

# MOUNTING AND OPERATING INSTRUCTIONS



## EB 8053 EN

### Translation of original instructions



Type 3252 High-pressure Valve with globe valve body and Type 3277 Actuator,  
Type 3730-2 Positioner and Type 4708-53 Supply Pressure Regulator

### **Type 3252 High-pressure Valve**

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



## Note on these mounting and operating instructions

These mounting and operating instructions (EB) assist you in mounting and operating the device safely. The instructions are binding for handling SAMSON devices. The images shown in this document 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 additional questions not related to the contents of this document, 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:

▶ <https://www.samsongroup.com/en/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*

### **ℹ Note**

*Additional information*

### **💡 Tip**

*Recommended action*

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## 1 Safety instructions and measures

### Intended use

The SAMSON Type 3252 High-pressure 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. It is especially designed for controlling low flow rates in process engineering. The Type 3252 Valve is available as either a globe or angle valve.

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 control valve

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

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

### 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 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 are to 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

SAMSON recommends checking the hazards posed by the process medium being used (e.g. ► GESTIS 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 control valve moves to a certain fail-safe position upon supply air or control signal failure (see Chapter 3.1). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators.

### 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,

## Safety instructions and measures

the signal pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warning and caution notes in these mounting and operating instructions.

Hazards resulting from the special working conditions at the installation site of the valve must be identified in a risk assessment and prevented through the corresponding standard operating procedures 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

The control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU and the European Machinery Directive 2006/42/EC. Valves with a CE marking have a declaration of conformity, which includes information about the applied conformity assessment procedure. Chapter 14 contains this declaration of conformity.

Non-electric valve versions whose bodies are not lined with an insulating material coating do not have their own potential ignition source accord-

ing to the risk assessment stipulated in Clause 5.2 of DIN EN ISO 80079-36, even in the rare incident of an operating fault. Therefore, such valve versions do not fall within the scope of ATEX Directive 2014/34/EU.

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

### Referenced documents

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

- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- Mounting and operating instructions for the mounted actuator, for example:
  - ► EB 8310-X for Type 3271 and Type 3277 Pneumatic Actuators
- Manual ► H 02: Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery
- If a device contains a substance listed as a substance of very high concern (SVHC) on the candidate list of the REACH regulation, the document "Additional Information on Your Inquiry/Order" is added to the SAMSON order documents. This document includes the SCIP number assigned to the devices concerned. This number can be entered into the database on the European Chemicals Agency (ECHA) website (► <https://www.echa.europa.eu/scip-database>) to find out more information on the SVHC contained in the device.  
More information on material compliance at SAMSON can be found at ► [www.samsongroup.com](http://www.samsongroup.com) > About SAMSON > Environment, Social & Governance > Material Compliance

## 1.1 Notes on possible severe personal injury

### DANGER

#### Risk of bursting in pressure equipment.

Control 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 pressure-bearing or pressure-retaining parts belonging to the valve assembly, 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 during operation and cause burn injuries.

- ⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ Allow components and pipelines to cool down or warm up to the ambient temperature.
- ⇒ Wear protective clothing and safety gloves.

### **⚠ 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 elements. Both can damage hearing.

- ⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **Risk of personal injury due to exhaust air being vented or compressed air escaping from pneumatically operated components.**

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is vented from the actuator, for example, while the valve is operating and 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 pneumatic fittings and in the danger zone of the vent openings.

### **⚠ WARNING**

#### **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 pneumatic 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 pressurized components and as a result of process medium being discharged.**

Valves with a bellows seal have a test connection at the top on the intermediate piece.

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

### **⚠ WARNING**

#### **Risk of personal injury due to preloaded springs in pneumatic actuators.**

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON Type 3271 or Type 3277 Pneumatic Actuators can be identified by the long bolts protruding from the bottom of the actuator.

- ⇒ Before starting any work on the actuator, which requires the actuator to be opened, or when the actuator stem has become blocked, 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.

- ⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ 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.

### **⚠ WARNING**

#### **Risk of personal injury due to incorrect operation, use or installation as a result of information on the control valve being illegible.**

Over time, markings, labels and nameplates on the control 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.

### **⚠ WARNING**

#### **Exposure to hazardous substances poses a serious risk to health.**

Certain lubricants and cleaning agents are classified as hazardous substances. These substances have a special label and a material safety data sheet (MSDS) issued by the manufacturer.

- ⇒ Make sure that an MSDS is available for any hazardous substance used. If necessary, contact the manufacturer to obtain an MSDS.
- ⇒ Inform yourself about the hazardous substances and their correct handling.

## 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.

### **ⓘ NOTICE**

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

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

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

### **ⓘ NOTICE**

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

Observe the specified torques when tightening control valve components. Over-torquing leads to parts wearing out more quickly. Under-torquing may cause leakage.

- ⇒ Observe tightening torques.

**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.

**NOTICE**

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

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

⇒ Only use lubricants approved by SAMSON.

**NOTICE**

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

⇒ If necessary (e.g. for oxygen service), 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).

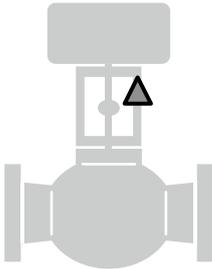
⇒ Observe the explosion protection certificates of the RFID tag when it is to be used on valves installed in potentially explosive atmospheres.

⇒ 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	Location on the device
	
Meaning of the warning	
<p><b>Warning against moving parts</b> 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

### 2.1 Valve nameplate

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

The nameplate is affixed to the valve body.

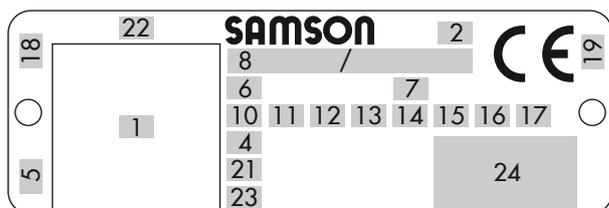


Fig. 1: Inscriptions on the valve nameplate

Item	Inscription meaning
1	Identification code (scannable)
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>KV</b> · ANSI/JIS: <b>CV</b>
11	Characteristic: <b>%</b> : 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
13	Seat code (trim material): On request
14	Pressure balancing: <b>D</b> : DIN · <b>B</b> : ANSI/JIS
	Version: <b>M</b> : Mixing valve <b>V</b> : Diverting valve

Item	Inscription meaning
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 <b>AC-1/AC-2/AC-3/AC-5</b> : Anti-cavitation trim, versions 1 to 5 <b>LK</b> : Perforated plug <b>LK1/LK2/LK3</b> : Perforated plug with flow divider <b>ST 1 to 3</b> <b>MHC1</b> : Multi-Hole Cage <b>CC1</b> : Combi Cage <b>ZT1</b> : Zero Travel <b>LDB</b> : Low dB <b>CDST</b> : Multi-stage trim (cavitation dirty service trim)
16	PSA version: <b>PSA</b>
17	Cage/seat style: <b>RT</b> : Seat with retainer <b>CG</b> : Guided cage <b>TH</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
21	<b>PED</b> : Pressure Equipment Directive <b>G1/G2</b> : Gases and vapors Fluid group 1 = Hazardous Fluid group 2 = Other <b>L1</b> : Liquids Fluid group 1 = Hazardous Fluid group 2 = Other <b>I/II/III</b> : Category 1 to 3
22	Serial number
23	NE 53 (NAMUR Recommendation)
24	Other marks of conformity

#### **i** Note

Fig. 1 and the inscription table list all possible characteristics and options that may appear on a valve nameplate. Only the inscriptions relevant to the ordered Type 3252 Valve actually appear on the nameplate.

 **Tip**

SAMSON recommends to include the device's serial number (item 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 numbers

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).



**Fig. 2:** 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 the identification code on the electronic nameplate. It can be read using a smartphone, tablet or RFID reader. Application range according to the technical data (see Chapter 3.5).

### 3 Design and principle of operation

The Type 3252 Valve is a high-pressure valve available as either a globe or angle valve. This valve model is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator. It can also be combined with other actuators.

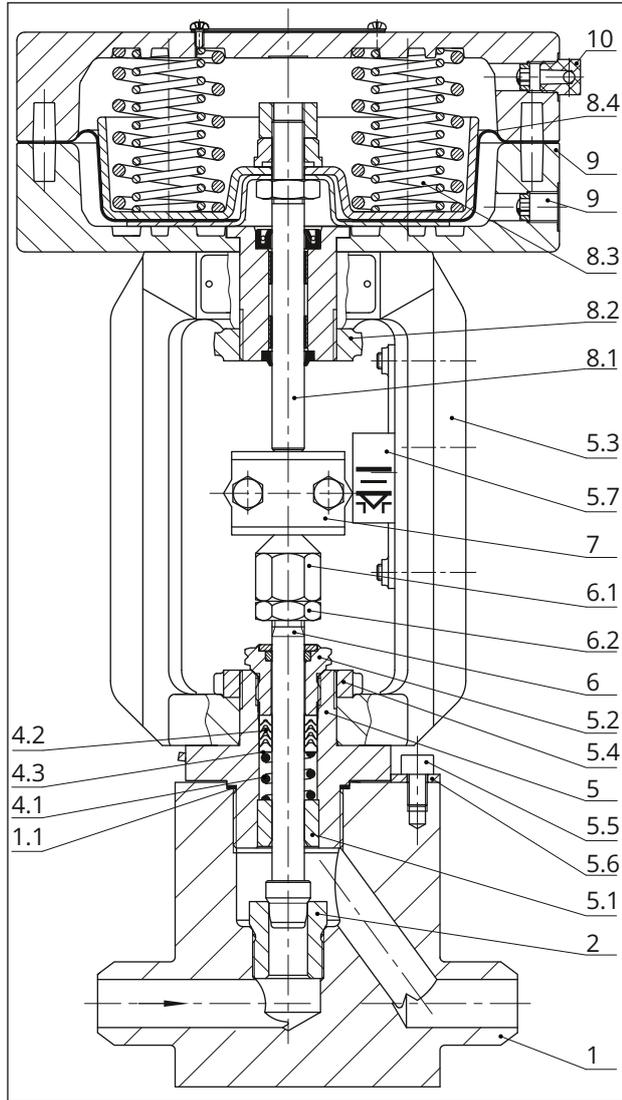
The standard valve bodies have threaded ends with either G or NPT thread. Special valve versions are designed with either weld-on flanges or welding ends for welding into the pipeline.

The modular design allows the actuators to be exchanged and an insulating section or metal bellows to be fitted to the standard valve version.

The seat and plug with plug stem are installed in the body. The plug stem is connected to the actuator stem by the stem connector clamps and is sealed by a packing.

The springs in the pneumatic actuator are located either above or below the diaphragm depending on the selected fail-safe action (see Chapter 3.1). 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. Standard direction of flow is FTO (flow-to-open). The direction of flow FTC (flow-to-close) is also possible on request. 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 and the pressure  $p_2$  as well.



**Fig. 3:** Sectional drawing of Type 3252 Valve with threaded valve bonnet and Type 3271 Actuator (120 cm<sup>2</sup>)

1	Valve body	5.6	Anti-rotation fixture
1.1	Gasket	5.7	Travel indicator scale
2	Seat	6	Plug stem
4.1	Spring	6.1	Stem connector nut
4.2	Packing	6.2	Lock nut
4.3	Washer	7	Stem connector
5	Valve bonnet	8.1	Actuator stem
5.1	Guide bushing	8.2	Ring nut
5.2	Threaded bushing	8.3	Springs
5.3	Yoke	8.4	Rolling diaphragm
5.4	Ring nut	9	Signal pressure connection
5.5	Screw	10	Vent plug

#### 3.1 Fail-safe positions

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

#### Tip

*SAMSON recommends the use of positioners with integrated diagnostic firmware (see Chapter 3.4) for control 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.*

Depending on how the compression springs are arranged in the SAMSON Type 3271 and Type 3277 Pneumatic Actuator, the control 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 upward and open the valve. The valve closes when the signal pressure is increased enough to overcome the force exerted by the springs.

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 **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*

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## 3.2 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.

---

 **Tip**

*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 a pneumatic actuator with additional handwheel or by an electric actuator (see Information Sheet ► T 8300).

## 3.3 Additional fittings

### Strainer

SAMSON recommends installing a SAMSON strainer upstream of the valve. It prevents solid particles in the process medium from damaging the control valve.

### Bypass and shut-off valves

SAMSON recommends installing a shut-off valve both upstream of the strainer and downstream of the control 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.

If applicable, read the instructions in Chapter 5.

### Test connection

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

Particularly for liquids and vapors, SAMSON recommends 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 control 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.

## 3.4 Valve accessories

See Information Sheet ► T 8350

## 3.5 Technical data

The nameplates on the valve and actuator provide information on the control valve version (see Chapter 2).

