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.

➔ 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@samson.de).

The mounting and operating instructions for the devices are included in the scope of delivery. The latest documentation is available on our website at www.samson.de > 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 electric control valve: Type 3222/5857, Type 3222/5824, Type 3222/5825, Type 3222/5757-3, Type 3222/5757-7, Type 3222/5724-3, Type 3222/5724-8, Type 3222/5725-3, Type 3222/5725-7 and Type 3222/5725-8
- As 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 applications that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in other applications or conditions than specified, SAMSON must be contacted.

SAMSON does not assume any liability for damage resulting from the failure to use the valve 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 in the technical data
- For Type 3222/2780 Control Valve: use outside the limits defined by the valve accessories mounted on the control valve

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

- Use of non-original spare parts
- Performing servicing and repair work not described in these instructions
Safety instructions and measures

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 are to be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to their specialized training, their knowledge and experience as well as their knowledge of the applicable standards.

Personal protective equipment
We recommend wearing the following protective equipment:
- 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 to the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

Safety features
In combination with the Type 5825 Electric Actuator and with the TROVIS 5725-3, TROVIS 5725-7, and TROVIS 5725-8 Electric Actuators with Process Controllers, the following safety feature exists: upon failure of the power supply, the valve moves to a defined fail-safe position (see section 3.1). 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 section 3.1). The fail-safe action corresponds with the direction of action. The fail-safe action of SAMSON actuators is specified on the actuator nameplate (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. They must observe all hazard statements, warning and caution notes in these mounting and operating instructions, especially for installation, start-up, and servicing.
Safety instructions and measures

Responsibilities of the operator
The operator is responsible for proper operation and compliance with the safety regulations. Operators are obliged to provide these mounting and operating instructions as well as the referenced documents to the operating personnel and to instruct them in proper operation. Furthermore, operators must ensure that operating personnel or third persons are not exposed to any danger.

Responsibilities of operating personnel
Operating personnel must read and understand these mounting and operating instructions as well as the referenced documents and observe the hazard statements, warning, and caution notes specified in them. Furthermore, the operating personnel must be familiar with the applicable health, safety and accident prevention regulations and comply with them.

Referenced standards and regulations
The 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. This declaration of conformity is included in the Appendix of these instructions (see section 10.2).

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 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 5725-7 for TROVIS 5725-7
  - EB 5840 for Type 2780
- For Type 3222/2780 Control Valve: mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
1.1 Notes on possible severe personal injury

⚠️ DANGER

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

➤ Before starting any work on the control valve, depressurize all plant sections
   concerned and the valve.

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

➤ Wear personal protective equipment.

Risk of 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, discon-
   nect the power supply and protect it against unintentional reconnection.

➤ Only use power interruption devices that are protected against unintentional reconnec-
   tion 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.

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

Risk of personal injury when the pneumatic actuator vents.
While the valve is operating, the pneumatic actuator (Type 2780) may vent during closed-loop control or when the valve opens or closes.

- Install the control valve in such a way that the actuator does not vent at eye level.
- 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 concerned and the valve.
- Wear protective clothing and 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 gloves.
1.3 Notes on possible property damage

**NOTICE**

Risk of damage to the electric control valve due to the power supply 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 power supply. See associated actuator documentation.

Risk of valve damage due to contamination (e.g. solid particles) in the pipeline.
The plant engineering company is responsible for cleaning the pipelines in the plant.
➤ Flush the pipelines before start-up.
➤ Observe the maximum permissible pressure for valve and plant.

Risk of valve damage due to unsuitable medium properties.
The valve is designed for a process medium with certain properties (e.g. water, oil, steam).
➤ Only use the process medium that meets the specifications used for sizing the valve.
2 Markings on the device

2.1 Valve nameplate

<table>
<thead>
<tr>
<th>SAMSON</th>
<th>KVS</th>
<th>Δp</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

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

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

![Fig. 1: Location of the nameplate](image)

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. 4) 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 up upon failure of the air supply or power supply:

- Type 5825 Electric Actuator
- TROVIS 5725-3 and TROVIS 5725-7 Electric Actuators with Process Controllers
- Type 2780 Pneumatic Actuator

The control valve has two different fail-safe positions:

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

**Note**

The TROVIS 5725-3, TROVIS 5725-7, and TROVIS 8725-8 Electric Actuators with Process Controllers in the version with force-locking attachment and the Type 5825 Electric Actuator 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 power supply or air supply failure, the actuator stem retracts.

