

# MOUNTING AND OPERATING INSTRUCTIONS



## EB 3136 EN

Translation of original instructions



## Type 2488 N/5857 Pressure-independent Control Valve

Edition January 2025



## 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 Department ([aftersalesservice@samsongroup.com](mailto:aftersalesservice@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>5</b>
1.1	Notes on possible severe personal injury .....	8
1.2	Notes on possible personal injury .....	8
1.3	Notes on possible property damage .....	9
<b>2</b>	<b>Markings on the device .....</b>	<b>10</b>
2.1	Nameplates.....	10
2.1.1	Nameplate for Type 2488 N Valve .....	10
2.1.2	Electric actuator nameplate.....	10
<b>3</b>	<b>Design and principle of operation .....</b>	<b>11</b>
3.1	Technical data .....	12
<b>4</b>	<b>Measures for preparation .....</b>	<b>16</b>
4.1	Unpacking .....	16
4.2	Transporting and lifting .....	16
4.3	Storage.....	16
4.4	Preparation for installation.....	17
<b>5</b>	<b>Mounting and start-up.....</b>	<b>17</b>
5.1	Mounting orientation.....	17
5.2	Additional fittings.....	18
5.3	Mounting the actuator .....	18
5.4	Electrical connection.....	20
5.5	Start-up.....	21
<b>6</b>	<b>Operation .....</b>	<b>22</b>
6.1	Adjusting the set points.....	22
6.1.1	Flow rate.....	22
<b>7</b>	<b>Servicing.....</b>	<b>23</b>
7.1	Preparation for return shipment .....	24
7.2	Ordering spare parts and operating supplies .....	24
<b>8</b>	<b>Malfunctions .....</b>	<b>24</b>
8.1	Decommissioning .....	26
8.2	Disposal .....	26
<b>9</b>	<b>Appendix.....</b>	<b>27</b>
9.1	After-sales service .....	27
<b>10</b>	<b>Certificates .....</b>	<b>27</b>

## **Contents**

## **1 Safety instructions and measures**

### **Intended use**

The Type 2488 N/5857 Pressure-independent Control Valve (PICV) is intended for flow control of liquids up to 110 °C. The Type 2488 N/5857 is mainly used in district heating supply networks. The regulator and actuator are designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the regulator and actuator 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 nameplate for limits and fields of application as well as possible uses.

### **Reasonably foreseeable misuse**

The regulator is not suitable for the following applications:

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

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

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

### **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.

## **Safety instructions and measures**

### **Personal protective equipment**

SAMSON recommends wearing the following protective equipment depending on the process medium:

- 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.
- 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, especially for installation, start-up and service work.

### **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.

## **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.

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.

## **Referenced standards, directives and regulations**

The regulators comply with the requirements of the European Pressure Equipment Directive 2014/68/EU and the Machinery Directive 2006/42/EC. Regulators with a CE marking have a 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 Chapter 10).

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 mounted actuator, e.g. ► EB 5857 for the Type 5857 Pneumatic Actuator

### 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 device components bursting.

- Before starting any work on the device, 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.
- 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 due to residual process medium in the valve.**

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) 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.

### **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 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 process media with defined properties.

- ➔ Only use process media specified for sizing the valve.

## 2 Markings on the device

Several nameplates are affixed to the device. The nameplates shown were up to date at the time of publication of this document. The nameplates on the device may differ from

the ones shown. The nameplates are used to identify the separate regulator components (see Chapter 2.1).

