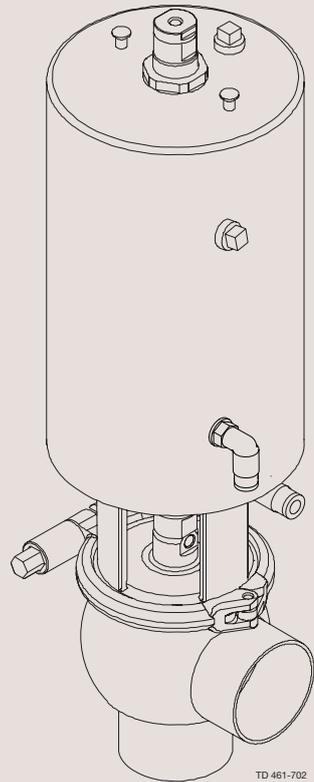
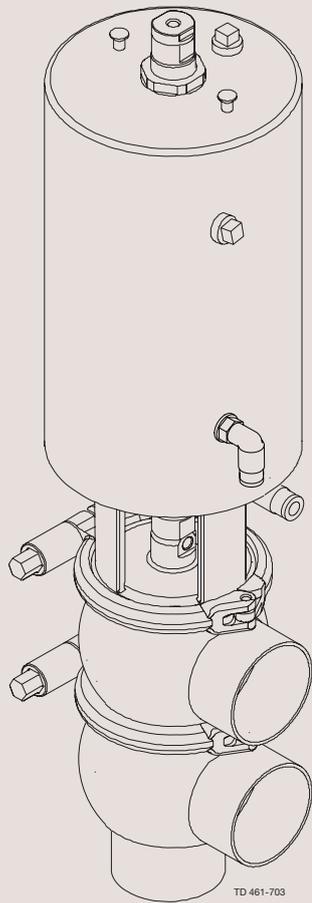




Instruction Manual

Unique Single Seat Valve - Two Step



ESE00505-EN4

2011-05

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 EC Declaration of Conformity

The designating company

Alfa Laval

Company Name

Albuen 31, DK-6000 Kolding, Denmark

Address

+45 79 32 22 00

Phone No.

hereby declare that

Unique Single Seat Valve

Denomination

Two Step

Type

Year

is in conformity with the following directives:

- Machinery Directive 2006/42/EC

- Pressure Equipment Directive 97/23/EC category 1 and subjected to assessment procedure Module A.

Manager, Product Centres, Compact
Heat Exchangers & Fluid Handling

Title

Bjarne Søndergaard

Name

Alfa Laval Kolding
Company

Signature



Designation



*Unsafe practices and other important information are emphasized in this manual.
Warnings are emphasized 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:



2 Safety

All warnings in the manual are summarized on this page.

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

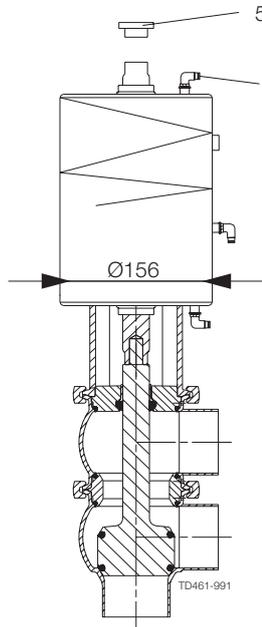
2.3 Safety precautions



When using “support air” on spring side in all the Unique SSV actuators, the pressure must **NOT** exceed 3 bar.

When using Unique SSV actuators with OD156mm with support air, **always** use the “steel adapter” (pos. 5). Tighten the “steel adapter” with torque of 30 Nm and use Loctite 243.

The actuator with OD156mm is mainly used on valves ISO76/DN80 – ISO101/DN100. The outer actuator diameter = 156 mm.



Max. 3 bar “support air” on spring side.

Installation

Always read the technical data thoroughly.

Always release compressed air after use.

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

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

Never dismantle the valve with valve and pipelines under pressure.

Never dismantle the valve when it is hot.

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.

Always release compressed air after use.

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

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

Always rinse well with clean water after the cleaning.

Always handle lye and acid with great care.



All warnings in the manual are summarized on this page.

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

Maintenance

Always read the technical data thoroughly.



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 the moving parts if the actuator is supplied with compressed air.



Transportation:

Always secure that compressed air is released

Always secure that all connections is disconnected before attempt to remove the valve from the installation

Always drain liquid out of valves before transportation

Always used predesigned lifting points if defined

Always secure sufficient fixing of the valve during transportation - if special designed packaging material is available it must be used

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.

3.1 Unpacking/delivery

Step 1

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

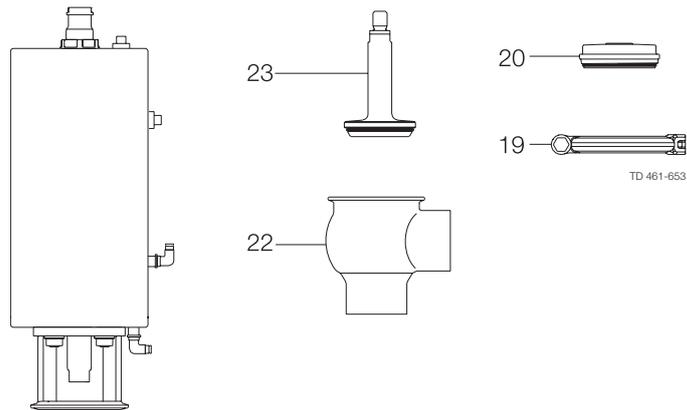
1. Complete valve, shut off valve or change-over valve.
2. Delivery note.

Step 2

2a

Shut-off valve:

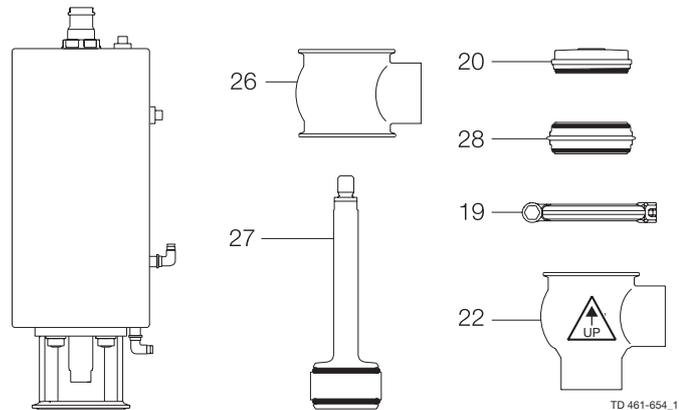
1. Complete actuator.
2. Bonnet (20).
3. Clamp (19).
4. Valve plug (23).
5. Valve body (22).



2d

Change-over valve - Reverse Acting:

1. Complete actuator.
2. Bonnet (20).
3. 4 x clamp (19).
4. Upper valve plug (34).
5. Lower valve plug (35).
6. 3 x upper valve body (26).
7. 2 x valve seat (28).
8. Lower bonnet (33).



Step 3

Remove possible packing materials from the valve/valve parts.

Inspect the valve/valve parts for visible transport damages.

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



Always read the technical data thoroughly.
See chapter



Always release compressed air after use.

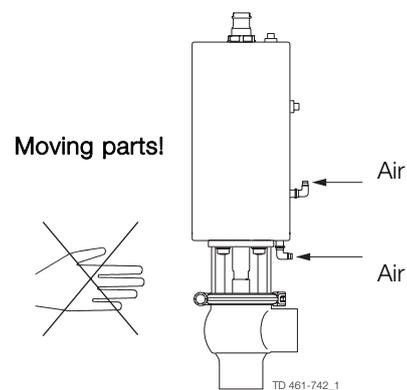
CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

Step 2



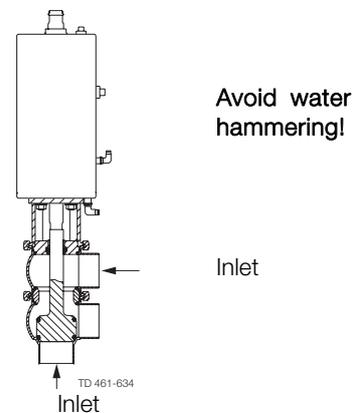
Never touch the moving parts if the actuator is supplied with compressed air.



Step 3

It is recommended to install the valve so that the flow is against the closing direction to avoid water hammer.

