MOUNTING AND OPERATING INSTRUCTIONS

EB 8313-1 EN

Translation of original instructions

NOTE: These mounting and operating instructions only apply to the listed version already in use.
The Mounting and Operating Instructions ▶ EB 8313-3 apply to the Type 3372 Electropneumatic Actuator with a Type 3725 Positioner or Series 3730 Positioner.
The document can be downloaded from our website at ▶ www.samsongroup.com > Downloads > Documentation

Type 3321-IP Control Valve
Type 3372 Electropneumatic Actuator with Type 3321 Valve

Type 3372 Electropneumatic Actuator

With integrated i/p converter
Actuator area: 120 cm²

Edition November 2022

Note on these mounting and operating instructions

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

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

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

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

Definition of signal words

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

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

NOTICE
Property damage message or malfunction

Note
Additional information

Tip
Recommended action

1 Safety instructions and measures

Intended use

The SAMSON Type 3372 Electropneumatic Actuator is used for attachment to SAMSON Series V2001 Valves, such as Type 3321, Type 3323, Type 3531, Type 3535 and Type 3214 (DN 65 to 100) as well as Type 3260 Valve (DN 65 and 80). In combination with the valve, the actuator is used to shut off or mix the flow of liquids, gases or vapors in the pipeline. Depending on the version, the actuator is suitable for throttling or on/off service. The actuator can be used in processing and industrial plants.

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

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

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

Reasonably foreseeable misuse

The actuator 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 accessories connected to the actuator

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 actuator 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 wearing the following personal protective equipment when handling the Type 3372 Electropneumatic Actuator:

– Safety gloves and safety footwear (if applicable ESD footwear) when mounting or removing the actuator
– Eye protection and hearing protection while the actuator is operating.

➔ 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 Type 3372 Electropneumatic Actuator does not have any special safety equipment.

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

Hazards resulting from the special working conditions at the installation site of the actuator 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.

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.

Servicing explosion-protected devices

If a part of the device on which the explosion protection is based needs to be serviced, the device must not be put back into operation until a qualified inspector has assessed it according to explosion protection requirements, has issued an inspection certificate or given the device a mark of conformity. Inspection by a qualified inspector is not required if the manufacturer performs a routine test on the device before putting it back into operation and the passing of the routine test is documented by attaching a mark of conformity to the device. Replace explosion-protected components only with original, routine-tested components by the manufacturer.

Devices that have already been operated outside hazardous areas and are intended for future use inside hazardous areas must comply with the safety requirements placed on serviced devices. Before being operated inside hazardous areas, test the devices according to the specifications for servicing explosion-protected devices.

Maintenance, calibration and work on equipment

➔ Only use intrinsically safe current/voltage calibrators and measuring instruments for interconnection with intrinsically safe circuits to check or calibrate the equipment inside or outside hazardous areas.

➔ Observe the maximum permissible values specified in the certificates for intrinsically safe circuits.

Referenced standards, directives and regulations

Devices with a CE marking fulfill the requirements of the Directives 2014/34/EU and 2014/30/EU. The actuators are also partly completed machinery as defined in the Machinery Directive 2006/42/EC and Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008. The declarations of conformity and incorporation are included in the 'Certificates' section.

Referenced documentation

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

– Mounting and operating instructions for the valve on which it is mounted

– Mounting and operating instructions for mounted valve accessories (e.g. ▶ EB 8367 for Type 4744 Limit Switch)
– ▶ AB 0100 for tools, tightening torques and lubricant
– When a substance is used in the device, which is listed as being a substance of very high concern on the candidate list of the REACH regulation:
  Information on safe use of the part affected
  ▶ www.samsongroup.com > About SAMSON > Material Compliance > REACH

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

1.1 Notes on possible severe personal injury

⚠ DANGER

Risk of bursting in the actuator.

Actuators are pressurized. Improper opening can lead to actuator components bursting.

➔ Before starting any work on the actuator, depressurize all plant sections affected and the actuator.

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or servicing of the electropneumatic actuator in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

➔ The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165, Part 1).

➔ Installation, operation or servicing of the electropneumatic actuator must only be performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.

1.2 Notes on possible personal injury

⚠ WARNING

Crush hazard arising from moving parts.

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

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

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

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

➔ Before unblocking the actuator stem after it has 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 'Relieving the spring compression in the actuator' in the 'Removal' section.

Risk of personal injury when the actuator vents.

The actuator is operated with air. As a result, air is vented during operation.

➔ 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 [1].

➔ Use suitable silencers and vent plugs.

➔ Wear eye and hearing protection when working near the actuator.

Risk of personal injury due to preloaded springs.

Actuators with preloaded springs are under tension. These actuators can be identified by several longer bolts with nuts protruding from the bottom diaphragm case. These bolts allow the spring compression to be relieved evenly on disassembling the actuator. Actuators with considerably preloaded springs are also labeled correspondingly (see section 1.4).

➔ Before starting any work on the actuator, relieve the compression from the preloaded springs. See 'Relieving the spring compression in the actuator' in the 'Removal' section.

[1] If not described otherwise in the valve documentation, the work position for the control valve is the front view looking onto the operating controls (including valve accessories).

⚠ WARNING

Exposure to hazardous substances poses a serious risk to health.

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

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

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

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

Over time, markings, labels and nameplates on the actuator 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

i NOTICE

Risk of actuator damage due to excessively high supply pressure.

An excessively high supply pressure can lead to impermissible movements or forces which might damage the actuator.

➔ Observe supply pressure restrictions. See the 'Operation' section.

➔ Restrict the supply pressure by using a suitable supply pressure reducing station.

An incorrect electric signal will damage the electropneumatic actuator.

A current source must be used to power the actuator.

➔ Only use a current source and never a voltage source.

NOTICE

Incorrect assignment of the terminals will damage the electropneumatic actuator and will lead to malfunction.

For the actuator to function properly, the prescribed terminal assignment must be observed.

➔ Connect the electrical wiring according to the prescribed terminal assignment.

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

Observe the specified torques when tightening actuator components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are not tightened far enough may loosen.

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

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

Certain tools are required to work on the actuator.

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

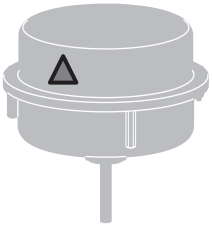
Risk of actuator damage due to the use of unsuitable lubricants.

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

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

1.4 Warnings on the device

The following warning is only affixed to the device on delivery when the actuator is fitted with preloaded springs in the delivered state:

Warning symbols	Meaning of the warning	Location on the device
 Actuators manufactured before April 2020 have the following warning affixed to them:	Warning to indicate that actuator parts are pressurized. The springs in the actuator are preloaded. Only open the actuator following the instructions in this document. See 'Relieving the spring compression in the actuator' in the 'Removal' section.	