### 2.1 Nameplates

#### 2.1.1 Nameplate for Type 2488 N Valve

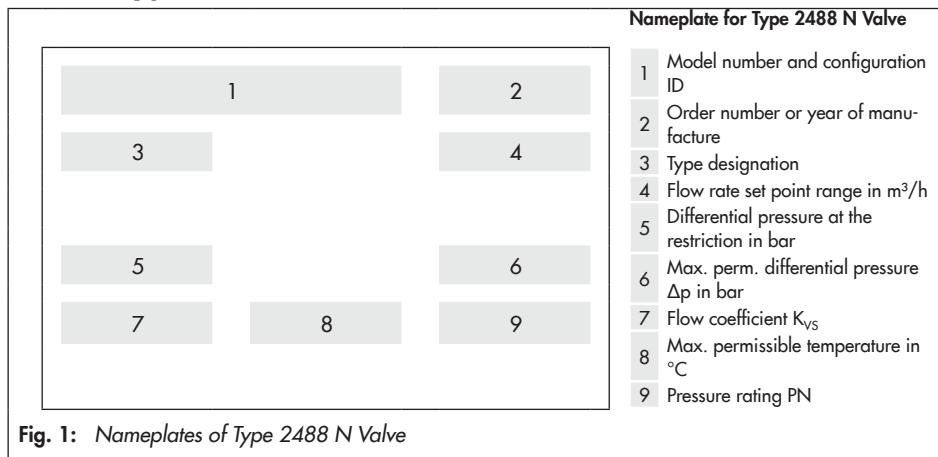


Fig. 1: Nameplates of Type 2488 N Valve

#### 2.1.2 Electric actuator nameplate

See associated actuator documentation.

### 3 Design and principle of operation

→ See Fig. 2

The pressure-independent control valve (PICV) consists of the Type 2488 N Flow Regulator and the Type 5857 Electric Actuator. The valve is fitted with a connecting piece for connection of an electric actuator. As a result, it is possible to transmit the control signal of an electric control device to achieve additional temperature control by changing the restriction position. 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 valve plug (3) and the adjustable restriction (11).

The installed spring (5) determines the differential pressure across the restriction of 0.2 bar. The pressure upstream of the restriction (11) is transmitted over the control line (7) to the upstream pressure side of the actuator. The pressure downstream of the restriction acts on the low-pressure side of the operating diaphragm (9) through a hole in the valve plug. The differential pressure generated across the restriction is converted into a

- |    |  |
|----|--|
| 1  | Valve body                                     |
| 2  | Seat   |
| 3  | Plug   |
| 4  | Plug stem                                      |
| 5  | Set point spring                               |
| 6  | Diaphragm actuator                             |
| 7  | Control line for upstream pressure             |
| 8  | Upstream side                                  |
| 9  | Operating diaphragm                            |
| 10 | Downstream side                                |
| 11 | Restriction                                    |
| 12 | Restriction stem                               |
| 13 | Set point screw for flow control               |
| 14 | Connecting piece                               |
| 15 | Spring   |
| 16 | Type 5857 Electric Actuator                    |
| 17 | Coupling nut<br>(max. 20 Nm tightening torque) |
| 18 | Actuator stem                                  |
| 19 | Manual adjuster                                |

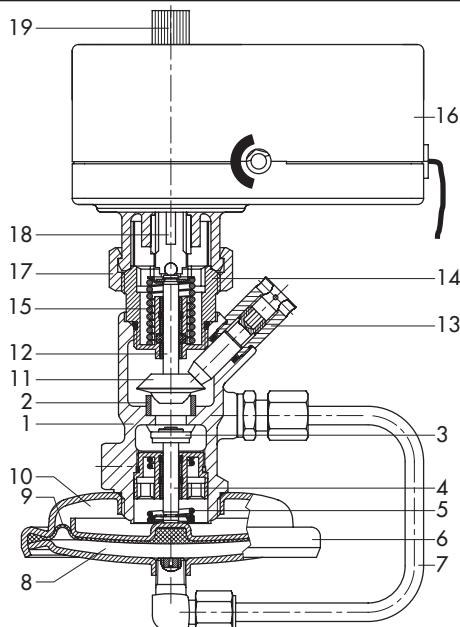


Fig. 2: Functional diagram

positioning force by the operating diaphragm. This force is used to move the valve plug depending on the force of the set point spring (5). The flow rate is adjusted at the set point screw (13).

### 3.1 Technical data

The nameplate on the regulator contains information on the regulator version (see Chapter 2.1).

#### Process medium and scope of application

**The Type 2488 N/5857** Pressure-independent Control Valve (PICV) is suitable for the control of water and non-flammable gases.

- Non-flammable gases up to 80 °C
- Liquids up to 110 °C

The regulator is open when relieved of pressure. It closes when the downstream pressure rises above the adjusted set point.

#### Conformity

The Type 2488 N/5857 Regulator bears both the CE and EAC marks of conformity.



#### Leakage class

All regulators have the leakage class I according to IEC 60534-4.

#### Noise emissions

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

#### WARNING

##### *Risk of hearing loss or deafness due to loud noise.*

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

#### Dimensions and weights

Fig. 3 and Table 1 to Table 2 provide an overview of the dimensions and weights of the Type 2488 N/5857 Regulator. The lengths and heights in the dimensional drawings are shown on p. 15 onwards.

#### Temperature range

The Type 2488 N/5857 Regulator is designed for a temperature range from -10 to +110 °C (14 to 300 °F).