**Note**

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

Fig. 2: Type 3222/2780-1

Fig. 3: Type 3222/5875, Type 3222/5757-3, Type 3222/5757-7 · Version for water, oil, and liquids

Fig. 4: Type 3222/5824, 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
Design and principle of operation

3.2 Versions

Intermediate insulating piece
An intermediate insulating piece is available for insulated pipes.

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 Actuator is able to perform a fail-safe action. Refer to Table 1.

Electric actuators with process controllers
Electric actuators with process controllers 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 domestic hot water heating. TROVIS 5757-7 and TROVIS 5725-7 are 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, TROVIS 5725-7, and TROVIS 5725-8 Actuators are able to perform a fail-safe action (see Table 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 available for fail-safe action "Actuator stem extends (FA)" or "Actuator stem retracts (FE)".
### Design and principle of operation

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

<table>
<thead>
<tr>
<th>Type/TRO-VIS</th>
<th>Fail-safe action: Actuator stem</th>
<th>Nominal size DN</th>
<th>Thread size G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extends Retracts</td>
<td>15 20 25 32 40 50</td>
<td>½ ¾ 1</td>
</tr>
<tr>
<td><strong>Electric actuators</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5857</td>
<td>– –</td>
<td>• • • – – –</td>
<td>–</td>
</tr>
<tr>
<td>5824-10</td>
<td>– –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5824-13 1)</td>
<td>– –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5825-10</td>
<td>• –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5825-13 1)</td>
<td>• –</td>
<td>• • • – – •</td>
<td>–</td>
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<tr>
<td>5825-15</td>
<td>– •</td>
<td>• • • – – •</td>
<td>–</td>
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<tr>
<td>5824-20</td>
<td>– –</td>
<td>– – – • • • –</td>
<td>–</td>
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<tr>
<td>5824-23</td>
<td>– –</td>
<td>– – • • • –</td>
<td>–</td>
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<tr>
<td>5825-20</td>
<td>• –</td>
<td>– – • • • –</td>
<td>–</td>
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<tr>
<td>5825-23</td>
<td>• –</td>
<td>– – • • • –</td>
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<tr>
<td>5825-25</td>
<td>– •</td>
<td>– – • • • –</td>
<td>–</td>
</tr>
<tr>
<td><strong>Electric actuators with process controllers for domestic hot water heating</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5757-3</td>
<td>– –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5724-310</td>
<td>– –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5725-310</td>
<td>• –</td>
<td>• • • – – •</td>
<td>–</td>
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<tr>
<td>5724-320</td>
<td>– –</td>
<td>– – – • • • –</td>
<td>–</td>
</tr>
<tr>
<td>5725-320</td>
<td>• –</td>
<td>– – • • • –</td>
<td>–</td>
</tr>
<tr>
<td><strong>Electric actuators with process controller for heating and cooling applications</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5757-7</td>
<td>– –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5724-810</td>
<td>– –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5724-820</td>
<td>– –</td>
<td>– – – • • • –</td>
<td>–</td>
</tr>
<tr>
<td>5725-710</td>
<td>• –</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5725-715</td>
<td>– •</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>5725-720</td>
<td>• –</td>
<td>– – – • • • –</td>
<td>–</td>
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<tr>
<td>5725-725</td>
<td>– •</td>
<td>– – • • • –</td>
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<tr>
<td>5725-810</td>
<td>• –</td>
<td>• • • – – •</td>
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<tr>
<td>5725-820</td>
<td>• –</td>
<td>– – • • • –</td>
<td>–</td>
</tr>
<tr>
<td><strong>Pneumatic actuators</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2780-1</td>
<td>• •</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
<tr>
<td>2780-2</td>
<td>• •</td>
<td>• • • – – •</td>
<td>–</td>
</tr>
</tbody>
</table>

1) Version with half transit time
Design and principle of operation

3.3 Technical data

The nameplates on the valve and actuator provide information on the control valve version. See section 2.1 and the associated actuator documentation.

