

# MOUNTING AND OPERATING INSTRUCTIONS

The SAMSON logo consists of the word "SAMSON" in a bold, white, sans-serif font, centered within a solid black circle. This circle is itself centered within a white square frame.

## EB 8051 EN

Translation of original instructions



Type 3251/3251-AM Valve with Type 3271 Actuator

## Type 3251 and Type 3251-AM Valve · DIN version

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

Edition March 2024

The CE UK CA logo features the letters "CE" in a large, bold, sans-serif font, followed by "UK" and "CA" stacked vertically in a smaller font. The "UK" and "CA" are positioned to the right of the "CE".

<sup>1)</sup> UKCA conformity, Type 3251 only (not Type 3251-AM)

## Note on these mounting and operating instructions

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

- For the safe and proper use of these instructions, read them carefully and keep them for later reference.
- If you have any questions about these instructions, contact SAMSON's After-sales Service (aftersaleservice@samsongroup.com).



Documents relating to the device, such as the mounting and operating instructions, are available on our website at [www.samsongroup.com](http://www.samsongroup.com) > **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 3251 or Type 3251-AM Globe Valve in combination with an actuator (e.g. Type 3271 or Type 3277 Pneumatic Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases or vapors.

Only the Type 3251 Valve can be used after prior consultation and sizing for special applications, such as oxygen, chlorine, phosgene, hydrogen sulfide (NACE), hydrogen or molten salt service. The Type 3251-AM Valve cannot be used for such applications. The Type 3251-AM Valve is also **not** suitable for pressure swing adsorption (PSA) applications. In this case, the Type 3251 Valve can be used.

The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in operating conditions that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in applications or conditions other than those specified, contact SAMSON.

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

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

## Reasonably foreseeable misuse

The control valve is not suitable for the following applications:

- Use outside the limits defined during sizing and by the technical data
- Use outside the limits defined by the valve accessories connected to the valve

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

- Use of non-original spare parts
- Performing service and repair work not described

## Qualifications of operating personnel

The control valve must be mounted, started up, serviced and repaired by fully trained and qualified personnel only; the accepted industry codes and practices must be observed. According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible hazards due to

## Safety instructions and measures

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

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

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

### Personal protective equipment

We recommend 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, gloves, eye protection and respiratory protection in applications with hot, cold and/or corrosive media
  - Wear hearing protection when working near the valve
  - Hard hat
  - Safety harness, e.g. when working at height
  - Safety footwear, if applicable ESD (electrostatic discharge) footwear
- ➔ 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). When the valve is combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator, the valve moves to a certain fail-safe position (see the 'Design and principle of operation' chapter) upon supply air or control signal failure. The fail-safe action of the actuator 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. Plant operators and operating personnel must observe all hazard statements, warnings and caution notes in these mounting and operating instructions.

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

### **Responsibilities of the operator**

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

Operators are additionally responsible for ensuring that the limits for the product defined in the technical data are observed. This also applies to the start-up and shutdown procedures. Start-up and shutdown procedures fall within the scope of the operator's duties and, as such, are not part of these mounting and operating instructions. SAMSON is unable to make any statements about these procedures since the operative details (e.g. differential pressures and temperatures) vary in each individual case and are only known to the operator.

### **Responsibilities of operating personnel**

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

### Referenced standards, directives and regulations

Control valves with the Type 3251 Valve meet the following requirements:

- European Pressure Equipment Directive 2014/68/EU
- European Machinery Directive 2006/42/EC
- UK: Directive 2016 No. 1105 Pressure Equipment (Safety) Regulations 2016
- UK: Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008

Control valves with the Type 3251-AM Valve meet the following requirements:

- European Pressure Equipment Directive 2014/68/EU
- European Machinery Directive 2006/42/EC

Valves with a CE marking and/or UKCA marking have a declaration of conformity, which includes information about the applied conformity assessment procedure. The 'Certificates' chapter contains this declaration of conformity.

According to the ignition hazard assessment performed in accordance with Clause 5.2 of ISO 80079-36, 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 Clause 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 the mounted actuator, e.g. ► EB 8310-X for Type 3271 or Type 3277 Pneumatic Actuator
- Information Sheet ► T 8000-2 for the pressure and temperature ranges possible for the valve materials used
- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- ► AB 0100 for tools, tightening torques and lubricant
- Manual ► H 02: Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery

<sup>1)</sup> Not with Type 3251-AM, see information under "Intended use" on page 1-1



- For oxygen service <sup>1)</sup>: Manual ► H 01

The packaging of valve constructed and sized for oxygen service has the following label on it:



- When a substance is used in the device, which is listed as being a substance of very high concern on the candidate list of the REACH regulation:  
Information on safe use of the part affected ► [www.samsongroup.com](http://www.samsongroup.com) > About SAMSON > Environment, Social & Governance > Material Compliance > REACH  
If a device contains a substance listed as a substance of very high concern on the candidate list of the REACH regulation, this is indicated on the SAMSON delivery note.
- Special mounting and operating instructions are available for the Type 3251 Globe Valve for molten salt service <sup>1)</sup> ► EB 8052-1.

<sup>1)</sup> Not with Type 3251-AM, see information under “Intended use” on page 1-1

## 1.1 Notes on possible severe personal injury

### DANGER

#### **Risk of bursting in pressure equipment.**

Valves and pipelines are pressure equipment. Excessive pressurization 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 the plant sections affected as well as from the valve.

## 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 warm up to the ambient temperature.
- 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.

**⚠ WARNING**

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

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

- Install the control valve in such a way that vent openings are not located at eye level and the actuator does not vent at eye level in the work position.
- Use suitable mufflers 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).

### WARNING

#### **Risk of personal injury due to residual process medium in the valve.**

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

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

#### **Risk of personal injury due to 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 valve damage due to contamination (e.g. solid particles) in the pipeline.**

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

- Flush the pipelines before start-up.

#### **Risk of valve damage due to unsuitable medium properties.**

The valve is designed for a process medium with defined properties.

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

#### **Risk of leakage and valve damage due to over- or under-torquing.**

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

- Observe the specified tightening torques (▶ AB 0100).

**! NOTICE****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 surfaces.

→ Only use lubricants approved by SAMSON (▶ AB 0100).

**Risk of the process medium being contaminated through the use of unsuitable lubricants and/or contaminated tools and components.**

→ If necessary, keep the valve and the tools used free from solvents and grease.


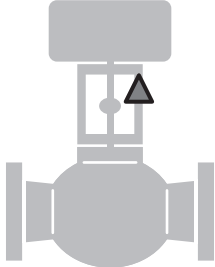
→ Make sure that only suitable lubricants are used.

## 1.4 Notes on the use of an RFID tag

The RFID tag is subject to certain restrictions due to its application range (technical specifications).

- Observe the explosion protection certificates of the RFID tag when it is to be used on valves installed in potentially explosive atmospheres.
- Do not expose the RFID tag to strong electric fields.
- Avoid electrostatic charging.
- Observe the application range (technical specifications) of the RFID tag.

## 1.5 Warnings on the device

Warning symbols	Meaning of the warning	Location on the device
	<p>Warning against moving parts There is a risk of injury to hands or fingers due to the stroking movement of the actuator and plug stem if they are inserted into the yoke while the air supply is connected to the actuator.</p>	

## 2 Markings on the device

The nameplates shown were up to date at the time of publication of this document. The nameplate on the device may differ from the one shown.

### 2.1 Valve nameplate

The nameplate (80) is affixed to the yoke of the valve (see Fig. 2-1).

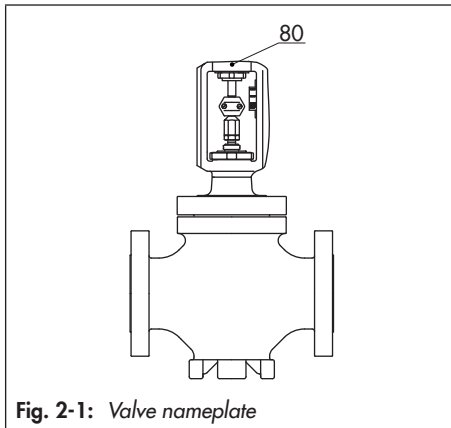


Fig. 2-1: Valve nameplate

#### **i** Note

Fig. 2-2, Fig. 2-3 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 3251 or Type 3251-AM Valve actually appear on the nameplate.

### a) Nameplate of Type 3251

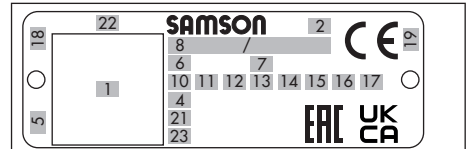


Fig. 2-2: Inscriptions on the nameplate of Type 3251 Valve

### b) Nameplate of Type 3251-AM

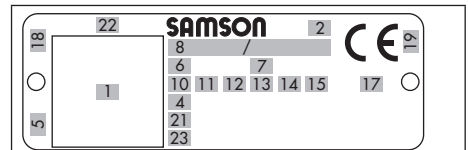


Fig. 2-3: Inscriptions on the nameplate of Type 3251-AM Valve

Item	Inscription meaning
1	Data Matrix code
2	Type designation
4	Material
5	Month and year of manufacture
6	Nominal size: DIN: <b>DN</b> · ANSI: <b>NPS</b> · JIS: <b>DN</b>
7	Pressure rating: DIN: <b>PN</b> · ANSI: <b>CL</b> · JIS: <b>K</b>
8	Order number/item
10	Flow coefficient: DIN: <b>KVS</b> · ANSI: <b>CV</b>
11	Characteristic: %: equal percentage · <b>LIN</b> : linear <b>mod-lin</b> : modified linear <b>NO/NC</b> : on/off service
12	Seat-plug seal: <b>ME</b> : metal · <b>HA</b> : carbide metal · <b>ST</b> : metal base material with Stellite® facing <b>KE</b> : ceramic · <b>PT</b> : PTFE soft seal · <b>PK</b> : PEEK soft seal

## Markings on the device

Item	Inscription meaning
13	Seat code (trim material): on request
14	Pressure balancing: DIN: <b>D</b> · ANSI/JIS: <b>B</b> Version: <b>M</b> : mixing valve · <b>V</b> : diverting valve
15	Noise reduction: <b>1</b> : flow divider (ST) 1 · <b>2</b> : ST 2 · <b>3</b> : ST 3 · <b>1/PSA</b> : ST 1 standard and integrated in seat for PSA valve · AC-1/AC-2/AC-3/AC-5: anti-cavitation trim, versions 1 to 5 <b>LK</b> : perforated plug · <b>LK1/LK2/LK3</b> : perforated plug with flow divider ST 1 to ST 3 · <b>MHC1</b> : multi-hole cage · <b>CC1</b> : Combi Cage · <b>ZT1</b> : Zero Travel · <b>LDB</b> : Low dB
16	PSA version: <b>PSA</b>
17	Cage/seat style: <b>CS</b> : clamped-in seat · <b>CG</b> : guided cage · <b>SS</b> : screwed-in seat · <b>SF</b> : suspended cage, flanged seat
18	Country of origin
19	ID of the notified body (EU), for example: – <b>0062</b> for Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE – <b>0036</b> for TÜV SÜD Industrie Service GmbH
21	<b>PED</b> : Pressure Equipment Directive <b>G1/G2</b> : gases and vapors Fluid group 1 = hazardous Fluid group 2 = other <b>L1/L2</b> : liquids Fluid group 1 = hazardous Fluid group 2 = other <b>I/II/III</b> : Category 1 to 3
22	Serial number
23	Hardware version (NE 53)



We recommend to include the device's serial number (22 on the nameplate) and/or its material number (as specified in the order confirmation) in the plant documentation for the associated tag number.

The serial number enables you to view the device's current technical data as configured by SAMSON. The material number enables you to view the device's technical data as configured by SAMSON upon delivery of the device. To view these data, go to our website at ► [www.samsongroup.com](http://www.samsongroup.com) > Products > Electronic nameplate.

For example, you can also use the associated information to order a new nameplate from our After-sales Service, if required.

## 2.2 Actuator nameplate

See associated actuator documentation.

## 2.3 Material identification number

The seat and plug of the valves have an item number written on them. You can contact us stating this item number 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. 2-4).



**Fig. 2-4:** Label when an adjustable packing is installed

## 2.5 Optional RFID tag

The RFID tag is located directly next to the nameplate on valves ordered with the RFID tag option. It contains the same data as included in the Data Matrix code on the electronic nameplate. It can be read using a smartphone, tablet or RFID reader.

Application range according to the technical data (see the 'Design and principle of operation' chapter).



### 3 Design and principle of operation

See Fig. 3-1.

The Type 3251/3251-AM Valve is a single-seated globe valve. This valve is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator. It can also be combined with other actuators.

The seat (4) and plug with plug stem (5) are installed in the body (1). In some versions, the seat is already integrated into the body. The plug stem is connected to the actuator stem (A7) by the stem connector clamps (A26) and is sealed by a spring-loaded V-ring packing (15). The springs in the pneumatic actuator (A) are located either above or below the diaphragm (A4) depending on the selected fail-safe action. A change in the signal pressure acting on the diaphragm causes the plug to move. The actuator size is determined by the diaphragm area.

The medium flows through the valve in the direction indicated by the arrow. A rise in signal pressure causes the force acting on the diaphragm in the actuator to increase. The springs are compressed. Depending on the selected direction of action, the actuator stem retracts or extends. As a result, the plug position in the seat changes and determines the flow rate through the valve.



#### Tip

We recommend the use of positioners with integrated diagnostic firmware (see Chapter 3.3) for valves used for on/off service. The partial stroke test included in this soft-

ware helps prevent a shut-off valve normally in its end position from seizing up or getting jammed.

#### Fail-safe action

The fail-safe position of the control valve upon air supply or control signal failure depends on the actuator used (see associated actuator documentation).

Depending on how the compression springs are arranged in the SAMSON Type 3271 and Type 3277 Pneumatic Actuator, the valve has one of 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.

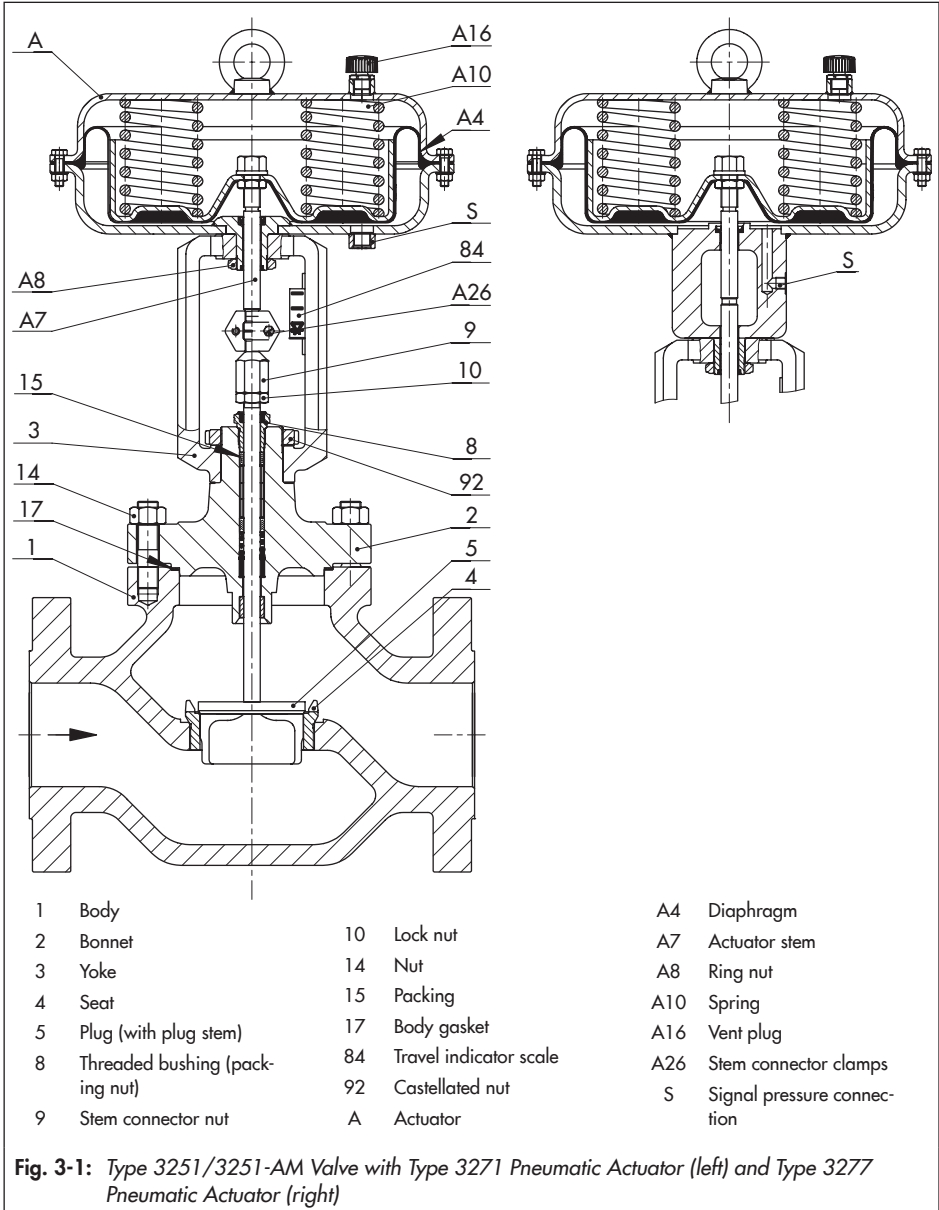


#### Tip

The actuator's direction of action 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

## Design and principle of operation



## 3.1 Versions

### With insulating section/bellows seal

The modular design allows an insulating section or bellows seal to be fitted to the standard valve version.

