

MOUNTING AND OPERATING INSTRUCTIONS



EB 5866 EN

Translation of original instructions



Type 3222/5857
Type 3222/5757-3
Type 3222/5757-7



Type 3222/5827



Type 3222/5825



Type 3222/2780-1



Type 3222/2780-2 with Type 3760
Positioner

Type 3222/... Electric and Pneumatic Control Valves

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).



Documents relating to the device, such as the mounting and operating instructions, are available on our website at www.samsongroup.com > **Service & Support > Downloads > Documentation.**

Definition of signal words

DANGER

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

WARNING

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

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

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1 Safety instructions and measures

Intended use

The SAMSON Type 3222 Valve is designed for use in temperature control circuits in HVAC plants (e.g. for DHW heating). The valve is primarily combined with the following SAMSON actuators:

- As an electric control valve: Type 3222/5857, Type 3222/5824, Type 3222/5825, Type 3222/5827, Type 3222/5757-3, Type 3222/5757-7, Type 3222/5724-3, Type 3222/5724-8, Type 3222/5725-3 and Type 3222/5725-8
- As a pneumatic control valve: Type 3222/2780

The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in operating conditions that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve 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 control valve is not suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data
- Type 3222/2780 Control Valve: Use outside the limits defined by the valve accessories connected to the valve

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 control valve 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

Safety instructions and measures

their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Welding operations must only be performed by personnel who has the necessary qualification to perform the applied welding procedure and handle the materials used.

Explosion-protected versions of this device must be operated only by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

Personal protective equipment

We recommend wearing the following protective equipment:

- Protective clothing and gloves in applications with hot or cold media
- ➔ 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.

Safety features

In combination with the Type 5825, Type 5827-A and Type 5827-E Electric Actuators as well as with the TROVIS 5725-3 and TROVIS 5725-8 Electric Actuators with Process Controller, the following safety feature exists: upon failure of the supply voltage, the valve moves to a defined fail-safe position (see the 'Design and principle of operation' section). The direction of action of the fail-safe action is defined by the actuator version (see associated actuator documentation).

In combination with the Type 2780 Pneumatic Actuator, the following safety feature exists: upon failure of the air supply, the valve moves to a certain fail-safe position (see the 'Design and principle of operation' section). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators (see actuator documentation).

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

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

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 control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. Valves with a CE marking have a declaration of conformity, which includes information about the applied conformity assessment procedure. The 'Certificates' section contains this declaration of conformity.

The electric actuators are designed for use in low voltage installations. For wiring, maintenance and repair, observe the relevant safety regulations.

Referenced documentation

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

- Mounting and operating instructions for mounted actuator, e.g. SAMSON actuators:
 - ▶ EB 5857 for Type 5857
 - ▶ EB 5824-1/-2 for Type 5824 and Type 5825
 - ▶ EB 5827-1/-2 for Type 5827
 - ▶ EB 5757-X for TROVIS 5757-X
 - ▶ EB 5724 for TROVIS 5724-3 and TROVIS 5725-3
 - ▶ EB 5724-8 for TROVIS 5724-8 and TROVIS 5725-8
 - ▶ EB 5840 for Type 2780
- For Type 3222/2780 Control Valve: mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- When a substance is used in the device, which is listed as being a substance of very high concern on the candidate list of the REACH regulation:
Information on safe use of the part affected
 - ▶ www.samsongroup.com > About SAMSON > Material Compliance > REACH

If a 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.

1.1 Notes on possible severe personal injury

DANGER

Risk of bursting in pressure equipment.

Valves and pipelines are pressure equipment. Impermissible pressure or improper opening can lead to valve components bursting.

- Observe the maximum permissible pressure for valve and plant.
- Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.

Risk of fatal injury due to electric shock.

- Do not remove any covers to perform adjustment work on live parts.
- Before performing any work on the device and before opening the device, disconnect the supply voltage and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.
- The electric actuators are protected against spray water (IP 54). Avoid jets of water.

1.2 Notes on possible personal injury

WARNING

Crush hazard arising from moving parts.

The pneumatic control valve (Type 3222/2780) contains moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the valve.

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

Risk of personal injury due to preloaded springs.

Pneumatic control valves (Type 3222/2780) using an actuator with preloaded springs are under tension. These control valves with SAMSON pneumatic actuators can be identified by the long bolts protruding from the bottom of the actuator.

- Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).

Risk of hearing loss or deafness due to loud noise.

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

- If necessary, wear hearing protection when working near the valve.

⚠ WARNING**Risk of personal injury due to exhaust air being vented.**

While the valve is operating, the pneumatic control valve (Type 3222/2780) vents during closed-loop control or when the valve opens or closes.

- Install the control valve in such a way that vent openings are not located at eye level and the actuator does not vent at eye level in the work position.
- Use suitable silencers and vent plugs.
- Wear eye protection when working in close proximity to the control valve.

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 all the plant sections affected and the valve.
- Wear protective clothing and safety gloves.

Risk of burn injuries due to hot components and pipelines.

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

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

Exposure to hazardous substances poses a serious risk to health.

Certain lubricants and cleaning agents are classified as hazardous substances. These substances have a special label and a material safety data sheet (MSDS) issued by the manufacturer.

- Make sure that an MSDS is available for any hazardous substance used. If necessary, contact the manufacturer to obtain an MSDS.
- Inform yourself about the hazardous substances and their correct handling.

WARNING

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

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

- Keep all relevant markings and inscriptions on the device in a constantly legible state.
- Immediately renew damaged, missing or incorrect nameplates or labels.

1.3 Notes on possible property damage

NOTICE

Risk of damage to the electric control valve due to the supply voltage exceeding the permissible tolerances.

The electric control valves are designed for use according to regulations for low-voltage installations.

- Observe the permissible tolerances of the supply voltage. See associated actuator documentation.

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.

Risk of valve damage due to unsuitable medium properties.

The valve is designed for a process medium (e.g. water, oil, steam) with defined properties.

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

2 Markings on the device

2.1 Valve nameplate

SAMSON	1
2	3
4	5
kvs 6	Δp 7

- 1 Type designation
- 2 Configuration ID
- 3 Date of manufacture
- 4 Model number
- 5 Max. permissible temperature
- 6 K_{VS} coefficient
- 7 Max. perm. differential pressure

The nameplate (48) is affixed to the valve body (see Fig. 2-1).

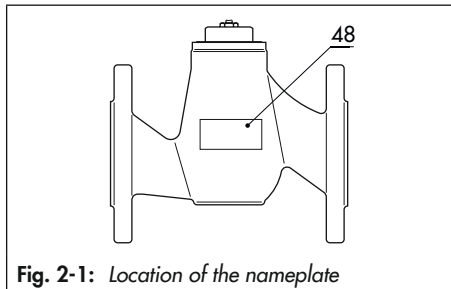


Fig. 2-1: Location of the nameplate

2.2 Actuator nameplate

See associated actuator documentation.

