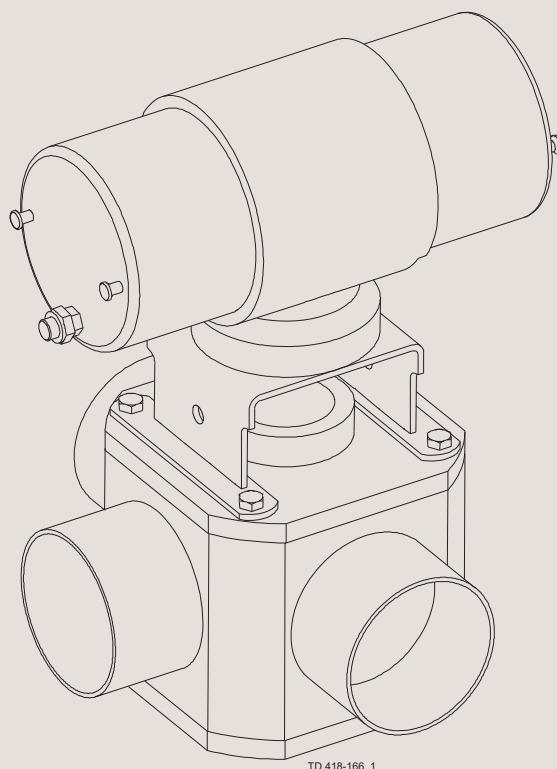




# Instruction Manual

## Koltek Valve



ESE01990-EN14      2019-12

Original manual



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

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# 1 EC Declaration of conformity

Revision of Declaration of Conformity 2009-12-29

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

KH

Type

is in conformity with the following directive with amendments:

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

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

Global Product Quality Manager  
Pumps, Valves, Fittings and Tank Equipment

Title

Lars Kruse Andersen

Name

Kolding

Place

2016-06-15

Date

Signature



---

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

---

### 2.1 Important information

---

**Always read the manual before using the valve!**

**WARNING**

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

**CAUTION**

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

**NOTE**

Indicates important information to simplify or clarify procedures.

---

### 2.2 Warning signs

---

General warning:



Caustic agents:



## 2 Safety

---

*All warnings in the manual are summarised on this page.*

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

---

### 2.3 Safety precautions

---

#### Installation:

**Always** observe the technical data (see chapter 6 Technical data)  
**Always** release compressed air after use.



#### Operation:

**Always** observe the technical data (See chapter 6 Technical data)  
**Never** touch the valve or the pipelines when processing hot liquids or when sterilising



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



#### Maintenance:

- **Always** observe the technical data (See chapter 6 Technical data)
- **Always** release compressed air after use
- The valve must **Never** be hot when being serviced
- 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 valve is supplied with compressed air.



#### Transportation:

**Always** make sure that compressed air is released  
**Always** make sure that all connections are disconnected before attempting to remove the valve from the installation  
**Always** drain liquid out of valves before transportation  
**Always** used predesigned lifting points if defined  
**Always** ensure sufficient fixing of the valve during transportation - if specially designed packaging material is available, it must be used

---

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

### 3.1 Unpacking/delivery/general installation

#### Unpacking/delivery

##### CAUTION

The valve is delivered with the shutter loosened. Always adjust the shutter before installation and operation of the valve (see special instructions chapter 5.11 Shutter adjustment)!

##### Step 1

##### CAUTION

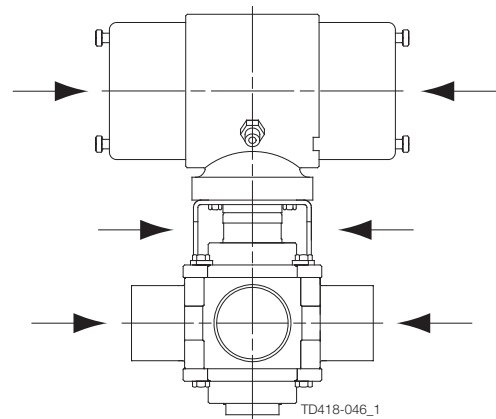
Alfa Laval cannot be held responsible for incorrect unpacking.

##### Check the delivery:

1. Complete valve.
2. Delivery note.
3. Instruction manual

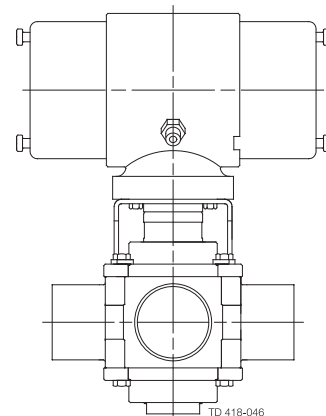
##### Step 2

1. Remove possible packaging materials from valve/valve ports.
2. Avoid damaging the valve/valve ports.



##### Step 3

1. Inspect the valve for visible transport damage.



## 3 Installation

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

*The valve has welding ends as standard but can also be supplied with fittings.*

*A/A = Air/air activated.*

### 3.2 General installation

#### Step 1



**Always** read the technical data carefully.

See chapter 6 Technical data



**Always** release compressed air after use.

#### CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

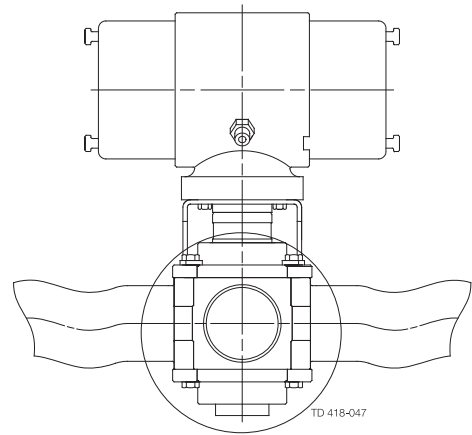
#### Step 2

Avoid stress to the valve.

Pay special attention to:

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

**Pay special attention to warnings!**

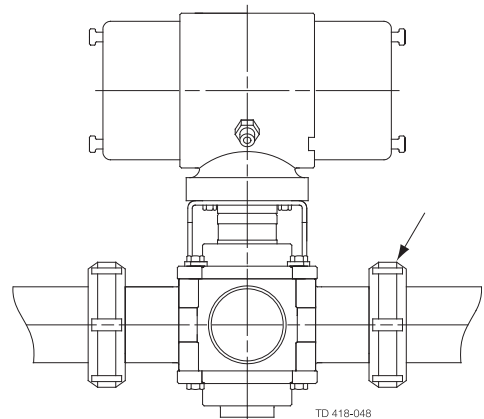


#### Step 3

##### Fittings:

Ensure that the connections are tight.

**Pay special attention to warnings!**

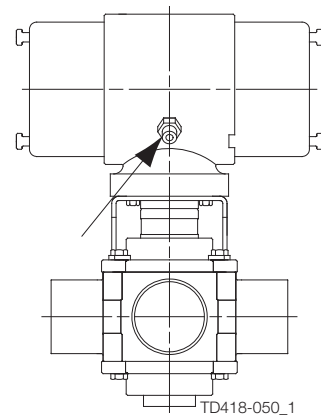


#### Step 4

##### Air connection:

R 1/8" (BSP), 6/4 mm hose.

**Pay special attention to warnings!**





*Study the instructions carefully and pay special attention to the warnings!*  
*The valve has welding ends as standard but can also be supplied with fittings.*  
*A/A = Air/air activated.*

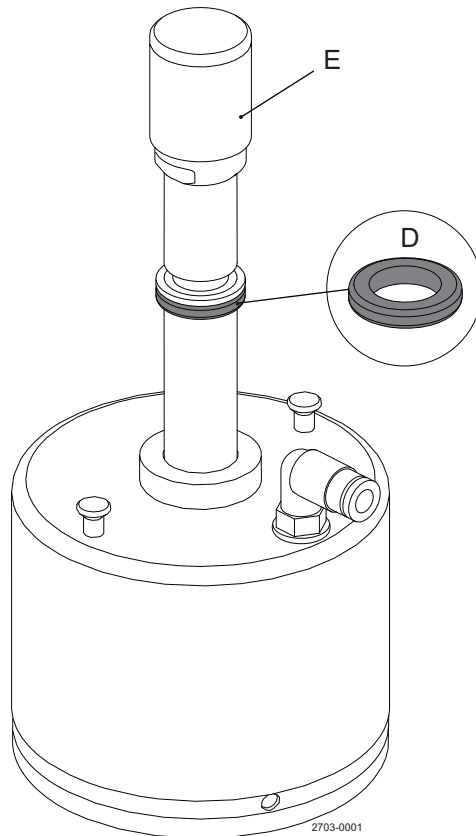
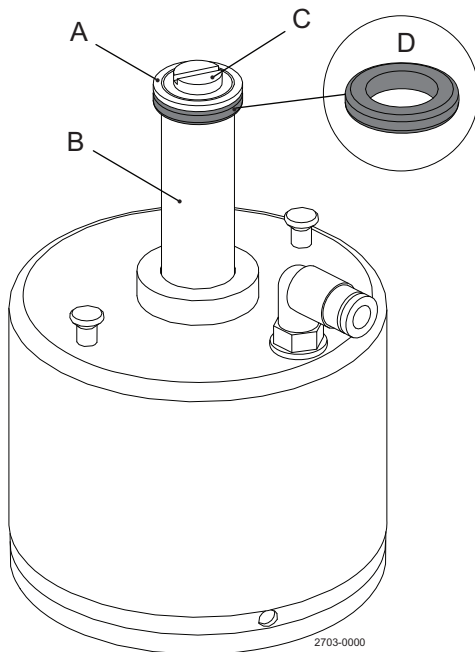
#### IMPORTANT NOTE REGARDING INDICATION STOP RING KH ACTUATOR 632!

When unpacking the KH actuator type 632, please be aware of the following.: An “indication stop ring”, a transportation lock plate, and a screw are mounted on top of the actuator indication ring.

**Do NOT remove the transportation lock plate and transportation lock screw, before installing a ThinkTop®, or another indication system on the actuator. The indication stop ring ALWAYS has to be attached to the top. The indication stop ring is designed to be mounted with the the ThinkTop®, or Inditop indication pin.**

If the actuator is operated without the “indication stop ring” fully attached, and secured, there is a risk that the indication pin falls into the actuator. This will cause serious damage to actuator, and indication system (eg. ThinkTop®) attached.

- A = Transportation lock plate
- B = Indication pin actuator
- C = Transportation lock screw
- D = Indication stop ring
- E = Indication pin ThinkTop®



## 3 Installation

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

*The valve has welding ends as standard. Weld with care.*

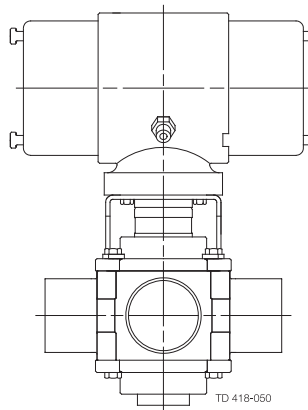
*Adjust the shutter before operating the valve. Check the valve for smooth operation after welding.*

### 3.3 Welding

#### Step 1



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



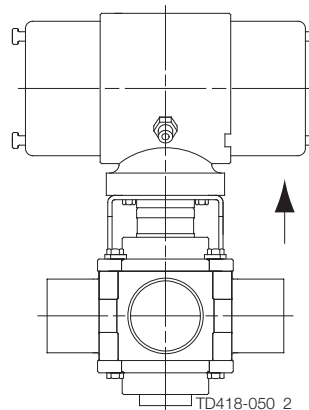
**Danger of cuts!**



#### Step 2

Dismantle the valve in accordance with instructions see chapter 5.2 Dismantling the valve.

