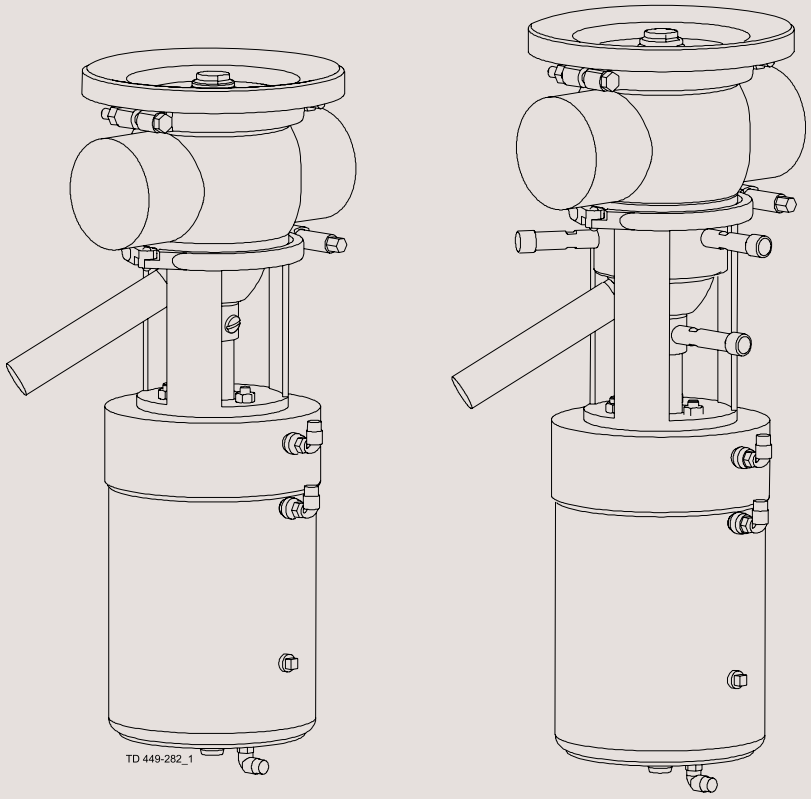
Instruction Manual

Unique-TO Mixproof Tank Outlet Valve



ESE00156-EN11 2022-10

Original manual

Table of contents

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

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 TO
Type

Serial number from 1181354 to 9999999

is in conformity with the following directives with amendments:
- Machinery Directive 2006/42/EC
- The valve is in compliance with the Pressure Equipment Directive 2014/68/EC and was subjected to the following assessment procedure Module A. Diameters ≥ DN125 may not be used for fluids group 1.

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

Global Product Quality Manager		Lars Kruse Andersen
Title		Name
Kolding, Denmark	2022–10–01	
Place	Date (YYYY-MM-DD)	Signature

This Declaration of Conformity replaces Declaration of Conformity dated 2013-12-03

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 TO
Type

Serial number from 1181354 to 9999999

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.
Diameters ≥ DN125 may not be used for fluids group 1

Signed on behalf of: Alfa Laval Kolding A/S

Global Product Quality Manager		Lars Kruse Andersen
Title		Name
Kolding, Denmark	2022–10–01	
Place	Date (YYYY-MM-DD)	Signature

DoC Revison_01_102022

2 Safety

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

2.1 Important information

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.
This Instruction manual is designed to provide the user with the information to perform tasks safely for all phases in the lifetime of the product supplied.

The user shall always read the safety section first. Hereafter the user can skip to the relevant section for the task to be carried out or for the information needed.

This is the complete manual for the supplied product.

Operators
The operators shall read and understand the instruction manual for the supplied product.

Maintenance personnel
The maintenance personnel shall read and understand the instruction manual.
The maintenance personnel or technicians shall be skilled within the field required to carry out the maintenance work safely.

Trainees
Trainees can perform tasks under the supervision of an experienced employee.

People in general
The public shall not have access to the supplied product.

How to contact Alfa Laval
Contact details for all countries are
continually updated on our website.
Please visit www.alfalaval.com to access the information directly.

2.2 Warning signs

General warning: 

Caustic agents: 

Cutting danger: 

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

2.3 Safety precautions

Installation:

Always read the technical data thoroughly (see chapter 6 Technical data)
Always release compressed air after use
Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air (see warning label)
Never stick your fingers through the valve ports if the actuator is supplied with compressed air

Operation:

Always read the technical data thoroughly (see chapter 6 Technical data)
Never touch the clip assembly or the actuator piston rod when the actuator is supplied with compressed air (see warning label)
Never pressurise air connections (AC1, AC3) simultaneously as both valve plugs can be lifted (can cause mixing)

Never touch the valve or the pipelines when processing hot liquids or when sterilizing.
Never throttle the leakage outlet
Never throttle the CIP outlet, if supplied

Always handle lye and acid with great care

Maintenance:

Always read the technical data thoroughly (see chapter 6 Technical data)
Always fit the seals correctly
Always release compressed air after use
Always remove the CIP connections, if supplied, before service
Never service the valve when it is hot
Never pressurise the valve/actuator when the valve is serviced
Never stick your fingers through the valve ports if the actuator is supplied with compressed air
Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air (see warning label)

Never service the valve with valve and pipelines under pressure
Always use Alfa Laval genuine spare parts. The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Transportation:

Always ensure that compressed air are released
Always ensure that all connections is disconnected before attempting to remove the valve from the installation
Always drain liquid out of valves before transportation
Always used 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

2 Safety

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

STORAGE

Ideally, as a guide Alfa Laval recommend:

- Store supplied product as supplied in original packaging
- Port opening should be protected against any ingress
- Bare steel (not stainless) should be lightly oiled/greased
- Store in a clean, dry place without direct sunlight or UV light
- Temperature range -5 to 40°C
- Relative humidity less than 60%
- No exposure to corrosive substances (also air contained).

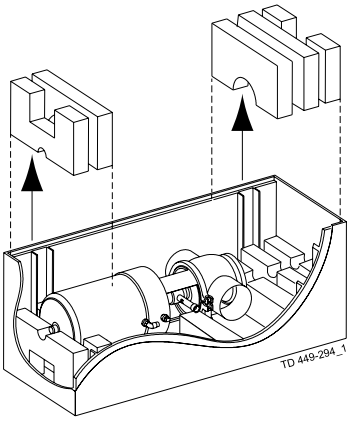
The instruction manual is part of the delivery.
Study the instructions carefully.
Fit the warning label supplied on the valve after installation so that it is normally visible.

3.1 Unpacking/intermediate storage

Step 1
CAUTION!
Alfa Laval cannot be held responsible for incorrect unpacking.

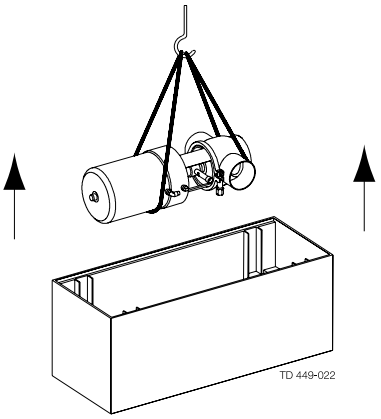
Check the delivery for:
1. Complete valve
2. Delivery note
3. Warning label

Step 2
Remove upper support



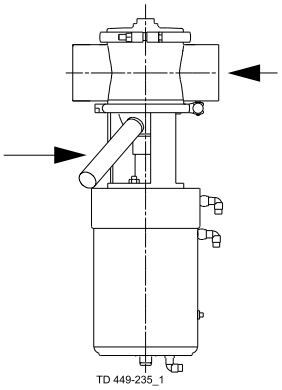
Step 3
Lift out the valve.

NOTE!
Please note weight of valve as printed on box.



Step 4
Remove possible packing materials from the valve ports.

NOTE!
Remember to fit leakage detection pipe



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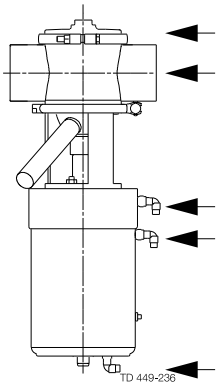
3 Installation

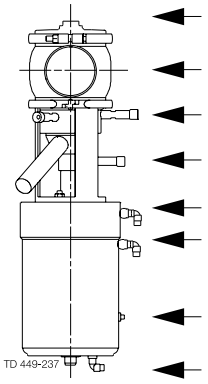
The instruction manual is part of the delivery.
Study the instructions carefully.
Fit the warning label supplied on the valve after installation so that it is normally visible.

Step 5
Inspect the valve for visible transport damages.



Inspection!

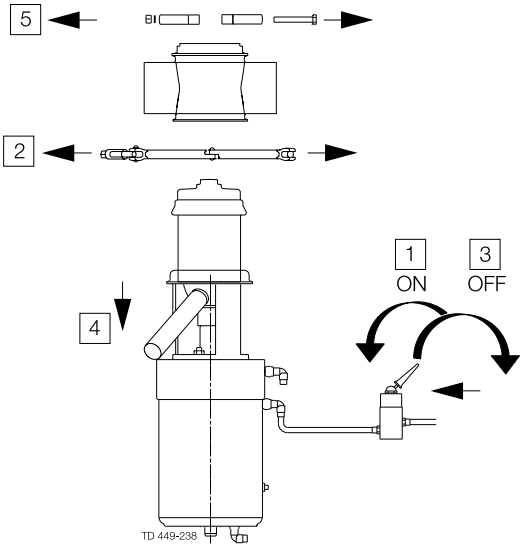
Step 6
Avoid damaging the air connections, the leakage outlet, the valve ports and the CIP connections, if supplied.



Caution!

Step 7
Disassemble according to illustrations 1 to 5
(please also see 5.2 Dismantling of valve).

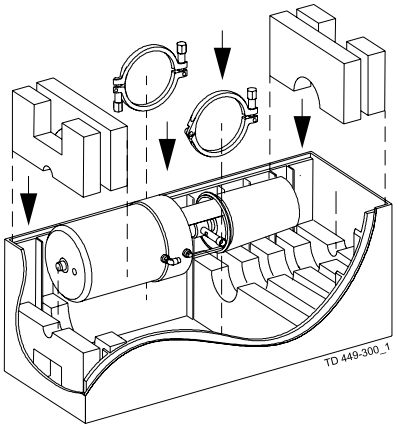
1. Supply compressed air.
2. Remove clamp
3. Release compressed air.
4. Lift out actuator with plugs.
5. Remove clamp.



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

Step 8
While valve body is welded, it is recommended to store the valve safely in the box together with valve parts.
1. Place actuator and valve parts in the box.
2. Add supports.
3. Close, re-tape and store the box.

ADVISE!
Mark the valve body and box with the same number before intermediate storage.



3.2 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

3.3 General installation

Step 1

- Always read the technical data thoroughly (see 6 Technical data).
- Always release compressed air after use.
- Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air (see the warning label)

CAUTION!
- Fit the supplied warning label on the valve so that it is normally visible.
- Alfa Laval cannot be held responsible for incorrect installation

NOTE!
- The leakage outlet must be turned downwards!

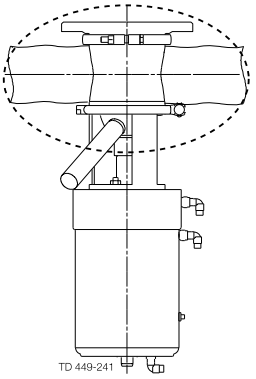
3 Installation

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

Step 2
Avoid stressing the valve as this can result in deformation of the sealing area and misfunction of the valve (leakage or faulty indication).

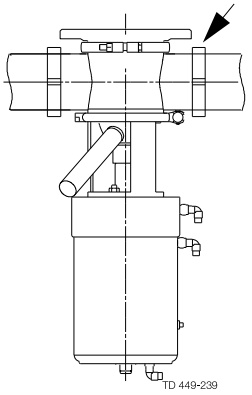
Pay special attention to:
- **Vibrations**
- **Thermal expansion of the tubes (especially at long tube lengths)**
- **Excessive welding**
- **Overloading of the pipelines**

NOTE!
Please follow Alfa Laval installation guidelines (literatur e code ESE00040).



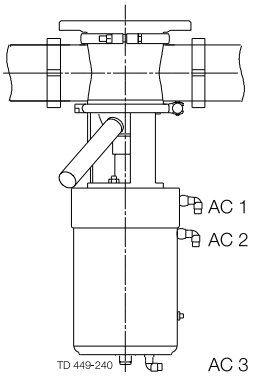
Risk of damage!

Step 3
Fittings:
Ensure that the connections are tight.



Remember seal rings!

Step 4
Air connection: R 1/8" (BSP).
AC1: Cleaning of balanced plug.
AC2: Open valve.
AC3: Cleaning of tank plug.

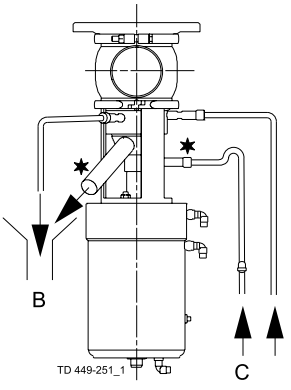


Step 5
CIP connection (optional extra):
1. See description of cleaning - 4.3 Recommended cleaning.
2. Connect CIP correctly

NOTE!
* = Moving parts
These parts will over time turn counterclockwise until the Vent pipe touch the edge of the intermediate piece

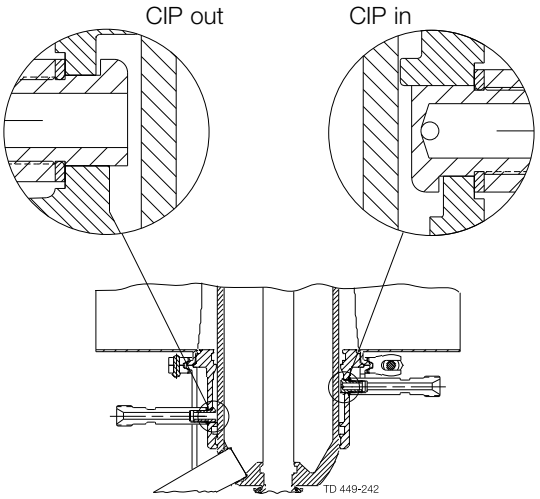
Must be open for inspection!

B = CIP out
C = CIP in



Study the instructions carefully and pay special attention to the warnings!
The valve has ends for welding as standard.
Weld carefully/aim at stressless welding to avoid deformation on sealing areas.
Check the valve for smooth operation after welding.

Step 6
It is important to connect CIP inlet to the small inlet nozzle to avoid built-up pressure in the cleaning chamber

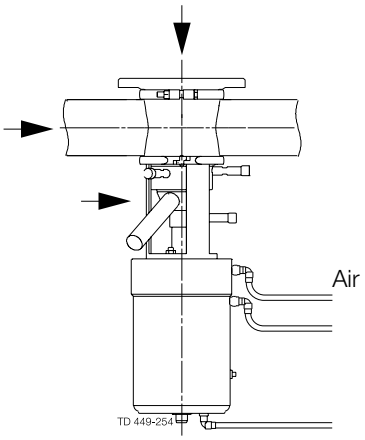


Align nozzle edges with recess in sealing element.

