

MOUNTING AND OPERATING INSTRUCTIONS



EB 8052-1 EN

Translation of original instructions



Type 3251 Valve for molten salt service · ANSI version

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

Edition November 2022



Note on these mounting and operating instructions

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

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



Documents relating to the device, such as the mounting and operating instructions, are available on our website at www.samsongroup.com > **Service & Support** > **Downloads** > **Documentation**.

Definition of signal words

DANGER

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

WARNING

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

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

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1 Safety instructions and measures

Intended use

The SAMSON Type 3251 Globe Valve in combination with an actuator (e.g. Type 3271 or Type 3277 Pneumatic Actuator) is designed to regulate the flow rate of molten salt. The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in operating conditions that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in applications or conditions other than those specified, contact SAMSON.

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

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

Reasonably foreseeable misuse

The control valve is not suitable for the following applications:

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

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

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

Qualifications of operating personnel

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

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

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

Safety instructions and measures

Personal protective equipment

We recommend checking the hazards posed by the process medium being used (e.g.

▶ GESTIS (CLP) hazardous substances database). Depending on the process medium and/or the activity, the protective equipment required includes:

- Protective clothing, gloves, eye protection and respiratory protection in applications with hot, cold and/or corrosive media
 - Wear hearing protection when working near the valve
 - Hard hat
 - Safety harness, e.g. when working at height
 - Safety footwear, if applicable ESD (electrostatic discharge) footwear
- ➔ Check with the plant operator for details on further protective equipment.

Revisions and other modifications

Revisions, conversions or other modifications of the product are not authorized by SAMSON. They are performed at the user's own risk and may lead to safety hazards, for example. Furthermore, the product may no longer meet the requirements for its intended use.

Safety features

The fail-safe position of the control valve upon air supply or control signal failure depends on the actuator used (see associated actuator documentation). When the valve is combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator, the valve moves to a certain fail-safe position (see the 'Design and principle of operation' section) upon supply air or control signal failure. The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators.

Warning against residual hazards

To avoid personal injury or property damage, plant operators and operating personnel must prevent hazards that could be caused in the control valve by the process medium, the operating pressure, the signal pressure or by moving parts by taking appropriate precautions. Plant operators and operating personnel must observe all hazard statements, warnings and caution notes in these mounting and operating instructions.

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

Responsibilities of the operator

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

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

Responsibilities of operating personnel

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

Referenced standards, directives and regulations

The control valves comply with the requirements of the European Pressure Equipment Directive 2014/68/EU, Machinery Directive 2006/42/EC, Directive 2016 No. 1105 Pressure Equipment (Safety) Regulations 2016 and Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008. Valves with a CE marking and/or UKCA marking have a declaration of conformity, which includes information about the applied conformity assessment procedure. The 'Certificates' section contains this declaration of conformity.

According to the ignition hazard assessment performed in accordance with Clause 5.2 of ISO 80079-36, the non-electrical control valves do not have their own potential ignition source even in the rare incident of an operating fault. As a result, they do not fall within the scope of Directive 2014/34/EU.

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

Referenced documentation

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

- Mounting and operating instructions for the mounted actuator, e.g. ► EB 8310-X for Type 3271 or Type 3277 Pneumatic Actuator
 - Mounting and operating instructions for mounted valve accessories (temperature sensor, positioner, solenoid valve etc.)
 - Documentation for devices by other manufacturers (e.g. for electric trace heating)
 - ► AB 0100 for tools, tightening torques and lubricant
 - Manual ► H 02: Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery
 - When a substance is used in the device, which is listed as being a substance of very high concern on the candidate list of the REACH regulation:
Information on safe use of the part affected
► www.samsongroup.com > About SAMSON > Material Compliance > REACH
- If a device contains a substance listed as a substance of very high concern on the candidate list of the REACH regulation, this is indicated on the SAMSON delivery note.

1.1 Notes on possible severe personal injury

DANGER

Risk of bursting in pressure equipment.

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

- Observe the maximum permissible pressure for valve and plant.
- Before starting any work on the control valve, depressurize all plant sections affected as well as the valve.
- Drain the process medium from all the plant sections concerned as well as the valve.

Risk of burn injuries due to hot components and pipelines.

Components and pipelines reach temperatures above 300 °C (570 °F) while the plant is running. Risk of severe burn injuries if touched.

- Prior to performing any work on the valve, allow components and pipelines to cool down.
- Wear protective clothing and safety gloves.

Risk of burn injuries from molten salt.

Molten salt reaches very high temperatures of over 200 °C (392 °F) and leads to severe burn injuries if touched.

- Do not touch molten salt.
- Wear protective clothing and safety gloves when handling molten salt.

Risk of fatal injury due to electric shock.

The following applies when using electric trace heating or other electric components to heat the valve components:

- Only allow properly trained and instructed operating personnel to perform work on the mounted device.
- Observe the safety instructions in the associated documentation.

1.2 Notes on possible personal injury

WARNING

Fire risk due to molten salt.

Individual elements in molten salt (both in crystallized and liquefied state) can accelerate combustion or ignite on coming into contact with certain substances (e.g. graphite).

→ Do not allow molten salt to come into contact with flammable substances.

Risk of poisoning from molten salt vapors.

Molten salt in the liquefied state produces vapors that are toxic.

→ Do not inhale molten salt vapors.

→ Make sure the area is sufficiently ventilated.

→ Wear a respirator.

Risk of hearing loss or deafness due to loud noise.

The noise emissions depend on the valve version, plant facilities and process medium.

→ Wear hearing protection when working near the valve.

Risk of personal injury due to exhaust air being vented.

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

→ Install the control valve in such a way that vent openings are not located at eye level and the actuator does not vent at eye level in the work position.

→ Use suitable silencers and vent plugs.

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

Risk of personal injury due to preloaded springs.

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

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

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

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

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

WARNING

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

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

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

1.3 Notes on possible property damage

NOTICE

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

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

- Flush the pipelines before start-up.

Risk of damage to the valve and pipelines due to the process medium crystallizing.

The molten salt crystallizes when its temperature falls below the salt's melting point. The crystallized medium accumulates in the valve and pipelines causing them to become blocked. The bellows seal is damaged as a result.

- Observe the temperature limits of the process medium. See 'Configuring the temperature control' in the 'Installation' section.

Risk of leakage and valve damage due to excessively high or low tightening torques.

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

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

! NOTICE**Risk of valve damage due to the use of unsuitable tools.**

Certain tools are required to work on the valve.

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

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

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

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

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

→ Keep the valve and the tools used free from solvents and grease.

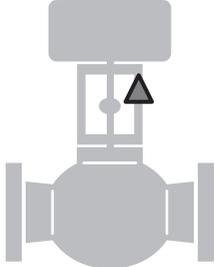
→ Make sure that only suitable lubricants are used.

1.4 Notes on the use of an RFID tag

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

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

1.5 Warnings on the device

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

2 Markings on the device

The 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.

2.1 Valve nameplate

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

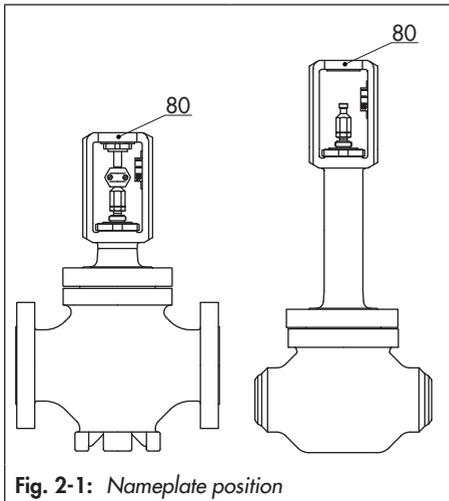


Fig. 2-1: Nameplate position

i Note

Fig. 2-2 and the inscription table list all possible characteristics and options that may appear on a valve nameplate. Only the inscriptions relevant to the ordered Type 3251 für Molten-Salt-Anwendungen Valve actually appear on the nameplate.

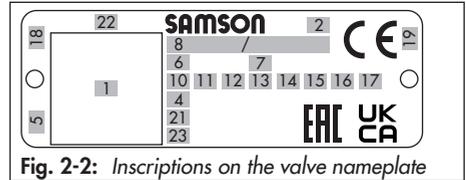


Fig. 2-2: Inscriptions on the valve nameplate

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

Markings on the device

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



Tip

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

The serial number enables you to view the device's current technical data as configured by SAMSON. The material number enables you to view the device's technical data as configured by SAMSON upon delivery of the device. To view these data, go to our website at ► www.samsongroup.com > Service & Support > 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. 2-3).



Fig. 2-3: Label when an adjustable packing is installed

2.5 Optional RFID tag

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

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

3 Design and principle of operation

See Fig. 3-1 on page 3-3.

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

The body (1) is designed either with flanges or welding ends (optionally with additional welding-neck ends). The seat (4) and plug (5) are installed in the body. The plug stem is connected to the actuator stem (A7) by stem connector clamps (A26) and sealed by an adjustable packing (15). This packing (form MS) is specially designed for molten salt service and has an additional zinc-impregnated coating to protect it against corrosion and prevent leakage. The valve can be fitted with a bellows seal (22) to allow it to withstand high temperatures up to 580 °C. In this version, a test connection (42) on the bonnet (2) allows leakage monitoring.

The springs (A10) in the pneumatic actuator are located either above or below the diaphragm (A4) depending on the selected fail-safe action. A change in the signal pressure acting on the diaphragm causes the plug to move. The actuator size is determined by the diaphragm area.

The medium flows through the valve in the direction indicated by the arrow. A rise in signal pressure causes the force acting on the diaphragm in the actuator to increase. The springs are compressed. Depending on the selected direction of action, the actuator

stem retracts or extends. As a result, the plug position in the seat changes and determines the flow rate through the valve.



Tip

We recommend the use of positioners with integrated diagnostic firmware (see section 3.3) for valves used for on/off service. The partial stroke test included in this software helps prevent a shut-off valve normally in its end position from seizing up or getting jammed.

Molten salt

Molten salt is used in heat recovery plants instead of organic heat transfer oils. Molten salt remains liquefied at temperatures up to almost 600 °C. It is neither flammable nor toxic. It has a higher heat capacity than conventional heat transfer media.

An exact temperature control and monitoring of molten salt is essential since it solidifies very quickly as it cools down. For this purpose, the bonnet (2) of the valve is designed with a connection for a temperature sensor.

Fail-safe action

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

Depending on how the compression springs are arranged in the SAMSON Type 3271 and Type 3277 Pneumatic Actuator, the valve has one of two different fail-safe positions:

Design and principle of operation

– Actuator stem extends (FA)

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

– Actuator stem retracts (FE)

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



Tip

The actuator's direction of action can be reversed, if required. Refer to the mounting and operating instructions of the pneumatic actuator:

▶ *EB 8310-X for Type 3271 and Type 3277*

Legend for Fig. 3-1

1	Body	14	Body nut	A4	Diaphragm
2	Bonnet	15	Packing	A7	Actuator stem
3	Yoke	17	Body gasket	A8	Ring nut
4	Seat	22	Bellows seal	A10	Spring
5	Plug	37	Plug stem with metal bellows	A16	Vent plug
8	Threaded bushing (packing nut)	42	Test connection	A26	Stem connector clamps
9	Stem connector nut	84	Travel indicator scale	S	Signal pressure connection
10	Lock nut	92	Castellated nut		

