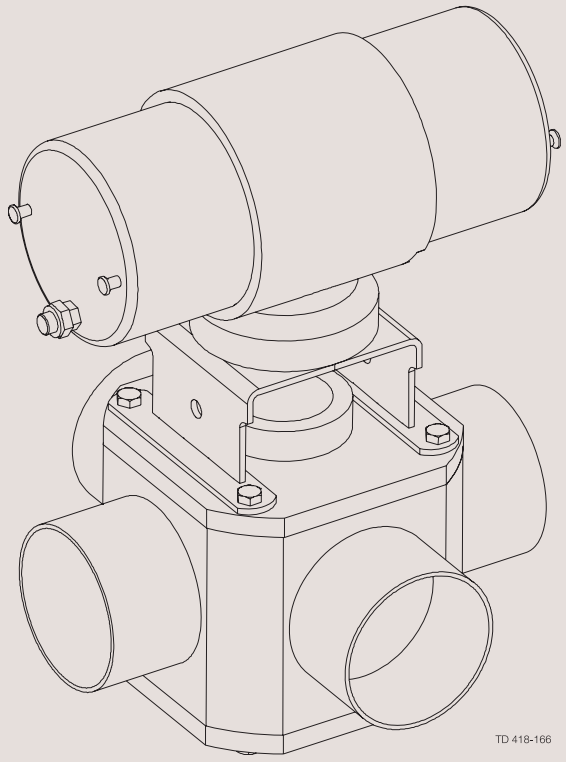
Instruction Manual

MH Koltek Valve



ESE01990-EN6 2011-02

Original manual

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

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1 Declaration of Conformity

The designating company

Alfa Laval
Company Name

Albuen 31, DK-6000 Kolding, Denmark
Address

+45 79 32 22 00
Phone No.

hereby declare that

Koltek Valve	MK	
Denomination	Type	Year

is in conformity with the following directives:
- Machinery Directive 2006/42/EC

DN125-DN150: The valves are in compliance with the Pressure Equipment Directive 97/23/EC and was subjected to the following assessment procedure, Module A, Category I, Fluids group 2.

Manager, Product Centres, Compact Heat Exchangers & Fluid Handling	Bjarne Søndergaard
Title	Name
Alfa Laval Kolding	
Company	Signature

Designation

2 Safety

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

2.1 Important information

Always read the manual before using the valve!

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

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

NOTE
Indicates important information to simplify or clarify procedures.

2.2 Warning signs

General warning:



Caustic agents:



2 Safety

All warnings in the manual are summarized on this page.
Pay special attention to the instructions below so that severe personal injury and/or damage to the valve are avoided.

2.3 Safety precautions

Installation:

Always observe the technical data (See chapter)
Always release compressed air after use.



Operation:

Always observe the technical data (See chapter)
Never touch the valve or the pipelines when processing hot liquids or when sterilizing



Always handle lye and acid with great care



Maintenance:

- **Always** observe the technical data (See chapter)
- **Always** release compressed air after use
- The valve must **Never** be hot when servicing it
- 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 secure that compressed air is released
Always secure that all connections is disconnected before attemt to remove the valve from the installation
Always drain liquid out of valves before transportation
Always used predesigned lifting points if defined
Always secure sufficient fixing of the valve during transportation - if special designed packaging material is available it must be used

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

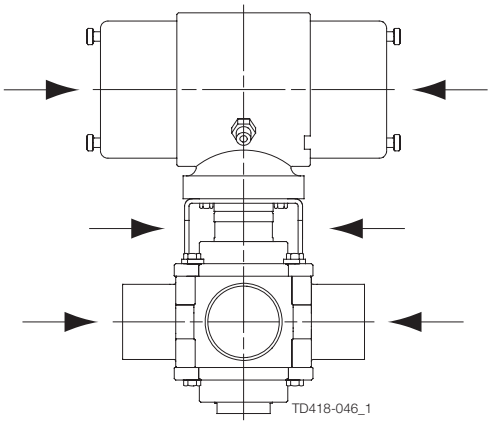
CAUTION The valve is delivered with shutter loosened. Always adjust shutter before installation and operating the valve (see special instructions on page 22)!

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

Check the delivery:
1. Complete valve.
2. Delivery note.
3. Instruction manual

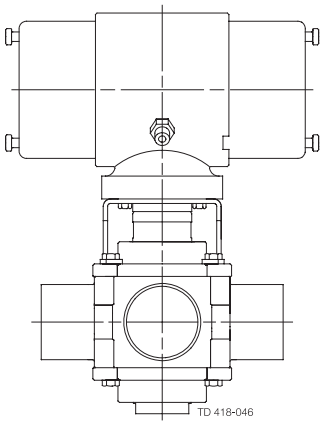
Step 2

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



Step 3

1. Inspect the valve for visible transport damages.



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

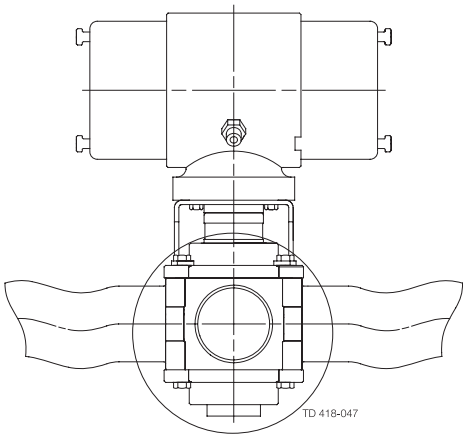
Always read the technical data thoroughly.
See chapter

Always release compressed air after use.

CAUTION
Alfa Laval cannot be held responsible for incorrect installation.

Step 2

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

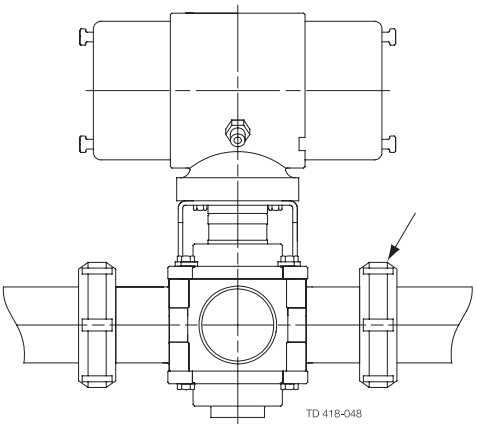


Pay special attention to warnings!

Step 3

Fittings:

Ensure that the connections are tight.



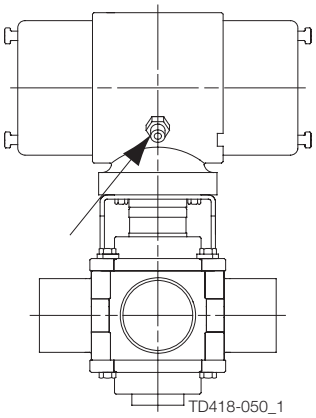
Pay special attention to warnings!

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.

Step 4

Air connection:

R 1/8” (BSP), 6/4 mm hose.



Pay special attention to warnings!

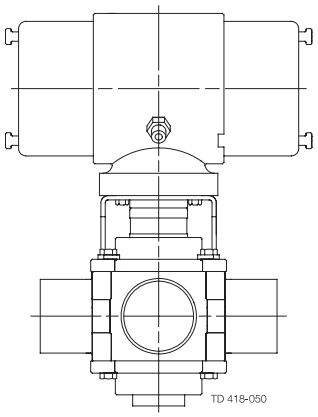
3 Installation

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

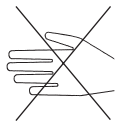
3.3 Welding

Step 1

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

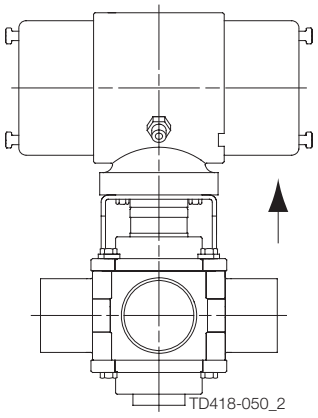


Cutting danger!



Step 2

Dismantle the valve in accordance with instructions on page 12.
Pay special attention to the warnings!



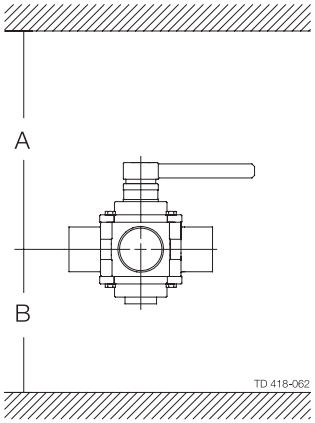
Step 3

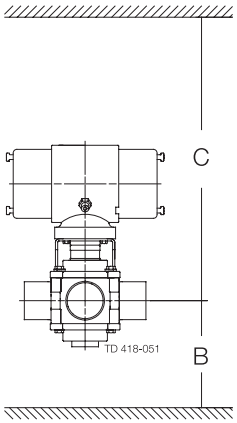
Maintain the minimum clerances (A, B and C) so that the actuator and internal valve parts can be removed.

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

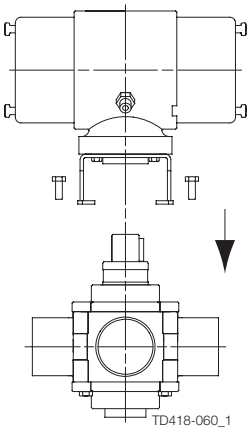
Study the instructions carefully and pay special attention to the warnings!
The valve has welding ends as standard. Weld carefully.
Adjust shutter before operating the valve. Check the valve for smooth operation after welding.





