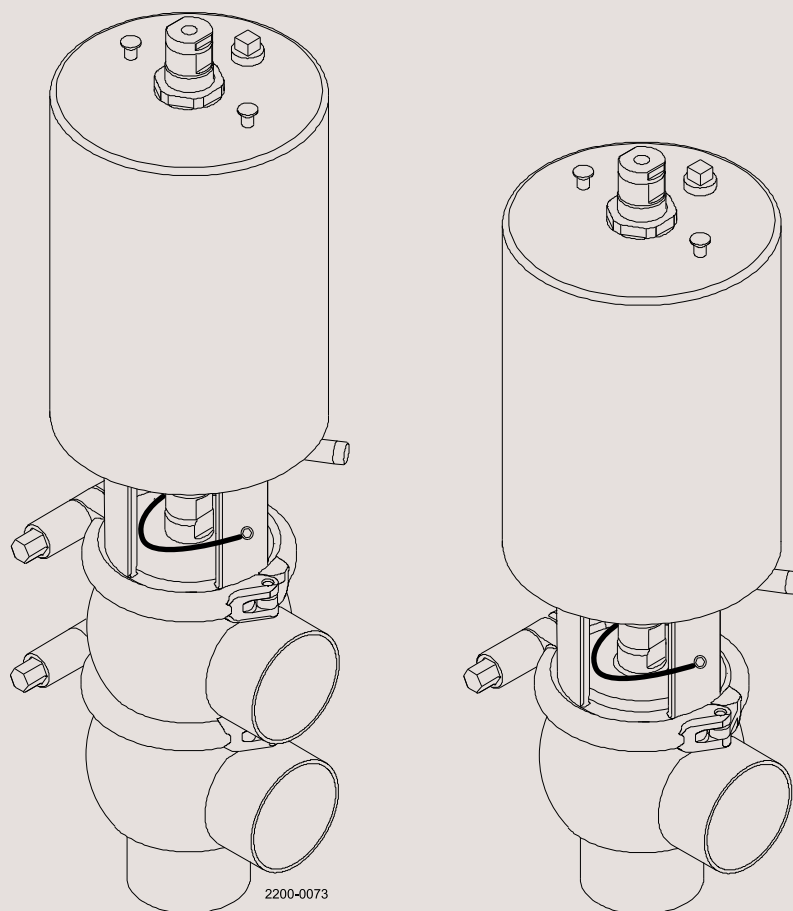




Instruction Manual

Unique Single Seat Valve – ATEX Standard and Reverse Acting



ESE00674-EN11 2022-11

Original manual

The information herein is correct at the time of issue but may be subject to change without prior notice

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1 Declarations of Conformity

EU Declaration of Conformity

The Designated Company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00
Company name, address and phone number

Hereby declare that

Valve
Designation

Unique SSV PN10
Type


Serial number from 1000000 to 70000000000

is in conformity with the following directives with amendments:

- Machinery Directive 2006/42/EC
- Pressure Equipment Directive 2014/68/EU category 1 and subjected to assessment procedure Module A
- ATEX directive 2014/34/EU

The Notified Body NB.0044 will retain this Declaration of Conformity TÜV-Nord technical file no.: TÜV 08 ATEX 8000365231

The person authorised to compile the technical file is the signer of this document.

<hr/> <p>Global Product Quality Manager <small>Title</small></p>	<hr/> <p>Lars Kruse Andersen <small>Name</small></p>	
<hr/> <p>Kolding, Denmark <small>Place</small></p>	<hr/> <p>2022-11-07 <small>Date (YYYY-MM-DD)</small></p>	<hr/> <p> <small>Signature</small></p>

This Declaration of Conformity replaces Declaration of Conformity dated 2018-04-01



1 Declarations of Conformity

UK Declaration of Conformity

The Designated Company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Valve

Designation

Unique SSV PN10

Type

Serial number from 1000000 to 70000000000

is in conformity with the following directives with amendments:

- The Supply of Machinery (Safety) Regulations 2008
- The Pressure Equipment (Safety) Regulations 2016 category 1 and subjected to assessment procedure Module A
- The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016

The Notified Body NB.0044 will retain this Declaration of Conformity TÜV-Nord technical file no.: TÜV 08 ATEX 8000365231

Signed on behalf of: Alfa Laval Kolding A/S

Global Product Quality Manager

Title

Lars Kruse Andersen

Name

Kolding, Denmark

Place

2022-11-07

Date (YYYY-MM-DD)

Signature

DoC Revison_01_112022



2 Safety

*Unsafe practices and other important information are emphasised in this manual.
Warnings are emphasised by means of special signs.*

2.1 Important information

Always read the manual before using the valve!

WARNING

Indicates that special procedures must be followed to avoid serious personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the valve.

NOTE

Indicates important information to simplify or clarify procedures.

2.2 Warning signs

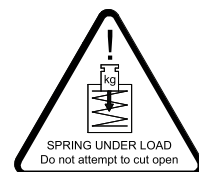
General warning



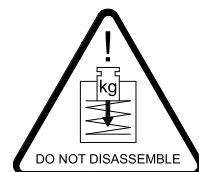
Caustic agents



Danger of injury: (an extra yellow label marked on the actuator from June 2016)
Do **NOT** attempt to cut the actuator open due to spring under load.
(The lock wire opening is locked).



Danger of injury (lasermarked on the actuator)
Do **NOT** attempt to disassemble the actuator due to spring under load danger!
(The lock wire opening is locked)



All warnings in this manual are summarised on this page.

Pay special attention to this instructions below so that severe personal injury and/or damage to the valve are avoided.

2.3 Safety precautions

Actuators

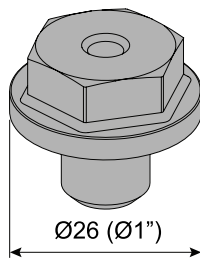
If support air is utilised:



- Shock in the actuator must **NEVER** occur
- Support air on high pressure actuator versions is **NOT** allowed

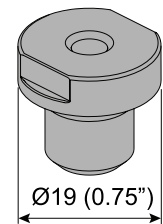
To prevent shock in the actuator and to prevent exceeding 10 bar/145 PSI product pressure, Alfa Laval recommends **NOT** to exceed 3 bar/43.5 PSI support air on the spring side in all the Unique SSV actuators.

If support air is connected always use the 3 bar/43.5 PSI air relief fittings = 9611995903. Using the air relief fitting also extends the service life of the actuator piston o-ring.



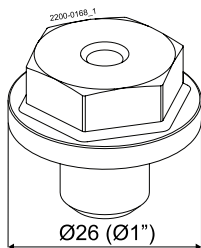
Pos. no. 5

For actuators, manufactured year 2005-2018, with serial number from 1000000 - 5999999 and from 20000000000 - 59999999999 always use steel adapter (pos 5) = 9614065301
Tighten torque = 30 Nm



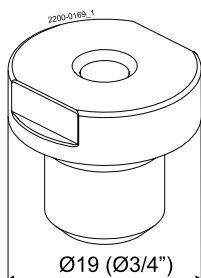
Pos. no. 5

For actuators, manufactured year 2019 --> with serial number from 6000000 to 7000000 and from 60000000000 to 70000000000 always use steel adapter (pos 5) = 9615374701
Tighten torque = 15 Nm



Pos. no. 5

For actuators, manufactured year 2005-2018, with serial number from 1000000 - 5999999 and from 20000000000 - 59999999999 always use steel adapter (pos 5) = 9614065301
Tighten torque = 30 Nm



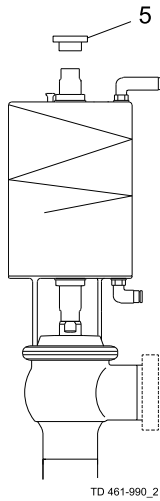
Pos. no. 5

For actuators, manufactured year 2019 --> with serial number from 6000000 to 7000000 and from 60000000000 to 70000000000 always use steel adapter (pos 5) = 9615374701
Tighten torque = 15 Nm

2 Safety

All warnings in this manual are summarised on this page.

Pay special attention to this instructions below so that severe personal injury and/or damage to the valve are avoided.



Alfa Laval recommends max. 3 bar support air
Always use the "3 bar air relief fittings" on support air.
Alfa Laval article number = 9611995903

TD 461-990_2

All warnings in this manual are summarised on this page.

Pay special attention to this instructions below so that severe personal injury and/or damage to the valve are avoided.

GENERAL

- Always** ensure that personnel must have experience with lifting operations.
- Always** ensure the lifting point to be in line with center of gravity. Adjust lifting point if necessary.
- Always** keep an eye on the load and stay clear during the lifting operation.
- Always** ensure that the lifting equipment is suitable for the specific supplied product.
- Always** use appropriate lifting equipment for heavy parts when relevant. Use lifting logs when available.

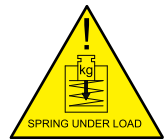


INSTALLATION

- Always** read the technical data thoroughly (see section 6 Technical data)
- Always** release compressed air after use
- Never** touch moving parts if the actuator is supplied with compressed air
- Never** touch the valve or the pipelines when processing hot liquids or when sterilising
- Never** dismantle the valve with valve and pipelines under pressure
- Never** dismantle the valve when it is hot



Never cut the actuator open, due to spring under load - if marked with this warning



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



OPERATION

- Never** dismantle the valve with valve and pipelines under pressure
- Never** dismantle the valve when it is hot
- Always** read the technical data thoroughly (see section 6 Technical data)
- Always** release compressed air after use
- Never** touch the valve or the pipelines when processing hot liquids or when sterilising
- Never** touch moving parts if the actuator is supplied with compressed air
- Always** rinse well with clean water after cleaning
- Always** handle lye and acid with great care



NOTE

Always follow the instructions in the safety data sheets from the suppliers of cleaning agents, detergents, oils etc.

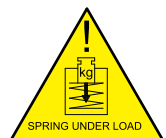


MAINTENANCE

- Always** read the technical data thoroughly (see section 6 Technical data)
- Always** release compressed air after use
- Never** service the valve when it is hot
- Never** service the valve with valve and pipelines under pressure
- Never** stick your fingers through the valve ports if the actuator is supplied with compressed air
- Never** touch moving parts if the actuator is supplied with compressed air
- Always** use Alfa Laval genuine spare parts



Never cut the actuator open, due to spring under load danger - if marked with this warning



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



2 Safety

All warnings in this manual are summarised on this page.

Pay special attention to this instructions below so that severe personal injury and/or damage to the valve are avoided.

TRANSPOR TATION

Always ensure that compressed air is released

Always ensure that all connections are disconnected before attempting to remove the valve from the installation

Always drain liquid out of the valves before transportation

Always use predesigned lifting points if defined

Always ensure sufficient fixing of the valve during transportation - if specially designed packaging material is available , it must be used.

The instruction manual is part of the delivery. Study the instructions carefully.
 The items refer to parts list and service kits section.
 The valve is supplied as separate parts as standard (for welding).
 The valve is assembled before delivery, if it is supplied with fittings.