**Table 1:** Technical data for Type 2488 N Valve

<b>Type 2488 N Valve</b>	
Nominal size	DN 15
Pressure rating	PN 10
Max. perm. differential pressure $\Delta p$	4 bar
$K_{VS}$ coefficient	
Standard version	2.5
Special version	1.0
Max. permissible temperature	
Treated water	110 °C
Non-flammable gases	80 °C
Flow rate set point range/limitation for water with 0.2 bar differential pressure at the restriction	
Standard version	0.3 to 1.0 m³/h
Special version	0.1 to 0.5 m³/h
Differential pressure across the restriction	0.2 bar
<b>Materials</b>	
Enclosure	CC499K
Plug	1.4301 with EPDM seal
Restriction	Brass, free of dezincification
Diaphragm	EPDM without fabric reinforcement
<b>Weight</b>	
Valve	Approx. 1.0 kg

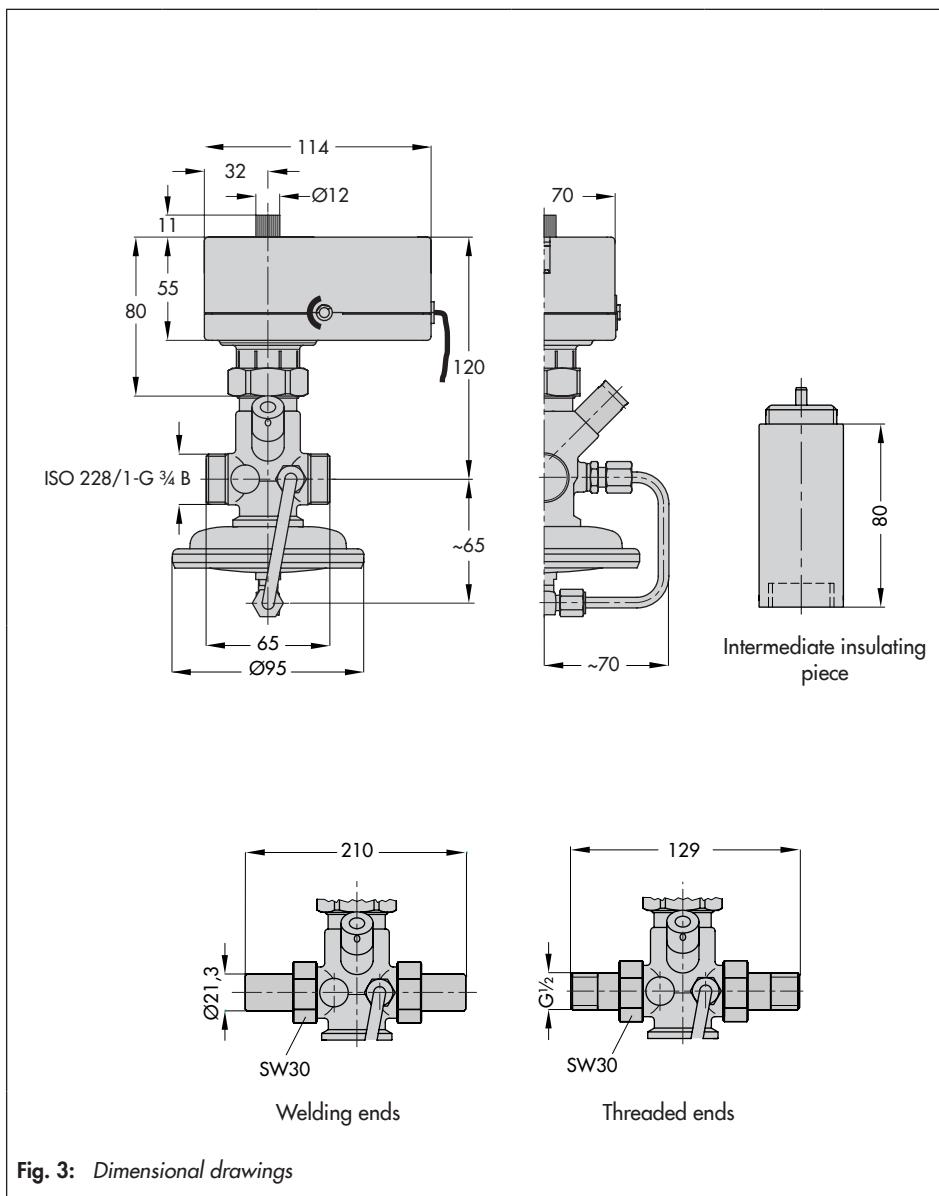
## Design and principle of operation

**Table 2:** Technical data of Type 5857 Actuator

Type 5857 Actuator	Version	Three-step	With digital positioner	
Connection to valve		Force-locking		
Rated travel		6 mm		
Transit time for rated travel		20 s	30/20 <sup>1)</sup> /10 s	
Thrust		300 N		
Supply voltage		230 V ( $\pm 10\%$ ), 50 Hz 24 V ( $\pm 10\%$ ), 50 Hz	24 V ( $\pm 10\%$ ), 50 Hz, 60 Hz and DC <sup>2)</sup>	
Power consumption		Approx. 3 VA	5 VA	
Manual override		Yes		
Permissible temperatures				
Ambient		0 to 50 °C		
Storage		-20 to +70 °C		
Medium		0 to 120 °C		
Degree of protection		IP42 according to EN 60529		
Class of protection		II according to EN 61140		
Electromagnetic compatibility		According to EN 61000-6-2, EN 61000-6-3 and EN 61326		
Conformity		 · 		
Digital positioner		-		
Input signal		-	0 to 10 V <sup>1)</sup> , $R_i = 20 \text{ k}\Omega$	
Position feedback			0 to 10 V <sup>1)</sup> , $R_B = 1 \text{ k}\Omega$	
Characteristic			Linear <sup>1)</sup> , equal percentage, reverse equal percentage, user-defined	
Materials				
Enclosure		Plastic (PPO)		
Coupling nut		Brass · M32x1.5 connection		
Intermediate insulating piece		1.4306, CW617N, PTFE, EPDM, FKM		
Weight				
Valve		Approx. 0.7 kg		

<sup>1)</sup> Default setting

<sup>2)</sup> 10 s applies to 24 V DC (-0 %, +10 %) for Transit time for rated travel setting.



