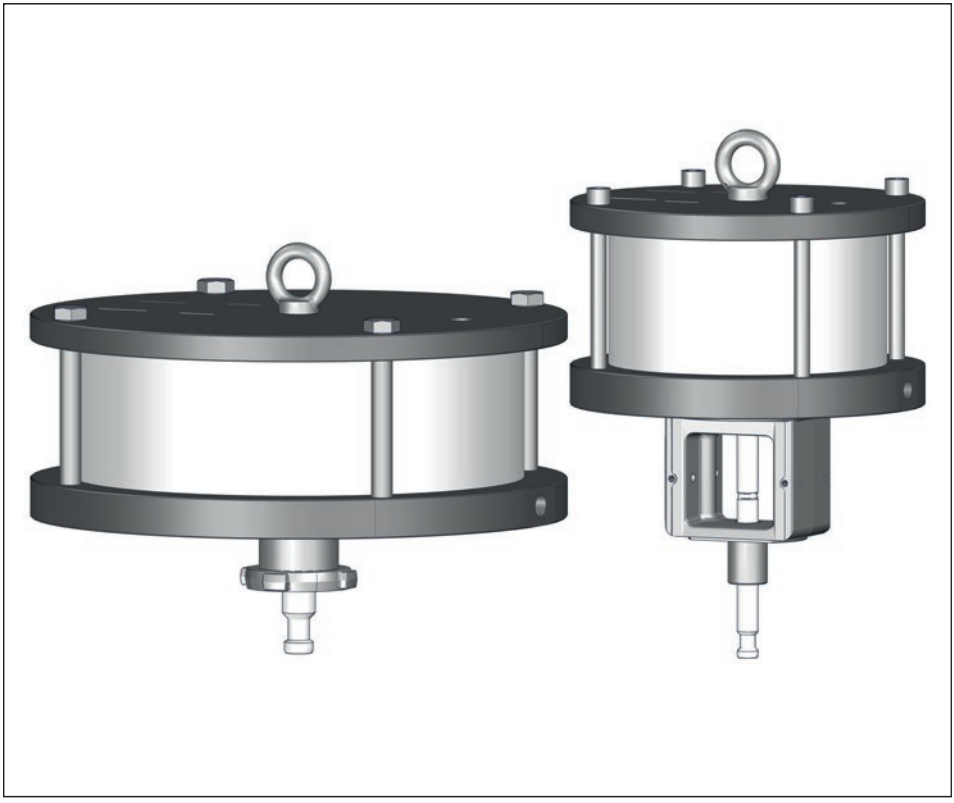
MOUNTING AND OPERATING INSTRUCTIONS

EB 8314-1 EN

Translation of original instructions



Type 3275A Pneumatic Piston Actuator

Actuator area: 314, 380, 490 and 804 cm²

Edition November 2023

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 Type 3275A Pneumatic Piston Actuator is designed for operating a mounted globe valve. In combination with the valve, the actuator is used to shut off and control the flow of liquids, gases or vapors in the pipeline. The actuator is mainly used in combination with PSA valves [1] (e.g. SAMSON Type 3241-PSA Valve).

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 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 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.

[1] PSA (Pressure Swing Adsorption)

Personal protective equipment

We recommend wearing the following personal protective equipment when handling the Type 3275A Pneumatic Actuator:

– Protective gloves and safety 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 3275A Actuator does not have any special safety features.

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 or 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.

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.

Referenced standards, directives and regulations

According to the ignition risk assessment performed in accordance with Clause 5.2 of ISO 80079-36, the non-electrical actuators 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 valve on which it is mounted
– Mounting and operating instructions for mounted valve accessories (positioner, solenoid valve etc.)
– ▶ AB 0100 for tools, tightening torques and lubricant

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.

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 insert hands or finger into the yoke 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.

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.

➔ Use suitable silencers and vent plugs.

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

⚠ 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

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).

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).

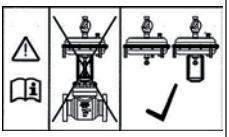
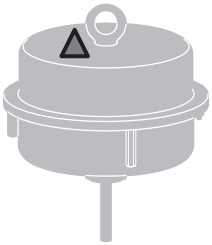
NOTICE

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

Warning	Meaning of the warning	Location on the device
	Warning against the incorrect use of the eyebolt on the actuator housing. Only attach load-bearing slings to them to vertically lift the actuator on its own (without the valve). The eyebolt must not be used to vertically lift the entire control valve assembly.	

