



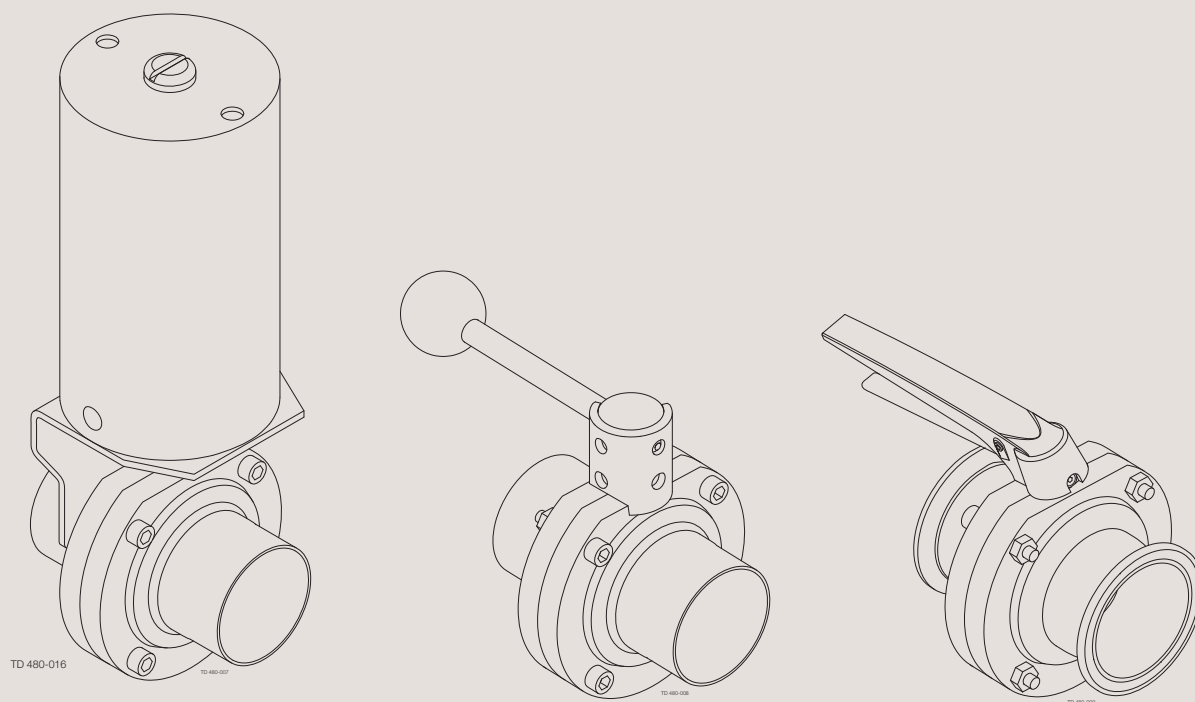
**RODEM**<sup>®</sup>

PROCESS EQUIPMENT

[www.rodem.com](http://www.rodem.com) 800-543-7312

## Instruction Manual

### LKB UltraPure Automatic or Manual Butterfly Valve



ESE01699-EN4

2015-04

Original manual



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

<b>1. EC Declaration of Conformity</b> .....	<b>4</b>
<b>2. Safety</b> .....	<b>5</b>
2.1. Important information .....	5
2.2. Warning signs .....	5
2.3. Safety precautions .....	6
<b>3. Installation</b> .....	<b>7</b>
3.1. Unpacking/delivery .....	7
3.2. General installation .....	8
3.3. Welding .....	9
3.4. Fitting actuator/bracket/handle on the valve (optional extras) .....	10
3.5. Recycling information .....	11
<b>4. Operation</b> .....	<b>12</b>
4.1. Operation .....	12
4.2. Troubleshooting .....	13
4.3. Recommended cleaning .....	14
<b>5. Maintenance</b> .....	<b>15</b>
5.1. General maintenance .....	15
5.2. Dismantling the valve .....	17
5.3. Assembly of valve .....	18
5.4. Dismantling of actuator .....	19
5.5. Assembly of actuator .....	20
<b>6. Technical data</b> .....	<b>21</b>
6.1. Technical data .....	21
<b>7. Parts list and service kits</b> .....	<b>24</b>
7.1. Drawing .....	24
7.2. LKB UltraPure Butterfly Valve, ISO .....	25
7.3. LKB UltraPure Butterfly Valve, ASME .....	27
7.4. LKB UltraPure Butterfly Valve, DIN .....	29
7.5. LKB Lockable Multiposition Handle for valve .....	31
7.6. LKB Handle 1.1 for Butterfly Valve .....	33
7.7. Handle 1.1 for indication unit .....	35
7.8. LKLA Actuator air/spring (NC-NO) ø85 .....	37
7.9. LKLA Actuator air/air ø85 .....	39
7.10. LKLA Actuator air/spring (NC-NO) ø133 .....	41
7.11. LKLA Actuator air/air ø133 .....	43
7.12. LKLA-T Actuator air/spring (NC-NO) ø85 .....	45
7.13. LKLA-T Actuator air/air ø85 .....	47
7.14. LKLA-T Actuator air/spring (NC-NO) ø133 .....	49
7.15. LKLA-T Actuator air/air ø133 .....	51

# 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

Title

Annie Dahl

Name

Kolding

Place

2012-08-01

Date



Signature



*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 attempt to remove the valve from the installation.

**Always** drain liquid out of valves before transportation.

**Always** used predesigned lifting points if defined.

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

---

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.

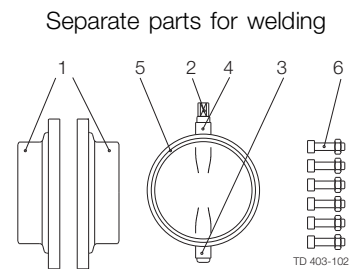
##### Check the delivery:

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:

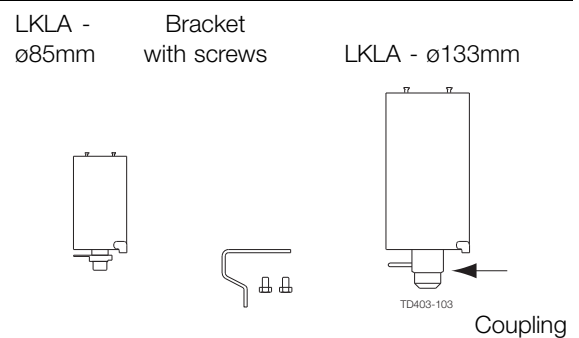
1. Two valve body halves (1).
2. Valve disc (2) fitted in seal ring (5).
3. Two bushes (3, 4) fitted on the disc stem.
4. A set of screws and nuts (6).



##### Step 3

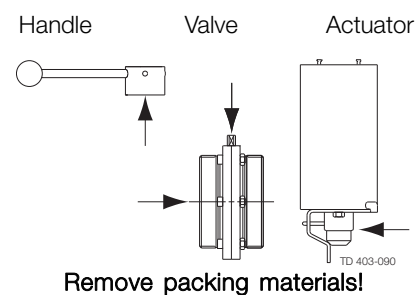
##### Delivery of actuator and bracket:

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)



##### Step 4

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



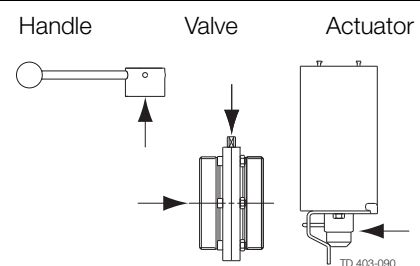
##### Step 5

##### 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.



### 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.

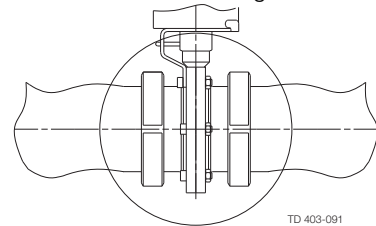
##### Step 2

Avoid stressing the valve.

Pay special attention to:

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

Risk of damage!



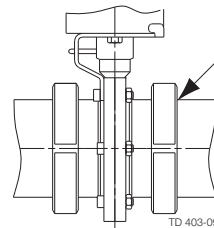
TD 403-091

##### Step 3

##### Fittings:

Ensure that the connections are tight.

Remember seal rings!



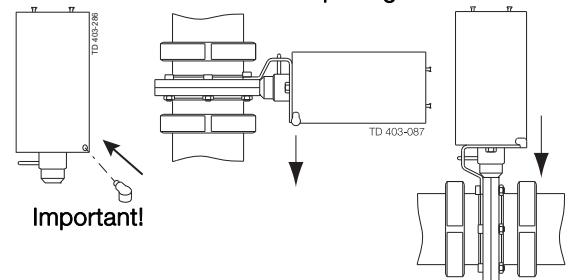
TD 403-092

##### 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!



Important!