### Actuators

In these instructions, the preferable combination with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator is described. The pneumatic actuator (with or without handwheel) can be replaced by another pneumatic actuator in a different size, but with the same travel.

→ Observe the maximum permissible actuator force.

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#### **i** 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.*

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The basic pneumatic actuator can be replaced by an actuator with additional handwheel, a pneumatic piston actuator or an electric actuator (see Information Sheet ► T 8300).

## 3.2 Additional fittings

### Strainers

We recommend installing a SAMSON strainer upstream of the valve. It prevents sol-

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

### Insulation

Control valves can be insulated to reduce heat energy transfer.

Refer to the instructions in the 'Installation' chapter.

### Test connection

Versions with bellows seal fitted with a test connection (G 1/8) at the top flange allow the sealing ability of the bellows to be monitored.

Particularly for liquids and vapors, we recommend installing a suitable leakage indicator (e.g. a contact pressure gauge, an outlet to an open vessel or an inspection glass).

### Safety guard

For operating conditions that require increased safety (e.g. in cases where the valve is freely accessible to untrained staff), a safety guard must be installed to rule out a crush hazard arising from moving parts (actuator and plug stem). Plant operators are responsible for deciding whether a guard is to be used. The decision is based on the risk posed by the plant and its operating conditions.

## Design and principle of operation

### Noise reduction

Trims with flow dividers can be used to reduce noise emission (see ► T 8081).

## 3.3 Valve accessories

Information Sheet ► T 8350

## 3.4 Technical data

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

### **i** Note

More information is available in Data Sheet ► T 8051.

### Conformity of Type 3251-AM Valve

The Type 3251-AM Valve bears the CE mark of conformity.



### Conformity of Type 3251 Valve

The Type 3251 Valve bears the CE, UKCA and EAC marks of conformity.



### Temperature range

Depending on the version, the control valve is designed for a temperature range from -10 to +220 °C. The use of an insulating section or bellows seal can extend the temperature range from -196 to +550 °C de-

pending on the properties of the materials used.

### Leakage class

Depending on the version, the following leakage class applies:

Seal (12 on nameplate)	ME, ST	ME, ST	PT, PK
Pressure balancing (14 on nameplate)	–	D/B	–
Leakage class (according to IEC 60534-4)	Min. IV	Min. IV	VI

### 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.

### Optional RFID tag

Application range according to the technical specifications and the explosion protection certificates. These documents are available on our website at ► [www.samsongroup.com](http://www.samsongroup.com) > Products > Electronic nameplate.

**Dimensions and weights**

The weights specified apply to a specific standard device configuration. Weights of other valve configurations may differ depending on the version (material, trim etc.).

Table 3-1 to Table 3-4 provide an overview of the dimensions and weights of the standard version of Type 3251/3251-AM Valve. The lengths and heights in the dimensional drawings are shown on page 3-7.

Dimensions in mm · Weights in kg

**Table 3-1:** Dimensions of Type 3251/3251-AM Valve, up to DN 150 · Face-to-face dimensions according to DIN EN 558

☐ = Versions available for Type 3251-AM (restricted range for Type 3251-AM)

Valve	DN	15	25	40	50	80	100	150
Length L (flanges and welding ends)	PN 10 to 40	130	160	200	230	310	350	480
	PN 63 to 160	210	230	260	300	380	430	550
	PN 250	230	260	300	350	450	520	700
	PN 320	230	260	300	350	450	520	700
	PN 400	264 <sup>1)</sup>	308 <sup>1)</sup>	378 <sup>1)</sup>	444 <sup>1)</sup>	570 <sup>1)</sup>	666 <sup>1)</sup>	908 <sup>1)</sup>
Height H4	PN 10 to 40	152	152	164	217	222	242	314
	PN 63 to 160	152	152	164	217	222	242	314
	PN 250 to 400	186	186	195	251	288	348	443
H8 for actuator	350 cm <sup>2</sup>	240	240	240	240	240	240	–
	355 cm <sup>2</sup>	240	240	240	240	240	240	418
	750 cm <sup>2</sup>	240	240	240	240	240	240	418
	1000 cm <sup>2</sup>	–			295	295	295	418
	1400-60 cm <sup>2</sup>	–			295	295	295	418
	1400-120 cm <sup>2</sup>	–					480	503
	2800 cm <sup>2</sup>	–					480	503
	2x 2800 cm <sup>2</sup>	–					480	503
H2 (DN 100 and larger with foot)	PN 10 to 40	50	60	80	90	100	160	220
	PN 63 to 160	60	70	90	100	120	180	235
	PN 250	70	80	100	110	140	220	285
	PN 320	70	80	100	110	140	220	On request
	PN 400	75	90	110	120	160	237	320

<sup>1)</sup> Face-to-face dimensions acc. to SAMSON standard

## Design and principle of operation

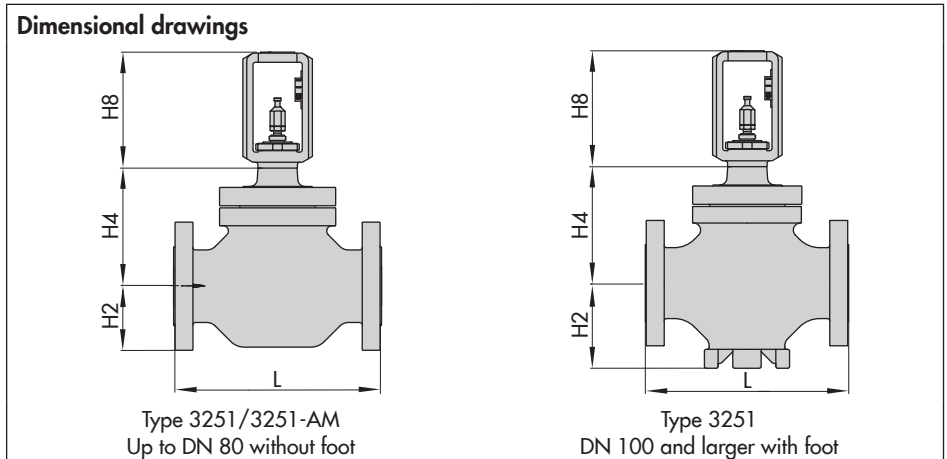
**Table 3-2:** Dimensions of Type 3251 Valve, DN 200 and larger

Valve	DN	200	250	300	400	500
Length L (flanges and weld- ing ends)	PN 10 to 40	600	730	850	1100	1250
	PN 63 to 160	650	775	900	1150 <sup>1)</sup>	–
	PN 250	–				
	PN 320					
PN 400	–					
Height H4	PN 10 to 40	387	442	655	640	760
	PN 63 to 160	387	519	655	640 <sup>1)</sup>	–
	PN 250 to 400	–				
H8 for actuator	750 cm <sup>2</sup>	418	418	–		
	1000 cm <sup>2</sup>	418	On request	On request	On request	On request
	1400-60 cm <sup>2</sup>	418	On request	On request	On request	On request
	1400-120 cm <sup>2</sup>	503	503 <sup>2)</sup>	650	650	650
	2800 cm <sup>2</sup>	503	530 <sup>2)</sup>	650	650	650
	2x 2800 cm <sup>2</sup>	503	530 <sup>2)</sup>	650	650	650
H2 (DN 100 and larger with foot)	PN 10 to 40	250	310	370	415	On request
	PN 63 to 160	270	300	390	On request <sup>1)</sup>	–
	PN 250	–				
	PN 320					
PN 400	–					

1) PN 63

2) H8 = 650 mm with 250 mm seat bore





**Table 3-3:** Weights for standard version of Type 3251/3251-AM up to DN 150

= Versions available for Type 3251-AM (restricted range for Type 3251-AM)

Valve	DN	15	25	40	50	80	100	150	
Valve without actuator	PN 16 to 40	15.5	17.5	21.5	38	59	78	201	
	PN 63 to 160	20	25	30.5	54	89	116	334	
	PN 250	On request					On request		
	PN 320								
	PN 400								

**Table 3-4:** Weights for standard version of Type 3251 in DN 200 and larger

Valve	DN	200	250	300	400	500
Valve without actuator	PN 16 to 40	427	858	920	1450	On request
	PN 63 to 160	642	1090	1480	2600 <sup>1)</sup>	–
	PN 250	–				
	PN 320					
	PN 400					

1) PN 63

### **i** Note

Refer to the following data sheets for more dimensions and weights:

▶ T 8051 for valves with bellows seal, insulating section or heating jacket

The associated actuator documentation applies to actuators, e.g. SAMSON pneumatic actuators:

▶ T 8310-1 for Type 3271 or Type 3277 Pneumatic Actuators up to 750 cm<sup>2</sup> actuator area

▶ T 8310-2 for Type 3271 Actuator with 1000 cm<sup>2</sup> actuator area and larger

▶ T 8310-3 for Type 3271 Actuator with 1400-60 cm<sup>2</sup> actuator area

---

## 4 Shipment and on-site transport

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

### 4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Check that the specifications on the valve nameplate match the specifications in the delivery note. See the 'Markings on the device' chapter for nameplate details.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).
3. Determine the weight and dimensions of the units to be lifted and transported in order to select the appropriate lifting equipment and lifting accessories. Refer to the transport documents and the 'Technical data' chapter.

### 4.2 Removing the packaging from the valve

Observe the following sequence:

- Do not open or remove the packaging until immediately before lifting to install the valve into the pipeline.

- Leave the control valve in its transport container or on the pallet to transport it on site.
- Do not remove the protective caps from the inlet and outlet until immediately before installing the valve into the pipeline. They prevent foreign particles from entering the valve.
- Dispose and recycle the packaging in accordance with the local regulations.

### 4.3 Transporting and lifting the valve

---

#### **⚠ DANGER**

***Danger due to suspended loads falling.***

- *Stay clear of suspended or moving loads.*
  - *Close off and secure the transport paths.*
- 

#### **⚠ 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 and packaging, if applicable).*
-

---

### 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.
- 

### WARNING

**Risk of injury due to incorrect lifting without the use of lifting equipment.**

Lifting the control valve without the use of lifting equipment may lead to injuries (back injury in particular) depending on the weight of the control valve.

- Observe the occupational health and safety regulations valid in the country of use.
- 

### NOTICE

**Risk of valve damage due to incorrectly attached slings.**

The lifting eyelet/eyebolt on SAMSON actuators is only intended for mounting and removing the actuator as well as lifting the actuator without valve. Do not use this lashing point to lift the entire control valve assembly.

- 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 Chapter 4.3.2).
- 

---

### Tip

A swivel hoist can be screwed into SAMSON actuators with a female thread on the top diaphragm case in place of the eyebolt (see associated actuator documentation).

In contrast to the lifting eyelet/eyebolt, the swivel hoist is designed for setting a control valve assembly upright.

The sling between the swivel hoist and rigging equipment (hook, shackle etc.) must not bear any load when lifting a control valve assembly. The sling only protects the control valve from tilting while being lifted.

---

### Tip

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

---

## 4.3.1 Transporting the valve

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.

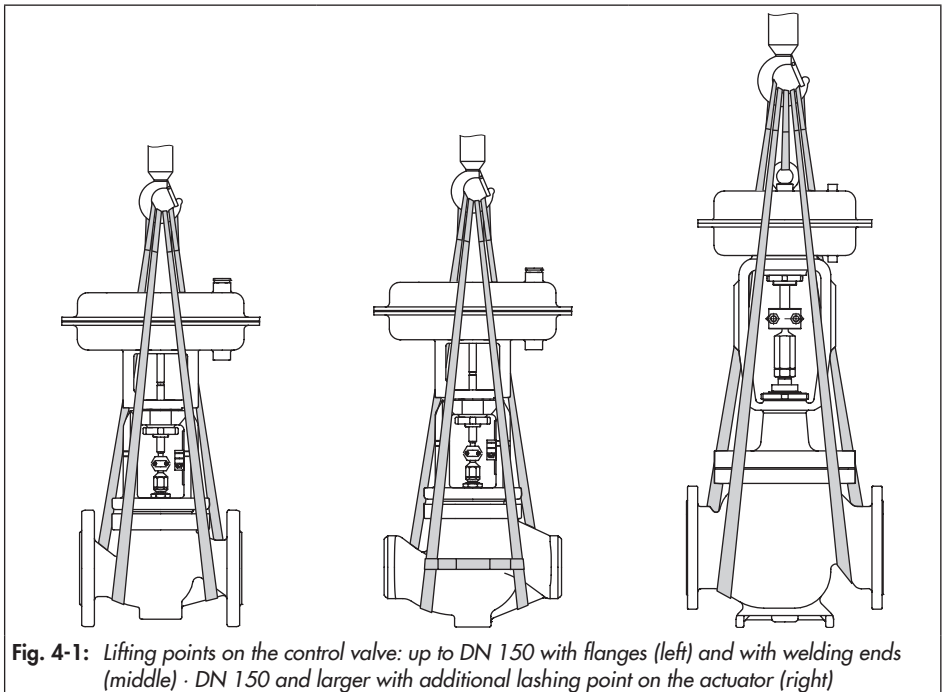
- Protect the piping and any mounted valve accessories against damage.
- Protect the control valve against moisture and dirt.
- The permissible transportation temperature of standard control valves is  $-20$  to  $+65$  °C /  $-4$  to  $+149$  °F.

**i Note**

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

### 4.3.2 Lifting the valve

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



**Fig. 4-1:** Lifting points on the control valve: up to DN 150 with flanges (left) and with welding ends (middle) · DN 150 and larger with additional lashing point on the actuator (right)

### Lifting instructions

- Use a hook with safety latch (see Fig. 4-1) to secure the slings from slipping off the hook during lifting and transporting.
- Secure slings against slipping.
- Make sure the slings can be removed from the device 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.
- Make sure that the additional sling between the lashing point on the actuator and rigging equipment (hook, shackle etc.) does not bear any load when lifting valves larger than DN 150. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

### a) Version with flanges

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. 4-1).
2. **DN 150 and larger:** attach another sling to the lashing point on the actuator and to the rigging equipment.
3. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
4. Move the control valve at an even pace to the site of installation.
5. Install the valve into the pipeline (see the 'Installation' chapter).
6. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
7. Remove slings.

### b) Version with welding ends

1. Attach one sling to each welding end of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-1).
2. Secure the slings attached to the body against slipping using a connector.
3. **DN 150 and larger:** attach another sling to the lashing point on the actuator and to the rigging equipment.
4. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.

5. Move the control valve at an even pace to the site of installation.
6. Install the valve into the pipeline (see the 'Installation' chapter).
7. After installation, check whether the weld seams hold.
8. Remove connectors and slings.

## 4.4 Storing the valve

### **!** NOTICE

**Risk of valve damage due to improper storage.**

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

### **i** Note

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

### Storage instructions

- Protect the control valve against external influences (e.g. impact).
- Secure the valve in the stored position against slipping or tipping over.
- 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.
- The permissible storage temperature of standard control valves is  $-20$  to  $+65$  °C/ $-4$  to  $+149$  °F. Contact our after-sales service for the storage temperatures of other valve versions.
- Do not place any objects on the control valve.
- For storage periods longer than 4 months, we recommend storing the following valves upright with the actuator on top:
  - $\geq$ DN 100 for versions with pressure balancing
  - $\geq$ DN 150 for versions without pressure balancing

### 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.

## Shipment and on-site transport

---



### **Tip**

*Our after-sales service can provide more detailed storage instructions on request.*

---



## 5 Installation

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

### 5.1 Installation conditions

#### Work position

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

Plant operators must ensure that, after installation of the device, the operating personnel

**Table 5-1:** Inlet and outlet lengths

State of process medium	Valve conditions	Inlet length a	Outlet length b
Gas	$Ma \leq 0.3$	2	4
	$0.3 \leq Ma \leq 0.7$	2	10
Vapor	$Ma \leq 0.3$ <sup>1)</sup>	2	4
	$0.3 \leq Ma \leq 0.7$ <sup>1)</sup>	2	10
	Wet steam (percentage of condensate > 5 %)	2	20
Liquid	Free of cavitation/ $w < 10$ m/s	2	4
	Cavitation producing noise/ $w \leq 3$ m/s	2	4
	Cavitation producing noise/ $3 < w < 5$ m/s	2	10
	Critical cavitation/ $w \leq 3$ m/s	2	10
	Critical cavitation/ $3 < w < 5$ m/s	2	20
Flashing	–	2	20
Multi-phase	–	10	20

<sup>1)</sup> No wet steam

## Installation

can perform all necessary work safely and easily access the device from the work position.

### Pipeline routing

The inlet and outlet lengths (see Table 5-1) vary depending on several variables and process conditions and are intended as recommendations. Contact SAMSON if the lengths are significantly shorter than the recommended lengths.