2 Markings on the device

2.1 Actuator nameplate

The nameplate is attached to the base. It includes all details required to identify the device:

1 Data Matrix code
2 Serial number
3 Material number
4 Date of manufacture (month and year)
5 Actuator area
6 Connecting thread
7 Rated travel in mm
8 Country of origin
9 Permissible ambient temperature
10 Max. permissible pressure p_{max} in bar and psi

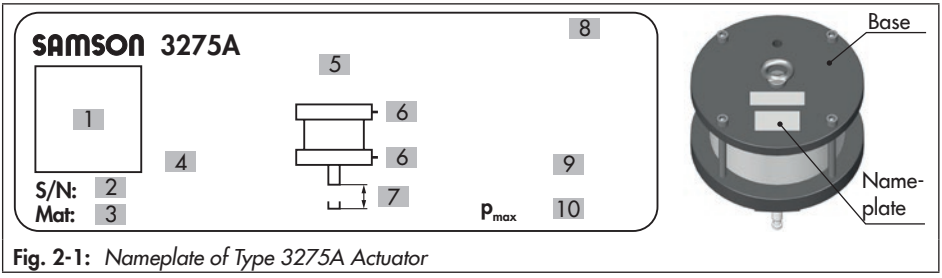


Fig. 2-1: *Nameplate of Type 3275A Actuator*

3 Design and principle of operation

The double-acting Type 3275A Pneumatic Piston Actuator with 314, 380, 490 and 804 cm² actuator areas is mainly mounted on PSA valves (e.g. Type 3241-PSA).

The actuator mainly consists of the cover (4), base (10) and piston (9). The stem connector clamps connect the actuator's piston stem (7) with the plug stem of the globe valve.

The signal pressure pst creates the force F = pst · A at the piston surface A, which is opposed by the corresponding counter-pressure. The piston is pressurized with the supply air over the two connections (S; G ⅜ or G ½).

The actuators with 314, 380 and 490 cm² actuator areas are fixed to a yoke, which is designed to accommodate a pneumatic or electropneumatic positioner. See Fig. 3-1.

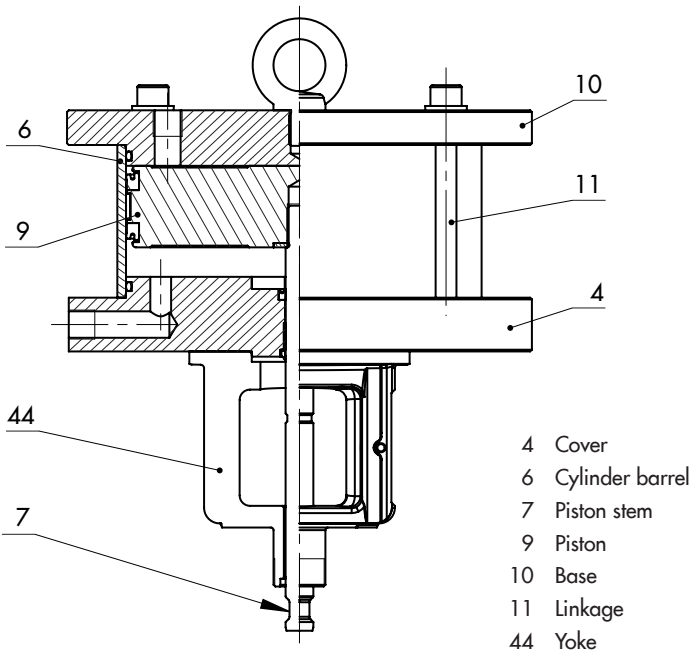


Fig. 3-1: *Type 3275A Actuator (314, 380 and 490 cm²)*

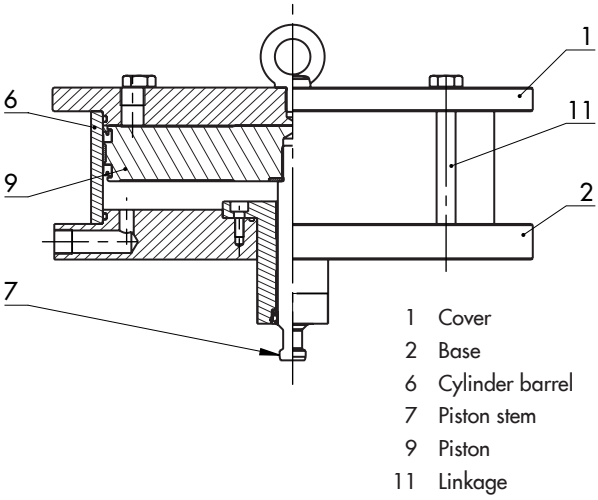


Fig. 3-2: *Type 3275A Actuator (804 cm²)*

The actuator with 804 cm² area does need a yoke (see Fig. 3-2). The valve accessories are mounted over the NAMUR interface.

