the device and the prevailing storage conditions during long storage periods.*

#### **Storage instructions**

- Protect the temperature regulator against external influences (e.g. impact).
- 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 Chapter 3.1).
- Do not place any objects on the device.



### Tip

Our after-sales service can provide more detailed storage instructions on request.

## 4.4 Preparation for installation

Proceed as follows:

- Check all connections for the valve, hydraulic controller and control thermostat.
- Check all parts for damage.
- Check to make sure that the type designation, pressure rating and temperature range of the valve, hydraulic controller and control thermostat match the plant conditions (pressure rating of the pipeline, medium temperature etc.).
- Check any mounted thermometers to make sure they function.

## 5 Mounting and start-up

### NOTICE

**Risk of overheating due to excessive ambient temperatures or insufficient heat dissipation when components are insulated.**

– Do not include the temperature regulator in the insulation of the pipeline.

### 5.1 Assembling the valve, hydraulic controller and control thermostat

The Type 43-8/Type 43-8 N Temperature Regulator consists of the Type 2432/2432 N Valve (1), Type 2438 Hydraulic Controller (20) and Type 2430 Control Thermostat (30).

The hydraulic controller and the control thermostat can be attached to the valve body either before or after the valve is installed in the pipeline.

On installation, make sure that the temperature does not exceed the max. permissible ambient temperature of 35 °C.

Install the plate heat exchanger in such a way that the heating water flows vertically between the plates.

#### Heat exchanger connections

For district heating supply (heating water) and hot water (top connection),  
for district heating return (heating water) and cold water (bottom connection)

## 5.2 Mounting positions

Install the **Type 43-8** and **Type 43-8 N** in a horizontal position with control thermostat facing upward onto the heat exchanger.

### Installation conditions

- Install the heat exchanger in the upright position only with the heating water supply at the top (see Fig. 7).
- Choose a place of installation that allows you to freely access the regulator even after the entire plant has been completed.
- 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.
- Observe the permissible ambient temperature of max. 50 °C.

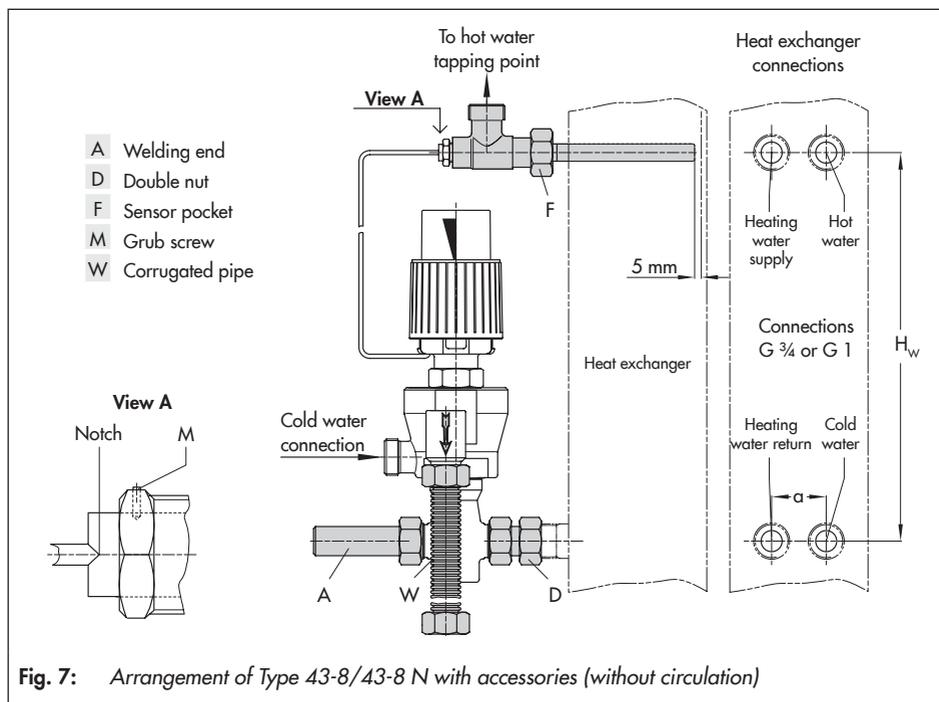
### 5.2.1 Installing the valve and hydraulic controller

See Fig. 5 and Fig. 7.

1. Place the body of the hydraulic controller on the valve connection. Slightly hand-tighten the three side mounting screws (16) so that that the hydraulic controller can still be rotated on the valve.
2. Mount and align the valve with double nut (D) at the heat exchanger. Observe the tightening torques specified in Chapter 7.1.