3.1 Unpacking/delivery

Step 1

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

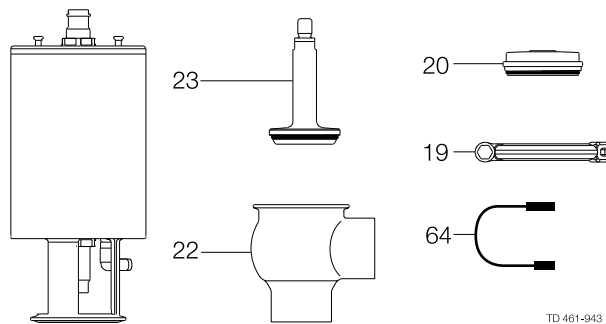
1. Complete valve, shut-off valve (RA) or change-over valve (RA) (see steps 2a, 2b, 2c and 2d).
2. Delivery note.

Step 2

2a

Shut-off valve:

1. Complete actuator.
2. Bonnet (20).
3. Clamp (19).
4. Valve plug (23).
5. Valve body (22).
6. Ground wire (64).

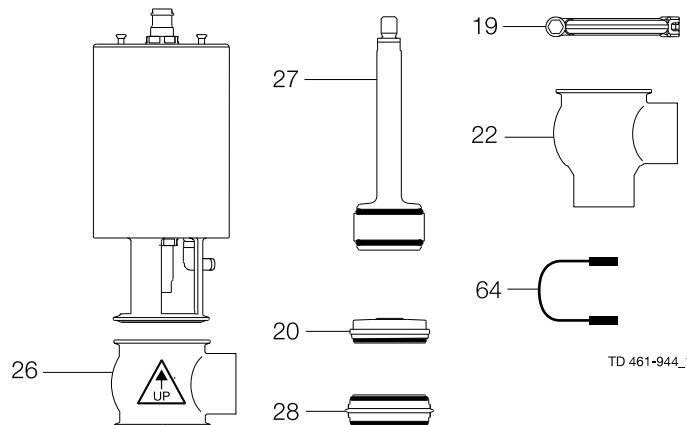


TD 461-943

2b

Change-over valve:

1. Complete actuator.
2. Bonnet (20).
3. 2 x clamps (19).
4. Valve plug (27).
5. Lower valve body (22).
6. Valve seat (28).
7. Upper valve body (26).
8. Ground wire (64).

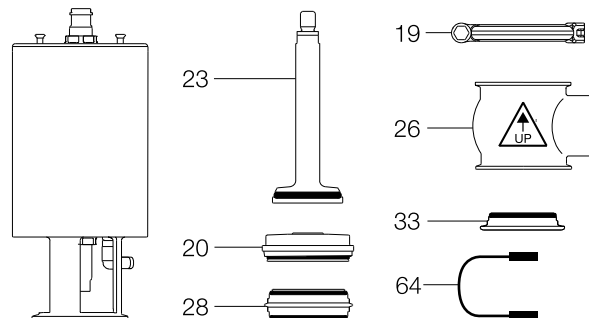


TD 461-944_1

2c

Shut-off valve - Reverse Acting:

1. Complete actuator.
2. Bonnet (20).
3. 3 x clamps (19).
4. Valve plug (23).
5. 2 x upper valve bodies (26).
6. Valve seat (28).
7. Lower bonnet (33).
8. Ground wire (64).



TD 461-945_1

3 Installation

The instruction manual is part of the delivery. Study the instructions carefully.

The items refer to parts list and service kits section.

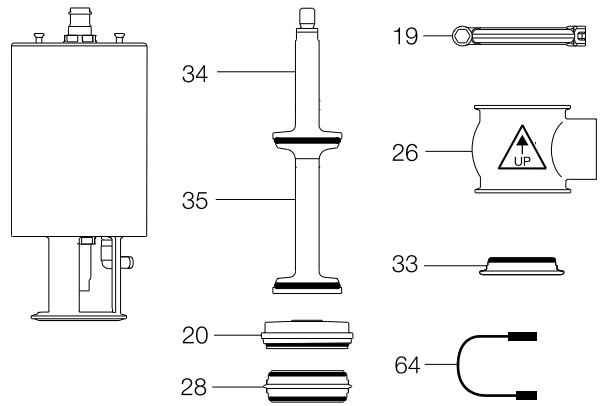
The valve is supplied as separate parts as standard (for welding).

The valve is assembled before delivery, if it is supplied with fittings.

2d

Change-over valve - Reverse Acting:

1. Complete actuator.
2. Bonnet (20).
3. 4 x clamps (19).
4. Upper valve plug (34).
5. Lower valve plug (35).
6. 3 x upper valve bodies (26).
7. 2 x valve seats (28).
8. Lower bonnet (33).
9. Ground wire (64).



Step 3

Remove possible packing materials from the valve/valve parts.

Inspect the valve/valve parts for visible transport damage.

Avoid damaging the valve/valve parts.

Study the instructions carefully and pay special attention to the warnings!
The valve has welding ends as standard but can also be supplied with fittings.

3.2 General installation

Step 1



- **CAUTION**
 - Alfa Laval cannot be held responsible for incorrect installation.
 - **Always** release compressed air after use.
 - **Always** read the technical data thoroughly.
- See section 6 Technical data.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!

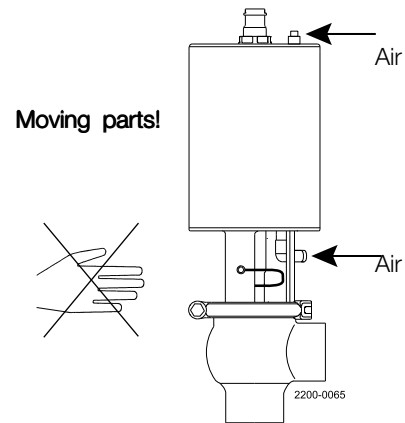


If marked with this warning, do **NOT** attempt to cut the actuator open, due to spring under load danger!

Step 2



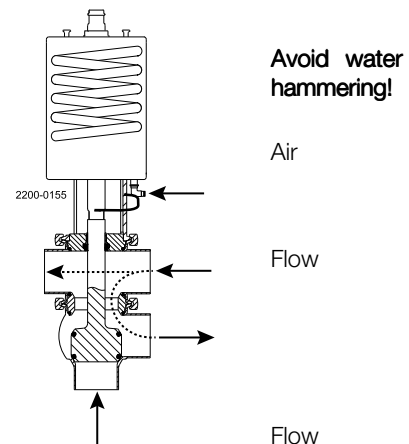
Never touch moving parts if the actuator is supplied with compressed air.



Step 3

To avoid water hammering, it is recommended to install the valve so that the flow is against the spring closing direction.

Shock in the actuator must **never** occur.



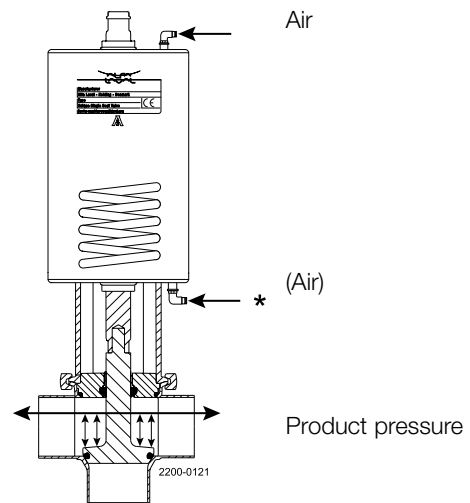
3 Installation

Study the instructions carefully and pay special attention to the warnings!
The valve has welding ends as standard but can also be supplied with fittings.

Step 4

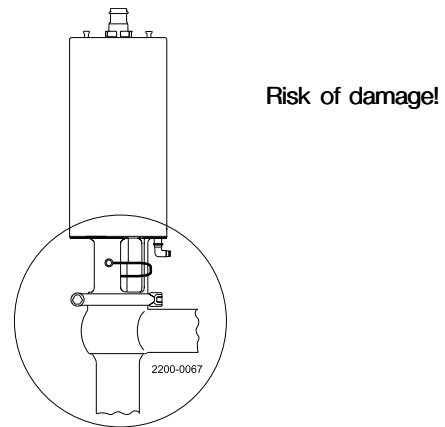
Pay special attention to shock in the actuator due to support air.
Shock in the actuator must **never** occur.

- * Careful if using support air on spring side and a high product pressure) pressure above the plug, as this can result in a high "hammer effect" which can damage the actuator.
- Use Alfa Laval part no. 9611995903, which ensures max. 3 bar support air pressure.
- Alternatively remove the product pressure while activating the plug.



Step 5

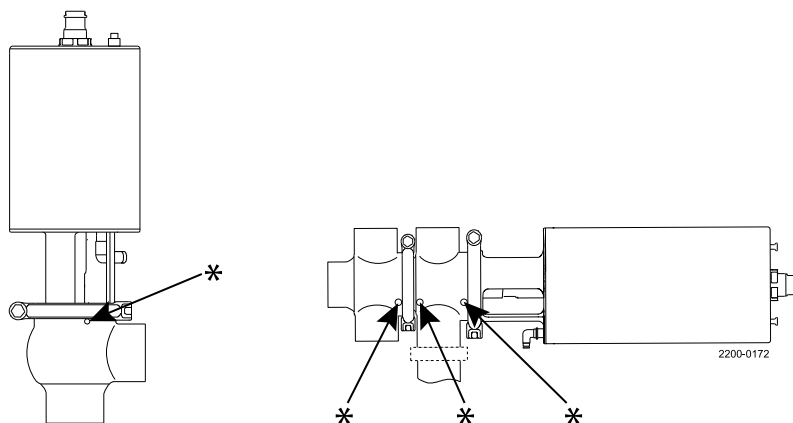
- Vibrations.
- Thermal expansion of the pipelines.
- Excessive welding.
- Overloading of the pipelines.



Step 6

Make sure that the leak detection hole in the valve body:

1. is visible, when mounting the valve vertically
2. always is downwards due to self-draining, when the valve is mounted horizontally.



* = Leakage detection hole

Study the instructions carefully.
 The valve is supplied as separate parts to facilitate the welding.
 The items refer to the parts list and service kits section.
 Check the valve for smooth operation after welding.

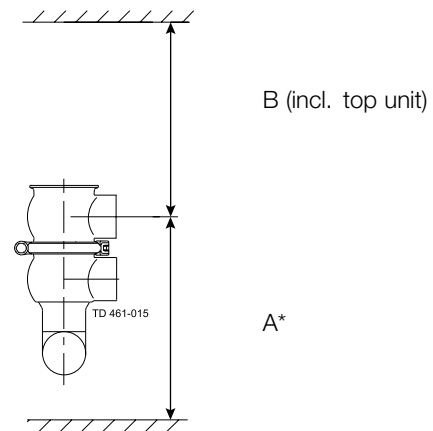
3.3 Welding

Step 1

Always install valves with more than one valve body so that the seals between the valve bodies can be replaced. Do not weld more than one valve body into the system. It is recommended to fit sufficient clamps/unions to be able to disassemble the valve for servicing.