Refer to the mounting and operating instructions of the valve accessories to be mounted for more details on their attachment and the accessories required.

3.1 Fail-safe action

The double-acting piston actuator has no springs. A defined final position is not reached when the signal pressure is reduced or the air supply fails.

3.2 Versions

Type 3275A Pneumatic Piston Actuator with 314, 380, 490 or 804 cm² actuator area:

– **Standard version**
  Cover and base are coated with an aluminum alloy (3.3547, anodized).
– **Version with side-mounted handwheel**
  The actuator can be combined with a Type 3273 Side-mounted Handwheel with max. 30 mm travel (▶ T 8312).
– **Special version with auxiliary spring**
  The actuator can be fitted with an auxiliary spring to move the actuator to a defined end position in the depressurized state (e.g. upon supply air failure).

3.3 Accessories

The pneumatic actuator has a female thread on the base to allow an eyebolt to be screwed into it. The eyebolt can be used to vertically lift the actuator and is included in the scope of delivery. A swivel hoist with suitable lifting capacity can be retrofitted by the customer in place the eyebolt. In contrast to the eyebolt, the swivel hoist may be used for setting a control valve assembly upright. However, the eyebolt and the swivel hoist must not be used to vertically lift the entire control valve assembly (see the 'Shipment and on-site transport' section).

3.4 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 8314-1.

Table 3-1: *Technical data*

Version	**Type**	**3275A**											
Actuator area	**cm²**	**314**			**380**			**490**			**804**		
Supply pressure	Max.	6 bar			6 bar			6 bar			6 bar		
Rated travel	mm	15	19	30	15	19	30	15	19	30	15	19	30
Max. actuator travel	mm	33			33			33			33		
Travel volume	cm³	471	597	942	570	722	1140	735	931	1470	1206	1528	2412
Air connection		G ⅜			G ⅜			G ½			G ½		
Max. permissible leakage (t ≥ 0 °C)		50 cm³/min			50 cm³/min			58 cm³/min			70 cm³/min		
Perm. temperature range for continuous operation		–60 to +80 °C											

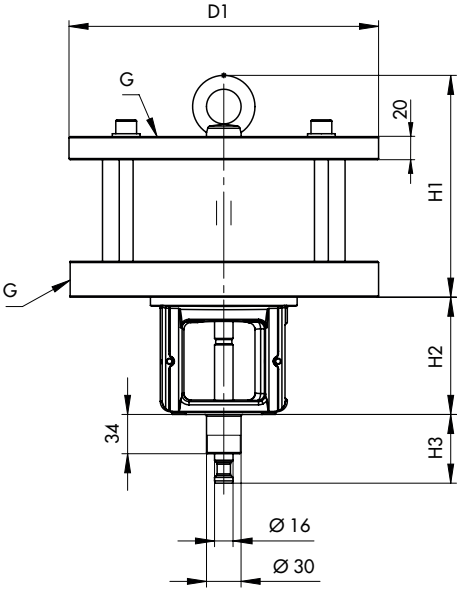
Table 3-2: *Materials*

Material configuration	Standard (aluminum)	Heavy-duty version (steel)
Part	**Material**	**Material**
Cylinder tube	3.3206, anodized	1.0570, N+OX
Bonnet/bottom section	3.3547, anodized	1.0570, N+OX
Piston	3.3547, anodized	1.0570, N+OX
Piston stem	1.4548.4	
Connecting rod	A2	
Yoke/connection nipple	1.0460/1.0038	
Ring bolt	C15/A2	
Piston stem guide	PTFE/steel	
Piston guide band	PTFE	
Seals –60 to +80 °C	VMQ/TT-PU	

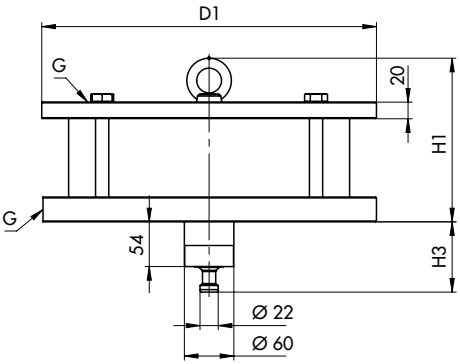
Table 3-3: *Dimensions and weights*

Actuator	Type	3275A			
Actuator area	**cm²**	**314**	**380**	**490**	**804**
D1	mm	268	288	318	405
D2	mm	248	268	298	385
H1 (including eyebolt)	mm	207	207	207	214
H2	mm	102	102	102	–
H3 (stem retracted)	mm	60	60	60	85
Weight (standard version)	kg	17	20	23	41
Weight (heavy-duty version)	kg	56	62	68	106

