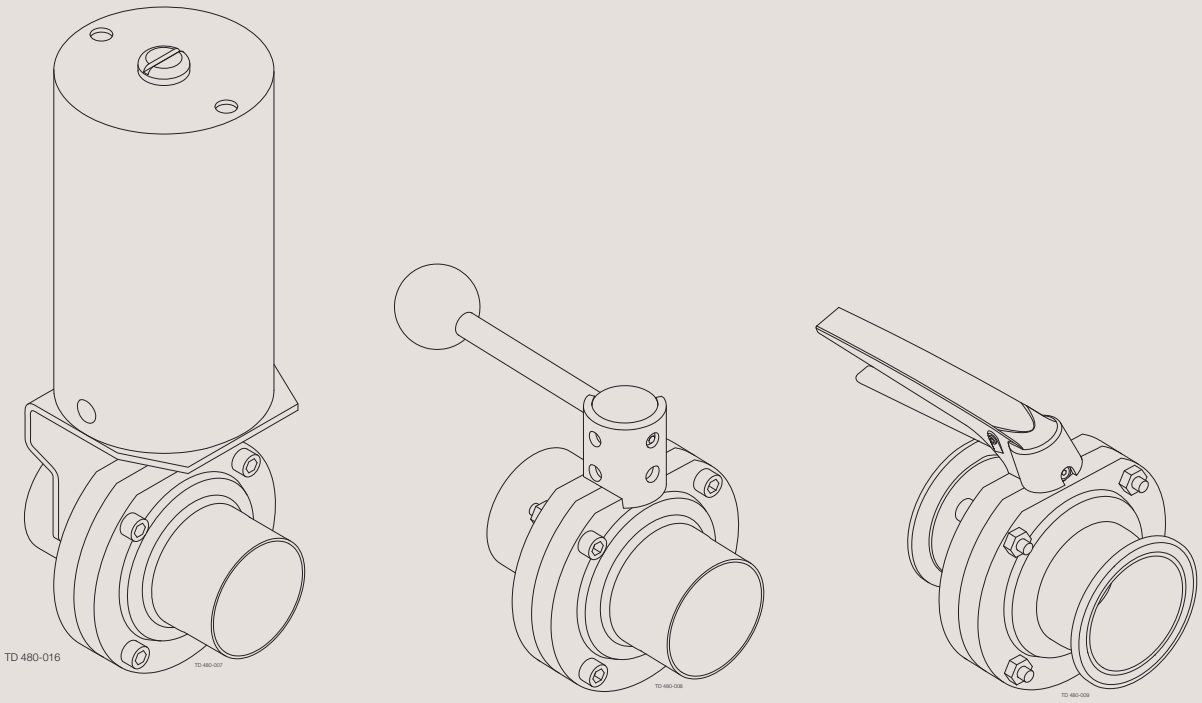
Instruction Manual

LKB UltraPure Automatic or Manual Butterfly Valve



ESE01699-EN4 2015-04

Original manual

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

1 EC Declaration of Conformity

The Designated Company

Alfa Laval Kolding A/S
Company Name

Albuen 31, DK-6000 Kolding, Denmark
Address

+45 79 32 22 00
Phone No.

hereby declare that

Valve actuator
Designation

LKLA NC, LKLA NO, LKLA A/A, LKLA-T NO, LKLA-T NC, LKLA-T A/A
Type

is in conformity with the following directive with amendments:

- Machinery Directive 2006/42/EC
- Regulation (EC) No 1935/2004

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

QHSE Manager, Quality, Health and safety & Environment		Annie Dahl
Title		Name
Kolding	2012-08-01	
Place	Date	Signature

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

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.
"Mushrooms" = Fastening connections on the end cap.
Pay special attention to the instructions below so that severe personal injury and/or damage to the valve are avoided.

2.3 Safety precautions

Installation

Always read the technical data thoroughly (See chapter 5 Maintenance).
Always release compressed air after use.
Never touch the coupling between the valve body and the actuator if compressed air is supplied to the actuator.

Operation

Always read the technical data thoroughly (See chapter 5 Maintenance).
Never touch the valve or the pipelines when processing hot liquids or when sterilizing.
Never touch the coupling between the valve body and the actuator if compressed air is supplied to the actuator.

Always handle lye and acid with great care.

Maintenance

Always observe the technical data thoroughly (See chapter 5 Maintenance).
Always release compressed air after use.
Never service the valve when it is hot.
The valve/actuator and the pipelines must **never** be pressurised when servicing the valve/actuator.

Never stick your fingers through the valve ports if the actuator is supplied with compressed air.
Never touch the coupling between the valve body and the actuator if compressed air is supplied to the actuator.
The actuator springs are not caged (ø85 mm, NC/NO).

Never use compressed air for removing the end caps of the actuator.
Always fit the end cap with the "mushrooms" turned outwards and position it correctly before supplying compressed air to the actuator.

Transportation

Always secure that compressed air is released .
Always secure that all connections is disconnected before attemt 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.

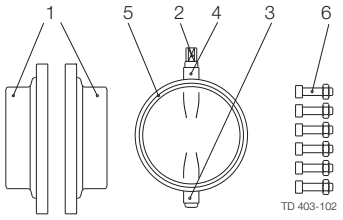
The instruction manual is part of the delivery. Study the instructions carefully.
The items refer to parts list and service kits section.
The valve is preassembled before delivery.

3.1 Unpacking/delivery

Step 1
CAUTION
Alfa Laval cannot be held responsible for incorrect unpacking.
Check the delivery:
1. Complete valve (see Step 2).
2. Complete actuator, if supplied (see Step 3).
3. Bracket for actuator, if supplied (see Step 3).
4. Complete handle, if supplied.
5. Delivery note.
6. Instruction manual.

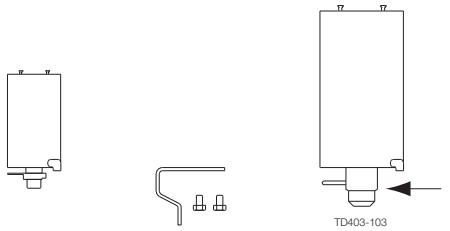
Step 2
Standard delivery of valve parts:
1. Two valve body halves (1).
2. Valve disc (2) fitted in seal ring (5).
3. Two bushes (3, 4) fitted on the disc stem.
4. A set of screws and nuts (6).

Separate parts for welding



Step 3
Delivery of actuator and bracket:
1. Complete actuator with coupling and activating ring (ø85 mm) or indication pin (ø133 mm).
2. Bracket with screws for the actuator.
3. Water rejector (if not mounted)

LKLA - ø85mm | Bracket with screws | LKLA - ø133mm

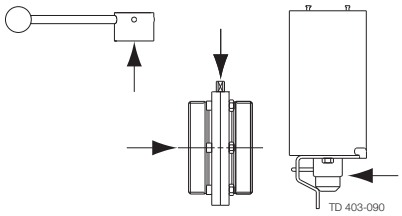


Coupling

Step 4

1. Clean the valve/valve parts for possible packing materials.
2. Clean the handle or the actuator, if supplied.

Handle | Valve | Actuator



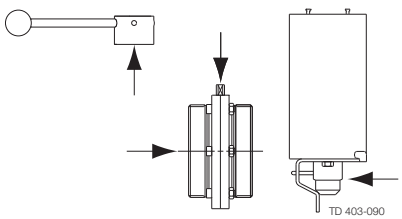
Remove packing materials!

Step 5
Inspection!

1. Inspect the valve/valve parts for visible transport damage.
2. Inspect the handle or the actuator, if supplied.

Caution!
Avoid damaging the valve/valve parts.
Avoid damaging the handle or the actuator, if supplied.

Handle | Valve | Actuator



3 Installation

Study the instructions carefully. The valve has welding ends as standard but can also be supplied with fittings.
NC = Normally closed.
NO = Normally open.
A/A = Air/air activated.

3.2 General installation

Step 1

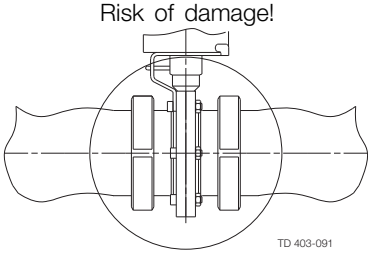
Always read the technical data thoroughly.

Always release compressed air after use.
Never touch the coupling between the valve body and the actuator if compressed air is supplied to the actuator.

CAUTION
Alfa Laval cannot be held responsible for incorrect installation.

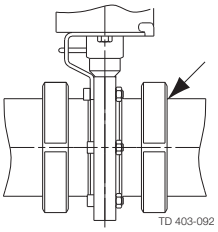
Step 2
Avoid stressing the valve.
Pay special attention to:
- Vibrations.
- Thermal expansion of the tubes.
- Excessive welding.
- Overloading of the pipelines.

Risk of damage!



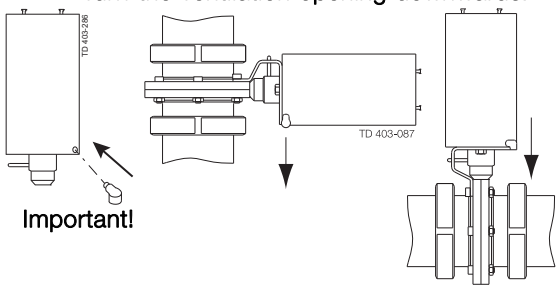
Step 3
Fittings:
Ensure that the connections are tight.

Remember seal rings!



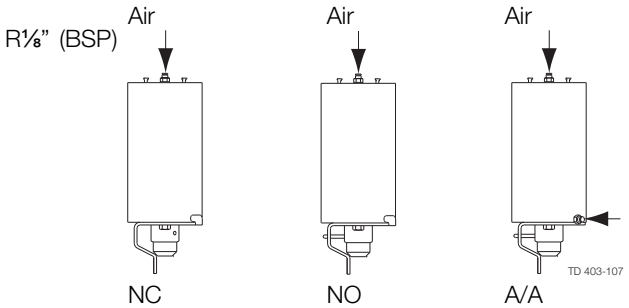
Step 4
Position of actuator:
Position the water rejector on the actuator correctly. (The actuator can be installed in any position).

Turn the ventilation opening downwards!



Air connection of actuator:
Connect compressed air correctly.
Pay special attention to the warnings!

Pre-use check:
Open and close the valve several times to ensure that the valve disc moves smoothly against the sealring.
Pay special attention to the warnings!



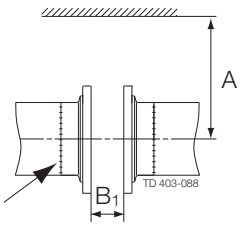
Study the instructions carefully.
The valve is supplied as separate parts to facilitate the welding.
LKB UltraPure: for ISO, DIN and ASME tubes

3.3 Welding

Step 1
1. Weld the valve body halves into the pipelines.
2. Maintain the minimum clearance (A) so that the actuator can be removed.
3. If welding both valve body halves, ensure that they can be moved axially **B1 mm**, so that the valve parts can be removed.
4. After welding assemble the valve in accordance with the steps 1-5 in section 5.3 Assembly of valve.

