Type 3323 Valve · DIN and ANSI versions

In combination with actuators, e.g. SAMSON Type 3372 Electropneumatic Actuator, Type 3371 Pneumatic Actuator, Type 5824 Electric Actuator or Type 3374 Electric Actuator

Edition November 2019
Note on these mounting and operating instructions

These mounting and operating instructions assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in these instructions are for illustration purposes only. The actual product may vary.

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

➢ If you have any questions about these instructions, contact SAMSON’s After-sales Service Department (aftersalesservice@samsongroup.com).

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.samsongroup.com > Service & Support > Downloads > Documentation.

Definition of signal words

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

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

⚠️ NOTICE
Property damage message or malfunction

ℹ️ Note
Additional information

☀️ Tip
Recommended action
1 Safety instructions and measures

Intended use

The SAMSON Type 3323 Three-way Valve in combination with an actuator (e.g. Type 3372 Electropneumatic Actuator, Type 3371 Pneumatic Actuator, Type 5824 Electric Actuator or Type 3374 Electric Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases or vapors. 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
- Use outside the limits defined by the valve accessories connected to the valve

Furthermore, the following activities do not comply with the intended use:
- Use of non-original spare parts
- Performing service and repair work not described 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 checking the hazards posed by the process medium being used (e.g. GESTIS (CLP) hazardous substances database). Depending on the process medium and/or the activity, the protective equipment required includes:

- Protective clothing, safety gloves and eye protection in applications with hot, cold and/or corrosive media
- Wear hearing protection when working near the valve
- Hard hat
- Safety harness when working at height
- Safety footwear, ESD (electrostatic discharge) footwear, if necessary

➤ 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
The fail-safe position of the control valve upon air supply or control signal failure depends on the actuator used (see associated actuator documentation). The fail-safe action of the actuator (see section 3.1) is the same as its direction of action and is specified on the nameplate of SAMSON actuators.

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.

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

➤ Observe safety measures for handling the device.
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 an EU declaration of conformity, which includes information about the applied conformity assessment procedure. This EU declaration of conformity is included in the annex 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 0165-1).

Referenced documentation

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

- Mounting and operating instructions for:
  - EB 8313-1 for Type 3372 Electropneumatic Actuator (with integral positioner)
  - EB 8313-3 for Type 3372 Electropneumatic Actuator (with Type 3725 Positioner)
  - EB 8317 for Type 3371 Pneumatic Actuator
  - EB 5824-1 for Type 5824 Electric Actuator (three-step version)
  - EB 5824-2 for Type 5824 Electric Actuator (version with positioner)
  - EB 8331-3 for Type 3374 Electric Actuator (three-step version)
  - EB 8331-4 for Type 3374 Electric Actuator (version with positioner)

- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)

- AB 0100 for tools, tightening torques and lubricant
Safety instructions and measures

1.1 Notes on possible severe personal injury

⚠️ DANGER

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

➤ Observe the maximum permissible pressure for valve and plant.

➤ Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.

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

Risk of electric shock.

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

➤ Before performing any work on the device and before opening the device, disconnect the supply voltage and protect it against unintentional reconnection.

➤ Only use power interruption devices that are protected against unintentional reconnection of the power supply.

1.2 Notes on possible personal injury

⚠️ WARNING

Risk of burn injuries due to hot or cold components and pipelines.
Depending on the process medium, valve components and pipelines may get very hot or cold and cause burn injuries.

➤ Allow components and pipelines to cool down or heat up.

➤ Wear protective clothing and safety gloves.

Risk of hearing loss or deafness due to loud noise.
The noise emissions depend on the valve version, plant facilities and process medium.

➤ Wear hearing protection when working near the valve.
Safety instructions and measures

**WARNING**

Risk of personal injury due to exhaust air being vented.
While the valve is operating, the actuator or valve accessories may vent during closed-loop control or when the valve opens or closes.

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

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

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

Risk of personal injury due to preloaded springs.
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).
Safety instructions and measures

**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.

- If possible, drain the process medium from all the plant sections affected and the valve.
- Wear protective clothing, safety gloves and eye protection.

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

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

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

### 1.3 Notes on possible property damage

**NOTICE**

Risk of damage to the electric control valve due to the 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.
**NOTICE**

**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.

**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).

**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 surface.

> Only use lubricants approved by SAMSON (▶ AB 0100).
# Markings on the device

## 2 Markings on the device

### 2.1 Valve nameplate

Fig. 1: Inscriptions on the valve nameplate

<table>
<thead>
<tr>
<th>Item</th>
<th>Inscription meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Data Matrix code</td>
</tr>
<tr>
<td>2</td>
<td>Type designation</td>
</tr>
<tr>
<td>3</td>
<td>Material</td>
</tr>
<tr>
<td>4</td>
<td>Month and year of manufacture</td>
</tr>
<tr>
<td>5</td>
<td>Valve size: DIN: DN · ANSI: NPS · JIS: DN</td>
</tr>
<tr>
<td>6</td>
<td>Pressure rating: DIN: PN · ANSI: CL · JIS: K</td>
</tr>
<tr>
<td>7</td>
<td>Order number/item</td>
</tr>
<tr>
<td>8</td>
<td>Flow coefficient: DIN: KVS · ANSI: CV</td>
</tr>
<tr>
<td>9</td>
<td>Characteristic: %: equal percentage · LIN: linear mod-lin: modified linear NO/NC: on/off service</td>
</tr>
<tr>
<td>10</td>
<td>Seat-plug seal: ME: metal · HA: carbide metal · ST: metal base material with Stellite® facing KE: ceramic · PT: PTFE soft seal · PK: PEEK soft seal</td>
</tr>
<tr>
<td>11</td>
<td>Seat code (trim material): on request</td>
</tr>
<tr>
<td>14</td>
<td>Country of origin</td>
</tr>
<tr>
<td>15</td>
<td>PSA version: PSA</td>
</tr>
<tr>
<td>16</td>
<td>Cage/seat style: CC: clamped cage, clamped seat SF: suspended cage, flanged seat</td>
</tr>
<tr>
<td>17</td>
<td>CE marking</td>
</tr>
<tr>
<td>18</td>
<td>ID of the notified body</td>
</tr>
<tr>
<td>19</td>
<td>PED: Pressure Equipment Directive</td>
</tr>
<tr>
<td>20</td>
<td>G1/G2: gases and vapors Fluid group 1 = hazardous Fluid group 2 = other L1: liquids Fluid group 1 = hazardous Fluid group 2 = other I/II/III: Category 1 to 3</td>
</tr>
<tr>
<td>21</td>
<td>Serial number</td>
</tr>
<tr>
<td>22</td>
<td>NE 53 (NAMUR Recommendation)</td>
</tr>
</tbody>
</table>

Note: Fig. 2-1 and the inscription table list all possible characteristics and options that may appear on a valve nameplate. Only the inscriptions relevant to the ordered Type 3323 Valve actually appear on the nameplate.
The valve nameplate (80) in valve sizes DN 15 to 15 or NPS ½ to 2 is affixed to the valve on the body flange (Fig. 2). The nameplate is affixed to the top of the bonnet in valve sizes DN 65 or NPS 2½ and larger (Fig. 3).