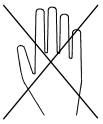
3.4 Welding

Step 1

Never stick your fingers in the operating parts of the valve if the actuator is supplied with compressed air.



Cutting danger!



Step 2
Dismantle the valve in accordance with step 1, section 5.2 Dismantling of valve

3 Installation

Study the instructions carefully and pay special attention to the warnings!
The valve has ends for welding as standard.
Weld carefully/aim at stressless welding to avoid deformation on sealing areas.
Check the valve for smooth operation after welding.

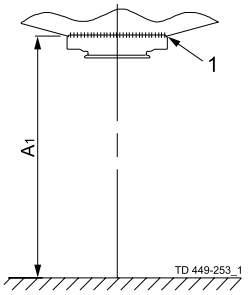
Step 3

Before welding the flange into the tank please note:

1. Maintain the minimum clearances "A" so that the actuator with the internal valve parts can be removed - please see later this section!

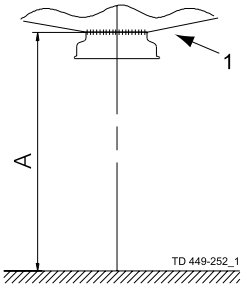
If there is a risk of foot damage, Alfa Laval recommends to leave a distance of 120 mm (4.7") below the valve (look at the specific built-in conditions).

Bottom of tank
Tank flange (standard)



1 = Caution

Bottom of tank
Stub flange (option)



1 = Caution

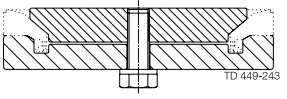
Min. dimension Unique TO (all measures in mm) (1mm = 0.0394")

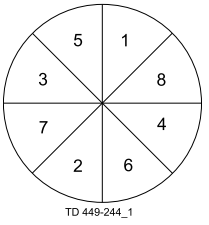
Size	DN/OD				DN						Longstroke			
											DN/OD		DN	
	2"	2½"	3"	4"							2½"	3"		
	51	63.5	76.1	101.6	50	65	80	100	125	150	63.5	76.1	63	80
with tank flange (A_1)	579	646	659	753	577	652	667	755	805	890	700	713	706	721
with external cleaning and tank flange (A_1)	616	686	699	813	614	692	707	815	865	N/A	740	753	746	761
with stub flange (A)	588	655	668	762	586	661	676	764	814	899	709	722	715	730
with external cleaning and stub flange (A)	625	695	708	822	623	701	716	824	874	N/A	749	762	755	770

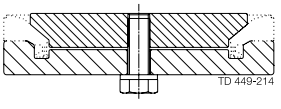
If ThinkTop is mounted, add 180 mm (7.1") to dimension
N/A = Not available

2. **Always** use welding jig (can be ordered separately at Alfa Laval) to ensure precision of flange after welding.
   Only use pulsed arc welding and remember no gap between flange and tank plate.
   Tack weld **always** on the opposite side (8 segments with filler metal).
   Weld root if possible without filler metal. Welding of the final run must be done in 8 segments to avoid crack.
   Remember **NOT** to dismount welding jig before flange is cold.

Welding jig



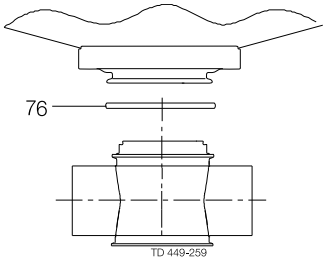


Item no.	Size		Welding tool for tank flange
9613099901	2" 51 mm	DN50	
9613099902	2½" - 3 " 63.5 - 76.1 mm	DN65 - DN80	
9613099903	4" 101.6 mm	DN100 - DN150	

Study the instructions carefully and pay special attention to the warnings!
The valve has ends for welding as standard.
Weld carefully/aim at stressless welding to avoid deformation on sealing areas.
Check the valve for smooth operation after welding.

Step 4
Warning!
Make sure to turn the valve body correctly - conical seat downwards before welding.

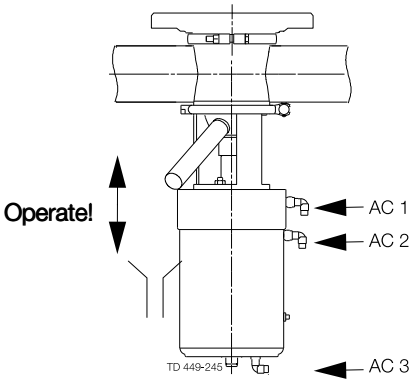
NOTE!
Always weld the valve body into the pipeline, so that the seal ring (76) can be replaced.



Step 5
Assemble the valve in accordance with 5.5 Assembly of valve after welding.
Pay special attention to the warnings and clamp torque (see 5.5 Assembly of valve).

Step 6
Pre-use check:
1. Supply compressed air to AC1, AC2 and AC3 one by one.
2. Operate the valve several times to ensure that it runs smoothly.

Pay special attention to the warnings!



4 Operation

The valve is tested before delivery.
Study the instructions carefully and pay special attention to the warnings!
Pay attention to possible faults.
The items refer to the parts list and service kits section.

4.1 Operation

Step 1

⚠

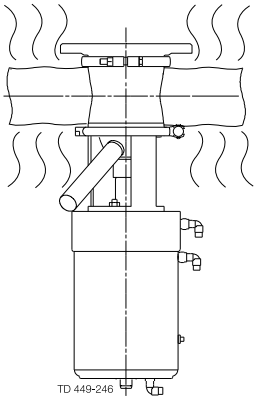
- **Always** read the technical data thoroughly (see 6 Technical data).
- **Always** release compressed air after use.
- **Never** touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air (see the warning label).
- **Never** pressurise air connections (AC1, AC3) simultaneously as both valve plugs can be lifted (can cause mixing).

CAUTION!
Alfa Laval cannot be held responsible for incorrect operation.

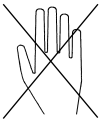
Step 2

⚠

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



Burning danger!



Study the maintenance instructions carefully before replacing worn parts. - See 5.1 General maintenance

4.2 Fault finding and repair

Problem	Cause/r esult	Repair
Leakage at the leakage detection pipe (88)	- Particles between valve seats and plug seals (56/74) - Worn/product affected plug seal rings (56/74) - Plug not assembled correctly	- Remove the particles - Check the plug seals - Replace the plug seals - Change rubber grade - Assemble plug, see step 3, section 5.5 Assembly of valve
Leakage at sealing element (48)/ upper plug (94)	Worn/product affected o-rings/lip seal (38/39/46/49)	- Replace the o-rings/lip seal - Change rubber grade - Clean and if necessary replace guide ring (45)
Leakage at clamp (64) and (65)	- Too old/product affected o-rings (76 and 47) valve body - Loose clamp (64) or (65)	- Replace the o-rings - Change rubber grade - Tighten the clamp (max. 10 Nm)
CIP leakage Leakage at spindle clamp (43)	Worn o-rings (40/67) Damaged o-ring (39) Worn/product affected lip seal (57)	Replace the o-rings - Replace the o-ring - Replace the plug seals - Change rubber grade
Tank plug not returning to closed position	- Wrong rubber grade - Wrongly fitted gasket - Mounted incorrectly (see 3.4 Welding)	- Change rubber grade - Fit new gasket correctly - Correct installation
Plug returns with uneven movements (slip/stick effect)	- Wrong rubber grade - Wrongly fitted gasket - Mounted incorrectly (see 3.4 Welding)	- Change rubber grade - Fit new gasket correctly - Correct installation

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. HNO_3 = Nitric acid.
Internal leakage in the valve is externally visible by means of the leakage outlet.

4.3 Recommended cleaning

Step 1

Always handle lye and acid with great care.

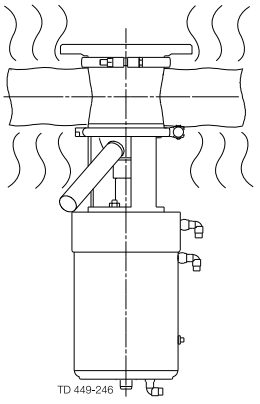
Caustic danger!

Always use rubber gloves!

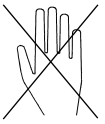
Always use protective goggles!

Step 2

Never touch the valve or the pipelines when sterilizing.



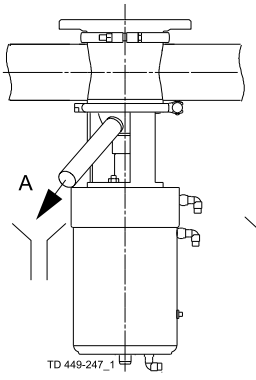
Burning danger!

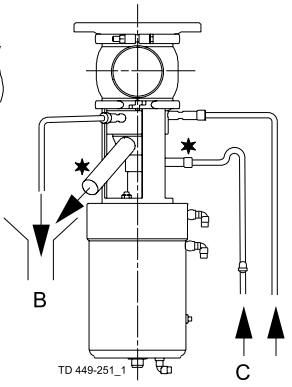


Step 3

- Never throttle the leakage outlet
- Never throttle the CIP outlet, if supplied. Risk of mixing due to overpressure).

A. = Leakage/CIP out
B. = CIP out
C. = CIP in





Step 4

Examples of cleaning agents:
Use clean water, free from chlorides.

1. 1% by weight NaOH at 70° C (158° F)

1 kg (2.2 lb) NaOH	+	100 l (26.4 gal) water	=	Cleaning agent.
2.2 l (0.6 gal) 33% NaOH	+	100 l (26.4 gal) water	=	Cleaning agent.

2. 0.5% by weight HNO_3 at 70° C (158° F)

0.7 l 53% HNO_3	+	100 l (26.4 gal) 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. HNO_3 = Nitric acid.
Internal leakage in the valve is externally visible by means of the leakage outlet.

Step 5
1. Avoid excessive concentration of the cleaning agent
   ⇒ **Dose gradually!**
2. Adjust the cleaning flow to the process
   Milk sterilization/viscous liquids
   ⇒ **Increase the cleaning flow!**

Step 6
Valve pneumatic operation during in-place cleaning
Each valve seat shall be lifted during the length of the cleaning cycle.
Seat lift durations shall not exceed 10 seconds.

These pneumatic functions include:

1. Upper valve seat lift (takes place during cleaning of upper valve body)
2. Lower valve seat push (takes place during cleaning of lower valve body)

The following chart presents an overview of these functions together with the recommended time durations at 21psi (1.5 bar) CIP pressure. It is recommended to do seat lift/push in the middle of each step in the CIP sequence.

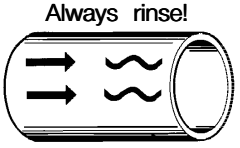
CIP event @ length	Valve function	Valve solenoid no.	Solenoid mode	Actual opening time	Number of lifts/push in each CIP step
Warm pre-rinse @ 3 minutes	Upper seat lift	3	Energized	*0.5 sec	3
	Lower seat lift	2	Energized	*0.5 sec	3
	SpiralClean vent	-	-	*0.5 sec	3
	OD cleaning	-	-	*5 sec	2
Hot alkaline wash @ 10 minutes	Upper seat lift	3	Energized	*0.5 sec	3
	Lower seat lift	2	Energized	*0.5 sec	3
	SpiralClean vent	-	-	*0.5 sec	3
	OD cleaning	-	-	*5 sec	2
Cold post wash @ 3 minutes	Upper seat lift	3	Energized	*0.5 sec	3
	Lower seat lift	2	Energized	*0.5 sec	3
	SpiralClean vent	-	-	*0.5 sec	3
	OD cleaning	-	-	*5 sec	2
Cold acidified rinse @ 3 minutes	Upper seat lift	3	Energized	*0.5 sec	3
	Lower seat lift	2	Energized	*0.5 sec	3
	SpiralClean vent	-	-	*0.5 sec	3
	OD cleaning	-	-	*5 sec	2

*Time stated is the actual opening time for the valve. Programmed duration is depended on the access to compressed air and response time from PLC.
Variations caused by compressed air are typically:

- Long compressed air supply hoses.
- Small ID on air supply hoses.
- Limited availability of compressed air.

Step 7
Always rinse well with clean water after the cleaning.
NOTE!
The cleaning agents must be stored/disposed of in accordance with current rules/directives.

Always rinse!



Clean water Cleaning agents

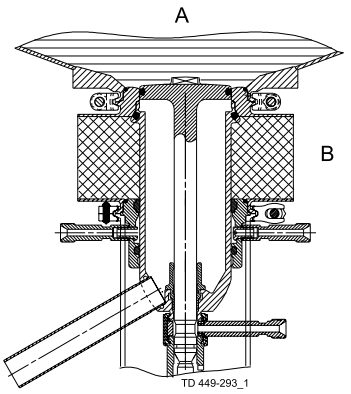
Pay special attention to spillage of hot cleaning fluid/water.

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. HNO_3 = Nitric acid.
Internal leakage in the valve is externally visible by means of the leakage outlet.

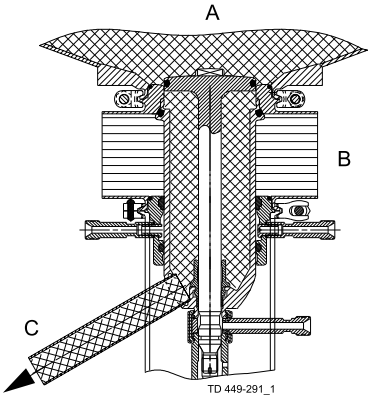
Step 8
1. Closed valve

A = Product
B= CIP



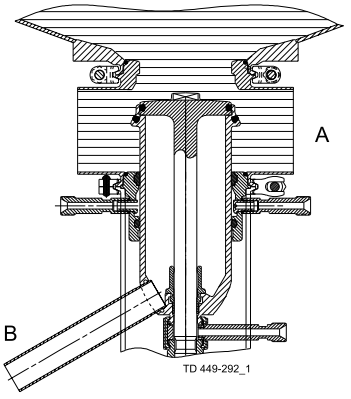
Step 9
2. Seat lift cleaning with tank plug (optional)
(see step 6 page 19)

A = CIP
B = Product
C = CIP out



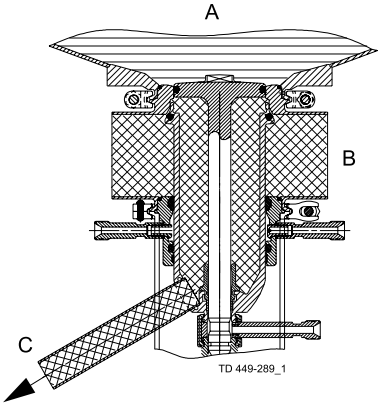
Step 10
3. Open valve

A = Product
B = Leakage detecting



Step 11
4. Seat lift cleaning with balanced plug
(seeStep 6,)

A = Product
B = CIP
C = CIP out



Maintain the valve/actuator regularly.
Study the instructions carefully and pay special attention to the warnings!
Always use genuine Alfa Laval spare parts, and keep spare rubber seals and guide rings in stock. Store seals in closed bag.
The items refer to the parts list and service kits section.