Pre-use check
Open and close the valve several times to ensure that the valve disc moves smoothly against the seal ring.
Pay special attention to the warnings!

Size	A (mm)				B_1 (mm)
	Ø85		Ø133		
	LKLA	LKLA-T	LKLA	LKLA-T	
25 mm/1”	245	+ 172 (incl. top unit)		+ 172 (incl. top unit)	20
38 mm/1½”	245				20
51 mm/2”	255				20
63.5 mm/2½”	265				24
76.1 mm/3”	265				24
101.6 mm/4”	290		420		37
DN25	245				20
DN32	245				20
DN40	250				20
DN50	260				20
DN65	270				24
DN80	275				23
DN100	290		420		37



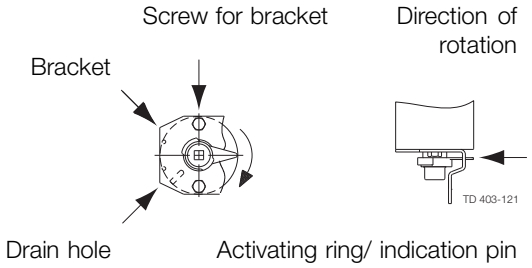
Caution!

3 Installation

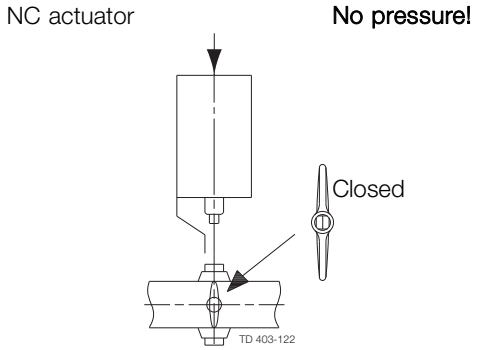
Study the instructions carefully and pay special attention to the warnings!
NC = Normally closed.
NO = Normally open.
A/A = Air/air activated.

3.4 Fitting actuator/bracket/handle on the valve (optional extras)

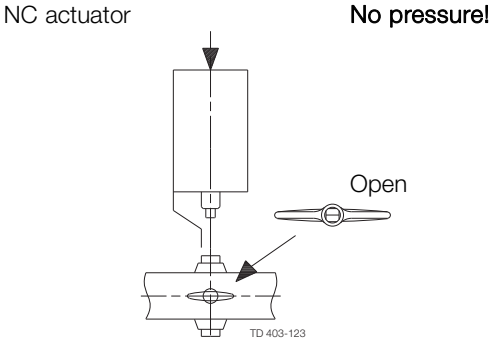
Step 1
Bracket/indication:
1. Fit the bracket as shown.
2. Fit and tighten the screws.
3. Fit the activating ring/indication pin as shown.



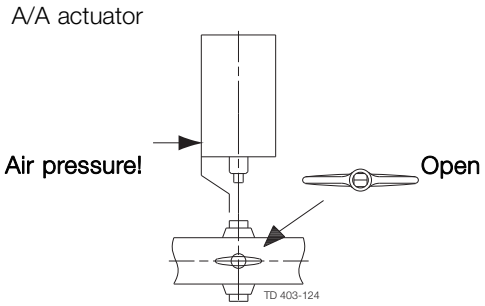
Step 2
Actuator/bracket - NC:
1. Ensure that the valve is closed by checking the position of the groove of the disc stem top.
2. Fit the actuator/bracket in accordance with Step 4 section 5.3 Assembly of valve.



Step 3
Actuator/bracket - NO:
1. Ensure that the valve is open by checking the position of the groove of the disc stem top.
2. Fit the actuator/bracket in accordance with Step 4 section 5.3 Assembly of valve.



Step 4
Actuator/bracket - A/A:
1. Ensure that the valve is open by checking the position of the groove of the disc stem top.
2. Supply compressed air to the actuator.
3. Fit the actuator/bracket in accordance with Step 4 section 5.3 Assembly of valve

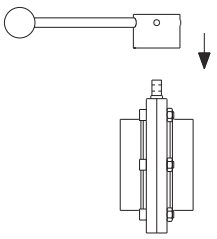


Study the instructions carefully and pay special attention to the warnings!
NC = Normally closed.
NO = Normally open.
A/A = Air/air activated.

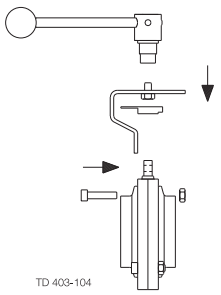
Step 5
Handle/indication:
1. Fit the standard handle on the valve so that the screw can enter the hole in the disc connection.
2. Fit the handle with position indication as shown and in accordance with the Step 3-Step 4, section 5.3 Assembly of valve.

Pre-use check:
Open and close the valve several times to ensure that it operates smoothly.
Pay special attention to the warnings!

Standard handle



Handle with position indication



3.5 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 and pay special attention to the warnings!
The valve is automatically or manually operated by means of an actuator or a handle.

4.1 Operation

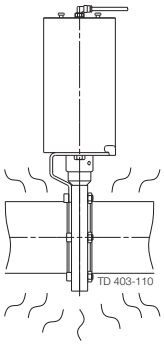
Step 1

Always read the technical data thoroughly.

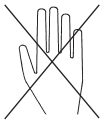
CAUTION
Alfa Laval cannot be held responsible for incorrect operation.

Step 2

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

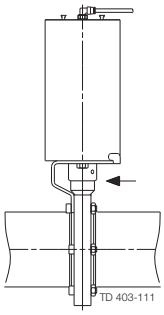


Burning danger



Step 3

Never touch the coupling between the valve body and the actuator if compressed air is supplied to the actuator.

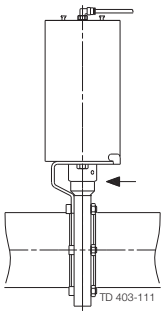


Air

Rotating parts

Step 4

Operation by means of actuator:
Automatic on/off operation by means of compressed air.



Air

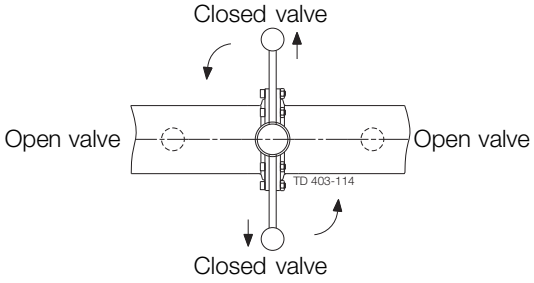
Rotating parts

Step 5

Operation by means of standard handle:

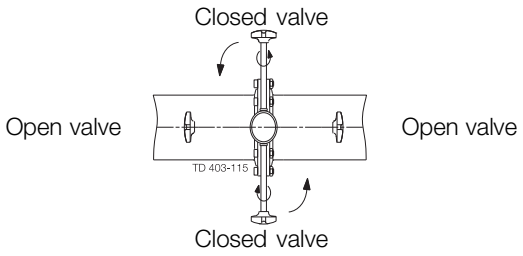
1. Manual on/off operation.
2. Pull the handle outwards while rotating it.

NOTE!
This also applies for the Lockable Multiposition Handle.



Pay attention to possible break-down. Study the instructions carefully.
NC = Normally closed. NO = Normally open. A/A = Air/air activated.

Step 6
Operation by means of regulating handle:
1. Manual flow regulation because of infinite locking positions.
2. Loosen the handle, rotate it and tighten again.



4.2 Troubleshooting

Step 1
NOTE!
Study the maintenance instructions carefully before replacing worn parts. - See 5.1 General maintenance

Problem	Cause/result	Repair
- External leakage - Internal leakage by closed valve (normal wear)	- Worn seal ring - Worn flange seal ring (LKB-F)	Replace the seal ring and the bushes
- External leakage - Internal leakage by closed valve (too early)	- High pressure - High temperature - Aggressive liquids - Many activations	- Change rubber grade - Change the operation conditions
- Difficult to open/close - Damage of disc connection (high torque)	Incorrect seal ring (swelling)	Replace by a seal ring of a different rubber grade
Difficult to open/close	- 90° displacement of the actuator - Incorrect actuator function (NC,NO) - Worn actuator bearings - Dirt penetration into the actuator	- Fit correctly (see 3.4 Fitting actuator/bracket/handle on the valve (optional extras)) - Change from NC to NO or vice versa - Replace the bearings - Service the actuator

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.
HNO_3 = Nitric acid.

4.3 Recommended cleaning

Step 1

Always handle lye and acid with great care.

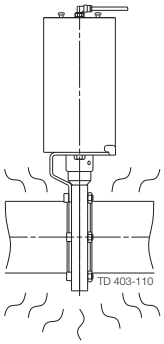
Caustic danger!

Always use rubber gloves!

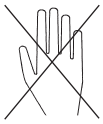
Always use protective goggles!

Step 2

Never touch the valve or the pipelines when sterilising.



Burning danger!



Step 3

Examples of cleaning agents:

Use clean water, free from clorides.

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

1 kg (2.2 lbs) 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.

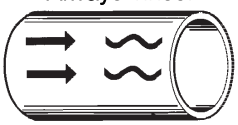
2. 0.5% by weight HNO_3 at 70° C (158° F)

0.7 l (0.2 gal) 53% HNO_3	+	100 l (26.4 gal) water	=	Cleaning agent.

Step 4

1. Avoid excessive concentration of the cleaning agent.
   - Dose gradually.
2. Adjust the cleaning flow to the process.
   - Sterilization of milk/viscous liquids.
   - Increase the cleaning flow.
3. **Always** rinse well with clean water after the cleaning.

Always rinse!



Clean water Cleaning agents

Step 5

NOTE

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

Maintain the valve and the regulator carefully.
Study the instructions carefully and pay special attention to the warnings!
Always keep spare seal rings, rubber seals, bushes and actuator bearings in stock.
"Mushrooms" = Fastening connections on the end cap.

5.1 General maintenance

Step 1

Always read the technical data thoroughly.
See chapter 6 Technical data

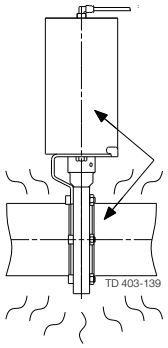
Always release compressed air after use.

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

Step 2

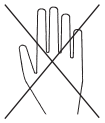
Never service the valve when it is hot.

Never service the valve with valve and pipelines under pressure.
The valve/actuator and the pipelines must **never** be pressurised when servicing the valve/actuator.