![Fig. 2: Nameplate on the body](image2)
![Fig. 3: Nameplate on the bonnet](image3)

2.2 Actuator nameplate

See associated actuator documentation.

2.3 Material numbers

The seat and plug of the valves have an item number written on them. Specifying this item number, you can contact us to find out which material is used. Additionally, a seat code is used to identify the trim material. This seat code is specified on the nameplate.

2.4 Label when an adjustable packing is installed

An instructional label is affixed to the valve when an adjustable packing is installed (see Fig. 4).

![ATTENTION!](image4)

**Fig. 4:** Label when an adjustable packing is installed
3 Design and principle of operation

Depending on the plug arrangement, the Type 3323 Three-way Valve can be used either as a mixing or diverting valve. The design of the mixing and diverting valves in sizes DN 15 to 25 (NPS ½ to 1) is identical. The Type 3323 Valve is preferably to be combined with the following SAMSON actuators:

- Type 3372 Electropneumatic Actuator
- Type 3371 Pneumatic Actuator
- Type 3374 Electric Actuator
- Type 5824 Electric Actuator

The two seats and two plugs with plug stem are installed in the body. The plug stem is connected to the actuator stem by a stem connector and sealed by the spring-loaded packing.

The medium flows through the valve in the direction indicated by the arrow.

In mixing valves, the process media to be mixed enter at valve ports A and B. The combined flow exits the valve at port AB (see Fig. 6).

In diverting valves, the process medium enters at the valve port AB and the partial flows exit at ports A and B (see Fig. 5).

The flow rate from ports A or B to AB and vice versa depends on the cross-sectional area of flow between the seats and plugs. The plugs are moved by changing the control signal applied to the actuator.

Fig. 5: Diverting valve (DN 65 to 100)
Fig. 6: Mixing valve DN 15 to 50

2 Plug stem
17 Plug
20 Body
27 Valve bonnet
34 Flange
40 Spacer
41 Spacer
44 Spacer
46 Body gasket

51 Stud
52 Body nut
121 Hex nut (self-locking)
123 Shim
131 Threaded bushing (packing nut)
133 V-ring packing
135 Central nut
161 Bottom seat
162 Top seat
3.1 Fail-safe positions

Upon failure of the air supply or supply voltage, the valve moves to its fail-safe position.

- **Actuator stem extends:** when the supply air or supply voltage fails, port B is closed in mixing valves and port A is closed in diverting valves.

- **Actuator stem retracts:** when the supply air or supply voltage fails, port A is closed in mixing valves and port B is closed in diverting valves.

**Note**

The direction of action of the electric and electropneumatic actuators is determined by the actuator version.

The direction of action of the Type 3371 Pneumatic Actuator can be reversed, if required. See the mounting and operating instructions ► EB 8317.

3.2 Mounting types

There are two different types of attachment to mount the pneumatic or electropneumatic actuator onto the valve depending on the version (valve size etc.): mounting using crossbeam or mounting using rods (see Table 1).

1. **Mounting using crossbeam and central nut**
   
   When the actuator is mounted to the valve using a crossbeam (form B, Fig. 7), the actuator is fastened to the valve bonnet using a central nut.

2. **Mounting using rods**
   
   When the actuator is mounted using rods (form C, Fig. 8), the actuator is connected to the valve bonnet using rods. In this case, a crossbeam is not required for mounting the actuator. A plate keeps the correct distance between rods.

When an electric actuator is mounted onto the valve, it is mounted with a form-fit connection using a stem connector and yoke.

### Table 1: Possible combinations and types of attachment

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Actuator area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 3371</td>
<td>120 cm²</td>
</tr>
<tr>
<td>Type 3372</td>
<td>120 cm²</td>
</tr>
<tr>
<td>Type 3374</td>
<td>350 cm²</td>
</tr>
<tr>
<td>Type 5824</td>
<td>350 cm²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For valve size</th>
<th>Type of attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 15 to 50/NPS ½ to 2</td>
<td>Form B</td>
</tr>
<tr>
<td>DN 65 to 100/NPS 2½ to 4</td>
<td>Form C</td>
</tr>
<tr>
<td>DN 15 to 50/NPS ½ to 2</td>
<td>Form B</td>
</tr>
<tr>
<td>DN 65 to 100/NPS 2½ to 4</td>
<td>Form C</td>
</tr>
</tbody>
</table>

Form-fit attachment using stem connector and yoke

Form-fit attachment using stem connector and yoke
Fig. 7: Mounting using crossbeam and central nut (form B attachment)

Type 3323-PP Type 3323-IP
Type 3323-E1 Type 3323-E3

Fig. 8: Mounting using rods (form C attachment)

Type 3323-PP Type 3323-IP

Legend for Fig. 7 and Fig. 8

135 Central nut
A17 Crossbeam
A33 Rod
A60 Plate
Design and principle of operation

3.3 Technical data

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

Noise emissions

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

Dimensions and weights

The dimensions and weights for the DIN versions are listed in Table 4. The dimensions and weights for the ANSI versions are listed in Table 5.
## Design and principle of operation