Valve size	A (mm)	B (mm)
DN25/25 mm	*	630
DN40/38 mm	*	700
DN50/51 mm	*	750
DN65/63.5 mm	*	740
DN80/76 mm	*	800
DN100/101.6 mm	*	790

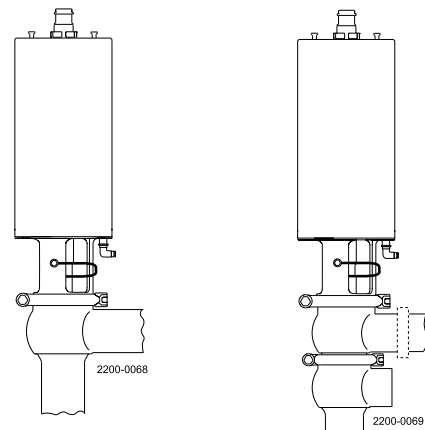
* Depending on body combination and piping solution.



Step 2

Assemble the valve in accordance with the steps on page 29.

Pay special attention to the warnings!

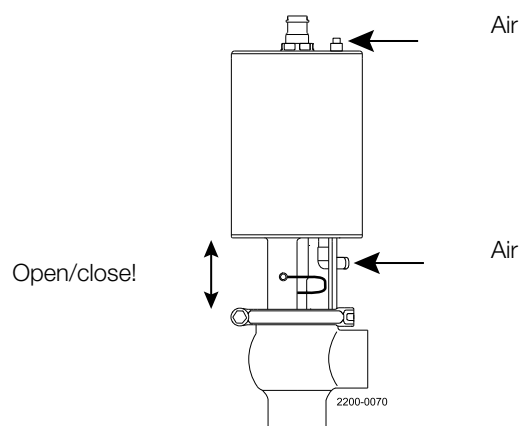


Step 3

Pre-use check:

1. Supply compressed air to the actuator.
2. Open and close the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!



3 Installation

Study the instructions carefully.

The valve is supplied as separate parts to facilitate the welding.

The items refer to the parts list and service kits section.

Check the valve for smooth operation after welding.

Step 4

Make sure the ground wire has electrical connection to plug and actuator.



All conducting parts or equipment must be arranged to avoid that a dangerous potential difference can exist between them. If there is a possibility of isolated metal parts becoming charged and acting as an ignition source, then earthing terminals must be provided.

3.4 Recycling information

Unpacking

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps
- Wood and cardboard boxes can be re-used, recycled or used for energy recovery
- Plastics should be recycled or burnt at a licensed waste incineration plant
- Metal straps should be sent for material recycling

Maintenance

- During maintenance, oil and wearing parts in the machine are replaced
- All metal parts should be sent for material recycling
- Worn out or defective electronic parts should be sent to a licensed handler for material recycling
- Oil and all non-metal wear parts must be disposed off in agreement with local regulations

Scrapping

- At end of use, the equipment must be recycled according to the relevant, local regulations. Besides the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact your local Alfa Laval sales company



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



If marked with this warning, do **NOT** attempt to cut the actuator open, due to spring under load danger!

Study the instructions carefully and pay special attention to the warnings!
 Ensure that the valve operates smoothly.
 The items refer to the parts list and service kits section.

4.1 Operation

Step 1



- **CAUTION**
 - Alfa Laval cannot be held responsible for incorrect installation.
 - **Always** release compressed air after use.
 - **Always** read the technical data thoroughly.
 - See section 6 Technical data.
 - **Always** use Alfa Laval genuine spare parts.
- The warranty of Alfa Laval products is dependent on use of Alfa Laval genuine spare parts.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!

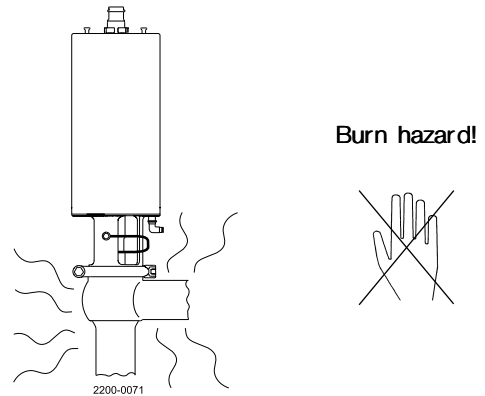


If marked with this warning, do **NOT** attempt to cut the actuator open, due to spring under load danger!

Step 2



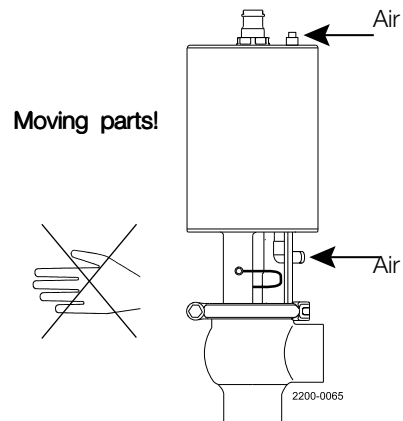
Never touch the valve or the pipelines when processing hot liquids or when sterilising.



Step 3



Never touch moving parts if the actuator is supplied with compressed air.



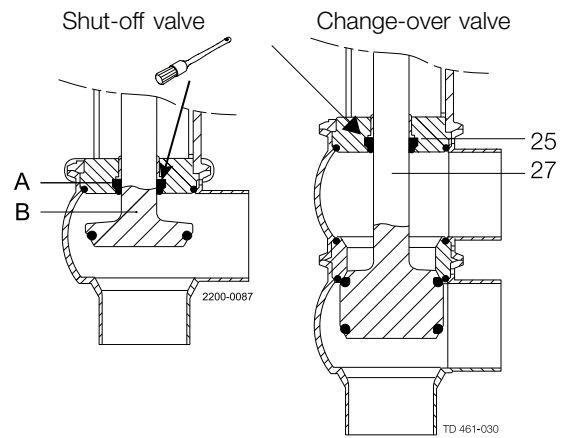
4 Operation

Study the instructions carefully and pay special attention to the warnings!
Ensure that the valve operates smoothly.
The items refer to the parts list and service kits section.

Step 4

Lubrication of valves:

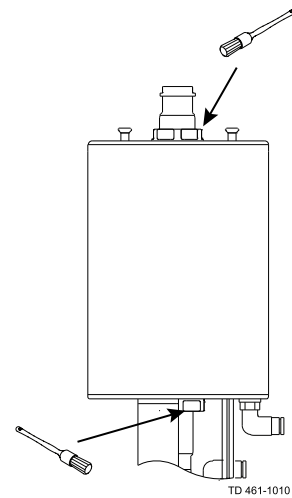
1. Ensure smooth movement between lip seal (25) and plug stem (23, 27).
2. Lubricate the lip seal with Klüber Paraliq GTE 703 if necessary (see page 22).



Step 5

Lubrication of actuator

1. Ensure smooth movement of the actuator (the actuator is lubricated before delivery).
2. Lubricate all seals with Molykote Longterm 2 plus if necessary.



Pay attention to possible faults. Study the instructions carefully.
The items refer to the parts list and service kits section.

4.2 Troubleshooting

NOTE!

Study the maintenance instructions carefully before replacing worn parts - see page 22.

Problem	Cause/r esult	Repair
External product leakage	Worn or damaged lip seal and/or O-ring	<ul style="list-style-type: none"> - Replace the seals - Replace with seals of a different rubber grade
Internal product leakage	<ul style="list-style-type: none"> - Worn or product affected plug seal - Product deposits on the seat and/or plug - Product pressure exceeds actuator specification 	<ul style="list-style-type: none"> - Replace the seal - Replace with a seal of a different rubber grade - Frequent cleaning - Replace with a high pressure actuator - Use auxiliary air on the spring side (do not exceed 3 bar/43.5 PSI). Alfa Laval article number = 9611995903. See section 2.3 Safety precautions and section 3.2 General installation , Step 4 - Reduce product pressure
Water hammer	The flow direction is the same as the closing direction	<ul style="list-style-type: none"> - The flow direction should be against the closing direction. See section 3.2 General installation , Step 3 - Throttle air release of solenoid in top unit
The valve does not open/close	Product pressure exceeds actuator specification	<ul style="list-style-type: none"> - Replace with a high pressure actuator - Reduce product pressure - Use auxiliary air on the spring side. Always use the pressure relief fittings (3 bar/43.5 PSI) on support side. Alfa Laval article number = 9611995903

If marked with a danger warning, do **NOT** attempt to cut the actuator open, due to spring under load.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open due to spring under load danger!

4 Operation

The valve is designed for cleaning in place (CIP).

Study the instructions carefully and pay special attention to the warnings!

NaOH = Caustic Soda.

HNO₃ = Nitric acid.

4.3 Recommended cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



Always use rubber gloves!

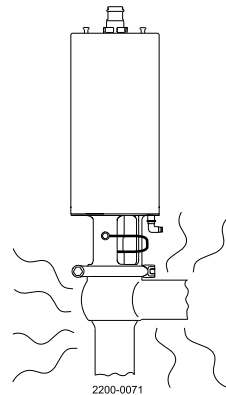


Always use protective goggles!

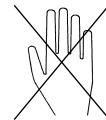
Step 2



Never touch the valve or the pipelines when sterilising.



Burn hazard!



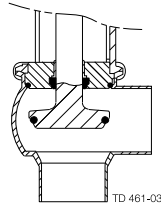
Step 3

Clean the plug and the seats correctly.

Pay special attention to the warnings!

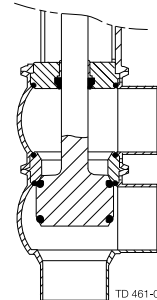
Lift and lower valve plug momentarily

Shut-off valve



TD 461-031

Change-over valve



TD 461-029

Step 4

Examples of cleaning agents:

Use clean water, free from chlorides.

1. 1% by weight NaOH at 70° C

1 kg NaOH + 100 l water = Cleaning agent.

2.2 l 33% NaOH + 100 l water = Cleaning agent.

2. 0.5% by weight HNO₃ at 70° C

0.7 l 53% HNO₃ + 100 l water = Cleaning agent.

The valve is designed for cleaning in place (CIP).

Study the instructions carefully and pay special attention to the warnings!

NaOH = Caustic Soda.

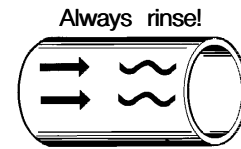
HNO₃ = Nitric acid.

Step 5

1. Avoid excessive concentration of the cleaning agent.
2. Adjust the cleaning flow to the process.
3. **Always** rinse well with clean water after the cleaning.

NOTE

The cleaning agents must be stored/disposed of in accordance with current regulations/directives.



Clean water Cleaning agents

Step 6



Dust cleaning!

To avoid damage, all seal openings must be held free for dust. All surfaces must be cleaned for dust.

5 Maintenance

Maintain the valve regularly.

Study the instructions carefully and pay special attention to the warnings!

Always keep spare rubber seals and lip seals in stock.

Check the valve for smooth operation after service.