TD 403-268

TD 403-067

##### Air connection of actuator:

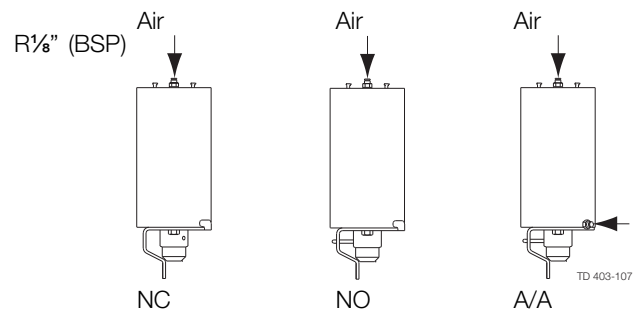
Connect compressed air correctly.

**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 sealing.

**Pay special attention to the warnings!**



NC

NO

A/A

TD 403-107



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

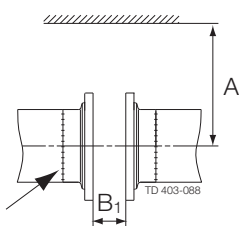
1. Weld the valve body halves into the pipelines.
2. Maintain the minimum clearance (A) so that the actuator can be removed.
3. If welding both valve body halves, ensure that they can be moved axially **B1 mm**, so that the valve parts can be removed.
4. After welding assemble the valve in accordance 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 <sub>1</sub> (mm)
	Ø85		Ø133		
	LKLA	LKLA-T	LKLA	LKLA-T	
25 mm/1"	245				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	+ 172 (incl. top unit)		+ 172 (incl. top unit)	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.

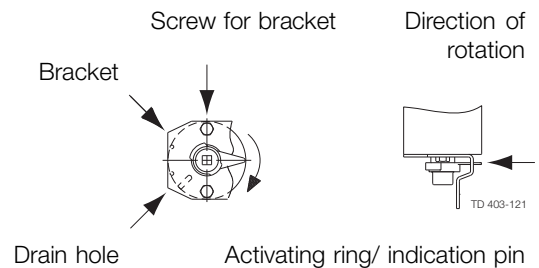
A/A = Air/air activated.

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

##### Step 1

##### Bracket/indication:

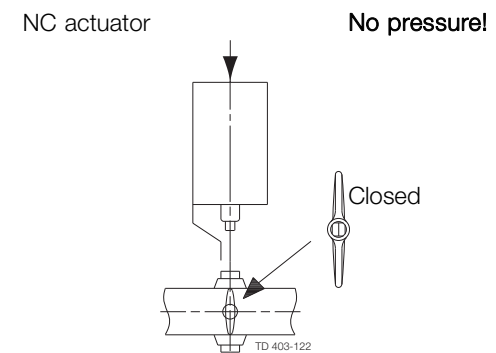
1. Fit the bracket as shown.
2. Fit and tighten the screws.
3. Fit the activating ring/indication pin as shown.



##### Step 2

##### Actuator/bracket - NC:

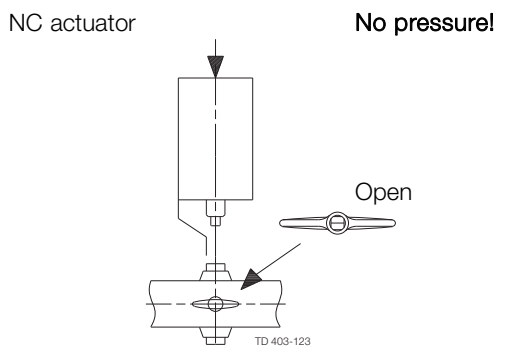
1. Ensure that the valve is closed by checking the position of the groove of the disc stem top.
2. Fit the actuator/bracket in accordance with Step 4 section 5.3 Assembly of valve.



##### Step 3

##### Actuator/bracket - NO:

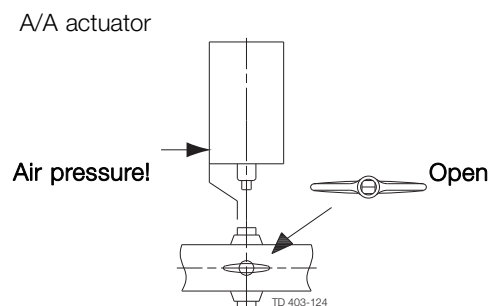
1. Ensure that the valve is open by checking the position of the groove of the disc stem top.
2. Fit the actuator/bracket in accordance with Step 4 section 5.3 Assembly of valve.



##### 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

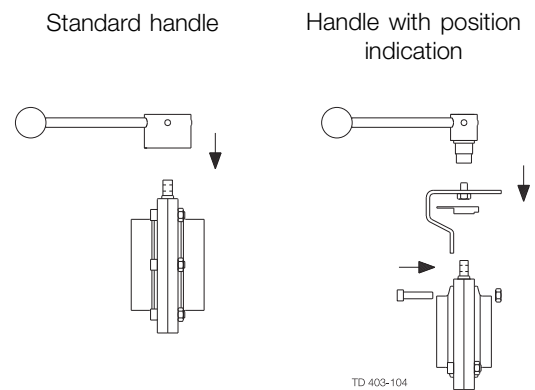
#### Handle/indication:

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!**



### 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.

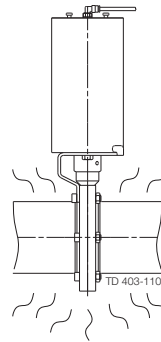
#### CAUTION

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.



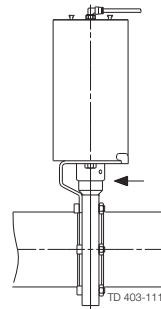
Burning danger



#### Step 3



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



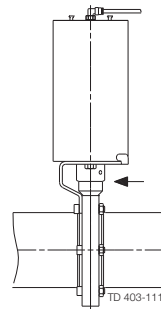
Air

Rotating parts

#### Step 4

##### Operation by means of actuator:

Automatic on/off operation by means of compressed air.



Air

Rotating parts

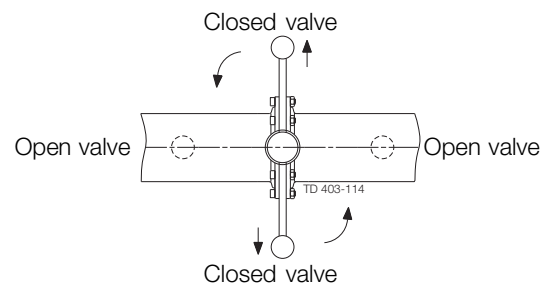
#### Step 5

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.

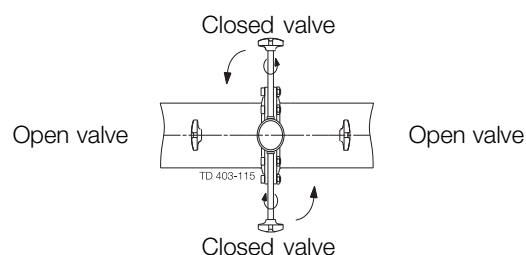


Pay attention to possible break-down. Study the instructions carefully.  
 NC = Normally closed. NO = Normally open. A/A = Air/air activated.

### 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
<ul style="list-style-type: none"> <li>- External leakage</li> <li>- Internal leakage by closed valve (normal wear)</li> </ul>	<ul style="list-style-type: none"> <li>- Worn seal ring</li> <li>- Worn flange seal ring (LKB-F)</li> </ul>	<ul style="list-style-type: none"> <li>- Replace the seal ring and the bushes</li> </ul>
<ul style="list-style-type: none"> <li>- External leakage</li> <li>- Internal leakage by closed valve (too early)</li> </ul>	<ul style="list-style-type: none"> <li>- High pressure</li> <li>- High temperature</li> <li>- Aggressive liquids</li> <li>- Many activations</li> </ul>	<ul style="list-style-type: none"> <li>- Change rubber grade</li> <li>- Change the operation conditions</li> </ul>
<ul style="list-style-type: none"> <li>- Difficult to open/close</li> <li>- Damage of disc connection (high torque)</li> </ul>	<ul style="list-style-type: none"> <li>- Incorrect seal ring (swelling)</li> </ul>	<ul style="list-style-type: none"> <li>- Replace by a seal ring of a different rubber grade</li> </ul>
<ul style="list-style-type: none"> <li>- Difficult to open/close</li> </ul>	<ul style="list-style-type: none"> <li>- 90° displacement of the actuator</li> <li>- Incorrect actuator function (NC,NO)</li> <li>- Worn actuator bearings</li> <li>- Dirt penetration into the actuator</li> </ul>	<ul style="list-style-type: none"> <li>- Fit correctly (see 3.4 Fitting actuator/bracket/handle on the valve (optional extras))</li> <li>- Change from NC to NO or vice versa</li> <li>- Replace the bearings</li> <li>- Service the actuator</li> </ul>