### Table 2: Technical data · DIN version

<table>
<thead>
<tr>
<th>Material</th>
<th>Cast iron · EN-GJL-250</th>
<th>Sph. graphite iron · EN-GJS-400-18-LT</th>
<th>Cast steel · 1.0619</th>
<th>Stainless steel 1.4408</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve size DN</td>
<td>15 to 100</td>
<td>15 to 100</td>
<td>15 to 50</td>
<td>15 to 50</td>
</tr>
<tr>
<td>Pressure rating PN</td>
<td>16</td>
<td>25</td>
<td>16 and 40</td>
<td>16</td>
</tr>
<tr>
<td>Seat-plug seal</td>
<td>Metal seal</td>
<td>Metal seal</td>
<td>Metal seal: I (0.05 % of KVS)</td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>Linear</td>
<td>Linear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rangeability</td>
<td>30:1 up to DN 25 · 50:1 for DN 40 and larger</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>−10 to +220 °C</td>
<td>−10 to +300 °C 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With insulating section</td>
<td></td>
<td>1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leakage class acc. to</td>
<td></td>
<td>Metal seal: I (0.05 % of KVS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEC 60534-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliance</td>
<td>CE · EAC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Not for stainless steel with DN 65 to 100
2) Version for lower temperatures on request

### Table 3: Technical data · ANSI version

<table>
<thead>
<tr>
<th>Material</th>
<th>A216 WCC</th>
<th>A351 CF8M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve size NPS</td>
<td>½ · ¾ · 1 · 1½ · 2 · 2½ · 3 · 4</td>
<td>Up to NPS 2: Class 300 NPS 2½ and larger: Class 150 and 300</td>
</tr>
<tr>
<td>End connection (flanges)</td>
<td>Raised face (RF) Ra = 3.2 to 6.3 µm</td>
<td>Raised face (RF) Ra = 3.2 to 6.3 µm</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>Up to NPS 2: Class 300 NPS 2½ and larger: Class 150 and 300</td>
<td>Up to NPS 2: Class 300 NPS 2½ and larger: Class 150</td>
</tr>
<tr>
<td>Seat-plug seal</td>
<td>Metal seal</td>
<td>Metal seal</td>
</tr>
<tr>
<td>Characteristic</td>
<td>Linear</td>
<td>Linear</td>
</tr>
<tr>
<td>Rangeability</td>
<td>30:1 up to NPS 1 · 50:1 for NPS 1½ and larger</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>14 to 430 °F · (−10 to +220 °C)</td>
<td>14 to 572 °F 1) · (−10 to +300 °C)</td>
</tr>
<tr>
<td>With insulating section</td>
<td></td>
<td>1)</td>
</tr>
<tr>
<td>Leakage class acc. to ANSI/FCI 70-2</td>
<td>Metal seal: I (0.05 % of C_v)</td>
<td></td>
</tr>
<tr>
<td>Compliance</td>
<td>CE · EAC</td>
<td>CE · EAC</td>
</tr>
</tbody>
</table>
Design and principle of operation

### Table 4: Dimensions and weights for Type 3323 Valve · DIN version

<table>
<thead>
<tr>
<th>Valve</th>
<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>
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<tbody>
<tr>
<td>L</td>
<td>mm</td>
<td>130</td>
<td>150</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>230</td>
<td>290</td>
<td>310</td>
<td>350</td>
</tr>
<tr>
<td>Dimension A</td>
<td>mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>H</td>
<td>mm</td>
<td>123</td>
<td>123</td>
<td>123</td>
<td>126</td>
<td>126</td>
<td>126</td>
<td>182</td>
<td>182</td>
<td>206</td>
</tr>
<tr>
<td>H2</td>
<td>mm</td>
<td>70</td>
<td>80</td>
<td>85</td>
<td>100</td>
<td>105</td>
<td>120</td>
<td>130</td>
<td>140</td>
<td>150</td>
</tr>
<tr>
<td>H4 (w. insul. section)</td>
<td>mm</td>
<td>274</td>
<td>274</td>
<td>274</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>330</td>
<td>330</td>
<td>330</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>11</td>
<td>12</td>
<td>15</td>
<td>31</td>
<td>37</td>
<td>49</td>
</tr>
<tr>
<td>Weight (w. insul. section)</td>
<td>kg</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>17</td>
<td>18</td>
<td>21</td>
<td>40</td>
<td>45</td>
<td>68</td>
</tr>
</tbody>
</table>

### Table 5: Dimensions and weights for Type 3323 Valve · ANSI version

<table>
<thead>
<tr>
<th>Valve size</th>
<th>NPS</th>
<th>½</th>
<th>¾</th>
<th>1</th>
<th>1½</th>
<th>2</th>
<th>2½</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td></td>
<td>DN</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>40</td>
<td>50</td>
<td>65</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>L</td>
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<td>in</td>
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<td>3.62</td>
<td>3.62</td>
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<td>15.4</td>
<td>26.5</td>
<td>33.1</td>
<td>68.3</td>
<td>81.6</td>
<td>108.0</td>
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<tr>
<td></td>
<td>kg</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>12</td>
<td>15</td>
<td>31</td>
<td>37</td>
<td>49</td>
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<tr>
<td>Weight (w. insul. section)</td>
<td>lbs</td>
<td>17.6</td>
<td>19.8</td>
<td>22.0</td>
<td>39.7</td>
<td>46.3</td>
<td>88.2</td>
<td>99.2</td>
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<tr>
<td></td>
<td>kg</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>18</td>
<td>21</td>
<td>40</td>
<td>45</td>
<td>68</td>
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</table>
Design and principle of operation

Dimensional drawings

DN 15 to 50/NPS ½ to 2

DN 65 to 100/NPS 2½ to 4

Version with insulating section

DN 15 to 50/NPS ½ to 2

DN 65 to 100/NPS 2½ to 4
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

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

WARNING
Risk of lifting equipment tipping over 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 or Data Sheet T 8113 (DIN) and T 8114 (ANSI) for weights.

WARNING
Risk of personal injury due to the control valve tipping over.
– Observe the valve’s center of gravity.
– Secure the valve against tipping over or turning.

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.
Measures for preparation

**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 load-bearing slings to the actuator, handwheel or any other parts.
- Observe lifting instructions (see section 4.2.2).

**Tip**

Our after-sales service 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.

Transport instructions
- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings).
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature of standard control valves is -20 to +65 °C (-4 to +149 °F).

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 over.
- 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.

**NOTICE**

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

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. 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 5.2.3).
5. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
6. Remove slings.

Tip

We recommend using a hook with safety latch (see Fig. 9). The safety latch prevents the slings from slipping during lifting and transporting.