5.1 General maintenance

Step 1



- CAUTION

- Alfa Laval cannot be held responsible for incorrect installation.
- **Always** release compressed air after use.
- **Always** read the technical data thoroughly.
See section 6 Technical data.
- **Always** use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on use of Alfa Laval genuine spare parts.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



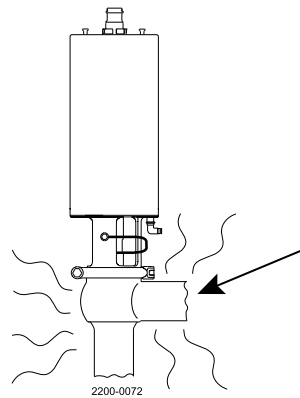
If marked with this warning, do **NOT** attempt to cut the actuator open, due to spring under load danger!

Step 2



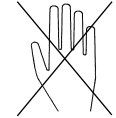
Never service the valve when it is hot.

Never service the valve with valve and pipelines under pressure.



Atmospheric pressure required!

Burn hazard!

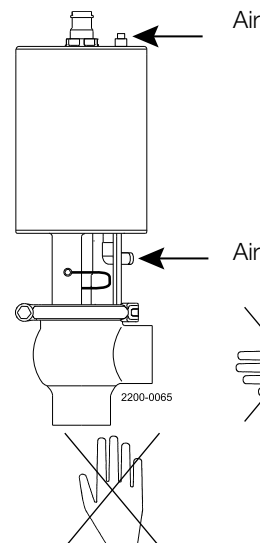


Step 3



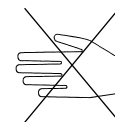
Never stick your fingers through the valve ports if the actuator is supplied with compressed air.

Never touch the moving parts if the actuator is supplied with compressed air.



Moving parts!

Cutting hazard!



Maintain the valve regularly.
 Study the instructions carefully and pay special attention to the warnings!
 Always keep spare rubber seals and lip seals in stock.
 Check the valve for smooth operation after service.

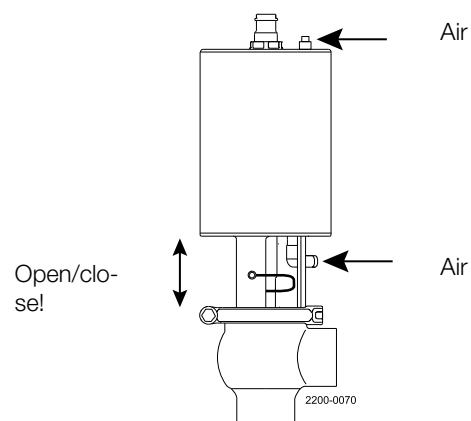
Below are some guidelines for maintenance and lubrication intervals. Please note that the guidelines are for normal working conditions in one shift.

	Product wetted seals	Actuator bushings complete
Preventive maintenance	Replace after 12 months depending on working conditions	Replace with Service Kit or complete ATEX actuator after 5 years depending on working conditions
Maintenance after leakage (leakage normally starts slowly)	Replace at the end of the day	Replace when possible
Planned maintenance	<ul style="list-style-type: none"> - Regular inspection for leakage and smooth operation - Keep a record of the valve - Use the statistics for inspection planning Replace after leakage	<ul style="list-style-type: none"> - Regular inspection for leakage and smooth operation - Keep a record of the actuator - Use the statistics for inspection planning Replace after leakage
Lubrication	Before fitting Klüber Paraliq GTE 703 or similar USDA H1 approved oil/grease	Before fitting Molykote Longterm 2 plus

Pre-use check:

1. Supply compressed air to the actuator.
2. Open and close the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!



Recommended spare parts

Service kits (see page 37)

5 Maintenance

Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

NC = Normally closed.

NO = Normally open.

A/A = Air/air activated.

5.2 Dismantling the valve

If the actuator is marked with a danger warning, do **NOT** attempt to cut the actuator open.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open due to spring under load danger!

Step 1

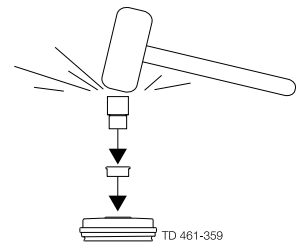
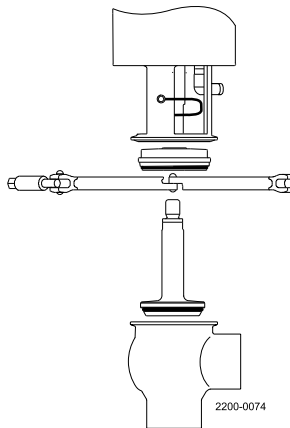
1a Shut-off valve:

1. Supply compressed air to the actuator (only NC).
2. Loosen and remove clamp.
3. Release compressed air (only NC).
4. Lift away the actuator.
5. Unscrew and remove valve plug.
6. Remove ground wire terminal from valve plug.
7. Remove O-ring, lip seal and bushing in bonnet.
(Use bushing tool and rubber mallet).

Note! Be careful not to damage the bushing.

Pay special attention to the warnings!

Note! For plug seal replacement please see section 5.3 Plug seal replacement.



Note!

Be careful not to damage the bushing.

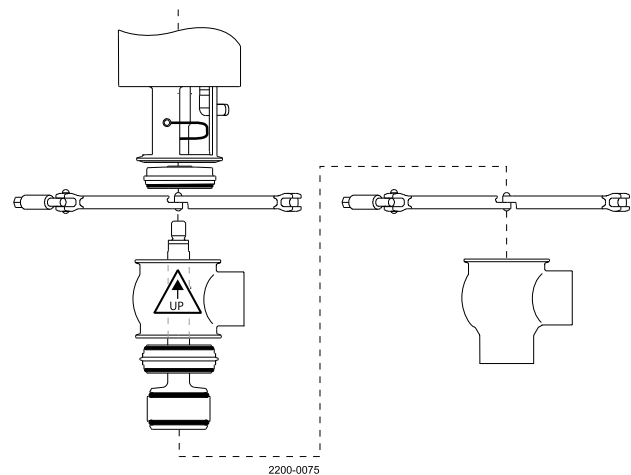
1b Change-over valve:

1. Supply compressed air to the actuator (only NC).
2. Loosen and remove lower clamp.
3. Release compressed air (only NC).
4. Lift away the actuator and upper valve body.
5. Supply compressed air to the actuator (only NO).
6. Unscrew and remove valve plug.
7. Remove ground wire terminal from valve plug.
8. Release compressed air (only NO).
9. Remove seat and O-rings.
10. Loosen and remove upper clamp.
11. Remove upper valve body.
12. Remove O-ring, lip seal and bushing in bonnet.
(Use bushing tool and rubber mallet.
See drawing, step 1a).

Note! Be careful not to damage the bushing.

Pay special attention to the warnings!

Note! For plug seal replacement please see section 5.3 Plug seal replacement.



Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

NC = Normally closed.

NO = Normally open.

A/A = Air/air activated.

1c

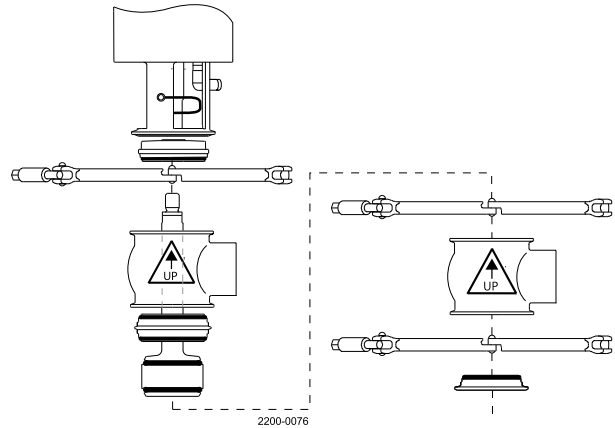
Shut-off valve - Reverse Acting:

1. Loosen and remove lower clamp.
2. Remove lower bonnet and O-ring from lower body.
3. Loosen and remove middle clamp.
4. Lift away the actuator and upper valve body.
5. Supply compressed air to the actuator (only NC).
6. Unscrew and remove valve plug.
7. Release compressed air (only NC).
8. Remove seat and O-rings.
9. Loosen and remove upper clamp.
10. Remove upper valve body.
11. Remove O-ring, lip seal and bushing in bonnet.
(Use bushing tool and rubber mallet.
See drawing, step 1a).

Note! Be careful not to damage the bushing.

Pay special attention to the warnings!

Note! For plug seal replacement please see section 5.3 Plug seal replacement.



1d

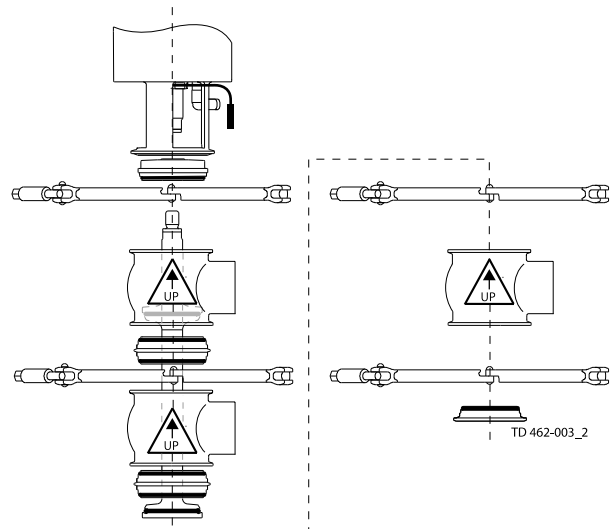
Change-over valve - Reverse Acting:

1. Loosen and remove lower clamp.
2. Remove lower bonnet and O-ring.
3. Loosen and remove clamp between lower and middle valve body.
4. Lift away the actuator and upper + middle valve body.
5. Supply compressed air to the actuator (only NC).
6. Unscrew and remove lower valve plug.
7. Release compressed air (only NC).
8. Remove lower seat and O-rings.
9. Supply compressed air to the actuator (only NO).
10. Loosen and remove clamp between middle and upper valve body.
11. Remove middle valve body and upper seat with O-rings.
12. Release compressed air (only NO).
13. Loosen and remove upper clamp.
14. Remove upper valve body.
15. Unscrew and remove upper valve plug.
16. Remove O-ring, lip seal and bushing in bonnet.
(Use bushing tool and rubber mallet. See drawing, step 1a).

Note! Be careful not to damage the bushing.

Pay special attention to the warnings!

Note! For plug seal replacement please see section 5.3 Plug seal replacement.



5 Maintenance

Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

NC = Normally closed.

NO = Normally open.

A/A = Air/air activated.