Table 2: Technical data for Type 3222

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globe valve with male thread connection or with flanged body</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection size</td>
<td>G</td>
<td>½</td>
<td>¾</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Globe valve with female thread</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal pressure</td>
<td>PN</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seat-plug seal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metal seal for KVS ≤2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft seal for KVS ≥3.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated travel</td>
<td>mm</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rangeability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 : 1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Leakage class according to IEC 60534-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class I (≤0.05 % of KVS coefficient)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Compliance</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version for water, oil and other liquids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. permissible temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. permissible differential pressure Δp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 5824/5825, TROVIS 5724-3/ 5724-8/5725-3/ 5725-7/5725-8, Type 2780</td>
<td>bar</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>12/16</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Type 5857, TROVIS 5757-3, TROVIS 5757-7</td>
<td>bar</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Version for water above 150 °C and steam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. permissible temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. permissible differential pressure Δp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 5824/5825, TROVIS 5724-3/ 5724-8/5725-3/5725-7/5725-8, Type 2780</td>
<td>bar</td>
<td>20 · 10 with 3.6≤KVS ≤8</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 5857, TROVIS 5757-3, TROVIS 5757-7</td>
<td>bar</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

1) Use an intermediate insulating piece (see section 5.1.2, Intermediate insulating piece)
2) Differential pressure with KVS = 1 and 1.6
3) Differential pressure with KVS = 2.5 and 4
4) Applies to KVS = 10
Design and principle of operation

Table 3: Nominal sizes and $K_{VS}$ coefficients

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globe valve with male thread connection or with flanged body</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>32</td>
<td>40</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Connection size</td>
<td>G</td>
<td>½</td>
<td>¾</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Globe valve with female thread</td>
<td>1/2</td>
<td>3/4</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>$K_{VS}$ coefficients</td>
<td>4</td>
<td>3.6</td>
<td>6.3</td>
<td>8</td>
<td>16</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Reduced $K_{VS}$ coefficients</td>
<td>0.1·0.16·0.25</td>
<td>·0.4·0.63·1·0·1.6·2.5</td>
<td>1.0·1.6·2.5·4·3.6·1</td>
<td>10</td>
<td>–</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Rated travel</td>
<td>mm</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

1 Version with male thread connection or with flanged body
2 Version with female thread
3 6 mm rated travel

Table 4: Materials

<table>
<thead>
<tr>
<th>Part</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve body</td>
<td>CC499K (CuSn5Zn5Pb2-C)</td>
</tr>
<tr>
<td>Version with flanged body</td>
<td>EN-GJS-400-18-LT (GGG-40.3)</td>
</tr>
<tr>
<td>Seat</td>
<td>Stainless steel 1.4305</td>
</tr>
<tr>
<td>Plug</td>
<td>1.4305/CW602N with soft seal</td>
</tr>
<tr>
<td></td>
<td>1.4305 with 0.1≤$K_{VS}$≤2.5</td>
</tr>
<tr>
<td>Valve spring</td>
<td>Stainless steel 1.4310 K</td>
</tr>
<tr>
<td>Packing</td>
<td>EPDM/FPM (FKM) · Oil-resistant version: FPM</td>
</tr>
<tr>
<td>Welding ends</td>
<td>St 37</td>
</tr>
<tr>
<td>Threaded ends</td>
<td>CC491K (red brass)</td>
</tr>
<tr>
<td>Screwed-on flanges</td>
<td>St 37.2</td>
</tr>
</tbody>
</table>

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the valve version, plant facilities, and process medium. On request, SAMSON can perform calculations according to IEC 60534, Part 8-3 and Part 8-4 or VDMA 24422 (edition 89).
**Design and principle of operation**

**Dimensions and weights**

Table 5 provides a summary of the dimensions and weights of the valve. The lengths and heights in the dimension diagrams are shown on page 19 onwards.