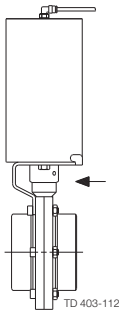
Atmospheric pressure required!

Burning danger!



Step 3

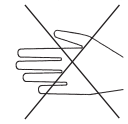
Never stick your fingers through the valve ports if the actuator is supplied with compressed air.



Air

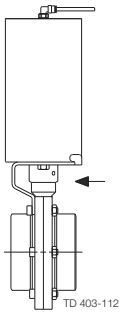
Air

Cutting danger!



Step 4

Never touch the coupling between the valve body and the actuator if compressed air is supplied to the actuator.



Air

Rotating parts

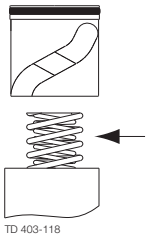
5 Maintenance

Maintain the valve and the regulator carefully.
Study the instructions carefully and pay special attention to the warnings!
Always keep spare seal rings, rubber seals, bushes and actuator bearings in stock.
"Mushrooms" = Fastening connections on the end cap.

Step 5

⚠

Actuator size ø85 mm (NC/NO):
The actuator springs are **not** caged.



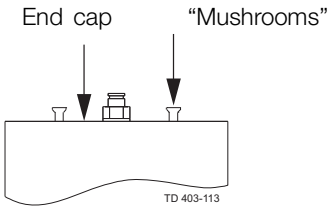
Springs
Caution!

Step 6

⚠

End cap of actuator:
- **Never** remove the end cap by using compressed air.
- **Always** fit the end cap with the "mushrooms" turned outwards and position it correctly before supplying compressed air to the actuator.

Caution!



Recommended spare parts: Service kits (see 7 Parts list and service kits).
Order service kits from the service kits list (see 7 Parts list and service kits)

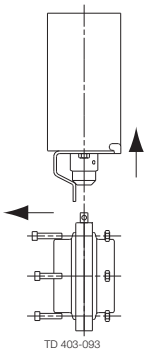
Ordering spare parts
Contact the Sales Department.

	Valve seal rings	Valve bushes	Actuator rubber seals	Actuator bearings
Preventive maintenance	**Replace after 12 months**	Replace when replacing the valve seal rings	**Replace after 24 months**	
Maintenance after leakage (leakage normally starts slowly)	**Replace by the end of the day**	Replace when replacing the valve seal rings	**Replace when possible**	
Planned maintenance	- Regular inspection for leakage and smooth operation - Keep a record of the valve - Use the statistics for planning of inspections **Replace after leakage**	Replace when replacing the valve seal rings	- Regular inspection for leakage and smooth operation - Keep a record of the actuator - Use the statistics for planning of inspections **Replace after air leakage**	Replace when they become worn
Lubrication	**Before fitting** (use USDA-H1 approved) - Unisilcon L641(*) - Paraliq(*) GTE 703 - Molycote 111(D)	None	**Before fitting** - Molycote Long term 2 Plus (Δ) - Molycote 1132(Δ) (for aggressive environment)	**When replacing actuator rubber seals** - Molycote Long term 2 Plus (Δ) - Molycote 1132 (Δ) (for aggressive environment)

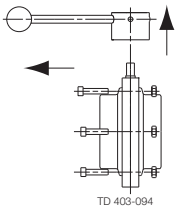
Study the instructions carefully. The items refer to the parts list and service kits section.
Handle scrap correctly.
LKB UltraPure: For ISO, DIN and ASME tubes.

5.2 Dismantling the valve

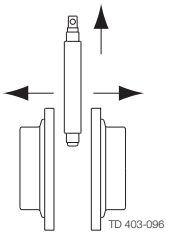
Step 1
Valve with actuator:
1. Remove screws and nuts (6).
2. Remove the bracket with the actuator.


TD 403-093

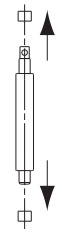
Step 2
Valve with handle:
1. Remove the complete handle.
2. Remove screws and nuts (6).


TD 403-094

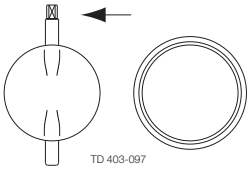
Step 3
Remove seal ring (5) together with valve disc (2).


TD 403-096

Step 4
Remove bushes (3, 4) from the disc stems.


TD 403-096

Step 5
Remove valve disc (2) from seal ring (5).
NOTE!
For the valve sizes 25-38 mm and DN25-40 it is recommended to remove the valve disc by using a special service tool.


TD 403-097

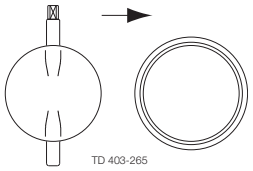
5 Maintenance

Study the instructions carefully. The items refer to the parts list and service kits section.
LKB UltraPure: For ISO, DIN and ASME tubes.
Lubricate the seal ring before fitting it.
Lubricate the disc stem before fitting the bushes.

5.3 Assembly of valve

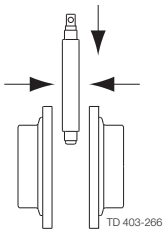
Step 1
1. Lubricate the pin holes in seal ring (5), (important for Silicone and Viton).
2. Fit valve disc (2) in the seal ring (5).

NOTE!
For the valve sizes 25-38 mm and DN25-40 it is recommended to fit the valve disc by using a special service tool.



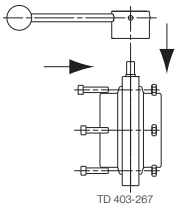
Step 2
1. Fit bushes (3,4) on the disc stem.
2. Fit seal ring (5) together with valve disc (2) between the two valve body halves (1).

CAUTION!
Rotate the valve disc so that the valve is open before tightening screws and nuts (6).

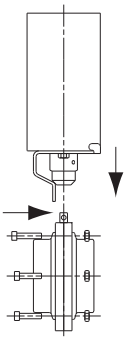


Step 3
Valve with handle:
1. Fit screws and nuts (6) and torque tighten in accordance with the requirements (see Step 5).
2. Fit the complete handle on the disc connection and tighten the screw on the handle.

NOTE!
This also applies for the Lockable Multiposition Handle.



Step 4
Valve with actuator:
1. Fit the actuator with the bracket so that the disc connection enters the coupling (see 3.4 Fitting actuator/bracket/handle on the valve (optional extras)).
2. Fit screws and nuts (6) and torque tighten in accordance with the requirements so that the bracket is fixed to the valve (see Step 5).



Fit correctly!
See 3.4 Fitting actuator/bracket/handle on the valve (optional extras)

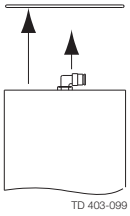
Step 5
Pre-use check: Check that the valve disc moves smoothly against the seal ring.
Pay special attention to the warnings!
Tools/torque values for assembly of the valve body halves:

Valve size	1" 25 mm DN 25	DN32	1½" 38 mm DN40	2" 51 mm DN50	2½" 63.5 mm DN65	3" 76 mm DN80	4" 101.6 mm DN100
Allen Key	5 mm (0.2")	5 mm (0.2")	5 mm (0.2")	6 mm (0.24")	6 mm (0.24")	6 mm (0.24")	8 mm (0.3")
Recomm. Torque	18 Nm (13 lbf-ft)	18 Nm (13 lbf-ft)	18 Nm (13 lbf-ft)	20 Nm (15 lbf-ft)	20 Nm (15 lbf-ft)	20 Nm (15 lbf-ft)	38 Nm (38 lbf-ft)

Study the instructions carefully. The items refer to the parts list and service kits section.
Handle scrap correctly.
NC = Normally closed. NO = Normally open. A/A = Air/air activated.

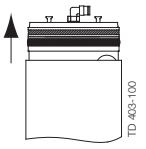
5.4 Dismantling of actuator

Step 1
1. Press end cap (5) into air cylinder (1).
2. Remove retaining ring (6).

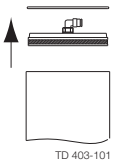


Use a press!

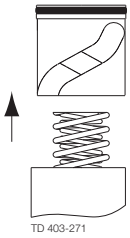
Step 2
NC/NO actuator:
Release the pressure on end cap (5) carefully and remove the end cap.
Pay special attention to the warning!



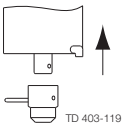
Step 3
A/A actuator:
Remove end cap (5) by hand.
Pay special attention to the warning!



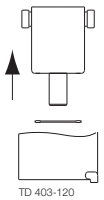
Step 4
Remove piston (3) and the springs.
NOTE!
- The actuator size ø133 mm has a caged spring assembly.
- The air/air actuator has no springs.



Step 5
Remove connex pin (16) and coupling (17) from rotating cylinder stem (2).



Step 6
Remove rotating cylinder (2) and the remaining internal parts from air cylinder (1).

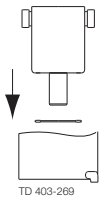


5 Maintenance

Study the instructions carefully.
NC = Normally closed. NO = Normally open. A/A = Air/air activated.
Lubricate the rubber seals before fitting them. Lubricate the bearings.
Clean the piston before assembly.

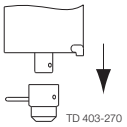
5.5 Assembly of actuator

Step 1
Fit rotating cylinder (2) in air cylinder (1).

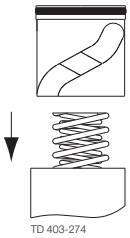


Step 2
Fit coupling (17) on rotating cylinder stem (2) and fit connex pin (16).

Fit the connex pin correctly!

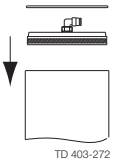


Step 3
Fit the springs in rotating cylinder (2) and fit piston (3) carefully.
CAUTION!
Fit the piston correctly in relation to the bearings.
NOTE!
The air/air actuator is has no springs.



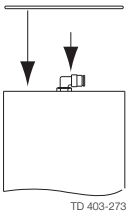
Fit correctly!

Step 4
A/A actuator:
1. Fit end cap (5) sufficiently into air cylinder (1) so that retaining ring (6) can be fitted in the air cylinder.
2. Position the end cap correctly by hand.
   Pay special attention to the warning!



Step 5
1. Fit end cap (5) in air cylinder (1) and press sufficiently down so that retaining ring (6) can be fitted in the air cylinder.
2. Release the pressure on the end cap.
   Pay special attention to the warning!

Use a press!
NC/NO actuator



Step 6
Pre-use check:
1. Supply compressed air to the actuator.
2. Activate the actuator several times to ensure that it operates smoothly.
   Pay special attention to the warnings!

It is important to observe the technical data during installation, operation and maintenance.
Inform the personnel about the technical data.
NC = Normally closed. NO = Normally open. A/A = Air/air activated.

6.1 Technical data

LKB UltraPure is either remote controlled by means of an air-actuator or manually by means of a handle.
The actuator is designed so that an axial movement of a piston is transformed into a 90° rotation of a shaft.