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**i Note**

*More information is available in Data Sheet ► T 8053.*

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## Design and principle of operation

### Conformity

The Type 3252 Valve bears the CE mark of conformity.



### 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:

► [www.samsongroup.com](http://www.samsongroup.com) > Products > Electronic nameplate

The maximum permissible temperature at the RFID tag is 85 °C (185 °F).

**Table 1:** Technical data for Type 3252

Connection		Female thread	Welding ends	Weld-on flanges
Nominal size		G ½, G ¾, G 1 ½ NPT, ¾ NPT, 1 NPT	DN 15, 20, 25 NPS ½, ¾, 1	DN 15, 20, 25 NPS ½, ¾, 1
Pressure rating		PN 40 to 400 or Class 300 to 2500		
Seat-plug seal		Metal seal or high-performance metal seal, soft seal for $K_{vs} > 0.1$ and higher up to an operating pressure of 50 bar		
Characteristic		Equal percentage · Linear · On/off		
Rangeability		50:1 <sup>1)</sup>		
Conformity		CE		
Temperature ranges				
Body without insulating section		-10 to +220 °C (14 to 428 °F)		
Body with	Insulating section	-50 to +450 °C (-58 to +842 °F)		
	Long insulating section	-196 to +450 °C (-325 to +842 °F)		
	Bellows seal	-50 to +450 °C (-58 to +842 °F)		
Leakage class according to DIN EN 60534-4/ANSI FCI 70-2		Metal seal: IV · High-performance metal seal: V <sup>2)</sup> · Soft seal: VI		

<sup>1)</sup> Not applicable to SB 3

<sup>2)</sup> Leakage class V for temperatures below -50 °C (-58 °F) on request

**Table 2:** Materials for Type 3252

Standard version	
Valve body	1.4404/316 L · Other materials on request
Valve bonnet (wetted parts)	1.4404/316 L
Seat and plug	1.4404/316 L Stellite®-faced seats and plugs made of solid Stellite® are standard with SB 3 (for other versions on request).
Packing	PTFE with carbon V-ring packing
Body gasket	1.4404/316 L

Standard version	
Insulating section	1.4404/316 L
Bellows seal	
Intermediate piece	1.4404/316 L
Metal bellows	1.4571/A316 Ti

**Dimensions and weights**

**Table 3:** Dimensions in mm for Type 3252 Globe Valve with threaded valve bonnet

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Length L With female thread	PN 40 to 400	130	130	130	Class 300 to 2500	130	130	130
Length L With welding ends	PN 40 to 400	130	130 (PN 40 only)	130	Class 300 to 2500	130	130	130
Length L With flanges	PN 40	210	210	230	Class 300	190	194	197
	PN 63 to 160	210	-	230	Class 600	203	206	210
	PN 250 to 400	230	-	260	Cl. 900/1500	216	229	254
					Class 2500	264	273	308
B	PN 40 to 400	70	70	70	Class 300 to 2500	70	70	70
H1	PN 40 to 400	246	246	246	Class 300 to 2500	246	246	246
H2	PN 40 to 400	26	26	26	Class 300 to 2500	26	26	26
<b>With insulating section</b>								
H4	PN 40 to 400	433	433	433	Class 300 to 2500	433	433	433
<b>With bellows seal</b>								
H4	PN 40 to 160	433	433	433	Class 300 to 900	433	433	433
	PN 250	501	501	501	Class 1500	501	501	501
	PN 400	606	606	606	Class 2500	606	606	606

**Table 4:** Dimensions in mm for Type 3252 Globe Valve with bolted valve bonnet

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Length L With female thread	PN 40 to 400	On request	On request	On request	Class 300 to 1500	On request	On request	On request
					Class 2500	On request	On request	On request
Length L With welding ends	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
Length L With flanges	PN 40 to 160	On request	On request	On request	Class 300	On request	On request	On request
					Class 600	On request	On request	On request
	PN 250 to 400	On request	On request	On request	Cl. 900/1500	On request	On request	On request
					Class 2500	On request	On request	On request
B	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
H1	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
H2	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request

## Design and principle of operation

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
<b>With insulating section</b>								
H4	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
<b>With bellows seal</b>								
H4	PN 40 to 160	On request	On request	On request	Class 300 to 900	On request	On request	On request
	PN 250	On request	On request	On request	Class 1500	On request	On request	On request
	PN 400	On request	On request	On request	Class 2500	On request	On request	On request

**Table 5:** Dimensions in mm for Type 3252 Angle Valve with threaded valve bonnet

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Length L With female thread	PN 40 to 400	60	60	60	Class 300 to 2500	60	60	60
Length L With welding ends	PN 40 to 400	57	57 (PN 40 only)	57	Class 300 to 2500	57	57	57
Length L With flanges	PN 40	90	95	100	Class 300	95 <sup>1)</sup>	97 <sup>1)</sup>	98 <sup>1)</sup>
	PN 63 to 160	105	-	115	Class 600	102 <sup>1)</sup>	103 <sup>1)</sup>	105 <sup>1)</sup>
	PN 250 to 400	115	-	130	Cl. 900/1500	108	114	127
					Class 2500	132	136	154
B	PN 40 to 400	70	70	70	Class 300 to 2500	70	70	70
H1	PN 40 to 400	212	212	212	Class 300 to 2500	212	212	212
<b>With insulating section</b>								
H4	PN 40 to 400	400	400	400	Class 300 to 2500	400	400	400
<b>With bellows seal</b>								
H4	PN 40 to 160	400	400	400	Class 300 to 900	400	400	400
	PN 250	468	468	468	Class 1500	468	468	468
	PN 400	572	572	572	Class 2500	572	572	572

<sup>1)</sup> Special length

**Table 6:** Dimensions in mm for Type 3252 Angle Valve with bolted valve bonnet

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Length L With female thread	PN 40 to 400	On request	On request	On request	Class 300 to 1500	On request	On request	On request
					Class 2500	On request	On request	On request
Length L With welding ends	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
Length L With flanges	PN 40 to 160	On request	On request	On request	Class 300	On request	On request	On request
					Class 600	On request	On request	On request
	PN 250 to 400	On request	On request	On request	Cl. 900/1500	On request	On request	On request
					Class 2500	On request	On request	On request
B	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
H1	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
H2	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
<b>With insulating section</b>								
H4	PN 40 to 400	On request	On request	On request	Class 300 to 2500	On request	On request	On request
<b>With bellows seal</b>								
H4	PN 40 to 160	On request	On request	On request	Class 300 to 900	On request	On request	On request
	PN 250	On request	On request	On request	Class 1500	On request	On request	On request
	PN 400	On request	On request	On request	Class 2500	On request	On request	On request

Table 7: Weights in kg for Type 3252 Globe Valve including yoke

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
<b>With threaded valve bonnet</b>								
With female thread	PN 40 to 400	8.5	8.5	8.5	Class 300 to 2500	On request	On request	On request
With welding ends	PN 40 to 400	6.5	6.5	6.5	Class 300 to 2500	On request	On request	On request
With flanges	PN 400	13	-	19.5	Class 2500	12.5	13.5	16.5
<b>With bolted valve bonnet</b>								
With female thread	PN 40 to 400	On request	On request	On request	Class 300 to 900	On request	On request	On request
With welding ends	PN 40 to 400	On request	On request	On request	Class 1500	On request	On request	On request
With flanges	PN 400	On request	On request	On request	Class 2500	On request	On request	On request

Table 8: Weights in kg for Type 3252 Angle Valve including yoke

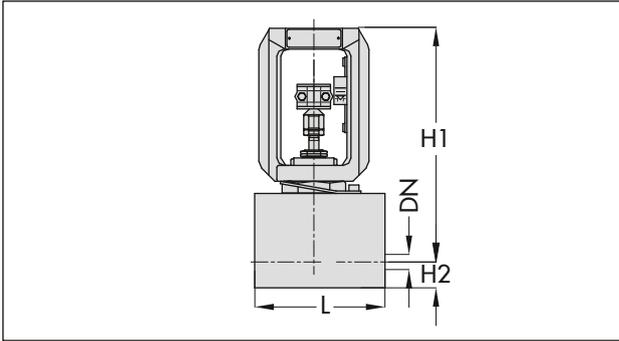
Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
<b>With threaded valve bonnet</b>								
With female thread	PN 40 to 400	7.5	7.5	7.5	Class 300 to 2500	On request	On request	On request
With welding ends	PN 40 to 400	5.5	5.5	5.5	Class 300 to 2500	On request	On request	On request
With flanges	PN 400	12	-	18.5	Class 2500	11.5	12.5	15.5
<b>With bolted valve bonnet</b>								
With female thread	PN 40 to 400	On request	On request	On request	Class 300 to 900	On request	On request	On request
With welding ends	PN 40 to 400	On request	On request	On request	Class 1500	On request	On request	On request
With flanges	PN 400	On request	On request	On request	Class 2500	On request	On request	On request

## Design and principle of operation

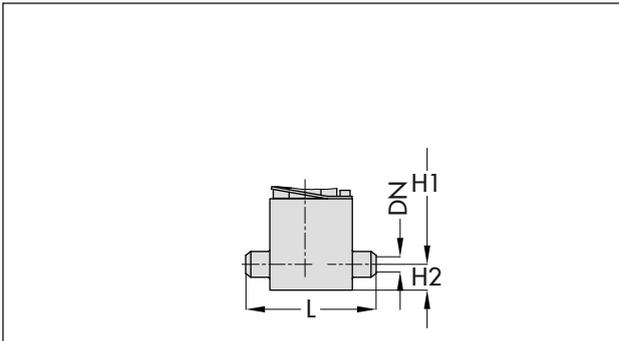
**Table 9:** Additional weight in kg for version with bellows seal

Valve	Standard	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Bellows seal (additional weight)	PN 40 to 160	3.5	3.5	3.5	Class 300 to 900	3.5	3.5	3.5
	PN 250	5.0	5.0	5.0	Class 1500	5.0	5.0	5.0
	PN 400	6.5	6.5	6.5	Class 2500	6.5	6.5	6.5

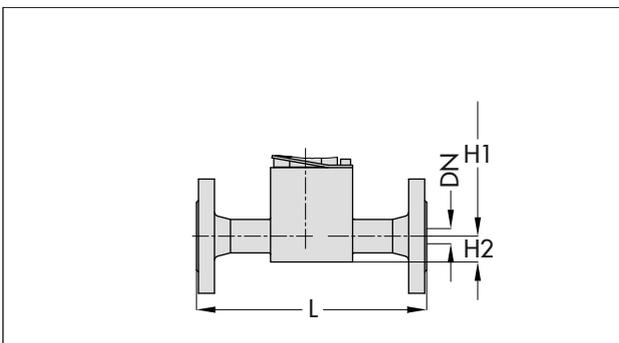
## Dimensional drawings



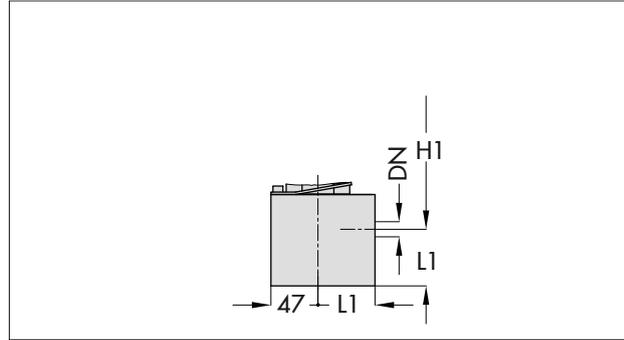
**Fig. 4:** Type 3252 Globe Valve with female thread



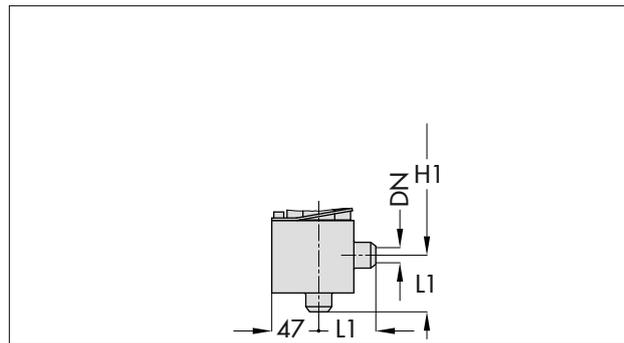
**Fig. 5:** Type 3252 Globe Valve with welding ends



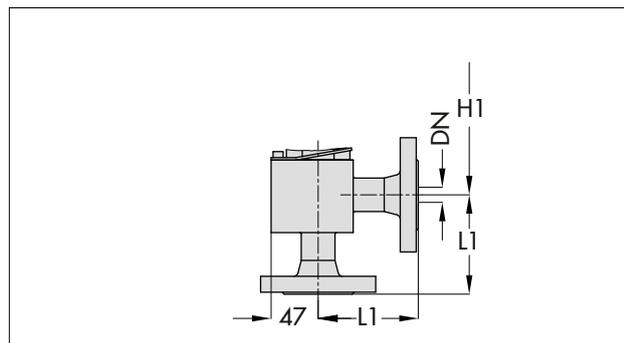
**Fig. 6:** Type 3252 Globe Valve with flanges



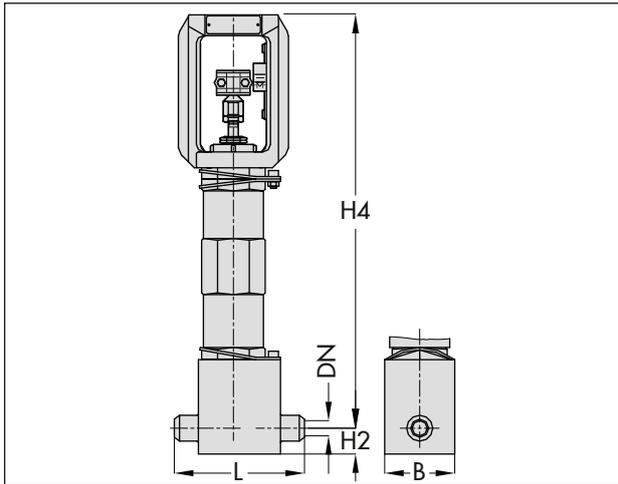
**Fig. 7:** Type 3252 Angle Valve with female thread



**Fig. 8:** Type 3252 Angle Valve with welding ends



**Fig. 9:** Type 3252 Angle Valve with flanges



**Fig. 10:** Type 3252 with insulating section or bellows seal

**i Note**

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

► T 8310-1 for Type 3271 and Type 3277 Actuators up to 750 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 Chapter 2 for more details on the nameplate.
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 Chapter 3.5.