**Pay special attention to the warnings!**



### 3 Installation

*Study the instructions carefully and pay special attention to the warnings!*  
*The valve has welding ends as standard. Weld with care.*  
*Adjust the shutter before operating the valve. Check the valve for smooth operation after welding.*

#### Step 3

Maintain the minimum clearances (A, B and C) so that the actuator and internal valve parts can be removed.

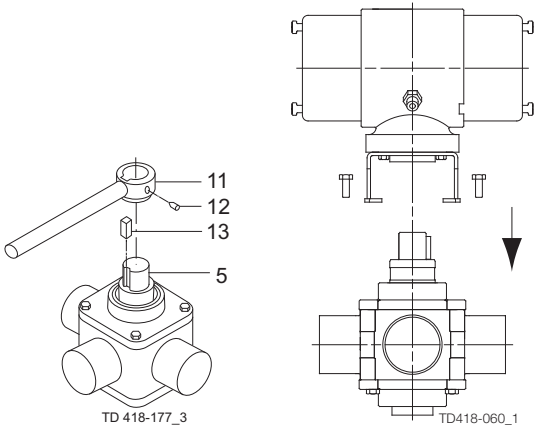


Valve size	A	B	C
25mm/DN25	144	142	214
38mm/DN40	193	186	263
51mm/DN50	209	202	279
63.5mm/DN65	234	230	304
76.1mm/DN65 welded	264	265	334
DN80	325	343	395
101.6mm/DN100	355	273	425

#### Step 4

After welding, reassemble the valve in accordance with the instructions - see chapter 5.3 Valve assembly.  
 Manually operated valve: When mounting the valve shaft (pos. 5) horizontal or pointing vertical downwards, the wedge (pos. 13) must be secured with Locktite.

**Pay special attention to the warnings!**



### 3 Installation

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

*The valve has welding ends as standard. Weld with care.*

*Adjust the shutter before operating the valve. Check the valve for smooth operation after welding.*

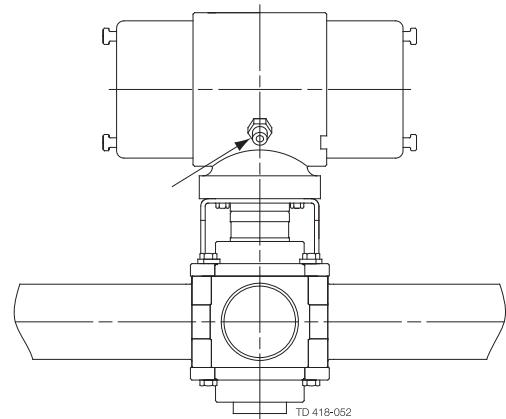
#### Step 5

##### CAUTION!

Adjust the shutter before operating the valve!

1. Supply compressed air to the air fitting(s).
2. Operate the valve to ensure that it runs smoothly (see checkpoints, chapter 5.3 Valve assembly, Step 7 to Step 9).

**Pay special attention to the warnings!**



### 3.4 Recycling information

#### • Unpacking

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

#### • Maintenance

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

#### • Scrapping

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

*Study the instructions carefully and pay special attention to the warnings!  
Ensure that the valve operates smoothly.*

### 4.1 Operation

#### Step 1



**Always** read the technical data thoroughly.  
(see chapter 6 Technical data)



**Always** release compressed air after use.

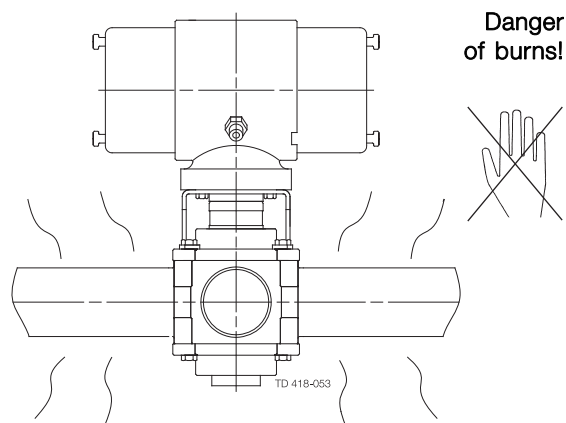
#### CAUTION

Alfa Laval cannot be held responsible for incorrect operation.

#### Step 2



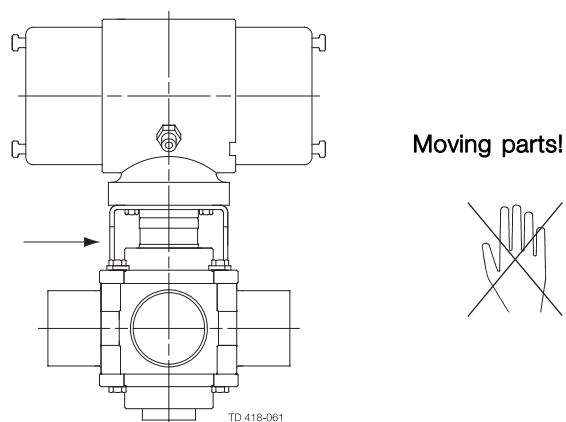
**Never** touch the valve or the pipelines when sterilising.



#### Step 3



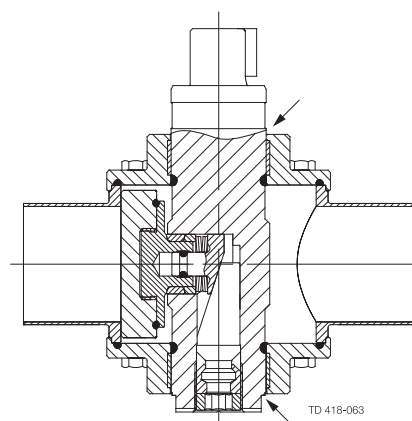
**Never** touch the moving parts if the actuator is supplied with compressed air.



#### Step 4

##### Lubrication of valve:

1. Ensure smooth movement of the valve (the valve is lubricated before delivery)
2. Lubricate with silicone oil/grease if necessary



## 4 Operation

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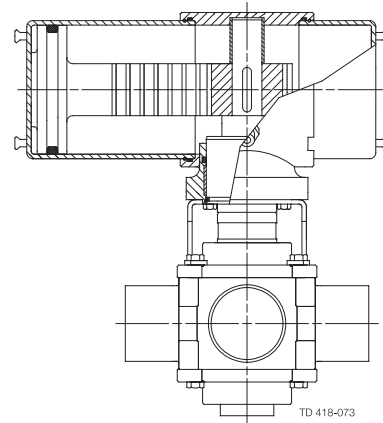
*Study the instructions carefully and pay special attention to the warnings!*  
*Ensure that the valve operates smoothly.*

---

### Step 5

#### Lubrication of actuator:

1. Ensure smooth movement of the actuator (the actuator is lubricated before delivery)
2. Lubricate with silicone oil/grease if necessary



*Pay attention to possible break-down.*

*Study the instructions carefully.*

*NC = Normally closed.*

*NO = Normally open.*

## 4.2 Fault finding

### NOTE

Study the maintenance instructions carefully before replacing worn parts - see chapter 5 Maintenance

Problem	Cause/result	Remedy
The shutter jerks	The shutter needs adjustment Worn shutter Compressed cup springs	Adjust the shutter (see chapter 5.11 Shutter adjustment) Replace the shutter Replace cup springs
Product leakage at valve body/lids	Worn/damaged O-rings (3) Loose screws (1)	Replace the O-rings Tighten screws
Product leakage at lids/shaft	Worn/damaged O-rings (4)	Replace the O-rings
Product leakage The shutter needs adjustment shutter/tightened device	Damaged or worn flange O-rings	Adjust the shutter NB! Clean inner parts
Product leakage (pressure against shutter too high)	Pressure too high - the shutter needs adjustment Worn shutter	Adjust the shutter - change flow direction (see chapter 5.11 Shutter adjustment) Replace the shutter
The valve does not open/close	Faulty wedge (10) The pressure on the shutter is too high Worn actuator O-rings Worn bearing	Replace the wedge Reduce the pressure Replace O-rings Replace bearing Adjust shutter

## 4 Operation

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!

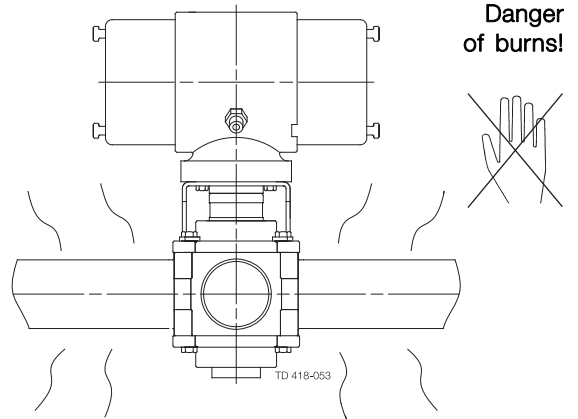


**Always** use  
protective goggles!

#### Step 2



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



#### Step 3

**Examples of cleaning agents:**

Use clean water, free from chlorides.

1. 1% by weight NaOH at 70° C

1 kg (2.2 lbs) NaOH	+	100 l (26.4 gal) water	=	Cleaning agent.
------------------------	---	---------------------------	---	-----------------

2.2 l (0.58 gal) 33% NaOH	+	100 l (26.4 gal) water	=	Cleaning agent.
------------------------------	---	---------------------------	---	-----------------

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

0.7 l (0.18 gal) 53% HNO <sub>3</sub>	+	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.  
⇒ **Sterilisation of milk/viscous liquids**  
⇒ **Increase the cleaning flow!**
3. Flip the valve during cleaning, if possible.
4. **Always** rinse well with clean water after the cleaning.

**Always rinse!**



Clean water    Cleaning agents

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



Maintain the valve and the actuator with care.  
Study the instructions carefully and pay special attention to the warnings!  
Always keep service kits in stock.

### 5.1 General maintenance

#### Step 1



**Always** read the technical data carefully.  
See chapter 6 Technical data



**Always** release compressed air after use.

#### NOTE

All scrap must be stored/disposed of in accordance with current regulations/directives.

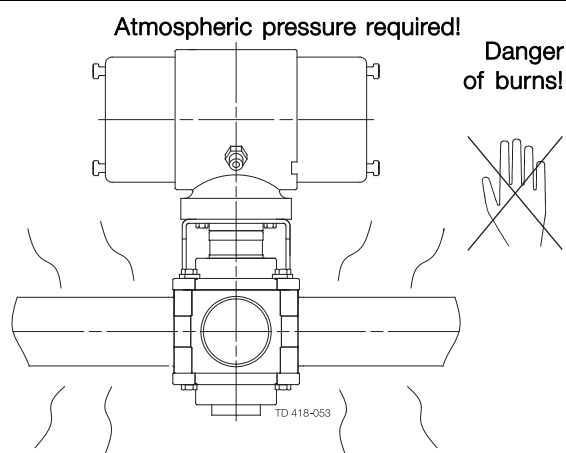
#### Step 2



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



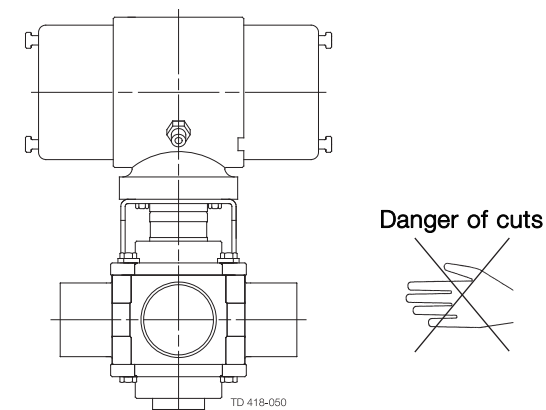
**Never** service the valve with valve and pipelines under pressure.