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

- Observe the inlet and outlet lengths (see Table 5-1). 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. Read information under “Mounting position” and “Support or suspension” in this chapter.
- Install the valve allowing sufficient space to remove the actuator and valve or to perform service work on them.

### Mounting position

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

In the following versions, the valve **must** be installed with the actuator on top:

- Nominal sizes DN 100 and larger
  - Valves with insulating section for low temperatures below  $-10\text{ }^{\circ}\text{C}$
- Contact SAMSON if the mounting position is not as specified above.

## Support or suspension

---

### **i** Note

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

---

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

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

### Valve accessories

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

### 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 work position of operating personnel.

## 5.2 Preparation for installation

Before installation, make sure the following conditions are met:

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

### NOTICE

**Risk of control valve damage due to incorrect insulation.**

- Only insulate control valves up to the bonnet flange of the valve body (see Fig. 5-1). This also applies to versions with bellows seal or insulating section at medium temperatures below 0 °C or above 220 °C. If the insulating section is insulated, it will not function properly.
- Do not insulate valves mounted to comply with NACE MR 0175 requirements.

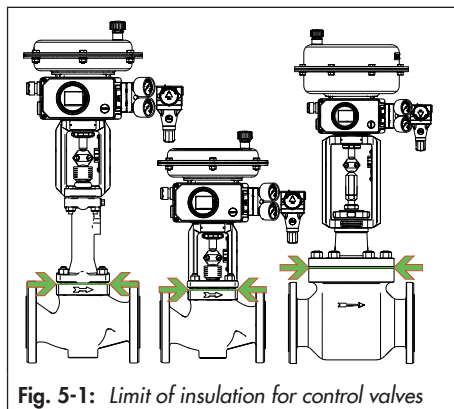


Fig. 5-1: Limit of insulation for control valves

Proceed as follows:

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

### Note

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

- For steam applications, dry the pipelines. Moisture will damage the inside of the valve.
- Check any mounted pressure gauges to make sure they function properly.
- When the valve and actuator are already assembled, check the tightening torques of the bolted joints (▶ AB 0100). Components may loosen during transport.

### 5.3 Mounting the device

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

---

#### ! NOTICE

##### **Risk of control valve damage due to over- or under-torquing.**

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

→ *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).*

---

#### 5.3.1 Mounting the external anti-rotation fixture

Before mounting the actuator, the external anti-rotation fixture must be mounted onto the plug stem in some cases. The valve must be closed beforehand.

For SAMSON Type 3271 and Type 3277 Actuators with Type 3273 Hand-operated Actuator, observe the mounting and operating instructions of the hand-operated actuator (handwheel) to mount the anti-rotation fixture ▶ EB 8312-X.

#### a) Standard version for nominal sizes DN 125 and larger

See Fig. 5-2 and Fig. 5-3

1. Insert ball bearings (310) into the recesses in the bonnet.
2. Place the yoke (3) on the bonnet in such a way that the ball bearings fit into the recesses of the yoke.
3. Fasten the yoke (3) using the castellated nut (92).
4. Fasten the hanger (83) and warning label (255), if applicable, to the yoke using the screws (82).
5. Position the travel indicator scale (84) on the hanger (83) with the screws (85) according to Table 5-4.
6. Use a soft-faced hammer or lever press to press the sliding washers (309) with their beveled part first (without using any lubricant) into the recesses of the clamps (301) as far as they will go. Remove any excess material.
7. Apply a thin film of lubricant (114) to the threads of the stem (9) and screws (303).

---

#### ! NOTICE

##### **Impaired functioning due to incorrectly applied lubricant.**

→ *Do not apply any lubricant to the threads of the clamps (301) or the plug stem.*

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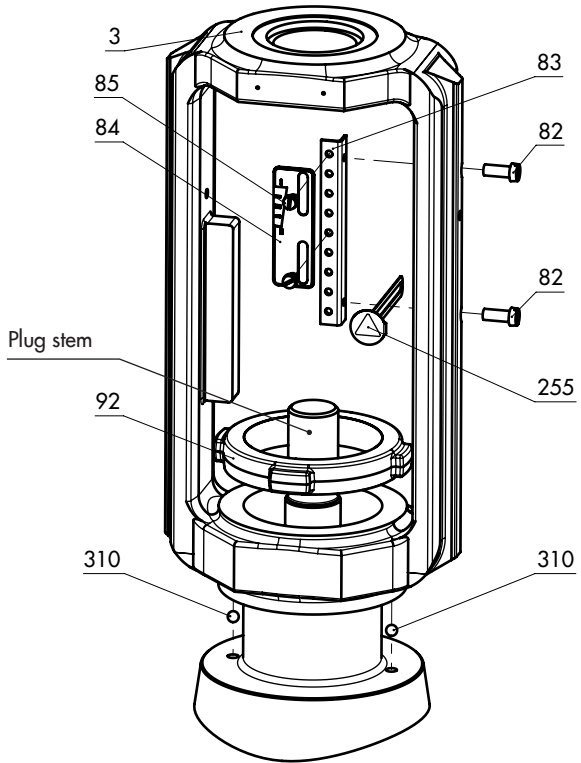
8. Position the clamps (301) and stem (9) on the plug stem according to Table 5-4 and tighten screws (303) and washers (304) by hand.

9. Mount the actuator (see Chapter 5.3.2).
10. Thread the stem (9) upwards until the head of the stem rests on the extended actuator stem.
11. Retract the actuator stem to relieve the stem (9).
12. Gradually tighten the screws (303) in a crisscross pattern. Observe the tightening torques specified in Table 5-2.

**Table 5-2:** *Tightening torques*

Screw size	Tightening torque [Nm]
M12	50
M16	121

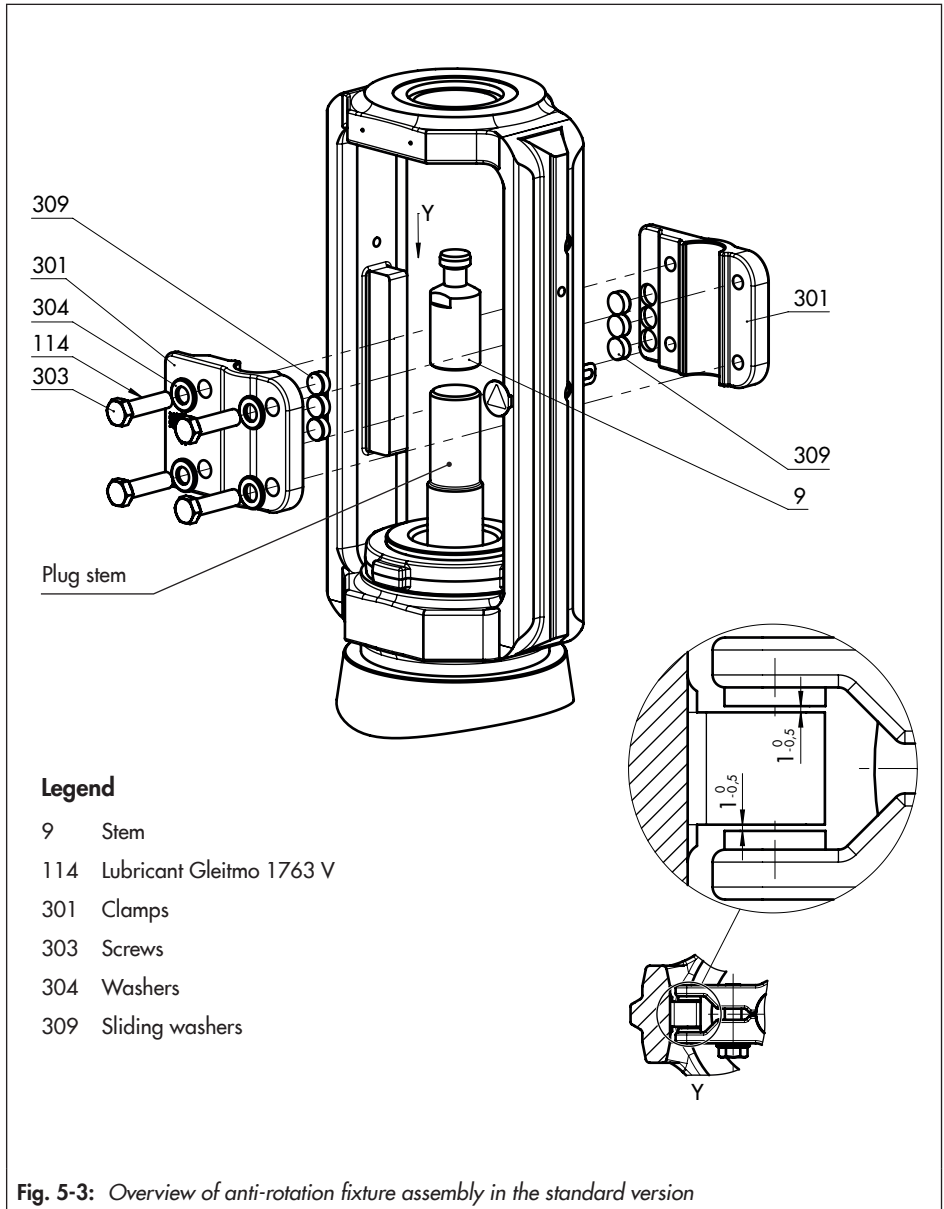
13. Check and ensure the following:
  - There is a nominal clearance of 0.5 to 1 mm between the sliding washers and their contact surface on the yoke on each side (see detailed view Y in Fig. 5-3).
  - The anti-rotation fixture does not get stuck on the yoke and can move freely in the direction of travel.
14. Extend the actuator stem again and mount the stem connector clamps.



**Legend**

- 3 Yoke
- 82 Screws
- 83 Hanger
- 84 Travel indicator scale
- 85 Screws
- 92 Castellated nut
- 255 Warning label
- 310 Ball bearing

**Fig. 5-2:** Overview of yoke assembly with travel indicator scale in the standard version



## b) Special version in nominal sizes DN 50 to 100

See Fig. 5-4 and Fig. 5-5

1. Fasten the travel indicator scale (84) with hanger (83) and warning label (255), if applicable, to the yoke using the screws (82). While fastening it, position the travel indicator scale (84) on the hanger (83) according to Table 5-4.
2. Screw tight the holder (302) using the screws (306) and washers (308). Observe the tightening torques specified in Table 5-3.
3. Fasten the yoke (3) using the castellated nut (92).
4. Use a soft-faced hammer or lever press to press the sliding washers (309) (without using any lubricant) into the holes of the clamps (301) as far as they will go. Remove any excess material.
5. Apply a thin film of lubricant (114) to the threads of the stem (9) and screws (303).

### ⚠ NOTICE

**Impaired functioning due to incorrectly applied lubricant.**

➔ Do not apply any lubricant to the threads of the clamps (301) or the plug stem.

6. Position the clamps (301) and stem (9) on the plug stem according to Table 5-4 and tighten screws (303) and washers (304) by hand.
7. Mount the actuator (see Chapter 5.3.2).

8. Thread the stem (9) upwards until the head of the stem rests on the extended actuator stem.
9. Retract the actuator stem to relieve the stem (9).
10. Gradually tighten the screws (303) in a crisscross pattern. Observe the tightening torques specified in Table 5-3.

**Table 5-3: Tightening torques**

Item	Screw size	Tightening torque [Nm]
306	M10	30
303	M8	15

11. Check and ensure the following:
  - There is a nominal clearance of 0.5 to 1 mm between the sliding washers and their contact surface on the yoke on each side (see detailed view Y in Fig. 5-5).
  - The anti-rotation fixture does not get stuck on the yoke and can move freely in the direction of travel.
12. Extend the actuator stem again and mount the stem connector clamps.



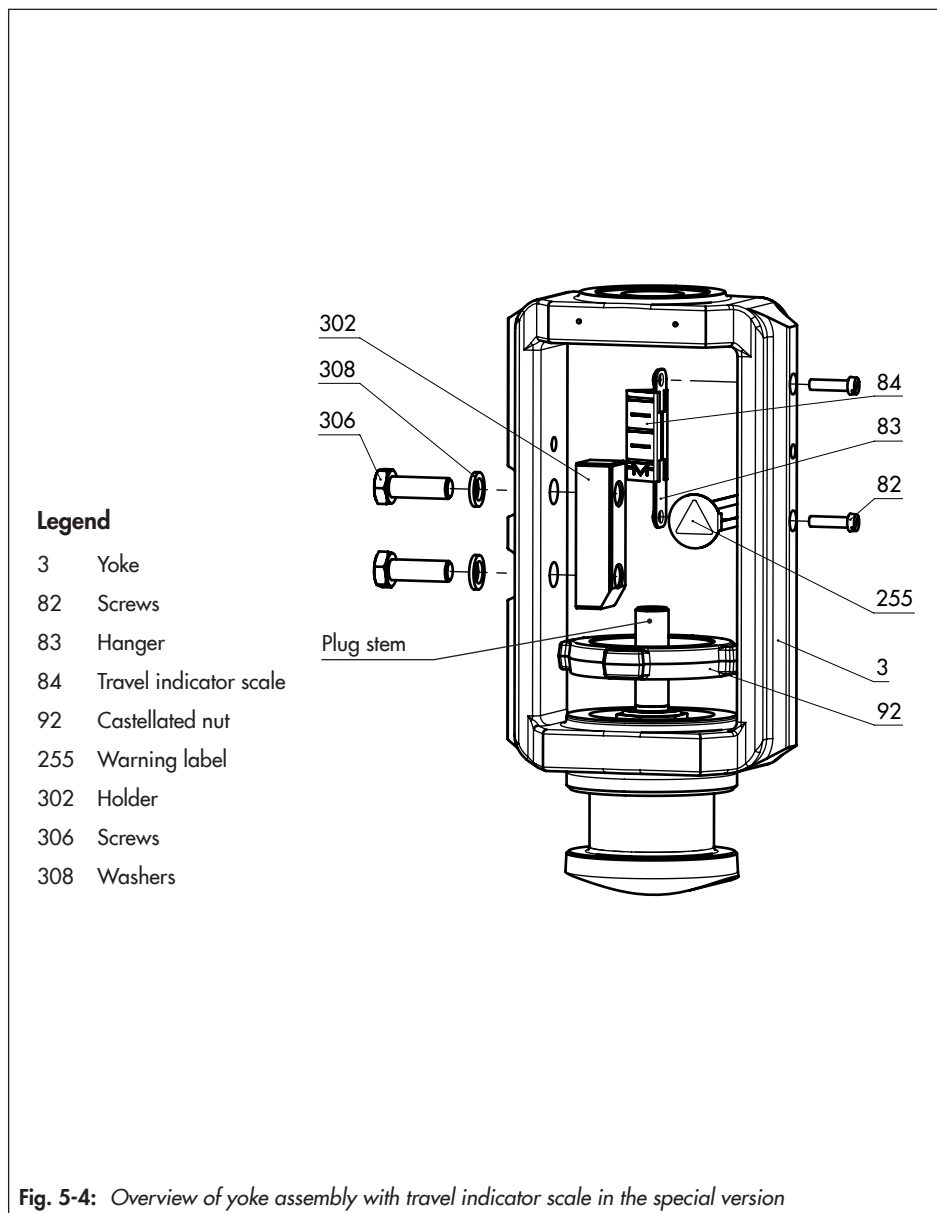
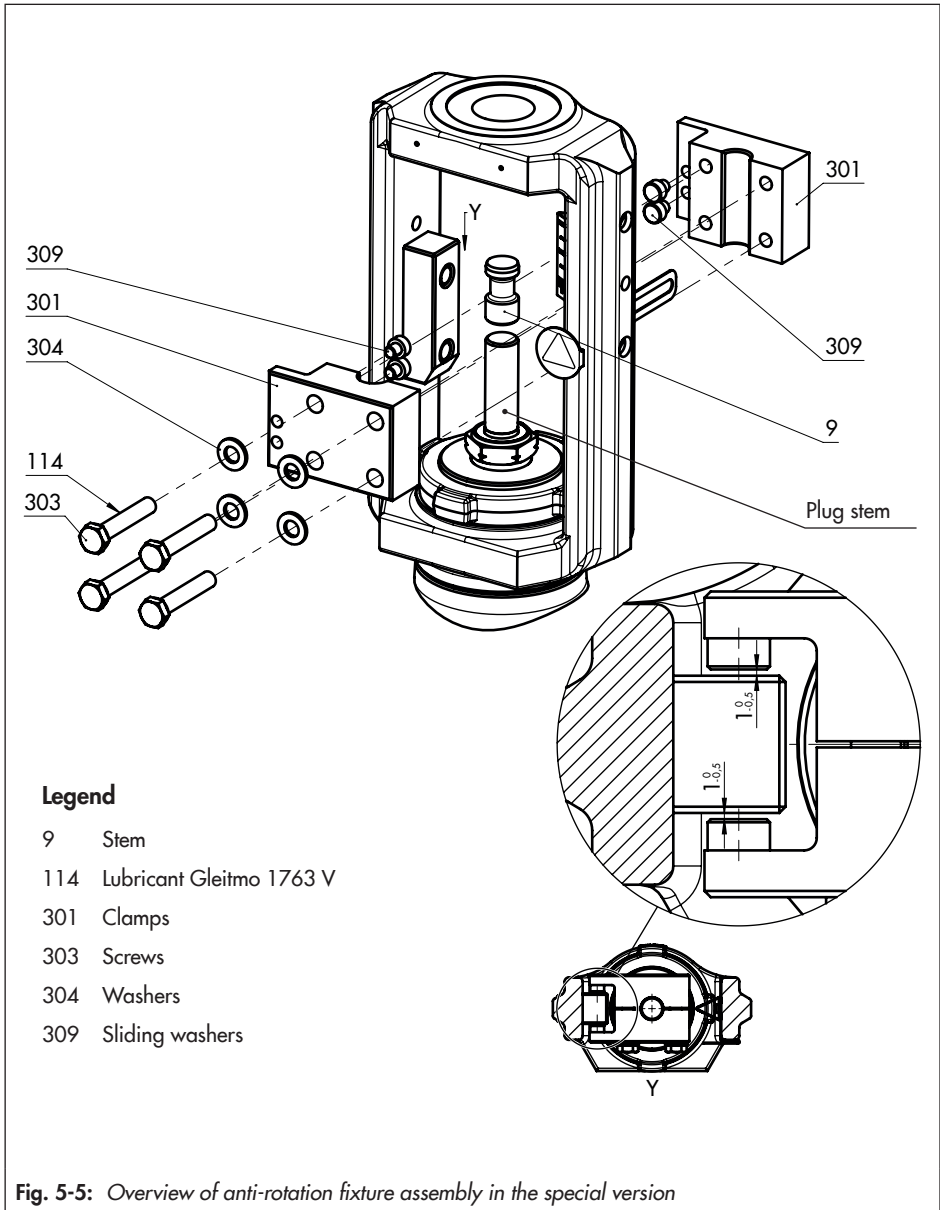