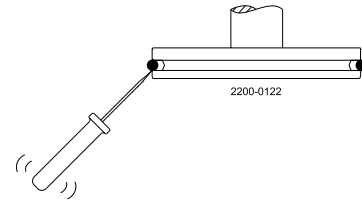
5.3 Plug seal replacement

Step 1

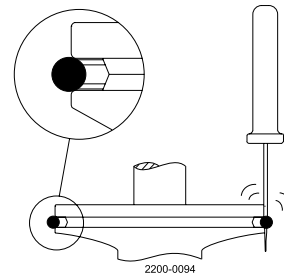
1. Remove old seal ring using a knife, screwdriver or similar.
Be careful not to damage the plug surface.
If using a screwdriver it must be placed underneath the plug groove (see drawing 1).
2. Grease the new seal ring with Paralique GTE 703, which is included in the service kit.
Only use a very small amount of grease.
3. Fit the seal ring on the plug without pressing it into the groove.
Be careful not to twist the seal ring.
Use a screwdriver (two turns) to fit the seal ring properly and to ensure it is not twisted (see drawing 2).
4. The seal ring can now be mounted by hand or with the Alfa Laval plug tool.

Drawing 1

It is important to place the screwdriver underneath the plug.



Drawing 2



Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

NC = Normally closed.

NO = Normally open.

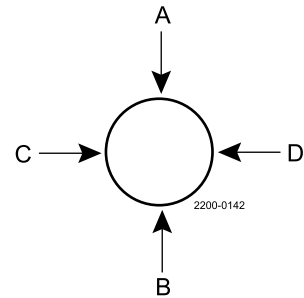
A/A = Air/air activated.

Step 2

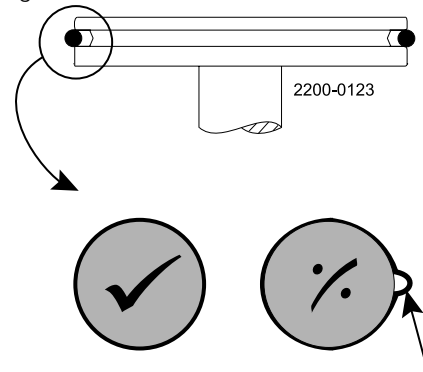
Mounting plug seal ring by hand

1. Check the seal ring is premounted as described in step 1.
To ensure correct mounting, press with your thumb on the seal ring, which must be done approximately 10 times and always with opposite pressure points, from A to B, to C and D (see drawing 3).
The rest of the seal ring can now be pressed into the groove so the whole seal ring is mounted. Check that there are NO "bulge" (see drawing 4).
If there is a little bulge – then use the screwdriver to eliminate the bulge.
Again press with the thumb on the seal ring and keep the pressure while rotating 360° (see drawing 3).
2. It is important to release compressed air behind the seal ring. This is done with a screwdriver and always underneath the plug as shown.
It must be done at one or two different points on the circumference.
Be careful not to make marks on the surface of the plug and seal ring (see drawing 5).

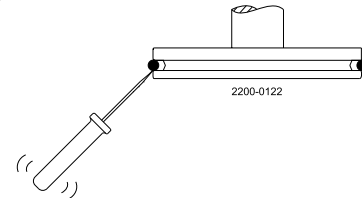
Drawing 3



Drawing 4



Drawing 5



5 Maintenance

Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

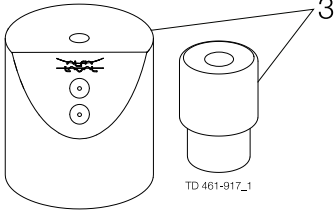
NC = Normally closed.

NO = Normally open.

A/A = Air/air activated.

Step 3

Mounting plug seal ring with Alfa Laval plug seal tool

Mounting tool for elastomer plug seals	DN40 38 mm	DN50 - DN65 51 mm - 63.5 mm	DN80 - DN100 76.1 mm - 101.6 mm
	9613172901	9613172902	9613172903

Exhaust holes
for screwdriver

ø20 hole
for plug spindle

1. Part B

“Part B” has a small and a large diameter as the tool can be used for two plug sizes – e.g. plug tool = 9613172902 can be used for DN50/ISO51 (small) and DN65/ISO63 (large).

“Part B” therefore has to be turned so it matches the plug size diameter.

2. Part A

“Part A” has an upper and lower exhaust hole, as the tool can be used for two plug sizes – e.g. plug tool = 9613172902.

The upper exhaust hole is for the small plug size e.g. DN50/ISO51 (small) and the lower exhaust hole is for DN65/ISO63 (large).

When using a “change-over plug” the ø20 spindle must also be fitted in “part A” and “part B” (see drawing 2).

When using a “reverse acting plug” the ø20 spindle must only be fitted in “part A” (see drawing 2).

When using a “standard shut-off plug” the ø20 spindle is only fitted in “part B” (see drawing 1).

3. Fit the plug spindle in “part B” or “part A”.

Place “part A” onto “part B” and then press “hard” down on top of “part A”.

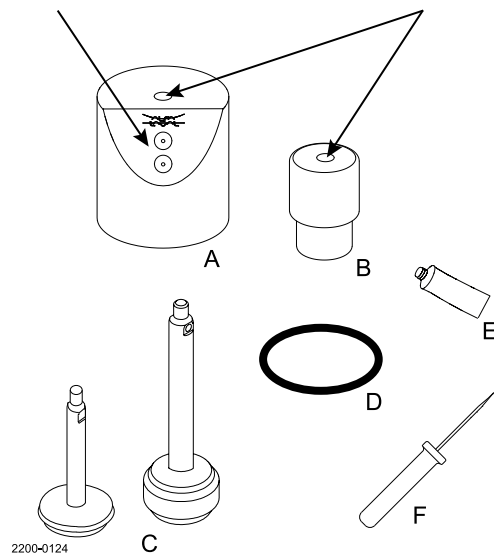
Now fit the screwdriver into the exhaust hole and underneath the plug groove meanwhile keeping the pressure on “part A”.

This should ensure correct removal of air behind the seal ring. Normally the sound “Psst” can be heard one time (see drawing 3).

A “drill press” can of course also be used to press down on “part A”.

4. It is important to release compressed air behind the seal ring.

This is done with a screwdriver and always underneath the plug as shown (see drawing 4).



- A. Part A
- B. Part B
- C. Plugs
- D. O-ring
- E. Grease Paralique GTE703 from service kit
- F. Screwdriver (no sharp corner)

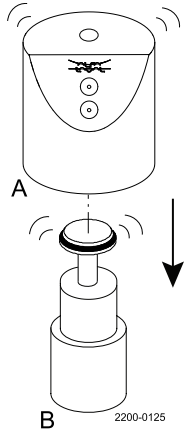
Study the instructions carefully. The items refer to the parts list and service kits section. Handle scrap correctly.

NC = Normally closed.

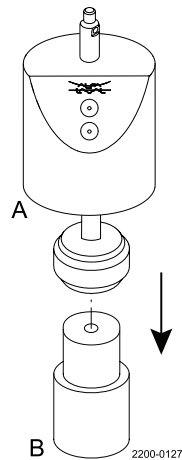
NO = Normally open.

A/A = Air/air activated.

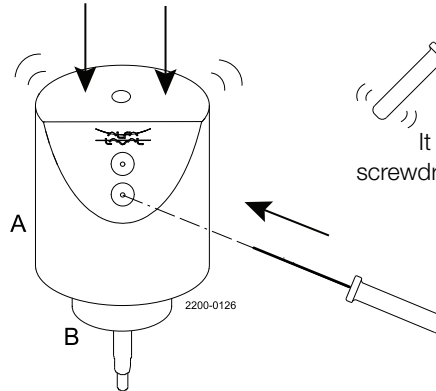
Drawing 1



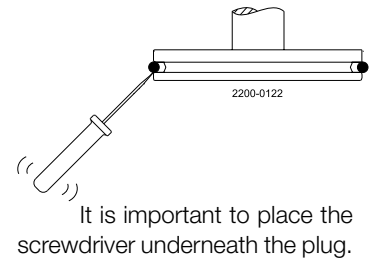
Drawing 2



Drawing 3



Drawing 4



5.4 Valve assembly

Reverse order of 5.2 Dismantling the valve.

Lubricate O-ring (21) and lip seal (25) with Alfa Laval Lubricant.

Remember to tighten spindle and plug (use two 17 mm spanners).

- Change-over plug tighten torque = **30 Nm**
- Shut-off plug tighten torque = **20 Nm**

If there are vibrations in the pipeline, Alfa Laval recommends to use Loctite no. 243.

The clamps' thread must be lubricated before tightening - max. torque for the clamps is 10-12 Nm.



Pay special attention to the warnings.

5 Maintenance

Study the instructions carefully.

The items refer to the parts list and service kits section. Handle scrap correctly.

A/A = Air/air activated.

Service tool: see spare parts.

5.5 Actuator bushing replacement (non-maintainable actuator)

If the actuator is marked with a danger warning, do **NOT** attempt to cut the actuator open.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!

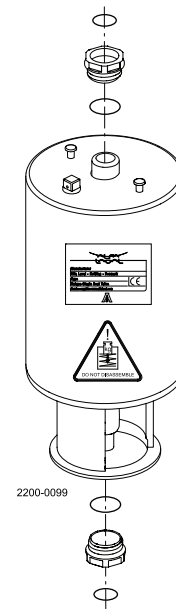


Do **NOT** attempt to cut the actuator open due to spring under load danger!

Step 1

Introduction

- The actuator service kit contains two bushings and four o-rings.
- Mount the thick O-ring inside and the thin O-ring outside the bushing.
- Always lubricate the spindle and o-rings thoroughly with "Molykote Longterm 2 Plus" before mounting the new bushings.



Study the instructions carefully.

The items refer to the parts list and service kits section. Handle scrap correctly.

A/A = Air/air activated.

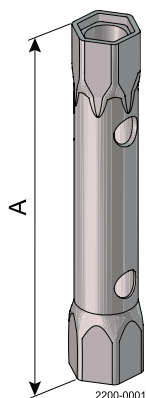
Service tool: see spare parts.

Step 2

Introduction - Standard socket wrench

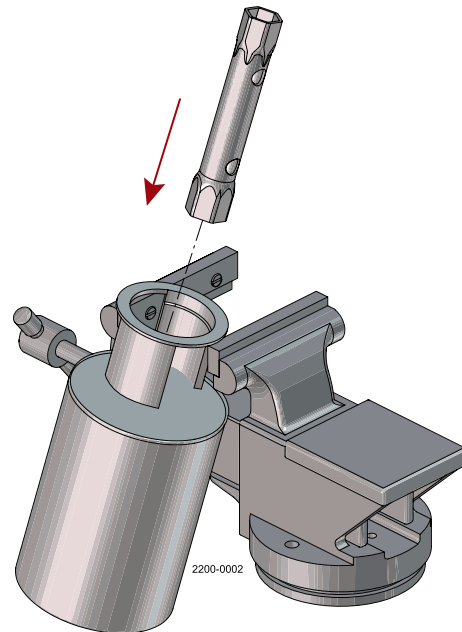
Use a 27 mm socket wrench to mount the bushings, as the space in the yoke is limited.

A socket wrench 24x27 (length = 185 mm) is a standard tool, which can be purchased from all tool shops.