The torque of the actuator is increased when the valve disc contacts the seal of the valve. The air-actuator comes in three standard versions, normally closed (NC), normally open (NO) and air/air activated (A/A).

Valve - data		
Max. product pressure		1000 kPa (10 bar) (145 psi)
Min. product pressure		Full vacuum
Temperature range		-10° C to +95° C* (14°F to 203°F)
Product acc. to PED 97/23/EC		Fluids group 2
Valve - materials		
Product wetted steel parts		AISI 316L/1.4404
ASME BPE weld end		316L (low sultur)
Other steel parts		AISI 304
Rubber grades		EPDM, Viton (FPM)
Bushes for valve disc		PVDF
Outside finish		Semi bright, RA 3.2 µm
Inside finish (wetted parts)	- ISO/DIN	SF1, RA 0.5µm (ASME BPE table SF-3)
	- ASME BPE	SF1, RA 0.5µm (ASME BPE table SF-3)
		SF4, RA 0.38µm (ASME BPE table SF-3)
Actuator - data		
Max. air pressure		700 kPa (7 bar) (101.5 psi)
Min. air pressure, NC or NO		400 kPa (4 bar) (58 psi)
Temperature range		-25° C to +90° C (-13°F to + 94°F)
Air consumption (litres free air)	- ø85 mm	0.24 x p (bar)
	- ø133 mm	0.95 x p (bar)
Actuator - materials		
Actuator body		AISI 304
Piston		Light alloy, bronze for ø85 mm A/A
Seals		Nitrile (NBR)
Housing for switches		Noryl (PPO)
Finish		Semi bright

*) SIP (Steam In Place) up to +140° C (284°F) is possible with the following actions:
- Open the valves
- SIP operation
Cool down the valves before closing/operating again.

6 Technical data

It is important to observe the technical data during installation, operation and maintenance.
Inform the personnel about the technical data.
NC = Normally closed. NO = Normally open. A/A = Air/air activated.

Weight (kg)

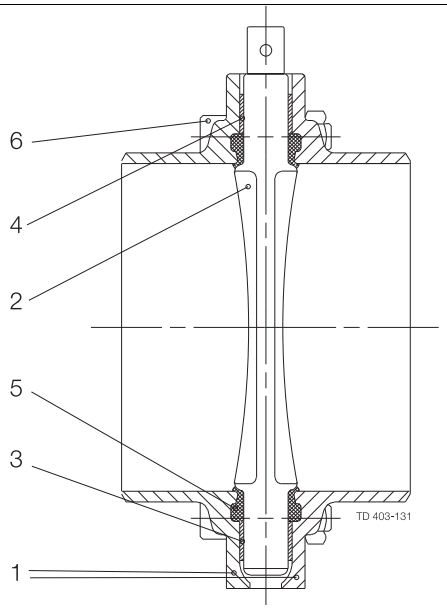
Size	25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100
Weight	1.2	1.0	1.5	2.1	3.0	4.7	1.2	1.1	1.3	1.8	3.1	3.5	5.1

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 noise damper - Measured at 7 bars air-pressure.

7 Parts list and service kits

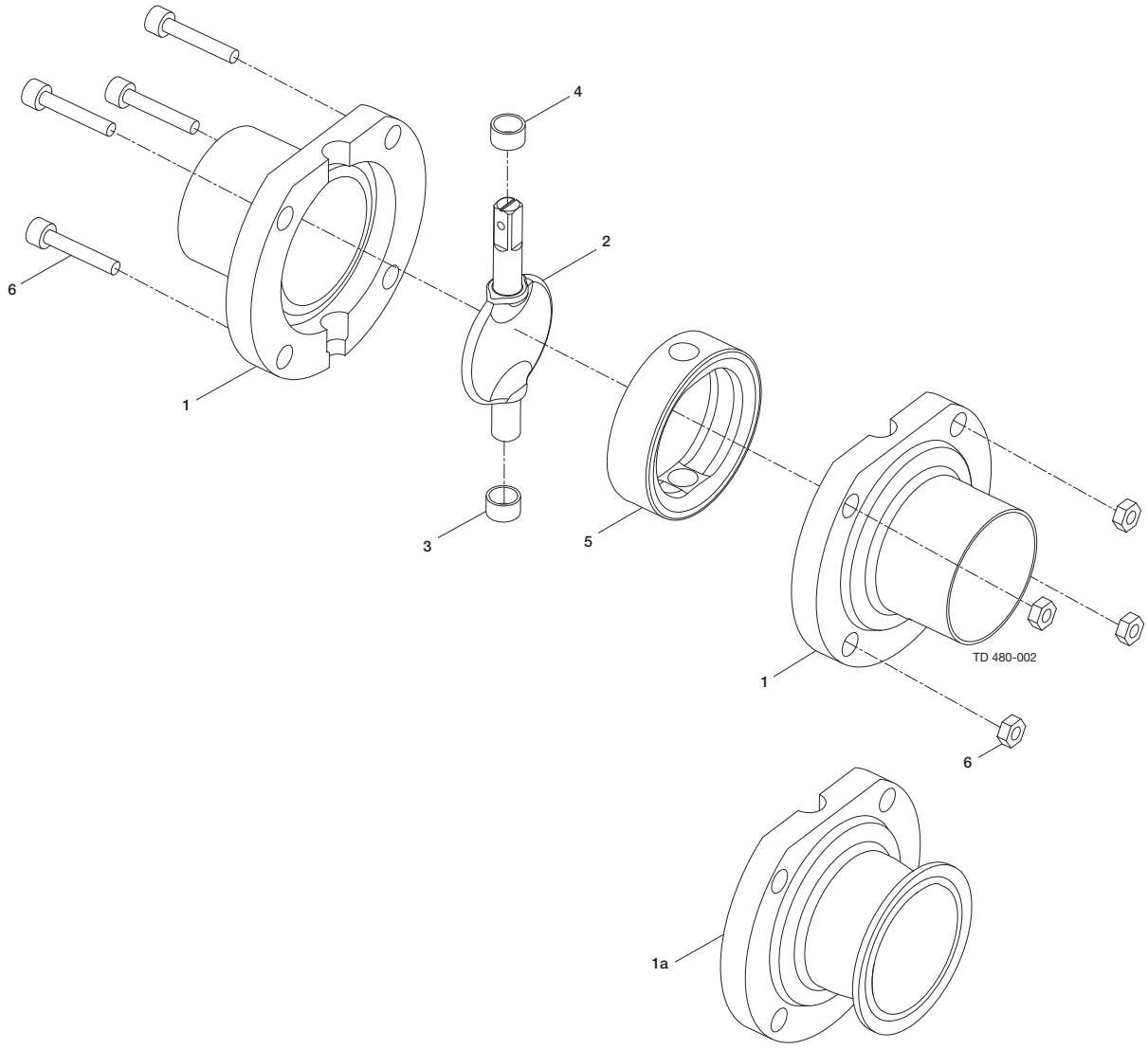
The drawing include all parts of the valves.

7.1 Drawing



The drawing include all parts of the valves.

7.2 LKB UltraPure Butterfly Valve, ISO



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
	▲	1	Alfa Laval Q-doc service kit
1		2	Valve body half, welding ends
1a		2	Valve body half, clamp ferrule
2		1	Disc*
3	▲	1	Bush
4	▲	1	Bush
5	▲	1	Seal ring
6		1	Set screw

Service kits

	Denomination	25 mm Disc □ 8	38 mm Disc □ 8	51 mm Disc □ 8	63.5 mm Disc □ 8	76.1 mm Disc □ 10	101.6 mm Disc □ 12
Service Kits							
▲	Service kit EPDM	9611923284	9611923285	9611923286	9611923287	9611923288	9611923289
▲	Service kit FPM	9611923297	9611923298	9611923299	9611923300	9611923301	9611923302

Parts marked with ▲ are included in the service kit.

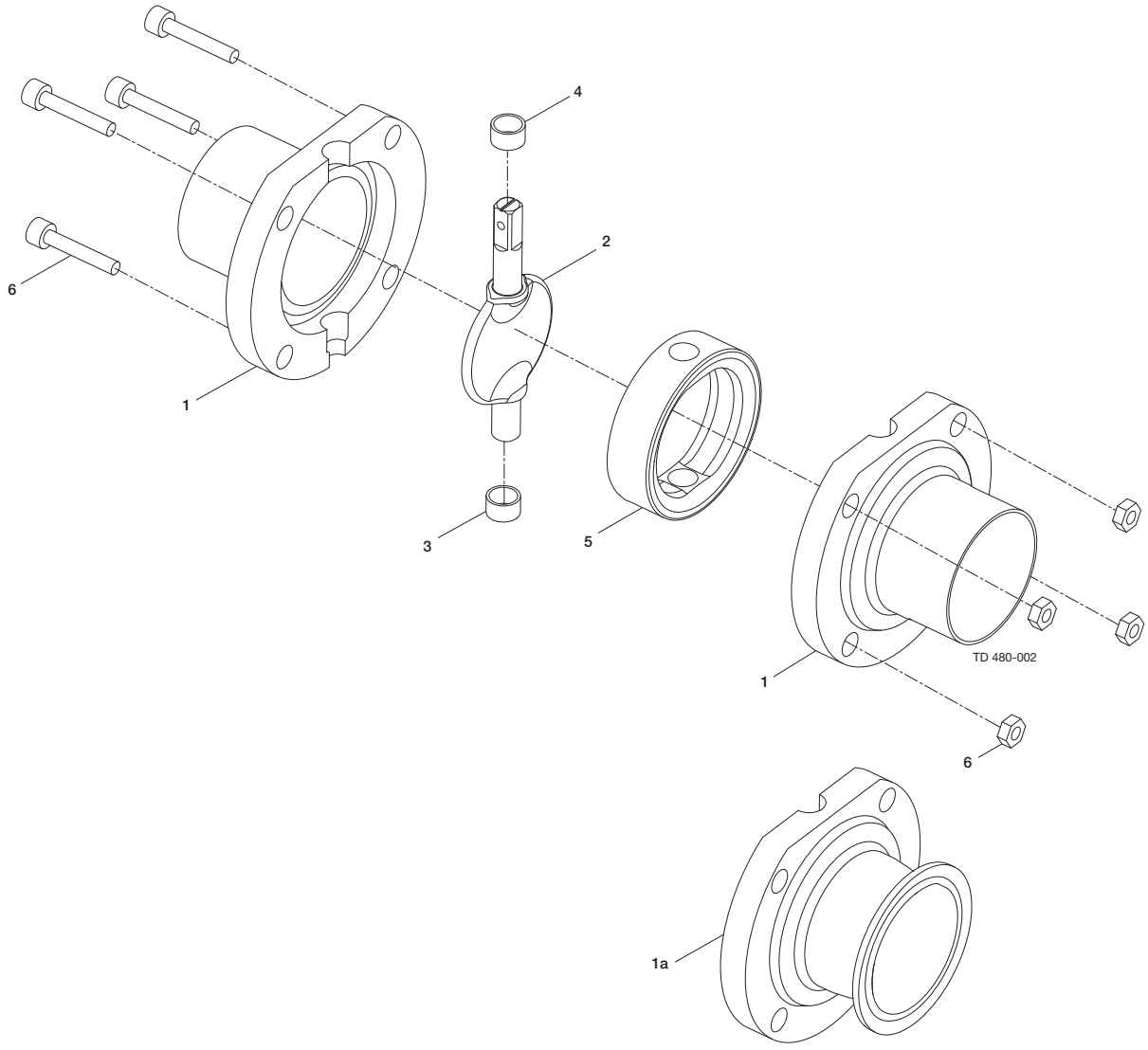
Recommended spare parts: Service kit.