![Fig. 9: Lifting points on the control valve](image-url)
4.3 Storage

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

ℹ️ 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).
- 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.
- The permissible storage temperature of standard control valves is −20 to +65 °C (−4 to +149 °F).

ℹ️ Note
Contact SAMSON’s After-sales Service for the storage temperatures of other valve versions.
- Do not place any objects on the control valve.

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 (59 °F) for elastomers.
- Store elastomers away from lubricants, chemicals, solutions and fuels.

☀️ Tip
SAMSON’s After-sales Service can provide more detailed storage instructions on request.
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 that 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.).
- For steam applications, make sure that the pipelines are dry. Moisture will damage the inside of the valve.
- Check any mounted pressure gauges to make sure they function.
- When the valve and actuator are already assembled, check the tightening torques of the bolted joints (➔ AB 0100). Components may loosen during transport.
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. Proceed as follows to mount and start up the valve.

---

### 5.1 Mounting the actuator onto the valve

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

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

---

### 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 6). Contact SAMSON if the valve conditions or states 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.

- In heating or cooling applications, the valve can be installed in the flow pipe or return flow pipe (see Fig. 10). Fail-safe action: the valve shuts off the flow of the heating medium or opens the flow of the cooling medium.

---

**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).
### Table 6: 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></td>
<td>0.3 ≤ Ma ≤ 0.7</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Vapor</td>
<td>Ma ≤ 0.3 (^{1)})</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>0.3 ≤ Ma ≤ 0.7 (^{1)})</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Saturated steam (percentage of condensate &gt; 5 %)</td>
<td>2</td>
<td>20</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>
<tr>
<td></td>
<td>Critical cavitation/w ≤ 3 m/s</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Critical cavitation/3 &lt; w &lt; 5 m/s</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Flashing</td>
<td>–</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Multi-phase</td>
<td>–</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

\(^{1)}\) No saturated steam

---

**Note**

In the version as diverting valve (see Fig. 5), the inlet length a applies to the port AB. The outlet length b applies to the ports A and B.

In the version as mixing valve (see Fig. 6), the inlet length a applies to the ports A and B. The outlet length b applies to the port AB.
Mounting and start-up

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

» Contact SAMSON if the mounting position is not as specified above.

Support and 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.

Vent plugs
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.

5.2.2 Additional fittings

Strainers
We recommend installing a SAMSON strainer upstream of the valve. It prevents solid particles in the process medium from damaging the valve.

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 line ensures that the plant does not need to be shut down for service and repair work on the valve.

Insulation
Only insulate control valves with insulating section up to the bonnet flange of the valve body for medium temperatures below 0 °C (32 °F) and above 220 °C (428 °F).

Safety guard
To reduce the crush hazard arising from moving parts (actuator and plug stem), a safety guard can be installed.
### Mixing service – Temperature control Q = constant

<table>
<thead>
<tr>
<th>a</th>
<th>Flow pipe</th>
<th>Return flow pipe</th>
</tr>
</thead>
</table>

### Diverting service – Flow control Q = 0 to 100 %

<table>
<thead>
<tr>
<th>b</th>
<th>Flow pipe</th>
<th>Return flow pipe</th>
</tr>
</thead>
</table>

- Heating with mixing valve (FA)
- Cooling with mixing valve (FE)

- a) Installation in flow pipe
- b) Installation in return flow pipe

### FA: Actuator stem extends

### FE: Actuator stem retracts

<table>
<thead>
<tr>
<th>c</th>
<th>Flow pipe</th>
<th>Return flow pipe</th>
</tr>
</thead>
</table>

- Heating with mixing valve (FA)
- Cooling with mixing valve (FE)

- c) Installation in flow pipe
- d) Installation in return flow pipe

<table>
<thead>
<tr>
<th>d</th>
<th>Flow pipe</th>
<th>Return flow pipe</th>
</tr>
</thead>
</table>

### Fig. 10: Typical installations
5.2.3 Installing the control valve

1. Close the shut-off valve in the pipeline while the valve is being installed.

2. Remove the 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 4.2.2). 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. Bolt the pipe to the valve free of stress.

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.

8. Check the valve to ensure it functions properly.

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:

Leak test

1. Close the valve.

2. Slowly open the shut-off valve in the pipeline.

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.
- 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:

- Move the plug to the mid-position to open the valve.
- Observe the maximum permissible pressure for both the valve and plant.

**Note**
The plant operator is responsible for performing the pressure test. SAMSON's After-sales Service 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 personal injury when the Type 3371 Pneumatic 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.

⚠️ 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 is subject to normal wear, especially at the 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 in drawing up a maintenance plan for your plant.

We recommend removing the valve from the pipeline for service or repair work (see section 9.2).

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 control valve, depressurize all plant sections affected as well as the valve.
– Drain the process medium from all the plant sections affected 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.

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 be performed by trained staff only.

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.
Servicing

Only use tools approved by SAMSON (▶ AB 0100).

**NOTICE**
Risk of valve damage due to the use of unsuitable lubricants.
Only use lubricants approved by SAMSON (▶ AB 0100).

**Note**
The control valve was checked by SAMSON before it left the factory.
− Certain test results certified by SAMSON lose their validity when the valve is opened. Such testing includes seat leakage and leak tests.
− The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON’s after-sales service.
− Only use original spare parts by SAMSON, which comply with the original specifications.

**Note**
Proceed as follows to service the version with the standard valve bonnet. Assemble versions with insulating section in the same way.

### 7.1 Replacing the gasket

#### 7.1.1 Valves up to DN 50/NPS 2

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Remove the gasket (46). Carefully clean the sealing faces in the valve body (20) and on the valve bonnet (27).
6. Insert a new gasket (46) into the body.
7. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20).
8. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
9. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.
Fig. 11: Valve up to DN 50/NPS 2) · Form B attachment (mounting using a central nut)
7.1.2 Valves in DN 65/NPS 2½ and larger

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (8).
3. Undo the body nuts (14) gradually in a crisscross pattern.
4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
5. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the flange bonnet (2).
6. Insert a new gasket (17) into the body.
7. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1).
8. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
9. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.

Fig. 12: Valve in DN 65/NPS 2½ and larger · Form C attachment (mounting using rods)
7.2 Replacing the packing

**Note**
The Type 3323 Valve is either fitted with a standard or form D packing. The packings have an identical design, but contain different materials.