#### Step 3



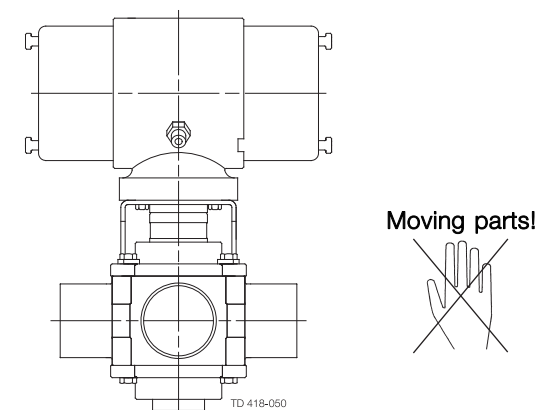
**Never** stick your fingers through the valve ports if the actuator is supplied with compressed air.



#### Step 4



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



## 5 Maintenance

*Maintain the valve and the actuator with care.*

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

*Always keep service kits in stock.*

### Recommended spare parts:

Service kits (see chapter 7 Parts list and service kits).

Order service kits from the service kits list (see chapter 7 Parts list and service kits).

	Valve rubber seals	Shutter	Actuator rubber seals
Preventive maintenance	Replace after 12 months	Adjust shutter after every 1500 turns	Replace after 5 years
Maintenance after leakage (leakage normally starts slowly)	Replace at the end of the day	Adjust shutter	Replace when possible
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 inspection planning</li></ul>	<ul style="list-style-type: none"><li>- Regular inspection for wear and smooth operation</li></ul>	<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>
Lubrication	<b>Before fitting:</b> Silicone oil or silicone grease (USDA H1 approved oil/grease)		<b>Before fitting:</b> Oil or grease

### Pre-use check:

1. Supply compressed air to the actuator
2. Operate the valve several times to ensure that it runs smoothly.

**Pay special attention to the warnings!**

Study the instructions carefully.

The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits.

Handle scrap correctly.

A/A = Air/air activated.

### 5.2 Dismantling the valve

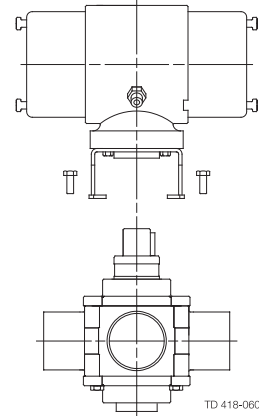
#### Step 1



**Never** dismantle the valve with valve and pipelines under pressure.

**Air-operated valve:**

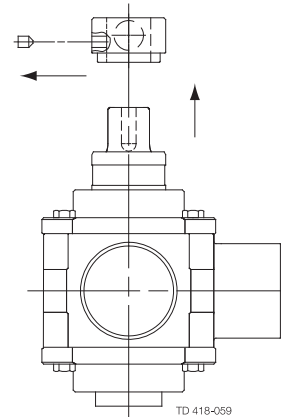
1. Loosen and remove screws (1).
2. Lift out the actuator and bonnet from the valve
3. Remove top lid (2) from valve body (7).



#### Step 2

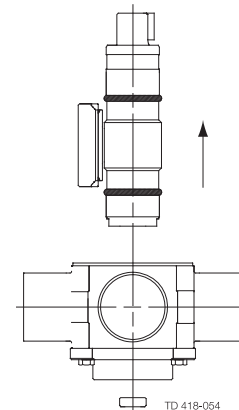
**Manually operated valve:**

1. Loosen the screw in handle (11).
2. Remove the handle from shaft (5).
3. Loosen and remove screws (1) and top lid (2) from valve body (7).



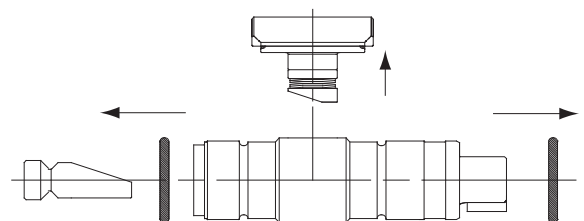
#### Step 3

1. Loosen safety screw (9) and tightening device (8).
2. Pull out shaft (5) with shutter unit (6) from the valve body.
3. Loosen and remove screws (1) and bottom lid (2) from the valve body (if needed).



#### Step 4

1. Pull out shutter unit (6) from shaft (5).
2. Remove tightening device (8) from shaft (5) (if necessary).
3. Pull off O-rings (4) from shaft (5).



TD 418-056

## 5 Maintenance

*Study the instructions carefully.*

*The items refer to the parts list and service kits section - see chapter7 Parts list and service kits.*

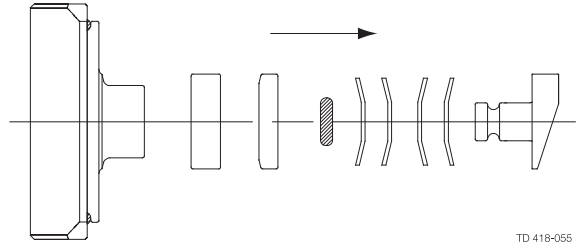
*Handle scrap correctly.*

*A/A = Air/air activated.*

### Step 5

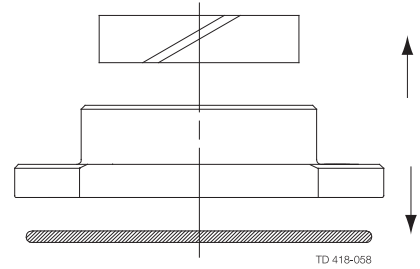
1. Pull out adjustment key (6d) from the shutter.
2. Remove support ring (6c) and seal ring (6b) from shutter (6a).
3. Pull off O-ring (6f) and cup springs (6e) from the adjustment key.

**NOTE!** When replacing the shutter, replace the entire shutter unit.



### Step 6

Pull out O-rings (3) and guide rings (2a) from lids (2).



Study the instructions carefully.

The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits.

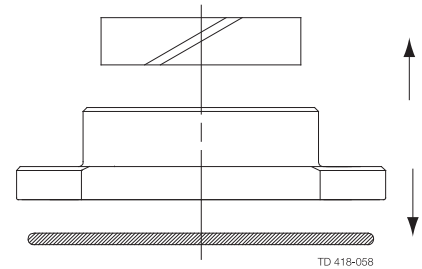
Handle scrap correctly.

A/A = Air/air activated.

### 5.3 Valve assembly

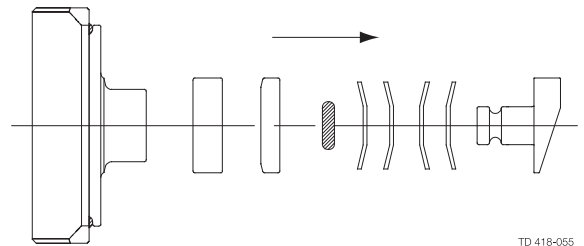
#### Step 1

Fit O-rings (3) and guide rings (2a) in lids (2).



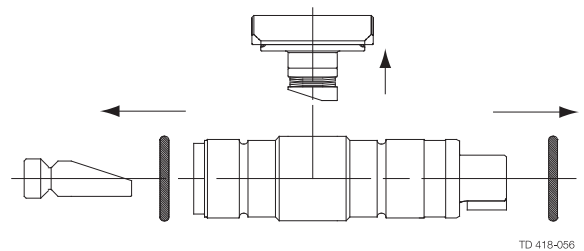
#### Step 2

1. Ensure that seal ring (6b) and support ring (6c) are fitted on shutter (6a)
2. Slide cup springs (6e) onto adjustment key (6d) - observe position!
3. Slide O-ring (6f) onto the adjustment key
4. Push the adjustment key (6d) into shutter (6a).



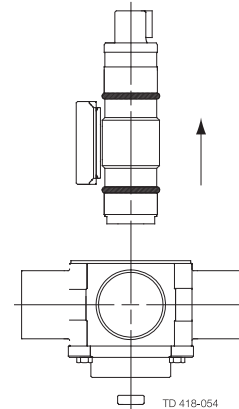
#### Step 3

1. Slide O-rings (4) onto shaft (5).
2. Push shutter unit (6) into shaft (5).
3. Ensure that the sloping surfaces of tightening device (8) and adjustment key (6d) make contact (lubricate).
4. Screw tightening device (8) lightly into shaft (5) (lubricate).



#### Step 4

1. Fit bottom lid (2) on valve body (7) and tighten screws (1) (if dismantled).
2. Slide shaft (5) with shutter unit (6) into the valve body.



## 5 Maintenance

*Study the instructions carefully.*

*The items refer to the parts list and service kits section - see chapter7 Parts list and service kits.*

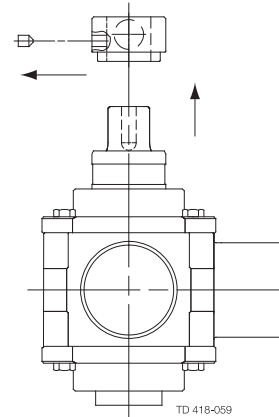
*Handle scrap correctly.*

*A/A = Air/air activated.*

### Step 5

#### Manually operated valve:

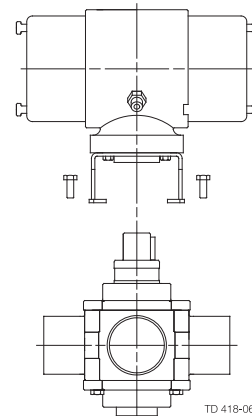
1. Fit top lid (2) on the valve body (7) and tighten screws (1).
2. Adjust the tightness of the shutter according to the procedure in chapter 5.11 Shutter adjustment.
3. Fasten safety screw (9) after shutter adjustment.
4. Fit handle (11) on shaft (5) with wedge (10) and tighten the screw (12).



### Step 6

#### Air-operated valve:

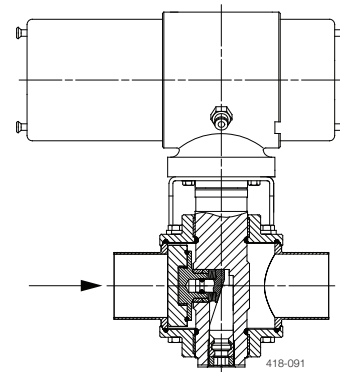
1. Fit top lid (2) and bonnet (20) on valve body (7) and tighten screws (1).
2. Adjust the tightness of the shutter according to the procedure in chapter 5.11 Shutter adjustment
3. Fasten safety screw (9) after shutter adjustment.



### Step 7

#### Air-operated valve:

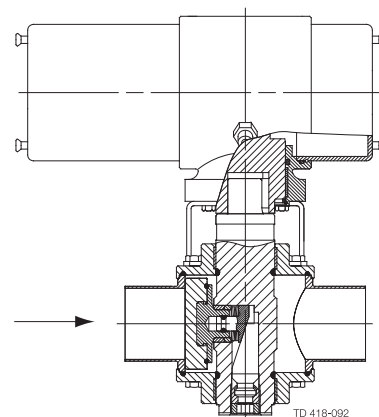
1. Check that the shutter unit exactly covers the correct outlet.
2. Check that the position of the actuator fits the position of the shutter unit.



### Step 8

#### Air-operated valve:

Check that the position of the actuator fits the position of the shutter unit.



---

*Study the instructions carefully.*

*The items refer to the parts list and service kits section - see chapter7 Parts list and service kits.*

*Handle scrap correctly.*

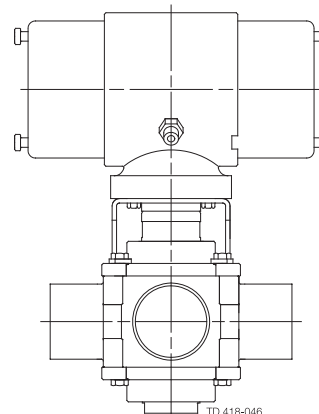
*A/A = Air/air activated.*

---

### Step 9

1. Check that the shutter opens/closes correctly.
2. Check the valve for smooth operation after assembly.

**Pay special attention to the warnings!**



## 5 Maintenance

Study the instructions carefully.

