SOMAS®

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Mi-522 EN

Service and Operating Instruction

LDC, Locking Device for Closed position
LDO, Locking Device for Open position
Somas Actuators Type A



Introduction

This operation and service instruction is intended for operation, maintenance and maintenance personnel.

This publication also describes components, equipment and associated devices that are not included or are only partly included in the delivery.

We reserve the right to amend this publication without prior notification.

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1 General information and safety instructions

1.1 General information

Somas actuators are designed to be the best in control and on/off applications. The type A pneumatic actuators are specifically made to fit the Somas range of valves. They can also be used with most 90° rotary valves. The locking units are delivered as AISI 316L and are ATEX approved.

For extra safety during work and repairs, Somas offers a locking device that enables the actuator to For extra safety during work and repairs, Somas offers a locking device that enables the actuator to be locked. The locking units are delivered as AISI 316L and are ATEX approved.

For locking in the closed position, the LDC variant is available.
The LDC locking unit is available for Somas actuators type DA and SC and can be retrofitted to actuators without a locking device.

For locking the actuator in the open position, the LDO variant is available.
The LDO locking unit is available for Somas actuators type DA and SO with double cylinders and can be retrofitted to actuators without a locking device.

NOTE! When locking the actuator in closed position with the LDC locking unit, make sure that the valve is in the closed position.

NOTE! When locking the actuator in open position with the LDO locking unit, make sure that the valve is in the open position.



Låsenheten i olåst läge



Låsenheten i låst läge

Warning!

Before carrying out maintenance or repair work to the actuator always disconnect the compressed air supply to the actuator. Deaerate so that the air is leaving the actuator.
Single action actuators may move to “open” or “closed” position without being connected to the air system.



Danger!

Risk of injury!
Always release the spring tension before removing the end cover of the actuator.



Warning!

When locking the actuator in closed position with the LDC locking unit, make sure that the valve is in the closed position.



Warning!

When locking the actuator in open position with the LDO locking unit, make sure that the valve is in the open position.