### 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 installing the valve into the pipeline.*

#### 4.2 Transporting and lifting

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

##### **Transport instructions**

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

### 4.3 Storage

##### **! NOTICE**

**Risk of 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 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 Chapter 3.1).
- Do not place any objects on the device.

## Special storage instructions for elastomers

Elastomer, e.g. actuator diaphragm

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



### Tip

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

## 4.4 Preparation for installation

### i Note

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

Proceed as follows:

- ➔ Flush the pipelines.
- ➔ Check the valve to make sure that it is clean.
- ➔ Check the valve and actuator to make sure they are not damaged.
- ➔ Check any mounted pressure gauges to make sure they function.
- ➔ Check to make sure that the type designation, valve size, material, pressure rating and temperature range of the valve and actuator match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).

## 5 Mounting and start-up

### 5.1 Mounting orientation

#### Standard mounting position

- ➔ Install the regulator in a horizontal pipeline with the diaphragm actuator facing downward (see Fig. 4).
- ➔ When the medium temperature is **80 °C or lower**, the regulator can also be installed in vertical pipes (see Fig. 4).

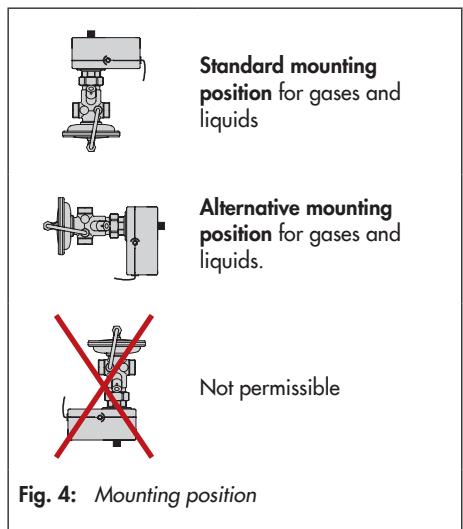
#### Installation conditions

- Make sure that the regulator remains freely accessible after the plant has been completed.
- The electric actuator must be mounted above the valve body.
- Install a strainer upstream of the regulator (see Chapter 5.2).
- Make sure the direction of flow matches the direction indicated by the arrow on the body.
- Install the regulator free of stress.
- On insulating the valve, do not insulate the actuator and the coupling nut as well. If necessary, an intermediate insulating piece (order no. 1690-6975) must be used. The insulating limit is in this case approx. 25 mm above the top of the valve body.

