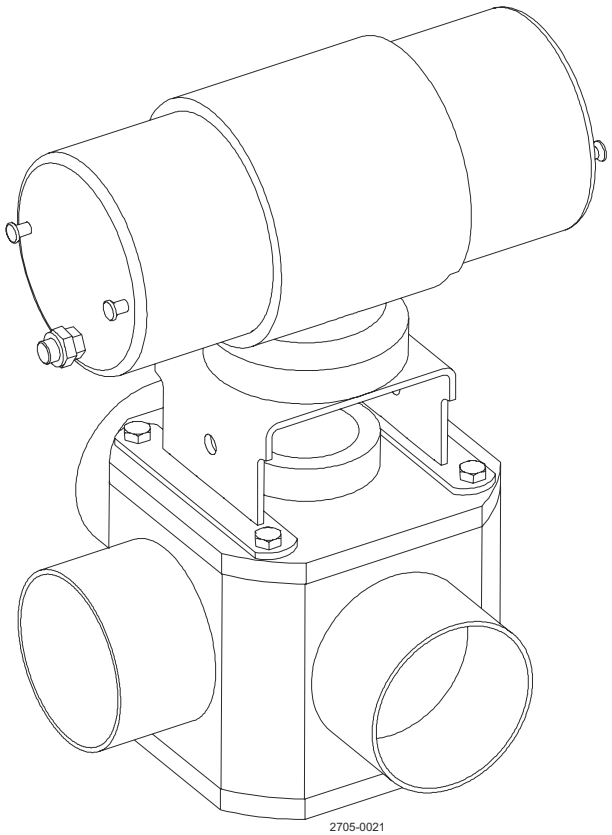
Koltek Valve



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Instruction Manual

BRITISH ENGLISH

Published by
Alfa Laval Kolding A/S
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The original instructions are in English

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1 Declarations of Conformity

1.1 EU Declaration of Conformity

The designated company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Valve actuator

Designation

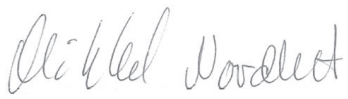
KH

Type

is in conformity with the following directives with amendments:

- Machinery Directive 2006/42/EC
- Pressure Equipment Directive (PED) 2014/68/EU *Diameters ≥ DN125 may not be used for fluids Group 1.*

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

Vice President BU Hygienic Fluid Handling Head of Product Management	Mikkel Nordkvist	
Title	Name	
Kolding, Denmark	2025-07-01	
Place	Date (YYYY-MM-DD)	Signature

DoC Revison_ 01_072025 / This Declaration of Conformity replaces Declaration of Conformity dated 2022-10-01

1.2 UK Declaration of Conformity

The designated company

Alfa Laval Kolding A/S, Albuen 31, DK-6000 Kolding, Denmark, +45 79 32 22 00

Company name, address and phone number

Hereby declare that

Valve actuator

Designation

KH

Type

is in conformity with the following directives with amendments:

- The Supply of Machinery (Safety) Regulations 2008
- The Pressure Equipment (Safety) Regulations 2016 *Diameters ≥ DN125 may not be used for fluids Group 1.*

Signed on behalf of: Alfa Laval Kolding A/S.

Vice President BU Hygienic Fluid Handling Head of Product Management	Mikkel Nordkvist
Title	Name
Kolding, Denmark	2025-07-01
Place	Date (YYYY-MM-DD)

Signature

DoC Revison_ 02_072025

2 Safety

Read this first

This Instruction Manual is designed for operators and service engineers working with the supplied Alfa Laval product.

Operators must read and understand the ***Safety, Installation and Operating*** instructions of the supplied Alfa Laval product before carrying out any work or before you put the supplied Alfa Laval product into service!

Not following the instructions can result in serious accidents.

This documentation describes the authorized way to use the supplied Alfa Laval product. Alfa Laval will take no responsibility for injury or damage if the equipment is used in any other way.

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

The operator shall always read the chapter ***Safety*** first. Hereafter the operator can skip to the relevant section for the task to be carried out or for the information needed.

Always read the chapter ***Technical Data*** thoroughly.

This is the complete Instruction Manual for the supplied Alfa Laval product.

NOTE

The illustrations and specifications in this Instruction Manual were effective at the date of printing. However, as continuous improvements are our policy, we reserve the right to alter or modify the Instruction Manual without prior notice or any obligation.

The English version of the Instruction Manual is the original manual. Alfa Laval cannot be held responsible for incorrect translations. In case of doubt, the English version applies.

2.1 Safety Signs

Mandatory Action Signs

	General mandatory action sign.
	Refer to instruction manual.
	Use eye protection - safety glasses.
	Use protective hand wear - safety gloves.
	Wear protective equipment - safety helmet.
	Use ear protection in noisy environments - noise protector.
	Wear protective equipment - safety shoes.

Warning Signs

	General warning.
	Transportation with forklift truck or other industrial vehicles if heavy.
	Hot surface and burning danger.
	Cutting danger.
	Corrosive substance.
	Crushing of hands.

2.2 Safety Precautions

All warnings in the Instruction Manual are summarised on these pages. Pay special attention to the instructions below so that severe personal injury and/or damage to the supplied Alfa Laval product is avoided.

General

	To prevent unexpected start and contact with electrical live and moving parts. **Always** disconnect the power supply and air supply safely: • The power supply disconnecting device and air supply must be disconnected (in off position) and locked.

Transportation and Lifting

	**Never** lift or elevate in any way other than described in this manual. **Always** use the original packaging or similar during transportation. **Always** ensure that personnel must have experience with lifting operations. **Always** ensure that all connections are disconnected before attempting to remove the valve from the installation. **Always** ensure that no leakage of lubricants can occur. **Always** drain liquid out of the valves before transportation. **Always** ensure sufficient fixing of the valve during transportation - if specially designed packaging material is available, it must be used. **Always** ensure that compressed air is released.
	**Always** use designated lifting points if defined. Ensure that the lifting equipment is suitable for the supplied Alfa Laval product. **Always** ensure that the unit is securely fixed during transportation. **Always** ensure the lifting point to be in line with center of gravity. Adjust lifting point if necessary. **Always** use suitable transport device ie. forklift or pallet lifter. **Always** use appropriate lifting equipment for heavy parts when relevant. Use lifting logs when available. **Always** keep an eye on the load and stay clear during the lifting operation.

Installation

	If the local safety regulations prescribe that the installation has to be inspected and approved by responsible authorities before the valve is put into service, consult with such authorities before installing the equipment and have the projected installation approved by them. **Always** release compressed air after use. **Always** assemble the valve completely before startup and make sure everything is in place and correctly tightened.
	**Always** ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before installation, inspection, assembly, or dismantling of the valve.

Operation

	**Never** operate the valve unless a correct installation has been verified. **Never** dismantle the valve during operation or when pressurized.
	**Never** touch the valve or pipelines when hot. **Never** touch the valve or the pipelines when processing hot liquids or when sterilising.
	**Always** rinse well with clean water after cleaning. **Always** handle lye and acid with great care. **Always** follow the instructions in the safety data sheets from the suppliers of cleaning agents, detergents, oils etc.
	**Never** touch moving parts of the valve during operation. **Always** release compressed air after use.

Maintenance

In order to optimise the operation of the supplied Alfa Laval product and to minimize the down time due repair activities, the maintenance includes:

- Inspection and maintenance of the supplied Alfa Laval product: strictly follow the technical documentation
- **Preventive maintenance:** visual inspection of the supplied Alfa Laval product followed by necessary adjustments and planned periodic replacement of wear and tear parts
- **Repairs:** unscheduled break down of a component, often causing the system to stop. Damaged components must be replaced
- **Stock of Alfa Laval genuine spare parts:** Alfa Laval recommend keeping a stock of genuine spare parts facilitating preventive maintenance and reducing downtime in case of unplanned break downs

Always release compressed air after use.

Always ensure that the valve and pipelines are depressurized, emptied, and cooled down to ambient temperature before dismantling the valve.

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

Storage

Alfa Laval recommend:

- Store the supplied Alfa Laval product as supplied in original packaging
- Port opening(s) should be protected against any ingress
- Store in a clean, dry place without direct sunlight or UV light
- Temperature range -5 °C to +40 °C (23 °F - 104 °F)
- Relative humidity less than 60%
- No exposure to corrosive substances (including contained air)

Noise

Under certain operating conditions, the supplied Alfa Laval product and/or the systems in which they are installed can produce high sound pressure levels. Appropriate noise protection measures should be taken when necessary and in accordance with local legislation.

Hazards

Burn Hazard

- Lubrication oil, machine parts and various machine surfaces can be hot and cause burns. Wear protective gloves

Corrosive Hazard

- Always handle cleaning liquids, lye and acid with great care and in accordance with separate instructions for those fluids
- When using chemical cleaning agents and lubricants, make sure you follow the general rules and suppliers recommendation regarding ventilation, personnel protection etc.

Cut Hazard

- Sharp edges, especially on threads, can cause cuts. Wear protective gloves

Crushing Hazard

- Avoid placing hands into valve orifice pinch points

Safety check

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

Inspection acceptance criteria:

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

Procedure in case of non-acceptance:

- Fix and/or replace the protective device

2.3 Warning Signs in Text

Pay attention to the safety instructions in this Instruction Manual.

Below are definitions of the four grades of warning signs used in the text where there is a risk for injury to personnel or damage to the supplied Alfa Laval product.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate damage to the supplied Alfa Laval product.

NOTE

Indicates important information to simplify or clarify procedures.

2.4 Requirements of Personnel

Operators

The operators shall read and understand this Instruction Manual.

Maintenance personnel

The maintenance personnel shall read and understand this Instruction Manual. The maintenance personnel or technicians shall be skilled within the field required to carry out the maintenance work safely.

Trainees

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

People in general

The public shall not have access to the supplied Alfa Laval product.

In some cases, specially skilled personnel may need to be hired (i.e. electricians, welders). In some cases the personnel has to be certified according to local regulations with experience of similar types of work.

2.5 Recycling Information

Unpacking

Packing material may consist 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 (if used) and wear parts in the supplied Alfa Laval product should be replaced.

- Oil and all non-metal wear parts must be disposed of in accordance with local regulations
- Rubber and plastics should be burnt at a licensed waste incineration plant. If not available they should be disposed of in accordance with local regulations
- Bearings and other metal parts should be sent to a licensed handler for material recycling
- Seal rings and friction linings should be disposed of to a licensed land fill site. Check your local regulations
- All metal parts should be sent for material recycling
- Worn out or defected electronic parts should be sent to a licensed handler for material recycling

Scrapping

At end of use, the equipment must be recycled in accordance with 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.

How to contact Alfa Laval

Contact details for all countries are continually updated on our website.

Please visit *www.alfalaval.com* to access the information directly.

3 Introduction

The Alfa Laval Koltek Valve can be either manually or pneumatically operated. The valve is suitable for use with products that are highly viscous, contain large particles, or have strict requirements to minimize pressure loss.

3.1 General information

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.

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4 Installation

4.1 Unpacking/delivery/general installation

NOTE

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.

CAUTION

The valve is delivered with the shutter loosened. Always adjust the shutter before installation and operation of the valve (see special instructions under *Shutter adjustment* on page 46)!

CAUTION

Alfa Laval cannot be held responsible for incorrect unpacking.