1.2 Components in the locking device

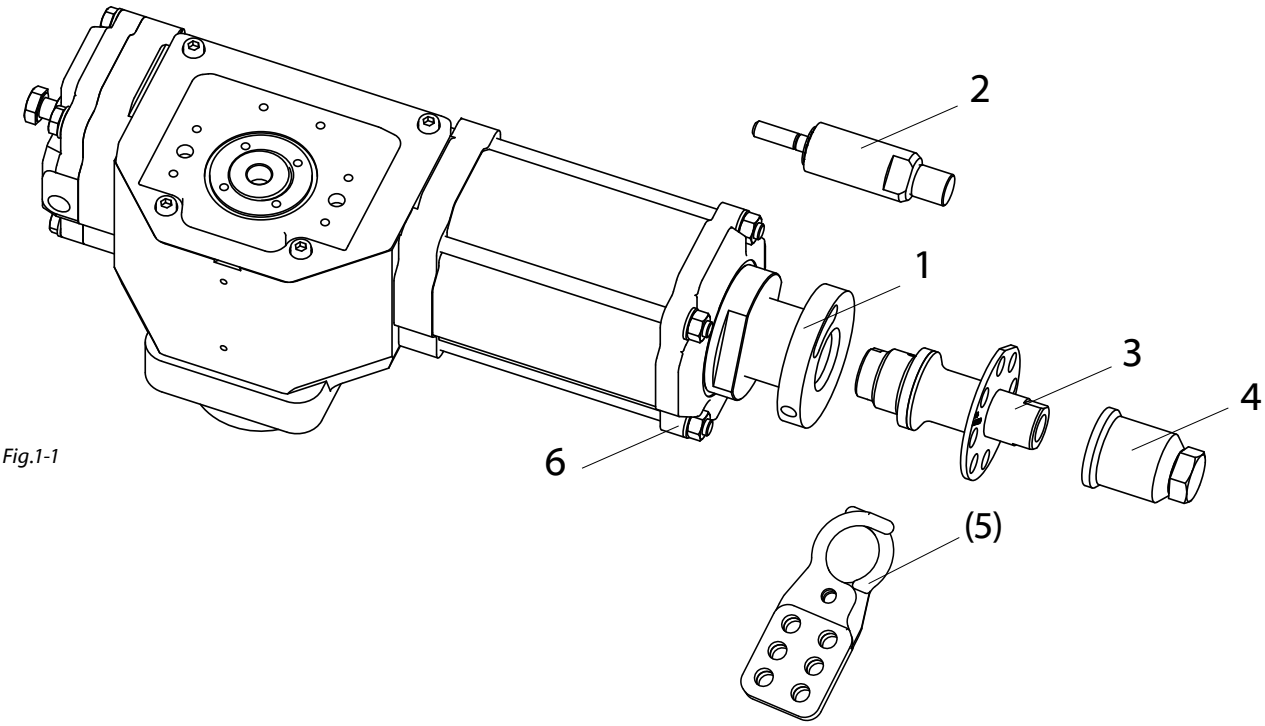


Fig.1-1

1	End position sleeve	2	Lock piston	3	Lock shaft (body)
4	Dust cover	5	(Locking device example not included in delivery)	6	End cover

1.3 Tightening torque bolts

Standard joint with washer (piston, mounting kits etc.)

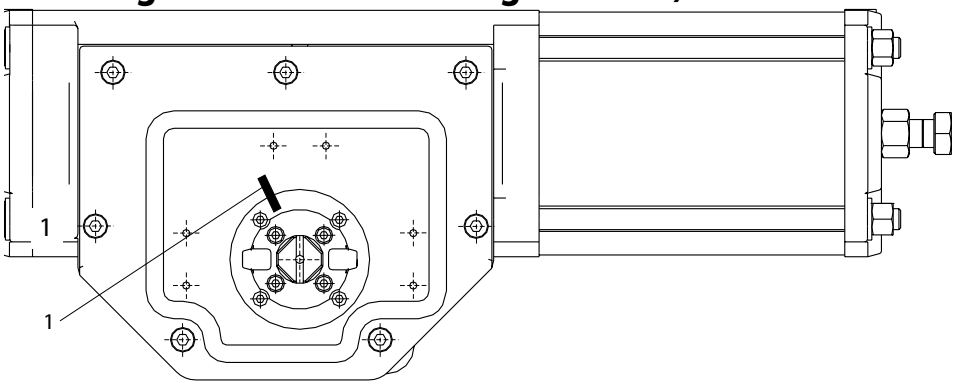
Size	M5	M6	M8	M10	M12	M14	M16	M20	M24
Moment (Nm)	6,6	12	29	54	75	129	198	385	665

Tie rods

Size	M5	M6	M8	M10	M12	M14	M16	M20	M24
Moment (Nm)	-	-	10	-	30	-	50	-	75

2 Mounting and user instruction

2.1 Dismounting of the standard end cover (retrofit the locking device on an existing actuator)



1 Marking position of the closed/open position

Fig.2-1 Before dismounting

Before dismounting, make sure that the actuator is in the closed position for mounting the LDC variant and in the open position for the mounting of the LDO variant.
Then mark the position of the actuator in closed position for LDC or open position for LDO (➔ Fig.2-1). This is done in order to make it easier to return to the closed/open position when adjusting the locking device.

Procedure

Note

Always disconnect the compressed air and deaerate so that the air is leaving the actuator before starting the dismounting work. Dismounting of the end cover for LDC locking i closed position is always done on the right side as shown in fig (➔ Fig.2-2a). Dismounting of the end cover for locking i open position LDO is always done on the left side as shown in fig. (➔ Fig.2-2b).