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

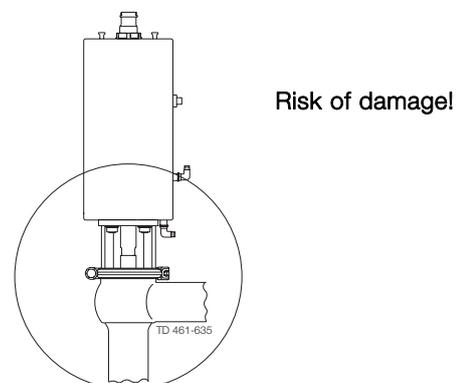


Step 4

Avoid stressing the valve.

Pay special attention to:

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



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.

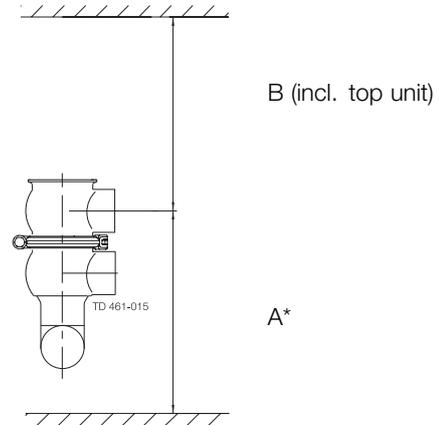
3.3 Welding

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.

Valve size	A (mm)	B (mm)
DN40/38 mm	*	740
DN50/51 mm	*	770
DN65/63.5 mm	*	780
DN80/76 mm	*	830
DN100/101.6 mm	*	880

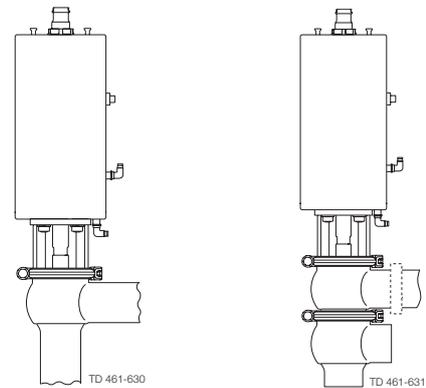
* Depending on body combination and piping solution.



Step 2

Assemble the valve in accordance with the steps on page 23.

Pay special attention to the warnings!

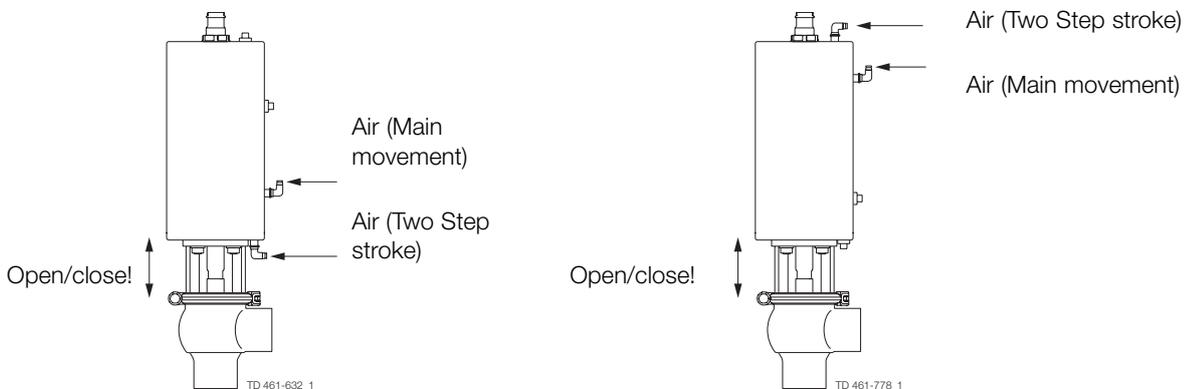


Step 3

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!



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.

3.4 Recycling information

- **Unpacking**

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps
- Wood and cardboard boxes can be reused, 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 wear 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 taken care of in agreement with local regulations

- **Scrapping**

- At end of use, the equipment shall be recycled according to relevant, local regulations. Beside 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 the local Alfa Laval sales company
-

4 Operation

Study the instructions carefully.

The item refer to the parts and service kits section.

NO = Normally open (pneumatic movement downwards).

NC = Normally closed (pneumatic movement upwards).

4.1 Description of valve function

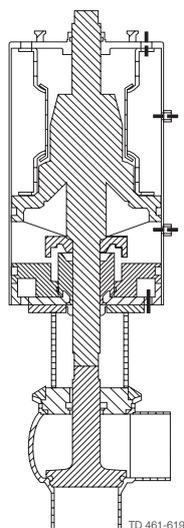
The SSV Two step valve has two pistons inside the actuator, which makes it possible to have an intermediate plug position where all body ends are open.

SSV Two step valves are made in a Shut off valve type and a Change – Over valve type.

Type shut off valve (only NC)

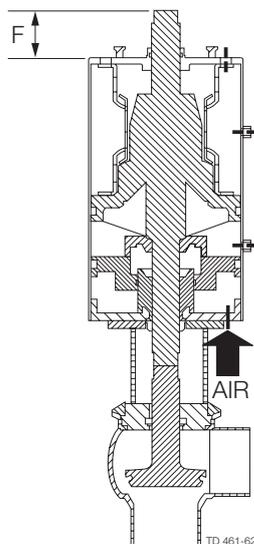
Two step valves as shut off (only as NC) can be used for reducing pressure hammers or dosing e.g. in connection with filling of a vessel where an exact volume is required.

The degree of opening for the intermediate position can be adjusted by removing spacer rings inside the actuator (see 4.5).

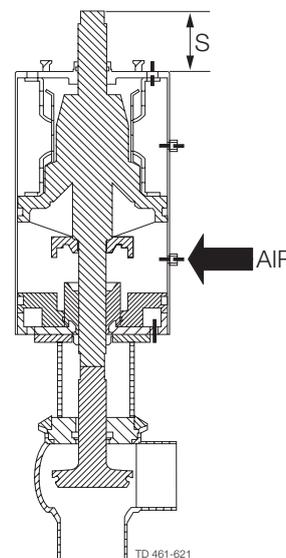


Closed

Throttled position can be adjusted by removing spacers. Plug opening will increase if spacers are removed



Throttled opening
Two step stroke activated



Full open

The plug opening for different Shut off valves and Actuator size is shown below.

Dimensions = mm	Standard Actuator choice (NC)										High pressure Actuator (NC)			
	Inch tube					DIN tube					Inch tube		DIN tube	
	38	51	63.5	76.1	101.6	40	50	65	80	100	51	63.5	50	65
F min. Two step stroke (with spacers inside Actuator)	3	3	3	2.5	2.5	3	3	3	2.5	2.5	6	6	6	6
F max. Two step stroke (Spacers removed inside Actuator)	6	11	11	14	14	6	11	11	14	14	9	9	9	9
S = full stroke opening	20	25	25	30	30	20	25	25	30	30	25	25	25	25

Study the instructions carefully.

The item refer to the parts and service kits section.

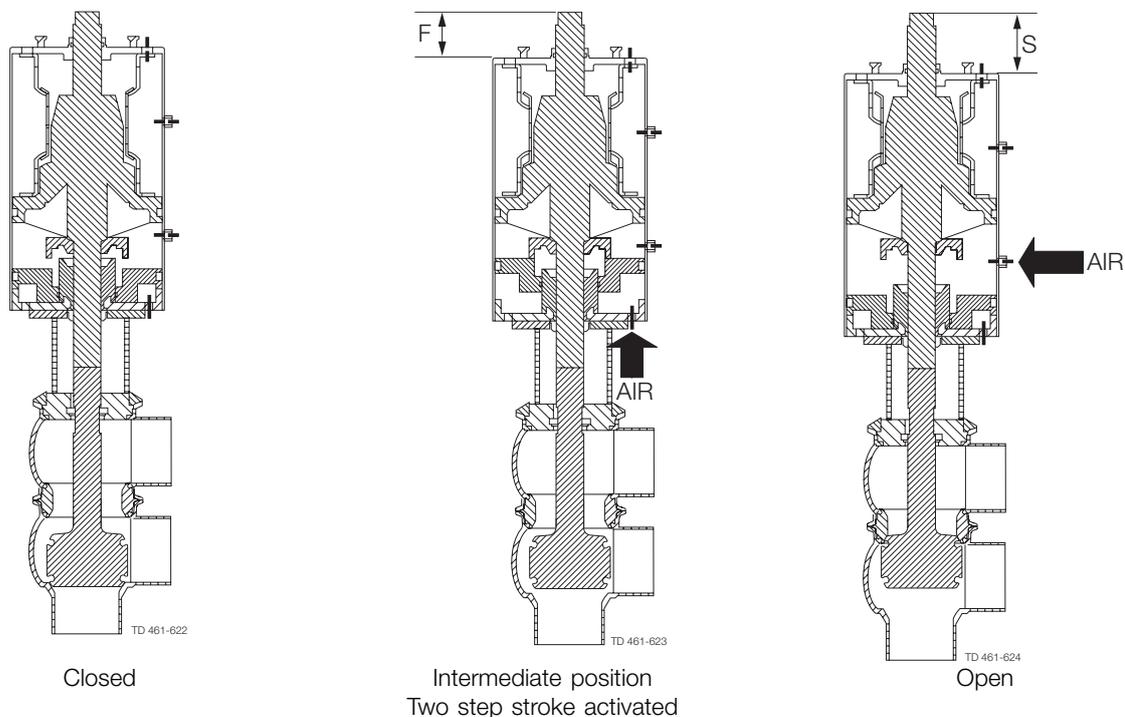
NO = Normally open (pneumatic movement downwards).