### NOTICE

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

- Do not install the device outdoors or in rooms prone to frost.
- Protect the regulator against frost if it is used to control freezing media.
- Either heat the regulator or remove it from the plant and completely drain the residual medium.



## 5.2 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).

- Install the strainer upstream of the regulator.
- Make sure the direction of flow matches the direction indicated by the arrow on the body.
- Install the strainer with the filter element facing downward.
- Allow sufficient space to remove the filter.

### Shut-off valve

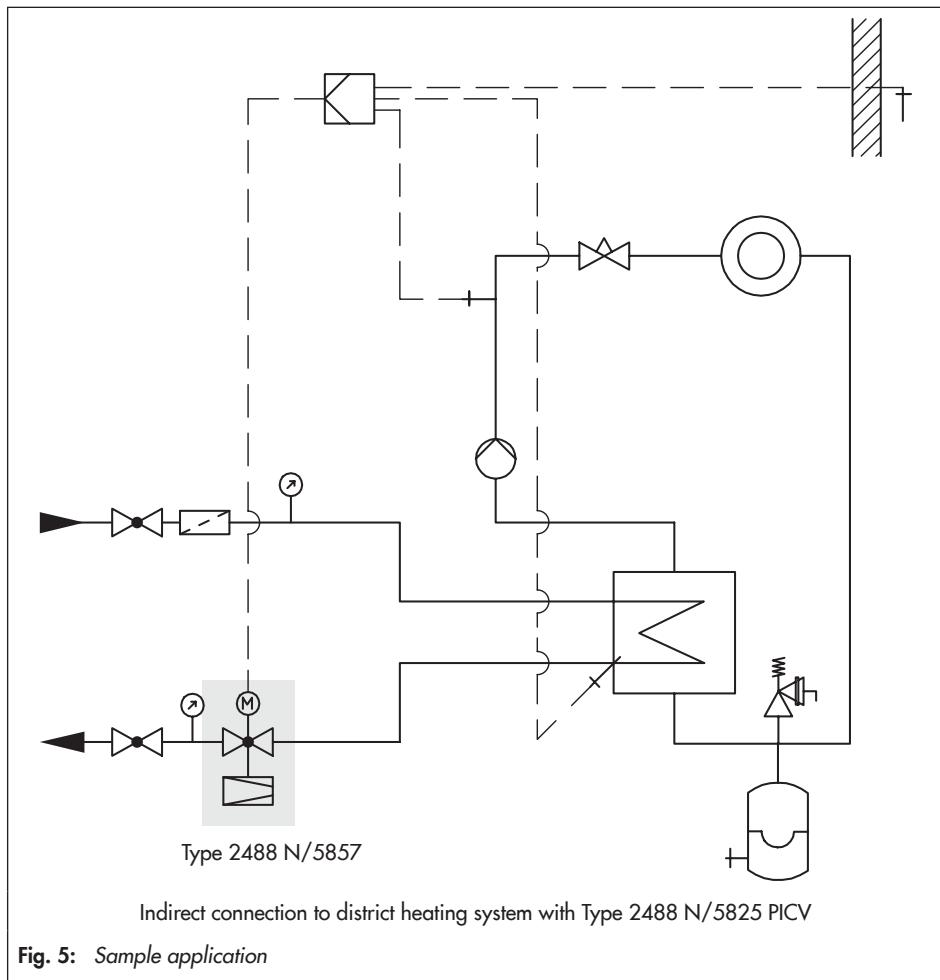
Install a hand-operated shut-off valve both upstream of the strainer and at the outlet of the return pipe (see Fig. 5). This allows the plant to be shut down for cleaning and maintenance, and when the plant is not used for longer periods of time.

### Pressure gauge

Install a pressure gauge at a suitable point to monitor the pressures prevailing in the plant (see Fig. 5).

## 5.3 Mounting the actuator

- ➔ See Fig. 2
- ➔ Place the actuator (16) on the valve connection and hand-tighten the coupling nut (17).



## 5.4 Electrical connection

→ See Fig. 2 and Fig. 6

### ⚠ WARNING

**Upon installation of the electric cables, you are required to observe the regulations concerning low-voltage installations according to DIN VDE 0100 as well as the regulations of your local power supplier.**

Use a suitable power supply which guarantees that no dangerous voltages reach the device in normal operation or in the event of a fault in the system or any other system parts.

Only connect the actuator to the power supply after switching off the supply voltage.

