Translation of original instructions

Type 3214/3374 · Type 3214 Globe Valve balanced by a diaphragm

Electric Control Valves · Types 3214/3374, 3214/3274, 3214/3375
Type 3214 Globe Valve balanced by a diaphragm

Edition March 2017
Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices.

→ For the safe and proper use of these instructions, read them carefully and keep them for later reference.

→ If you have any questions about these instructions, contact SAMSON’s After-sales Service Department (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

ℹ️ Note
Additional information

☀️ Tip
Recommended action
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1 Safety instructions and measures

Intended use
The SAMSON Type 3214 Valve balanced by a diaphragm is designed for use in temperature control circuits in HVAC plants. The valve is primarily combined with the following SAMSON actuators to form an electric control valve:

− Type 3374 Electric Actuator
− Type 3274 Electrohydraulic Actuator
− Type 3375 Electric Actuator

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 other applications or conditions than specified, contact SAMSON.

SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

⇒ Refer to the technical data and nameplate for limits and fields of application as well as possible uses.

Reasonably foreseeable misuse
The control valve is not suitable for the following applications:

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

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

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

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.
Safety instructions and measures

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 3274-23, Type 3374-21, Type 3375-21 (pending) and Type 3375-31 (pending) Electric Actuator, 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).

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 service work.

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

Responsibilities of operating personnel
Operating personnel must read and understand these mounting and operating instructions as well as the referenced documents and observe the specified hazard statements, warnings and caution notes. 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 8331-X for Type 3374
  - EB 8340 for Type 3274
  - EB 8332-X for Type 3375

1.1 Notes on possible severe personal injury

⚠️ **DANGER**

**Risk of bursting in pressure equipment.**

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

⇒ Before starting any work on the valve, depressurize all plant sections concerned as well as the valve.

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

⇒ Wear personal protective equipment.

**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, 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.
1.2 Notes on possible personal injury

**WARNING**

**Crush hazard arising from moving parts.**
The control valves contain moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the valve.

⇒ Disconnect and lock the power supply before performing any work on 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. (chemical) burns.

⇒ If possible, drain the process medium from all the plant sections concerned 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.
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 operator is responsible for cleaning the pipelines in the plant.

- Flush the pipelines before start-up.
- Observe the maximum permissible pressure for valve and plant.

Risk of valve damage due to unsuitable medium properties.
The valve is designed for a process medium with defined properties.

- Only use the process medium specified for sizing.
2 Markings on the device

2.1 Valve nameplate

It includes all details required to identify the device:

1. Type
2. Model number with index
3. Configuration ID
4. Date of manufacture
5. $K_{VS}$ coefficient
6. Set point range/spring force
7. Valve size
8. Nominal pressure
9. Perm. differential pressure
10. Permissible temperature
11. Body material

2.2 Actuator nameplate

See associated actuator documentation.

Fig. 1: Valve nameplate
3 Design and principle of operation

The control valves consist of the Type 3214 Globe Valve balanced by a diaphragm and an electric or electrohydraulic actuator. The medium flows through the valves in the direction indicated by the arrow on the valve body. The cross-sectional area of flow between the seat (2) and plug (3) is determined by the position of the plug stem (6).

The downstream pressure $p_2$ is applied to the inside of the valve; the upstream pressure $p_1$ acts on the outside. The forces acting on the valve plug due to the upstream and downstream pressures are balanced by the diaphragm (4).

The plug is moved by changing the control signal applied to the actuator. For the Type 3374 and Type 3375 Electric Actuators as well as the Type 3274 Electrohydraulic Actuator, this signal is a three-step signal.

3.1 Fail-safe action

When the Type 3214 Valve is combined with one of the following actuators, the valve moves to the fail-safe position upon failure of the power supply:

- Type 3374-21 Electric Actuator
- Type 3375-21 and Type 3375-31 Electric Actuators (pending)
- Type 3274-23 Electrohydraulic Actuator

**Fail-safe action**

A safety mechanism in the actuator is triggered when the power supply fails or the control signal is interrupted by the limitation equipment due to the temperature or pressure exceeding the adjusted limit. The actuator stem is moved by the force of the compression springs in the actuator. One of two different fail-safe positions can be assumed by the control valve:

- **Actuator stem extends**: in the event of emergency, the actuator stem extends and closes the valve.
- **Actuator stem retracts**: in the event of emergency, the actuator stem retracts and opens the valve.

**Note**

The fail-safe action of electric actuators is already determined at the ordering stage.