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

<table>
<thead>
<tr>
<th>Valves with male thread connection</th>
<th>Nominal size</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length L</strong></td>
<td>mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version for water above 150 °C</td>
<td>mm</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>100</td>
<td>110</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>and steam or version with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intermediate insulating piece</td>
<td></td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>185</td>
<td>185</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td><strong>Height H2</strong></td>
<td>mm</td>
<td>45.5</td>
<td>45.5</td>
<td>45.5</td>
<td>94</td>
<td>94</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td><strong>Height H3</strong></td>
<td>mm</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>55</td>
<td>55</td>
<td>55</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valves with welding ends</th>
<th>Thread size R</th>
<th>G</th>
<th>3/4</th>
<th>1</th>
<th>1 1/4</th>
<th>1 1/2</th>
<th>2</th>
<th>2 1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pipe Ød</strong></td>
<td>mm</td>
<td>21.3</td>
<td>26.8</td>
<td>33.7</td>
<td>42</td>
<td>48</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td><strong>Weight without actuator</strong></td>
<td>kg (approx.)</td>
<td>1.4</td>
<td>1.8</td>
<td>2.3</td>
<td>4.0</td>
<td>4.4</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td><strong>Length L1</strong></td>
<td>mm</td>
<td>210</td>
<td>234</td>
<td>244</td>
<td>268</td>
<td>294</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td><strong>Version for water above 150 °C</strong></td>
<td></td>
<td>1.9</td>
<td>2.3</td>
<td>2.8</td>
<td>4.5</td>
<td>4.9</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>and steam or version with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intermediate insulating piece</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valves with threaded ends</th>
<th>Length L2</th>
<th>mm</th>
<th>129</th>
<th>144</th>
<th>159</th>
<th>180</th>
<th>196</th>
<th>228</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male thread A</strong></td>
<td>G</td>
<td>1/2</td>
<td>3/4</td>
<td>1</td>
<td>1 1/4</td>
<td>1 1/2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Weight without actuator</strong></td>
<td>kg (approx.)</td>
<td>1.4</td>
<td>1.8</td>
<td>2.3</td>
<td>4.0</td>
<td>4.4</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td><strong>Version for water above 150 °C</strong></td>
<td></td>
<td>1.9</td>
<td>2.3</td>
<td>2.8</td>
<td>4.5</td>
<td>4.9</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>and steam or version with</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intermediate insulating piece</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valves with flanges</th>
<th>Width across flats SW</th>
<th>30</th>
<th>36</th>
<th>46</th>
<th>59</th>
<th>65</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length L3</strong></td>
<td>mm</td>
<td>130</td>
<td>150</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>230</td>
</tr>
<tr>
<td><strong>Weight without actuator</strong></td>
<td>kg (approx.)</td>
<td>2.5</td>
<td>3.4</td>
<td>4.1</td>
<td>6.9</td>
<td>7.7</td>
<td>10.7</td>
</tr>
<tr>
<td><strong>Version for water above 150 °C</strong></td>
<td></td>
<td>3.0</td>
<td>3.9</td>
<td>4.6</td>
<td>7.4</td>
<td>8.2</td>
<td>11.2</td>
</tr>
</tbody>
</table>
## Design and principle of operation

### Valves with female thread

<table>
<thead>
<tr>
<th>Connection size</th>
<th>G</th>
<th>½</th>
<th>¼</th>
<th>1</th>
<th>–</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width across flats SW (mm)</td>
<td>30</td>
<td>36</td>
<td>46</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Length L4</td>
<td>65</td>
<td>75</td>
<td>90</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Female thread</td>
<td>G</td>
<td>½</td>
<td>¼</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>Weight without actuator (kg, approx.)</td>
<td>1.2</td>
<td>1.4</td>
<td>1.5</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Version for water above 150 °C and steam or version with intermediate insulating piece</td>
<td>1.7</td>
<td>1.9</td>
<td>2.0</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

### Valves with flanged body

<table>
<thead>
<tr>
<th>Nominal size</th>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height H2 (mm)</td>
<td>45.5</td>
<td>45.5</td>
<td>45.5</td>
<td>94</td>
<td>94</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>Length L3 (mm)</td>
<td>130</td>
<td>150</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>230</td>
<td></td>
</tr>
<tr>
<td>Weight without actuator (kg, approx.)</td>
<td>2.5</td>
<td>3.4</td>
<td>4.1</td>
<td>6.9</td>
<td>8.4</td>
<td>11.6</td>
<td></td>
</tr>
<tr>
<td>Version for water above 150 °C and steam or version with intermediate insulating piece</td>
<td>3.0</td>
<td>3.9</td>
<td>4.6</td>
<td>7.4</td>
<td>8.9</td>
<td>12.1</td>
<td></td>
</tr>
</tbody>
</table>

### Dimensional drawings

- **Version with threaded ends**
- **Version with female thread**
- **Intermediate insulating piece**
- **Version with flanges**
Design and principle of operation

**Dimension diagrams for electric control valves**

**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 3222/5725-7: DN 15 to 50  
Type 3222/5725-8: DN 15 to 50

* Dimensions for Types 5824-x3, 5825-x3  
Actuators:  
146 x 136

**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 3222/5725-7: DN 15 to 50  
Type 3222/5725-8: DN 15 to 50

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 3222/5725-7: DN 15 to 50  
Type 3222/5725-8: DN 15 to 50

* Dimensions for Types 5824-x3, 5825-x3  
Actuators:  
146 x 136
Dimension diagrams for pneumatic control valves