NC = Normally closed (pneumatic movement upwards).

Type Change-over valve (NC and NO)

Two step valves as change over (NC and NO) can be used for drainage of two pipes simultaneously or split of flow in three lines. The valve has a fixed intermediate position and spring return to the end positions.

Spring return to lower position = NC



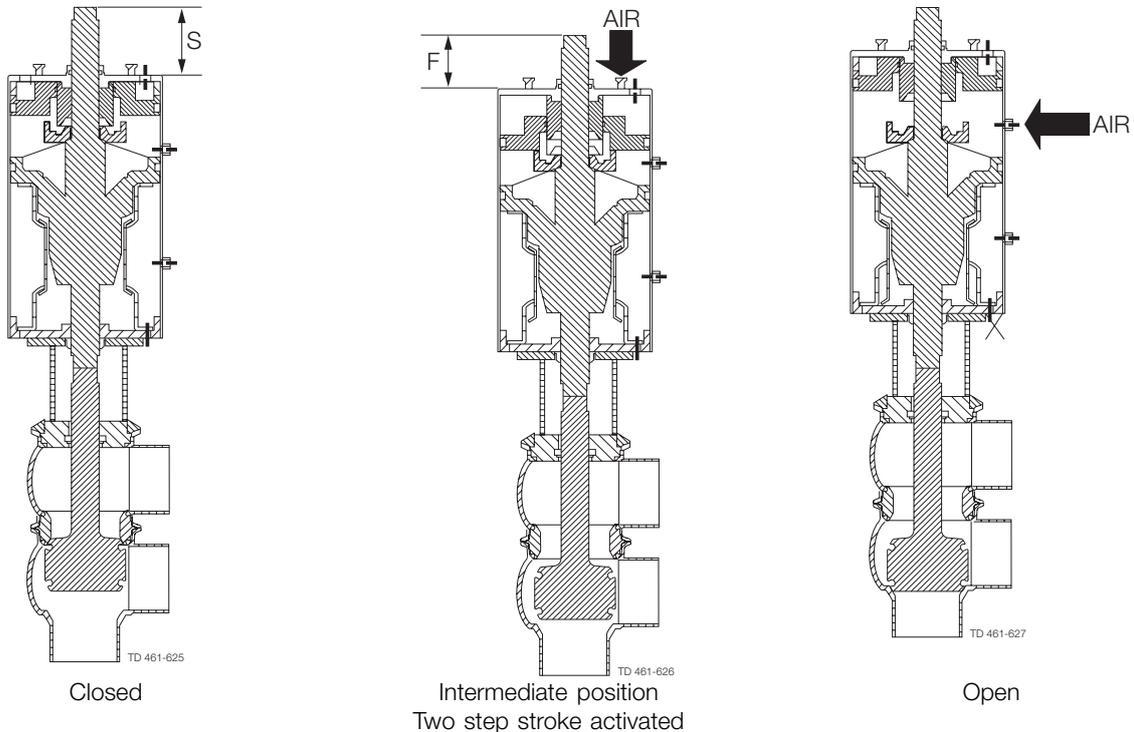
The plug opening for different Change-over Valves and Actuator size is shown below.

Dimensions = mm	Standard Actuator choice (NC)										High pressure Actuator (NC)			
	Inch tube					DIN tube					Inch tube		DIN tube	
F = Fixed intermediate position	38	51	63.5	76.1	101.6	40	50	65	80	100	51	63.5	50	65
S = full stroke opening	6.5	11	11	14	14	6.5	11	11	14	14	9	9	9	9
	17	22	22	27	27	17	22	22	27	27	22	22	22	22

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.

Spring return to upper position = NO



The plug opening for different Change-over Valves and Actuator size is shown below.

Dimensions = mm	Standard Actuator choice (NC)										High pressure Actuator (NC)			
	Inch tube					DIN tube					Inch tube		DIN tube	
	38	51	63.5	76.1	101.6	40	50	65	80	100	51	63.5	50	65
F = Fixed intermediate position	11	11	11	11	11	11	11	11	11	11	11	11	11	11
S = full stroke opening	17	22	22	27	27	17	22	22	27	27	22	22	22	22

4.2 Operation

Step 1



Always read the technical data thoroughly.
 See chapter



Always release compressed air after use.

CAUTION

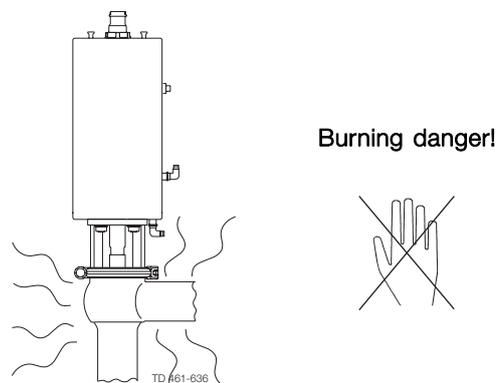
Alfa Laval cannot be held responsible for incorrect operation.

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 2



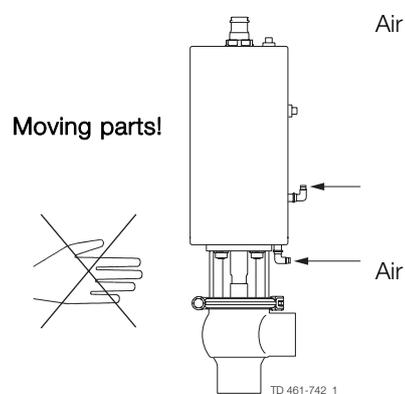
Never touch the valve or the pipelines when processing hot liquids or when sterilizing.



Step 3



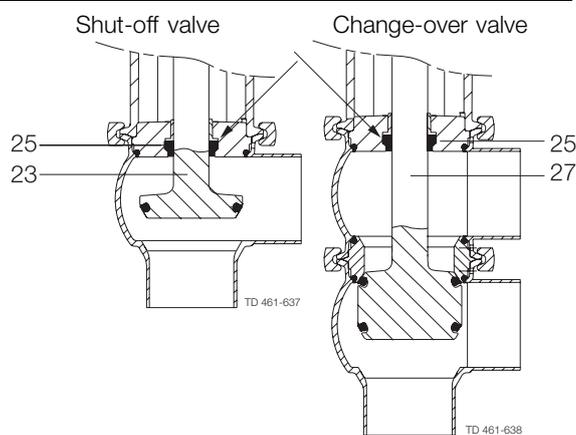
Never touch the moving parts if the actuator is supplied with compressed air.



Step 4

Lubrication of valves:

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



4 Operation

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

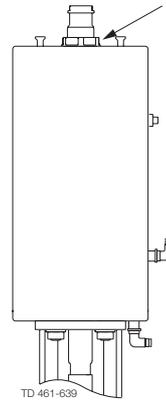
Ensure that the valve operates smoothly.

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

Step 5

Lubrication of actuator

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



Lubricate

TD 461-639

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

4.3 Troubleshooting

NOTE!

Study the maintenance instructions carefully before replacing worn parts. - See page !

Problem	Cause/result	Repair
External product leakage	Worn or product affected 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 - 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 - 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 - Use auxiliary air on the spring side - Reduce product pressure

4 Operation

The valve is designed for cleaning in place (CIP). CIP = Cleaning In Place.
 Study the instructions carefully and pay special attention to the warnings!
 NaOH = Caustic Soda.
 HNO₃ = Nitric acid.