5.1 General maintenance

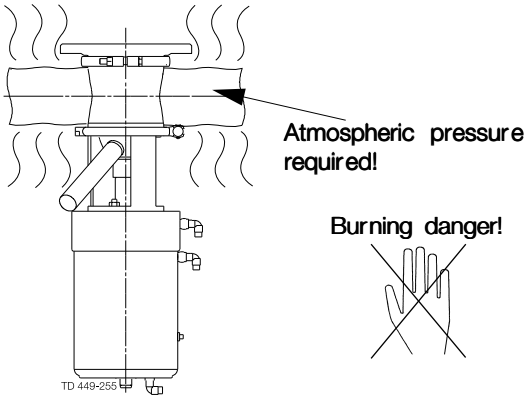
Step 1

- **Always** read the technical data thoroughly (see 6 Technical data).
- **Always** fit the seals correctly (risk of mixing).
- **Always** release the compressed air after use.
- **Always** remove the CIP connections, if supplied, before service.

NOTE!
All scrap must be stored/disposed of in accordance with current rules/directives.

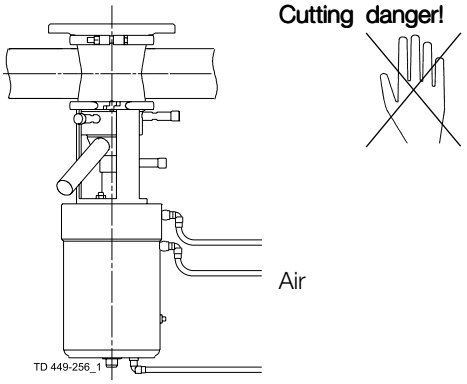
Step 2

- **Never** service the valve when it is hot.
- **Never** service the valve with valve/actuator under pressure
- **Never** service the valve with fluid in the tank.



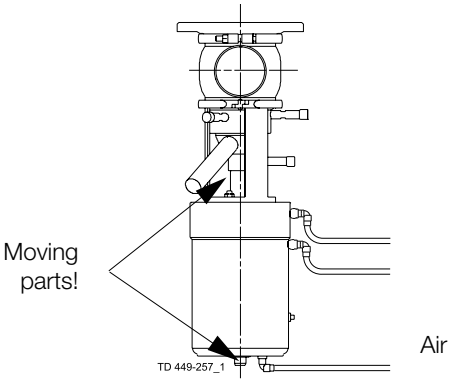
Step 3

Never stick your fingers in operating parts of the valve if the actuator is supplied with compressed air.



Step 4

Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air (see the warning label).



5 Maintenance

Maintain the valve/actuator regularly.
Study the instructions carefully and pay special attention to the warnings!
Always use genuine Alfa Laval spare parts, and keep spare rubber seals and guide rings in stock. Store seals in closed bag.
The items refer to the parts list and service kits section.

Recommended spare parts: Service kits (see 6 Technical data)
Order service kits from the service kits section (see 6 Technical data)
Ordering spare parts: Contact the Sales Department.

The valve is designed so that internal leakages do not result in the products becoming mixed.
Internal leakage in the valve is externally visible. Study the instructions carefully.
Always keep spare rubber seals and guide rings in stock. Check the valve for smooth operation after service.

	Valve rubber seals	Valve plug seals	Valve guide rings
Preventive maintenance	**Replace after 12 months(*)**	**Replace after 12 months(*)**	Replace when required
Maintenance after leakage (leakage normally starts slowly)	**Replace after production cycle**	**Replace after production cycle**	
Planned maintenance	- Regular inspection for leakage and smooth operation - Keep a record of the valve - Use the statistics for planning of inspections	- Regular inspection for leakage and smooth operation - Keep a record of the valve - Use the statistics for planning of inspections	Replace when required
Lubrication	**When assembling** Alfa Laval Silicon based Food-grade Lubricant USDA H1 approved grease	**When assembling** Alfa Laval Silicon based Food-grade Lubricant USDA H1 approved grease	**None**

NOTE!
Lubricate thread in valve plug parts with Alfa Laval Lubricant or similar.
(*) Depending on working conditions! Please contact Alfa Laval.
(**) All products wetted seals.

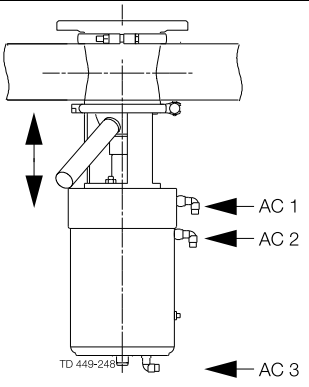
Repairing of actuator:

- The actuator is maintenance-free but repairable.
- If repair is required, replacing all actuator rubber seals is recommended.
- Lubricate seals with Molykote Longterm 2 (black).
- To avoid possible black remains on pos. 1 and 29, Alfa Laval recommends Alfa Laval Lubricant for these two positions.

Pre-use check
1. Supply compressed air to AC1, AC2 and AC3 one by one.
2. Operate the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!

Operate!

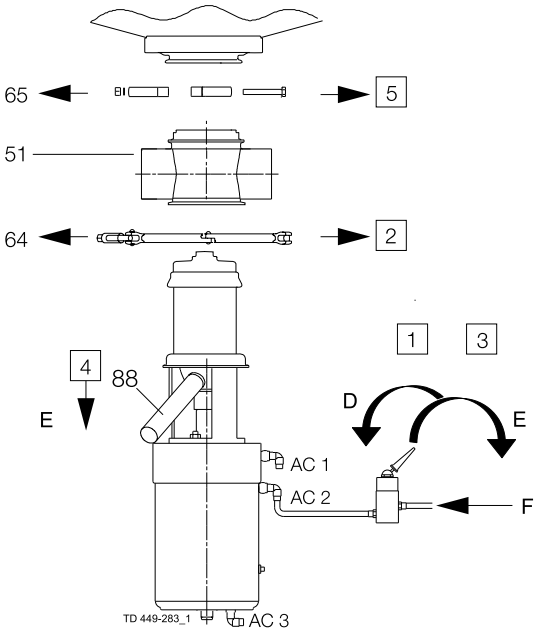


Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

5.2 Dismantling of valve

Step 1
Disassemble valve acc. to illustrations (1 to 5).

1. Supply compressed air to AC2.
2. Loosen and remove clamp (64).
3. Release compressed air.
4. Lift out the actuator together with the internal valve parts from valve body (51).
5. Loosen and remove clamp (65) and valve body (51).
6. Pull out tube (88) from balanced plug (94) and remove o-ring (89) from tube.
   From February 1st 2017:
   Turn out tube (88) from balanced plug (94) and remove o-ring (89) from balanced plug.
7. When tank flange:
   Pull out o-ring (76) from valve body (51).
   When stub flange:
   Pull out o-ring (91) from stub flange (92).



D = On
E = Off
F = Air
E = **Note!** release compressed air

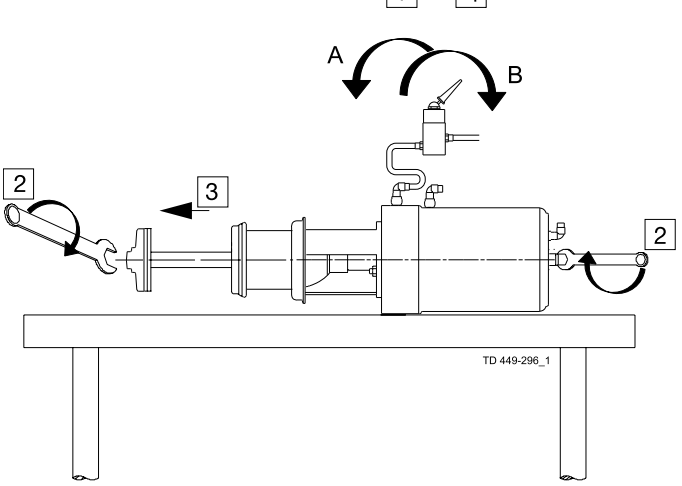
Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

Step 2

2A:
If air fitting AC1 is present, supply compressed air and follow procedure 2A.
1. Supply compressed air for AC1.
2. Loosen tank plug (93) while counterholding upper stem (1).
3. Remove the tank plug.
4. Release compressed air.
5. Replace o-ring (38).

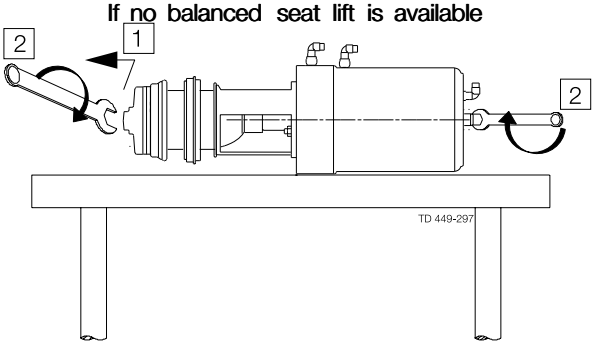
A = On
B = Off

If balanced seat lift is available



2B:
If no air fitting AC1 is present, follow procedure 2B.
1. Push sealing element (48) free of intermediate piece (37).
2. Loosen tank plug while counterholding upper stem.
3. Remove the tank plug (93).
4. Replace o-ring (38).

If no balanced seat lift is available



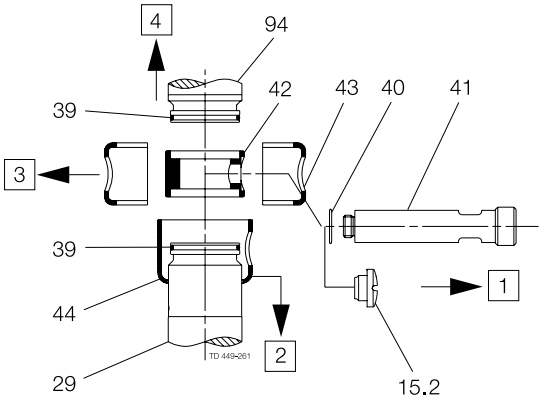
NOTE!
For replacement of seal ring (74), please see 5.3 Tank plug, replacement of radial seal

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

Step 3

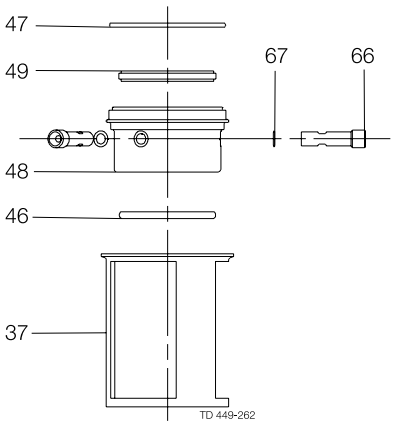
Remove coupling system and balanced plug according to illustrations (1 to 4).

1. Unscrew flushing tube (41) (or plug (15) if no CIP). Remove o-ring (40).
2. Pull down lock (44) over piston rod (29).
3. Pull away clamps (43) from spindle liner (42).
4. Pull out balanced plug (94). Make sure spindle liner is free of both piston rod and balanced plug. If external CIP to leakage chamber: Remove o-rings (39).



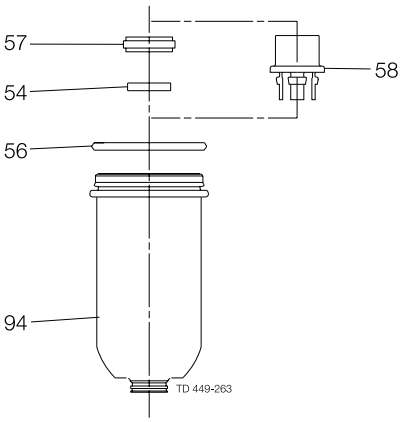
Step 4

1. If present, unscrew flushing tubes (66) and remove o-rings (67) and nozzles (68 + 69).
2. Pull out sealing element (48) from intermediate piece (37).
3. Pull out o-ring (47), lip seal (49) and o-ring (46) from sealing element



Step 5

Remove lip seal (57) (or spray nozzle (58) if valve is supplied with Spiral-Clean). For removal and replacement of seal ring (56), please see 5.3 Tank plug, replacement of radial seal

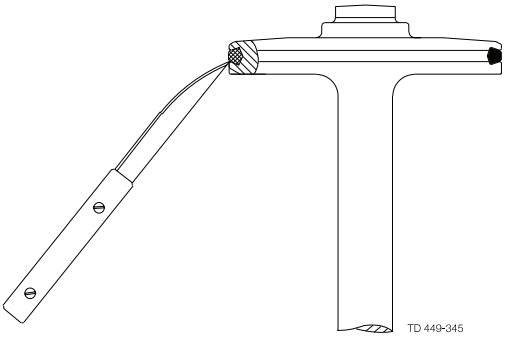


5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Always use genuine Alfa Laval spare parts.
Handle scrap correctly.

5.3 Tank plug, replacement of radial seal

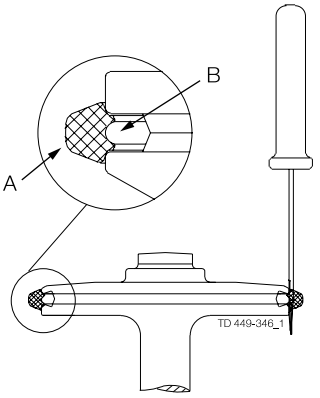
Step 1
Cut and remove old seal ring (74) using a knife, screwdriver or similar.
Be careful not to scratch the plug.



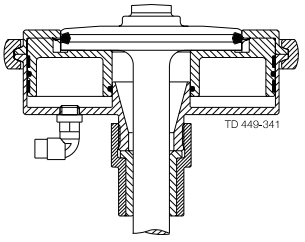
Step 2
Pre-mount seal ring as shown on drawing.

Rotate along circumference to fix gasket as shown in the picture

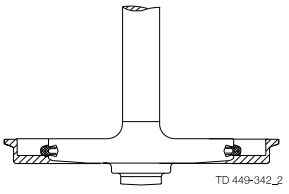
A. Carefully lubricate sealings with acceptable lubricant, before pre-mounting
B. Do not lubricate behind the sealing



Item numbers for radial tool			
Seat ø53.3	**Seat ø81.3**	**Seat ø100.3**	**Seat ø115.3**
9613-4260-01	**9613-4260-02**	**9613-4260-03**	**9613-4260-04**

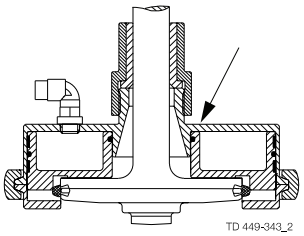


Step 3
Place lower tool part.