2 Markings on the device

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

2.1 Actuator nameplate

The nameplate is stuck on the diaphragm casing. It includes all details required to identify the device:

1 Actuator area
2 Model number
3 Configuration ID
4 Serial number
5 Max. supply pressure p_{max} in bar or psi
6 Month and year of manufacture
7 Symbol indicating fail-safe action
 Actuator stem extends (FA)
 Actuator stem retracts (FE)
8 Operating travel in mm
9 Bench range in bar
10 Bench range in psi
12 Data Matrix code
13 Reference variable in mA
14 Degree of protection
15 ID of the notified body
16 Explosion protection specifications

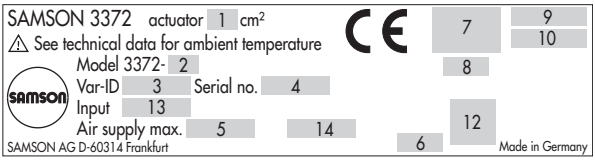


Fig. 2-1: *Nameplate of Type 3372 Actuator with integrated i/p converter without explosion protection*

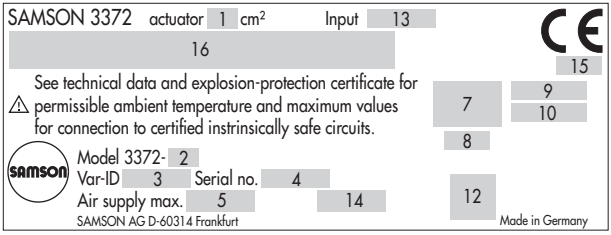


Fig. 2-2: *Nameplate of Type 3372 Actuator with integrated i/p converter in explosion-protected version*

3 Design and principle of operation

The actuators are used for attachment to Series V2001 Valves, such as Type 3321, Type 3323, Type 3531, Type 3535 and Type 3214 (DN 65 to 100) as well as Type 3260 Valve (DN 65 and 80).

The actuators mainly consist of two diaphragm cases, a rolling diaphragm and springs. They are fitted with an i/p converter and a pneumatic control unit for throttling service. The converter and the control unit are installed in the bottom diaphragm case of actuators with fail-safe action "actuator stem extends" and in the top diaphragm case of actuators with fail-safe action "actuator stem retracts".

The control signal issued by the controller is transmitted as a 4 to 20 mA reference variable to the electropneumatic converter where it is converted into a proportional pressure signal. The pressure signal produces a force which acts on the surface of the measuring diaphragm (11) and is compared to the force of the range spring (13). The movement of the measuring diaphragm is transmitted by the lever (12) to the force switch (15) to produce a corresponding signal pressure.

Changes in the input signal or the valve position cause a change in the actuator stem position corresponding to the reference variable.

The actuator is fastened to the valve bonnet using a central nut. (form B, see Fig. 3-1).

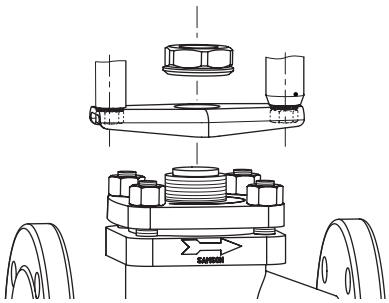


Fig. 3-1: *Mounting using a central nut (form B attachment)*

Tight-closing function

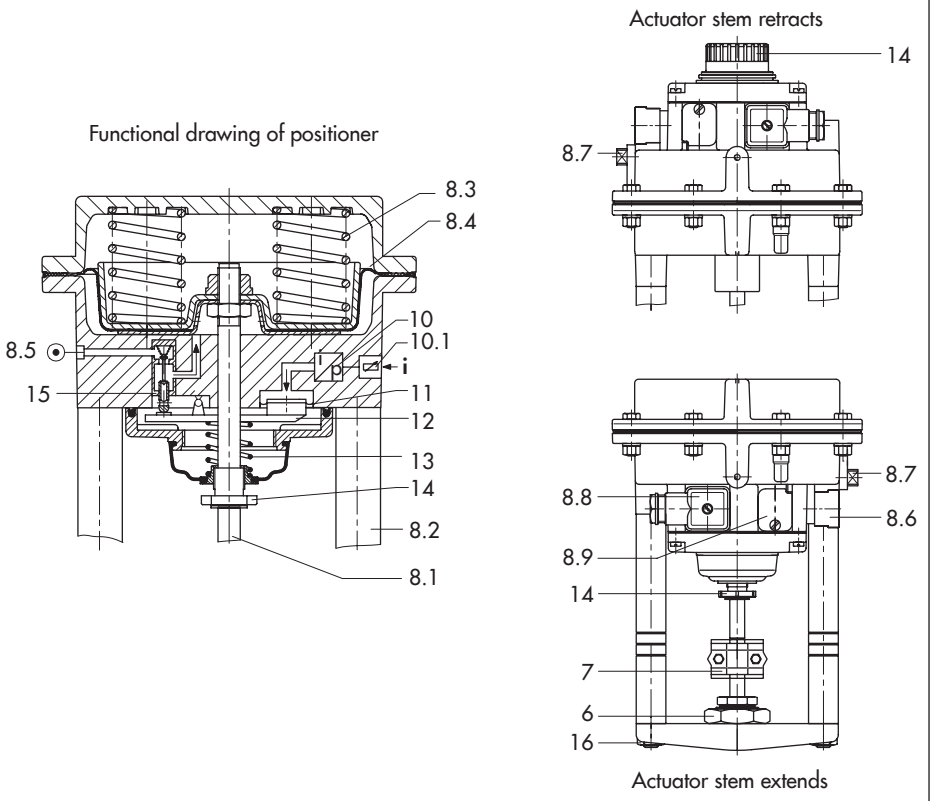
The electropneumatic actuator is completely filled with air or vented as soon as the reference variable falls below or exceeds a certain value.

Actuator stem extends

Deactivation function which is triggered when the signal falls below the switching point of 4.08 mA: the actuator is fully vented, causing a globe valve to close tightly. In three-way valves, port **B** is closed when the valve is used for mixing service and port **A** is closed when the valve is used for diverting service.

Actuator stem retracts

Activation function which is triggered when the signal exceeds the switching point of 19.95 mA: the actuator is filled with air, causing a globe valve to close tightly. In three-way valves, port **B** is closed when the valve is used for mixing service and port **A** is closed when the valve is used for diverting service.



6	Nut	8.9	Cover plate (span and tight-closing function)
7	Stem connector	10	i/p converter
8.1	Actuator stem	10.1	Potentiometer for span
8.2	Rod-type yoke	11	Measuring diaphragm
8.3	Actuator springs	12	Lever
8.4	Rolling diaphragm	13	Range spring
8.5	Signal pressure connection (actuator stem extends)	14	Zero adjuster
8.6	Vent plug	15	Force switch
8.7	Stopper (pressure gauge)	16	Rod nut
8.8	Plug connector		

Fig. 3-2: *Type 3372 Electropneumatic Actuator*

3.1 Accessories

Vent plugs

Vent plugs are screwed into the exhaust air ports of pneumatic and electropneumatic devices. They ensure that any exhaust air that forms can be vented to the atmosphere (to avoid excess pressure in the device). Furthermore, the vent plugs allow air intake to prevent a vacuum from forming in the device. ▶ AB 07

Lifting fixture

A special lifting tool is available to lift the electropneumatic actuator with 120 cm² actuator area (▶ AB 0100).

3.2 Technical data

The nameplate provides information on the actuator version (see the 'Markings on the device' section).

i Note

More information is available in Data Sheet ▶ T 8313.

Conformity

The following conformity is confirmed for the Type 3372 Electropneumatic Actuator with integrated i/p converter:

With explosion protection	No explosion protection
CE	CE · UK CA

See the 'Certificates' section for more details.