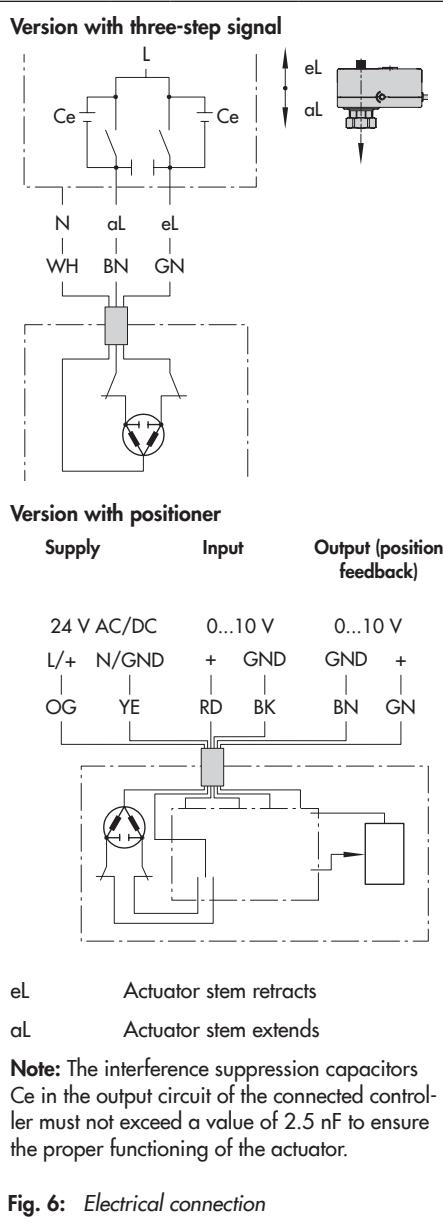
Make sure the supply voltage cannot be switched on again unintentionally.

A power supply of 230 V (10 %) or 24 V (10 %), 50 Hz is required (► EB 5857 for more details).

→ Connect the electric actuator using the three-wire connecting cable (see Fig. 6).

If voltage is applied to the white and green wires, the actuator motor retracts the actuator stem (18). The restriction stem (12) is pushed upward by the spring (15), causing the flow rate to rise.

In contrast, a control signal applied to the white and brown wires causes the actuator stem to extend. The restriction stem (12) is pushed downward by the spring (15), causing a lower flow rate.



**Fig. 6:** Electrical connection

## 5.5 Start-up

- Do not start up the regulator until all parts have been mounted.
- Make sure that the restriction (11) is open while filling the plant. To do this, remove the electric actuator. Turn the set point screw (13) for the flow control counterclockwise (↺) as far as it will go (see Fig. 2).
- Open the shut-off valves slowly over a time period of several minutes starting from the upstream pressure side. Afterwards, open all the valves on the consumer side (downstream of the regulator).

### ! NOTICE

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

Slowly open the shut-off valve in the pipeline during start-up.

### Pressure testing the plant

All plant components must be designed for the test pressure. If necessary, remove the regulator from the pipeline or remove the control line (7) of the diaphragm actuator on the valve and seal the open connection with a blanking plug (see Table 3).

### ! NOTICE

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

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

### Rinsing the plant

1. After filling the plant, first completely open the consumer.
2. Adjust the maximum flow rate at the regulator (see Chapter 6.1.1).
3. Rinse out the pipeline at full flow rate for several minutes.
4. Check the strainer (e.g. measure the pressure drop) and clean it, if necessary.

**Table 3: Accessories**

Accessories	Item no.
Blanking plug	8323-0030
Gasket	8412-0771

# 6 Operation

## 6.1 Adjusting the set points

### 6.1.1 Flow rate

- Completely open the control and shut-off valves or the bypass valve in the plant.

To adjust or change the flow rate set point, proceed as follows:

Always adjust the set point based on a completely closed restriction.

#### ! NOTICE

**Risk of damage to the restriction stem through one-side loading while turning the set point screw clockwise.**

First turn the handwheel of the electric actuator to completely close the restriction.

1. To fully close the restriction (11), de-energize the electric actuator (16).
2. Turn the set point adjuster (19) clockwise ( $\curvearrowright$ ) as far as it will go to close the restriction.
3. Use a suitable tool (Allen key, A/F 4) to turn the set point screw (13) clockwise ( $\curvearrowright$ ) as far as it will go.
4. Refer to Fig. 7 to find out how many turns are required to set the flow rate.
5. Use a suitable tool (Allen key, A/F 4) to turn the set point screw (13) by the required number of turns. Turn it counter-clockwise ( $\curvearrowleft$ ) to open the restriction. The flow rate rises.