#### 4.2 Removing the packaging from the valve

Observe the following sequence:

- ⇒ Do not open or remove the packaging until immediately before lifting the control valve to install it 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 control valve's center of gravity.
- ⇒ Secure the control 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 injuries in particular) depending on its weight.*

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

##### **ⓘ NOTICE**

##### ***Risk of control 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).

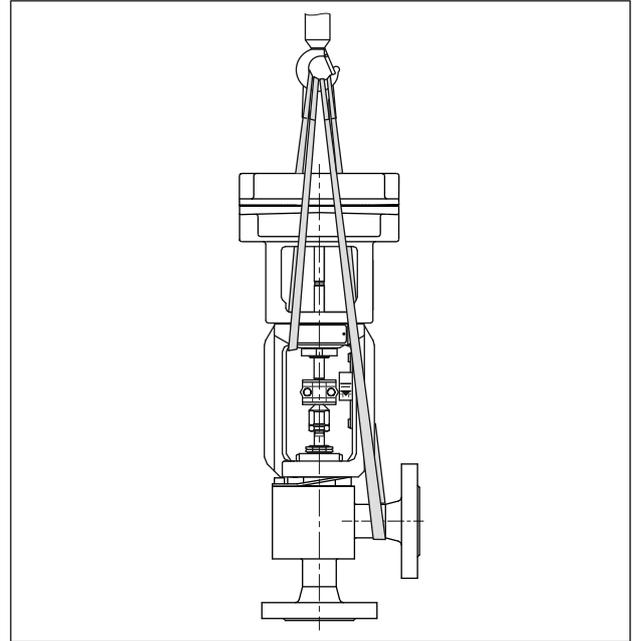
**Tip**

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.



**Fig. 11:** Lifting points on the control valve (example shows angle valve with flanges)

### 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 -4 to +149 °F (-20 to +65 °C).

**i Note**

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

### 4.3.2 Lifting the valve

See Fig. 11

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

#### Lifting instructions

- Use a hook with safety latch 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 with an actuator that has a lifting eyelet/eyebolt on it. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

## Shipment and on-site transport

### 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.
2. **Mounted actuator with lashing point:** Attach other slings 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 control valve into the pipeline (see Chapter 5).
6. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
7. Remove slings.

### 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.
2. Secure the slings attached to the body against slipping using a connector.
3. **Mounted actuator with lashing point:** Attach other slings 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 control valve into the pipeline (see Chapter 5).
7. After installation, check whether the weld seams hold.
8. Remove slings.

## 4.4 Storing the valve

### NOTICE

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

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

---

### Note

SAMSON recommends to regularly check the control valve and the prevailing storage conditions during long storage periods.

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### Storage instructions

- Protect the control valve against external influences (e.g. impact).
- Secure the control valve assembly 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.

### 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.
- SAMSON recommends a storage temperature of 15 °C (59 °F) for elastomers.
- Store elastomers away from lubricants, chemicals, solutions and fuels.

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### Tip

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

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

#### Pipeline routing

The inlet and outlet lengths (see Table 10) 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 control valve functions properly, proceed as follows:

- ⇒ Observe the recommended inlet and outlet lengths (see Table 10). Contact SAMSON if the valve conditions or state of the process medium are different from those specified.
- ⇒ Install the control valve free of stress and with the least amount of vibrations as possible. Read sections 'Mounting position' and 'Support and suspension' in this chapter.
- ⇒ Install the control valve allowing sufficient space to remove the actuator and valve or to perform service and repair work on them.

**Table 10:** Inlet and outlet lengths

State of process medium	Valve conditions	Inlet length a	Outlet length b
Gases	$Ma \leq 0.3$	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
Liquids	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

**Mounting position**

Generally, SAMSON recommends installing the valve with the actuator upright and on top of the valve.

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

**Support and suspension**

**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 plug**

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

⇒ Locate the vent plug on the opposite side to the work position of operating personnel.

**5.2 Preparation for installation**

Before installation, make sure the following conditions are met:

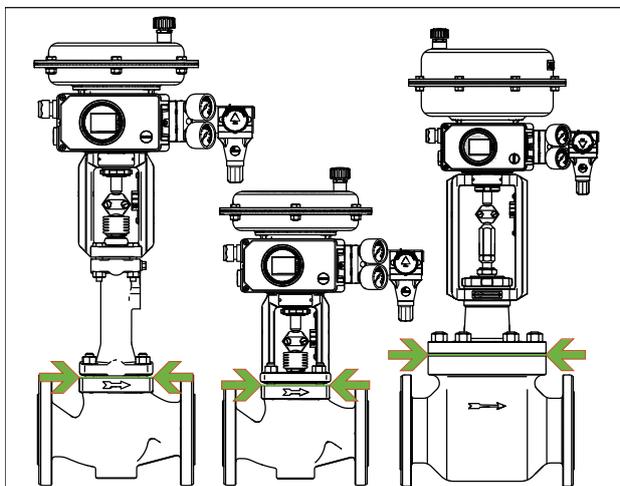
- The valve is clean.
- The valve and all valve accessories (including piping) are not damaged.

- 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 Chapter 2 for more details on the nameplate.
- The requested or required additional pipe fittings (see Chapter 3.3) 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. 12). This also applies to versions with bellows seal or insulating section at medium temperatures below 0 °C (32 °F) or above 220 °C (428 °F). If the insulating section is insulated, it will not function properly.
- ⇒ Do not insulate valves mounted to comply with NACE MR0175 requirements and which have nuts and bolts that are not suitable for sour gas environments.



**Fig. 12:** Limit of insulation for control valves (example shown)

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

Observe the specified torques when tightening control valve components. Over-torquing leads to parts wearing out more quickly. Under-torquing may cause leakage.

- ⇒ Observe tightening torques.

**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.

**5.3.1 Mounting the actuator onto the valve**

**WARNING**

**Risk of personal injury due to preloaded springs in pneumatic actuators.**

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON Type 3271 or Type 3277 Pneumatic Actuators can be identified by the long bolts protruding from the bottom of the actuator.

## Installation

⇒ *Before starting any work on the actuator, which requires the actuator to be opened, or when the actuator stem has become blocked, relieve the compression from the preloaded springs (see associated actuator documentation).*

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.

### Mounting the actuator

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

### 5.3.2 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.*

### 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 Chapter 4.3.2). 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.

### Version with welding ends

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 Chapter 4.3.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. Completely retract the actuator stem to protect the plug from sparks during welding.
6. Weld the valve free of stress into the pipeline.
7. 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.**

*Control 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 starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly:*

- ⇒ *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.**

Valves with a bellows seal have a test connection at the top on the intermediate piece.

- ⇒ Do not loosen the screw on 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 elements. Both can damage hearing.

- ⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ Wear hearing protection when working near the valve.

**⚠ WARNING**

**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 pneumatic 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 or compressed air escaping from pneumatically operated components.**

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is vented from the actuator, for example, while the valve is operating and when the valve opens or closes.

- ⇒ Wear eye protection when working in close proximity to pneumatic fittings and in the danger zone of the vent openings.

**⚠ WARNING**

**Risk of personal injury due to preloaded springs in pneumatic actuators.**

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON Type 3271 or Type 3277 Pneumatic Actuators can be identified by the long bolts protruding from the bottom of the actuator.

- ⇒ Before starting any work on the actuator, which requires the actuator to be opened, or when the actuator stem has become blocked, 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 Leak test**

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.

## Installation

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 section 'Adjusting the packing') and repeat the leak test.

### Adjusting the packing

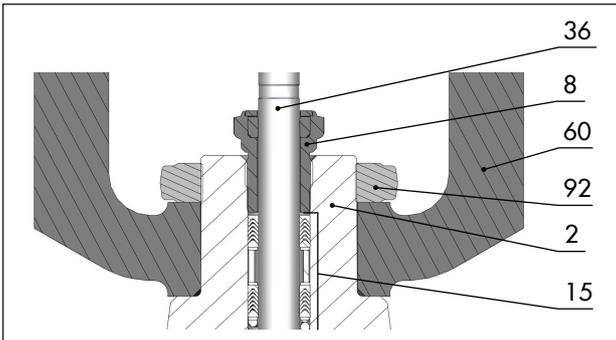
A label on the yoke indicates whether an adjustable packing is installed (see Chapter 2).

#### 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.



**Fig. 13:** Packing with threaded bushing (centrally fastened) (example shown)

2	Valve bonnet	36	Plug or piston stem
8	Threaded bushing	60	Yoke
15	Packing set	92	Castellated nut

## 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

The fail-safe position of a valve can only be checked when the valve is combined with an actuator that moves to the fail-safe position upon air supply or control signal failure.

### Fail-safe position with pneumatic actuators with integrated springs

- ⇒ Shut off the signal pressure line.
- ⇒ Check whether the valve moves to the fail-safe position (see Chapter 3.1).

## 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 to be performed only by personnel appropriately qualified to carry out such tasks.

### **⚠ 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 during operation and cause burn injuries.

⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ 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.**

Valves with a bellows seal have a test connection at the top on the intermediate piece.

⇒ Do not loosen the screw on 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 elements. Both can damage hearing.

⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **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 pneumatic 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 or compressed air escaping from pneumatically operated components.**

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is vented from the actuator, for example, while the valve is operating and when the valve opens or closes.

- ⇒ Wear eye protection when working in close proximity to pneumatic fittings and in the danger zone of the vent openings.

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

- The control valve is properly installed into the pipeline (see Chapter 5).
- The leak and function tests have been completed successfully (see Chapter 5.4).
- The prevailing conditions in the plant section affected meet the valve sizing requirements (see section 'Intended use' in Chapter 1).

## **Start-up**

### **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 may 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 pipelines.**

Depending on the process medium, valve components and pipelines may get very hot or cold during operation and cause burn injuries.

⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ 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.**

Valves with a bellows seal have a test connection at the top on the intermediate piece.

⇒ Do not loosen the screw on 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 elements. Both can damage hearing.

⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **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 pneumatic 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 or compressed air escaping from pneumatically operated components.**

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is vented from the actuator, for example, while the valve is operating and when the valve opens or closes.

- ⇒ Wear eye protection when working in close proximity to pneumatic fittings and in the danger zone of the vent openings.

### 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 the event of failure of the auxiliary energy supply.

## 8 Malfunctions

Read hazard statements, warnings and caution notes in Chapter 1.

### 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 Chapter 10) 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.
	Pneumatic actuators: Diaphragm in the actuator defective	See associated actuator documentation.
	Pneumatic actuator: 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>1)</sup> : Packing tightened too far	Tighten the packing correctly (see section 'Adjusting the packing' in Chapter 5.4.1).
Actuator and plug stem do not stroke through the full range.	Pneumatic actuator: 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 is worn out.	Replace valve trim (see Chapter 9) or contact our after-sales service.
The valve leaks to the atmosphere (fugitive emissions).	Defective packing	Replace packing (see Chapter 9) or contact our after-sales service.
	Version with adjustable packing <sup>1)</sup> : Packing not tightened correctly	Adjust the packing (see section 'Adjusting the packing' in Chapter 5.4.1). Contact our after-sales service when it continues to leak.
	Version with bellows seal: the metal bellows is defective	Replace the bellows seal (see Chapter 9) or contact our after-sales service.
	Flanged joint loose or body gaskets worn out	Check the flanged joint. Replace gaskets at the flanged joint (see Chapter 9) or contact our after-sales service.