Table 3-1: *Technical data of Type 3372 Electropneumatic Actuator with integrated i/p converter*

Actuator area	**120 cm²**			
Rated travel	15 mm			
Tight-closing function	**Stem retracts (FE)**	**Stem extends (FA)**	**Stem retracts (FE)**	**Stem extends (FA)**
Bench range	0.4 to 1.4	1.4 to 2.3	1.4 to 2.3	2.1 to 3.3
Supply pressure	Max. 6 bar	Max. 4 bar	Max. 4 bar	Max. 6 bar
Reference variable	4 to 20 mA · Minimum current 3.6 mA Load impedance ≤6 V (300 Ω at 20 mA)			
Span adjustment	25 % of travel range using potentiometer			
Direction of action	Increasing/increasing, fixed			
Characteristic	Linear · Deviation from terminal-based conformity ≤2 %			
Hysteresis	≤1 %			
Variable position	≤7 %			

Actuator area		**120 cm²**
Tight-closing function (can be activated by a jumper)	Stem extends (FA)	Deactivation at ≤4.08 mA
	Stem retracts (FE)	Activation at ≥19.95 mA Switching accuracy: 0.14 mA
Air consumption in steady state		When w = 100 %: 6 bar ≤ 200 l_n/h 4 bar ≤ 160 l_n/h
Temperature range		–30 to +70 °C
Degree of protection		IP 54 [1]
Electrical connection		Cable socket according to DIN EN 175301-803, black polyamide, 8 to 10 mm clamping range Screw terminals for up to 1.5 mm² wire cross-section
Explosion protection certification (optional): ATEX	Number	PTB 99 ATEX 2049
	Date	1999-07-06
	Type of protection	II 2G Ex ia IIC T6
Weight		3.7 kg
Limit switch		**Type 4744-2**
Type of protection		Flameproof enclosure II 2G Ex db IIC T6-T5
Permissible load		AC voltage: 250 V/5 A DC voltage: 250 V/0.4 A
Permissible ambient temperature		–20 to +60 °C
Degree of protection		IP 66
Weight (approx. kg)		0.4

[1] IP 65 if the vent plug is replaced by a filter check valve (order no. 1790-7408)

Dimensional drawings

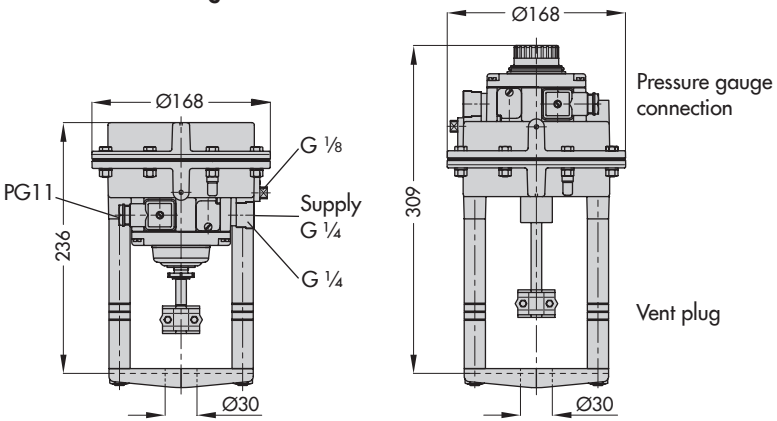


Fig. 3-3: *Dimensions in mm*

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

4.2 Removing the packaging from the actuator

Observe the following sequence:

➔ Do not open or remove the packaging until immediately before mounting the actuator.

➔ Leave the actuator in its packaging to transport it on site.

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

4.3 Transporting and lifting the actuator

Due to the low service weight, lifting equipment is not required to lift and transport the actuator (e.g. to mount it onto a valve). If lifting equipment (e.g. crane or forklift) is to be used, we have a gripping device available for the actuator (see 'Accessories' in the 'Design and principle of operation' section).

4.3.1 Transporting the actuator

➔ Leave the actuator in its packaging to transport it.

➔ Observe the transport instructions.

Transport instructions

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

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

– Protect the actuator against moisture and dirt.

– Observe permissible temperatures (see 'Technical data' in the 'Design and principle of operation' section).

4.3.2 Lifting the actuator

Note

See valve documentation for more information on lifting the entire control valve assembly.

4.4 Storing the actuator

NOTICE

Risk of actuator damage due to improper storage.

➔ *Observe the storage instructions.*

➔ *Avoid long storage times.*

➔ *Contact SAMSON in case of different storage conditions or long storage periods.*

Note

We recommend regularly checking the actuator and the prevailing storage conditions during long storage times.

Storage instructions

– When the valve and actuator are already assembled, observe the storage conditions for control valves. See associated valve documentation.

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

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

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

– Protect the actuator 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.

– Observe permissible temperatures (see 'Technical data' in the 'Design and principle of operation' section).

– Do not place any objects on the actuator.

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

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

5 Installation

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

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or servicing of the electropneumatic actuator in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

- ➔ *The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165, Part 1).*
- ➔ *Work must only performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

5.1 Preparation for installation

Before mounting, make sure the following conditions are met:

- The actuator is not damaged.
- The type designation, material and temperature range of the actuator match the ambient conditions (temperatures etc.). See the 'Markings on the device' section for nameplate details.

Proceed as follows:

- ➔ Lay out the necessary material and tools to have them ready during mounting.
- ➔ Check that the vent plugs to be used are not blocked.
- ➔ Check any pressure gauges mounted on valve accessories 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.

5.2 Mounting the actuator

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. Proceed as follows to mount the actuator and before start-up.

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

The actuator is operated with air. As a result, air is vented during operation.

- ➔ *During mounting make sure that vent holes are not located at eye level in the work position of the control valve and the actuator does not vent at eye level in the work position.*
- ➔ *Wear eye and hearing protection when working near the actuator.*

⚠ WARNING

Crush hazard arising from the moving actuator stem.

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

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

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

➔ *Before unblocking the actuator stem after it has 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 'Relieving the spring compression in the actuator' in the 'Removal' section.*

NOTICE

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

Observe the specified torques when tightening actuator components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are not tightened far enough may loosen.

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

NOTICE

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

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

5.2.1 Mounting the actuator onto the valve

To mount the actuator on the valve, proceed as follows:

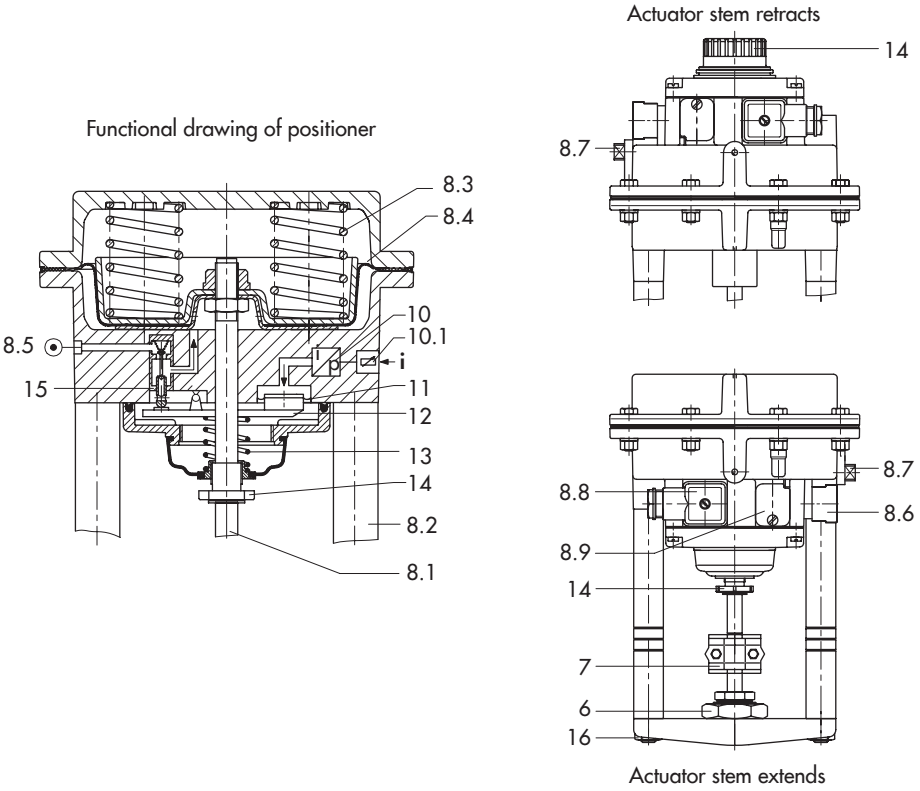
Tip

The valve and actuator are assembled with special attention paid to the actuator's bench range and direction of action. These details are specified on the actuator nameplate (see the 'Markings on the device' section).