3. Attach the corrugated pipe (W) between the hydraulic controller and cold water connection of the heat exchanger. Observe the tightening torques specified in Chapter 7.1.
4. When integrating a circulation pipe, the necessary connection piece is available (accessories). It is mounted between the connection of the hydraulic controller and the corrugated pipe (W). Observe the tightening torques specified in Chapter 7.1.  
Older regulator versions are equipped with a capillary tube instead of the corrugated pipe. The capillary tube (Ø18) must only be used as a spare part.
5. Tighten the three side mounting screws (16) at the hydraulic controller. Observe the tightening torques specified in Chapter 7.1.

## Mounting and start-up



**Table 5:** Installation dimensions · Dimensions in mm

Type		43-8	43-8 N
$\alpha$	G 3/4	40 to 45 mm	
	G 1	73 to 79 mm	
$H_w$		$\geq 260$ mm	$\geq 240$ mm
M		M5 grub screw	

## 5.2.2 Installing the control thermostat

**i Note**

The Type 2430 is installed without thermowell.

To fully use the fast response behavior of the sensor (vapor pressure), the sensor must also be installed at the best possible location.

In plate heat exchangers, this location is directly upstream of the outlet where the heated water flows out of the heat exchanger.

- The notch at the end of the sensor must point upward (see Fig. 8).

- Install the sensor pocket (F) in such a way that the sensor reaches horizontally into the hot water duct.
- Observe a distance of approx. 5 mm between the tip of the sensor and the rear of the housing.
- After aligning the sensor, clamp it with the threaded pin (M). Observe the tightening torques specified in Chapter 7.1.

**i Note**

In hot water generating systems with instantaneous water heater, thermostatic mixer faucets must not be installed downstream of the temperature regulator as this may lead to an instable temperature control.

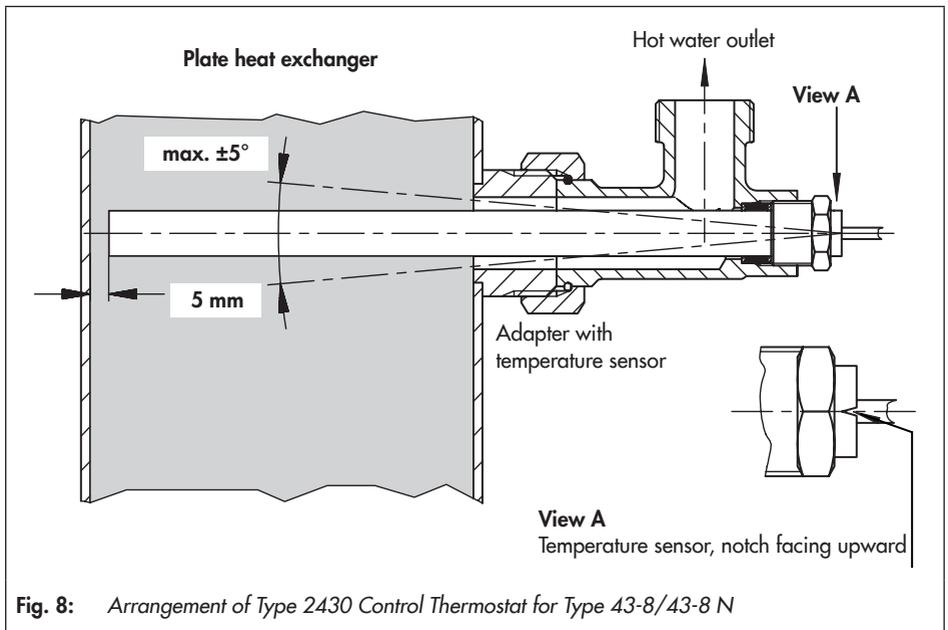


Fig. 8: Arrangement of Type 2430 Control Thermostat for Type 43-8/43-8 N

### NOTICE

#### **Risk of capillary tube damage due to incorrect handling.**

- Do not shorten the capillary tube.
- Roll up excess tube to form a ring. The smallest bending radius is 50 mm.

### Note

Observe the permissible ambient temperature of max. 50 °C over the entire length of the capillary tube.

## 5.3 Additional fittings

### Strainer

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

The following points must be observed when installing the strainer:

- Do not use the strainer to permanently filter the process medium.
- Install the strainer upstream of the regulator.
- Allow sufficient space to remove the filter.
- Observe the flow direction through the strainer.
- In horizontal pipelines with gases or liquids, the filter element faces downward. The filter element faces sideways in applications with steam.