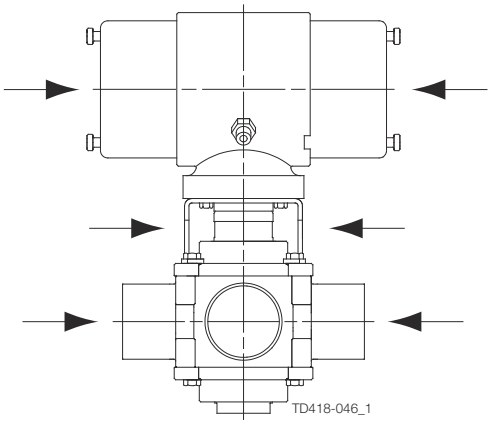
Check the delivery:

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

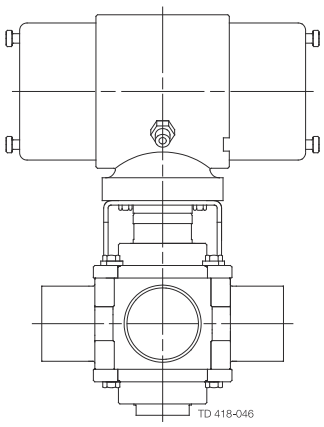
1

a) Remove possible packaging materials from valve/valve ports

b) Avoid damaging the valve/valve ports



2 Inspect the valve for visible transport damage.



4.2 General installation

NOTE

Study the instructions thoroughly 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.

Always read *Technical Data* on page 49 thoroughly.

WARNING

Always release compressed air after use.

CAUTION

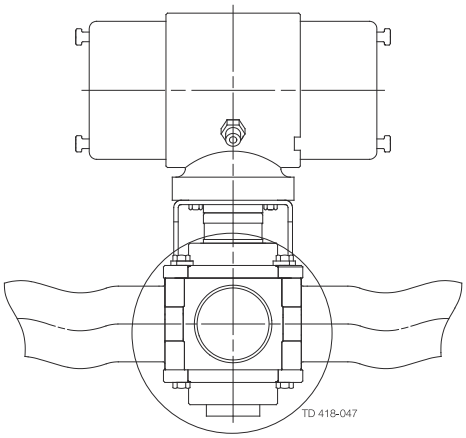
Alfa Laval cannot be held responsible for incorrect installation.

Avoid stress to the valve.

Pay special attention to:

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

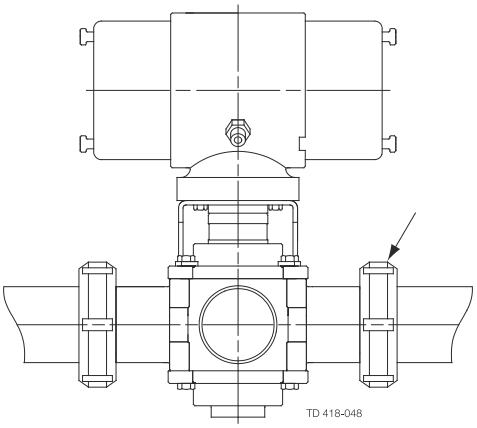
Pay special attention to warnings!



Fittings:

Ensure that the connections are tight.

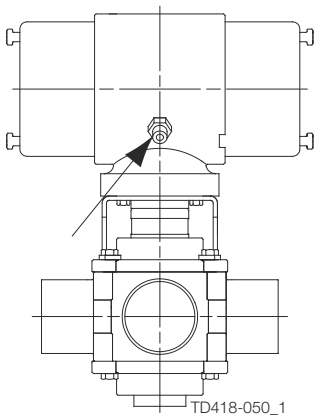
Pay special attention to warnings!



Air connection:

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

Pay special attention to warnings!



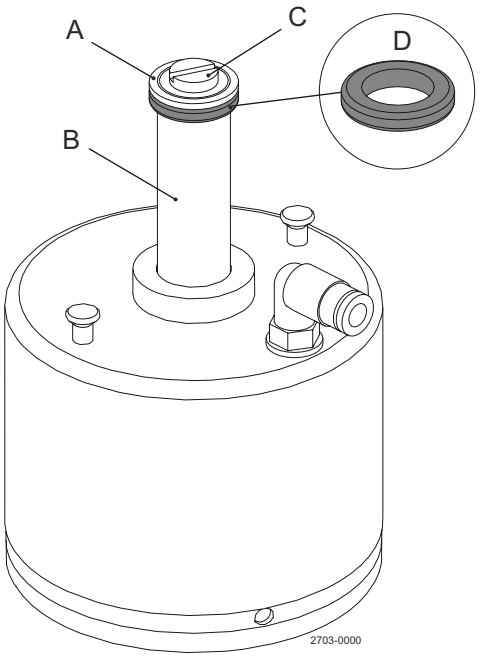
IMPORTANT NOTE REGARDING INDICATION STOP RING KH ACTUATOR 632!

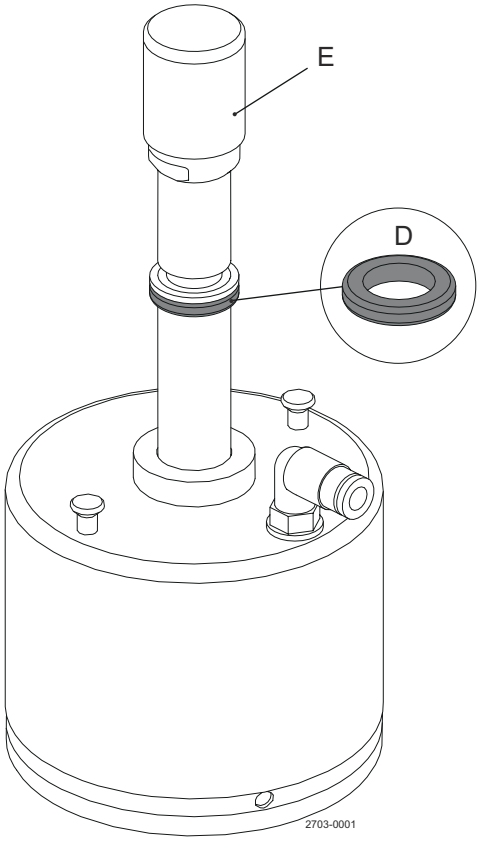
When unpacking the KH actuator type 632, please be aware of the following: An “indication stop ring”, a transportation lock plate, and a screw are mounted on top of the actuator indication ring.

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®





4.3 Welding

NOTE

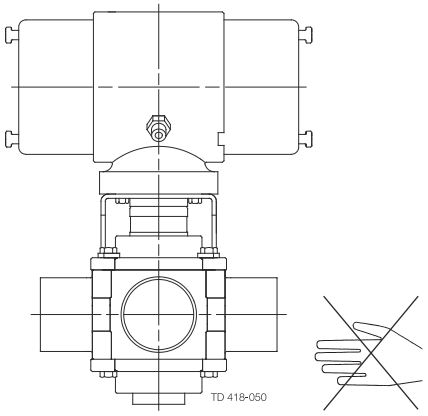
Study the instructions thoroughly and pay special attention to the warnings!

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.

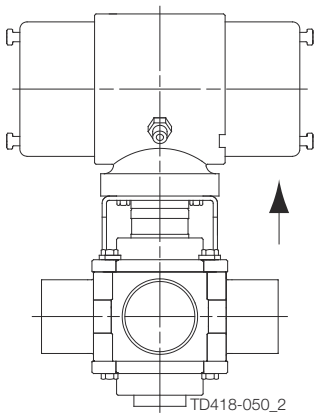
WARNING **Danger of cuts!**

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

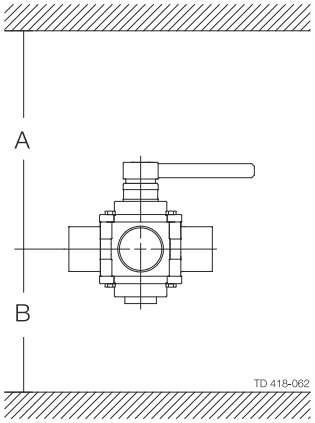


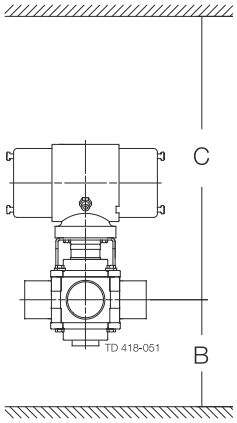
Dismantle the valve in accordance with the instructions in *Dismantling the valve* on page 33.

Pay special attention to the warnings!



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



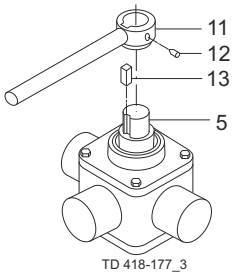


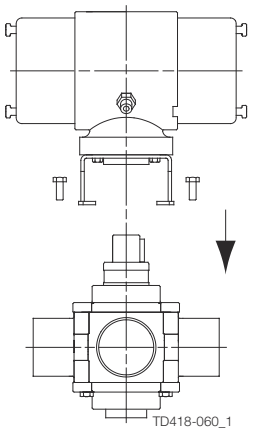
Valve size	A	B	C
25 mm/DN25	144	142	214
38 mm/DN40	193	186	263
51 mm/DN50	209	202	279
63.5 mm/DN65	234	230	304
76.1 mm/DN65 welded	264	265	334
DN80	325	343	395
101.6 mm/DN100	355	273	425

After welding, reassemble the valve in accordance with the instructions in *Valve assembly* on page 34.

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!



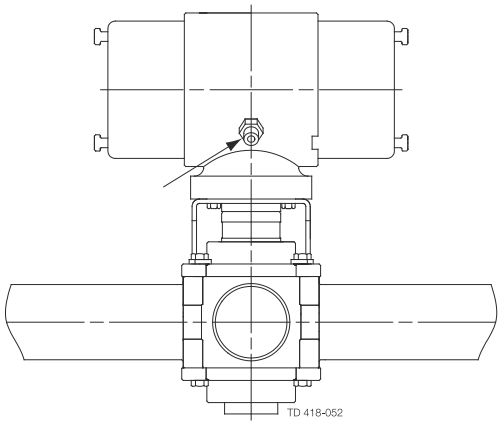


CAUTION **Adjust the shutter before operating the valve!**

1. Supply compressed air to the air fitting(s).

2. Operate the valve to ensure that it runs smoothy (see *Valve assembly* on page 34, step 7 to 9).

Pay special attention to the warnings!



5 Operation

5.1 Operation

NOTE

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

Ensure that the valve operates smoothly.

Always read *Technical Data* on page 49 thoroughly.

WARNING

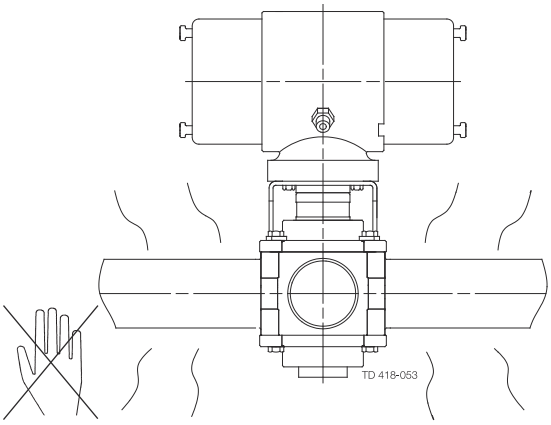
Always release compressed air after use.