Study the instructions carefully.
The items refer to the parts list and service kits section.
Always use genuine Alfa Laval spare parts.
Handle scrap correctly.

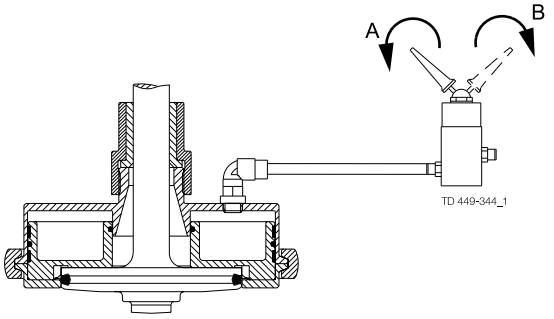
Step 4
1. Place upper tool part including piston.
2. Clamp the two tool parts together.



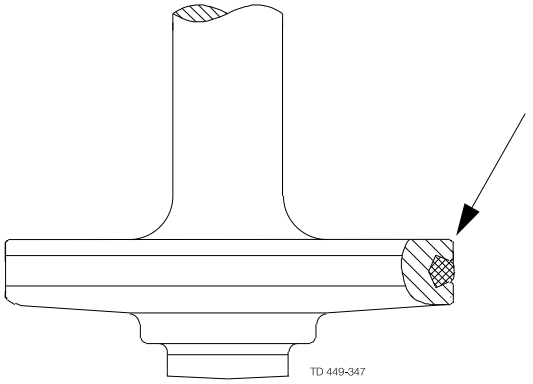
Tool marked with item number

Step 5
1. Supply compressed air.
2. Release compressed air.
3. Remove tool parts.

A = On
B = Off

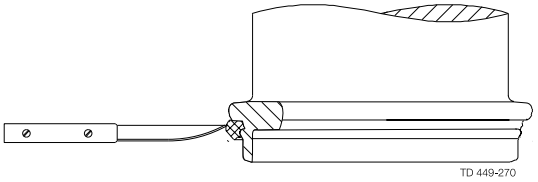


Step 6
Inspect the seal to ensure it does not twist in the groove, and press in the 4 outsticking points with a screwdriver!



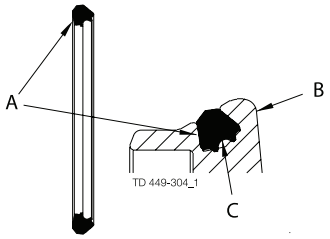
5.4 Balanced plug, replacement of axial seal

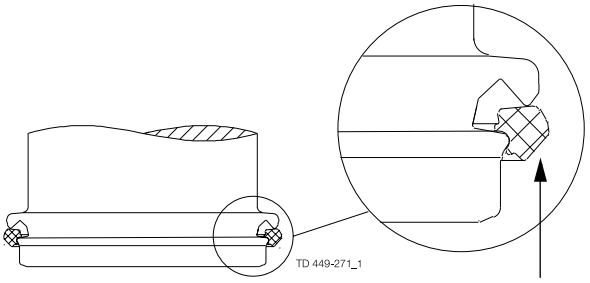
Step 1
Remove old seal ring (56) using a knife, screwdriver or similar. Be careful not to scratch the plug.



Study the instructions carefully.
The items refer to the parts list and service kits section.
Always use genuine Alfa Laval spare parts.
Handle scrap correctly.

Step 2
Pre-mount seal ring as shown on drawing.

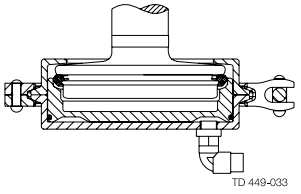




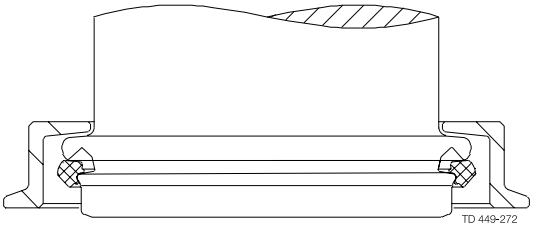
A = Flat side of the sealing
B = Balanced plug
C = Do not lubricate behind the sealing

Carefully lubricate sealings with acceptable lubricant, before pre-mounting.

Item no. for tool for axial sealing, upper plug			
Seat ø53.3	**Seat ø81.3**	**Seat ø101.3**	**Seat ø115.3**
9613-0505-01	**9613-0505-02**	**9613-0505-08**	**9613-0505-03**

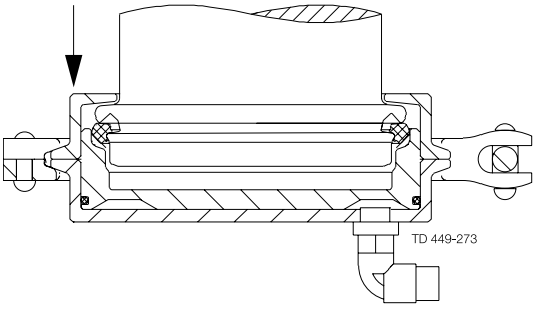


Step 3
Place tool part 1.

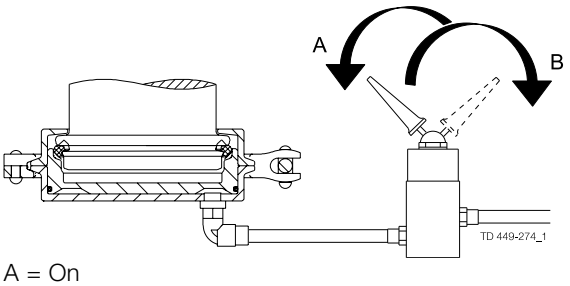


Step 4
1. Place tool part 2 including piston.
2. Clamp the two tool parts together.

Tooling marked with item number



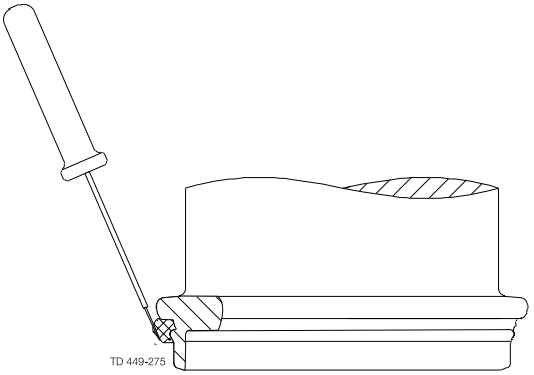
Step 5
1. Supply compressed air.
2. Release compressed air.
3. Rotate the tool 45° with regards to the plug.
4. Supply compressed air.
5. Release compressed air and remove tool.



A = On
B = Off

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

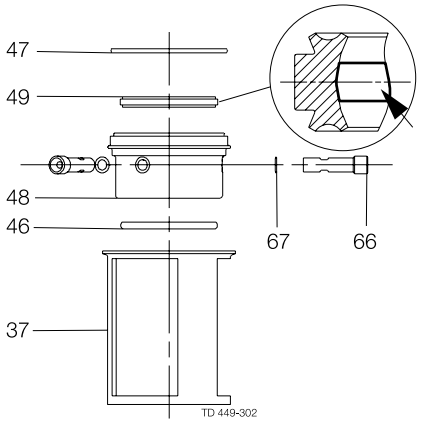
Step 6
1. Inspect the seal.
2. Release air at 3 different positions of the circumference.



5.5 Assembly of valve

Step 1
1. Fit o-ring (47) (do not twist), lip seal (49) and o-ring (46) in sealing element (48) (Lubricate with Alfa Laval Lubricant).
   NOTE:
   The o-ring should be gently pressed into the groove
2. Fit sealing element in intermediate piece (37).
3. Place o-rings (67) and mount flushing tubes (66). Be sure to align nozzles (68 + 69) towards recess.

Lightly lubricate inner grove with Alfa Laval Lubricant



5 Maintenance

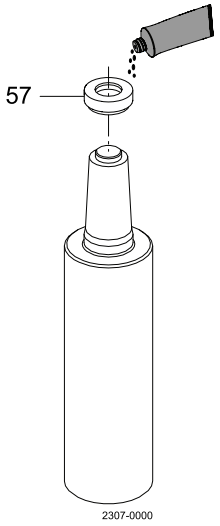
Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

Step 2

1. Place lip seal (57) in upper plug according to the description in Step 2.1.1 (or spray nozzle if the valve has SpiralClean) and the o-ring (38) in the lower plug

1.1 **Installing lip seal with special tools from Alfa Laval**

- Mount lip seal (57) on the tip of the plunger tool.
- Lightly lubricate the lip seal and internal surface of the bushing tool.
- Place the plunger tool with lip seal vertically on a sturdy surface and place bushing tool on top of the lip seal.
- Position the balanced plug (94) centered over the tool assembly as shown (see figure A) and press the balanced plug vertically down over the tool assembly until it reaches its bottom position.
- Lift the balance plug and ensure that the lip seal sits properly in its groove.
- Adjust the lip seal position if needed with suitable tool.



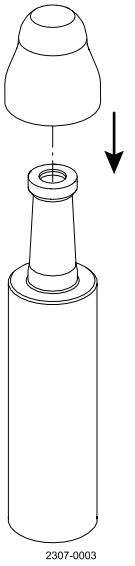
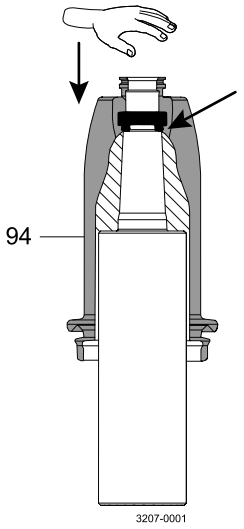
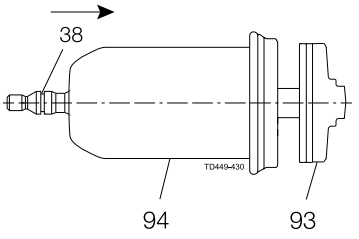


Fig. A



2. Press tank plug (93) rapidly into balanced plug (94) through the lip seal.
   NOTE:
   Do not damage the lips when tank plug (93) with o-ring (38) passes the lip seal.



Unique Mixproof Tank Outlet	Mounting tool for lip seal*	Mounting tool for lip seal**
Seat 53.3 ISO51 / DN50	9613004001	8010006489
Seat 81.3 ISO63.5/ISO76.1 / DN65/DN80	No	8010001579
Seat 100.3 ISO101.6 / DN 100	No	8010001584
Seat 115.3 DN125/DN150	No	8010001591

* This tool can only be used for valves produced until the end of January 2017

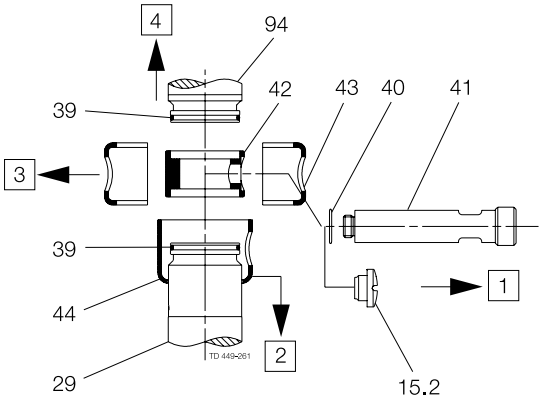
** These tools can only be used for valves produced since 2017 Feb

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

Step 3

Place coupling system and balanced plug according to illustrations (1 to 4).

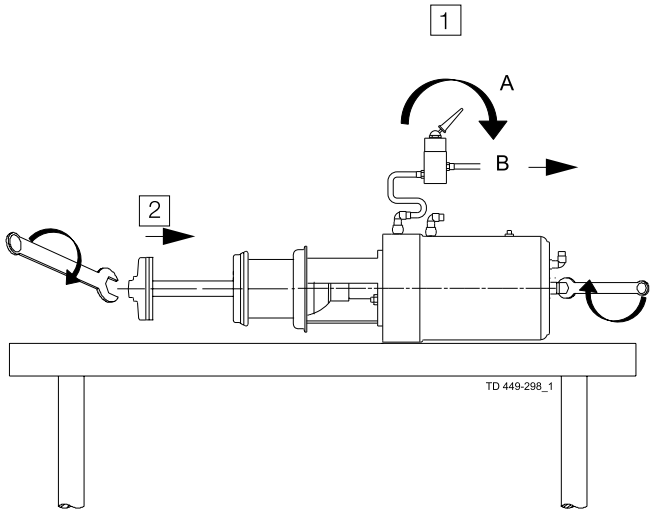
1. Push lock (44) up over piston rod (29).
2. If external CIP to leakage chamber: Place o-rings (39).
3. Place spindle liner (42) on piston rod. Fit balanced plug (94).
4. Mount clamps (43) on spindle liner (42).
5. Fit lock (44).
6. Fit o-ring (40). Fit flushing tube (41) (or plug (15) if no CIP).



Step 4

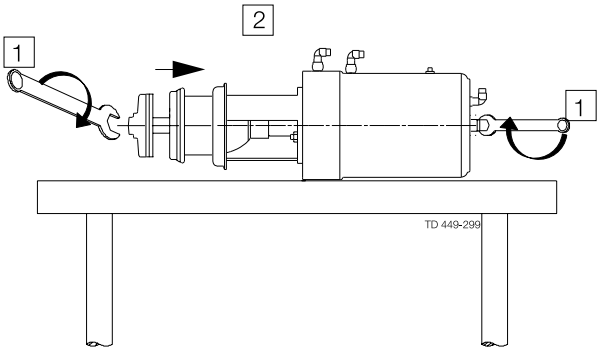
Recommended torque values for fitting balanced and tank plug parts

Dimension	Torque (Nm)/(lbf -ft)
51 mm/2”/DN 50	5/(3.7)
All others	20/(14.8)



If balanced seat lift available

A = Off
B= Air



If no balanced seat lift available

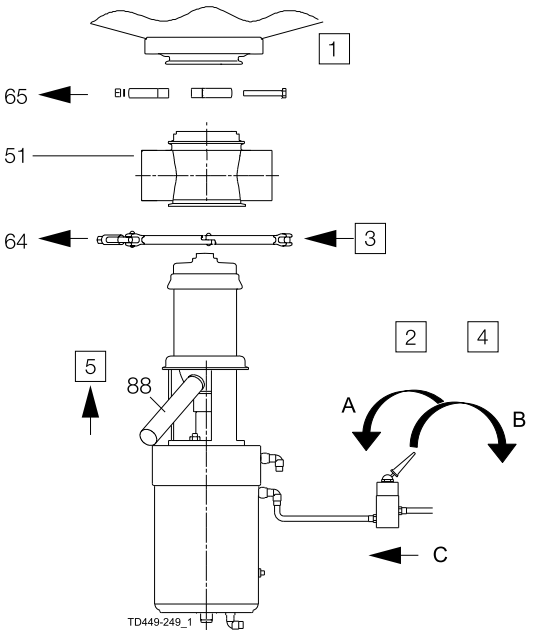
5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

Step 5
- **Never** stick your fingers through the valve ports if the actuator is supplied with compressed air.
- **Always** supply compressed air, before demounting the valve.