12
Type 3214/3374

Type 3214/3274

1 Body
2 Seat
3 Plug
4 Balancing diaphragm
5 Yoke
6 Plug stem
7 Stem connector
8 Actuator
9 Hexagon nut
10 Stem connector
11 Adapter
12 Hexagon nut

Fig. 2: Functional diagrams
3.2 Versions

Actuators

The Type 3374 and Type 3375 Electric Actuators as well as the Type 3274 Electrohydraulic Actuator are controlled using a three-step signal as standard.

The Type 3374 and Type 3274 Actuators can also be controlled in the versions with positioner by a 0/4 to 20 mA or 0/2 to 10 V signal. Various electrical accessories can be optionally installed.

Types 3374-21, 3375-21, 3375-31 and 3274-23 Actuators are able to perform a fail-safe action. Refer to section Table 1.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Type</th>
<th>Size</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>400</th>
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<tbody>
<tr>
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<td>3374-21</td>
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<td>With fail-safe action</td>
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</tr>
</tbody>
</table>

1) The rod-type yoke (1400-8822) is additionally required to connect Type 3274 Actuators.

2) Types 3375-21/-31 Actuators in preparation

Testing according to DIN EN 14597

The Type 3274-23 and Type 3374-21 with "actuator stem extends" fail-safe action are in conjunction with the Type 3214 Valves tested by the German Technical Inspectorate (TÜV) according to DIN EN 14597.

The registration number is available on request.

NOTICE

Risk of valve damage due to excessively high forces.

When the valves are combined with pneumatic actuators, the maximum forces of the electric actuators listed in Table 1 must not be exceeded. If necessary, restrict the supply pressure.
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.

**Note**

More information is available in Data Sheet T 5868-1.

Noise emission

SAMSON is unable to make general statements about noise emission as it depends on the valve version, plant facilities and process medium.

---

**WARNING**

Risk of hearing loss or deafness due to loud noise. 
Wear hearing protection when working near the valve.

---

### Table 2: Technical data · Type 3214 Globe Valve balanced by a diaphragm

<table>
<thead>
<tr>
<th>Valve size</th>
<th>DN</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure rating</td>
<td>PN</td>
<td>16 and 25</td>
<td>16 to 40</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>15</td>
<td>15</td>
<td>15</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>(K_{VS}) coefficient</td>
<td></td>
<td>50</td>
<td>80</td>
<td>125</td>
<td>230</td>
<td>340</td>
<td>620</td>
<td>750</td>
<td>1200</td>
<td>2000</td>
</tr>
<tr>
<td>Max. perm. differential pressure (\Delta p)</td>
<td>bar</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Max. permissible temperature</td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td>150</td>
<td></td>
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<td></td>
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<tr>
<td>Version for water</td>
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<tr>
<td>Version for non-flammable gases</td>
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<tr>
<td>Rangeability</td>
<td></td>
<td>40:1</td>
<td></td>
<td>30:1</td>
<td></td>
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</tr>
<tr>
<td>Leakage class according to IEC 60534-3</td>
<td></td>
<td>IV (≤0.01 % of (K_{VS}) coefficient)</td>
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<tr>
<td>Compliance</td>
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</tbody>
</table>

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EB 5868-1 EN 15
**Design and principle of operation**

**Table 3: Materials · Type 3214 Globe Valve balanced by a diaphragm**

Material numbers according to DIN EN

<table>
<thead>
<tr>
<th>Valve size</th>
<th>DN</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>400</th>
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<tbody>
<tr>
<td>Body</td>
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<td></td>
<td>PN 16</td>
<td></td>
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<tr>
<td></td>
<td>PN 16/25</td>
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<tr>
<td></td>
<td>PN 16, 25 and 40</td>
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<td></td>
<td></td>
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<tr>
<td>Valve seat</td>
<td></td>
<td>1.4408</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plug</td>
<td></td>
<td>CW617N with EPDM soft seal</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Pressure balancing</td>
<td></td>
<td>EPDM balancing diaphragm</td>
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</tr>
</tbody>
</table>

1) Formerly EN-JL1040  
2) Formerly EN-JS1049

**Table 4: Dimensions and weights**

The lengths and heights in the dimension diagrams are shown on pages 17 and 18.