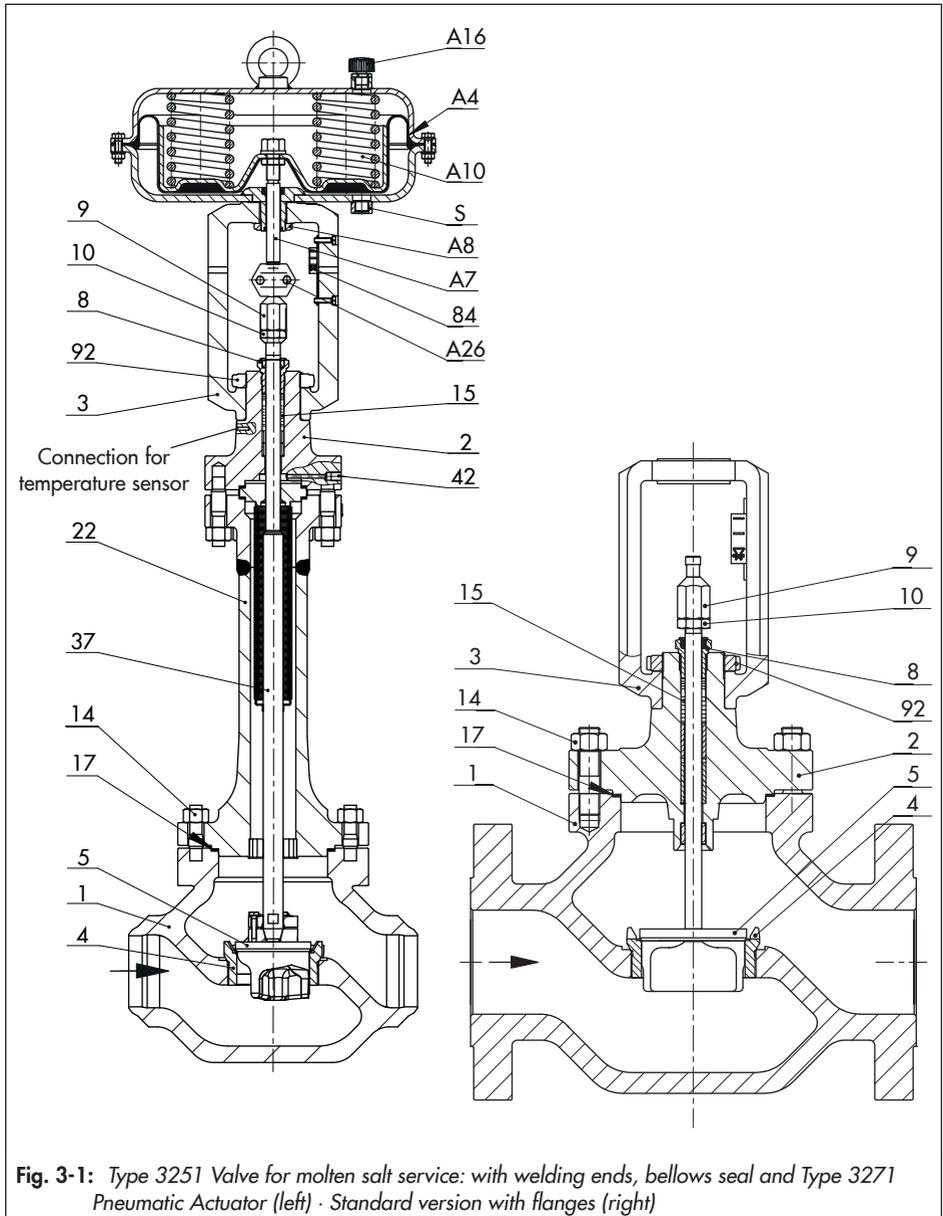


Fig. 3-1: Type 3251 Valve for molten salt service: with welding ends, bellows seal and Type 3271 Pneumatic Actuator (left) · Standard version with flanges (right)

3.1 Versions

Bellows seal

A bellows seal can be fitted to the standard valve version for high temperatures up to 580 °C.

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.

i Note

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

The basic pneumatic actuator can be replaced by an actuator with additional handwheel, an electric actuator or a pneumatic piston actuator.

3.2 Additional fittings

Temperature sensor

A sensor measures the components' temperature to determine whether the minimum temperature at least prevails in order to keep the molten salt in the liquefied state.

→ Additional instructions on the temperature sensor can be found in the associated documentation.

Electric trace heating

An electric trace heating is used to heat the pipeline and valve (in particular, the bellows and packing area) to a predetermined temperature to prevent the process medium from crystallizing.

→ Set the trace heating to keep the process medium at least 50 °C (122 °F) above the salt's melting point.

→ Additional instructions on the electric trace heating can be found in the associated documentation.

Heating jacket

The control valve can be fitted with a heating jacket on request.

Bypass and shut-off valves

We recommend installing a shut-off valve both upstream of the strainer and downstream of the valve and installing a bypass line. The bypass ensures that the plant does not need to be shut down for service and repair work on the valve.

Test connection

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

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

Safety guard

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

Noise reduction

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

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.

3.3 Valve accessories

Information Sheet ► T 8350

3.4 Technical data

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

i Note

More information is available in Data Sheet ► T 8052.

Design and principle of operation

Table 3-1: *Technical data*

Type 3251 Valve for molten salt service		
Material	Body	A351 CF8C
Process medium		Molten salt
Minimum temperature	Process medium	Depending on the melting point
	Valve components	50 °C above melting point
Temperature range	Standard version	-10 to +400 °C (14 to 752 °F)
	With bellows seal	-10 to +580 °C (14 to +1076 °F)
Leakage class	According to ANSI/FCI 70-2	IV
Conformity		
Optional RFID tag	Application range according to the technical specifications and the explosion protection certificates. These documents are available on our website at ► www.samsongroup.com > Service & Support > Electronic nameplate.	

Dimensions and weights

Table 3-2 to Table 3-5 provide an overview of the dimensions and weights of the standard version of Type 3251 Valve. Table 3-6 to Table 3-9 provide an overview of the dimensions and weights of the Type 3251 Valve with bellows seal. The lengths and heights are defined in the dimensional drawings on page 3-9 and are based on a valve combined with a SAMSON Type 3271 or Type 3277 Actuator.

Table 3-2: *Dimensions of Type 3251 Valve, up to NPS 6*

Valve	NPS		½	1	1½	2	3	4	6
	DN		15	25	40	50	80	100	150
Length L (flanges RF and welding ends)	Class 150	in	7.25	7.25	8.75	10.00	11.75	13.88	17.75
		mm	184	184	222	254	298	352	451
	Class 300	in	7.50	7.75	9.25	10.50	12.50	14.50	18.62
		mm	190	197	235	267	318	368	473
	Class 600	in	8.00	8.25	9.88	11.25	13.25	15.50	20.00
		mm	203	210	251	286	337	394	508
	Class 900	in	8.50	10.00	12.00	14.50	15.00	18.00	24.00
		mm	216	254	305	368	381	457	610

Valve	NPS		½	1	1½	2	3	4	6		
	DN		15	25	40	50	80	100	150		
Height H4	Class 150-600	in	5.98	5.98	6.46	8.54	8.74	9.53	12.36		
		mm	152	152	164	217	222	242	314		
	Class 900	in	7.32	7.32	7.68	9.88	8.74	9.53	12.36		
		mm	186	186	195	251	222	242	314		
H8 for actuator	350 cm ²	in	9.45	9.45	9.45	9.45	9.45	9.45	-		
		mm	240	240	240	240	240	240			
	355 cm ²	in	9.45	9.45	9.45	9.45	9.45	9.45	16.46		
		mm	240	240	240	240	240	240	418		
	700 cm ²	in	9.45	9.45	9.45	9.45	9.45	9.45	16.46		
		mm	240	240	240	240	240	240	418		
	750 cm ²	in	9.45	9.45	9.45	9.45	9.45	9.45	16.46		
		mm	240	240	240	240	240	240	418		
	1000 cm ²	in	-					11.61	11.61	11.61	16.46
								295	295	295	418
		mm						11.61	11.61	11.61	16.46
								295	295	295	418
	1400-60 cm ²	in								18.90	19.80
		mm								480	503
	2800 cm ²	in								18.90	19.80
		mm								480	503
2x2800 cm ²	in								18.90	19.80	
	mm								480	503	
H2 (NPS 4 and larger with foot)	Class 150	in	1.97	2.36	3.05	3.54	3.94	6.3	8.66		
		mm	50	60	80	90	100	160	220		
	Class 300-600	in	2.36	2.76	3.54	3.94	4.72	7.09	9.25		
		mm	60	70	90	100	120	180	235		
	Class 900	in	2.76	3.05	3.94	4.33	4.72	7.09	9.25		
		mm	70	80	100	110	120	180	235		

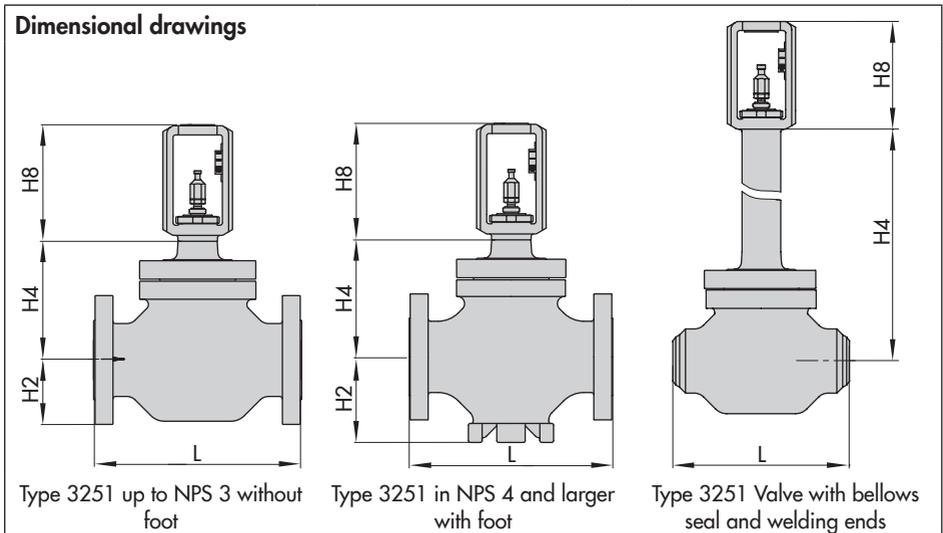
Design and principle of operation

Table 3-3: Dimensions of Type 3251 Valve, NPS 8 and larger

Valve	NPS		8	10	12	14	16	20
	DN		200	250	300	–	400	500
Length L (flanges RF and weld- ing ends)	Class 150	in	21.38	26.50	29.00	35.00	40.00	On request
		mm	543	673	737	889	1016	
	Class 300	in	22.38	27.88	30.50	36.50	41.62	On request
		mm	568	708	775	927	1057	
	Class 600	in	24.00	29.62	32.25	38.25	43.62	On request
		mm	610	752	819	972	1108	
Class 900	in	29.00	33.00	38.00	40.50	On request		
	mm	737	838	965	1029			
Height H4	Class 150-600	in	15.24	17.40 ¹⁾	25.79	25.20	25.20	On request
		mm	387	442 ¹⁾	655	640	640	
	Class 900	in	15.24	20.43 ²⁾	23.90	On request		
		mm	387	519 ²⁾	607			
H8 for actuator	350 cm ²	in	–					
		mm						
	355 cm ²	in	–					
		mm						
	700 cm ²	in	16.46	16.46	–			
		mm	418	418				
750 cm ²	in	16.46	16.46	–				
	mm	418	418					
H8 for actuator	1000 cm ²	in	16.46	On request				
		mm	418					
	1400-60 cm ²	in	16.46	On request				
		mm	418					
	1400-120 cm ²	in	19.80	19.80	25.59	25.59	25.59	25.59
		mm	503	503 ³⁾	650	650	650	650
	2800 cm ²	in	19.80	19.80	25.59	25.59	25.59	25.59
		mm	503	503 ³⁾	650	650	650	650
2x2800 cm ²	in	19.80	19.80	25.59	25.59	25.59	25.59	
	mm	503	503 ³⁾	650	650	650	650	

Valve	NPS		8	10	12	14	16	20
	DN		200	250	300	-	400	500
H2 (NPS 4 and larger with foot)	Class 150	in	9.84	12.21	14.57	On request	16.34	On request
		mm	250	310	370		415	
	Class 300-600	in	10.63	11.82	15.35	On request		
		mm	270	300	390			
	Class 900	in	On request					
		mm						

- 1) NPS 10, Class 150 to 300: 17.40" or 442 mm
- 2) NPS 10, Class 600 to 900: 20.43" or 519 mm
- 3) H8 = 25.59" or 650 mm with 250 mm seat bore



Design and principle of operation

Table 3-4: Weights for standard version of Type 3251, up to NPS 6

Valve		NPS	½	1	1½	2	3	4	6
		DN	15	25	40	50	80	100	150
Valve without actuator	Class 150	lbs	26	31	42	66	110	152	342
		kg	12	14	19	30	50	69	155
	Class 300	lbs	33	35	57	95	170	247	694
		kg	15	16	26	43	77	112	315
	Class 600	lbs	33	35	57	95	170	247	694
		kg	15	16	26	43	77	112	315
	Class 900	lbs	33	35	57	95	170	247	694
		kg	15	16	26	43	77	112	315

Table 3-5: Weights for standard version of Type 3251, NPS 8 and larger

Valve		NPS	8	10	12	14	16	20
		DN	200	250	300	–	400	500
Valve without actuator	Class 150	lbs	948	1892	2028	On request	3197	3638
		kg	430	858	920		1450	1650
	Class 300	lbs	948	1892	2028	On request	3197	3638
		kg	430	858	920		1450	1650
	Class 600	lbs	1096	1609	2535	On request		
		kg	497	730	1150			
	Class 900	lbs	1157	2844	3263	On request	5732	On request
		kg	525	1290	1480		2600	

Table 3-6: Dimensions of Type 3251 Valve with bellows seal, up to NPS 6

Valve size		NPS	½	1	1½	2	3	4	6
		DN	15	25	40	50	80	100	150
		Travel							
Height H4	Class 150	in	14.25	14.25	14.72	23.94	24.13	24.13	27.72
		mm	362	362	374	608	613	613	704
	Class 300 to 900	in	14.25	14.25	14.72	23.94	24.13	24.13	32.96
		mm	362	362	374	608	613	613	837

Table 3-7: Dimensions of Type 3251 Valve with bellows seal, NPS 8 and larger

Valve size		NPS	8	10	12	14	16	20	
		DN	200	250	300	-	400	500	
		Travel							
Height H4	Class 150 to 300	in	1.18 to 4.72	41.22	59.13	60.20	On request	59.69	62.60
		mm	30 to 120	1047	1502	1529		1516	1590
	Class 600 to 900	in	1.18 to 2.36	62.24	62.68	64.96		On request	
		mm	30 to 60	1581	1592	1650			
	Class 600	in	4.72	-	94.65	91.42		90.16	On request
		mm	120		2404	2322		2290	