See Fig. 5-1

1. Connect the air supply (see section 5.2.2).
2. Connect the electrical supply (see section 5.2.3).
3. Move the actuator stem to its correct position:

   "Stem extends" fail-safe action: apply a signal pressure to actuators to retract the actuator stem. If no signal pressure or electric control signal is available during the mounting procedure, tighten the hex nut (6) against the force of the preloaded springs using a hexagonal wrench with width across flats (SW 36).



6	Nut
7	Stem connector
8.1	Actuator stem
8.2	Rod-type yoke
8.3	Actuator springs
8.4	Rolling diaphragm
8.5	Signal pressure connection (actuator stem extends)
8.6	Vent plug
8.7	Stopper (pressure gauge)
8.8	Plug connector
8.9	Cover plate (span and tight-closing function)
10	i/p converter
10.1	Potentiometer for span
11	Measuring diaphragm
12	Lever
13	Range spring
14	Zero adjuster
15	Force switch
16	Rod nut

Fig. 5-1: *Type 3372 Electropneumatic Actuator*

"Stem retracts" fail-safe action: air only needs to be applied to actuators for attaching the stem connector clamps. The reason for this is that in three-way valves, for example the plug stem might not reach the actuator stem after being pulled out of the valve body. If this is the case, a signal pressure must applied to the top diaphragm chamber until the plug stem and actuator stem come into contact so that the stem connector can be mounted.

i Note

To be able to retract the actuator stem, a pressure of approx. 3 bar must be applied at the supply connection as well as a control signal of approx. 10 mA at the input.

4. Unscrew the hex nut (6) from the valve bonnet and place the actuator on the valve bonnet with its stem retracted by applying signal pressure.
5. Align the actuator and secure the hex nut (SW 36) applying a tightening torque of at least 150 Nm.
6. Pull up the plug stem until it contacts the actuator stem.
7. Place the stem connector clamps in position and screw tight using the fastening screws.

5.2.2 Connecting the air supply

See Fig. 3-3 in 'Technical data' in the 'Design and principle of operation' section.

Determine the lower and upper signal pressure range values before connecting the supply air:

– The lower signal pressure range value is the same as the minimum value of the bench range or operating range (with preloaded springs).
– The upper signal pressure range value is the same as the maximum value of the bench range or operating range (with preloaded springs).

Before connecting the supply air, make sure the following conditions are met:

– The supply air is dry as well as free of oil and dust.
– Upstream pressure reducing stations are correctly serviced.
– All air pipes and hoses are clear by thoroughly blowing air through them.

i Note

To monitor the signal pressure, a pressure gauge with G ⅛ thread can be screwed into the diaphragm chamber in place of the stopper (8.7).

a) "Actuator stem extends" (FA)/fail-close [1)]

1. Connect the supply air to the connection on the housing marked "Supply":
   Required supply pressure = Upper bench range value + 0.5 bar
2. Screw the vent plug into the vent opening.

b) "Actuator stem retracts" (FE)/ fail-open [1)]

1. Connect the supply air to the connection on the housing marked "Supply":

   The supply pressure must be high enough so that the control valve closes tightly even against the upstream pressure in the plant.

   For the required supply pressure for a tight-closing valve, refer to the mounting and operating instructions of the mounted valve or roughly calculate as follows, using the maximum signal pressure $p_{st\ max}$:

$$p_{st\ max} = F + \frac{d^2 \cdot \pi \cdot \Delta p}{4 \cdot A} \text{ [bar]}$$

   d = Seat diameter [cm]

   Δp = Differential pressure across the valve [bar]

   A = Actuator area [cm²]

   F = Upper bench range value of the actuator

   If there are no specifications, calculate as follows:
   Required supply pressure = Upper bench range value + 1 bar
2. Screw the vent plug into the vent opening.

5.2.3 Connecting the electrical supply

See Fig. 5-2

1. Unthread the fastening screw (1) of the plug connector and remove the plug connector from the female connector on the actuator housing.

NOTICE

Risk of actuator damage due to removal of the female connector.

➔ *Do not remove the female connector from the actuator housing. The correct ground connection can only be guaranteed when it is in its original position.*

---

2. Pull the fastening screw (1) out of the plug connector and remove the rubber seal (5).
3. Lever the plug insert (3) out of the plug connector case (2) at the opening (4) using a screwdriver.
4. Connect the wires transmitting the control signal through the cable gland (6) of the plug connector case to the terminals of the insert which are marked 1 (+), 2 (–)

1) For globe and angle valves

and to its ground terminal. Secure them with screws.

5. Reinstall the insert (3) in the plug connector case. Make sure that the cable gland (6) points to the desired direction (the plug connector case can be turned by 90° around the insert to point to all four directions).
6. Put on the rubber seal (5).
7. Plug the plug connector back in the actuator housing and secure with fastening screw (1).

1 Fastening screw
2 Plug connector case
3 Insert
4 Opening
5 Rubber seal
6 Cable gland

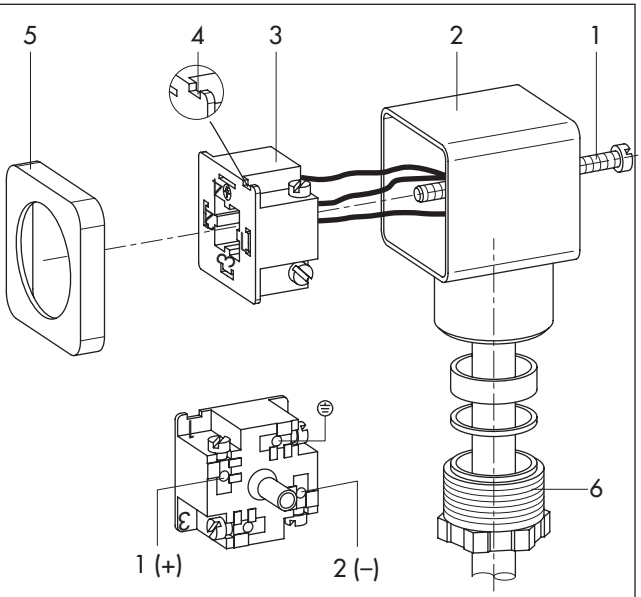


Fig. 5-2: *Terminal assignment at the plug connector (8.8)*

6 Start-up

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

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or servicing of the electropneumatic actuator in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

- ➔ *The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165, Part 1).*
- ➔ *Work must only performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

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

Pneumatic actuators are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or components can cause serious injury or even death. Before working on the actuator:

- ➔ *Depressurize all plant sections concerned and the actuator. Release any stored energy.*

⚠ WARNING

Risk of personal injury due to preloaded springs.

Actuators with preloaded springs are under tension. These actuators can be identified by several longer bolts with nuts protruding from the bottom diaphragm case. Actuators with considerably preloaded springs are also labeled correspondingly (see the 'Warnings on the device' section).