4.4 Recommended cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



Always use
rubber gloves!

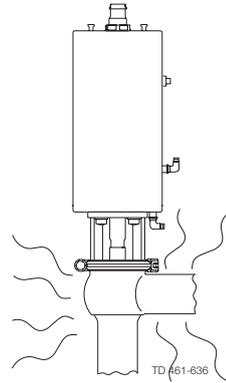


Always use
protective goggles!

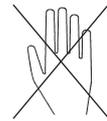
Step 2



Never touch the valve or the pipelines when sterilizing.



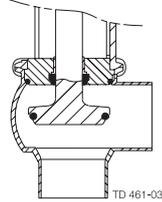
Burning danger!



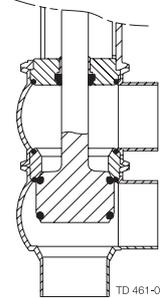
Step 3

Clean the plug and the seats correctly.
Pay special attention to the warnings!
 Lift and lower valve plug momentarily!

Shut-off valve



Change-over valve



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.

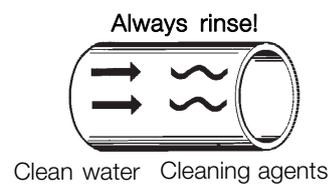
2. 0.5% by weight HNO₃ at 70° C

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

*The valve is designed for cleaning in place (CIP). CIP = Cleaning In Place.
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.



Step 6

NOTE

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

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



Always read the technical data thoroughly.
See chapter



Always release compressed air after use.

NOTE

All scrap must be stored/discharged in accordance with current rules/directives.

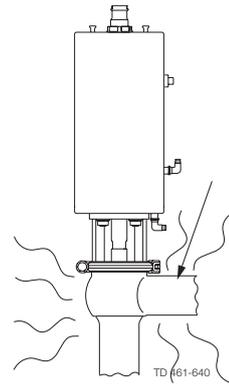
Step 2



Never service the valve when it is hot.

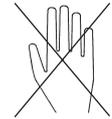


Never service the valve with valve and pipelines under pressure.



Atmospheric pressure required!

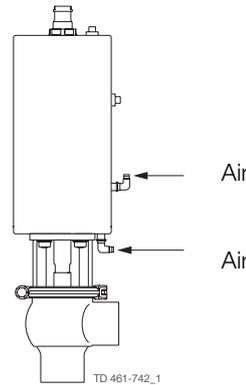
Burning danger!



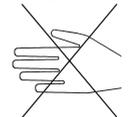
Step 3



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



Cutting danger!

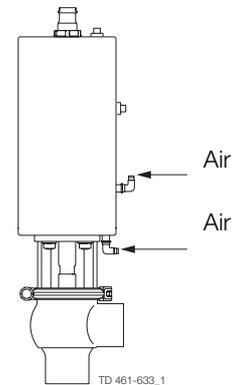
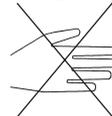


Step 4



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

Moving parts!



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.

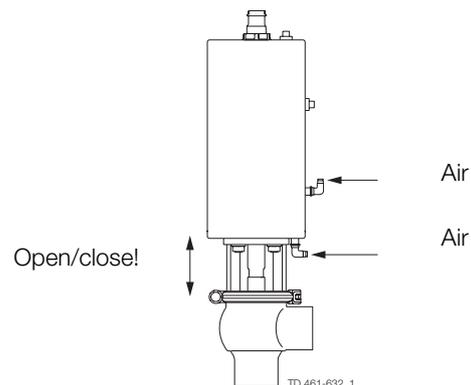
Below are some guidelines for maintenance and lubrication intervals. Please note that the guidelines are for normal working conditions in one shift.

	Product wetted seals	Actuator bushings complete
Preventive maintenance	Replace after 12 months depending on working conditions	Replace 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 planning of inspections 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 planning of inspections 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)

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.

5.2 Dismantling of valve

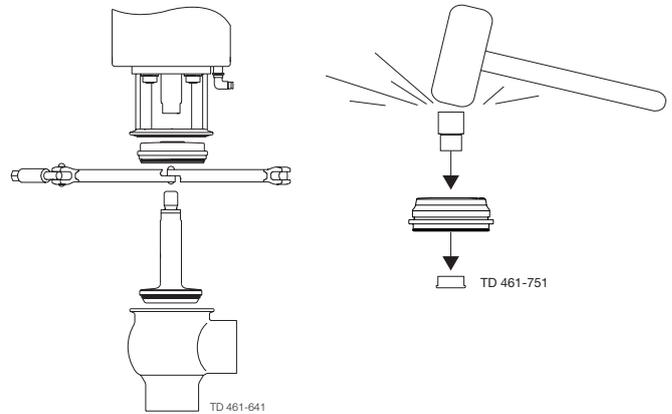
Step 1

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 O-ring, lip seal and bushing in bonnet.
(Use bushing tool and rubber mallet).

Pay special attention to the warnings!



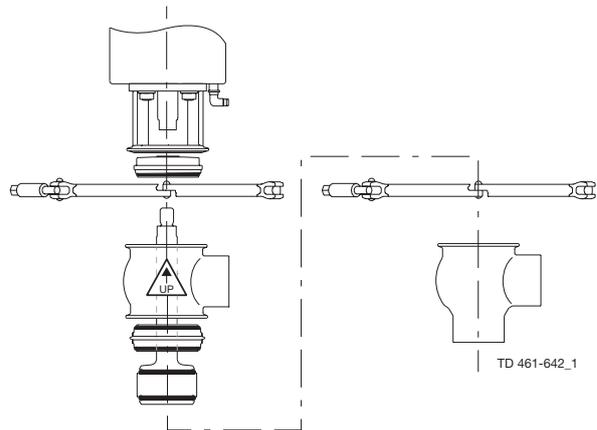
Note! For plug seal replacement please see page 22.

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. Release compressed air (only NO).
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).

Pay special attention to the warnings!

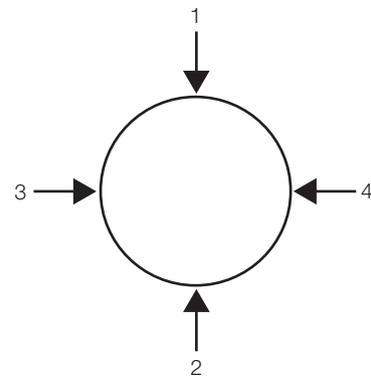


Note! For plug seal replacement please see page 22.

5.3 Plug seal replacement

1. Remove old seal ring using a knife, screwdriver or similar.
Be careful not to damage metal parts.
2. Pre-mount plug seal without pressing it into the groove.
3. Squeeze plug seal into the groove using opposite pressure points.
4. Release compressed air behind plug seal.

Note! For plug seal replacement please read instruction in service kit.



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

NC = Normally closed.

NO = Normally open.

5.4 Assembly of valve

Reverse order of 4.2, Dismantling of valve.

Lubricate O-ring (21) and lip seal (25) with Klüber Paraliq GTE 703.

Remember to tighten spindle and plug with a torque $M = 30\text{Nm}$ (Use two 17mm spanners)

If there are vibrations in the pipeline Alfa Laval recommend to use loctite no. 243.

5 Maintenance

Study the instructions carefully.