Table 6: Weights of electric actuators

<table>
<thead>
<tr>
<th>Type</th>
<th>5857</th>
<th>5824</th>
<th>5825</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg approx.)</td>
<td>0.7</td>
<td>0.75</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Table 7: Weights of electric actuators with process controllers

<table>
<thead>
<tr>
<th>TROVIS</th>
<th>5757-3/-7</th>
<th>5724-3/-8</th>
<th>5725-3/-7/-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg approx.)</td>
<td>0.7</td>
<td>1.1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Table 8: Dimensions and weights for pneumatic actuators

<table>
<thead>
<tr>
<th>Type</th>
<th>2780-1</th>
<th>2780-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuator area (cm²)</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Diaphragm ØD (mm)</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>Signal pressure connection a</td>
<td>G ¼</td>
<td>G ¼</td>
</tr>
<tr>
<td>Weight (kg approx.)</td>
<td>2</td>
<td>3.2</td>
</tr>
</tbody>
</table>
4 Preparation

After receiving the shipment, proceed as follows:

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

4.1 Unpacking

Note

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

Proceed as follows to lift and install the valve:

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

4.2 Transporting and lifting

Tip

SAMSON’s After-sales Service department can provide more detailed transport and lifting instructions on request.

4.2.1 Transporting

- 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.

4.2.2 Lifting

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

4.3 Storage

Notice

Risk of valve damage due to improper storage.
- Observe storage instructions.
- Avoid long storage times.
- Contact SAMSON in case of different storage conditions or long storage periods.

Note

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

Storage instructions

- The control valves can be stored horizontally.
- Protect the control valve against external influences (e.g. impact).
Preparation

- 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.

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

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.

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

4.4 Preparation for installation

Proceed as follows:

- Flush the pipelines.

Note
The plant engineering company is responsible for cleaning the pipelines in the plant.

- Check the valve to make sure it is clean.
- Check the valve for damage.
- Check to make sure that the type designation, valve size, material, pressure rating and temperature range of the valve match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.).
- Check any mounted pressure gauges to make sure they function.
- When the valve and actuator are already assembled, check the bolted joints. Components may loosen during transport.
5 Mounting and start-up

SAMSON valves are delivered ready for use. The valve and actuator are delivered separately and must be assembled on site. The procedure to mount and start up the valve are described in the following.

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

⚠️ NOTICE
Risk of valve damage due to excessively high or low tightening torques. Observe the specified torques on tightening control valve components. Excessively tightened torques lead to parts wearing out quicker. Parts that are too loose may cause leakage.

5.1 Installing the valve into the pipeline

ℹ️ Note
For medium temperatures above 150 °C only the dark gray graphite seals supplied with the valve are to be used. Do not use the UDP seals available as accessories as they are only suitable for temperatures up to 150 °C.

5.1.1 Checking the installation conditions

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).

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 here.

Fig. 5: Mounting position
Support or suspension
Depending on the valve version and mounting position, the control valve and pipeline must be supported or suspended. The plant engineering company is responsible in this case.

![NOTICE]
Premature wear and leakage due to insufficient support or suspension. In the following versions, the control valve must be supported or suspended:
- Valves that are not installed with the actuator upright on top of the valve.
Attach a suitable support or suspension to the valve.

Insulation of 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.
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.

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

Pipeline routing
To ensure the control valve functions properly, follow the installation instructions given below:
- Do not exceed the maximum permissible flow velocity.

![Note]
The plant engineering company is responsible for determining the maximum permissible flow velocity. SAMSON’s After-sales Service department 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. If necessary, attach supports to the valve.
- Install the valve allowing sufficient space to remove the actuator and valve or to perform service and repair work on them.

Vent plug (Type 3222/2780 only)
Vent plugs are screwed into the exhaust air ports of pneumatic 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.
Mounting and start-up

- Locate the vent plug on the opposite side to the workplace of operating personnel.

**WARNING**

_Risk of personal injury when the actuator vents._
- Install the control valve in such a way that the actuator does not vent at eye level.
- Use suitable silencers and vent plugs.
- Wear eye protection when working in close proximity to the control valve.

- On mounting valve accessories, make sure that they can be operated from the workplace of the operating personnel.

**Note**

_The workplace of operating personnel is the location from which the valve, actuator and any mounted valve accessories can be accessed to operate them._

### 5.1.2 Additional fittings

**Strainer**

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.

- Make sure the direction of flow of the strainer and valve are the same.
- Install the strainer with the filter element facing downwards.
- Allow sufficient space to remove the filter.