- ➔ *Only open the actuator following the instructions in this document. See 'Relieving the spring compression in the actuator' in the 'Removal' section.*

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

The actuator is operated with air. As a result, air is vented during operation.

- ➔ *Wear eye and hearing protection when working near the actuator.*

⚠ WARNING

Crush hazard arising from the moving actuator stem.

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

➔ *Before unblocking the actuator stem after it has 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 'Relieving the spring compression in the actuator' in the 'Removal' section.*

NOTICE

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

Observe the specified torques when tightening actuator components. Excessive tightening torques lead to parts wearing out more quickly. Parts that are not tightened far enough may loosen.

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

NOTICE

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

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

6.1 Checking and adjusting zero and span

Zero and span are adjusted to determine the starting point and the upper range value of the actuator.

When the control signal (reference variable) issued by the controller changes from 4 to 20 mA, the control valve must correspondingly pass through its entire travel range from 0 to 100 %.

Zero is always based on the closed position of the valve.

For example, in a fail-close globe valve with (Type 3372-(0/1)511 and 3372-(0/1)531 Actuator with fail-safe action "actuator stem extends"), the zero (starting point) must be set to 4 mA and the upper range value to 20 mA.

For example, in a fail-open globe valve with (Type 3372-(0/1)521 and 3372-(0/1)541 Actuator with fail-safe action "actuator stem retracts"), the zero (starting point) must be set to 20 mA and the upper range value to 4 mA.

Note

Zero and span of the electropneumatic actuator are calibrated to match the rated travel by SAMSON.

We recommend, however, checking zero after the actuator has been mounted to the valve as described below:

1. Connect an ammeter to the control signal input and apply air to the supply input.
2. Undo the fastening screw and push the cover plate (8.9) aside.
3. Pull the jumper from the pins to deactivate the tight-closing function.

Zero is adjusted at the adjuster (14) and the upper range value at the potentiometer for span (10.1). See Fig. 3-2 in the 'Design and principle of operation' section.

➔ Any span adjustment results in a shift of zero. Therefore, the zero point must be readjusted after span adjustment.

a) Actuator with fail-safe action "actuator stem extends"

See Fig. 6-1

Zero (starting point)

1. Set the input signal at the ammeter to 4 mA
2. Turn the zero adjuster (14) until the plug stem just starts to move from its initial position.
3. Reduce the input signal to 0 mA and slowly increase it again. Check whether the plug stem starts to move at 4 (+0.1) mA.
4. Correct deviations at the zero adjuster (14).

Turning the adjuster clockwise causes the valve to leave its end position earlier, whereas turning it counterclockwise delays the valve leaving its end position.

Upper range value (span)

5. Once the starting point has been set, increase the input signal to 20 mA at the ammeter.

   At exactly 20 (–0.1) mA, the plug stem must have passed through its entire rated travel range of 100 %.
6. Adjust the potentiometer for span (10.1) until the upper range value is correct.

   Turn the adjuster clockwise to increase the travel and counterclockwise to reduce it.

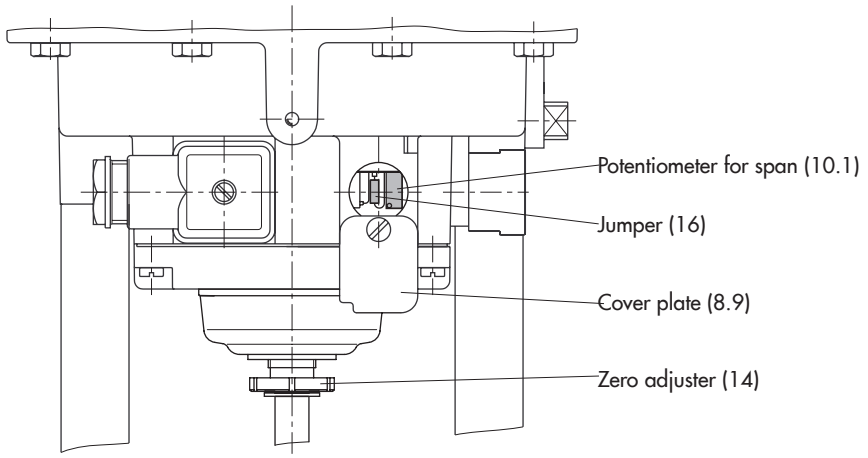


Fig. 6-1: *Type 3372-03(5)1x and Type 3372-03(5)3x Actuator with "actuator stem extends" fail-safe action*

7. After the correction has been completed, reduce the input signal and slowly increase it again. Check the starting point (4 mA) and the upper range value (20 mA).
8. Repeat the correction procedure until both values are correct.
9. Plug jumper back on the pins again to activate the tight-closing function.

b) Actuator with fail-safe action "actuator stem retracts"

See Fig. 6-2

Zero (starting point)

1. Set the input signal at the ammeter to 20 mA
2. Remove the protective cap and turn the zero adjuster (14) until the plug stem just begins to move from its initial position.
3. Increase the input signal and slowly reduce it again to 20 mA. Check whether the plug stem starts to move at 20 mA.
4. Correct deviations at the zero adjuster (14). Turning the adjuster clockwise causes the valve to leave its end position earlier, whereas turning it counterclockwise delays the valve leaving its end position.

Upper range value (span)

5. Once the starting point has been set, increase the input signal to 4 mA at the ammeter.

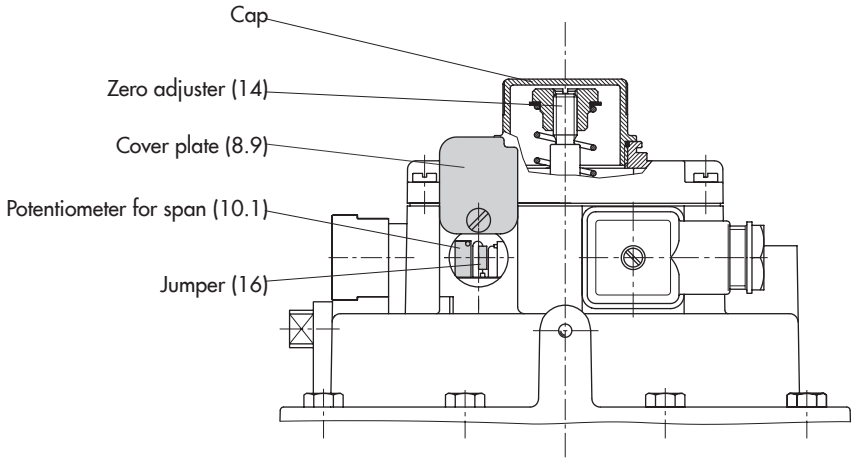


Fig. 6-2: *Type 3372-0(3/5)2x and Type 3372-0(3/5)4x Actuator with "actuator stem retracts" fail-safe action*

At an upper range value of 4 mA, the plug stem must have passed through its entire rated travel range of 100 %.

6. Adjust the potentiometer for span (10.1) until the upper range value is correct.

   Turn the adjuster clockwise to increase the travel and counterclockwise to reduce it.

7. After the correction has been completed, increase the input signal again. Check the starting point (20 mA) and the upper range value (4 mA).
8. Place the protective cap back on the zero adjuster.
9. Plug jumper back on the pins again to activate the tight-closing function.

6.2 Deactivating and activating the tight-closing function

The electronic deactivation and activation of the tight-closing function integrated in the actuator ensures tight closing of the control valve whenever the control signal exceeds or falls below the switching point.