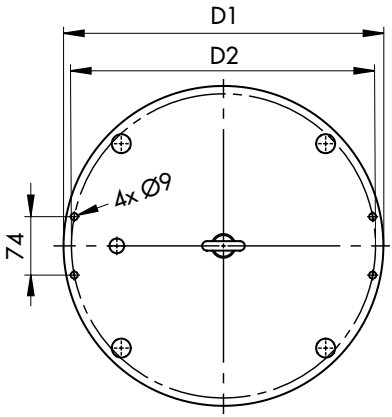
Dimensional drawings



Type 3275A, version with 314, 380 or 490 cm²



Type 3275A, version with 804 cm²



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 or transport container or on the pallet to transport it on site.

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

4.3 Transporting and lifting the actuator

⚠ DANGER

Danger due to suspended loads falling.

➔ *Stay clear of suspended or moving loads.*

➔ *Close off and secure the transport paths.*

⚠ WARNING

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

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

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

⚠ 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 actuator (including the packaging, if applicable).*

NOTICE

Risk of actuator damage due to incorrectly attached slings.

The eyebolt on the base is only intended for mounting and removing the actuator as well as lifting the actuator without valve. The eyebolt must not be used to vertically lift the entire control valve assembly.

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

Tip

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

4.3.1 Transporting the actuator

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

➔ Leave the actuator in its packaging or transport container or on the pallet 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

To mount large actuators onto the valve, use lifting equipment (e.g. crane or forklift) to lift it.

Lifting instructions

– Use a hook with safety latch (see Fig. 4-3) to secure the slings from slipping off the hook during lifting and transporting.

– Secure slings on the object to be transported against slipping.

– Make sure the slings can be removed from the actuator once it has been mounted on the valve.

– Prevent the actuator from tilting or tipping.

– Do not leave loads suspended when interrupting work for longer periods of time.

a) Lifting the actuator (without valve)

1. Open the eyebolt cover by lightly pressing the side clips (see Fig. 4-1 and Fig. 4-2).
2. Attach a sling to the eyebolt of the actuator and to the rigging equipment (e.g. hook) of the crane or forklift (see Fig. 4-3).

3. Carefully lift the actuator. Check whether the lifting equipment and accessories can bear the weight.
4. Move the actuator at an even pace to the mounting site.
5. Mount the actuator onto the valve (see the 'Installation' section).
6. Remove slings after mounting and replace the cover on the eyebolt (see Fig. 4-2 and Fig. 4-1).

Fig. 4-1: *Eyebolt cover in place on the eyebolt*

Fig. 4-2: *Eyebolt cover (with strap) opened*

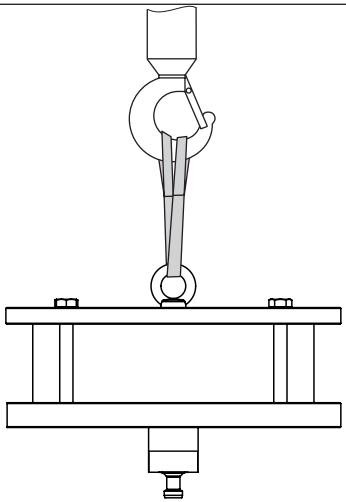


Fig. 4-3: *Lifting point on the actuator*

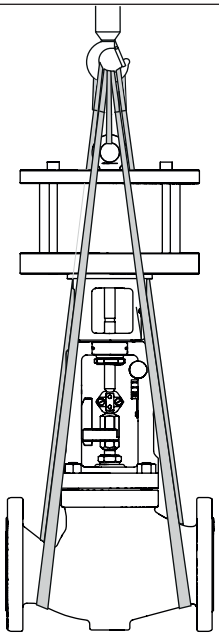


Fig. 4-4: *Lifting points on the control valve (example)*

b) Lifting the entire control valve assembly

In order to lift an entire control valve assembly, the slings attached to the valve body must bear the entire load. The sling between the lashing point on the actuator and rigging equipment (hook, shackle etc.) must not bear any load. The sling only protects the control valve from tilting while being lifted. Before lifting the control valve, tighten the sling.