Step 5

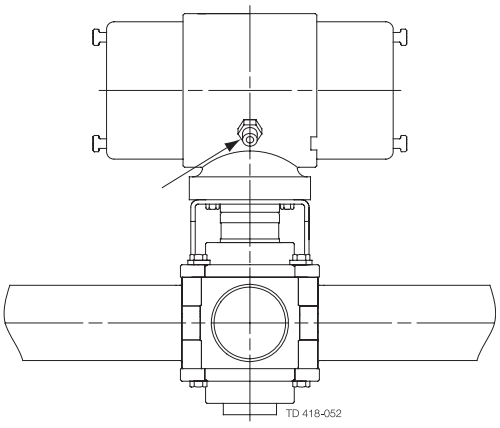
Reassemble the valve in accordance with instructions on page 13 after welding.
Pay special attention to the warnings!



Step 6

CAUTION!
Adjust 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 checkpoints on page 14).

Pay special attention to the warnings!



4 Operation

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

4.1 Operation

Step 1

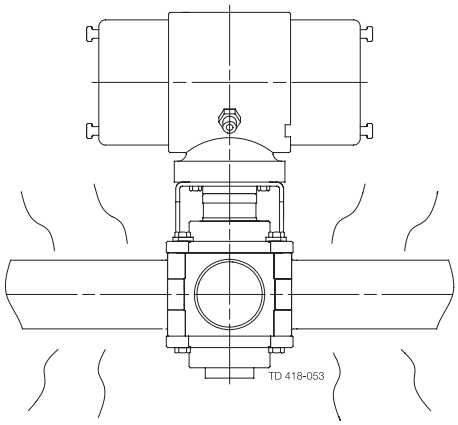
Always read the technical data thoroughly.
(see chapter)

Always release compressed air after use.

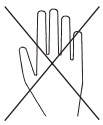
CAUTION
Alfa Laval cannot be held responsible for incorrect operation.

Step 2

Never touch the valve or the pipelines when sterilizing.

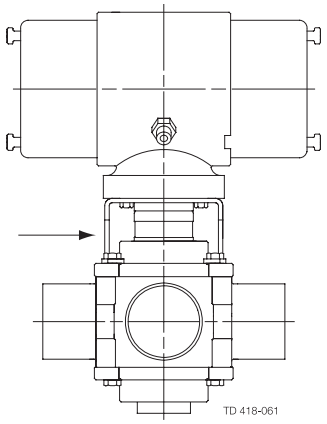


Burning danger!

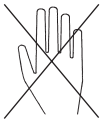


Step 3

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



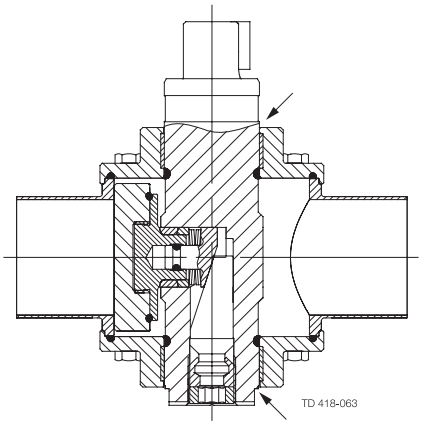
Moving part!



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

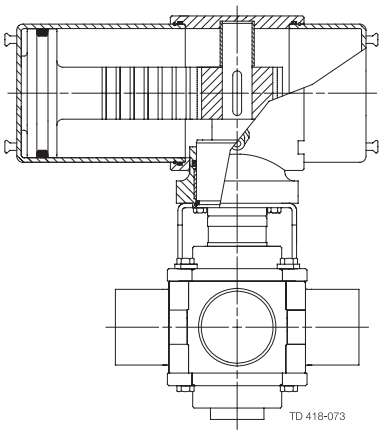
Step 4

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



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



4 Operation

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

Problem	Cause/result	Repair
The shutter jerks	-The shutter needs adjustment Worn shutter Compressed cup springs	Adjust the shutter (see page 22) Replace the shutter Replace cup springs
Product leakage at valve body/lids	Worn /product affected O-rings (3) Loose screws (1)	Replace the O-rings Tighten screws
Product leakage at lids/shaft	Worn/product affected O-rings (4)	Replace the O-rings
Product leakage The shutter needs adjustmentshut-ter/tightened device	Damaged or worn flange O-rings	Adjust the shutter NB! Clean inner parts
Product leakage (too high pressure against shutter)	Too high pressure - the shutter needs adjustment Worn shutter	Adjust the shutter - change flow direction (see page 22) Replace the shutter
The valve does not open/cloce	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

Study the instructions carefully and pay special attention to the warnings!
NaOH = Caustic Soda.
HNO_3= Nitric acid.

4.3 Recommended cleaning

Step 1

Always handle lye and acid with great care.

Caustic danger!



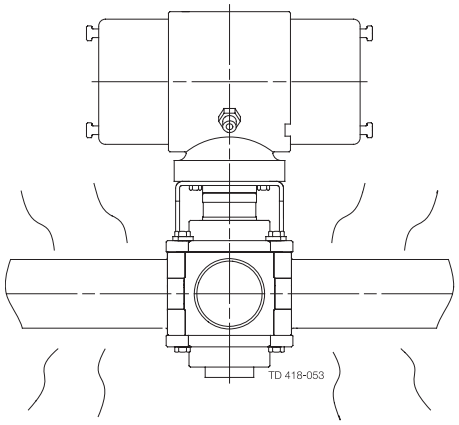
Always use rubber gloves!



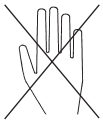
Always use protective goggles!

Step 2

Never touch the valve or the pipelines when sterilizing.



Burning danger!



Step 3

Examples of cleaning agents:

Use clean water, free from clorides.

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_3 at 70° C (158°F)

0.7 l (o.18 gal) 53% HNO_3	+	100 l (26.4 gal) water	=	Cleaning agent.

4 Operation

Study the instructions carefully and pay special attention to the warnings!
NaOH = Caustic Soda.
HNO_3= Nitric acid.

1. Avoid excessive concentration of the cleaning agent

⇒ **Dose gradually!**

2. Adjust the cleaning flow to the process

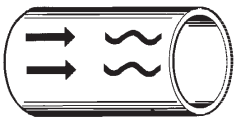
⇒ **Sterilization of milk/viscous liquids**
⇒ **Increase the cleaning flow!**

3. Flip the valve during cleaning, if possible.

Step 1
Always rinse well with clean water after the cleaning.

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

Always rinse!



Clean water Cleaning agents

Maintain the valve and the actuator carefully.
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 thoroughly.
See page 23

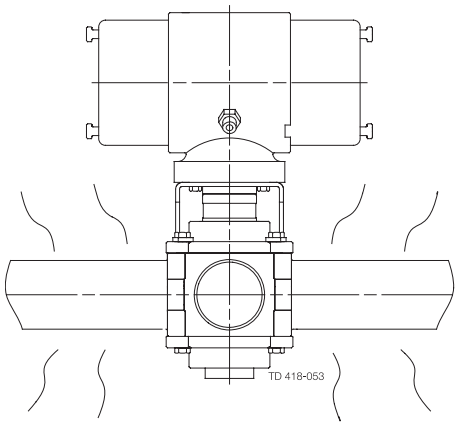
Always release compressed air after use.

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

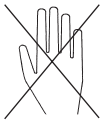
Step 2

Never service the valve when it is hot.

Never service the valve with valve and pipelines under pressure.

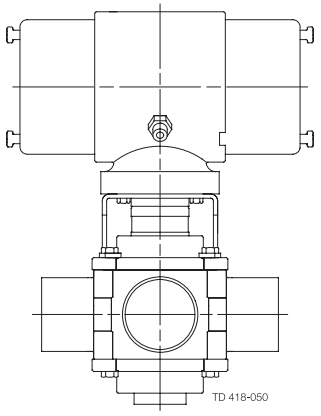


Atmospheric pressure required!
Burning danger!

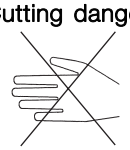


Step 3

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



Cutting danger

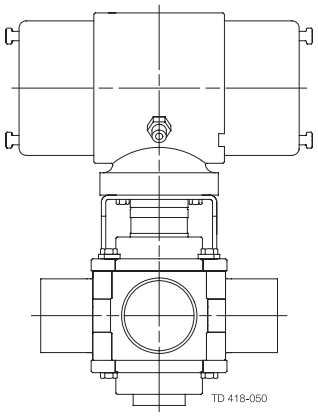


5 Maintenance

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

Step 4

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





5 Maintenance

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

Recommended spare parts:
Service kits (see chapter 6/ Spar parts list).
Order service kits from the service kits list (see chapter 6).

	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 planning of inspections	- 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!

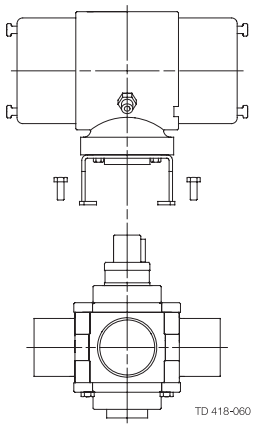
5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section. Handle scrap correctly. A/A = Air/air activated.

