MOUNTING AND OPERATING INSTRUCTIONS

EB 8015 EN

Translation of original instructions

With Type 3271 Actuator

With Type 3277 Actuator

Type 3241 Valve

Type 3241 Valve · DIN and GOST versions

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

Edition April 2024

Note on these mounting and operating instructions

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

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

⇨ If you have any additional questions not related to the contents of this document, contact SAMSON's After-sales Service (aftersalesservice@samsongroup.com).

Documents relating to the device, such as the mounting and operating instructions, are available on our website:
▶ https://www.samsongroup.com/en/downloads/documentation

Definition of signal words

⚠ DANGER

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

⚠ WARNING

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

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

1 Safety instructions and measures

Intended use

The SAMSON Type 3241 Globe Valve in combination with an actuator (e.g. Type 3271 or Type 3277 Pneumatic Actuator) is designed to regulate the flow rate, pressure or temperature of liquids, gases or vapors.

The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in operating conditions that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in applications or conditions other than those specified, contact SAMSON. SAMSON does not assume any liability for damage resulting from the failure to use the device for its intended purpose or for damage caused by external forces or any other external factors.

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

Reasonably foreseeable misuse

The control valve is not suitable for the following applications:

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

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

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

Qualifications of operating personnel

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

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

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

The operating personnel must be specially trained for the correct and safe handling of oxygen when valves are used for oxygen service.

Tip

All SAMSON staff receives appropriate training before performing any activities in connection with oxygen service. SAMSON's After-sales Service also offers such training courses for service staff to allow them to learn how to handle devices for the above listed applications correctly and safely.

Personal protective equipment

SAMSON recommends checking the hazards posed by the process medium being used (e.g. ▶ GESTIS hazardous substances database).

Depending on the process medium and/or the activity, the protective equipment required includes:

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

⇨ Check with the plant operator for details on further protective equipment.

Revisions and other modifications

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

Safety features

The fail-safe position of the control valve upon air supply or control signal failure depends on the actuator used (see associated actuator documentation). When the valve is combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator, the

control valve moves to a certain fail-safe position upon supply air or control signal failure (see Chapter 3.1). The fail-safe action of the actuator is the same as its direction of action and is specified on the nameplate of SAMSON actuators.

Warning against residual hazards

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

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

Responsibilities of the operator

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

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

Responsibilities of operating personnel

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

Referenced standards, directives and regulations

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

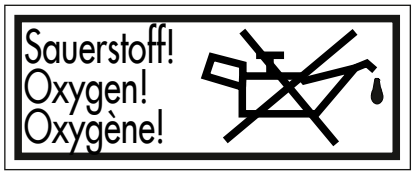
Non-electric valve versions whose bodies are not lined with an insulating material coating do not have their own potential ignition source according to the risk assessment stipulated in Clause 5.2 of DIN EN ISO 80079-36, even in the rare incident of an operating fault. Therefore, such valve versions do not fall within the scope of ATEX Directive 2014/34/EU.

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

Referenced documents

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

- Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
- Mounting and operating instructions for the mounted actuator, for example:
  - ▶ EB 8310-X for Type 3271 and Type 3277 Pneumatic Actuators
- ▶ AB 0100 for tools, tightening torques and lubricants
- Manual ▶ H 02: Appropriate Machinery Components for SAMSON Pneumatic Control Valves with a Declaration of Conformity of Final Machinery
- For oxygen service: Manual ▶ H 01
  The packaging of valve constructed and sized for oxygen service has the following label on it:



– If a device contains a substance listed as a substance of very high concern (SVHC) on the candidate list of the REACH regulation, the document "Additional Information on Your Inquiry/Order" is added to the SAMSON order documents. This document includes the SCIP number assigned to the devices concerned. This number can be entered into the database on the European Chemicals Agency (ECHA) website (▶ https://www.echa.europa.eu/scip-database) to find out more information on the SVHC contained in the device.
  Further information on material compliance at SAMSON is available at ▶ www.samsongroup.com > About SAMSON > Environment, Social & Governance > Material Compliance

1.1 Notes on possible severe personal injury

⚠ DANGER

Risk of bursting in pressure equipment.

Control valves and pipelines are pressure equipment. Excessive pressurization or improper opening can lead to valve components bursting.

⇨ Observe the maximum permissible pressure for valve and plant.

⇨ Before starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly, depressurize all plant sections affected as well as the valve.

⇨ Drain the process medium from the plant sections affected as well as from the valve.

⚠ DANGER

Risk of injury due to incorrect handling of oxygen or cryogenic gases in applications.

The valve can be used for oxygen service or applications with cryogenic gases. Oxygen is a hazardous substance, which reacts quickly, leading to combustion and explosions. Contact with cryogenic gases causes severe frostbite and cold burns (cryogenic burns). Operating personnel must be trained for these applications. Unqualified operating personnel expose themselves and others to an increased risk of injury.

⇨ Operating personnel must be sufficiently trained and be made aware of the hazards in applications involving oxygen or cryogenic gases.

⇨ Instructions and information on how to safely handle devices for oxygen service can be found in the Manual ▶ H 01.

1.2 Notes on possible personal injury

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

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

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

  In the event of a potential risk:

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

  In the event of a potential risk:

  ⇨ Wear hearing protection when working near the valve.

⚠ WARNING

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

When the valve is operated with a pneumatic actuator or pneumatic valve accessories, exhaust air is

vented from the actuator, for example, while the valve is operating and when the valve opens or closes.

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

⇨ Use suitable mufflers and vent plugs.

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

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.

⇨ Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.

⇨ Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.

⚠ WARNING

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

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic linear actuators (e.g. Type 3271/3277 or Type 3371) can be identified by the long bolts protruding from the bottom of the actuator.

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

⚠ WARNING

Risk of personal injury due to 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 of the anti-rotation fixture on the plug stem are under tension.

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

⇨ Remove the actuator from the valve or otherwise ensure that it cannot transmit any forces to the actuator stem before removing the anti-rotation fixture from the plug stem.

⚠ WARNING

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

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

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

⚠ WARNING

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

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

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

In the event of a potential risk:

⇨ If possible, drain the process medium from the plant sections affected and from the valve.

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

⚠ WARNING

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

Over time, markings, labels and nameplates on the control valve may become covered with dirt or be-

come illegible in some other way. As a result, hazards may go unnoticed and the necessary instructions not followed. There is a risk of personal injury.

⇨ Keep all relevant markings and inscriptions on the device in a constantly legible state.

⇨ Immediately renew damaged, missing or incorrect nameplates or labels.

⚠ WARNING

Exposure to hazardous substances poses a serious risk to health.

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

⇨ Make sure that an MSDS is available for any hazardous substance used. If necessary, contact the manufacturer to obtain an MSDS.

⇨ Inform yourself about the hazardous substances and their correct handling.

1.3 Notes on possible property damage

❗ *NOTICE*

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

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

⇨ Flush the pipelines before start-up.

❗ *NOTICE*

Risk of valve damage due to unsuitable medium properties.

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

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

❗ *NOTICE*

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

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

⇨ Observe the tightening torques specified in ▶ 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).

❗ *NOTICE*

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

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

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

❗ *NOTICE*

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

⇨ If necessary (e.g. for oxygen service), keep the valve and the tools used free from solvents and grease.

⇨ Make sure that only suitable lubricants are used.

❗ *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.

⇨ Before welding painted valves into the pipeline and/or subject them to heat in any way, observe the temperature resistance of the paint coating system. The number of the coating system used can be found in the order documentation. The temperature resistance of all of our coating systems is specified in the Brochure ▶ WA 268.

1.4 Notes on the use of an RFID tag

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

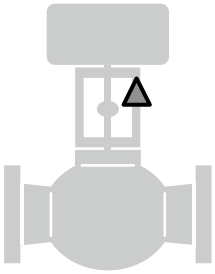
⇨ Observe the explosion protection certificates of the RFID tag when it is to be used on valves installed in potentially explosive atmospheres.

⇨ Do not expose the RFID tag to strong electric fields.

⇨ Avoid electrostatic charging.

⇨ Observe the application range (technical specifications) of the RFID tag.

1.5 Warnings on the device

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

2 Markings on the device

2.1 Valve nameplate

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

In nominal sizes up to DN 150/NPS 6, the valve nameplate (80) is affixed to the valve bonnet flange. The valve nameplate in nominal sizes DN 200/NPS 8 and larger is located on the yoke.

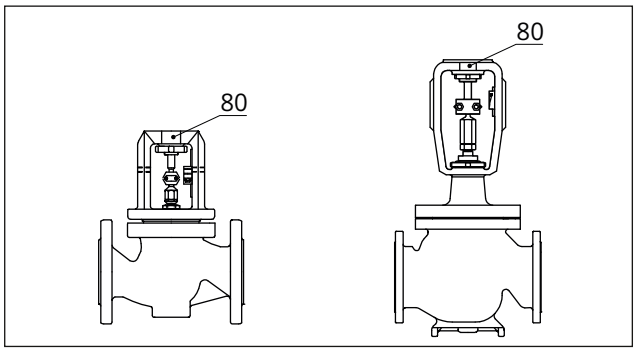


Fig. 1: *Nameplate on the flange (left) · Nameplate on the yoke (right)*

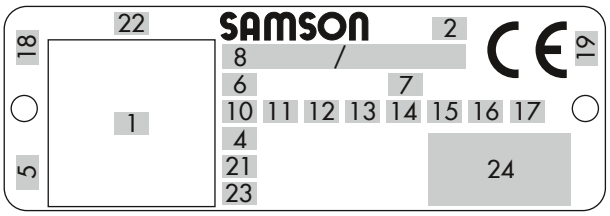


Fig. 2: *Inscriptions on the valve nameplate*

Item	Inscription meaning
1	Identification code (scannable)
2	Type designation
4	Material
5	Month and year of manufacture
6	Nominal size: DIN: **DN** · ANSI: **NPS** · JIS: **DN**
7	Pressure rating: DIN: **PN** · ANSI: **CL** · JIS: **K**
8	Order number/item
10	Flow coefficient: DIN: **KV** · ANSI/JIS: **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: **D**: DIN · **B**: ANSI/JIS
	Version: **M**: Mixing valve **V**: Diverting valve
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 3** **MHC1**: Multi-Hole Cage **CC1**: Combi Cage **ZT1**: Zero Travel **LDB**: Low dB **CDST**: Multi-stage trim (cavitation dirty service trim)
16	PSA version: **PSA**
17	Cage/seat style: **RT**: Seat with retainer **CG**: Guided cage **TH**: 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, 4 place des Saisons, 92400 Courbevoie – France
21	**PED**: Pressure Equipment Directive
	G1/G2: Gases and vapors Fluid group 1 = Hazardous Fluid group 2 = Other
	L1: Liquids Fluid group 1 = Hazardous Fluid group 2 = Other
	I/II/III: Category 1 to 3
22	Serial number
23	NE 53 (NAMUR Recommendation)
24	Other marks of conformity

Note

Fig. 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 3241 Valve actually appear on the nameplate.

Tip

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

The serial number enables you to view the device's current technical data as configured by SAMSON. The material number enables you to view the device's technical data as configured by SAMSON upon delivery of the device. To view these data, go to our website at:

▶ *www.samsongroup.com > Products > Electronic nameplate*

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

2.2 Actuator nameplate

See associated actuator documentation.

2.3 Material numbers

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

2.4 Label when an adjustable packing is installed

An instructional label is affixed to the valve when an adjustable packing is installed (see Fig. 3).

Fig. 3: *Label when an adjustable packing is installed*

2.5 Markings when used for oxygen service

See Manual for Oxygen Service ▶ H 01.

2.6 Optional RFID tag

The RFID tag is located directly next to the nameplate on valves ordered with the RFID tag option. It contains the same data as the identification code on the electronic nameplate. It can be read using a smartphone, tablet or RFID reader. Application range according to the technical data (see Chapter 3.5).

3 Design and principle of operation

The Type 3241 Valve is a single-seated globe valve. The Type 3241 Valve is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator. It can also be combined with other actuators.

The seat (4) and plug with plug stem (5) are installed in the body (1). In some versions, the seat is already integrated into the body. The plug stem is connected to the actuator stem (A7) by the stem connector clamps (A26) and is sealed by a spring-loaded V-ring packing (16).

The springs in the pneumatic actuator are located either above or below the diaphragm depending on the selected fail-safe action (see Chapter 3.1). A change in the signal pressure acting on the diaphragm causes the plug to move. The actuator size is determined by the diaphragm area.

The medium flows through the valve in the direction indicated by the arrow. A rise in signal pressure causes the force acting on the diaphragm in the actuator to increase. The springs are compressed. Depending on the selected direction of action, the actuator stem retracts or extends. As a result, the plug position in the seat changes and determines the flow rate through the valve and the pressure p_2 as well.

Tip

SAMSON recommends the use of positioners with integrated diagnostic firmware (see Chapter 3.4) for control valves used for on/off service. The partial stroke test included in this software helps prevent a shut-off valve normally in its end position from seizing up or getting jammed.

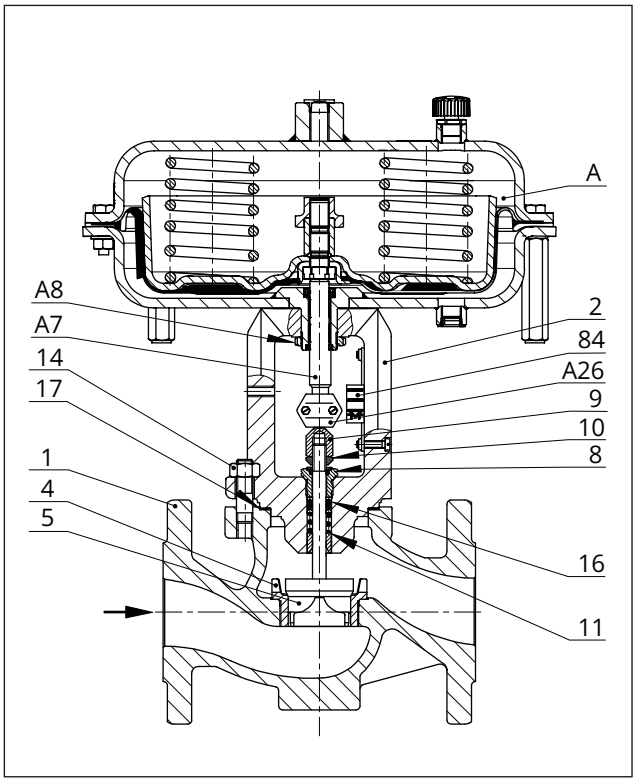


Fig. 4: *Type 3241-1 Control Valve with Type 3271 Pneumatic Actuator, body up to DN 150/NPS 6*

1	Body	14	Nut
2	Flange (valve bonnet)	16	Packing rings
4	Seat	17	Body gasket
5	Plug (with plug stem)	84	Travel indicator scale
8	Threaded bushing (packing nut)	A	Actuator
9	Stem connector nut	A7	Actuator stem
10	Lock nut	A8	Ring nut
11	Spring	A26	Stem connector clamp

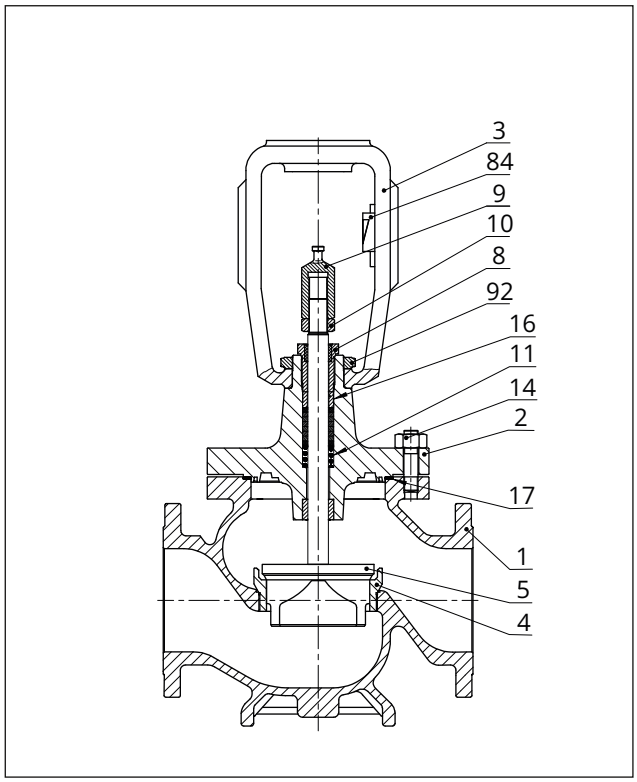


Fig. 5: *Type 3241 Valve, body DN 200 to 300/NPS 8 to 12*

1	Body	10	Lock nut
2	Valve bonnet	11	Spring
3	Yoke	14	Nuts
4	Seat	16	Packing
5	Plug (with plug stem)	17	Body gasket
8	Threaded bushing (packing nut)	84	Travel indicator scale
		92	Castellated nut
9	Stem connector nut		

3.1 Fail-safe positions

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

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

- **Actuator stem extends (FA)**
  When the signal pressure is reduced or the air supply fails, the springs move the actuator stem downward and close the valve. The valve opens when the signal pressure is increased enough to overcome the force exerted by the springs.
- **Actuator stem retracts (FE)**
  When the signal pressure is reduced or the air supply fails, the springs move the actuator stem upward and open the valve. The valve closes when the signal pressure is increased enough to overcome the force exerted by the springs.