## 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<sub>3</sub> = Nitric acid.

### 4.3 Recommended cleaning

#### Step 1



**Always** handle lye and acid with great care.

**Caustic danger!**



**Always** use rubber gloves!

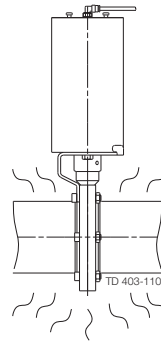


**Always** use protective goggles!

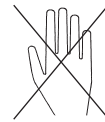
#### Step 2



**Never** touch the valve or the pipelines when sterilising.



**Burning danger!**

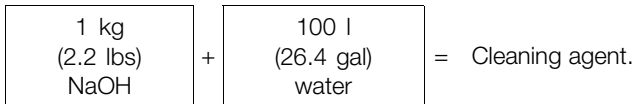


#### Step 3

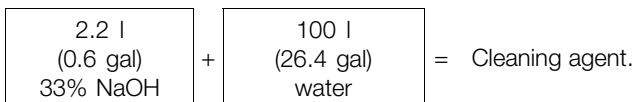
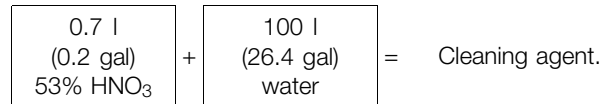
##### Examples of cleaning agents:

Use clean water, free from chlorides.

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



2. 0.5% by weight HNO<sub>3</sub> at 70° C (158° F)



#### 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.

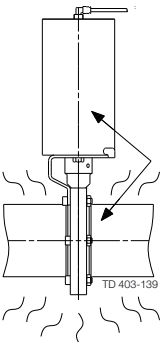
Step 2



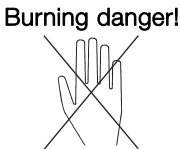
**Never** service the valve when it is hot.



**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.



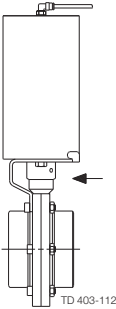
Atmospheric pressure required!



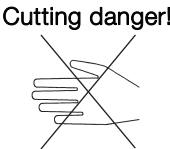
Step 3



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



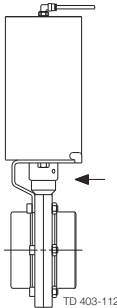
Air  
 Air



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.

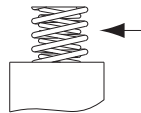
"Mushrooms" = Fastening connections on the end cap.

### Step 5



Actuator size  $\varnothing 85$  mm (NC/NO):

The actuator springs are **not** caged.



Springs  
Caution!

TD 403-118

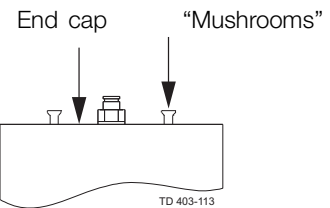
### Step 6



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!



TD 403-113

**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	<b>Replace after 12 months</b>	Replace when replacing the valve seal rings	<b>Replace after 24 months</b>	
Maintenance after leakage (leakage normally starts slowly)	<b>Replace by the end of the day</b>	Replace when replacing the valve seal rings	<b>Replace when possible</b>	
Planned maintenance	<ul style="list-style-type: none"> <li>- Regular inspection for leakage and smooth operation</li> <li>- Keep a record of the valve</li> <li>- Use the statistics for planning of inspections</li> </ul>	Replace when replacing the valve seal rings	<ul style="list-style-type: none"> <li>- Regular inspection for leakage and smooth operation</li> <li>- Keep a record of the actuator</li> <li>- Use the statistics for planning of inspections</li> </ul>	Replace when they become worn
	<b>Replace after leakage</b>		<b>Replace after air leakage</b>	
Lubrication	<b>Before fitting</b> (use USDA-H1 approved) <ul style="list-style-type: none"> <li>- Unisilcon L641(*)</li> <li>- Paraliq(*) GTE 703</li> <li>- Molycote 111(D)</li> </ul>	None	<b>Before fitting</b> <ul style="list-style-type: none"> <li>- Molycote Long term 2 Plus (<math>\Delta</math>)</li> <li>- Molycote 1132(<math>\Delta</math>) (for aggressive environment)</li> </ul>	<b>When replacing actuator rubber seals</b> <ul style="list-style-type: none"> <li>- Molycote Long term 2 Plus (<math>\Delta</math>)</li> <li>- Molycote 1132 (<math>\Delta</math>) (for aggressive environment)</li> </ul>



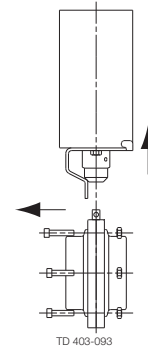
Study the instructions carefully. The items refer to the parts list and service kits section.  
 Handle scrap correctly.  
 LKB UltraPure: For ISO, DIN and ASME tubes.

### 5.2 Dismantling the valve

#### Step 1

##### Valve with actuator:

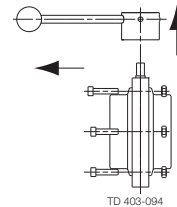
1. Remove screws and nuts (6).
2. Remove the bracket with the actuator.



#### Step 2

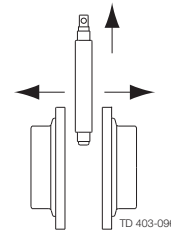
##### Valve with handle:

1. Remove the complete handle.
2. Remove screws and nuts (6).



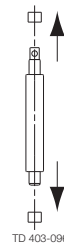
#### Step 3

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



#### Step 4

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

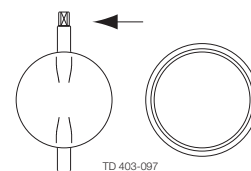


#### Step 5

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.



## 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.

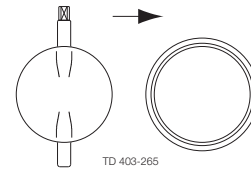
### 5.3 Assembly of valve

#### 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.

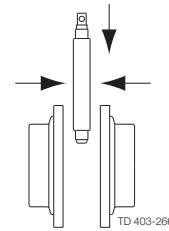


#### Step 2

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).



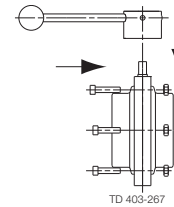
#### Step 3

##### 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!

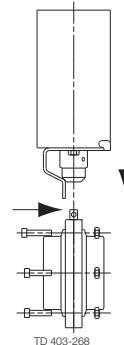
This also applies for the Lockable Multiposition Handle.



#### 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:

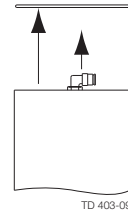
Valve size	1" 25 mm DN 25	DN32	1½" 38 mm DN40	2" 51 mm DN50	2½" 63.5 mm DN65	3" 76 mm DN80	4" 101.6 mm DN100
Allen Key	5 mm (0.2")	5 mm (0.2")	5 mm (0.2")	6 mm (0.24")	6 mm (0.24")	6 mm (0.24")	8 mm (0.3")
Recomm. Torque	18 Nm (13 lbf-ft)	18 Nm (13 lbf-ft)	18 Nm (13 lbf-ft)	20 Nm (15 lbf-ft)	20 Nm (15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



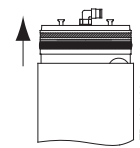
Use a press!

### Step 2

#### NC/NO actuator:

Release the pressure on end cap (5) carefully and remove the end cap.

**Pay special attention to the warning!**

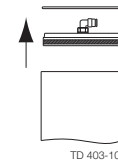


### Step 3

#### A/A actuator:

Remove end cap (5) by hand.

**Pay special attention to the warning!**

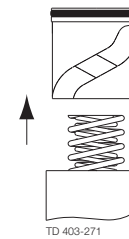


### Step 4

Remove piston (3) and the springs.

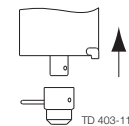
#### NOTE!

- The actuator size  $\varnothing 133$  mm has a caged spring assembly.
- The air/air actuator has no springs.



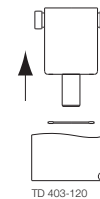
### Step 5

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.

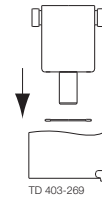
Lubricate the rubber seals before fitting them. Lubricate the bearings.

Clean the piston before assembly.

### 5.5 Assembly of actuator

#### Step 1

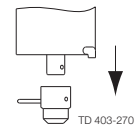
Fit rotating cylinder (2) in air cylinder (1).



#### Step 2

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

Fit the connex pin correctly!



#### Step 3

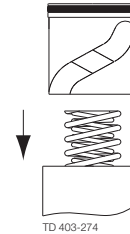
Fit the springs in rotating cylinder (2) and fit piston (3) carefully.