➔ See associated valve documentation for instructions on how to lift a control valve.

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 longer storage times.*

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.

Tip

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

5 Installation

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

5.1 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 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 device

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.

➔ *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.*

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).*

Note

See associated valve documentation for additional mounting instructions.

5.2.1 Mounting the actuator onto the valve

See Fig. 5-1

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).

1. Loosen the lock nut and stem connector nut on the valve.
2. Firmly press the plug together with the plug stem into the seat ring.
3. Thread down the lock nut and stem connector nut.
4. Remove the clamps of the stem connector and the ring nut from the actuator.
5. Slide the ring nut over the plug stem.
6. Place the actuator onto the valve bonnet and secure it with the ring nut with a tightening torque of 150 Nm.
7. Apply a signal pressure to the actuator to extend the piston stem.
8. Screw on the stem connector nut by hand until it touches the piston stem.
9. Turn the stem connector nut a further quarter turn and secure this position with the lock nut.
10. Position the clamps of the stem connector and screw them tight using the following tightening torque:

Actuator size (cm²)	Tightening torque (Nm)
314, 380 and 490	9
804	75±5

11. Align the travel indicator scale with the tip of the stem connector clamp.

5.3 Valve accessories

Valve accessories are either mounted on the yoke (314, 380 and 490 cm²) or over the NAMUR interface (804 cm² only).

Refer to the mounting and operating instructions of the valve accessories to be mounted for more details on their attachment and the accessories required.

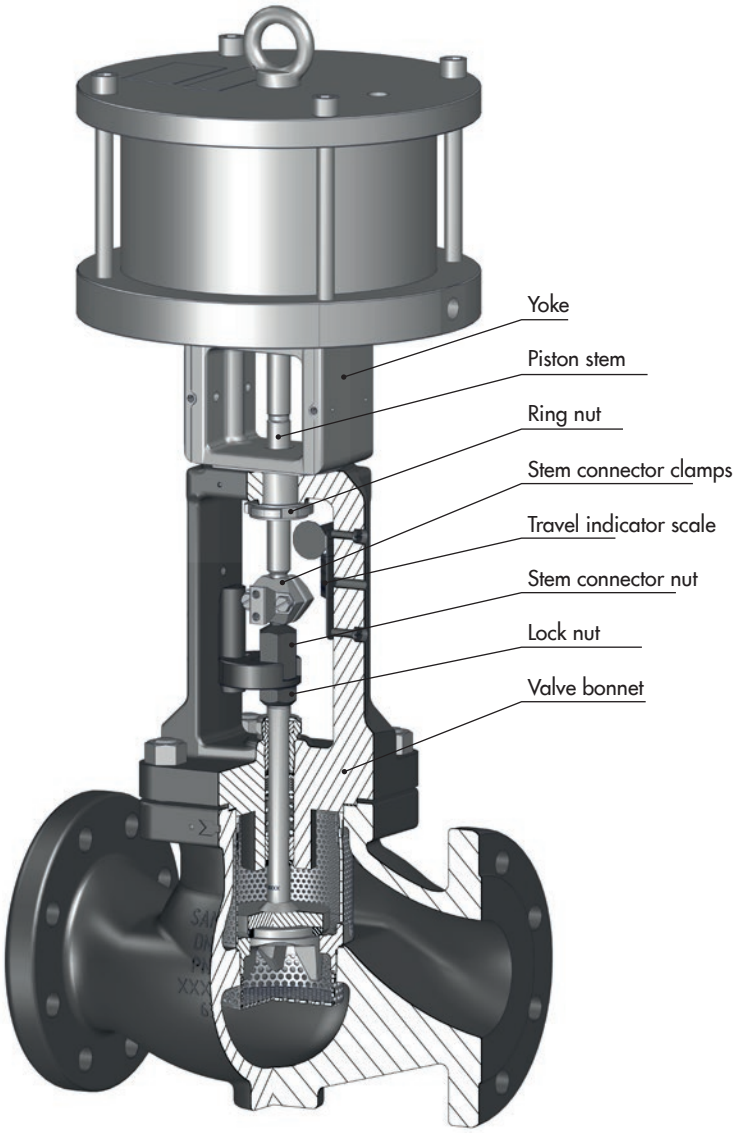


Fig. 5-1: *Type 3275A Piston Actuator with 314 cm² actuator area mounted on a PSA valve*

6 Start-up

See the 'Operation' section

7 Operation

⚠ 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 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.*

⚠ WARNING

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

After any adjustment or conversion work, the details on the actuator nameplate may no longer be correct.