900581

* = 3.1 Certificate in accordance to EN 10204 included.

The drawing include all parts of the valves.

7.3 LKB UltraPure Butterfly Valve, ASME



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
	▲	1	Alfa Laval Q-doc service kit
1		2	Valve body half, welding ends
1a		2	Valve body half, clamp ferrule
2		1	Disc*
3	▲	1	Bush
4	▲	1	Bush
5	▲	1	Seal ring
6		1	Set screw

Service kits

	Denomination	25 mm Disc □ 8	38 mm Disc □ 8	51 mm Disc □ 8	63.5 mm Disc □ 8	76 mm Disc □ 10	101.6 mm Disc □ 12
Service Kits RA 0.5							
▲	Service kit, EPDM	9611923284	9611923285	9611923286	9611923287	9611923288	9611923289
▲	Service kit, FPM	9611923297	9611923298	9611923299	9611923300	9611923301	9611923302

Service kits

	Denomination	25 mm Disc □ 8	38 mm Disc □ 8	51 mm Disc □ 8	63.5 mm Disc □ 8	76 mm Disc □ 10	101.6 mm Disc □ 12
Service Kits RA 0.38							
▲	Service kit, EPDM	9611923284	9611923285	9611923286	9611923287	9611923288	9611923289
▲	Service kit, FPM	9611923297	9611923298	9611923299	9611923300	9611923301	9611923302

Parts marked with ▲ are included in the service kit.

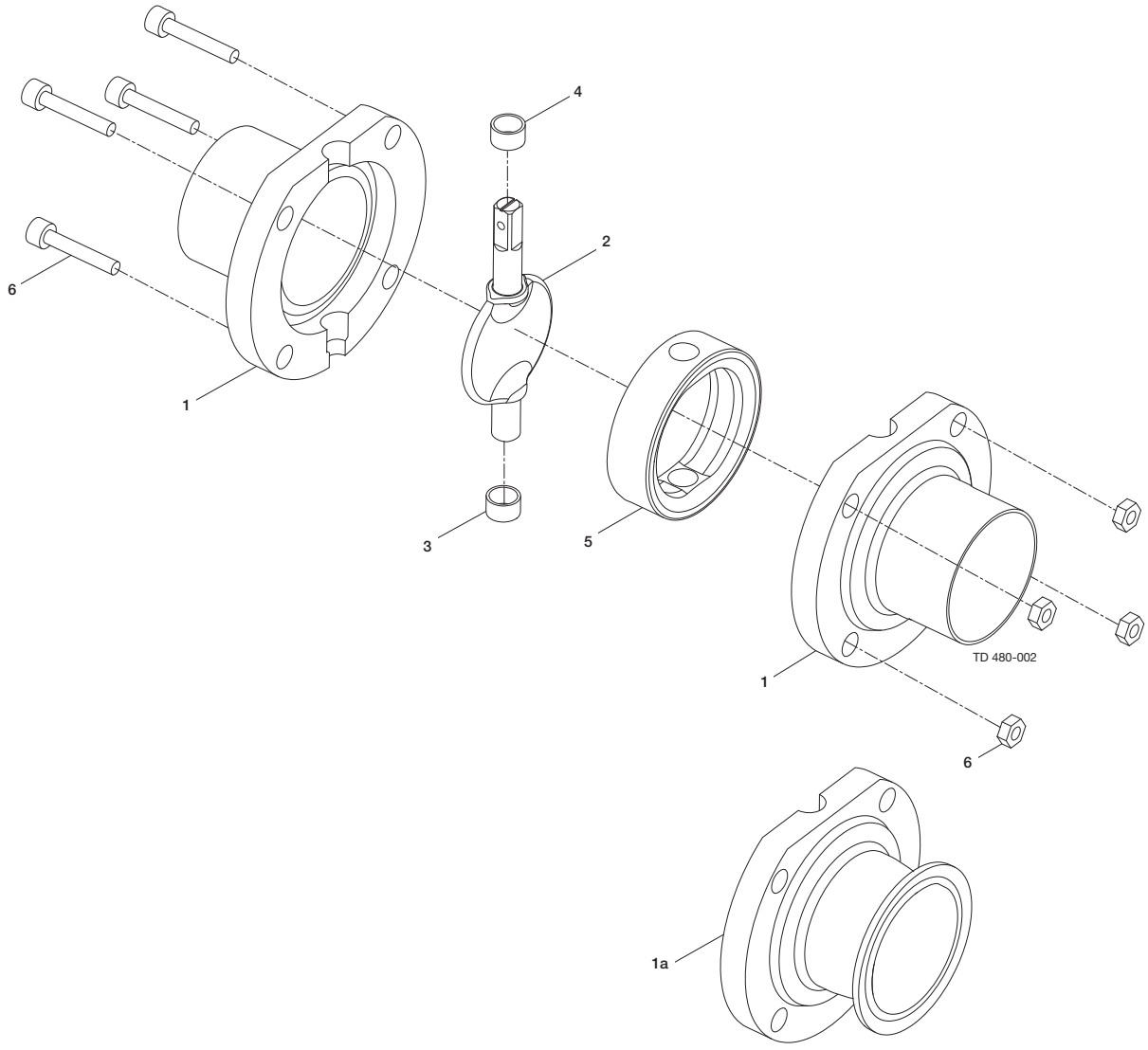
Recommended spare parts: Service kit.

900583

* = 3.1 Certificate in accordance to EN 10204 included.

The drawing include all parts of the valves.

7.4 LKB UltraPure Butterfly Valve, DIN



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
	▲	1	Alfa Laval Q-doc service kit
1a		2	Valve body half, clamp ferrule
1		2	Valve body half, welding ends
2		1	Disc*
3	▲	1	Bush
4	▲	1	Bush
5	▲	1	Seal ring
6		1	Set screw

Service kits

	Denomination	DN 25 Disc ▫ 8	DN 32 Disc ▫ 8	DN 40 Disc ▫ 8	DN 50 Disc ▫ 8
Service Kits					
▲	Service kit EPDM	9611923290	9611923291	9611923292	9611923293
▲	Service kit FPM	9611923303	9611923304	9611923305	9611923306

Service kits

	Denomination	DN 65 Disc ▫ 10	DN 80 Disc ▫ 10	DN 100 Disc ▫ 12
Service Kits				
▲	Service kit EPDM	9611923294	9611923295	9611923296
▲	Service kit FPM	9611923307	9611923308	9611923309

Parts marked with ▲ are included in the service kit.

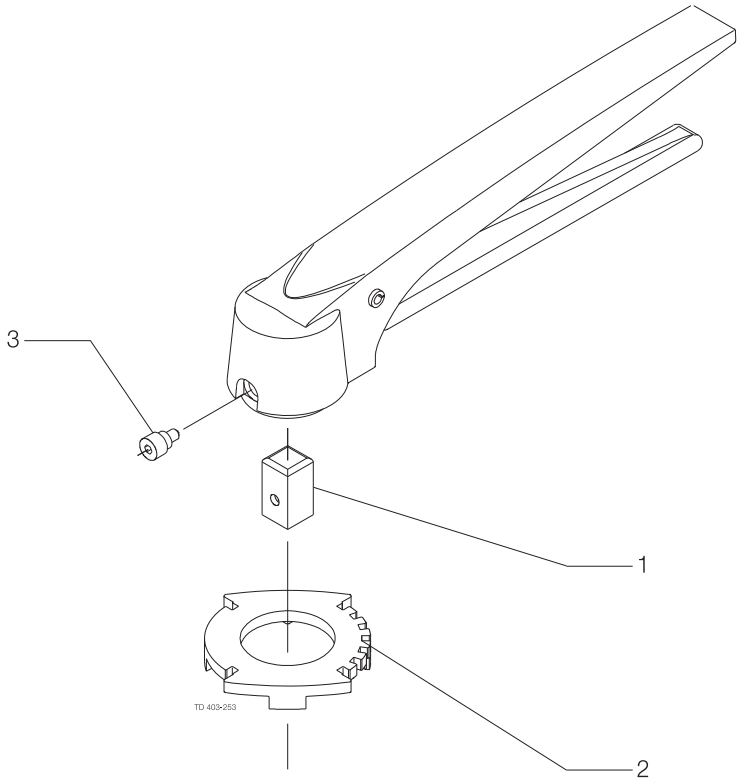
Recommended spare parts: Service kit.

900582

* = 3.1 certificate in accordance to EN 10204 included.

The drawing include all parts of the valves.

7.5 LKB Lockable Multiposition Handle for valve



7 Parts list and service kits

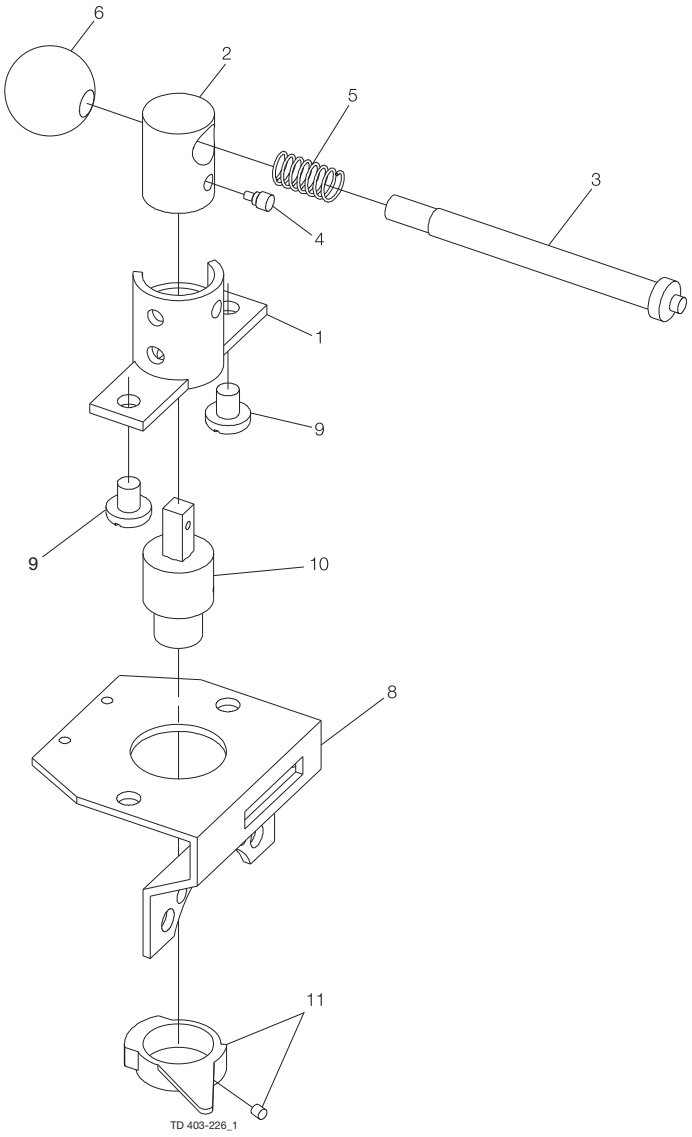
The drawing include all parts of the valves.