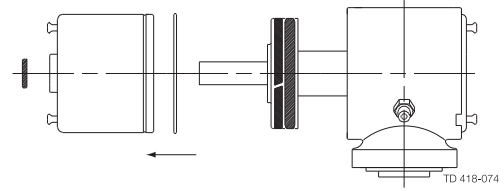
The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits.

Handle scrap correctly.

### 5.4 Dismantling of actuator, type 631/632

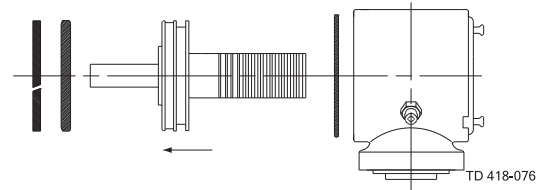
#### Step 1

1. Turn cylinder (16 or 16a) anticlockwise to unhook lock wire (19) and remove the lock wire (turn the cylinder slightly clockwise to loosen the lock wire).
2. Remove the cylinder from chassis (1).
3. Pull out O-ring (15) from cylinder (16a) (only with indication) (only remove cylinder (17) if damaged).



#### Step 2

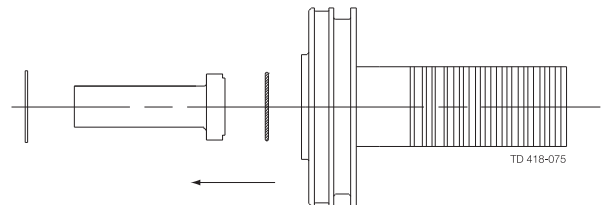
1. Pull out piston (10) from chassis (1). (For sizes 89-101.6 mm/DN80-100: both pistons).
2. Pull off O-ring (11) and guide (35) from the piston. (For sizes 89-101.6 mm/DN80-100: both O-rings from both pistons).



#### Step 3

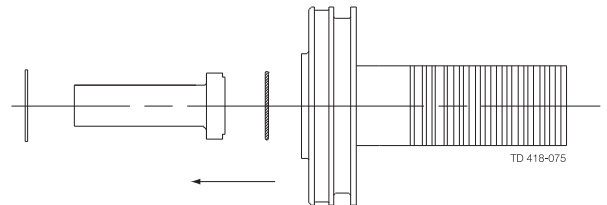
Only cylinders with indication:

1. Remove circlip (14) from piston (10).
2. Take out indication stem (12) from the piston.
3. Pull off O-ring (13) from the indication stem.



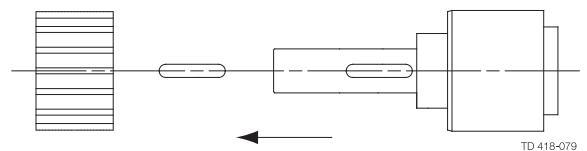
#### Step 4

1. Remove lock ring (9) and bearing (8) from chassis (1).
2. Pull out spindle (2) from the chassis/piston.



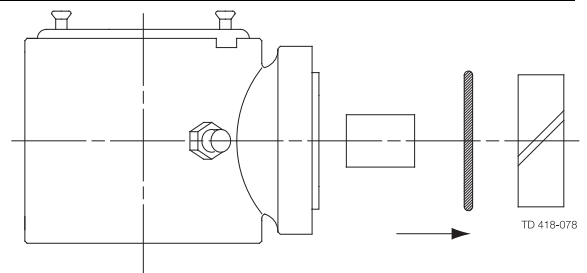
#### Step 5

Remove gear wheel (4) and wedge (3) from spindle (2).



#### Step 6

1. Pull out guide ring (7), O-ring (6) and bearing (5) from chassis (1).
2. Tap the bearing loose with a rubber hammer, if necessary.





Study the instructions carefully.

The items refer to the parts list and service kits section chapter 7 Parts list and service kits

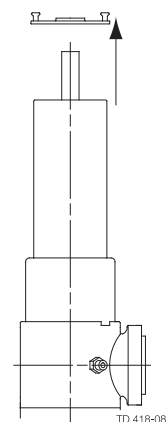
The auxiliary equipment is not supplied by Alfa Laval. Lubricate all O-rings with silicone oil or similar before assembly.

### 5.5 Dismantling of actuator, type 630

#### Step 1

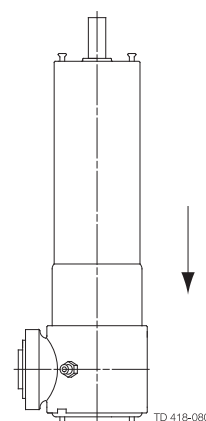
For sizes 63.5-76.1 mm/DN65 with indication:

1. Loosen and remove screws (26a) and cylinder lid (26).
2. Place chassis/cylinders (1/16, 17) in the auxiliary equipment.



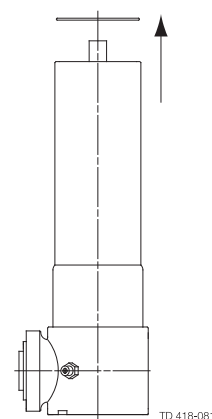
#### Step 2

Position the auxiliary equipment with chassis/cylinder in a press.



#### Step 3

1. Press flange (24) into cylinder (16) using the press (for actuator with indication: flange (24) is replaced by flange (25)).
2. Remove lock wire (23) from the cylinder.
3. Remove the flange.



## 5 Maintenance

*Study the instructions carefully.*

*The items refer to the parts list and service kits section chapter 7 Parts list and service kits*

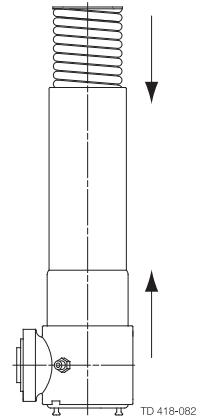
*The auxiliary equipment is not supplied by Alfa Laval. Lubricate all O-rings with silicone oil or similar before assembly.*

### Step 4

Position the auxiliary equipment with chassis/cylinder in a press.

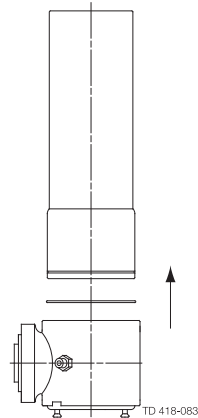
1. Remove chassis/cylinder (1/16, 17) from the auxiliary equipment.
2. Take out spring (22) from the cylinder.

**NOTE!** For sizes 63.5-76.1 mm/DN65, steps 1 to 4 in this chapter are repeated.



### Step 5

1. Turn cylinder (16) anticlockwise to unhook lock wire (19). Use a strapping tool to turn the cylinder.
2. Remove the cylinder from chassis (1).



### Step 6

Continue the dismantling by following chapter 5.4 Dismantling of actuator, type 631/632, Step 2 to Step 6.

*Study the instructions carefully.*

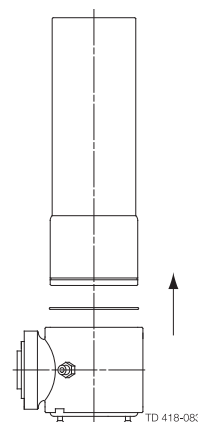
*The items refer to the parts list and service kits - see chapter 7 Parts list and service kits.*

*Handle scrap correctly.*

### 5.6 Dismantling of actuator, type 633

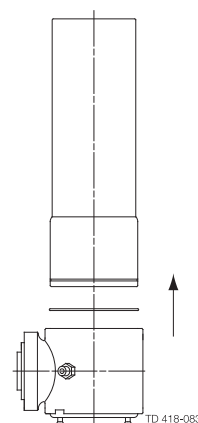
#### Step 1

1. Turn auxiliary cylinder (28) anticlockwise to unhook lock wire (31).
2. Remove the auxiliary cylinder from cylinder (16).



#### Step 2

1. Pull out auxiliary piston (29) from cylinder (16).
2. Pull off O-rings (11) from the auxiliary piston.

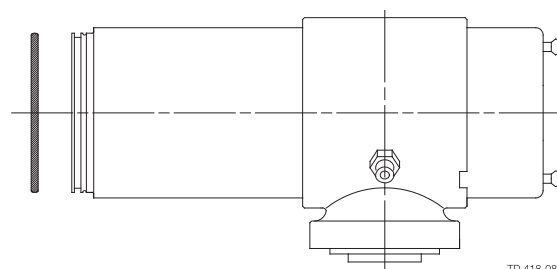


#### Step 3

Pull off O-ring (31) from cylinder (16).

#### NOTE!

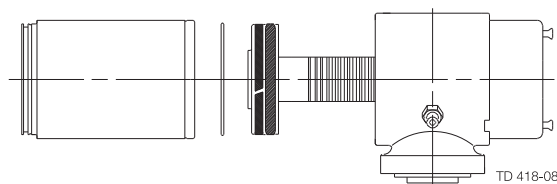
For sizes 01.6 mm/DN80-100, steps 1 to 3 on this page are repeated.



#### Step 4

1. Turn cylinder (16) anticlockwise to unhook lock wire (19). Use a strapping tool to turn the cylinder.
2. Remove the cylinder from chassis (1).
3. Repeat this procedure for cylinder (17), if necessary.

Continue the dismantling by following chapter 5.4 Dismantling of actuator, type 631/632, Step 2 to Step 6.



## 5 Maintenance

Study the instructions carefully.

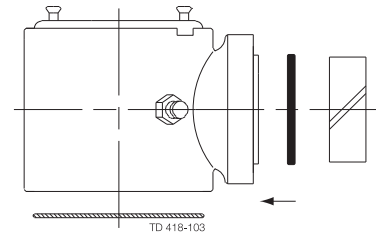
The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits

Lubricate all O-rings with silicone oil or similar before assembly.

### 5.7 Reassembly of actuator, type 631/632

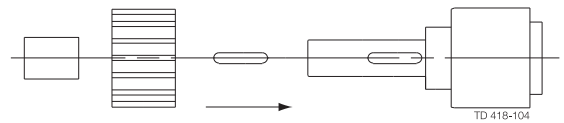
#### Step 1

Fit guide ring (7) and O-rings (6,18) in chassis (1) .



#### Step 2

1. Fit wedge (3), gear wheel (4) and bearing (5) on spindle (2) (lubricate).
2. Guide/work the spindle into the chassis.

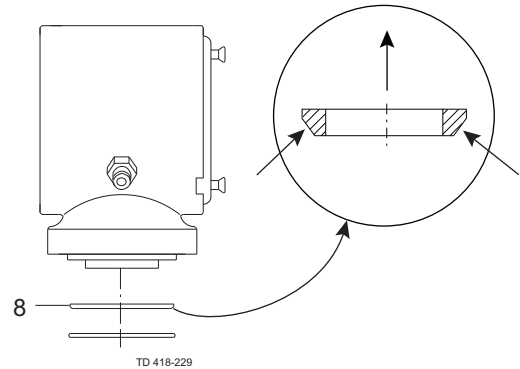


#### Step 3

Fit bearing (8) and lock ring (9) into chassis (1).

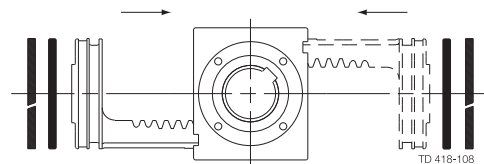
#### WARNING!

Make sure that the lock ring is fitted correctly in its groove.