Fig. 5-4: Overview of yoke assembly with travel indicator scale in the special version



**Table 5-4:** Mounting dimensions for Types 3271 and 3277 Pneumatic Actuators · See Fig. 5-6 for dimensional drawing

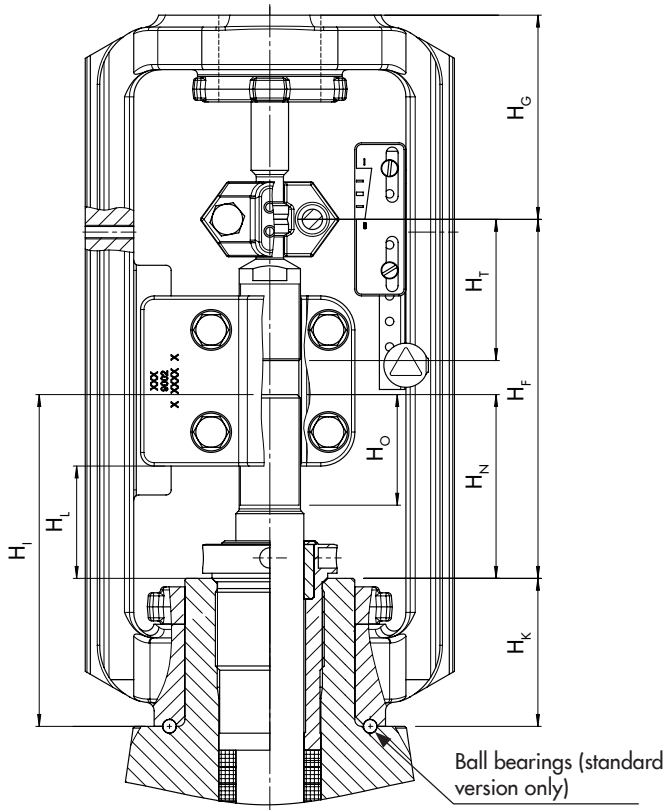
Actuator [cm <sup>2</sup> ]	Travel [mm]	Actuator preloading		Dimension when the valve is closed [mm]									
		[%]	[mm]	H <sub>F</sub>	H <sub>G</sub>	H <sub>I</sub>	H <sub>K</sub>	H <sub>L</sub>	H <sub>N</sub>	H <sub>O</sub>	H <sub>T</sub>		
<b>DN 50 to 100/NPS 2 to 4 · Special version</b>													
350	15	0	0	111	75	192	54	-	66	42	-		
	15	25	3.75	115	71								
355 750	15	50	15	111	75								
	15	75	22.5	118.5	67.5								
	30	0	0	96	90							34.5	30
	30	25	7.5	103.5	82.5							34.5	30
1000 1400-60	15	100	60	136	105								
	30	75	45	121	120			-	-				
1400-120	30	75	90	231	195			-	-				
2800	30	100	120	231	195			-	-				
<b>DN 125 to 150/NPS 6 · Standard version</b>													
355 750	15	0	0	263.5	67.5			192	87	48	105	70	145
	15	50	15	256	75	145							
	15	75	22.5	263.5	67.5	145							
	30	0	0	241	90	120							
	30	25	7.5	248.5	82.5	120							
1000 1400-60	15	100	60	226	105	103							
	30	0	0	211	120	88							
	30	75	45	211	120	88							
	60	0	0	166	165	58							
	60	25	15	181	150	58							
1400-120	15	87.5	105	236	180	63	105						
	30	0	0	191	225	75							
	30	75	90	221	195	105							
	60	0	0	191	225	75							
	60	50	60	191	225	75							
	60	75	90	191	225	75							
2800 5600	30	0	0	191	225	48	75						
	30	100	120	221	195	105							
	60	0	0	191	225	75							
	60	75	90	191	225	75							

## Installation

Actuator [cm <sup>2</sup> ]	Travel [mm]	Actuator preloading		Dimension when the valve is closed [mm]												
		[%]	[mm]	H <sub>F</sub>	H <sub>G</sub>	H <sub>I</sub>	H <sub>K</sub>	H <sub>L</sub>	H <sub>N</sub>	H <sub>O</sub>	H <sub>T</sub>					
<b>DN 200 to 250/NPS 8 to 10 up to seat bore 200 · Standard version</b>																
355 750	30	0	0	241	90	195	87	61	108	65	120					
1000 1400-60	30	0	0	211	120						66	83				
	30	75	45	211	120						66	83				
	60	0	0	166	165						52	55				
	60	25	15	181	150						52	55				
1400-120	15	87.5	105	236	180						61	115				
	30	0	0	191	225						48	76				
	30	75	90	221	195						61	100				
	60	0	0	308	255						61	185				
2800 5600	60	50	60	191	225						48	76				
	30	0	0	191	225						48	76				
	30	100	120	221	195						61	100				
	60	0	0	308	255						61	185				
	60	75	90	191	225						48	76				
<b>DN 250/NPS 10, seat bore 250 and DN 300 to 500/NPS 12 to 20 · Standard version</b>																
1000 1400-60	30	0	0	281	135						237	87	100	150	110	121
	30	75	45	296	120	135										
	60	0	0	251	165	91										
	60	25	15	266	150	91										
1400-120	60	0	0	308	255	145										
	60	50	60	338	225	175										
	120	0	0	278	285	FA <sup>1)</sup> =115 FE <sup>2)</sup> =86										
2800 5600	60	0	0	308	255	145										
	60	75	90	338	225	175										
	120	0	0	248	315	FE <sup>2)</sup> =86										
	120	25	30	278	285	115										

<sup>1)</sup> FA = Actuator stem extends (fail-close)

<sup>2)</sup> FE = Actuator stem retracts (fail-open)



**Fig. 5-6:** Dimensional drawing with mounting dimensions for Types 3271 and 3277 Pneumatic Actuators

### 5.3.2 Mounting the actuator onto the valve

**⚠ WARNING**

**Risk of personal injury due to preloaded springs.**

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

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

**⚠ WARNING**

**Risk of personal injury due to incorrect removal of the anti-rotation fixture under tension.**

Once the actuator has been mounted on the valve and the assembly is ready for use, the clamps (301) of the anti-rotation fixture on the plug stem are under tension.

- Follow the instructions in this document during mounting or removal.
- Do not loosen the screws (303) of the anti-rotation fixture while the force generated by the supply air and/or the actuator springs is transmitted to the actuator stem and the stem (9).
- First remove the actuator from the valve or ensure it cannot transmit any forces to the actuator stem before removing the anti-rotation fixture on the plug stem.

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

#### Versions with V-port plug

To achieve the best flow conditions inside the valve, the V-port plug must always be installed with the port that releases the flow first when the valve opens facing toward the valve outlet. This is the largest of the three V-shaped ports (see Fig. 5-7).

- Before mounting the actuator, determine which V-shaped port is uncovered first when the plug is lifted out of the seat.
- On mounting the actuator, make sure that the V-shaped port uncovered first faces toward the valve outlet.

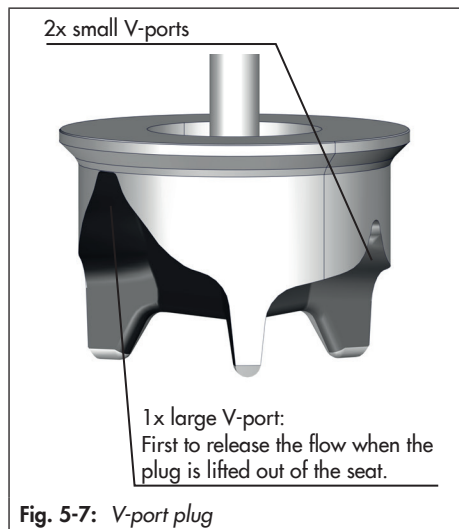


Fig. 5-7: V-port plug

### Versions with perforated plug

Only one hole is located near the seal facing of perforated plugs with equal percentage characteristic. Depending on the nominal size, the hole pattern varies and is partly unsymmetrical. The process medium in the valve flows through the holes as soon as the plug is lifted out of the seat. To achieve the best flow conditions inside the valve, the perforated plug must always be installed with the hole that releases the flow first when the valve opens facing toward the valve outlet (see Fig. 5-8).

- Before mounting the actuator, check the hole pattern of the perforated plug and determine which hole is the closest to the seal facing and is uncovered first when the plug is lifted out of the seat.
- On mounting the actuator, make sure that the hole uncovered first faces toward the valve outlet.

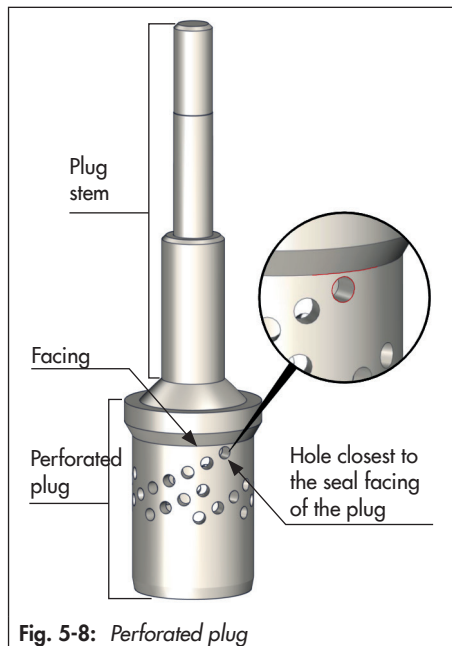


Fig. 5-8: Perforated plug

### a) Mounting the actuator

- To mount the actuator, proceed as described in the associated actuator documentation.

### b) Aligning the travel indicator scale

After mounting the actuator, the travel indicator scale must be aligned. To do so, align '0' on the travel indicator scale with the tip of the stem connector clamp (see Fig. 5-6).

1. Move the valve to the closed position.
2. Loosen the screws on the travel indicator scale.
3. Align the travel indicator scale.

## Installation

4. Fix the travel indicator scale into place by tightening the screws.

### 5.3.3 Installing the valve into the pipeline

---

#### ! NOTICE

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

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

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

---

#### ! NOTICE

**Premature wear and leakage due to insufficient support or suspension.**

→ *Support or suspend the valve sufficiently at suitable points.*

---

#### a) Version with flanges

1. Close the shut-off valves in the pipeline at the inlet and outlet of the plant section while the valve is being installed.
2. Prepare the relevant section of the pipeline for installing the valve.
3. Remove the protective caps from the valve ports before installing the valve.

4. Lift the valve using suitable lifting equipment to the site of installation (see the 'Lifting the valve' chapter). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. Make sure that the correct flange gaskets are used.
6. Bolt the pipe to the valve free of stress.
7. Attach a support or suspension on the valve, if necessary.

#### b) Version with welding ends

1. Proceed as described above under "Version with flanges", steps 1 to 4.
2. Completely retract the actuator stem to protect the plug from sparks during welding.
3. Weld the valve free of stress into the pipeline.
4. Attach a support or suspension on the valve, if necessary.



## 5.4 Testing the installed valve

### **⚠ DANGER**

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

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

Before working on the control valve:

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

### **⚠ WARNING**

#### **Risk of personal injury due to pressurized components and as a result of process medium being discharged.**

- Do not loosen the screw of the test connection while the valve is pressurized.

### **⚠ WARNING**

#### **Risk of hearing loss or deafness due to loud noise.**

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

cessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **Crush hazard arising from actuator and plug stem moving.**

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

### **⚠ WARNING**

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

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

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

---

### **⚠ WARNING**

#### ***Risk of personal injury due to preloaded springs.***

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

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

---

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

### **5.4.1 Leakage**

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

---

### **💡 Tip**

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

---

1. Close the valve.
2. Slowly apply the test medium to the inlet space upstream of the valve. A sudden surge in pressure and resulting high flow velocities can damage the valve.
3. Open the valve.
4. Apply the required test pressure.

5. Check the valve for leakage to the atmosphere.
6. Depressurize the pipeline section and valve.
7. Rework any parts that leak (see information below under "Adjusting the packing") and repeat the leak test.

### **Adjusting the packing**

A label on the flange or yoke indicates whether an adjustable packing is installed (see the 'Markings on the device' chapter).

---

### **⚠ NOTICE**

#### ***Impaired valve functioning due to increased friction as a result of the threaded bushing being tightened too far.***

➔ *Make sure that the plug stem can still move smoothly after the threaded bushing has been tightened.*

---

1. Tighten the threaded bushing gradually (by turning it clockwise) until the packing seals the valve.
  2. Open and close the valve several times.
  3. Check the valve for leakage to the atmosphere.
  4. Repeat steps 1 and 2 until the packing completely seals the valve.
- ➔ If the adjustable packing does not seal properly, contact our after-sales service.

### **5.4.2 Travel motion**

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

---

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

### 5.4.3 Fail-safe position

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

### 5.4.4 Pressure test

The plant operator is responsible for performing the pressure test.

**Tip**

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

---

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

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



## 6 Start-up

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

### **⚠ 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.

### **⚠ WARNING**

**Risk of personal injury due to pressurized components and process medium being discharged.**

- Do not loosen the screw of the test connection while the valve is pressurized.

### **⚠ WARNING**

**Risk of hearing loss or deafness due to loud noise.**

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

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

**Crush hazard arising from actuator and plug stem moving.**

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

### **⚠ WARNING**

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

While the valve is operating, the actuator, for example, may vent during closed-loop operation or when the valve opens or closes.

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

## Start-up

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

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

### Start-up/putting the device back into operation

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

## 7 Operation

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

### **⚠ WARNING**

**Risk of burn injuries due to hot 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.

### **⚠ WARNING**

**Risk of personal injury due to pressurized components and process medium being discharged.**

- Do not loosen the screw of the test connection while the valve is pressurized.

### **⚠ WARNING**

**Risk of hearing loss or deafness due to loud noise.**

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

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

**Crush hazard arising from actuator and plug stem moving.**

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

### **⚠ WARNING**

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

While the valve is operating, the actuator, for example, may vent during closed-loop operation or when the valve opens or closes.

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

## **Operation**

### **7.1 Normal operation**

The handwheel of valves with actuators fitted with a handwheel must be in the neutral position during normal operation.

### **7.2 Manual operation**

Valves with actuators fitted with a handwheel can be manually closed or opened in case of supply air failure.



## 8 Malfunctions

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

### 8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Actuator and plug stem does not move on demand.	Actuator is blocked.	Put the control valve out of operation (see the 'Decommissioning' chapter) and remove the blockage. <b>WARNING!</b> A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.
	Diaphragm in the actuator defective	See associated actuator documentation.
	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
Jolting movement of the actuator and plug stem	Version with adjustable packing <sup>2)</sup> ; packing tightened too far	Tighten the packing correctly (see section 'Adjusting the packing' in the 'Installation' chapter > 'Testing the installed valve').
Actuator and plug stem does not stroke through the full range.	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
	Travel stop active	See associated actuator documentation.
	Incorrect setting of valve accessories	Check the settings of the valve accessories.
Increased flow through closed valve (seat leakage)	Dirt or other foreign particles deposited between the seat and plug.	Shut off the section of the pipeline and flush the valve.
	Valve trim, particularly with soft seat, is worn.	Replace seat and plug (see the 'Servicing' chapter) or contact our after-sales service.

