Type 3349-7 Control Valve with Type 3730 Electropneumatic Positioner

Type 3349/3379 Control Valve with Type 3724 Positioner

**Type 3349 Aseptic Angle Valve with USP-VI diaphragm**

In combination with an actuator, e.g. a SAMSON Type 3271 or Type 3277 Pneumatic Actuator or Type 3379 Pneumatic Actuator

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

⚠️ **Note**
Additional information

☀️ **Tip**
Recommended action
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1 Safety instructions and measures

Intended use
The SAMSON Type 3349 Angle Valve in combination with an actuator (e.g. Type 3271, Type 3277 or Type 3379 Pneumatic Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases or vapors. The angle valve is suitable for use in aseptic applications (e.g. in the pharmaceutical and food industries).

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, contact SAMSON.

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
− 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 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 depending on the process medium:
- Protective clothing, gloves, and eyewear in applications with hot, cold, and/or corrosive media
- Wear hearing protection when working near the valve.
⇒ 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
Upon supply air or control signal failure, the valve moves to its fail-safe position (see section 3.1). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators (see actuator documentation).

Warning against residual hazards
To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. 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 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.
Safety instructions and measures

Referenced standards and regulations

The control valves meet the requirements in the Regulation (EC) No. 1935/2004 for materials and articles intended to come into contact with food.

The control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU. This declaration of conformity is included in the Appendix of these instructions (see section 10.2).

According to the ignition risk assessment performed in accordance with EN 13463-1:2009, section 5.2, the non-electrical control valves do not have their own potential ignition source even in the rare incident of an operating fault. As a result, they do not fall within the scope of Directive 2014/34/EU.

For connection to the equipotential bonding system, observe the requirements specified in section 6.4 of EN 60079-14 (VDE 0165 Part 1).

Referenced documentation

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

- Mounting and operating instructions for mounted actuator, e.g. EB 8310-X for Type 3271 and Type 3277 Actuators or EB 8315 for Type 3379 Actuator
- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.) e.g. EB 8395 for Type 3724 Positioner
- AB 0100 for tools, tightening torques, and lubricant

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 as well as the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.
- Wear personal protective equipment.
1.2 Notes on possible personal injury

**WARNING**

**Crush hazard arising from moving parts.**
The Type 3349-1 or Type 3349-7 Pneumatic Control Valve contains moving parts (actuator and plug stems), which can injure hands or fingers if inserted into the valve.

- Do not insert hands or fingers into the yoke while the valve is in operation.
- 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 actuator vents.**
While the valve is operating, the actuator 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 preloaded springs.**
Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic actuators can be identified by the long bolts protruding from the bottom of the actuator.

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

**Risk of 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, safety gloves, and eyewear.
1.3 Notes on possible property damage

**NOTICE**

Risk of contamination of the process medium through the use of unsuitable lubricant and/or contaminated tools and components.

- Keep the valve and the tools used free from solvents and grease.
- Make sure that only suitable lubricants are used.

**Risk of valve damage due to contamination (e.g. solid particles) in the pipeline.**
The plant operator is responsible for cleaning the pipelines in the plant.

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

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

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

**Risk of leakage and 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.

- Observe the specified tightening torques (AB 0100).

**Risk of valve damage due to the use of unsuitable tools.**
Certain tools are required to work on the valve.

- Only use tools approved by SAMSON (AB 0100).
Safety instructions and measures

**NOTICE**

Risk of valve damage due to the use of unsuitable lubricants.

The lubricants to be used depend on the valve material. Unsuitable lubricants may corrode and damage the valve surface.

- Only use lubricants approved by SAMSON (AB 0100).

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## 2 Markings on the control valve

### 2.1 Body inscription

The details on the valve version are lasered onto the front and back of the valve body (see Fig. 1). No nameplate is used.

### 2.2 Actuator nameplate

See associated actuator documentation.

### 2.3 Material number

The seat and plug of the valves have an article number written on them. Specifying this article number, you can contact us to find out which material is used.

---

![Fig. 1: Body inscription](image-url)
### Safety instructions and measures

**Fig. 2: Information on the valve body**

<table>
<thead>
<tr>
<th></th>
<th>Device modification index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Valve size:</td>
</tr>
<tr>
<td></td>
<td>DIN: DN · ANSI: NPS</td>
</tr>
<tr>
<td>3</td>
<td>Body material</td>
</tr>
<tr>
<td>4</td>
<td>Perm. operating gauge pressure at 20 °C bar/psi</td>
</tr>
<tr>
<td>5</td>
<td>Max. operating temperature °C/°F</td>
</tr>
<tr>
<td>6</td>
<td>Flow coefficient:</td>
</tr>
<tr>
<td></td>
<td>$K_V$ · $C_V$</td>
</tr>
<tr>
<td></td>
<td>Characteristic:</td>
</tr>
<tr>
<td></td>
<td>% = Equal percentage · L = Linear</td>
</tr>
</tbody>
</table>

| 7 | Seat-plug seal:           |
|   | ME: metal                 |
|   | PK: soft seal with PEEK   |
|   | PT: soft seal with PTFE   |

| 8 | Serial number             |
| 9 | Configuration ID          |
| 10| Compliance with food industry requirements |
| 11| CE marking or "Art. 4, Abs. 3" (PED 2014/68/EU) |
| 12| If applicable, EAC mark including month and year of production |
| 13| SAMSON material marking   |
Design and principle of operation

3 Design and principle of operation

The Type 3349 Angle Valve is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator (see Fig. 3) as well as the Type 3379 Pneumatic Actuator (see Fig. 4). The valve comes with welding ends as standard. The valve is suitable for aseptic applications and is designed without any cavities.