<table>
<thead>
<tr>
<th>Valve size</th>
<th>DN</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
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<tbody>
<tr>
<td>L</td>
<td>mm</td>
<td>290</td>
<td>310</td>
<td>350</td>
<td>400</td>
<td>480</td>
<td>600</td>
<td>730</td>
<td>850</td>
<td>1100</td>
</tr>
<tr>
<td>H1</td>
<td>mm</td>
<td>163</td>
<td>163</td>
<td>189</td>
<td>286</td>
<td>291</td>
<td>361</td>
<td>361</td>
<td>386</td>
<td>486</td>
</tr>
<tr>
<td>H2</td>
<td>mm</td>
<td>98</td>
<td>98</td>
<td>118</td>
<td>145</td>
<td>175</td>
<td>270</td>
<td>270</td>
<td>285</td>
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<tr>
<td>H in mm</td>
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</tr>
<tr>
<td>Type 3214/3274-12/-23</td>
<td></td>
<td>780</td>
<td>805</td>
<td>875</td>
<td>875</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Type 3214/3274-16</td>
<td></td>
<td>875</td>
<td>900</td>
<td>970</td>
<td>970</td>
<td>–</td>
<td>–</td>
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<td>–</td>
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<tr>
<td>Type 3214/3374-10/-11/-21</td>
<td>457</td>
<td>457</td>
<td>483</td>
<td>580</td>
<td>585</td>
<td>655</td>
<td>655</td>
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<td>Type 3214/3375-11</td>
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<tr>
<td>Type 3214/3375-21/-31</td>
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<td>1205</td>
<td>1305</td>
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<tr>
<td>Weight 1)</td>
<td>kg (approx.)</td>
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<td>–</td>
<td>–</td>
<td>335</td>
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</table>

1) Valves in PN 16; versions in PN 25 and 40: +15 %
2) Add 3 kg for Type 3274-16
3) Add 8 kg for Type 3375-21/-31
Design and principle of operation

Dimensional drawings

Type 3214/3274  
Type 3214/3374
Design and principle of operation

Dimensional drawings

Type 3214/3375
4 Measures for preparation

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Compare the shipment received with the delivery note.

2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).

4.1 Unpacking

i Note

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

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

\[DANGER\]

Hazard due to suspended loads falling. Stay clear of suspended or moving loads.

\[WARNING\]

Risk of lifting equipment tipping and risk of damage to lifting accessories due to exceeding the rated lifting capacity.

Only use approved lifting equipment and accessories whose minimum lifting capacity is higher than the weight of the valve (including actuator, if applicable).

Refer to section 3.3 for weights.

\[WARNING\]

Risk of personal injury due to the control valve tipping.

- Observe the valve’s center of gravity.

- Secure the valve against tipping over or turning.

\[NOTICE\]

Risk of valve damage due to incorrectly attached slings.

- When lifting the control valve, make sure that the slings attached to the valve body bear the entire load.

- Observe lifting instructions (see section 4.2.2).

\[Tip\]

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

4.2.1 Transporting

The control valve can be transported using lifting equipment (e.g. crane or forklift).

- Leave the control valve in its transport container or on the pallet to transport it.

- Observe the transport instructions.
Measures for preparation

**Transport instructions**
- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature is between –20 and +65 °C.

**4.2.2 Lifting**

To install a large valve into the pipeline, use lifting equipment (e.g. crane or forklift) to lift it.

**Lifting instructions**
- Secure slings against slipping.
- Make sure the slings can be removed from the valve once it has been installed into the pipeline.
- Prevent the control valve from tilting or tipping.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.
- Make sure that the additional sling between the yoke and rigging equipment (hook, shackle etc.) does not bear any load when lifting valves. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

**Lifting the control valve**

1. Attach one sling to each flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 3).
2. If necessary, attach another sling to the valve yoke and to the rigging equipment. Make sure that the actuator stem is not damaged.
3. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
4. Move the control valve at an even pace to the site of installation.
5. Install the valve into the pipeline (see section 5.1.3).
6. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
7. Remove slings.

---

**Tip**

We recommend using a hook with safety latch (see Fig. 3). The safety latch prevents the slings from slipping during lifting and transporting.
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 periods.

**Storage instructions**
- The control valves can be stored horizontally.
- 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.
Mounting and start-up

Tip
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 operator 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. Proceed as follows to mount and start up the valve.

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

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 with electric actuators, the actuator must not be suspended downwards (see Fig. 4).

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.
5.1.2 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.

- 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 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.

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.
3. Insulate the yoke on which the actuator is mounted. Do not insulate the actuator as well.

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.