CAUTION

Alfa Laval cannot be held responsible for incorrect operation.

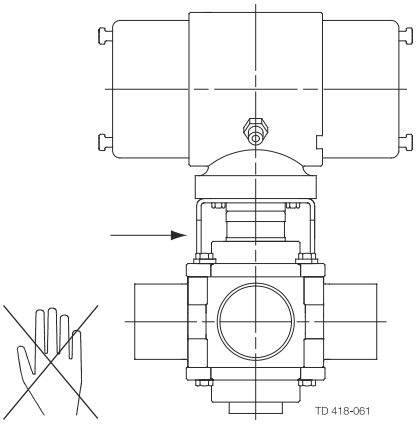
WARNING **Danger of burns!**

Never touch the valve or the pipelines when sterilising.



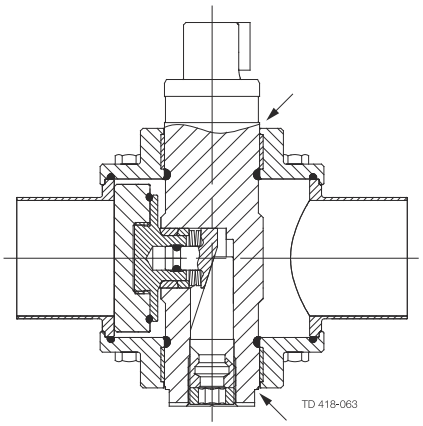
WARNING **Moving parts!**

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



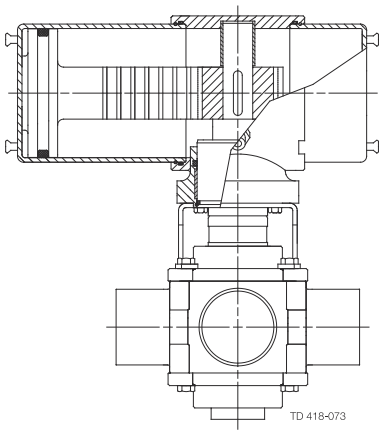
Lubrication of valve:

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



Lubrication of actuator:

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



5.2 Fault finding

NOTE

Pay attention to possible break-down.

Study the instructions thoroughly.

NC = Normally closed.

NO = Normally open.

Study the instructions in *Maintenance* on page 31 thoroughly before replacing worn parts.

Problem	Cause/result	Remedy
The shutter jerks	The shutter needs adjustment Worn shutter Compressed cup springs	Adjust the shutter (see *Shutter adjustment* on page 46) 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 *Shutter adjustment* on page 46) 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

5.3 Recommended cleaning

NOTE

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

NaOH = Caustic soda.

HNO_3= Nitric acid.

CAUTION **Caustic danger!**

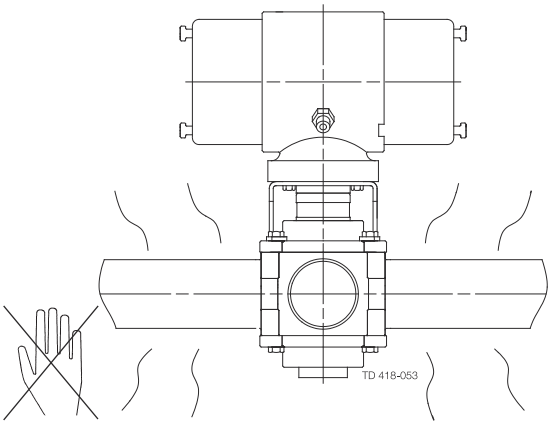
Always handle lye and acid with great care.

Always use rubber gloves!

Always use protective goggles!

WARNING **Danger of burns!**

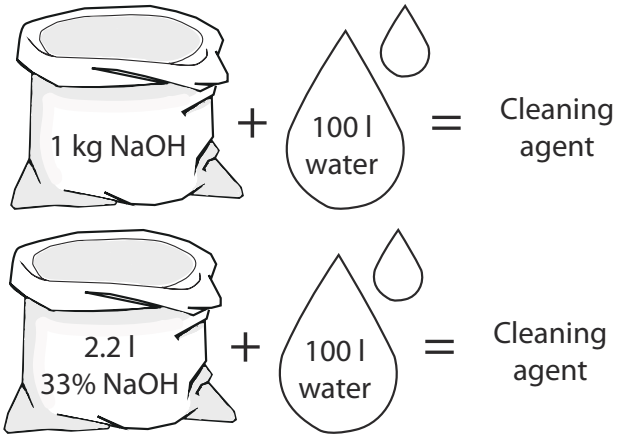
Never touch the valve or the pipelines when sterilising.



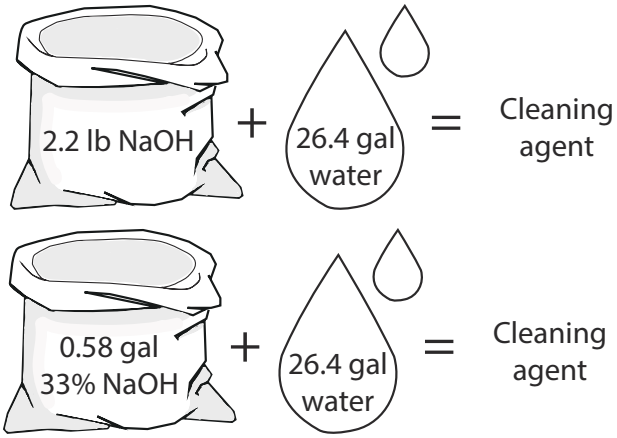
Examples of cleaning agents:

Use clean water, free from clorides.

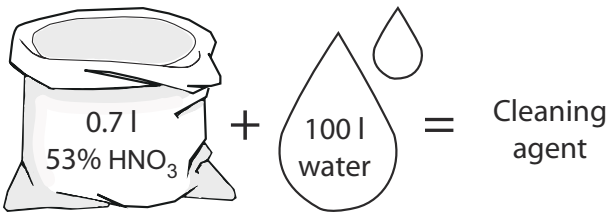
1. 1% by weight NaOH at 70°C



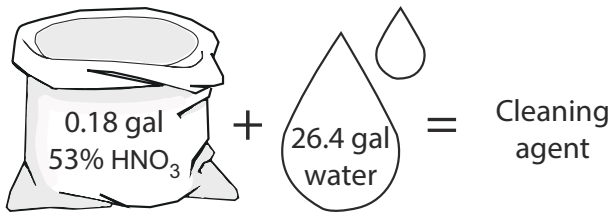
1. 1% by weight NaOH at 158°F



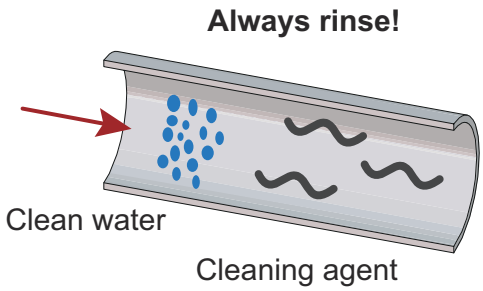
2. 0.5% by weight HNO_3 at 70°C



2. 0.5% by weight HNO_3 at 158°F



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



CAUTION

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

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6 Maintenance

6.1 General maintenance

NOTE

Maintain the valve and the actuator with care.

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

Always keep service kits in stock.

Always read *Technical Data* on page 49 thoroughly.

WARNING

Always release compressed air after use.

NOTE

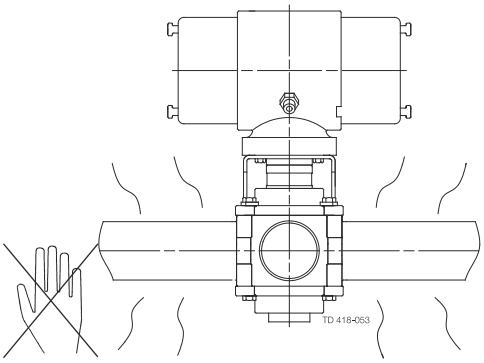
All scrap must be stored/disposed of in accordance with current regulations/ directives.

WARNING **Danger of burns!**

Never service the valve when it is hot.

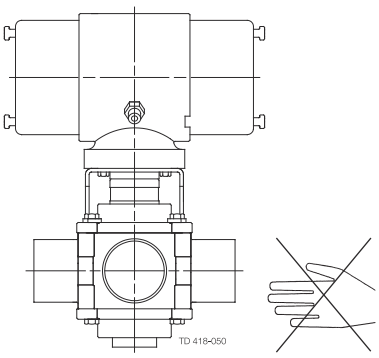
Never service the valve with valve and pipelines under pressure.

Atmospheric pressure required!



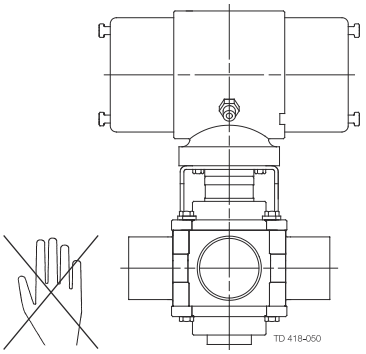
WARNING **Danger of cuts!**

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



WARNING **Moving parts!**

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



Recommended spare parts:

	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	• Regular inspection for leakage and smooth operation • Keep a record of the valve • Use the statistics for inspection planning	• Regular inspection for wear and smooth operation	• Regular inspection for leakage and smooth operation • Keep a record of the valve • Use the statistics for planning of inspections
Lubrication	**Before fitting:** Silicone oil or silicone grease (USDA H1 approved oil/ grease)		**Before fitting:** Oil or grease

Pre-use check:

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

Pay special attention to the warnings!

6.2 Dismantling the valve

NOTE

Study the instructions thoroughly.

The items refer to *Parts Lists and Exploded Views* on page 53.

Handle scrap correctly.

A/A = Air/air activated.

WARNING

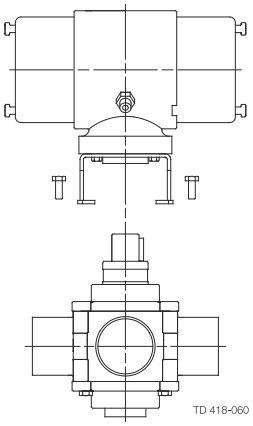
Never dismantle the valve with valve and pipelines under pressure.