7.2.1 Valves up to DN 50/ NPS 2

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Pull the entire packing out of the packing chamber using a suitable tool.
6. Renew damaged parts. Clean the packing chamber thoroughly.
7. Apply a suitable lubricant to all the packing parts and to the plug stem (2).
8. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.
9. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).

**Fig. 13: Packing for valves up to DN 50/ NPS 2½**

- 27 Valve bonnet
- 131 Threaded bushing
- 132 Washer
- 133 Spring
- 134 V-ring packing
10. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

11. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.


7.2.2 Valves in DN 65/NPS 2½ and larger

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

2. Unscrew the threaded bushing (8).

3. Undo the body nuts (14) gradually in a crisscross pattern.

4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).

5. Pull the entire packing out of the packing chamber using a suitable tool.

6. Renew damaged parts. Clean the packing chamber thoroughly.

7. Apply a suitable lubricant to all the packing parts and to the plug stem (36).

8. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1). Make sure that the gasket (17) is properly seated in the body.

9. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 14).

Fig. 14: Packing for valves in DN 65/NPS 2½ and larger
10. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

11. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.


7.3 Replacing the seat and plug

⚠️ NOTICE
Risk of damage to the facing of the seat and plug due to incorrect service or repair. Always replace both the seat and plug.

💡 Tip
When replacing the seat and plug, we also recommend replacing the gasket and packing. See sections 7.1 and 7.2.

7.3.1 Valves in DN 15 and 25/NPS ½ and 1

ℹ️ Note
The design of the mixing and diverting valves in sizes DN 15 to 25 (NPS ½ to 1) is identical.

1. Remove the actuator from the valve. See associated actuator documentation.
17. Carefully guide the plug stem (2) from above through the plug (17).

18. Slide the retaining washer and shim (122, 123) from below onto the plug stem (2).

19. Thread and tighten the hex nut (121) onto the plug stem (2). Observe tightening torques.

20. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.

21. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.

22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).

23. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

24. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.

7.3.2 Valves in DN 32 and 50/NPS 3 and 4

Tip
On mounting the spacers (40, 41, 44) and plug (17), use a rod or long screw to hold them in position.

Mixing valve
1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
6. Remove the retaining washer and shim (122, 123) and the bottom spacer (41) from the plug stem (2).
7. Carefully pull the plug stem (2) out of the body (20) from above. Pull out the middle spacer (40) sideways.
8. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.1.
9. Unscrew the top seat (162) using a suitable tool.
10. Remove the top and bottom plug (17).
11. Unscrew the bottom seat (161) using a suitable tool.
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (161, 162).
13. Screw in the bottom seat (161). Observe tightening torques.
14. Insert the bottom plug (17) into the bottom seat (161).
Servicing

15. Screw in the top seat (162). Observe tightening torques.

16. Carefully guide the plug stem (2) with top spacer (44) from above through the top plug (17), middle spacer (40) and bottom plug (17).

17. Slide the bottom spacer (41) and retaining washer and shim (122, 123) from below onto the plug stem (2).

18. Apply a suitable lubricant to the hex nut (121) and the threaded end of the plug stem (2).

19. Thread and tighten the hex nut (121) onto the plug stem (2). Observe tightening torques.

20. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.

21. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.

22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).

23. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

24. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.

Diverting valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (131).
3. Undo the body nuts (52) gradually in a crisscross pattern.
4. Carefully lift the flange (34) and valve bonnet (27) off the valve body (20) over the plug stem (2).
5. Hold the plug stem (2) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (121).
6. Remove the retaining washer and shim (122, 123) from the plug stem (2).
7. Hold the bottom plug (17). Carefully pull the plug stem (2) out of the body from above. Catch the spacers (40, 41, 44) as they fall out.
8. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.1.
9. Remove the top plug (17).
10. Unscrew the top seat (162) and bottom seat (161) using a suitable tool.
11. Remove the bottom plug (17).
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (161, 162).
13. Place the bottom plug (17) into the body (20).
15. Use a suitable tool to catch the bottom plug (17) and the spacers (41, 40, 44).
16. Screw in the top seat (162). Observe tightening torques.
17. Place the top plug (17) into the top seat (162).
18. Carefully guide the plug stem (2) from above through the top plug (17), top spacer (44), middle spacer (40), bottom spacer (41) and bottom plug (17).
19. Apply a suitable lubricant to the hex nut (121) and the threaded end of the plug stem (2).

20. Slide the retaining washer and shim (122, 123) from below onto the plug stem (2).

21. Thread and tighten the hex nut (121) onto the plug stem (2). Observe tightening torques.

22. Apply a suitable lubricant to the plug stem (2) in the area where the packing is located.

23. Carefully place the valve bonnet (27) and flange (34) over the plug stem (2) and the studs (51) onto the body (20). Make sure that the gasket (46) is properly seated in the body.

24. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 13).

25. Fasten down the flange (34) with the body nuts (52). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

26. Apply a suitable lubricant to the thread of the threaded bushing (131). Screw in the threaded bushing and tighten it. Observe tightening torques.

27. Mount actuator. See associated actuator documentation.

7.3.3 Valves in DN 65/NPS 2½ and larger

Tip
On mounting the spacers (75, 76) and plugs (5, 199), use a rod or long screw to hold them in position.

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

Fig. 18: Valve in DN 65/NPS 2½ and larger · Mixing valve
2. Unscrew the threaded bushing (8).
3. Undo the body nuts (14) gradually in a crisscross pattern.
4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
5. Hold the plug stem (36) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (40).
6. Remove the retaining washer (192) and bottom spacer (75) from the plug stem (36).
7. Carefully pull the plug stem (36) out of the body (1) from above. Pull out the short spacer (76) sideways.
8. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.2.
9. Unscrew the top seat (4) using a suitable tool.
10. Remove the top plug (5) and bottom plug (199).
11. Unscrew the bottom seat (141) using a suitable tool.
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (4, 141).
13. Screw in the bottom seat (161). Observe tightening torques.
14. Insert the bottom plug (199) into the bottom seat (141).
15. Screw in the top seat (4). Observe tightening torques.
16. Carefully guide the plug stem (36) with top spacer (75) from above through the top plug (5), short spacer (76) and bottom plug (199).
17. Slide the bottom spacer (75) and retaining washer (192) from below onto the plug stem (36).
18. Apply a suitable lubricant to the hex nut (40) and the threaded end of the plug stem (36).
19. Thread and tighten the hex nut (40) onto the plug stem (36). Observe tightening torques.
20. Apply a suitable lubricant to the plug stem (36) in the area where the packing is located.
21. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1). Make sure that the gasket (17) is properly seated in the body.
22. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 14).
23. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
24. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.
Diverting valve

