MOUNTING AND OPERATING INSTRUCTIONS

EB 8059 EN

Translation of original instructions

Type 3259 Valve

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

Edition May 2021

Note on these mounting and operating instructions

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

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

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

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

Definition of signal words

⚠ DANGER

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

⚠ WARNING

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

NOTICE

Property damage message or malfunction

Note

Additional information

Tip

Recommended action

1 Safety instructions and measures

Intended use

The SAMSON Type 3259 Angle 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 in industrial high-pressure plants according to the IG standard. The valve with its actuator is designed to operate under exactly defined conditions (e.g. operating pressure, process medium, temperature). Therefore, operators must ensure that the control valve is only used in operating conditions that meet the specifications used for sizing the valve at the ordering stage. In case operators intend to use the control valve in other applications or conditions than specified, contact SAMSON.

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

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

Reasonably foreseeable misuse

The control valve is not suitable for the following applications:

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

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

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

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.

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

Personal protective equipment

We recommend checking the hazards posed by the process medium being used (e.g. ▶ GESTIS (CLP) hazardous substances database). Depending on the process medium and/or the activity, the protective equipment required includes:

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

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

Revisions and other modifications

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

Safety features

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

Warning against residual hazards

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

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

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 Machinery Directive 2006/42/EC. Valves with a CE marking have a declaration of conformity which includes information about the applied conformity assessment procedure. The 'Certificates' section contains this declaration of conformity.

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

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

Referenced documentation

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

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

  If a device contains a substance which is listed as being a substance of very high concern on the candidate list of the REACH regulation, this circumstance is indicated on the SAMSON delivery note.

1.1 Notes on possible severe personal injury

⚠ DANGER

Risk of bursting in pressure equipment.

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

➔ Observe the maximum permissible pressure for valve and plant.

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

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

1.2 Notes on possible personal injury

⚠ WARNING

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

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

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

➔ Wear protective clothing and safety gloves.

Risk of hearing loss or deafness due to loud noise.

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

➔ Wear hearing protection when working near the valve.

Risk of personal injury due to exhaust air being vented.

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

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

➔ Use suitable silencers and vent plugs.

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

Crush hazard arising from moving parts.

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

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

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

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

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

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

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

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

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

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

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.

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

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

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

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

1.3 Notes on possible property damage

NOTICE

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

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

➔ Flush the pipelines before start-up.

Risk of 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 valve.

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

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

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

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

Certain tools are required to work on the valve.

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

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

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

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

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

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

➔ Make sure that only suitable lubricants are used.

1.4 Notes on the use of an RFID tag

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

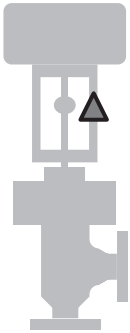
➔ Observe the explosion protection certificates of the RFID tag when it is to be used on valves installed in potentially explosive atmospheres.

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

➔ Avoid electrostatic charging.

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

1.5 Warnings on the device

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

2 Markings on the device

2.1 Valve nameplate

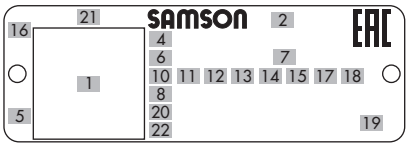


Fig. 2-1: *Inscriptions on the valve nameplate*

> **Note**
>
> *Fig. 2-1 and the inscription table list all possible characteristics and options that may appear on a valve nameplate. Only the inscriptions relevant to the ordered Type 3259 Valve actually appear on the nameplate.*

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

Item	Inscription meaning
15	Noise reduction: **1**: flow divider (ST) 1 · **2**: ST 2 · **3**: ST 3 **1/PSA**: ST 1 standard and integrated in seat for PSA valve · **AC-1/AC-2/AC-3/AC-5**: AC trim, versions 1 to 5 · **LK**: perforated plug · **LK1/LK2/LK3**: perforated plug with flow divider ST 1 to ST 3 · **MHC1**: multi-hole cage · **CC1**: Combi Cage · **ZT1**: Zero Travel
16	Country of origin
17	PSA version: **PSA**
18	Cage/seat style: **CC**: clamped cage, clamped seat **SF**: suspended cage, flanged seat
19	CE marking
20	ID of the notified body
	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
21	Serial number
22	NE 53 (NAMUR Recommendation)

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

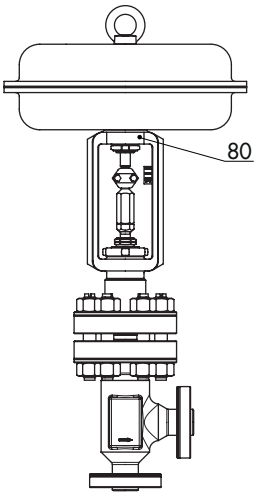


Fig. 2-2: *Valve nameplate*

2.2 Actuator nameplate

See associated actuator documentation.

2.3 Material identification number

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

2.4 Label when an adjustable packing is installed

An instructional label is affixed to the valve when an adjustable packing is installed (see Fig. 2-3).

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

2.5 Optional RFID tag

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

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

3 Design and principle of operation

The Type 3259 Valve is a high-pressure angle valve. This valve is preferably combined with a SAMSON Type 3271 or Type 3277 Pneumatic Actuator (see Fig. 3-1). It can also be combined with other actuators.

The seat (4) and plug with plug stem (5) are installed in the body (1). The plug stem is connected to the actuator stem (A7) by the stem connector clamps (A26/27) and is sealed by a spring-loaded double PTFE packing (15). Alternatively, an adjustable high-temperature packing can be used. The springs in the pneumatic actuator are located either above or below the diaphragm depending on the selected fail-safe action (see section 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.

Tip

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

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 valve has one of two different fail-safe positions:

– **Actuator stem extends (FA)**

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

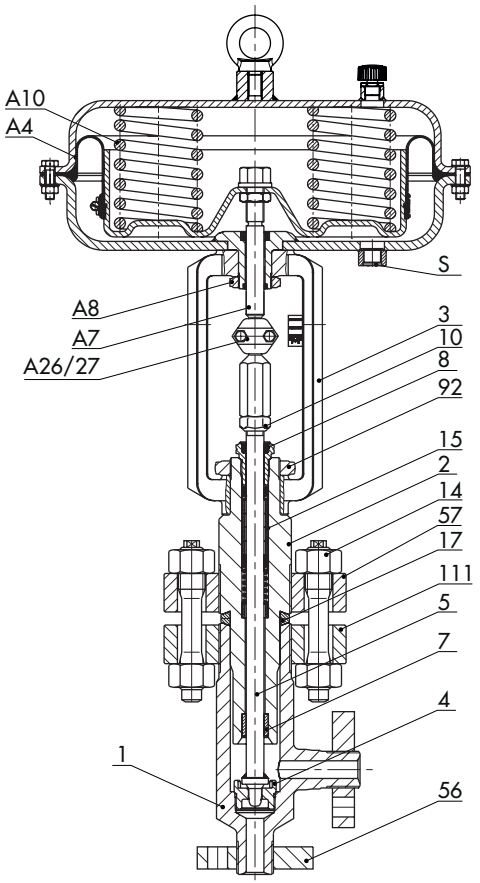
– **Actuator stem retracts (FE)**

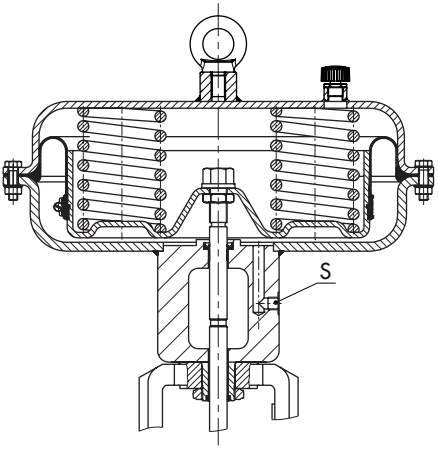
  When the signal pressure is reduced or the air supply fails, the springs move the actuator stem upwards and open the valve. The valve closes when the signal pressure is increased enough to overcome the force exerted by the springs.