Parts list

Pos.	Qty	Denomination
1	1	Insert
2	1	Positioning cap
3	1	Screw

The drawing include all parts of the valves.

7.6 LKB Handle 1.1 for Butterfly Valve



7 Parts list and service kits

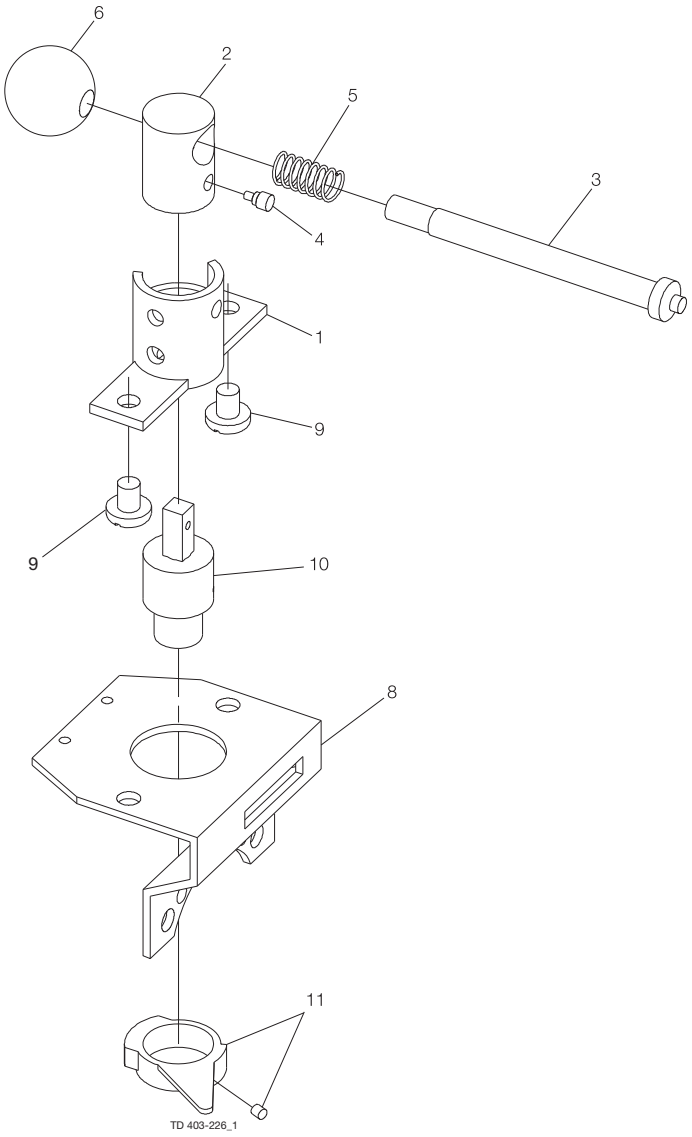
The drawing include all parts of the valves.

Parts list

Pos.	Qty	Denomination
1	1	Location cap with 2 pos.
2	1	Transfer block
3	1	Handle
4	1	Screw with pin
5	1	Spring
6	1	Ball
8	1	Bracket
9	2	Screw
10	1	Coupling
11	1	Activating ring with screw

The drawing include all parts of the valves.

7.7 Handle 1.1 for indication unit



7 Parts list and service kits

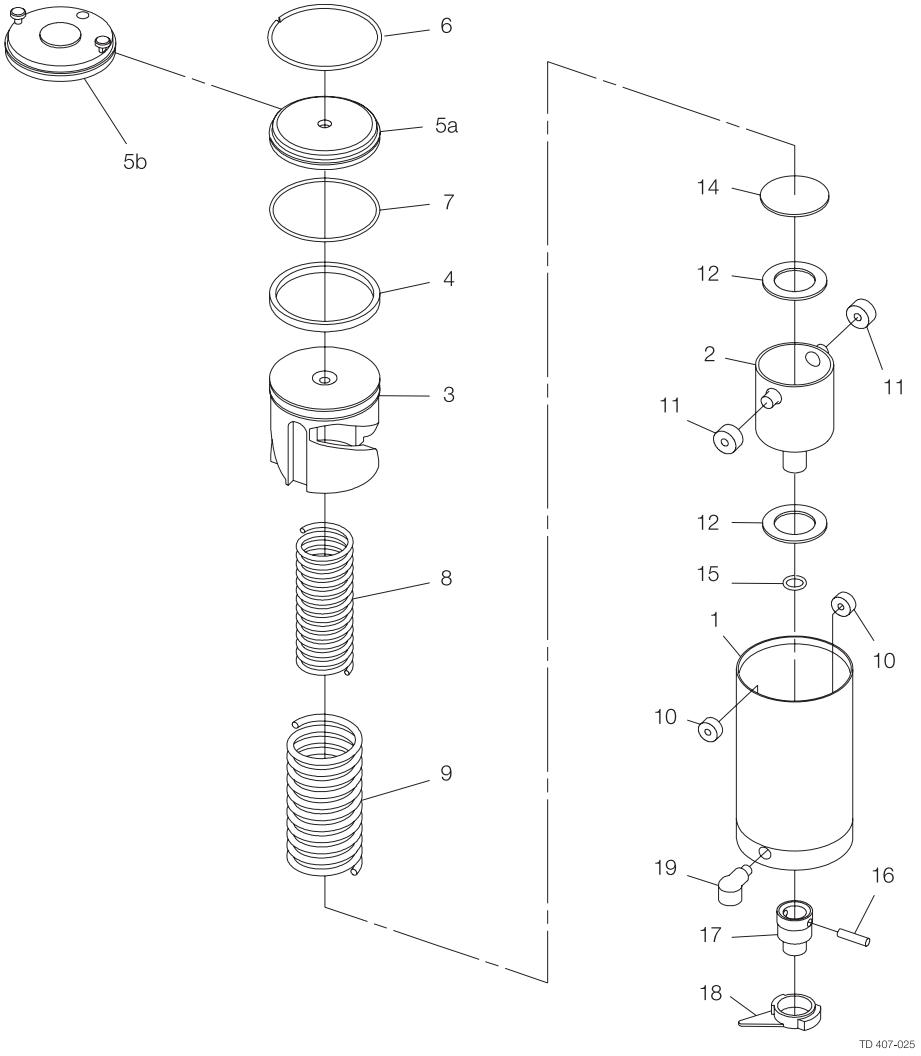
The drawing include all parts of the valves.

Parts list

Pos.	Qty	Denomination
1	1	Location cap with 2 pos.
2	1	Transfer block
3	1	Handle
4	1	Screw with pin
5	1	Spring
6	1	Ball
8	1	Bracket
9	2	Screw
10	1	Coupling
11	1	Activating ring with screw

The drawing include all parts of the valves.

7.8 LKLA Actuator air/spring (NC-NO) ø85



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5a		1	End cap
5b		1	End cap, Mark III
6		1	Retaining ring
7	□	1	O-ring
8		1	Inner spring
9		1	Outer spring
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	2	Thrust bearing
14		1	Thrust plate
15	□	1	O-ring
16		1	Connex pin
17		1	Coupling
18		1	Activating ring, Noryl with screw
19		1	Water rejector (period 8310-)

Note:
Butterfly valve 101.6 mm / DN100 sold before 8906 = □ 10 mm
Butterfly valve DN 65 (ISO) sold before 8910 = □ 8 mm
Please check the square size of the disc when ordering spares.

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

900128/2

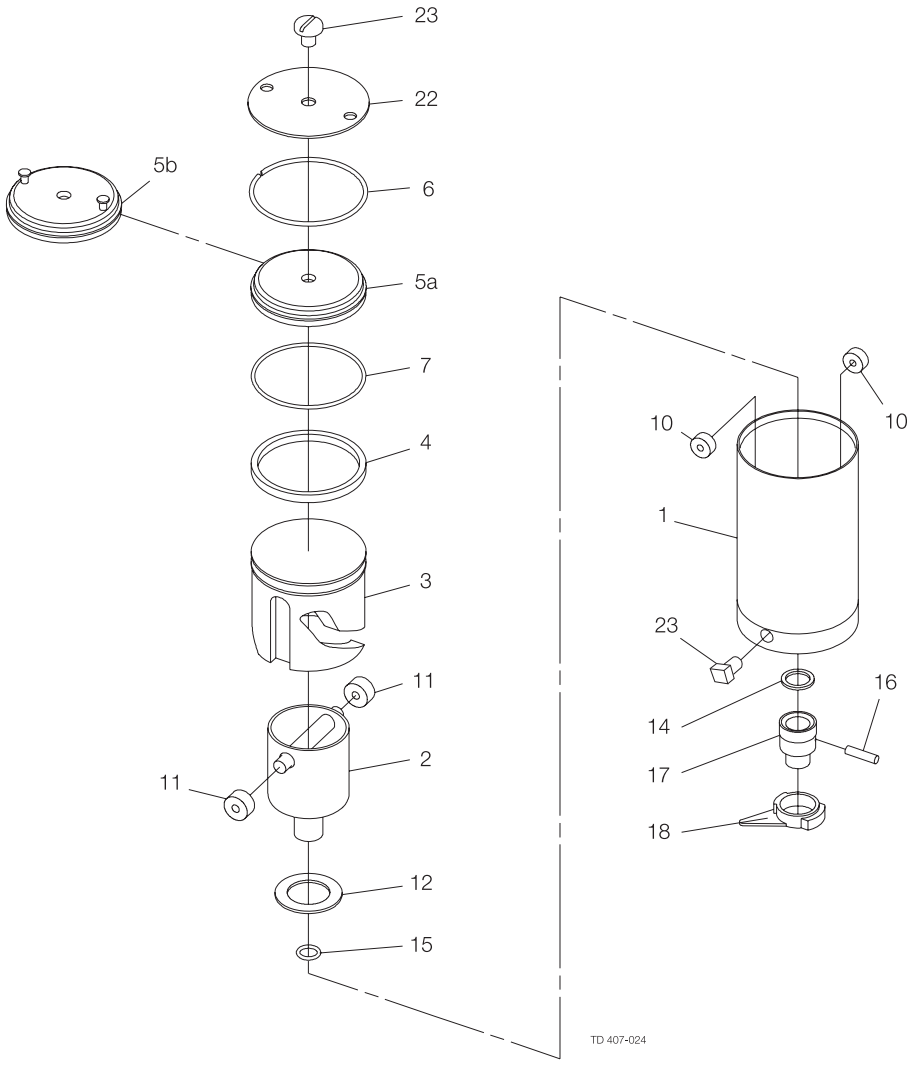
Service kits

Service Kit for actuator

Service kits, Air/Spring..... 9611923010

The drawing include all parts of the valves.