1. Remove the actuator from the valve. See associated actuator documentation.
2. Unscrew the threaded bushing (8).
3. Undo the body nuts (14) gradually in a crisscross pattern.
4. Carefully lift the valve bonnet (2) off the valve body (1) over the plug stem (36).
5. Hold the plug stem (36) stationary from above at the hexagonal part with a suitable tool and undo the hex nut (40).
6. Remove the retaining washer (192) from the plug stem (36).
7. Hold the bottom plug (199). Carefully pull the plug stem (36) out of the body from above. Catch the spacers (75, 76) as they fall out.
8. Pull the entire packing out of the packing chamber using a suitable tool. We recommend replacing the packing as well. See section 7.2.2.
9. Remove the top plug (5).
10. Unscrew the top seat (4) and bottom seat (141) using a suitable tool.
11. Remove the bottom plug (199).
12. Apply a suitable lubricant to the thread and the sealing cone of the new seats (4, 141).
13. Place the bottom plug (199) into the body (1).
14. Screw in the bottom seat (141). Observe tightening torques.
15. Use a suitable tool to catch the bottom plug (199) and the spacers (75, 76).
17. Place the top plug (5) into the top seat (4).
18. Carefully guide the plug stem (36) from above through the top plug (5), spacers (75, 76) and bottom plug (199).

Fig. 19: Valve in DN 65/NPS 2½ and larger · Diverting valve
19. Apply a suitable lubricant to the hex nut (40) and the threaded end of the plug stem (36).

20. Slide the retaining washer (192) from below onto the plug stem (36).

21. Thread and tighten the hex nut (40) onto the plug stem (36). Observe tightening torques.

22. Apply a suitable lubricant to the plug stem (36) in the area where the packing is located.

23. Carefully place the valve bonnet (2) over the plug stem (36) and the studs (13) onto the body (1). Make sure that the gasket (17) is properly seated in the body.

24. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 14).

25. Fasten the valve bonnet (2) with body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

26. Apply a suitable lubricant to the thread of the threaded bushing (8). Screw in the threaded bushing and tighten it. Observe tightening torques.

27. Mount actuator. See associated actuator documentation.
7.4 Preparation for return shipment

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

1. Exceptions apply concerning some special device models: [www.samsongroup.com > Service & Support > After-sales Service].

2. Send an e-mail to retouren@samsongroup.com to register the return shipment including the following information:
   - Type
   - Article no.
   - Configuration ID
   - Original order
   - Completed Declaration on Contamination, which can be downloaded from our website at [www.samsongroup.com > Service & Support > After-sales Service].

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

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

4. Send the shipment to the address given on the RMA.

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7.5 Ordering spare parts and operating supplies

Contact your nearest SAMSON subsidiary or SAMSON's After-sales Service for information on spare parts, lubricants and tools.

**Spare parts**

See section 10.3 for details on spare parts.

**Lubricant**

See document [AB 0100] for details on suitable lubricants.

**Tools**

See document [AB 0100] for details on suitable tools.
8 Malfunctions

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

Tip

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

8.1 Troubleshooting

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible reasons</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuator or plug stem does not move on demand.</td>
<td>Actuator is blocked.</td>
<td>Check attachment. Unblock the actuator.</td>
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<tr>
<td></td>
<td>Signal pressure too low</td>
<td>Check the signal pressure. Check the signal pressure line for leakage.</td>
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<tr>
<td></td>
<td>No or incorrect supply voltage connected.</td>
<td>Check the supply voltage and connections.</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. Check the signal pressure line for leakage.</td>
</tr>
<tr>
<td></td>
<td>No or incorrect supply voltage connected.</td>
<td>Check the supply voltage and connections.</td>
</tr>
<tr>
<td>The valve leaks to the atmosphere (fugitive emissions).</td>
<td>Defective packing</td>
<td>Replace packing (see section 7.2) or contact SAMSON’s After-sales Service department.</td>
</tr>
<tr>
<td></td>
<td>Flange joint loose or gasket worn out.</td>
<td>Check the flange joint. Replace gasket at the flanged joint (see section 7.1 or contact SAMSON’s After-sales Service department).</td>
</tr>
</tbody>
</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. Contact SAMSON's After-sales Service.

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.

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<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Possible reasons</th>
<th>Recommended action</th>
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<tbody>
<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>
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<tr>
<td></td>
<td>Valve trim is worn out.</td>
<td>Replace seat and plug (see section 7.3) or contact SAMSON's After-sales Service department.</td>
</tr>
</tbody>
</table>

Note: Contact SAMSON's After-sales Service for malfunctions not listed in the table.
Decommissioning and removal

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 control valve, depressurize all plant sections affected as well as the valve.
- Drain the process medium from all the plant sections affected as well as the valve.
- Wear personal protective equipment.

**DANGER**
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 supply voltage and protect it against unintentional reconnection.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.

**WARNING**
Risk of 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 eye protection.

**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.

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. 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. Unbolt the flange joint.
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 household waste.
10 Annex

10.1 After-sales service

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

E-mail address

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

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size and valve version
- Pressure and temperature of the process medium
- Flow rate in m³/h
- Bench range of the actuator (e.g. 1.4 to 2.3 bar)
- Is a strainer installed?
- Installation drawing

10.2 Certificates

The EU declarations of conformity are included on the next pages.
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**

Typl/Type
- 3213, 3222 (Erz.-Nr./Model No. 2710), 3226, 3260* (2713*), 3323, 3535 (2803), 3213, 3531 (2811), 3214 (2814), 2423E (2823), 3241, 3244, 3267, 2422 (2814)

die Konformität mit nachfolgender Anforderung/the conformity with the following requirement.


2014/68/EU vom 15.05.2014

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4(1)(c.ii) zweiter Gedankenstrich. Conformity assessment procedure applied for fluids according to Article 4(1)(c.ii), second indent

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.

