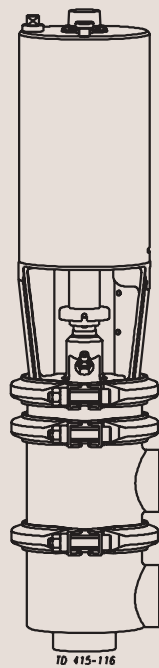


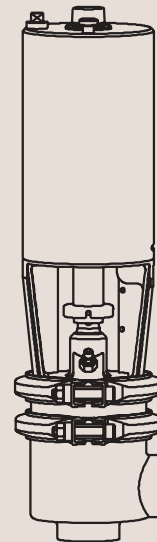


Instruction Manual

ARC Aseptic Remote-Controlled Valve with PTFE diaphragm



TD 415-116



Declaration of Conformity

The designating company

Alfa Laval

Company Name

6000 Kolding

Address

+45 79 32 22 00

Phone No.

hereby declare that

ASEPTIC REMOTE-CONTROLLED VALVE

Denomination

ARC

Type

Year

Was manufactured in conformity with the provisions in the COUNCIL DIRECTIVE on mutual approximation of the laws of the Member States on the safety of machines (98/37/EC) with special reference to Annex 1 of the directive on essential safety and health requirements in relation to the construction and manufacture of machines.

Bjarne Søndergaard

Name

Vice President, R & D

Title

Alfa Laval

Company

B. Søndergaard

Signature

Designation

CE

This manual is divided into main sections. - See below.

Safety

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Safety

Unsafe practices and other important information are emphasized in this manual.

Warnings are emphasized by means of special signs.

1. Important information

Always read the manual before using the valve!

2

- WARNING!** : Indicates that special procedures **must** be followed to avoid severe personal injury.
- CAUTION!** : Indicates that special procedures **must** be followed to avoid damage to the valve.
- NOTE!** : Indicates important information to simplify practices or to make them clearer.

2. Warning signs



: General warning.



: Caustic agents.

All warnings in the manual are summarized on this page.

Pay special attention to the instructions below so that severe personal injury or damage to the valve are avoided.

3. Safety precautions

Installation:



- : - **Always** observe the technical data (see page 22).
- **Always** release compressed air after use.



- : **Never** touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air.



- : **Never** touch the valve or the pipelines when processing hot liquids or when sterilizing.



- : The valve and the pipelines must **never** be pressurised when dismantling the valve.

Operation:



- : - **Always** observe the technical data (see page 22).
- **Always** release compressed air after use.



- : **Never** touch the valve or the pipelines when processing hot liquids or when sterilizing.



- : **Never** touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air.



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

Maintenance:



- : - **Always** observe the technical data (see page 22).
- **Always** release compressed air after use.



- : - The valve must **never** be hot when serviced.
- The valve and the pipelines must **never** be pressurised when the valve is serviced.



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



- : **Never** touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air.

Installation

4

*The instruction manual is part of the delivery.
Study the instructions carefully.
The items refer to the drawings and the parts list on
pages 24-31.*

*The valve is supplied as separate parts as standard
(for welding).
The valve is assembled before delivery, if it is
supplied with fittings.*

1. Unpacking/Delivery

1

NOTE!

We cannot be held responsible for incorrect unpacking.

Check the delivery:

1. Complete valve, stop valve or change-over valve (see 2 and 3).
2. Delivery note.
3. Instruction Manual.

2

Delivery of stop valve:

1. Complete actuator with bonnet (8).
2. Clip assembly (11).
3. Intermediate ring (13).
4. Diaphragm ring (21) and seal ring (17), (only for valve sizes 76-101.6 mm and DN80-100).
5. Diaphragm stem seal (20).
6. Two clamps (15).
7. Valve stem unit (19, 22).
8. Valve body (18).

3

Delivery of change-over valve:

1. Complete actuator with bonnet (8).
2. Clip assembly (11).
3. Intermediate ring (13).
4. Diaphragm ring (21) and seal ring (17), (only for valve sizes 76-101.6 mm and DN80-100).
5. Diaphragm stem seal (20).
6. Three clamps (15).
7. Valve stem unit (19, 22).
8. Two valve bodies (16, 18).
9. Valve body seal ring (17).

4

Clean the valve/valve parts from possible packing materials.

5

Inspect the valve/valve parts for visible transport damage.

6

Avoid damaging the valve/valve parts.

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.

NO = Normally open.
NC = Normally closed.
A/A = Air/air activated.