Tip

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

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





Legend:

1 Body
2 Intermediate piece
3 Yoke
4 Seat
5 Plug
7 Guide bushing
8 Threaded bushing (packing nut)
10 Lock nut
14 Body nut
15 Packing
17 Body gasket (lens ring gasket)
56 Threaded flange
57 Threaded flange
92 Castellated nut
111 Threaded flange
A4 Diaphragm
A7 Actuator stem
A8 Ring nut
A10 Spring
A26/27 Stem connector clamp
S Signal pressure connection

Fig. 3-1: *Type 3259 Valve with Type 3271 Pneumatic Actuator (left) and Type 3277 Pneumatic Actuator (right)*

3.2 Versions

With insulating section/bellows seal

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

Actuators

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

➔ Observe the maximum permissible actuator force.

i ***Note***

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

3.3 Additional fittings

Strainers

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

Bypass and shut-off valves

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

Insulation

Control valves can be insulated to reduce heat energy transfer.

➔ Refer to the instructions in the 'Installation' section.

Test connection

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

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

Safety guard

For operating conditions that require increased safety (e.g. in cases where the valve is freely accessible to untrained staff), a safety guard must be installed to rule out a crush hazard arising from moving parts (actuator

and plug stem). Plant operators are responsible for deciding whether a guard is to be used. The decision is based on the risk posed by the plant and its operating conditions.

3.4 Valve accessories

Information Sheet ▶ T 8350

3.5 Technical data

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

i ***Note***

More information is available in Data Sheet ▶ T 8059.

Noise emissions

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

Optional RFID tag

Application range according to the technical specifications and the explosion protection certificates. These documents are available on our website at ▶ *www.samsongroup.com > Service & Support > Electronic nameplate*.

Table 3-1: *Technical data for Type 3259*

Valve size		**DN**	**10 · 16 · 24 · 30 · 45 · 58 · 70 · 90**
Pressure rating		PN	325
Type of connection			Threaded flanges with lens ring gaskets according to the IG standard
Seat-plug seal			Metal seal or high-performance metal seal
Characteristic			Equal percentage or linear
Rangeability			50:1 for $K_{VS} \geq 1$ · 30:1 for $K_{VS} < 1$
Conformity			CE · EAC
Temperature ranges in °C · Permissible operating pressures according to pressure-temperature diagram			
Body without insulating section with	PTFE packing		–10 to +220 °C
	High-temperature packing		–10 to +350 °C
Body with	Insulating section		–10 to +450 °C
	Bellows seal		–10 to +450 °C
Leakage class according to IEC 60534-4			
Valve plug	Metal seal		IV · High-performance metal seal: V

Table 3-2: *Dimensions and weights*

Table 3-2.1 to Table 3-2.3 contain the dimensions and weights for Type 3259. The lengths and heights in the dimensional drawings are shown on page 3-7.

Dimensions in mm · Weights in kg

Table 3-2.1: *Dimensions and weights for standard version of Type 3259 Valve*

Valve size	DN	10	16	24	30	45	58	70	90
Length L		85	95	110	120	150	170	200	235
H1 for actuator	350 cm²	470	470	470	470	560	560	–	
	355v2 cm²	470	470	470	470	560	560	–	
	700 cm²	470	470	470	470	560	560	820	820
	750v2 cm²	470	470	470	470	560	560	820	820
	1000 cm² 1400-60 cm²	525	525	525	525	615	615	820	820
	1400-120 cm² 2800 cm²	–				800	800	905	905
	2 x 2800 cm²	–						905	905
Weight without actuator		33	35	40	45	85 [1]	90 [1]	220 [1]	230 [1]

[1] The weight of the valve with a 2800 cm² or 2 x 2800 cm² actuator increases by 30 kg.

Table 3-2.2: *Dimensions and weights for Type 3259 with insulating section*

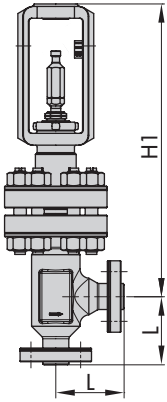
Valve size	DN	10	16	24	30	45	58	70	90
H4 for actuator	350 cm²	735	735	735	735	810	810	–	
	355v2 cm²	735	735	735	735	810	810	–	
	700 cm²	735	735	735	735	810	810	1175	1175
	750v2 cm²	735	735	735	735	810	810	1175	1175
	1000 cm² 1400-60 cm²	790	790	790	790	865	865	1175	1175
	1400-120 cm² 2800 cm²	–				1050	1050	1260	1260
	2 x 2800 cm²	–						1260	1260
Weight without actuator		43	45	48	53	100 [1]	105 [1]	295 [1]	305 [1]

[1] The weight of the valve with a 2800 cm² or 2 x 2800 cm² actuator increases by 30 kg.

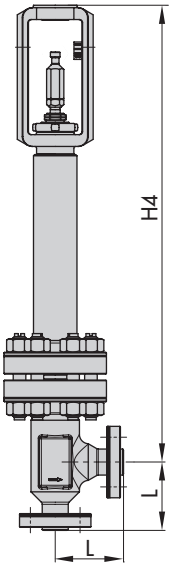
Table 3-2.3: *Dimensions and weights for Type 3259 with bellows seal*

Valve size	DN	10	16	24	30	45	58	70	90
H4 for actuator	350 cm²	885	885	885	885	875	875	–	
	355v2 cm²	885	885	885	885	875	875	–	
	700 cm²	885	885	885	885	875	875	1485	1485
	750v2 cm²	885	885	885	885	875	875	1485	1485
	1000 cm² 1400-60 cm²	940	940	940	940	930	930	1485	1485
	1400-120 cm² 2800 cm²	–				1115	1115	1570	1570
	2 x 2800 cm²	–						1570	1570
Weight without actuator		On request							

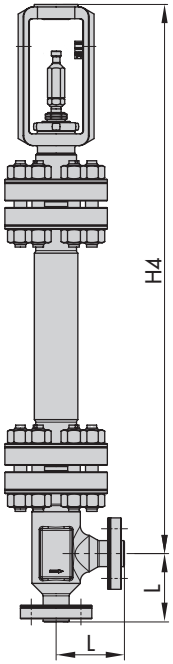
Dimensional drawings



Standard version of Type 3259



Type 3259 with insulating section



Type 3259 with bellows seal

i Note

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

▶ *T 8059*

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

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

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

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

4 Shipment and on-site transport

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

4.1 Accepting the delivered goods

After receiving the shipment, proceed as follows:

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

4.2 Removing the packaging from the valve

Observe the following sequence:

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

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

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

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

4.3 Transporting and lifting the valve

⚠ DANGER

Danger due to suspended loads falling.