**Tabelle**/See table for

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

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

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

Fluids according to Art. 4(1)(c.ii), first indent are not permissible for Type 3260 Valves with DN equal or bigger than 150. Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die „Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.

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

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

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

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:

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

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

**Hersteller/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany**
SAMSON erklärt in alleiniger Verantwortung für folgende Produkte: / For the following products, SAMSON hereby declares

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

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

die Konformität mit nachfolgender Anforderung / the conformity with the following requirement.

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften
der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt.

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

Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. (1)(c.i) erster Gedankenstrich.
Conformity assessment procedure applied for fluids according to Article 4(1)(c.i), first indent.

Nenndruck
PN 25
PN 40
Class 150
Class 300

PN 25 ohne (1) A (2)(3) H
PN 40 ohne (1) H
Class 150 ohne (1) A
Class 300 ohne (1) H

(1) Das auf dem Stellgerät aufgebrachte CE-Zeichen hat keine Gültigkeit im Sinne der Druckgeräterichtlinie.
The CE marking affixed to the control valve is not valid in the sense of the Pressure Equipment Directive.

(2) Das auf dem Stellgerät aufgebrachte CE-Zeichen gilt ohne Bezeichnung der benannten Stelle (Kenn-Nr. 0062).
The CE marking affixed to the control valve is valid without specifying the notified body (ID number 0062).

(3) Die Identifikationsnummer 0062 von Bureau Veritas S.A. gilt nicht für Modul A.
The identification number 0062 of Bureau Veritas S.A. is not valid for Modul A.

Geräte, denen laut Tabelle das Konformitätsbewertungsverfahren Modul H zugrunde liegt, beziehen sich auf die
„Zulassungsbescheinigung eines Qualitätssicherungssystems“ ausgestellt durch die benannte Stelle.

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

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

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

Das Qualitätssicherungssystem des Herstellers wird von folgender benannter Stelle überwacht:
The Manufacturer’s Quality Assurance System is monitored by following Notified Body

Bureau Veritas S.A. Nr./No. 0062, Newtime, 52 Boulevard du Parc, Ille de la Jatte, 92200 Neuilly sur Seine, France
Hersteller/Manufacturer: SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

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

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

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main

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

Revision 03
#### Modul A / Module A

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>Durchgangsventil/Globe valve</td>
<td>240</td>
<td>3241</td>
<td>DIN, Gehäuse GG, DN 85-125, Gehäuse GG, DN 50-80, Fluide G2, L1, L2</td>
</tr>
<tr>
<td>Durchgangsventil/Globe valve</td>
<td>240</td>
<td>3241</td>
<td>DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2²</td>
</tr>
<tr>
<td>Durchgangsventil/Globe valve</td>
<td>240</td>
<td>3241</td>
<td>ANSI, Gehäuse GG, CLASS 250, NPS 1½ bis NPS 4, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Durchgangsventil/Globe valve</td>
<td>240</td>
<td>3241</td>
<td>ANSI, body of cast iron, Class 250, NPS 1½ to NPS 2, Class 125, NPS 2½ to NPS 4, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>240</td>
<td>3244</td>
<td>DIN, Gehäuse GG, DN 85-125, Gehäuse GG, DN 50-80, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>240</td>
<td>3244</td>
<td>DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2²</td>
</tr>
<tr>
<td>Schrägsitzventil/Angle seat valve</td>
<td>—</td>
<td>3353</td>
<td>DIN, Rotgussgehäuse, alle Fluide</td>
</tr>
<tr>
<td>Schrägsitzventil/Angle seat valve</td>
<td>—</td>
<td>3353</td>
<td>DIN, Gehäuse Stahl, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Durchgangsventil/Globe valve</td>
<td>V2001</td>
<td>3321</td>
<td>DIN, Gehäuse GG, DN 85-100, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>V2001</td>
<td>3321</td>
<td>ANSI, Gehäuse GG, NPS 2½ bis NPS 4, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>V2001</td>
<td>3321</td>
<td>ANSI, body of cast iron, NPS 2½ bis NPS 4, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>V2001</td>
<td>3323</td>
<td>ANSI, Gehäuse GG, NPS 2½ bis NPS 4, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>V2001</td>
<td>3323</td>
<td>ANSI, body of cast iron, NPS 2½ bis NPS 4, Fluide G2, L1, L2²</td>
</tr>
<tr>
<td>Dreiwegeventil/Three-way valve</td>
<td>250</td>
<td>3253</td>
<td>DIN, Gehäuse GG, DN 200 PN 10, Fluide G2, L1, L2²</td>
</tr>
</tbody>
</table>

¹ Gase nach Art. 4 Abs. 1 Pkt. c.i zweiter Gedankenstrich//Gases according to Article 4(1)(c.i), second indent
Flüssigkeiten nach Art. 4 Abs. 1 Pkt. c.ii/Liquids according to Article 4(1)(c.ii)
² Gase nach Art. 4 Abs. 1 Pkt. c.i zweiter Gedankenstrich//Gases according to Article 4(1)(c.i), second indent
Flüssigkeiten nach Art. 4 Abs. 1 Pkt. c.ii zweiter Gedankenstrich/Liquids according to Article 4(1)(c.ii), second indent

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 EN 12516-2, DIN EN 12516-3, ASME B16.34 | |

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

Frankfurt am Main, 23. Februar 2017/23 February 2017

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

Dr. Michael Heß
Zentralabteilungsleiter/Head of Central Department
Product Management & Technical Sales
EU DECLARATION OF CONFORMITY