3 Design and principle of operation

The medium flows through the single-seated globe valve in the direction indicated by the arrow. The position of the plug determines the flow rate across the area released between plug (1) and seat (5). The valve is opened by the valve spring when the actuator stem retracts. The plug is moved by changing the control signal applied to the actuator. The valve and actuator have a force-locking connection.

A special version (see Fig. 3-3) is available for water above 150 °C and steam.

3.1 Fail-safe action

When the Type 3222 Valve is combined with one of the following actuators, the valve moves to the fail-safe position upon failure of the air supply or supply voltage:

- Type 5825, Type 5827-A and Type 5827-E Electric Actuators
- TROVIS 5725-3 and TROVIS 5725-8 Electric Actuators with Process Controller
- Type 2780 Pneumatic Actuator

One of two different fail-safe positions can be assumed by the control valve:

- **Actuator stem extends:** upon supply voltage or air supply failure, the actuator stem extends.

i Note

The TROVIS 5725-3 and TROVIS 5725-8 Electric Actuators with Process Controller in the version with force-locking attachment and the Type 5827-A and Type 5825 Electric Actuators with "actuator stem extends" fail-safe action are tested by the German technical surveillance association TÜV according to DIN EN 14597 in combination with the SAMSON Type 3222 Valve. The registration number is available on request.



- **Actuator stem retracts:** upon supply voltage or air supply failure, the actuator stem retracts.
-

i Note

The fail-safe action of pneumatic actuators can be reversed (see associated actuator documentation). The fail-safe action of electric actuators (with process controller) is already determined at the ordering stage.

Design and principle of operation

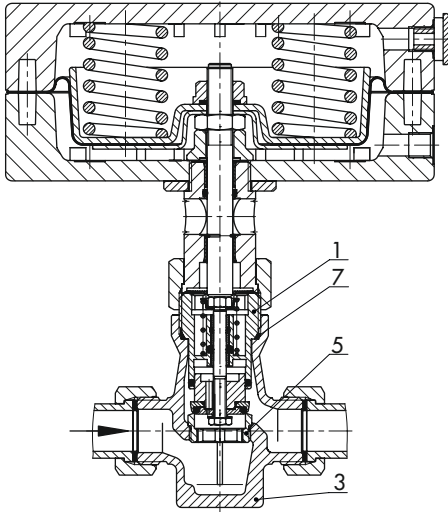


Fig. 3-1: Type 3222/2780-1

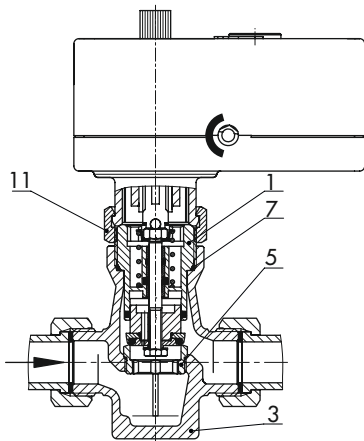


Fig. 3-2: Type 3222/5857, Type 3222/5757-3, Type 3222/5757-7

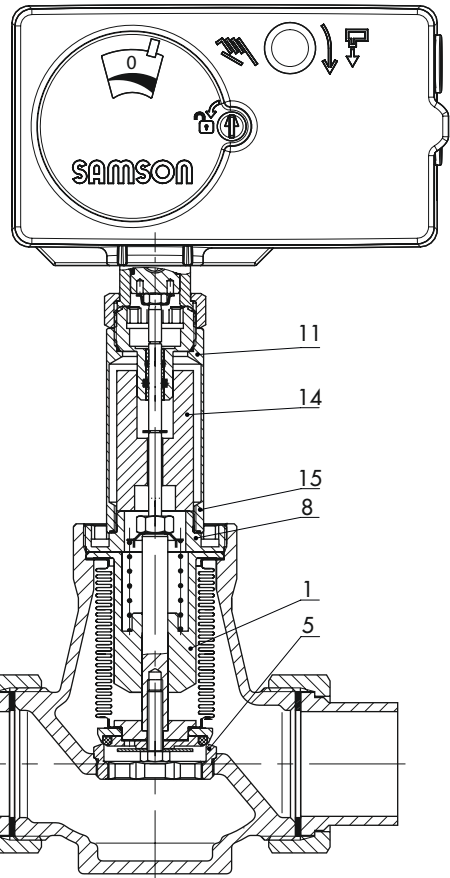


Fig. 3-3: Type 3222/5827, Type 3222/5724-3 ·
Version for water above 150 °C and steam

- | | |
|----------|-----------------------|
| 1 Plug | 8 Connecting piece |
| 3 Body | 11 Guide nipple |
| 5 Seat | 14 Insulating section |
| 7 O-ring | 15 Insulating pipe |

3.2 Versions

Electric actuators

The electric actuators can be controlled either using a three-step signal or, in the version with positioner, with continuous signals adjustable in the range from 0 to 20 mA or from 0 to 10 V. Various electrical accessories can be optionally installed. Type 5825, Type 5827-A and Type 5827-E Actuators are able to perform a fail-safe action. Refer to section Table 3-1.

Electric actuators with process controllers

Electric actuators with process controller are a combination of an electric actuator and a digital process controller. The TROVIS 5757-3, TROVIS 5724-3 and TROVIS 5725-3 Electric Actuators with Process Controller are suitable for DHW applications. TROVIS 5757-7 is suitable for heating and cooling applications. TROVIS 5724-8 and TROVIS 5725-8 have two PID control modules and are ready-wired for heating and cooling applications. TROVIS 5725-3 and TROVIS 5725-8 Actuators are able to perform a fail-safe action. Refer to section Table 3-1.

Pneumatic actuators

The Type 2780-1 Pneumatic Actuator uses a control signal from 0.4 to 1 bar and Type 2780-2 uses a control signal from 0.4 to 2 bar which is applied to the signal pressure connection.

The pneumatic actuators require a supply pressure of at least 0.2 bar above the maximum bench range. All actuators are avail-

able for fail-safe action "Actuator stem extends (FA)" or "Actuator stem retracts (FE)".