Actuator stem extends

If the reference variable falls below the switching point of 4.08 mA ±0.14 mA hysteresis, the actuator is fully vented to close a globe valve.

Actuator stem retracts

If the reference variable exceeds the switching point of 19.95 mA ±0.14 mA hysteresis, the actuator is fully filled with air to close a globe valve.

➔ The tight-closing function is activated when the jumper is plugged in.

➔ The tight-closing function is deactivated when the jumper is removed.

6.3 Version with limit switch: adjustment

See Fig. 6-3

1. Undo the clamps of the stem connector on the valve. Replace the front clamp with the clamp including the U-bolt from the accessories.
2. Move the valve to the switching point at which the contact is to be activated.
3. Position the clamping plate on the rod-type yoke at the point where the lever

rests on the bracket of the stem connector.

4. Align clamping plate and secure it in place.
5. Connect the wiring according to the label on the clamping plate:

   Black (BK)/blue (BU):

   NC contact

   Black (BK)/brown (BN):

   NO contact
6. Move the valve up and down close to the required switching position and make any fine adjustments to the exact switching point using the adjustment screw.

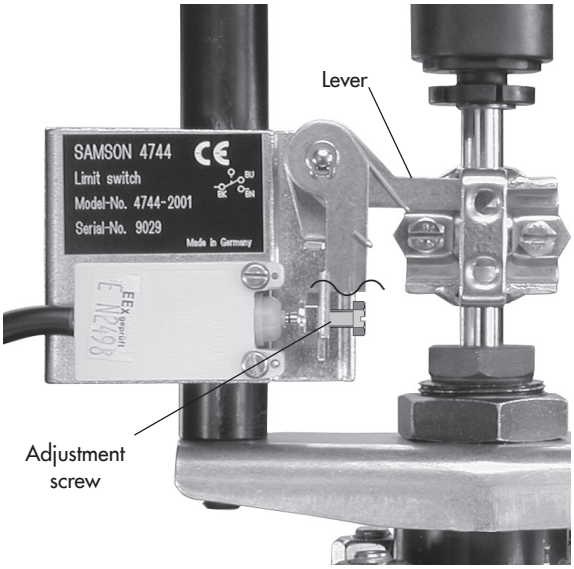


Fig. 6-3: *Limit switches*

7 Operation

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

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or servicing of the electropneumatic actuator in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

- ➔ *The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165, Part 1).*
- ➔ *Work must only performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

The actuator is operated with air. As a result, air is vented during operation.

- ➔ *Wear eye and hearing protection when working near the actuator.*

⚠ WARNING

Crush hazard arising from the moving actuator stem.

- ➔ *Do not insert hands or finger into the yoke while the air supply is connected to the actuator.*
- ➔ *Before working on the actuator, disconnect and lock the pneumatic air supply as well as the control signal.*
- ➔ *Do not impede the movement of the actuator stem by inserting objects into the yoke.*
- ➔ *Before unblocking the actuator stem after it has 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 'Relieving the spring compression in the actuator' in the 'Removal' section.*

- ➔ Only shut down the control valve over the reference variable. Do not disconnect the supply air to shut down the valve.

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 stem does not move on demand.	Actuator is blocked.	Check attachment. Remove the blockage. **WARNING!** A blocked actuator (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 stem, disconnect and lock the pneumatic air supply as well as the control signal. Before unblocking the actuator stem, release any stored energy in the actuator (e.g. spring compression). See 'Relieving the spring compression in the actuator' in the 'Removal' section.
	Insufficient signal pressure	Check the signal pressure. Check the signal pressure line for leakage.
	Signal pressure not connected to the correct diaphragm chamber.	See the 'Installation' section.
	Diaphragm in the actuator defective	Contact our after-sales service.
Actuator stem does not stroke through its complete travel range.	Insufficient signal pressure	Check the signal pressure. Check the signal pressure line for leakage.
	Incorrect setting of valve accessories.	Check the actuator without valve accessories. Check the settings of the valve accessories.

i ***Note***

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

8.2 Emergency action

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

9 Servicing and conversion

Note

– 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 actuator 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.

9.2 Service or conversion work

NOTICE

Risk of actuator damage due to incorrect service or conversion work.

➔ *Do not perform service and conversion work on your own.*

➔ *Contact SAMSON's after-sales service for service or conversion work.*

The actuator contains parts subject to wear which can be replaced after consulting our after-sales service.

The direction of action (and fail-safe action) of electropneumatic actuators can be changed through conversion work after consulting our after-sales service. The fail-safe action is indicated on the nameplate by a symbol:

Actuator stem extends

Actuator stem retracts

9.3 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 fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or servicing of the electropneumatic actuator in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

- ➔ *The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165, Part 1).*
- ➔ *Work must only performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

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

Pneumatic actuators are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or components can cause serious injury or even death. Before working on the actuator:

- ➔ *Depressurize all plant sections concerned and the actuator. Release any stored energy.*

⚠ WARNING

Risk of personal injury due to preloaded springs.

Actuators with preloaded springs are under tension. These actuators can be identified by several longer bolts with nuts protruding from the bottom diaphragm case. Actuators with considerably preloaded springs are also labeled correspondingly (see the 'Warnings on the device' section).

- ➔ *Only open the actuator following the instructions in this document. See 'Relieving the spring compression in the actuator' in the 'Removal' section.*

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

The actuator is operated with air. As a result, air is vented during operation.

- ➔ *Wear eye and hearing protection when working near the actuator.*

⚠ WARNING

Crush hazard arising from the moving actuator stem.

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

➔ *Before unblocking the actuator stem after it has 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 'Relieving the spring compression in the actuator' in the 'Removal' section.*

To decommission the actuator for service work or before removing it from the valve, proceed as follows:

1. Put the control valve out of operation. See associated valve documentation.
2. Disconnect the pneumatic air supply and electrical power supply to depressurize the actuator.
3. Release any stored energy.

11 Removal

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

⚠ DANGER

Risk of fatal injury due to the ignition of an explosive atmosphere.

Incorrect installation, operation or servicing of the electropneumatic actuator in potentially explosive atmospheres may lead to ignition of the atmosphere and ultimately to death.

- ➔ *The following regulations apply to installation in hazardous areas: EN 60079-14 (VDE 0165, Part 1).*
- ➔ *Work must only performed by personnel who has undergone special training or instructions or who is authorized to work on explosion-protected devices in hazardous areas.*

⚠ DANGER

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

Pneumatic actuators are pressure equipment that may burst when handled incorrectly. Flying projectile fragments or components can cause serious injury or even death. Before working on the actuator:

- ➔ *Depressurize all plant sections concerned and the actuator. Release any stored energy.*

⚠ WARNING

Risk of personal injury due to preloaded springs.

Actuators with preloaded springs are under tension. These actuators can be identified by several longer bolts with nuts protruding from the bottom diaphragm case. Actuators with considerably preloaded springs are also labeled correspondingly (see the 'Warnings on the device' section).

- ➔ *Only open the actuator following the instructions in this document. See 'Relieving the spring compression in the actuator' in the 'Removal' section.*

⚠ WARNING

Risk of personal injury due to exhaust air being vented.

The actuator is operated with air. As a result, air is vented during operation.

➔ *Wear eye and hearing protection when working near the actuator.*

⚠ WARNING

Crush hazard arising from the moving actuator stem.