6. Guide the wire through the lead-seal hole and lead-seal it to fix the adjusted flow rate.
7. Reconnect the power supply to the electric actuator (16).



#### Tip

For exact adjustment, verify adjusted value with a heat or flow meter.

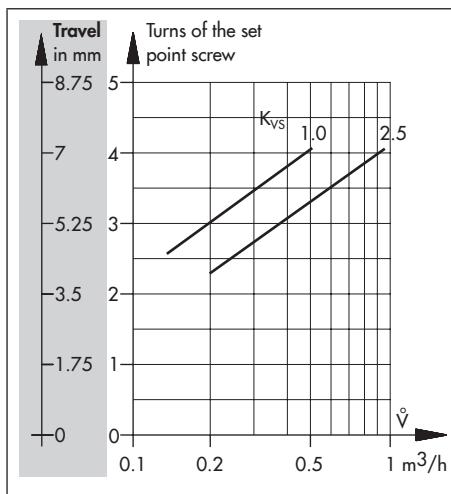


Fig. 7: Adjustment diagram for flow rate

## 7 Servicing

The regulator does not require much maintenance. Nevertheless, it is subject to natural wear, particularly at the seat, plug and operating diaphragm. Depending on the operating conditions, check the regulator at regular intervals to avoid possible malfunctions.



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



### Risk of bursting in pressure equipment.

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

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



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

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) 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.



### Risk of regulator damage due to incorrect servicing or repair.

Only allow trained staff to perform service and repair work.



### Risk of regulator damage due to over- or under-torquing.

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 tightening torques specified in Fig. 2.

### i Note

The regulator was checked by SAMSON before delivery.

- 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 Preparation for return shipment

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

1. Put the regulator out of operation (see Chapter 8.1).
2. If necessary, decontaminate the regulator. Remove any residual process medium.
3. Fill in the Declaration on Contamination. The declaration form can be downloaded from our website at  
► [www.samsongroup.com](http://www.samsongroup.com) > SERVICE > After-sales Service > Returning goods.
4. Continue as described on our website at  
► [www.samsongroup.com](http://www.samsongroup.com) > SERVICE > After-sales Service > Returning goods.

## 7.2 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.

## 8 Malfunctions

The malfunctions listed in Table 4 are caused by mechanical faults and incorrect regulator sizing. In the simplest case, the functioning can be restored following the recommended action. Special tools may be required for repair work.

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

SAMSON's After-sales Service can help during troubleshooting. Further information is available in Chapter 9.1.

**Table 4:** Troubleshooting

Malfunction	Possible reasons	Recommended action
Flow rate exceeds adjusted set point	Leak between seat and plug	Remove valve from the pipeline and clean seat and plug. Contact SAMSON for further action.
	Defective operating diaphragm	Contact SAMSON's After-sales Service.
	Control line with needle valve blocked.	Remove control line and needle valve. Clean them.
	Valve too large for control task	Recalculate $K_{vs}$ and contact SAMSON for further action.
Flow set point not reached.	Leak between seat and plug	Remove valve from the pipeline and clean seat and plug. Contact SAMSON for further action.
	Incorrect set point range selected.	Check set point range and contact SAMSON for further action.
	Safety device, e.g. pressure limiter, has been triggered.	Check plant. Unlock safety device.
	Plant differential pressure too low.	Compare differential pressure in the plant with the plant's drag.
	Strainer blocked	Drain and clean filter of the strainer.
Control loop hunts.	Incorrectly installed valve (direction of flow).	Install the regulator so that the direction of flow matches the direction indicated by the arrow on the body.
	Valve too large for control task	Recalculate $K_{vs}$ and contact SAMSON for further action.

**i Note**

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

### 8.1 Decommissioning

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

1. Close the shut-off valve on the upstream side of the valve.
2. Close the shut-off valve on the downstream side of the valve.
3. Completely drain the pipelines and valve.
4. Depressurize the plant. Shut off or disconnect the control line.
5. If necessary, allow the pipeline and device to cool down or warm up to the ambient temperature.
6. Remove the valve from the pipeline.

### 8.2 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-wEEE-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.

#### Note

SAMSON can provide you with a recycling passport 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.

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

- Installation drawing showing the exact location of the regulator and all the additionally installed components (shut-off valves, pressure gauge etc.)