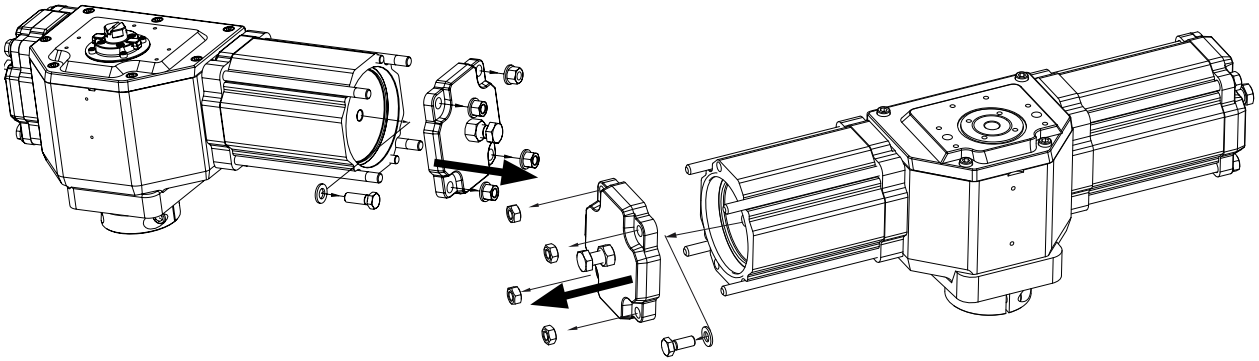


Fig.2-2a Dismounting of standard cover LDC. *Fig.2-2b Dismounting of standard cover LDO.*

- Disconnect the compressed air from the actuator.
- Then deaerate so that all air is leaving the actuator.
- Dismount the standard end cover according to drawings above (➔ Fig.2-2a or Fig.2-2b).

2.2 Prepair the actuator for the locking device

- Apply strong locking fluid at the short threads of the stud (pin screw).
- Screw the stud into the lock piston (➔ Fig.2-3/1) then fit the lock washer to the stud (➔ Fig.2-3/2).
- Fit the lock piston to the piston rod in the actuator (➔ Fig.2-4).
- Tighten the lock piston properly to the piston rod in the actuator. (➔ Fig.2-5).

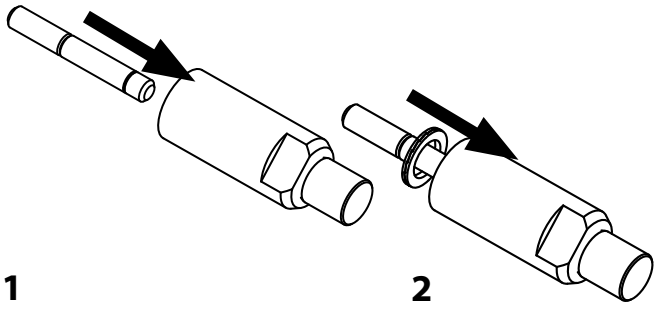


Fig.2-3 Screw the stud into the lock piston, then fit the lock washer to the stud.

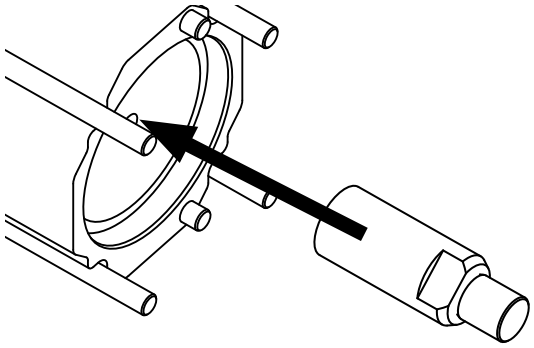


Fig.2-4 Fit the lock piston to the piston rod in the actuator.