**Bypass and shut-off valves**

We recommend installing a shut-off valve both upstream of the strainer and downstream of the valve and setting up a bypass line. The bypass line 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 °C (actuators according to Table 1)
- In networks with a constant medium temperature >135 °C (TROVIS 5724-3, TROVIS 5724-8, TROVIS 5725-3, TROVIS 5725-7, TROVIS 5725-8, Type 5824, Type 5825 Actuators)
- For liquids >120 °C (TROVIS 5757-3, TROVIS 5757-7, and Type 5857 Actuators)
- Do not insulate the actuator and the coupling nut as well.
- Only insulate the intermediate insulating piece up to 25 mm at the maximum.

### 5.1.3 Installing the control valve

1. Close the shut-off valve in the pipeline while the valve is being installed.
2. Remove any protective caps from the valve ports before installing the valve.
Mounting and start-up

3. Lift the valve to the site of installation (see section 4.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.

4. **Version with flanges**: make sure that the correct flange gaskets are used.

5. **Version with threaded ends (female/male thread) and flanges**: bolt the valve to the pipeline free of stress.
   **Version with welding ends**: weld the valve free of stress into the pipeline.

6. Depending on the field of application, allow the valve to cool down to reach ambient temperature before start up.

7. Slowly open the shut-off valve in the pipeline after the valve has been installed.

![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.

8. Check the valve to ensure it functions properly and that there is no leakage.

5.2 Mounting the actuator onto the valve

Proceed as described in the actuator documentation if the valve and actuator have not been assembled by SAMSON:

- Type 5824 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 5725-8 Electric Actuator with Process Controller ▶ EB 5724-8
- TROVIS 5725-3 Electric Actuator with Process Controller ▶ EB 5724
- TROVIS 5757-7 Electric Actuator with Process Controller ▶ EB 5757-7
- TROVIS 5725-7 Electric Actuator with Process Controller ▶ EB 5725-7
- Type 2780 Pneumatic Actuator ▶ EB 5840

![Note]

Remove the mounted actuator before mounting the other actuator (see associated actuator documentation).

5.2.1 Connecting the actuator

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

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

Configure the actuator as described in the associated actuator documentation.

**Note**

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

5.3 Quick check

SAMSON valves are delivered ready for use. To test the valve's ability to function, the following quick checks can be performed:

**Travel motion**

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

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

**Fail-safe position with pneumatic actuators**

- Shut off the signal pressure line.
- Check whether the valve moves to the fail-safe position.

**Fail-safe action for electric actuators and electric actuators with process controllers with fail-safe action**

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

**Pressure test**

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

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

**Note**

The plant engineering company is responsible for performing the pressure test. SAMSON's After-sales Service department can support you to plan and perform a pressure test for your plant.
6 Operation

Immediately after completing mounting and start-up (see section 5), the valve is ready for use.

⚠️ WARNING ⚠️
Type 3222/2780: crush hazard arising from moving parts (actuator and plug stem). Do not insert hands or finger into the yoke while the valve is in operation.

⚠️ WARNING ⚠️
Type 3222/2780: risk of personal injury when the actuator vents. Wear eye protection when working in close proximity to the control 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 gloves.

⚠️ NOTICE ⚠️
Type 3222/2780: operation disturbed by a blocked actuator or plug stem. Do not impede the movement of the actuator or plug stem by inserting objects into their path.
7 Servicing

Note

The control valve was checked by SAMSON before it left the factory.
- The product warranty becomes void if servicing or repair work not described in these instructions is performed without prior agreement by SAMSON's After-sales Service department.
- Only use original spare parts by SAMSON, which comply with the original specifications.

7.1 Preparation for return shipment

Defective valves can be returned to SAMSON for repair.

Proceed as follows to return valves to SAMSON:

1. Put the control valve out of operation (see section 9).
2. Remove any residual process medium.
3. Fill in the Declaration on Contamination, which can be downloaded from our website at www.samson.de > Services > Check lists for after sales service > Declaration on Contamination.
4. Send the control valve to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at www.samson.de > Contact.