- Install strainers in vertical pipelines with the medium flowing upward with the drain plug facing upward.

### Tip

Remember to leave enough space to remove the filter element for cleaning.

### Shut-off valve

Install a hand-operated shut-off valve on the inlet and outlet sides. This allows the plant to be shut down for cleaning and maintenance, and when the plant is not used for longer periods of time (see Fig. 9).

### Thermometer

Install a thermometer both upstream and downstream of the heat exchanger to monitor the temperatures prevailing in the plant (see Fig. 9).

## 5.4 Start-up

Fill the plant very slowly with the process medium on start-up.

### **! WARNING**

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

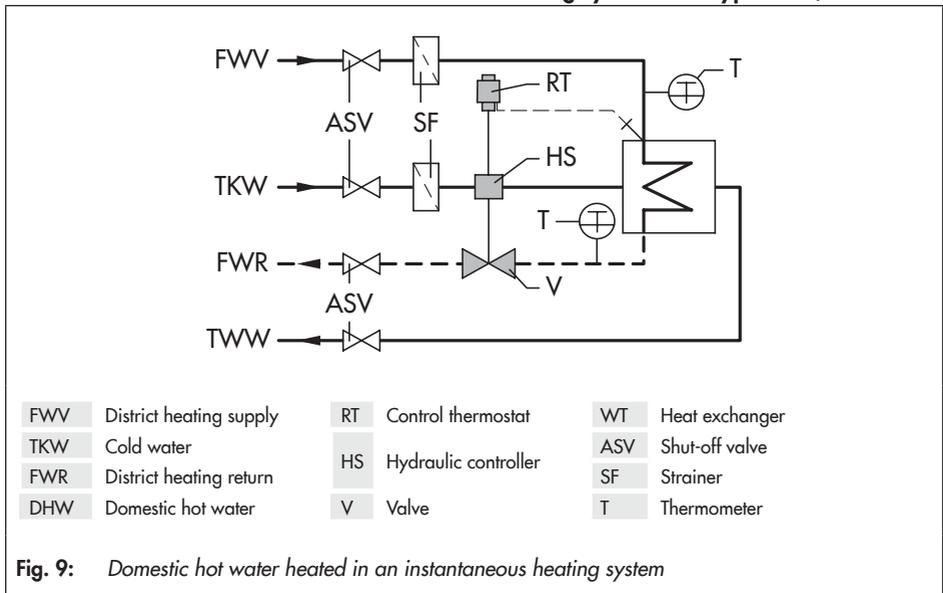
Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

- Allow components and pipelines to cool down or warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

After assembling the control thermostat, hydraulic controller and valve, the Type 43-8/43-8 N Temperature Regulator can be started up.

- ➔ Fill the plant very slowly with the process medium on start-up.
- ➔ Open the shut-off valves slowly preferably starting from the upstream pressure side.
- ➔ Avoid pressure surges.

Domestic hot water heated in an instantaneous heating system with Type 43-8/43-8 N



## 6 Operation

See Fig. 5.

### 6.1 Adjusting the set point at the control thermostat

The ambient temperature at the set point adjuster must not be higher than 35 °C.

The temperature set point is continuously adjustable.

To adjust the set point, proceed as follows:

1. Set the target temperature set point by turning the black adjustment knob (9) according to the scale (see Fig. 10).
  - Turn the adjustment knob clockwise (↻) to reduce the temperature set point.
  - Turn the adjustment knob counter-clockwise (↺) to increase the temperature set point.
2. Pull the wire through the lead-seal hole (19) at the control thermostat (30) and lead-seal it to fix the adjusted temperature set point.