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

3.2 Versions

With insulating section/bellows seal

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

Micro-flow valve version

In the micro-flow valve version, a micro-trim element is installed in the valve body instead of the usual seat/plug combination.

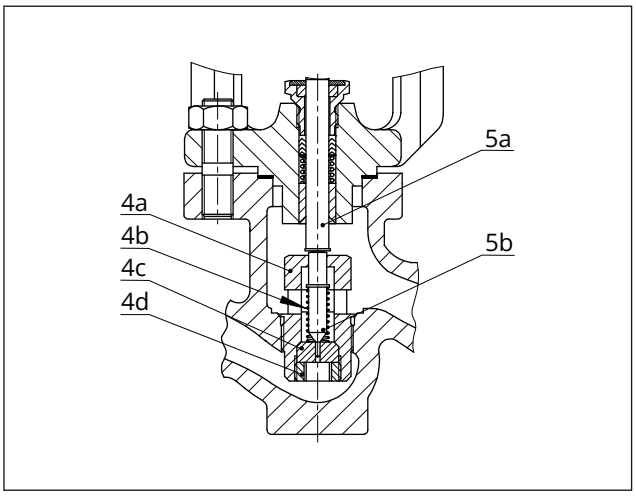


Fig. 6: *Micro-trim element*

4a	Seat body	4d	Nut
4b	Spring	5a	Plug stem
4c	Seat	5b	Plug

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.

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

3.3 Additional fittings

Strainer

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

Bypass and shut-off valves

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

Insulation

Control valves can be insulated to reduce heat energy transfer.

If applicable, read the instructions in Chapter 5.

Test connection

Versions with bellows seal fitted with a test connection (G ⅛) at the top of the intermediate piece allow the sealing ability of the bellows to be monitored.

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

Safety guard

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

Noise reduction

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

3.4 Valve accessories

See Information Sheet ▶ T 8350

3.5 Technical data

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

Note

More information on Type 3241 Valve is available in the following data sheets:

- ▶ *T 8015 (DIN version)*
- ▶ *T 8015-1 (PSA, DIN version)*
- ▶ *T 8015-20 (GOST version)*

Conformity

The Type 3241 Valve bears the CE mark of conformity.

CE

Noise emissions

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

Optional RFID tag

Application range according to the technical specifications and the explosion protection certificates. These documents are available on our website: ▶ www.samsongroup.com > Products > Electronic nameplate

The permissible range for temperatures at the RFID tag is between -40 and +85 °C.

i Note

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

- *▶ T 8310-1 for Type 3271 and Type 3277 Actuators up to 750 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*

3.5.1 DIN and GOST versions

DIN version

Table 1: *Technical data for Type 3241*

Nominal size		**DN**	**15 to 250**	**15 to 150**	**15 to 300**				**15 · 25 · 40 · 50 · 80**	
Material			**Cast iron EN-GJL-250 (EN-JL1040)**	**Spheroidal graphite iron EN-GJS-400-18-LT (EN-JS1049)**	**Cast steel 1.0619**	**Cast stainless steel 1.4408**	**Cast steel 1.6220/ 1.1138**	**Cast stainless steel 1.4308**	**Forged steel 1.0460**	**Forged stainless steel 1.4404**
Pressure rating		PN	10 · 16	16 · 25	10 · 16 · 25 · 40					
Type of end connections		Flanges	All DIN versions							
		Welding ends	–		DIN EN 12627 only for DN 25, 40, 50, 80, 100, 150, 200, 250, 300				–	
Seat-plug seal			Metal seal · Soft seal · High-performance metal seal							
Characteristic			Equal percentage · Linear (according to Information Sheet ▶ T 8000-3)							
Rangeability			50:1 for DN 15 to 50 · 30:1 for DN 65 to 150 · 50:1 for DN 200 and larger							
Heating jacket			Up to DN 100: PN 25 · DN 125 and larger: PN 16							
Conformity			CE							
Temperature ranges in °C · Permissible operating pressures according to pressure-temperature diagram (see Information Sheet ▶ T 8000-2)										
Body with standard bonnet			All nominal sizes: -10 to +220 Nominal sizes DN 200 to 300 with high-temperature packing: -10 to +350							
Body with	Insulating section		-10 to +300	-10 to +350	-10[4] to +400	-50 to +450[1]	-50 to +300	-50 to +300[1]	-10[4] to +400	-50 to +450
	With long insulating section[2]		–	–	–	-196 to +450	–	-196 to +300	–	-196 to +450
	Bellows seal		-10 to +300	-10 to +350	-10[4] to +400	-50 to +450[1]	-50 to +300	-50 to +300[1]	-10[4] to +400	-50 to +450
	With long bellows seal[2]		–	–	–	-196 to +450	–	-196 to +300	–	-196 to +450
Valve plug	Standard	Metal seal	-196 to +450							
		Soft seal	-196 to +220							
	Balanced	With PTFE ring	-50 to +220 · Lower temperatures on request							
		With graphite ring	10 to 450							

Nominal size			DN	15 to 250	15 to 150	15 to 300				15 · 25 · 40 · 50 · 80	
Material				Cast iron EN-GJL-250 (EN-JL1040)	Spheroidal graphite iron EN-GJS-400-18-LT (EN-JS1049)	Cast steel 1.0619	Cast stainless steel 1.4408	Cast steel 1.6220/ 1.1138	Cast stainless steel 1.4308	Forged steel 1.0460	Forged stainless steel 1.4404
Leakage class according to DIN EN 60534-4											
Valve plug	Standard	Metal seal		Standard: IV · High-performance metal seal: V[3]							
		Soft seal		VI							
	Balanced	Metal seal		Standard: IV · With PTFE or graphite pressure-balancing ring Special version: V · For high-performance metal seal (only with PTFE balancing ring) on request							

1) DN 200 and larger: Down to -196 °C

2) Long insulating section or bellows seal up to DN 150

3) Leakage class V for temperatures <-50 °C on request

4) Version for lower temperatures on request

GOST version

Table 2: *Technical data for Type 3241*

Nominal size			DN	15 to 300		
Material				Cast steel 1.0619	Cast steel 1.5638	Cast stainless steel 1.4408
Pressure rating			PN	10 · 16 · 25 · 40		
Type of end connections			Flanges	GOST 33259-2015: Form F, Series 1		
Seat-plug seal				Metal seal · Soft seal · High-performance metal seal		
Characteristic				Equal percentage · Linear (according to Information Sheet ▶ T 8000-3)		
Rangeability				50:1 for DN 15 to 50 · 30:1 for DN 65 to 150 · 50:1 for DN 200 and larger		
Heating jacket				Up to DN 100: PN 25 · DN 125 and larger: PN 16		
Conformity				CE		
Temperature ranges in °C · Permissible operating pressures according to pressure-temperature diagram (see Information Sheet ▶ T 8000-2)						
Body with standard bonnet				All nominal sizes: -10 to +220 Nominal sizes DN 200 to 300 with high-temperature packing: -10 to +350		
Body with	Insulating section			-10[4] to +400	-50 to +300	-50 to +450[2]
	With long insulating section[1]			–	–	-196 to +450
	Bellows seal			-10[4] to +400	-50 to +300	-50 to +450
	With long bellows seal[1]			–	–	-196 to +450
Valve plug	Standard	Metal seal		-196 to +450		
		Soft seal		-196 to +220		
	Balanced	With PTFE ring		-50 to +220 · Lower temperatures on request		
		With graphite ring		10 to 450		

Nominal size		DN	15 to 300		
Material			Cast steel 1.0619	Cast steel 1.5638	Cast stainless steel 1.4408
Leakage class according to DIN EN 60534-4					
Valve plug	Standard	Metal seal	Standard: IV · High-performance metal seal: V[3]		
		Soft seal	VI		
	Balanced	Metal seal	Standard: IV · With PTFE or graphite pressure-balancing ring Special version: V · For high-performance metal seal (only with PTFE balancing ring) on request		

1) Long insulating section or bellows seal up to DN 150

2) DN 200 and larger: Down to -196 °C

3) Leakage class V for temperatures <-50 °C on request

4) Version for lower temperatures on request

Dimensions for DIN and GOST versions

Dimensions in mm

Table 3: *Dimensions of Type 3241 Valve, up to DN 150*

Valve	DN	15	20	25	32	40	50	65	80	100	125	150
Length L		130	150	160	180	200	230	290	310	350	400	480
H1 (actuator with ... cm²)	≤750	222	222	222	223	223	223	262	262	354	363	390
	1000 1400-60	–								413	423	450
	1400-120 2800	–										
H2[1] for	Cast steel	44[2]	44[2]	44[2]	72	72[2]	72[2]	98	98[2]	118	144	175

1) The H2 dimension is the distance from the middle of the flow channel to the bottom of the valve body.

2) The H2 dimension in this valve is not the lowest point of the valve. This valve's lowest point is the bottom of the connecting flanges. The flange dimensions comply with the corresponding flange standard.

Table 4: *Dimensions for Type 3241 Valve, DN 200 and larger*

Valve	DN	200	250 Up to 200 mm SB	250 250 mm SB and larger	300
Length L		600	730	730	850
H4		390	451	451	652
H8[1] (actuator with ... cm²)	1000 1400-60	418	418	–	503
	1400-120 2800	503	503	650	650
H2		230	295	295	355

1) For valves with K_{VS} 250, 360 or 630 and 60 mm rated travel operated with overtravel, H8 increases by 170 mm.

Table 5: *Dimensions for Type 3241 Valve with insulating section or bellows seal, up to DN 150*

Nominal size		DN	15	20	25	32	40	50	65	80	100	125	150
		Insulating section or bellows seal											
H4 (actuator with ... cm²)	≤750	Short	409			410			451		636	645	672
		Long	713			714			755		877	886	913
	1000 1400-60	Short	–								695	705	732
		Long	–								936	946	973
	1400-120 2800	Short	–										
		Long											

Table 6: *Dimensions for Type 3241 Valve with insulating section or bellows seal, DN 200 and larger*

Version with		Insulating section				Bellows seal			
Valve	DN	200	250 Up to 200 mm SB	250 250 mm SB	300	200	250 Up to 200 mm SB	250 250 mm SB	300
Height H4		830	1065	1065	1150	1036	1492	1492	1520
H8 (actuator with ... cm²)	1000 1400-60	418	418	–	503	418	418	–	503
	1400-120 2800	503	503	650	650	503	503	650	650

Dimensional drawings for DIN and GOST versions

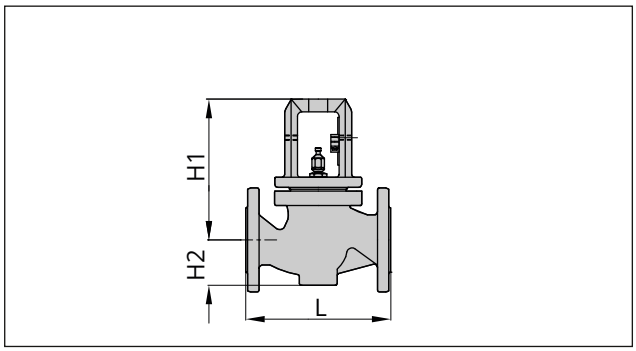


Fig. 7: *Type 3241 · Nominal sizes up to DN 150/NPS 6/ DN 150A*

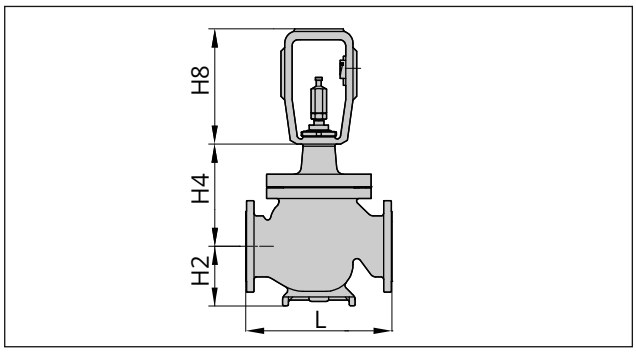


Fig. 8: *Type 3241 · Nominal sizes DN 200/NPS 8 and larger*

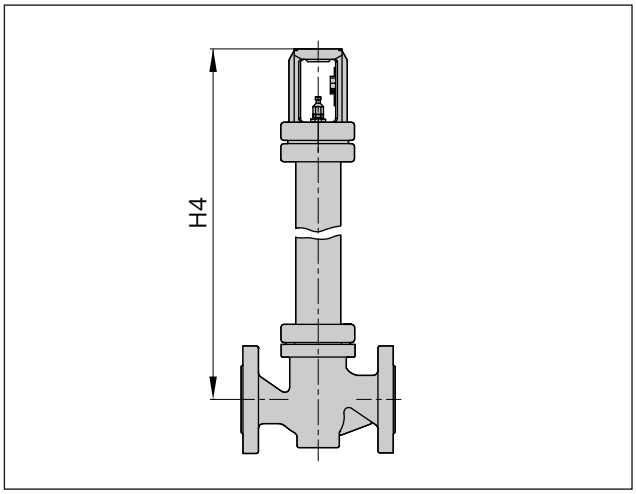


Fig. 9: *Type 3241 with insulating section or bellows seal, up to nominal size DN 150/NPS 6/DN 150A*

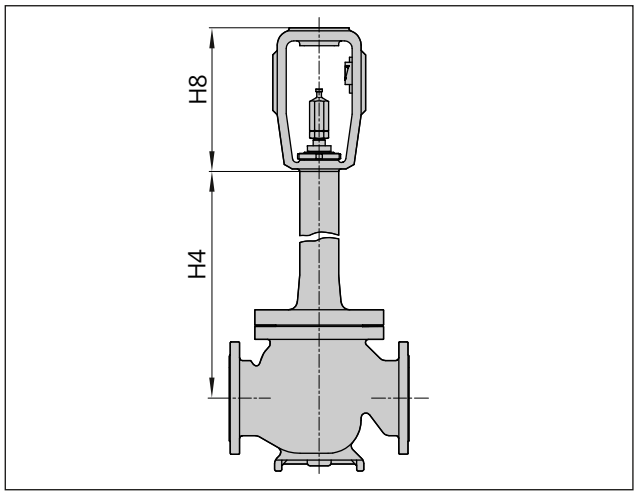


Fig. 10: *Type 3241 with insulating section or bellows seal, DN 200/NPS 8 and larger*