Table 3-8: Weights of Type 3251 Valve with bellows seal, up to NPS 6

Valve size		NPS	½	1	1½	2	3	4	6
		DN	15	25	40	50	80	100	150
Valve without actuator	Class 150	lbs	46	51	62	97	176	220	430
		kg	21	23	28	44	80	100	195
	Class 300	lbs	53	55	77	126	236	317	794
		kg	24	25	35	57	107	144	360
	Class 600	lbs	53	55	77	126	236	317	794
		kg	24	25	35	57	107	144	360
	Class 900	lbs	53	55	77	126	236	317	794
		kg	24	25	35	57	107	144	360

Table 3-9: Weights of Type 3251 Valve with bellows seal, NPS 8 and larger

Valve size		NPS	8	10	12	14	16	20
		DN	200	250	300	-	400	500
Valve without actuator	Class 150	lbs	1146	2150	2227	On request		
		kg	520	975	1010			
	Class 300	lbs	1146	2150	2227			
		kg	520	975	1010			
	Class 600	lbs	1312	2740	2734			
		kg	595	1243	1240			
	Class 900	lbs	1354	2866	On request			
		kg	614	1300				

i Note

Refer to the following data sheets for more dimensions and weights (also for applications other than molten salt):

▶ T 8052 for valves in standard version as well as with bellows seal, insulating section or heating jacket

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

▶ T 8310-1 for Type 3271 or Type 3277 Pneumatic Actuators up to 750 cm² actuator area

▶ T 8310-2 for Type 3271 Actuator with 1000 cm² actuator area and larger

▶ T 8310-3 for Type 3271 Actuator with 1400-60 cm² actuator area

4 Shipment and on-site transport

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

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

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

4.2 Removing the packaging from the valve

Observe the following sequence:

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

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

4.3 Transporting and lifting the valve

⚠ DANGER

Danger due to suspended loads falling.

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

⚠ WARNING

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

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

WARNING

Risk of personal injury due to the control valve tipping over.

- Observe the valve's center of gravity.
 - Secure the valve against tipping over or turning.
-

WARNING

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

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

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

NOTICE

Risk of valve damage due to incorrectly attached slings.

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

- When lifting the control valve, make sure that the slings attached to the valve body bear the entire load.
 - Do not attach load-bearing slings to the actuator, handwheel or any other parts.
 - Observe lifting instructions (see section 4.3.2).
-

Tip

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

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

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

Tip

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

4.3.1 Transporting the valve

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

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

Transport instructions

- Protect the control valve against external influences (e.g. impact).
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

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

i Note

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

4.3.2 Lifting the valve

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

Lifting instructions

- Use a hook with safety latch (see Fig. 4-1) to secure the slings from slipping off the hook during lifting and transporting.
- Secure slings against slipping.

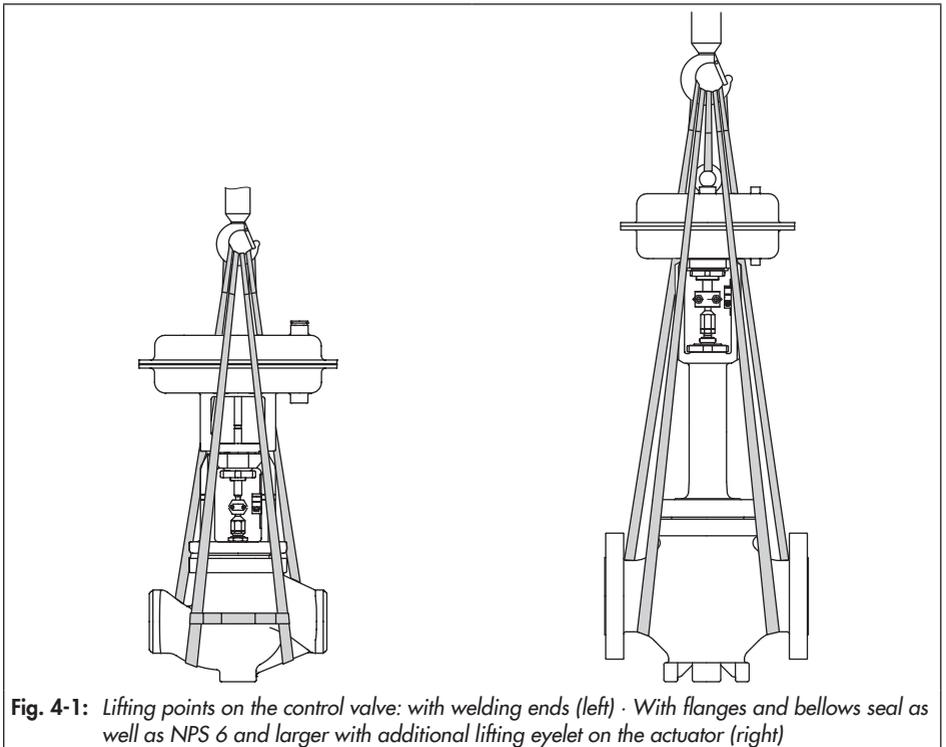


Fig. 4-1: Lifting points on the control valve: with welding ends (left) · With flanges and bellows seal as well as NPS 6 and larger with additional lifting eyelet on the actuator (right)

Shipment and on-site transport

- Make sure the slings can be removed from the valve once it has been installed into the pipeline.
- Prevent the control valve from tilting or tipping over.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.
- Make sure that the additional sling between the lashing point on the actuator and rigging equipment (hook, shackle etc.) does not bear any load when lifting valves larger than NPS 6. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

a) Version with flanges

1. Attach one sling to each flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-1).
2. **NPS 6 and larger:** attach another sling to the lashing point on the actuator and to the rigging equipment.
3. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
4. Move the control valve at an even pace to the site of installation.
5. Install the valve into the pipeline (see the 'Installation' section).

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

b) Version with welding ends

1. Attach one sling to each welding end of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-1).
2. Secure the slings attached to the body against slipping using a connector.
3. **NPS 6 and larger:** attach another sling to the lashing point on the actuator and to the rigging equipment.
4. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
5. Move the control valve at an even pace to the site of installation.
6. Install the valve into the pipeline (see the 'Installation' section).
7. After installation, check whether the weld seams hold.
8. Remove connectors and slings.

4.4 Storing the valve

⚠ NOTICE

Risk of valve damage due to improper storage.

- Observe the storage instructions.
- Avoid long storage times.

- *During long storage periods, replace the packing before stroking the valve.*
 - *Contact SAMSON in case of different storage conditions or longer storage times.*
-

i Note

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

Storage instructions

- Protect the control valve against external influences (e.g. impact).
- Secure the valve in the stored position against slipping or tipping over.
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the control valve against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- The permissible storage temperature of standard control valves is -20 to $+65$ °C (-4 to $+149$ °F). Contact our after-sales service for the storage temperatures of other valve versions.
- Do not place any objects on the control valve.

- For storage periods longer than 4 months, we recommend storing the following valves upright with the actuator on top:
 - \geq NPS 4 for versions with pressure balancing
 - \geq NPS 6 for versions without pressure balancing

Special storage instructions for elastomers

Elastomer, e.g. actuator diaphragm

- To keep elastomers in shape and to prevent cracking, do not bend them or hang them up.
 - We recommend a storage temperature of 15 °C (59 °F) for elastomers.
 - Store elastomers away from lubricants, chemicals, solutions and fuels.
-

Tip

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

5 Installation

The work described in this section is only to be performed 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 5-1) vary depending on several variables and process conditions and are intended as recommendations. Contact SAMSON if the lengths are significantly shorter than the recommended lengths.

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

- ➔ Observe the inlet and outlet lengths (see Table 5-1). Contact SAMSON if the valve conditions or states of the medium process deviate.
- ➔ Install the valve free of stress and with the least amount of vibrations as possible. Read information under "Mounting position" and "Support or suspension" in this section.

- ➔ Install the valve allowing sufficient space to remove the actuator and valve or to perform service work on them.

i Note

To prevent residual medium from accumulating and solidifying when the temperature drops, we recommend installing the return flow lines with a downward slope (self-draining plant with gravitational return flow). The plant engineering company is responsible for the plant design.

Mounting position

Generally, we recommend installing the valve with the actuator upright and on top of the valve. As a result, the valve is self-draining.

In versions in valve size NPS 4 and larger, the control valve **must** be installed with the actuator on top:

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

Support or suspension

i Note

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

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

- ➔ Valves, which are not installed in the pipeline in the upright position with the

Installation

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.

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.

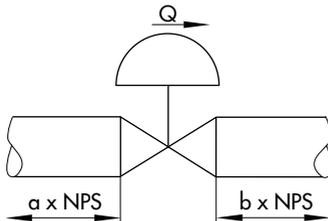
→ Locate the vent plug on the opposite side to the work position of operating personnel.

Vent plugs

Vent plugs are screwed into the exhaust air ports of pneumatic and electropneumatic devices. They ensure that any exhaust air that

Table 5-1: Inlet and outlet lengths

State of process medium	Valve conditions	Inlet length a	Outlet length b
Gas	$Ma \leq 0.3$	2	4
	$0.3 \leq Ma \leq 0.7$	2	10
Liquid	Free of cavitation/ $w < 10$ m/s	2	4
	Cavitation producing noise/ $w \leq 3$ m/s	2	4
	Cavitation producing noise/ $3 < w < 5$ m/s	2	10
	Critical cavitation/ $w \leq 3$ m/s	2	10
	Critical cavitation/ $3 < w < 5$ m/s	2	20
Flashing	–	2	20
Multi-phase	–	10	20



Q Flow rate
a Inlet length
b Outlet length

¹⁾ No saturated steam

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, valve size, material, pressure rating and temperature range) match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.). See the 'Markings on the device' section for nameplate details.
- The requested or required additional pipe fittings (see the 'Additional fittings' section) have been installed or prepared as necessary before installing the valve.

Proceed as follows:

- ➔ Lay out the necessary material and tools to have them ready during installation work.
- ➔ To prevent residual medium from crystallizing and accumulating in the valve body in the depressurized state, a condensate drain, for example can be welded onto the bottom of the valve body.

! NOTICE

Risk of the condensate drain becoming blocked due to the process medium crystallizing.

An additional condensate drain or similar construction to drain the process medium must also be heated to prevent the process medium from crystallizing.

- ➔ *Make sure that the corresponding components are heated correctly.*

- ➔ Flush the pipelines.

i Note

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

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

5.3 Assembly

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

! NOTICE

Risk of valve damage due to excessively high or low tightening torques.

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

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

NOTICE

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

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

5.3.1 Mounting the external anti-rotation fixture

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

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

a) Standard version for valve size NPS 6 and larger

See Fig. 5-1 and Fig. 5-2

1. Insert ball bearings (310) into the recesses in the bonnet.
2. Place the yoke (3) on the bonnet in such a way that the ball bearings fit into the recesses of the yoke.
3. Fasten the yoke (3) using the castellated nut (92).
4. Fasten the hanger (83) and warning label (255), if applicable, to the yoke using the screws (82).

5. Position the travel indicator scale (84) on the hanger (83) with the screws (85) according to Table 5-4.
6. Use a soft-faced hammer or lever press to press the sliding washers (309) with their beveled part first (without using any lubricant) into the recesses of the clamps (301) as far as they will go. Remove any excess material.
7. Apply a thin film of lubricant (114) to the threads of the stem (9) and screws (303).

NOTICE

Impaired functioning due to incorrectly applied lubricant.

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

8. Position the clamps (301) and stem (9) on the plug stem according to Table 5-4 and tighten screws (303) and washers (304) by hand.
9. Mount the actuator. See section 5.3.2.
10. Thread the stem (9) upwards until the head of the stem rests on the extended actuator stem.
11. Retract the actuator stem to relieve the stem (9).
12. Gradually tighten the screws (303) in a crisscross pattern. Observe the tightening torques specified in Table 5-2.

Table 5-2: Tightening torques

Screw size	Tightening torque [Nm]
M12	50
M16	121

13. Check and ensure the following:

- There is a nominal clearance of 0.5 to 1 mm between the sliding washers and their contact surface on the yoke

on each side (see detailed view Y in Fig. 5-2).

- The anti-rotation fixture does not get stuck on the yoke and can move freely in the direction of travel.