TRANSLATION

Module H / Nº CE-0052-PED-H-SAM 001-19-DEU

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

<table>
<thead>
<tr>
<th>Devices</th>
<th>Series</th>
<th>Type</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Globe valve</td>
<td>240</td>
<td>3241</td>
<td>DIN, body of cast iron from EN 150, body of spherical-graphite iron, from EN 100, fluids G2, L1, L2*</td>
</tr>
<tr>
<td>Three-way valve</td>
<td>240</td>
<td>3244</td>
<td>DIN, body of cast iron from EN 150, body of spherical-graphite iron, from EN 100, fluids G2, L1, L2*</td>
</tr>
<tr>
<td>Cryogenic valve</td>
<td>240</td>
<td>3246</td>
<td>DIN/ANSI, all fluids</td>
</tr>
<tr>
<td>Globe valve</td>
<td>250</td>
<td>3261</td>
<td>DIN/ANSI, all fluids</td>
</tr>
<tr>
<td>Three-way valve</td>
<td>250</td>
<td>3263</td>
<td>DIN/ANSI, body of steel, etc., all fluids</td>
</tr>
<tr>
<td>Globe valve</td>
<td>250</td>
<td>3264</td>
<td>DIN/ANSI, all fluids</td>
</tr>
<tr>
<td>Angle valve</td>
<td>250</td>
<td>3266</td>
<td>DIN/ANSI, all fluids</td>
</tr>
<tr>
<td>Split-body valve</td>
<td>250</td>
<td>3268</td>
<td>DIN, all fluids</td>
</tr>
<tr>
<td>Angle valve (ISO standards)</td>
<td>250</td>
<td>3259</td>
<td>DIN, all fluids</td>
</tr>
<tr>
<td>Beam-converting valve</td>
<td>300</td>
<td></td>
<td>3281</td>
</tr>
<tr>
<td>Globe valve</td>
<td>V2001</td>
<td>3321</td>
<td>DIN, body of steel, etc., all fluids</td>
</tr>
<tr>
<td>Three-way valve</td>
<td>V2001</td>
<td>3323</td>
<td>ANSI, all fluids</td>
</tr>
<tr>
<td>Angle seat valve</td>
<td></td>
<td>3363</td>
<td>DIN, body of steel, etc., all fluids</td>
</tr>
<tr>
<td>Silencer</td>
<td>3361</td>
<td>3361-1</td>
<td>DIN/ANSI, single intersection plate with welding ends, all fluids</td>
</tr>
<tr>
<td>Globe valve</td>
<td>240</td>
<td>3241</td>
<td>ANSI, body of cast iron, Class 125, from NPS 2 5, fluids G2, L1, L2*</td>
</tr>
<tr>
<td>Cryogenic valve</td>
<td>240</td>
<td>3246</td>
<td>DIN/ANSI, all fluids</td>
</tr>
<tr>
<td>Three-way valve</td>
<td>250</td>
<td>3253</td>
<td>DIN, body of cast iron from EN 150, fluids G2, L1, L2*</td>
</tr>
<tr>
<td>Globe valve</td>
<td>250</td>
<td>3254</td>
<td>ANSI, all fluids</td>
</tr>
<tr>
<td>Angle valve</td>
<td>250</td>
<td>3256</td>
<td>ANSI, all fluids</td>
</tr>
<tr>
<td>Globe valve</td>
<td>590</td>
<td>3561</td>
<td>ANSI, all fluids</td>
</tr>
<tr>
<td>Angle valve</td>
<td>590</td>
<td>3563</td>
<td>ANSI, all fluids</td>
</tr>
<tr>
<td>Cryogenic valve</td>
<td>590</td>
<td>3565</td>
<td>ANSI, NPS 3 to NPS 8, Class 800, all fluids</td>
</tr>
<tr>
<td>Control valve</td>
<td></td>
<td>3566</td>
<td>ANSI, all fluids</td>
</tr>
</tbody>
</table>

*Gases according to Article 4(1)(c)(i); second indent Liquids according to Article 4(1)(c)(ii)

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


Applied conformity assessment procedures for fluids according to Article 4(1)

<table>
<thead>
<tr>
<th>2014/68/EU</th>
<th>of 15 May 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module H</td>
<td></td>
</tr>
</tbody>
</table>

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

Bureau Veritas S. A. N. J. No. 9962, Newton, 22 Boulevard du Parc, F-92010 Neuilly sur Seine, France

Technical standards applied: DIN EN12516-3, DIN EN12516-5, ABNE 810.34

Manufacturer: SAMSON AG, Weismullerstrasse 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 14 October 2019

Ag. Norbert Taus
Head of Global Production & Innovation

I.V. Sebastian Krauss
Head of Central Development
Strategic development: valves and actuators

Revision 06

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

Page 1 of 1
### 10.3 Spare parts

<table>
<thead>
<tr>
<th>DN 15 to 50/NPS ½ to 2</th>
<th>DN 65 to 100/NPS 2½ to 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Plug stem</td>
<td>1 Body</td>
</tr>
<tr>
<td>7 Guide bushing</td>
<td>2 Valve bonnet/insulating section</td>
</tr>
<tr>
<td>17 Plug</td>
<td>4 Top seat</td>
</tr>
<tr>
<td>20 Body</td>
<td>5 Top plug</td>
</tr>
<tr>
<td>22 Nameplate</td>
<td>7 Guide bushing</td>
</tr>
<tr>
<td>27 Valve bonnet/insulating section</td>
<td>8 Threaded bushing (packing nut)</td>
</tr>
<tr>
<td>34 Flange</td>
<td>11 Spring</td>
</tr>
<tr>
<td>40 Spacer</td>
<td>12 Washer</td>
</tr>
<tr>
<td>41 Spacer</td>
<td>13 Stud</td>
</tr>
<tr>
<td>46 Body gasket</td>
<td>14 Body nut</td>
</tr>
<tr>
<td>51 Stud</td>
<td>15 Packing</td>
</tr>
<tr>
<td>52 Body nut</td>
<td>16 V-ring packing</td>
</tr>
<tr>
<td>121 Hex nut (self-locking)</td>
<td>17 Body gasket</td>
</tr>
<tr>
<td>122 Retaining washer</td>
<td>36 Plug stem</td>
</tr>
<tr>
<td>123 Washer</td>
<td>40 Hex nut (self-locking)</td>
</tr>
<tr>
<td>131 Threaded bushing (packing nut)</td>
<td>75 Spacer</td>
</tr>
<tr>
<td>132 Washer</td>
<td>76 Spacer</td>
</tr>
<tr>
<td>133 Spring</td>
<td>80 Nameplate</td>
</tr>
<tr>
<td>134 V-ring packing</td>
<td>81 Grooved pin</td>
</tr>
<tr>
<td>135 Central nut</td>
<td>141 Bottom seat</td>
</tr>
<tr>
<td>161 Top seat</td>
<td>192 Washer</td>
</tr>
<tr>
<td>162 Bottom seat</td>
<td>199 Bottom plug</td>
</tr>
</tbody>
</table>
DN 15 to 50/NPS 1/2 to 2