1 **Air-operated valve:**

a) Loosen and remove screws (1)

b) Lift out the actuator and bonnet from the valve

c) Remove top lid (2) from valve body (7)

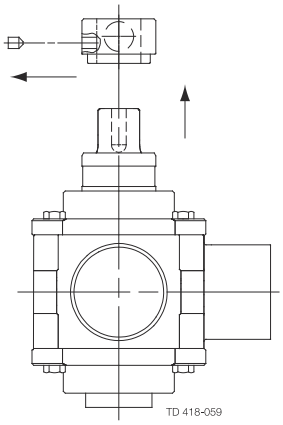


2 **Manually operated valve:**

a) Loosen the screw in handle (11)

b) Remove the handle from shaft (5)

c) Loosen and remove screws (1) and top lid (2) from valve body (7)

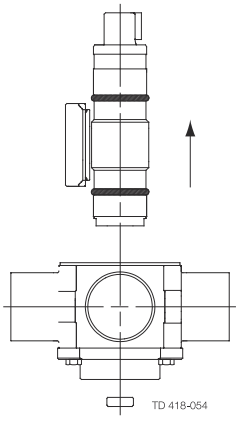


3

a) Loosen safety screw (9) and tightening device (8)

b) Pull out shaft (5) with shutter unit (6) from the valve body

c) Loosen and remove screws (1) and bottom lid (2) from the valve body (if needed)

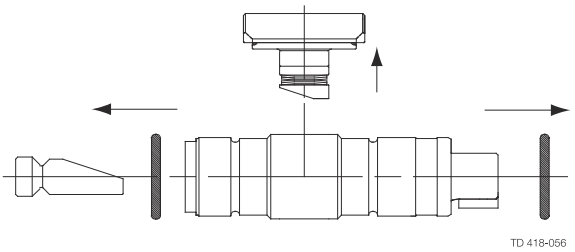


4

a) Pull out shutter unit (6) from shaft (5)

b) Remove tightening device (8) from shaft (5) (if necessary)

c) Pull off O-rings (4) from shaft (5)

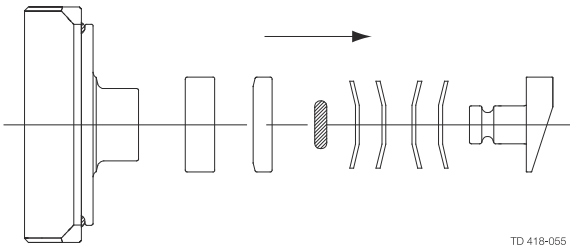


5

a) Pull out adjustment key (6d) from the shutter

b) Remove support ring (6c) and seal ring (6b) from shutter (6a)

c) Pull off O-ring (6f) and cup springs (6e) from the adjustment key

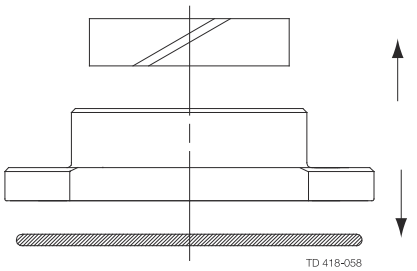


NOTE

When replacing the shutter, replace the entire shutter unit.

6

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



6.3 Valve assembly

NOTE

Study the instructions thoroughly.

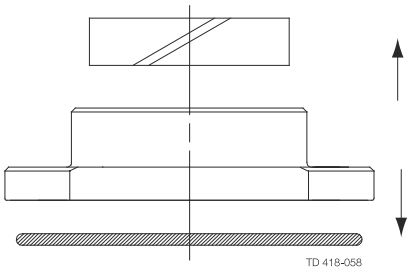
The items refer to *Parts Lists and Exploded Views* on page 53.

Handle scrap correctly.

A/A = Air/air activated.

1

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



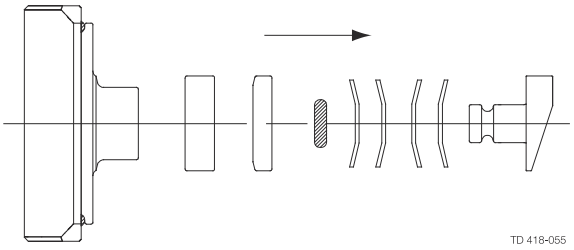
2

a) Ensure that seal ring (6b) and support ring (6c) are fitted on shutter (6a)

b) Slide cup springs (6e) onto adjustment key (6d) - observe position!

c) Slide O-ring (6f) onto the adjustment key

d) Push the adjustment key (6d) into shutter (6a)



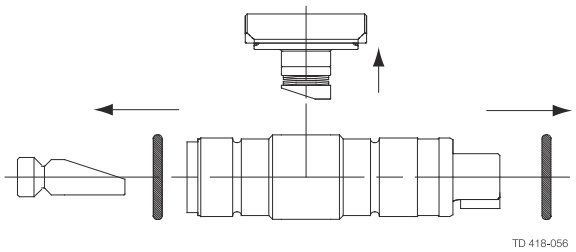
3

a) Slide O-rings (4) onto shaft (5)

b) Push shutter unit (6) into shaft (5)

c) Ensure that the sloping surfaces of tightening device (8) and adjustment key (6d) make contact (lubricate)

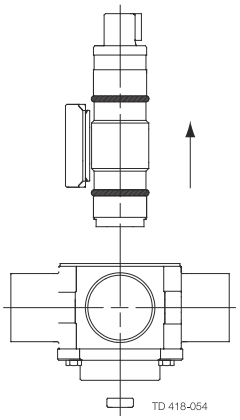
d) Screw tightening device (8) lightly into shaft (5) (lubricate)



4

a) Fit bottom lid (2) on valve body (7) and tighten screws (1) (if dismantled)

b) Slide shaft (5) with shutter unit (6) into the valve body



5

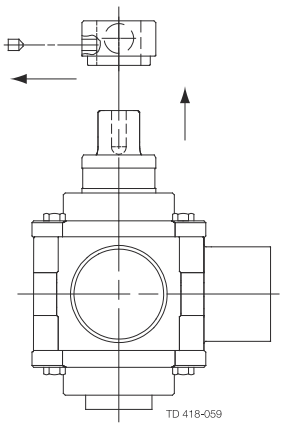
Manually operated valve:

a) Fit top lid (2) on the valve body (7) and tighten screws (1)

b) Adjust the tightness of the shutter according to the procedure in *Shutter adjustment* on page 46

c) Fasten safety screw (9) after shutter adjustment

d) Fit handle (11) on shaft (5) with wedge (10) and tighten the screw (12)

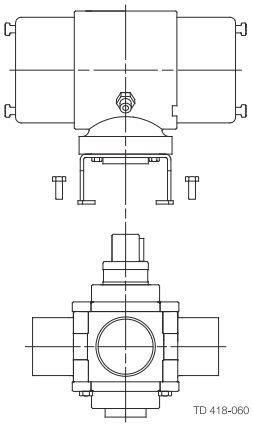


6 **Air-operated valve:**

a) Fit top lid (2) and bonnet (20) on valve body (7) and tighten screws (1)

b) Adjust the tightness of the shutter according to the procedure in *Shutter adjustment* on page 46

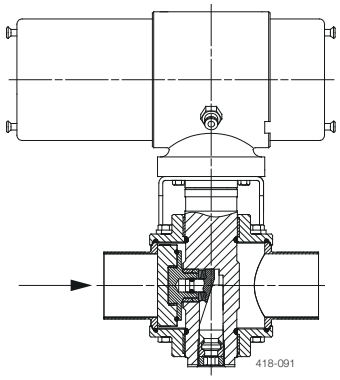
c) Fasten safety screw (9) after shutter adjustment



7 **Air-operated valve:**

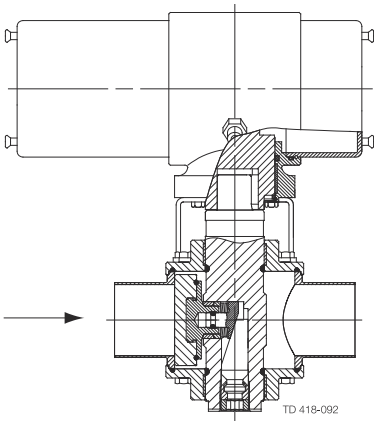
a) Check that the shutter unit exactly covers the correct outlet

b) Check that the position of the actuator fits the position of the shutter unit



8 **Air-operated valve:**

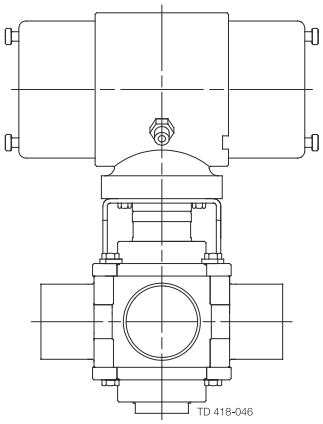
Check that the position of the actuator fits the position of the shutter unit



9 a) Check that the shutter opens/closes correctly

b) Check the valve for smooth operation after assembly

Pay special attention to the warnings!



6.4 Dismantling of actuator, type 631/632

NOTE

Study the instructions thoroughly.

The items refer to *Koltek actuator 631* on page 57 and *Koltek actuator 632* on page 59.

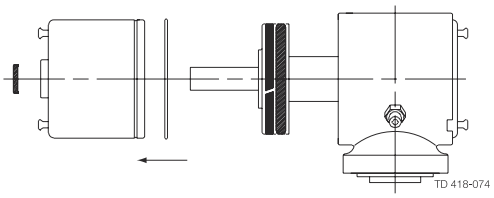
Handle scrap correctly.

1

a) 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)

b) Remove the cylinder from chassis (1)

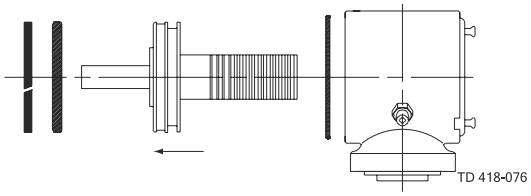
c) Pull out O-ring (15) from cylinder (16a) (only with indication) (only remove cylinder (17) if damaged)



2

a) Pull out piston (10) from chassis (1). (For sizes 89-101.6 mm/DN80-100: both pistons)

b) 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)

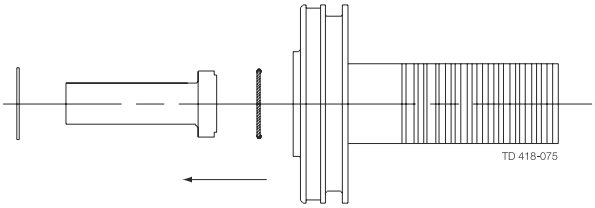


3 **Only cylinders with indication:**

a) Remove circlip (14) from piston (10)

b) Take out indication stem (12) from the piston

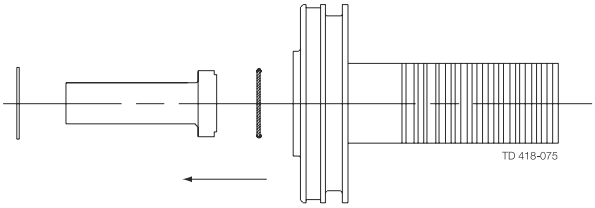
c) Pull off O-ring (13) from the indication stem



4

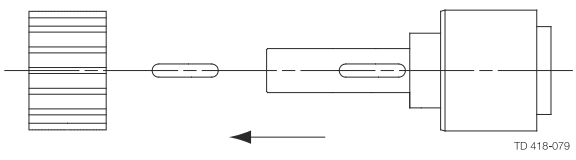
a) Remove lock ring (9) and bearing (8) from chassis (1)

b) Pull out spindle (2) from the chassis/ piston



5

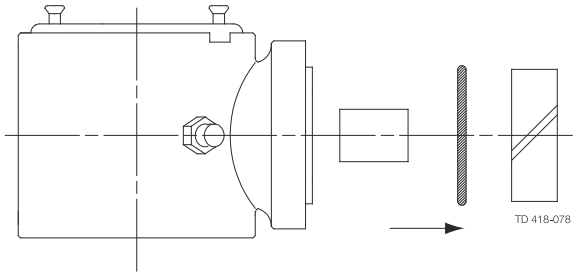
Remove gear wheel (4) and wedge (3) from spindle (2)



6

a) Pull out guide ring (7), O-ring (6) and bearing (5) from chassis (1)

b) Tap the bearing loose with a rubber hammer, if necessary



6.5 Dismantling of actuator, type 630

NOTE

Study the instructions thoroughly.