#### CAUTION!

Fit the piston correctly in relation to the bearings.

#### NOTE!

The air/air actuator is has no springs.



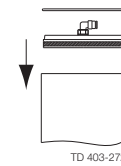
Fit correctly!

#### 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!**

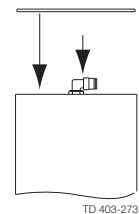


#### Step 5

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 sulfur)
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.

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## 7 Parts list and service kits

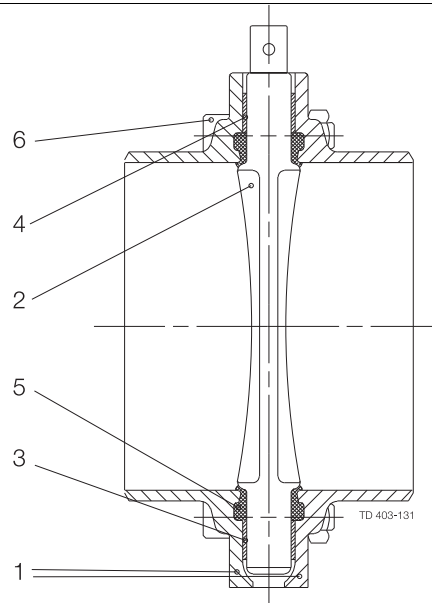
---

The drawing include all parts of the valves.

---

### 7.1 Drawing

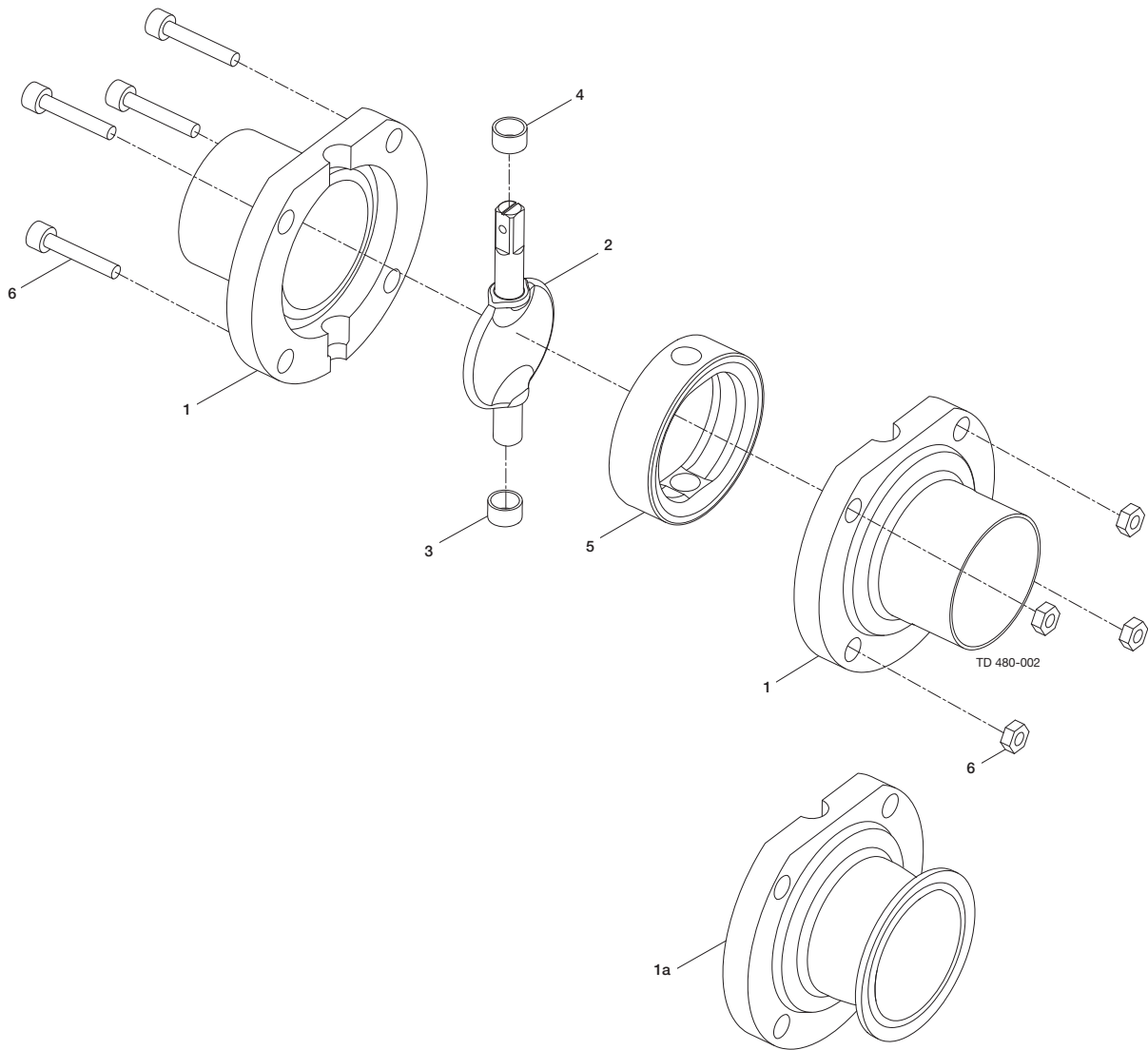
---





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
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#### 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.

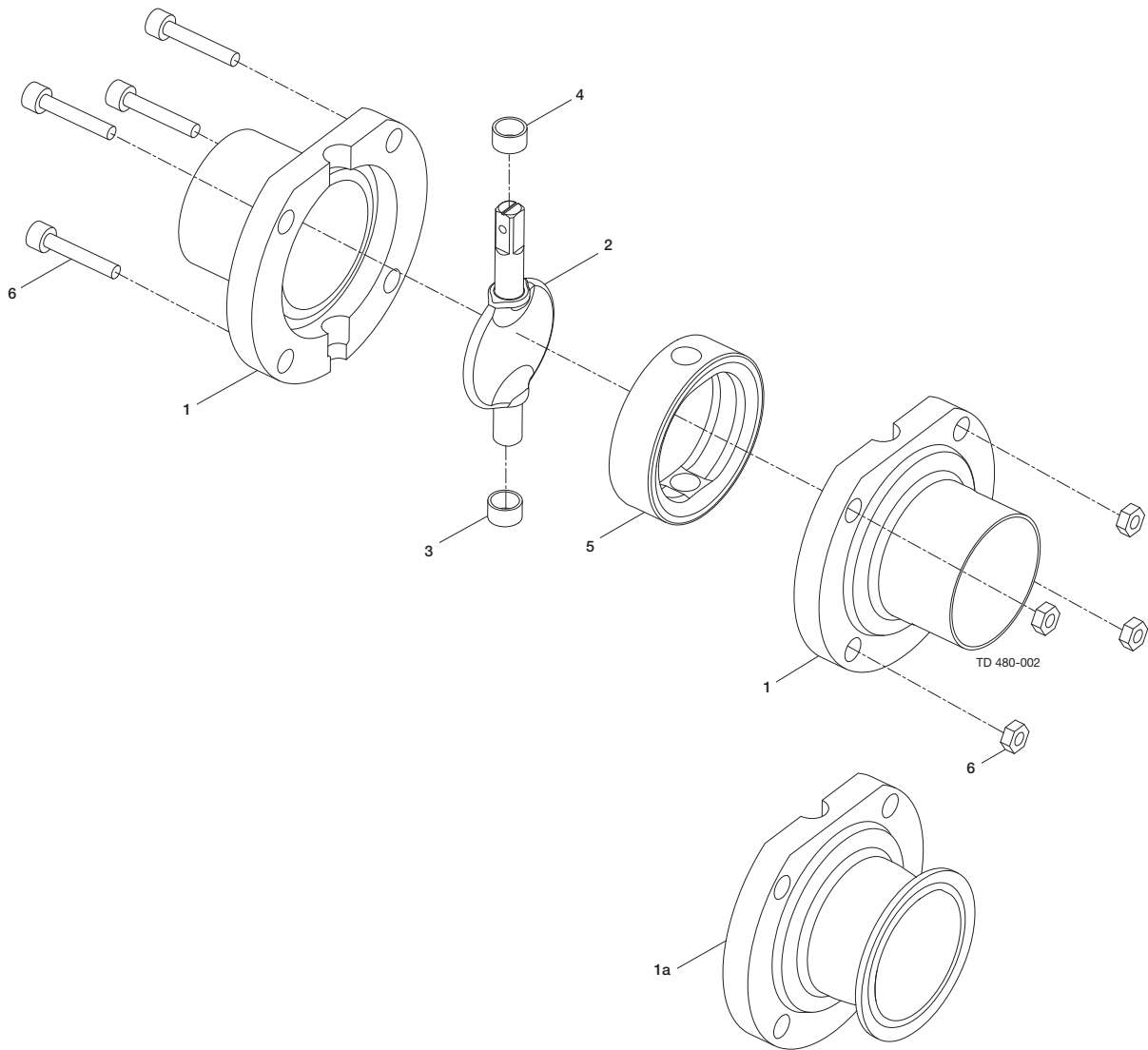
Recommended spare parts: Service kit.