A = 185 mm

Example:
Socket wrench - 24x27 mm
Supplier: Gedore Tool
EAN4010886621264



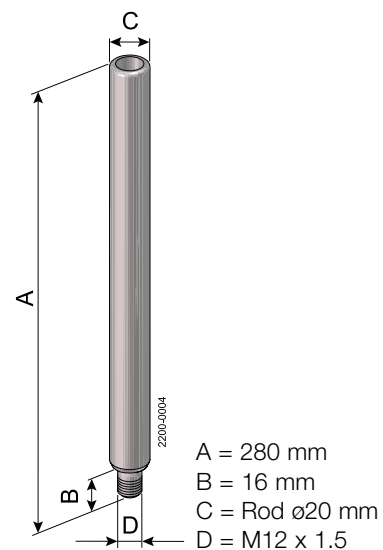
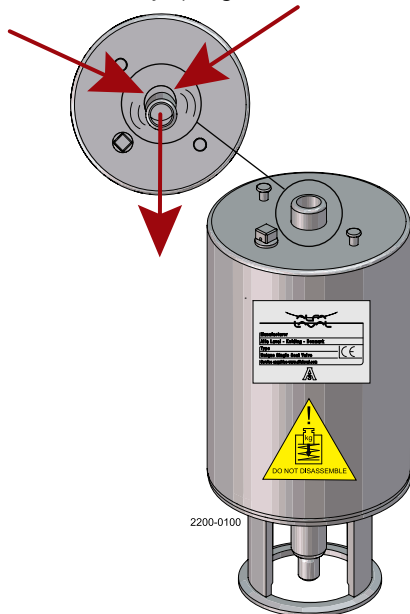
Step 3

Introduction - Aligning spindle

The actuator spindle can in some cases be forced off centre by the internal spring, see drawing below.

In these cases, the alignment spindle shown below, together with the socket wrench, is a great help and ensures a reliable mounting of the bushing. The spindle can either be purchased from Alfa Laval together with the socket wrench (**9614-1984-01**) or it can be manufactured locally using the below dimensions.

Spindle forced off centre by spring inside actuator



5 Maintenance

Study the instructions carefully.

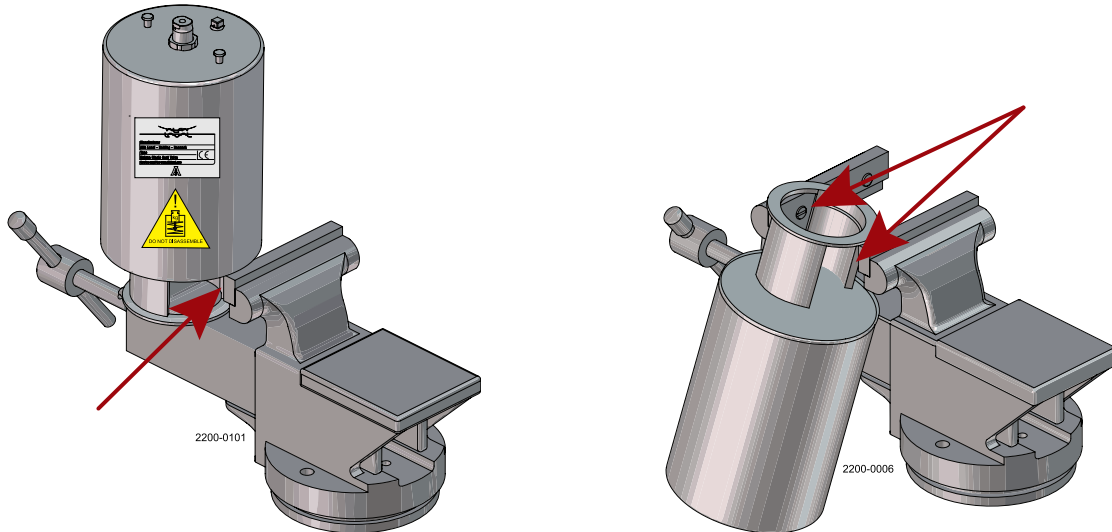
The items refer to the parts list and service kits section. Handle scrap correctly.

A/A = Air/air activated.

Service tool: see spare parts.

Step 4

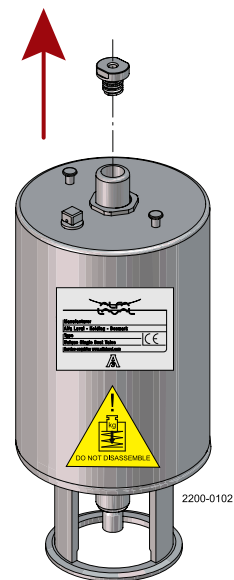
The actuator must be carefully fixed in a vice if it is dismantled from the valve. Be careful not to press the yoke flange oval when fixing the actuator in the vice. Only fix carefully on the "yoke leg" as shown below.



Step 5

Remove adapter screw.

(After spindle alignment the adapter screw has to be remounted.)



Study the instructions carefully.

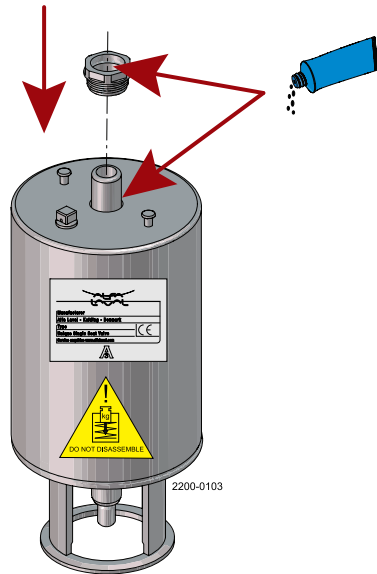
The items refer to the parts list and service kits section. Handle scrap correctly.

A/A = Air/air activated.

Service tool: see spare parts.

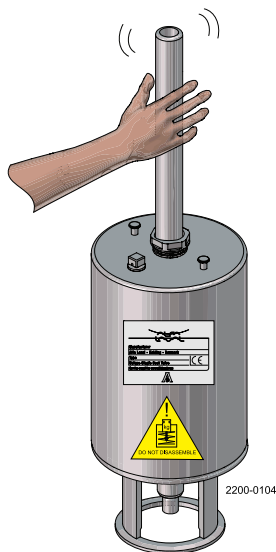
Step 6

1. Lubricate thoroughly both the actuator spindle and o-rings.
2. Grease with "Molykote Longterm 2 plus".
3. Fit the **bushing** on the spindle.

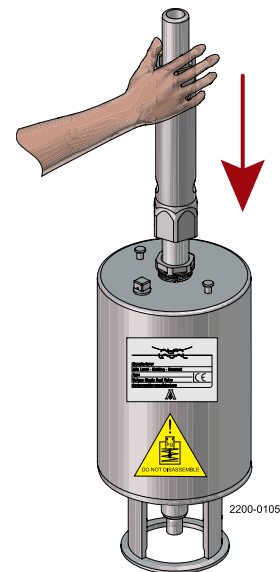


Step 7

Fit the aligning spindle to the actuator spindle, and then mount the socket wrench.



Aligning spindle



Socket wrench

5 Maintenance

Study the instructions carefully.

The items refer to the parts list and service kits section. Handle scrap correctly.

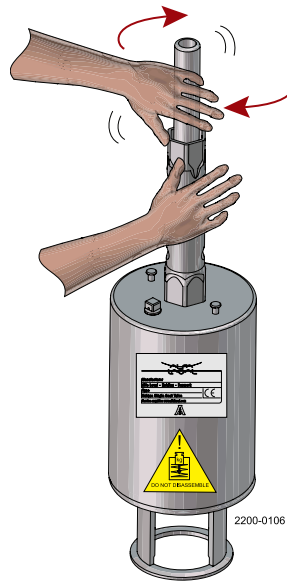
A/A = Air/air activated.

Service tool: see spare parts.

Step 8

Now pull the aligning spindle to centre the actuator spindle. In this position rotate the **bushing** 180° backwards and then begin to fasten the bushing. Make sure that the thread catches evenly!

The bushing must only be tightened with a torque of 10 Nm (7 lb-ft) which can be done by turning "hard" by hand.



*It is important to observe the technical data during installation, operation and maintenance.
Inform all personnel about the technical data.*

6.1 Technical data

The valve is a pneumatic seat valve in a hygienic and modular design for a wide field of duties, e.g. as a shut-off valve with two (2) or three (3) ports or as a change-over valve with three (3) to five (5) ports.

The valve is remote-controlled by means of compressed air. It has few and simple moveable parts which results in a very reliable valve and low maintenance cost.

Standard design The Unique SSV ATEX valve comes in a one or two body configuration. With its module built structure it is designed for flexibility and easy customization through the electronic configurator.

Data - valve/actuator	
Max. product pressure	1000 kPa (10 bar).
Min. product pressure	Full vacuum (depending on product specifications).
Temperature range	-10° C to + 140° C (standard EPDM seal).
Air pressure, actuator	500 to 700 kPa (5 to 7 bar).
Materials - valve/actuator	
Product wetted steel parts	1.4404 (316L) (internal Ra < 0.8 µm).
Other steel parts	1.4301 (304).
Plug seal	EPDM
Other product wetted seals	EPDM (standard).
Optional product wetted seals	HNBR and FPM.
Other seals	NBR.

Weight (kg)

Nominal Size	Inch tubes DN/OD						DIN tubes DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
Shut-off valve	3.1	3.3	5.5	6.5	11.3	13.6	3.2	3.4	5.5	6.6	11.8	13.6
Change-over valve	3.9	4.2	7.1	8.5	14	18	4.1	4.5	7.2	8.8	14.9	17.9

Noise

One metre away from and 1.6 metres above the exhaust the noise level of a valve actuator will be approximately 77db (A) without noise damper and approximately 72 db (A) with damper - measured at 7 bar air-pressure.

7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

7.1 Drawing – Unique Single Seat Valve – ATEX

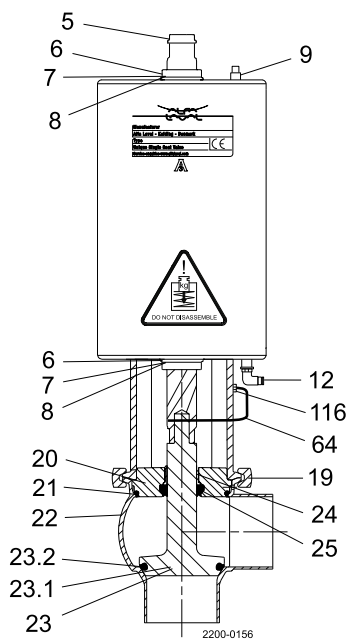
If the actuator is marked with a danger warning, do **NOT** attempt to cut the actuator open.



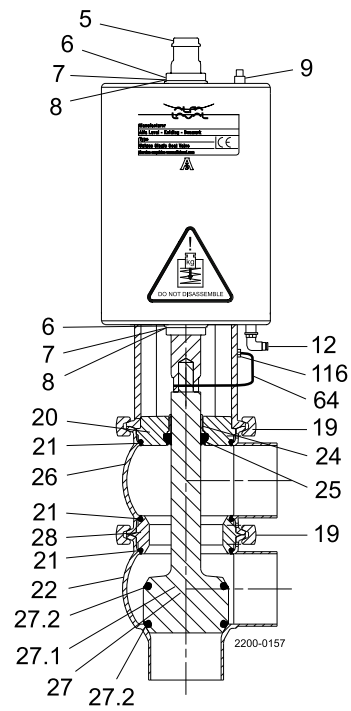
Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open due to spring under load danger!