Dimensions with heating jacket

Table 7: *Dimensions for Type 3241 Valve with heating jacket*[1)]

Nominal size	DN	25	32 to 50	65 to 80	100	150	200 to 300
a	mm	110	140	180	200	265	On request
b	mm	15	20	35	50	80	On request
c	mm	140	170	215	255	130	On request
d	mm	190	190	230	320	355	On request

1) Not for valves with body materials EN-GJL-250 or EN-GJS-400-18-LT

Dimensional drawings with heating jacket

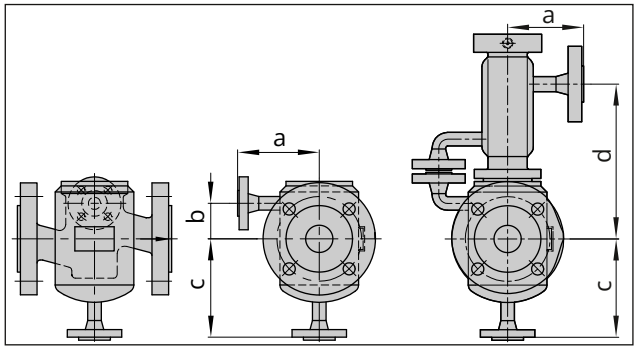


Fig. 11: *Type 3241 with heating jacket, up to nominal size DN 100/NPS 4 · With insulating section or bellows seal (right)*

Flanges: DIN 2635
Flanges: GOST 33259-2015

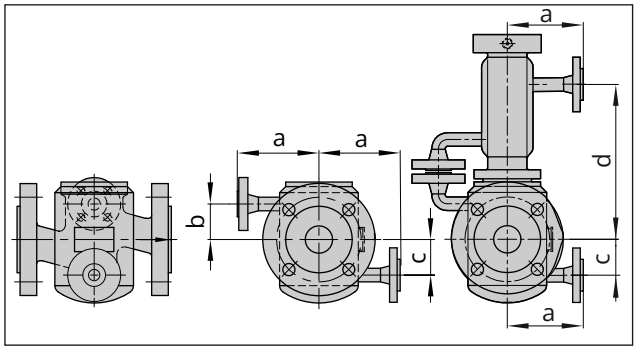


Fig. 12: *Type 3241 with heating jacket, nominal size DN 150/NPS 6 and larger · With insulating section or bellows seal (right)*

Flanges: DIN 2635
Flanges: GOST 33259-2015

Weights for DIN and GOST versions

Weights in kg

Table 8: *Weights for Type 3241 Valve*

Valve	DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300
Version with standard bonnet															
Valve[1)] without actuator		6	7.5	8	12	14	18	29	34	52	81	108	430	858	920

Valve	DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300
Version with insulating section															
Valve[1] without actuator	Insulating section														
	Short	9	10.5	11	18	20	24	37	42	70	106	138	478	928	963
	Long	13	14.5	15	22	24	28	41	46	78	114	146			
Version with bellows seal															
Valve[1] without actuator	Bellows seal														
	Short	9	10.5	11	18	20	24	37	42	70	106	138	520	975	1010
	Long	13	14.5	15	22	24	28	41	46	78	114	146			

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

3.5.2 DIN version PSA (pressure swing adsorption)

Table 9: *Technical data for Type 3241 PSA*

Nominal size	**DN**	**15, 20[1], 25, 32[1], 40, 50, 65[1], 80, 100, 125[1], 150**	**15 · 25 · 40 · 50 · 80**	
Material		**Cast steel GP240GH 1.0619**	**Cast stainless steel 1.4408**	**Forged steel P250GH 1.0460**	**Forged stainless steel 1.4404**
Pressure rating	PN	10 · 16 · 25 · 40		
Type of end connections	Flanges	All DIN versions		
Seat-plug seal		Soft seal · High-performance metal seal		
Characteristic		Equal percentage · Linear		
Rangeability		50:1 for DN 15 to 50 · 30:1 for DN 65 and larger		
Conformity		CE		
Medium temperature in °C · Permissible operating pressures according to pressure-temperature diagram (see Information Sheet ▶ T 8000-2)				
Valve		-10 to +150		
Leakage class according to DIN EN 60534-4				
Valve plug	Soft seal	VI		
	High-performance metal seal	V		

[1] Nominal sizes on request

Dimensions

Dimensions in mm

Table 10: *Dimensions for Type 3241 PSA Valve*

Valve	DN	15	20[4]	25	32[4]	40	50	65[4]	80	100	125[4]	150
Length L		130	150	160	180	200	230	290	310	350	400	480
H1		220	220	220	220	220	220	330[1]	330[1]	354[1]	363[1]	390[1]

Valve	DN	15	20[4]	25	32[4]	40	50	65[4]	80	100	125[4]	150
H2[2] for	Cast steel	44[3]	44[3]	44[3]	72	72[3]	72[3]	98	98[3]	118	144	175
	Forged steel	53	–	70	–	94	100	–	132	–		

1) Add 65 mm to H1 when a Type 3275A Actuator with 804 cm² actuator area is mounted.

2) The H2 dimension is the distance from the middle of the flow channel to the bottom of the valve body.

3) The H2 dimension in this valve is not the lowest point of the valve. This valve's lowest point is the bottom of the connecting flanges. The flange dimensions comply with the corresponding flange standard.

4) Nominal sizes on request

Dimensional drawings

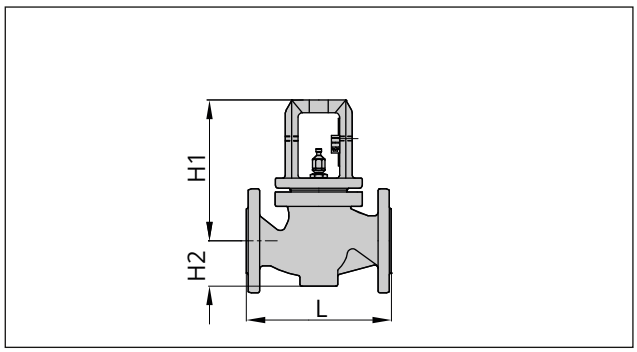


Fig. 13: *Type 3241 · Nominal sizes up to DN 150/NPS 6/ DN 150A*

Weights

Weights in kg

Table 11: *Weights for Type 3241 PSA Valve*

Valve	DN	15	20[2]	25	32[2]	40	50	65[2]	80	100	125[2]	150
Valve[1] without actuator		5	6	1	11	12	15	24	30	42	80	120

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

2) Nominal sizes on request

4 Shipment and on-site transport

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

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

1. Check the scope of delivery. Check that the specifications on the valve nameplate match the specifications in the delivery note. See Chapter 2 for more details on the nameplate.
2. Check the shipment for transportation damage. Report any damage to SAMSON and the forwarding agent (refer to delivery note).
3. Determine the weight and dimensions of the units to be lifted and transported in order to select the appropriate lifting equipment and lifting accessories. Refer to the transport documents and Chapter 3.5.

4.2 Removing the packaging from the valve

Observe the following sequence:

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

⇨ Leave the control valve in its transport container or on the pallet to transport it on site.

⇨ Do not remove the protective caps from the inlet and outlet until immediately before installing the valve into the pipeline. They prevent foreign particles from entering the valve.

⇨ Dispose and recycle the packaging in accordance with the local regulations.

4.3 Transporting and lifting the valve

⚠ DANGER

Danger due to suspended loads falling.

⇨ *Stay clear of suspended or moving loads.*

⇨ *Close off and secure the transport paths.*

⚠ WARNING

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

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

⚠ WARNING

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

⇨ *Observe the control valve's center of gravity.*

⇨ *Secure the control valve against tipping over or turning.*

⚠ WARNING

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

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

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

❗ *NOTICE*

Risk of control valve damage due to incorrectly attached slings.

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

⇨ *When lifting the control valve, make sure that the slings attached to the valve body bear the entire load.*

⇨ *Do not attach load-bearing slings to the actuator, handwheel or any other parts.*

⇨ *Observe lifting instructions (see Chapter 4.3.2).*

Tip

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

In contrast to the lifting eyelet/eyebolt, the swivel hoist is designed for setting a control valve assembly upright. The sling between the swivel hoist and rigging equipment (hook, shackle etc.) must not bear any load when lifting a control valve assembly. The sling only protects the control valve from tilting while being lifted.

Tip

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

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.

Note

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

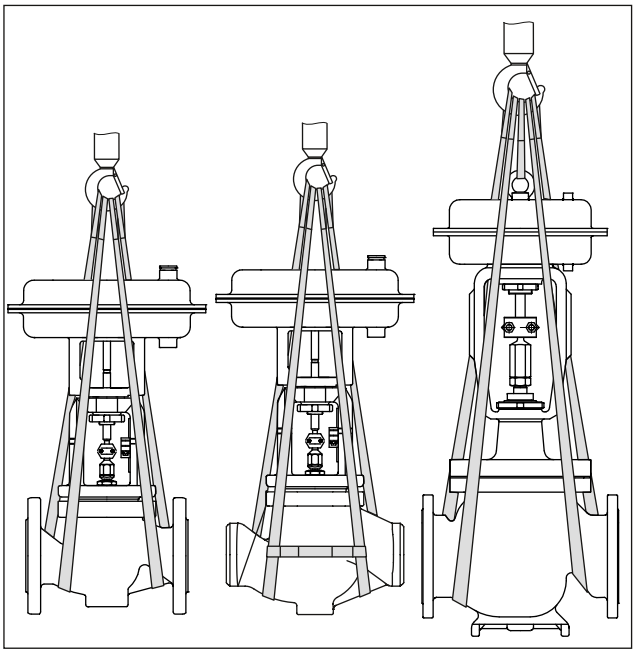


Fig. 14: *Lifting points on the control valve: up to DN 150/NPS 6 with flanges (left) and with welding ends (middle) · DN 150/NPS 6 and larger with additional lifting eyelet on the actuator (right)*

4.3.2 Lifting the valve

See Fig. 14

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

Lifting instructions

- Use a hook with safety latch to secure the slings from slipping off the hook during lifting and transporting.
- Secure slings against slipping.
- Make sure the slings can be removed from the device once it has been installed into the pipeline.
- Prevent the control valve from tilting or tipping over.
- Do not leave loads suspended when interrupting work for longer periods of time.
- Make sure that the axis of the pipeline is always horizontal during lifting and the axis of the plug stem is always vertical.
- Make sure that the additional sling between the lashing point on the actuator and rigging equipment (hook, shackle etc.) does not bear any load when lifting valves with an actuator that has a lifting eyelet/eyebolt on it. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

Version with flanges

1. Attach one sling to each flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift.
2. **Mounted actuator with lashing point:** Attach other slings to the lashing point on the actuator and to the rigging equipment.
3. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
4. Move the control valve at an even pace to the site of installation.
5. Install the control valve into the pipeline (see Chapter 5).
6. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
7. Remove slings.

Version with welding ends

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

4.4 Storing the valve

NOTICE

Risk of valve damage due to improper storage.

⇨ *Observe the storage instructions.*

⇨ *Avoid longer storage periods.*

⇨ *Contact SAMSON in case of different storage conditions or longer storage times.*

Note

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

Storage instructions

- Protect the control valve against external influences (e.g. impact).
- Secure the control valve assembly in the stored position against slipping or tipping over.
- Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.
- Protect the control valve against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.
- Make sure that the ambient air is free of acids or other corrosive media.
- The permissible storage temperature of standard control valves is -20 to +65 °C. 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, SAMSON recommends storing the following valves upright with the actuator on top:
  - ≥DN 100 in versions with pressure balancing
  - ≥DN 150 in 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.
- SAMSON recommends a storage temperature of 15 °C 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 chapter is to be performed only by personnel appropriately qualified to carry out such tasks.

5.1 Installation conditions

Work position

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

Plant operators must ensure that, after installation of the device, the operating personnel can perform all necessary work safely and easily access the device from the work position.

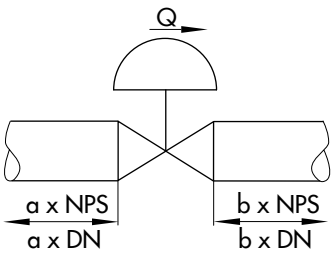
Pipeline routing

The inlet and outlet lengths (see Table 12) vary depending on several variables and process conditions and are intended as recommendations. Contact SAMSON if the lengths are significantly shorter than the recommended lengths.

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

- ⇨ Observe the recommended inlet and outlet lengths (see Table 12). Contact SAMSON if the valve conditions or state of the process medium are different from those specified.
- ⇨ Install the control valve free of stress and with the least amount of vibrations as possible. Read sections 'Mounting position' and 'Support and suspension' in this chapter.
- ⇨ Install the control valve allowing sufficient space to remove the actuator and valve or to perform service and repair work on them.

Table 12: *Inlet and outlet lengths*

	 Globe valve	Q Flow rate a Inlet length b Outlet length	
State of process medium	**Valve conditions**	**Inlet length a**	**Outlet length b**
Gases	Ma ≤ 0.3	2	4
	0.3 ≤ Ma ≤ 0.7	2	10
Vapor	Ma ≤ 0.3	2	4
	0.3 ≤ Ma ≤ 0.7	2	10
	Wet steam (percentage of condensate >5 %)	2	20
Liquids	Free of cavitation/w < 10 m/s	2	4
	Cavitation producing noise/w ≤ 3 m/s	2	4
	Cavitation producing noise/3 < w < 5 m/s	2	10
	Critical cavitation/w ≤ 3 m/s	2	10
	Critical cavitation/3 < w < 5 m/s	2	20
Flashing	–	2	20
Multi-phase	–	10	20

Mounting position

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

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

- Nominal sizes DN 100 and larger
- Valves with insulating section or bellows seal for low temperatures below -10 °C

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

Support and suspension

i ***Note***

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

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

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

Valve accessories

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

Vent plug

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

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

5.2 Preparation for installation

Before installation, make sure the following conditions are met:

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

- The valve data on the nameplate (type designation, nominal size, material, pressure rating and temperature range) match the plant conditions (nominal size and pressure rating of the pipeline, medium temperature etc.). See Chapter 2 for more details on the nameplate.
- The requested or required additional pipe fittings (see Chapter 3.3) have been installed or prepared as necessary before installing the valve.

NOTICE

Risk of control valve damage due to incorrect insulation.

⇨ *Only insulate control valves up to the bonnet flange of the valve body (see Fig. 15). This also applies to versions with bellows seal or insulating section at medium temperatures below 0 °C or above 220 °C. If the insulating section is insulated, it will not function properly.*

⇨ *Do not insulate valves mounted to comply with NACE MR0175 requirements and which have nuts and bolts that are not suitable for sour gas environments.*

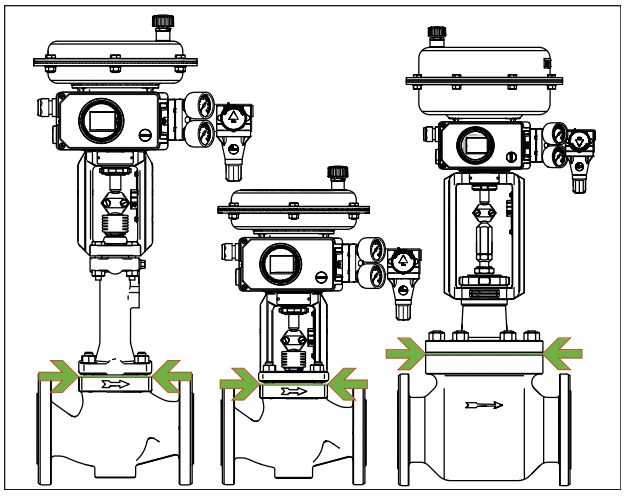


Fig. 15: *Limit of insulation for control valves (example shown)*

Proceed as follows:

⇨ Lay out the necessary material and tools to have them ready during installation work.

⇨ Flush the pipelines.

Note

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

⇨ For steam applications, dry the pipelines. Moisture will damage the inside of the valve.