<sup>1)</sup> See Chapter 2

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**i Note**

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

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## 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 Chapter 6.

### 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 control valve:

- Mounting and operating instructions for the mounted actuator, for example:
  - ► EB 8310-X for Type 3271 and Type 3277 Pneumatic Actuators

#### **⚠ DANGER**

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

Control 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 starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly:

- ⇒ 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 pipelines.**

Depending on the process medium, valve components and pipelines may get very hot or cold during operation and cause burn injuries.

- ⇒ Follow the standard operating procedures provided by the plant operator.  
In the event of a potential risk:
  - ⇒ 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.**

Valves with a bellows seal have a test connection at the top on the intermediate piece.

- ⇒ Do not loosen the screw on 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 elements. Both can damage hearing.

- ⇒ Follow the standard operating procedures provided by the plant operator.  
In the event of a potential risk:
  - ⇒ Wear hearing protection when working near the valve.

#### **⚠ WARNING**

##### **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 pneumatic 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 or compressed air escaping from pneumatically operated components.**

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is vented from the actuator, for example, while the valve is operating and when the valve opens or closes.

- ⇒ Wear eye protection when working in close proximity to pneumatic fittings and in the danger zone of the vent openings.

**⚠ WARNING****Risk of personal injury due to preloaded springs in pneumatic actuators.**

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON Type 3271 or Type 3277 Pneumatic Actuators can be identified by the long bolts protruding from the bottom of the actuator.

- ⇒ Before starting any work on the actuator, which requires the actuator to be opened, or when the actuator stem has become blocked, 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.

- ⇒ Follow the standard operating procedures provided by the plant operator.
- In the event of a potential risk:
  - ⇒ 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.

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

Observe the specified torques when tightening control valve components. Over-torquing leads to parts wearing out more quickly. Under-torquing may cause leakage.

- ⇒ Observe tightening torques.

**📌 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.

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

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

- ⇒ Only use lubricants approved by SAMSON.

**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 control valve at certain intervals to prevent possible failure before it can occur. Plant operators are responsible for drawing up an inspection and test plan.



### Tip

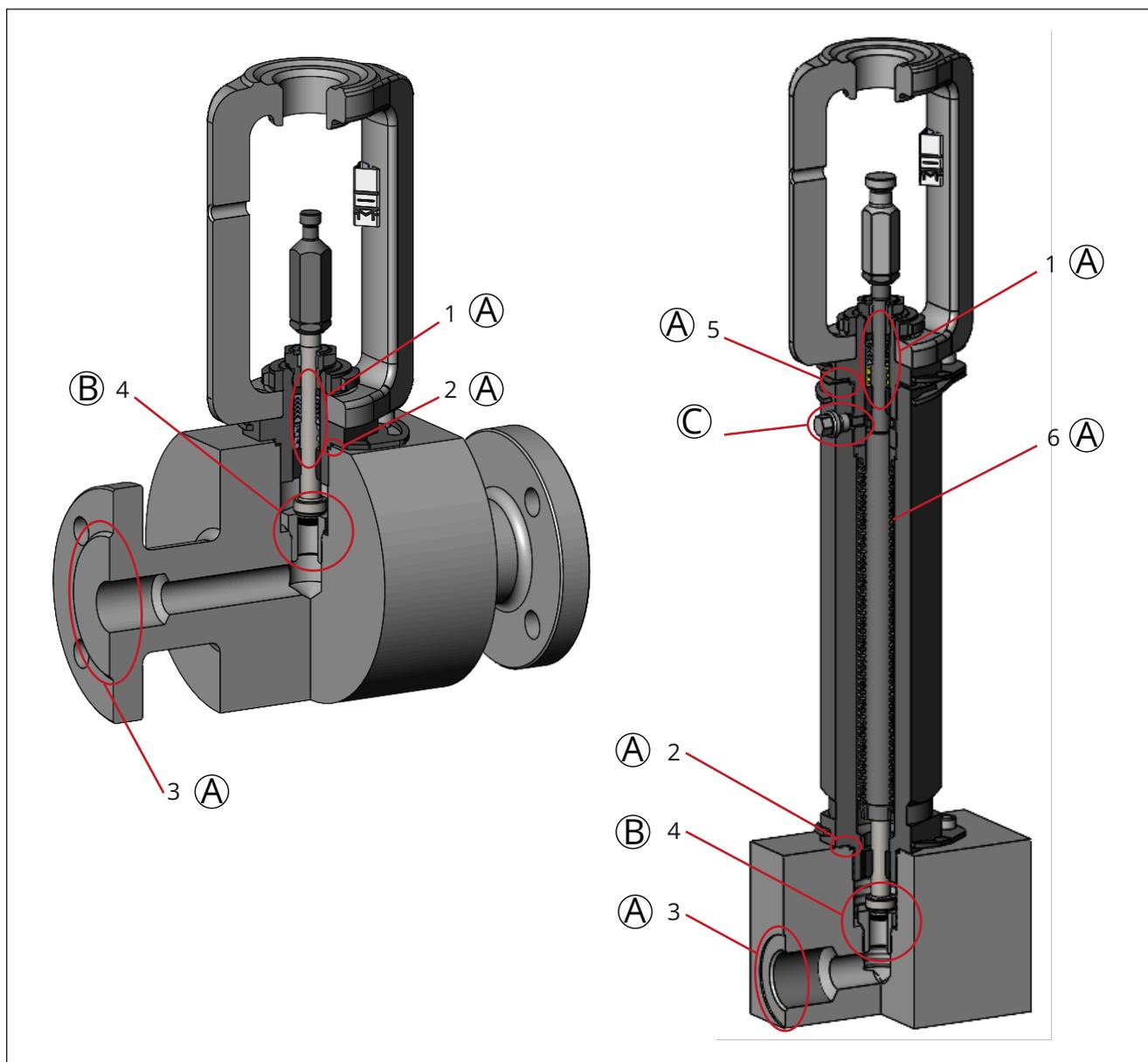
Our after-sales service can support you in drawing up an inspection and test plan for your plant.

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 control 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.
External leakage <sup>1)</sup> : Inspect the control valve at the possible points of leakage to ensure there is no leakage (see following image).  Version 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 on the test connection while the valve is pressurized.	Check the bolted joint (tightening torque). Replace the gaskets at the flanged joints. To do so, put the control valve out of operation (see Chapter 10). Version with adjustable packing <sup>2)</sup> : Adjust the packing (see section 'Adjusting the packing' in Chapter 5.4.1) or replace the packing (see Chapter 9.4). If the bellows seal is defective, put the control valve out of operation (see Chapter 10) and replace the bellows seal (see Chapter 9.4) or contact our after-sales service.
Seat leakage <sup>1)</sup> (see following image) (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. Renew seat and plug, if necessary (see Chapter 9.4). To do so, put the control valve out of operation (see Chapter 10).
Check the control 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 to do so (see Chapter 10).
Check the valve accessories to ensure they are firmly mounted.	Tighten the connections of the valve accessories.
Check to ensure that the actuator and plug stems move smoothly.	Version with adjustable packing <sup>2)</sup> : Tighten the packing correctly (see section 'Adjusting the packing' in Chapter 5.4.1). If the actuator stem or plug stem is blocked, put the control valve out of operation (see Chapter 10) 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. SAMSON recommends the use of positioners with integrated diagnostic firmware for control 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.
If possible, check the valve's fail-safe position by briefly interrupting the air supply.	Put the control valve out of operation (see Chapter 10). Identify the cause for the malfunction and rectify it (see Chapter 8).

<sup>1)</sup> 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).

<sup>2)</sup> See Chapter 2



**Fig. 14:** 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.

- |   |  |   |  |
|---|--|---|--|
| Ⓐ | External leakage                               | 3 | Seat/body and plug/seat  |
| Ⓑ | Seat leakage                                   | 4 | Connection to the pipeline<br>(static sealing)   |
| Ⓒ | Test connection to monitor bellows for leakage | 5 | Body gaskets at bellows seal/insulating section/intermediate piece<br>(static sealing) |
| 1 | Plug stem guide (packing)<br>(dynamic sealing) | 6 | Metal bellows<br>(dynamic sealing)   |
| 2 | Body gaskets<br>(static sealing)               |   |  |

### 9.2 Service work preparations

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 Chapter 10).
3. Remove the actuator from the valve. See associated actuator documentation.

---

#### **i 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). Once the work is completed, the signal pressure must be removed and the air supply disconnected again and locked.*

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#### **Tip**

*SAMSON recommends removing the valve from the pipeline before performing any service work (see Chapter 11).*

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

- Replace body gaskets (see Chapter 9.4.1 or Chapter 9.4.4)
- Replace the packing (see Chapter 9.4.2 or Chapter 9.4.5)
- Replace the seat and plug (see Chapter 9.4.3 or Chapter 9.4.6)
- Replace the bellows seal (see Chapter 9.4.7)

### 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 Chapter 5).
4. Put the control valve back into operation (see Chapter 6). Observe the requirements and conditions for start-up or putting the device back into operation.

### 9.4 Service work

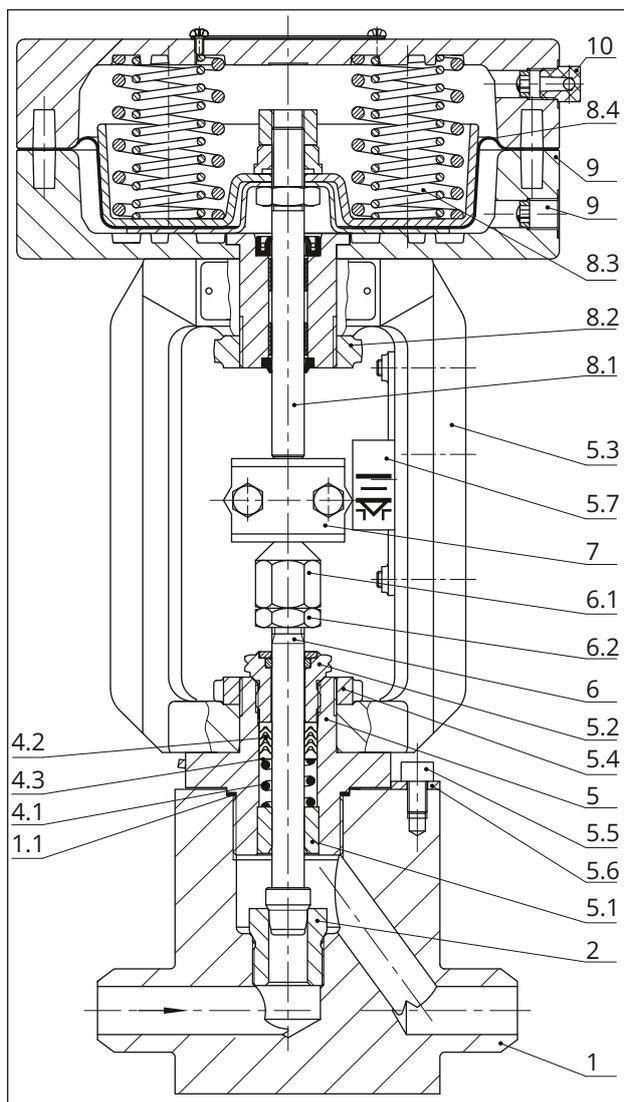
- ⇒ Before performing any service work, preparations must be made to the control valve (see Chapter 9.2).
- ⇒ After all service work is completed, check the control valve before putting it back into operation (see Chapter 5.4).