5.2 Dismantling of valve

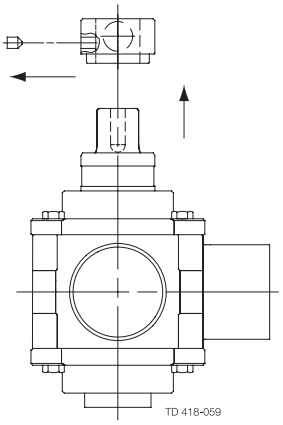
⚠
Never dismantle the valve with valve and pipelines under pressure.
Step 1

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).



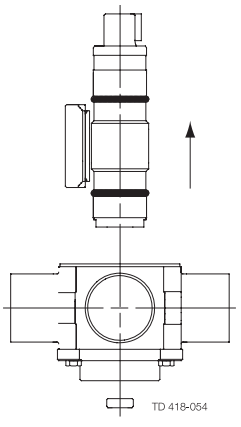
Step 2

Manually operated valve:1. Loosen the screw (12) in handle (11). 2. Remove the handle (11) from shaft (5). 3. Loosen and remove screws (1) and top lid (2) from valve body (7).
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

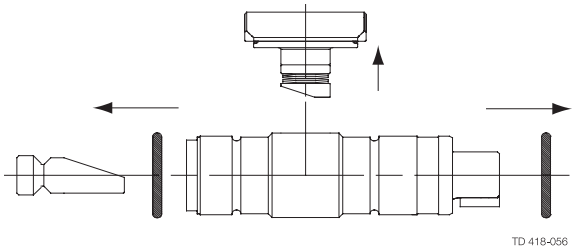
1. Loosen safety screw (9) and tightening device (8).
2. Pull out shaft (5) with shutter unit (6) from the valve body.
3. Loosen and remove screws (1) and bottom lid (2) from the valve body (if needed).



Study the instructions carefully.
The items refer to the parts list and service kits section. Handle scrap correctly. A/A = Air/air activated.

Step 4

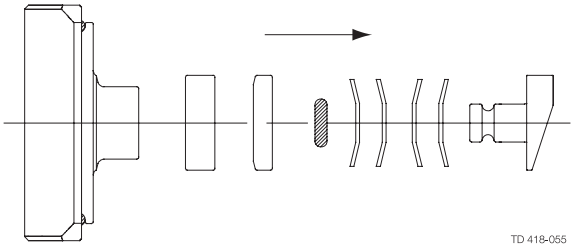
1. Pull out shutter unit (6) from shaft (5).
2. Remove tightening device (8) from shaft (5) (if necessary).
3. Pull off O-rings (4) from shaft (5).



Step 5

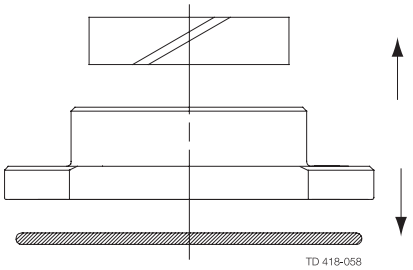
1. Pull out adjustment key (6d) from the shutter.
2. Remove support ring (6c) and seal ring (6b) from shutter (6a).
3. Pull off O-ring (6f) and cup springs (6e) from the adjustment key.

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



Step 6

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



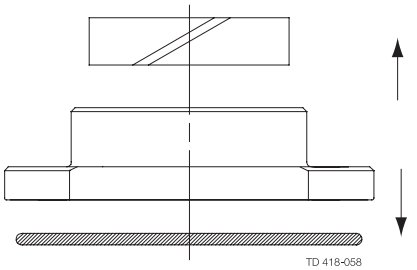
5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section. Handle scrap correctly. A/A = Air/air activated.

5.3 Assembly of valve

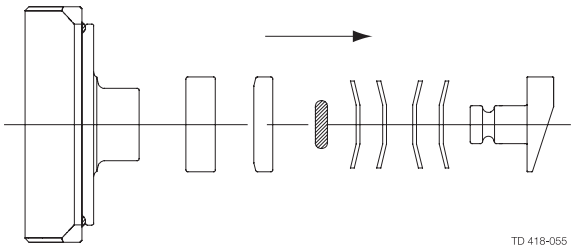
Step 1

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



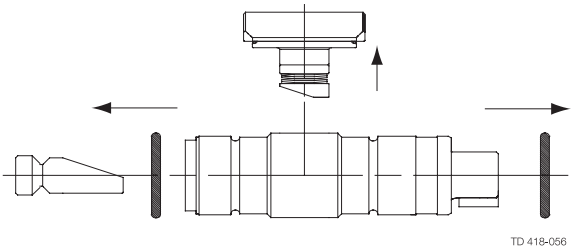
Step 2

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).



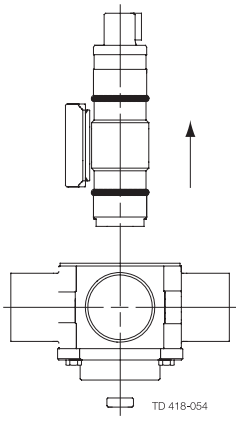
Step 3

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) get in 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.

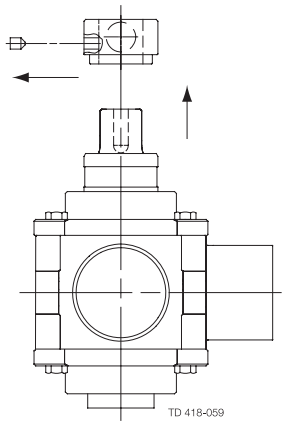


Study the instructions carefully.
The items refer to the parts list and service kits section. Handle scrap correctly. A/A = Air/air activated.

Step 5

Manually operated valve:

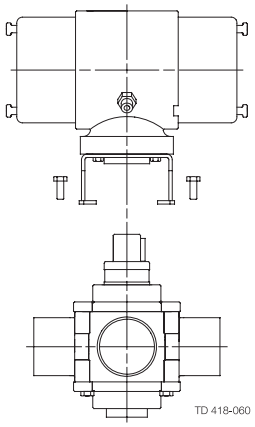
1. Fit top lid (2) on the valve body (7) and tighten screws (1).
2. Adjust the tightness of the shutter according to the procedure in section 4.11.
3. Fasten safety screw (9) after shutter adjustment.
4. Fit handle (11) on shaft (5) with wedge (10) and tighten the screw (12).



Step 6

Air-operated valve:

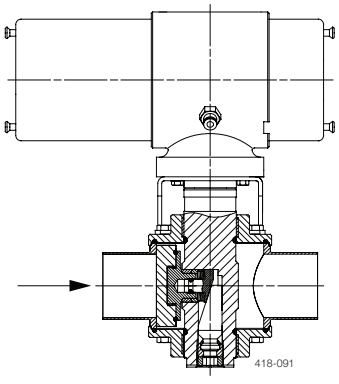
1. Fit top lid (2) and the bonnet (20) on the valve body (7) and tighten screws (1).
2. Adjust the tightness of the shutter according to the procedure in section 4.11
3. Fasten safety screw (9) after shutter adjustment.



Step 7

Air-operated valve:

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

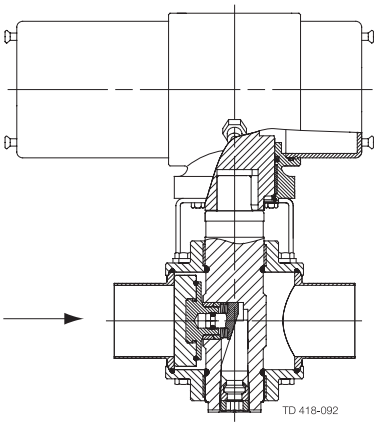


5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section. Handle scrap correctly. A/A = Air/air activated.

Step 8

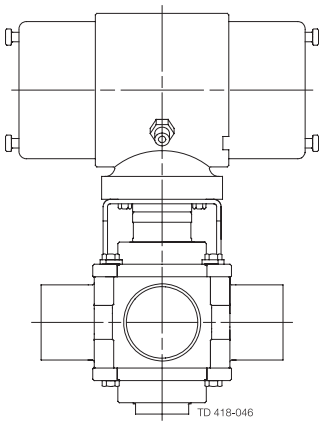
Air-operated valve:
Check that the position of the actuator fits the position of the shutter unit.



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!

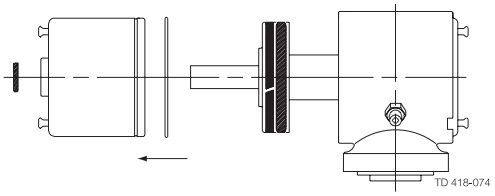


Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.

5.4 Dismantling of actuator, type 631/632

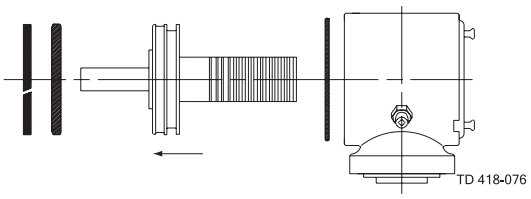
Step 1

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.



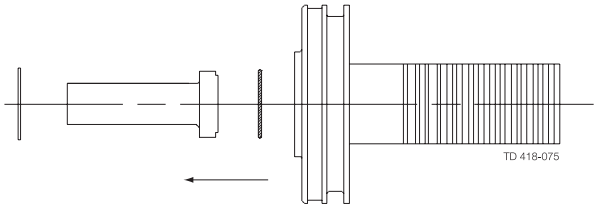
Step 2

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).



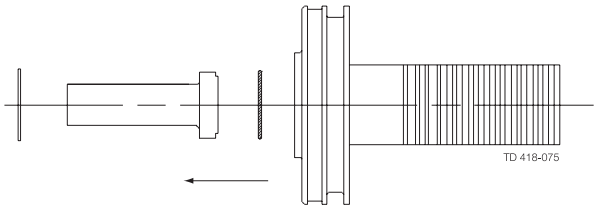
Step 3

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.