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 ▲	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
<b>Service Kits RA 0.5</b>						
▲ 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
<b>Service Kits RA 0.38</b>						
▲ 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.

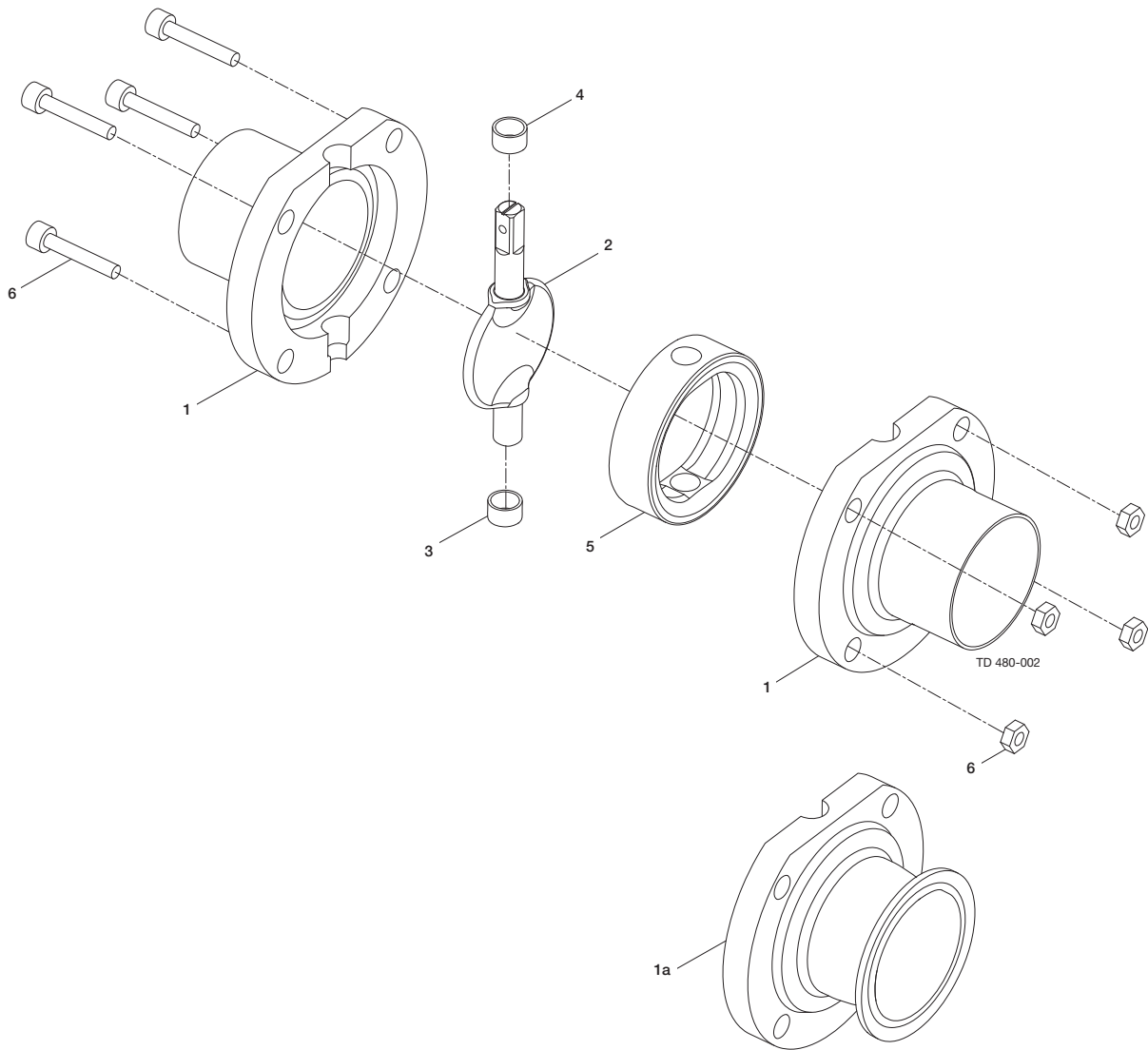
Recommended spare parts: Service kit.

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
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#### Service Kits

▲ Service kit EPDM .....	9611923294	9611923295	9611923296
▲ Service kit FPM .....	9611923307	9611923308	9611923309

Parts marked with ▲ are included in the service kit.

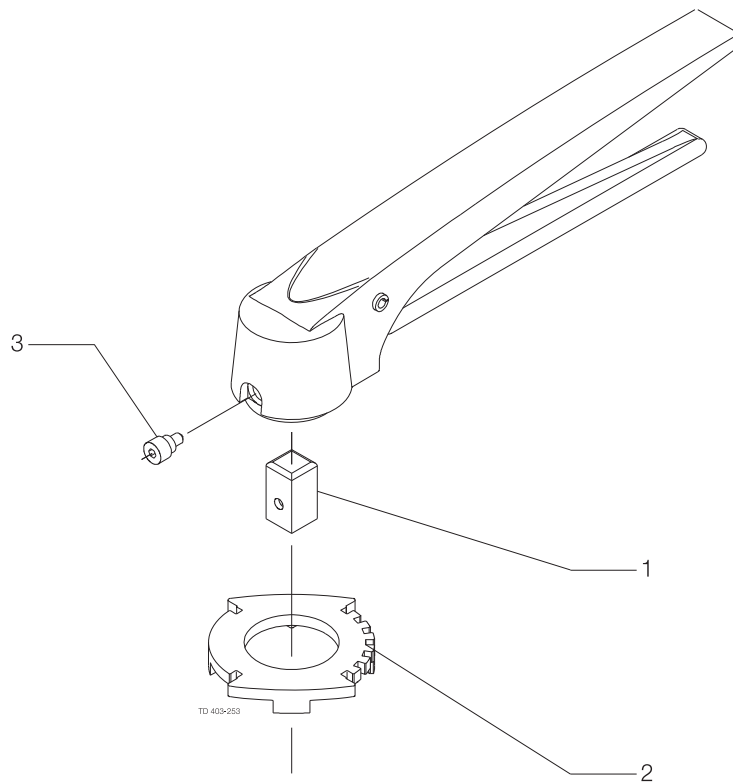
Recommended spare parts: Service kit.

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

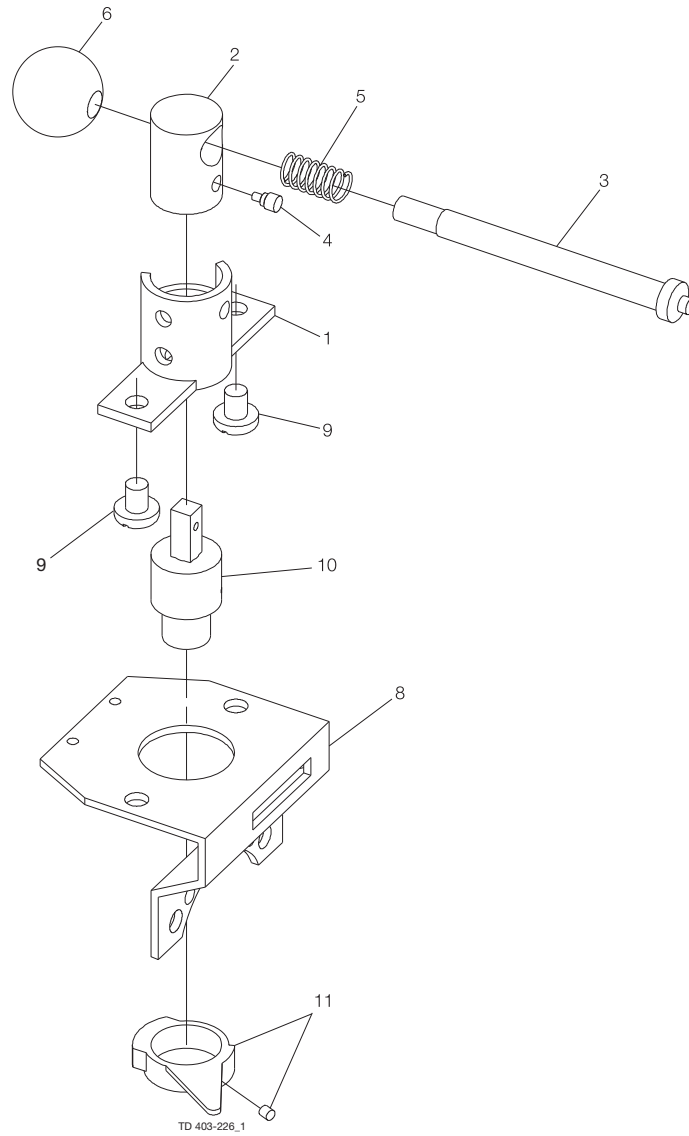
Pos.	Qty	Denomination
1	1	Insert
2	1	Positioning cap
3	1	Screw