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

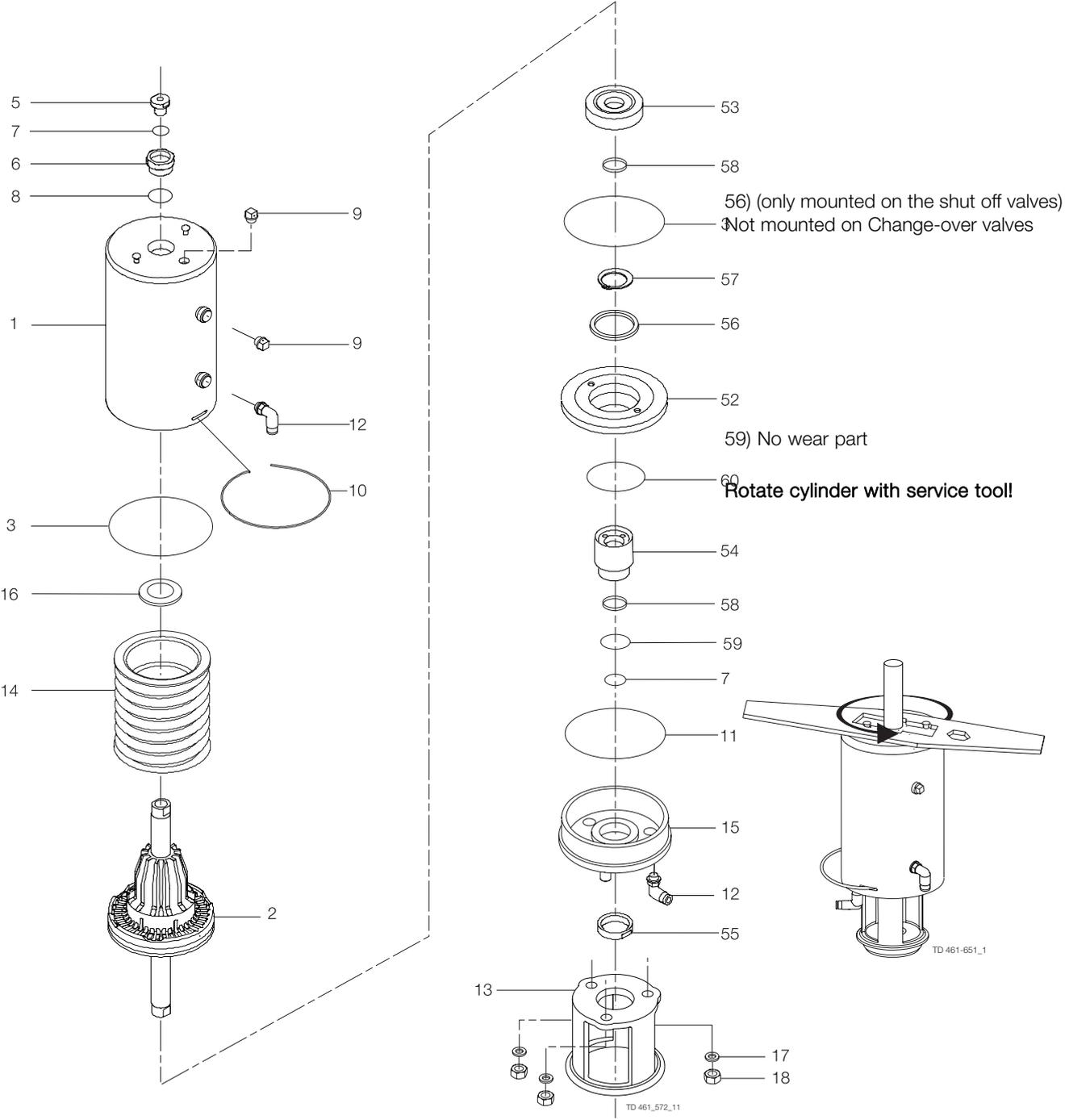
5.5 Dismantling of (NC) maintainable actuator

Changing of wear parts

1. Rotate cylinder (1).
2. Remove lock wire (10) and pull away cylinder (1). This can be done by careful using air on fitting (12).
3. Remove O-ring (11) from bottom (15).
4. Unscrew top bushing (6) and remove o-ring (8).
5. Remove piston (2) together with support disk (16), thrust plate (53) and O-ring (3).
6. Remove spring assembly (14).
7. Remove seegering lock ring (57) using a seegering-tang tool.
8. Remove piston (52) and O-rings (3+60) together with spacer rings (56).
Spacer rings (56) are only mounted on Shut off valve and not on Change-over valve.
Spacer rings are used to reduce the piston (52) stroke, so that the Shut off valves intermediate plug position can be adjusted.
9. Remove guide ring (58) and O-ring (7).
10. Guide (54) is screwed on bottom part (15) and should only be dismantled if guide (54) is broken.
If guide (54) has to be dismantled start with unscrewing nuts (18) and remove yoke (13) and loosen nut (55). With a special tool it now is possible to dismantle guide (54). This is shown in 4.8

5 Maintenance

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



5 Maintenance

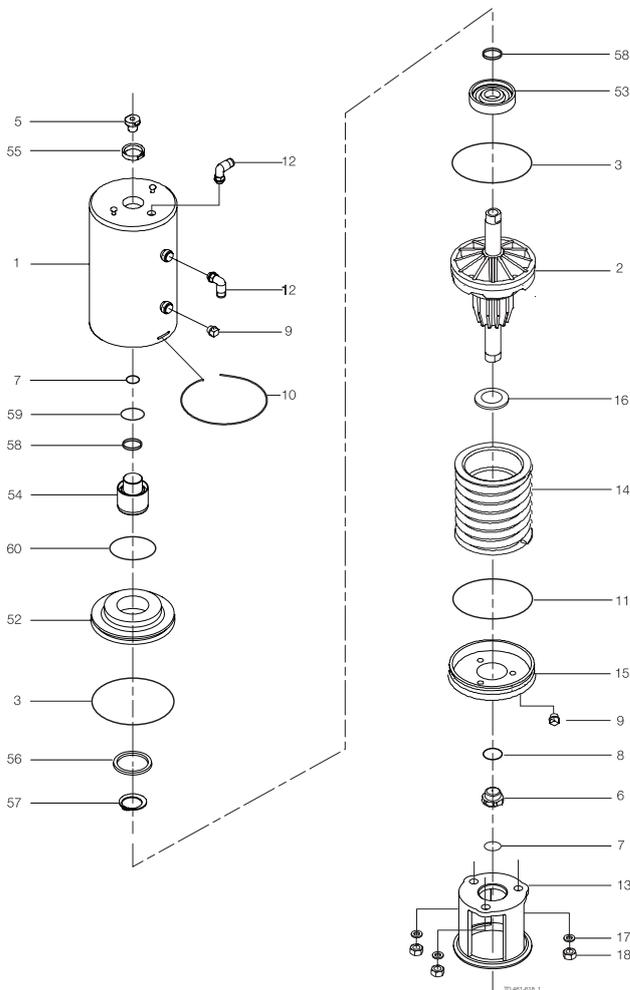
Study the instructions carefully.

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

5.6 Dismantling of Change-over (NO) maintainable actuator

Changing of wear parts

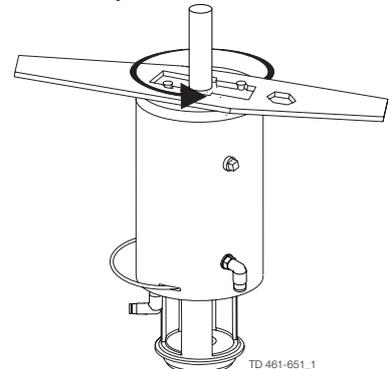
1. Rotate cylinder (1).
2. Remove lock wire (10) and pull away cylinder (1). This can be done by careful using air on fitting (12).
3. Remove O-ring (11) from bottom (15).
4. Remove piston (2) together with support disk (16), thrust plate (53) and O-ring (3) .
5. Remove spring assembly (14).
6. Unscrew nuts (18) and remove yoke (13).
7. Unscrew bottom bushing (6) and remove O-ring (8).
8. Remove seegering lock ring (57) using a seegering-tang tool.
9. Push piston (52) out of cylinder (1) using air on fitting (12) and remove O-rings (3+60) together with spacer ring (56).
Spacer ring (56) are only mounted on GR.3 actuator (diameter = $\varnothing 154$) type normally open.
10. Remove guide ring (58) and O-ring (7).
11. Guide (54) is screwed on top of cylinder (1) and should only be dismantled if guide (54) is broken.
If guide (54) has to be dismantled loosen nut (55). With a special tool it now is possible to dismantle guide (54).
This is shown in 4.8.



59) No wear part

56) (Only mounted on $\varnothing 154$ actuator)
(Not mounted on $\varnothing 115$ actuator)

Rotate cylinder with service tool!



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

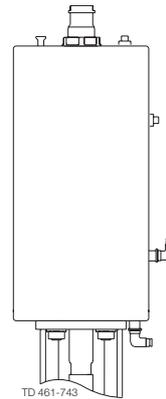
5.7 Assembly of maintainable actuator

Reverse order of 4.5. (Dismantling of (NC) maintainable actuator).
Reverse order of 4.6. (Dismantling of (NO) maintainable actuator).