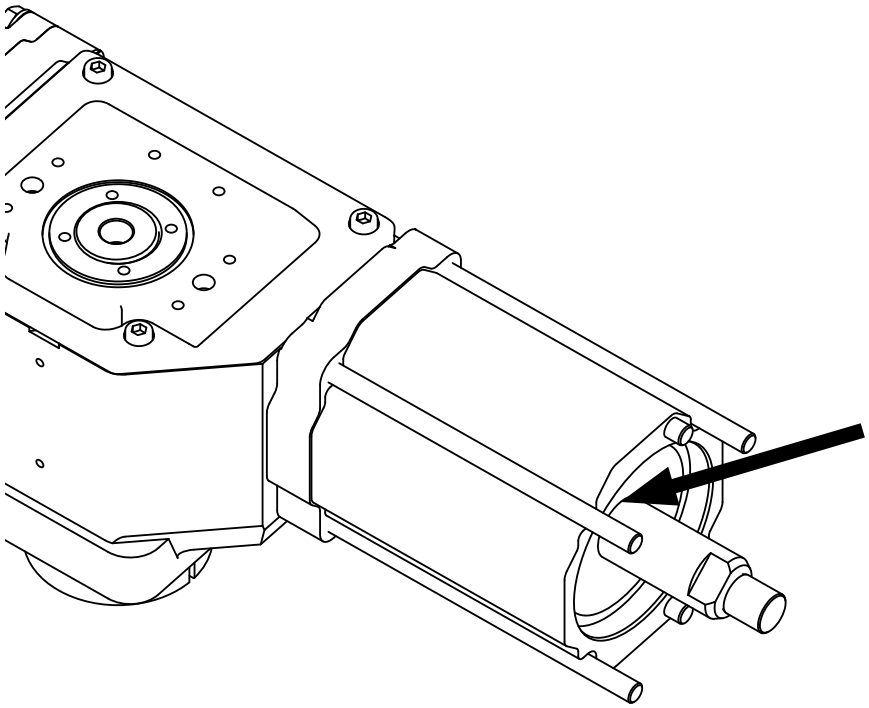


Fig.2-5 Tighten the lock piston properly to the piston rod in the actuator.

2.3 Mount the new end cover and the locking device

- Make sure that the o-ring is mounted in the o-ring groove on the end cover. Then mount the new end cover (which is prepared for the locking function) on the actuator (➔ Fig.2-6).
- Mount the four nuts that holds the end cover to the actuator (➔ Fig.2-7).
  Use a tightening torque according to table (➔Tab 1-3).

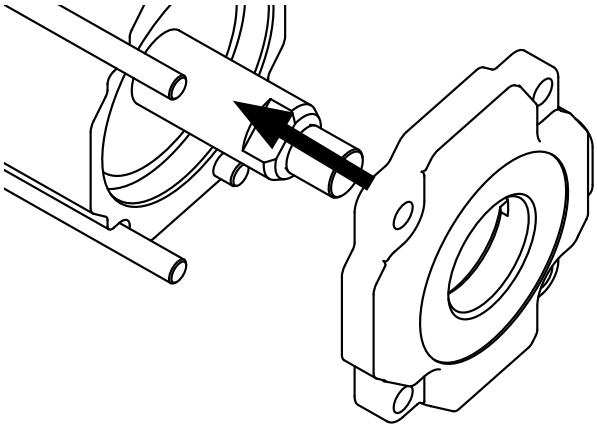


Fig.2-6 Mount the new end cover on the actuator.

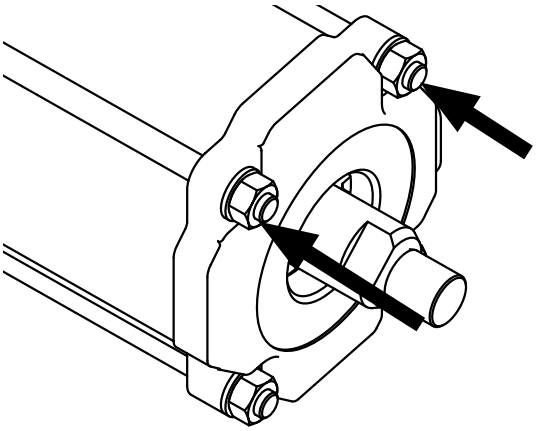


Fig.2-7 Mount the four nuts. Torque as in table 1-3.

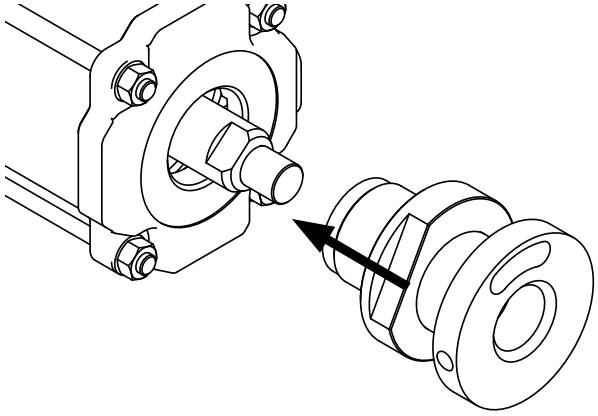


Fig.2-8 Mount the end position sleeve to the actuator.