➔ *Stay clear of suspended or moving loads.*

➔ *Close off and secure the transport paths.*

⚠ WARNING

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

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

⚠ WARNING

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

➔ *Observe the valve's center of gravity.*

➔ *Secure the valve against tipping over or turning.*

⚠ WARNING

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

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

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

NOTICE

Risk of valve damage due to incorrectly attached slings.

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

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

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

➔ *Observe lifting instructions (see section 4.3.2).*

Tip

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

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

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

Tip

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

4.3.1 Transporting the valve

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

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

➔ Observe the transport instructions.

Transport instructions

– Protect the control valve against external influences (e.g. impact).

– Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

– Protect the piping and any mounted valve accessories against damage.

– Protect the control valve against moisture and dirt.

– The permissible transportation temperature of standard control valves is –20 to +65 °C.

Note

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

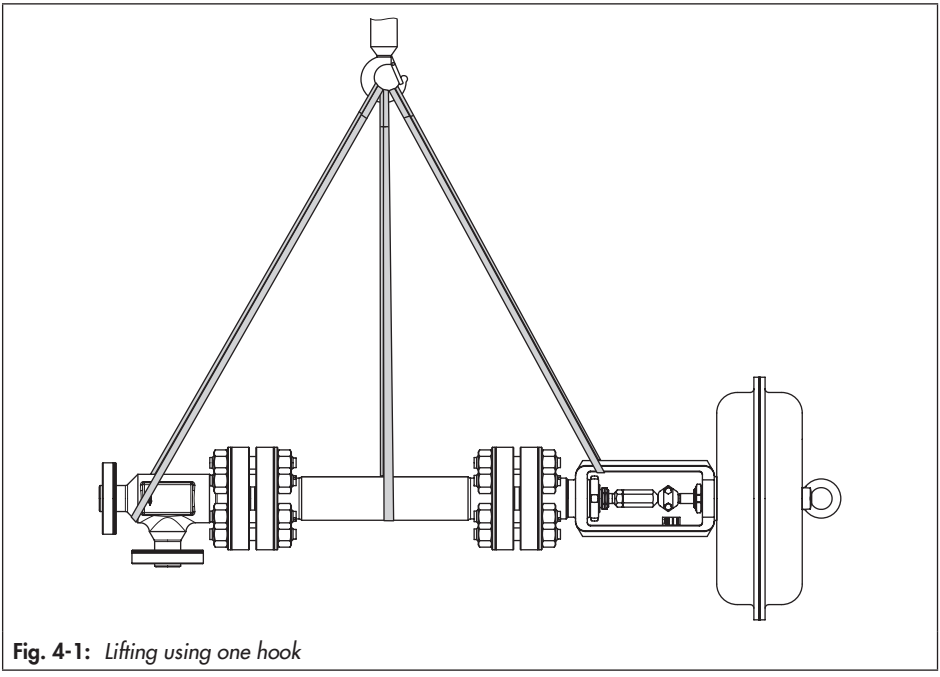


Fig. 4-1: *Lifting using one hook*

4.3.2 Lifting the valve

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

Lifting instructions

– Use a hook with safety latch (see Fig. 4-1) to secure the slings from slipping off the hook during lifting and transporting.
– Secure slings against slipping.
– Make sure the slings can be removed from the valve once it has been installed into the pipeline.
– Prevent the control valve from tilting or tipping over.
– Do not leave loads suspended when interrupting work for longer periods of time.

a) Lifting the control valve in the horizontal position

The control valve can be lifted in the horizontal position either using one hook (Fig. 4-1) or using several hooks on a beam (Fig. 4-2).

1. Attach one sling to the valve body, bonnet and actuator yoke as well as to the

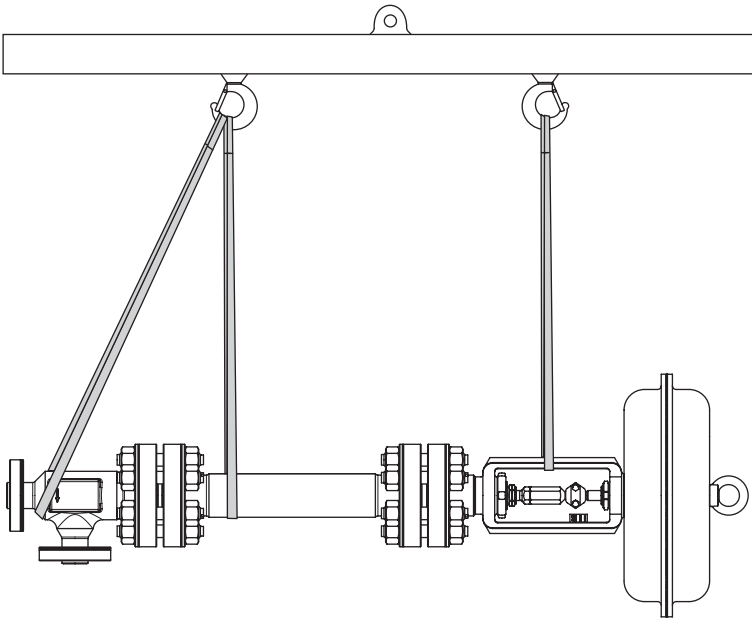


Fig. 4-2: *Lifting using a beam*

rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-1 and Fig. 4-2).

2. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
3. Move the control valve at an even pace to the site of installation.
4. Install the valve into the pipeline (see the 'Installation' section).
5. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
6. Remove slings.

b) Lifting the control valve in the upright position

The control valves can also be lifted in the upright position (see Fig. 4-3). On lifting the control valve in the upright position, make sure the following conditions are met:

– 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.

For lifting in the upright position, proceed as follows:

1. Attach one sling to the flange of the body and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-3).
2. Secure the slings attached to the body against slipping using a connector.
3. **700 cm² and larger:** attach another sling to the lifting eyelet on the actuator and to the rigging equipment.
4. Carefully lift the control valve. Check whether the lifting equipment and accessories can bear the weight.
5. Move the control valve at an even pace to the site of installation.
6. Install the valve into the pipeline (see the 'Installation' section).
7. After installation in the pipeline, check whether the flanges are bolted tight and the valve in the pipeline holds.
8. Remove connectors and slings.