➔ *Immediately renew any nameplates or labels with incorrect or outdated information.*

➔ *Add any new values to the nameplate. If necessary, contact SAMSON to obtain a new nameplate.*

7.1 Supply pressure in closed-loop operation

The Type 3275A Pneumatic Piston Actuator is designed for a maximum supply pressure of 6 bar.

8 Malfunctions

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

8.1 Troubleshooting

Malfunction	Possible reasons	Recommended action
Piston 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.
	Insufficient signal pressure	Check the signal pressure. Check the signal pressure line for leakage.
	Signal pressure not connected properly.	See 'Signal pressure routing' in the 'Design and principle of operation' section.
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

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

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:

– ▶ AB 0100 for tools, tightening torques and lubricant

⚠ 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 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.*

⚠ WARNING

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

After any adjustment or conversion work, the details on the actuator nameplate may no longer be correct.

➔ *Immediately renew any nameplates or labels with incorrect or outdated information.*

➔ *Add any new values to the nameplate. If necessary, contact SAMSON to obtain a new nameplate.*

❗ 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).*

NOTICE

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

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

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 Preparing the valve for service work

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

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

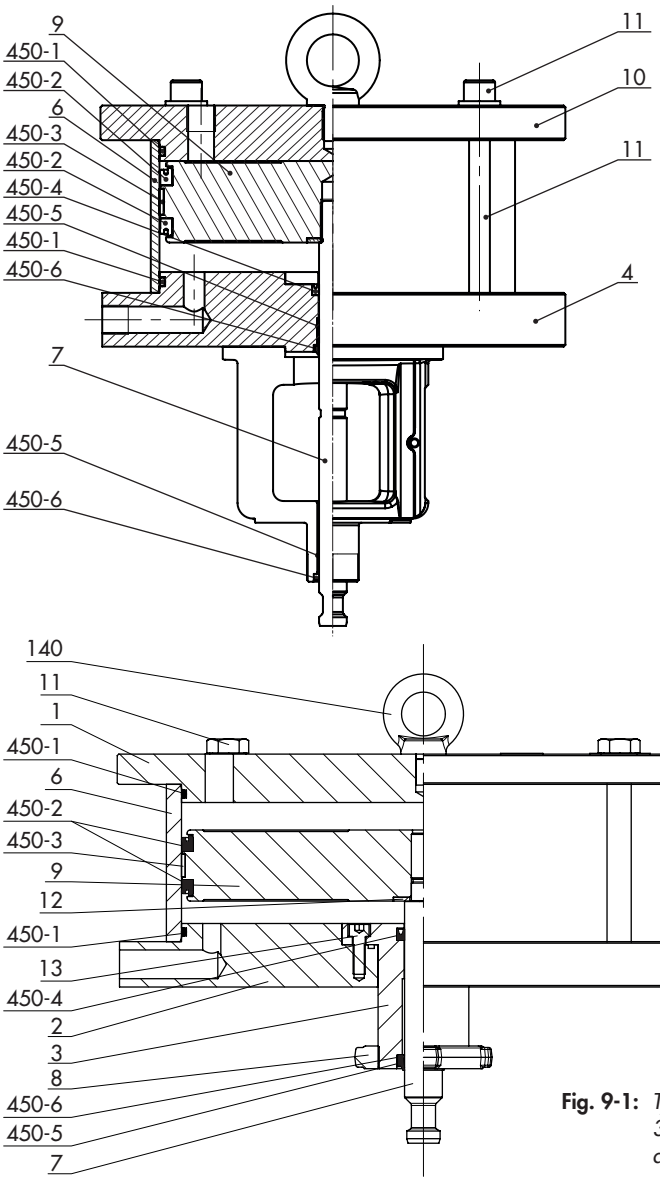
– Replace parts subject to wear (see section 9.4.1)

9.3 Mounting the actuator after service work

1. Leak-test the actuator (see section 9.5)
2. Mount the actuator (see the 'Installation' section).

9.4 Service work

See Fig. 9-1



1 Top cover (804 cm²)
2 Bottom cover (804 cm²)
3 Bushing
4 Cover (314, 380 and 490 cm²)
6 Cylinder barrel
7 Piston stem
8 Ring nut
9 Piston
10 Base (314, 380 and 490 cm²)
11 Linkage
12 Washer
13 Screws
140 Ring bolt
450-1 O-ring
450-2 Lip seal
450-3 Piston guide band
450-4 Piston rod seal
450-5 Plain bearing
450-6 Wiper ring