The process medium flows through the valve in the flow-to-close direction as indicated by the arrow. The position of the valve plug determines the flow rate across the cross-sectional area of flow released between plug and lathed seat.

In the standard version, the plug stem is sealed by the USP-VI diaphragm. In the special version, an additional backup packing is used (see Fig. 5). The test connection allows the diaphragm to be monitored for leakage.

In the version with backup packing, the test connection is sealed by a stopper. The stopper must be replaced with a suitable leakage indicator (e.g. a contact pressure gauge, an outlet to an open vessel or an inspection glass) when the valve is installed. The test connection of valves without a backup packing is fitted with a pipe elbow to allow the safe drainage of any medium that escapes.

When combined with the Type 3271 or Type 3277 Actuator, the actuator stem and plug stem are connected using stem connector clamps (A26/27). When combined with the Type 3379 Actuator, the actuator stem and plug stem are screwed together.

3.1 Fail-safe positions

The fail-safe position depends on the mounted actuator. Depending on how the compression springs are arranged in the pneumatic actuator, the valve has two different fail-safe positions:

Actuator stem extends (FA)

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem downward and close the valve. The valve opens when the signal pressure is increased enough to overcome the force exerted by the springs.

Actuator stem retracts (FE)

When the signal pressure is reduced or the air supply fails, the springs move the actuator stem upwards and open the valve. The valve closes when the signal pressure is increased enough to overcome the force exerted by the springs.

Tip

The direction of action of the Type 3271 and Type 3277 Pneumatic Actuator can be reversed, if required. Refer to the mounting and operating instructions of the pneumatic actuator:

▶ EB 8310-X for Type 3271 and Type 3277
Valve with Type 3271 Actuator

Valve with packing

Valve with Type 3277 Actuator

1 Body
2 Plug
3 Plug stem
5 Threaded bushing or stem seal
6 Threaded pin
7 Travel indicator scale
10 Stem connector nut
13 Lock nut
15 Spring
19 Washer
20 Flange
23 V-ring packing
24 USP-VI diaphragm
34 Hex screw
36 Screw plug (test connection) or nipple (pipe)
40 Pipe
A7 Actuator stem
A26 Stem connector clamps

Fig. 3: Type 3349 Valve for combination with a Type 3271 or Type 3277 Actuator
1. Body
2. Plug
3. Plug stem
15. Spring
20. Valve bonnet
23. V-ring packing

24. USP-VI diaphragm
34. Hex screw
36. Screw plug (test connection) or nipple (pipe)
40. Pipe
41. Bearing

Fig. 4: Type 3349 Valve for combination with a Type 3379 Actuator
3.2 Versions

Micro-flow valve
The Type 3349 Valve is also available as a micro-flow valve.

<table>
<thead>
<tr>
<th>With actuator</th>
<th>Valve size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DN</td>
</tr>
<tr>
<td>Type 3271/3277</td>
<td>8 to 25</td>
</tr>
<tr>
<td>Type 3379</td>
<td>8 to 25</td>
</tr>
</tbody>
</table>

Actuators
In these instructions, the preferable combination with a Type 3271, Type 3277 or Type 3379 Pneumatic Actuator is described. The pneumatic actuator can be replaced by another pneumatic actuator in a different size, but with the same travel.

⇒ Observe the maximum permissible actuator force.

Note
If the travel range of the actuator is larger than the travel range of the valve, the spring assembly in the actuator must be preloaded so that the travel ranges match. See associated actuator documentation.

Valve accessories
A Type 3724 Positioner is frequently used when the Type 3349 Angle is combined with a Type 3379 Pneumatic Actuator.
3.3 Technical data

The inscription on the valve body and the nameplate on the actuator provide information on the control valve version. See section 2.1 and the actuator documentation.

More information is available in Data Sheets T 8048-2 and T 8048-3.

Compliance

The Type 3349 Valve bears both the CE and EAC marks of conformity.

Temperature range

Depending on the version, the control valve is designed for a temperature range from 0 to +160 °C (32 to 320 °F).

Leakage class

Depending on the version, the following leakage class applies:

<table>
<thead>
<tr>
<th>Seal (7 on nameplate)</th>
<th>ME</th>
<th>PT, PK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leakage class (according to IEC 60534-4 or ANSI/FCI 70-2)</td>
<td>Min. IV</td>
<td>VI</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.