Reassemble valve according to illustration (1 - 5).

1. **If tank flange**:
   Fit o-ring (76) on valve body (51) and mount valve body in tank flange and tighten clamp (65)
   (Maximum torque for clamp bolts:17 Nm/13 lbf ft).
   OR if stub flange
   Fit o-ring (91) in stub flange (92) and mount valve body (51) in stub flange and tighten clamp (65).
   (Maximum torque for clamp bolts:17 Nm/13 lbf ft).
2. Supply compressed air and mount the actuator together with the internal valve parts.
3. Fit and tighten clamp (64).
   (Maximum torque for clamp nut: 10Nm/7.4 lbf-ft).
4. Release compressed air.
5. Fit o-ring (89) on tube (88) and mount tube (88) in balanced plug (94).
   From February 1st 2017:
   Fit o-ring (89) in balanced plug (94) and screw tube (88) into balanced plug (94). **Tightend tube with 10Nm/7.4 lbf-ft.**



A = On B = Off C = Air

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.

5.6 Dismantling of acutator

Step 1
1. Dismantle the valve in accordance with instructions in section 5.2 Dismantling of valve . Pay special attention to the warnings!
2. The actuator is now ready for service. Please see drawing when dismantling according to steps 2 to 6 on this page.

Step 2
1. Remove nuts (36) and washers (35).
2. Pull out intermediate piece (37) from the actuator.
3. Remove cover disk (25).
4. Remove plug (86) with o-rings (85 & 87) from intermediate piece (37).

Step 3
1. Remove piston rod (29), bottom (21) and lower piston (30).
2. Separate the three parts.
3. Remove o-rings (20, 22 and 23) from bottom, o-rings (33 and 31) and guide ring (32) from lower piston as well as o-ring (28) from piston rod.
4. Remove spring assembly (14).

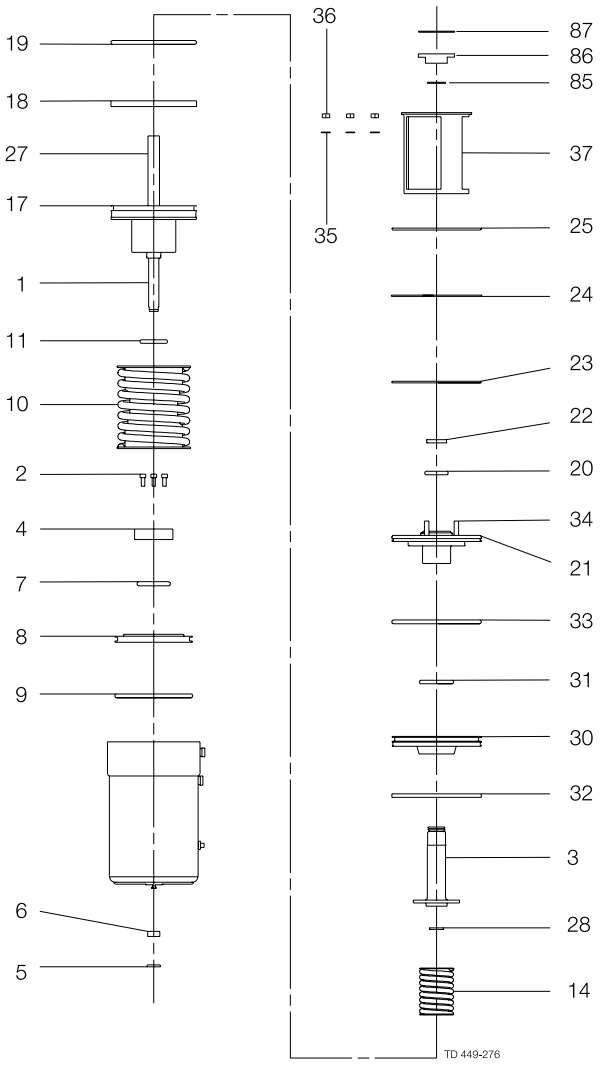
Step 4
1. Remove inner stem (27), main piston (17) and distance spacer (11) if present. Remove guide ring (18) and o-ring (19).
2. Remove spring assembly (10).

Step 5
NOTE!
Not on actuator 3.
1. Unscrew screws (2) (are glued!).
2. Remove stop (4).
3. Remove upper piston (8). Remove o-rings (7 and 9).

Step 6
1. Remove o-ring (5) and guide ring (6).

5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.



Study the instructions carefully.
The items refer to the parts list and service kits section.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.
Lubricate the rubber seals before fitting them.

5.7 Assembly of actuator

Step 1
Please see drawing when reassembling according to steps 2 to 5 on this page.

Step 2
1. Fit guide ring (6) and o-ring (5).

NOTE!
Not on actuator 3:

2. Fit o-rings (7 and 9). Place upper piston (8).
3. Fit stop (4).
4. Tighten screws (2).(Secure with glue).

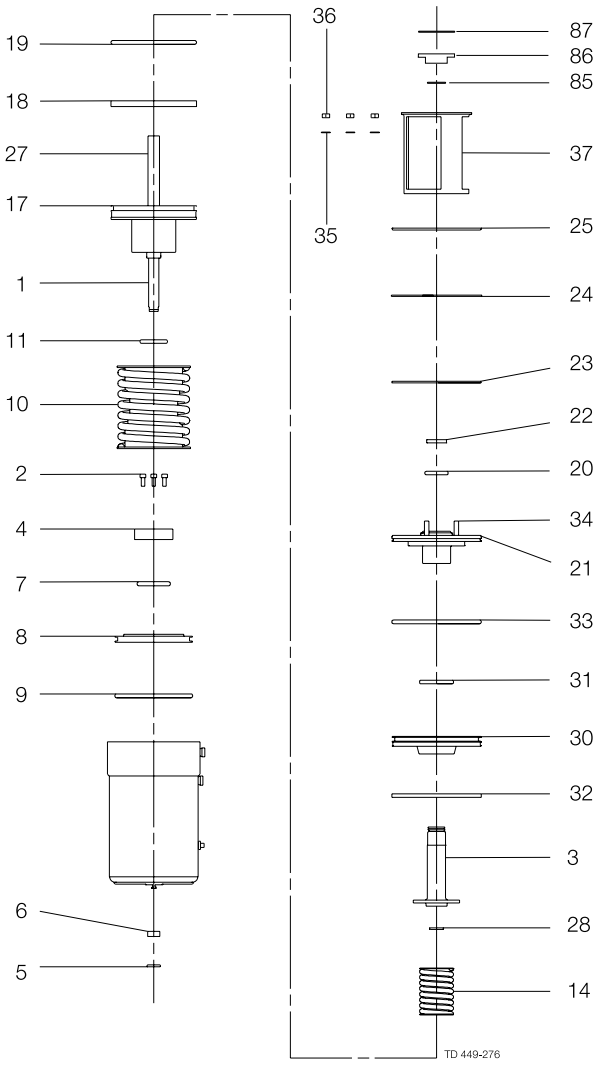
Step 3
1. Place spring assembly (10).
2. Fit o-ring (19) and guide ring (18). Mount distance spacer (11), main piston (17) and inner stem (27).

Step 4
1. Fit spring assembly (14).
2. Fit o-ring (28) in piston rod, fit o-rings (33 and 31) and guide ring (32) in lower piston and fit o-rings (20, 22 and 23) in bottom.
3. Fit piston rod (29), lower piston (30) and bottom (21).
4. Mount the three parts.

Step 5
1. Fit retaining ring (24).
2. Fit cover disk (25).
3. Mount intermediate piece (37) on actuator.
4. Fit and tighten nuts (36) and washers (35).
5. Fit o-rings (85 & 87) in plug (86) and fit plug (86) in intermediate piece (37).

5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Always use genuine Alfa Laval spare parts. Replace seals if necessary.
Lubricate the rubber seals before fitting them.



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

6.1 Technical data

Unique is remote-controlled by means of compressed air. The valve is a normally closed (NC) valve.

The valve has two independent plug seals, forming a leakage chamber. In the leakage chamber there is only atmospheric pressure during every working condition. In case of rare accidental leaking of product, this will flow into the leakage chamber and be discharged through the leakage outlet.
When the valve is open, the leakage chamber is closed. The product can then flow from tank to pipeline.

Technical data		
Max. product pressure		1000 kPa (10 bar) (145 psi)
Min. product pressure		Full vacuum
Recommended min. pressure for Spiral**Clean**		2 bar (29 psi) - max. 8 bar (116 psi)
Temperature range		-5°C to +125°C (23°F to 257°F) - NBR only up to 85°C (175°F)
Air pressure		Max. 800 kPa (8 bar) (116 psi)
Products acc. to PED 97/23/EC		Category I, Fluids group 1, DN ≥ 125 only Fluids group 2
Materials		
Product wetted steel parts	Acid resistant steel AISI 316L	
Other steel parts	Stainless steel AISI 304	
Product wetted seals	EPDM, HNBR, NBR or FPM	
Other seals	CIP seals: EPDM	
Actuator seals	NBR	
Surface finish	Standard	Internal/external Ra < 1.6 (64 µ")
	Optional	Internal bright/external standard Ra < 0.8 (32 µ")
	3A (US standard version)	Internal/external bright (internal polished) Ra < 0.8 (32 µ")

NOTE! The Ra-values are only for the internal surface.

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.

Safety check
A visual inspection of any protective device (shield, guard, cover or other) on the supplied product shall be carried out at least every 12 months.
If the protective device is lost or damaged, especially when this leads to deterioration of safety performance, it shall be replaced. The fixing of the protective device should only be replaced with fixings of the same or an equivalent type.

Inspection acceptance criteria:

- It should not be possible to reach moving parts originally protected by a protective device.
- The protective device must be securely mounted.
- Ensure that screws for the protective device are securely tightened.

Procedure in case of non-acceptance:

- Fix and/or replace the protective device.

6 Technical data

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

Size	DN/OD				DN						Longstroke			
											DN/OD		DN	
ISO-DIN	**51**	**63.5**	**76.1**	**101.6**	**50**	**65**	**80**	**100**	**125**	**150**	**63.5**	**76.1**	**65**	**80**
Air consumption for Balanced Seat-lift Litre = volume at atmosphere pressure Gallons = volume at atmosphere pressure	0.20 0.05	0.40 0.11	0.40 0.11	0.62 0.16	0.20 0.05	0.40 0.11	0.40 0.11	0.62 0.16	0.62 0.16	0.62 0.16	0.40 0.11	0.40 0.11	0.40 0.11	0.40 0.11
Air consumption for Tank Seat-lift Litre = volume at atmosphere pressure Gallons = volume at atmosphere pressure	1.10 0.29	0.13 0.03	0.13 0.03	0.21 0.06	1.10 0.29	0.13 0.03	0.13 0.03	0.21 0.06	0.21 0.06	0.21 0.06	0.13 0.03	0.13 0.03	0.13 0.03	0.13 0.03
Air consumption for Main Movement Litre = volume at atmosphere pressure Gallons = volume at atmosphere pressure	0.86 0.23	1.63 0.43	1.63 0.43	2.79 0.74	0.86 0.23	1.62 0.43	1.62 0.43	2.79 0.74	2.79 0.74	2.79 0.74	1.63 0.43	1.63 0.43	1.62 0.43	1.62 0.43
Kv-value for Balanced CIP Seat-lift [m^3/h] CV-value for Balanced CIP Seat-lift [GPM]	1.50 6.60	2.50 11.0	2.50 11.0	1.90 8.36	1.50 6.6	2.50 11.0	2.50 11.0	1.90 8.36	3.70 16.3	3.70 16.3	2.50 11.0	2.50 11.0	2.50 11.0	2.50 11.0
Kv-value for Tank Seat-lift [m^3/h] CV-value for Balanced Tank Seat-lift [GPM]	0.90 3.96	1.90 8.36	1.90 8.36	1.40 6.16	0.90 3.96	1.90 8.36	1.90 8.36	1.40 6.16	3.10 13.7	3.10 13.7	1.90 8.36	1.90 8.36	1.90 8.36	1.90 8.36
Kv-value for SpiralClean Spindle CIP [m^3/h] CV-value for SpiralClean Spindle CIP [GPM]	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53	0.12 0.53
Kv-value for SpiralClean External CIP in leakage chamber [m^3/h] CV-value for SpiralClean External CIP in leakage chamber [GPM]	0.25 1.10	0.29 1.28	0.29 1.28	0.29 1.28	0.25 1.10	0.29 1.28	0.29 1.28	0.29 1.28	0.29 1.28	0.29 1.28	0.29 1.28	0.29 1.28	0.29 1.28	0.29 1.28

NOTE!
Formula to estimate CIP flow during seat lift (for liquids with comparable viscosity and density to water):

Q =	Cv • $\sqrt{\Delta}$ p
Q =	CIP - flow (m^3/h).
Kv =	Kv value from the above table
Δ P =	CIP pressure (bar)
Cv =	1.163 x Kv gpm
1 bar =	14.5 psi

(US measurements)

Q =	Cv • $\sqrt{\Delta}$ p
Q =	CIP - flow (gpm)
Cv =	Cv value from the above table
Δ P =	CIP pressure (psi).
Cv =	1.163 x Kv gpm
1 bar =	14.5 psi

Weight (kg)