Fig. 9-1: *Type 3275A · Version with 314/380/490 cm² (top) and 804 cm² (bottom)*

9.4.1 Replacing parts subject to wear

1. Unscrew collar nuts (11) on the cylinder base.
2. Pull off the tie rods (12) towards the side with the piston rod.
3. Remove the cover (4) or bottom cover (2).
4. Pull the piston rod (7) and piston (9) from the cylinder barrel (6).
5. Separate the cylinder barrel (6) and base (10) or top cover (1).
6. Use a suitable tool to remove parts subject to wear. Make sure that the facings are not damaged.
7. Carefully clean the affected places and apply a suitable lubricant to them.
8. Apply a suitable lubricant to the parts subject to wear.
9. Mount the parts subject to wear. Make sure that the parts and facings are not damaged. If necessary, use an assembly tool.
10. Apply a suitable lubricant evenly to the face in the barrel (6) and piston rod (7).
11. Fill the grease chambers at the lip seal (450-2) and piston rod seal (450-4) with a suitable grease.
12. Center the barrel (6) on the base (10) or top cover (1).
13. Insert the piston (9) with piston rod (7) into the cylinder barrel (6). Make sure that the parts subject to wear are not damaged.
14. Carefully slide the cover (4) or bottom cover (2) over the piston rod (7).
15. Screw the tie rods (12) from side with the piston rod with the short thread side into the collar nuts (11) on the cylinder base. Tighten the collar nuts in a crisscross pattern. Observe tightening torques.

9.5 Leak-testing the actuator

After replacing the parts subject to wear, the actuator must be tested for leakage at the following places:

– Connection of cover (4), base (10) and cylinder barrel (6) or connection of top cover (1), bottom cover (2) and cylinder barrel (6)
– Piston rod seal (450-4)

9.6 Ordering spare parts and operating supplies

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

Spare parts

See Annex for details on spare parts.

Lubricant

See document ▶ AB 0100 for details on suitable lubricants.

Tools

See document ▶ AB 0100 for details on suitable tools.

10 Decommissioning

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

⚠ DANGER

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

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 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.*

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 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.

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

See Fig. 11-1

1. Remove external piping.
2. Remove the clamps of the stem connector.
3. Unscrew the stem connector nut and lock nut from the valve.
4. Unscrew the ring nut on the valve bonnet.
5. Separate the actuator from the valve by undoing the ring nut.
6. Fasten the lock nut and stem connector nut on the valve.