WARNING

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

Dimensions and weights

Table 1: Dimensions of Type 3349 Angle Valve for mounting onto Type 3271 and Type 3277 Actuators

<table>
<thead>
<tr>
<th>DN</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>65</th>
<th>80</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS</td>
<td>½</td>
<td>¾</td>
<td>1</td>
<td>1¼</td>
<td>1½</td>
<td>2</td>
<td>2½</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>H1</td>
<td>mm</td>
<td>238</td>
<td>241</td>
<td>244</td>
<td>276</td>
<td>279</td>
<td>285</td>
<td>293</td>
<td>348</td>
</tr>
<tr>
<td>L1</td>
<td>mm</td>
<td>70</td>
<td></td>
<td></td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>G</td>
<td>mm</td>
<td>86</td>
<td></td>
<td></td>
<td></td>
<td>113</td>
<td></td>
<td></td>
<td>144</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>6</td>
<td></td>
<td></td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1) Length with welding ends (DIN version). Dimensions of other connections and versions ▶ T 8048-2
2) Weight with welding ends

Dimensional drawing

Type 3349 for mounting onto Type 3271 and Type 3277 Actuators
### Design and principle of operation

**Table 2:** Dimensions of Type 3349 Angle Valve for mounting onto Type 3379 Actuator

<table>
<thead>
<tr>
<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>NPS</td>
<td>½</td>
<td>¾</td>
<td>1</td>
<td>1¼</td>
<td>1½</td>
<td>2</td>
</tr>
<tr>
<td>Rated travel mm</td>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1 mm</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 1) mm</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G mm</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>112</td>
</tr>
<tr>
<td>Weight 2) kg</td>
<td>3.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>

1) Length with welding ends (dimensions of other connections \(\leq 8048-3\))

2) Weight with welding ends

**Table 3:** Dimensions of Type 3349 as micro-flow valve for mounting onto Type 3379 Actuator

<table>
<thead>
<tr>
<th>DN</th>
<th>8</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS</td>
<td>–</td>
<td>¼</td>
<td>½</td>
<td>¾</td>
<td>1</td>
</tr>
<tr>
<td>Rated travel mm</td>
<td>7.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 1) mm</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DIN 11866, Series A

| H1 mm | 61 | 61 | 65 | 65 | 70 |
| G mm | 83 |    |    |    |    |
| Weight 2) kg | 1 |    |    |    |    |

DIN 11866, Series B

| H1 mm | 61 | 65 | 65 | 70 | 70 |
| G mm | 83 |    |    |    |    |
| Weight 2) kg | 1 |    |    |    |    |

DIN 11866, Series C

| H1 mm | – | 61 | 61 | 65 | 70 |
| G mm |    |    | 83 |    |    |
| Weight 2) kg |    |    | 1 |    |    |

1) Length with welding ends (dimensions of other connections \(\leq 8048-3\))

2) Weight with welding ends
Design and principle of operation

Dimensional drawings

Type 3349 for mounting onto Type 3379
Actuator · Standard version

Type 3349 for mounting onto Type 3379
Actuator · Micro-flow valve version
4 Measures for 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.

**Notice**

Risk of valve damage due to foreign particles entering the valve.
The protective caps fitted on the valve’s inlet and outlet prevent foreign particles from entering the valve and damaging it. Do not remove the protective caps until immediately before installing the valve into the pipeline.

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 and the corresponding data sheets ( ► T 8048-2 and ► T 8048-3) for the weights.

**Warning**

Risk of personal injury due to 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.
- Do not attach slings to the pipe elbow.
- Do not attach load-bearing slings to the valve accessories.
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.

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.
- Observe the permissible temperature range (see section 3.3).

4.2.2 Lifting

Lifting equipment (e.g. crane or forklift) can be used to lift heavy control valves.

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 lifting eyelet 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.

Tip
SAMSON's After-sales Service department can provide more detailed transport and lifting instructions on request.
Measures for preparation

Lifting points on the control valve

Fig. 6: Type 3349-1 without lifting eyelet

Fig. 7: Type 3349-1 with lifting eyelet

Fig. 8: Type 3349-7 without lifting eyelet

Fig. 9: Type 3349/3379
Lifting the control valve

1. **With Type 3271 or 3277:** carefully guide two slings around the flange and attach them to the rigging equipment of the crane or forklift (see Fig. 6, Fig. 7, and Fig. 8). Make sure that the actuator stem and valve accessories are not damaged.

   For actuator versions with lifting eyelet, attach an additional sling to the lifting eyelet of the actuator and to the rigging equipment of the crane or forklift (see Fig. 7).

2. **With Type 3379:** carefully guide two slings around the actuator. Secure the slings against slipping by using a connector (see Fig. 9).

2. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.

3. Move the control valve at an even pace to the site of installation.

4. Install the valve into the pipeline (see section 5.2.2).

5. After installation into the pipeline: depending on the type of connection (e.g. welding joint, flanged joint, etc.) check whether the valve in the pipeline holds.

6. Remove slings.

### 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**

- 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. 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 temperature range (see section 3.3).
- Do not place any objects on the control valve.
Measures for preparation

Special storage instructions for elastomers
Elastomer, e.g. actuator diaphragm
− To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.
− We recommend a storage temperature of 15 °C for elastomers.
− Store elastomers away from lubricants, chemicals, solutions, and fuels.

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.

NOTICE
Risk of contamination of the process medium through the use of unsuitable lubricant and/or contaminated tools and components.
− Keep the valve and the tools used free from solvents and grease.
− Make sure that only suitable lubricants are used.
5 Mounting and start-up

SAMSON valves are delivered ready for use. In special cases, 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.