⇨ Check any mounted pressure gauges to make sure they function properly.

⇨ When the valve and actuator are already assembled, check the tightening torques of the bolted joints. Components may loosen during transport.

5.3 Mounting the device

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

NOTICE

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

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

⇨ *Observe the tightening torques specified in ▶ 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).*

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).

Standard version for Series 240 Valves, DN 200/ NPS 8 and larger

See Fig. 16 and Fig. 17

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 14.
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 14 and tighten screws (303) and washers (304) by hand.
9. Mount the actuator (see Chapter 5.3.2).
10. Thread the stem (9) upwards until the head of the stem rests on the extended actuator stem.
11. Retract the actuator stem to relieve the stem (9).
12. Gradually tighten the screws (303) in a criss-cross pattern. Observe the tightening torques specified in Table 13.

Table 13: *Tightening torques*

Bolt 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. 17).
    - 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.

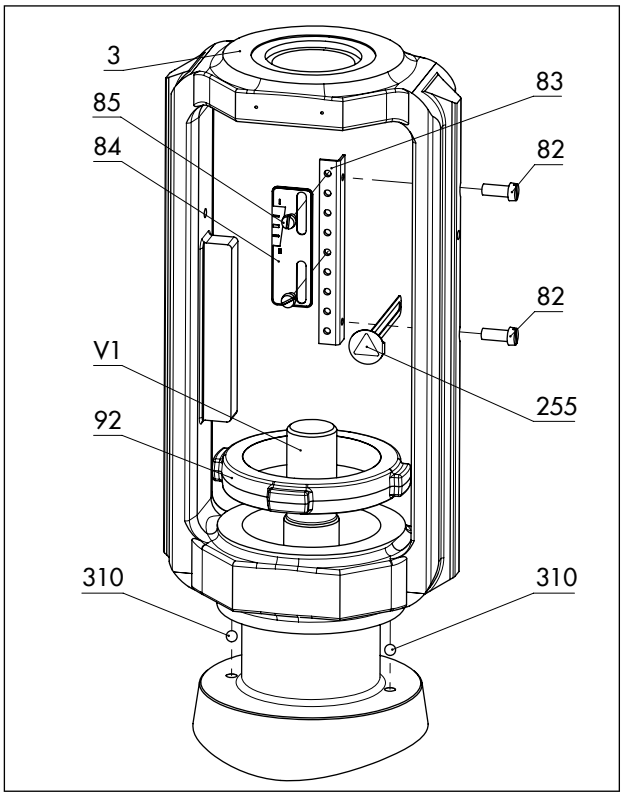


Fig. 16: *Overview of yoke assembly with travel indicator scale in the standard version*

3	Yoke	92	Castellated nut
82	Screws	255	Warning label
83	Hanger	310	Ball bearing
84	Travel indicator scale	V1	Plug stem
85	Screws		

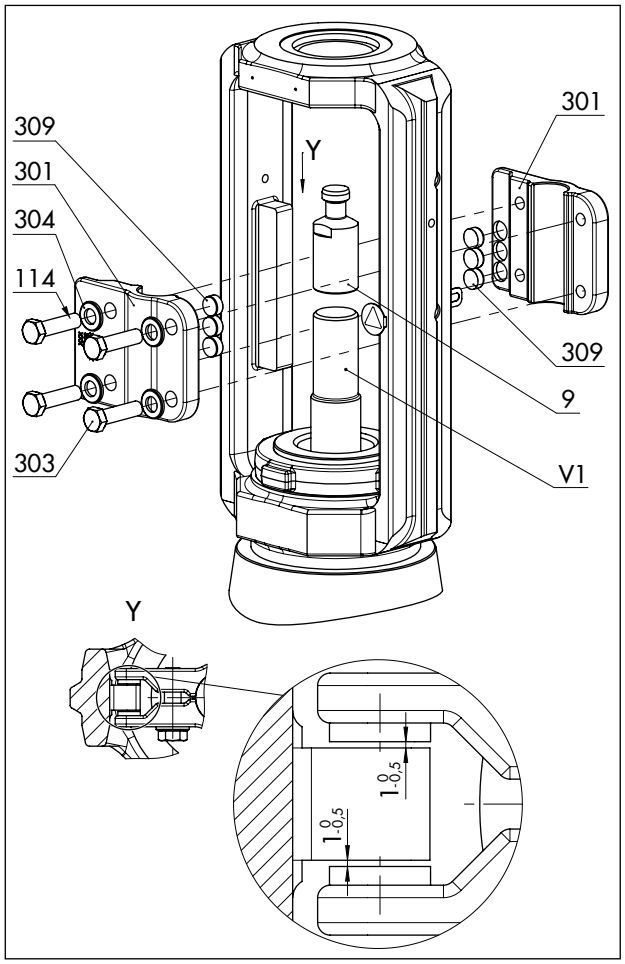


Fig. 17: *Overview of anti-rotation fixture assembly in the standard version*

9	Stem	304	Washers
114	Lubricant Gleitmo 1763 V	309	Sliding washers
301	Clamps	V1	Plug stem
303	Screws		

Table 14: *Mounting dimensions for Types 3271 and 3277 Pneumatic Actuators · See Fig. 18 for dimensional drawing*

Actuator	Travel	Actuator preloading		Dimension when the valve is closed [mm]							
[cm²]	[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											
355 750	30	0	0	241	90			61			120
	30	0	0	211	120			66			83
1000 1400-60	30	75	45	211	120			66			83
	60	0	0	166	165			52			55
	60	25	15	181	150			52			55
	15	87.5	105	236	180			61			115
	30	0	0	191	225	195	87	48	108	65	76
1400-120	30	75	90	221	195			61			100
	60	0	0	308	255			61			185
	60	50	60	191	225			48			76
	30	0	0	191	255			48			76
2800 5600	30	100	120	221	195			61			100
	60	0	0	308	255			61			185
	60	75	90	191	225			48			76
Actuator	**Travel**	**Actuator preloading**		**Dimension when the valve is closed [mm]**							
[cm²]	**[mm]**	**[%]**	**[mm]**	**H_F**	**H_G**	**H_I**	**H_K**	**H_L**	**H_N**	**H_O**	**H_T**
DN 250/NPS 10, seat bore 250 and DN 300 to 500/NPS 12 to 20 · Standard version											
	30	0	0	281	135						121
1000 1400-60	30	75	45	296	120						135
	60	0	0	251	165						91
	60	25	15	266	150						91
	60	0	0	308	255						145
1400-120	60	50	60	338	225	237	87	100	150	110	175
	120	0	0	278	285						FA[1)]=115 FE[2)]=86
	60	0	0	308	255						145
2800 5600	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)

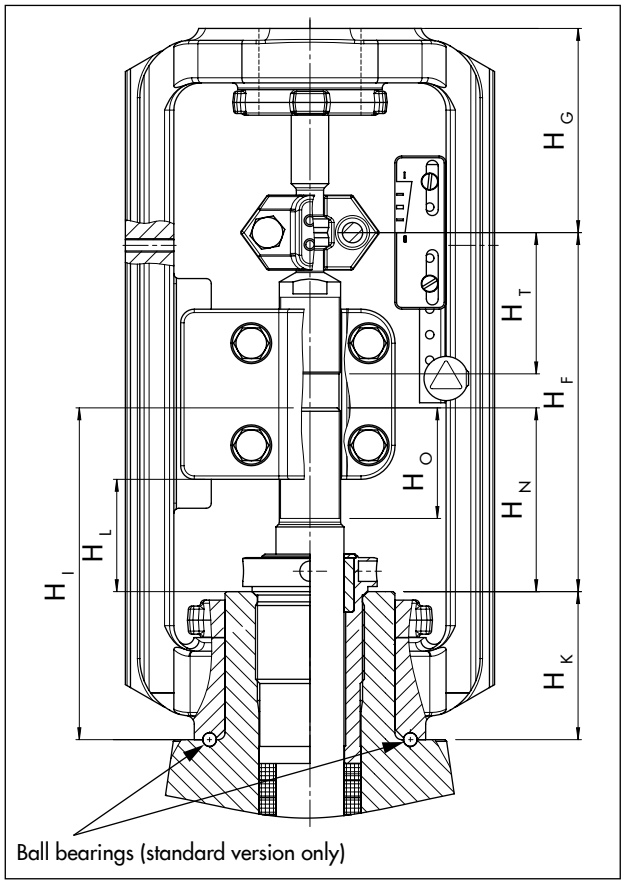


Fig. 18: *Dimensional drawing with mounting dimensions for Types 3271 and 3277 Pneumatic Actuators*

5.3.2 Mounting the actuator onto the valve

⚠ WARNING

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

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic linear actuators (e.g. Type 3271/3277 or Type 3371) can be identified by the long bolts protruding from the bottom of the actuator.

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

⚠ WARNING

Risk of personal injury due to 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).*

⇨ *Remove the actuator from the valve or otherwise ensure that it cannot transmit any forces to the actuator stem before removing the anti-rotation fixture from 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. 19).

⇨ 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.

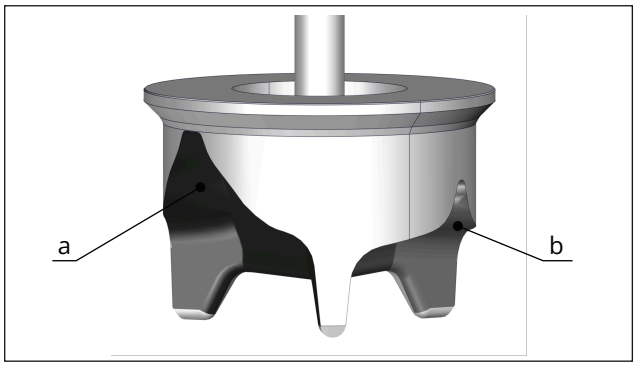


Fig. 19: *V-port plug (example shown)*

a 1x large V-port:
First to release the flow when the plug is lifted out of the seat.

b 2x small V-ports

Versions with perforated plug

Only one hole is located near the seal facing of perforated plugs with equal percentage characteristic. Depending on the nominal size, the hole pattern varies and is partly unsymmetrical. The process medium in the valve flows through the holes as soon as the plug is lifted out of the seat. To achieve the best flow conditions inside the valve, the perforated plug must always be installed with the hole that releases the flow first when the valve opens facing toward the valve outlet (see Fig. 20).

⇨ Before mounting the actuator, check the hole pattern of the perforated plug and determine which hole is the closest to the seal facing. This hole is the first hole to release the flow when the plug is lifted out of the seat.

⇨ On mounting the actuator, make sure that the hole uncovered first faces toward the valve outlet.

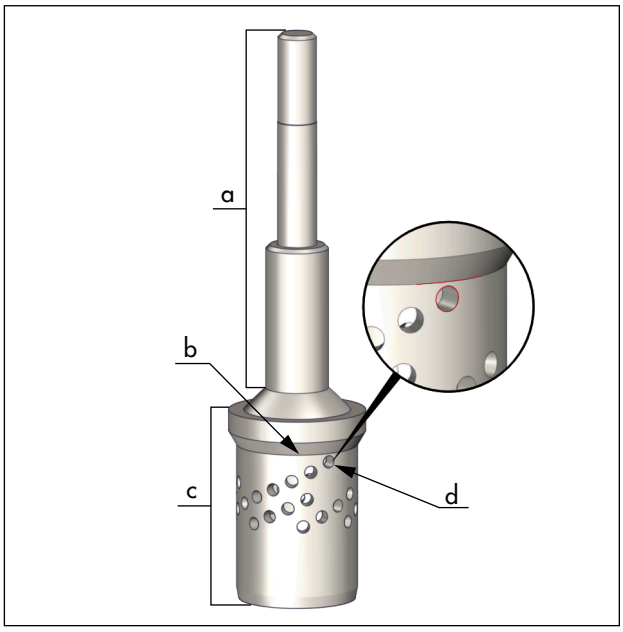


Fig. 20: *Perforated plug (example shown)*

a Plug stem
b Seal facing
c Perforated plug
d Hole closest to the seal facing of the plug

Mounting dimensions for valves up to DN 150

The following mounting dimensions apply to Type 3241 Valves, <DN 200:

Actuator size	Travel in mm	H_G dimension in mm
120 to 750v2 cm²	15	75
355v2 to 1400-60 cm²	30	90

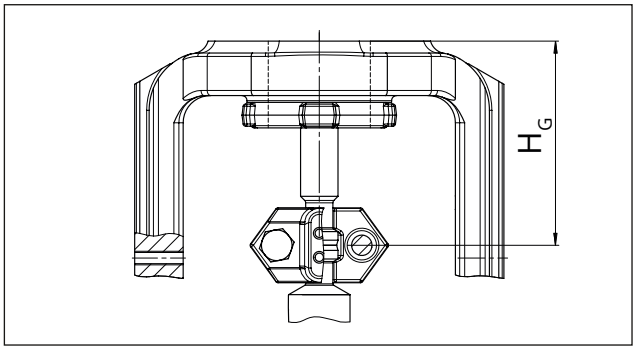


Fig. 21: *Stem connector/yoke dimension*

Mounting dimensions for Type 3241 Valves, ≥DN 200 (see Table 14).

Mounting the actuator

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

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. 18).

1. Move the valve to the closed position.
2. Loosen the screws on the travel indicator scale.
3. Align the travel indicator scale.
4. Fix the travel indicator scale into place by tightening the screws.

5.4 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.*

⇨ *Before welding painted valves into the pipeline and/or subject them to heat in any way, observe the temperature resistance of the paint coating system. The number of the coating system used can be found in the order documentation. The temperature resistance of all of our coating systems is specified in the Brochure ▶ WA 268.*

NOTICE

Premature wear and leakage due to insufficient support or suspension.

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

Version with flanges

1. Close the shut-off valves in the pipeline at the inlet and outlet of the plant section while the valve is being installed.
2. Prepare the relevant section of the pipeline for installing the valve.
3. Remove the protective caps from the valve ports before installing the valve.
4. Lift the valve using suitable lifting equipment to the site of installation (see Chapter 4.3.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. Make sure that the correct flange gaskets are used.
6. Bolt the pipe to the valve free of stress.
7. Attach a support or suspension on the valve, if necessary.

Version with welding ends

1. Close the shut-off valves in the pipeline at the inlet and outlet of the plant section while the valve is being installed.
2. Prepare the relevant section of the pipeline for installing the valve.
3. Remove the protective caps from the valve ports before installing the valve.
4. Lift the valve using suitable lifting equipment to the site of installation (see Chapter 4.3.2). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. Completely retract the actuator stem to protect the plug from sparks during welding.
6. Weld the valve free of stress into the pipeline.
7. Attach a support or suspension on the valve, if necessary.

5.5 Testing the installed valve

DANGER

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

Control valves and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death. Before starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly:

⇨ *Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.*

⇨ *Drain the process medium from the plant sections affected as well as from the valve.*

⚠ WARNING

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

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

⇨ *Do not loosen the screw on the test connection while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

In the event of a potential risk:

⇨ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ *Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.*

⇨ *Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.*

⇨ *Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.*

⚠ WARNING

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

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

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

⚠ WARNING

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

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic linear actuators (e.g. Type 3271/3277 or Type 3371) can be identified by the long bolts protruding from the bottom of the actuator.

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

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

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

Adjusting the packing

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

NOTICE

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

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

1. Tighten the threaded bushing gradually (by turning it clockwise) until the packing seals the valve.
2. Open and close the valve several times.
3. Check the valve for leakage to the atmosphere.
4. Repeat steps 1 and 2 until the packing completely seals the valve.

⇨ If the adjustable packing does not seal properly, contact our after-sales service.