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

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

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

➔ *Before unblocking the actuator stem after it has 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 'Relieving the spring compression in the actuator' in the 'Removal' section.*

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

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

11.1 Removing the actuator from the valve

1. Undo the clamps of the stem connector.
2. Loosen the stem connector nut and lock nut.
3. **Removing actuators with "stem extends" fail-safe action with/without preloaded springs:** to undo the ring nut, apply approx. 50 % signal pressure to open the valve.
4. Unscrew the ring nut on the valve bonnet.
5. Disconnect the signal pressure again.
6. Separate the actuator from the valve by undoing the ring nut.
7. Fasten the lock nut and stem connector nut on the valve.

11.2 Relieving the spring compression in the actuator

The long clamping bolts with long clamping nuts and the short bolts with short nuts are arranged evenly around the circumference of the actuator housing to fasten the top and bottom diaphragm cases together. The springs in the actuator are compressed using the long clamping nuts and bolts.

To relieve the compression of the springs in the actuator, proceed as follows:

1. Unthread and remove the short nuts and bolts (including the washers) on the diaphragm cases.
2. Loosen the long clamping nuts and bolts on the diaphragm cases evenly in a crisscross pattern to gradually relieve the spring compression. Hold the bolt head stationary with a suitable tool and apply the torque to the nuts.

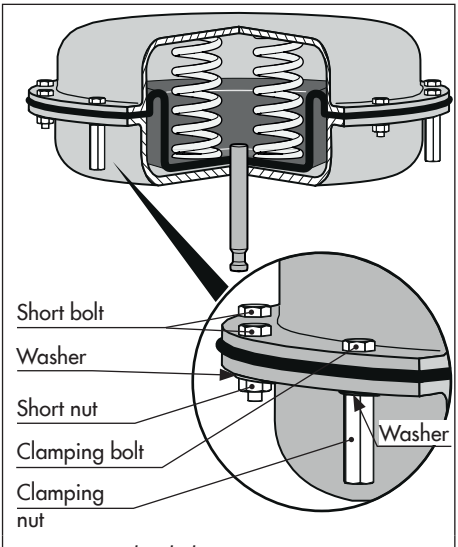


Fig. 11-1: *Preloaded springs*

12 Repairs

If the actuator 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 actuator damage due to incorrect repair work.

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

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

12.1 Returning devices to SAMSON

Defective devices can be returned to SAMSON for repair.

Proceed as follows to return devices:

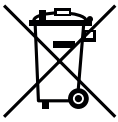
1. Exceptions apply concerning some special device models
   ▶ *www.samsongroup.com > Service & Support > After-sales Service.*
2. Send an e-mail
   ▶ retouren@samsongroup.com to register the return shipment including the following information:
   – Type
   – Article no.
   – Configuration ID
   – Original order
   – Completed Declaration on Contamination, which can be downloaded from our website at
   ▶ *www.samsongroup.com > Service & Support > After-sales Service.*

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

Note

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

13 Disposal



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

➔ Observe local, national and international refuse regulations.

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

i ***Note***

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

Tip

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

14 Certificates

These declarations and certificates are included on the next pages:

- EC type examination certificate on page 14-2 to page 14-5
- Declaration of conformity in compliance with Directive 2014/30/EU on page 14-6
- Declaration of conformity in compliance with Directive 2014/34/EU and 2014/30/EU on page 14-7
- Declaration of incorporation in compliance with Machinery Directive 2006/42/EC, see page 14-8
- Declaration of incorporation in compliance with the Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008, see page 14-9

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 > Actuators > 3372*

Other optional certificates are available on request.

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB

TRANSLATION

(1) **EC TYPE EXAMINATION CERTIFICATION**

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres – **Directive 94/9/EC**

(3) EC Type Examination Certificate Number

PTB 99 ATEX 2049

(4) Equipment: Model 3372 I/P Actuator

(5) Manufacturer: SAMSON AG

(6) Address: Weismüllerstr. 3, D-60314 Frankfurt

(7) This equipment and any acceptable variation thereof are specified in the schedule to this certificate and the documents referred to therein.

(8) The Physikalisch-Technische Bundesanstalt, certified body number 0102 in according to Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirement relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with

EN 50014: 1997 **EN 50020: 1994**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) Accroding to the Directive 94/9/EC, this EC TYPE EXAMINATION CERTFICATE relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of the equipment.

Ptb11.doc

(12) The marking of the equipment shall include the following:

 **II 2 G EEx ia IIC T6**

Zertifizierungsstelle Explosionsschutz Braunschweig, 06 July 1999
By order

(Signature) (Seal)

Dr. Ing. U. Johannsmeyer
Regierungsdirketor

(13) **S c h e d u l e**

(14) **EC TYPE EXAMINATION CERTIFICATE No. PTB 99 ATEX 2049**

(15) **Description of Equipment**

The Model 3372-1 I/P Actuator is intended for attachment to control valves thus supplementing them to become pneumatic or electropneumatic control valves. They will be used inside and outside of hazardous areas.

The Model 3372-1 I/P Actuator is a passive two-terminal network that may be connected to ass certified intrinsically safe circuits unless the permissible maximum values of U_i, I_i and P_i are exceeded.

Electrical connection is made via plug connectors or cable entries.

The relation between temperature classification, permissible maximum ambient temperature ranges, and the maximum short-circuit currents is specified in the tables below:

With Model 6112 I/P Converter

Temperature class	Permissible ambient temperature range	Maximum short-circuit current
T6	-20 °C ... 60 °C	85 mA
T5	-20 °C ... 70 °C	
T4	-20 °C ... 80 °C	
T6	-20 °C ... 55 °C	100 mA
T5	-20 °C ... 70 °C	
T4	-20 °C ... 80 °C	

With Model 6109 I/P Converter

Temperature class	Permissible ambient temperature range	Maximum short-circuit current
T6	-20 °C ... 60 °C	85 mA
T5	-20 °C ... 70 °C	
T4	-20 °C ... 80 °C	
T5	-20 °C ... 70 °C	100 mA
T4	-20 °C ... 80 °C	

Ptb11.doc

Electrical data

Power supply — Type of protection: Intrinsic safety EEx ia IIC only for connection to a certified intrinsically safe circuit.

Maximum values:
U_i = 28 V
I_i = 100 mA or 85 mA
P_i = 0,7 W

Linear Characteristic — C_i negligible, L_i negligible

(16) **Report PTB Ex 99-28462**

(17) **Special conditions for safe use**

Not applicable

(18) **Essential Health and Safety Requirements**

In compliance with the standards specified above.

Zertifizierungsstelle Explosionsschutz — Braunschweig, 6 July 1999
By order

(Signature) — (seal)
Dr. Ing. U. Johannsmeyer
Regierungsdirektor

SAMSON

EU Konformitätserklärung / EU Declaration of Conformity / Déclaration UE de conformité

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

Für das folgende Produkt / For the following product / Nous certifions que le produit

Pneumatischer und elektropneumatischer Stellantrieb /
Pneumatic and Electropneumatic Actuators /
Servomoteur pneumatique et électropneumatique
Typ / Type / Type 3372-0

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt /
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
D-60314 Frankfurt am Main
Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29

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

i.V. Gert Nahler

Gert Nahler
Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklung Automation und Integrationstechnologien/
Development Automation and Integration Technologies

i.V. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 60314 Frankfurt am Main
Telefon: 069 4009-0 · Telefax: 069 4009-1507
E-Mail: samson@samson.de

EU Konformitätserklärung / EU Declaration of Conformity / Déclaration UE de conformité

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

Für das folgende Produkt / For the following product / Nous certifions que le produit