The items refer to *Koltek actuator 630* on page 55.

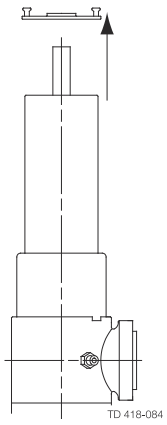
The auxiliary equipment is not supplied by Alfa Laval. Lubricate all O-rings with silicone oil or similar before assembly.

1

For sizes 63.5-76.1 mm/DN65 with indication:

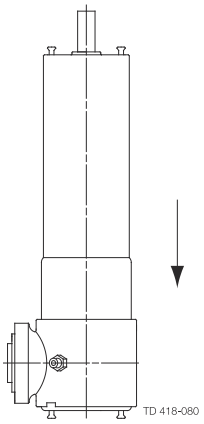
a) Loosen and remove screws (26a) and cylinder lid (26)

b) Place chassis/cylinders (1/16, 17) in the auxiliary equipment



2

Position the auxiliary equipment with chassis/ cylinder in a press

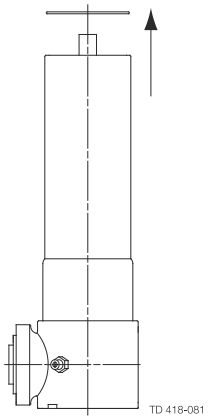


3

a) Press flange (24) into cylinder (16) using the press (for actuator with indication: flange (24) is replaced by flange (25))

b) Remove lock wire (23) from the cylinder

c) Remove the flange



4

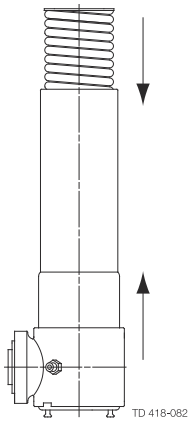
Position the auxiliary equipment with chassis/ cylinder in a press.

a) Remove chassis/cylinder (1/16, 17) from the auxiliary equipment

b) Take out spring (22) from the cylinder

NOTE

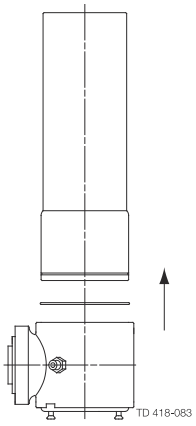
For sizes 63.5-76.1 mm/DN65, steps 1 to 4 in this chapter are repeated.



5

a) Turn cylinder (16) anticlockwise to unhook lock wire (19). Use a strapping tool to turn the cylinder

b) Remove the cylinder from chassis (1)



6

Continue the dismantling by following *Dismantling of actuator, type 631/632* on page 37, step 2 to 6.

6.6 Dismantling of actuator, type 633

NOTE

Study the instructions thoroughly.

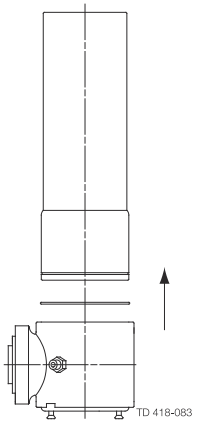
The items refer to *Koltek actuator 633* on page 61.

Handle scrap correctly.

1

a) Turn auxiliary cylinder (28) anticlockwise to unhook lock wire (31)

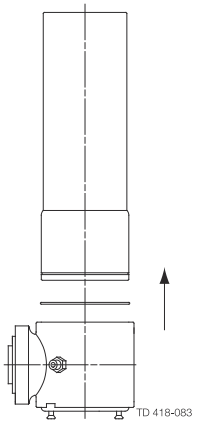
b) Remove the auxiliary cylinder from cylinder (16)



2

a) Pull out auxiliary piston (29) from cylinder (16)

b) Pull off O-rings (11) from the auxiliary piston

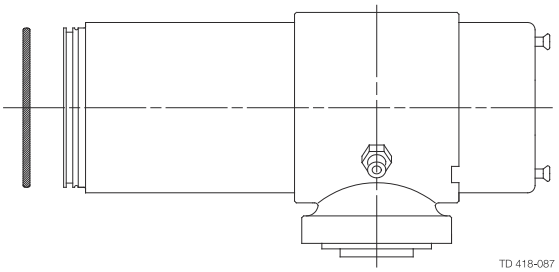


3

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

NOTE

For sizes 101.6 mm/DN80-100, steps 1 to 3 on this page are repeated

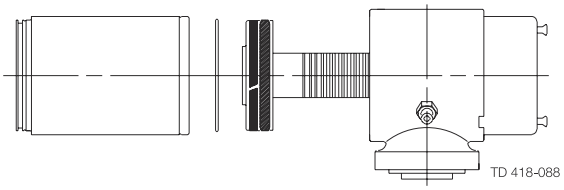


4

a) Turn cylinder (16) anticlockwise to unhook lock wire (19). Use a strapping tool to turn the cylinder

b) Remove the cylinder from chassis (1)

c) Repeat this procedure for cylinder (17), if necessary



Continue the dismantling by following *Dismantling of actuator, type 631/632* on page 37, step 2 to 6.

6.7 Reassembly of actuator, type 631/632

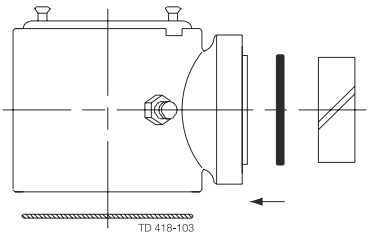
NOTE

Study the instructions thoroughly.

The items refer to *Koltek actuator 631* on page 57 and *Koltek actuator 632* on page 59.

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

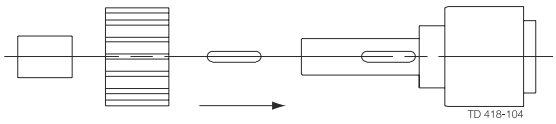
1 Fit guide ring (7) and O-rings (6,18) in chassis (1)



2

a) Fit wedge (3), gear wheel (4) and bearing (5) on spindle (2) (lubricate)

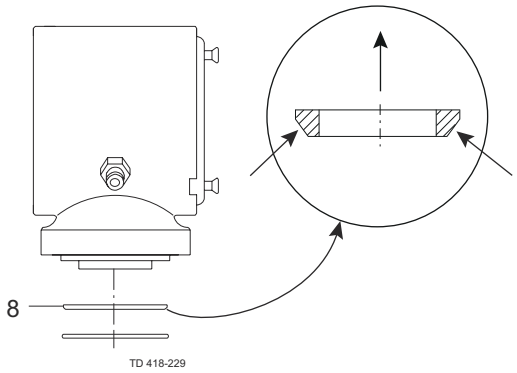
b) Guide/work the spindle into the chassis



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

CAUTION

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



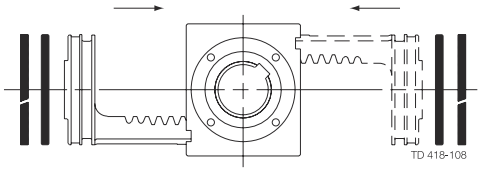
4

a) Adjust spindle (2) so that the notch has a 45-degree angle to pistons (10)

b) Position the piston(s) along the opposite inner sides of chassis (1) (lubricate teeth on piston(s) with grease type Longterm + 2)

c) 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))

d) Slide O-ring(s) (11) onto the piston(s)



5

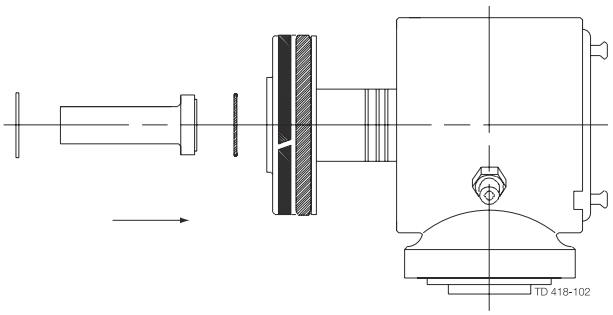
Only with indication:

a) Slide O-ring (13) onto indication stem (12)

b) Fit the indication stem in piston (10)

c) Fit circlip (14) in the piston

d) Fit O-ring (15) in cylinder (16a)

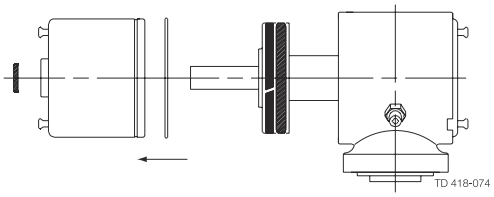


6

Only with indication:

a) Fit cylinders (16/17) in the chassis (the notch in the chassis must be aligned with the dent in each cylinder)

b) 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)



6.8 Reassembly of actuator, type 630

NOTE

Study the instructions thoroughly.

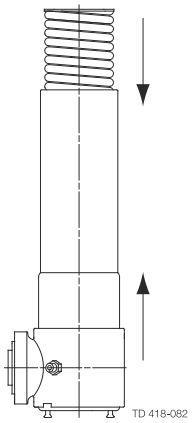
The items refer to *Koltek actuator 630* on page 55.

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

1

a) Assemble the actuator by following *Shutter adjustment* on page 46. Then proceed by following the steps on this page

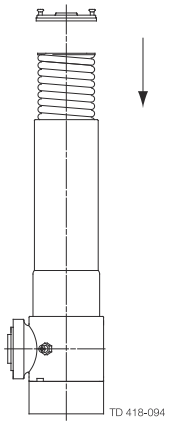
b) Place chassis/cylinder (1/17) in auxiliary equipment with mounted cylinder downwards. Fit spring (22) in the middle of cylinder (16) so that it does not contact the inner surface



2

a) Place the auxiliary equipment with the cylinders in a press

b) Fit flange (24) on the middle of spring (22)

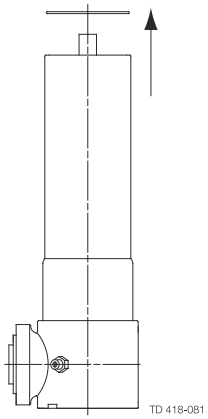


3

a) Press flange (24) into cylinder (16)

b) Fit lock wire (23) in the cylinder

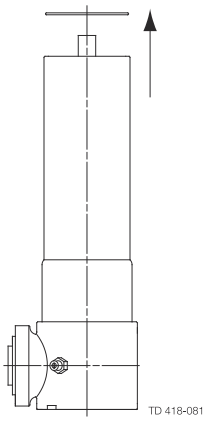
c) Remove the actuator from the press. (For sizes 63.5-76.1 mm/DN65, steps 1 to 3 are repeated)



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)



6.9 Reassembly of actuator, type 633

NOTE

Study the instructions thoroughly.

The items refer to *Koltek actuator 633* on page 61.