14. Extend the actuator stem again and mount the stem connector clamps.

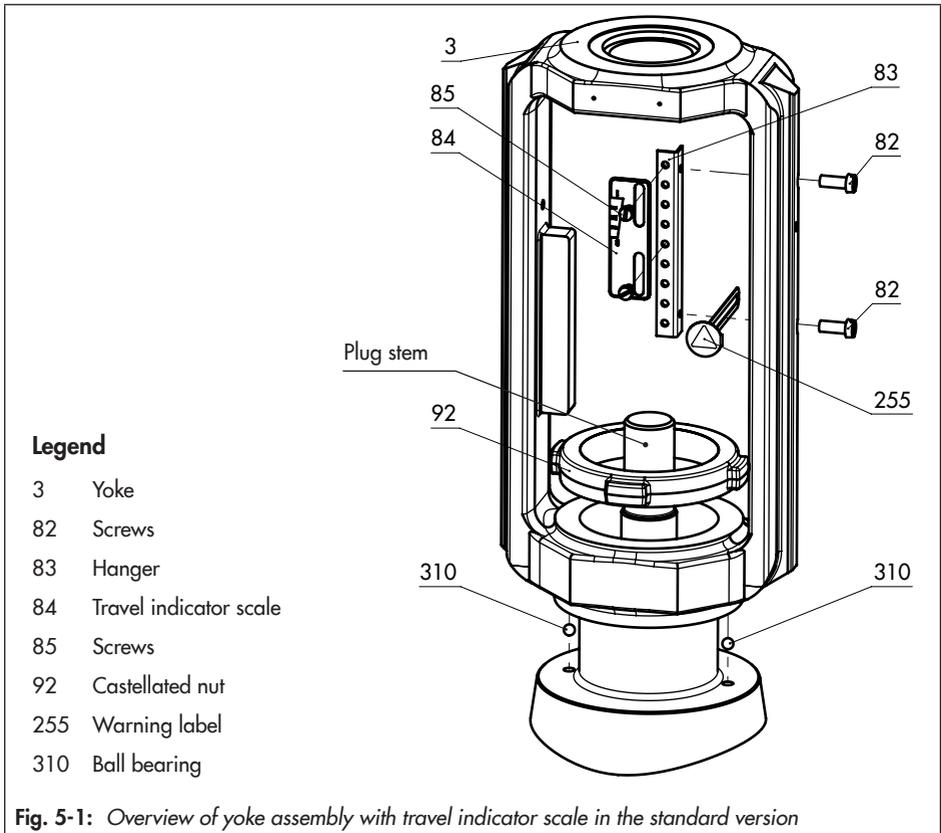
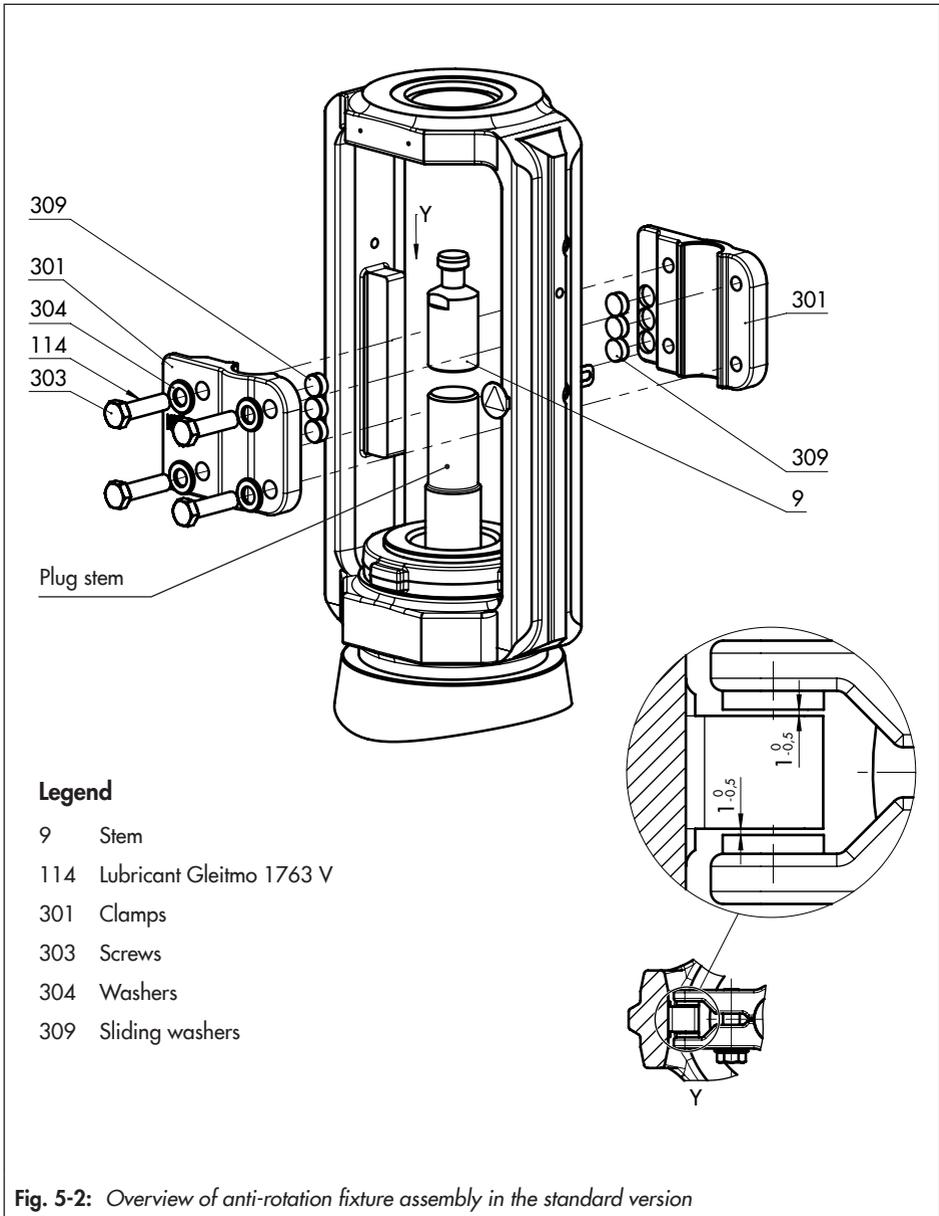


Fig. 5-1: Overview of yoke assembly with travel indicator scale in the standard version



b) Special version for valve sizes NPS 2 to 4

See Fig. 5-3 and Fig. 5-4

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

NOTICE

Impaired functioning due to incorrectly applied lubricant.

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

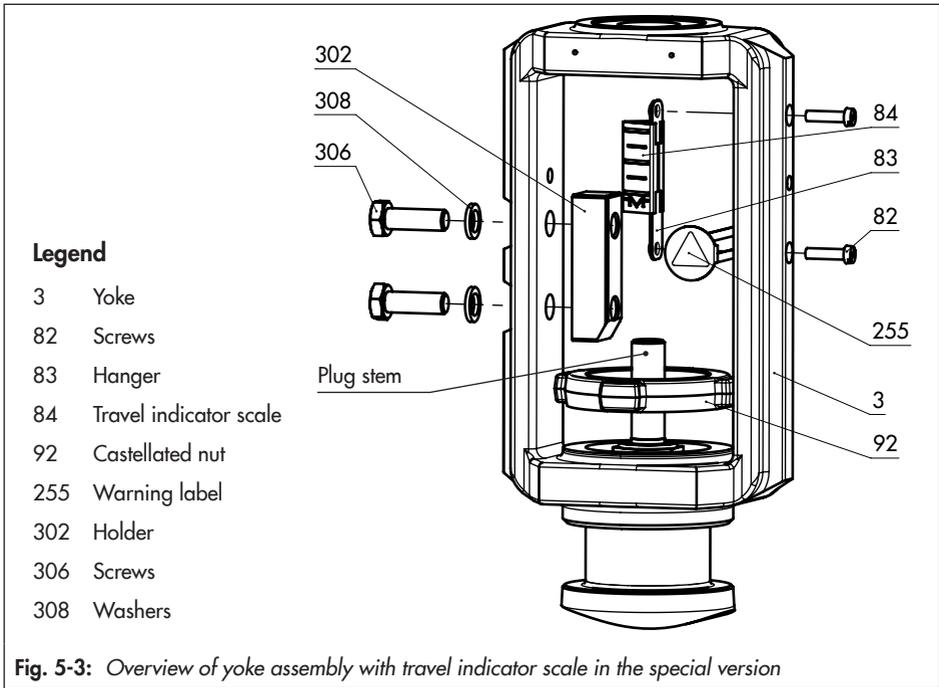
6. Position the clamps (301) and stem (9) on the plug stem according to Table 5-4 and tighten screws (303) and washers (304) by hand.
7. Mount the actuator. See section 5.3.2.

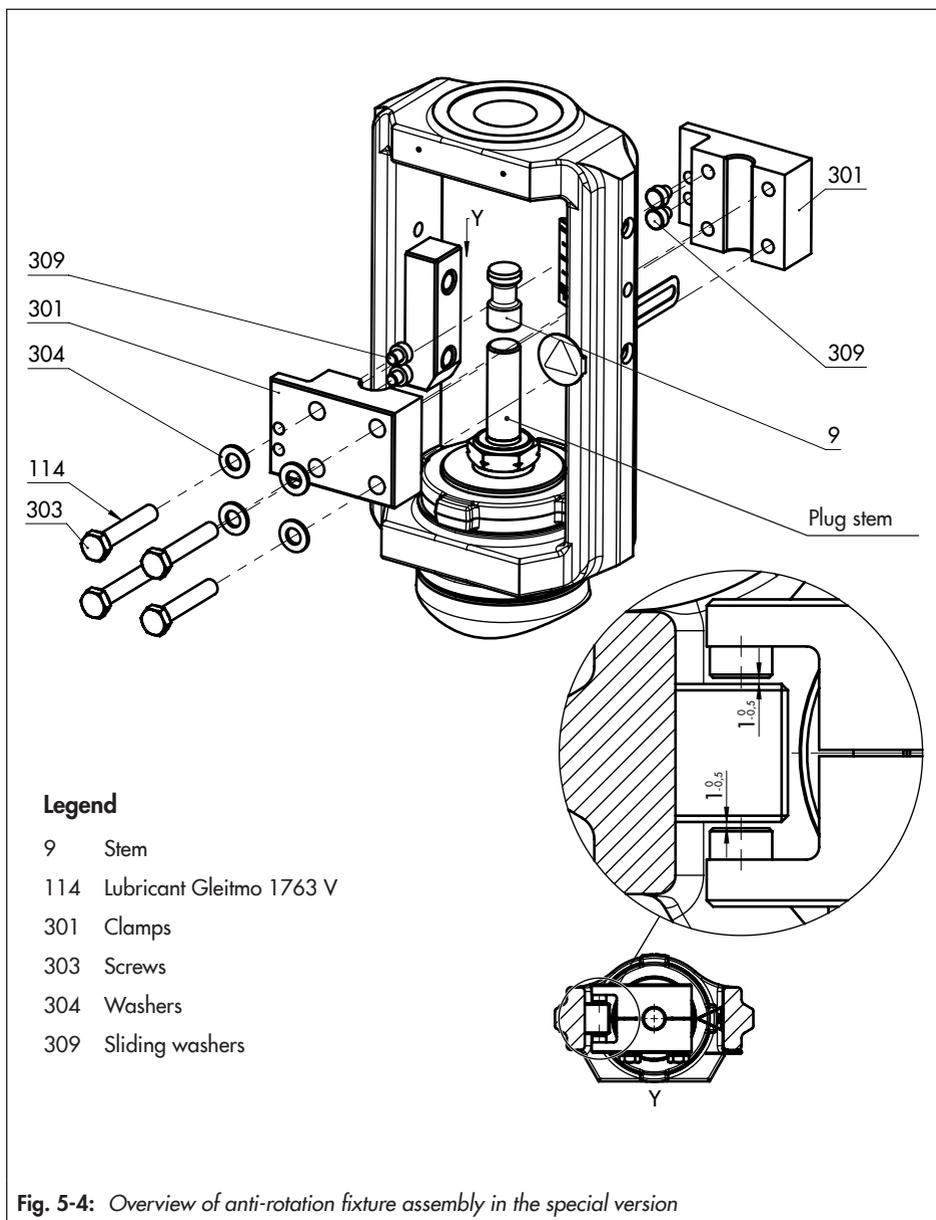
8. Thread the stem (9) upwards until the head of the stem rests on the extended actuator stem.
9. Retract the actuator stem to relieve the stem (9).
10. Gradually tighten the screws (303) in a crisscross pattern. Observe the tightening torques specified in Table 5-3.

Table 5-3: Tightening torques

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

11. Check and ensure the following:
 - There is a nominal clearance of 0.5 to 1 mm between the sliding washers and their contact surface on the yoke on each side (see detailed view Y in Fig. 5-4).
 - The anti-rotation fixture does not get stuck on the yoke and can move freely in the direction of travel.
12. Extend the actuator stem again and mount the stem connector clamps.