---



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.*

---

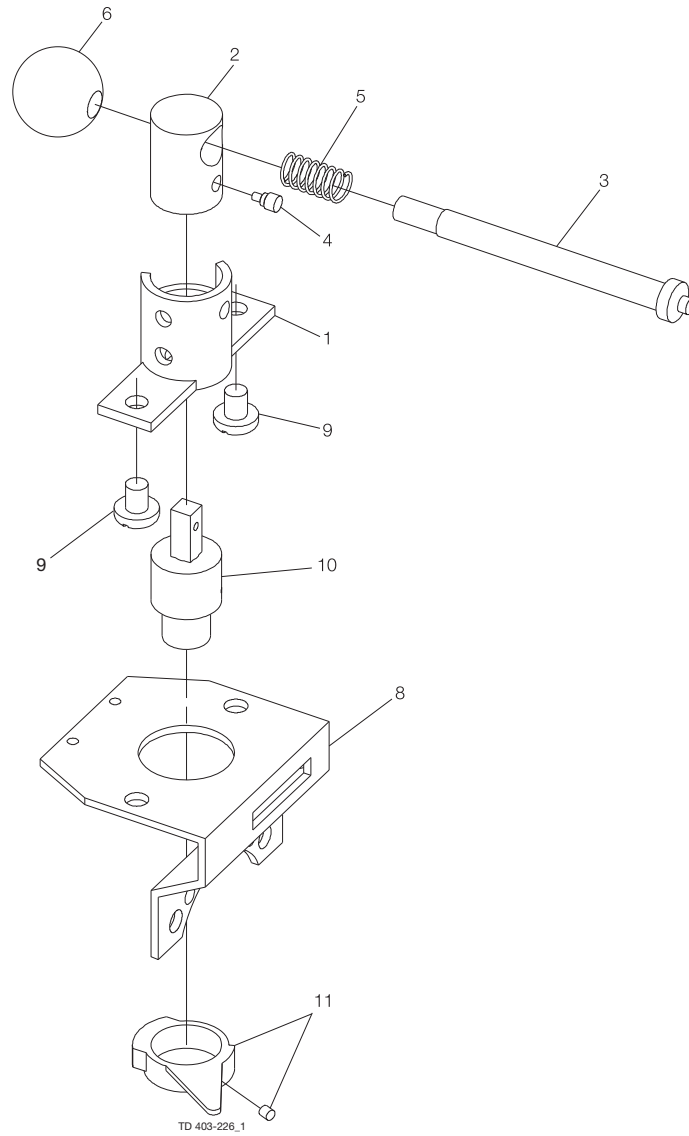
### Parts list

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.*

---

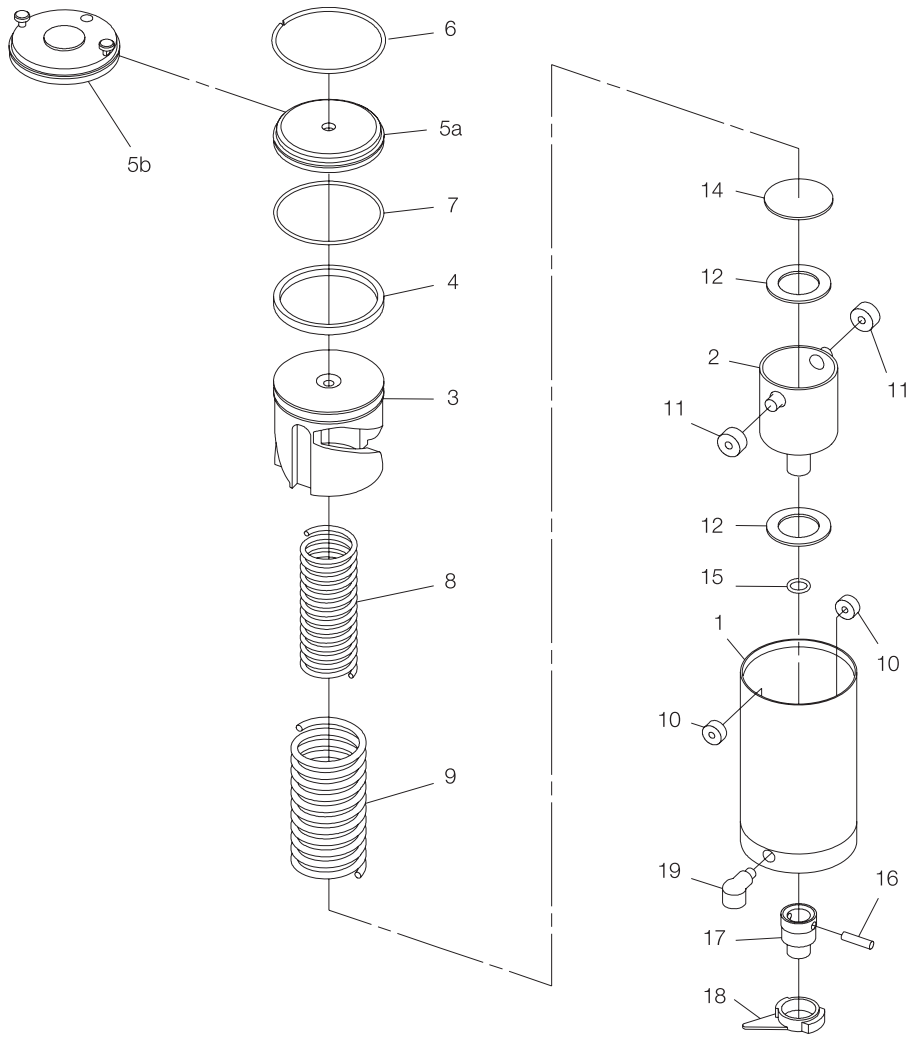
### Parts list

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



TD 407-025

## 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-)

### Service kits

#### Service Kit for actuator

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

#### 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.

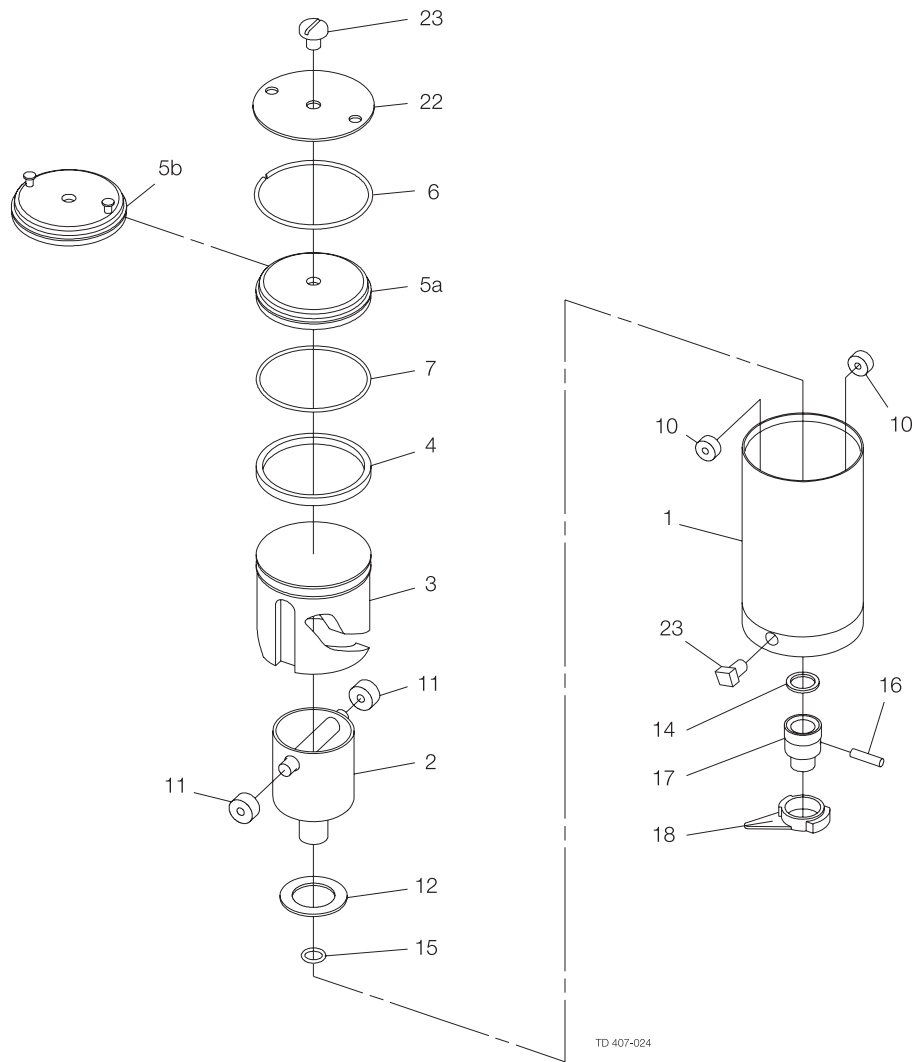
Recommended spare parts: Service kit.