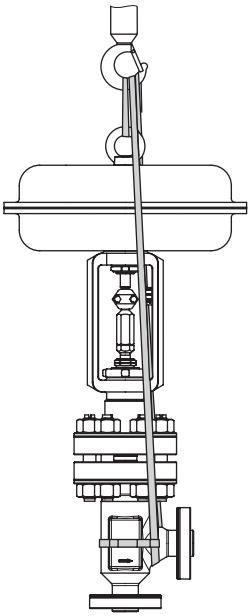


Fig. 4-3: *Lifting points on the control valve when lifting the control valve in the upright position*

4.4 Storing the valve

NOTICE

Risk of valve damage due to improper storage.

➔ *Observe the storage instructions.*

➔ *Avoid long storage times.*

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

Note

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

Storage instructions

– Protect the control valve against external influences (e.g. impact).

– Secure the valve in the stored position against slipping or tipping over.

– Do not damage the corrosion protection (paint, surface coatings). Repair any damage immediately.

– Protect the control valve against moisture and dirt. Store it at a relative humidity of less than 75 %. In damp spaces, prevent condensation. If necessary, use a drying agent or heating.

– Make sure that the ambient air is free of acids or other corrosive media.

– The permissible storage temperature of standard control valves is –20 to +65 °C. Contact our after-sales service for the storage temperatures of other valve versions.

– Do not place any objects on the control valve.

Special storage instructions for elastomers

Elastomer, e.g. actuator diaphragm

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

Tip

SAMSON's After-sales Service can provide more detailed storage instructions on request.

5 Installation

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

5.1 Installation conditions

Work position

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

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

Pipeline routing

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

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

➔ Observe the inlet and outlet lengths (see Table 5-1). Contact SAMSON if the valve conditions or states of the medium process deviate.

➔ Install the valve free of stress and with the least amount of vibrations as possible. Read information under 'Mounting position' and 'Support or suspension' in this section.

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

Mounting position

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

Valves with an insulating section for low temperatures below –10 °C **must** be installed with the actuator on top.

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

Support or suspension

i ***Note***

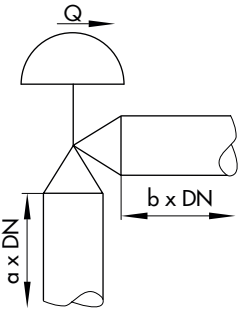
The plant engineering company is responsible for selecting and implementing a suitable support or suspension of the installed control valve and the pipeline.

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

In the following versions, the control valve must be supported or suspended with the appropriate support or suspension:

– Valves that are not installed with the actuator in the upright position on top of the valve.
– Valves with insulating section or bellows seal
– For actuators weighing >50 kg

Table 5-1: *Inlet and outlet lengths*



Q Flow rate
a Inlet length
b Outlet length

State of process medium Inlet	Outlet	Valve conditions	Inlet length a	Outlet length b
Gas		Ma ≤ 0.3	2	4
		0.3 ≤ Ma ≤ 0.7	2	10
Vapor		Ma ≤ 0.3 [1]	2	4
		0.3 ≤ Ma ≤ 0.7 [1]	2	10
		Saturated steam (percentage of condensate > 5 %)	2	20
Liquid		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
Liquid	Liquid, with flashing	–	2	20
Multi-phase		–	10	20

[1] No saturated steam

Valve accessories

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

Vent plugs

Vent plugs are screwed into the exhaust air ports of pneumatic and electropneumatic devices. They ensure that any exhaust air that forms can be vented to the atmosphere (to avoid excess pressure in the device). Further-

more, 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, valve size, material, pressure rating and temperature range) match the plant conditions (size and pressure rating of the pipeline, medium temperature etc.). See the 'Markings on the device' section for nameplate details.
– The requested or required additional pipe fittings (see 'Additional fittings' in the 'Design and principle of operation' section) 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 with insulating section or bellows seal up to the bonnet flange of the valve body for medium temperatures below 0 °C and above 220 °C. If the insulating section is insulated, it will not function properly.*

Proceed as follows:

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

➔ Flush the pipelines.

Note

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

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

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

➔ When the valve and actuator are already assembled, check the tightening torques of the bolted joints (▶ AB 0100). Components may loosen during transport.

5.3 Mounting the device

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

NOTICE

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

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

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

NOTICE

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

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

5.3.1 Mounting the actuator onto the valve

WARNING

Risk of personal injury due to preloaded springs.

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

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

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

Versions with V-port plug

To achieve the best flow conditions inside the valve, the V-port plug must always be installed with the port that releases the flow first when the valve opens facing toward the valve outlet. This is the largest of the three V-shaped ports (see Fig. 5-1).

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

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

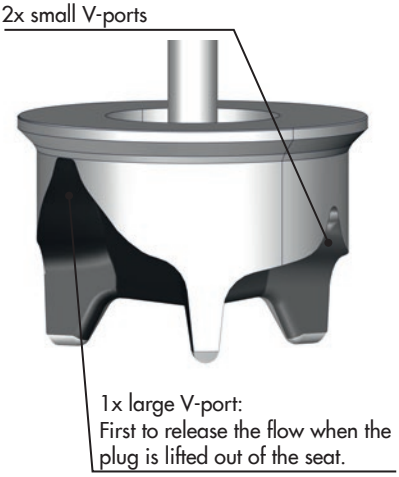


Fig. 5-1: *V-port plug*

Versions with perforated plug

Only one hole is located near the seal facing of perforated plugs with equal percentage characteristic. Depending on the valve size, the hole pattern varies and is partly unsymmetrical. The process medium in the valve flows through the holes as soon as the plug is lifted out of the seat. To achieve the best flow conditions inside the valve, the perforated plug must always be installed with the hole that releases the flow first when the valve opens facing toward the valve outlet (see Fig. 5-2).

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

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

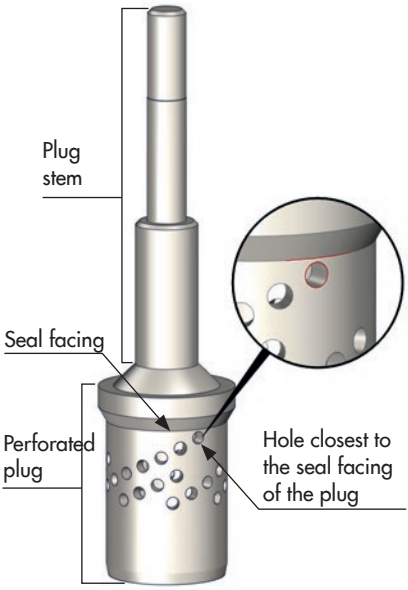


Fig. 5-2: *Perforated plug*

Mounting the actuator

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

5.3.2 Installing the valve into the pipeline

NOTICE

Premature wear and leakage due to insufficient support or suspension.

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

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 information under 'Lifting the valve' in the 'Shipment and on-site transport' section). Observe the flow direction through the valve. The arrow on the valve indicates the direction of flow.
5. Make sure that the correct flange gaskets are used.
6. Bolt the pipe to the valve free of stress.
7. Attach a support or suspension on the valve, if necessary.