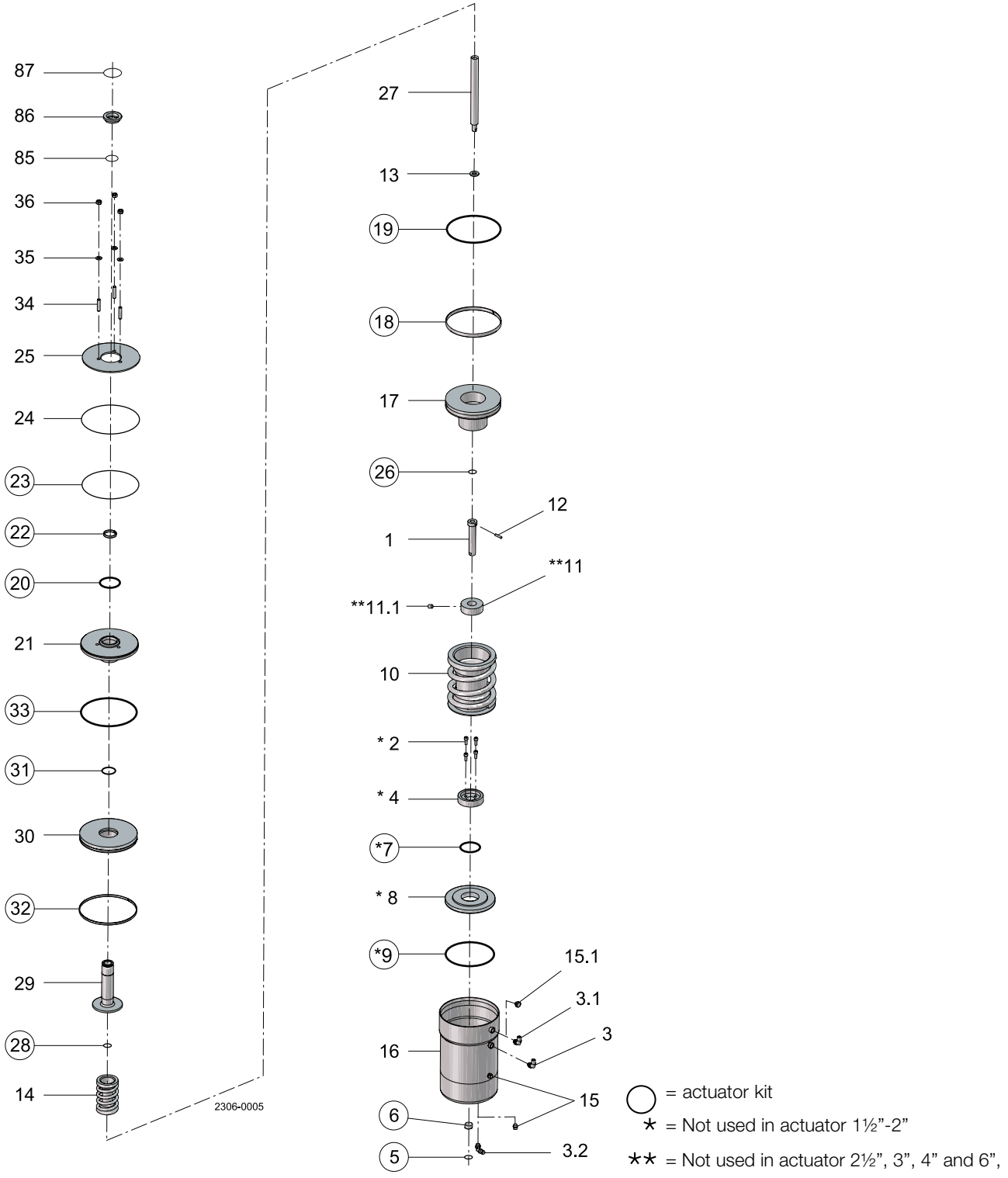
Size	DN/OD				DN						Longstroke			
											DN/OD		DN	
ISO-DIN	**51**	**63.5**	**76.1**	**101.6**	**50**	**65**	**80**	**100**	**125**	**150**	**63.5**	**76.1**	**65**	**80**
Weight (kg)* Unique TO	12.5	22.5	22.5	33	12.5	22.5	22.5	33	36	38	28	28	28	28
Weight (kg)* Unique TO with external cleaning	13	23.5	23.5	34	13	23.5	23.5	34	37	- - -	29	29	29	29

*= without tank flange

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.1 Actuator



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Parts list

Pos.		Qty	Denomination
1		1	Upper stem
2		4	Screw
3		1	Air fitting
3.1		1	Air fitting
3.2		1	Air fitting
4		1	Stop for upper piston
5	□	1	O-ring, NBR
6	□	1	Guide ring, Turcite
7	□	1	O-ring, NBR
8		1	Upper piston
9	□	1	O-ring, NBR
10		1	Spring assembly
11		1	Distance spacer
11.1		1	Screw
12		1	Pin
13		1	Washer
14		1	Spring assembly
15		1	Plug
15.1		1	Plug
17		1	Main piston
18	□	1	Guide ring, Turcite
19	□	1	O-ring, NBR
20	□	1	O-ring, NBR
21		1	Bottom
22	□	1	Guide ring, Turcite
23	□	1	O-ring, NBR
24		1	Retaining ring
25		1	Cover disk
26		1	O-ring, NBR
27		1	Inner stem
28	□	1	O-ring
29		1	Piston rod
30		1	Lower piston
31	□	1	O-ring, NBR
32	□	1	Guide ring, Turcite
33	□	1	O-ring, NBR
34		3	Bolt
35		3	Washer
36		3	Nut
85		1	O-ring, NBR
86		1	Prop
87		1	O-ring, NBR

Service kits

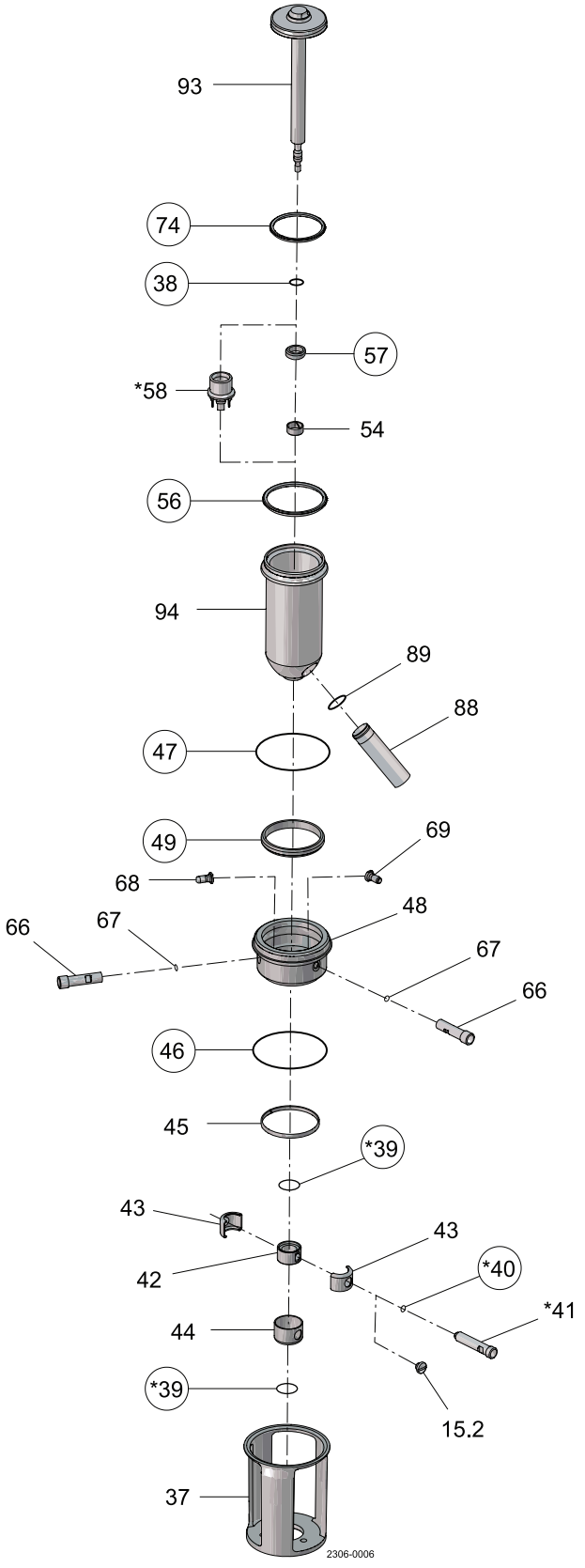
	Denomination	DN/OD 51 DN 50	DN/OD 63.5 DN 65 DN/OD 76.1 DN 80	LongStroke DN/OD 63.5 DN 65 DN/OD 76.1 DN 80	DN/OD 101.6 DN 100	DN 125 DN 150
□	**Service kits, actuator**	9611926414	9611926415	9611926416	9611926416	9611926416

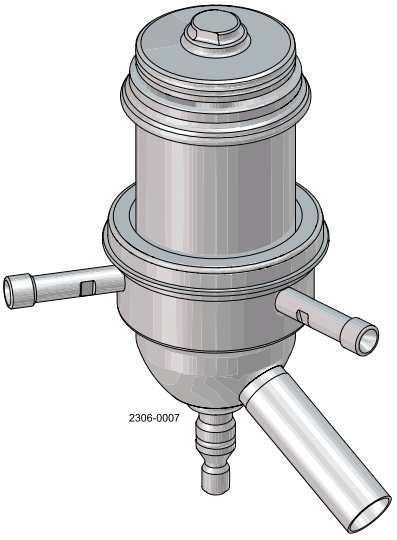
Parts marked with □ are included in the service kits.

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.2 Plug setup 6 (tank flange)





◯ = wear parts

* = with SpiralClean in leakage chamber

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Parts list

Pos.		Qty	Denomination
15		1	Plug
38	•	1	O-ring, EPDM
39		2	O-ring, EPDM
40		1	O-ring, EPDM
41		1	Flushing tube
42		1	Spindle liner
43		2	Clamp
44		1	Lock
45		1	Guide ring
46	•	1	O-ring, EPDM
47	•	1	O-ring
48		1	Sealing element
49	•	1	Lip seal
54		1	Guide ring, PTFE
56	•	1	Seal ring
57	•	1	Lip seal
58		1	Spray nozzle, PVDF
66		2	Flushing tube
67	•	2	O-ring, EPDM
68		1	Drain
69		1	Nozzle
74	•	1	Seal ring
88		1	Pipe for balance plug
89	•	1	O-ring, EPDM
93		1	Tank plug
94		1	Balance plug

Service kits

	Denomination	DN/OD 51 DN50 Seat ø53.3	DN/OD 63.5 DN/OD 76.1 DN65/DN80 Seat ø81.3	LongStroke DN/OD 63.5 DN/OD 76.1 DN65/DN80 Seat ø81.3	DN/OD 101.6 DN 100 Seat ø100.3	DN 125 Seat ø115.3
•	Service kit, EPDM	9611926449	9611926453	9611926453	9611926457	9611926461
•	Service kit, NBR	9611926450	9611926454	9611926454	9611926458	9611926462
•	Service kit, FPM	9611926451	9611926455	9611926455	9611926459	9611926463
•	Service kit, HNBR	9611926452	9611926456	9611926456	9611926460	9611926464

Parts marked with • are included in the service kits.

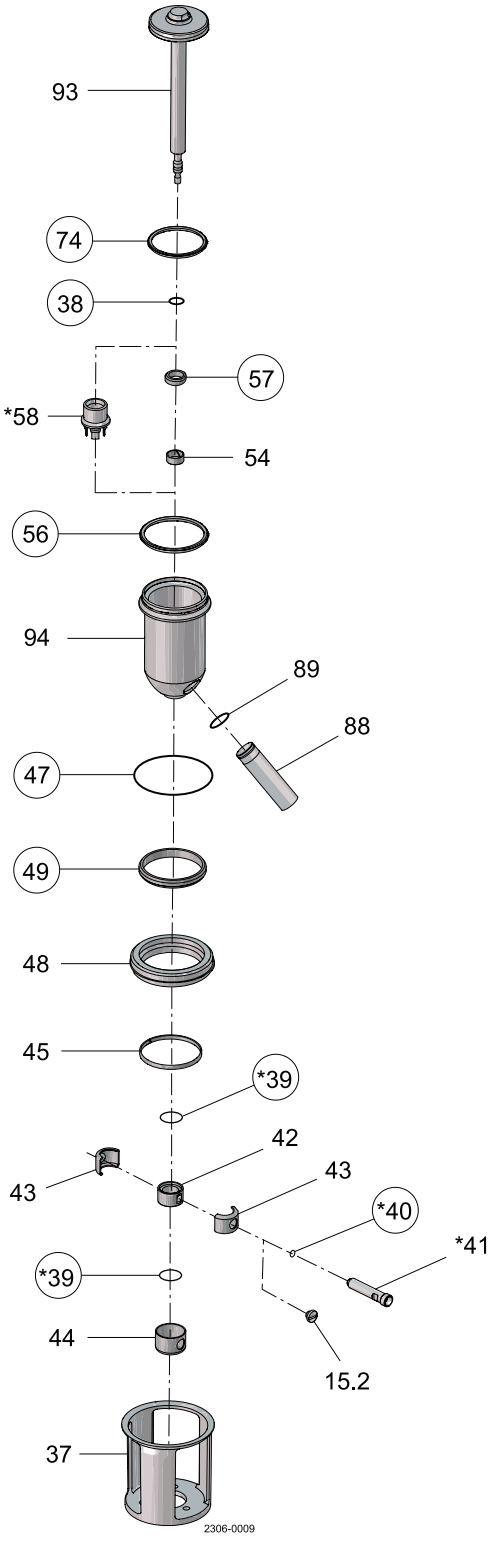
NOTE!
If SpiralClean in leakage chamber extra O-rings (2x pos. 39 and 1x pos. 40) is required.
All FPM service kits are supplied with EPDM seal ring, pos. 74.

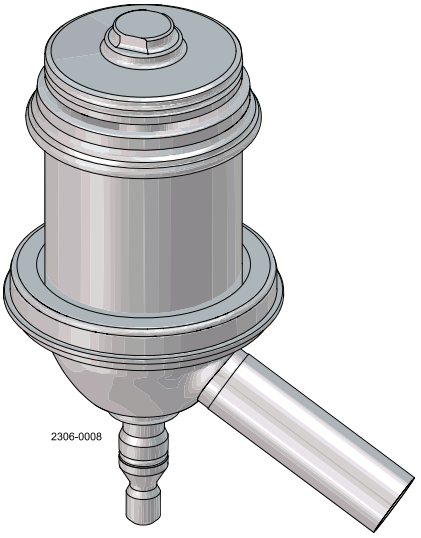
900698/2

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.3 Plug setup 12 (tank flange)





◯ = wear parts

* = with SpiralClean in leakage chamber

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Parts list

Pos.		Qty	Denomination
15		1	Plug
38	•	1	O-ring, EPDM
39		2	O-ring, EPDM
40		1	O-ring, EPDM
41		1	Flushing tube
42		1	Spindle liner
43		2	Clamp
44		1	Lock
45		1	Guide ring
47	•	1	O-ring
48		1	Sealing element
49	•	1	Lip seal
54		1	Guide ring, PTFE
56	•	1	Seal ring
57	•	1	Lip seal
58		1	Spray nozzle, PVDF
74	•	1	Seal ring
88		1	Pipe for balance plug
89	•	1	O-ring, EPDM
93		1	Tank plug
94		1	Balance plug

Service kits

	Denomination	DN/OD 51 DN50 Seat ø53.3	DN/OD 63.5 DN/OD 76.1 DN65/DN80 Seat ø81.3	LongStroke DN/OD 63.5 DN/OD 76.1 DN65/DN80 Seat ø81.3	DN/OD 101.6 DN 100 Seat ø100.3	DN 125 Seat ø115.3	DN 150 Seat ø115.3
•	Service kit, EPDM	9611926433	9611926437	9611926437	9611926441	9611926445	9611926445
•	Service kit, NBR	9611926434	9611926438	9611926438	9611926442	9611926446	9611926446
•	Service kit, FPM	9611926435	9611926439	9611926439	9611926443	9611926447	9611926447
•	Service kit, HNBR	9611926436	9611926440	9611926440	9611926444	9611926448	9611926448

Parts marked with • are included in the service kits.