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

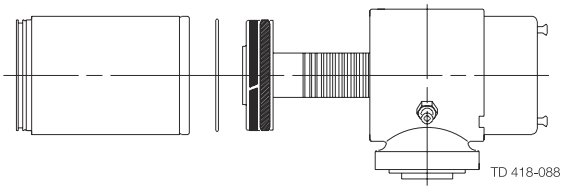
1 **Only with indication:**

Assemble the actuator by following step 1 to 3 in *Reassembly of actuator, type 631/632* on page 41. Then proceed by following the steps on this page.

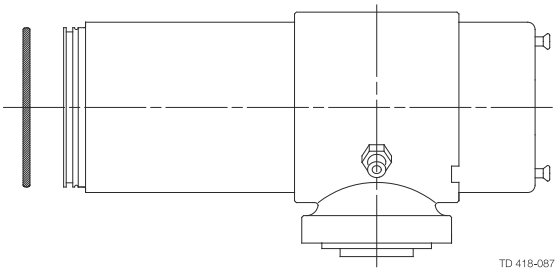
a) Fit cylinder (16) in chassis (1) (the notch in the chassis must be aligned with the dent in the cylinder)

b) Hook in lock wire (19) and turn the cylinder clockwise until the end of the lock wire slips into the notch in the chassis

c) Fasten cylinder (17) to the chassis the same way (if dismantled)



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

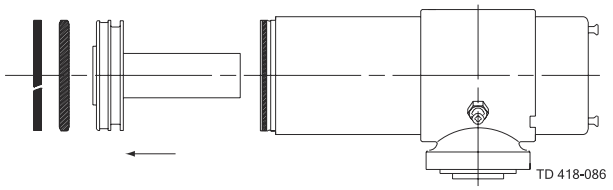


3 **Only with indication:**

Assemble the actuator by following step 1 to 3 in *Reassembly of actuator, type 631/632* on page 41. Then proceed by following the steps on this page.

a) Fit O-ring (11) on auxiliary piston (29)

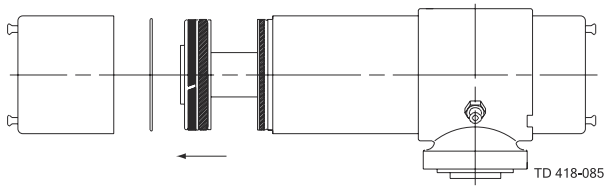
b) Guide the auxiliary piston into cylinder (16)



4

a) Fit auxiliary cylinder (28) on cylinder (16)

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

6.10 Dismantling/reassembly of special indication units

NOTE

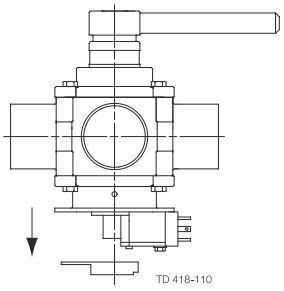
Study the instructions thoroughly.

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

1 **Dismantling - laterally fitted indication:**

a) Loosen the screw in the indicator

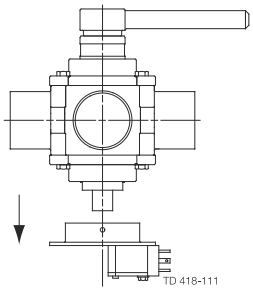
b) Pull off the indicator



2 **Dismantling - laterally fitted indication:**

a) Loosen the screw(s) in the mounting bracket

b) Remove the mounting bracket



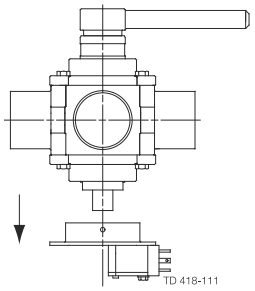
NOTE

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

3 **Assembly - laterally fitted indication:**

a) Fit the mounting bracket on the valve

b) Tighten the screw(s) in the mounting bracket



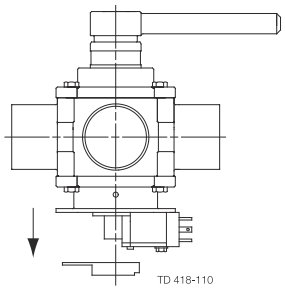
NOTE

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

4 **Reassembly - laterally fitted indication:**

a) Fit the indicator

b) 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.

6.11 Shutter adjustment

NOTE

Study the instructions thoroughly.

The items refer to *Parts Lists and Exploded Views* on page 53.

Adjust the shutter before operating the valve!

NOTE

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

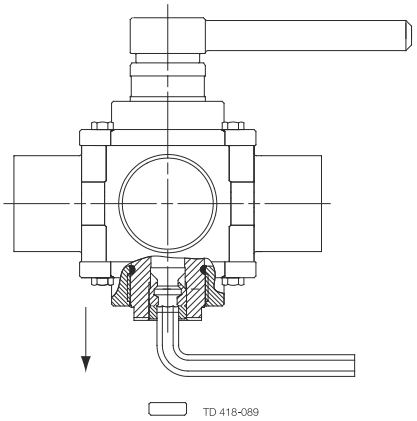
Adjust the shutter after every 1500 turns.

1 a) Put the shutter (6) in neutral position (free of ports)

b) Loosen safety screw (9)

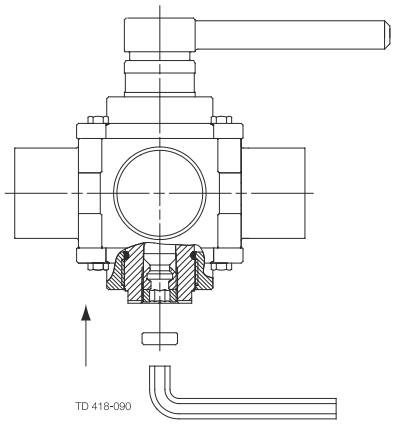
c) Holding an Allen key by the short length, tighten until resistance is felt

d) Change the grip and, holding the Allen key by the long length, tighten the tightening device 1½ rotations (540°) further. Please note that the torque will only be approximate using this method



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

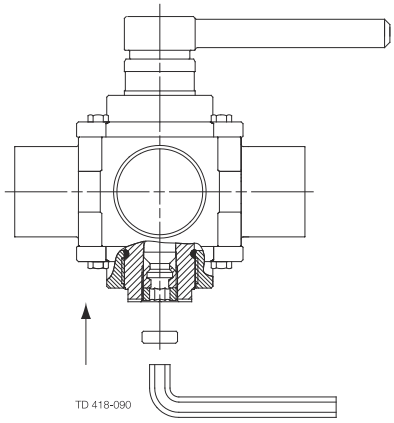
> **CAUTION**
>
> Do not tighten the tightening device further.



3 **Alternative adjustment (free of ports)**

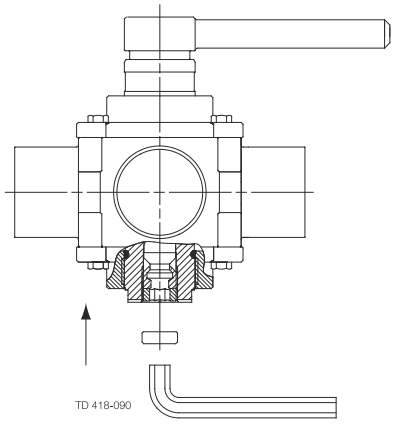
a) Bring shutter to the neutral position

b) Tightening device (8) is tightened with an Allen key until the required torque is achieved (see table below)



4 **Alternative adjustment (free of ports)**

- Spindle
- Adjusting screw
- Driver
- Allen key
- Torque wrench
- Adjusting scale



5

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 valves, Nm:

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

7 Technical Data

NOTE

Technical data must be observed during installation, operation and maintenance.

All personnel should be informed about the technical data.

7.1 Technical Data

Temperature	
Temperature range	–10 °C to +110 °C / 14 °F to 230 °F

Pressure	
Max. pressure against shutter:	300 kPa / 44 psi (3 bar)
Max. pressure behind shutter:	1000 kPa / 145 psi (10 bar)
Air pressure for actuator:	Max. 800 kPa / 116 psi (8 bar) Min. 500 kPa / 73 psi (5 bar)

ATEX	
Classification:	II 2 G D[1]

[1] This equipment is outside the scope of the directive 2014/34/EU and must not carry a separate CE marking according to the directive as the equipment has no own ignition source

Noise

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

Air Connections

Compressed air: R 1/8" (BSP), internal thread

7.2 Physical Data

Materials	
Product wetted steel parts:	1.4404 (316L.)
Other steel parts:	AISI 304
Finish:	Semi-bright (Ra = 3.2)
Product wetted seals:	Shutter in PTFE EPDM
Actuator seals:	NBR

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

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8 Spare Parts

For every delivered Alfa Laval Product, a spare part list is available.

This spare part list contains a range of the most common wear parts for the machinery. If any component not mentioned is required, please contact your local Alfa Laval representative for availability.

You can find our spare part catalogue at *https://hygienicfluidhandling-catalogue.alfalaval.com*.

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

8.1 Ordering Spare Parts

When ordering spare parts, please always state:

1. Serial number (if available)
2. Item number/spare part number (if available)
3. Capacity or other relevant identification

8.2 Alfa Laval Service

Alfa Laval is represented in all larger countries of the world.

Do not hesitate to contact your local Alfa Laval representative, with any questions or requirement of spare parts for Alfa Laval equipment.

8.3 Warranty - Definition

WARNING

The rules of Intended use are absolute. Use of the supplied Alfa Laval product is allowed only when in compliance with the technical data supplied with the Intended use.

Differing utilisation, other than agreed with Alfa Laval Kolding A/S, exclude any liability and warranty.

No modification or alteration of the supplied Alfa Laval product is allowed, unless explicit permission is granted by Alfa Laval Kolding A/S.

Liability and warranty are excluded:

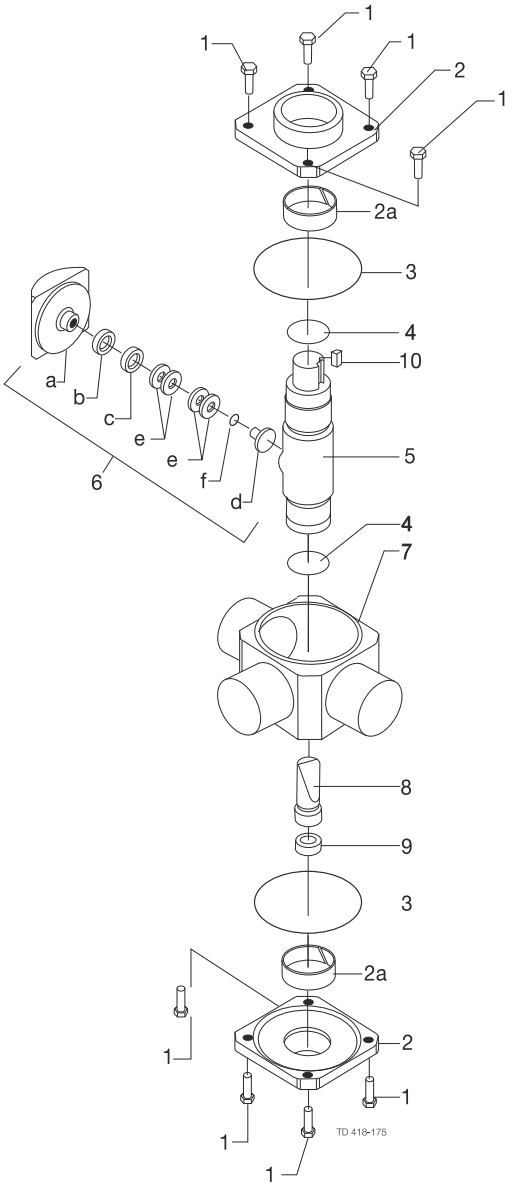
- If advice and instruction of operating instructions are ignored
- For incorrect operation or for insufficient maintenance of the supplied Alfa Laval product
- For any kind of change of function of the supplied Alfa Laval product without prior written agreement by Alfa Laval Kolding A/S
- If supplied Alfa Laval product is modified by non-authorised persons
- If using the supplied Alfa Laval product without attention of appropriate safety regulations, (see *Safety* on page 7)
- If protection equipment is not used and vessel process / ancillary equipment is not brought to a standstill
- If the supplied Alfa Laval product and ancillary parts are not properly maintained (to be executed in intervals and including fitting of prescribed replacement parts)

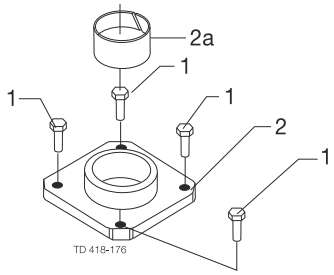
When exchanging parts, only original replacement parts, released from the manufacturer, must be used.