## 9 Appendix

### 9.1 After-sales service

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

#### E-mail address

You can reach 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.

To assist diagnosis and in case of an unclear mounting situation, specify the following details (so far as possible). See Chapter 2.1:

- Device type and nominal size
- Model number and configuration ID
- Upstream and downstream pressure
- Temperature and process medium
- Min. and max. flow rate
- Is a strainer installed?

## 10 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 28.
- EU declaration of conformity in compliance with Machinery Directive 2006/42/EC for Type 2488 N Regulator on page 29.
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for the Type 2488 N Valve with other actuators on page 30.

# Certificates

## EU DECLARATION OF CONFORMITY TRANSLATION



### Module D / N° CE-0062-PED-D-SAM 001-22-DEU

For the following products, SAMSON hereby declares under its sole responsibility:

Devices	Series	Type	Version
Control valve for hot water and steam with fail-safe action in heating systems		Actuator 3374-21/26 (Force 2000 N)	with Type 3241, 2811, 2814, 2823, 3321 EU-Type examination (production type), Module B, Certificate no.: 01 202 931/B-15-0030-01, type-tested according to standard DIN EN 14597-2015
Control valve for water and water-steam with fail-safe action in heating systems		Actuator 5725-310/-313/-320/-323 Actuator 5825-810/-820 Actuator 5825-10/-13/-20/-23 (Force 500 N) (Product number 2770)	with Type 3214 (2814), 2423 (2823), 3213 (2710), 3222 (2710), 2488 (2730), 2489 (2730) EU-Type examination (production type), Module B, Certificate no.: 01 202 641/B-19-0017-01 type-tested according to standard DIN EN 14597-2015, appendix DX
Control valve for water and water-steam with fail-safe action in heating systems		Actuator 5827-A11 5827-A12 5827-A14 5827-A15 5827-A21 5827-A22 5827-A24 5827-A25	with Type 3214 (2814), 2423 (2823), 3213 (2710), 3222 (2710), 2488 (2730), 2489 (2730) EU-Type examination (production type), Module B, Certificate no.: 01 202 641/B-19-0017-01 type-tested according to standard DIN EN 14597-2015, appendix DX

that the products mentioned above comply with the requirements of the following standards:

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment	2014/68/EU	of 15 May 2014
Applied conformity assessment procedure for fluids according to Article 4(1)	Module D	Certificate-No.: N°CE-0062-PED-D-SAM 001-22-DEU by Bureau Veritas 0062

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

Applied harmonised standards and technical specifications: EN 12516-2, EN 12516-3, EN 12266-1, ASME B16.34

Manufacturer: SAMSON AKTIENGESELLSCHAFT, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, November 21, 2023

Dr. Andreas Widl  
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter  
Chief Technology Officer (CTO)

Revision 10

Classification: Public - SAMSON AKTIENGESELLSCHAFT - Weismüllerstrasse 3 - 60314 Frankfurt am Main, Germany

Page 1 of 1



## Certificates

### DECLARATION OF INCORPORATION TRANSLATION



#### Declaration of Incorporation in Compliance with Machinery Directive 2006/42/EC

For the following product:

##### Type 2488 N Valve

We certify that the Type 2488 N Valve is partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

Products we supply must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

Operators are obliged to install the products observing the accepted industry codes and practices (good engineering practice) as well as the mounting and operating instructions. Operators must take appropriate precautions to prevent hazards that could be caused by the process medium and operating pressure in the valve as well as by the signal pressure and moving parts.

The permissible limits of application and mounting instructions for the products are specified in the associated mounting and operating instructions; the documents are available in electronic form on the Internet at [www.samsongroup.com](http://www.samsongroup.com).

For product descriptions refer to:

- Type 2488 N/5857 Pressure-independent Control Valve:  
Mounting and Operating Instructions EB 3136

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

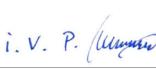
Comments:

- See mounting and operating instructions for residual hazards.
- Also observe the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 10 November 2021

  
\_\_\_\_\_  
Stephan Giesen  
Director  
Product Management

  
\_\_\_\_\_  
Peter Scheermesser  
Director  
Product Life Cycle Management and ETO  
Development for Valves and Actuators

Revision no. 00

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt, Germany

Page 1 of 1





SAMSON AKTIENGESELLSCHAFT  
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany  
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507  
[samson@samsongroup.com](mailto:samson@samsongroup.com) · [www.samsongroup.com](http://www.samsongroup.com)