## Malfunctions

Malfunction	Possible reasons	Recommended action
The valve leaks to the atmosphere (fugitive emissions).	Defective packing	Replace packing <sup>1)</sup> (see the 'Servicing' chapter) or contact our after-sales service.
	Version with adjustable packing <sup>2)</sup> : packing not tightened correctly	Adjust the packing (see section 'Adjusting the packing' in the 'Installation' chapter> 'Testing the installed valve'). Contact our after-sales service when it continues to leak.
	Version with bellows seal: the bellows seal is defective.	Contact our after-sales service.
	Flanged joint loose or body gaskets worn out	Check the flanged joint. Replace gaskets at the flanged joint (see the 'Servicing' chapter) or contact our after-sales service.

<sup>1)</sup> Only replace the packing in versions without bellows seal

<sup>2)</sup> See the 'Markings on the device' chapter.

### **i** Note

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

## 8.2 Emergency action

Plant operators are responsible for emergency action to be taken in the plant.

In the event of a valve malfunction:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Perform troubleshooting (see Chapter 8.1).
3. Rectify those malfunctions that can be remedied following the information given in this document. Contact our after-sales service in all other cases.

### Putting the device back into operation after a malfunction

See the 'Start-up' chapter.

## 9 Servicing

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

The following documents are also required for servicing the valve:

- Mounting and operating instructions for the mounted actuator, e.g. ► EB 8310-X for Type 3271 or Type 3277 Pneumatic Actuator
- ► AB 0100 for tools, tightening torques and lubricant

### **! DANGER**

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

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

Before working on the control valve:

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

### **! 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 warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

### **! WARNING**

**Risk of personal injury due to pressurized components and as a result of process medium being discharged.**

- Do not loosen the screw of the test connection while the valve is pressurized.

### **! WARNING**

**Risk of hearing loss or deafness due to loud noise.**

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

- Wear hearing protection when working near the valve.

### **! WARNING**

**Crush hazard arising from actuator and plug stem moving.**

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

## Servicing

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

### **⚠ WARNING**

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

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

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

### **⚠ WARNING**

#### **Risk of personal injury due to preloaded springs.**

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

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

### **⚠ WARNING**

#### **Risk of personal injury due to residual process medium in the valve.**

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

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

### **ⓘ NOTICE**

#### **Risk of control valve damage due to over- or under-torquing.**

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

- 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).

### **ⓘ NOTICE**

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

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

---

**i Note**

*The control valve was checked by SAMSON before delivery.*

- 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.*
- 

## 9.1 Periodic testing

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

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** Tip**

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

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## Servicing

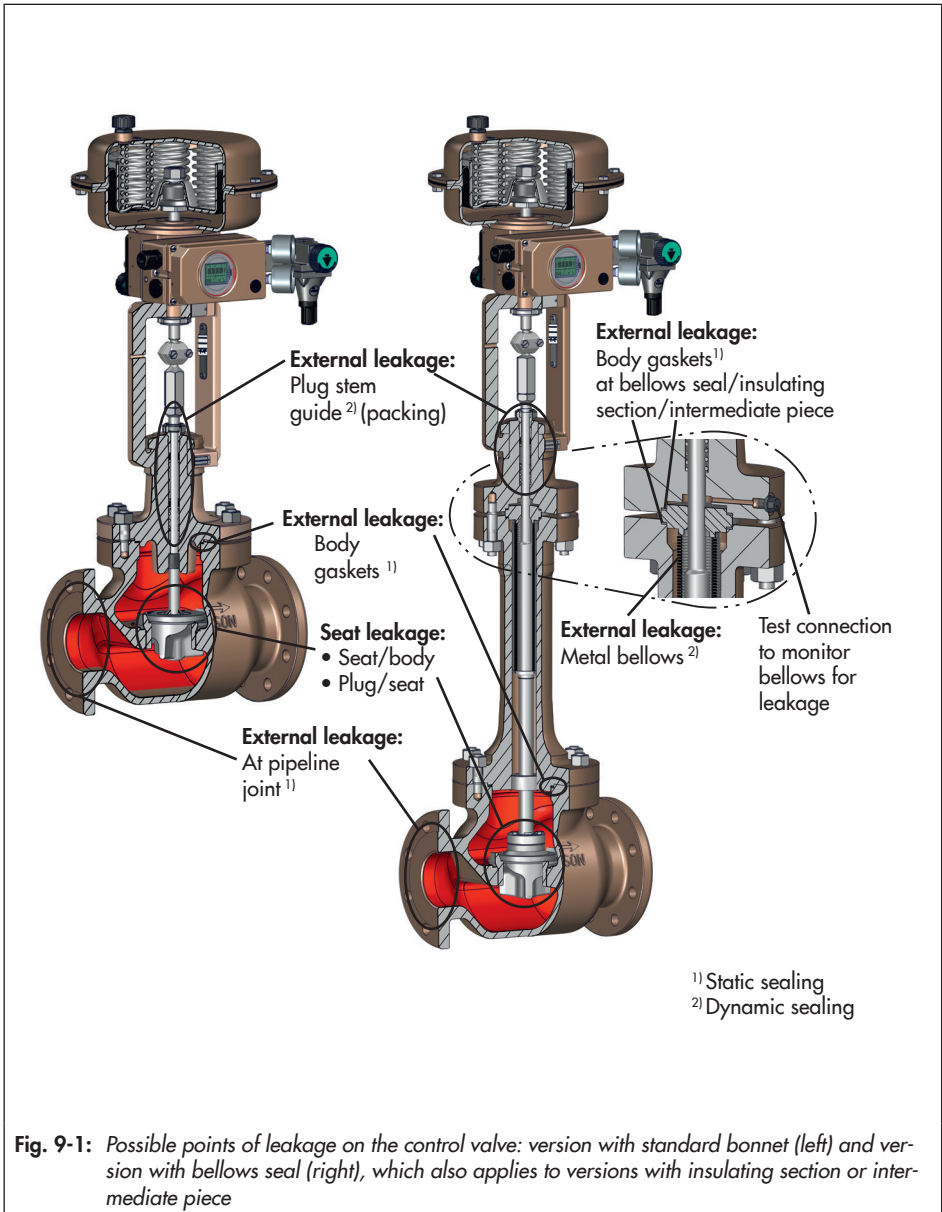
SAMSON recommends the following inspections and tests:

Inspection and testing	Recommended action to be taken in the event of a negative result
Check the markings, labels and nameplates on the valve for their readability and completeness.	Immediately renew damaged, missing or incorrect nameplates or labels. Clean any inscriptions that are covered with dirt and are illegible.
Check the valve for external damage that could impair the proper functioning of the control valve or even its safe operation.	Repair any damage immediately. If necessary, put the control valve out of operation (see the 'Decommissioning' chapter).
Check the valve accessories to ensure they are mounted properly.	Tighten the connections of the valve accessories.
Seat leakage <sup>1)</sup> (see Fig. 9-1) (without testing to check that the leakage class requirements are met)	Shut off the section of the pipeline and flush the valve to remove any dirt and/or deposited foreign particles between the seat and plug.
<p>External leakage (fugitive emissions) <sup>1)</sup>: Inspect the control valve at the possible points of leakage to ensure there is no leakage (see Fig. 9-1).</p> <p>Versions with bellows seal:  <b>WARNING!</b> Risk of personal injury due to pressurized components and as a result of process medium being discharged.            Do not loosen the screw of the test connection while the valve is pressurized.</p>	<p>Check flanged joints (tightening torques).</p> <p>Replace the gaskets at the flanged joints. For this purpose, put the control valve out of operation (see the 'Decommissioning' chapter).</p> <p>Version with adjustable packing <sup>2)</sup>: adjust the packing (see section 'Adjusting the packing' in the 'Installation' chapter &gt; 'Testing the installed valve') or replace the packing. To replace the packing, put the control valve out of operation (see the 'Decommissioning' chapter).</p> <p>If the bellows seal is defective, put the control valve out of operation (see the 'Decommissioning' chapter). To repair the bellows seal, contact our after-sales service (see the 'Repairs' chapter).</p>

Inspection and testing	Recommended action to be taken in the event of a negative result
<p>Check to ensure that the actuator and plug stem move smoothly.</p>	<p>Version with adjustable packing <sup>2)</sup>: tighten the packing correctly (see section 'Adjusting the packing' in the 'Installation' chapter &gt; 'Testing the installed valve').</p>
	<p>If the actuator and plug stem is blocked, put the control valve out of operation (see the 'Decommissioning' chapter) and remove the blockage.  <b>WARNING!</b> A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve.                      Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.</p>
	<p>SAMSON recommends the use of positioners with integrated diagnostic firmware for valves used for on/off service. The partial stroke test included in this software helps prevent a shut-off valve normally in its end position from seizing up or getting jammed.</p>
<p>If possible, check the valve's fail-safe position by briefly interrupting the air supply.</p>	<p>Put the control valve out of operation (see the 'Decommissioning' chapter). Identify the cause for the malfunction and rectify it (see the 'Troubleshooting' chapter).</p>

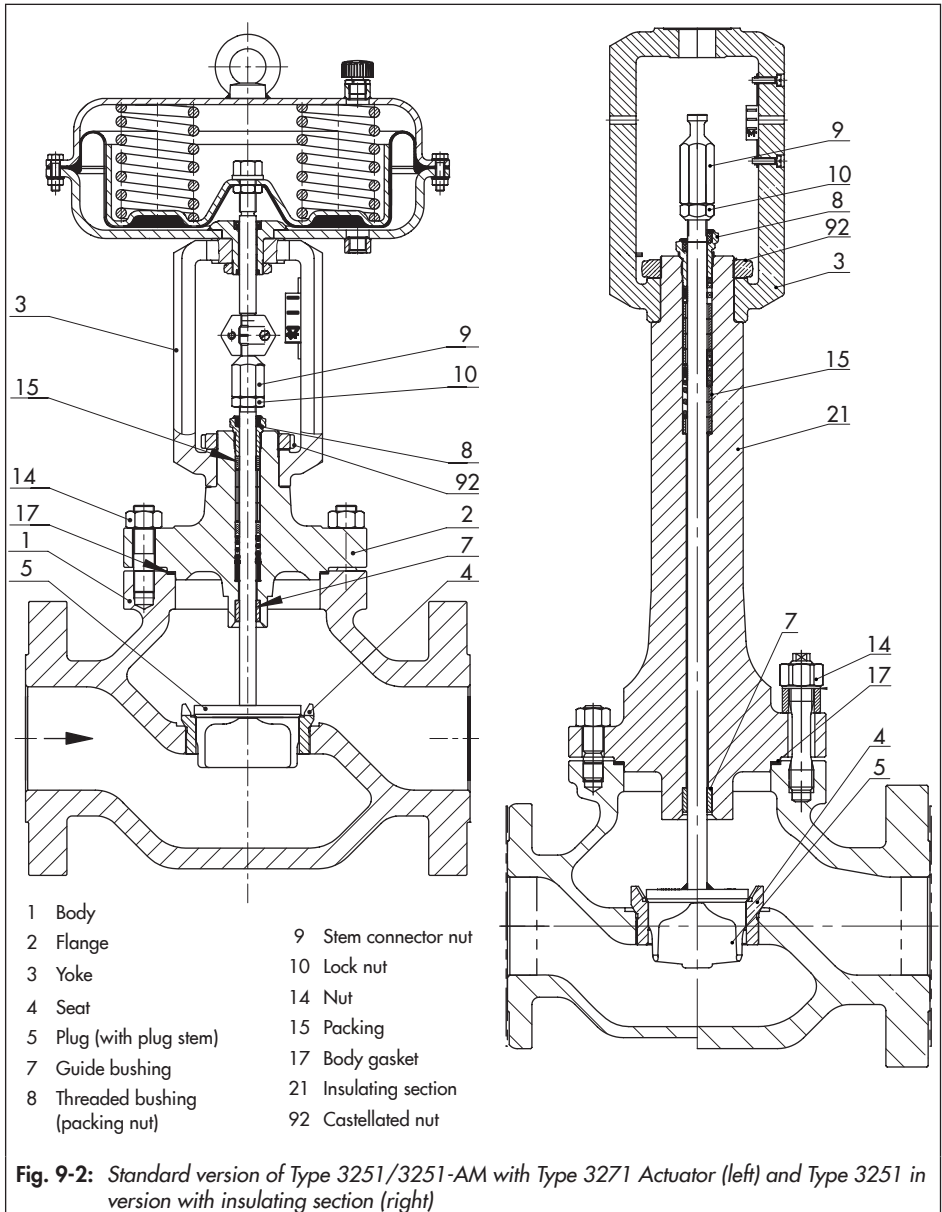
1) EXPERTplus valve diagnostics can help identify external leakage at dynamic sealing systems as well as seat leakage in valve versions without balanced plugs while the valve is in use. EXPERTplus comes as standard in the digital positioners (Type 3730, TROVIS 3730, Type 3731, TROVIS 3793, TROVIS 3797).

2) See the 'Markings on the device' chapter



**Fig. 9-1:** Possible points of leakage on the control valve: version with standard bonnet (left) and version with bellows seal (right), which also applies to versions with insulating section or intermediate piece





## 9.2 Service work preparations

### **WARNING**

**Risk of personal injury due to incorrect removal of the anti-rotation fixture under tension.**

Once the actuator has been mounted on the valve and the assembly is ready for use, the clamps (301) of the anti-rotation fixture on the plug stem are under tension.

- ➔ Follow the instructions in this document during mounting or removal.
- ➔ Do not loosen the screws (303) of the anti-rotation fixture while the force generated by the supply air and/or the actuator springs is transmitted to the actuator stem and the stem (9).
- ➔ First remove the actuator from the valve or ensure it cannot transmit any forces to the actuator stem before removing the anti-rotation fixture on the plug stem.

1. Lay out the necessary material and tools to have them ready for the service work.
2. Put the control valve out of operation (see the 'Decommissioning' chapter).
3. Remove the actuator from the valve. See associated actuator documentation.

### **Note**

To remove an actuator with "stem extends" fail-safe action and/or with preloaded springs, a certain signal pressure must be applied to the actuator (see associated actuator documentation). Afterwards, the signal

pressure must be removed and the air supply disconnected again and locked.

### **Tip**

SAMSON recommends removing the valve from the pipeline before performing any service work (see the 'Removing the valve from the pipeline' chapter).

The following service work can be performed after preparation is completed:

- Replace the gasket (see Chapter 9.4.1)
- Replace the packing (see Chapter 9.4.2)
- Replace the seat and plug (see Chapter 9.4.3)

## 9.3 Installing the valve after service work

1. Mount actuator. See associated actuator documentation.
2. Adjust lower or upper signal bench range. See associated actuator documentation.
3. If the valve has been removed, re-install the valve into the pipeline (see the 'Installation' chapter).
4. Put the control valve back into operation (see the 'Start-up' chapter). Observe the requirements and conditions for start-up or putting the valve back into operation.

## 9.4 Service work

- Before performing any service work, preparations must be made to the control valve (see Chapter 9.2).
- After all service work is completed, check the control valve before putting it back into operation (see section 'Testing the installed valve' in the 'Installation' chapter).

### 9.4.1 Replacing the gasket

#### ⓘ NOTICE

**Risk of control valve damage due to incorrect servicing.**

- *The gasket can only be replaced when all the following conditions are met:*
  - *The nominal size is  $\leq$ DN 100.*
  - *The valve does not have a balanced plug.*
  - *The valve does not have a flow divider.*
- *To replace the gasket in other valve versions, contact our after-sales service.*

#### a) Standard version

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the flange (2) and plug with plug stem (5) off the body (1).
3. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the flange (2).
4. Insert a new gasket (17) into the body.

5. Place the flange (2) onto the body.

**Version with V-port plug:** place the flange (2) onto the valve body, making sure that the largest V-shaped part of the V-port plug faces towards the valve outlet.

**Version with perforated plug:** place the flange (2) onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

See relevant section 'Mounting the actuator onto the valve' in the 'Installation' chapter.

6. Firmly press the plug (5) into the seat (4). Fasten down the flange (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

#### b) Version with insulating section or bellows seal

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the insulating section (21) and plug with plug stem (5) off the body (1).
3. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the insulating section (21).
4. Insert a new gasket (17) into the body.
5. Place the insulating section (21) onto the body.

**Version with V-port plug:** place the insulating section (21) onto the valve body, making sure that the largest V-shaped

part of the V-port plug faces towards the valve outlet.

**Version with perforated plug:** place the insulating section (21) onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

See relevant section 'Mounting the actuator onto the valve' in the 'Installation' chapter.