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. Observe the specified tightening torques (AB 0100).

Risk of valve damage due to the use of unsuitable tools. Only use tools approved by SAMSON (AB 0100).

Risk of contamination of the process medium through the use of unsuitable lubricant and/or contaminated tools and components.

- Keep the valve and the tools used free from solvents and grease.
- Make sure that only suitable lubricants are used.

5.1 Mounting the actuator onto the valve

**Note**

- Remove the mounted actuator before mounting the other actuator (see associated actuator documentation).
- Preloading the actuator springs increases the thrust of a pneumatic actuator and reduces the travel range of the actuator (see associated actuator documentation).

5.1.1 Version with Type 3271 or Type 3277 Actuator

Refer to Fig. 10

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

➤ Make sure that the dimension x from the bottom of the actuator stem to the bottom of the actuator case is correctly adjusted (see Table 4).
5.1.2 Version with Type 3379 Actuator

Refer to Fig. 11

*Note*

To prevent the actuator stem from rotating, a locking pin with 3.5 mm diameter is required. The locking pin (item no. 1281-0066) can be ordered from SAMSON.

1. Undo the screws (34) on the valve bonnet (20).

2. Lift the valve bonnet (20) together with the plug (2), plug stem (3), and diaphragm (24) off the body (1).

3. Screw the actuator (A) onto the valve bonnet (20).

4. "Actuator stem extends" fail-safe action: guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem.

"Actuator stem retracts" fail-safe action: apply 6 bar signal pressure to the actuator. Guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem.

<table>
<thead>
<tr>
<th>Version</th>
<th>Valve size</th>
<th>Dimension x in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-flow valve</td>
<td>8 to 25 ¼ to 1</td>
<td>67.5</td>
</tr>
<tr>
<td>Standard</td>
<td>15 to 25 ½ to 1</td>
<td>67.5</td>
</tr>
<tr>
<td></td>
<td>32 to 65 1¼ to 2½</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>80 and 100 3 and 4</td>
<td>90</td>
</tr>
</tbody>
</table>
5. Unscrew the plug stem (3) together with diaphragm (24) and plug (2) from the actuator stem.

6. Remove locking pin.

7. Place the actuator and valve bonnet (20) together with the plug (2), plug stem (3), and diaphragm (24) onto the body (1).

8. Tighten the screws (34) on the valve bonnet (20) gradually in a crisscross pattern. Observe tightening torques.

9. For further instructions concerning Type 3379 Actuator (pneumatic connections, alignment of the actuator, etc.) ➤ EB 8315.

5.2 Installing the valve into the pipeline

5.2.1 Checking the installation conditions

Pipeline routing

The inlet and outlet lengths vary depending on the process medium. To ensure the control valve functions properly, follow the installation instructions given below:

➤ Observe the inlet and outlet lengths (see Table 5). Contact SAMSON if the valve conditions or state of the medium process deviate.

➤ 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.

Mounting position

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

In the following versions, the valve must be installed with the actuator on top:
- For valves that are intended to be free of cavities
  ➔ Contact SAMSON if the mounting position is not as specified above.

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 in the upright position on top of the valve.

Attach a suitable support or suspension to the valve.

Table 5: Inlet and outlet lengths

<table>
<thead>
<tr>
<th>State of process medium</th>
<th>Valve conditions</th>
<th>Inlet length a</th>
<th>Outlet length b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>Ma ≤ 0.3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Vapor</td>
<td>Ma ≤ 0.3 1)</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Liquid</td>
<td>Free of cavitation/w &lt; 10 m/s</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Cavitation producing noise/w ≤ 3 m/s</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Cavitation producing noise/3 &lt; w &lt; 5 m/s</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

1) No saturated steam
Mounting and start-up

Vent plug

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

- Locate the vent plug on the opposite side to the workplace of operating personnel.
- On mounting valve accessories, make sure that they can be operated from the workplace of the operating personnel.

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

5.2.2 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 using suitable lifting equipment 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. Completely retract the actuator stem to protect the plug from sparks during welding.
5. Weld the valve free of stress into the pipeline.
6. Depending on the field of application, allow the valve to cool down or heat up to reach ambient temperature before start up.
7. Slowly open the shut-off valve in the pipeline after the valve has been installed.

5.3 Preparing for operation

Proceed as follows:
- Flush the pipelines.
- Check the valve to make sure it is clean.

Risk of contamination of the process medium through the use of unsuitable lubricant and/or contaminated tools and components.
- Keep the valve and the tools used free from solvents and grease.
- Make sure that only suitable lubricants are used.
5.4 Quick check

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

Tight shut-off
1. Close the valve.
2. Slowly open the shut-off valve in the pipeline.

⚠️ 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.

3. Check the valve for leakage (visual inspection).

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.

➤ Type 3349-1 and Type 3349-7: check the travel reading at the travel indicator scale.

Fail-safe position

➤ Shut off the signal pressure line.

➤ 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.

ℹ️ 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

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

**WARNING**
Type 3349-1 and Type 3349-7: 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 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 or cold components and pipelines.
Depending on the process medium, valve components, and pipelines may get very hot or cold and cause burn injuries.
Wear protective clothing and safety gloves.