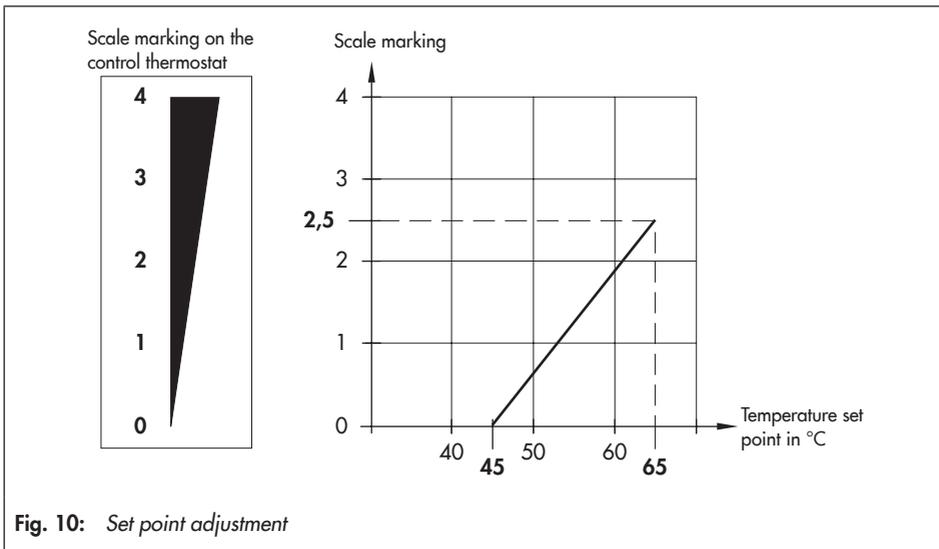


Fig. 10: Set point adjustment

## 7 Servicing

The Type 43-8 and Type 43-8 N Temperature Regulators do not require much maintenance. Nevertheless, they are subject to natural wear, particularly at the soldered joints and seals.

### **i** Note

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

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

### 7.1 Tightening torques and lubricant

→ See Fig. 5 and Fig. 7

Part	Tightening torque in Nm
Screw fitting (15)	20
Fastening screws (16)	2
Connection nut on the welding end (A)	80
Double nut (D)	20
Connection nut for the sensor pocket (F)	20
Grub screw on the sensor (M)	1
Connection nut on the corrugated pipe (W)	70

### 7.2 Preparation for return shipment

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

1. Put the device out of operation (see Chapter 9.1).
2. Remove any residual process medium.
3. Send the device together with the filled-in form to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at ► [www.samsongroup.com](http://www.samsongroup.com) > Contact.
4. Continue as described on our website at ► [www.samsongroup.com](http://www.samsongroup.com) > Service > After-sales Service > Returning goods.

## 8 Malfunctions

The malfunctions listed in Table 6 are caused by mechanical faults and incorrect regulator sizing. In the simplest case, the functioning can be restored following the recommended action. Special tools may be required for repair work.

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

**Table 6:** *Troubleshooting*

Malfunction	Possible reasons	Recommended action
The temperature exceeds the temperature adjusted at the control thermostat.	Control thermostat defective	→ Replace the control thermostat.
	Foreign particles blocking the valve plug	→ Remove foreign particles. → Replace damaged parts.
	Valve trim is worn out.	→ Replace damaged parts.
	Valve too large for control task	→ Check the sizing.
	Sensor is installed incorrectly.	→ Check the installation of the control thermostat (see Chapter 5.2.2).
The temperature is below the temperature adjusted at the control thermostat.	Insufficient heating energy available	→ Draw up an energy balance.
	Strainer blocked	→ Drain and clean filter of the strainer.
	The valve is not installed in the direction indicated by the arrow.	→ Remove the valve and install it again in the direction indicated by the arrow.
	A safety device (e.g. STL etc.) has been triggered.	→ Check plant. Unlock safety device or replace it.
	Valve too small for control task	→ Check the sizing.
	The valve is jammed.	→ Replace both seat and plug if one of them is damaged or order a new valve.
The temperature (adjusted at the control thermostat) varies.	Hydraulic controller jammed.	→ Replace the hydraulic controller.
	Valve too large for control task	→ Check the sizing.
	The valve is not installed in the direction indicated by the arrow.	→ Remove the valve and install it again in the direction indicated by the arrow.
	Sensor is installed incorrectly.	→ Check the installation of the control thermostat (see Chapter 5.2.2).
Leakage at the connection between the hydraulic controller and valve or control thermostat.	Increased friction, e.g. due to foreign particles between seat and plug or in the stem guide on the bonnet.	→ Remove foreign particles. → Replace damaged parts.
	Seal is defective	→ Replace damaged parts. → Contact SAMSON's After-sales Service.

**i Note**

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

**💡 Tip**

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

## 9 Decommissioning and removal

**⚠ DANGER****Risk of bursting in pressure equipment.**

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

- Before starting any work on the valve, depressurize all plant sections affected as well as the valve.
- Drain the process medium from the plant sections affected as well as from 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. burns.

- If possible, drain the process medium from the plant sections affected and from the valve.
- Wear protective clothing, safety gloves and eye protection.