900128/2

## 7 Parts list and service kits

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

### Service kits

Service kits, Air/Air ..... 9611923011

#### 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.

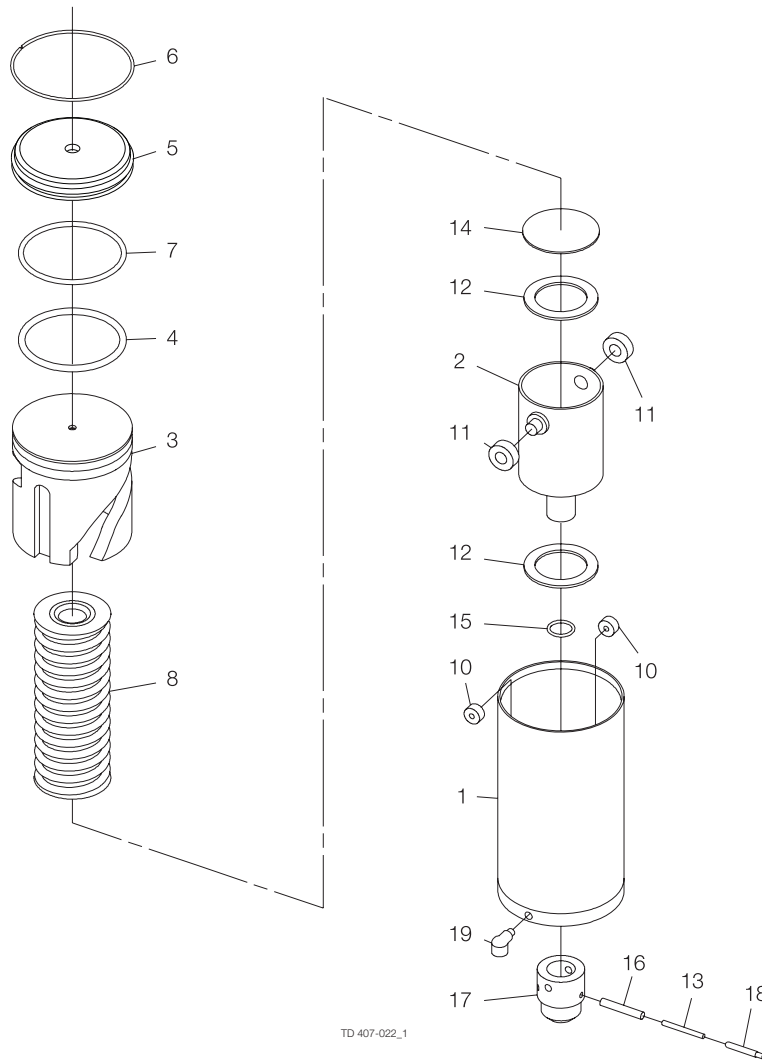
Recommended spare parts: Service kit.

900129/1



The drawing include all parts of the valves.

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



TD 407-022\_1

## 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

### Service kits

#### Service Kits for Actuator

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

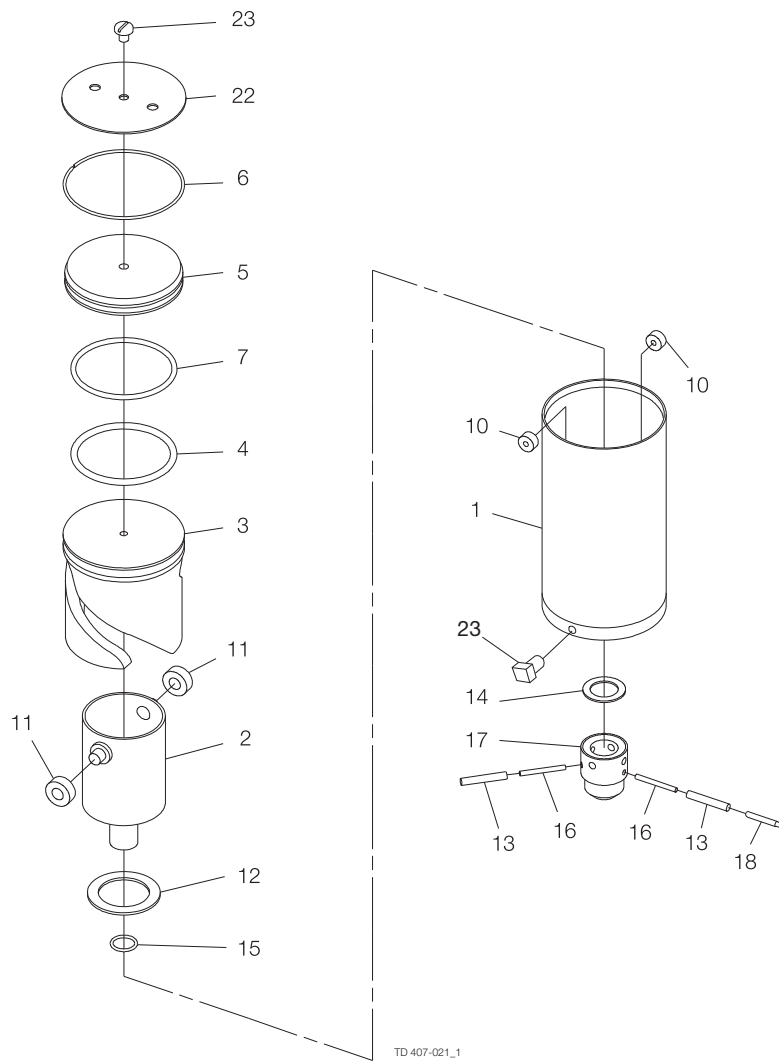
Parts marked with ▲ are included in the service kit.

Recommended spare parts: Service kit.

900131

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.