7.9 LKLA Actuator air/air ø85



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5a		1	End cap
5b		1	End cap, Mark III
6		1	Retaining ring
7	□	1	O-ring
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	1	Thrust bearing
14		1	Thrust plate
15	□	1	O-ring
16		1	Connex pin
17		1	Coupling
18		1	Activating ring with screw
22***		1	Retaining plate
23		2	Threaded plug

Note:
Butterfly valve 101.6 mm / DN100 sold before 8906 = □ 10 mm
Butterfly valve DN 65 (ISO) sold before 8910 = □ 8 mm
Please check the square size of the disc when ordering spares.

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

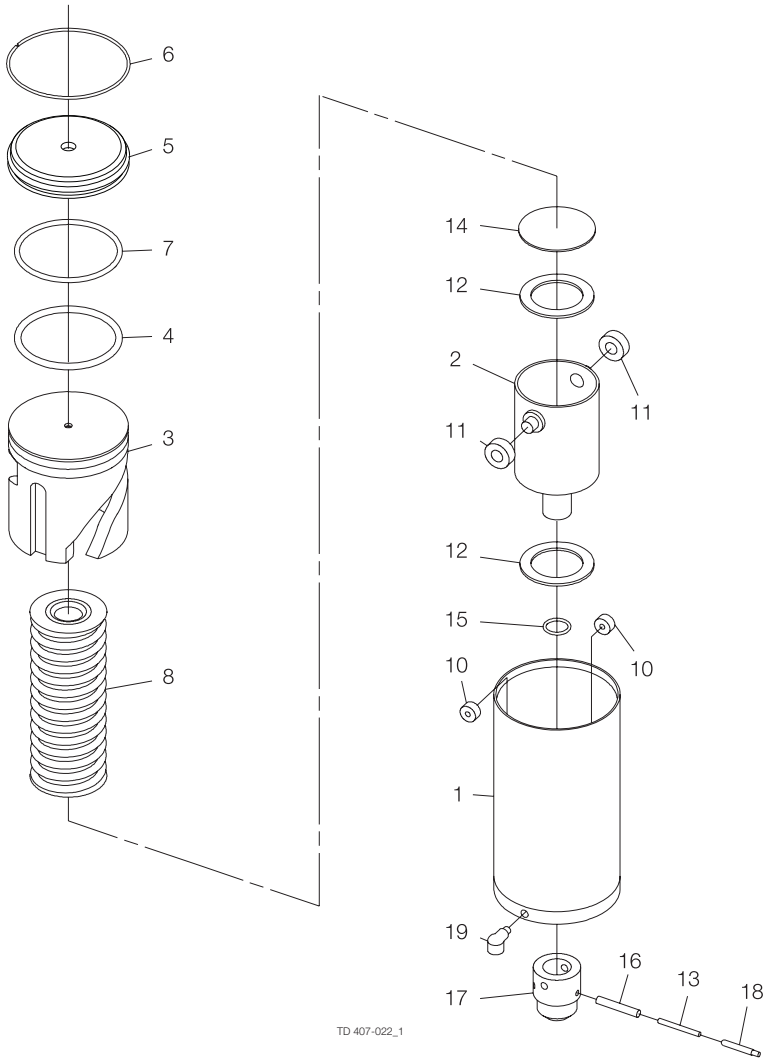
900129/1

Service kits

Service kits, Air/Air 9611923011

The drawing include all parts of the valves.

7.10 LKLA Actuator air/spring (NC-NO) ø133



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5		1	End cap
6		1	Retaining ring
7	□	1	O-ring
8		1	Spring assembly
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	2	Thrust bearing
13		1	Connex pin
14		1	Thrust plate
15	□	1	O-ring
16		1	Connex pin
17		1	Coupling
18		1	Indication pin
19		1	Water rejector

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

900131

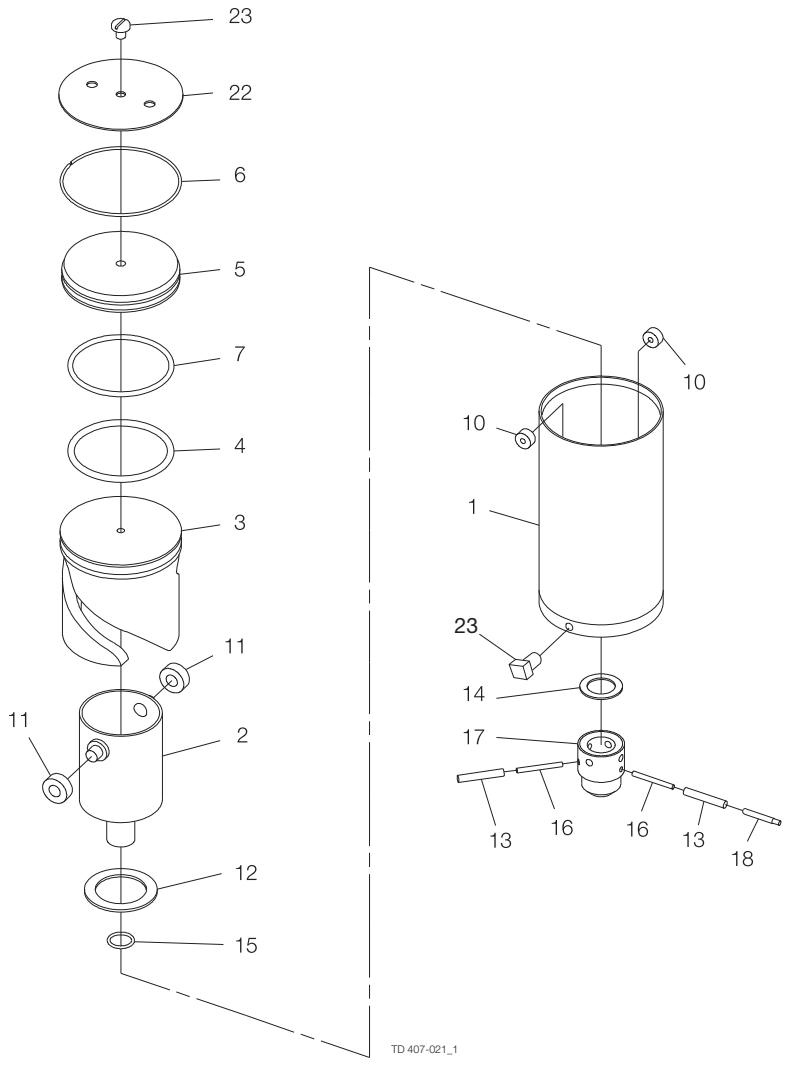
Service kits

Service Kits for Actuator

Service kits, Air/Spring..... 9611923020

The drawing include all parts of the valves.

7.11 LKLA Actuator air/air ø133



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air Cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5		1	End cap
6		1	Retaining ring
7	□	1	O-ring
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	1	Thrust bearing
13		2	Connex pin
14		1	Thrust plate
15	□	1	O-ring
16		2	Connex pin
17		1	Coupling
18		1	Indication pin
22		1	Retaining plate
23		1	Threaded plug

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

900132/1

Service kits

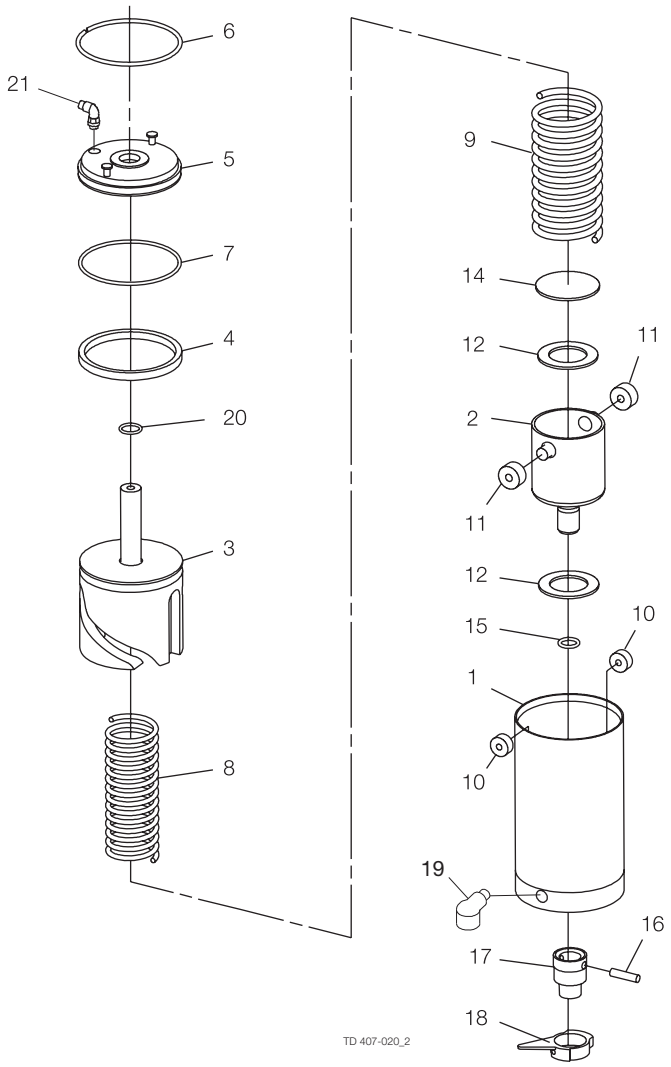
Denomination

Service Kits for Actuator

Service kits, Air/Air 9611923022

The drawing include all parts of the valves.