5.4 Testing the installed valve

⚠ DANGER

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

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

Before working on the control valve:

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

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

- ➔ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

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

5.4.1 Leak test

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

Tip

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

1. Close the valve.
2. Slowly apply the test medium to the inlet space upstream of the valve. A sudden surge in pressure and resulting high flow velocities can damage the valve.
3. Open the valve.
4. Apply the required test pressure.
5. Check the valve for leakage to the atmosphere.
6. Depressurize the pipeline section and valve.
7. Rework any parts that leak (see information below under 'Adjusting the packing') and repeat the leak test.

Adjusting the packing

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

NOTICE

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

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

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

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

5.4.2 Travel motion

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

➔ Apply the maximum and minimum control signals to check the end positions of the valve while observing the movement of the actuator stem.

➔ Check the travel reading at the travel indicator scale.

5.4.3 Fail-safe position

➔ Shut off the signal pressure line.

➔ Check whether the valve moves to the fail-safe position (see the 'Design and principle of operation' section).

5.4.4 Pressure test

The plant operator is responsible for performing the pressure test.

Tip

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

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

– Retract the plug stem to open the valve.

– Observe the maximum permissible pressure for both the valve and plant.

6 Start-up

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

⚠ WARNING

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

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

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

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

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

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

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

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

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

Start-up/putting the valve back into operation

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

7 Operation

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

⚠ WARNING

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

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

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

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

- ➔ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

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 the 'Safety instructions and measures' section.

8.1 Troubleshooting

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

Malfunction	Possible reasons	Recommended action
The valve leaks to the atmosphere (fugitive emissions).	Defective packing	Replace packing (see the 'Servicing' section) or contact our after-sales service.
	Version with adjustable packing [1]: packing not tightened correctly	Adjust the packing (see information under 'Adjusting the packing' in the 'Installation' section > 'Testing the installed valve'). Contact our after-sales service when it continues to leak.
	Version with bellows seal: the metal bellows seal is defective	Contact our after-sales service.
	Threaded flanged joint loosened or lens ring gasket damaged	Check the flanged joint. Replace lens ring gasket at the flanged joint (see the 'Servicing' section) or contact our after-sales service.

1) See the 'Markings on the device' section

Note

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

8.2 Emergency action

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

In the event of a valve malfunction:

1. Close the shut-off valves upstream and downstream of the control valve to stop the process medium from flowing through the valve.
2. Perform troubleshooting (see section 8.1).
3. Rectify those malfunctions that can be remedied based on the instructions provided here. Contact our after-sales service in all other cases.

Putting the valve back into operation after a malfunction

See the 'Start-up' section.

9 Servicing

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

The following documents are also required for servicing the valve:

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

⚠ DANGER

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

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

Before working on the control valve:

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

⚠ WARNING

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

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

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

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

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

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

⚠ WARNING

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

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

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

❗ NOTICE

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

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

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

❗ NOTICE

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

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

❗ NOTICE

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

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

Note

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

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

9.1 Periodic testing

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

Tip

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

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

Inspection and testing	Action to be taken in the event of a negative result:
Check the markings, labels and nameplates on the valve for their readability and completeness.	Immediately renew damaged, missing or incorrect nameplates or labels.
	Clean any inscriptions that are covered with dirt and are illegible.
Check the pipe connections and gaskets on the valve and actuator for leakage.	Check the bolted joint (tightening torque).
	Replace the body gasket. See section 9.4.1.
	Version with adjustable packing [1]: adjust the packing (see information under 'Adjusting the packing' in the 'Installation' section > 'Testing the installed valve') or replace the packing (see section 9.4.2).

Inspection and testing	Action to be taken in the event of a negative result:
Check the test connection and bellows seal (if used) for external leakage. **WARNING!** Risk of personal injury due to pressurized components and process medium being discharged. Do not loosen the screw of the test connection while the valve is pressurized.	Put the control valve out of operation (see the 'Decommissioning' section). To repair the bellows seal, contact our after-sales service (see the 'Repairs' section).
Check the valve's seat leakage.	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.
Check the valve for external damage (e.g. corrosion).	Repair any damage immediately. If necessary, put the control valve out of operation (see the 'Decommissioning' section).
Check the valve accessories to ensure they are mounted properly.	Tighten the connections of the valve accessories.
Check to ensure that the actuator and plug stem move smoothly.	Version with adjustable packing [1]: tighten the packing correctly (see information under 'Adjusting the packing' in the 'Installation' section > 'Testing the installed valve').
	Unblock a blocked actuator and plug stem. **WARNING!** A blocked actuator or plug stem (e.g. due to seizing up after remaining in the same position for a long time) can suddenly start to move uncontrollably. Injury to hands or fingers is possible if they are inserted into the actuator or valve. Before trying to unblock the actuator or plug stem, disconnect and lock the pneumatic air supply as well as the control signal. Before unblocking the actuator, release any stored energy in the actuator (e.g. spring compression). See associated actuator documentation.
If possible, check the valve's fail-safe position by briefly interrupting the air supply.	Put the control valve out of operation (see the 'Decommissioning' section). Identify the cause for the malfunction and rectify it (see the 'Troubleshooting' section).

[1] See the 'Markings on the device' section

9.2 Preparing the valve for service work

Tip

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

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

Note

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

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

– Replace the body gasket. See section 9.4.1.
– Replace the packing (see section 9.4.2)
– Replace the seat and plug (see section 9.4.3)

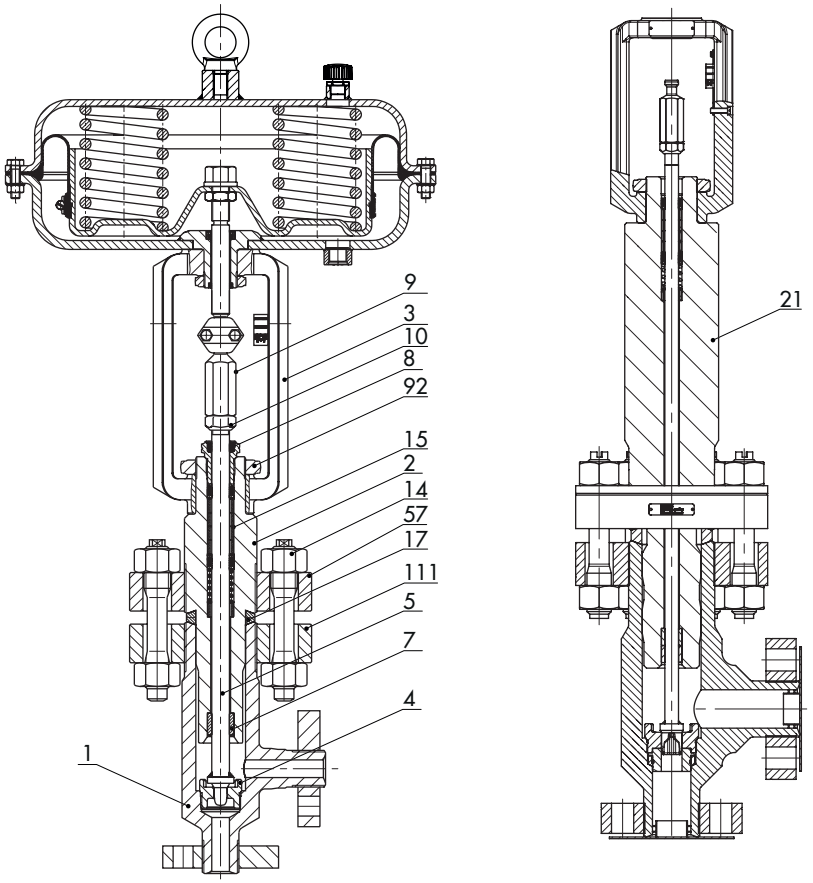
9.3 Installing the valve after service work

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

9.4 Service work

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

➔ After all service work is completed, check the control valve before putting it back into operation (see 'Testing the installed valve' in the 'Installation' section).