### Service kits

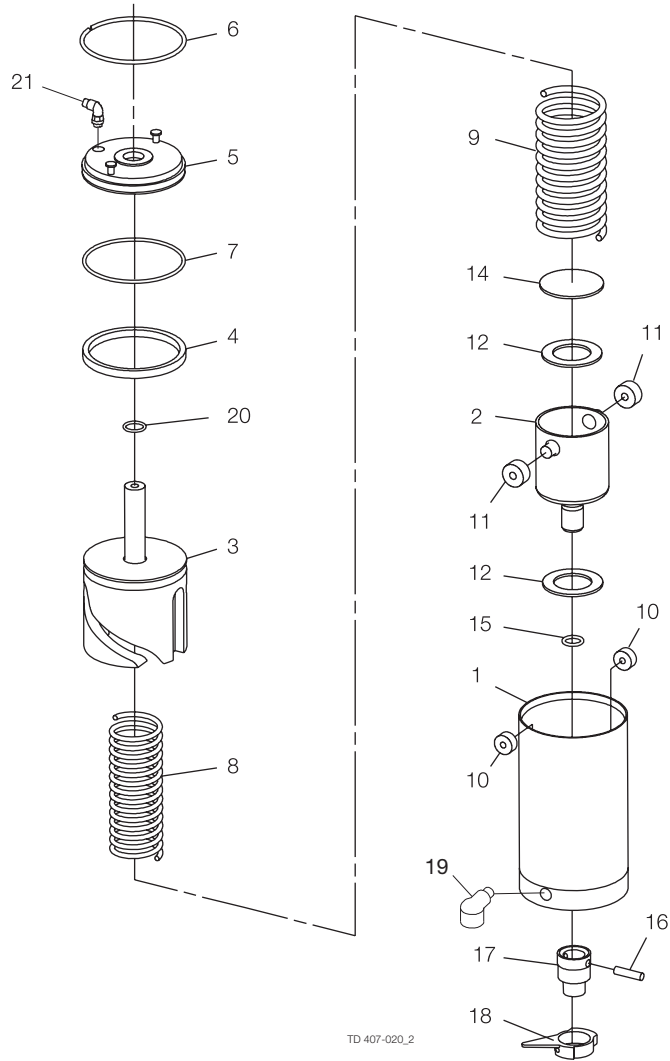
Denomination

#### 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

### Service kits

#### Service Kits for Actuator

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

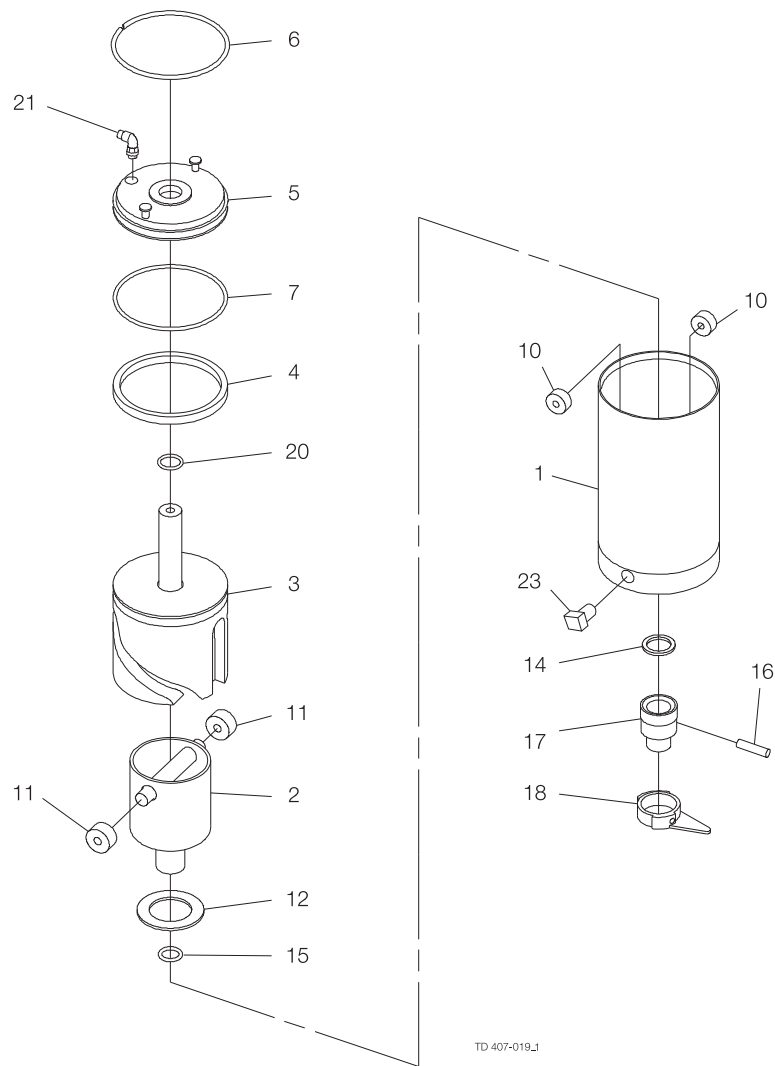
Parts marked with □▲ are included in the service kit.

Recommended spare parts: Service kit.

900133/1

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

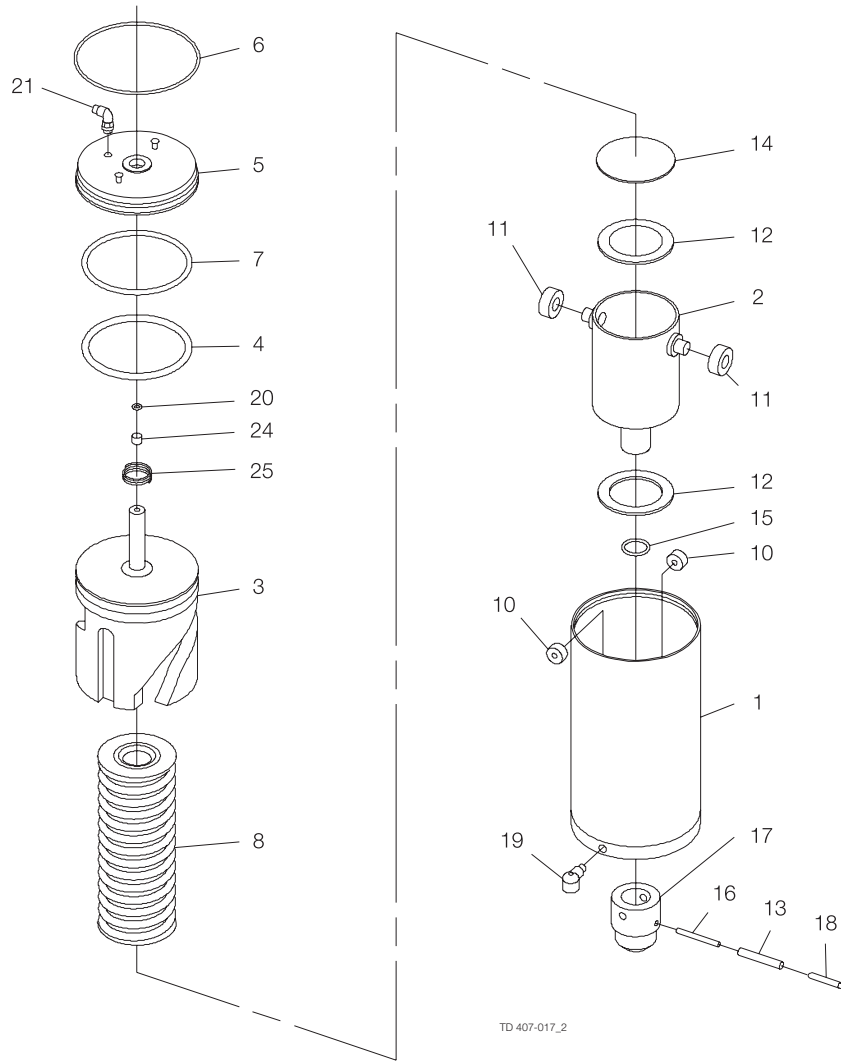
#### Service Kits for Actuator

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

### Service kits

#### Service Kits for Actuator

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

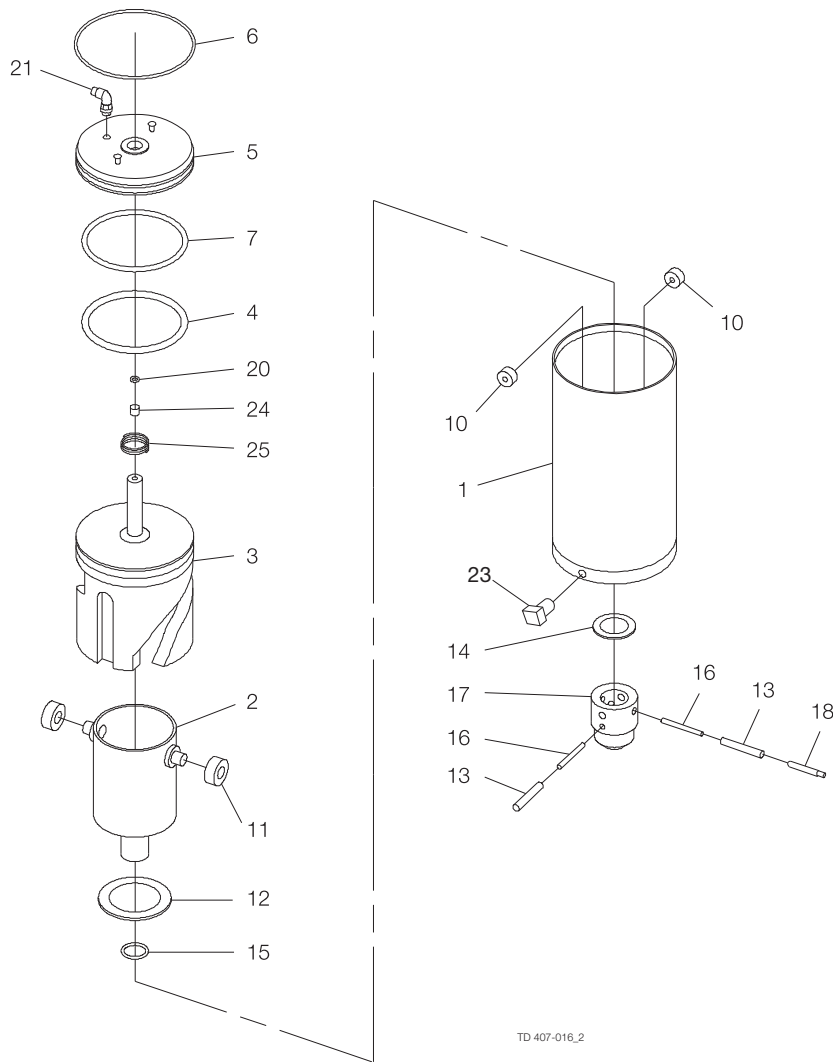
Parts marked with ▲ are included in the service kit.

Recommended spare parts: Service kit.

900136

The drawing include all parts of the valves.

7.15 LKLA-T Actuator air/air ø133



TD 407-016\_2

## 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

### Service kits

Denomination

#### Service Kits for Actuator

Service kits, Air/Air ..... 9611923057

Parts marked with ▲ are included in the service kit.

Recommended spare parts: Service kit.

190137/1



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