### **⚠ 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 warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

## 9.1 Decommissioning

To decommission the temperature regulator before removing it, proceed as follows:

1. Close the shut-off valve on the inlet side.
2. Close the shut-off valve on the outlet side.
3. Completely drain the pipelines, valve and heat exchanger.
4. Depressurize the plant. Shut off or disconnect the control line, if installed.
5. If necessary, allow the pipeline and device to cool down or warm up to the ambient temperature.
6. Remove the control thermostat's sensor from the pipeline and, if necessary, seal the opening.
7. Remove the control thermostat from the hydraulic controller.
8. Remove the hydraulic controller from the valve.

## 9.2 Disposal



SAMSON is a producer registered at the following European institution ► <https://www.samsongroup.com/en/about-samson/environment-social-governance/material-compliance/waste-electrical-and-electronic-equipment-weeee-and-its-safe-disposal/>.  
WEEE reg. no.: DE 62194439

Information on substances listed as substances of very high concern (SVHC) on the candidate list of the REACH regulation can be found in the document "Additional Information on Your Inquiry/Order", which is added to the order documents, if applicable. This document includes the assigned SCIP number, which can be entered into the database on the European Chemicals Agency (ECHA) website (► <https://www.echa.europa.eu/scip-database>) to find out more information on the SVHC.

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

### **i Note**

SAMSON can provide you with a recycling passport according to PAS 1049 on request. Simply e-mail us at [aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com) giving details of your company address.

**Tip**

On request, SAMSON can appoint a service provider to dismantle and recycle the product as part of a distributor take-back scheme.

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## 10 Appendix

### 10.1 After-sales service and spare parts

#### After-sales service

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

#### E-mail

You can reach our after-sales service at [aftersalesservice@samsongroup.com](mailto: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](http://www.samsongroup.com)) or in all SAMSON product catalogs.

#### Required specifications

Please submit the following details:

- Order number and position number in the order
- Configuration ID (Type 2430 Control Thermostat)

- Configuration ID (Type 2438 Hydraulic Controller)
- Configuration ID (Type 2432/2432 N Valve)
- Upstream and downstream pressure
- Min. and max. flow rate
- Set point range
- Temperature
- Is a strainer installed?
- Installation drawing showing the exact location of the regulator and all the additionally installed components (control thermostat, valve, shut-off valves, pressure gauge etc.)
- Cold water connection with corrugated pipe or capillary tube
- With or without circulation pipe

#### Spare parts

No spare parts are available for the Type 43-8 and Type 43-8 N Temperature Regulators.

## 11 Certificates

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

SMART IN FLOW CONTROL



**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 Temperaturregler/Valves for temperature regulators**

Typ/Type 2111, 2121, 2431, 2432, 2435, 2436, 2437 (Erz.-Nr./Model No. 2710), 2433, 2118 (2713), 2119 (2803), 2111, 2121 (2811), 2114 (2814)

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

Nenn- druck 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
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							
Class 150		ohne/without (1)			A (2)(3)			H						
Class 300		ohne/without (1)			A (2)(3)		H							

(1) Das auf dem Stelgerät 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 Stelgerät 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 Notifizierte 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 Hörschken*  
 Klaus Hörschken  
 Zentralabteilungsleiter/Head of Central Department  
 Entwicklung Ventile und Antriebe/R&D, Valves and Actuators

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

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Revision 03

SMART IN FLOW CONTROL.



## 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 Temperaturregler/Valves for temperature regulators

Typ/Type 2431, 2432, 2435, 2436, 2437 (Erz.-Nr./Model No. 2710)

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

Nenndruck Pressure rating	DN NPS	15 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 <sup>(3)</sup> / PN 25		ohne <sup>(1)</sup>			A <sup>(2)(4)</sup>						H						-
PN 40		ohne <sup>(1)</sup>								H							-
Class 150		ohne <sup>(1)</sup>			A <sup>(2)(4)</sup>						H						-
Class 300		ohne <sup>(1)</sup>								H							-

(1) Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie.  
The CE marking affixed to the control device does not refer to the Pressure Equipment Directive.

(2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der Notifizierten Stelle (Kennr. 0062).  
The CE marking affixed to the control device is valid, but does not refer to the notified body (ID No. is invalid).

(3) DN 15 auch in PN 16 lieferbar.  
DN 15 as well in PN deliverable.

(4) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.  
The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

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

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

Dem Entwurf zu Grunde gelegt sind Verfahren aus:/The design is based on the procedures specified in the following standards:  
DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.24, ASME B16.34

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

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Revision 03

**EB 2178 EN**



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