6. Firmly press the plug (5) into the seat (4). Fasten down the insulating section (21) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

### 9.4.2 Replacing the packing

#### ⚠ NOTICE

**Risk of control valve damage due to incorrect servicing.**

- *The packing can only be replaced when all the following conditions are met:*
- *The nominal size is  $\leq$ DN 100.*
  - *The valve does not have a balanced plug.*
  - *The valve does not have a bellows seal.*
  - *The standard or ADSEAL packing is installed in the valve.*
- *To replace the packing in other valve versions, contact our after-sales service.*

### a) Standard version

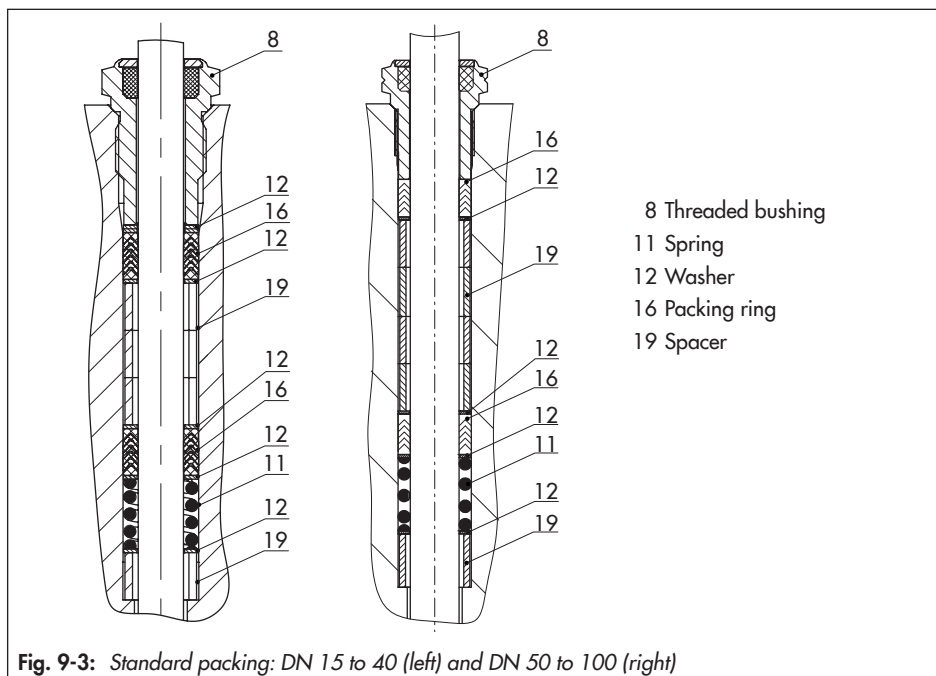
#### Standard packing (PTFE)

1. Unscrew the castellated nut (92) and lift the yoke (3) off the flange (2).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Lift the flange (2) and plug with plug stem (5) off the body (1).
4. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
5. Unscrew the threaded bushing (8).
6. Pull the plug with plug stem (5) out of the flange (2).
7. Pull the entire packing out of the packing chamber using a suitable tool.
8. Renew damaged parts. Clean the packing chamber thoroughly.
9. Apply a suitable lubricant to all the packing parts and to the plug stem (5).
10. Slide the plug with plug stem (5) into the flange (2).

11. Place the flange (2) together with the plug stem and plug (5) onto the body.

**Version with V-port plug:** place the flange (2) onto the valve body, making sure that the largest V-shaped port of the V-port plug faces towards the valve outlet.

**Version with perforated plug:** place the flange (2) onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.



**Fig. 9-3:** Standard packing: DN 15 to 40 (left) and DN 50 to 100 (right)

See relevant section 'Mounting the actuator onto the valve' in the 'Installation' chapter.

12. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-3).
13. Firmly press the plug (5) into the seat (4). Fasten down the flange (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
14. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.

15. Place yoke (3) on the flange (2) and fasten using the castellated nut (92).

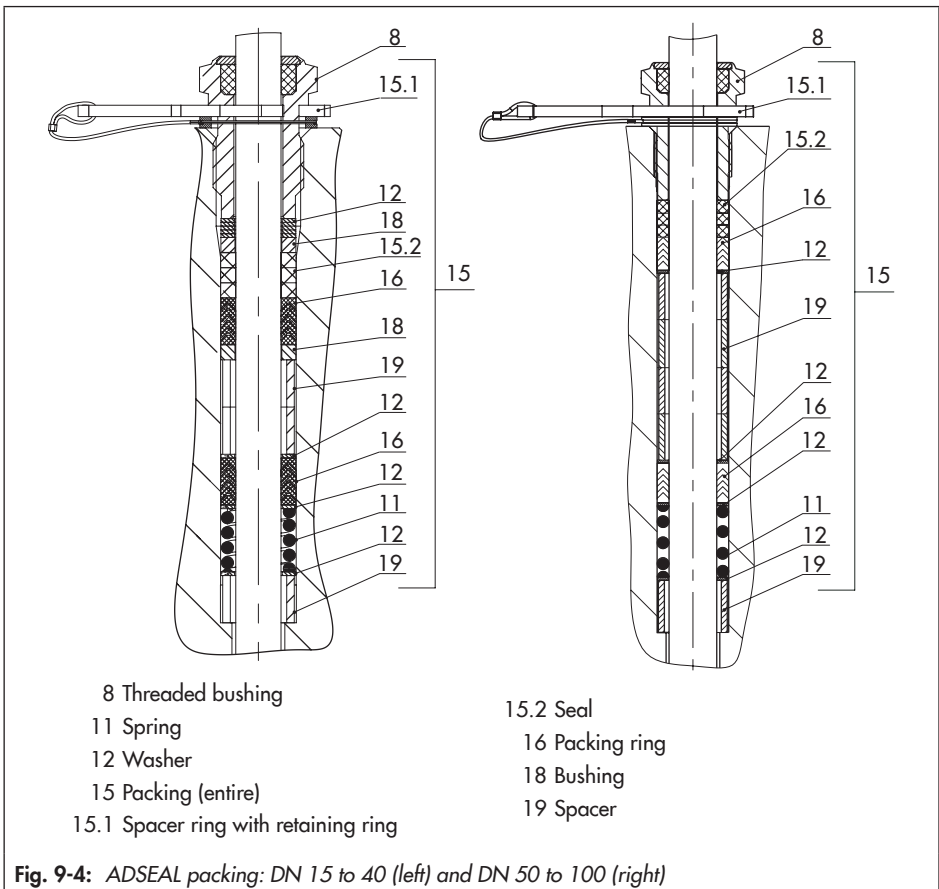
16. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

### ADSEAL packing

1. Proceed as described in "Standard packing (PTFE)", steps 1 to 11.
2. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-4).
3. Slide the seals (15.2) over the plug stem.

## Servicing

- Insert the wire of the red spacer ring (15.1) into the groove of the retaining ring.
- Slide the retaining ring over the plug stem.
4. Insert the red spacer ring (15.1) between the threaded bushing (8) and retaining ring. See Fig. 9-4.
  5. Proceed as described in "Standard packing (PTFE)", steps 13 to 16.



## b) Version with insulating section

### Standard packing (PTFE)

1. Unscrew the castellated nut (92) and lift the yoke (3) off the insulating section (21).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Lift the insulating section (21) and plug with plug stem (5) off the body (1).
4. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
5. Unscrew the threaded bushing (8).
6. Pull the plug with plug stem (5) out of the insulating section (21).
7. Pull the entire packing out of the packing chamber using a suitable tool.
8. Renew the damaged parts and carefully clean the packing chamber.
9. Apply a suitable lubricant to all the packing parts and to the plug stem (5).
10. Slide the plug with plug stem (5) into the insulating section (21).
11. Place the insulating section (21) together with the plug stem and plug (5) onto the body.

**Version with V-port plug:** place the insulating section (21) onto the valve body, making sure that the largest V-shaped port of the V-port plug faces towards the valve outlet.

**Version with perforated plug:** place the insulating section (21) onto the valve

body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

See relevant section 'Mounting the actuator onto the valve' in the 'Installation' chapter.

12. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-3).
13. Firmly press the plug (5) into the seat (4). Fasten down the insulating section (21) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
14. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
15. Place yoke (3) onto the insulating section (21) and fasten using the castellated nut (92).
16. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

### ADSEAL packing

1. Proceed as described in "Standard packing (PTFE)", steps 1 to 11.
2. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-4).
3. Slide the seals (15.2) over the plug stem. Insert the wire of the red spacer ring (15.1) into the groove of the retaining ring. Slide the retaining ring over the plug stem.

## Servicing

4. Insert the red spacer ring (15.1) between the threaded bushing (8) and retaining ring. See Fig. 9-4.
5. Proceed as described in "Standard packing (PTFE)", steps 13 to 16.

### 9.4.3 Replacing the seat and plug

#### **NOTICE**

**Risk of control valve damage due to incorrect servicing.**

- *Seat and plug can only be replaced when all the following conditions are met:*
- *The nominal size is  $\leq$ DN 100.*
  - *The valve does not have a balanced plug.*
  - *The valve does not have a bellows seal.*
  - *The valve does not have a flow divider.*
  - *The valve does not have an AC trim.*
  - *The standard or ADSEAL packing is installed in the valve.*
  - *The seat is screwed into the valve body as a separate part.*
- *To replace seat and plug in other valve versions, contact our after-sales service.*

#### **NOTICE**

**Risk of damage to the facing of the seat and plug due to incorrect servicing.**

- *Always replace both the seat and plug.*



#### **Tip**

*When replacing the seat and plug, SAMSON also recommends replacing the packing (see Chapter 9.4.2).*

#### **a) Standard version**

1. Unscrew the castellated nut (92) and lift the yoke (3) off the flange (2).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Lift the flange (2) and plug with plug stem (5) off the body (1).
4. Replace the gasket (see Chapter 9.4.1)
5. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
6. Unscrew the threaded bushing (8).
7. Pull the plug with plug stem (5) out of the flange (2).
8. Pull the entire packing out of the packing chamber using a suitable tool.
9. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
10. Unscrew the seat (4) using a suitable tool.
11. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
12. Screw in the seat (4). Observe tightening torques.
13. Apply a suitable lubricant to all the packing parts and to the new plug stem (5).



SAMSON recommends replacing the packing as well (see Chapter 9.4.2).

14. Slide the new plug with plug stem (5) into the flange (2).
15. Place the flange (2) together with the plug stem and plug (5) onto the body (1).

**Version with V-port plug:** place the flange (2) onto the valve body, making sure that the largest V-shaped port of the V-port plug faces towards the valve outlet.

**Version with perforated plug:** place the flange (2) onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

See relevant section 'Mounting the actuator onto the valve' in the 'Installation' chapter.

16. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-3).
17. Firmly press the plug (5) into the seat (4). Fasten down the flange (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
18. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
19. Place yoke (3) on the flange (2) and fasten using the castellated nut (92).
20. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

## b) Version with insulating section

1. Unscrew the castellated nut (92) and lift the yoke (3) off the insulating section (21).
2. Undo the body nuts (14) gradually in a crisscross pattern.
3. Lift the insulating section (21) together with the plug stem and plug (5) off the body (1).
4. Replace the gasket (see Chapter 9.4.1)
5. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem (5).
6. Unscrew the threaded bushing (8).
7. Pull the plug with plug stem (5) out of the insulating section (21).
8. Pull the entire packing out of the packing chamber using a suitable tool.
9. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
10. Unscrew the seat (4) using a suitable tool.
11. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
12. Screw in the seat (4). Observe tightening torques.
13. Apply a suitable lubricant to all the packing parts and to the new plug stem (5). SAMSON recommends replacing the packing as well (see Chapter 9.4.2).
14. Slide the new plug with plug stem (5) into the insulating section (21).

15. Place the insulating section (21) together with the plug stem and plug (5) onto the body (1).

**Version with V-port plug:** place the insulating section (21) onto the valve body, making sure that the largest V-shaped part of the V-port plug faces towards the valve outlet.

**Version with perforated plug:** place the insulating section (21) onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

See relevant section 'Mounting the actuator onto the valve' in the 'Installation' chapter.

16. Carefully slide the packing parts over the plug stem extension into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-3).
17. Firmly press the plug (5) into the seat (4). Fasten down the insulating section (21) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
18. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
19. Place yoke (3) onto the insulating section (21) and fasten using the castellated nut (92).
20. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

## 9.5 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 Appendix 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.

## 10 Decommissioning

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

### **⚠ DANGER**

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

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

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

Before working on the control valve:

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

### **⚠ 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.

### **⚠ WARNING**

**Risk of personal injury due to pressurized components and process medium being discharged.**

- Do not loosen the screw of the test connection while the valve is pressurized.

### **⚠ WARNING**

**Risk of hearing loss or deafness due to loud noise.**

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

- Wear hearing protection when working near the valve.

### **⚠ WARNING**

**Crush hazard arising from actuator and plug stem moving.**

- 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

## Decommissioning

(e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

---

### WARNING

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

While the valve is operating, the actuator, for example, may vent during closed-loop operation or when the valve opens or closes.

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

---

### WARNING

#### **Risk of personal injury due to residual process medium in the valve.**

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

→ Wear protective clothing, safety gloves, respiratory protection and eye protection.

---

To decommission the control valve for service work or to remove it from the pipeline, 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. Release any stored energy.
5. If necessary, allow the pipeline and valve components to cool down.

## 11 Removal

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

### **⚠ 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 warm up to the ambient temperature.
- Wear protective clothing and safety gloves.

### **⚠ WARNING**

#### **Crush hazard arising from actuator and plug stem moving.**

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

### **⚠ WARNING**

#### **Risk of personal injury due to residual process medium in the valve.**

While working on the valve, residual medium can flow out of the valve and, depending on its properties, cause personal injury, e.g. (chemical) burns.

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

### **⚠ WARNING**

#### **Risk of personal injury due to preloaded springs.**

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

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

### **⚠ WARNING**

#### **Risk of personal injury due to incorrect removal of the anti-rotation fixture under tension.**

Once the actuator has been mounted on the valve and the assembly is ready for use, the clamps (301) of the anti-rotation fixture on the plug stem are under tension.

- Follow the instructions in this document during mounting or removal.
- Do not loosen the screws (303) of the anti-rotation fixture while the force generated by the supply air and/or the actuator

## Removal

*springs is transmitted to the actuator stem and the stem (9).*

- *First remove the actuator from the valve or ensure it cannot transmit any forces to the actuator stem before removing the anti-rotation fixture on the plug stem.*
- 

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

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

### 11.1 Removing the valve from the pipeline

#### a) Version with flanges

1. Support the valve to hold it in place when separated from the pipeline (see the 'Shipment and on-site transport' chapter).
2. Unbolt the flange joint.
3. Remove the valve from the pipeline (see the 'Shipment and on-site transport' chapter).

#### b) Version with welding ends

1. Support the valve to hold it in place when separated from the pipeline (see the 'Shipment and on-site transport' chapter).
2. Cut the pipeline in front of the weld seam.

3. Remove the valve from the pipeline (see the 'Shipment and on-site transport' chapter).

### 11.2 Removing the actuator from the valve

See associated actuator documentation.

## 12 Repairs

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

### ! NOTICE

**Risk of valve damage due to incorrect service or repair work.**

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

### 12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models
  - ▶ [www.samsongroup.com](http://www.samsongroup.com) > Service > After-sales Service > Returning goods.
2. Send an e-mail
  - ▶ [returns-de@samsongroup.com](mailto:returns-de@samsongroup.com) to register the return shipment including the following information:
    - Type
    - Article number
    - Configuration ID
    - Original order

- Completed Declaration on Contamination, which can be downloaded from our website at
  - ▶ [www.samsongroup.com](http://www.samsongroup.com) > Service > After-sales Service > Returning goods.

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

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

### i Note

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

- ▶ [www.samsongroup.com](http://www.samsongroup.com) > Service > After-sales Service.





## 13 Disposal



SAMSON is a producer registered at the following European institution  
 ► <https://www.ewrn.org/national-registers/national-registers>.  
 WEEE reg. no.: DE 62194439/  
 FR 02566

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

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### **i** Note

*We can provide you with a recycling passport according to PAS 1049<sup>1)</sup> on request. Simply e-mail us at [offersaleservice@samsongroup.com](mailto:offersaleservice@samsongroup.com) giving details of your company address.*

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### Tip

*On request, we can appoint a service provider to dismantle and recycle the product as part of a distributor take-back scheme.*

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<sup>1)</sup> PAS 1049 is relevant to electrical and electronic equipment (e.g. electric actuators). This PAS specification does not apply to non-electrical equipment.



## 14 Certificates

The certificates shown were up to date at the time of publishing. The latest certificates can be found on our website:

► [www.samsongroup.com](http://www.samsongroup.com) > *Products* > *Valves* > *3251*

Other optional certificates are available on request.