#### Step 4

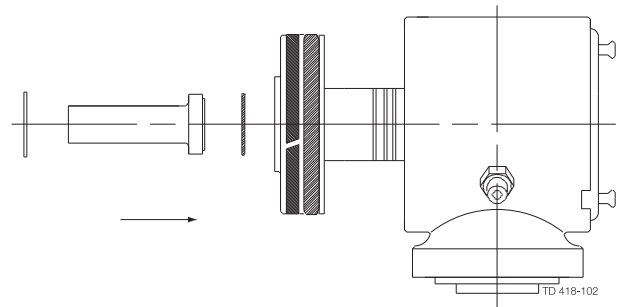
1. Adjust spindle (2) so that the notch has a 45-degree angle to pistons (10).
2. Position the piston(s) along the opposite inner sides of chassis (1) (lubricate teeth on piston(s) with grease type Longterm + 2).
3. Press piston(s) into the chassis (at the same time for sizes 89-101.6 mm/DN80-100) (check that the notch has the correct angle to the piston(s)).
4. Slide O-ring(s) (11) onto the piston(s).



#### Step 5

##### Only with indication:

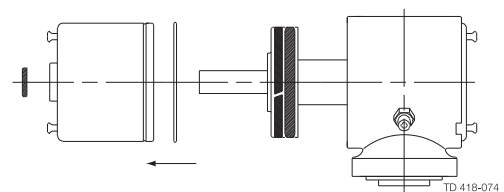
1. Slide O-ring (13) onto indication stem (12).
2. Fit the indication stem in piston (10).
3. Fit circlip (14) in the piston.
4. Fit O-ring (15) in cylinder (16a).



#### Step 6

##### Only with indication:

1. Fit cylinders (16/17) in the chassis (the notch in the chassis must be aligned with the dent in each cylinder).
2. Hook in lock wires (19) and turn each cylinder clockwise until the end of the lock wire slips into the notch in the chassis (turn cylinder slightly back to secure lock wire).



*Study the instructions carefully.*

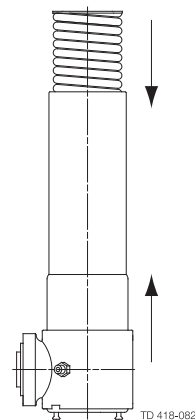
*The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits*

*Lubricate all O-rings with silicone oil or similar before assembly.*

### 5.8 Reassembly of actuator, type 630

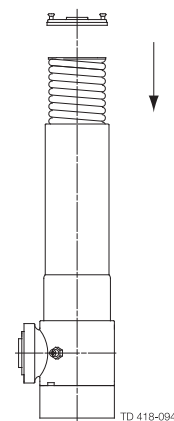
#### Step 1

1. Assemble the actuator by following chapter 5.11 Shutter adjustment, steps 1 to 6. Then proceed by following the steps on this page.
2. Place chassis/cylinder (1/17) in auxiliary equipment with mounted cylinder downwards. Fit spring (22) in the middle of cylinder (16) so that it does not contact the inner surface



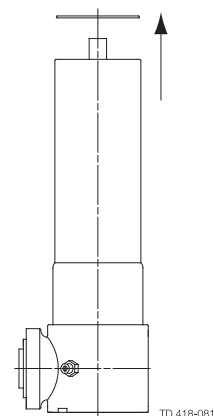
#### Step 2

1. Place the auxiliary equipment with the cylinders in a press.
2. Fit flange (24) on the middle of spring (22).



#### Step 3

1. Press flange (24) into cylinder (16).
2. Fit lock wire (23) in the cylinder.
3. Remove the actuator from the press. (For sizes 63.5-76.1 mm/DN65, steps 1 to 3 are repeated)



## 5 Maintenance

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*Study the instructions carefully.*

*The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits*

*Lubricate all O-rings with silicone oil or similar before assembly.*

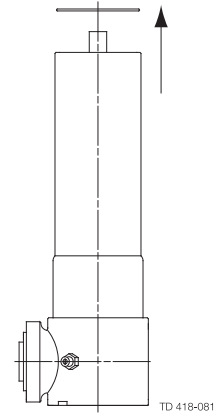
---

### Step 4

#### Only with indication:

Steps 1 to 3 are repeated. When repeating these instructions, use flange (25) or (33) instead of flange (24).

For sizes 63.5-76.1 mm/DN65: attach cylinder lid (26) to the cylinder with screws (26a).



Study the instructions carefully.

The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits

Lubricate all O-rings with silicone oil or similar before assembly.

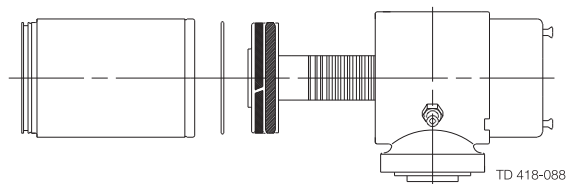
### 5.9 Reassembly of actuator, type 633

#### Step 1

##### Only with indication:

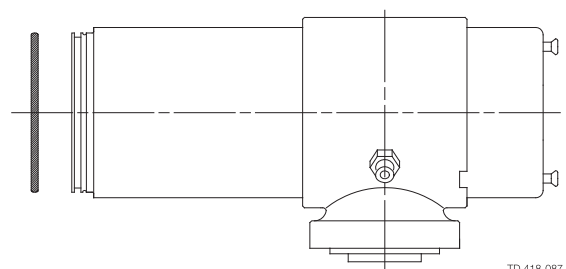
Assemble the actuator by following steps 1 to 3 in chapter 5.7 Reassembly of actuator, type 631/632. Then proceed by following the steps on this page.

1. Fit cylinder (16) in chassis (1) (the notch in the chassis must be aligned with the dent in the cylinder)
2. Hook in lock wire (19) and turn the cylinder clockwise until the end of the lock wire slips into the notch in the chassis.
3. Fasten cylinder (17) to the chassis the same way (if dismantled).



#### Step 2

Fit O-ring (30) on cylinder (16).

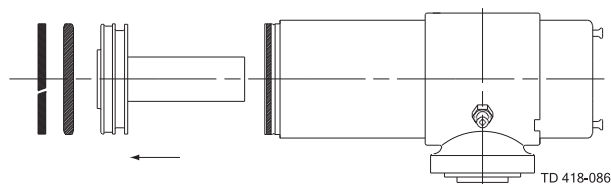


#### Step 3

##### Only with indication:

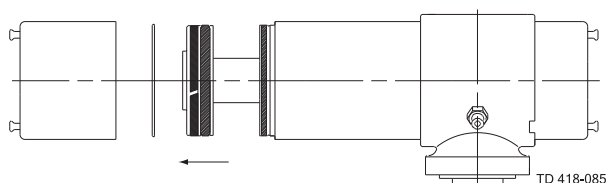
Assemble the actuator by following steps 1 to 3 in chapter 5.7 Reassembly of actuator, type 631/632. Then proceed by following the steps on this page.

1. Fit O-ring (11) on auxiliary piston (29).
2. Guide the auxiliary piston into cylinder (16).



#### Step 4

1. Fit auxiliary cylinder (28) on cylinder (16).
2. Hook in lock wire (23) and turn the auxiliary cylinder clockwise until the end of the lock wire slips into the hole in the cylinder.



#### NOTE!

For sizes 89-101.6mm/DN80-100, steps 3 to 5 on this page are repeated.

## 5 Maintenance

*Study the instructions carefully.*

*The items refer to the parts list and service kits section - see chapter 7 Parts list and service kits*

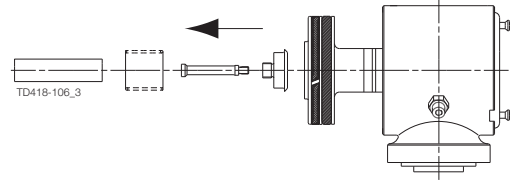
*Lubricate all O-rings with silicone oil or similar before assembly.*

### 5.10 Dismantling/reassembly of special indication units

#### Step 1

##### Dismantling - telescope indication:

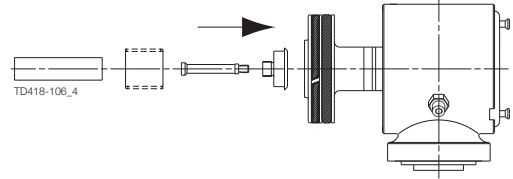
1. Pull off spring (12b) from screw (12c).
2. Unscrew and remove indication stem (12a) from the screw.
3. Unscrew and remove extension stem (12d) with screw from piston (10).



#### Step 2

##### Reassembly - telescope indication:

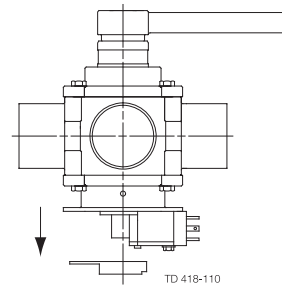
1. Screw the extension stem with screw into piston (10). Use Loctite 243).
2. Screw indication stem (12a) onto the screw.
3. Press/turn spring (12b) onto the screw.



#### Step 3

##### Dismantling - laterally fitted indication:

1. Loosen the screw in the indicator.
2. Pull off the indicator.



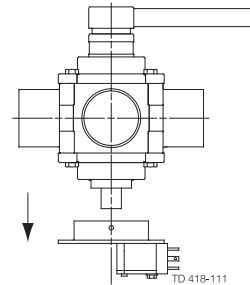
#### Step 4

##### Dismantling - laterally fitted indication:

1. Loosen the screw(s) in the mounting bracket.
2. Remove the mounting bracket.

##### NOTE!

Ensure that the indicator indicates all valve positions. For 180° actuator: Cut off the indicator pin to enable a full indicator turn.



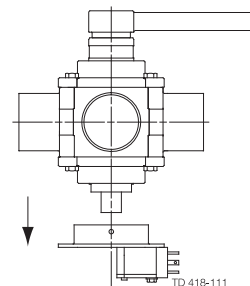
#### Step 5

##### Assembly - laterally fitted indication:

1. Fit the mounting bracket on the valve
2. Tighten the screw(s) in the mounting bracket.

##### NOTE!

Ensure that the indicator indicates all valve positions. For 180° actuator: Cut off the indicator pin to enable a full indicator turn.



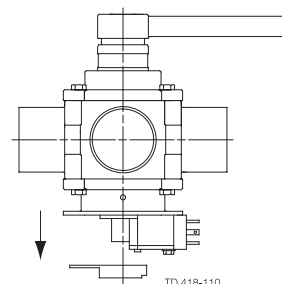
#### Step 6

##### Reassembly - laterally fitted indication:

1. Fit the indicator.
2. Adjust the indicator/mounting bracket and tighten the screw.

##### NOTE!

Ensure that the indicator indicates all valve positions. For 180° actuator: Cut off the indicator pin to enable a full indicator turn.





*Study the instructions carefully.*

*The items refer to the drawings and parts list in chapter 7 Parts list and service kits.*

*Adjust the shutter before operating the valve!*

### 5.11 Shutter adjustment

#### Step 1

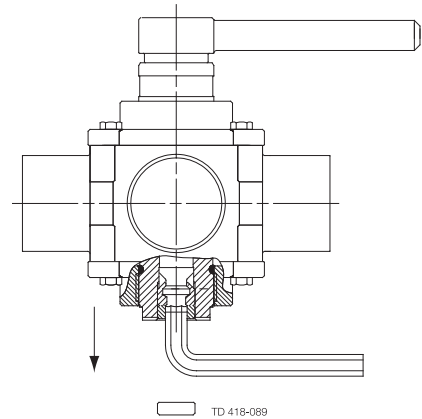
##### NOTE!

All Koltek valves are delivered the shutter loosened after a pressure test. The shutter must therefore be adjusted before operating the valve.

**Adjust the shutter after every 1500 turns.**

#### Step 2

1. Put the shutter (6) in neutral position (free of ports).
2. Loosen safety screw (9)
3. Holding an Allen key by the short length, tighten until resistance is felt.
4. Change the grip and, holding the Allen key by the long length, tighten the tightening device  $1\frac{1}{2}$  rotations ( $540^\circ$ ) further. Please note that the torque will only be approximate using this method.