**WARNING**
Risk of personal injury due to process medium escaping under pressure.
- Align the pipe elbow to ensure that any escaping process medium does not hit operating personnel.

**WARNING**
Risk of personal injury due to pressurized components and process medium escaping under pressure.
Do not loosen the screw of the test connection while the valve is in operation.

**NOTICE**
Risk of impairment of aseptic or hygienic service.
In the version with backup packing, the test connection is sealed by a stopper. To guarantee aseptic or hygienic service, connect a leakage detection device to the test connection.

**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.

**NOTICE**
Diaphragm damage through the use of an incompressible medium.
Closing the valve when the shut-off valves upstream and downstream of the valve are closed may lead to the diaphragm rupturing.
in plants with liquid media flowing through them.
Only close the valve after opening the shut-off valves upstream and downstream of the control valve.

6.1 CIP (cleaning-in-place)
CIP can be performed with commonly used cleaning fluids.
➔ Observe the applicable hygiene regulations.

6.2 SIP (sterilization-in-place)
SIP can be performed using steam at a temperature up to 180 °C for a maximum of 30 minutes.
➔ Observe the applicable hygiene regulations.
7 Servicing

The control valve is subject to normal wear, especially at the diaphragm, seat, plug, and packing. Depending on the operating conditions, check the valve at regular intervals to prevent possible failure before it can occur.

Tip

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

**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 as well as the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.
- Wear personal protective equipment.

**WARNING**

Risk of personal injury due to residual process medium in the valve. While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns. Wear protective clothing, safety gloves, and eyewear.

**WARNING**

Risk of burn injuries due to hot or cold components and pipeline. Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

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

**NOTICE**

Risk of valve damage due to incorrect servicing or repair. Service and repair work must only be performed by trained staff.

**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. Observe the specified tightening torques (► AB 0100).

**NOTICE**

Risk of valve damage due to the use of unsuitable tools. Only use tools approved by SAMSON (► AB 0100).
Risk of contamination of the process medium through the use of unsuitable lubricant and/or contaminated tools and components.
- Keep the valve and the tools used free from solvents and grease.
- Make sure that only suitable lubricants are used (AB 0100).

The control valve was checked by SAMSON before it left the factory.
- Certain test results (seat leakage and leak test) certified by SAMSON lose their validity when the valve body or actuator housing is opened.
- 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.

Checking the extent of servicing
- Check wear at seat and plug. Replace the damaged plug (see section 7.1.2 or 7.2.2).
- Check the diaphragm for damage (e.g. cracks, milky coloring at the bends). Replace the damaged diaphragm (see section 7.1.2 or 7.2.2).
- If the valve leaks even if the diaphragm is intact, check the tightening torque of the joint between plug and plug stem as well as body and bonnet/flange.

Preparing the valve for servicing
1. Put the control valve out of operation (see section 9.1).
2. Remove the valve from the pipeline (see section 9.2).

7.1 Version with Type 3271 or Type 3277 Actuator

7.1.1 Replacing the packing
1. Remove the actuator from the valve. See associated actuator documentation.
2. Undo the hex screws (34).
3. Lift the flange (20) together with the plug stem (3), plug (2), and diaphragm (24) off the body (1).
4. Unscrew the threaded bushing (5).
5. Pull the plug (2) together with plug stem (3) and diaphragm (24) out of the flange (20).
6. Pull all the packing parts out of the packing chamber using a suitable tool. Renew the damaged parts and carefully clean the packing chamber.
7. Push the plug (2) together with plug stem (3) and diaphragm (24) into the flange (20).
8. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool.
9. Tighten the threaded bushing (5).
Fig. 12: Type 3349 Angle Valve for Type 3271 and Type 3277 Actuators
10. Place the flange (20) together with the plug stem (3), plug (2), and diaphragm (24) onto the body (1).

11. Apply a suitable lubricant to the hex screws (34).

12. Tighten the hex screws (34) on the flange (20) gradually in a crisscross pattern. Observe tightening torques.


14. Adjust lower or upper signal bench range. See associated actuator documentation.

7.1.2 Replacing the diaphragm and plug

1. Remove the actuator from the valve. See associated actuator documentation.

2. Undo the hex screws (34).

3. Lift the flange (20) together with the plug stem (3), plug (2), and diaphragm (24) off the body (1).

4. Pull the plug (2) together with plug stem (3) and diaphragm (24) out of the flange (20).

For version with packing: replace the packing (see section 7.1.1).

5. Unscrew the threaded pin (6).

6. Unscrew the plug stem (3) from the plug (2).

7. Remove diaphragm (24).

8. Apply a suitable lubricant to the thread of the plug stem (3).

9. Screw a new plug (2) onto the plug stem (3) using a suitable tool. Observe tightening torques.

10. Mark the side mounting position.

11. Unscrew the plug stem (3) from the plug (2).

12. Insert a new diaphragm (24) into the new plug.

13. Screw the new plug (2) back onto the plug stem (3) again using a suitable tool. Align the plug stem with the mounted position mark made earlier. To do this, clamp the plug into a suitable clamping fixture and pull it with a suitable tool.