Installation

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

Actuator [cm ²]	Travel [mm]	Actuator preloading		Dimension when the valve is closed [mm]									
		[%]	[mm]	H _F	H _G	H _I	H _K	H _L	H _N	H _O	H _T		
DN 50 to 100/NPS 2 to 4 · Special version													
350	15	0	0	111	75	192	54	-	66	42	-		
	15	25	3.75	115	71								
355 700 750	15	50	15	111	75								
	15	75	22.5	118.5	67.5								
	30	0	0	96	90							34.5	30
	30	25	7.5	103.5	82.5							34.5	30
1000 1400-60	15	100	60	136	105			-	-				
	30	75	45	121	120								
1400-120	30	75	90	231	195			-	-				
2800	30	100	120	231	195			-	-				
DN 125 to 150/NPS 6 · Standard version													
355 700 750	15	0	0	263.5	67.5			192	87	48	105	70	145
	15	50	15	256	75	145							
	15	75	22.5	263.5	67.5	145							
	30	0	0	241	90	120							
	30	25	7.5	248.5	82.5	120							
	1000 1400-60	15	100	60	226	105	103						
30		0	0	211	120	88							
30		75	45	211	120	88							
60		0	0	166	165	58							
60		25	15	181	150	58							
1400-120		15	87.5	105	236	180	63						105
	30	0	0	191	225	48	75						
	30	75	90	221	195		105						
	60	0	0	191	225		75						
	60	50	60	191	225		75						
	2800 5600	30	0	0	191		225			75			
30		100	120	221	195		105						
60		0	0	191	225	75							
60		75	90	191	225	75							

Actuator [cm ²]	Travel [mm]	Actuator preloading		Dimension when the valve is closed [mm]											
		[%]	[mm]	H _F	H _G	H _I	H _K	H _L	H _N	H _O	H _T				
DN 200 to 250/NPS 8 to 10 up to seat bore 200 - Standard version															
355 700 750	30	0	0	241	90	195	87	108	65	61	120				
1000 1400-60	30	0	0	211	120					66	83				
	30	75	45	211	120					66	83				
	60	0	0	166	165					52	55				
	60	25	15	181	150					52	55				
1400-120	15	87.5	105	236	180					61	115				
	30	0	0	191	225					48	76				
	30	75	90	221	195					61	100				
	60	0	0	308	255					61	185				
2800 5600	60	50	60	191	225					48	76				
	30	0	0	191	225					48	76				
	30	100	120	221	195					61	100				
	60	0	0	308	255					61	185				
	60	75	90	191	225					48	76				
DN 250/NPS 10, seat bore 250 and DN 300 to 500/NPS 12 to 20 - Standard version															
1000 1400-60	30	0	0	281	135					237	87	100	150	110	121
	30	75	45	296	120	135									
	60	0	0	251	165	91									
	60	25	15	266	150	91									
1400-120	60	0	0	308	255	145									
	60	50	60	338	225	175									
	120	0	0	278	285	FA ¹⁾ = 115 FE ²⁾ = 86									
2800 5600	60	0	0	308	255	145									
	60	75	90	338	225	175									
	120	0	0	248	315	FE ²⁾ = 86									
	120	25	30	278	285	115									

1) FA = Actuator stem extends (fail-close)

2) FE = Actuator stem retracts (fail-open)

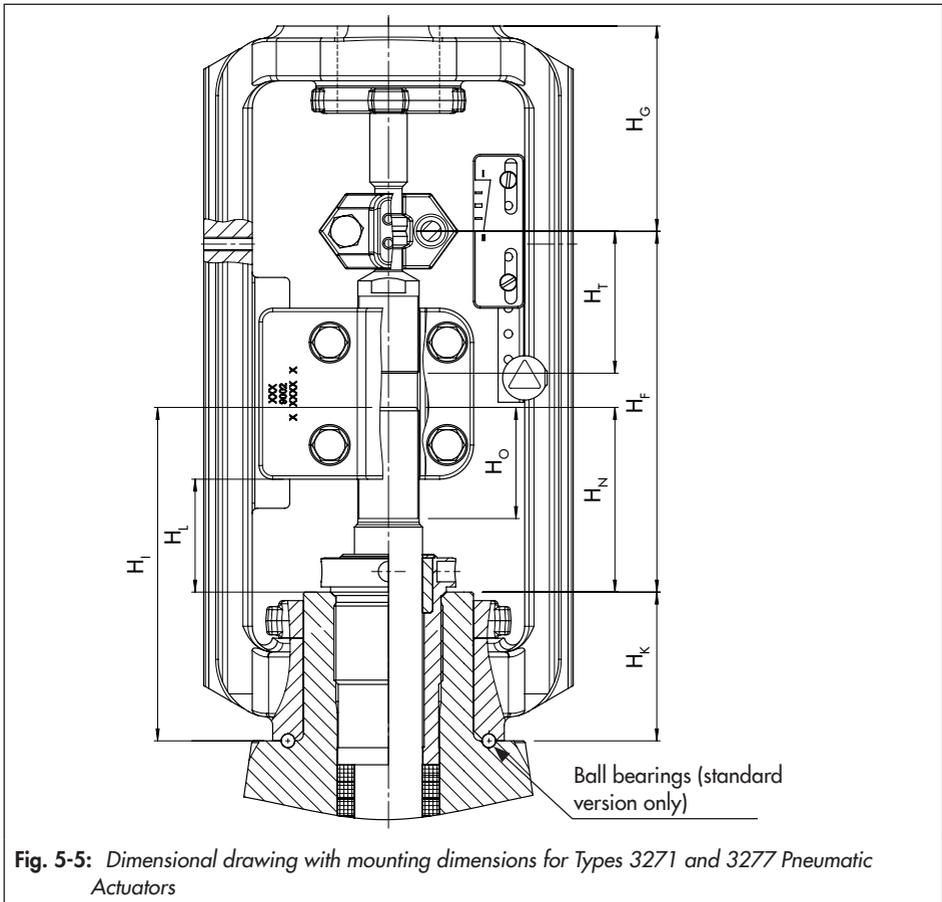


Fig. 5-5: Dimensional drawing with mounting dimensions for Types 3271 and 3277 Pneumatic Actuators

5.3.2 Mounting the actuator onto the valve

⚠ WARNING

Risk of personal injury due to preloaded springs.

Actuators with preloaded springs are under tension. They can be identified by the long

bolts protruding from the bottom of the actuator.

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

⚠ WARNING

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

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

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

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

Versions with V-port plug

To achieve the best flow conditions inside the valve, the V-port plug must always be installed with the port that releases the flow first when the valve opens facing toward the valve outlet. This is the largest of the three V-shaped ports (see Fig. 5-6).

- Before mounting the actuator, determine which V-shaped port is uncovered first when the plug is lifted out of the seat.

- On mounting the actuator, make sure that the V-shaped port uncovered first faces toward the valve outlet.

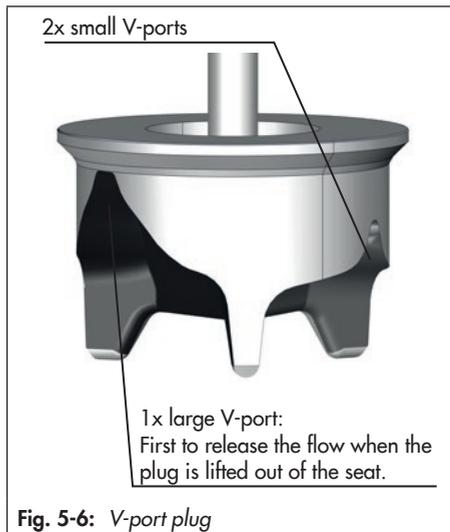


Fig. 5-6: V-port plug

a) Mounting the actuator

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

b) Aligning the travel indicator scale

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

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

Installation

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

5.3.3 Installing the valve into the pipeline

NOTICE

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

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

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

NOTICE

Premature wear and leakage due to insufficient support or suspension.

→ Support or suspend the valve sufficiently at suitable points.

a) Version with flanges

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

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

b) Version with welding ends

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

5.4 Configuring the temperature control

For molten salt service, the operating temperature and the temperature of the valve components (packing, valve inlet and outlet, bellows seal) must be kept to a temperature that is at least 50 °C (122 °F) above the salt's melting point. The molten salt crystallizes when it falls below melting point. This results in, for example:

- Damage to sensitive parts, e.g. packing and bellows seal
- The positioning of the valve being adversely affected since the plug stem can no longer move smoothly
- The valve and pipeline being blocked up due to the process medium solidifying

On the other hand, the system must not be overheated even when it is in continuous use. Heat can quickly accumulate in the insulated components, which may lead to sensitive components (e.g. packing) being damaged.

To control and monitor the temperature reliably, the valve bonnet has a connection for a temperature sensor. The sensor measures the temperature of the components concerned and controls the heating power as required. This ensures that the temperature limits of the components are kept and that the medium temperature does not fall below the medium's melting point.

5.4.1 Determining the temperature limits

Minimum temperature

The minimum temperature depends on the melting point of the salt used. In turn, the melting point depends on the composition of the salt.

The following general rule applies: the minimum temperature must be 50 °C (122 °F) above the salt's melting point.

Maximum temperature

The maximum temperature depends on the valve version, i.e. on the material temperature limit and temperature limits of the valve accessories and whether a bellows seal is installed.

The following maximum temperatures apply to the Type 3251 Valve:

- Steel valve body, without bellows seal: up to 400 °C (752 °F)
- Stainless steel valve body, with bellows seal: up to 580 °C (1076 °F)

5.4.2 Calculating the required heating power

The required heating power depends on the valve version, process medium and heating device used.

Generally, the following basic rules apply:

- The trace heating must be able to heat up the valve including the packing.
- The trace heating must be automatically switched off by a temperature sensor as soon as a defined temperature is reached.

i Note

SAMSON can calculate the required heating power on request for a specific application.

5.4.3 Configuring the temperature sensor

The configuration of the temperature sensor depends on the sensor used. See associated documentation.

5.4.4 Configuring the electric trace heating

The configuration of the electric trace heating depends on the device used. See associated documentation.

5.5 Testing the installed valve

⚠ DANGER

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

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

Before working on the control valve:

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

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

- Wear hearing protection when working near the valve.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
- Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
- Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.
- Before unblocking the actuator and plug stem after they have become blocked

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

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

5.5.1 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.
4. Apply the required test pressure.
5. Check the valve for leakage to the atmosphere.
6. Depressurize the pipeline section and valve.
7. Rework any parts that leak (see information below under "Adjusting the packing") and repeat the leak test.

Adjusting the packing

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

NOTICE

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

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

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

5.5.2 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.

5.5.3 Fail-safe position

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

5.5.4 Pressure test

The plant operator is responsible for performing the pressure test.

Test medium

It is possible to continue to use the packing after a **pressure test using compressed air**.

A form MS packing is damaged after a **pressure test is performed with water**. In this case, after performing the pressure test, the packing chamber must be cleaned and completely dried it. Following this, a new form MS packing must be installed (see the 'Servicing' section).

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

⚠ DANGER

Risk of burn injuries due to hot components and pipelines.

Components and pipelines reach temperatures above 300 °C (570 °F) while the plant is running. Risk of severe burn injuries if touched.

- Prior to performing any work on the valve, allow components and pipelines to cool down.
- Wear protective clothing and safety gloves.

⚠ DANGER

Risk of burn injuries from molten salt.

Molten salt reaches very high temperatures of over 200 °C (392 °F) and leads to severe burn injuries if touched.

- Do not touch molten salt.
- Wear protective clothing and safety gloves when handling molten salt.

⚠ DANGER

Risk of fatal injury due to electric shock.

The following applies when using electric trace heating or other electric components to heat the valve components:

- Observe the safety instructions in the associated documentation.

⚠ WARNING

Fire risk due to molten salt.

Individual elements in molten salt (both in crystallized and liquefied state) can accelerate combustion or ignite on coming into contact with certain substances (e.g. graphite).

- Do not allow molten salt to come into contact with flammable substances.

⚠ WARNING

Risk of poisoning from molten salt vapors.

Molten salt in the liquefied state produces vapors that are toxic.

- Do not inhale molten salt vapors.
- Make sure the area is sufficiently ventilated.
- Wear a respirator.

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a brief loud noise may occur through the sudden venting of the pneumatic actuator (see 'Fail-safe position')

Start-up

or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

→ Wear hearing protection when working near the valve.

WARNING

Crush hazard arising from actuator and plug stem moving.

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

WARNING

Risk of personal injury due to exhaust air being vented.

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

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

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

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

Start-up/putting the valve back into operation

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

7 Operation

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

⚠ DANGER

Risk of burn injuries due to hot components and pipelines.

Components and pipelines reach temperatures above 300 °C (570 °F) while the plant is running. Risk of severe burn injuries if touched.

- Prior to performing any work on the valve, allow components and pipelines to cool down.
- Wear protective clothing and safety gloves.

⚠ DANGER

Risk of burn injuries from molten salt.

Molten salt reaches very high temperatures of over 200 °C (392 °F) and leads to severe burn injuries if touched.

- Do not touch molten salt.
- Wear protective clothing and safety gloves when handling molten salt.

⚠ DANGER

Risk of fatal injury due to electric shock.

The following applies when using electric trace heating or other electric components to heat the valve components:

- Observe the safety instructions in the associated documentation.

⚠ WARNING

Fire risk due to molten salt.

Individual elements in molten salt (both in crystallized and liquefied state) can accelerate combustion or ignite on coming into contact with certain substances (e.g. graphite).

- Do not allow molten salt to come into contact with flammable substances.

⚠ WARNING

Risk of poisoning from molten salt vapors.

Molten salt in the liquefied state produces vapors that are toxic.

- Do not inhale molten salt vapors.
- Make sure the area is sufficiently ventilated.
- Wear a respirator.