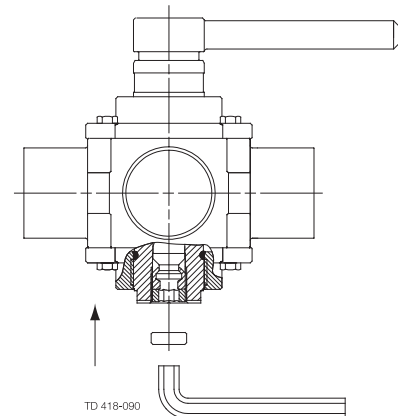


#### Step 3

Fit safety screw (9) and tighten with the Allen key.

##### CAUTION!

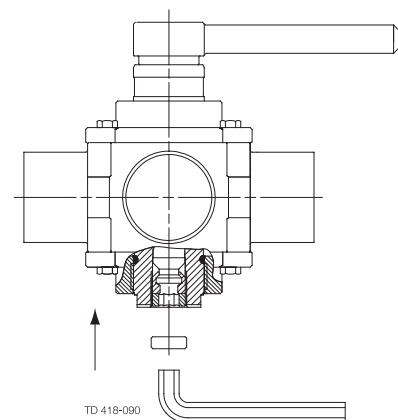
Do not tighten the tightening device further.



#### Step 4

##### Alternative adjustment (free of ports)

1. Bring shutter to the neutral position.
2. Tightening device (8) is tightened with an Allen key until the required torque is achieved (see table below)



## 5 Maintenance

Study the instructions carefully.

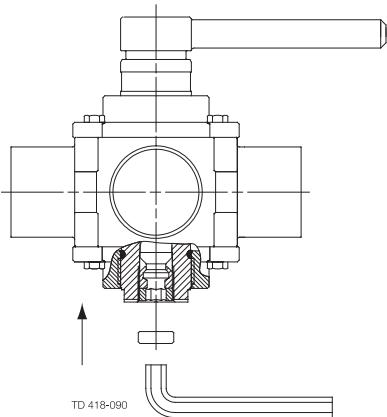
The items refer to the drawings and parts list in chapter 7 Parts list and service kits.

Adjust the shutter before operating the valve!

### Step 5

#### Alternative adjustment (free of ports)

- A. Spindle
- B. Adjusting screw
- C. Driver
- D. Allen key
- E. Torque wrench
- F. Adjusting scale



### Step 6

#### Note!

If a torque wrench is used to determine the torque, the listed size of driver should be used on the lower end of shaft (5).

Table 1. Recommended torque values, Nm:

Valve size mm	Bearing			Size of driver
	Bronze	PTFE	Guide ring strip	
DN25/25mm	5	3	2	21
DN40/38mm	15	10	8	27
DN50/51mm	20	12	10	36
63mm	30	20	19	36
DN65/76.1mm	45	27	22	36
DN80	51	31	26	41
DN100/101.6mm	110	80	67	41

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

### 6.1 Technical data

A PTFE shutter is operated by means of a handle or an actuator. A spring system presses the shutter against the inside cylindrical surface of the valve body thus ensuring complete tightness.

The air actuated valve can be fitted with ThinkTop® or a laterally fitted indication unit for remote indication of the valve position.

The manually operated valve can be fitted with laterally indication units (used for LKLA actuators). The actuator for the valve comes in two versions, single acting or double acting. The single acting actuator operates with one main piston whereas the double acting actuator operates with two main pistons.

Data Valve	
Max. pressure against shutter	300 kPa (3 bar)
Max. pressure behind shutter	1000 kPa (10 bar)
Temperature range	-10° C to +110° C
Data - actuator	
Max. air pressure for actuator	800 kPa (8 bar)
Min. air pressure for actuator	500 kPa (5 bar)
Materials	
Product wetted steel parts	AISI 316L
Finish	Semi bright
Other steel parts	AISI 304
Product welded seals	EPDM
Other seals	Nitrile (NBR)
Shutter	PTFE

#### Weight (kg)

Size	25 mm	38 mm	51 mm	63.5 mm	76.1 mm	101.6 mm	25 DN	40 DN	50 DN	65 DN	80 DN	100 DN
Weight (kg)	1.8	3.3	4.8	6.9	10.5	25.0	1.8	3.3	4.8	10.5	22.0	25.0

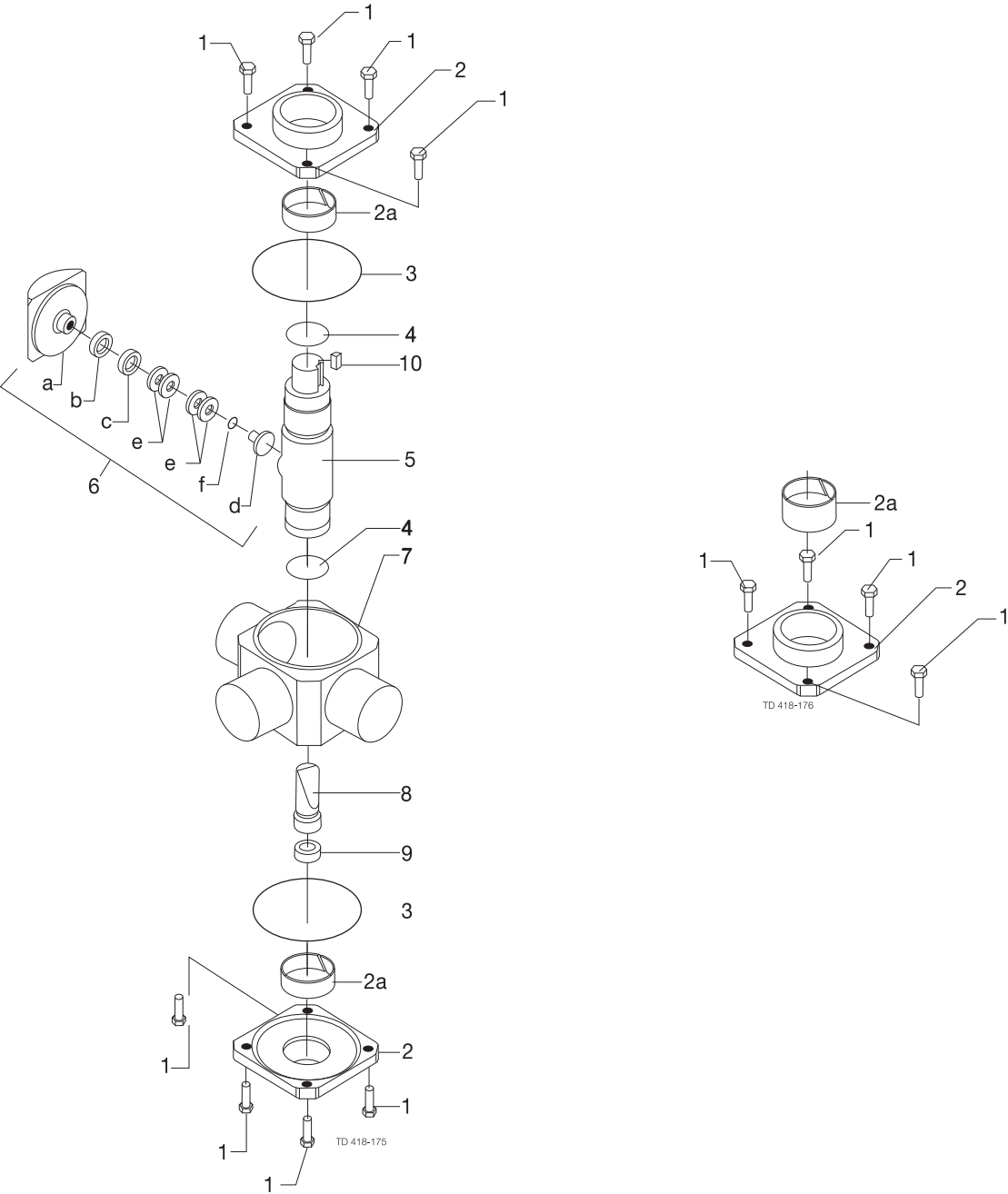
#### Noise

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

# 7 Parts list and service kits

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

## 7.1 Koltek valve



Bearing and lid for bearing

## 7 Parts list and service kits

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

### Parts list

Pos.	Qty	Denomination
1	8	Screw
2a	2	Guide ring
2	2	Lid for guide ring
3 ♦	2	O-ring
4 ♦	2	O-ring
5	1	Shaft
6a □	1	Shutter
6b □	1	Seal ring
6c □	1	Support ring
6f ♦	1	O-ring
6	1	Shutter unit
6d	1	Adjustment key
6e	4	Cup spring
7	1	Valve body
8	1	Tightening device
9	1	Safety screw
10	1	Wedge

### Service kits

Denomination	25 mm DN25	38 mm DN40	51 mm DN50
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#### Service Kits for Shutterkit (6a+b+c)

□ Service kit .....	9611924045	9611924046	9611924047
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#### Service Kits for Product wetted parts

♦ Service kit EPDM .....	9611924052	9611924055	9611924058
♦ Service kit NBR .....	9611924053	9611924056	9611924059
♦ Service kit FPM .....	9611924054	9611924057	9611924060

### Service kits

Denomination	63.5 mm	76 mm DN65	DN80	101.6 mm DN100
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#### Service Kits for Shutterkit (6a+b+c)

□ Service kit .....	9611924048	9611924049	9611924050	9611924051
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#### Service Kits for Product wetted parts

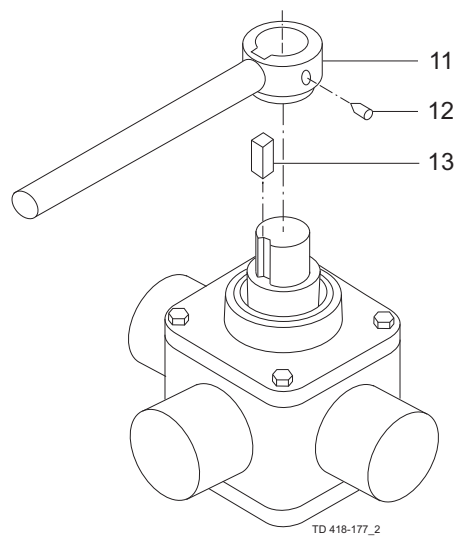
♦ Service kit EPDM .....	9611924061	9611924064	9611924067	9611924070
♦ Service kit NBR .....	9611924062	9611924065	9611924068	9611924071
♦ Service kit FPM .....	9611924063	9611924066	9611924069	9611924072

Parts marked with □♦ are included in the service kit  
Recommended spare parts: service kit