Shut-off valve



Change-over valve

7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

7.2 Unique Single Seat Valve – ATEX – shut-off

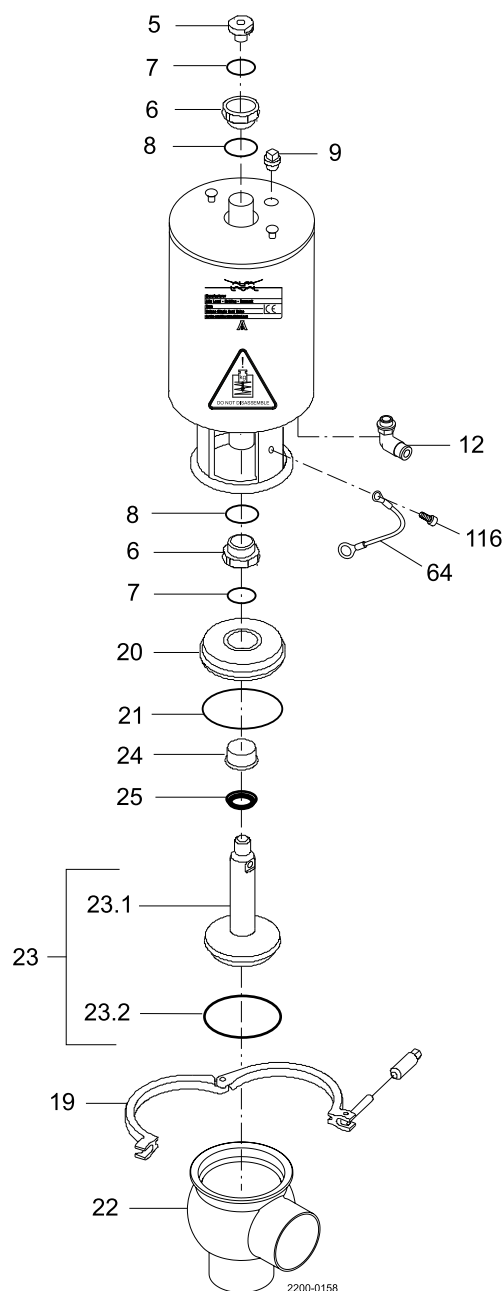
If the actuator is marked with a danger warning do **NOT** attempt to cut the actuator open.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open, due to spring under load danger!



7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

Parts list

Pos.	Qty	Denomination
5	1	Adapter
7 □	2	O-ring
8 □	2	O-ring
9	1	Plug
12	1	Air fitting
19	1	Clamp
20	1	Bonnet
21 ◆	1	O-ring
22	1	Valve body
23	1	Plug, shut off
23.1	1	Plug, shut off
23.2 ◆	1	Plug seal
24	1	Bushing
25 ◆	1	Lip seal
64	1	Ground wire
116	1	Bolt

Service kits

Denomination	DN 25 25 mm	DN 40 38 mm	DN 50 51 mm	DN 65 63.5 mm	DN 80 76.1 mm	DN 100 101.6 mm
Service kits						
□ Service kit, actuator	9611926500	9611926500	9611926500	9611926500	9611926500	9611926500
◆ Service kit, EPDM	9611926501	9611926502	9611926503	9611926504	9611926505	9611926506
◆ Service kit, HNBR	9611926507	9611926508	9611926509	9611926510	9611926511	9611926512
◆ Service kit, FPM	9611926513	9611926514	9611926515	9611926516	9611926517	9611926518

Parts marked with □ are included in the service kits (actuator)

Parts marked with ◆ are included in the service kits (product wetted parts)

Tool for bushing (pos. 24) - item no: 9613160901

TD 900510/3

7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

7.3 Unique Single Seat Valve – ATEX – change-over

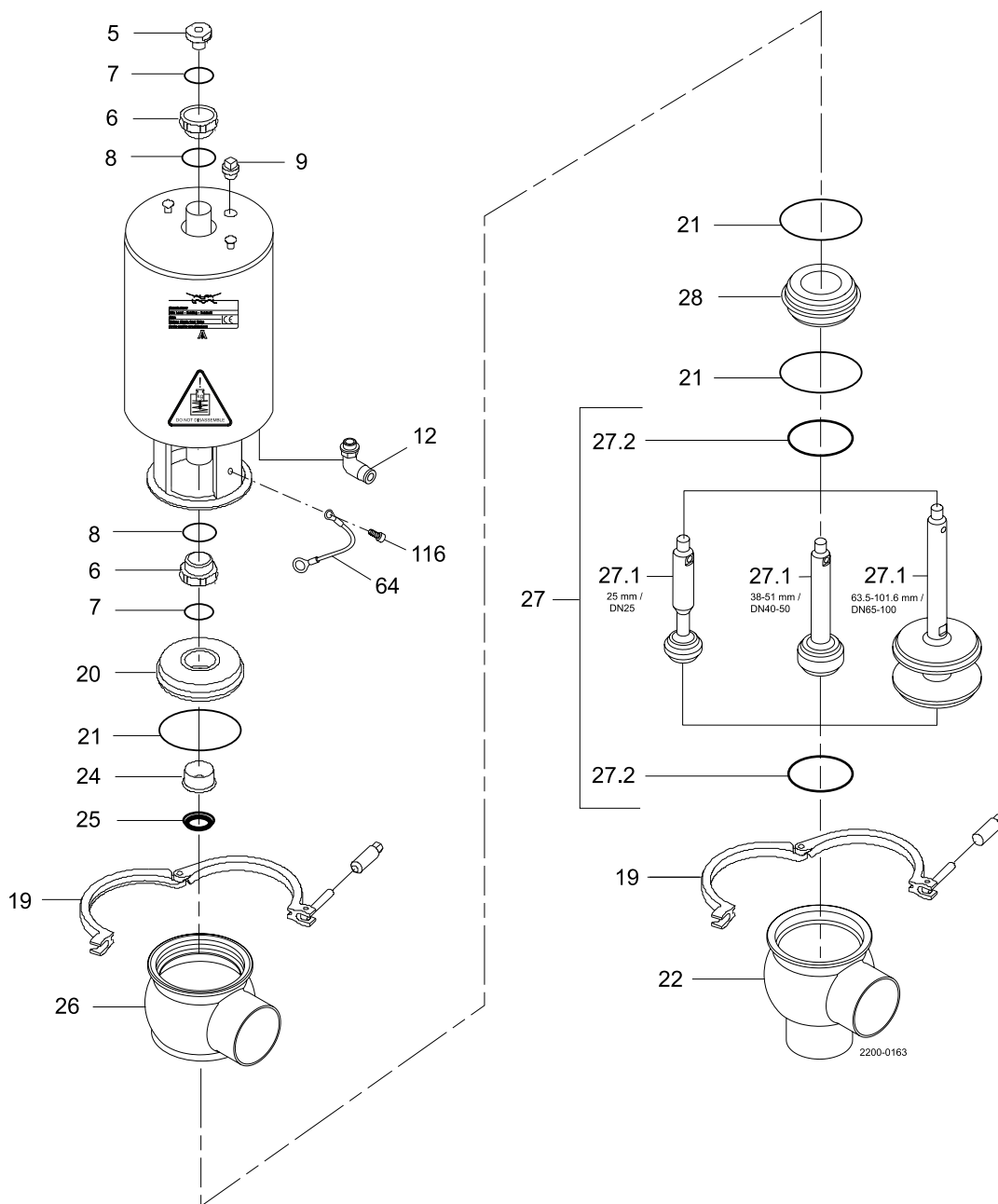
If the actuator is marked with a danger warning do **NOT** attempt to cut the actuator open.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open, due to spring under load danger!



7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

Parts list

Pos.	Qty	Denomination
5	1	Adapter
6 □	2	Bushing
7 □	2	O-ring
8 □	2	O-ring
9	1	Plug
12	1	Air fitting
19	1	Clamp
20	1	Bonnet
21 ♦	1	O-ring
22	1	Valve body
24	1	Bushing
25 ♦	1	Lip seal
26	1	Valve body
27	1	Plug, change over
27.1	1	Plug, change over
27.2 ♦	2	Plug seal
28	1	Seat
64	1	Ground wire
116	1	Bolt

Service kits

Denomination	DN 25 25 mm	DN 40 38 mm	DN 50 51 mm	DN 65 63.5 mm	DN 80 76.1 mm	DN 100 101.6 mm
Service kits						
□ Service kit, actuator	9611926500	9611926500	9611926500	9611926500	9611926500	9611926500
♦ Service kit, EPDM	9611926579	9611926580	9611926581	9611926582	9611926583	9611926584
♦ Service kit, HNBR	9611926585	96119265856	9611926587	9611926588	9611926589	9611926590
♦ Service kit, FPM	9611926591	9611926592	9611926593	9611926594	9611926595	9611926596

Parts marked with □ are included in the service kits (actuator)

Parts marked with ♦ are included in the service kits (product wetted parts)

Tool for bushing (pos. 24) - item no: 9613160901

TD 900510/3

7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

7.4 Drawing Unique Single Seat Valve – ATEX – Reverse Acting

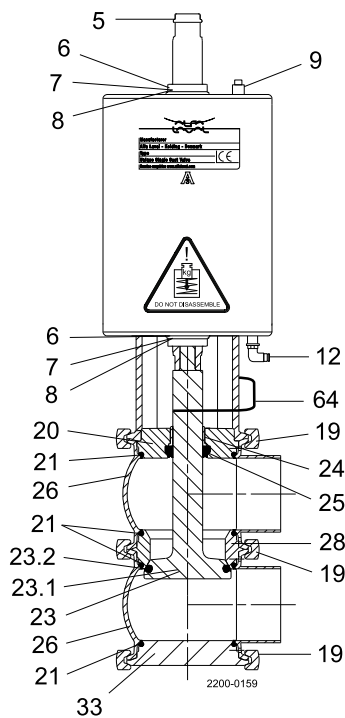
If the actuator is marked with a danger warning, do **NOT** attempt to cut the actuator open.



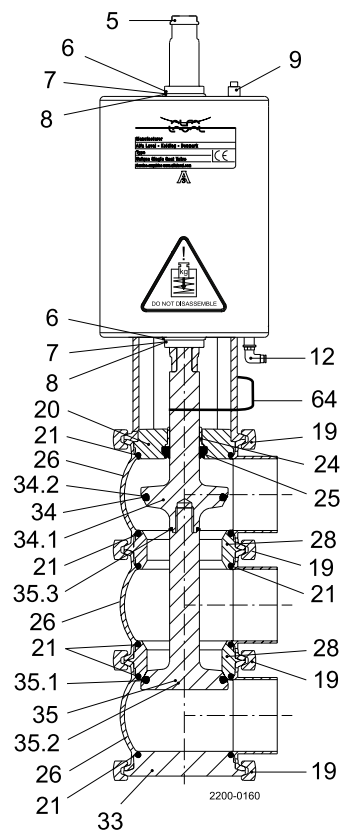
Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open due to spring under load danger!