Design and principle of operation

Table 3-1: Available versions and possible combinations (valve/actuator)

Type/ TROVIS	Fail-safe action: Actuator stem		Valve size DN						Thread size G			
	Extends	Retracts	15	20	25	32	40	50	1/2	3/4	1	
Electric actuators												
5857	–	–	•	•	•			–		•	•	•
5824-10 ²⁾	–	–	•	•	•			–		•	•	•
5824-13 ^{1) 2)}	–	–	•	•	•			–		•	•	•
5827-N1	–	–	•	•	•			–		•	•	•
5825-10 ²⁾	•	–	•	•	•			–		•	•	•
5825-13 ^{1) 2)}	•	–	•	•	•			–		•	•	•
5827-A1	•	–	•	•	•			–		•	•	•
5825-15 ²⁾	–	•	•	•	•			–		•	•	•
5827-E1	–	•	•	•	•			–		•	•	•
5824-20 ²⁾	–	–		–		•	•	•			–	
5824-23 ²⁾	–	–		–		•	•	•			–	
5827-N2	–	–		–		•	•	•			–	
5825-20 ²⁾	•	–		–		•	•	•			–	
5825-23 ²⁾	•	–		–		•	•	•			–	
5827-A2	•	–		–		•	•	•			–	
5825-25 ²⁾	–	•		–		•	•	•			–	
5827-E2	–	•		–		•	•	•			–	
Electric actuators with process controller for domestic hot water heating												
5757-3	–	–	•	•	•			–		•	•	•
5724-310	–	–	•	•	•			–		•	•	•
5725-310	•	–	•	•	•			–		•	•	•
5724-320	–	–		–		•	•	•			–	
5725-320	•	–		–		•	•	•			–	
Electric actuators with process controller for heating and cooling applications												
5757-7	–	–	•	•	•			–		•	•	•
5724-810	–	–	•	•	•			–		•	•	•
5724-820	–	–		–		•	•	•			–	
5725-810	•	–	•	•	•			–		•	•	•
5725-820	•	–		–		•	•	•			–	

Type/ TROVIS	Fail-safe action: Actuator stem		Valve size DN						Thread size G		
	Extends	Retracts	15	20	25	32	40	50	1/2	3/4	1
Pneumatic actuators											
2780-1	•	•	•	•	•	•	•	•	•	•	•
2780-2	•	•	•	•	•	•	•	•	•	•	•

1) Version with half transit time

2) The product will be discontinued in the near future. See Data Sheet ► T 5827 for replacement device.

3.3 Additional fittings

Strainers

We recommend installing a SAMSON Type 2 NI Strainer upstream of the valve. It prevents solid particles in the process medium from damaging the valve.

➔ Refer to the instructions in the 'Installation' section.

Bypass and shut-off valves

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

Intermediate insulating piece


An intermediate insulating piece (1990-1712) must be used under the following conditions:

- For medium temperatures from -15 °C (red brass) or -10 °C (EN-GJS-400-18-LT) to $+5\text{ °C}$ (actuators according to Table 3-1)
 - In networks with a constant medium temperature $>135\text{ °C}$ (TROVIS 5724-3, TROVIS 5724-8, TROVIS 5725-3, TROVIS 5725-8, Type 5824, Type 5825 and Type 5827 Actuators)
 - For liquids $>120\text{ °C}$ (TROVIS 5757-3, TROVIS 5757-7 and Type 5857 Actuators)
- ➔ Refer to the instructions in the 'Installation' section.

3.4 Technical data

The nameplates on the valve and actuator provide information on the control valve version. See the 'Markings on the device' section and the associated actuator documentation.

Table 3-2: Technical data for Type 3222

Valve size Globe valve with male thread connection or with flanged body	DN	15	20	25	32	40	50
Connection size Globe valve with female thread	G	½	¾	1	–	–	–
Pressure rating	PN	25					
Seat-plug seal		Metal seal for $K_{VS} \leq 2.5$ Soft seal for $K_{VS} \geq 3.6$					
Rated travel	mm	6			12		
Rangeability		50 : 1					
Leakage class according to IEC 60534-4		Class I (≤ 0.05 % of K_{VS} coefficient)					
Conformity							
Version for water, oil and other liquids							
Max. permissible temperature		150 °C ¹⁾					
Max. permissible differential pressure Δp							
Type 5824/5825/5827, TROVIS 5724-3/5724-8/ 5725-3/5725-8, Type 2780	bar	20	20	20	12/16 ⁴⁾	12	12
Type 5857, TROVIS 5757-3, TROVIS 5757-7	bar	20	20	20	–	–	–
Version for water above 150 °C and steam							
Max. permissible temperature		200 °C					
Max. permissible differential pressure Δp							
Type 5824/5825/5827, TROVIS 5724-3/5724-8/ 5725-3/5725-8, Type 2780	bar	20 · 10 with $3.6 \leq K_{VS} \leq 8$			8	8	8
Type 5857, TROVIS 5757-3, TROVIS 5757-7	bar	20 ²⁾ · 5 ³⁾	5	5	–	–	–

1) Use an intermediate insulating piece (see section 3.3, "Intermediate insulating piece")

2) Differential pressure with $K_{VS} = 1$ and 1.6

3) Differential pressure with $K_{VS} = 2.5$ and 4

4) Applies to $K_{VS} = 10$

Table 3-3: Valve sizes and K_{VS} coefficients

Valve size Globe valve with male thread connection or with flanged body	DN	15	20	25	32	40	50
Connection size Globe valve with female thread	G	½	¾	1	–	–	–
K_{VS} coefficients		4 ¹⁾ · 3.6 ²⁾	6.3 ¹⁾ · 5.7 ²⁾	8 ¹⁾ · 7.2 ²⁾	16 ¹⁾	20 ¹⁾	25 ¹⁾
Reduced K_{VS} coefficients		0.1 · 0.16 · 0.25 · 0.4 · 0.63 · 1.0 · 1.6 · 2.5	1.0 · 1.6 · 2.5 · 4 ¹⁾ · 3.6 ²⁾		10 ³⁾	–	–
Rated travel	mm	6	6	6	12	12	12

1) Version with male thread connection or with flanged body

2) Version with female thread

3) 6 mm rated travel

Table 3-4: Materials

Valve body	CC499K (CuSn5Zn5Pb2-C)
Version with flanged body	EN-GJS-400-18-LT (GGG-40.3)
Seat	Stainless steel 1.4305
Plug	1.4305/CW602N with soft seal 1.4305 with $0.1 \leq K_{VS} \leq 2.5$
Valve spring	Stainless steel 1.4310
Gasket	EPDM/FKM · Oil-resistant version: FKM
Welding ends	1.0460
Threaded ends	CW617N
Screwed-on flanges	1.0460/1.0038

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.

Design and principle of operation

Dimensions and weights

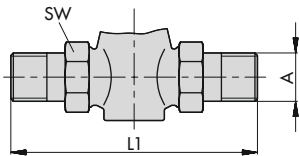
Table 3-5 provides a summary of the dimensions and weights of the valve. The lengths and heights in the dimensional drawings are shown on page 3-9 onwards.