9 Parts Lists and Exploded Views

9.1 Koltek valve

Bearing and lid for bearing

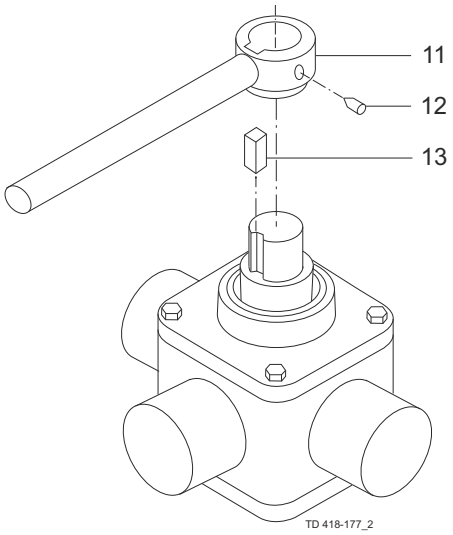




Pos.	Qty.	Denomination
1	8	Screw
2a	2	Guide ring
2	2	Lid for guide ring
3	2	O-ring
4	2	O-ring
5	1	Shaft
6a	1	Shutter
6b	1	Seal ring
6c	1	Support ring

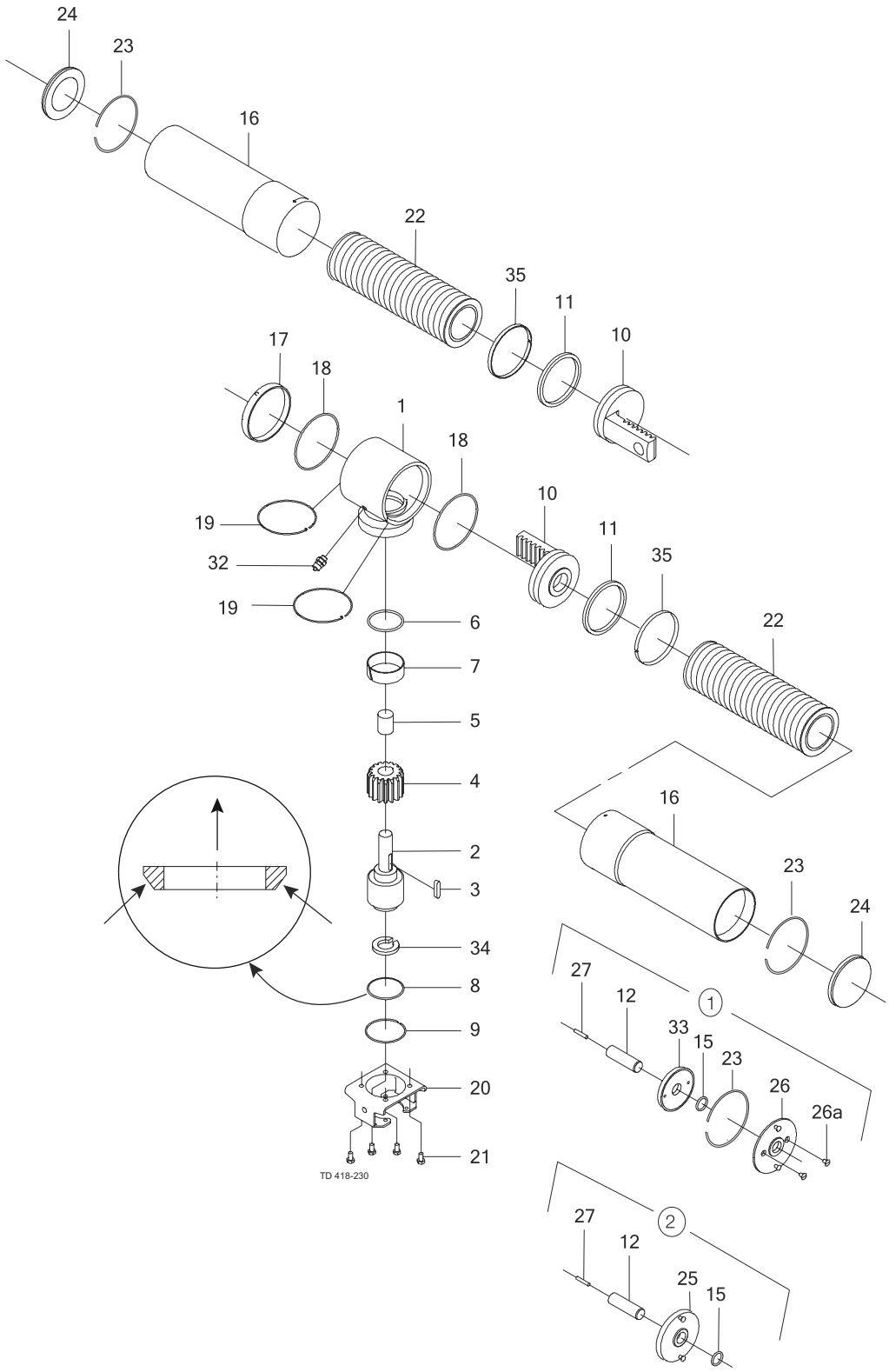
Pos.	Qty.	Denomination
6f	1	O-ring
6	1	Shutter unit
6d	1	Adjustment key
6e	4	Cup spring
7	1	Valve body
8	1	Tightening device
9	1	Safety screw
10	1	Wedge

9.2 Handle for Koltek valves



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

9.3 Koltek actuator 630

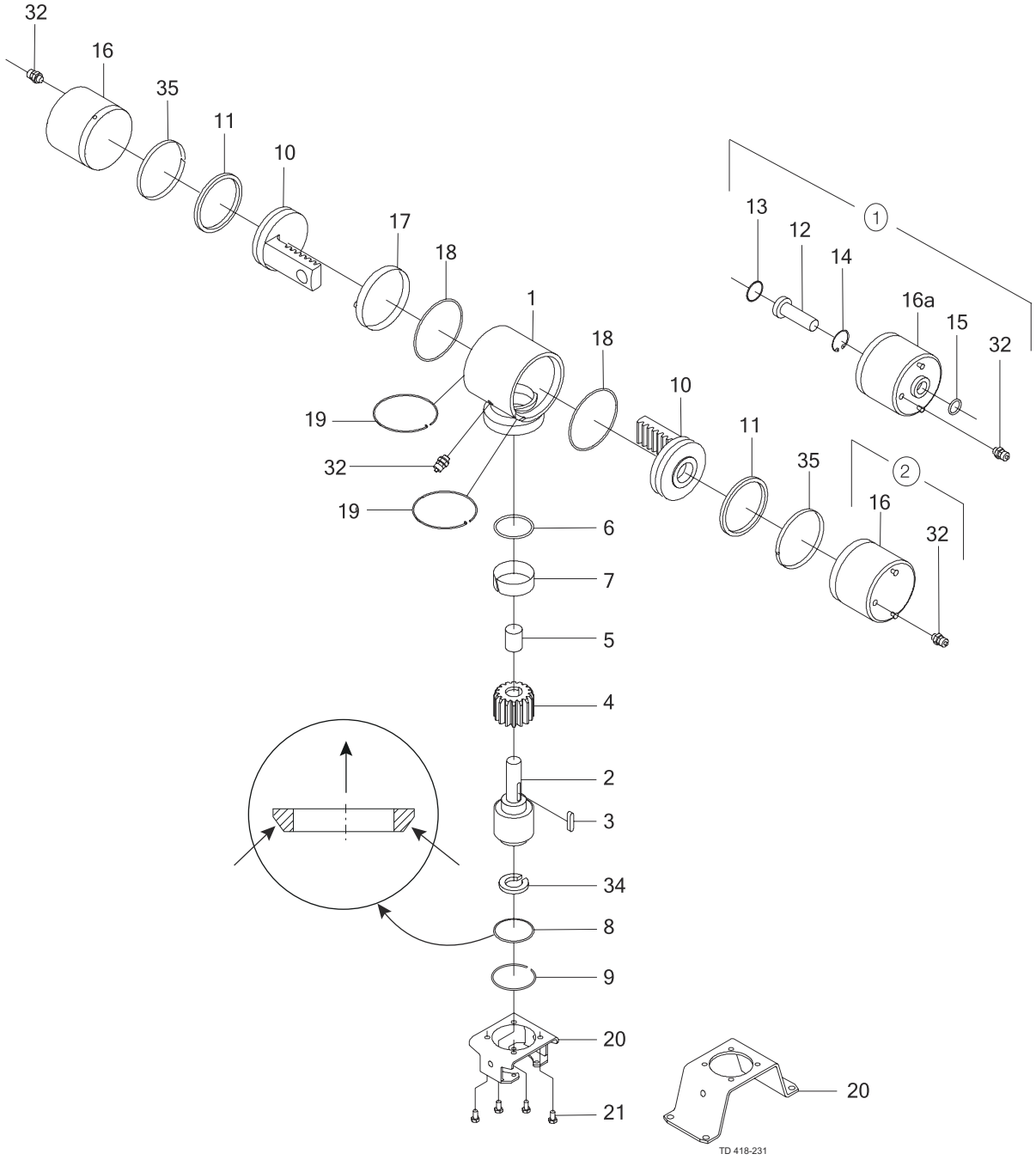


1	2
With indicaion	Without indication
Sizes 63.5–76 mm	Sizes 25–51 mm
DN65	DN25–50