1 Body
2 Intermediate piece
3 Yoke
4 Seat
5 Plug
7 Guide bushing
8 Threaded bushing (packing nut)
9 Stem connector nut
10 Lock nut
14 Body nut
15 Packing
17 Body gasket (lens ring gasket)
21 Insulating section
57 Threaded flange
92 Castellated nut
111 Threaded flange

Fig. 9-1: *Standard version of Type 3259 (left) and with insulating section (right)*

9.4.1 Replacing the body gasket

a) Standard version

1. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
2. Unscrew the intermediate piece (2) together with the plug (5) from the body (1).
3. Remove the body gasket (17). Carefully clean the sealing faces in the body (1) and on the intermediate piece (2).
4. Apply a suitable lubricant to the new body gasket (17) and insert it into the body.
5. Push the intermediate piece (2) together with the plug (5) into the body (1).

   Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

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

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

   See relevant information under 'Mounting the actuator onto the valve' in the 'Installation' section.
6. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
7. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.

b) Version with insulating section

1. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
2. Pull the insulating section (21) together with the plug (5) out of the body (1).
3. Remove the body gasket (17). Carefully clean the sealing faces in the valve body (1) and on the insulating section (21).
4. Apply a suitable lubricant to the new body gasket (17) and insert it into the body.
5. Push the insulating section (21) together with the plug (5) into the body (1).

   Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

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

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

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

6. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
7. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.

c) Version with bellows seal

NOTICE

Risk of leakage due damage of the metal bellows.

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

1. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
2. Pull the bellows seal (22) together with plug (29) and plug stem (37) out of the body (1).
3. Remove the body gasket (17). Carefully clean the sealing faces in the valve body (1) and on the bellows seal (22).
4. Apply a suitable lubricant to the new body gasket (17) and insert it into the body.
5. Push the bellows seal (22) together with plug (29) and plug stem (37) into the body (1).

   Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

   Version with V-port plug: place the bellows seal (22) onto the valve body, making sure that the largest V-shaped port of the V-port plug faces towards the valve outlet.

   Version with perforated plug: place the bellows seal (22) onto the valve body, making sure that the hole of the plug that releases the flow first faces toward the valve outlet.

   See relevant information under 'Mounting the actuator onto the valve' in the 'Installation' section.
6. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
7. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.

9.4.2 Replacing the packing

NOTICE

Risk of control valve damage due to incorrect servicing.

➔ *The packing can only be replaced when all the following conditions are met:*
   – *The valve does not have a bellows seal.*
   – *The standard packing or form HT packing is installed in the valve.*

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

a) Standard version

1. Unscrew the castellated nut (92) and lift the yoke (3) off the intermediate piece (2).
2. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
3. Unscrew the intermediate piece (2) together with the plug (5) from the body (1).
4. Replace the body gasket (17). See section 9.4.1.
5. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
6. Unscrew the threaded bushing (8).
7. Pull the plug with plug stem (5) out of the intermediate piece (2).
8. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
9. Pull the entire packing out of the packing chamber using a suitable tool.
10. Renew damaged parts. Clean the packing chamber thoroughly.
11. Apply a suitable lubricant to all the packing parts and to the plug stem (5).
12. Slide the plug with plug stem (5) into the intermediate piece (2).

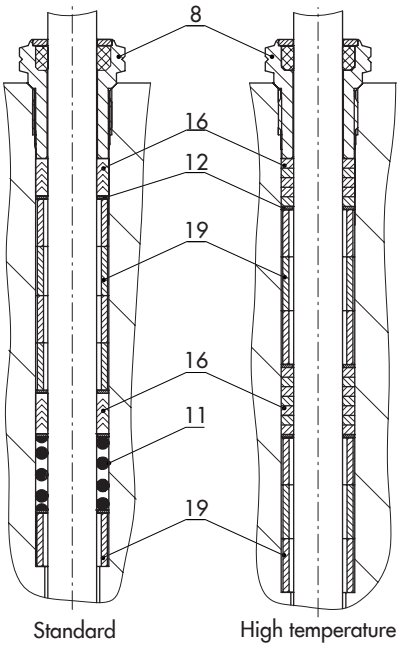


Fig. 9-2: *Packing*

8	Threaded bushing
11	Spring
12	Washer
16	Packing ring
19	Bushing

13. Push the intermediate piece (2) together with the plug (5) into the body (1).

    Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

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

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

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

14. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-2).
15. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
16. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.
17. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
18. Place yoke (3) on the intermediate piece (2) and fasten using the castellated nut (92).
19. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

b) Version with insulating section

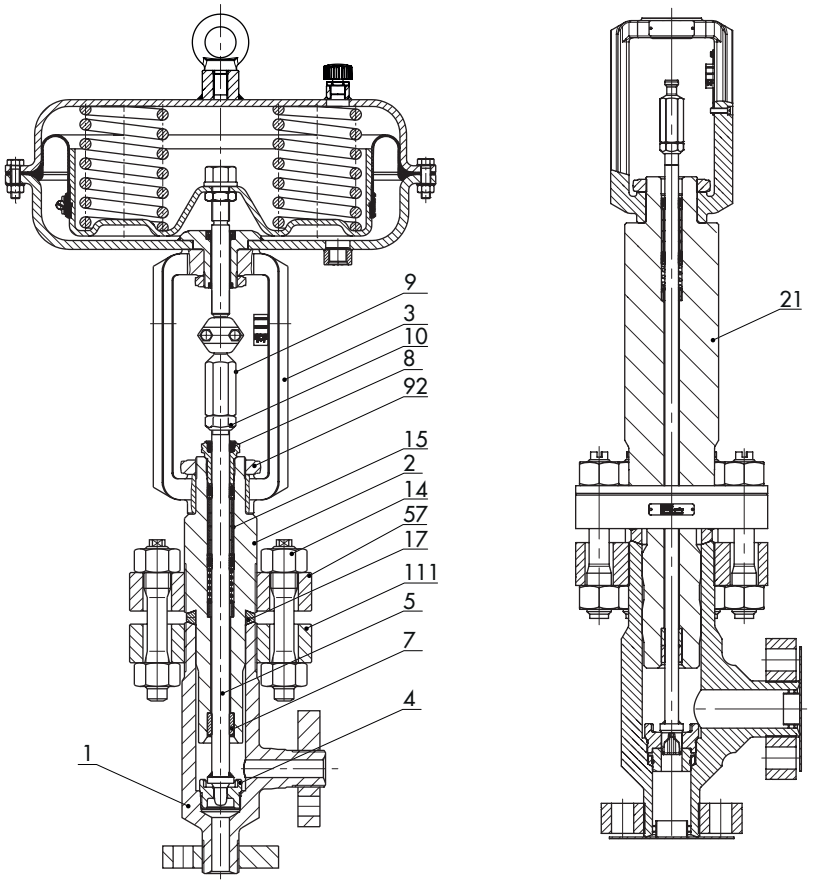
1. Unscrew the castellated nut (92) and lift the yoke (3) off the insulating section (21).
2. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
3. Pull the insulating section (21) together with the plug (5) out of the body (1).
4. Replace the body gasket (17). See section 9.4.1.
5. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
6. Unscrew the threaded bushing (8).
7. Pull the plug with plug stem (5) out of the insulating section (21).
8. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
9. Pull the entire packing out of the packing chamber using a suitable tool.
10. Renew damaged parts. Clean the packing chamber thoroughly.
11. Apply a suitable lubricant to all the packing parts and to the plug stem (5).
12. Slide the plug with plug stem (5) into the insulating section (21).
13. Push the insulating section (21) together with the plug (5) into the body (1).

    Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

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

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

    See relevant information under 'Mounting the actuator onto the valve' in the 'Installation' section.
14. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-2).
15. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
16. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.
17. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
18. Place yoke (3) onto the insulating section (21) and fasten using the castellated nut (92).
19. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.



1 Body
2 Intermediate piece
3 Yoke
4 Seat
5 Plug
7 Guide bushing
8 Threaded bushing (packing nut)
9 Stem connector nut
10 Lock nut
14 Body nut
15 Packing
17 Body gasket (lens ring gasket)
21 Insulating section
57 Threaded flange
92 Castellated nut
111 Threaded flange

Fig. 9-3: *Standard version of Type 3259 (left) and with insulating section (right)*

9.4.3 Replacing the seat and plug

NOTICE

Risk of control valve damage due to incorrect servicing.

➔ *Seat and plug can only be replaced when all the following conditions are met:*
- *The valve does not have a bellows seal.*
- *The standard packing or form HT 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 service or repair.

➔ *Always replace both the seat and plug.*

Tip

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

a) Standard version

1. Unscrew the castellated nut (92) and lift the yoke (3) off the intermediate piece (2).
2. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
3. Unscrew the intermediate piece (2) together with the plug (5) from the body (1).
4. Replace the body gasket (17). See section 9.4.1.
5. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
6. Unscrew the threaded bushing (8).
7. Pull the plug with plug stem (5) out of the intermediate piece (2).
8. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
9. Pull the entire packing out of the packing chamber using a suitable tool.
10. Unscrew the seat (4) using a suitable tool.
11. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
12. Screw in the seat (4). Observe tightening torques.
13. Apply a suitable lubricant to all the packing parts and to the new plug stem (5). We recommend replacing the packing as well. See section 9.4.2.
14. Slide the new plug with plug stem (5) into the intermediate piece (2).

15. Push the intermediate piece (2) together with the plug (5) into the body (1).

    Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

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

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

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

16. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-2).
17. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
18. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.
19. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
20. Place yoke (3) on the intermediate piece (2) and fasten using the castellated nut (92).
21. Loosely screw the lock nut (10) and stem connector nut (9) onto the plug stem.

b) Version with insulating section

1. Unscrew the castellated nut (92) and lift the yoke (3) off the insulating section (21).
2. Undo the body nuts (14) gradually in a crisscross pattern. Remove the bolts (13).
3. Pull the insulating section (21) together with the plug (5) out of the body (1).
4. Replace the body gasket (17). See section 9.4.1.
5. Unscrew the stem connector nut (9) and lock nut (10) from the plug stem.
6. Unscrew the threaded bushing (8).
7. Pull the plug with plug stem (5) out of the insulating section (21).
8. Make sure that the guide bushing (7) is not damaged. If necessary, replace the guide bushing using a suitable tool.
9. Pull the entire packing out of the packing chamber using a suitable tool.
10. Unscrew the seat (4) using a suitable tool.
11. Apply a suitable lubricant to the thread and the sealing cone of the new seat.
12. Screw in the seat (4). Observe tightening torques.
13. Apply a suitable lubricant to all the packing parts and to the new plug stem (5). We recommend replacing the packing as well. See section 9.4.2.

14. Slide the new plug with plug stem (5) into the insulating section (21).
15. Push the insulating section (21) together with the plug (5) into the body (1).

    Make sure that the threaded flanges (57, 111) are positioned parallel to each other and that their bolt holes are aligned exactly above one another.

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

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

    See relevant information under 'Mounting the actuator onto the valve' in the 'Installation' section.
16. Carefully slide the packing parts over the plug stem into the packing chamber using a suitable tool. Observe the proper sequence (see Fig. 9-2).
17. Insert the bolts (13) through the threaded flanges (57, 111) and tighten them, observing the tightening torque.
18. Tighten the body nuts (14) gradually in a crisscross pattern. Observe tightening torques.
19. Screw in the threaded bushing (8) and tighten it. Observe tightening torques.
20. Place yoke (3) onto the insulating section (21) and fasten using the castellated nut (92).
21. 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 Annex for details on spare parts.

Lubricant

See document ▶ AB 0100 for details on suitable lubricants.

Tools

See document ▶ AB 0100 for details on suitable tools.

10 Decommissioning

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

⚠ DANGER

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

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

Before working on the control valve:

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

⚠ WARNING

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

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

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

⚠ WARNING

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

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

⚠ WARNING

Risk of hearing loss or deafness due to loud noise.

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

- ➔ *Wear hearing protection when working near the valve.*

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

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

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

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

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

⚠ WARNING

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

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

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

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

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

11 Removal

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

⚠ WARNING

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

Valve components and the pipeline may become very hot or cold. Risk of burn injuries.

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

➔ *Wear protective clothing and safety gloves.*

⚠ WARNING

Crush hazard arising from actuator and plug stem moving.

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

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

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

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

⚠ WARNING

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

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

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

⚠ WARNING

Risk of personal injury due to preloaded springs.

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

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

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

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

11.1 Removing the valve from the pipeline

1. Support the valve to hold it in place when separated from the pipeline (see the 'Shipment and on-site transport' section).
2. Unbolt the threaded flanges at the valve inlet and outlet.

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

11.2 Removing the actuator from the valve

See associated actuator documentation.

12 Repairs

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

NOTICE

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

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

➔ *Contact SAMSON's After-sales Service for repair work.*

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

1. Exceptions apply concerning some special device models
   ▶ *www.samsongroup.com > Service & Support > After-sales Service.*
2. Send an e-mail
   ▶ retouren@samsongroup.com to register the return shipment including the following information:
   – Type
   – Article number
   – Configuration ID
   – Original order
   – Completed Declaration on Contamination, which can be downloaded from our website at
   ▶ *www.samsongroup.com > Service & Support > After-sales Service.*

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

Note

Further information on returned devices and how they are handled can be found at
▶ *www.samsongroup.com > Service & Support > After-sales Service.*

13 Disposal

➔ Observe local, national and international refuse regulations.