Table 3-5: *Dimensions and weights for Type 3222 Valve*

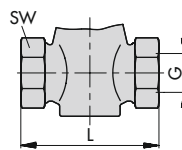
Valves with male thread connection							
Valve size	DN	15	20	25	32	40	50
Length L	mm	65	70	75	100	110	130
Height H2	mm	45.5	45.5	45.5	94	94	94
Version for water above 150 °C and steam or version with intermediate insulating piece		125.5	125.5	125.5	174	174	172
Height H3	mm	30.5	30.5	30.5	43	43	45
Valves with welding ends							
Thread size R	G	¾	1	1¼	1¾	2	2½
Pipe Ød	mm	21.3	26.8	33.7	42	48	60
Width across flats SW		30	37	46	60	65	82
Length L1	mm	210	234	244	268	294	330
Weight without actuator	kg	0.9	1.1	1.4	3.5	3.9	5
Version for water above 150 °C and steam or version with intermediate insulating piece		1.3	1.5	1.8	3.9	4.3	5.4
Valves with threaded ends							
Length L1	mm	129	144	159	192	206	228
Male thread A	G	½	¾	1	1¼	1½	2
Width across flats SW		30	37	46	60	65	82
Weight without actuator	kg	0.8	1.0	1.3	3.4	3.7	4.6
Version for water above 150 °C and steam or version with intermediate insulating piece		1.2	1.4	1.7	3.8	4.1	5.0
Valves with flanges							
Width across flats SW		30	37	46	60	65	82
Length L1	mm	130	150	160	180	200	230
Weight without actuator	kg	2.2	2.7	3.5	6.5	7.3	9.2
Version for water above 150 °C and steam or version with intermediate insulating piece		2.6	3.1	3.9	6.9	7.7	9.6

Valves with female thread							
Connection size	G	½	¾	1	–		
Width across flats SW		27	34	46	–		
Length L	mm	65	75	90	–		
Female thread	G	½	¾	1	–		
Weight without actuator	kg	0.6	0.7	0.9	–		
Version for water above 150 °C and steam or version with intermediate insulating piece		1.0	1.1	1.3	–		
Valves with flanged body							
Valve size	DN	15	20	25	32	40	50
Height H2	mm	46	46	46	94	94	92
Length L3	mm	130	150	160	180	200	230
Weight without actuator	kg	2.3	2.9	3.4	6.6	7.8	8.6
Version for water above 150 °C and steam or version with intermediate insulating piece		2.7	3.3	3.8	7.0	8.2	9.0

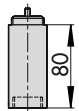
Dimensional drawings



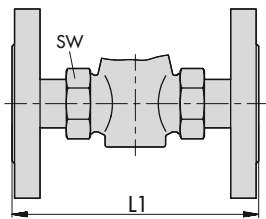
Version with male thread connection and threaded ends



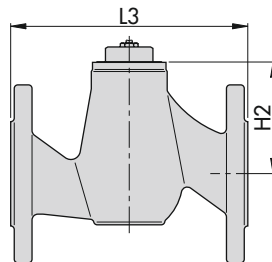
Version with female thread



Intermediate insulating piece

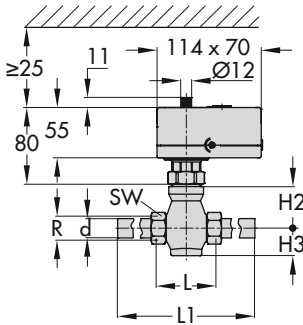


Version with male thread connection and flanges

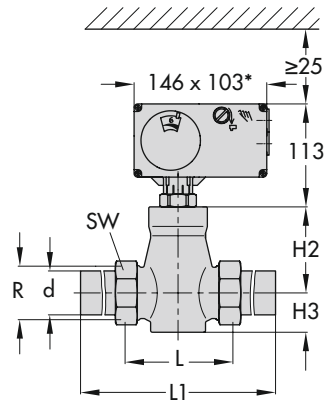


Version with flanges

Dimension diagrams for electric control valves (1)



Type 3222/5857: DN 15 to 25
 Type 3222/5757-3: DN 15 to 25
 Type 3222/5757-7: DN 15 to 25

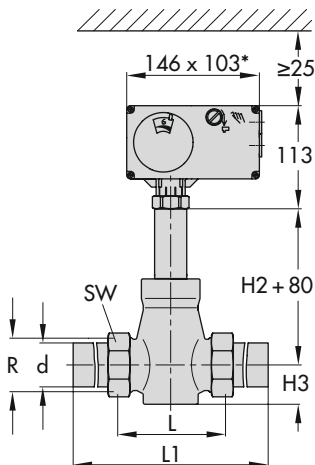


Type 3222/5824: DN 15 to 50
 Type 3222/5825: DN 15 to 50
 Type 3222/5724-3: DN 15 to 50
 Type 3222/5724-8: DN 15 to 50
 Type 3222/5725-3: DN 15 to 50
 Type 3222/5725-8: DN 15 to 50

* Dimensions for Types 5824-x3, 5825-x3

Actuators:

146x136



Version for water above 150 °C and steam

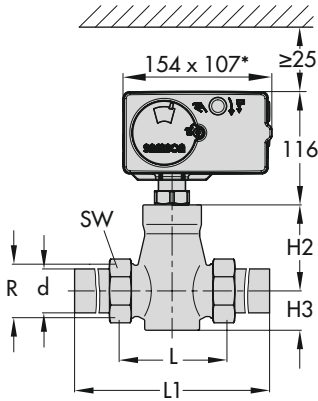
Type 3222/5824: DN 15 to 50
 Type 3222/5825: DN 15 to 50
 Type 3222/5724-3: DN 15 to 50
 Type 3222/5724-8: DN 15 to 50
 Type 3222/5725-3: DN 15 to 50
 Type 3222/5725-8: DN 15 to 50

* Dimensions for Types 5824-x3, 5825-x3

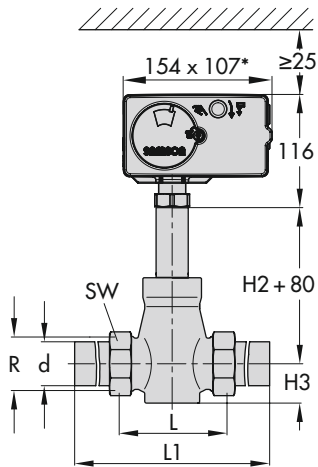
Actuators:

146x136

Dimension diagrams for electric control valves (2)



Type 3222/5827: DN 15 to 50
 * Dimensions for actuators with double stroking speed: 154x140



Version for water above 150 °C and steam
 Type 3222/5827: DN 15 to 50
 * Dimensions for actuators with double stroking speed: 154x140