14. Remove the mounting position mark.

15. Secure the plug (2) with threaded pin (6).

16. Check the concentricity of the plug (see section 7.3).

17. Push the plug (2) together with plug stem (3) and diaphragm (24) into the flange (20).

18. Place the flange (20) together with the plug stem (3), plug (2), and diaphragm (24) onto the body (1).

19. Apply a suitable lubricant to the hex screws (34).

20. Tighten the hex screws (34) on the flange (20) gradually in a crisscross pattern until the valve bonnet touches the body flange.

 Greater deformation forces are required for new diaphragms (in comparison to already
Fig. 13: Type 3349 Angle Valve for Type 3379 Actuator - With additional packing (left) and with pipe (right)
installed diaphragms). We recommend shaping the new diaphragms beforehand using conventional hex screws:
- Tighten the conventional hex screws as described in step 20.
- Replace the conventional hex screws with the existing hex screws (34).
- Tighten the hex screws (34) as described in step 20.


22. Adjust lower or upper signal bench range. See associated actuator documentation.

### 7.2 Version with Type 3379 Actuator

#### Note
To prevent the actuator stem from rotating, a locking pin with 3.5 mm diameter is required. The locking pin (item no. 1281-0066) can be ordered from SAMSON.

#### 7.2.1 Replacing the packing

1. Undo the screws (34) on the valve bonnet (20).

2. Lift the actuator (A) and valve bonnet (20) together with the plug stem (3), plug (2), and diaphragm (24) off the body (1).

![Fig. 14: Detailed view of backup packing](image)
3. "Actuator stem extends" fail-safe action: guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem. "Actuator stem retracts" fail-safe action: apply 6 bar signal pressure to the actuator. Guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem.

4. Unscrew the plug stem (3) together with plug (2) and diaphragm (24) from the actuator stem and pull it out of the valve bonnet (20).

5. Unscrew the actuator (A) from the valve bonnet (20).

6. Remove locking pin.

7. Compress the packing using a suitable tool and remove the snap ring (42).

8. Pull all the packing parts out of the packing chamber using a suitable tool. Renew the damaged parts and carefully clean the packing chamber.

9. Check the plug and diaphragm for damage. Replace them, if necessary (see section 7.2.2).

10. Push the plug (2) together with plug stem (3) and diaphragm (24) into the valve bonnet (20).

11. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool.

12. Compress the packing using a suitable tool and insert the snap ring (42).

13. Screw the actuator (A) onto the valve bonnet (20).

14. "Actuator stem extends" fail-safe action: guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem. "Actuator stem retracts" fail-safe action: apply 6 bar signal pressure to the actuator. Guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem.

15. Apply a suitable lubricant to the actuator stem.

16. Screw the plug stem (3) together with plug (2) and diaphragm (24) onto the actuator stem. Observe tightening torques.

17. Remove locking pin.

18. Place the actuator and valve bonnet (20) together with the plug stem (3), plug (2), and diaphragm (24) onto the body (1).

19. Apply a suitable lubricant to the hex screws (34).

20. Tighten the hex screws (34) on the valve bonnet (20) gradually in a crisscross pattern. Observe tightening torques.

21. For version with Type 3724 Positioner: initialize the positioner (► EB 8395).

### 7.2.2 Replacing the diaphragm and plug

**Note**

Before replacing the diaphragm and plug, remove the valve from the plant.
1. Undo the screws (34) on the valve bonnet (20).

2. Lift the actuator (A) and valve bonnet (20) together with the plug stem (3), plug (2), and diaphragm (24) off the body (1).

3. **"Actuator stem extends" fail-safe action:** guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem. **"Actuator stem retracts" fail-safe action:** apply 6 bar signal pressure to the actuator. Guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem.

4. Unscrew the plug stem (3) together with plug (2) and diaphragm (24) off the actuator stem and pull it out of the valve bonnet (20).

5. Unscrew the actuator (A) from the valve bonnet (20).

6. Remove locking pin.

   **For version with packing:** replace the packing (see section 7.2.1).

7. Unscrew the threaded pin (6).

8. Unscrew the plug stem (3) from the plug (2).


10. Apply a suitable lubricant to the thread of the plug stem (3).

11. Screw a new plug (2) onto the plug stem (3) using a suitable tool. Observe tightening torques.

12. Mark the side mounting position.

13. Unscrew the plug stem (3) from the plug (2).


15. Screw the new plug (2) back onto the plug stem (3) again using a suitable tool. Align the plug stem with the mounted position mark made earlier. To do this, clamp the plug into a suitable clamping fixture and pull it with a suitable tool.

16. Remove the mounting position mark.

17. Secure the plug (2) with threaded pin (6).

18. Check the concentricity of the plug (see section 7.3).

19. Push the plug (2) together with plug stem (3) and diaphragm (24) into the valve bonnet (20).

20. Apply a suitable lubricant to the thread of the valve bonnet (20).

21. Screw the actuator (A) onto the valve bonnet (20).

22. **"Actuator stem extends" fail-safe action:** guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem. **"Actuator stem retracts" fail-safe action:** apply 6 bar signal pressure to the actuator. Guide the locking pin (Ø 3.5 mm) through the hole located in the bottom actuator section and the actuator stem.