Pneumatischer und elektropneumatischer Stellantrieb / Pneumatic and Electropneumatic Actuators / Servomoteur pneumatique et électropneumatique
Typ/Type/Type 3372-1

entsprechend der EU-Baumusterprüfbescheingung PTB 99 ATEX 2049 ausgestellt von der/
according to the EU Type Examination PTB 99 ATEX 2049 issued by/
établi selon le certificat CE d'essais sur échantillons PTB 99 ATEX 2049 émis par:

Physikalisch Technische Bundesanstalt
Bundesallee 100
D-38116 Braunschweig
Benannte Stelle/Notified Body/Organisme notifié 0102

wird die Konformität mit den einschlägigen Harmonisierungsrechtsvorschriften der Union bestätigt /
the conformity with the relevant Union harmonisation legislation is declared with/
est conforme à la législation d'harmonisation de l'Union applicable selon les normes:

EMC 2014/30/EU	EN 61000-6-2:2005, EN 61000-6-3:2007 +A1:2011, EN 61326-1:2013
Explosion Protection 94/9/EC (bis/to 2016-04-19) Explosion Protection 2014/34/EU (ab/from 2016-04-20)	EN 60079-0:2009, EN 60079-11:2012
RoHS 2011/65/EU	EN 50581:2012

Hersteller / Manufacturer / Fabricant:

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3
D-60314 Frankfurt am Main
Deutschland/Germany/Allemagne

Frankfurt / Francfort, 2017-07-29

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

i.V. Gert Nahler

Gert Nahler
Zentralabteilungsleiter/Head of Department/Chef du département
Entwicklung Automation und Integrationstechnologien/
Development Automation and Integration Technologies

i.V. H. Zager

Hanno Zager
Leiter Qualitätssicherung/Head of Quality Managment/
Responsable de l'assurance de la qualité

DECLARATION OF INCORPORATION
TRANSLATION

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

For the following products:
Type 3372 Actuators

We certify that the Type 3372 Actuators 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 3372 Actuator: Mounting and Operating Instructions EB 8313-X

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, 04 March 2021

i.V. Peter Arzbach
Peter Arzbach
Director
Product Management

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

Revision no. 00

UK DECLARATION OF INCORPORATION
ORIGINAL

Declaration of Incorporation of Partly Completed Machinery

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

For the following product:
Type 3372 Actuators

We certify that the Type 3372 Actuators are partly completed machinery as defined in the in Directive 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008 and that the safety requirements stipulated in Annex I, 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.3.7 are observed. The relevant technical documentation described in Annex VII, (Part 7 of Schedule 2) part B has been compiled.

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

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

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

For product descriptions refer to:
- Types 3372 Actuator: Mounting and Operating Instructions EB 8313-X

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

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

Persons authorized to compile the technical file:
SAMSON AG, Weismüllerstraße 3, 60314 Frankfurt am Main, Germany
Frankfurt am Main, 9 August 2022

i.V. Stephan Giesen
Director
Product Management

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

Revision 01

15 Annex

15.1 Tightening torques, lubricants and tools

▶ AB 0100 for tools, tightening torques and lubricants

15.2 Spare parts

1	i/p converter module
11	Sealing element
16	Connector
18	Vent plug
21	Cap
22	Screw plug
31-33	Range spring
35	Threaded bushing
36	Bushing
40	Spring plate
41	Spring plate
42	Spring plate
48	Metal plate
52	Seal
60	Pan head screw
61	Cap screw
66	Pan head screw
68	Retaining washer
72	O-ring
73	O-ring
201	Holder
202	Sintered metal filter
203	Jumper

15.3 After-sales service

Contact SAMSON's 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.

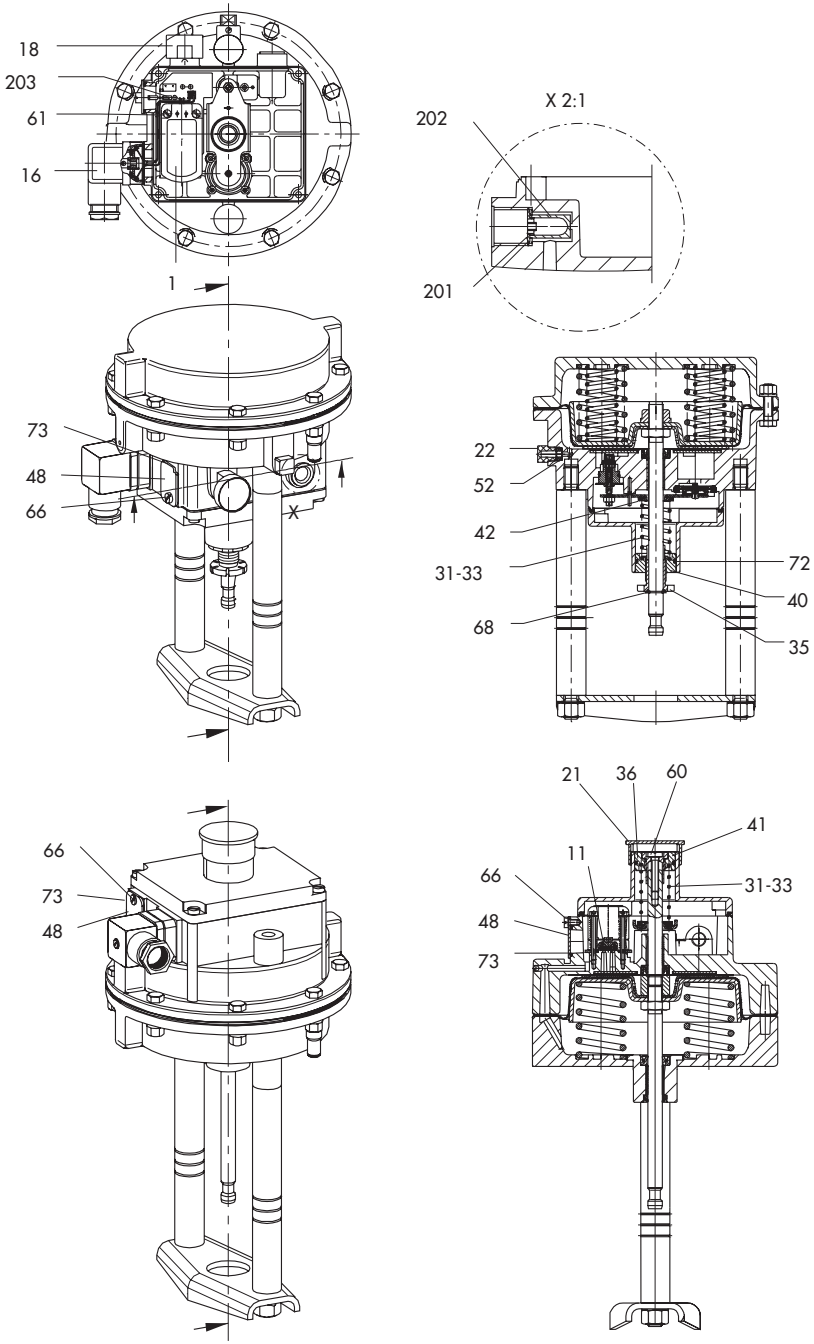
Addresses of SAMSON AG and its subsidiaries

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, actuator area, travel, direction of action and bench range (e.g. 0.2 to 1 bar) or the operating range of the actuator
- Type designation of mounted valve (if applicable)
- Installation drawing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31-33
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68
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21
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31-33
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73

15.4 Information on the UK sales region

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

Importer

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

Phone: +44 1737 766391
E-mail: sales-uk@samsongroup.com
Website: uk.samsongroup.com

EB 8313-1 EN

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