Design and principle of operation

Dimension diagrams for pneumatic control valves

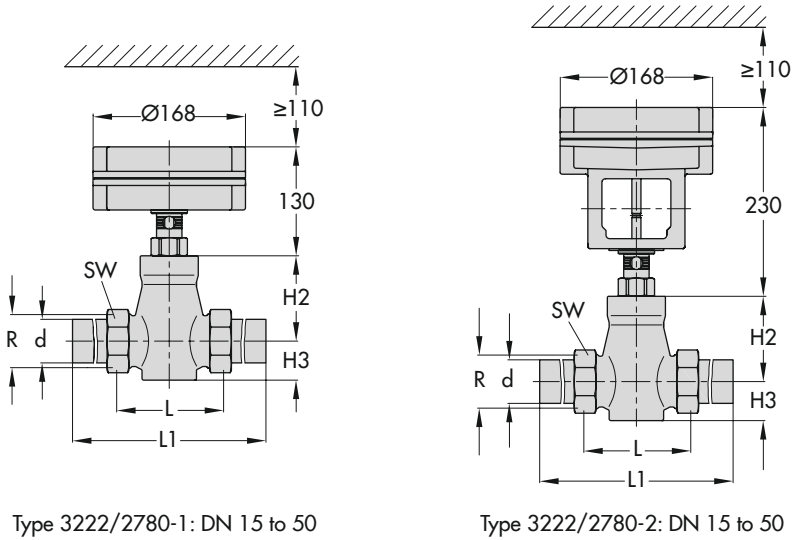


Table 3-6: Weights of electric actuators

Type		5857	5824	5825	5827-N	5827-A/-E
Weight	kg (approx.)	0.7	0.75	1.0	0.75	1.0

Table 3-7: Weights of electric actuators with process controller

TROVIS		5757-3/-7	5724-3/-8	5725-3/-8
Weight	kg (approx.)	0.7	1.1	1.3

Table 3-8: Dimensions and weights for pneumatic actuators

Type		2780-1	2780-2
Actuator area	cm ²	120	120
Diaphragm ØD	mm	170	170
Signal pressure connection a		G 1/8	G 1/8
Weight (approx.)	kg	2	3.2

4 Shipment and on-site transport

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

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Check that the specifications on the valve nameplate match the specifications in the delivery note. See the 'Markings on the device' section for nameplate details.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.2 Removing the packaging from the valve

Observe the following sequence:

- Do not open or remove the packaging until immediately before lifting to install the valve into the pipeline.
- Dispose and recycle the packaging in accordance with the local regulations.

4.3 Transporting and lifting the valve



Tip

Our after-sales service can provide more detailed transport and lifting instructions on request.

4.3.1 Transporting the valve

Transport instructions

- Protect the control valve against external influences (e.g. impact).
 - Protect the control valve against moisture and dirt.
 - Observe the permissible transportation temperature of -20 to $+65$ °C.
-

Note

Contact our after-sales service for the transportation temperatures of other valve versions.

4.3.2 Lifting the valve

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

4.4 Storing the valve

NOTICE

Risk of valve damage due to improper storage.

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

Storage instructions

- The control valves can be stored horizontally. Secure the valve in the stored position against slipping or tipping over.
 - Protect the control valve against external influences (e.g. impact).
 - Protect the control valve 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 storage temperature from -20 to $+65$ °C.
 - Do not place any objects on the control valve.
-

Note

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

Special storage instructions for elastomers

Elastomer, e.g. actuator diaphragm
(Type 2780 Pneumatic Actuator)

- To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.
 - We recommend a storage temperature of 15 °C (59 °F) for elastomers.
 - Store elastomers away from lubricants, chemicals, solutions and fuels.
-

Tip

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

5 Installation

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

5.1 Installation conditions

Work position

The work position for the control valve is the front view looking onto the operating controls (including valve accessories).

Plant operators must ensure that, after installation of the device, the operating personnel can perform all necessary work safely and easily access the device from the work position.

Pipeline routing

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

- Do not exceed the maximum permissible flow velocity.

i Note

The plant operator is responsible for determining the maximum permissible flow velocity. Our after-sales service can support you to determine the flow velocity for your plant.

- Install the valve free of stress and with the least amount of vibrations as possible. Read information under 'Mounting position' and 'Support or suspension' in this section.

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

Mounting position

Generally, we recommend installing the valve with the actuator upright and on top of the valve.

For versions for water, oil and other liquids, the actuator must not be suspended downwards (see Fig. 5-1).

In the following versions, the valve must be installed with the actuator on top in a horizontal pipeline:

- Version for water above 150 °C and steam
- Contact SAMSON if the mounting position is not as specified above.

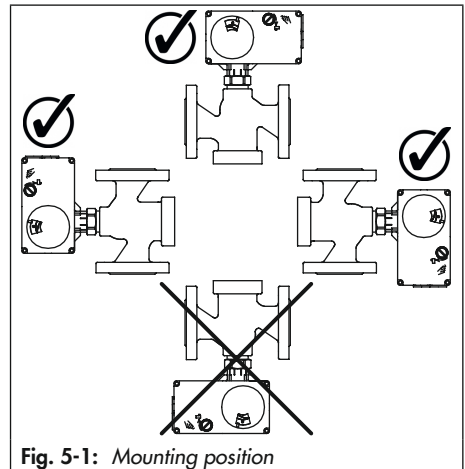


Fig. 5-1: Mounting position

Support or suspension

i Note

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

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

Valves, which are not installed in the pipeline in the upright position with the actuator on top, must be supported or suspended.

Vent plug (Type 3222/2780 only)

Vent plugs are screwed into the exhaust air ports of pneumatic and electropneumatic devices. They ensure that any exhaust air that forms can be vented to the atmosphere (to avoid excess pressure in the device). Furthermore, the vent plugs allow air intake to prevent a vacuum from forming in the device.

→ Locate the vent plug on the opposite side to the work position of operating personnel.

Valve accessories

→ During connection of valve accessories, make sure that they are easily accessible and can be operated safely from the work position.

5.2 Preparation for installation

Before installation, make sure the following conditions are met:

- The valve is clean.
- The valve and all valve accessories (including piping) are not damaged.
- The valve data on the nameplate (type designation, valve size, material, pressure rating and temperature range) match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.). See the 'Markings on the device' section for nameplate details.
- The requested or required additional pipe fittings (see the 'Additional fittings' section) have been installed or prepared as necessary before installing the valve.

Intermediate insulating piece:

When using an intermediate insulating piece, observe the following points:

- Do not insulate the actuator and the coupling nut as well.
- Only insulate the intermediate insulating piece up to 25 mm at the maximum.

Strainer:

When using a strainer, make sure the following conditions are met:

- The direction of flow of the strainer and valve are the same.
- Install the strainer with the filter element facing downwards.
- Sufficient space exists to remove the filter.