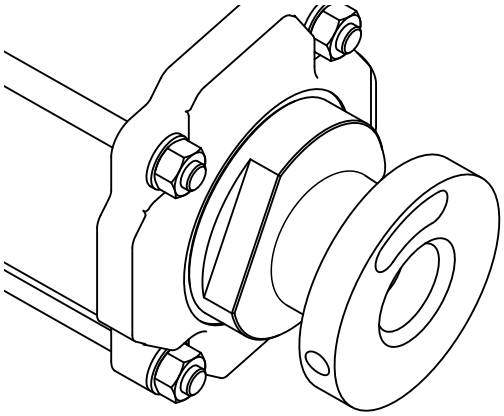


Fig.2-9 Adjust the closed position with the sleeve, then tighten the counter nut.

- Ensure that the two o-rings are mounted on the end position sleeve, one o-ring is to be mounted at the end position sleeve thread and the other at the counter nut. Then mount the end position sleeve to the actuator (➔ Fig.2-8).
- Make sure that the position marking in the closed/open position corresponds to the previous mark (➔ Fig.2-1/1).
- Adjust the closed position with the sleeve (➔ Fig.2-9). Then tighten the counter nut.

Note

Initially, the previously made marking of the closed position (LDC) or open position (LDO) should be used. When the actuator is installed on a valve, the closed/open position is adjusted according to the needs of the valve.

2.4 Mounting of the locking device - unlocked normal operation

- Make sure that the sealing ring is fitted at the lock shaft (➔ Fig.1-1/3). Mount the lock shaft with the hole disc directed from the actuator (➔ Fig.2-10). Screw the lock shaft all the way into the end position sleeve. **Tighten the lock shaft with a torque of min. 50 Nm.**
- Mount and tighten the dust cover (➔ Fig.1-1/4) on the lock shaft (➔ Fig.2-11).
- Now the locking device is fully mounted and in normal unlocked mode.

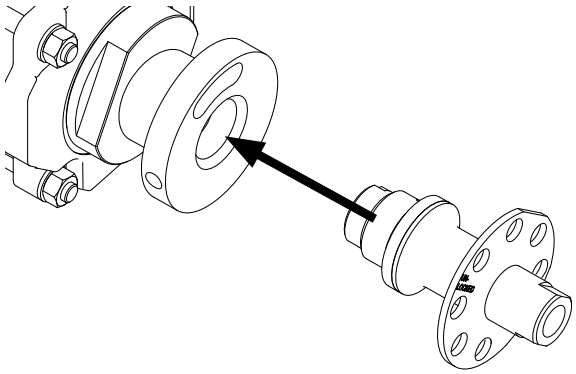


Fig.2-10 Mount the lock shaft to the actuator. The hole disc must be directed from the actuator. Tighten the lock shaft with a torque of min. 50 Nm.

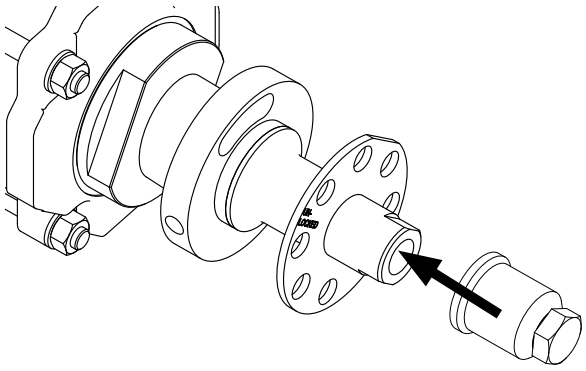


Fig.2-11 Mount the dust cover to the lock shaft.

2.5 How to use the locking device

- **When locking the Actuator in closed position (LDC), make sure that the valve is in the closed position. When locking the Actuator in open position (LDO) make sure that the valve is in the open position.**
- First you must remove the dust cover (➔ Fig.2-12) from the locking device.
- Then unscrew the lock shaft from the actuator.
- Turn the lock shaft so that the hole disc is pointing towards the actuator. Then mount the shaft back to the end position sleeve (➔ Fig.2-13). Use the tool grooves to tighten and to ensure the locking of the actuator.
- Mount and tighten the dust cover (➔ Fig.2-14).