NOTE!

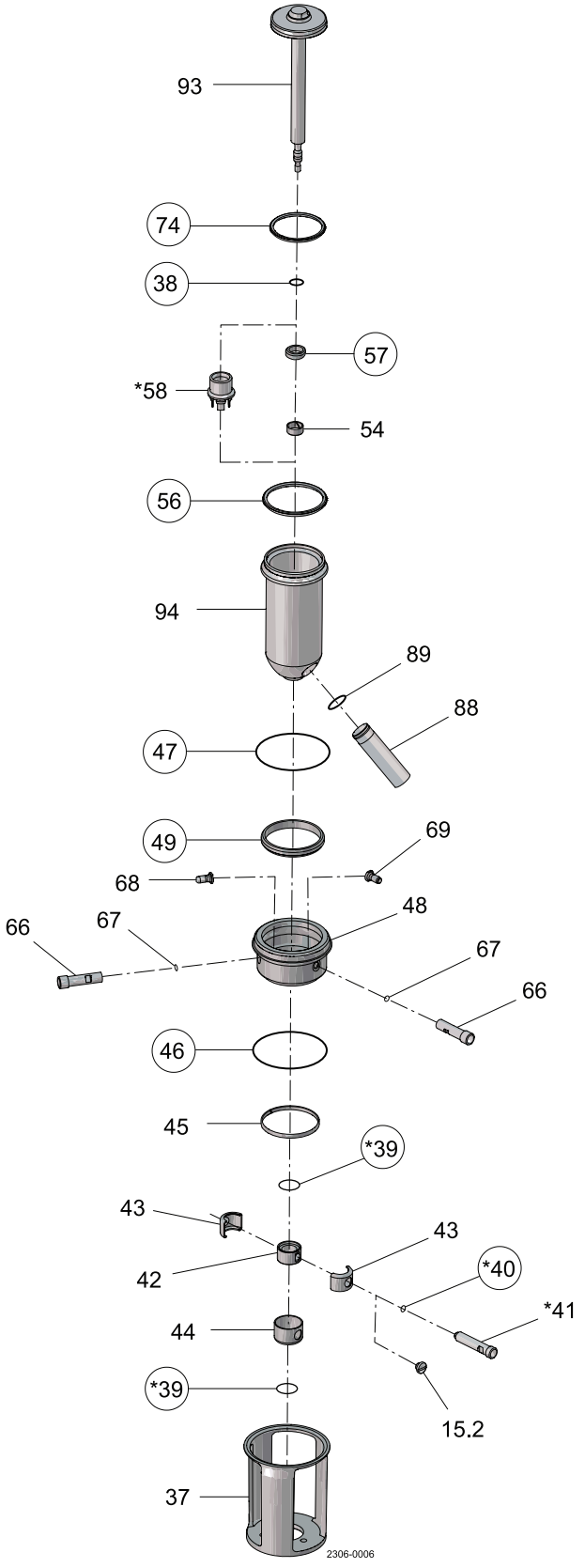
If SpiralClean in leakage chamber extra O-rings (2x pos. 39 and 1x pos. 40) is required.

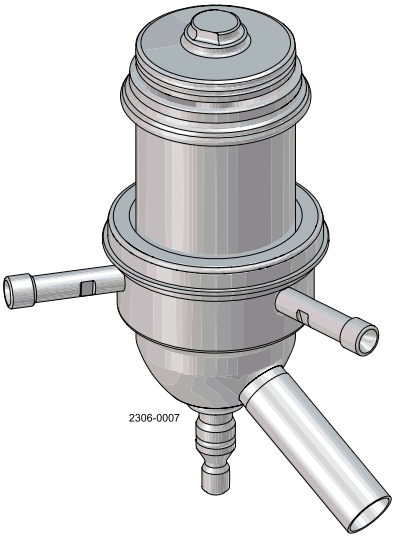
All FPM service kits are supplied with EPDM seal ring, pos. 74.

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.4 Plug setup 6 (stub flange)





◯ = wear parts

* = with SpiralClean in leakage chamber

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Parts list

Pos.		Qty	Denomination
15		1	Plug
38	•	1	O-ring, EPDM
39		2	O-ring, EPDM
40		1	O-ring, EPDM
41		1	Flushing tube
42		1	Spindle liner
43		2	Clamp
44		1	Lock
45		1	Guide ring
46	•	1	O-ring, EPDM
47	•	1	O-ring
48		1	Sealing element
49	•	1	Lip seal
54		1	Guide ring, PTFE
56	•	1	Seal ring
57	•	1	Lip seal
58		1	Spray nozzle, PVDF
66		2	Flushing tube
67	•	2	O-ring, EPDM
68		1	Drain
69		1	Nozzle
74	•	1	Seal ring
88		1	Pipe for balance plug
89	•	1	O-ring, EPDM
93		1	Tank plug
94		1	Balance plug

Service kits

	Denomination	DN/OD 51 DN50 Seat ø53.3	DN/OD 63.5 DN/OD 76.1 DN65/DN80 Seat ø81.3	LongStroke DN/OD 63.5 DN/OD 76.1 DN65/DN80 Seat ø81.3	DN/OD 101.6 DN 100 Seat ø100.3	DN 125 Seat ø115.3
•	Service kit, EPDM	9611926481	9611926485	9611926485	9611926489	9611926493
•	Service kit, NBR	9611926482	9611926486	9611926486	9611926490	9611926494
•	Service kit, FPM	9611926483	9611926487	9611926487	9611926491	9611926495
•	Service kit, HNBR	9611926484	9611926488	9611926488	9611926492	9611926496

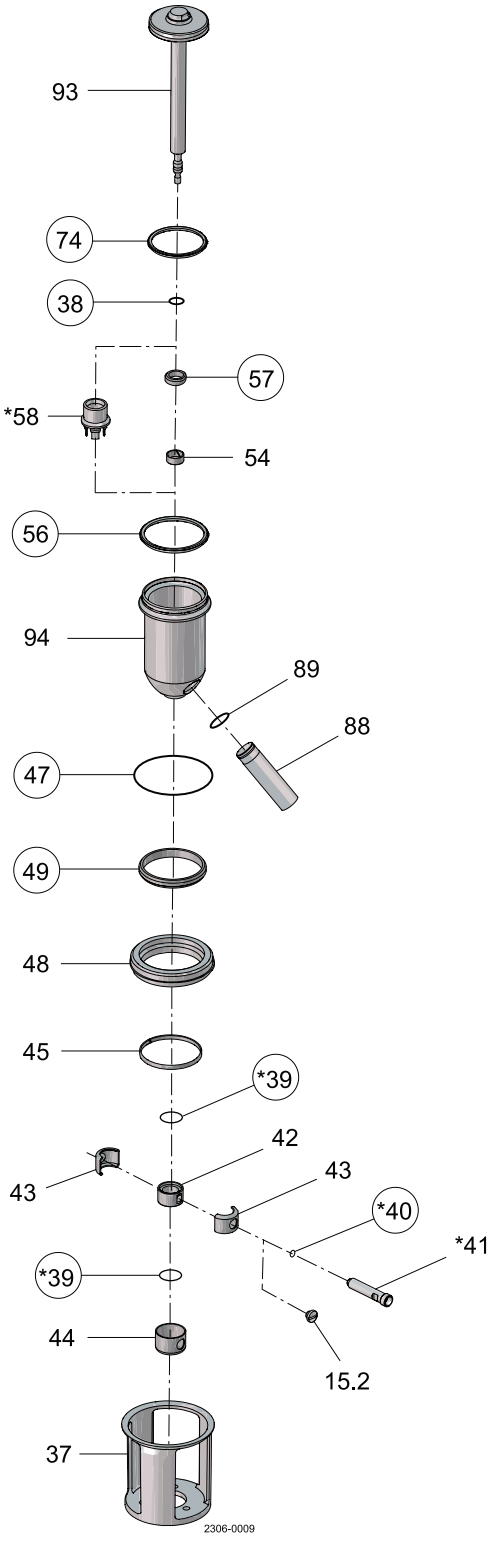
Parts marked with • are included in the service kits.

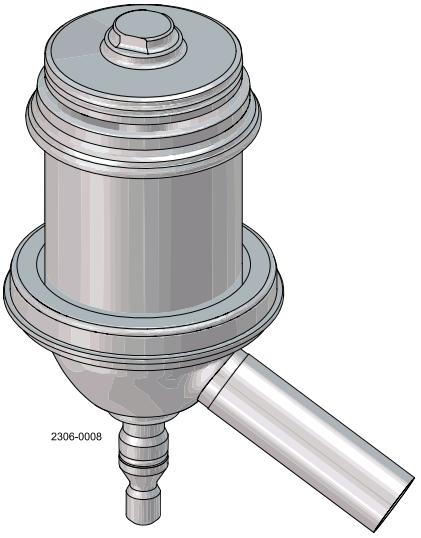
NOTE!
If SpiralClean in leakage chamber extra O-rings (2x pos. 39 and 1x pos. 40) is required.
All FPM service kits are supplied with EPDM seal ring, pos. 74.

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.5 Plug setup 12 (stub flange)





◯ = wear parts

* = with SpiralClean in leakage chamber

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Parts list

Pos.		Qty	Denomination
15		1	Plug
38	•	1	O-ring, EPDM
39		2	O-ring, EPDM
40		1	O-ring, EPDM
41		1	Flushing tube
42		1	Spindle liner
43		2	Clamp
44		1	Lock
45		1	Guide ring
47	•	1	O-ring
48		1	Ssealing element
49	•	1	Lip seal
54		1	Guide ring, PTFE
56	•	1	Seal ring
57	•	1	Lip seal
58		1	Spray nozzle, PVDF
74	•	1	Seal ring
88		1	Pipe for balance plug
89	•	1	O-ring, EPDM
93		1	Tank plug
94		1	Balance plug

Service kits

	Denomination	DN/OD 51 DN50 Seat ø53.3	DN/OD 63.5 DN65 DN/OD 76.1 DN65/DN80 Seat ø81.3	LongStroke DN/OD 63.5 DN65 DN/OD 76.1 DN65/DN80 Seat ø81.3	DN/OD 101.6 DN 100 Seat ø100.3	DN 125 Seat ø115.3	DN 150 Seat ø115.3
•	Service kit, EPDM	9611926465	9611926469	9611926469	9611926473	9611926477	9611926477
•	Service kit, NBR	9611926466	9611926470	9611926470	9611926474	9611926478	9611926478
•	Service kit, FPM	9611926467	9611926471	9611926471	9611926475	9611926479	9611926479
•	Service kit, HNBR	9611926468	9611926472	9611926472	9611926476	9611926480	9611926480

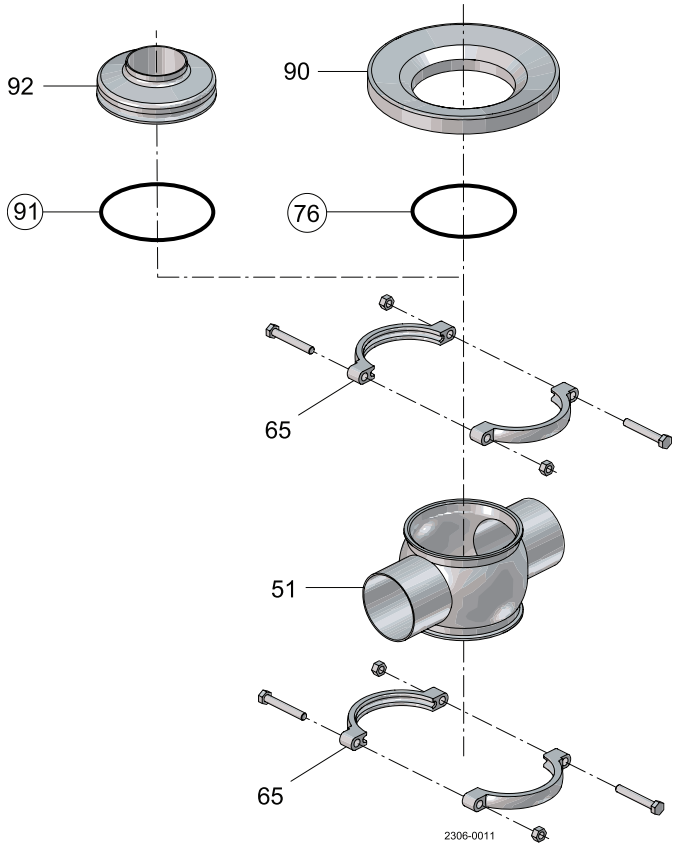
Parts marked with • are included in the service kits.

NOTE!
If SpiralClean in leakage chamber extra O-rings (2x pos. 39 and 1x pos. 40) is required.
All FPM service kits are supplied with EPDM seal ring, pos. 74.