Proceed as follows:

- Lay out the necessary material and tools to have them ready during installation work.
- Flush the pipelines.

i Note

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

- For steam applications, dry the pipelines. Moisture will damage the inside of the valve.
- Check any mounted pressure gauges to make sure they function properly.
- When the valve and actuator are already assembled, check the bolted joints. Components may loosen during transport.

5.3 Mounting the device

The activities listed below are necessary to install the valve and before it can be started up.

! NOTICE

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

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

We recommend first installing the valve into the pipeline and mounting the actuator afterwards.

Procedure to insulate cold systems

To insulate cold systems, we recommend to proceed as follows:

1. Fill the plant and carefully rinse it.
2. Shut down the plant and let it heat up until all the condensation water has dried off.
3. Mount and insulate the intermediate insulating piece (1990-1712).

Observe the following on installing the control valve:

- Make sure that the electric actuator remains accessible after installation.
- Make sure that the plug stem can move freely and does not touch the insulation.
- Make sure that the actuator stem does not touch the insulation.

i Note

The insulation thickness depends on the medium temperature and the ambient conditions. 50 mm is a typical thickness.

5.3.1 Installing the valve into the pipeline

NOTICE

Risk of valve damage due to work being carried out by personnel not qualified for such tasks.

The plant operator or specialist company performing the welding is responsible for the selection of the welding procedure and the actual welding operations on the valve. This also applies to any required heat treatment to be performed on the valve.

→ Only allow qualified welding personnel to carry out welding operations.

1. Close the shut-off valves in the pipeline at the inlet and outlet of the plant section while the valve is being installed.
2. Prepare the relevant section of the pipeline for installing the valve.
3. Remove any protective caps from the valve ports before installing the valve.
4. Lift the valve to the site of installation (see the 'Lifting the valve' section). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. **Version with flanges:** make sure that the correct flange gaskets are used.

Version with threaded ends (female/male thread) and flanges: fasten the valve to the pipeline free of stress.

Version with welding ends: weld the valve free of stress into the pipeline.

6. Attach a support or suspension on the valve, if necessary, to avoid premature wear and leakage.

5.3.2 Mounting the actuator onto the valve

Depending on the version, SAMSON control valves are either delivered with the actuator already mounted on the valve or the valve and actuator are delivered separately. When delivered separately, the valve and actuator must be assembled together on site.

- To mount the actuator, proceed as described in the associated actuator documentation:
- Type 5857 Electric Actuator ▶ EB 5857
 - Type 5824 Electric Actuator ▶ EB 5824-1/-2
 - Type 5825 Electric Actuator ▶ EB 5824-1/-2
 - Type 5825 Electric Actuator ▶ EB 5824-1/-2
 - TROVIS 5757-3 Electric Actuator with Process Controller ▶ EB 5757
 - TROVIS 5724-3 Electric Actuator with Process Controller ▶ EB 5724
 - TROVIS 5724-8 Electric Actuator with Process Controller ▶ EB 5724-8

- TROVIS 5725-3 Electric Actuator with Process Controller ► EB 5724
- TROVIS 5725-8 Electric Actuator with Process Controller ► EB 5724-8
- TROVIS 5757-7 Electric Actuator with Process Controller ► EB 5757-7
- Type 2780 Pneumatic Actuator ► EB 5840

5.3.3 Connecting the actuator

Perform the electrical or pneumatic connection of the actuator as described in the associated actuator documentation.

⚠ DANGER

Risk of fatal injury due to electric shock.

- Do not remove any covers to perform adjustment work on live parts.
- Before performing any work on the device and before opening the device, disconnect the supply voltage and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.
- The electric actuators are protected against spray water (IP 54). Avoid jets of water.

5.3.4 Configuring the actuator

The electric actuator versions with positioner as well as electric actuators with process controller can be adapted to the control task.

Configure the actuator as described in the associated actuator documentation.

i Note

For electric control valves with positioner, an initialization needs to be performed after the initial start-up (see associated documentation).

5.4 Testing the installed valve

⚠ DANGER

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

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

Before working on the control valve:

- Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.
- Drain the process medium from all the plant sections concerned as well as the valve.

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

WARNING

Crush hazard arising from actuator and plug stem moving (Type 3222/2780 Pneumatic Control Valve).

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

WARNING

Risk of personal injury due to exhaust air being vented (Type 3222/2780 Pneumatic Control Valve).

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

- Wear eye protection when working in close proximity to the control valve.

WARNING

Risk of personal injury due to preloaded springs (Type 3222/2780 Pneumatic Control Valve).

Actuators with preloaded springs are under tension. They can be identified by the long bolts protruding from the bottom of the actuator.

- Before starting any work on the actuator, relieve the compression from the preloaded springs (see associated actuator documentation).

To test the valve functioning before start-up or putting back the valve into operation, perform the following tests:

5.4.1 Leak test

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

Tip

Our after-sales service can support you to plan and perform a leak test for your plant.

1. Slowly apply the test medium to the valve until the test pressure is reached. Avoid sudden surges in pressure since the resulting high velocities may damage the valve.
2. Check the valve for leakage to the atmosphere.

3. Depressurize the pipeline section and valve.
4. Rework any parts that leak and repeat the leak test.

5.4.2 Travel motion

The movement of the actuator stem must be linear and smooth.

- Apply the maximum and minimum control signals to check the end positions of the valve while observing the movement of the actuator stem.
- Check the travel reading at the travel indicator scale.

5.4.3 Fail-safe position

Fail-safe position with pneumatic actuators

- Shut off the signal pressure line.
- Check whether the valve moves to the fail-safe position (see the 'Design and principle of operation' section).

Fail-safe position for electric actuators and electric actuators with process controller with fail-safe action

- Switch off the supply voltage.
- Check whether the valve moves to the fail-safe position.

5.4.4 Pressure test

The plant operator is responsible for performing the pressure test.



Tip

Our after-sales service can support you to plan and perform a pressure test for your plant.

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

- Retract the plug stem to open the valve.
- Observe the maximum permissible pressure or differential pressure for both the valve and plant.

6 Start-up

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

⚠ WARNING

Risk of burn injuries due to hot components and pipeline.

Valve components and the pipeline may become very hot. Risk of burn injuries.

- Wear protective clothing and safety gloves.

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a brief loud noise may occur through the sudden venting of the pneumatic actuator (see 'Fail-safe position') or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving (Type 3222/2780 Pneumatic Control Valve).

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

⚠ WARNING

Risk of personal injury due to exhaust air being vented (Type 3222/2780 Pneumatic Control Valve).

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

- Wear eye protection when working in close proximity to the control valve.