7.2 Ordering spare parts and operating supplies

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

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

Tip

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

8.1 Troubleshooting

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible reasons</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuator or plug stem does not move on demand.</td>
<td>Actuator is blocked.</td>
<td>Check attachment. Unblock the actuator.</td>
</tr>
<tr>
<td></td>
<td>No or incorrect power supply connected.</td>
<td>Check the power supply and connections.</td>
</tr>
<tr>
<td></td>
<td>Signal pressure too low</td>
<td>Check the signal pressure. Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td>Actuator or plug stem does not move through the whole range.</td>
<td>No or incorrect power supply connected.</td>
<td>Check the power supply and connections.</td>
</tr>
<tr>
<td></td>
<td>Signal pressure too low</td>
<td>Check the signal pressure. Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td>The valve leaks to the atmosphere (fugitive emissions).</td>
<td>Plug stem seal defective</td>
<td>Contact SAMSON’s After-sales Service department.</td>
</tr>
<tr>
<td>Increased flow through closed valve (seat leakage)</td>
<td>Dirt or other foreign particles deposited between the seat and plug.</td>
<td>Shut off the section of the pipeline and flush the valve.</td>
</tr>
<tr>
<td></td>
<td>Valve trim is worn.</td>
<td>Contact SAMSON’s After-sales Service department.</td>
</tr>
</tbody>
</table>

i Note

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

8.2 Emergency action

The valve, on which the electric actuator with fail-safe action is mounted, is moved to its fail-safe position upon power supply failure (voltage supply, signal pressure). See section 3.1.

Operators are 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. Check the valve for damage. If necessary, contact SAMSON's After-sales Service department.

Putting the valve back into operation after a malfunction

➔ Slowly open the shut-off valves. Allow the process medium to flow into the valve slowly.
9 Decommissioning and disassembly

**DANGERS**

Risk of bursting in pressure equipment.
Control valves and pipelines are pressure equipment. Improper opening can lead to bursting of the valve.
- Before starting any work on the control valve, depressurize all plant sections concerned and the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.
- Wear personal protective equipment.

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

**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 and gloves.

9.1 Decommissioning

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 power supply to depressurize or de-energize the actuator.
4. If necessary, allow the pipeline and valve components to cool down.

9.2 Removing the valve from the pipeline

1. Put the control valve out of operation (see section 9.1).
2. **Version with threaded ends (female/male thread) or flanges:** undo the flange joint or screw connection.
   **Version with welding ends:** cut the pipeline in front of the weld seam.
Decommissioning and disassembly

3. Remove the valve from the pipeline (see section 4.2).

9.3 Removing the actuator from the valve

See associated actuator documentation.

9.4 Disposal

➤ Observe local, national, and international refuse regulations.

➤ Do not dispose of components, lubricants, and hazardous substances together with your other household waste.
10 Appendix

10.1 After-sales service

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

**E-mail**

You can reach the After-sales Service Department at aftersalesservice@samson.de.

**Addresses of SAMSON AG and its subsidiaries**

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

**Required specifications**

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal 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

10.2 Certificates

The declarations of conformity are included on the next pages.
EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY

Modul H/Module H, Nr./No. / N° CE-0062-PED-H-SAM 001-16-DEU-rev-A

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

Ventile für 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), 3233, 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

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. (1)(c.i) erster Gedankenstrich. Modul siehe Tabelle durch certificated by Bureau Veritas S.A. (0062)

Conformity assessment procedure applied for fluids according to Article 4(1)(c.i), first indent.

Nenndruck/PN 25 ohne (1) A (2)(3) H

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</table>

(1) Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie

(2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062)

(3) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle. Devices whose conformity has been assessed based on Module H refer to the certificate of approval for the quality management system issued by the notified body.

Dem Entwurf zu Grunde gelegt sind Verfahren aus/ The design is based on the procedures specified in the following standards:

DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.24, ASME B16.34, 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

Behörden, Zentralabteilungsleiter/Head of Central Department

Das zuständige Behörden, Zentralabteilungsleiter/Head of Central Department

Dr. Michael Heß

Product Management & Technical Sales

Bureau Veritas S.A. Nr./No. 0062, Newtime, 52 Boulevard du Parc, Ille de la Jatte, 92200 Neuilly sur Seine, France

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

Frankfurt am Main, 08. Februar 2017/08 February 2017

Klaus Hörschken

Entwicklung Ventile und Antriebe/R&D, Valves and Actuators

Dr. Michael Heß

Zentralabteilungsleiter/Head of Central Department

SAMSON AKTIENGESELLSCHAFT

Weismüllerstraße 3  60314 Frankfurt am Main

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

Revision 03

36
SAMSON erklärt in alleiniger Verantwortung für folgende Produkte: For the following products, SAMSON hereby declares under its sole responsibility:

<table>
<thead>
<tr>
<th>Geräte/Devices</th>
<th>Bauart/Series</th>
<th>Typ/Type</th>
<th>Ausführung/Version</th>
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<tr>
<td>Stellgerät für Heißwasser und Dampf mit Sicherheitsfunktion/control valve for hot water and steam with fail-safe action</td>
<td>3374 (2000 N)</td>
<td>mit Typ/with Type 3211, 2814, 2823, 3321, 3241, 3267 Zertifikat-Nr./Certificate no.: 01 202 931-B-15-0030</td>
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<td>Sicherheitsabsperreinrichtung für Feuerungsanlagen/safety shut-off device for combustion plants</td>
<td>240, 3241</td>
<td>mit Typ/with Type 3211-3214 Zertifikat-Nr./Certificate no.: 01 202 931-B-11-0018</td>
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<td>240, 3241</td>
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<td>Stellgerät für Heißwasser und Dampf mit Sicherheitsfunktion/control valve for hot water and steam with fail-safe action</td>
<td>3274 (1800 N)</td>
<td>mit Typ/with Type 3271-3277 Zertifikat-Nr./Certificate no.: 01 202 931-B-10-0027</td>
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<td>Stellgerät für Wasser und Dampf mit Sicherheitsfunktion/control valve for water and steam with fail-safe action</td>
<td>3222, 3213, 2487, 2491, 2495, 2423, 2414, 2770</td>
<td>mit Typ/with Type 3267, 2814, 2823, 2710, 2730 Zertifikat-Nr./Certificate no.: 01 202 931-B-09-0009</td>
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<tr>
<td>Sicherheitsabsperreinrichtung für Gasbrenner und Gasgeräte/safety shut-off device for gas burners and gas equipment</td>
<td>240, 3241</td>
<td>mit Typ/with Type 3241-0275 Zertifikat-Nr./Certificate no.: 01 202 931-B-02-0017-01</td>
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<td>Stellgerät zur Leckgasableitung für Gasbrenner und Gasgeräte/control valve for leakage gas discharge for gas burners and gas equipment</td>
<td>240, 3241</td>
<td>mit Typ/with Type 3241-0275 Zertifikat-Nr./Certificate no.: 01 202 931-B-02-0018-01</td>
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</table>

die Konformität mit nachfolgender Anforderung:/that the products mentioned above comply with the requirements of the following standards:


Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs. 1/ Applied conformity assessment procedure for fluids according to Article 4(1) Modul D/ Module D durch/ by Bureau Veritas 0062

Das Qualitätsicherungssystem des Herstellers wird von folgender benannter Stelle überwacht/The manufacturer’s quality management system is monitored by the following notified body:

Bureau Veritas S. A. Nr./no. 0062, Newtime, 52 Boulevard du Parc, Ile de la Jatte, 92200 Neuilly sur Seine, France

Angewandte technische Spezifikation/Technical standards applied: DIN EN 12516-2, DIN EN 12516-3, ASME B16.34

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

Frankfurt am Main, 08. Februar 2017/08 February 2017

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

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

Klaus Hörschken
Zentralabteilungsleiter/Head of Central Department
Entwicklung Ventile und Antriebe/R&D, Valves and Actuators
SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:/For the following products, SAMSON hereby declares
unter 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

Member States relating to the making available on the market of pressure equipment.

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4(1)(c.ii) und (c.i) zweiter
Gedankenstrich.

Conformity assessment procedure applied for fluids according to Article 4(1)(c.ii) and (c.i), second
indent

Nenndruck
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</tr>
</tbody>
</table>

(1) Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie.

The CE marking affixed to the control valve is not valid in the sense of the Pressure Equipment Directive.

(2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062).

The CE marking affixed to the control valve is valid without specifying the notified body (ID number 0062).

(3) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.

The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

* 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.ii), 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 Qualitätssicherungssystems" ausgestellt durch die benannte Stelle.

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

Dem Entwurf zu Grunde gelegt sind Verfahren aus/The design is based on the procedures specified in the following standards:

DIN EN 12516-2, DIN EN 12516-3 bzw./or ASME B16.1, ASME B16.24, ASME B16.34, ASME B16.42

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:

The manufacturer’s quality management system is monitored by the following notified body:

Bureau Veritas S.A. Nr./No. 0062, Newtime, 52 Boulevard du Parc, Île de la Jatte, 92200 Neuilly sur Seine, France

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

Frankfurt am Main, 08. Februar 2017/08 February 2017

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