Noise emission
The Type 3214 Globe Valve can be fitted with a flow divider ST 1. Refer to Data Sheet T 8081.

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.
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. Make sure that the correct flange gaskets are used.
5. Depending on the field of application, allow the valve to cool down to reach ambient temperature before start up.
6. Slowly open the shut-off valve in the pipeline after the valve has been installed.
Mounting and start-up

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.

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

5.2 Mounting the actuator onto the valve

5.2.1 Mounting actuators

Mounting Type 3374 and Type 3375 Actuators
Mount these actuators as described in the associated actuator documentation:
- Type 3374 Electric Actuator ► EB 8331-X
- Type 3375 Electric Actuator ► EB 8332-X

Mounting Type 3274 Actuator

1. Place the rod-type yoke (5) onto the body (1).

2. Tighten the hexagon nut (12) on the rod-type yoke (5) applying a tightening torque of at least 100 Nm.

3. Fasten adapter (11) together with the two stem connector clamps (7) to the plug stem (6).

4. Place the actuator (8) on the rod-type yoke (5) and fasten tight with the hexagon nut (9).

5. Pull up the adapter (11) until it contacts the actuator stem. Position the two stem connector parts (10) and fasten them tight using the hex screws.

5.2.2 Connecting the actuator

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

5.2.3 Configuring the actuator

The electric actuator versions with positioner can be adapted to the control task.
Configure the actuator as described in the associated actuator documentation.

Note

To mount the Type 3274 Actuator, a rod-type yoke (1400-8822) is required.
Observe further details and instructions in ► EB 8340.

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

1. Body
2. Seat
3. Plug
4. Balancing diaphragm
5. Yoke
6. Plug stem
7. Stem connector
8. Actuator
9. Hexagon nut
10. Stem connector
11. Adapter
12. Hexagon nut

Fig. 5: Type 3214 with Type 3274 Electrohydraulic Actuator
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 action for electric actuators 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 operator 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

The valve is ready for use when mounting and start-up (see section 5) have been completed.

⚠️ WARNING

Crush hazard arising from moving parts (actuator and plug stem).
Do not insert hands or fingers into the yoke while the valve is in operation.

⚠️ 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.

⚠️ NOTICE

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

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 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 devices 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. The declaration form 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 an inspection and test plan.

Tip

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

8.1 Troubleshooting

<table>
<thead>
<tr>
<th>Faults</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></td>
<td>No or incorrect power supply connected.</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>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>

Note

Contact SAMSON’s After-sales Service department for malfunctions not listed in the table.
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 (see section 3.1).

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. Check the valve for damage. 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 slowly flow into the valve.
9 Decommissioning and removal

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

**DANGER**
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. (chemical) burns. Wear protective clothing and safety gloves.

**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.

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 power supply.
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. Unbolt the flange joint.
3. Remove the valve from the pipeline (see section 4.2).

9.3 Removing the actuator from the valve

Removing Type 3374 and Type 3375 Actuators from the valve

See associated actuator documentation.

Removing Type 3274 Actuator from the valve

Note

Observe further details and instructions in EB 8340.

1. Unscrew the hex screws on the stem connector clamps (10).
2. Unscrew the hexagon nut (9) from the actuator (8).
3. Remove the actuator (8) from the rod-type yoke (5).
4. Remove the stem connector clamps (7) and adapter (11).
5. Unscrew the hexagon nut (12) from the rod-type yoke (5).
6. Remove the rod-type yoke (5) from the body (1).

9.4 Disposal

→ Observe local, national and international refuse regulations.
→ Do not dispose of components, lubricants and hazardous substances together with your household waste.
*Fig. 6: Type 3214 with Type 3274 Electrohydraulic Actuator*
10 Appendix

10.1 After-sales service

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

E-mail address

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

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size and valve version
- Pressure and temperature of the process medium
- Flow rate in m³/h
- 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. / No CE-0062-PED-H-SAM 001-16-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.-No./ 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.


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

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(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).