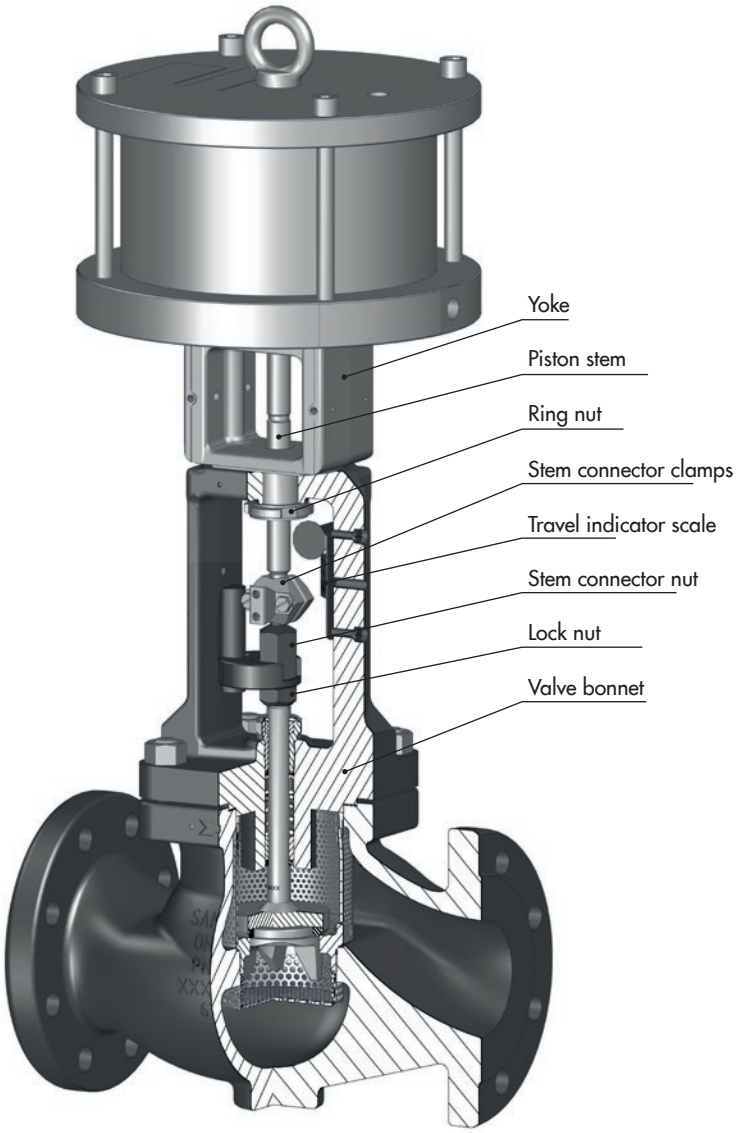


Fig. 11-1: *Type 3275A Piston Actuator with 314 cm² actuator area mounted on a PSA valve*

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 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 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

➔ Observe local, national and international refuse regulations.

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

14 Annex

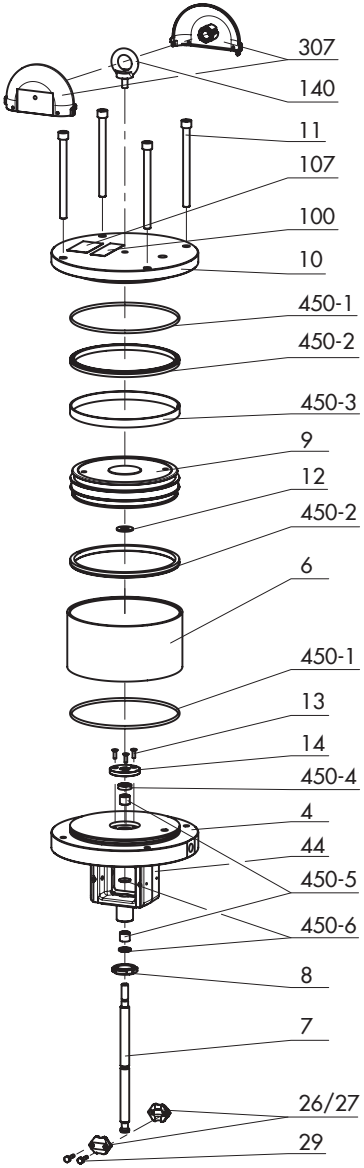
14.1 Tightening torques, lubricants and tools

▶ AB 0100 for tools, tightening torques and lubricants

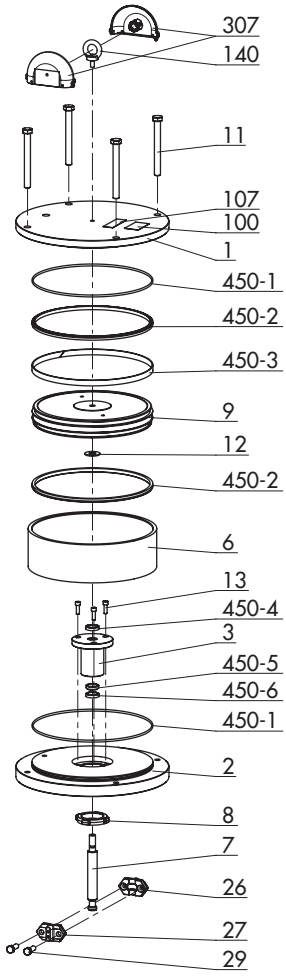
14.2 Spare parts

1	Top cover (804 cm²)
2	Bottom cover (804 cm²)
3	Bushing
4	Cover (314, 380 and 490 cm²)
6	Cylinder barrel
7	Piston stem
8	Ring nut
9	Piston
10	Base (314, 380 and 490 cm²)
11	Linkage
12	Washer
13	Screws
14	Retaining plate
26/27	Stem connector clamp
29	Screws (stem connector clamp)
44	Yoke
100	Warning label
107	Nameplate
140	Ring bolt
307	Eyebolt cover

450	Set of parts subject to wear
450-1	O-ring (2x)
450-2	Lip seal (2x)
450-3	Piston guide band
450-4	Piston rod seal
450-5	Plain bearing (2x)
450-6	Wiper ring (2x)



Type 3275A Actuator (314, 380 and 490 cm²)



Type 3275A Actuator (804 cm²)

14.3 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

EB 8314-1 EN

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

2023-11-16 · English