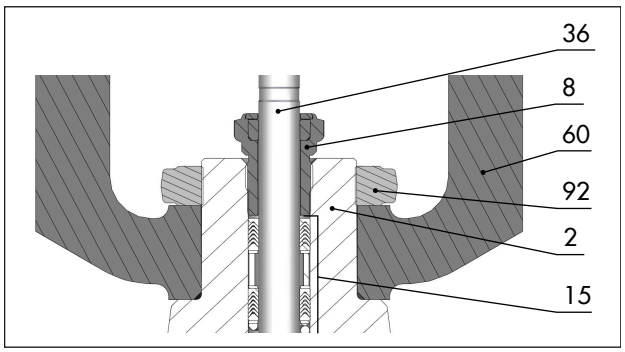


Fig. 22: *Packing with threaded bushing (centrally fastened) (example shown)*

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

5.5.2 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

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

Fail-safe position with pneumatic actuators with integrated springs

⇨ Shut off the signal pressure line.

⇨ Check whether the valve moves to the fail-safe position (see Chapter 3.1).

5.5.4 Pressure test

The plant operator is responsible for performing the pressure test.

Tip

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

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

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

6 Start-up

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

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

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

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

In the event of a potential risk:

⇨ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

⇨ *Wear protective clothing and safety gloves.*

⚠ WARNING

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

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

⇨ *Do not loosen the screw on the test connection while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

In the event of a potential risk:

⇨ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ *Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.*

⇨ *Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.*

⇨ *Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.*

⚠ WARNING

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

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

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

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

– The control valve is properly installed into the pipeline (see Chapter 5).
– The leak and function tests have been completed successfully (see Chapter 5.5).
– The prevailing conditions in the plant section affected meet the valve sizing requirements (see section 'Intended use' in Chapter 1).

Start-up/putting the device back into operation

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

7 Operation

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

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

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

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

In the event of a potential risk:

⇨ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

⇨ *Wear protective clothing and safety gloves.*

⚠ WARNING

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

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

⇨ *Do not loosen the screw on the test connection while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

In the event of a potential risk:

⇨ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ *Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.*

⇨ *Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.*

⇨ *Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.*

⚠ WARNING

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

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

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

7.1 Normal operation

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

7.2 Manual operation

Valves with actuators fitted with a handwheel can be manually closed or opened in the event of failure of the auxiliary energy supply.

8 Malfunctions

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

8.1 Troubleshooting

Error	Possible reasons	Recommended action
Actuator and plug stem does not move on demand.	Actuator is blocked.	Put the control valve out of operation (see Chapter 10) and remove the blockage. **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.
	Pneumatic actuators: Diaphragm in the actuator defective	See associated actuator documentation.
	Pneumatic actuator: Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
Jolting movement of the actuator and plug stem	Version with adjustable packing [1]: Packing tightened too far	Tighten the packing correctly (see section 'Adjusting the packing' in Chapter 5.5.1).
Actuator and plug stem do not stroke through the full range.	Pneumatic actuator: Signal pressure too low	Check the signal pressure. Check the signal pressure line for leakage.
	Travel stop active	See associated actuator documentation.
	Incorrect setting of valve accessories	Check the settings of the valve accessories.
Increased flow through closed valve (seat leakage)	Dirt or other foreign particles deposited between the seat and plug.	Shut off the section of the pipeline and flush the valve.
	Valve trim is worn out.	Replace valve trim (see Chapter 9) or contact our after-sales service.
The valve leaks to the atmosphere (fugitive emissions).	Defective packing	Replace packing (see Chapter 9) or contact our after-sales service.
	Version with adjustable packing [1]: Packing not tightened correctly	Adjust the packing (see section 'Adjusting the packing' in Chapter 5.5.1). Contact our after-sales service when it continues to leak.
	Version with bellows seal: the metal bellows is defective	Contact our after-sales service.
	Flanged joint loose or body gaskets worn out	Check the flanged joint. Replace gaskets at the flanged joint (see Chapter 9) or contact our after-sales service.

[1] See Chapter 2

i ***Note***

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

8.2 Emergency action

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

In the event of a valve malfunction:

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

Putting the device back into operation after a malfunction

See Chapter 6.

9 Servicing

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

The following documents are also required for servicing the control valve:

- Mounting and operating instructions for the mounted actuator, for example:
  - ▶ EB 8310-X for Type 3271 and Type 3277 Pneumatic Actuators
- ▶ AB 0100 for tools, tightening torques and lubricants

⚠ DANGER

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

Control valves and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death. Before starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly:

⇨ *Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.*

⇨ *Drain the process medium from the plant sections affected as well as from the valve.*

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

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

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

In the event of a potential risk:

⇨ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

⇨ *Wear protective clothing and safety gloves.*

⚠ WARNING

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

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

⇨ *Do not loosen the screw on the test connection while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

In the event of a potential risk:

⇨ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ *Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.*

⇨ *Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.*

⇨ *Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.*

⚠ WARNING

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

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

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

⚠ WARNING

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

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic linear actuators (e.g. Type 3271/3277 or Type 3371) can be identified by the long bolts protruding from the bottom of the actuator.

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

⚠ WARNING

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

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

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

In the event of a potential risk:

⇨ *If possible, drain the process medium from the plant sections affected and from the valve.*

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

❗ NOTICE

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

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

⇨ *Observe the tightening torques specified in ▶ 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).*

❗ NOTICE

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

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

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

ℹ Note

The control valve was checked by SAMSON before delivery.

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

9.1 Periodic testing

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

Tip

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

SAMSON recommends the following inspections and tests:

Inspection and testing	Recommended action to be taken in the event of a negative result
Check the markings, labels and nameplates on the control valve for their readability and completeness.	Immediately renew damaged, missing or incorrect nameplates or labels.
	Clean any inscriptions that are covered with dirt and are illegible.
External leakage [1]: Inspect the control valve at the possible points of leakage to ensure there is no leakage (see following image). Version with bellows seal: **WARNING!** Risk of personal injury due to pressurized components and as a result of process medium being discharged. Do not loosen the screw on the test connection while the valve is pressurized.	Check the bolted joint (tightening torque).
	Replace the gaskets at the flanged joints. To do so, put the control valve out of operation (see Chapter 10).
	Version with adjustable packing [2]: Adjust the packing (see section 'Adjusting the packing' in Chapter 5.5.1) or replace the packing (see Chapter 9.4).
	If the bellows seal is defective, put the control valve out of operation (see Chapter 10). Contact our after-sales service to repair the bellows seal (see Chapter 12).
Seat leakage [1] (see following image) (without testing to check that the leakage class requirements are met)	Shut off the section of the pipeline and flush the valve to remove any dirt and/or deposited foreign particles between the seat and plug.
	Renew seat and plug, if necessary (see Chapter 9.4). To do so, put the control valve out of operation (see Chapter 10).
Check the control valve for external damage that could impair the proper functioning of the control valve or even its safe operation.	Repair any damage immediately. If necessary, put the control valve out of operation to do so (see Chapter 10).
Check the valve accessories to ensure they are firmly mounted.	Tighten the connections of the valve accessories.
Check to ensure that the actuator and plug stems move smoothly.	Version with adjustable packing [2]: Tighten the packing correctly (see section 'Adjusting the packing' in Chapter 5.5.1).
	If the actuator stem or plug stem is blocked, put the control valve out of operation (see Chapter 10) and 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.
	SAMSON recommends the use of positioners with integrated diagnostic firmware for control valves used for on/off service. The partial stroke test included in this software helps prevent a shut-off valve normally in its end position from seizing up or getting jammed.
If possible, check the valve's fail-safe position by briefly interrupting the air supply.	Put the control valve out of operation (see Chapter 10). Identify the cause for the malfunction and rectify it (see Chapter 8).

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

2) See Chapter 2

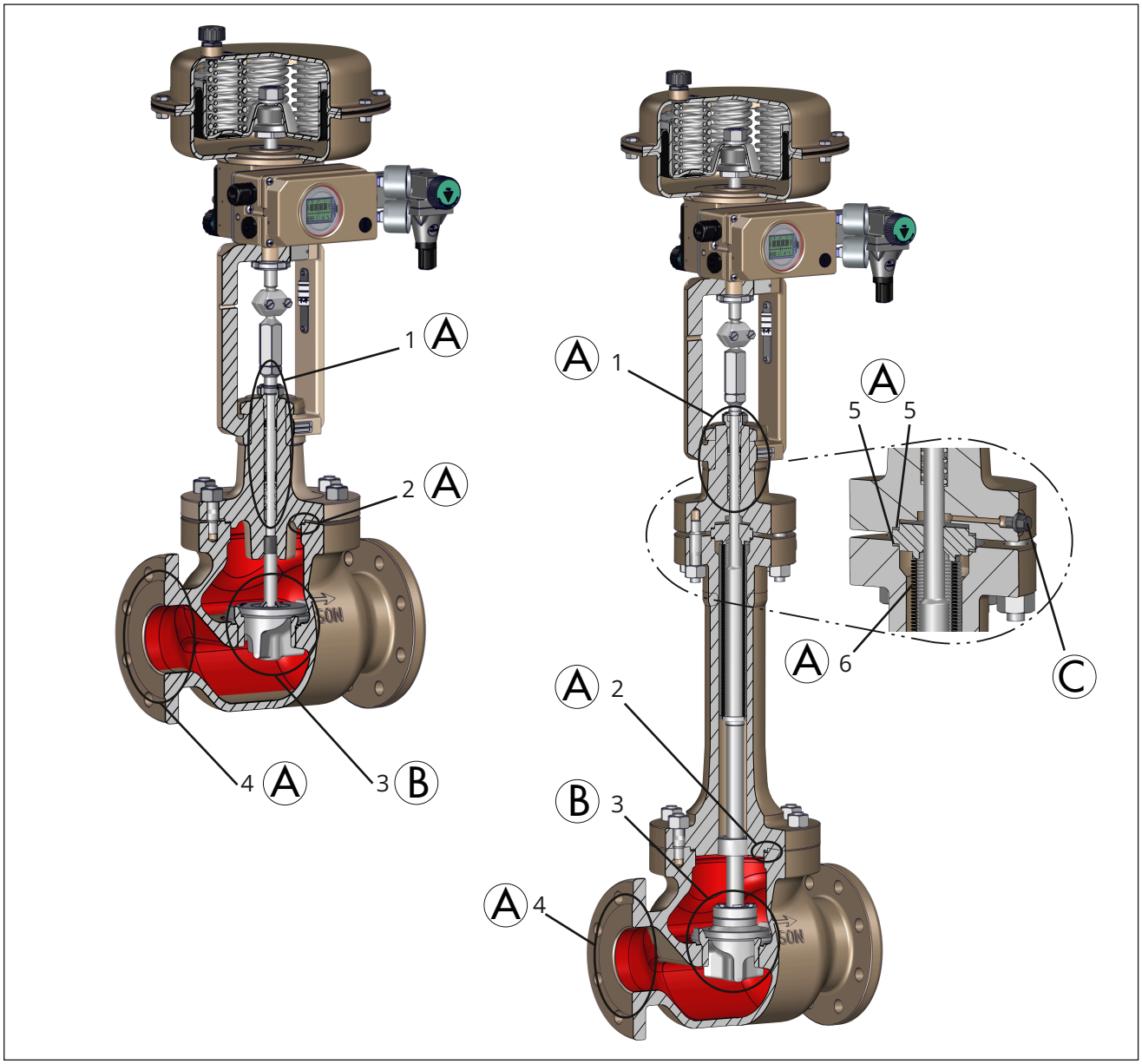


Fig. 23: *Possible points of leakage on the control valve: Version with standard bonnet (left) and version with bellows seal (right), which also applies to versions with insulating section or intermediate piece.*

Ⓐ External leakage

Ⓑ Seat leakage

Ⓒ Test connection to monitor bellows for leakage

1 Plug stem guide (packing) (dynamic sealing)

2 Body gaskets (static sealing)

3 Seat/body and plug/seat

4 Connection to the pipeline (static sealing)

5 Body gaskets at bellows seal/insulating section/intermediate piece (static sealing)

6 Metal bellows (dynamic sealing)

9.2 Service work preparations

1. Lay out the necessary material and tools to have them ready for the service work.
2. Put the control valve out of operation (see Chapter 10).

3. Remove the actuator from the valve (see associated actuator documentation).

i Note

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

☼ Tip

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

Once preparation is completed, the service and/or conversion work can be performed as described in the subchapters of Chapter 9.4.

9.3 Installing the valve after service work

1. Mount actuator. See associated actuator documentation.
2. Adjust lower or upper signal bench range (see associated actuator documentation).
3. If the valve has been removed, re-install the valve into the pipeline (see Chapter 5).
4. Put the control valve back into operation (see Chapter 6). Observe the requirements and conditions for start-up or putting the device back into operation.

9.4 Service work

⇨ Before performing any service work, preparations must be made to the control valve (see Chapter 9.2).

⇨ After all service work is completed, check the control valve before putting it back into operation (see Chapter 5.5).

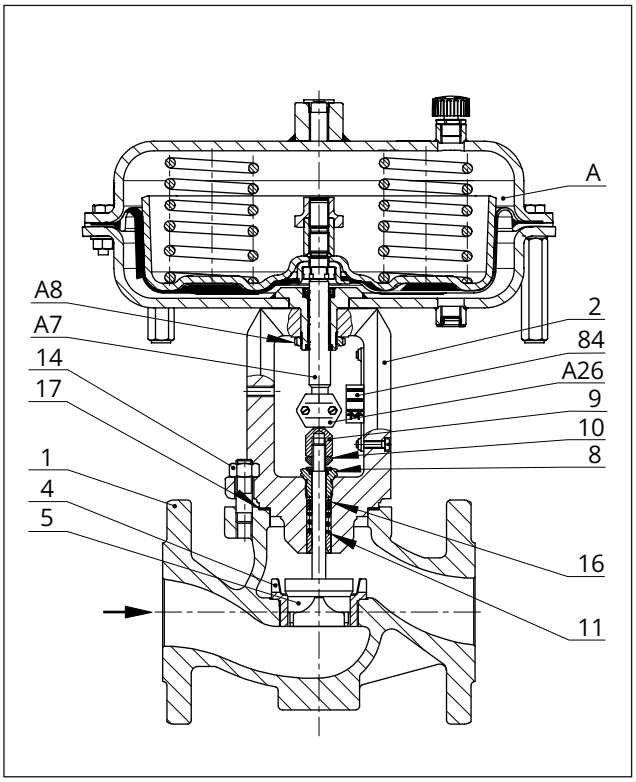


Fig. 24: *Type 3241-1 Control Valve with Type 3271 Pneumatic Actuator, body up to DN 150/NPS 6*

1	Body	14	Nut
2	Flange (valve bonnet)	16	Packing rings
4	Seat	17	Body gasket
5	Plug (with plug stem)	84	Travel indicator scale
8	Threaded bushing (packing nut)	A	Actuator
9	Stem connector nut	A7	Actuator stem
10	Lock nut	A8	Ring nut
11	Spring	A26	Stem connector clamp

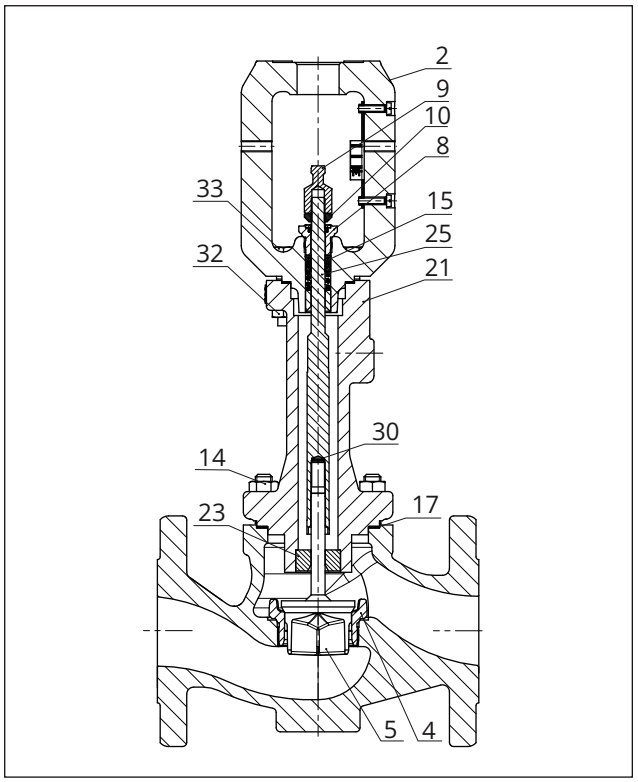


Fig. 25: *Type 3241, version with insulating section*

2	Flange (valve bonnet)	17	Body gasket
4	Seat	21	Insulating section
5	Plug (with plug stem)	23	Guide bushing
8	Threaded bushing (packing nut)	25	Plug stem extension
9	Stem connector nut	30	Retaining washers
10	Lock nut	32	Bolt
14	Nut	33	Nut
15	Packing set		

9.4.1 Replacing the gasket

NOTICE

Risk of control valve damage due to incorrect servicing.