* 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. respectively 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 67/71, Boulevard du Chateau, 92200 Neuilly-sur-Seine, France
Hersteller:/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main

Frankfurt am Main, 16. Dezember 2016
Klaus Hörschken
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / R&D, Valves and Actuators

Dr. Michael Heß
Zentralabteilungsleiter / Head of Central Department
Technischer Vertrieb / Technical Sales
EU-KONFORMITÄTSERLÄRUNG
EU DECLARATION OF CONFORMITY

Modul/Module H / N° CE-PED-H-SAM 001-13-DEU

SAMSON erklärt in alleiniger Verantwortung für folgende Typen / explaines in sole responsibility for the following products:

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

Typ / Type 3213, 3222 (Erz.-Nr. / Model No. 2710); 3226, 3260* (2713*); 3323, 3535 (2803); 3213, 3531 (2811); 3214 (2814); 2423E (2823); 241 (3241); 244 (3244); 267 (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 (siehe auch Artikel 41 und 48).

2014/68/EU vom 15.05.2014

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs.1 Pkt. c.ii und Pkt. c.i zweiter Gedankenstrich.

Modul siehe Tabelle durch certificated by Bureau Veritas S. A. (0062)

For type of module, see table

Nenndruck / Nominal pressure

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</tr>
<tr>
<td>Class 300</td>
<td>ohne/without (1)</td>
<td>A (2)</td>
<td>K</td>
<td>H</td>
<td>-</td>
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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 device does not refer to the Pressure Equipment Directive.

(2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der Notifizierten Stelle (Kennr. 0062)

The CE marking affixed to the control device is valid, but does not refer to the notified body (ID No. is invalid).

* Für Ventile vom Typ 3260 sind ab DN 150 Fluide nach Art. 4 Abs.1 Pkt. c.ii erster Gedankenstrich nicht zugelassen.

Fluids according to Art. 4, Section 1, Subsection 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 Notifizierte Stelle.

The module H conformity assessment procedure applied to the valves according to the table is based on the "Certificate of Quality System Approval" issued by the notified body.

Dem Entwurf zu Grunde gelegt sind Verfahren aus: / The design is based on the methods of:

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

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht

The Manufactur`s Quality Assurance System is monitored by following Notified Body

Bureau Veritas S.A. nr 0062 67/71, boulevard du Chateau, 92200 Neuilly-sur-Seine, France

Hersteller / Manufacturer: SAMSON AG / Weismüllerstraße 3 / 60314 Frankfurt

Klaus Hörschken  Günther Scherer
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / Development Valves and Actuators

Frankfurt am Main, den 19.07.2016

Klaus Hörschken
Zentralabteilungsleiter / Head of Central Department
Entwicklung Ventile und Antriebe / Development Valves and Actuators

Günther Scherer
Zentralabteilungsleiter / Head of Central Department
Total Quality Management / Total Quality Management

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main

EB 5868-1 EN
**EU-KONFORMITÄTSERKLÄRUNG**
**EU DECLARATION OF CONFORMITY**

Modul D/Module D / N° CE-0062-PED-D-SAM 001-16-DEU

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>
</tr>
</thead>
<tbody>
<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 3241</td>
<td>Zertifikats-Nr./Certificate no.: 01 202 931-B-10-0020</td>
</tr>
<tr>
<td>Sicherheitsabsperreinrichtung für Feuerungsanlagen/safety shut-off device for combustion plants</td>
<td>240, 3241, 3247 mit Typ/with Type 3263, 3264, 3265</td>
<td>Zertifikats-Nr./Certificate no.: 01 202 931-B-10-0013</td>
<td></td>
</tr>
<tr>
<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 3241, 3242, 3243, 3247 Zertifikats-Nr./Certificate no.: 01 202 931-B-10-0020</td>
<td></td>
</tr>
<tr>
<td>Stellgerät für Wasser und Dampf mit Sicherheitsfunktion/control valve for water and steam with fail-safe action</td>
<td>3222, 3223, 2488, 2489, 2487, 2491, 2494, 2495, 2423, 3214</td>
<td>mit Typ/with Type 3267, 2814, 2823, 2710, 2489</td>
<td>Zertifikats-Nr./Certificate no.: 01 202 931-B-10-0020</td>
</tr>
<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 3241-0261 bis/to 3241-0275</td>
<td>Zertifikats-Nr./Certificate no.: 01 202 931-B-02-0017</td>
</tr>
<tr>
<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 3241-4321</td>
<td>Zertifikats-Nr./Certificate no.: 01 202 931-B-02-0018</td>
</tr>
</tbody>
</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)

Angewandte technische Spezifikation/Technical standards applied: DIN EN12516-2; DIN EN12516-3; ASME B16.34

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

Frankfurt am Main, 15. Dezember 2016/15 December 2016

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

Dr. Michael Heß
Zentralabteilungsleiter/Head of Central Department
Technischer Vertrieb/Technical Sales