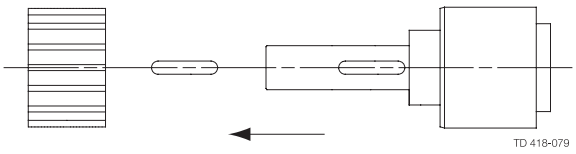
Step 4

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).

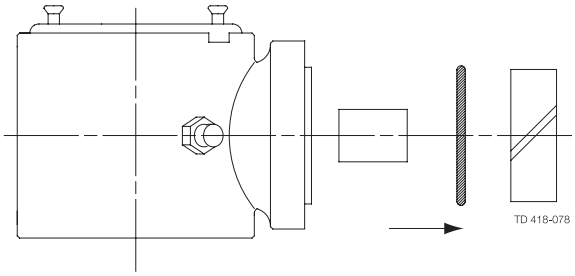


5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.

Step 6

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

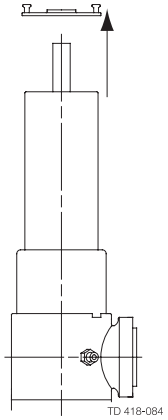


Study the instructions carefully.
The items refer to the parts list and service kits section.
The auxiliary equipment is not supplied by Alfa Laval. Lubricate all O-rings with silicone oil or similar before assembly.

5.5 Dismantling of actuator, type 630

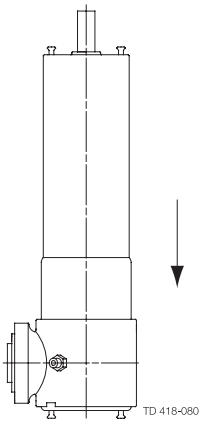
Step 1

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.



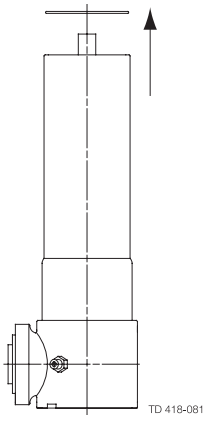
Step 2

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.



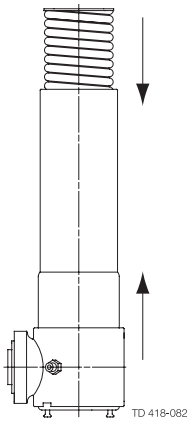
5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
The auxiliary equipment is not supplied by Alfa Laval. Lubricate all O-rings with silicone oil or similar before assembly.

Step 4

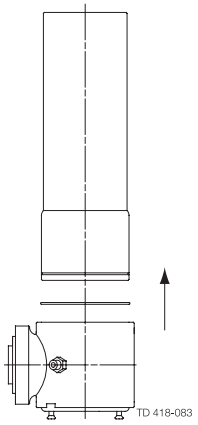
Position the auxiliary equipment with chassis/cylinder in a press.
1. Remove chassis/cylinder (1/16, 17) from the auxiliary equipment.
2. Take out spring (22) from the cylinder.

NOTE! For sizes 63.5-76.1 mm/DN65, steps 1-4 on this page 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

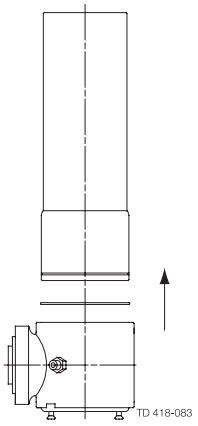
Continue the dismantling by following steps 2-6 in section 4.4.

Study the instructions carefully.
The items refer to the parts list and service kits section.
Handle scrap correctly.

5.6 Dismantling of actuator, type 633

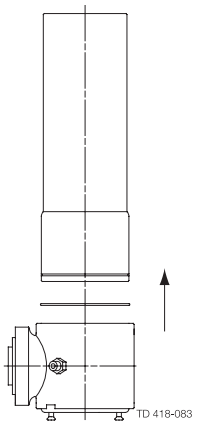
Step 1

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



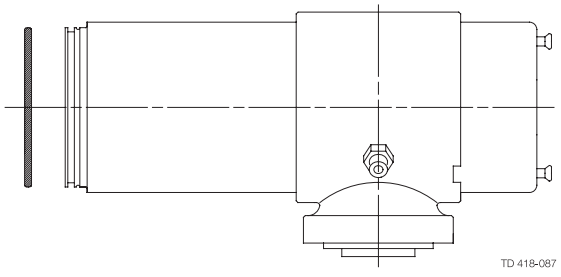
Step 2

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



Step 3

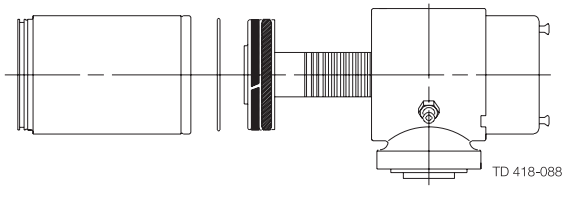
Pull off O-ring (31) from cylinder (16).
NOTE!
For sizes 01.6 mm/DN80-100, steps 1-3 on this page are repeated.



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 steps 2-6 in section 4.4.



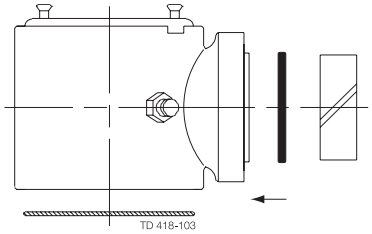
5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

5.7 Reassembly of actuator, type 631/632

Step 1

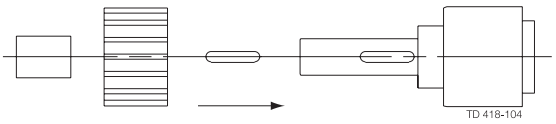
Fit guide ring (7) and O-rings (6,18) in chassis (1) .



Step 2

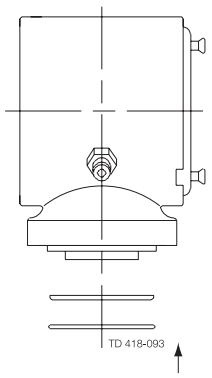
1. Fit wedge (3), gear wheel (4) and bearing (5) on spindle(2) (lubricate).
2. Guide/work the spindle into the chassis.

2.



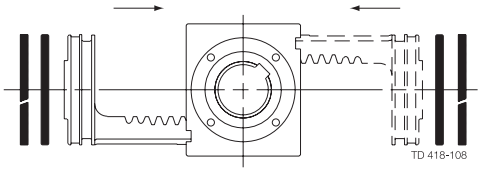
Step 3

Fit bearing (8) and lock ring (9) into chassis (1).
WARNING!
Make sure that the lock ring is fitted well in its groove.



Step 4

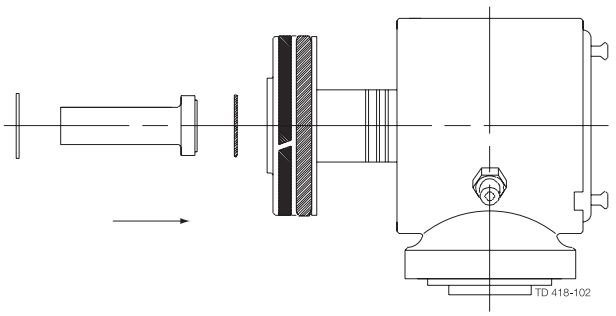
1. Adjust spindle (2) so that the notch has a 45 angle to pistons (10).
2. Position the piston(s) along the opposite inner sides of chassis (1) (lubricate teeth on piston(s) with grease type Longterm + 2).
3. Press piston(s) into the chassis (at the same time for sizes 89-101.6 mm/DN80-100) (check that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

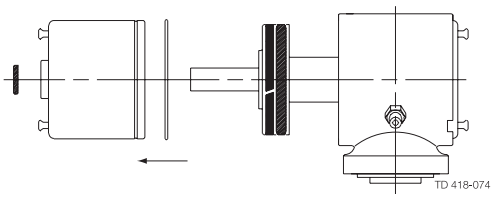


Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

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).



5 Maintenance

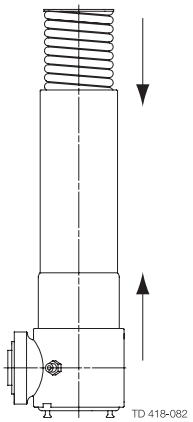
Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

5.8 Reassembly of actuator, type 630

Step 1

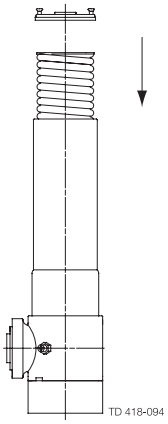
1. Assemble the actuator by following steps 1-6 in section 4.7. Then proceed by following the steps on this page.
2. Place chassis/cylinder (1/ 17) in auxiliary equipment with mounted cylinder downwards. Fit spring (22) in the middle of cylinder (16) so that it does not contact the inner surface

.