Shut-off valve - Reverse Acting



Change-over valve - Reverse Acting

7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

7.5 Unique Single Seat Valve – ATEX – Reverse Acting – shut-off

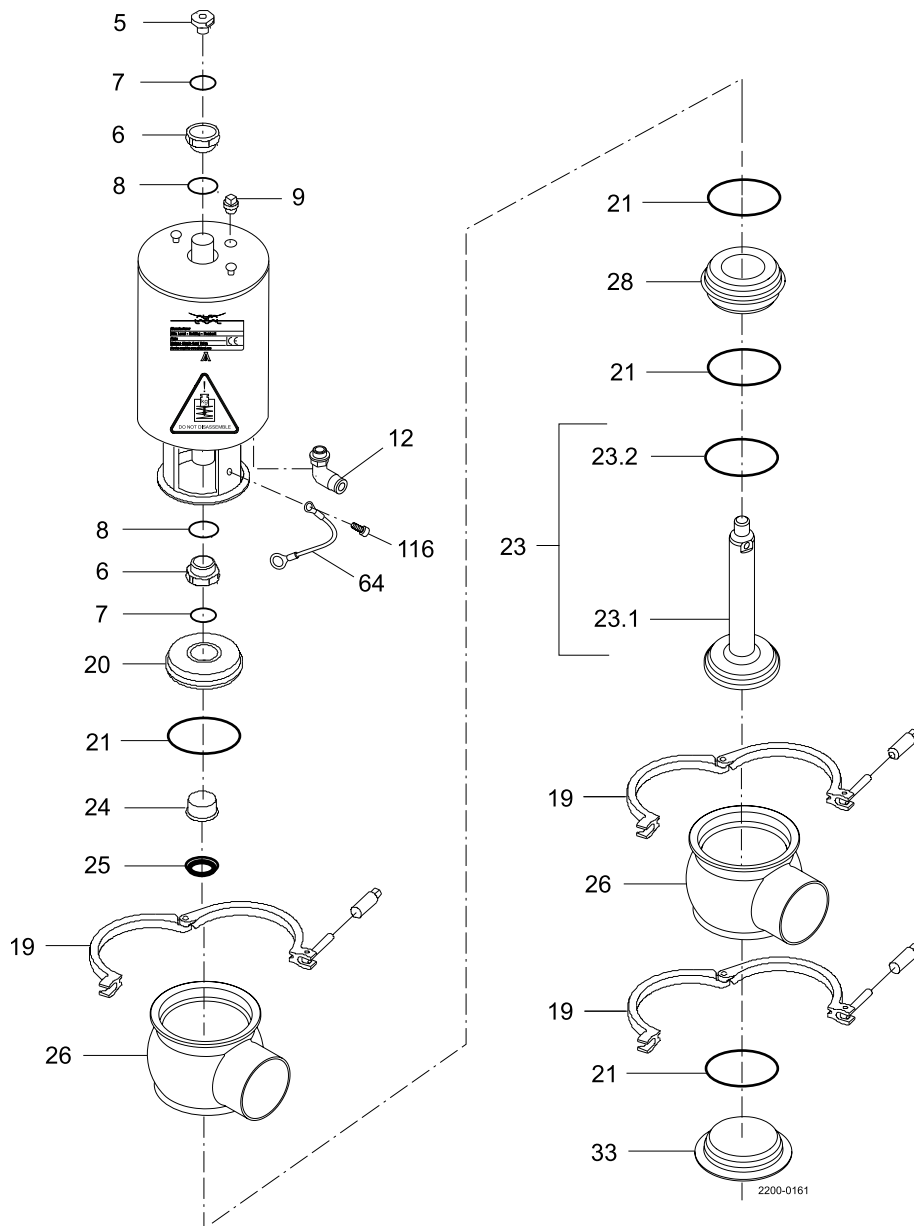
If the actuator is marked with a danger warning do **NOT** attempt to cut the actuator open.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open, due to spring under load danger!



7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

Parts list

Pos.	Qty	Denomination
5	1	Actuator
6 □	2	Adapter
7 □	2	Bushing
8 □	2	O-ring
9	2	O-ring
12	1	Plug
19	1	Air fitting
20	3	Clamp
21 ♦	1	Sealing element
23	2	O-ring
23.1	1	Plug, shut off RA
23.2 ♦	1	Plug, shut off RA
24	1	Plug seal, EPDM
25 ♦	1	Bearing
26	1	Lip seal
28	2	Valve body
33	1	Seat
64	1	Lower bonnet
116	1	Ground wire
	1	Bolt

Service kits

Denomination	DN 25 25 mm	DN 40 38 mm	DN 50 51 mm	DN 65 63.5 mm	DN 80 76.1 mm	DN 100 101.6 mm
Service kits						
□ Service kit, actuator	9611926500	9611926500	9611926500	9611926500	9611926500	9611926500
♦ Service kit, EPDM	9611926525	9611926526	9611926527	9611926528	9611926529	9611926530
♦ Service kit, HNBR	9611926531	9611926532	9611926533	9611926534	9611926535	9611926536
♦ Service kit, FPM	9611926537	9611926538	9611926539	9611926540	9611926541	9611926542

Parts marked with □ are included in the service kits (actuator)

Parts marked with ♦ are included in the service kits (product wetted parts)

Tool for bushing (pos. 24) - item no: 9613160901

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7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

7.6 Unique Single Seat Valve – ATEX – Reverse Acting – change-over

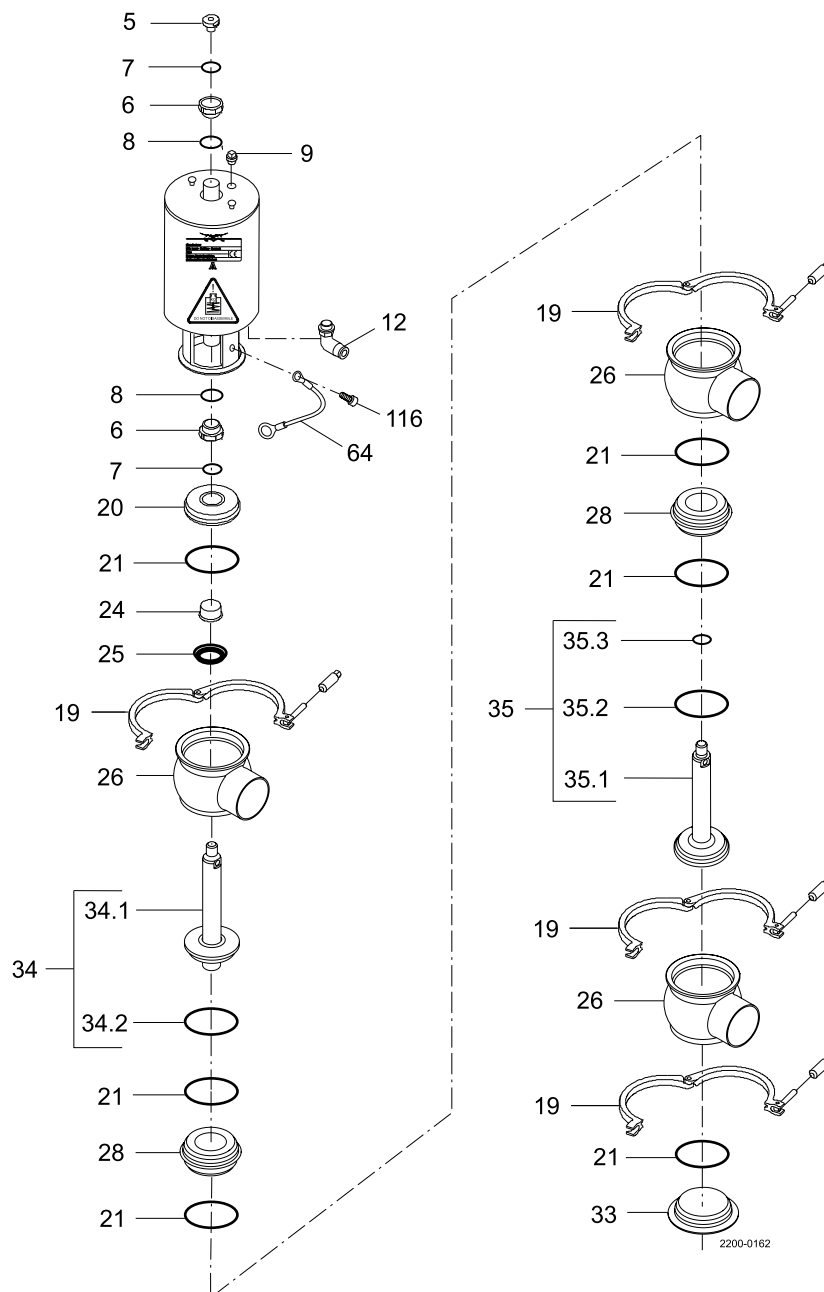
If the actuator is marked with a danger warning do **NOT** attempt to cut the actuator open.



Do **NOT** attempt to disassemble the actuator due to spring under load danger!



Do **NOT** attempt to cut the actuator open, due to spring under load danger!



7 Parts list and service kits

The drawing shows Unique Single Seat Valve.
The items refer to the parts list in the following sections

Parts list

Pos.	Qty	Denomination
5	1	Actuator
6 □	2	Adapter
7 □	2	Bushing
8 □	2	O-ring
9	2	O-ring
12	1	Plug
19	1	Air fitting
20	4	Clamp
21 ◆	1	Sealing element
24	4	O-ring
25 ◆	1	Bearing
26	1	Lip seal
28	3	Valve body
33	2	Seat
34	1	Lower bonnet
34.1	1	Plug, change over upper RA
34.2 ◆	1	Plug, change over upper RA,
35	1	Plug seal
35.1	1	Plug, change over lower RA
35.2 ◆	1	Plug, change over lower RA
35.3 ◆	1	Plug seal
64	1	O-ring
116	1	Ground wire
	1	Bolt

Service kits

Denomination	DN 25 25 mm	DN 40 38 mm	DN 50 51 mm	DN 65 63.5 mm	DN 80 76.1 mm	DN 100 101.6 mm
Service kits						
□ Service kit, Actuator	9611926500	9611926500	9611926500	9611926500	9611926500	9611926500
◆ Service kit, EPDM	9611926597	9611926598	9611926599	9611926600	9611926601	9611926602
◆ Service kit, HNBR	9611926603	9611926604	9611926605	9611926606	9611926607	9611926608
◆ Service kit, FPM	9611926609	9611926610	9611926611	9611926612	9611926613	9611926614

Parts marked with □ are included in the service kits (actuator)

Parts marked with ◆ are included in the service kits (product wetted parts)

Tool for bushing (pos. 24) - item no: 9613160901

TD 900510/3

How to contact Alfa Laval

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