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

Noise emission (e.g. cavitation or flashing) may occur during operation caused by the process medium and the operating conditions. Additionally, a brief loud noise may occur through the sudden venting of the

Operation

pneumatic actuator (see 'Fail-safe position') or pneumatic valve accessories not fitted with noise-reducing fittings. Both can damage hearing.

- Wear hearing protection when working near the valve.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

ⓘ NOTICE

Risk of damage to the valve and pipelines due to the process medium crystallizing.

The molten salt crystallizes when its temperature falls below the salt's melting point. The crystallized medium accumulates in the valve and pipelines causing them to become blocked. The bellows seal is damaged as a result.

- Observe the temperature limits of the process medium. See 'Configuring the temperature control' in the 'Installation' section.

7.1 Normal operation

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

7.2 Manual operation

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

8 Malfunctions

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

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Actuator and plug stem does not move on demand.	Actuator is blocked.	Check attachment. Remove the blockage. WARNING! A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.
	Diaphragm in the actuator defective	See associated actuator documentation.
	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
Jolting movement of the actuator and plug stem	Version with adjustable packing ²⁾ ; packing not tightened correctly	Tighten the packing correctly (see information under 'Adjusting the packing' in the 'Testing the installed valve' section).
	The medium has crystallized in the packing.	Replace packing ¹⁾ (see the 'Servicing' section) or contact our after-sales service.
Actuator and plug stem does not stroke through the entire range.	Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
	Travel stop active	See associated actuator documentation.
	Incorrect setting of valve accessories	Check the settings of the valve accessories.
Increased flow through closed valve (seat leakage)	Dirt or other foreign particles deposited between the seat and plug.	Shut off the section of the pipeline and flush the valve (see information under 'Cleaning the pipelines' in the 'Servicing' section).
	Valve trim, particularly with soft seat, is worn.	Replace seat and plug (see the 'Servicing' section) or contact our after-sales service.

Malfunctions

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

¹⁾ Only replace the packing in versions without bellows seal

²⁾ See the 'Markings on the device' section.

i Note

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

8.2 Emergency action

The plant operator is responsible for emergency action to be taken in the plant.

In the event of a valve malfunction:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.

2. Perform troubleshooting (see section 8.1).
3. Rectify those malfunctions that can be remedied based on the instructions provided here. Contact our after-sales service in all other cases.

Putting the valve back into operation after a malfunction

See the 'Start-up' section.

9 Servicing

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

The following documents are also required for servicing the valve:

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

! DANGER

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

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

Before working on the control valve:

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

! DANGER

Risk of burn injuries due to hot components and pipelines.

Components and pipelines reach temperatures above 300 °C (570 °F) while the plant

is running. Risk of severe burn injuries if touched.

- Prior to performing any work on the valve, allow components and pipelines to cool down.
- Wear protective clothing and safety gloves.

! DANGER

Risk of burn injuries from molten salt.

Molten salt reaches very high temperatures of over 200 °C (392 °F) and leads to severe burn injuries if touched.

- Do not touch molten salt.
- Wear protective clothing and safety gloves when handling molten salt.

! DANGER

Risk of fatal injury due to electric shock.

The following applies when using electric trace heating or other electric components to heat the valve components:

- Observe the safety instructions in the associated documentation.

! WARNING

Fire risk due to molten salt.

Individual elements in molten salt (both in crystallized and liquefied state) can accelerate combustion or ignite on coming into contact with certain substances (e.g. graphite).

- Do not allow molten salt to come into contact with flammable substances.

⚠ WARNING

Risk of poisoning from molten salt vapors.

Molten salt in the liquefied state produces vapors that are toxic.

- Do not inhale molten salt vapors.
 - Make sure the area is sufficiently ventilated.
 - Wear a respirator.
-

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

- Wear hearing protection when working near the valve.
-

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

Actuators with preloaded springs are under tension. They can be identified by the long

bolts protruding from the bottom of the actuator.

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

⚠ WARNING

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

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

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

📌 NOTICE

Risk of valve damage due to excessively high or low tightening torques.

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

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

📌 NOTICE

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

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

📌 NOTICE

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

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

📌 Note

The control valve was checked by SAMSON before it left the factory.

- Certain test results certified by SAMSON lose their validity when the valve is opened. Such testing includes seat leakage and leak tests.
- The product warranty becomes void if service or repair work not described in these instructions is performed without prior agreement by SAMSON's After-sales Service.
- Only use original spare parts by SAMSON, which comply with the original specifications.

9.1 Periodic testing

Due to strict requirements concerning molten salt service (e.g. frequent system start-ups and shutdowns, extreme temperature fluctuations), particularly the gasket, packing, seat and plug are subject to natural wear. Depending on the operating conditions, check the valve at certain intervals to prevent possible failure before it can occur. SAMSON is unable to make general statements about inspection intervals. Plant operators are responsible for drawing up an inspection and

Servicing

test plan, which takes the actual ambient conditions of the plant into account.



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

We recommend the following inspection and testing which can be performed while the process is running:

Inspection and testing	Recommended interval	Action to be taken in the event of a negative result:
Check the markings, labels and nameplates on the valve for their readability and completeness.	Approximately every six months	Immediately renew damaged, missing or incorrect nameplates or labels.
		Clean any inscriptions that are covered with dirt and are illegible.
Check the pipe connections and gaskets on the valve and actuator for leakage.	Two weeks at the latest after first start-up Afterwards, at least every six months	Check the bolted joint (tightening torque) ▶ AB 0100
		Replace the gasket on the flanged joint as described in section 9.4.
		Version with adjustable packing ²⁾ : tighten the packing (see information under 'Adjusting the packing' in the 'Testing the installed valve' section).
		If the packing leaks continuously and the medium has crystallized in the packing, replace the packing ¹⁾ (see section 9.4) or contact SAMSON's After-sales Service (see the 'Repairs' section).
Check the test connection and bellows seal (if used) for external leakage. WARNING! Risk of personal injury due to pressurized components and process medium being discharged. Do not loosen the screw of the test connection while the valve is pressurized.	Approximately every six months	Put the control valve out of operation (see the 'Decommissioning' section). To repair the bellows seal, contact our after-sales service (see the 'Repairs' section).

Inspection and testing	Recommended interval	Action to be taken in the event of a negative result:
Check the valve's seat leakage.	Approximately every six months	<p>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 (see section 9.5).</p> <p>Replace the seat and plug (see section 9.4)</p>
Check the valve for external damage (e.g. corrosion).	Approximately every six months	Repair any damage immediately. If necessary, put the control valve out of operation (see the 'Decommissioning' section).
Check the valve accessories to ensure they are mounted properly.	Approximately every six months	Tighten the connections of the valve accessories.
Check to ensure that the actuator and plug stem move smoothly.	Approximately every six months	<p>Version with adjustable packing ²⁾: tighten the packing correctly (see information under 'Adjusting the packing' in the 'Testing the installed valve' section).</p> <p>If the medium has crystallized in the packing, replace the packing ¹⁾ (see section 9.4) or contact SAMSON's After-sales Service (see the 'Repairs' section).</p> <p>Unblock a blocked actuator and plug stem. WARNING! A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.</p>
If possible, check the valve's fail-safe position by briefly interrupting the air supply.	Approximately every six months	Put the control valve out of operation (see the 'Decommissioning' section). Identify the cause for the malfunction and rectify it (see the 'Troubleshooting' section).

1) Only replace the packing in versions without bellows seal

2) See the 'Markings on the device' section

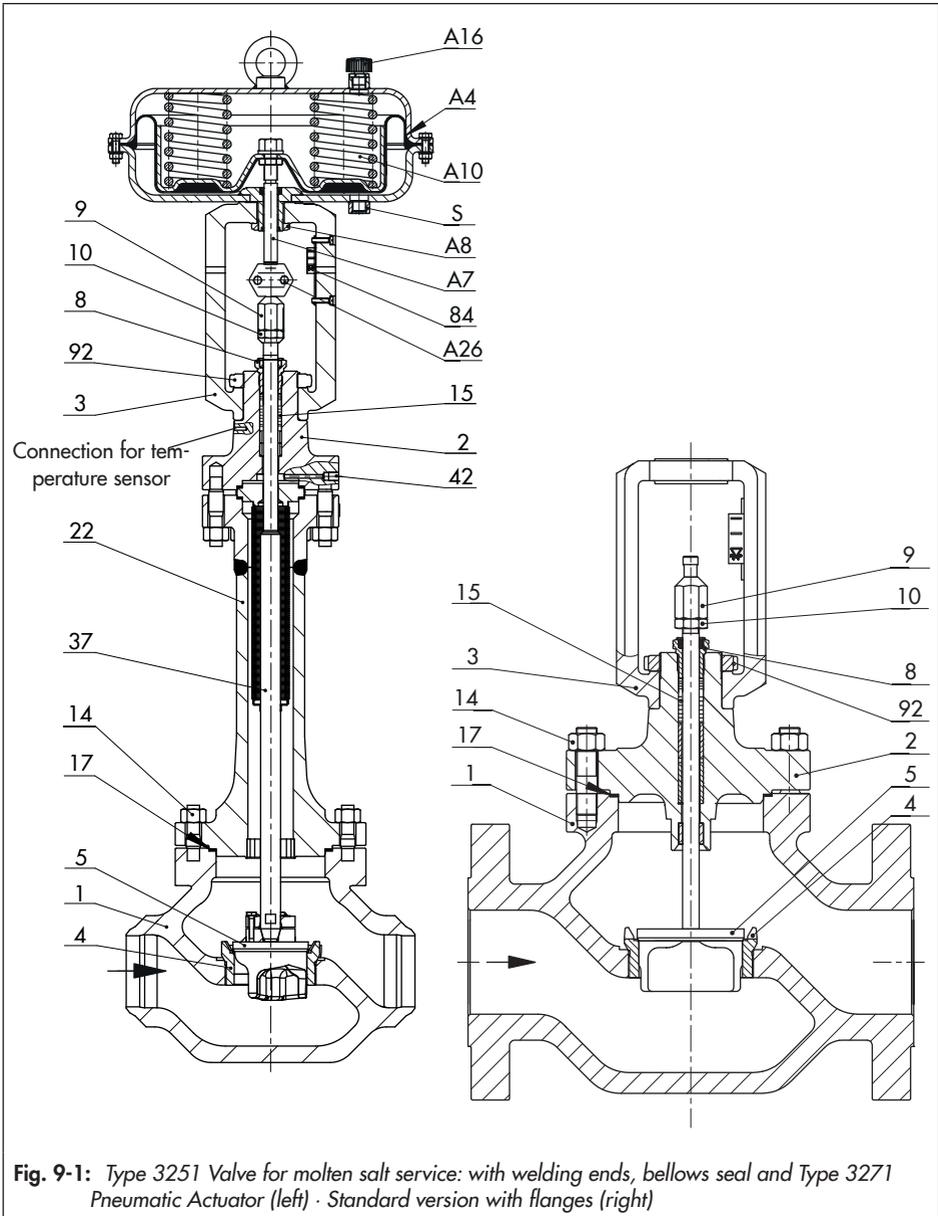


Fig. 9-1: Type 3251 Valve for molten salt service: with welding ends, bellows seal and Type 3271 Pneumatic Actuator (left) · Standard version with flanges (right)

Legend for Fig. 9-1

1	Body	14	Body nut	A4	Diaphragm
2	Bonnet	15	Packing	A7	Actuator stem
3	Yoke	17	Body gasket	A8	Ring nut
4	Seat	22	Bellows seal	A10	Spring
5	Plug	37	Plug stem with metal bellows	A16	Vent plug
8	Threaded bushing (packing nut)	42	Test connection	A26	Stem connector clamps
9	Stem connector nut	84	Travel indicator scale	S	Signal pressure connection
10	Lock nut	92	Castellated nut		

9.2 Preparing the valve for service work

WARNING

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

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

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

1. Lay out the necessary material and tools to have them ready for the service work.

2. Put the control valve out of operation (see the 'Decommissioning' section).
3. Remove the actuator from the valve. See associated actuator documentation.

Note

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

Tip

We recommend removing the valve from the pipeline before performing any service work (see the 'Removing the valve from the pipeline' section).

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

- Replace the gasket (see section 9.4.1)
- Replace the packing (see section 9.4.2)

Servicing

- Replace the seat and plug (see section)
- Replace the seat and plug (see section 9.4.3)

9.3 Installing the valve after service work

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

9.4 Service work

ⓘ NOTICE

Risk of damage to the valve and pipelines due to the process medium crystallizing.

The molten salt crystallizes when its temperature falls below the salt's melting point. The crystallized medium accumulates in the valve and pipelines causing them to become blocked. The bellows seal is damaged as a result.

- ➔ Prior to performing any service work, melt the salt and drain it off.

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

9.4.1 Replacing the gasket

ⓘ NOTICE

Risk of control valve damage due to incorrect servicing.

- ➔ The gasket can only be replaced when all the following conditions are met:
 - The valve size is \leq NPS 4.
 - The valve does not have a flow divider.
- ➔ To replace the gasket in other valve versions, contact our after-sales service.

a) Standard version

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the bonnet (2) and plug with plug stem (5) off the body (1).
3. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the bonnet (2).
4. Insert a new gasket (17) into the body.
5. Place the bonnet (2) onto the body.
Version with V-port plug: place the bonnet (2) onto the valve body, making sure that the largest V-shaped part of the

V-port plug faces toward the valve outlet. See information under 'Mounting the actuator onto the valve' in the 'Installation' section.