### 14.1 Certificates for Type 3251

These declarations of conformity for the Type 3251 Valve are included on the next pages:

- Declaration of conformity in compliance with the 2008 Regulations No. 1597 Supply of Machinery (Safety) Regulations 2008:
  - Final machinery, see page 14-10
  - Partly completed machinery, see page 14-11
- Declaration of conformity in compliance with the requirements in TSG D7002-2006 for Chinese pressure equipment on page 14-12
- Declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU:
  - Country of origin: Germany, see page 14-2
  - Country of origin: France, see page 14-3 to 14-6
- Declaration of conformity in compliance with Machinery Directive 2006/42/EC for Types 3251-1 and 3251-7 Control Valves on page 14-7
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for the Type 3251 Valve with other actuators other than Types 3271 and 3277 Actuators on page 14-8
- Declaration of conformity in compliance with the 2016 Regulations No. 1105 Pressure Equipment (Safety) Regulations 2016, see page 14-9

# EU DECLARATION OF CONFORMITY TRANSLATION



## Module H / N° CE-0062-PED-H-SAM 001-22-DEU-rev-A

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

Devices	Series	Type	Version
Globe valve	240	3241	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Three-way valve	240	3244	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Cryogenic valve	240	3248	EN/ANSI, all fluids
Globe valve	250	3251	EN/ANSI, all fluids
Globe valve	250	3251-E	EN/ANSI, all fluids
Three-way valve	250	3253	EN/ANSI, body of steel, etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Split-body valve	250	3258	EN, all fluids
Angle valve (IG standards)	250	3259	EN, all fluids
Globe valve	V2001	3321	EN, body of steel, etc., all fluids ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel, etc., all fluids ANSI, all fluids
Angle seat valve	---	3353	EN, body of steel, etc., all fluids
Silencer	3381	3381-1	EN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	EN/ANSI, all fluids
		3381-4	EN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Globe valve	240	3241	ANSI, body of gray cast iron, Class 125, from NPS 5, fluids G2, L1, L2 <sup>1)</sup>
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, body of gray cast iron from DN200 PN16, fluids G2, L1, L2 <sup>1)</sup>
Globe valve	290	3291	ANSI, all fluids
Angle valve	290	3296	ANSI, all fluids
Cryogenic valve	---	3588	ANSI, up to NPS 6, Class 600, all fluids
Globe valve	590	3591	ANSI, all fluids
Angle valve	590	3596	ANSI, all fluids
Cryogenic valve	590	3598	ANSI, NPS 3 to NPS 6, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids
Globe valve	SMS	241GR	EN/ANSI, all fluids
Globe valve	SMS	251GR	EN/ANSI, all fluids

<sup>1)</sup> Gases according to Article 4(1)(c.i), second indent  
Liquids according to Article 4(1)(c.ii)

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

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment	2014/68/EU	of 15 May 2014
Applied conformity assessment procedure for fluids according to Article 4(1)	Module H	Certificate-No.: CE N°CE-0062-PED-H-SAM 001-22-DEU-rev-A by Bureau Veritas 0062

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

Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE

Applied harmonised standards and technical specifications: EN 12516-2, EN 12516-3, EN 12286-1, ASME B16.34

Manufacturer: SAMSON AKTIENGESELLSCHAFT, Weismüllerstrasse 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, November 21, 2023

Dr. Andreas Wild  
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter  
Chief Technology Officer (CTO)

Revision 11

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstrasse 3 · 60314 Frankfurt am Main, Germany

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## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

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### Module H / Modul H, N° / Nr CE-0062-PED-H-SAM 001-23-FRA

**DC012  
2023-06**

Par la présente, SAMSON REGULATION SAS déclare sous sa seule responsabilité pour les produits suivants :  
For the following products, SAMSON REGULATION SAS hereby declares under its sole responsibility:

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne de régulation passage droit / globe valve	3241	DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	PN 16	DN 150	G2, L1, L2 1)
		ANSI		CI 125	NPS 6	
		DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100 – 150	
		DIN	Acier / steel	PN10	DN 125 – 150	Tous fluides / all fluids
				PN25	DN 65 – 150	
ANSI	Acier / steel	PN40	DN 50 – 150			
		CI 150	DN 32 – 150			
CI 300	NPS 2 1/2 – 6	NPS 1 1/2 – 6				
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Fonte grise / cast iron	PN 16	DN 150	G2, L1, L2 1)
		DIN	Acier / steel	PN10	DN 125 – 150	
				PN16	DN 65 – 150	
		ANSI	Acier / steel	PN25	DN 50 – 150	
PN40	DN 32 – 150					
CI 150	NPS 2 1/2 – 6	NPS 1 1/2 – 6				
Vanne de régulation passage droit / globe valve	3251	DIN	Acier / steel	PN16	DN 65 – 150	Tous fluides / all fluids
		ANSI		PN25	DN 50 – 150	
Vanne haute pression / High pressure valve	3252	DIN	Acier / steel	PN40 – 400	DN 32 – 80	Tous fluides / all fluids
		ANSI		CI 300	NPS 1 1/2 – 6	
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN40 – 400	DN 32 – 80	Tous fluides / all fluids
		ANSI		CI 300 – 2500	NPS 1 1/2 – 3	
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN16	DN 65 – 150	Tous fluides / all fluids
		ANSI		PN40 – 400	DN 32 – 150	
Vanne de régulation passage droit / globe valve	3321	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 1)
		DIN	Acier / steel	PN16	DN 65 – 100	
ANSI	PN40	DN 32 – 100				
Vanne de régulation 3 voies / 3-way Valve	3323	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 1)
		DIN	Acier / steel	PN16	DN 65 – 100	
ANSI	PN40	DN 32 – 100				
Vanne papillon / Butterfly valve	3331	DIN	Acier / steel	CI 150	NPS 2 1/2 – 4	Tous fluides / all fluids
		ANSI		CI 300	NPS 1 1/2 – 4	
Vanne à membrane / Diaphragm valve	3345	ANSI	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	P <sub>max</sub> T= 70°F 150 psi	NPS 5 – 6	G2, L1, L2 1)
			Acier / steel	P <sub>max</sub> T= 20°F 230 psi	NPS 6	
Vanne à membrane / Diaphragm valve	3345	ANSI	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	P <sub>max</sub> T= 70°F 150 - 230 psi	NPS 2 1/2 – 6	Tous fluides / all fluids
			Acier / steel	P <sub>max</sub> T= 20°F 230 psi	NPS 2 1/2 – 6	



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Module H / Modul H, N°/ Nr CE-0062-PED-H-SAM 001-23-FRA

DC012  
2023-06

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	P <sub>max</sub> T = 20°C 16 bar P <sub>max</sub> T = 20°C 40 bar P <sub>max</sub> T = 20°C 63 bar	DN 150 DN 65 – 150 DN 32 – 150	G2, L1, L2 <sup>1)</sup>
		ANSI		P <sub>max</sub> T = 70°F 230 psi P <sub>max</sub> T = 70°F 580 psi P <sub>max</sub> T = 70°F 910 psi	NPS 6 NPS 2 1/2 – 6 NPS 1 1/2 – 6	
Vanne Tout ou Rien / On-Off Valve	3351	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 <sup>1)</sup>
		DIN	Acier / steel	PN16 PN25 PN40	DN 65 – 100 DN 50 – 100 DN 32 – 100	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 2 1/2 – 4 NPS 1 1/2 – 4	
Bride de mesure / Measure flange	5090	DIN	Acier / steel	PN10	DN 400 – 500	G2, L2 <sup>1)</sup>
				PN16	DN 250 – 500	
				PN25	DN 150 – 500	
				PN40	DN 125 – 500	

<sup>1)</sup> Gas selon l'article 4 § 1.c) i) / Gases Acc. to article 4 paragraph 1.c) i)  
Liquide selon l'article 4 § 1.c) ii) / Liquids Acc. to article 4 paragraph 1.c) ii)

la conformité avec le règlement suivant : / the conformity with the following requirement:

La Directive du Parlement Européen et du Conseil d'harmonisation des lois des Etats Membres concernant la mise à disposition sur le marché d'équipements sous pression / Directive of the European Parliament and of the Council on the Harmonization of the laws of the Member States relating of the making available on the market of pressure equipment	2014/68/UE 2014/68/UE	Du 15.05.2014
Procédure d'évaluation de la conformité appliquée pour les fluides selon l'Article 4 § 1 Applied conformity assessment procedure for fluids according to Article 4 § 1	Module H / Modul H	Certificat n° CE-0062-PED-H-SAM 001-23-FRA

Normes techniques appliquées / Technical standards applied :  
DIN EN 12516-2, DIN EN 12516-3, ASME B16.34, DIN-EN 60534-4, DIN-EN 1092-1

Le système de contrôle Qualité du fabricant est effectué par l'organisme de certification suivant :  
The manufacturer's quality management system is monitored by the following notified body:

**Bureau Veritas Services SAS N°/Nr 0062, 8 Cours du Triangle, 92800 PUTEAUX - LA DEFENSE**  
**Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN**

Vaulx-en-Velin, le 19/06/23

Bruno Soulas  
Directeur Général – Directeur Stratégie et Développement /  
Director general - Head of Strategy and Development

Joséphine Signoles-Fontaine  
Responsable du service QSE / Head of QSE department



## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

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### Module A / Modul A

**DC014**  
**2022-05**

Par la présente, SAMSON REGULATION SAS déclare sous sa seule responsabilité pour les produits suivants :  
For the following products, SAMSON REGULATION SAS hereby declares under its sole responsibility:

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne de décharge / Back pressure reducing valve	2371-0	DIN	Acier / steel	$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 50	Tous fluides / all fluids
		ANSI		$P_{max} T = 70^{\circ}F$ 150 psi	NPS 1 1/2 – 2	
Détendeur alimenta- taire / Pressure reducing valve	2371-1	DIN		$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 50	Tous fluides / all fluids
		ANSI		$P_{max} T = 70^{\circ}F$ 150 psi	NPS 1 1/2 – 2	
Vanne de régulation passage droit / Globe valve	2423	à membrane with diaphragm	Fonte grise / cast iron	PN25	DN 65 - 125	G2 / L2 <sup>1)</sup>
		à soufflet with bellow	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 - 125	
			Acier / steel	PN16 PN25 PN40	DN 50 - 100 DN 50 - 100 DN 40 - 100	
Vanne de régulation passage droit / Globe valve	3241	DIN	Fonte grise / cast iron	PN10	DN 125 – 150	G2, L1, L2 <sup>1)</sup>
		DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	PN16	DN 65 – 125	
		DIN	Fonte sphéroïdale / spheroidal graphite	PN 25	DN 50 - 80	
	ANSI	Fonte grise / cast iron	CI 125 CI 250	NPS 2 1/2 - 4 NPS 1 1/2 - 2	Tous fluides / all fluids	
		DIN	Acier / steel	PN10 PN16 PN25		DN 32 – 100 DN 32 – 50 DN 32 - 40
		ANSI		CI 150		NPS 1 1/2 - 2
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Fonte grise / cast iron	PN10 PN16	DN 125 – 150 DN 65 – 125	G2, L1, L2 <sup>1)</sup>
		DIN	Acier / steel	PN10 PN16 PN25	DN 32 – 100 DN 32 – 50 DN 32 - 40	
		ANSI		CI 150	NPS 1 1/2 - 2	
Vanne de régulation passage droit / Globe valve	3251	DIN	Acier / steel	PN16 PN25	DN 32 – 50 DN 32 – 40	Tous fluides / all fluids
		ANSI		CI 150	NPS 1 1/2 - 2	
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN16	DN 32 – 50	Tous fluides / all fluids
		ANSI		CI 150	NPS 1 1/2 - 2	
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN10 PN16 PN25	DN 40 – 50 DN 40 – 100 DN 40 - 40	Tous fluides / all fluids
		ANSI		CI 150	NPS 1 1/2 - 2	
Vanne de régulation passage droit / Globe valve	3321	DIN	Fonte grise / cast iron	PN16	DN 65 – 100	G2, L1, L2 <sup>1)</sup>
		ANSI		CI 125	NPS 2 1/2 - 4	
		DIN	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 80	
Vanne de régulation 3 voies / 3-way Valve	3323	ANSI	Acier / steel	CI 150	NPS 1 1/2 - 2	Tous fluides / all fluids
		DIN	Fonte grise / cast iron : GJL-250	PN16	DN 65 – 100	
Vanne papillon / Butterfly valve	3331	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 80	G2, L1, L2 <sup>1)</sup>
			Acier / steel	PN10	DN 100	
Vanne à membrane / Diaphragm valve	3345	DIN	Acier / steel	$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 100	Tous fluides / all fluids
		ANSI		$P_{max} T = 20^{\circ}C$ 16 bar	DN 32 – 50	
		DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	$P_{max} T = 70^{\circ}F$ 150 psi or 230 psi	NPS 1 1/2 – 2	
				$P_{max} T = 20^{\circ}C$ 40 bar	DN 125 – 150 DN 65 – 125 DN 40 – 50	
ANSI		$P_{max} T = 70^{\circ}F$ 150 psi $P_{max} T = 70^{\circ}F$ 230 psi	NPS 2 1/2 – 4 NPS 2 1/2 – 5	G2, L1, L2 <sup>1)</sup>		
		$P_{max} T = 70^{\circ}F$ 580 psi	NPS 1 1/2 – 2			



## DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

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**DC014  
2022-05**

### Module A / Modul A

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	$P_{max} T = 20^{\circ}C$ 10 bar	DN 125 – 150	G2, L1, L2 <sup>1)</sup>
		ANSI		$P_{max} T = 70^{\circ}F$ 150 psi	NPS 5 – 6	
Vanne aseptique / Aseptic valve	3349	DIN	Acier / steel	$P_{max} T = 20^{\circ}C$ 10 bar	DN 32 – 100	Tous fluides / all fluids
		ANSI		$P_{max} T = 20^{\circ}C$ 16 bar $P_{max} T = 20^{\circ}C$ 25 bar	DN 32 – 50 DN 32 – 40	
Vanne Tout ou Rien / On-Off Valve	3351	DIN	Acier / steel	PN16	NPS 1 1/4 – 4	Tous fluides / all fluids
		ANSI		CI 150	NPS 1 1/2 – 1 1/2	
		DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	PN16	DN 65 – 100	G2, L1, L2 <sup>1)</sup>
		ANSI	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 80	
Bride de mesure / Measure flange	5090	DIN	Acier / steel	CI 125	NPS 2 1/2 – 4	G2, L2 <sup>1)</sup>
				PN6 PN10 PN16 PN25 PN40	DN 200 – 500 DN 125 – 350 DN 65 – 200 DN 50 – 125 DN 40 – 100	

<sup>1)</sup> Gas selon l'article 4 § 1.c) i) / Gases Acc. to article 4 paragraphs 1.c) i)  
Liquide selon l'article 4 § 1.c) ii) / Liquids Acc. to article 4 paragraphs 1.c) ii)

la conformité avec le règlement suivant : / the conformity with the following requirement :

La Directive du Parlement Européen et du Conseil d'harmonisation des lois des Etats Membres concernant la mise à disposition sur le marché d'équipements sous pression / Directive of the European Parliament and of the Council on the Harmonization of the laws of the Member States relating of the making available on the market of pressure equipment	2014/68/UE 2014/68/EU	Du / of 15.05.2014
Procédure d'évaluation de la conformité appliquée pour les fluides selon l'Article 4 § 1 Applied conformity assessment procedure for fluids according to Article 4 § 1	Module A / Modul A	

Normes techniques appliquées / Technical standards applied :  
DIN EN 12516-2, DIN EN 12516-3, ASME B16.34, DIN-EN 60534-4, DIN-EN 1092-1

Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN

Vaulx-en-Velin, le 23/05/22

Bruno Soulas  
Directeur Stratégie et Développement / Head of Strategy and Development

Joséphine Signoles-Fontaine  
Responsable du service QSE / Head of QSE Department



# EU DECLARATION OF CONFORMITY TRANSLATION



## Declaration of Conformity of Final Machinery

in accordance with Annex II, section 1.A. of the Directive 2006/42/EC

For the following products:

**Types 3251-1/3251-AM-1 and 3251-7/3251-AM-7 Pneumatic Control Valves consisting of the Type 3251/3251-AM Valve and Type 3271/Type 3277 Pneumatic Actuator**

We hereby declare that the machinery mentioned above complies with all applicable requirements stipulated in Machinery Directive 2006/42/EC.

For product descriptions of the valve and actuator, refer to:

- Type 3251/3251-AM Valve (DIN): Mounting and Operating Instructions EB 8051
- Type 3251/3251-AM Valve (ANSI): Mounting and Operating Instructions EB 8052
- Types 3271 and 3277 Actuators: Mounting and Operating Instructions EB 8310-X

Valve accessories (e.g. positioners, limit switches, solenoid valves, lock-up valves, supply pressure regulators, volume boosters and quick exhaust valves) are classified as machinery components in this declaration of conformity and do not fall within the scope of the Machinery Directive as specified in § 35 and § 46 of the Guide to Application of the Machinery Directive 2006/42/EC issued by the European Commission. In the SAMSON Manual H 02 titled "Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery", SAMSON defines the specifications and properties of appropriate machinery components that can be mounted onto the above specified final machinery.

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

Comment:

Information on residual risks of the machinery can be found in the mounting and operating instructions of the valve and actuator as well as in the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 9 January 2024

Norbert Tollas  
Senior Vice President  
Global Operations

Peter Scheermesser  
Director  
Product Maintenance & Engineered Products

Revision no. 02

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt, Germany

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# DECLARATION OF INCORPORATION

TRANSLATION



## Declaration of Incorporation in Compliance with Machinery Directive 2006/42/EC

For the following products:

### Type 3251/3251-AM Globe Valve

We certify that the Type 3251/3251-AM Globe Valves are partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

Products we supply must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC.

Operators are obliged to install the products observing the accepted industry codes and practices (good engineering practice) as well as the mounting and operating instructions. Operators must take appropriate precautions to prevent hazards that could be caused by the process medium and operating pressure in the valve as well as by the signal pressure and moving parts.

The permissible limits of application and mounting instructions for the products are specified in the associated data sheets as well as the mounting and operating instructions; the documents are available in electronic form on the Internet at [www.samsongroup.com](http://www.samsongroup.com).