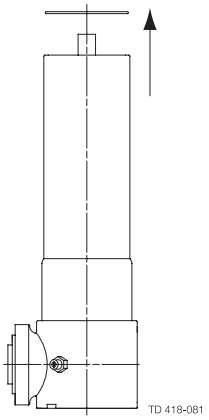
Step 2

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 1-3 are repeated)

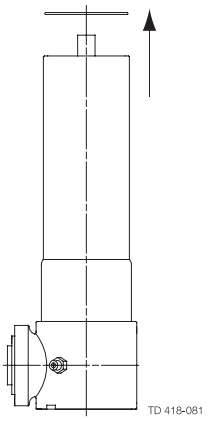


Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

Step 4

Only with indication:

Steps 1-3 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).



5 Maintenance

Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

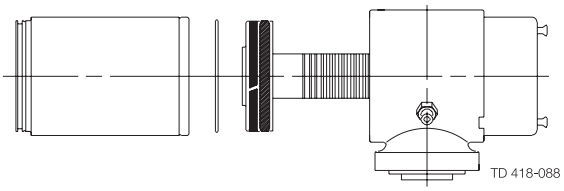
5.9 Reassembly of actuator, type 633

Step 1

Only with indication:

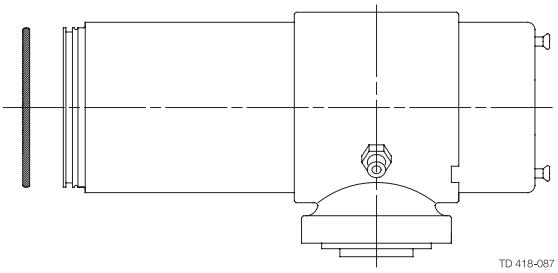
Assemble the actuator by following steps 1-3 in section 4.7. Then proceed by following the steps on this page.

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).

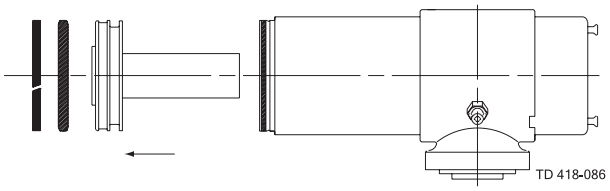


Step 3

Only with indication:

Assemble the actuator by following steps 1-3 in section 4.7. Then proceed by following the steps on this page.

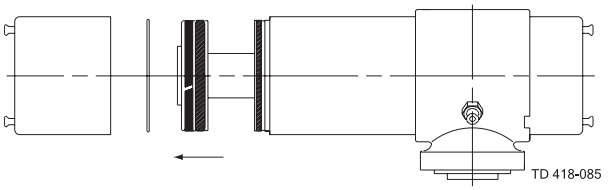
1. Fit O-ring (11) on auxiliary piston (29).
2. Guide the auxiliary piston into cylinder (16).



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 3-5 on this page are repeated.



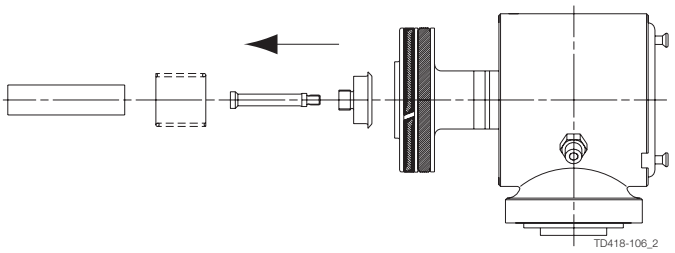
Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

5.10 Dismantling/Reassembly of special indication units

Step 1

Dismantling - telescope indication:

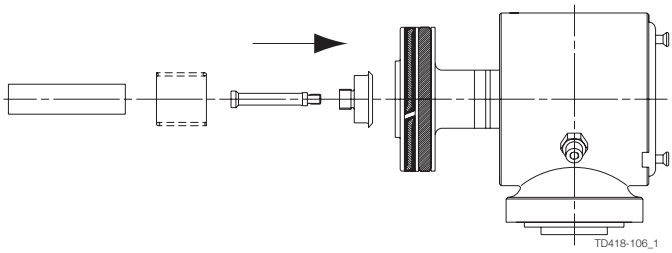
1. Pull off spring (12b) from screw (12c).
2. Unscrew and remove indication stem (12a) from the screw.
3. Unscrew and remove extension stem (12d) with screw from piston (10).



Step 2

Reassembly - telescope indication:

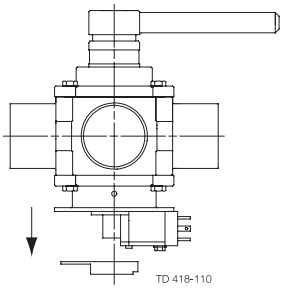
1. Screw the extension stem with screw into piston (10). Use Loctite 243).
2. Screw indication stem (12a) onto the screw.
3. Press/turn spring (12b) onto the screw.



Step 3

Dismantling - laterally fitted indication:

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

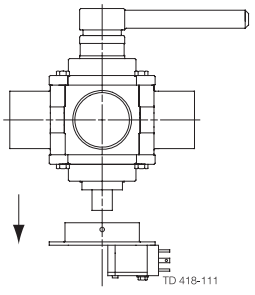


Step 4

Dismantling - laterally fitted indication:

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

NOTE!
Ensure that the indicator ondicates all positions of the valve. For 180 actuator: Cut off the inidcator pin to enable a full indicator turn.



5 Maintenance

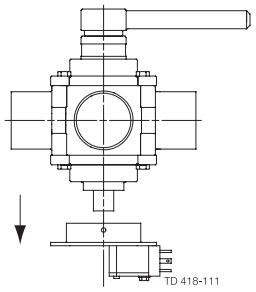
Study the instructions carefully.
The items refer to the parts list and service kits section.
Lubricate all O-rings with silicone oil or similar before assembly.

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 ondicates all positions of the valve. For 180 actuator: Cut off the inidcator pin to enable a full indicator turn.

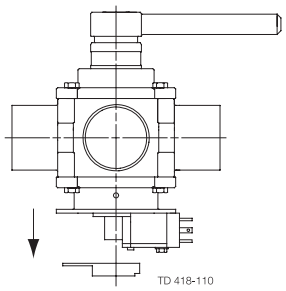


Step 6

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 positions of the valve. 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 6.
Adjust the shutter before operating the valve!

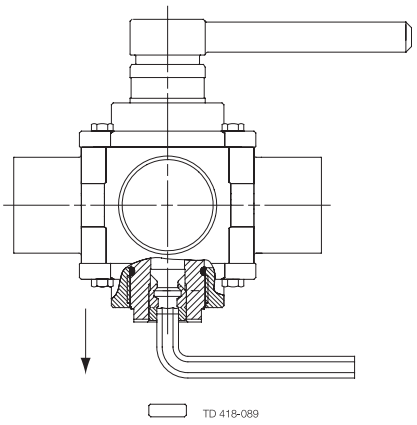
5.11 Shutter adjustment

Step 1

NOTE!
All Koltek valves are delivered with shutter loosened after pressure test. The shutter must therefore be adjusted before operating the valve..
Adjust the shutter after every 1500 turns.

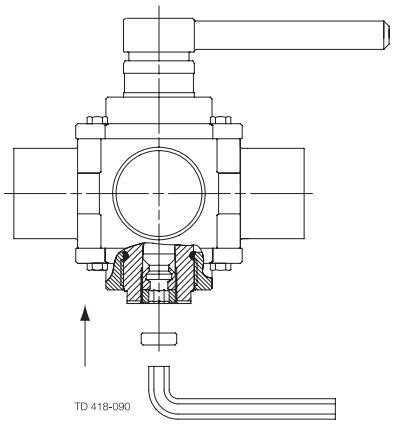
Step 2

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 1½ round (540°) further. Please note that the torque will only be an approximation using this method.



Step 3

Fit safety screw (9) and tighten with the Allen key.
CAUTION!
Do not tighten the tightening device further.



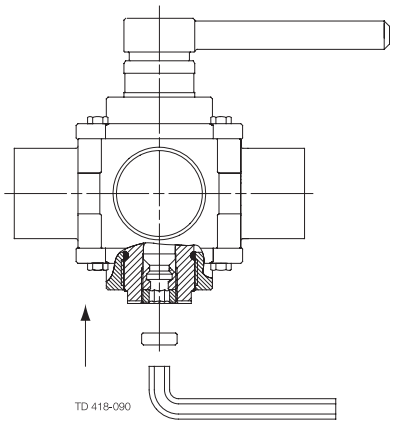
Step 4

5 Maintenance

Study the instructions carefully.
The items refer to the drawings and parts list in chapter 6.
Adjust the shutter before operating the valve!

Alternative adjustment (free of ports)

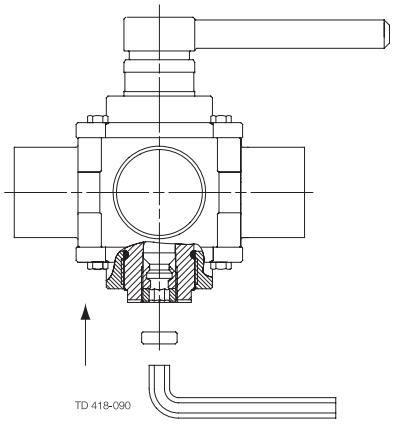
1. Bring shutter in neutral position.
2. Tightening device (8) is tightened with an Allen key until the required torque is achieved (see table below)
3.



Step 5

Alternative adjustment (free of ports)

A. Spindle
B. Adjusting screw
C. Driver
D. Allan 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).

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

6 Technical data

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

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 welled seals	EPDM
Other seals	Nitrile (NBR)
Shutter	PTFE

Noise

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

Recycling information.

Unpacking

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps.

- Wood and cardboard boxes can be reused, recycled or used for energy recovery.