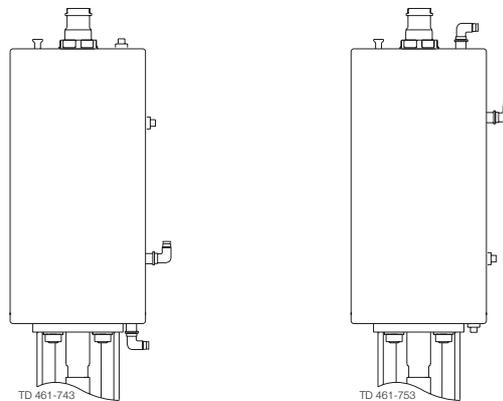
5.8 Reversing maintainable actuator operation

Step 1

Actuator for the Shut-Off valves can not be reversed as it only is possible to operate in NC position.



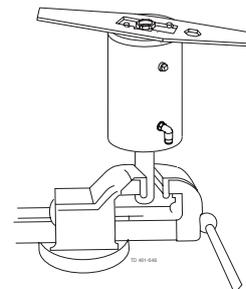
Actuator for the Change-over valves can be reversed from NC to NO and from NO to NC.



Step 2

Reversing maintainable actuator operation can be done by reversing parts inside the actuator (see 4.5 and 4.6). It is necessary to use a special "SSV Two step guide tool" and a "turning tool" (Item no. 31353-02191) for mounting the guide (54).

1. Fit the "SSV Two step guide tool" in a vice.
2. Fit O-ring (59) in Guide (54) and by hand screw it in cylinder (1).
3. Fit "turning tool" on top of cylinder (1) and tighten (Torque 15 - 20 Nm).



5 Maintenance

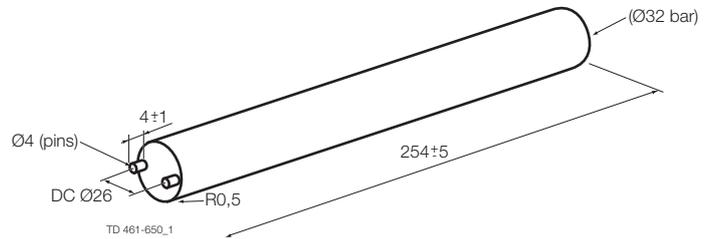
Study the instructions carefully.

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

Step 3

Drawing of "SSV Two step mounting tool"

1. Use $\varnothing 32$ mm bar and drill two $\varnothing 4$ holes in a diameter $\varnothing 26$ mm.
(The depth of $\varnothing 4$ holes should be approx 6 mm)
2. Edges on $\varnothing 32$ bar has to be min. R0.5 so it can fit into guide (54).
3. Use $\varnothing 4$ mm bar with a length of approx 10 mm.
4. Apply loctite 270 or 638 and fit the two $\varnothing 4$ pins so length are according to drawing.



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

6.1 Technical data

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 / PTFE (TR2).
Other product wetted seals	EPDM (standard).
Optional product wetted seals	HNBR and FPM.
Other seals	NBR.

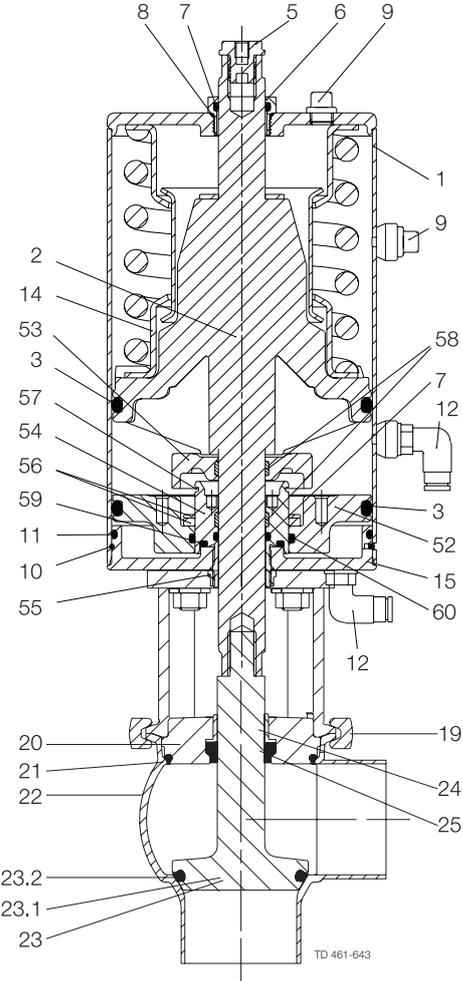
Noise

One meter away from - and 1.6 meter 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 bars air-pressure.

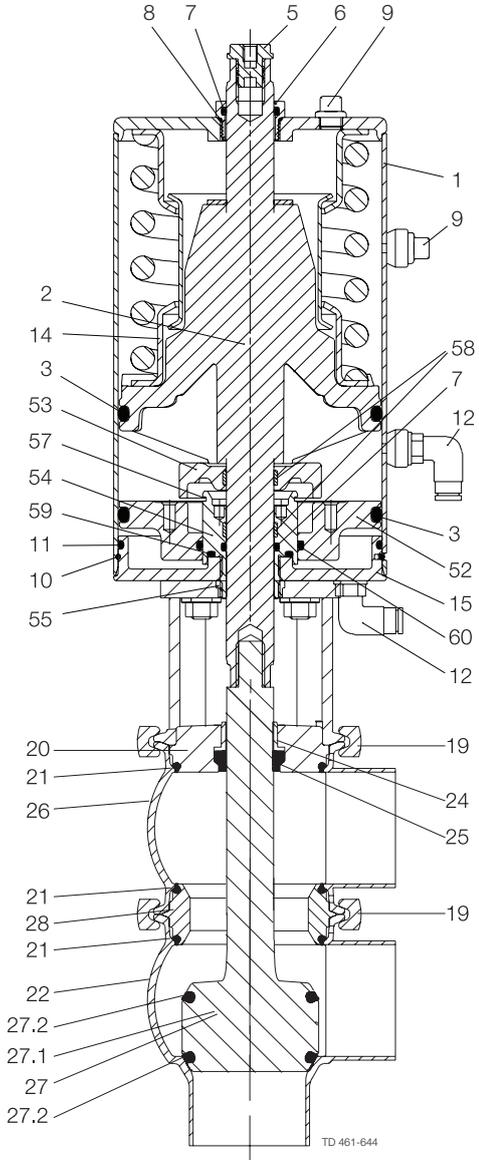
7 Parts list and Service Kits

The drawing shows Unique Single Seat Valve - Two Step.
 The items refer to the parts lists in the following sections

7.1 Drawing



Shut-off valve



Change-over valve

7 Parts list and Service Kits

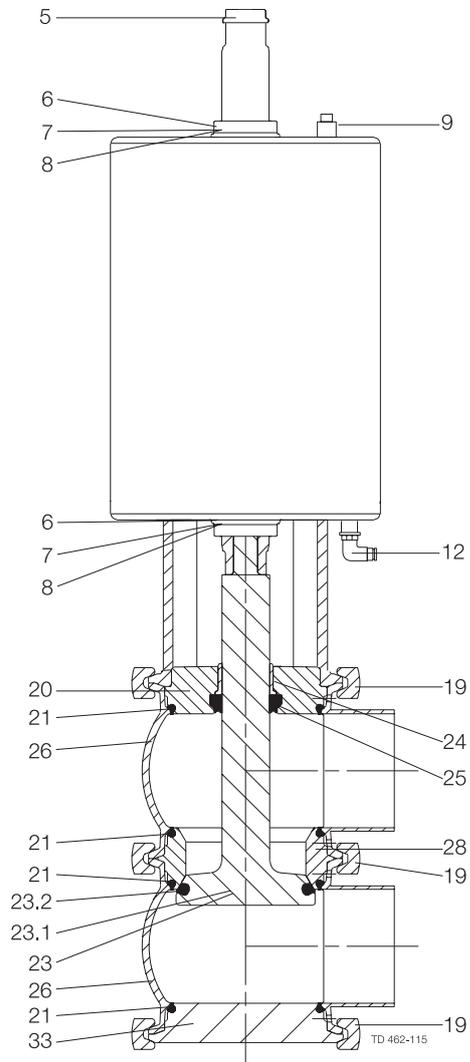
*The drawing shows Unique Single Seat Valve - Two Step.
The items refer to the parts lists in the following sections*