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.6 Valve bodies



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

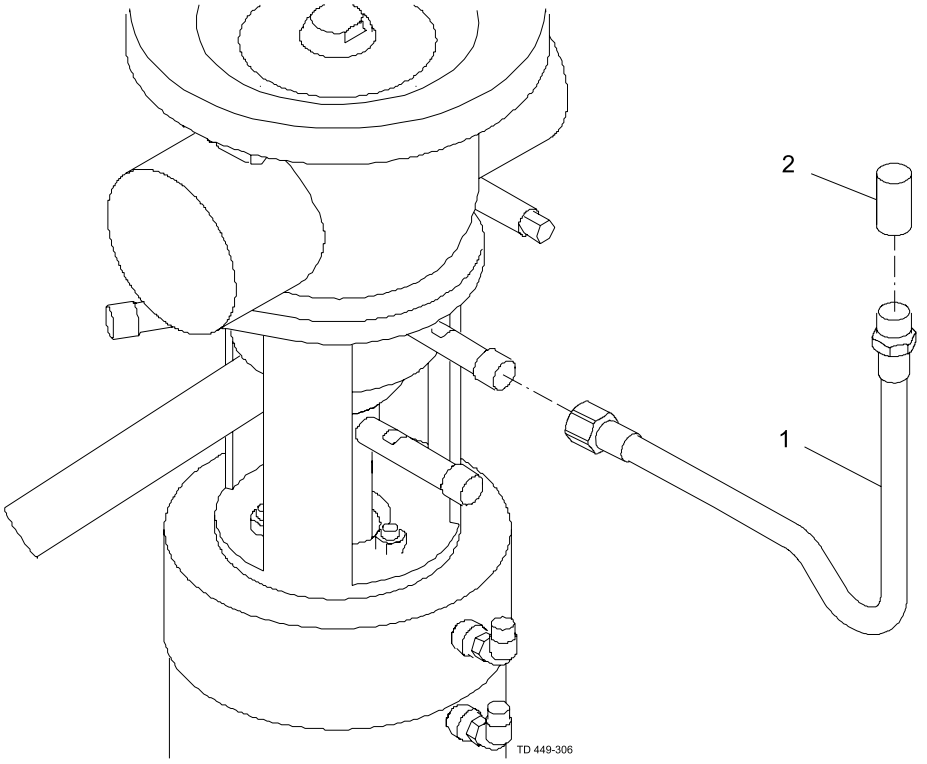
Parts list

Pos.	Qty	Denomination
37	1	Intermediate piece
51	1	Valve body, upper
65	2	Clamp with screws
76	1	O-ring
90	1	Tank flange
91	1	O-ring
92	1	Stub flange

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.7 Installation kit B



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

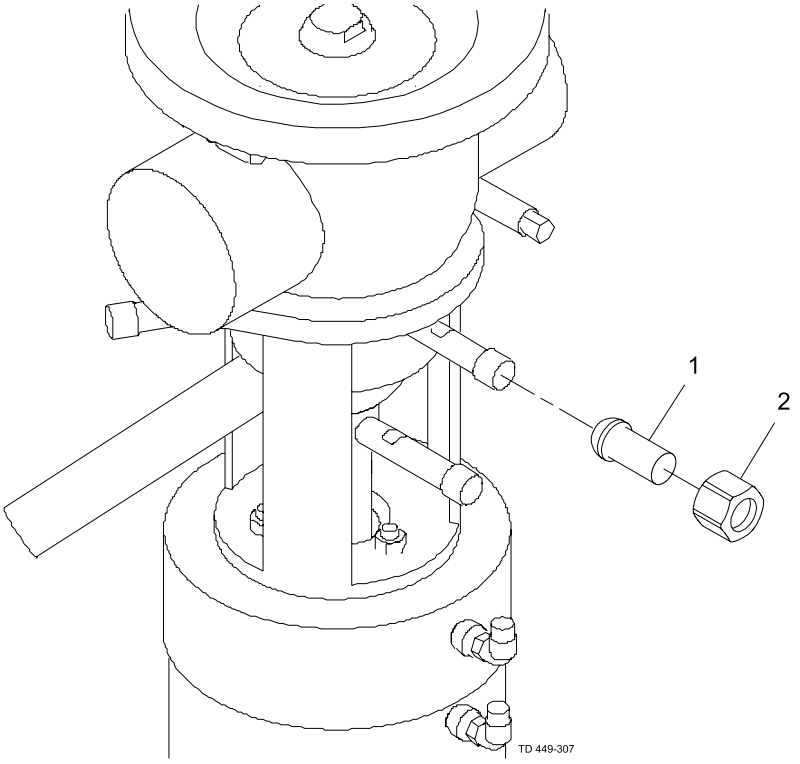
Parts list

Pos.	Qty	Denomination
1	1	Hose PTFE with stainless steel weave
2	1	Welding socket

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.8 Installation kit C



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

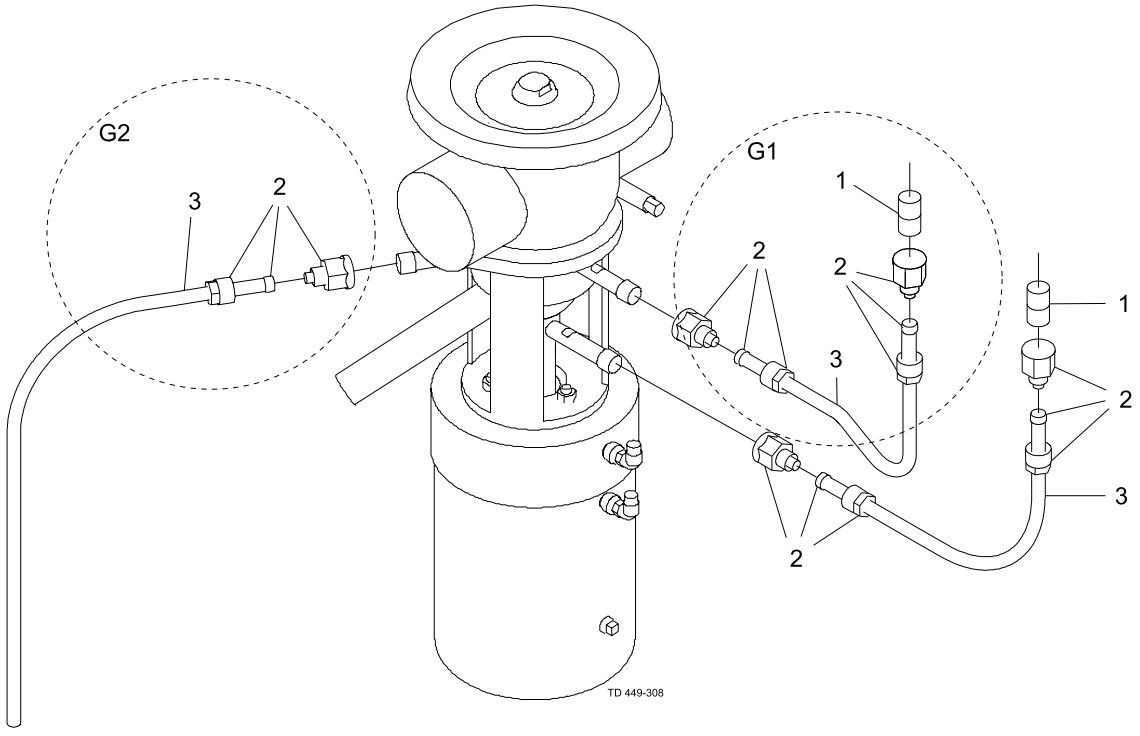
Parts list

Pos.	Qty	Denomination
1	1	Welding liner
2	1	Nut

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.9 Installation kit G



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

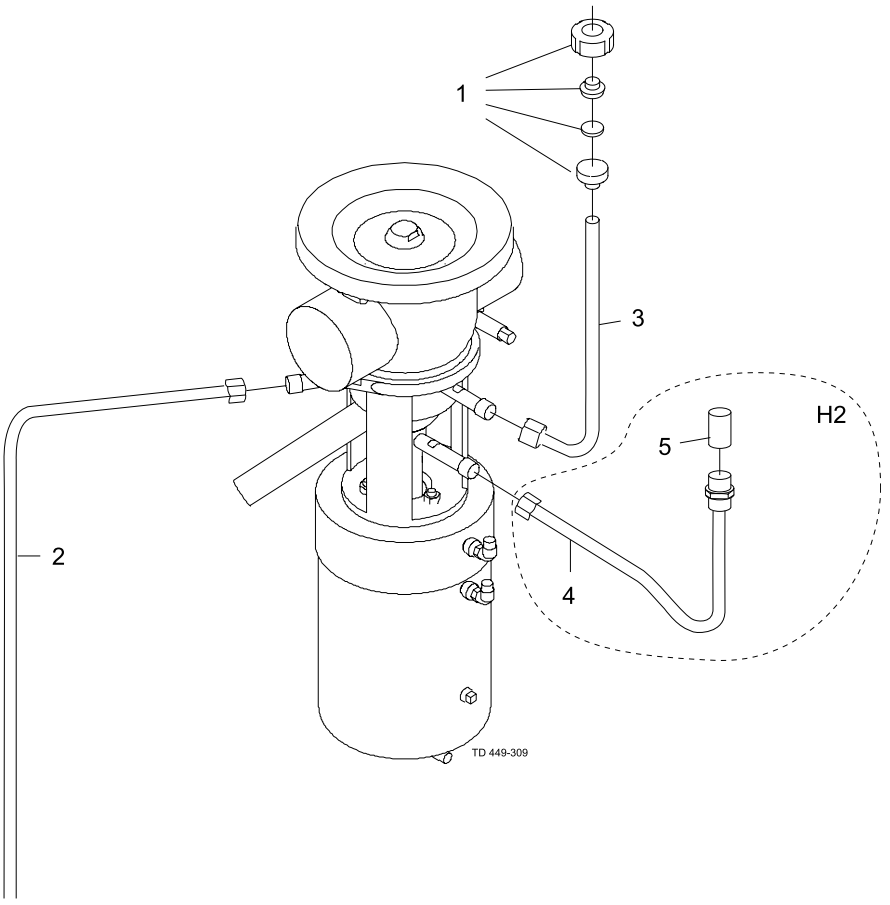
Parts list

Pos.	Qty	Denomination
1	1	Welding male part, AISI 316
2	2	3/8" 10 mm Female PVDF
3	1	10 mm PVDF hose, 1m

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.10 Installation kit H and H2



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

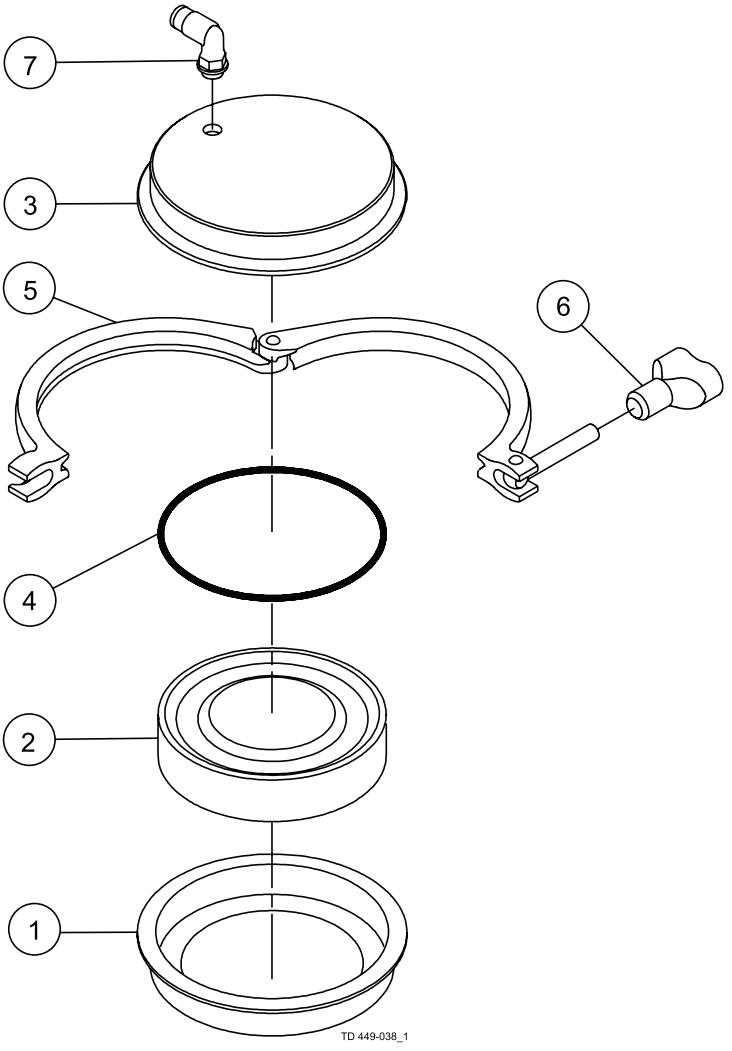
Parts list

Pos.	Qty	Denomination
1	1	DIN union DN10
2	1	12 mm CIP pipe long
3	1	12 mm CIP pipe
4	1	Hose PTFE with stainless steel weave
5	1	Welding socket

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.11 Axial installation tool



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

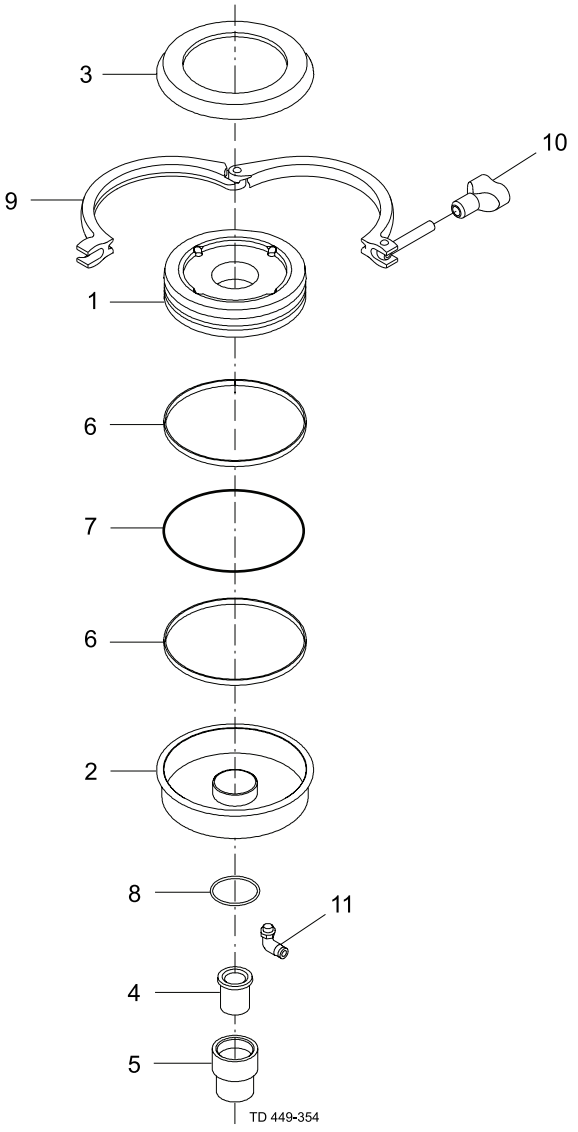
Parts list

Pos.	Qty	Denomination
		Complete tool
1	1	Lower Part
2	1	Piston
3	1	Upper Part
4	1	O-ring, NBR
5	1	Clamp
6	1	Wingnut
7	1	Air fitting

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.12 Radial installation tool



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

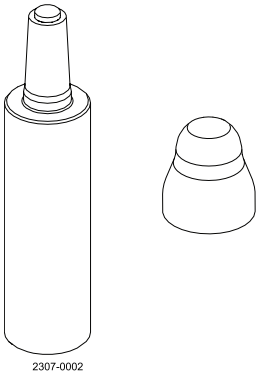
Parts list

Pos.	Qty	Denomination
		Complete tool
1	1	Piston
2	1	Lower Part
3	1	Upper Part
4	1	Bushing
5	1	Guide
6	2	Guide ring
7	1	O-ring, NBR
8	1	O-ring, NBR
9	1	Clamp
10	1	Wingnut
11	1	Air fitting

7 Parts list and service kits

Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

7.13 Mounting tool for lip seal



Always use Alfa Laval genuine spare parts.
The warranty of Alfa Laval products is dependent on the use of Alfa Laval genuine spare parts.

Parts list

Pos.	Qty	Denomination
	1	Mounting tool for lip seal, complete*
	1	Mounting tool for lip seal, complete**

How to contact Alfa Laval
Contact details for all countries are
continually updated on our website.
Please visit www.alfalaval.com to access the information directly.