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

14 Certificates

These declarations are included on the next pages:

- Declaration of conformity in compliance with Pressure Equipment Directive 2014/68/EU on page 14-2
- Declaration of conformity in compliance with Machinery Directive 2006/42/EC for Types 3259-1 and 3259-7 Control Valves on page 14-3
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC for the Type 3259 Valve with other actuators other than Types 3271 and 3277 Actuators on page 14-4

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

▶ *www.samsongroup.com > Products & Applications > Product selector > Valves > 3259*

Other optional certificates are available on request.

EU DECLARATION OF CONFORMITY
TRANSLATION

Module H / N° CE-0062-PED-H-SAM 001-20-DEU-rev-A

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

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

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

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

Directive of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment	**2014/68/EU**	**of 15 May 2014**
Applied conformity assessment procedure for fluids according to Article 4(1)	**Module H**	**by Bureau Veritas 0062**

The manufacturer's quality management system is monitored by the following notified body:
Bureau Veritas Services SAS, 8 Cours du Triangle, 92800 PUTEAUX – LA DEFENSE
Technical standards applied: DIN EN12516-2, DIN EN12516-3, ASME B16.34

Manufacturer: SAMSON AG, Weismuellerstrasse 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 7 April 2021

Dr. Andreas Widl
Chief Executive Officer (CEO)

Dr. Thomas Steckenreiter
Chief Technology Officer (CTO)

Revision 08

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 3259-1/-7 Pneumatic Control Valves consisting of the Type 3259 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 3259 Valve: Mounting and Operating Instructions EB 8059
- 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, 19 Mai 2020

i. V.
Thorsten Muth
Senior Director
Sales and After-sales

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

Revision no. 00

DECLARATION OF INCORPORATION
TRANSLATION

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

For the following products:
Type 3259 Pneumatic Control Valve

We certify that the Type 3259 Pneumatic Control Valves are partly completed machinery as defined in the Machinery Directive 2006/42/EC and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, part B has been compiled.

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

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

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

For product descriptions of the valve, refer to:
- Type 3259 Valve: Mounting and Operating Instructions EB 8059

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 May 2020

Thorsten Muth
Senior Director
Sales and After-sales

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

Revision no. 00

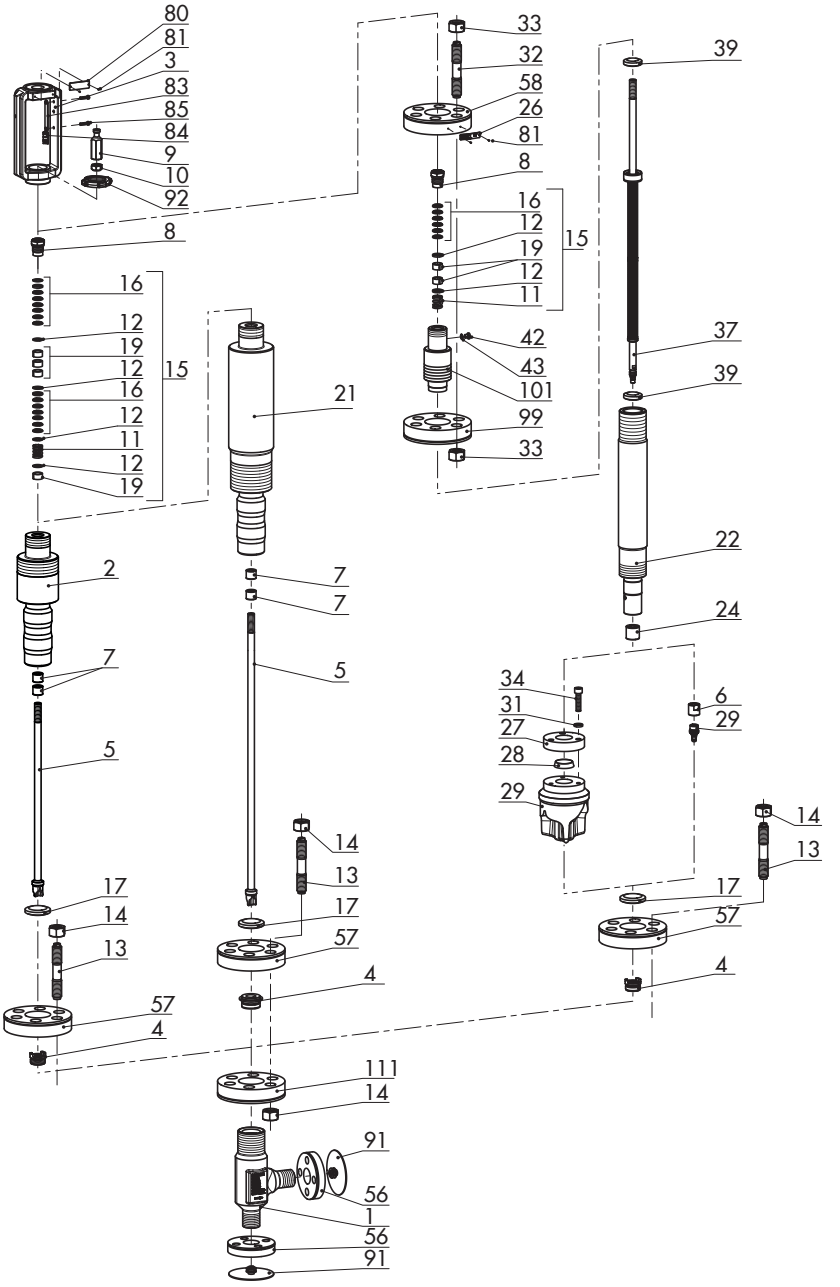
15 Annex

15.1 Tightening torques, lubricants and tools

▶ AB 0100 for tools, tightening torques and lubricants

15.2 Spare parts

1	Body
2	Intermediate piece
3	Yoke
4	Seat
5	Plug (with plug stem)
6	Bellows nut
7	Guide bushing
8	Threaded bushing (packing nut)
9	Stem connector nut
10	Lock nut
11	Spring
12	Washer
13	Stud bolt
14	Body nut
15	Packing
16	V-ring packing
17	Body gasket (lens ring gasket)
19	Bushing
21	Insulating section
22	Bellows seal
24	Guide bushing
26	Label (bellows seal or insulating section)
27	Flange
28	Clamping ring
29	Plug for version with bellows seal
31	Washer
32	Screw
33	Nut
34	Screw
37	Plug stem with metal bellows
39	Gasket
42	Screw plug
43	Seal
56	Threaded flange
57	Threaded flange
58	Threaded flange
80	Nameplate
81	Grooved pin
82	Screw
83	Hanger
84	Travel indicator scale
85	Screw
91	Protective caps
92	Castellated nut
99	Threaded flange
101	Bellows bonnet
111	Threaded flange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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 address

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

Addresses of SAMSON AG and its subsidiaries

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

Required specifications

Please submit the following details:

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

EB 8059 EN

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2021-10-20 · English