## 7 Parts list and service kits

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

### 7.2 Handle for Koltek valves



## 7 Parts list and service kits

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

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### Parts list

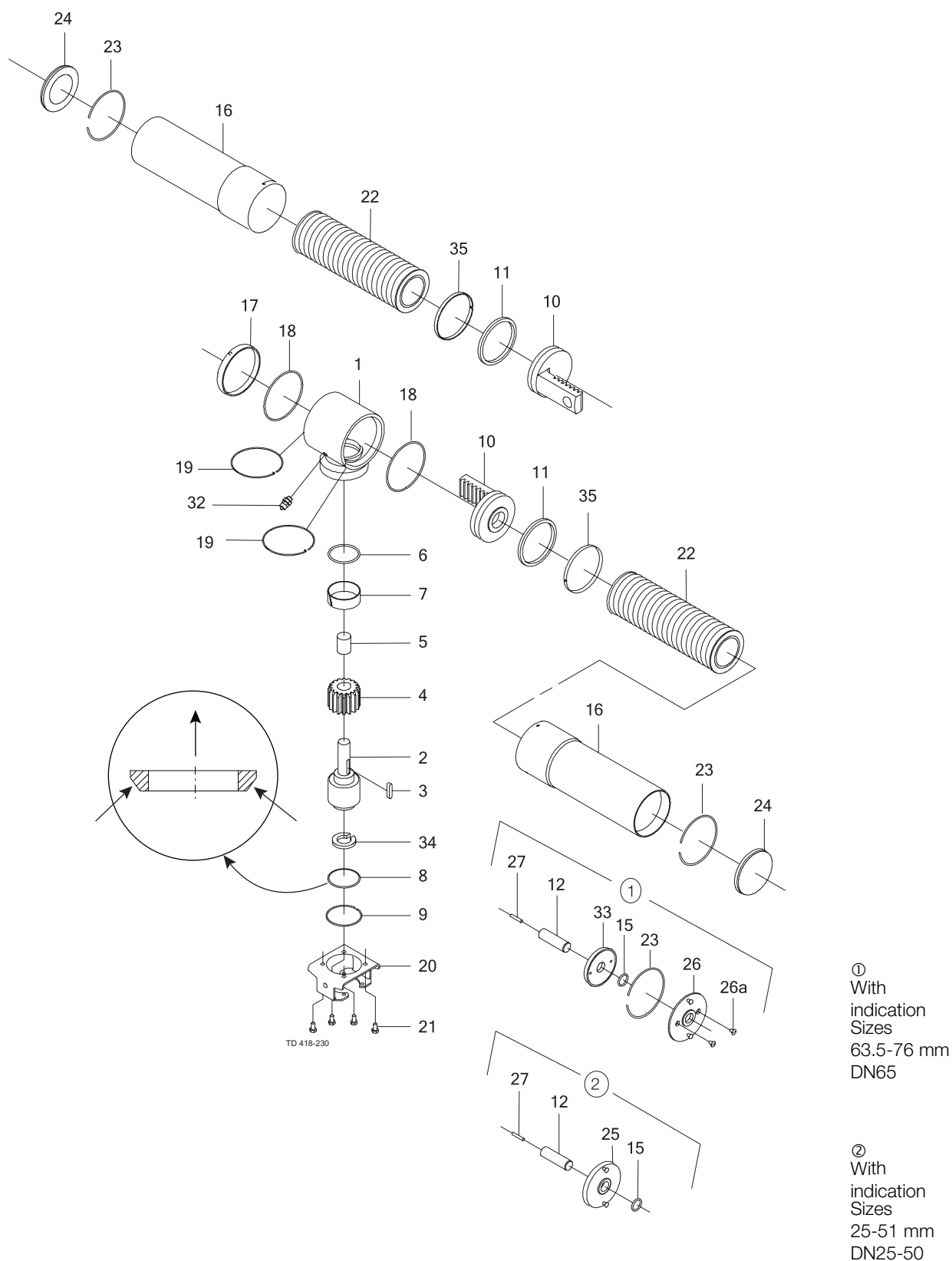
Pos.	Qty	Denomination
11	1	Handle
12	1	Pointed screw
13	1	Wedge

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## 7 Parts list and service kits

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

### 7.3 Koltek actuator 630





## 7 Parts list and service kits

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

### Parts list

Pos.	Qty	Denomination
1	1	Chassis
2	1	Spindle
3	1	Wedge
4	1	Gear wheel
5	1	Bearing
6 □	1	O-ring
7 □	1	Guide ring
8 □	1	Bearing
9	1	Lock ring
10	1	Piston
11 □	1	O-ring
12	1	Indication stem
15 □	1	O-ring
16	1	Cylinder
17	1	Cover
18 □	2	O-ring
19	2	Lock wire
20	1	Bonnet
21	4	Screw
22	1	Spring
23	1	Lock wire
25	1	Flange for indication
26	1	Flange for indication
26a	2	Screw
27	1	Screw for indication stem
32	1	Air fitting
33	1	Guide for indication
34	1	Spindle extension (only for MH25)
35 □	1	Guide ring

### Service kits

Denomination	25-51 mm	With indication		With indication
	DN25-50	25-51 mm DN25-50	63.5-76 mm DN65	63.5-76 mm DN65
Service kit for actuator (Period 2003-)				
□ Service kit .....	9611924194	9611924195	9611924196	9611924197
Service kit for actuator (Period -2003)				
□ Service kit .....	9611924175	9611924176	9611924177	9611924178

Parts marked with □♦ are included in the service kits  
Recommended spare parts: service kit.

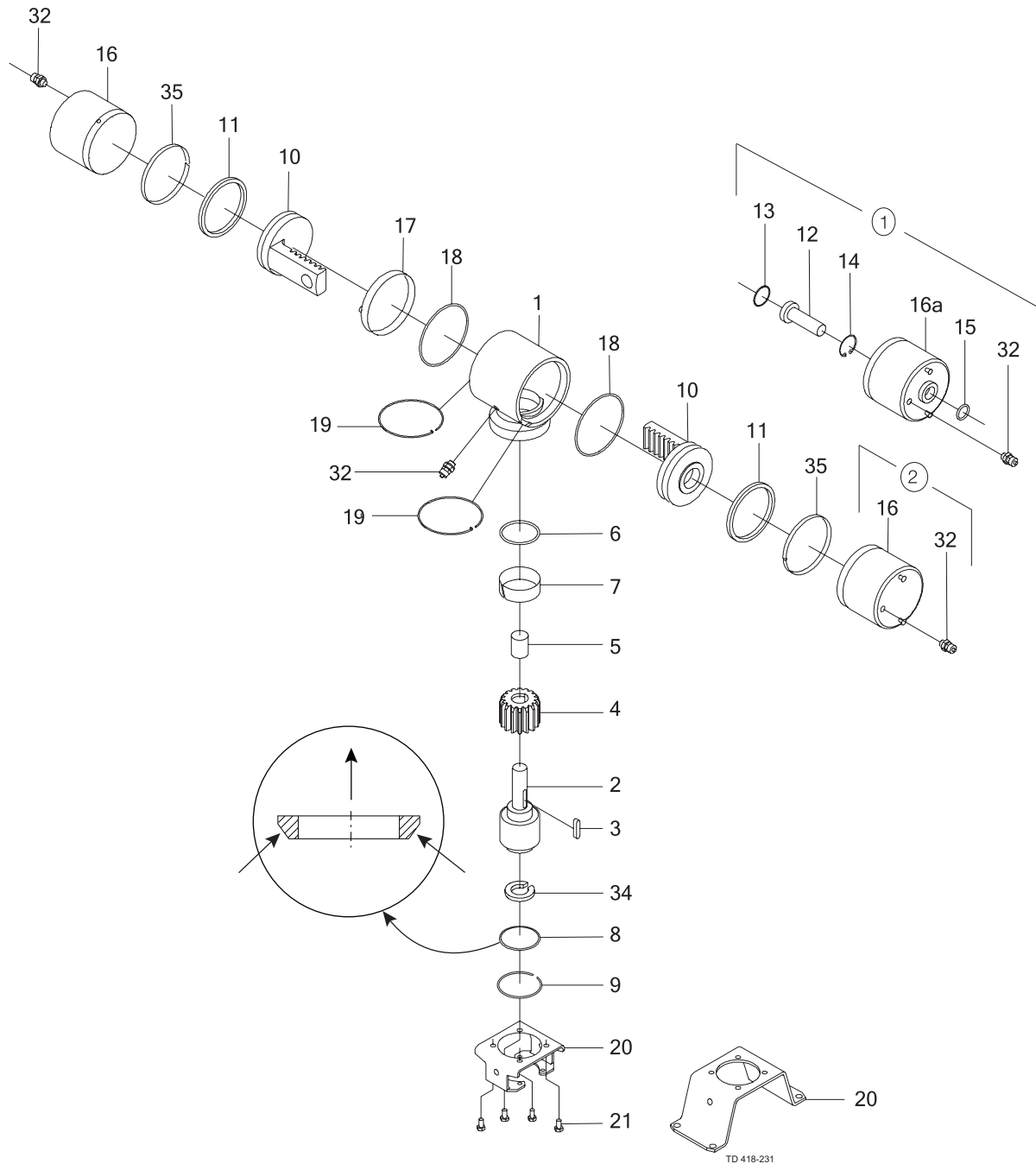
## 7 Parts list and service kits

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

### 7.4 Koltek actuator 631

① With indication

② Without indication



## 7 Parts list and service kits

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

### Parts list

Pos.	Qty	Denomination
1	1	Chassis
2	1	Spindle
3	1	Wedge
4	1	Gear wheel
5	1	Bearing
6 <input type="checkbox"/>	1	O-ring
7 <input type="checkbox"/>	1	Guide ring
8 <input type="checkbox"/>	1	Bearing
9	1	Lock ring
10	1	Piston
11 <input type="checkbox"/>	1	O-ring
12	1	Indication stem
13	1	O-ring
14	1	Circlip
15 <input type="checkbox"/>	1	O-ring
16	1	Cylinder
17	1	Cover
18 <input type="checkbox"/>	2	O-ring
19	2	Lock wire
20	1	Bonnet
21	4	Screw
32	2	Air fitting
34	1	Spindle extension (only for MH25)
35 <input type="checkbox"/>	1	Guide ring

### Service kits

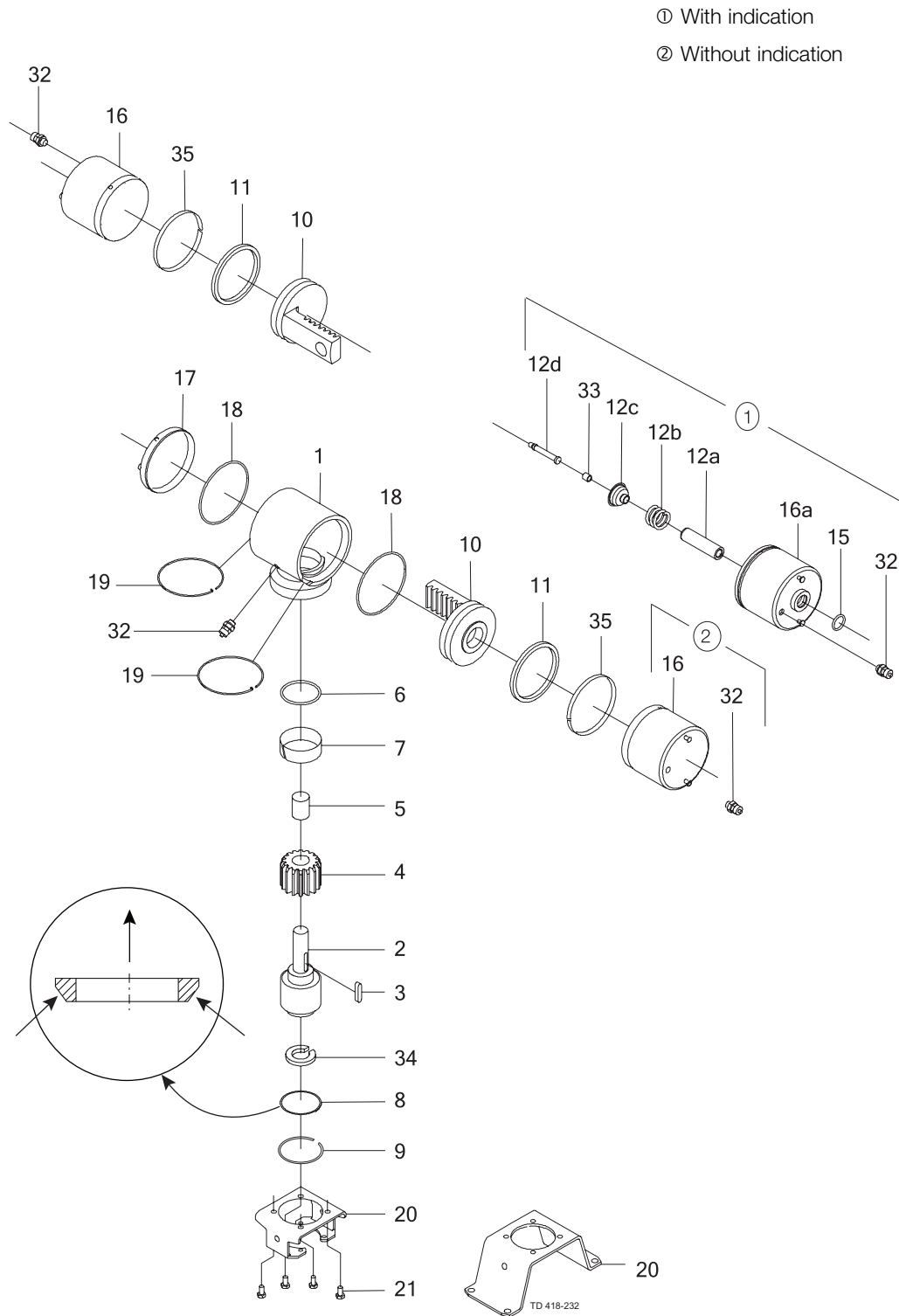
Denomination	With indication 25-51 mm		With indication 63.5-76 mm	
	DN25-50	DN25-50	DN65	DN65
<b>Service kit for actuator (Period 2003-)</b>				
<input type="checkbox"/> Service kit .....	9611924194	9611924195	9611924196	9611924197
<b>Service kit for actuator (Period -2003)</b>				
<input type="checkbox"/> Service kit .....	9611924175	9611924176	9611924177	9611924178

Parts marked with ☐♦ are included in the service kits  
Recommended spare parts: service kit.