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#### **i Note**

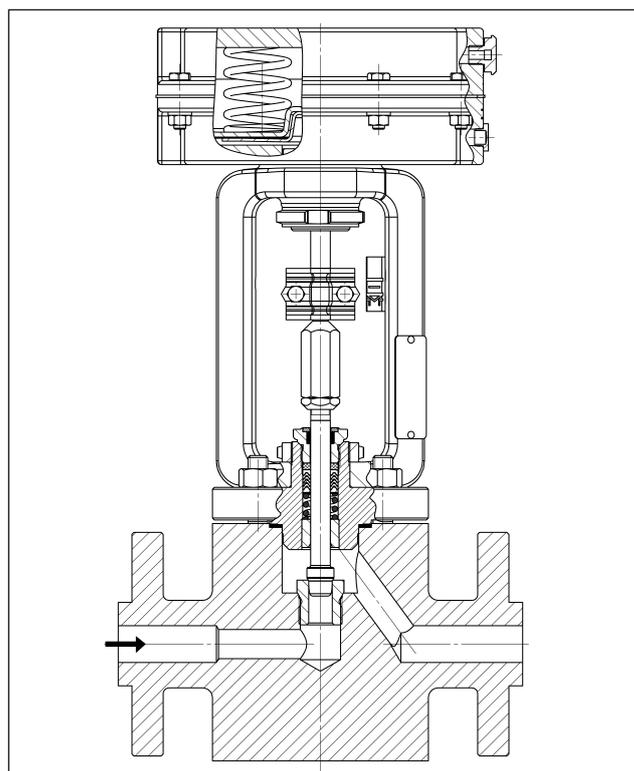
*The threaded joint between the valve bonnet and body may seize up over time. As a result, it may be necessary to apply more force and/or use a penetrating fluid to unscrew the valve bonnet.*

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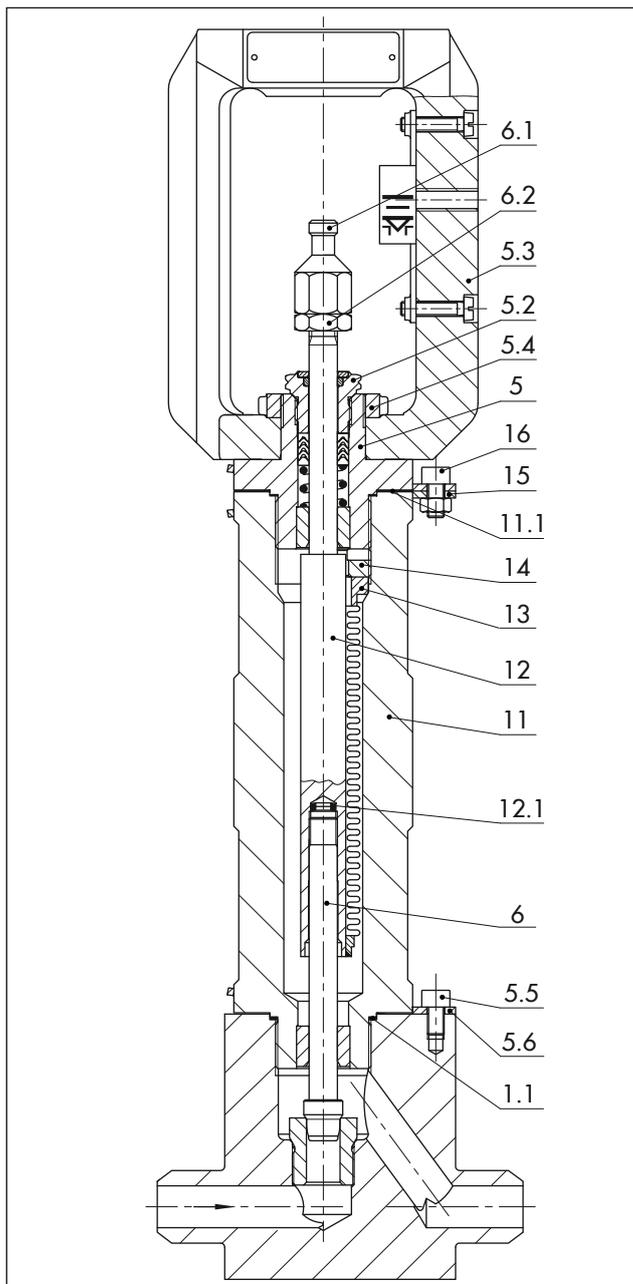


**Fig. 15:** Sectional drawing of Type 3252 Valve with threaded valve bonnet and Type 3271 Actuator (120 cm<sup>2</sup>)

- |                      |                              |
|----------------------|------------------------------|
| 1 Valve body         | 5.6 Anti-rotation fixture    |
| 1.1 Gasket           | 5.7 Travel indicator scale   |
| 2 Seat               | 6 Plug stem                  |
| 4.1 Spring           | 6.1 Stem connector nut       |
| 4.2 Packing          | 6.2 Lock nut                 |
| 4.3 Washer           | 7 Stem connector             |
| 5 Valve bonnet       | 8.1 Actuator stem            |
| 5.1 Guide bushing    | 8.2 Ring nut                 |
| 5.2 Threaded bushing | 8.3 Springs                  |
| 5.3 Yoke             | 8.4 Rolling diaphragm        |
| 5.4 Ring nut         | 9 Signal pressure connection |
| 5.5 Screw            | 10 Vent plug                 |

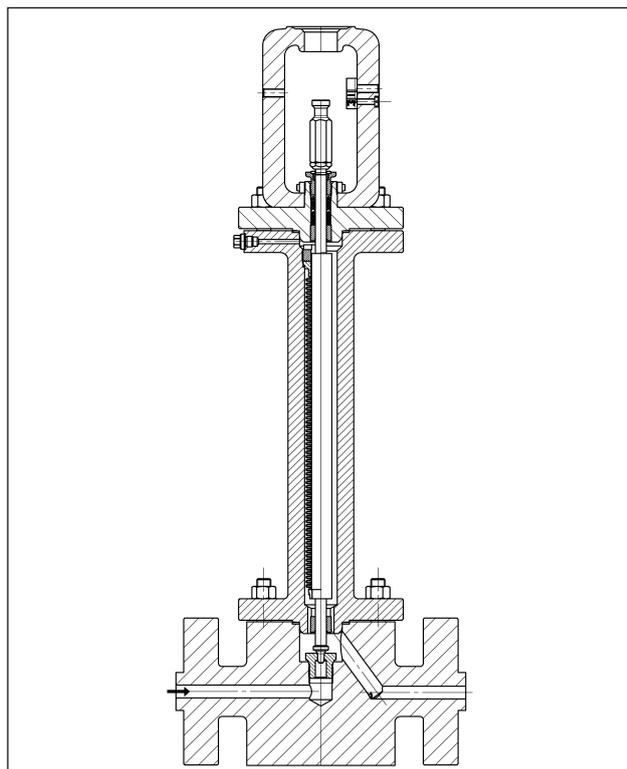


**Fig. 16:** Sectional drawing of Type 3252 Valve with bolted valve bonnet and Type 3271 Actuator (120 cm<sup>2</sup>)



**Fig. 17:** Sectional drawing of Type 3252 Valve with threaded valve bonnet: Version with insulating section (left), version with bellows seal (right)

1.1 Gasket	6.2 Lock nut
5 Valve bonnet	11 Intermediate piece
5.2 Threaded bushing	11.1 Gasket
5.3 Yoke	12 Plug stem extension
5.4 Ring nut	12.1 Retaining washers
5.5 Screw	13 Bellows seal
5.6 Anti-rotation fixture	14 Nut
6 Plug stem	15 Anti-rotation fixture
6.1 Stem connector nut	16 Screw



**Fig. 18:** Sectional drawing of Type 3252 Valve with bolted valve bonnet: Version with bellows seal (left), version with insulating section (right)

#### 9.4.1 Replacing the body gasket in standard valves

**NOTICE**

**Risk of impaired functioning of the control valve due to damaged parts.**

- ⇒ Clean and check all the contact facings in the body and all other parts that come into contact with the gaskets to ensure they are free from damage before installing any new gaskets.
- ⇒ Renew any parts with damaged facings or contact our after-sales service.

See Fig. 15 and Fig. 16

1. Unscrew the ring nut (5.4) and remove the yoke (5.3) from the valve bonnet (5).
2. **For threaded valve bonnet:** Unscrew the screw (5.5) for the anti-rotation fixture. Remove the anti-rotation fixture (5.6).

**With bolted valve bonnet:** Undo the nuts on the valve bonnet (5) gradually in a crisscross pattern and remove them.

3. **For threaded valve bonnet:** Unscrew the valve bonnet (5) with the plug stem (6) out of the valve body (1).  
**For bolted valve bonnet:** Remove the valve bonnet (5) with the plug stem (6) from the valve body (1).
4. Remove the gasket (1.1).
5. Carefully clean the sealing faces in the body (1) and on the valve bonnet (5) and check for damage.
6. Insert the new gasket (1.1) into the body (1).
7. Place the valve bonnet (5) with the plug stem (6) onto the valve body (1).
8. **For threaded valve bonnet:** Screw the valve bonnet (5) into the body (1) with 500 Nm tightening torque.  
**For bolted valve bonnet:** Fasten the valve bonnet (5) with body nuts. Tighten the body nuts gradually in a crisscross pattern until the tightening torque of 50 Nm is reached.
9. **For threaded valve bonnet:** Place the anti-rotation fixture (5.6) on the valve bonnet (5) ensuring that the screw (5.5) is inserted into the long hole. Tighten.  
**For bolted valve bonnet:** Proceed as described in next step.
10. Place the yoke (5.3) onto the valve bonnet (5) and secure it with the ring nut (5.4).
5. Loosen the threaded bushing (5.2). Pull the plug stem (6) along with the plug out of the valve bonnet (5).
6. Unscrew the threaded bushing (5.2) out of the valve bonnet (5).
7. Pull the all the packing parts out of the packing chamber in the valve bonnet (5) using a suitable tool.
8. Clean the packing chamber thoroughly.
9. Push the plug stem (6) with the plug into the valve bonnet (5).
10. Use new packing parts if they are worn or damaged.
11. Refer to the documentation of the spare packing for information on lubricants.  
**Depending on packing version and application:**  
Apply a suitable lubricant to all the packing parts and to the plug stem (6).  
**Or if applicable:**  
Do not use any lubricant.

### 9.4.2 Replacing the packing in standard valves

See Fig. 15 and Fig. 16

1. Unscrew the ring nut (5.4) and remove the yoke (5.3) from the valve bonnet.
2. **For threaded valve bonnet:** Unscrew the screw (5.5) for the anti-rotation fixture. Remove the anti-rotation fixture (5.6).  
**With bolted valve bonnet:** Undo the nuts on the valve bonnet (5) gradually in a crisscross pattern and remove them.
3. **For threaded valve bonnet:** Unscrew the valve bonnet (5) with the plug stem (6) out of the valve body (1).  
**For bolted valve bonnet:** Remove the valve bonnet (5) with the plug stem (6) from the valve body (1).
4. Unscrew the stem connector nut (6.1) and lock nut (6.2) from the plug stem (6).
12. Carefully slide the packing parts over the plug stem (6) into the packing chamber using a suitable tool. Refer to the documentation of the spare packing for the correct sequence and alignment of the parts.
13. Screw in the threaded bushing (5.2) finger-tight into the valve bonnet (5).
14. Screw the lock nut (6.2) and stem connector nut (6.1) onto the plug stem (6) using the same pre-load as initially used.
15. Continue as instructed in steps 4. to 10. in Chapter 9.4.1.
16. **For packing without adjusting option:** Tighten the threaded bushing (5.2) as far it will go.  
**Version with adjustable packing:** Adjust the threaded bushing (5.2) during the leak test (see section 'Adjusting the packing' in Chapter 5.4.1).

### 9.4.3 Replacing the seat and plug in standard valves

See Fig. 15 and Fig. 16

#### 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).

### Replacing the plug

- ⇒ Proceed as described in Chapter 9.4.2. Replace the old plug with a new plug with plug stem.
- ⇒ Apply a suitable lubricant to the plug stem before insertion.

### Replacing the seat

- ⇒ Proceed as described in Chapter 9.4.2 and additionally unscrew the seat (2).
- ⇒ Apply a suitable lubricant to the thread and sealing cone of the new seat. Screw in the seat (tightening torque of 180 Nm). Alternatively, an old seat can be used after it has been machined or thoroughly cleaned.

## 9.4.4 Replacing the body gaskets in valves with insulating section or bellows seal

### NOTICE

#### Risk of impaired functioning of the control valve due to damaged parts.

- ⇒ Clean and check all the contact facings in the body and all other parts that come into contact with the gaskets to ensure they are free from damage before installing any new gaskets.
- ⇒ Renew any parts with damaged facings or contact our after-sales service.

See Fig. 17 and Fig. 18

1. Unscrew the ring nut (5.4) and remove the yoke (5.3) from the intermediate piece (11).
2. Unscrew the stem connector nut (6.1) and lock nut (6.2) from the plug stem extension (12).
3. Unscrew the threaded bushing (5.2) out of the valve bonnet (5) and lift it off the plug stem extension (12).
4. **For threaded valve bonnet:** Unscrew the screw (16) for the anti-rotation fixture. Remove the anti-rotation fixture (15).

**With bolted valve bonnet:** Undo the nuts on the valve bonnet (5) gradually in a crisscross pattern and remove them.

5. **For threaded valve bonnet:** Unscrew the valve bonnet (5) out of the intermediate piece (11) and lift it off the plug stem extension (12).

**For bolted valve bonnet:** Pull the valve bonnet (5) out of the intermediate piece (12) and lift it off the intermediate piece (11).