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

Pos.	Qty.	Denomination
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

9.4 Koltek actuator 631



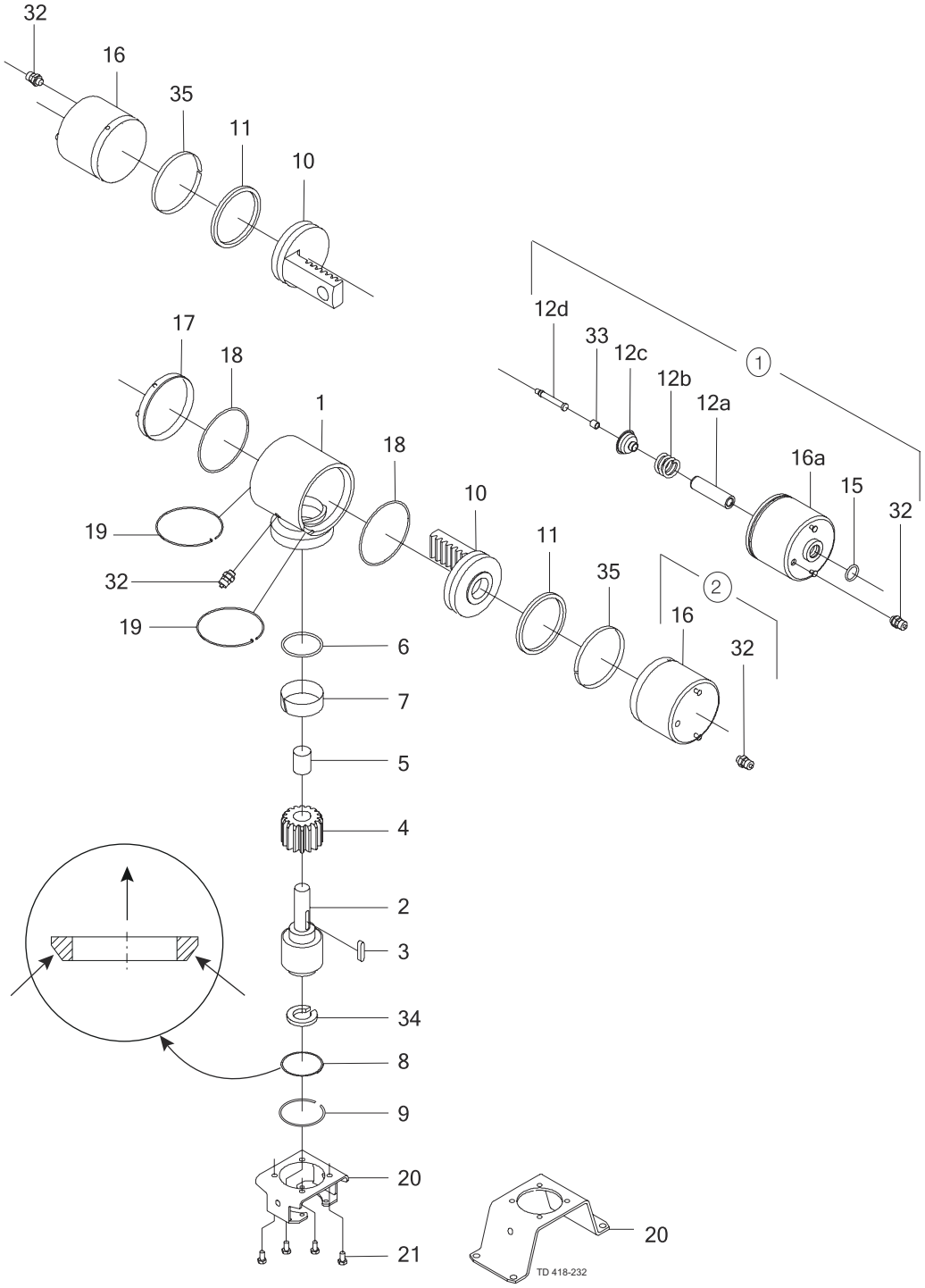
1 With indication

2 Without indication

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

Pos.	Qty.	Denomination
13	1	O-ring
14	1	Circlip
15	1	O-ring
16	1	Cylinder
17	1	Cover
18	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	1	Guide ring

9.5 Koltek actuator 632



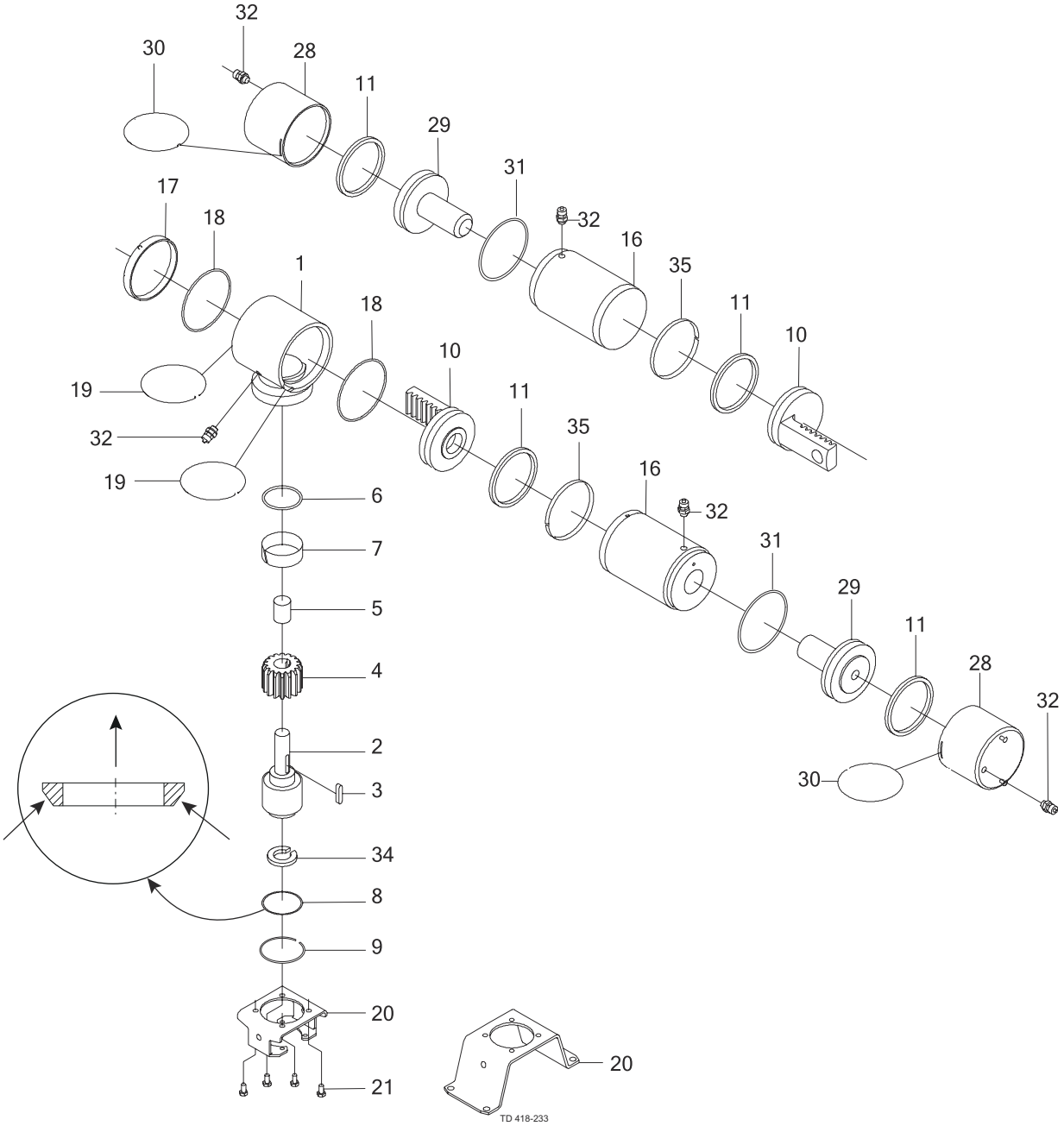
1 With indication

2 Without indication

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
12a	1	Indication stem
12b	1	Spring
12c	1	Screw

Pos.	Qty.	Denomination
12d	1	Extension stem
15	1	O-ring
16	1	Cylinder
16a	1	Cylinder
17	1	Cover
18	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	1	Guide ring

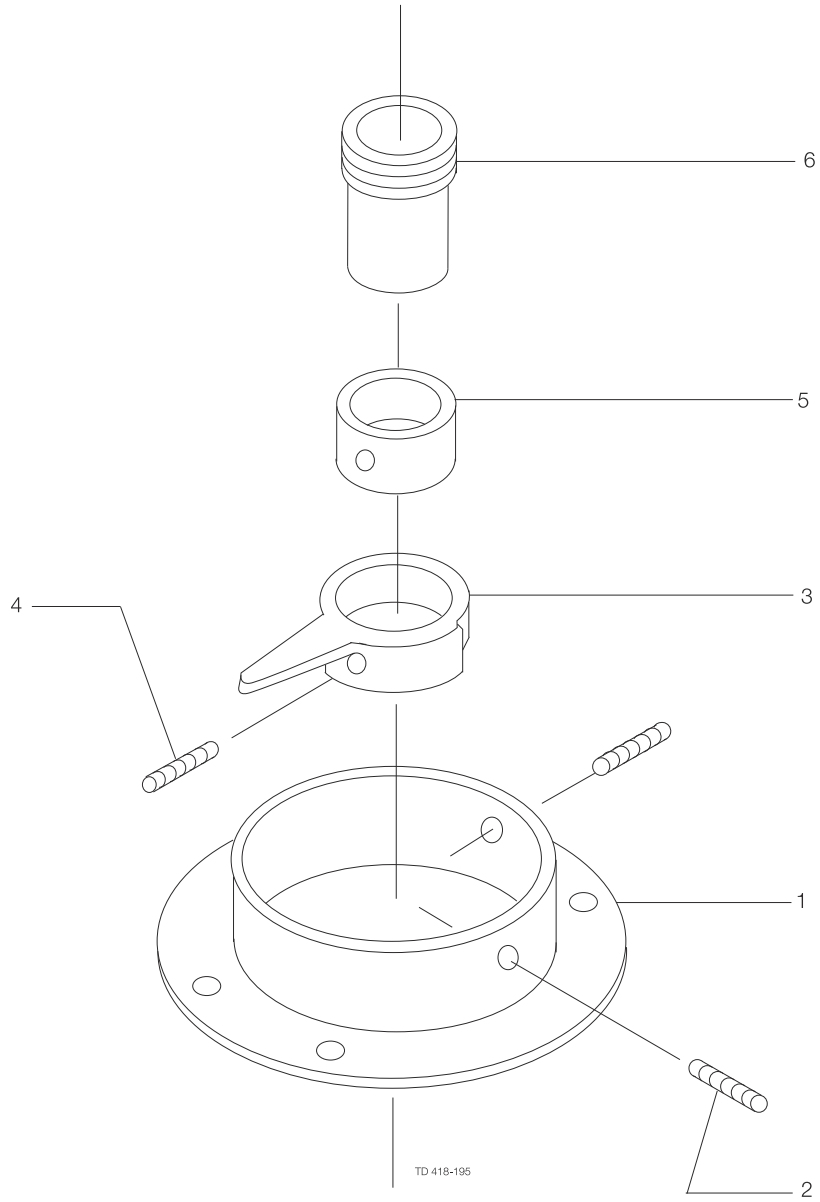
9.6 Koltek actuator 633



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	2	O-ring
16	1	Cylinder

Pos.	Qty.	Denomination
17	1	Cover
18	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	1	Guide ring

9.7 Koltek laterally fitted indication



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