For product descriptions of the valve, refer to:

- Type 3251/3251-AM Valve (DIN): Mounting and Operating Instructions EB 8051
- Type 3251/3251-AM Valve (ANSI): Mounting and Operating Instructions EB 8052

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, May 2018 [German only]
- VCI, VDMA, VGB: Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen“ vom Mai 2018 [German only], based on DIN EN ISO 12100:2011-03

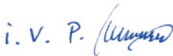
Comments:

- See mounting and operating instructions for residual hazards.
- Also observe the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 9 January 2024

  
\_\_\_\_\_  
Stephan Giesen  
Director  
Product Management

  
\_\_\_\_\_  
i. V. P. Peter Scheermesser  
Director  
Product Maintenance & Engineered Products

Revision no. 01

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**The Pressure Equipment (Safety) Regulations 2016 Module H / N° CE-0062-PED-H-SAM 001-22-DEU**

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

Devices	Series	Type	Version
Globe valve	240	3241	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Three-way valve	240	3244	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 <sup>1)</sup> EN/ANSI, body of steel, etc., all fluids
Cryogenic valve	240	3248	EN/ANSI, all fluids
Globe valve	250	3251	EN/ANSI, all fluids
Globe valve	250	3251-E	EN/ANSI, all fluids
Three-way valve	250	3253	EN/ANSI, body of steel, etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Split-body valve	250	3258	EN, all fluids
Angle valve (IG standards)	250	3259	EN, all fluids
Steam-converting valve	280	3281	EN/ANSI, all fluids
		3284	EN/ANSI, all fluids
		3286	EN/ANSI, all fluids
		3288	EN, all fluids
Globe valve	V2001	3321	EN, body of steel, etc., all fluids ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel, etc., all fluids ANSI, all fluids
Angle seat valve	---	3353	EN, body of steel, etc., all fluids
Silencer	3381	3381-1	EN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	EN/ANSI, all fluids
		3381-4	EN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Globe valve	240	3241	ANSI, body of gray cast iron, Class 125, from NPS 5, fluids G2, L1, L2 <sup>1)</sup>
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, body of gray cast iron from DN200 PN16, fluids G2, L1, L2 <sup>1)</sup>
Globe valve	290	3291	ANSI, all fluids
Angle valve	290	3296	ANSI, all fluids
Cryogenic valve	---	3598	ANSI, up to NPS 6, Class 600, all fluids
Globe valve	590	3591	ANSI, all fluids
Angle valve	590	3596	ANSI, all fluids
Cryogenic valve	590	3598	ANSI, NPS 3 to NPS 8, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids

<sup>1)</sup> Gases according to Article 4(1)(c.i), second indent // Liquids according to Article 4(1)(c.ii) acc. to PE(S)R 2016

that the object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Legislation: STATUTORY INSTRUMENTS - 2016 No. 1105 - CONSUMER PROTECTION HEALTH AND SAFETY - The Pressure Equipment (Safety) Regulations 2016	PE(S)R 2016	2022
Applied conformity assessment procedure for fluids according to Article 4(1)	Module H	Certificate-No.: N° CE-0062-PED-H-SAM 001-22-DEU by Bureau Veritas 0062

The manufacturer's quality management system is monitored by the following notified body:  
Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE (No. 0062)  
Applied designated standards and technical specifications: EN 12516-2, EN 12516-3, EN 12266-1, ASME B16.34

Manufacturer: SAMSON AKTIENGESELLSCHAFT, Weismüllerstrasse 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 16<sup>th</sup> November 2022

Dr. Andreas Widl  
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter  
Chief Technology Officer (CTO)

Revision 00

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstrasse 3 · 60314 Frankfurt am Main, Germany

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### Declaration of Conformity of Final Machinery

in accordance with Schedule 2 Part 2 Annex II, section 1.A. of the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008

For the following products:

#### **Types 3241-1/-7 Pneumatic Control Valves consisting of the Type 3241 Valve and Type 3271/Type 3277 Pneumatic Actuator**

We hereby declare that the machinery mentioned above complies with all applicable requirements stipulated in Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008.

For product descriptions of the valve and actuator, refer to:

- Type 3241 Valve (DIN): Mounting and Operating Instructions EB 8015
- Type 3241 Valve (ANSI): Mounting and Operating Instructions EB 8012
- Types 3271 and 3277 Actuators: Mounting and Operating Instructions EB 8310-X

Valve accessories (e.g. positioners, limit switches, solenoid valves, lock-up valves, supply pressure regulators, volume boosters and quick exhaust valves) are classified as machinery components in this declaration of conformity. Machinery components can be mounted onto the above specified final machinery if they comply with the specifications and properties defined by SAMSON Manual H 02 "Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery".

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

Comment:

Information on residual risks of the machinery can be found in the mounting and operating instructions of the valve and actuator as well as in the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 13 December 2021

i.V. Stephan Giesen  
Director  
Product Management

i.V. Peter Scheermesser  
Director  
Product Life Cycle Management and ETO  
Development for Valves and Actuators

Revision 00



### Declaration of Incorporation of Partly Completed Machinery

in accordance with Schedule 2 Part 2 Annex II, section 1.B. of the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008

For the following product:

#### Type 3241 Globe Valve

We certify that the Type 3241 Globe Valves are partly completed machinery as defined in the in Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008 and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, (Part 7 of Schedule 2) part B has been compiled.

Products we supply must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008.

Operators are obliged to install the products observing the accepted industry codes and practices (good engineering practice) as well as the mounting and operating instructions. Operators must take appropriate precautions to prevent hazards that could be caused by the process medium and operating pressure in the valve as well as by the signal pressure and moving parts.

The permissible limits of application and mounting instructions for the products are specified in the associated mounting and operating instructions; the documents are available in electronic form on the Internet at [www.samsongroup.com](http://www.samsongroup.com).

For product descriptions refer to:

- Type 3241 Valve (DIN): Mounting and Operating Instructions EB 8015
- Type 3241 Valve (ANSI): Mounting and Operating Instructions EB 8012

Referenced technical standards and/or specifications:

- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

Comments:

- See mounting and operating instructions for residual hazards.
- Also observe the referenced documents listed in the mounting and operating instructions.

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany  
Frankfurt am Main, 13 December 2021

Stephan Giesen  
Director  
Product Management

Peter Scheermesser  
Director  
Product Life Cycle Management and ETO  
Development for Valves and Actuators

Revision 00



## KONFORMITÄTSERKLÄRUNG

Für folgende Produkte

**Stellventile Typ 3241, 3244, 3249, 3251, 3252, 3256, 3347, 3321, 3349**

**DC016**

**2019-08**

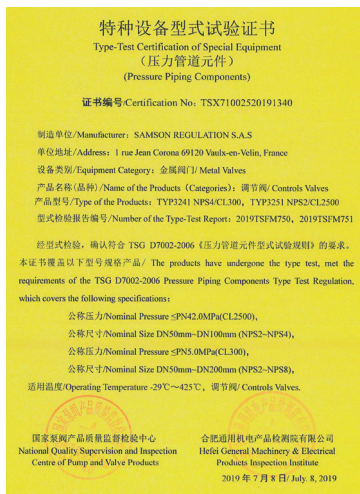
**Zeugnis Nr.: TSX71002520191340**

**Bewertungsberichte Nr.: 2019TSFM750-TYP3241  
und 2019TSFM751-TYP3251**

Die Ventile 3241 und 3251 haben die Bewertungstests gemäß den Anforderungen der chinesischen Druckgeräte TSG D7002-2006 bestanden.

Infolgedessen erfüllen alle oben genannten Rückschlagventile die Anforderungen der TSG D7002-2006 für chinesische Druckgeräte gemäß den folgenden Merkmalen:

- DN 50 bis 200 PN ≤ 5 MPa (50 bar) oder NPS 2 bis NPS 8 Class ≤ 300,
- DN 50 bis 100 PN ≤ 42 MPa (420 bar) oder NPS 2 bis NPS 4 Class ≤ 2500,
- Betriebstemperatur: -29°C ≤ T ≤ 425°C.



SAMSON REGULATION S.A.

Bruno Soulas  
Leiter Verwaltung

SAMSON REGULATION S.A.

Joséphine Signoles-Fontaine  
Qualitätsmanager

## 14.2 Certificates for Type 3251-AM

These declarations of conformity for the Type 3251-AM Valve are included on the listed pages:

- Declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU on page .14-14
- Declaration of conformity in compliance with Machinery Directive 2006/42/EC for Types 3251-AM-1 and 3251-AM-7 Control Valves on page 14-7
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for the Type 3251-AM Valve with other actuators other than Types 3271 and 3277 Actuators on page 14-8

# EU-KONFORMITÄTSERKLÄRUNG ORIGINAL



## Modul H / Zertifikat-Nr.: DGR-0036-QS-1430-23

SAMSON erklärt in alleiniger Verantwortung als Hersteller für additiv gefertigte Produkte:

Geräte	Bauart	Typ	Ausführung, Erläuterung
Durchgangsventil	250	3251-AM	EN/ANSI, bis DN 100/NPS 4, bis PN 400/Class 2500, alle Fluide  Werkstoff, additiv gefertigt: SPBF 4401/4404/316/316 (wie gedruckt); SPBF AT 4401/4404/316/316L (lösungsgeglüht)  Temperaturbereich -196...+450 °C  Tieftemperaturen gemäß: ASME B31.3 bis -254 °C EN 10222-5 bis -196 °C

die Konformität mit nachfolgender Anforderung:

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt	2014/68/EU	vom 15. Mai 2014
Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs. 1, Gase nach Artikel 4 Absatz 1 Buchstabe c Ziffer i, Flüssigkeiten nach Artikel 4 Absatz 1 Buchstabe c Ziffer ii	Anhang III Modul H	Zertifikat-Nr.: DGR-0036-QS-1430-23 durch TÜV SÜD 0036 gültig bis: 28.11.2026

Das Qualitätssicherungssystem des Herstellers wird von folgender notifizierter Stelle überprüft:


TÜV SÜD Industrie Service GmbH  
Westendstraße 199  
80686 München  
Germany


Angewandte harmonisierte Normen und technische Standards:

DIN EN 16668:2018-05, DIN/TS 17026:2020-10 (prEN 13445-14);  
DIN EN 12516-2:2022-08, DIN EN 12266-1:2012-06, ASME B16.34-2020;  
Druck/Temperatur-Zuordnungen entsprechend DIN EN 1092-1:2018-12 oder ASME B16.34:2020;

Hersteller: SAMSON AKTIENGESELLSCHAFT, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany

Frankfurt am Main, 08. März 2024

  
ppb. Norbert Tollas  
Senior Vice President  
Global Operations

  
i.V. Peter Scheermesser  
Director  
Product Maintenance & Engineered Products

Revision 00

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany

Seite 1 von 1



## 15 Appendix

### 15.1 Tightening torques, lubricants and tools

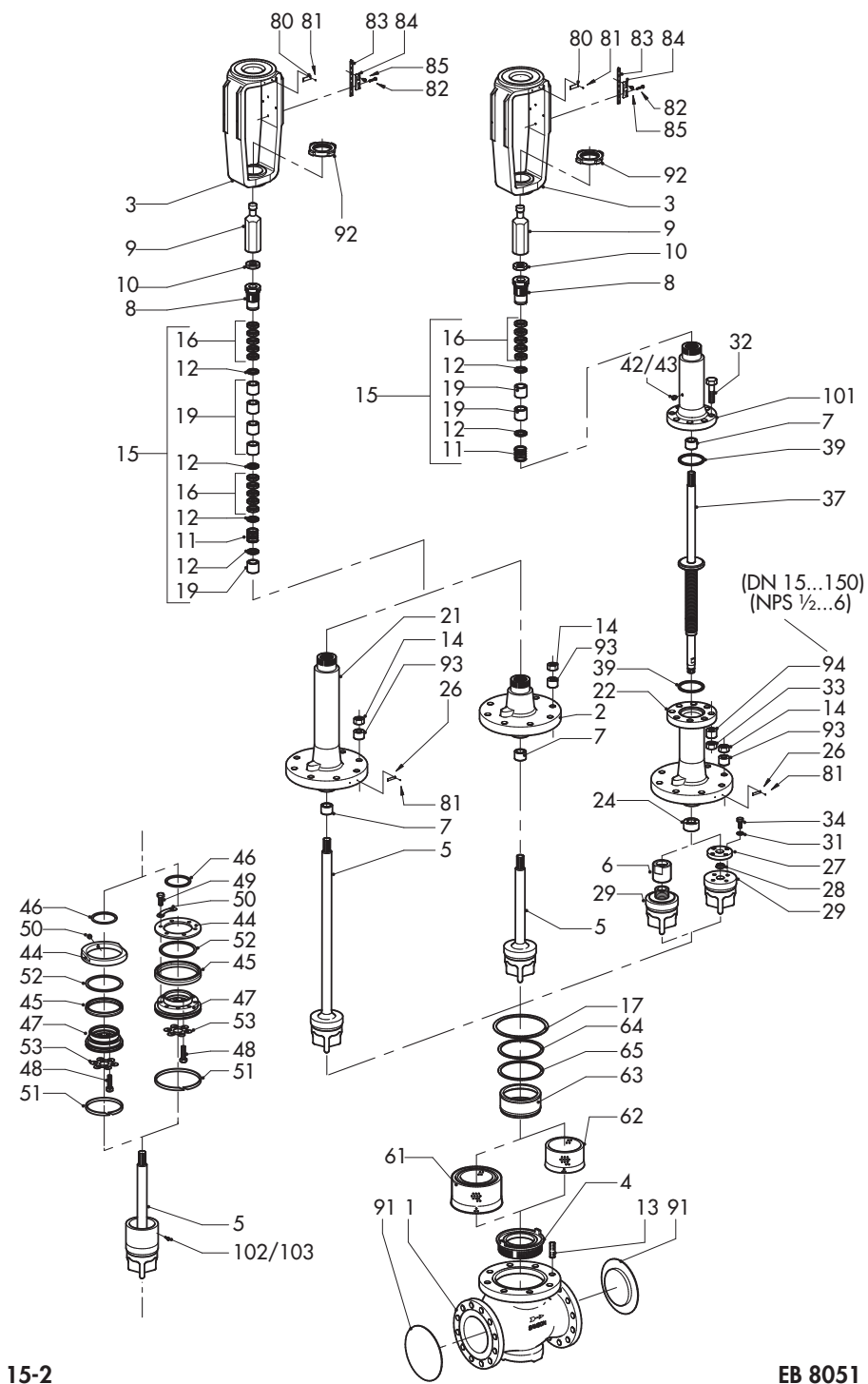
► AB 0100 for tools, tightening torques and lubricants

### 15.2 Spare parts

1 Body/body with integrated seat	27/28 Fastening parts	63 Ring <sup>2)</sup>
2 Flange	31/34	64 Gasket <sup>2)</sup>
3 Yoke	29 Plug for version with bellows seal	65 Gasket <sup>2)</sup>
4 Seat (body version with screwed-in seat)	30 Retaining washers	80 Nameplate
5 Plug	32 Bolt	81 Grooved pin
6 Bellows nut	33 Nut	82 Screw
7 Guide bushing	37 Plug stem with metal bellows	83 Hanger
8 Threaded bushing (packing nut)	39 Gasket	84 Travel indicator scale
9 Stem connector nut	42/43 Screw plug with seal	85 Screw
10 Lock nut	44 Ring/ring nut <sup>1)</sup>	91 Protective caps
11 Spring	45 Packing ring <sup>1)</sup>	92 Castellated nut
12 Washer	46 Gasket <sup>1)</sup>	93 Expansion sleeve
13 Stud bolt	47 Support <sup>1)</sup>	94 Expansion sleeve
14 Body nut	48 Hex screw <sup>1)</sup>	101 Bellows bonnet
15 Packing (adjustable)	49 Hex screw <sup>1)</sup>	102/ Screw with snap ring <sup>1)</sup>
16 Packing	50 Lock <sup>1)</sup>	103 (only for version with bellows seal)
17 Body gasket	51 Guide <sup>1)</sup> (several guides only for version with graphite seal)	
19 Bushing	52 Ring <sup>1)</sup> (only for version with graphite seal)	
21 Insulating section	53 Snap ring <sup>1)</sup>	
22 Bellows seal	61 Flow divider ST 2 <sup>2)</sup>	
24 Guide bushing	62 Flow divider ST 1 or ST 3 <sup>2)</sup>	

<sup>1)</sup> Version with balanced valve plug

<sup>2)</sup> Version with flow divider



### 15.3 After-sales service

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

#### E-mail contact

You can reach our after-sales service at [aftersalesservice@samsongroup.com](mailto:aftersalesservice@samsongroup.com).

#### Addresses of SAMSON AG and its subsidiaries

The addresses of SAMSON AG, its subsidiaries, representatives and service facilities worldwide can be found on our website ([www.samsongroup.com](http://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 m<sup>3</sup>/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

### 15.4 Information on the UK sales region

The following information corresponds to the 2016 Regulations No. 1105 Pressure Equipment (Safety) Regulations 2016, STATUTORY INSTRUMENTS, 2016 No. 1105 (UKCA marking). It does not apply to Northern Ireland.

#### Importer

SAMSON Controls Ltd  
Perrywood Business Park  
Honeycrock Lane  
Redhill, Surry RH1 5JQ

Phone: +44 1737 766391

E-mail: [sales-uk@samsongroup.com](mailto:sales-uk@samsongroup.com)

Website: [uk.samsongroup.com](http://uk.samsongroup.com)





**EB 8051 EN**



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