⇨ *The gasket can only be replaced when all the following conditions are met:*

- *The nominal size is ≤DN 150.*
- *The valve does not have a balanced plug.*

⇨ *To replace the gasket in other valve versions, contact our after-sales service.*

a) Standard version

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the flange (2) and plug with plug stem (5) off the body (1).
3. Remove the gasket (17). Carefully clean the sealing faces in the valve body (1) and on the flange (2).
4. Insert the new gasket (17) into the body.
5. Place the flange (2) onto the body (1). At the same time, insert the plug with plug stem (5) upright into the body (1) and center them on the seat (4).

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

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

   See Chapter 5.3.2.
6. Firmly press the plug (5) into the seat (4). Fasten down the flange (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

b) Version with insulating section or bellows seal

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the insulating section (21) with valve 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 insulating section (21).
4. Insert the new gasket (17) into the body.
5. Place the insulating section (21) with valve bonnet (2) onto the body (1). At the same time, insert the plug with plug stem (5) upright into the body (1) and center them on the seat (4).

   Version with V-port plug: Place the assembly onto the body, making sure that the largest V-shaped port of the plug faces towards the valve outlet.

   Version with perforated plug: Place the assembly onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

   See Chapter 5.3.2.
6. Firmly press the plug (5) into the seat (4). Fasten down the insulating section (21) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.

9.4.2 Replacing the packing

NOTICE

Risk of control valve damage due to incorrect servicing.

⇨ *The packing can only be replaced when all the following conditions are met:*

- *The nominal size is ≤DN 150.*
- *The valve does not have a balanced plug.*
- *The valve does not have a bellows seal.*
- *The standard or ADSEAL packing is installed in the valve.*

⇨ *To replace the packing in other valve versions, contact our after-sales service.*

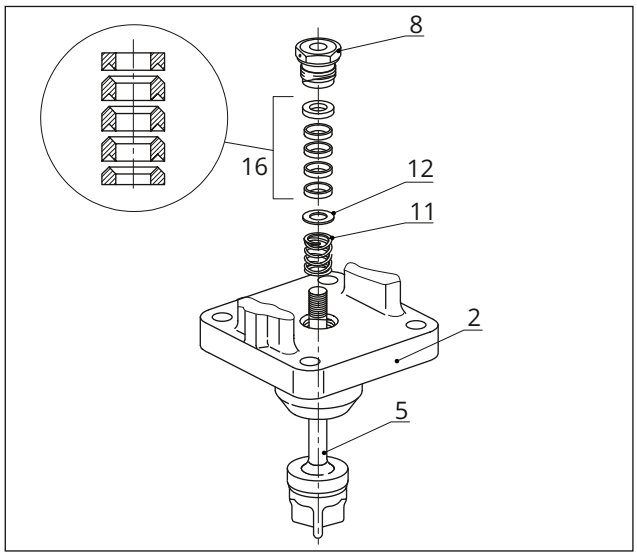


Fig. 26: *Standard packing*

2	Valve bonnet	11	Spring
5	Plug with plug stem	12	Washer
8	Threaded bushing (packing nut)	16	Packing rings

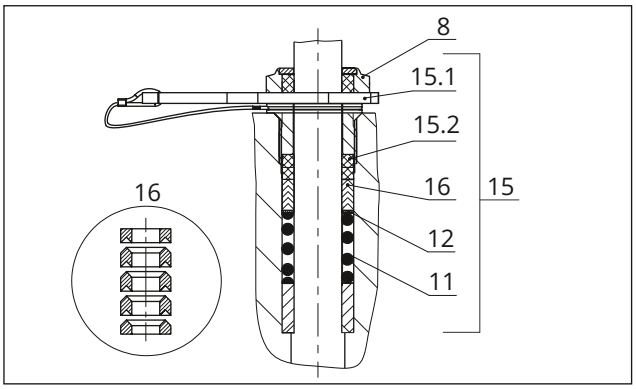


Fig. 27: *ADSEAL packing*

8	Threaded bushing (packing nut)	15.1	Spacer ring with retaining ring
11	Spring	15.2	Seals
12	Washer	16	Packing rings
15	Packing set		

a) Standard version

Standard packing (PTFE)

1. Undo the body nuts (14) gradually in a criss-cross pattern.
2. Lift the flange (2) and plug with plug stem (5) off the body (1).
3. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
4. Unscrew the threaded bushing (8).
5. Pull the plug with plug stem (5) out of the flange (2).
6. Pull the entire packing out of the packing chamber using a suitable tool.
7. Renew damaged parts. Clean the packing chamber thoroughly.
8. Apply a suitable lubricant to all packing parts and the plug stem (5).
9. Insert the plug with plug stem (5) upright into the body (1) and center them on the seat (4).

   Version with V-port plug: Align the plug, making sure that the largest V-shaped port of the plug faces towards the valve outlet.

   Version with perforated plug: Align the plug, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

   See Chapter 5.3.2.
10. Place the flange (2) onto the body.
11. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 26).

12. Firmly press the plug (5) into the seat (4). Fasten down the flange (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
13. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
14. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

ADSEAL packing

1. Proceed as described in previous section 'Standard packing (PTFE)', steps 1. to 10..
2. Slide the parts of the packing over the plug stem in the specified order:
   - Spring (11)
   - Shim (12)
   - Packing rings (16)
3. Slide the seals (15.2) over the plug stem.
   Insert the wire of the red spacer ring (15.1) into the groove of the retaining ring.
   Slide the retaining ring over the plug stem.
4. Insert the red spacer ring (15.1) between the threaded bushing (8) and retaining ring (see Fig. 27).
5. Proceed as described in previous section 'Standard packing (PTFE)', steps 12. to 14..

b) Version with insulating section

Standard packing (PTFE)

1. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem extension (25).
2. Unscrew the threaded bushing (8).
3. Remove nuts (33) and bolts (32).
4. Carefully lift the valve bonnet (2) over the plug stem extension (25).
5. Pull the entire packing out of the packing chamber using a suitable tool.
6. Renew damaged parts. Clean the packing chamber thoroughly.
7. Apply a suitable lubricant to all packing parts and the plug stem extension (25).
8. Carefully lift the valve bonnet (2) over the plug stem extension (25) onto the insulating section (21).

   Version with V-port plug: Align the plug, making sure that the largest V-shaped port of the plug faces towards the valve outlet.

   Version with perforated plug: Align the plug, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

   See Chapter 5.3.2.
9. Carefully slide the packing parts over the plug stem extension into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 26).
10. Fasten the valve bonnet with nuts (33) and bolts (32). Observe tightening torques.
11. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
12. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

ADSEAL packing

1. Proceed as described in previous section 'Standard packing (PTFE)', steps 1. to 8..
2. Slide the parts of the packing over the plug stem extension in the specified order:
   - Spring (11)
   - Shim (12)
   - Packing rings (16)
3. Slide the seals (15.2) over the plug stem extension.
   Insert the wire of the red spacer ring (15.1) into the groove of the retaining ring.
   Slide the retaining ring over the plug stem extension.
4. Insert the red spacer ring (15.1) between the threaded bushing (8) and retaining ring (see Fig. 27).
5. Proceed as described in previous section 'Standard packing (PTFE)', steps 10. to 12..

9.4.3 Replacing the seat and plug

NOTICE

Risk of control valve damage due to incorrect servicing.

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

- *The nominal size is ≤DN 150.*
- *The valve does not have a balanced plug.*
- *The valve does not have a bellows seal.*

– *The seat is screwed into the valve body as a separate part.*
– *The standard or ADSEAL 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, SAMSON also recommends replacing the packing (see Chapter 9.4.2).

a) Standard version

1. Undo the body nuts (14) gradually in a crisscross pattern.
2. Lift the flange (2) and plug with plug stem (5) off the body (1).
3. Replace the gasket (see Chapter 9.4.1, section a) Standard version).
4. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
5. Unscrew the threaded bushing (8).
6. Pull the plug with plug stem (5) out of the flange (2).
7. Pull the entire packing out of the packing chamber using a suitable tool.
8. Unscrew the seat (4) using a suitable tool.
9. Apply a suitable lubricant to the thread and sealing cone of the new seat.
10. Screw in the seat (4). Observe tightening torques.
11. Apply a suitable lubricant to all packing parts and the plug stem (5).
    SAMSON recommends replacing the packing at the same time (see Chapter 9.4.2, section a) Standard version).
12. Insert the new plug with plug stem (5) upright into the body (1) and center them on the seat (4).

    Version with V-port plug: Align the plug, making sure that the largest V-shaped port of the plug faces towards the valve outlet.

    Version with perforated plug: Align the plug, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

    See Chapter 5.3.2.
13. Place the flange (2) onto the body.
14. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 26 and Fig. 27).
15. Firmly press the plug (5) into the seat (4). Fasten down the flange (2) with the body nuts (14). Tighten the nuts gradually in a crisscross pattern. Observe tightening torques.
16. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
17. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

b) Version with insulating section

1. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem extension (25).
2. Unscrew the threaded bushing (8).
3. Remove nuts (33) and bolts (32).
4. Carefully lift the valve bonnet (2) over the plug stem extension (25).
5. Pull the entire packing out of the packing chamber using a suitable tool.
6. Undo the body nuts (14) gradually in a crisscross pattern.
7. Lift the insulating section (21) together with the plug stem extension (25), plug stem and plug (5) off the body (1).
8. Replace the gasket (see Chapter 9.4.1, section b) Version with insulating section or bellows seal).
9. Make sure that the guide bushing (23) 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 sealing cone of the new seat.
12. Screw in the seat (4). Observe tightening torques.
13. Hold the plug and plug stem (5) stationary using assembly pliers. Unscrew the plug stem extension (25) using a suitable tool and take it out of the insulating section (21).
14. Apply a suitable lubricant to all packing parts and the end of the plug stem of the new plug

(5).
SAMSON recommends replacing the packing at the same time (see Chapter 9.4.2, section b) Version with insulating section).

15. Make sure that the two retaining washers (30) are still in the plug stem extension (25). Renew the washers, if necessary.
16. Hold the new plug with plug stem (5) stationary. Place on the insulating section (21). Screw the plug stem extension (25) onto the plug stem using a suitable tool. Observe tightening torques.
17. Place the insulating section (21) together with the plug stem extension (25), plug stem and plug (5) onto the body (1).

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

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

    See Chapter 5.3.2.
18. Firmly press the plug (5) into the seat (4). Fasten down the insulating section (21) with the body nuts (14). Tighten the nuts gradually in a criss-cross pattern. Observe tightening torques.
19. Carefully lift the valve bonnet (2) over the plug stem extension (25) onto the insulating section (21).
20. Carefully slide the packing parts over the plug stem extension into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 26 and Fig. 27).
21. Fasten the valve bonnet with nuts (33) and bolts (32). Observe tightening torques.
22. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
23. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

9.5 Ordering spare parts and operating supplies

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

Spare parts

See Appendix for details on spare parts.

Lubricants

See document ▶ AB 0100 for details on suitable lubricants.

Tools

See document ▶ AB 0100 for details on suitable tools.

10 Decommissioning

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

⚠ DANGER

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

Control valves and pipelines are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or the release of process medium under pressure can cause serious injury or even death. Before starting any work on pressure-bearing or pressure-retaining parts belonging to the valve assembly:

⇨ *Depressurize all plant sections affected and the valve (including the actuator). Release any stored energy.*

⇨ *Drain the process medium from the plant sections affected as well as from the valve.*

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

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

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

In the event of a potential risk:

⇨ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

⇨ *Wear protective clothing and safety gloves.*

⚠ WARNING

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

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

⇨ *Do not loosen the screw on the test connection while the valve is pressurized.*

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

In the event of a potential risk:

⇨ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ *Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.*

⇨ *Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.*

⇨ *Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.*

⚠ WARNING

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

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

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

⚠ WARNING

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

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

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

In the event of a potential risk:

⇨ *If possible, drain the process medium from the plant sections affected and from the valve.*

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

To put the control valve out of operation for service work or to remove it from the pipeline, proceed as follows:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Completely drain the pipelines and valve.
3. Disconnect and lock the pneumatic air supply to depressurize the actuator.
4. Release any stored energy.
5. If necessary, allow the pipeline and valve components to cool down or warm up to the ambient temperature.

11 Removal

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

⚠ WARNING

Risk of burn injuries due to hot or cold components and pipelines.

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

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

In the event of a potential risk:

⇨ *Allow components and pipelines to cool down or warm up to the ambient temperature.*

⇨ *Wear protective clothing and safety gloves.*

⚠ WARNING

Crush hazard arising from moving parts.

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

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

⇨ *Before working on the pneumatic control valve, disconnect and lock the pneumatic air supply as well as the control signal.*

⇨ *Do not impede the movement of the actuator and plug stem by inserting objects into the yoke.*

⇨ *Before unblocking the actuator and plug stem after they have become blocked (e.g. due to seizing up after remaining in the same position for a long time), release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.*

⚠ WARNING

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

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

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

In the event of a potential risk:

⇨ *If possible, drain the process medium from the plant sections affected and from the valve.*

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

⚠ WARNING

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

Valves in combination with pneumatic actuators with preloaded springs are under tension. These control valves with SAMSON pneumatic linear actuators (e.g. Type 3271/3277 or Type 3371) can be identified by the long bolts protruding from the bottom of the actuator.

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

⚠ WARNING

Risk of personal injury due to 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).*

⇨ *Remove the actuator from the valve or otherwise ensure that it cannot transmit any forces to the actuator stem before removing the anti-rotation fixture from the plug stem.*

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

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

11.1 Removing the valve from the pipeline

Version with flanges

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

Version with welding ends

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

11.2 Removing the actuator from the valve

See associated actuator documentation.

12 Repairs

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

NOTICE

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

⇨ *Do not perform any repair work on your own.*

⇨ *Contact SAMSON's After-sales Service for service and repair work.*

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models ▶ www.samsongroup.com > SERVICE > After-sales Service > Returning goods.
2. Register the return shipment and include the following information by e-mail returns-de@samsongroup.com:
   - Type
   - Article no.
   - Configuration ID
   - Original order
   - Completed Declaration on Contamination, which can be downloaded from the Internet at: ▶ www.samsongroup.com > SERVICE > After-sales Service > Returning goods

   After checking your registration, we will send you a return merchandise authorization (RMA).
3. Attach the RMA (together with the Declaration on Decontamination) to the outside of your shipment so that the documents are clearly visible.
4. Send the shipment to the address given on the RMA.

Note

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

▶ *www.samsongroup.com > Service > After-sales Service*

13 Disposal

SAMSON is a producer registered in Europe, agency in charge
▶ www.samsongroup.com > About SAMSON > Environment, Social & Governance > Material Compliance > Waste electrical and electronic equipment (WEEE)
WEEE reg. no.: DE 62194439

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

Note

SAMSON can provide you with a recycling passport on request. Simply e-mail us at aftersalesservice@samsongroup.com giving details of your company address.

Tip

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

⇨ Observe local, national and international refuse regulations.

⇨ Do not dispose of components, lubricants and hazardous substances together with your other household waste.