## 7 Parts list and service kits

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

### 7.5 Koltek actuator 632



## 7 Parts list and service kits

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

### Parts list

Pos.	Qty	Denomination
1	1	Chassis
2	1	Spindle
3	1	Wedge
4	1	Gear wheel
5	1	Bearing
6 <input type="checkbox"/>	1	O-ring
7 <input type="checkbox"/>	1	Guide ring
8 <input type="checkbox"/>	1	Bearing
9	1	Lock ring
10	1	Piston
11 <input type="checkbox"/>	1	O-ring
12a	1	Indication stem
12b	1	Spring
12c	1	Screw
12d	1	Extension stem
15 <input type="checkbox"/>	1	O-ring
16	1	Cylinder
16a	1	Cylinder
17	1	Cover
18 <input type="checkbox"/>	2	O-ring
19	2	Lock wire
20	1	Bonnet
21	4	Screw
32	2	Air fitting
33	1	Bush
34	1	Spindle extension (only for MH25)
35 <input type="checkbox"/>	1	Guide ring

### Service kits

Denomination	With indication 25-51 mm		With indication 63.5-76 mm	
	DN25-50	DN25-50	DN65	DN65
<b>Service kit for actuator (Period 2003-)</b>				
<input type="checkbox"/> Service kit .....	9611924194	9611924195	9611924196	9611924197
<b>Service kit for actuator (Period -2003)</b>				
<input type="checkbox"/> Service kit .....	9611924175	9611924176	9611924177	9611924178

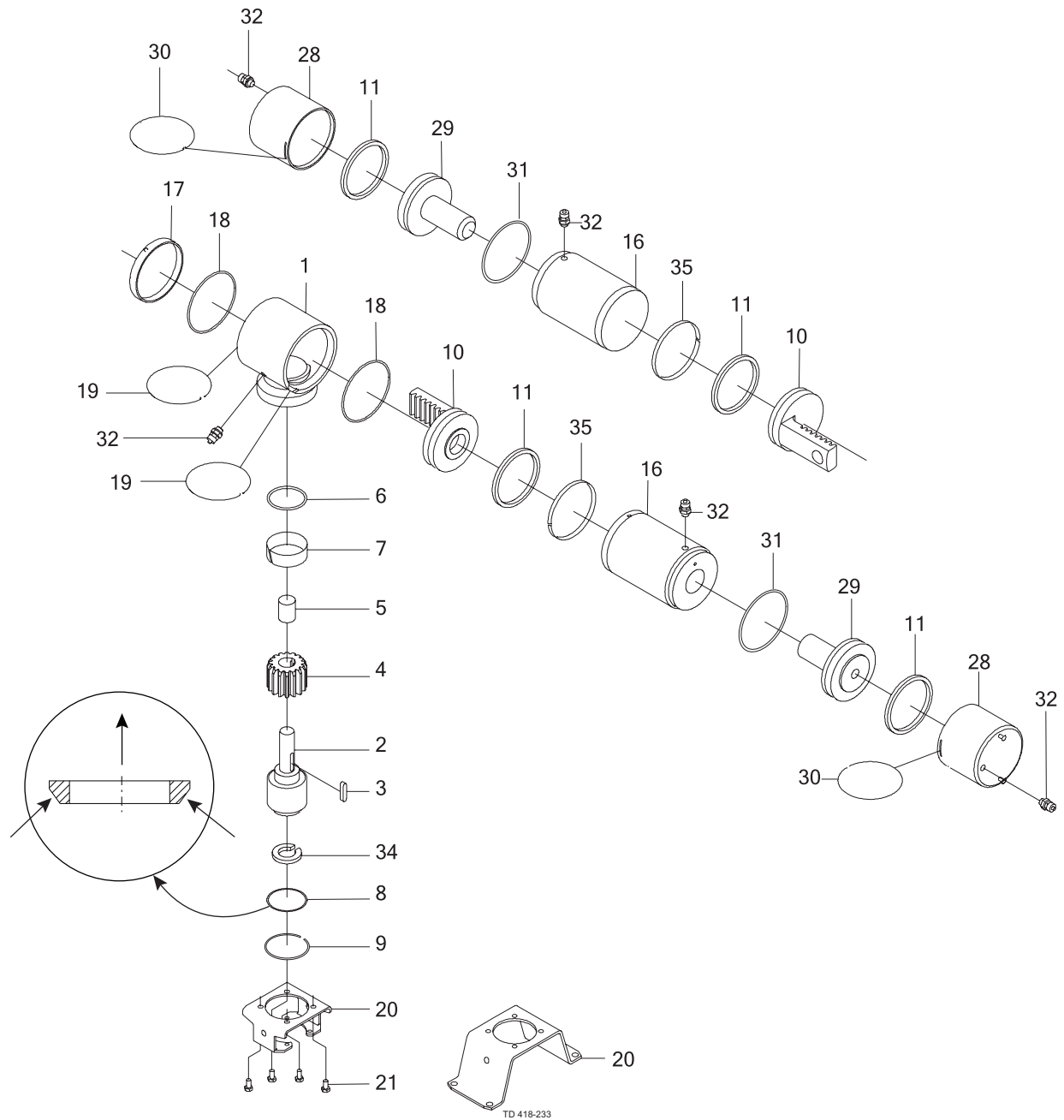
Parts marked with ☐♦ are included in the service kits.

Recommended spare parts: service kit.

## 7 Parts list and service kits

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

### 7.6 Koltek actuator 633



## 7 Parts list and service kits

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

### Parts list

Pos.	Qty	Denomination
1	1	Chassis
2	1	Spindle
3	1	Wedge
4	1	Gear wheel
5	1	Bearing
6 <input type="checkbox"/>	1	O-ring
7 <input type="checkbox"/>	1	Guide ring
8 <input type="checkbox"/>	1	Bearing
9	1	Lock ring
10	1	Piston
11 <input type="checkbox"/>	2	O-ring
16	1	Cylinder
17	1	Cover
18 <input type="checkbox"/>	2	O-ring
19	2	Lock wire
20	1	Bonnet
21	4	Screw
28	1	Auxiliary cylinder
29	1	Auxiliary piston
30	1	Lock wire
31	1	O-ring
32	3	Air fitting
34	1	Spindle extension
35 <input type="checkbox"/>	1	Guide ring

### Service kits

Denomination	25-76 mm DN25-65	101.6 mm DN80-100
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#### Service kit for actuator (Period 2003-)

<input type="checkbox"/> Service kit .....	9611924196	9611924198
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#### Service kit for actuator (Period - 2003)

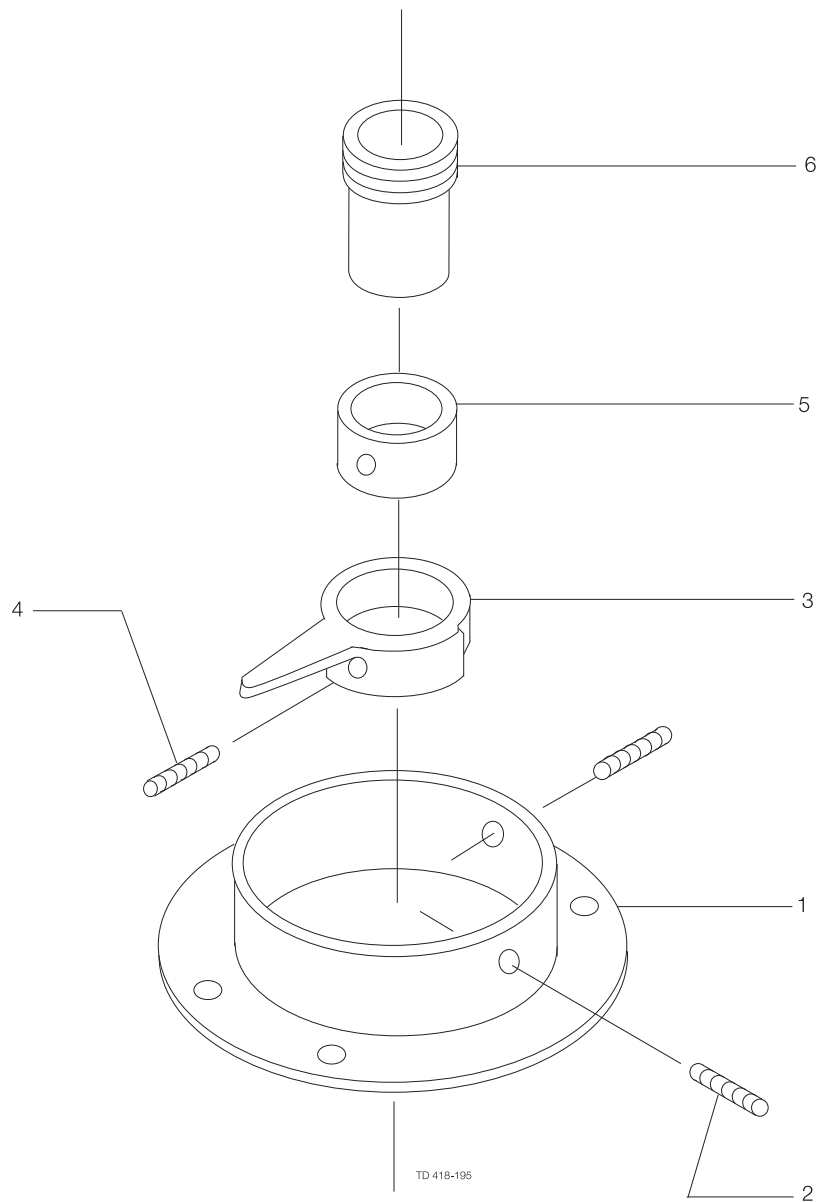
<input type="checkbox"/> Service kit .....	9611924177	9611924180
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Parts marked with ☐♦ are included in the service kits.  
Recommended spare parts: service kit.

## 7 Parts list and service kits

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

### 7.7 Koltek laterally fitted indication





## 7 Parts list and service kits

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

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### Parts list

Pos.	Qty	Denomination
1	1	Mounting bracket
2	2	Screw for mounting bracket
3	1	Indicator
4	1	Screw for indicator
5	1	Bearing
6	1	Safety screw

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