- Plastics should be recycled or burnt at a licensed waste incineration plant.

- Metal straps should be sent for material recycling.

Maintenance

- During maintenance oil and wear parts in the machine are replaced.

- All metal should be sent for material recycling.

- Worn out or defective electronic parts should be sent to a licensed handler for material recycling.

- Oil and all non metal wear parts must be taken care of in agreement with local regulations.

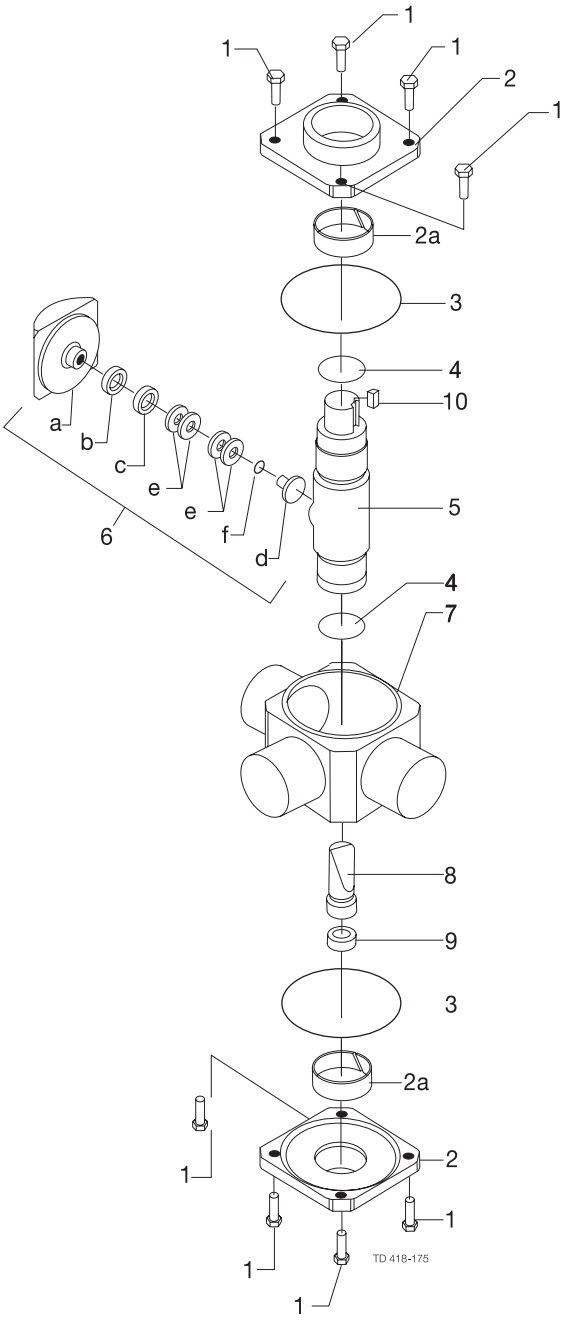
Scrapping

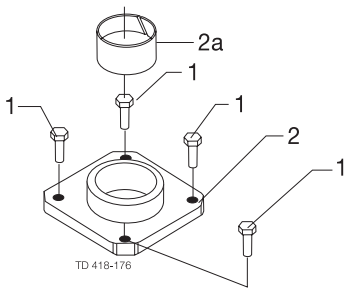
- At end of use, the equipment shall be recycled according to relevant, local regulations. Beside the equipment itself, any hazardous residues from the process liquid must be considered and death with in a proper manner. When in doubt, or in the absence of local regulations, please contact the local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

7 Parts list and Service Kits

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

7.1 Koltek Valve MH





Bearing and lid for bearing

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

Parts list

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

Service kits

	Denomination	25 mm DN25	38 mm DN40	51 mm DN50
Service Kits for Shutterkit (6a+b+c)				
□	Service kit	9611-92-4045	9611-92-4046	9611-92-4047

Service kits

	Denomination	63.5 mm	76 mm DN65	DN80	101.6 mm DN100
Service Kits for Shutterkit (6a+b+c)					
□	Service kit	9611-92-4048	9611-92-4049	9611-92-4050	9611-92-4051

Service kits

	Denomination	25 mm DN25	38 mm DN40	51 mm DN50
Service Kits for Product wetted parts				
◆	Service kit EPDM	9611-92-4052	9611-92-4055	9611-92-4058

7 Parts list and Service Kits

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

◆	Service kit NBR	9611-92-4053	9611-92-4056	9611-92-4059
◆	Service kit FPM	9611-92-4054	9611-92-4057	9611-92-4060

Service kits

Denomination	63.5 mm	76 mm DN65	DN80	101.6 mm DN100
Service Kits for Product wetted parts				
◆ Service kit EPDM	9611-92-4061	9611-92-4064	9611-92-4067	9611-92-4070
◆ Service kit NBR	9611-92-4062	9611-92-4065	9611-92-4068	9611-92-4071
◆ Service kit FPM	9611-92-4063	9611-92-4066	9611-92-4069	9611-92-4072

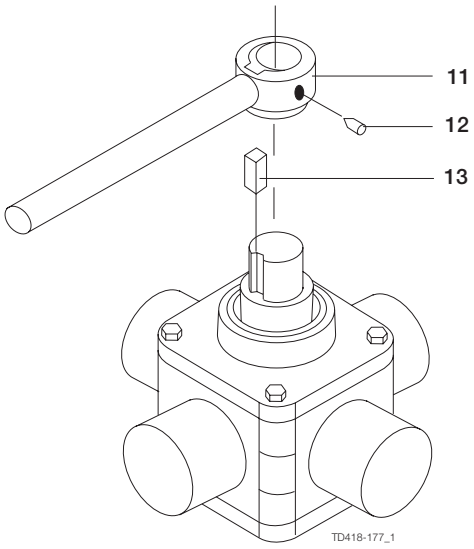
Parts marked with □◆ are included in the servicekit

Recommended Spare Parts: Service kit

900-117/1

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

7.2 Handle for Koltek Valves



7 Parts list and Service Kits

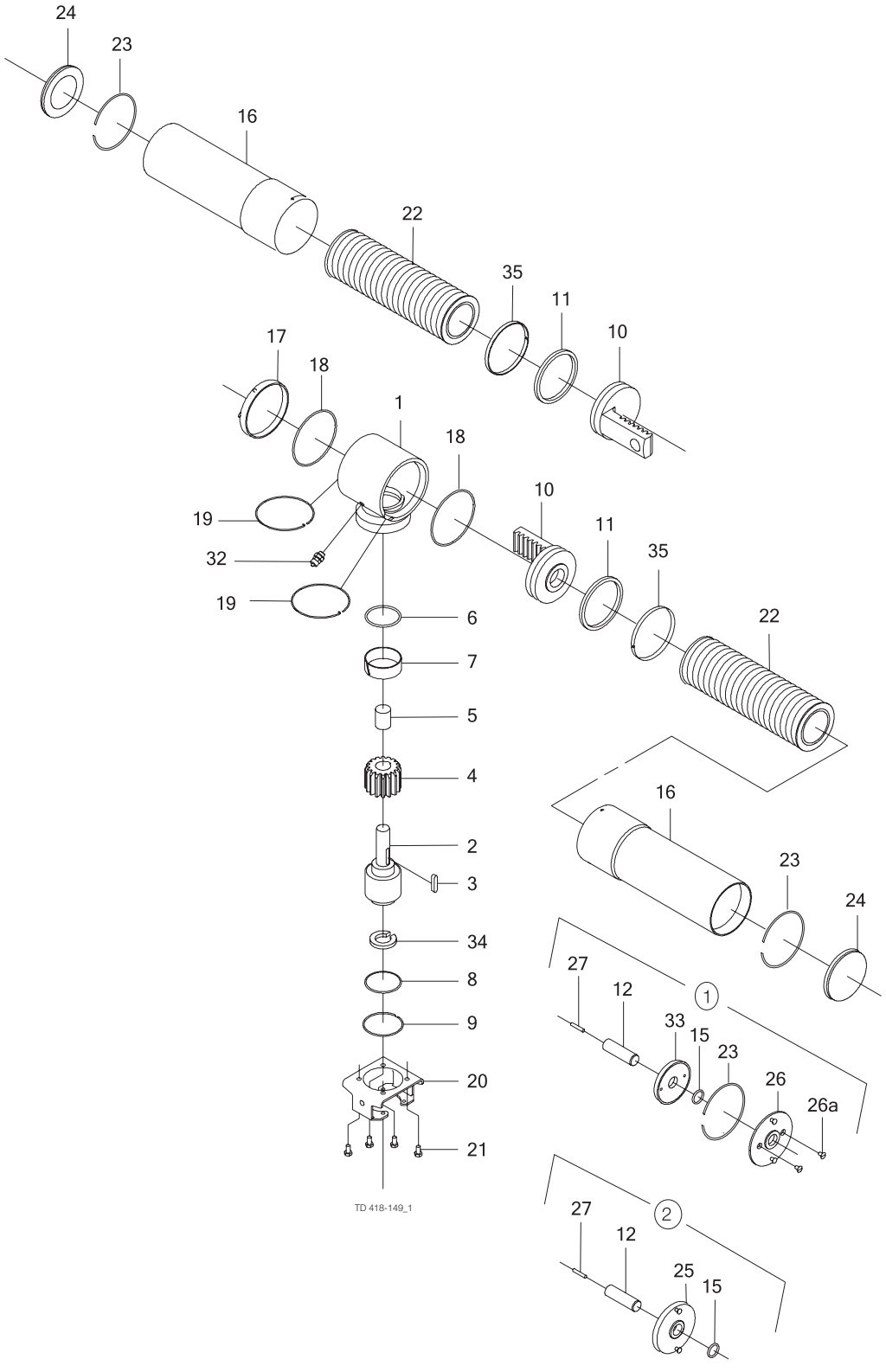
It is important to observe the technical data during installation, operation and maintenance.
Inform the personnel about the technical data.