14 Certificates

These declarations are included on the next pages:

- Declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU:
  - Country of origin: Germany
  - Country of origin: France
- Declaration of conformity in compliance with Machinery Directive 2006/42/EC for Types 3241-1 and 3241-7 Control Valves
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for Type 3241 Valve with other actuators other than the Type 3271 or Type 3277 Actuator
- Declaration of conformity in compliance with the requirements in TSG D7002-2006 for Chinese pressure equipment

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 > Valves > 3241

Other optional certificates are available on request.

SMART IN FLOW CONTROL.

SAMSON

EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY

Modul A/Module A

SAMSON erklärt in alleiniger Verantwortung für folgende Produkte:/For the following products, SAMSON hereby declares under its sole responsibility:

Geräte/Devices	Bauart/Series	Typ/Type	Ausführung/Version
Durchgangsventil/Globe valve	240	3241	DIN, Gehäuse GG, DN 65-125, Gehäuse GGG, DN 50-80, Fluide G2, L1, L2[1)]/ DIN, body of cast iron, DN 65-125, body of spheroidal-graphite iron, DN 50-80, fluids G2, L1, L2[1)]
Durchgangsventil/Globe valve	240	3241	DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2[2)] DIN, body of steel, etc., DN 40-100, fluids G2, L2[2)]
Durchgangsventil/Globe valve	240	3241	ANSI, Gehäuse GG, Class 250, NPS 1 ½ bis NPS 2, Class 125, NPS 2 ½ bis NPS 4, Fluide G2, L1, L2[1)] ANSI, body of cast iron, Class 250, NPS 1 ½" to NPS 2, Class 125, NPS 2 ½" to NPS 4, fluids G2, L1, L2[1)]
Dreiwegeventil/Three-way valve	240	3244	DIN, Gehäuse GG, DN 65-125, Gehäuse GGG, DN 50-80, Fluide G2, L1, L2[1)]/ DIN, body of cast iron, DN 65-125, body of spheroidal-graphite iron, DN 50-80, fluids G2, L1, L2[1)]
Dreiwegeventil/Three-way valve	240	3244	DIN, Gehäuse Stahl u.a., DN 40-100, Fluide G2, L2[2)] DIN, body of steel, etc., DN 40-100, fluids G2, L2[2)]
Schrägsitzventil/Angle seat valve	---	3353	DIN, Rotgussgehäuse, alle Fluide DIN, red brass body, all fluids
Schrägsitzventil/Angle seat valve	---	3353	DIN, Gehäuse Stahl, Fluide G2, L1, L2[1)] DIN, body of steel, fluids G2, L1, L2[1)]
Durchgangsventile/Globe valve	V2001	3321	DIN, Gehäuse GG, DN 65-100, Fluide G2, L1, L2[1)]/ DIN, body of cast iron, DN 65-100, fluids G2, L1, L2[1)]
Durchgangsventile/Globe valve	V2001	3321	ANSI, Gehäuse GG, NPS 2 ½ bis NPS 4, Fluide G2, L1, L2[1)]/ ANSI, body of cast iron, NPS 2 ½ to NPS 4, fluids G2, L1, L2[1)]
Dreiwegeventil/Three-way valve	V2001	3323	DIN, Gehäuse GG, DN 65-100, Fluide G2, L1, L2[1)]/ DIN, body of cast iron, DN 65-100, fluids G2, L1, L2[1)]
Dreiwegeventil/Three-way valve	V2001	3323	ANSI, Gehäuse GG, NPS 2 ½ bis NPS 4, Fluide G2, L1, L2[1)]/ ANSI, body of cast iron, NPS 2 ½ to NPS 4, fluids G2, L1, L2[1)]
Dreiwegeventil/Three-way valve	250	3253	DIN, Gehäuse GG, DN 200 PN 10, Fluide G2, L1, L2[1)]/ DIN, body of cast iron, DN 200 PN 10, fluids G2, L1, L2[1)]

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

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

die Konformität mit nachfolgender Anforderung:/that the products mentioned above comply with the requirements of the following standards:

Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Druckgeräten auf dem Markt/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**	**vom 15. Mai 2014/ of 15 May 2014**
Angewandtes Konformitätsbewertungsverfahren für Fluide nach Art. 4 Abs. 1/ Applied conformity assessment procedure for fluids according to Article 4(1)	**Modul A/Module A**	

Angewandte technische Spezifikation/Technical standards applied: DIN EN 12516-2, DIN EN 12516-3, ASME B16.34

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

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

i.V. Klaus Hörschken

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

i.V. Dr. Michael Heß

Dr. Michael Heß
Zentralabteilungsleiter/Head of Central Department
Product Management & Technical Sales

ce_modul_a_de_en_rev02.docx

EU DECLARATION OF CONFORMITY

Translation of the German original

Module D / N° CE-0062-PED-D-SAM 001-25-DEU

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

Devices	Series	Type	Version
Control valve for hot water and steam with fail-safe action in heating systems	3374-25/-27 Actuator (1800 N/3000 N force)		Type 3374-25 with Type 3241, 42-36 E (2423E), Type 3374-27 with Type 3241, 3214 (2814), Certificate no.: 01 202 969/B-24-0010, typetested according to DIN EN 14597:2015
Control valve for hot water and steam with fail-safe action in heating systems	3374-21/-26 Actuator (2000 N force)		With Type 3241, 2811, 2814, 2823, 3321 EU-type examination (production type), Module B, Certificate no.: 01 202 931/B-15-0030-01, typetested according to DIN EN 14597:2015
Control valve for water and steam with fail-safe action in heating systems	5725-310/-313/-320/-323 Actuator 5725-810/-820 Actuator 5825-10/-13/-20/-23 Actuator (500 N force) (model number 2770)		With Type 3214 (2814), 2423 (2823), 3213 (2710), 3222 (2710), 2488 (2730), 2489 (2730) EU-type examination (production type), Module B, Certificate no.: 01 202 641/B-19-0017-01, typetested according to DIN EN 14597:2015, Annex DX
Control valve for water and steam with fail-safe action in heating systems	5827-A11/-A12/-A14/-A15 Actuator 5827-A21/-A22/-A24/-A25 Actuator		With Type 3214 (2814), 2423 (2823), 3213 (2710), 3222 (2710), 2488 (2730), 2489 (2730) EU-type examination (production type), Module B, Certificate no.: 01 202 641/B-19-0017-01, typetested according to DIN EN 14597:2015, Annex DX
Safety shut-off device for gas burners and gas equipment	240	3241G Valve	Equipment for gas and pressure devices Shut-off valve, automatic, valve class D Types 3241-1-Gas and 3241-7-Gas Material 1.0619 or 1.4408, soft seal with bellows, DN 15 to 150, PN 40 Type 3271 or 3277 Actuator with 3/2-way solenoid valve, EU-type examination (production type), Module B, Certificate no.: CE-0062-PED-B3.1-SAM 001-24-DEU

Conformity with the following requirement:

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
Conformity assessment procedure applied for liquids according to Article 4(1)	Module D	Certificate no.: N°CE-0062-PED-D-SAM 001-25-DEU by Bureau Veritas 0062

The manufacturer's quality management system is monitored by the following notified body:
Bureau Veritas Services SAS, 4 place des Saisons, 92400 Courbevoie, France

4000507045 | English | 1.1 | Revision: 14

Applied harmonized standards and technical standards: EN 16668, ASME B16.34, EN 60534-4, DIN EN 161:2013-04 (3241G), DIN EN 16678:2016-02 (3241G)

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

Frankfurt am Main, 15 October 2025

Dr. Andreas Widl
Chairman of the Executive Board (CEO)

Signiert von:
1CF77448C50E4C0...

i.V. Sebastian Krause
Vice President Product Development

EU DECLARATION OF CONFORMITY

Translation of the German original

Module H / N° CE-0062-PED-H-SAM 001-25-DEU

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

Devices	Series	Type	Version
Globe valve	240	3241	EN, cast iron body, DN 150 and larger, body of spheroidal graphite iron, DN 100 and larger, fluids G2, L1, L2 [1)]
			ENANSI, body of steel etc., all fluids
Three-way valve	240	3244	EN, cast iron body, DN 150 and larger, body of spheroidal graphite iron, DN 100 and larger, fluids G2, L1, L2 [1)]
			ENANSI, 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	ENANSI, body of steel etc., all fluids
Globe valve	250	3254	EN/ANSI, all fluids
Angle valve	250	3256	EN/ANSI, all fluids
Angle valve (IG standard)	250	3259	EN, all fluids
Globe valve	V2001	3321	EN, body of steel etc., all fluids
			ANSI, all fluids
Three-way valve	V2001	3323	EN, body of steel etc., all fluids
			ANSI, all fluids
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 multi-stage attenuation plate with welding ends, all fluids
Globe valve	240	3241	ANSI, cast iron body, Class 125, NPS 5 and larger, fluids G2, L1, L2 [1)]
Cryogenic valve	240	3246	EN/ANSI, all fluids
Three-way valve	250	3253	EN, cast iron body, DN 200 and larger, PN 16, 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
Cryogenic valve	590	3598	ANSI, NPS 3 to 8, Class 900, all fluids
Control valve	590	3595	ANSI, all fluids
Globe valve	SMS	241GR	EN/ANSI, all fluids
Globe valve	SMS	251GR	EN/ANSI, all fluids
Globe valve	SMS	261GR	EN/ANSI, all fluids
Cryogenic valve	SMS	251GC	EN/ANSI, all fluids

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

Conformity with the following requirement:

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
Conformity assessment procedure applied for liquids according to Article 4(1)	Module H	Certificate no.: N°CE-0062-PED-H-SAM 001-25-DEU by Bureau Veritas 0062

The manufacturer's quality management system is monitored by the following notified body:
Bureau Veritas Services SAS, 4 place des Saisons, 92400 Courbevoie, France

Applied harmonized standards and technical standards: EN 16668, ASME B16.34

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

Frankfurt am Main, 15 October 2025

Dr. Andreas Widl
Chairman of the Executive Board (CEO)

Signiert von:
i.V. S
1CF77448C50E4C0...

i.V. Sebastian Krause
Vice President Product Development

DECLARATION UE DE CONFORMITE
EU DECLARATION OF CONFORMITY

DC014
2025-08

Module A / Modul 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 décharge / Back pressure reducing valve	2371-0	DIN	Acier / steel	$P_{max\ T=20°C}$ 10 bar	DN 32 – 65	Tous fluides / all fluids
		ANSI		$P_{max\ T=70°F}$ 150 psi	NPS 1 ¼ –2 ½	
Détendeur alimentaire / Pressure reducing valve	2371-1	DIN		$P_{max\ T=20°C}$ 10 bar	DN 32 – 65	
		ANSI		$P_{max\ T=70°F}$ 150 psi	NPS 1 ¼ – 2 ½	
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 65 – 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	Cl 125 Cl 250	NPS 2 ½ - 4 NPS 1 ½ - 2	
		DIN	Acier / steel	PN10 PN16 PN25	DN 32 – 100 DN 32 – 50 DN 32 - 40	Tous fluides / all fluids
		ANSI		Cl 150	NPS 1 ¼ - 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	Tous fluides / all fluids
		ANSI		Cl 150	NPS 1 ¼ - 2	
Vanne de régulation passage droit / Globe valve	3251	DIN	Acier / steel	PN16 PN25	DN 32 – 50 DN 32 – 40	Tous fluides / all fluids
		ANSI		Cl 150	NPS 1 ¼ - 2	
Vanne équerre / Angle valve	3256	DIN	Acier / steel	PN16	DN 32 – 50	Tous fluides / all fluids
		ANSI		Cl 150	NPS 1 ¼ - 2	
Vanne à segment sphérique / Segment ball valve	3310	DIN	Acier / steel	PN10 PN16 PN25	DN 40 – 50 DN 80 – 100 DN 40	Tous fluides / all fluids
		ANSI		Cl 150	NPS 1 ½ – 2	
Vanne de régulation passage droit / Globe valve	3321	DIN	Fonte grise / cast iron	PN16	DN 65 – 100	G2, L1, L2 [1]
		ANSI		Cl 125	NPS 2 ½ - 4	
		DIN	Fonte sphéroïdale / spheroidal graphite iron	PN25	DN 50 – 80	
		ANSI	Acier / steel	Cl 150	NPS 1 ½ - 2	Tous fluides / all fluids
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 PN 16-20	DN 50 – 100 DN 50	Tous fluides / all fluids
		ANSI	Acier / steel	Cl 150	NPS 2	
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 ¼ – 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 ½ – 4 NPS 2 ½ – 5 NPS 1 ½ – 2	

DECLARATION UE DE CONFORMITE
EU DECLARATION OF CONFORMITY

DC014
2025-08

Module A / Modul A

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	$P_{max\ T = 20°C}$ 10 bar	DN 125 – 150	G2, L1, L2 [1]
		ANSI		$P_{max\ T= 70°F}$ 150 psi	NPS 5 – 6	
Vanne aseptique / Aseptic valve	3349	DIN	Acier / steel	$P_{max\ T = 20°C}$ 10 bar $P_{max\ T = 20°C}$ 16 bar $P_{max\ T = 20°C}$ 25 bar	DN 32 – 100 DN 32 – 50 DN 32 – 40	Tous fluides / all fluids
		ANSI		$P_{max\ T= 70°F}$ 150 psi $P_{max\ T= 70°F}$ 230 psi $P_{max\ T= 70°F}$ 360 psi	NPS 1 ¼ – 4 NPS 1 ¼ – 2 NPS 1 ¼ – 1 ½	
Vanne Tout ou Rien / On-Off Valve	3351	DIN	Acier / steel	PN16 PN25	DN 32 – 50 DN 32 – 40	Tous fluides / all fluids
		ANSI		Cl 150	NPS 1 ¼ – 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	
		ANSI	Fonte grise / cast iron	Cl 125	NPS 2 ½ – 4	
Bride de mesure / Measure flange	5090	DIN	Acier / steel	PN6 PN10 PN16 PN25 PN40	DN 200 – 500 DN 125 – 350 DN 65 – 200 DN 50 – 125 DN 40 – 100	G2, L2 [1]

[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 13/08/25

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

DECLARATION UE DE CONFORMITE
EU DECLARATION OF CONFORMITY

DC012
2025-08

Module H / Modul H, N°/ Nr CE-0062-PED-H-SAM 001-23-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	
		DIN	Acier / steel	PN10 PN16 PN25 PN40	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 2 ½ - 6 NPS 1¼ – 6	
Vanne de régulation 3 voies / 3-way Valve	3244	DIN	Fonte grise / cast iron	PN 16	DN 150	G2, L1, L2 [1]
		DIN	Acier / steel	PN10 PN16 PN25 PN40	DN 125 – 150 DN 65 – 150 DN 50 – 150 DN 32 – 150	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 2 ½ – 6 NPS 1¼ – 6	
Vanne de régulation passage droit / globe valve	3251	DIN	Acier / steel	PN16 PN25 PN40 – 400	DN 65 – 150 DN 50 – 150 DN 32 – 150	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300 - 2500	NPS 2 ½ – 6 NPS 1 ¼ – 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 ¼ – 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 ¼ – 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]
		DIN	Acier / steel	PN16 PN40	DN 65 – 100 DN 32– 100	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 2 ½ – 4 NPS 1½ – 4	
Vanne de régulation 3 voies / 3-way Valve	3323	DIN	Fonte sphéroïdale / spheroidal graphite iron	PN 25	DN 100	G2, L1, L2 [1]
		DIN	Acier / steel	PN16 PN40	DN 65 – 100 DN 32 – 100	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 2 ½ – 4 NPS 1¼ – 2	
Vanne papillon / Butterfly valve	3331	DIN	Acier / steel	PN10 PN16 - 20 PN25 – 50	DN 150 – 400 DN 80 - 400 DN 50 – 400	Tous fluides / all fluids
		ANSI		Cl 150 Cl 300	NPS 3 – 16 NPS 2 - 16	
Vanne à membrane / Diaphragm valve	3345	ANSI	Fonte grise & fonte sphéroïdale / cast iron & spheroidal graphite iron	$P_{max\ T=70°F}$ 150 psi	NPS 5 – 6	G2, L1, L2 [1]
				$P_{max\ T=70°F}$ 230 psi	NPS 6	
			Acier / steel	$P_{max\ T=70°F}$ 150 - 230 psi	NPS 2 ½ – 6	Tous fluides / all fluids

DECLARATION UE DE CONFORMITE
EU DECLARATION OF CONFORMITY

DC012
2025-08

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

Appareils / Devices	Type	Exécution / Version	Matériel du corps / body Material	PN Class	DN NPS	Fluides / fluids
Vanne alimentaire / Sanitary valve	3347	DIN	Acier / steel	$P_{max\ T = 20°C}$ 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 ¼ – 6	
Vanne aseptique / Aseptic valve	3349_HV01	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		Cl 150 Cl 300	NPS 2 ½ – 4 NPS 1 ¼ – 4	
Bride de mesure / Measure flange	5090	DIN	Acier / steel	PN10	DN 400 – 500	G2, L2 [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 001-23-FRA-rev-A**

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

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

Bureau Veritas Services SAS N°/Nr 0062, 4 place des Saisons 92400 COURBEVOIE
Fabricant / manufacturer : Samson Régulation SAS, 1, rue Jean Corona, FR-69120 VAULX-EN-VELIN

Vaulx-en-Velin, le 13/08/25 .