Start-up

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

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

Start-up/putting the valve back into operation

1. Allow the valve to warm up to reach ambient temperature before start-up when the ambient temperature and process medium temperature differ greatly or the medium properties require such a measure.
2. Slowly open the shut-off valves in the pipeline. Slowly opening these valves prevents a sudden surge in pressure and high flow velocities which can damage the valve.
3. Check the valve to ensure it functions properly.

7 Operation

Immediately after completing start-up or putting the valve back into operation, the valve is ready for use.

⚠ WARNING

Risk of burn injuries due to hot components and pipeline.

Valve components and the pipeline may become very hot. Risk of burn injuries.

- Wear protective clothing and safety gloves.

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving (Type 3222/2780 Pneumatic Control Valve).

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

⚠ WARNING

Risk of personal injury due to exhaust air being vented (Type 3222/2780 Pneumatic Control Valve).

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

- Wear eye protection when working in close proximity to the control valve.

8 Malfunctions

Read hazard statements, warnings and caution notes in the 'Safety instructions and measures' section.

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Actuator and plug stem does not move on demand.	Actuator is blocked.	Check attachment. Remove the blockage. WARNING! A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the air supply or power supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression of the Type 2780 Pneumatic Actuator). See associated actuator documentation.
	Electric actuators: No or incorrect supply voltage connected.	Check the supply voltage and connections.
	Pneumatic actuator: Diaphragm defective	See associated actuator documentation.
	Pneumatic actuator: Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
Actuator and plug stem does not stroke through the entire range.	Electric actuators: No or incorrect supply voltage connected.	Check the supply voltage and connections.
	Pneumatic actuator: Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
The valve leaks to the atmosphere (fugitive emissions).	Plug stem seal defective	Contact our after-sales service.

Malfunctions

Malfunction	Possible reasons	Recommended action
Increased flow through closed valve (seat leakage)	Dirt or other foreign particles deposited between the seat and plug.	Shut off the section of the pipeline and flush the valve.
	Valve trim is worn out.	Contact our after-sales service.

i Note

Contact our after-sales service for malfunctions not listed in the table.

8.2 Emergency action

The plant operator is responsible for emergency action to be taken in the plant.

In the event of a valve malfunction:

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

Putting the valve back into operation after a malfunction

See the 'Start-up' section.

9 Servicing

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

i Note

The control valve 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.*

9.1 Periodic testing

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

Tip

Our after-sales service can support you in drawing up an inspection and test plan for your plant.

⚠ DANGER

Risk of fatal injury due to electric shock.

- Do not remove any covers to perform adjustment work on live parts.

- Before performing any work on the device and before opening the device, disconnect the supply voltage and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.
- The electric actuators are protected against spray water (IP 54). Avoid jets of water.

⚠ DANGER

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

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

Before working on the control valve:

- Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.
- Drain the process medium from all the plant sections concerned as well as the valve.

⚠ WARNING

Risk of burn injuries due to hot components and pipeline.

Valve components and the pipeline may become very hot. Risk of burn injuries.

- Wear protective clothing and safety gloves.

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

→ Wear hearing protection when working near the valve.

⚠ WARNING

Risk of personal injury due to exhaust air being vented (Type 3222/2780 Pneumatic Control Valve).

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

→ Wear eye protection when working in close proximity to the control valve.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving (Type 3222/2780 Pneumatic Control Valve).

→ Do not insert hands or finger into the yoke while the air supply is connected to the actuator.

→ Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.

→ Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.

→ Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

We recommend the following inspection and testing which can be performed while the process is running:

Inspection and testing	Action to be taken in the event of a negative result:
Check the markings, labels and name-plates on the valve for their readability and completeness.	Immediately renew damaged, missing or incorrect name-plates or labels.
	Clean any inscriptions that are covered with dirt and are illegible.
Check the pipe connections and gaskets on the valve and actuator for leakage.	Check the bolted joint (tightening torque).
Check the valve's seat leakage.	Shut off the section of the pipeline and flush the valve to remove any dirt and/or deposited foreign particles between the seat and plug.
Check the valve for external damage (e.g. corrosion).	Remove any damage immediately. If necessary, put the control valve out of operation (see the 'Decommissioning' section).
Check the valve accessories to ensure they are mounted properly.	Tighten the connections of the valve accessories.
Check to ensure that the actuator and plug stem move smoothly.	<p>Unblock a blocked actuator and plug stem.</p> <p>WARNING! A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve.</p> <p>Before trying to unblock the actuator or plug stem, disconnect and lock the air supply or power supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression of the Type 2780 Pneumatic Actuator). See associated actuator documentation.</p>
If possible, check the valve's fail-safe position by briefly interrupting the air supply.	Put the control valve out of operation (see the 'Decommissioning' section). Identify the cause for the malfunction and rectify it (see the 'Troubleshooting' section).

10 Decommissioning

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

⚠ DANGER

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

Valves and pipelines are pressure equipment that may burst when handled incorrectly.

Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death.

Before working on the control valve:

- Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.
- Drain the process medium from all the plant sections concerned as well as the valve.

⚠ DANGER

Risk of fatal injury due to electric shock.

- Before performing any work on the device and before opening the device, disconnect the supply voltage and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.

⚠ WARNING

Risk of burn injuries due to hot components and pipeline.

Valve components and the pipeline may become very hot. Risk of burn injuries.

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a loud noise may briefly occur through the sudden venting of the pneumatic actuator or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving (Type 3222/2780 Pneumatic Control Valve).

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.

Decommissioning

- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
 - Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.
-

WARNING

Risk of personal injury due to exhaust air being vented (Type 3222/2780 Pneumatic Control Valve).

While the valve is operating, air is vented from the actuator, for example, during closed-loop operation or when the valve opens or closes.

- Wear eye protection when working in close proximity to the control valve.
-

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.

- Wear protective clothing, safety gloves and eye protection.
-

To decommission the control valve for disassembly, proceed as follows:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Completely drain the pipelines and valve.
3. Disconnect and lock the pneumatic air supply or supply voltage to depressurize or de-energize the actuator.
4. Release any stored energy.
5. If necessary, allow the pipeline and valve components to cool down.

11 Removal

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

⚠ WARNING

Risk of burn injuries due to hot components and pipeline.

Valve components and the pipeline may become very hot. Risk of burn injuries.

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

⚠ WARNING

Crush hazard arising from actuator and plug stem moving (Type 3222/2780 Pneumatic Control Valve).

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

⚠ 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.

- Wear protective clothing, safety gloves and eye protection.

⚠ WARNING

Risk of personal injury due to preloaded springs (Type 3222/2780 Pneumatic Control Valve).

Actuators with preloaded springs are under tension. They can be identified by the long bolts protruding from the bottom of the actuator.

- Before starting any work on the actuator, relieve the compression from the preloaded springs.

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

- The control valve is put out of operation (see the 'Decommissioning' section).