23. Apply a suitable lubricant to the actuator stem.

24. Screw the plug stem (3) together with plug (2) and diaphragm (24) onto the
actuator stem. Observe tightening torques.

25. Remove locking pin.

26. Place the actuator and valve bonnet (20) together with the plug stem (3), plug (2), and diaphragm (24) onto the body (1).

27. Apply a suitable lubricant to the hex screws (34).

28. Tighten the hex screws (34) on the flange (20) gradually in a crisscross pattern until the valve bonnet touches the body flange.

29. For version with Type 3724 Positioner: initialize the positioner (EB 8395).

7.3 Checking the concentricity of the plug to the plug stem

Before mounting the plug, the concentricity of the plug to the plug stem must be checked.

1. Clamp the plug stem into a suitable clamping device.

2. Check the concentricity of the plug to the plug stem. Observe the values listed in Table 6 and Table 7.

3. If the concentricity deviates, use a suitable tool (e.g. plastic hammer) and hit the plug until concentricity is achieved.

---

**Note**

Greater deformation forces are required for new diaphragms (in comparison to already installed diaphragms). We recommend shaping the new diaphragms beforehand using conventional hex screws:

- Tighten the conventional hex screws as described in step 28.
- Replace the conventional hex screws with the existing hex screws (34).
- Tighten the hex screws (34) as described in step 28.

**Tip**

Instead of aligning the plug, the assembly (consisting of plug stem, diaphragm, and plug) can be ordered from SAMSON.

---

### Table 6: Concentricity of the plug · Version with Type 3271 or Type 3277 Actuator

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Max. deviation in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 8 to 25</td>
<td>¼ to 1</td>
</tr>
<tr>
<td>DN 15 to 25</td>
<td>½ to 1</td>
</tr>
<tr>
<td>DN 32 to 65</td>
<td>1¼ to 2½</td>
</tr>
<tr>
<td>DN 80 and 100</td>
<td>3 and 4</td>
</tr>
</tbody>
</table>

### Table 7: Concentricity of the plug · Version with Type 3379 Actuator

<table>
<thead>
<tr>
<th>Valve size</th>
<th>Max. deviation in mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 8 to 25</td>
<td>¼ to 1</td>
</tr>
<tr>
<td>DN 15 to 25</td>
<td>½ to 1</td>
</tr>
<tr>
<td>DN 32 to 50</td>
<td>1¼ to 2</td>
</tr>
</tbody>
</table>
7.4 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. Decontaminate the valve. 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 valve together with the filled-in form to your nearest SAMSON subsidiary. SAMSON subsidiaries are listed on our website at www.samson.de > Contact.

7.5 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.

Spare parts
Details on spare parts are available on request.

Lubricant
Details on suitable lubricants can be found in the document AB 0100.

Tools
Details on suitable tools can be found in the document AB 0100.
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 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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unblock the actuator.</td>
</tr>
<tr>
<td></td>
<td>Signal pressure too low</td>
<td>Check the signal pressure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td>Actuator or plug stem does not move through the whole range.</td>
<td>Signal pressure too low</td>
<td>Check the signal pressure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td></td>
<td>Plug has become detached.</td>
<td>Fasten plug and plug stem together (see section 7.1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and 7.2.2). Observe tightening torques.</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, particularly with soft seat, is worn.</td>
<td>Replace plug (see section 7.1.2 and 7.2.2) or contact SAMSON’s After-sales Service department.</td>
</tr>
</tbody>
</table>
## Malfunctions

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible reasons</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The valve leaks to the atmosphere (fugitive emissions).</td>
<td>The packing is defective.</td>
<td>Replace packing (see section 7.1.1 and 7.2.1) or contact SAMSON’s After-sales Service department.</td>
</tr>
<tr>
<td></td>
<td>Diaphragm not correctly clamped into position.</td>
<td>Check that the diaphragm is correctly seated. If necessary, replace the diaphragm (see section 7.1.2 and 7.2.2). Check the tightening torque of the joint between plug and plug stem.</td>
</tr>
<tr>
<td></td>
<td>Diaphragm damaged.</td>
<td>Replace the diaphragm (see section 7.1.2 and 7.2.2).</td>
</tr>
</tbody>
</table>

**Note**

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

### 8.2 Emergency action

Upon supply air or control signal failure, the valve moves to its fail-safe position (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. 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 slowly flow into the valve.
Decommissioning and disassembly

9 Decommissioning and disassembly

**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 as well as the valve.
− Drain the process medium from all the plant sections concerned as well as the valve.
− Wear personal protective equipment.

**WARNING**
Risk of personal injury due to residual process medium in the valve. While working on the valve, residual process medium can escape and, depending on its properties, may lead to personal injury, e.g. (chemical) burns. Wear protective clothing, safety gloves, and eyewear.

**WARNING**
Risk of burn injuries due to hot or cold components and pipeline. Valve components and the pipeline may become very hot or cold. Risk of burn injuries.
− Allow components and pipelines to cool down or heat up.
− Wear protective clothing and safety gloves.

**NOTICE**
Diaphragm damage through the use of an incompressible medium. Closing the valve when the shut-off valves upstream and downstream of the valve are closed may lead to the diaphragm rupturing in plants with liquid media flowing through them. Only close the valve after opening the shut-off valves upstream and downstream of the control valve.