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

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 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 Machinery Directive 2006/42/EC.

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 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, 20 December 2022

ppa.

Norbert Tollas
Senior Vice President
Global Operations

i. V.

Peter Scheermesser
Director
Product Maintenance & Engineered Products

DECLARATION OF INCORPORATION
TRANSLATION

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

For the following products:
Type 3241 Globe Valve

We certify that the Type 3241 Globe Valves are partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

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

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

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

For product descriptions of the valve, 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, 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, 20 December 2022

ppa.

Norbert Tollas
Senior Vice President
Global Operations

i. V. P.

Peter Scheermesser
Director
Product Maintenance & Engineered Products

Revision no. 01

DECLARATION OF CONFORMITY

DC016

For the following products

2019-08

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

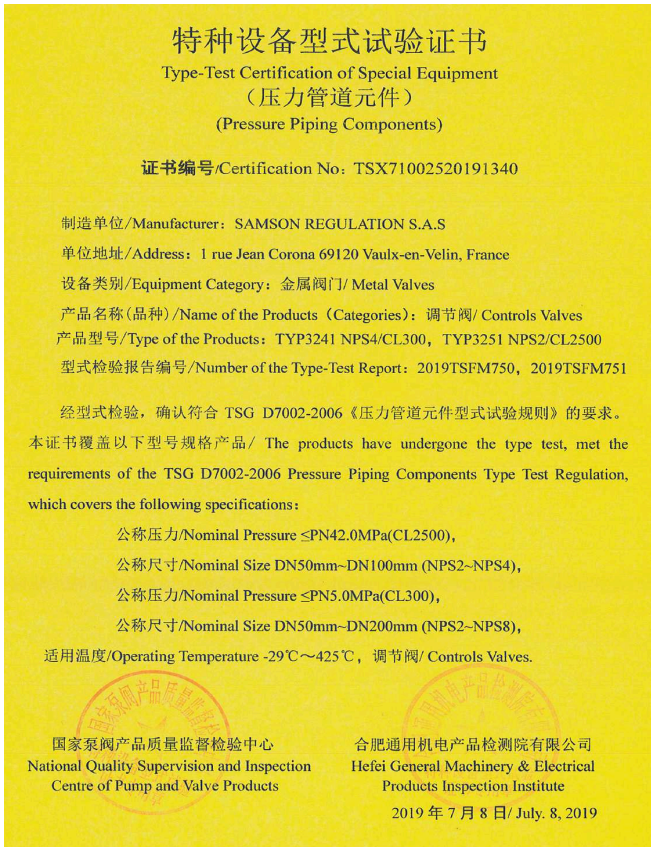
Certificate nbº: TSX71002520191340

Test report nbº: 2019TSFM750-TYP3241 and 2019TSFM751-TYP3251

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

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

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



特种设备型式试验证书

Type-Test Certification of Special Equipment

（压力管道元件）

(Pressure Piping Components)

证书编号/Certification No：TSX71002520191340

制造单位/Manufacturer：SAMSON REGULATION S.A.S

单位地址/Address：1 rue Jean Corona 69120 Vaulx-en-Velin, France

设备类别/Equipment Category：金属阀门/ Metal Valves

产品名称(品种)/Name of the Products（Categories)：调节阀/ Controls Valves

产品型号/Type of the Products：TYP3241 NPS4/CL300，TYP3251 NPS2/CL2500

型式检验报告编号/Number of the Type-Test Report：2019TSFM750，2019TSFM751

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

公称压力/Nominal Pressure ≤PN42.0MPa(CL2500)，

公称尺寸/Nominal Size DN50mm~DN100mm (NPS2~NPS4)，

公称压力/Nominal Pressure ≤PN5.0MPa(CL300)，

公称尺寸/Nominal Size DN50mm~DN200mm (NPS2~NPS8)，

适用温度/Operating Temperature -29℃～425℃，调节阀/ Controls Valves.

国家泵阀产品质量监督检验中心
National Quality Supervision and Inspection Centre of Pump and Valve Products

合肥通用机电产品检测院有限公司
Hefei General Machinery & Electrical Products Inspection Institute

2019 年 7 月 8 日/ July. 8, 2019

SAMSON REGULATION S.A.

Bruno Soulas
Head of Administration

SAMSON REGULATION S.A.

Joséphine Signoles-Fontaine
QSE Manager

15 Appendix

15.1 Tightening torques, lubricants and tools

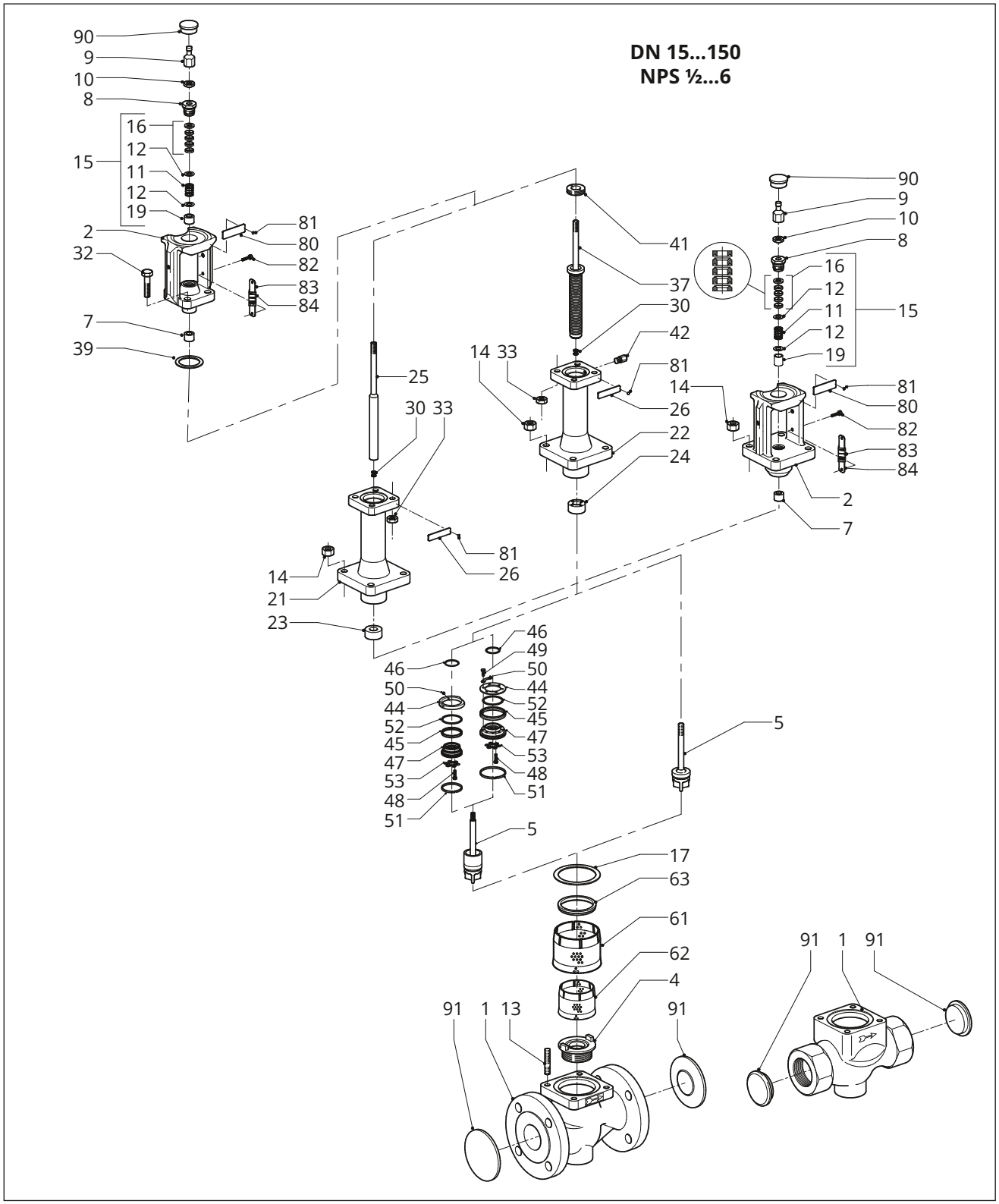
▶ AB 0100 tools, tightening torques and lubricants

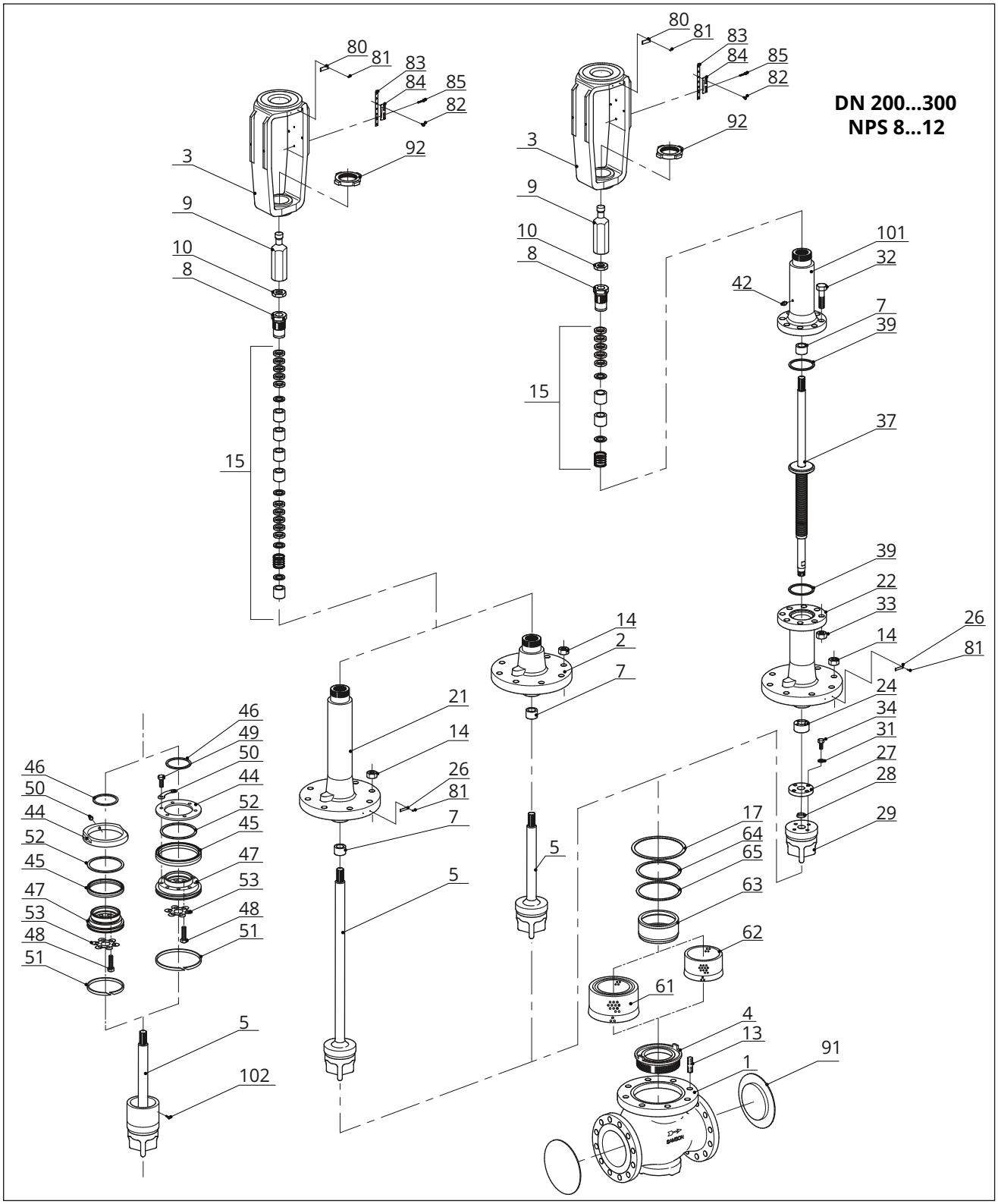
15.2 Spare parts

1	Body/body with integrated seat
2	Flange/valve bonnet
3	Yoke
4	Seat (for bodies with screwed-in seat)
5	Plug (with plug stem)
7	Guide bushing (flange)
8	Threaded bushing (packing nut)
9	Stem connector nut
10	Lock nut
11	Spring
12	Washer
13	Stud bolt
14	Body nut
15	Packing set
16	Packing rings
17	Body gasket
19	Bushing
21	Insulating section
22	Bellows seal
23	Guide bushing (insulating section)
24	Guide bushing (bellows seal)
25	Plug stem extension
26	Label (bellows seal or insulating section)
27/28 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
41	Nut
42	Screw plug with seal
44	Ring/ring nut [1]
45	Packing ring [1]
46	Gasket [1]
47	Support [1]
48	Hex screw [1]
49	Hex screw [1]
50	Lock [1]
51	Guide [1] (several guides only for version with graphite seal)
52	Ring [1] (only for version with graphite seal)
53	Snap ring [1]
61	Flow divider ST 2 [2]
62	Flow divider ST 1 or ST 3 [2]
63	Ring [2]
64	Gasket [2]
65	Gasket [2]
80	Nameplate
81	Grooved pin
82	Screw
83/84	Travel indicator scale
85	Screw
90	Cap
91	Protective cap
92	Nut
101	Bellows bonnet
102	Screw with snap ring [1] (only for version with bellows seal)

[1] Version with balanced valve plug

[2] Version with flow divider


DN 15...150
NPS ½...6
90
9
10
8
16
12
11
12
19
15
2
32
81
80
82
83
84
7
39
25
30 33
14
21
23
81
26
46
49
50
44
52
45
47
53
48
51
5
17
63
61
62
4
91 1 13
91
41
37
30
42
14 33
81
26
22
24
90
9
10
8
16
12
11
12
19
15
14
81
80
82
83
84
2
7
5
91 1 91


DN 200...300
NPS 8...12
80
81
83
84
85
82
92
3
9
10
8
15
101
32
42
7
39
37
22
33
14
26
81
24
34
31
27
28
29
2
21
26
46
49
50
44
52
45
47
53
48
51
102
17
64
65
63
62
61
4
13
1
91

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 the following e-mail address:
aftersalesservice@samsongroup.com

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

- Order number and position number in the order
- Type, model number, nominal size and valve version
- Pressure and temperature of the process medium
- Flow rate in m^3/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Is a strainer installed?
- Installation drawing

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
samson@samsongroup.com · www.samsongroup.com

2025-12-02 | English | 4000299898 | 1.4