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

b) Version with bellows seal

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the bellows seal (22) and plug with plug stem (5) off the body (1).
3. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the bellows seal (22).
4. Insert a new gasket (17) into the body.
5. Place the bellows seal (22) onto the body.

Version with V-port plug: place the bellows seal (22) onto the valve body, making sure that the largest V-shaped part of the V-port plug faces toward the valve outlet. See information under 'Mounting the actuator onto the valve' in the 'Installation' section.

6. Firmly press the plug (5) into the seat (4). Fasten down the bellows seal (22) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

9.4.2 Replacing the packing

NOTICE

Risk of control valve damage due to incorrect servicing.

- ➔ *The packing can only be replaced when all the following conditions are met:*
 - *The valve size is \leq NPS 4.*
 - *The valve does not have a bellows seal.*
 - *The form MS packing is installed in the valve.*
- ➔ *To replace the packing in other valve versions, contact our after-sales service.*

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

Version with V-port plug: place the bonnet (2) onto the valve body, making sure that the largest V-shaped part of the V-port plug faces toward the valve outlet. See information under 'Mounting the actuator onto the valve' in the 'Installation' section.

11. Carefully slide each packing ring (16) separately into the packing chamber using a suitable tool. See Fig. 9-2. Make sure that the packing ring is properly seated before inserting the next ring. Insert each packing ring with the butt joint offset by 90° to the previous ring. See Fig. 9-3.

NOTICE

Leakage due to damage to the packing.
The packing rings have a special zinc-impregnated coating to protect them against corrosion and to prevent leakage.

- Handle the packing rings with care.
- Make sure that the zinc coating is not rubbed off.
- Do not apply any lubricant to the packing.

12. Firmly press the plug (5) into the seat (4). Fasten down the bonnet (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
13. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.

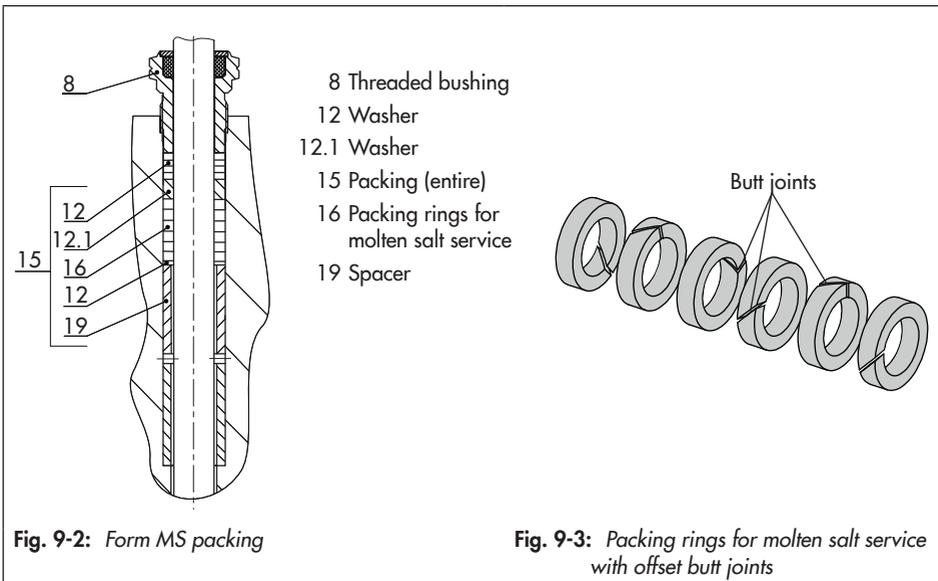


Fig. 9-2: Form MS packing

Fig. 9-3: Packing rings for molten salt service with offset butt joints

14. Place yoke (3) on the bonnet (2) and fasten using the castellated nut (92).
15. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

9.4.3 Replacing the seat and plug

NOTICE

Risk of control valve damage due to incorrect servicing.

→ *Seat and plug can only be replaced when all the following conditions are met:*

- *The valve size is \leq NPS 4.*
- *The valve does not have a flow divider.*
- *The valve does not have a bellows seal.*
- *The form MS packing is installed in the valve.*

→ *To replace seat and plug in other valve versions, contact our after-sales service.*

NOTICE

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

→ *Always replace both the seat and plug.*

Tip

When replacing the seat and plug, we also recommend replacing the packing (see section 9.4.2).

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

Version with V-port plug: place the bonnet (2) onto the valve body, making sure that the largest V-shaped part of the V-port plug faces toward the valve outlet. See information under 'Mounting the actuator onto the valve' in the 'Installation' section.

Servicing

15. Replace the packing (see section 9.4.2)
16. Firmly press the plug (5) into the seat (4). Fasten down the bonnet (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
17. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
18. Place yoke (3) on the bonnet (2) and fasten using the castellated nut (92).
19. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

9.5 Cleaning the pipelines

i Note

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

Make sure the following conditions are met when the valve is installed:

- Retract the plug stem to open the valve.
- Observe the maximum permissible pressure for both the valve and plant.
- It is possible to continue to use the packing after the pipeline has been **cleaned with compressed air**.
- A form MS packing is damaged after **the pipeline has been cleaned with water**. After cleaning the packing chamber, completely dry it and install a new form MS packing. See section 9.4.2.

9.6 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 Annex for details on spare parts.

Lubricant

See document ► AB 0100 for details on suitable lubricants.

Tools

See document ► AB 0100 for details on suitable tools.

10 Decommissioning

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

⚠ DANGER

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

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

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

Before working on the control valve:

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

⚠ DANGER

Risk of burn injuries due to hot components and pipelines.

Components and pipelines reach temperatures above 300 °C (570 °F) while the plant is running. Risk of severe burn injuries if touched.

- Prior to performing any work on the valve, allow components and pipelines to cool down.
- Wear protective clothing and safety gloves.

⚠ DANGER

Risk of burn injuries from molten salt.

Molten salt reaches very high temperatures of over 200 °C (392 °F) and leads to severe burn injuries if touched.

- Do not touch molten salt.
- Wear protective clothing and safety gloves when handling molten salt.

⚠ DANGER

Risk of fatal injury due to electric shock.

The following applies when using electric trace heating or other electric components to heat the valve components:

- Observe the safety instructions in the associated documentation.

⚠ WARNING

Fire risk due to molten salt.

Individual elements in molten salt (both in crystallized and liquefied state) can accelerate combustion or ignite on coming into contact with certain substances (e.g. graphite).

- Do not allow molten salt to come into contact with flammable substances.

⚠ WARNING

Risk of poisoning from molten salt vapors.

Molten salt in the liquefied state produces vapors that are toxic.

- Do not inhale molten salt vapors.

Decommissioning

- Make sure the area is sufficiently ventilated.
 - Wear a respirator.
-

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

- Wear hearing protection when working near the valve.
-

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

- Do not insert hands or finger into the yoke while the air supply is connected to the actuator.
 - Before working on the control valve, disconnect and lock the pneumatic air supply as well as the control signal.
-

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

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

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

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

To decommission the control valve for service work or to remove it from the pipeline, proceed as follows:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Completely drain the pipelines and valve.
3. Disconnect and lock the pneumatic air supply to depressurize the actuator.
4. Switch off the electric trace heating. Additional instructions on switching off the electric trace heating can be found in the associated documentation.

📌 NOTICE***Risk of damage to the valve and pipelines due to the process medium crystallizing.***

The crystallized medium can collect in the pipelines and valve and block them.

→ *After switching off the trace heating, quickly clean the pipelines.*

5. Rinse the pipelines and valve to remove any residual medium. Observe the notes on cleaning the pipelines (see information under 'Cleaning the pipelines' in the 'Servicing' section).
6. Release any stored energy.
7. Allow the pipeline and valve components to cool down.

11 Removal

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

⚠ DANGER

Risk of burn injuries due to hot components and pipelines.

Components and pipelines reach temperatures above 300 °C (570 °F) while the plant is running. Risk of severe burn injuries if touched.

- Prior to performing any work on the valve, allow components and pipelines to cool down.
- Wear protective clothing and safety gloves.

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

(e.g. spring compression). See associated actuator documentation.

⚠ WARNING

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

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

⚠ WARNING

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

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

- Follow the instructions in this document during mounting or removal.

Removal

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

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

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

11.1 Removing the valve from the pipeline

a) Version with flanges

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

b) Version with welding ends

1. Support the valve to hold it in place when separated from the pipeline (see the 'Shipment and on-site transport' section).

2. Cut the pipeline in front of the weld seam.
3. Remove the valve from the pipeline (see the 'Shipment and on-site transport' section).

11.2 Removing the actuator from the valve

See associated actuator documentation.

12 Repairs

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

! NOTICE

Risk of valve damage due to incorrect repair work.

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

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models
 - ▶ www.samsongroup.com > Service & Support > After-sales Service.
2. Send an e-mail ▶ retouren@samsongroup.com to register the return shipment including the following information:
 - Type
 - Article no.
 - Configuration ID
 - Original order

- Completed Declaration on Contamination, which can be downloaded from our website at
 - ▶ www.samsongroup.com > Service & Support > After-sales Service.

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

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

i Note

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

- ▶ www.samsongroup.com > Service & Support > After-sales Service.

13 Disposal



SAMSON is a producer registered at the following European institution
 ► <https://www.ewrn.org/national-registers/national-registers>.
 WEEE reg. no.: DE 621 94439/
 FR 02566

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

i Note

We can provide you with a recycling passport according to PAS 1049 on request. Simply e-mail us at offersalesservice@samsongroup.com giving details of your company address.

Tip

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

i Note

The supplier of the molten salt provides instructions on the correct disposal of molten salt used in the plant.

14 Certificates

These declarations of conformity are included on the next pages:

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

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

▶ www.samsongroup.com > *Products & Applications* > *Product selector* > *Valves* > *3251*

Other optional certificates are available on request.

EU DECLARATION OF CONFORMITY TRANSLATION



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

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

Devices	Series	Type	Version
Globe valve	240	3241	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 ¹⁾ EN/ANSI, body of steel, etc., all fluids
Three-way valve	240	3244	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 ¹⁾ EN/ANSI, body of steel, etc., all fluids
Cryogenic valve	240	3248	EN/ANSI, all fluids
Globe valve	250	3251	EN/ANSI, all fluids
Globe valve	250	3251-E	EN/ANSI, all fluids
Three-way valve	250	3253	EN/ANSI, body of steel, etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Split-body valve	250	3258	EN, all fluids
Angle valve (IG standards)	250	3259	EN, all fluids
Steam-converting valve	280	3281	EN/ANSI, all fluids
		3284	EN/ANSI, all fluids
		3286	EN/ANSI, all fluids
		3286	EN, all fluids
Globe valve	V2001	3321	EN, body of steel, etc., all fluids ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel, etc., all fluids ANSI, all fluids
Angle seat valve	---	3353	EN, body of steel, etc., all fluids
Silencer	3381	3381-1	EN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	EN/ANSI, all fluids
		3381-4	EN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Globe valve	240	3241	ANSI, body of gray cast iron, Class 125, from NPS 5, fluids G2, L1, L2 ¹⁾
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, body of gray cast iron from DN200 PN16, fluids G2, L1, L2 ¹⁾
Globe valve	290	3291	ANSI, all fluids
Angle valve	290	3296	ANSI, all fluids
Cryogenic valve	---	3588	ANSI, up to NPS 6, Class 600, all fluids
Globe valve	590	3591	ANSI, all fluids
Angle valve	590	3596	ANSI, all fluids
Cryogenic valve	590	3598	ANSI NPS 3 to NPS 6, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids

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

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

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

The manufacturer's quality management system is monitored by the following notified body:
Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE
Applied harmonised standards and technical specifications: EN 12516-2, EN 12516-3, EN 12266-1, ASME B16.34

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

Frankfurt am Main, 15th November 2022


Dr. Andreas Widl
Chief Executive Officer (CEO)


Dr. Thomas Steckenreiter
Chief Technology Officer (CTO)

Revision 10

Classification: Public · SAMSON AKTIENGESELLSCHAFT · Weismüllerstrasse 3 · 60314 Frankfurt am Main, Germany Page 1 of 1



DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

1/2

**DC012
2022-05**

Module H / Modul H, N° / Nr CE-0062-PED-H-SAM 001-20-FRA-rev-A

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

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne de régulation passage droit / globe valve	3241	DIN	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	PN 16	DN 150	G2, L1, L2 ¹⁾
		ANSI		Cl 125	NPS 6	
		DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100 – 150	Tous fluides / all fluids
		DIN	Acier / steel	PN10 PN16 PN25 PN40	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150	
ANSI		Cl 150 Cl 300	NPS 2 ½ – 6 NPS 1 ½ – 6			
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Fonte grise / cast iron	PN 16	DN 150	G2, L1, L2 ¹⁾
		ANSI		Cl 150 Cl 300	NPS 2 ½ – 6 NPS 1 ½ – 6	
Vanne de régulation passage droit / globe valve	3251	DIN	Acier / steel	PN16	DN 65 – 150	Tous fluides / all fluids
		ANSI		PN25 PN40 – 400 Cl 150 Cl 300 - 2500	DN 50 – 150 DN 32 – 150 NPS 2 ½ – 6 NPS 1 ½ – 6	
Vanne haute pression / High pressure valve	3252	DIN	Acier / steel	PN40 – 400	DN 32 – 80	Tous fluides / all fluids
		ANSI		Cl 300 - 2500	NPS 1 ½ – 3	
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN16 PN40 – 400	DN 65 – 150 DN 32 – 150	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300 - 2500	NPS 2 ½ – 6 NPS 1 ½ – 6	
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN10 PN16 PN25 PN40	DN 150 DN 80 – 150 DN 50 – 150 DN 40 – 150	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 3 – 6 NPS 1 ½ – 6	
Vanne de régulation passage droit / globe valve	3321	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 ¹⁾
		ANSI	Acier / steel	PN16 PN40	DN 65 – 100 DN 32 – 100	
				Cl 150 Cl 300	NPS 2 ½ – 4 NPS 1 ½ – 4	
Vanne de régulation 3 voies / 3-way Valve	3323	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 ¹⁾
		ANSI	Acier / steel	PN16 PN40	DN 65 – 100 DN 32 – 100	
				Cl 150 Cl 300	NPS 2 ½ – 4 NPS 1 ½ – 2	
Vanne papillon / Butterfly valve	3331	DIN	Acier / steel	PN10 PN16 – 50 Cl 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 _{max} T _s 70°F 150 psi P _{max} T _s 70°F 230 psi	NPS 5 – 6 NPS 6	G2, L1, L2 ¹⁾
			Acier / steel	P _{max} T _s 70°F 150 - 230 psi	NPS 2 ½ – 6	



DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

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Module H / Modul H, N° / Nr CE-0062-PED-H-SAM 001-20-FRA-rev-A

DC012
2022-05

Appareils / Devices	Type	Exécution / Version	Matériau du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	P _{max} T = 20°C 16 bar P _{max} T = 20°C 40 bar P _{max} T = 20°C 63 bar	DN 150 DN 65 – 150 DN 32 – 150	G2, L1, L2 ¹⁾
		ANSI		P _{max} T = 70°F 230 psi P _{max} T = 70°F 580 psi P _{max} T = 70°F 910 psi	NPS 6 NPS 2 ½ – 6 NPS 1 ½ – 6	
Vanne aseptique / Aseptic valve	3349	DIN	Acier / steel	P _{max} T = 20°C 16 bar P _{max} T = 20°C 25 bar	DN 65 – 100 DN 50 – 100	Tous fluides / all fluids
		ANSI		P _{max} T = 70°F 230 psi P _{max} 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 ¹⁾
		DIN	Acier / steel	PN16 PN25 PN40	DN 65 – 100 DN 50 – 100 DN 32 – 100	Tous fluides / all fluids
		ANSI		CI 150 CI 300	NPS 2 ½ – 4 NPS 1 ½ – 4	
Bride de mesure / Measure flange	5090	DIN	Acier / steel	PN10	DN 400 – 500	G2, L2 ¹⁾
				PN16	DN 250 – 500	
				PN25	DN 150 – 500	
				PN40	DN 125 – 500	

¹⁾ 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 001-20-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, 8 Cours du Triangle, 92800 PUTEAUX - LA DEFENSE
Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN

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

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

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



DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

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Module A / Modul A

DC014
2022-05

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

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



DECLARATION UE DE CONFORMITE EU DECLARATION OF CONFORMITY

2/2

Module A / Modul A

DC014
2022-05

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

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

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

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

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

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

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

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

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

EU DECLARATION OF CONFORMITY

TRANSLATION



Declaration of Conformity of Final Machinery

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

For the following products:

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

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

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

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

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

Referenced technical standards and/or specifications:

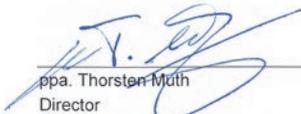
- VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]
- VCI, VDMA, VGB: "Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

Comment:

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

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 29 April 2020



ppa. Thorsten Muth
Director
Sales and After-sales



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

Revision no. 01

DECLARATION OF INCORPORATION TRANSLATION



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

For the following products:

Type 3251 Globe Valve

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

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

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

The permissible limits of application and mounting instructions for the products are specified in the associated data sheets as well as the mounting and operating instructions; the documents are available in electronic form on the Internet at .

For product descriptions of the valve, refer to:

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

Referenced technical standards and/or specifications:

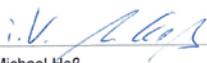
- VCI, VDMA, VGB: Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, May 2018 [German only]
- VCI, VDMA, VGB: Zusatzdokument zum „Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen“ vom Mai 2018 [German only], based on DIN EN ISO 12100:2011-03

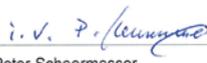
Comments:

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

Persons authorized to compile the technical file:

SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 1 October 2019


Dr. Michael Heß
Director
Product Management and Technical Sales


Peter Scheermesser
Director
Product Upgrades and ETO Valves and Actuators

Revision no. 00


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

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

Devices	Series	Type	Version
Globe valve	240	3241	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 ⁹⁾
			EN/ANSI, body of steel, etc., all fluids
Three-way valve	240	3244	EN, body of gray cast iron from DN 150, body of spheroidal-graphite iron, from DN 100, fluids G2, L1, L2 ⁹⁾
			EN/ANSI, body of steel, etc., all fluids
Cryogenic valve	240	3248	EN/ANSI, all fluids
Globe valve	250	3251	EN/ANSI, all fluids
Globe valve	250	3251-E	EN/ANSI, all fluids
Three-way valve	250	3253	EN/ANSI, body of steel, etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Split-body valve	250	3258	EN, all fluids
Angle valve (IG standards)	250	3259	EN, all fluids
Steam-converting valve	280	3281	EN/ANSI, all fluids
		3284	EN/ANSI, all fluids
		3286	EN/ANSI, all fluids
		3288	EN, all fluids
Globe valve	V2001	3321	EN, body of steel, etc., all fluids
			ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel, etc., all fluids
			ANSI, all fluids
Angle seat valve	---	3353	EN, body of steel, etc., all fluids
Silencer	3381	3381-1	EN/ANSI, single attenuation plate with welding ends, all fluids
		3381-3	EN/ANSI, all fluids
		3381-4	EN/ANSI, single attenuation plate multi-stage with welding ends, all fluids
Globe valve	240	3241	ANSI, body of gray cast iron, Class 125, from NPS 5, fluids G2, L1, L2 ⁹⁾
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, body of gray cast iron from DN200 PN16, fluids G2, L1, L2 ⁹⁾
Globe valve	290	3291	ANSI, all fluids
Angle valve	290	3296	ANSI, all fluids
Cryogenic valve	---	3598	ANSI, up to NPS 6, Class 600, all fluids
Globe valve	590	3591	ANSI, all fluids
Angle valve	590	3596	ANSI, all fluids
Cryogenic valve	590	3598	ANSI, NPS 3 to NPS 8, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids

⁹⁾ Gases according to Article 4(1)(c.i), second indent // Liquids according to Article 4(1)(c.ii) acc. to PE(S)R 2016

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

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

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

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

 Frankfurt am Main, 16th November 2022

Dr. Andreas Widi
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter
Chief Technology Officer (CTO)

Revision 00

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

Page 1 of 1



Declaration of Conformity of Final Machinery

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

For the following products:

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

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

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

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

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

Referenced technical standards and/or specifications:

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

Comment:

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

Persons authorized to compile the technical file:

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

i.V. Stephan Giesen
Director
Product Management

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



Declaration of Incorporation of Partly Completed Machinery

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

For the following product:

Type 3241 Globe Valve

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

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

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

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

For product descriptions refer to:

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

Referenced technical standards and/or specifications:

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

Comments:

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

Persons authorized to compile the technical file:

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

Stephan Giesen
Director
Product Management

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

Revision 00

15 Annex

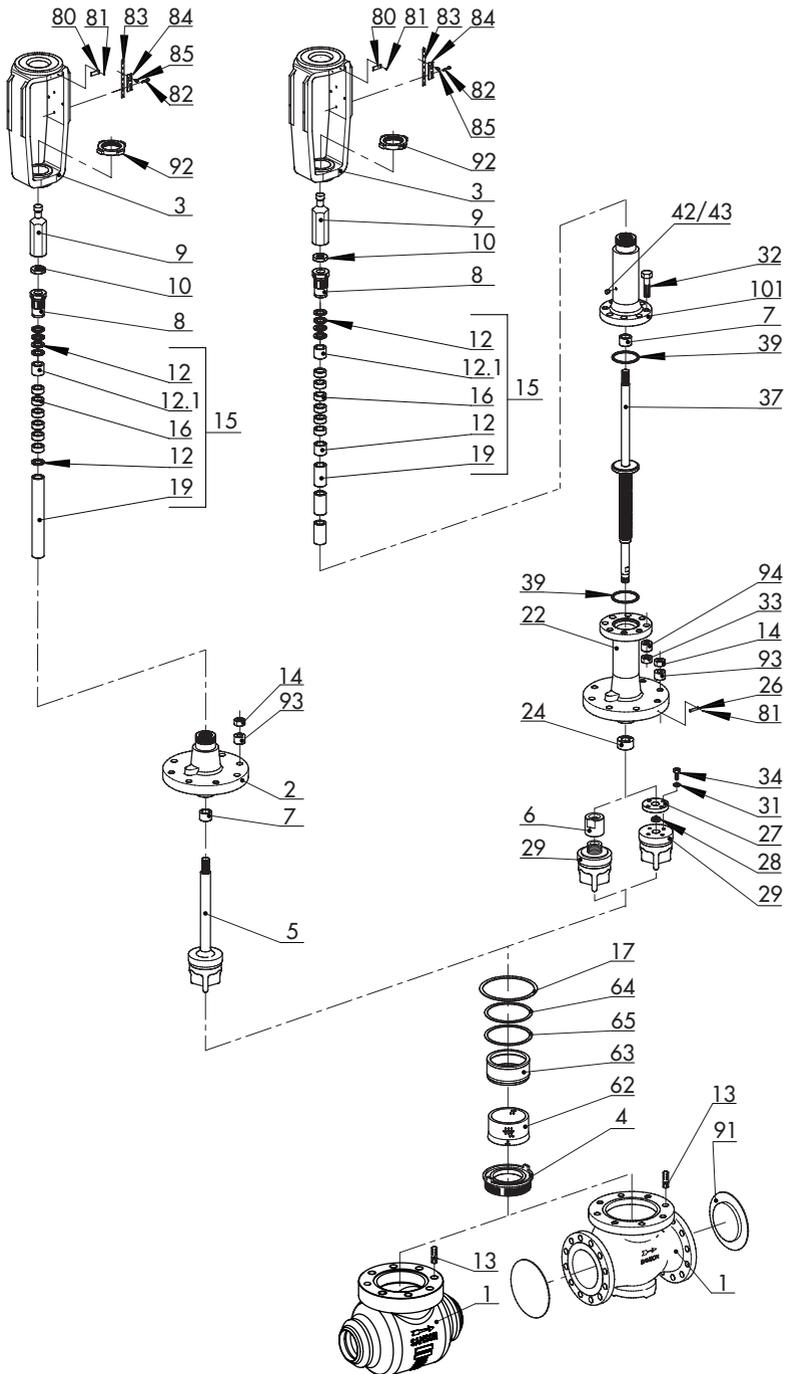
15.1 Tightening torques, lubricants and tools

► AB 0100 for tools, tightening torques and lubricants

15.2 Spare parts

1	Body	42/43	Screw plug with seal
2	Bonnet	62	Flow divider ST 1
3	Yoke	63	Ring ¹⁾
4	Seat	64	Gasket ¹⁾
5	Plug	65	Gasket ¹⁾
6	Bellows nut	80	Nameplate
7	Guide bushing	81	Grooved pin
8	Threaded bushing (packing nut)	82	Screw
9	Stem connector nut	83	Hanger
10	Lock nut	84	Travel indicator scale
12	Washer	85	Screw
12.1	Washer	91	Protective caps
13	Stud bolt	92	Nut
14	Body nut	93	Expansion sleeve
15	Packing (adjustable)	94	Expansion sleeve
16	Packing rings for molten salt service	101	Bellows bonnet
17	Body gasket		
19	Spacer		
22	Bellows seal		
24	Guide bushing		
26	Label (bellows seal)		
27/28	Fastening parts		
31/34	Fastening parts		
29	Plug for version with bellows seal		
30	Retaining washers		
32	Bolt		
33	Nut		
37	Plug stem with bellows seal		
39	Gasket		

¹⁾ Version with flow divider



15.3 After-sales service

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

E-mail contact

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

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, valve size and valve version
- Pressure and temperature of the process medium
- Flow rate in m³/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

15.4 Information on the UK sales region

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

Importer

SAMSON Controls Ltd
 Perrywood Business Park
 Honeycrock Lane
 Redhill, Surrey RH1 5JQ
 Phone: +44 1737 766391
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 Website: uk.samsongroup.com

EB 8052-1 EN



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