7.2 Unique Single Seat Valve - Two Step

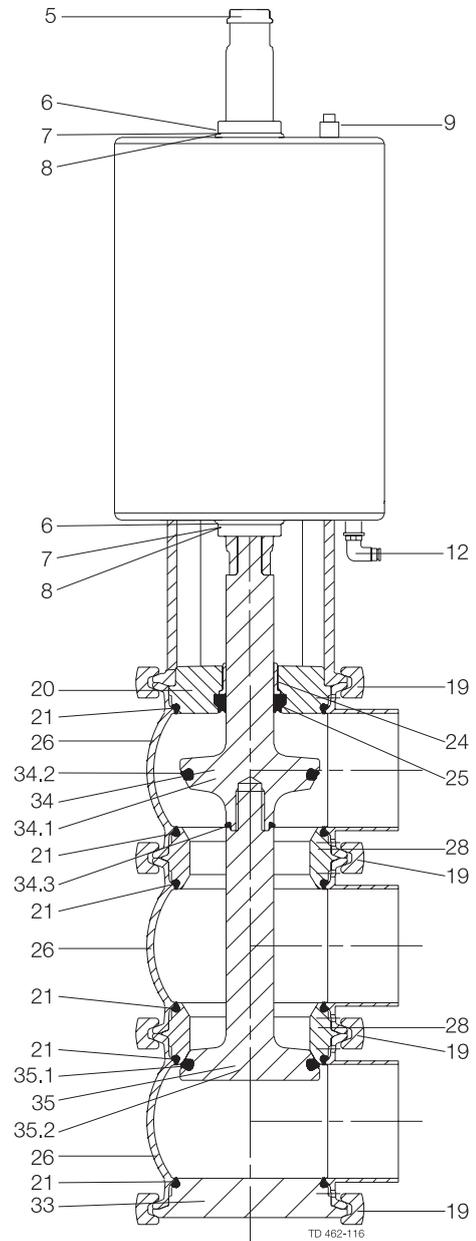
7 Parts list and Service Kits

The drawing shows Unique Single Seat Valve - Two Step.
The items refer to the parts lists in the following sections

7.3 Drawing



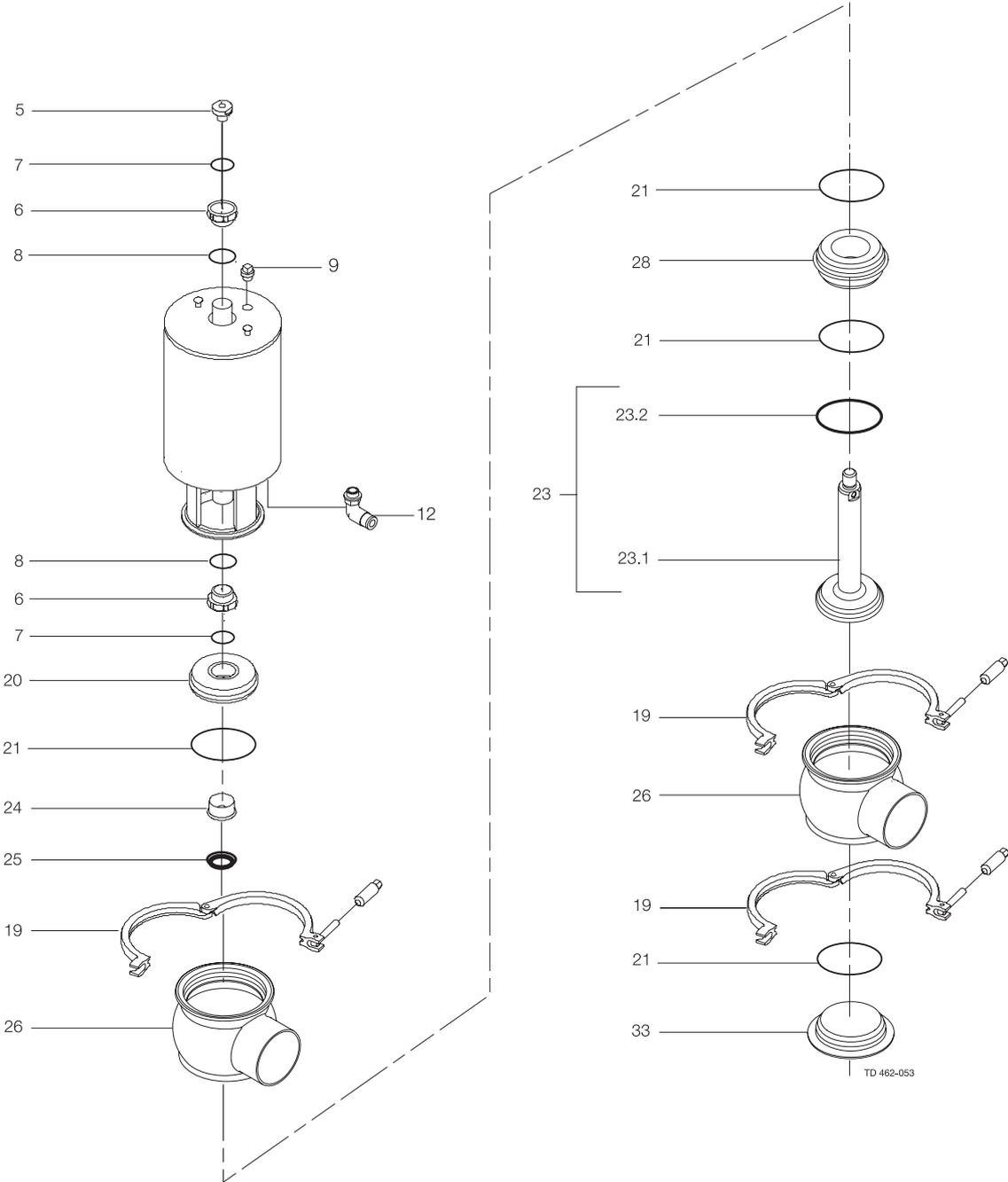
Shut-off valve - Reverse Acting



Change-over valve - Reverse Acting

The drawing shows Unique Single Seat Valve - Two Step.
 The items refer to the parts lists in the following sections

7.4 Unique Single Seat Valve - Reverse Acting



7 Parts list and Service Kits

The drawing shows Unique Single Seat Valve - Two Step.
The items refer to the parts lists in the following sections

Parts list

Pos.	Qty	Denomination
		Actuator
		O-ring set (10 pcs.) EPDM
		O-ring set (10 pcs.) HNBR
		O-ring set (10 pcs.) FPM
		Lip seal set (10 pcs.) EPDM
		Lip seal set (10 pcs.) HNBR
		Lip seal set (10 pcs.) FPM
		Plug seal set (10 pcs.) EPDM
		Plug seal set (10 pcs.) HNBR
		Plug seal set (10 pcs.) FPM
5	1	Adapter
6 □	2	Bushing
7 □	2	O-ring
8 □	2	O-ring
9	1	Plug
12	1(2)	Air fitting
19	3	Clamp
20	1	Bonnet
21 ♦	4	O-ring
23	1	Plug
23.1	1	Plug
23.2 ♦	1	Plug seal
24	1	Bushing
25 ♦	1	Lip seal
26	2	Valve body
28	1	Seat
33	1	Lower bonnet

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
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Service kit for Actuator

□	Service kit	9611-92-6500	9611-92-6500	9611-92-6500	9611-92-6500	9611-92-6500	9611-92-6500
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Service kit for Product wetted parts, standard

♦	Service kit, EPDM	9611-92-6525	9611-92-6526	9611-92-6527	9611-92-6528	9611-92-6529	9611-92-6530
♦	Service kit, HNBR	9611-92-6531	9611-92-6532	9611-92-6533	9611-92-6534	9611-92-6535	9611-92-6536
♦	Service kit, FPM	9611-92-6537	9611-92-6538	9611-92-6539	9611-92-6540	9611-92-6541	9611-92-6542