Parts list

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

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

7.3 Koltek Actuator 630



① With indication Sizes 63.5-76 mm DN65

② With indication Sizes 25-51 mm DN25-50

7 Parts list and Service Kits

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

It is important to observe the technical data during installation, operation and maintenance.
Inform the 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	Cylinder
18	□	2	O-ring
19		2	Lock wire
20		1	Bonnet
21		4	Screw
22		1	Spring
23		1	Lock wire
24		1	Flange
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 extention (only for MH25)
35	□	1	Guide ring

Service kits

Denomination	25-51 mm DN25-50	With indication 25-51 mm DN25-50	63.5-76 mm DN65	With indication 63.5-76 mm DN65
Service kit for Actuator (Period 2003-)				
□ Service kit	9611-92-4194	9611-92-4195	9611-92-4196	9611-92-4197
Service kit for Actuator (Period -2003)				
□ Service kit	9611-92-4175	9611-92-4176	9611-92-4177	9611-92-4178

Parts marked with □◆ are included in the Service Kits

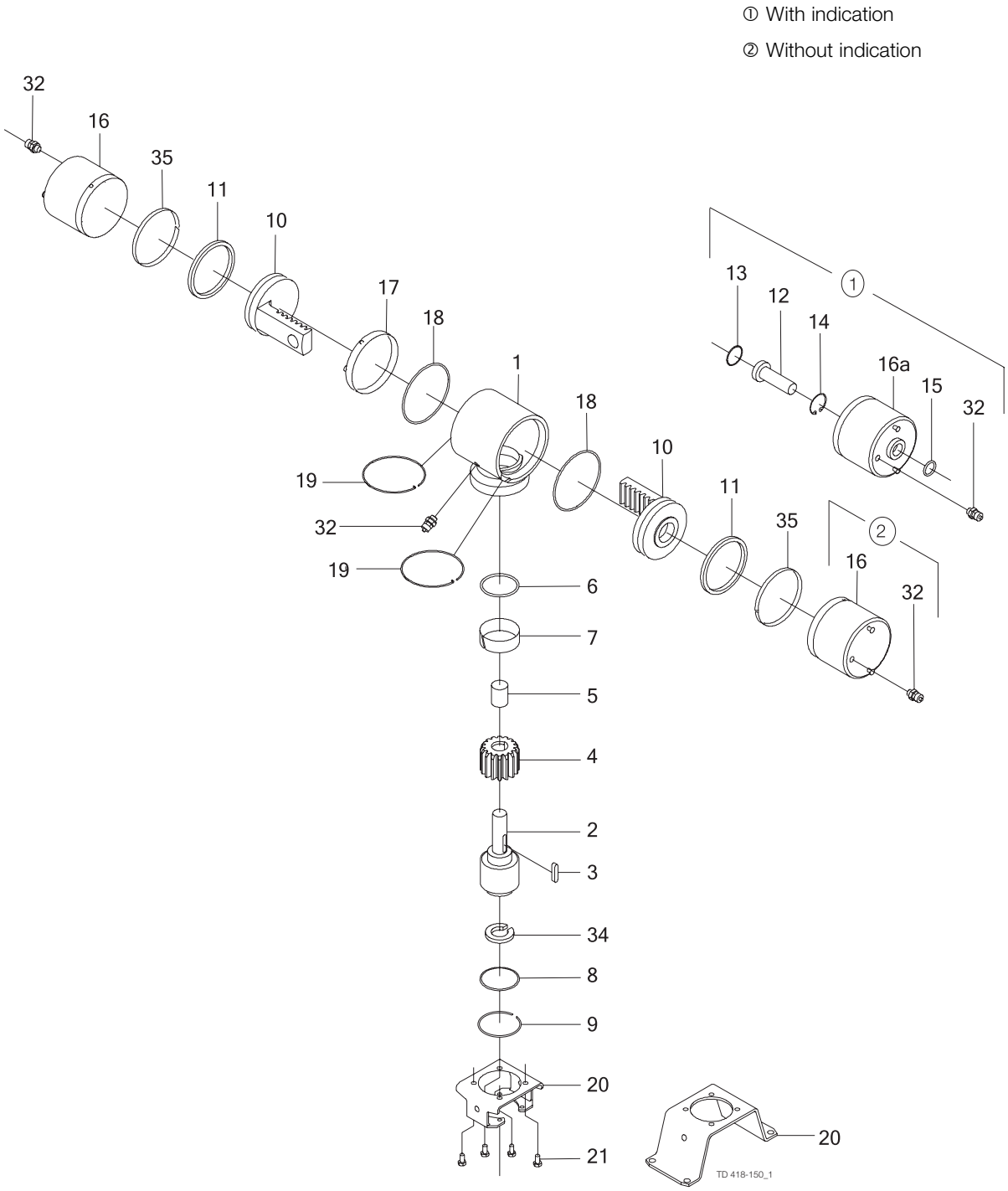
Recommended Spare Parts: Service kit.

900-120/2

7 Parts list and Service Kits

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

7.4 Koltek Actuator 631



7 Parts list and Service Kits

It is important to observe the technical data during installation, operation and maintenance.
Inform the 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
13		1	O-ring
14		1	Circlip
15	□	1	O-ring
16		1	Cylinder
17		1	Cylinder
18	□	2	O-ring
19		2	Lock wire
20		1	Bonnet
21		4	Screw
32		2	Air fitting
34		1	Spindle extention (only for MH25)
35	□	1	Guide ring

Service kits

Denomination	With indication 25-51 mm DN25-50	25-51 mm DN25-50	With indication 63.5-76 mm DN65	63.5-76 mm DN65
Service kit for Actuator (Period 2003-)				
□ Service kit	9611-92-4194	9611-92-4195	9611-92-4196	9611-92-4197
Service kit for Actuator (Period -2003)				
□ Service kit	9611-92-4175	9611-92-4176	9611-92-4177	9611-92-4178

Parts marked with □◆ are included in the Service Kits

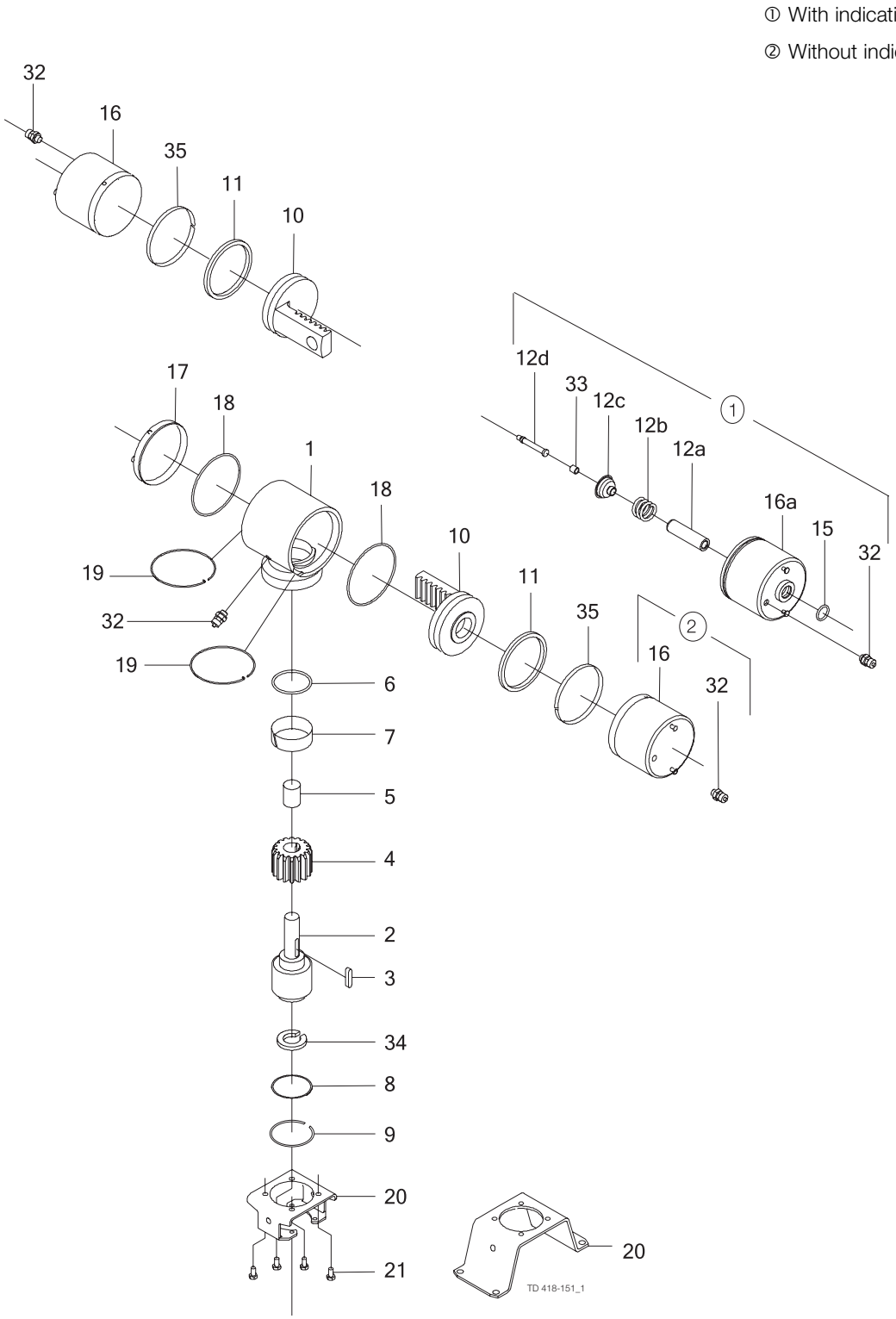
Recommended Spare Parts: Service kit.