6. Remove the gasket (11.1).
7. Carefully clean the sealing faces in the intermediate piece (11) and on the valve bonnet (5) and check for damage.
8. Insert the new gasket (11.1) into the intermediate piece (11).
9. Pull the all the packing parts out of the packing chamber in the valve bonnet (5) using a suitable tool.
10. Clean the packing chamber thoroughly.
11. Place the valve bonnet (5) from the top over the plug stem extension (12) onto the intermediate piece (11).
12. **For threaded valve bonnet:** Screw the valve bonnet (5) into the intermediate piece (11) with 120 Nm tightening torque.

**For bolted valve bonnet:** Fasten the valve bonnet (5) with body nuts onto the intermediate piece (11). Tighten the body nuts gradually in a crisscross pattern until the tightening torque of 50 Nm is reached.

13. **For threaded valve bonnet:** Place the anti-rotation fixture (5.6) on the valve bonnet (5) ensuring that the screw (5.5) is inserted into the long hole. Tighten.

**For bolted valve bonnet:** Proceed as described in next step.

14. Use new packing parts if they are worn or damaged.
15. Refer to the documentation of the spare packing for information on lubricants.

#### Depending on packing version and application:

Apply a suitable lubricant to all the packing parts and to the plug stem extension (12).

#### Or if applicable:

Do not use any lubricant.

16. Carefully slide the packing parts over the plug stem extension (12) into the packing chamber using a suitable tool. Refer to the documentation of the spare packing for the correct sequence and alignment of the parts.

17. **For packing without adjusting option:** Screw in the threaded bushing (5.2) and tighten it as far it will go.

**Version with adjustable packing:** Screw in the threaded bushing (5.2) finger-tight. During the leak test, adjust it (see section 'Adjusting the packing' in Chapter 5.4.1).

18. Place the yoke (5.3) onto the valve bonnet (5) and secure it with the ring nut (5.4).
19. Screw the lock nut (6.2) and stem connector nut (6.1) onto the plug stem extension (12) using the same preload as initially used.
20. **For threaded intermediate piece:** Unscrew the screw (5.5) for the anti-rotation fixture. Remove the anti-rotation fixture (5.6).
- With bolted intermediate piece:** Undo the nuts on the intermediate piece gradually in a crisscross pattern and remove them.
21. **For threaded intermediate piece:** Unscrew the intermediate piece (11) together with the entire assembly and plug stem (6) out of the valve body (1).
- For bolted intermediate piece:** Remove the intermediate piece (11) together with the entire assembly and plug stem (6) from the valve body (1).
22. Remove the gasket (1.1).
23. Carefully clean the sealing faces in the body (1) and on the intermediate piece (11) and check for damage.
24. Insert the new gasket (1.1) into the body (1).
25. Place the intermediate piece (11) together with the entire assembly and plug stem (6) on the valve body (1).
26. **For threaded intermediate piece:** Screw the intermediate piece (11) into the valve body (1) with 500 Nm tightening torque.
- For bolted intermediate piece:** Fasten the intermediate piece (11) with body nuts. Tighten the body nuts gradually in a crisscross pattern until the tightening torque of 50 Nm is reached.
27. **For threaded intermediate piece:** Place the anti-rotation fixture (5.6) on the valve bonnet (5) ensuring that the screw (5.5) is inserted into the long hole. Tighten.

#### 9.4.5 Replacing the packing in valves with insulating section or bellows seal

See Fig. 17 and Fig. 18

⇒ Proceed as instructed in steps 1. to 19. in Chapter 9.4.4.

#### 9.4.6 Replacing the plug in valves with insulating section or bellows seal

See Fig. 17 and Fig. 18

1. Unscrew the ring nut (5.4) and remove the yoke (5.3) from the intermediate piece (11).
  2. **For threaded intermediate piece:** Unscrew the screw (5.5) for the anti-rotation fixture. Remove the anti-rotation fixture (5.6).
- With bolted intermediate piece:** Undo the nuts on the intermediate piece gradually in a crisscross pattern and remove them.
3. **For threaded intermediate piece:** Unscrew the intermediate piece (11) together with the entire assembly and plug stem (6) out of the valve body (1).

**For bolted intermediate piece:** Remove the intermediate piece (11) together with the entire assembly and plug stem (6) from the valve body (1).

4. To unscrew the plug stem (6) from the plug stem extension (12), screw the stem connector nut (6.1) and lock nut (6.2) until they lock each other. Place a wrench on the nuts to allow the plug stem extension to be held stationary.

#### ⓘ NOTICE

##### **Risk of leakage due damage of the metal bellows.**

*The metal bellows is welded onto the plug stem extension and screwed to the intermediate piece.*

⇒ *While removing the plug stem, make sure that no torque is transferred to the metal bellows.*

5. Apply a suitable lubricant to the the plug stem (6) of the old machined or new plug.
6. Check whether the two washers (12.1) are still in the plug stem extension (12).
7. Screw the plug stem (6) tightly into the plug stem extension (12) (tightening torque of 50 Nm).

---

### NOTICE

#### **Risk of leakage due damage of the metal bellows.**

*The metal bellows is welded onto the plug stem extension and screwed to the intermediate piece.*

⇒ *While mounting the plug stem, make sure that no torque is transferred to the metal bellows.*

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8. Proceed as instructed in steps 24. to 27. in Chapter 9.4.4.

### 9.4.7 Replacing the bellows seal

See Fig. 17 and Fig. 18

1. Proceed as instructed in steps 1. to 4. in Chapter 9.4.6.
2. Proceed as instructed in steps 2. to 6. in Chapter 9.4.4.
3. Unscrew the nut (14) using a SAMSON socket wrench (order no. 93252-0000-085).
4. Pull the plug stem extension (12) together with the metal bellows (13) welded onto it out of the intermediate piece (11).
5. Carefully clean the sealing faces on the intermediate piece (11) and check for damage.
6. Slide the new bellows seals (consisting of the plug stem extension (12) with the metal bellows (13) welded onto it) into the intermediate piece (11). Use the nut (14) to fasten it in the intermediate piece (11) (tightening torques: up to PN 160 = 85 Nm, up to PN 400 on request).
7. Proceed as instructed in steps 8. to 18. in Chapter 9.4.4.
8. Thread the lock nut (6.2) and stem connector nut (6.1) onto the plug stem extension (12). Counter them against each other.
9. Proceed as instructed in steps 5. to 7. in Chapter 9.4.6.
10. Proceed as instructed in steps 24. to 27. in Chapter 9.4.4.

### 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.

#### Lubricants

Contact our after-sales service for more information on suitable lubricants (see Appendix).

#### Tools

Contact our after-sales service for more information on suitable tools (see Appendix).

## 10 Decommissioning

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

### **⚠ DANGER**

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

Control 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 starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly:

- ⇒ 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 pipelines.**

Depending on the process medium, valve components and pipelines may get very hot or cold during operation and cause burn injuries.

- ⇒ Follow the standard operating procedures provided by the plant operator.
- In the event of a potential risk:
- ⇒ 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.**

Valves with a bellows seal have a test connection at the top on the intermediate piece.

- ⇒ Do not loosen the screw on 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 elements. Both can damage hearing.

- ⇒ Follow the standard operating procedures provided by the plant operator.

In the event of a potential risk:

- ⇒ Wear hearing protection when working near the valve.

### **⚠ WARNING**

#### **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 pneumatic 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 or compressed air escaping from pneumatically operated components.**

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is vented from the actuator, for example, while the valve is operating and when the valve opens or closes.

- ⇒ Wear eye protection when working in close proximity to pneumatic fittings and in the danger zone of the vent openings.

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**⚠ 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.*

⇒ *Follow the standard operating procedures provided by the plant operator.*

*In the event of a potential risk:*

⇒ *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.*

---

To put the control valve out of operation 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 or warm up to the ambient temperature.

## 11 Removal

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

### **⚠ 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 during operation and cause burn injuries.

⇒ Follow the standard operating procedures provided by the plant operator.

*In the event of a potential risk:*

- ⇒ 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 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 pneumatic 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.

⇒ Follow the standard operating procedures provided by the plant operator.

*In the event of a potential risk:*

- ⇒ 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.

### **⚠ WARNING**

#### **Risk of personal injury due to preloaded springs in pneumatic actuators.**

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON Type 3271 or Type 3277 Pneumatic Actuators can be identified by the long bolts protruding from the bottom of the actuator.

⇒ Before starting any work on the actuator, which requires the actuator to be opened, or when the actuator stem has become blocked, relieve the compression from the preloaded springs (see associated actuator documentation).

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

- The control valve is put out of operation (see Chapter 10).

### **11.1 Removing the valve from the pipeline**

#### **Version with flanges**

1. Support the control valve to hold it in place when separated from the pipeline (see Chapter 4).
2. Unbolt the flanged joint.
3. Remove the valve from the pipeline (see Chapter 4).

#### **Version with welding ends**

1. Support the control valve to hold it in place when separated from the pipeline (see Chapter 4).
2. Cut the pipeline in front of the weld seam.
3. Remove the valve from the pipeline (see Chapter 4).

### **11.2 Removing the actuator from the valve**

See associated actuator documentation.

### 12 Repairs

If the control 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.

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#### **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.

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#### 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. Register the return shipment and include the following information by e-mail [returns-de@samsongroup.com](mailto:returns-de@samsongroup.com):
  - Type
  - Article no.
  - Configuration ID
  - Original order
  - Completed Declaration on Contamination, which can be downloaded from the Internet 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.

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#### **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 in Europe, agency in charge

► [www.samsongroup.com](http://www.samsongroup.com) > About SAMSON > Environment, Social & Governance > Material Compliance > Waste electrical and electronic equipment (WEEE)  
WEEE reg. no.: DE 62194439

Information on substances listed as substances of very high concern (SVHC) on the candidate list of the REACH regulation can be found in the document "Additional Information on Your Inquiry/Order", which is added to the order documents, if applicable. This document includes the assigned SCIP number, which can be entered into the database on the European Chemicals Agency (ECHA) website to find out more information on the SVHC ► <https://www.echa.europa.eu/scip-database>.

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### **i Note**

*SAMSON can provide you with a recycling passport on request. Simply e-mail us at [aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com) giving details of your company address.*

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### **💡 Tip**

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

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

### 14 Certificates

These declarations are included on the next pages:

- Declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU:
  - Country of origin: France
- Declaration of conformity in compliance with Machinery Directive 2006/42/EC for Types 3252-1 and 3252-7 Control Valves
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for Type 3252 Valve with other actuators other than the Type 3271 or Type 3277 Actuator
- Declaration of conformity in compliance with the requirements in TSG D7002-2006 for Chinese pressure equipment
- Declaration of conformity according to Regulation China RoHS 2.0, GB/T26572-2011
- Declaration of conformity in compliance with RoHS Directive 2011/65/EU
- Declaration of conformity in compliance with REACH Regulation (EC) No. 1907/2006
- Declaration of conformity for valves with gaskets and packings that comply with the EU Regulation (EC) No. 1935/2004 and the US Regulation FDA 21 CFR Section 177.1550
- Declaration of conformity for valve for clean-room environments: materials (gaskets, packings, body), manufacture of parts as well as assembly conditions in accordance with the EU Regulation (EC) No. 1935/2004 and the US Regulation FDA 21 CFR Section 177.1550

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 > 3252

Other optional certificates are available on request.