11.1 Removing the valve from the pipeline

1. Support the control valve to hold it in place when separated from the pipeline.
2. **Version with threaded ends (female/male thread) or flanges:** undo the flange joint or screw connection.

Removal

Version with welding ends: cut the pipeline in front of the weld seam.

3. Remove the valve from the pipeline.

11.2 Removing the actuator from the valve

See associated actuator documentation.

12 Repairs

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

! NOTICE

Risk of valve damage due to incorrect repair work.

- ➔ *Do not perform any repair work on your own.*
- ➔ *Contact SAMSON's After-sales Service for repair work.*

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models
 - ▶ *www.samsongroup.com > Service & Support > After-sales Service.*
2. Send an e-mail
 - ▶ *retouren@samsongroup.com* to register the return shipment including the following information:
 - Type
 - Article no.
 - Configuration ID
 - Original order

- Completed Declaration on Contamination, which can be downloaded from our website at
 - ▶ *www.samsongroup.com > Service & Support > After-sales Service.*

After checking your registration, we will send you a return merchandise authorization (RMA).

3. Attach the RMA (together with the Declaration on Decontamination) to the outside of your shipment so that the documents are clearly visible.
4. Send the shipment to the address given on the RMA.

i Note

Further information on returned devices and how they are handled can be found at

- ▶ *www.samsongroup.com > Service & Support > After-sales Service.*

13 Disposal

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

14 Certificates

The declarations of conformity according Pressure Equipment Directive 2014/68/EU are included on the next pages:



EU-KONFORMITÄTSERKLÄRUNG EU DECLARATION OF CONFORMITY

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

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

Ventile für elektrische Stellgeräte und Strahlpumpe/Globe and three-way valves and jet pump equipped with electric actuators

Typ/Type 3213, 3222 (Erz.-Nr./Model No. 2710), 3323, 3535 (2803), 3213, 3531 (2811), 3214 (2814), 2423E (2823), 3241, 3244, 3267

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 15.05.2014

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

Nenndruck Pressure rating	DN NPS	15 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65 -	80 3	100 4	125 -	150 6	200 8	250 10	300 12	400 16	
PN 25		ohne ⁽¹⁾			A ⁽²⁾⁽³⁾		H										
PN 40		ohne ⁽¹⁾			H												
Class 150		ohne ⁽¹⁾			A ⁽²⁾⁽³⁾			H									
Class 300		ohne ⁽¹⁾			H												

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

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines 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 B16.24, ASME B16.34, ASME B16.42

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:

The Manufacturer's Quality Assurance System is monitored by following Notified Body

Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE, France
Hersteller/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

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

Thorsten Muth
Senior Director
Sales and After-sales

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

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main

Telefon: 069 4009-0 Telefax: 069 4009-1507
E-Mail: samson@samson.de

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EU DECLARATION OF CONFORMITY
TRANSLATION



Module D / N° CE-0062-PED-D-SAM 001-20-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	3374 (2000 N)		with Type 2811, 2814, 2823, 3321, 3241 Certificate no.: 01 202 931-B-15-0030
Safety shut-off device for combustion plants	240	3241	with Type 3241-4362 Certificate no.: 01 202 931-B-11-0018
	240	3241	with Type 3241-4364 Certificate no.: 01 202 931-B-11-0019
Control valve for hot water and steam with fail-safe action	240	3241	with Type 3271 Certificate no.: 01 202 931-B-10-0006
	240	3241	also balanced with Type 3271 and Type 3277 Certificate no.: 01 202 931-B-10-0009
	3274 (1800 N)		with Type 3241, 2423, 2823 Certificate no.: 01 202 931-B-10-0027
	3274 (3000 N)		with Type 3241, 3214, 2814 Certificate no.: 01 202 931-B-10-0028
Control valve for water and steam with fail-safe action	5725, 5825 (2770)		with Type 3214 (2814), 2423 (2823), 3213 (2710), 3222 (2710), 2486 (2730), 2489 (2730) Certificate no.: 01 202 641-B-19 0017
Safety shut-off device for gas burners and gas equipment	240	3241	with Type 3241-0261 to 3241-0275 Certificate no.: 01 202 931-B-02-0017-01
Control valve for leakage gas discharge for gas burners and gas equipment	240	3241	with Type 3241-4321 Certificate no.: 01 202 931-B-02-0018-01

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	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

Technical standards applied: DIN EN 12516-2, DIN EN 12516-3, ASME B16.34

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

Frankfurt am Main, 15 May 2020

Dr. Andreas Widl
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter
Chief Technology Officer (CTO)

Revision 07



EU-KONFORMITÄTSERKLÄRUNG EU DECLARATION OF CONFORMITY

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

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

Ventile für elektrische und pneumatische Antriebe/Globe and three-way valves equipped with electric and pneumatic actuators

Typ/Type 3213, 3222 (Erz.-Nr./Model No. 2710), 3226, 3260* (2713*), 3323, 3535 (2803), 3213, 3531 (2811), 3214 (2814), 2423E (2823), 3241, 3244, 3267, 2422 (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 Services SAS. (0062)
Conformity assessment procedure applied for fluids according to Article 4(1)(c.ii) and (c.i), second indent See table for module

Nenndruck Pressure rating	DN NPS	15 ½	20 ¾	25 1	32 1¼	40 1½	50 2	65	80 3	100 4	125	150 6	200 8	250 10	300 12	400 16
PN 16		ohne/without (1)					A (2)(3)					H				
PN 25		ohne/without (1)					A (2)(3)					H				
PN 40		ohne/without (1)					A (2)(3)					H				
Class 150		ohne/without (1)					A (2)(3)					H				
Class 300		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 Services SAS gilt nicht für Modul A.

The identification number 0062 of Bureau Veritas Services SAS is not valid for module A.

* Für Ventile vom Typ 3260 sind ab DN 150 Fluide nach Art. 4(1)(c.ii) erster Gedankenstrich nicht zugelassen. Fluids according to Art. 4(1)(c.i), first indent are not permissible for Type 3260 Valves with DN equal or bigger than 150.

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 Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE, France
Hersteller/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

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

Thorsten Woth
Senior Director
Sales and After-sales

Peter Scheermesser
Director Central Department
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E-Mail: samson@samson.de

Revision 04

15 Annex

15.1 After-sales service

Contact our after-sales service for support concerning service or repair work or when malfunctions or defects arise.

E-mail address

You can reach our after-sales service at aftersalesservice@samsongroup.com.

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, valve size and valve version
- Pressure and temperature of the process medium
- Flow rate in m³/h
- Bench range (e.g. 0.2 to 1 bar) or input signal of the actuator (e.g. 0 to 20 mA or 0 to 10 V)
- Is a strainer installed?
- Installation drawing

EB 5866 EN



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