7.12 LKLA-T Actuator air/spring (NC-NO) ø85



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5		1	End cap
6		1	Retaining ring
7	□	1	O-ring
8		1	Inner spring
9		1	Outer spring
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	2	Thrust bearing
14		1	Thrust plate
15	□	1	O-ring
16		1	Connex pin
17		1	Coupling
18		1	Activating ring with screw
19		1	Water rejector (period 8310-)
20	□	1	O-ring
21		1	Air fitting

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

900133/1

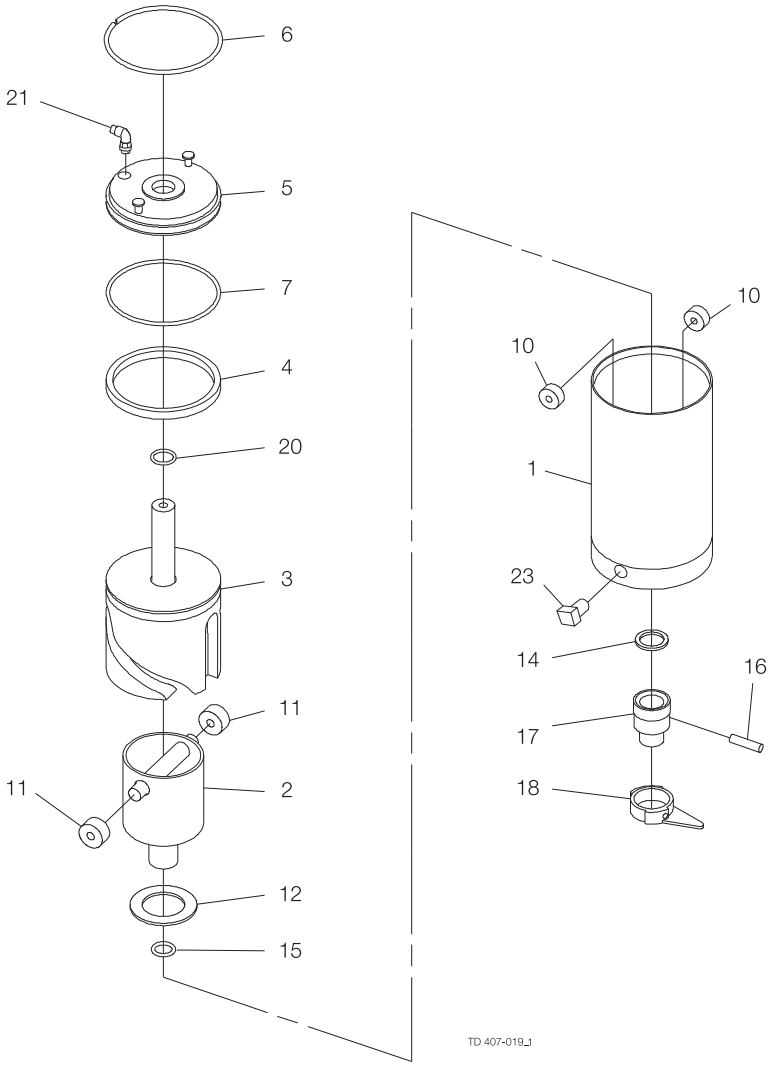
Service kits

Service Kits for Actuator

Service kits, Air/Spring..... 9611923021

The drawing include all parts of the valves.

7.13 LKLA-T Actuator air/air ø85



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5		1	End cap
6		1	Retaining ring
7	□	1	O-ring
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	1	Thrust bearing
14		1	Thrust plate
15	□	1	O-ring
16		1	Connex pin
17		1	Coupling
18		1	Activating ring with screw
20	□	1	O-ring
21		1	Air fitting
23		1	Threaded plug

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

900134/1

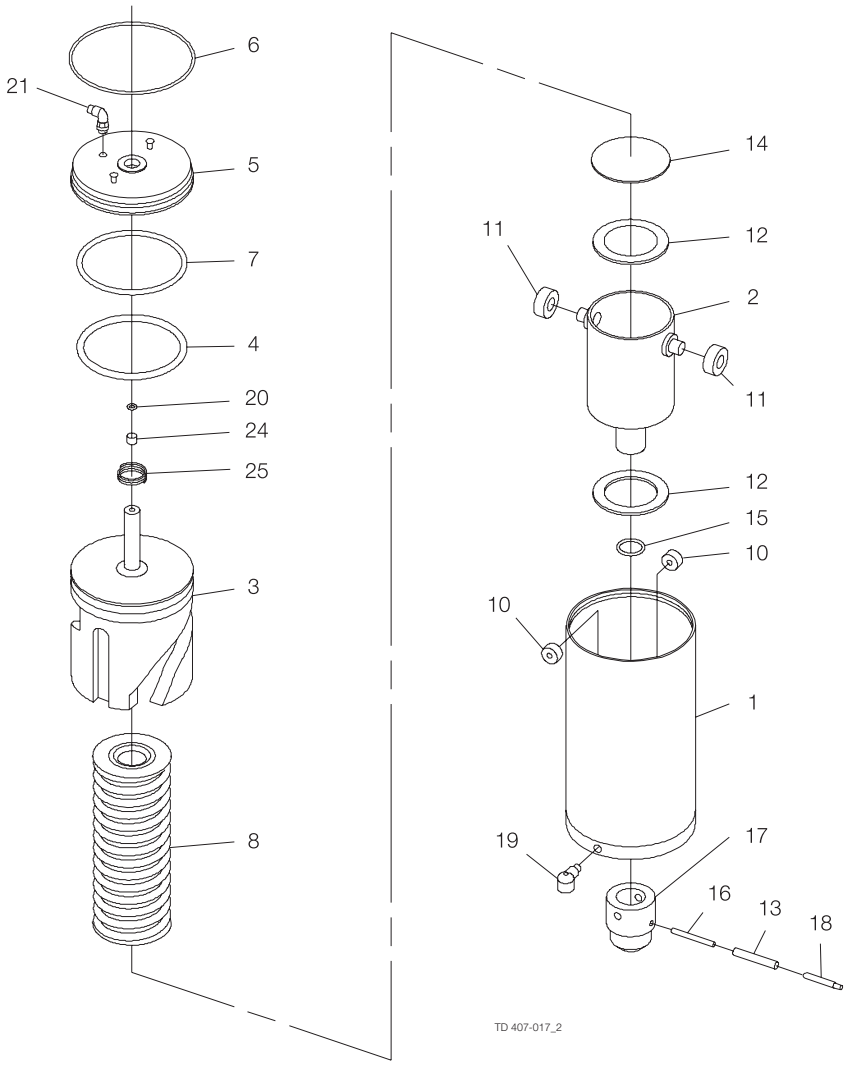
Service kits

Service Kits for Actuator

Service kits, Air/Air 9611923023

The drawing include all parts of the valves.

7.14 LKLA-T Actuator air/spring (NC-NO) ø133



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5		1	End cap
6		1	Retaining ring
7	□	1	O-ring
8		1	Spring assembly
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	2	Thrust bearing
13		1	Connex pin
14		1	Thrust plate
15	□	1	O-ring
16		1	Connex pin
17		1	Coupling
18		1	Indication pin
19		1	Water rejector (period 8310-)
20	□	1	O-ring
21		1	Air fitting
24	□	1	Guiding ring
25		1	Spring

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

900136

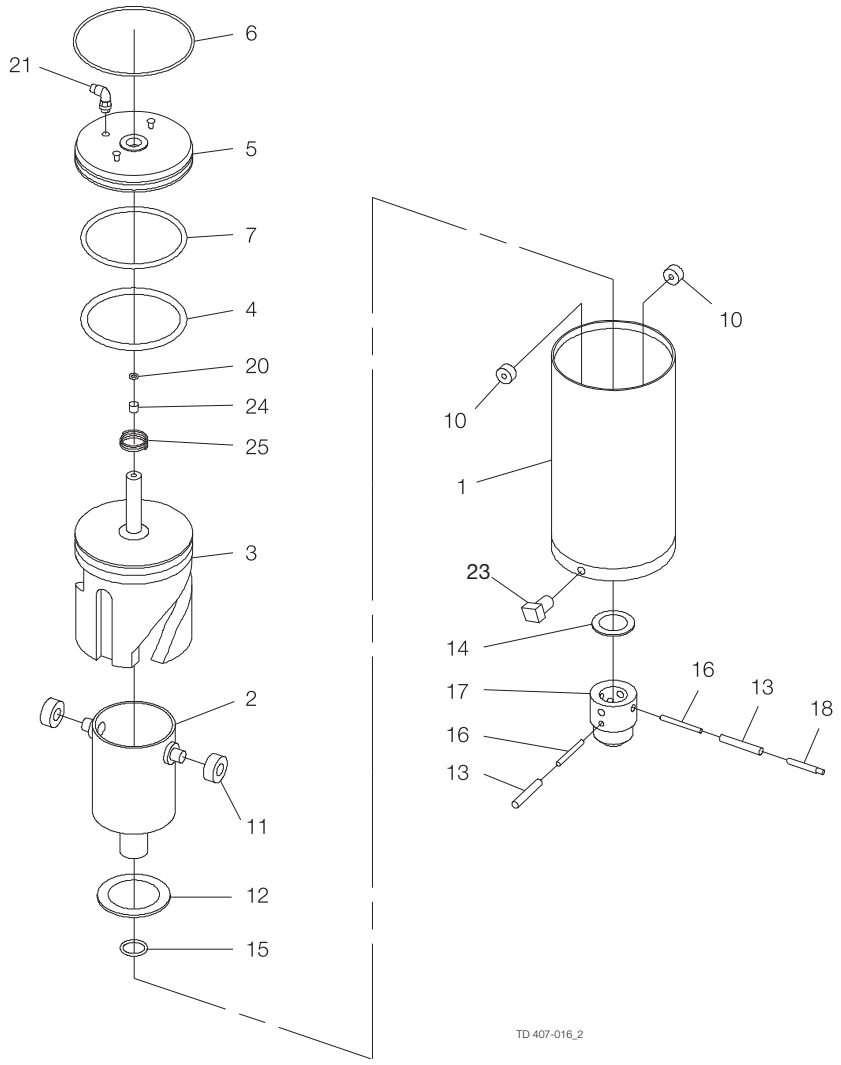
Service kits

Service Kits for Actuator

Service kits, Air/Spring..... 9611923056

The drawing include all parts of the valves.

7.15 LKLA-T Actuator air/air ø133



7 Parts list and service kits

The drawing include all parts of the valves.

Parts list

Pos.		Qty	Denomination
1		1	Air cylinder
2		1	Rotating cylinder
3		1	Piston
4	□	1	O-ring
5		1	End cap
6		1	Retaining ring
7	□	1	O-ring
10	□	2	Needle bearing
11	□	2	Needle bearing
12	□	1	Thrust bearing
13		2	Connex pin
14		1	Thrust plate
15	□	1	O-ring
16		2	Connex pin
17		1	Coupling
18		1	Indication pin
20	□	1	O-ring
21		1	Air fitting
23		1	Threaded plug
24	□	1	Guiding band
25		1	Spring

Parts marked with □▲ are included in the service kit.
Recommended spare parts: Service kit.

190137/1

Service kits

Denomination

Service Kits for Actuator

Service kits, Air/Air 9611923057

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