900-121/2

7 Parts list and Service Kits

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

7.5 Koltek Actuator 632



It is important to observe the technical data during installation, operation and maintenance.
Inform the 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
12a		1	Indication stem
12b		1	Spring
12c		1	Screw
12d		1	Extension stem
15	□	1	O-ring
16		1	Cylinder
16a		1	Cylinder
17		1	Cylinder
18	□	2	O-ring
19		2	Lock wire
20		1	Bonnet
21		4	Screw
32		2	Air fitting
33		1	Bush
34		1	Spindle extention (only for MH25)
35	□	1	Guide ring

Service kits

Denomination	With indication 25-51 mm DN25-50	25-51 mm DN25-50	With indication 63.5-76 mm DN65	63.5-76 mm DN65
Service kit for Actuator (Period 2003-)				
□ Service kit	9611-92-4194	9611-92-4195	9611-92-4196	9611-92-4197
Service kit for Actuator (Period -2003)				
□ Service kit	9611-92-4175	9611-92-4176	9611-92-4177	9611-92-4178

Parts marked with □◆ are included in the Service Kits.

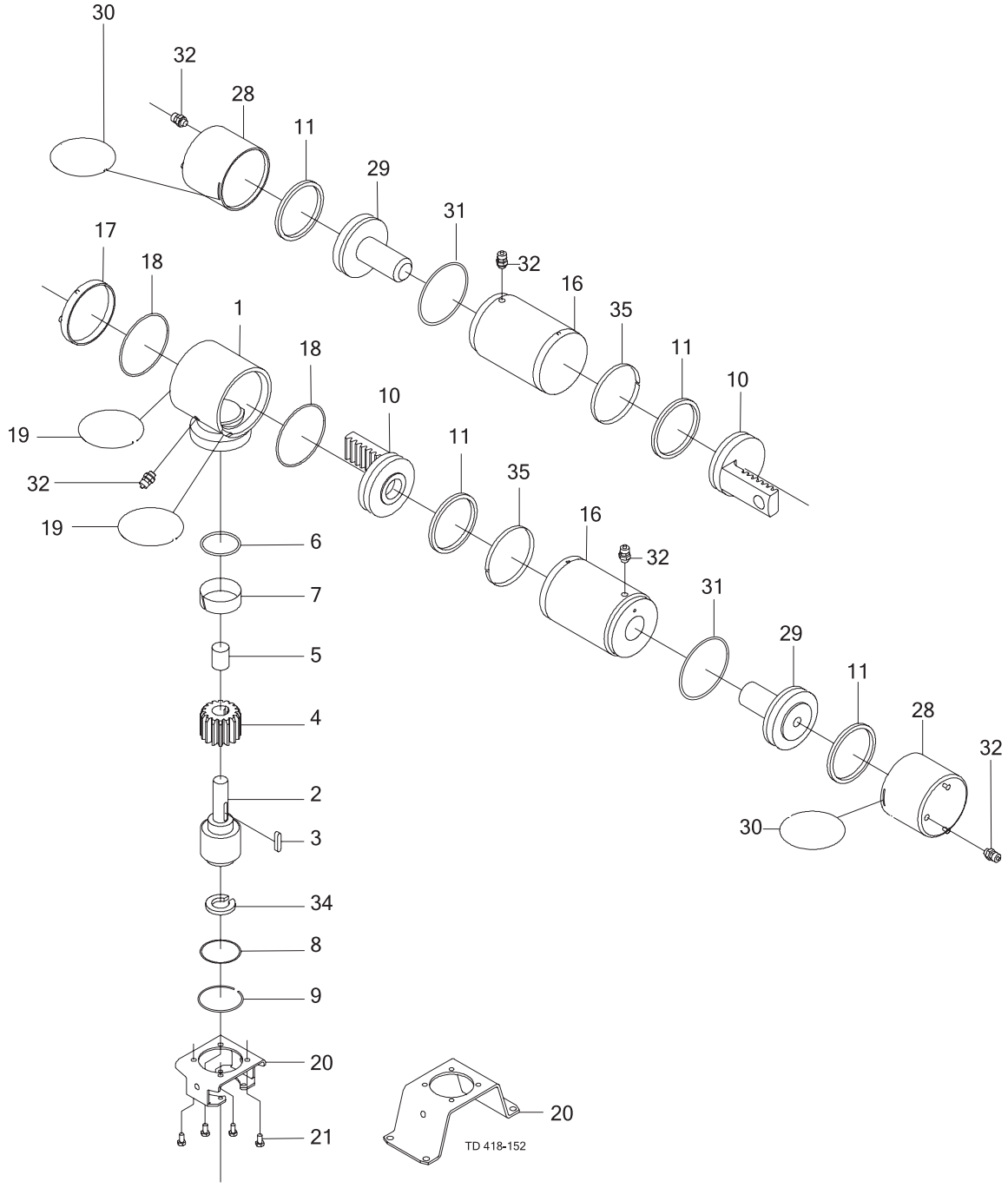
Recommended Spare Parts: Service kit.

900-122/2

7 Parts list and Service Kits

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

7.6 Koltek Actuator 633



It is important to observe the technical data during installation, operation and maintenance.
Inform the 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	□	2	O-ring
16		1	Cylinder
17		1	Cylinder
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 extention
35	□	1	Guide ring

Service kits

	Denomination	25-76 mm DN25-65	89-102 mm DN80-100
Service kit for Actuator (Period 2003-)			
□	**Service kit**	9611-92-4196	9611-92-4198
Service kit for Actuator (Period - 2003)			
□	**Service kit**	9611-92-4177	9611-92-4180

Parts marked with □◆ are included in the Service Kits.

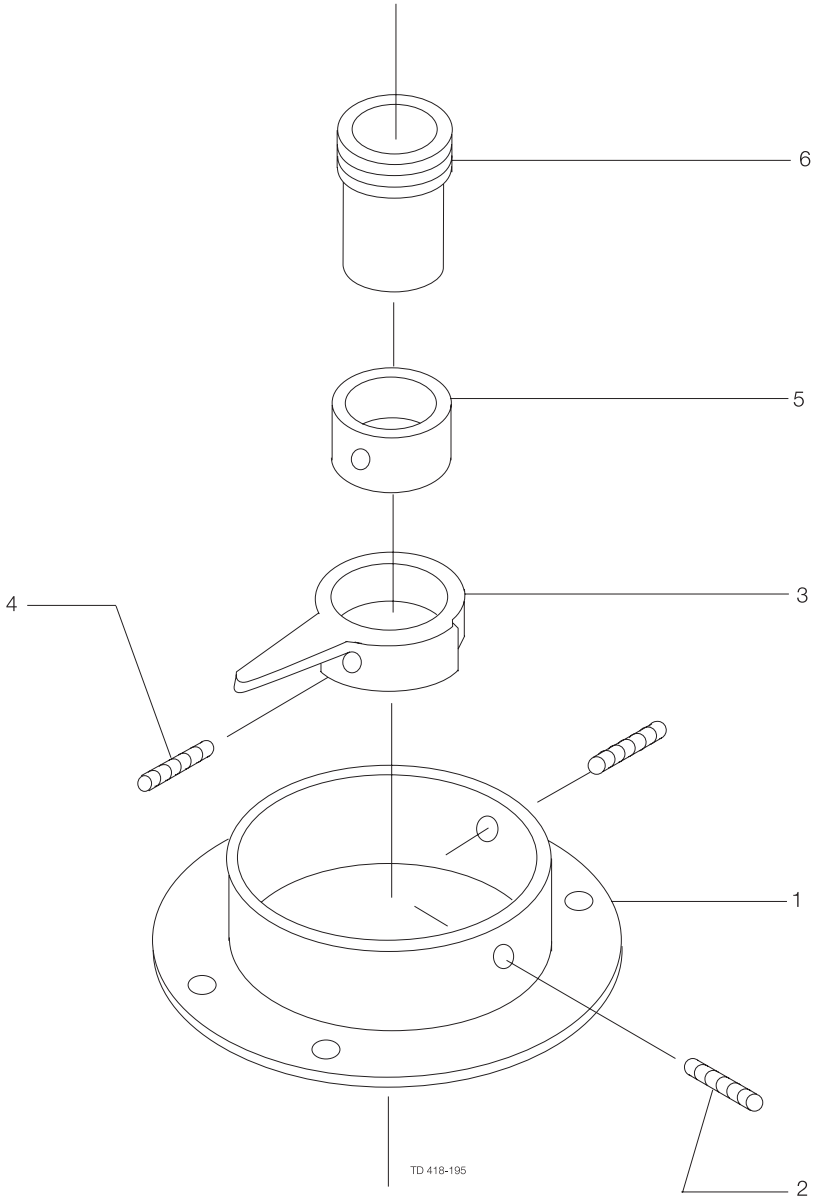
Recommended Spare Parts: Service kit.

900-123/2

7 Parts list and Service Kits

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

7.7 Koltek Laterally Fitted Indication



7 Parts list and Service Kits

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

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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continually updated on our website.
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