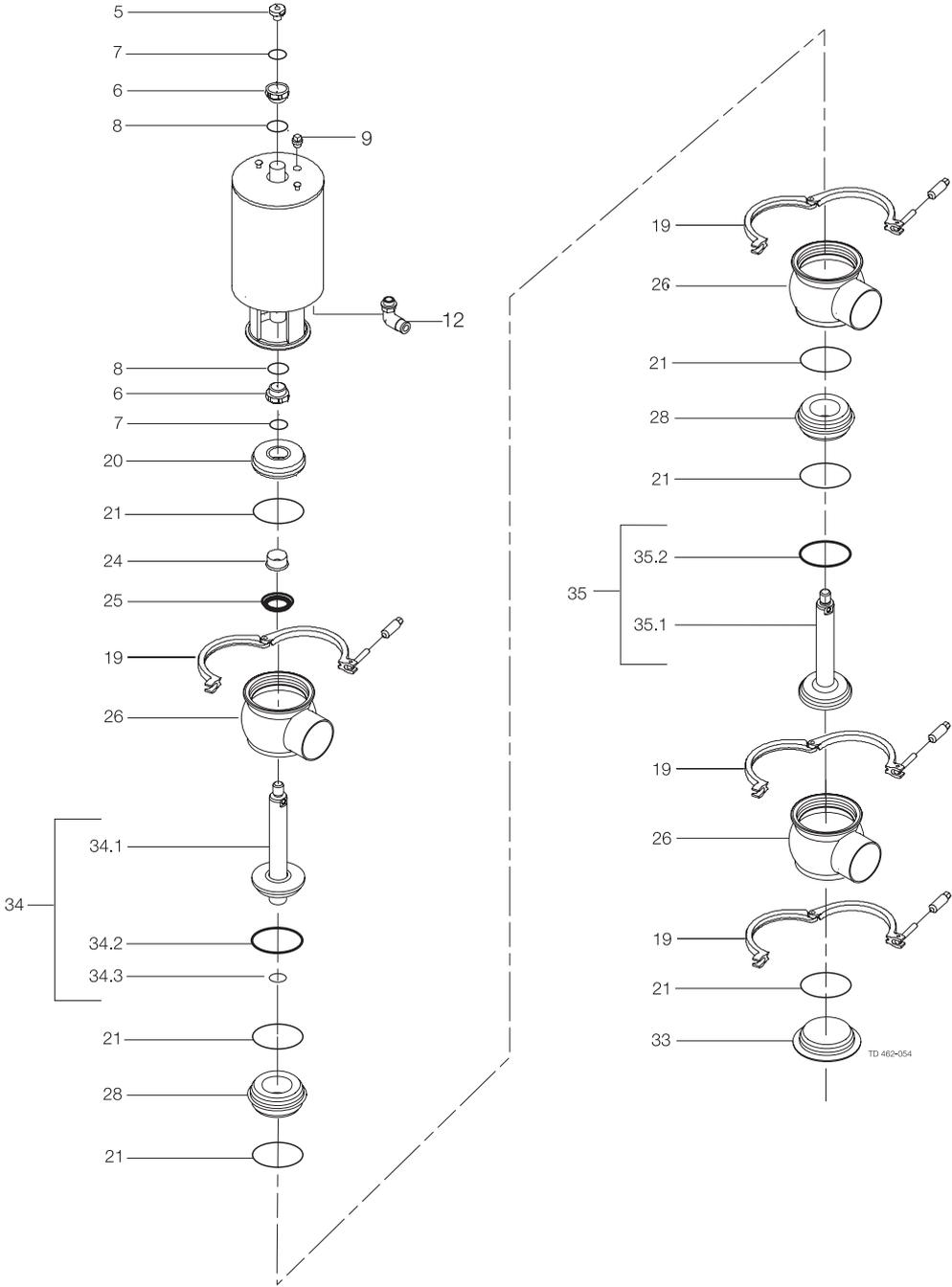
Parts marked with □♦ are included in the service kits.

Recommended spare parts: Service kits.

TD 900-350/1

7 Parts list and Service Kits

The drawing shows Unique Single Seat Valve - Two Step.
 The items refer to the parts lists in the following sections



7 Parts list and Service Kits

The drawing shows Unique Single Seat Valve - Two Step.
The items refer to the parts lists in the following sections

Parts list

Pos.	Qty	Denomination
		Actuator
		O-ring set (10 pcs.) EPDM
		O-ring set (10 pcs.) HNBR
		O-ring set (10 pcs.) FPM
		Lip seal set (10 pcs.) EPDM
		Lip seal set (10 pcs.) HNBR
		Lip seal set (10 pcs.) FPM
		Plug seal set (10 pcs.) EPDM
		Plug seal set (10 pcs.) HNBR
		Plug seal set (10 pcs.) FPM
		O-ring set (10 pcs.) EPDM
		O-ring set (10 pcs.) HNBR
		O-ring set (10 pcs.) FPM
		Plug seal set (10 pcs.) EPDM
		Plug seal set (10 pcs.) HNBR
		Plug seal set (10 pcs.) FPM
5	1	Adapter
6 □	2	Bushing
7 □	2	O-ring
8 □	2	O-ring
9	1	Plug
12	1(2)	Air fitting
19	4	Clamp
20	1	Bonnet
21 ◆	6	O-ring
24	1	Bushing
25 ◆	1	Lip seal
26	3	Valve body
28	2	Seat
33	1	Lower bonnet
34	1	Plug
34.1	1	Plug
34.2 ◆	1	Plug seal
34.3 ◆	1	O-ring
35	1	Plug
35.1	1	Plug
35.2 ◆	1	Plug seal

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
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Service kit for Actuator

□	Service kit	9611-92-6500	9611-92-6500	9611-92-6500	9611-92-6500	9611-92-6500	9611-92-6500
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Service kit for Product wetted parts, standard

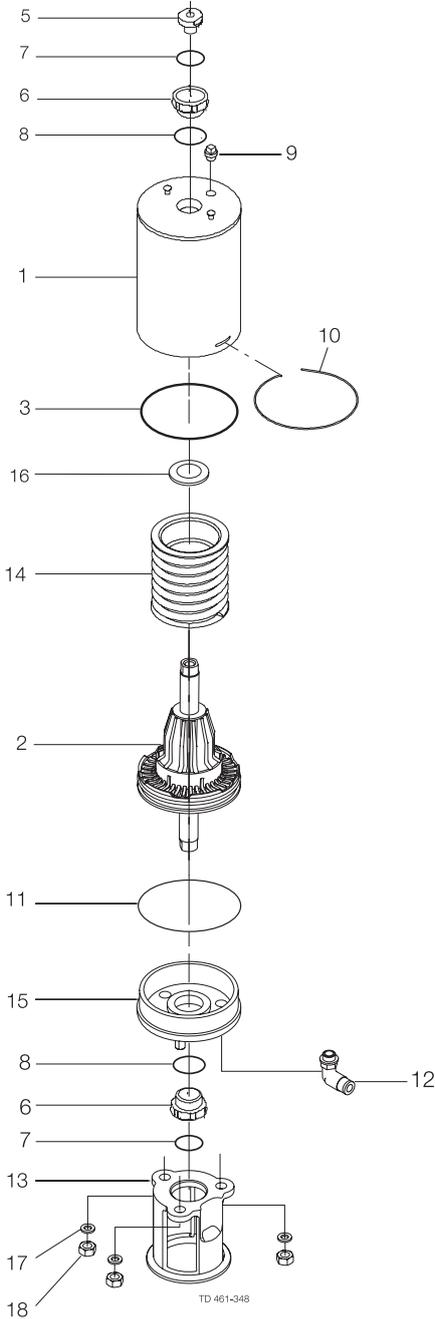
◆	Service kit, EPDM	9611-92-6597	9611-92-6598	9611-92-6599	9611-92-6600	9611-92-6601	9611-92-6602
◆	Service kit, HNBR	9611-92-6603	9611-92-6604	9611-92-6605	9611-92-6606	9611-92-6607	9611-92-6608
◆	Service kit, FPM	9611-92-6609	9611-92-6610	9611-92-6611	9611-92-6612	9611-92-6613	9611-92-6614

Parts marked with □◆ are included in the service kits.

Recommended spare parts: Service kits.

The drawing shows Unique Single Seat Valve - Two Step.
The items refer to the parts lists in the following sections

7.5 Maintainable actuator



7 Parts list and Service Kits

The drawing shows Unique Single Seat Valve - Two Step.
The items refer to the parts lists in the following sections

Parts list

Pos.	Qty	Denomination
1	1	Actuator
2	1	Cylinder
3	1	Piston
3	1	O-ring
5	1	Adapter
6	2	Bushing
7	2	O-ring
8	2	O-ring
9	1	Plug
10	1	Lock wire
11	1	O-ring
12	1(2)	Air fitting (only 2 for A/A)
13	1	Yoke
14	1	Spring assembly
15	1	Bottom
16	1(2)	Support disc (only 2 for A/A)
17	3	Washer
18	3	Nut

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
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Service kit for Actuator

□	Service kit, NO , NC	9611-92-6497	9611-92-6497	9611-92-6498	9611-92-6498	9611-92-6499	9611-92-6499
◆	Service kit, A/A	9611-92-6519	9611-92-6519	9611-92-6520	9611-92-6520	9611-92-6521	9611-92-6521

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

Recommended spare parts: Service kits.

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