## 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-rev-A

DC012  
2023-12

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 <sup>1)</sup>
		ANSI		CI 125	NPS 6	
		DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100 – 150	Tous fluides / all fluids
		ANSI	Acier / steel	PN10 PN16 PN25 PN40 CI 150 CI 300	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150 NPS 2 ½ - 6 NPS 1 ¼ – 6	
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Fonte grise / cast iron	PN 16	DN 150	G2, L1, L2 <sup>1)</sup>
		DIN	Acier / steel	PN10 PN16 PN25 PN40 CI 150 CI 300	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ¼ – 6	Tous fluides / all fluids
		ANSI				
Vanne de régulation passage droit / globe valve	3251	DIN	Acier / steel	PN16 PN25 PN40 – 400 CI 150 CI 300 - 2500	DN 65 – 150 DN 50 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ¼ – 6	Tous fluides / all fluids
		ANSI				
Vanne haute pression / High pressure valve	3252	DIN	Acier / steel	PN40 – 400	DN 32 – 80	Tous fluides / all fluids
		ANSI		CI 300 - 2500	NPS 1 ¼ – 3	
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN16 PN40 – 400 CI 150 CI 300 - 2500	DN 65 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ¼ – 6	Tous fluides / all fluids
		ANSI				
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN10 PN16 PN25 PN40 CI 150 CI 300	DN 150 DN 80 – 150 DN 50 – 150 DN 40 – 150 NPS 3 – 6 NPS 1 ½ – 6	Tous fluides / all fluids
		ANSI				
Vanne de régulation passage droit / globe valve	3321	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 <sup>1)</sup>
		DIN	Acier / steel	PN16 PN40 CI 150 CI 300	DN 65 – 100 DN 32–100 NPS 2 ½ – 4 NPS 1 ½ – 4	Tous fluides / all fluids
		ANSI				
Vanne de régulation 3 voies / 3-way Valve	3323	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 <sup>1)</sup>
		DIN	Acier / steel	PN16 PN40 CI 150 CI 300	DN 65 – 100 DN 32 – 100 NPS 2 ½ – 4 NPS 1 ¼ – 2	Tous fluides / all fluids
		ANSI				
Vanne papillon / Butterfly valve	3331	DIN	Acier / steel	PN10 PN16 – 50 CI 150 – 300	DN 150 – 400 DN 100 – 400 NPS 4 – 16	Tous fluides / all fluids
		ANSI				
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 <sup>1)</sup>
				P <sub>max</sub> T= 70°F 230 psi	NPS 6	
			Acier / steel	P <sub>max</sub> T= 70°F 150 - 230 psi	NPS 2 ½ – 6	Tous fluides / all fluids



## 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-rev-A

DC012  
2023-12

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 ½ – 6 NPS 1 ¼ – 6	
Vanne aseptique / Aseptic valve	3349_HV01	DIN	Acier / steel	P <sub>max</sub> T = 20°C 16 bar P <sub>max</sub> T = 20°C 25 bar	DN 65 – 100 DN 50 – 100	Tous fluides / all fluids
		ANSI		P <sub>max</sub> T = 70°F 230 psi P <sub>max</sub> T = 70°F 360 psi	NPS 2 ½ – 4 NPS 2 – 4	
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 ½ – 4 NPS 1 ¼ – 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 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 H / Modul H	Certificat n° CE- 0062-PED-H-SAM 001-23-FRA-rev-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

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, 4 place des Saisons 92400 COURBEVOIE**  
Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN

Vaulx-en-Velin, le 14/12/23

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



## EU DECLARATION OF CONFORMITY

DC029  
2020-07

### Declaration of Conformity of Final Machinery

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

For the following products:

#### **Type 3252 -1/-7 Pneumatic Control Valves consisting of the Type 3252 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:

- Types 3252-1/-7 Valve: Mounting and Operating Instructions EB 8053
- 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 12100:201 1-03

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 REGULATION SAS – 1 rue Jean Corona – FR-69120 VAULX-EN-VELIN  
Vaulx-en-Velin, 30 July 2020

A handwritten signature in blue ink, appearing to read "Michael Lachenal-Chevallet", with a horizontal line underneath.

Michael Lachenal-Chevallet  
R&D Manager

A handwritten signature in blue ink, appearing to read "Joséphine Signoles-Fontaine", with a horizontal line underneath.

Joséphine Signoles-Fontaine  
QSE Manager



## DECLARATION OF INCORPORATION

DC039  
2022-12

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

For the following products:

#### Type 3252 Pneumatic Control Valve

We certify that the Type 3252 Pneumatic Control 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 Mounting and Operating Instructions EB 8053.

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 12100:201 1-03

Comments:

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

Persons authorized to compile the technical file:

SAMSON REGULATION SAS – 1 rue Jean Corona – FR-69120 VAULX-EN-VELIN  
Vaulx-en-Velin, 23<sup>rd</sup> December 2022

Bruno Soulas  
General Director  
Head of Strategy and Development

Joséphine Signoles-Fontaine  
Head of QSE department



**DECLARATION OF CONFORMITY**

**DC016**

For the following products

**2019-08**

**Type 3241, 3244, 3249, 3251, 3252, 3256, 3347, 3321, 3349 Control Valve**

**Certificate nb°: TSX71002520191340**

**Test report nb°: 2019TSFM750-TYP3241  
and 2019TSFM751-TYP3251**

Valves 3241 and 3251 have passed the evaluation tests according to the requirements of TSG D7002-2006 Chinese Pressure Equipment.

As a result, all of the above check valves meet the requirements of TSG D7002-2006 for Chinese pressure equipment according to the following characteristics:

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

**特种设备型式试验证书**  
Type-Test Certification of Special Equipment  
(压力管道元件)  
(Pressure Piping Components)

证书编号/Certification No: TSX71002520191340

制造单位/Manufacturer: SAMSON REGULATION S.A.S  
单位地址/Address: 1 rue Jean Corona 69120 Vaulx-en-Velin, France  
设备类别/Equipment Category: 金属阀门/ Metal Valves  
产品名称(品种)/Name of the Products (Categories): 调节阀/ Controls Valves  
产品型号/Type of the Products: TYP3241 NPS4/CL300, TYP3251 NPS2/CL2500  
型式检验报告编号/Number of the Type-Test Report: 2019TSFM750, 2019TSFM751

经型式检验, 确认符合 TSG D7002-2006《压力管道元件型式试验规则》的要求。  
本证书覆盖以下型号规格产品/ The products have undergone the type test, met the requirements of the TSG D7002-2006 Pressure Piping Components Type Test Regulation, which covers the following specifications:

公称压力/Nominal Pressure ≤PN42.0MPa(CL2500),  
公称尺寸/Nominal Size DN50mm~DN100mm (NPS2~NPS4),  
公称压力/Nominal Pressure ≤PN5.0MPa(CL300),  
公称尺寸/Nominal Size DN50mm~DN200mm (NPS2~NPS8),  
适用温度/Operating Temperature -29°C~425°C, 调节阀/ Controls Valves.

国家泵阀产品质量监督检验中心  
National Quality Supervision and Inspection  
Centre of Pump and Valve Products
合肥通用机电产品检测院有限公司  
Hefei General Machinery & Electrical  
Products Inspection Institute

2019年7月8日/July. 8, 2019

SAMSON REGULATION S.A.

Bruno Soulas  
Head of Administration

SAMSON REGULATION S.A.

Joséphine Signoles-Fontaine  
QSE Manager

# SAMSON REGULATION S.A.S.



1/1

## DECLARATION DE CONFORMITE DECLARATION OF CONFORMITY

符合性声明

DC027  
2020-04

La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.  
This declaration of conformity is issued under the sole responsibility of the manufacturer.  
制造商对发布的符合性声明全权负责。

Nous certifions que les produits suivants en exécution standard :  
For the following products in standard execution:  
适用于下述型号的产品:

Type / type / 型号 : 2371, 3249, 3252, 3310, 3331, 3347, 3349, 3351, 3710, 3711, 5090, Samstation

sont conformes à la législation applicable :  
the conformity with the relevant legislation is declared with:  
声明符合相关法规:

**China RoHS 2.0 GB/T26572-2011**

Fabricant : SAMSON REGULATION S.A.S.  
Manufacturer : 1, rue Jean Corona  
制造商 69120 Vaulx-en-Velin  
France

Vaulx-en-Velin, le 20/04/2020

Au nom du fabricant,  
On behalf of the Manufacturer,  
制造商的代表人

SAMSON REGULATION S.A.S.

Joséphine SIGNOLES-FONTAINE  
Responsable QSE  
QSE Manager  
QSE 负责人

# SAMSON REGULATION S.A.S.



1/1

**DECLARATION UE DE CONFORMITE**  
**EU DECLARATION OF CONFORMITY**  
EU KONFORMITÄTSEKTLÄRUNG

**DC008**  
**2021-12**

La présente déclaration de conformité est établie sous la seule responsabilité du fabricant.  
This declaration of conformity is issued under the sole responsibility of the manufacturer.  
Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.

Nous certifions pour les produits suivants en exécution standard :  
For the following products in standard execution:  
Für die folgenden Produkte in Standard-Ausführung:

Type / type / Typ : 2371, 3252, 3310, 3331, 3347, 3349, 3351, 3710, 3711, 3776, 3777, 3812, 3963,  
3964, 3967, 4708, 4746, 5090, Samstation

sont conformes à la législation applicable harmonisée de l'Union :  
the conformity with the relevant Union harmonization legislation is declared with:  
wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt:

**RoHS 2011/65/EU, 2015/863/EU**

**EN 50581:2012, IEC 63000:2016**

Fabricant : SAMSON REGULATION S.A.S.  
Manufacturer: 1, rue Jean Corona  
Hersteller: 69520 Vaulx-en-Velin  
France

Vaulx-en-Velin, le 14/12/21

Au nom du fabricant,  
On behalf of the Manufacturer,  
Im Namen des Herstellers,

SAMSON REGULATION S.A.S.

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Joséphine SIGNOLES-FONTAINE  
Responsable QSE

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## DECLARATION OF CONFORMITY

DC007  
2021-12

**Regulation (EU) No. 1907/2006 (REACH, Registration, Evaluation, Authorisation and Restriction of Chemicals); United Nations Globally Harmonised System (UN GHS); and WFD, Waste Framework Directive (EU) 2008/98/EC, Article 9(1)(i) as amended by Directive (EU) 2018/851 of 30 May 2018, and their national implementations**

We hereby certify that we are well informed about the REACH regulation, which entered into force on 1 June 2007 and have determined the applicable consequences and obligations, especially pre-registration and registration of substances, notifications to public bodies, authorization, and restriction. We manufacture "articles" as defined in the REACH Regulation Article 2. As a result, we are a "downstream user" in most cases. We do not produce any substances or mixtures that we sell.

Concerning the registration of the relevant substances we use to manufacture our products, we can inform you based on REACH Article 10 that, on the basis of the information presently available to us, we do not currently reach the threshold of one ton per year. It is possible for us to provide more precise data if required.

### **Concentration of SVHC (substances of very high concern) in SAMSON Products**

We have a duty to communicate information to our customers on substances contained in our products according to Article 33 of the REACH Regulation: SAMSON calculate the contents of the substances in every individual article (e.g. nuts, bolts etc.) included in a bill of materials separately, following the judgment by the Court of Justice of the European Union concerning case C-106/14 of 16 October 2015, "Once an article, always an article" (O5A). SAMSON refer to a Candidate List of SVHC, that lists up the substances that we report:

These substances are often determined based on the classification of chemical substances and mixtures in the United Nations Global Harmonized System (UN GHS). We implement these systematics in Europe by following the Regulation (EC) No. 1272/2008 (CLP) on classification, labeling and packaging of substances and mixtures, forming a unified approach with the REACH Regulation. Both Safety Data Sheets (SDS, MSDS) for chemicals and chemical mixtures as well as SAMSON Material Data Sheets (MDS) for declaring a material and its substance content are prescribed by these regulations, based on an official list:

### **Compliance with the Candidate List of SVHC for Authorisation**

Should you need to make reference to the most recent list, kindly see to the version published on the Internet, with the latest SAMSON references. Go to the following website to check whether the duty to communicate information according to REACH Article 33 applies to a SAMSON product:

<https://www.samsongroup.com/en/about-samson/material-compliance/reach-regulation/#c2723>

Also, we frequently cite further SVHC details on the delivery papers.

The Candidate List according to Article 59 (1, 10) of Regulation (EC) No. 1907/2006 (REACH) was first published on 1 September 2008. Since then, it is constantly expanded every six months by the European Chemicals Agency (ECHA). The Candidate List is regularly updated around the middle and end of every year. It now comprises of over 200 substances:

<https://www.echa.europa.eu/web/guest/candidate-list-table> (in English).

As a result, it is an on-going process to check whether our products contain SVHC in a concentration greater than 0.1% (w/w). We are in close contact with our suppliers as part of this process and we will inform you if we discover that any changes apply to us.



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**SCIP Database, “Substances of Concern In articles as such or in complex objects (Products)”**

As legally requested by the Waste Framework Directive (WFD) since 5 January 2021 and the respective national implementation, SAMSON AG input the necessary data into the European Chemical Agency’s (ECHA) SCIP Database.

The REACH Candidate List is updated every six months. SAMSON will not issue, every half a year, any more statements or fill in specific, non-standardized documents of proof in over 20 different formats that our articles are not affected.

It is legally only required to communicate the affected articles and (if the need be) their sub-articles to customers if SVHC surpasses 0.1 % weight of weight in articles or in separate articles as a part of more complex articles., as specified in REACH Article 33. Also, protective measures against SVHC have to be stated where applicable.

SAMSON REGULATION SAS  
Vaulx-en-Velin, 14 December 2021

A handwritten signature in blue ink, appearing to read "Soulas", written over a horizontal line.

Bruno Soulas  
Director of Strategy and Development

A handwritten signature in blue ink, appearing to read "J. Signoles-Fontaine", written over a horizontal line.

Joséphine Signoles-Fontaine  
Head of QSE Department



## DECLARATION OF CONFORMITY

For the following product

DC021

2022-05

### **Industrial valves in special execution with seals and packings for food contact types 3241, 3321 CT, 3310, 3351 and 3252**

Seals and packings comply with:

- European Regulation (EC) No. 1935/2004
- American rules FDA 21 CFR §177.1550 (PTFE) & §177.2415 (PEEK) & §177.2600 (Rubber).