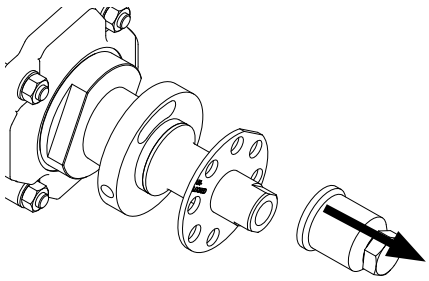


Fig.2-12 Remove the dust cover from the lock shaft.

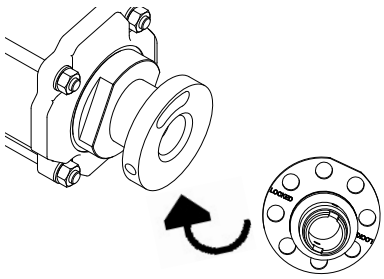


Fig.2-13 Unscrew, turn around and then put back the lock shaft to the end position sleeve.

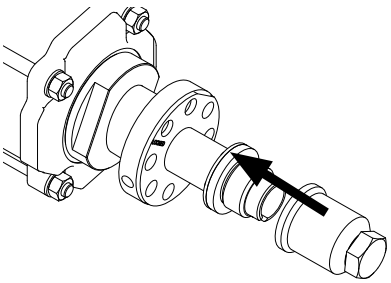


Fig.2-14 Mount the dust cover.

2.5 How to use the locking device

- Block the locking device by inserting a padlock through the hole disc. It is also possible to use several padlocks to increase security and the risk of movements of the actuator, see example (➔ Fig.2-15).

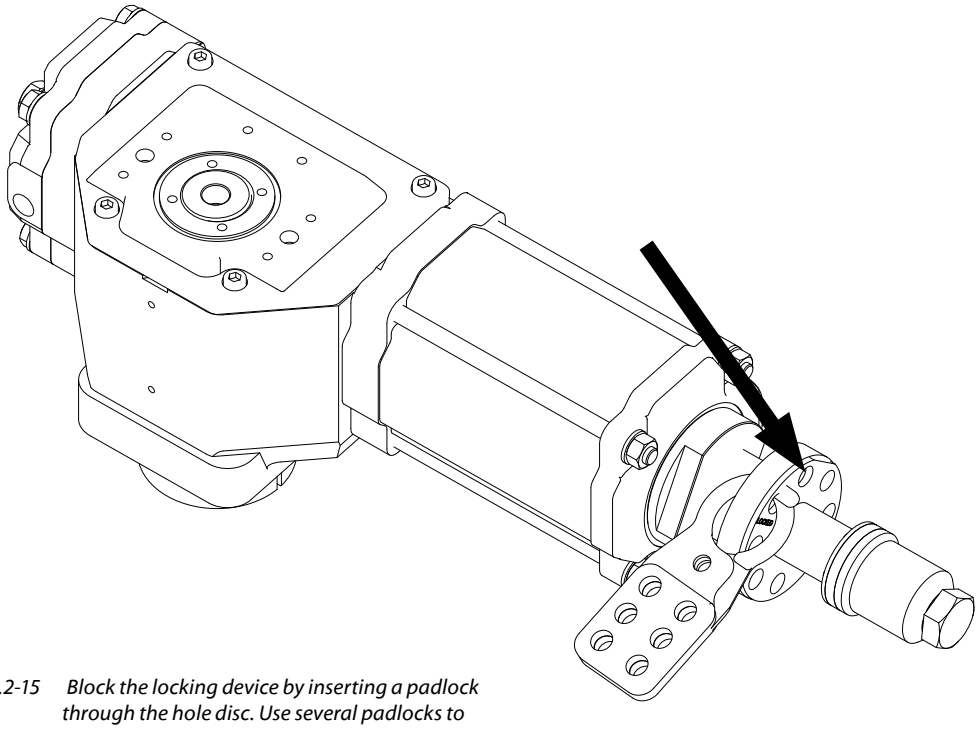


Fig.2-15 Block the locking device by inserting a padlock through the hole disc. Use several padlocks to increase security.

NOTE! When locking the actuator in closed position with the LDC locking unit, make sure that the valve is in the closed position.

NOTE! When locking the actuator in open position with the LDO locking unit, make sure that the valve is in the open position.

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