9.1 Decommissioning

To decommission the control valve for service and repair work or 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 to depressurize the actuator.
4. If necessary, allow the pipeline and valve components to cool down or heat up.

9.2 Removing the valve from the pipeline

1. Put the control valve out of operation (see section 9.1).
2. Cut the pipeline in front of the weld seam.
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 Annex

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

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 of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing
10.2 Certificates

DECLARATION DE CONFORMITE A LA DIRECTIVE
EQUIPEMENTS SOUS PRESSION 2014/68/UE
N° PED-014

Fabricant :
Samson Régulation SA
1, rue Jean Corona
F-69511 Vaulx-en-Velin Cedex

Description de l’équipement sous pression :
Vanne aseptique type 3349
Matière des corps: acier forgé 1.4404, 14435, A 182 F316L
DN 15 - 25 DN 1/2" - 1"
Classement de l’équipement selon la Directive:
Tuyauterie visée à l’article 4 point 3
DN 32 - 100 DN 1"1/2 – 4"
Classement de l’équipement selon la Directive:
Tuyauterie visée à l’article 4 point 1.c) tout type de fluide
Procedute d’évaluation de conformité utilisée:
Module A
Normes utilisées pour la conception: DIN-EN 12 516-2, ASME B 16.34, DIN-EN 1092-1, DIN-EN 60534-4
Autres Directives Européennes prises en compte le cas échéant :

Hersteller :
Samson Régulation SA
1, rue Jean Corona
F-69511 Vaulx-en-Velin Cedex

Beschreibung des Druckgerätes :
Aseptisches Ventil Typ 3349
Gehäusewerkstoff : Schmiedestahl 1.4404, 14435, A 182 F316L
DN 15 - 25 DN 1/2" - 1"
Die Geräte sind geeignet für Medien gemäß :
Rohrleitung Artikel 4 Nummer 3
DN 32 - 100 DN 1"1/2 – 4"
Die Geräte sind geeignet für Medien gemäß :
Rohrleitung Artikel 4 Nummer 1.c) alle Fluide
Angewandtes Konformitätsbewertungsverfahren:
Modul A
Dem Entwurf zugrundegelegt sind die Verfahren aus: DIN-EN 12 516-2, ASME B 16.34, DIN-EN 1092-1, DIN-EN 60534-4

DECLARATION OF CONFORMITY TO THE PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU
Nb PED-014

Manufacturer:
Samson Régulation SA
1, rue Jean Corona
F-69511 Vaulx-en-Velin Cedex

Description of pressure equipment :
Aseptic valve type 3349
Material of the body: Forged steel 1.4404, 14435, A 182 F316L
DN 15 - 25 DN 1/2" - 1"
Classification of the equipment :
Acc. to piping article 4 paragraph 3
DN 32 - 100 DN 1"1/2 – 4"
Classification of the equipment :
Acc. to piping article 4 paragraph 1.c) all kinds of fluids
Conformity assessment procedure followed:
Module A

Vaulx-en-Velin, 12/07/2016
B. Lauterjung
Responsable du Bureau d’Etudes/ Leiter der Entwicklung
Design Manager

R. Rousseau
Responsable Qualité / Leiter der Qualitätssicherung
Quality manager
10.3 Spare parts

Standard version for Type 3271 and Type 3277 Actuators

1 Valve body
2 Plug
3 Plug stem
5 Threaded bushing or stem seal
6 Threaded pin
7 Travel indicator scale
10 Stem connector nut
13 Lock nut
15 Spring
16 Hanger
19 Washer
20 Flange (assembly)
23 V-ring packing
24 USP-VI diaphragm
34 Hex screw
36 Screw plug (test connection) or nipple (pipe)
37 Cap screw
38 Gasket
40 Pipe (assembly)
41 Bearing
42 Snap ring
Standard version for Type 3379 Actuator

1  Valve body
2  Plug
3  Plug stem
6  Threaded pin
10 Stem connector nut
13 Lock nut
15 Spring
19 Washer
20 Valve bonnet
23 V-ring packing
24 USP-VI diaphragm
34 Hex screw
36 Screw plug (test connection) or nipple (pipe)
38 Gasket
40 Pipe (assembly)
41 Bearing
42 Snap ring
Micro-flow valve version for Type 3271 and Type 3277 Actuators

1. Valve body
2. Plug
3. Plug stem
5. Threaded bushing or stem seal
6. Threaded pin
7. Travel indicator scale
15. Spring
16. Plate
19. Washer
20. Flange (assembly)
23. V-ring packing
24. USP-VI diaphragm
34. Hex screw
36. Screw plug (test connection) or nipple (pipe)
37. Countersunk screw
39. Washer
41. Bearing
42. Spacer
Micro-flow valve version for Type 3379 Actuator

1  Valve body
2  Plug
3  Plug stem
6  Threaded pin
15 Spring
19  Washer
20  Valve bonnet
23  V-ring packing
24  USP-VI diaphragm
34  Hex screw
36  Screw plug (test connection) or nipple (pipe)
39  Washer
41  Bearing
42  Spacer
43  Snap ring
EB 8048-2/-3 EN