Grease used for the assembly of parts in contact with the fluid is in conformity with the requirements of NSF-H1.

On 02/05/22

SAMSON REGULATION S.A.S.

A handwritten signature in blue ink, appearing to read "Bruno Soulas", written over a horizontal line.

Bruno Soulas  
Director of Strategy and Innovation

A handwritten signature in blue ink, appearing to read "Joséphine Signoles-Fontaine", written over a horizontal line.

Joséphine Signoles-Fontaine  
QSE Manager



## DECLARATION OF CONFORMITY

For the following product

DC022

2022-05

### **Industrial valves in special execution used in food or pharmaceutical environment types 3241, 3321 CT, 3310, 3351 and 3252.**

For these valves, the materials (seals, glands and bodies), the preparation of the parts and the conditions of assembly are in accordance with:

- European Regulation (EC) No. 1935/2004
- American rules FDA 21 CFR §177.1550 (PTFE) & §177.2415 (PEEK) & §177.2600 (Rubber).

Grease used for the assembly of parts in contact with the fluid is in conformity with the requirements of NSF-H1.

Metals used for the metal components of the valve(s) listed above and in contact with the fluid belong to the list of AISI 300 series materials recognized by the FDA.

On 02/05/22

SAMSON REGULATION S.A.S.

A handwritten signature in blue ink, appearing to read "Bruno Soulas", written over a horizontal line.

Bruno Soulas  
Director of Strategy and Innovation

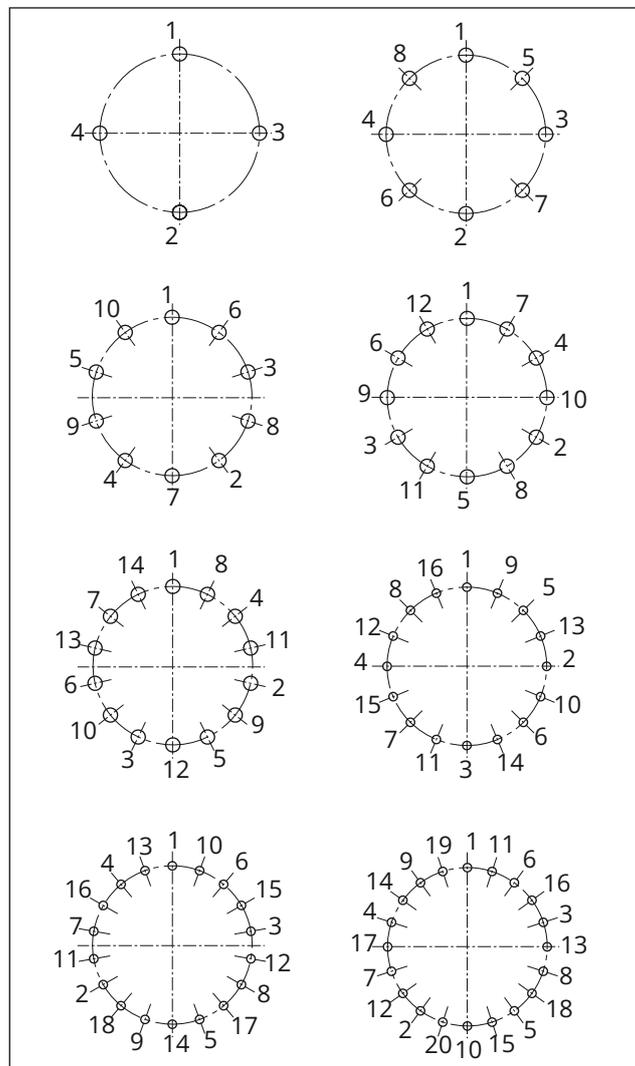
A handwritten signature in blue ink, appearing to read "Joséphine Signoles-Fontaine", written over a horizontal line.

Joséphine Signoles-Fontaine  
QSE Manager

## 15 Appendix

### 15.1 Tightening torques, lubricants and tools

#### Tightening torques



**Fig. 19:** Tightening sequence depending on the number of bolts (4, 8, 10, 12, 14, 16, 18 and 20 bolts)

**Table 11:** Numerical tightening sequence of bolts numbered in the clockwise direction

Number of bolts	Tightening sequence of bolts numbered sequentially in the clockwise direction
4	1, 3, 2, 4
6	1, 5, 3, 2, 6, 4
8	1, 5, 3, 7, 2, 6, 4, 8
10	1, 5, 3, 7, 9, 2, 6, 4, 8, 10
12	1, 5, 9, 3, 7, 11, 2, 6, 10, 4, 8, 12
14	1, 5, 9, 3, 7, 11, 13, 2, 6, 10, 4, 8, 12, 14
16	1, 5, 9, 13, 3, 7, 11, 15, 2, 6, 10, 14, 4, 8, 12, 16
18	1, 13, 5, 17, 9, 3, 15, 7, 11, 2, 14, 6, 18, 10, 4, 16, 8, 12

Number of bolts	Tightening sequence of bolts numbered sequentially in the clockwise direction
20	1, 13, 5, 17, 9, 3, 15, 7, 19, 11, 2, 14, 6, 18, 10, 4, 16, 8, 20, 12
22	1, 13, 5, 21, 9, 3, 15, 7, 19, 11, 17, 2, 14, 6, 22, 10, 4, 16, 8, 20, 12, 18
24	1, 9, 17, 5, 13, 21, 3, 11, 19, 7, 15, 23, 2, 10, 18, 6, 14, 22, 4, 12, 20, 8, 16, 24
26	1, 9, 25, 5, 13, 21, 3, 11, 19, 7, 15, 23, 17, 2, 10, 26, 6, 14, 22, 4, 12, 20, 8, 16, 24, 18
28	1, 21, 5, 13, 25, 9, 17, 3, 23, 7, 15, 19, 11, 27, 2, 22, 6, 14, 26, 10, 18, 4, 24, 8, 16, 20, 12, 28
30	1, 21, 5, 13, 27, 9, 17, 3, 23, 7, 15, 19, 11, 25, 29, 2, 22, 6, 14, 26, 10, 18, 4, 24, 8, 16, 20, 12, 26, 30
32	1, 21, 5, 13, 25, 9, 17, 29, 3, 23, 7, 15, 19, 11, 27, 31, 2, 22, 6, 14, 26, 10, 18, 30, 4, 24, 8, 16, 20, 12, 28, 32

- ⇒ Tighten radially arranged pressure-retaining bolting gradually according to the prescribed tightening sequence. Apply the target torque over several rounds.
- ⇒ Use a torque wrench to apply and check the tightening torques.

#### Lubricants

##### ⚠ WARNING

**Exposure to hazardous substances poses a serious risk to health.**

Certain lubricants and cleaning agents are classified as hazardous substances. These substances have a special label and a material safety data sheet (MSDS) issued by the manufacturer.

- ⇒ Make sure that an MSDS is available for any hazardous substance used. If necessary, contact the manufacturer to obtain an MSDS.
- ⇒ Inform yourself about the hazardous substances and their correct handling.

To minimize the friction in threaded joints, clean any dirty sliding surfaces on the joint and apply a suitable lubricant to them before tightening the joint. Optimum lubrication is achieved by lubricating all sliding surfaces (e.g. threads, seating surfaces on nuts, contact surfaces on moving bolt heads and washers, if used). This is required to achieve the required preload when applying the specified tightening torques. It also ensures that the threaded joint can still be undone without any problems after it has been exposed to thermal stress. Apply on-

ly a thin film of lubricant to the entire surface that needs lubrication.

- ⇒ Use lubricant as listed in the device bill of materials. Alternatively, contact our after-sales service for more information on the cleaning agents and lubricants to be used.

### Tools

In addition to the standard tool, special tools are required to assemble and remove some parts. Use adjustable torque wrenches with a stop signal or that indicate the torque being applied to achieve the right tightening torques. Valves in large nominal sizes often require tightening torques that can only be achieved through additional torque multiplication by using a torque multiplier or hydraulic power tool. Depending on the valve model and version, special tools may be required for certain procedures.

The required special tools can be purchased from SAMSON.

- ⇒ Contact our after-sales service.

## 15.2 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 [aftersaleservice@samsongroup.com](mailto:aftersaleservice@samsongroup.com).

### Addresses of SAMSON AG and its subsidiaries

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

### 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 or cu.ft/min
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing
- Direction of flow

### 15.3 Spare parts

2	Seat and plug
3	Threaded bushing (packing)
5	Body
8	Travel indicator scale
9	Nameplate
12	Stem connector nut
13	Lock nut
15	Slotted round nut
17	Spring (packing)
18	Hanger
20	Guide bushing
21	Intermediate piece
22	Washer (packing)
23	Bushing (packing)
25	Anti-rotation fixture
27	Yoke
28	V-rings (packing)
29	Body gasket
35	Grooved pin
37	Cap screw
38	Cap screw

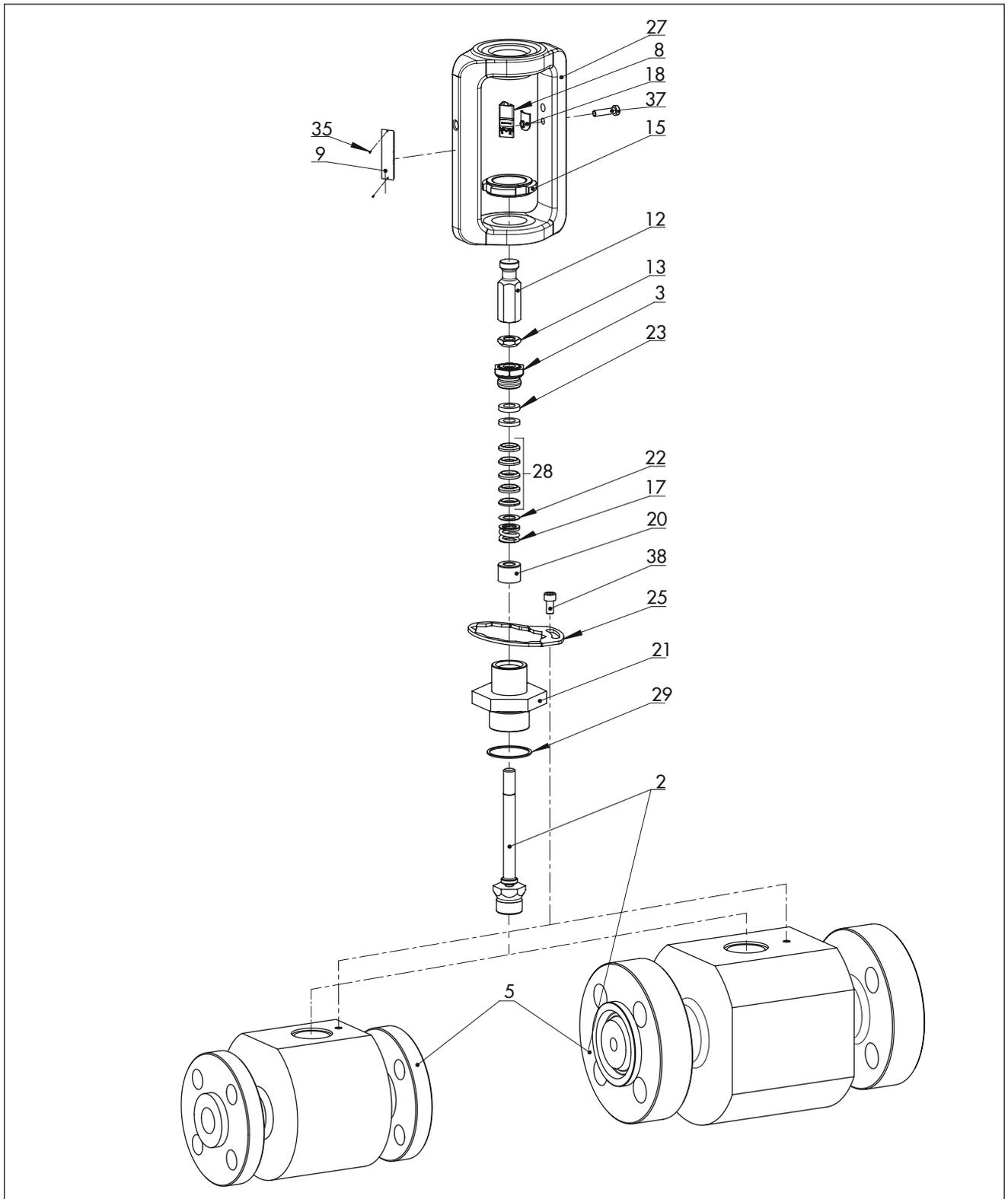


Fig. 20: PN 40 to 250/Class 300 to 1500







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samson@samsongroup.com · www.samsongroup.com