2. General installation

1



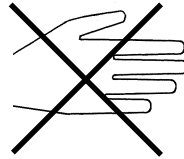
- **Always** observe the technical data (see page 22).
- **Always** release compressed air after use.

NOTE!

We cannot be held responsible for incorrect installation.

2

Moving parts!



Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air.

3

4

Risk of damage!

It is recommended to install the valve so that:

- The actuator is not turned downwards.
- The flow is against the closing direction to avoid water hammer.

Avoid stressing the valve.

Pay special attention to:

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

5

6

Fittings:

Ensure that the connections are tight (remember seal rings).

Air connection: R1/8" (BSP)

Connect air correctly:

- NO: Top connection.
- NC: Side connection.
- A/A: Top and side connection.

Installation

Study the instructions carefully.
The valve is supplied as separate parts to facilitate the welding.

The items refer to the drawings and the parts list on pages 24-31.
Check the valve for smooth operation after welding.

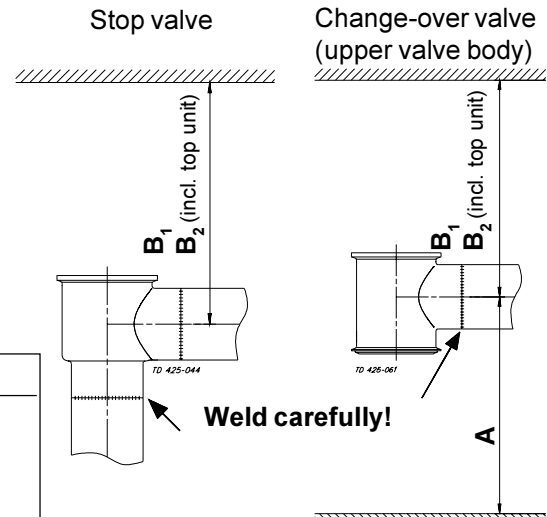
3. Welding

1

Always weld the valve so that the valve body seal ring can be replaced (change-over valve).

Maintain the minimum clearances (A and B) so that the lower valve plug (change-over valve) and the actuator with the internal valve parts can be removed.

| Valve size | A (mm) | B ₁ (mm) | B ₂ (mm) |
|----------------|--------|---------------------|---------------------|
| DN40/38 mm | 160 | 550 | 730 |
| DN50/51 mm | 160 | 550 | 730 |
| DN65/63,5 mm | 180 | 550 | 730 |
| DN80/76 mm | 205 | 600 | 780 |
| DN100/101,6 mm | 240 | 650 | 830 |



2

3

Stop valve:

Assemble the valve in accordance with instructions 4-11 on pages 18-19.

Pay special attention to the warnings!

Change-over valve:

Assemble the valve in accordance with instructions 3-11 on pages 18-19.

Pay special attention to the warnings!

4

Pre-use check:

1. Supply compressed air to the actuator.
2. Open and close the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!

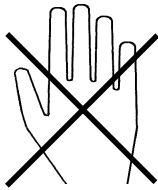
The valve can be fitted with an oil damper if water hammer occurs when the valve closes in the flow direction.

Study the instructions carefully and pay special attention to the warnings!
 NC = normally closed.
 A/A = air/air activated.

4. Fitting of oil damper (optional extra)

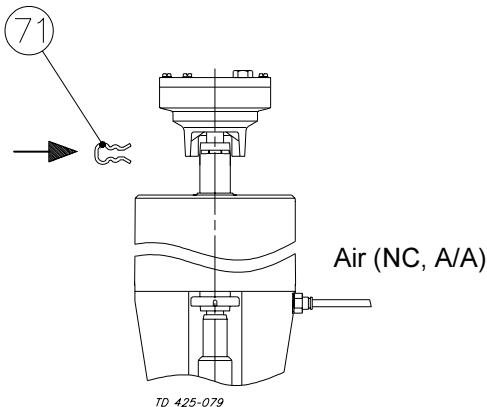
1

Burning danger!



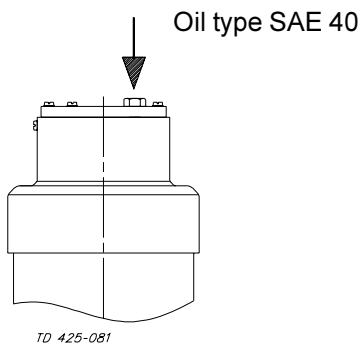
! Never touch the valve or the pipelines when processing hot liquids or when sterilizing.

3



1. Connect the two piston rods by means of clip (71).
2. Release compressed air to the actuator.
Pay special attention to the warnings!

5



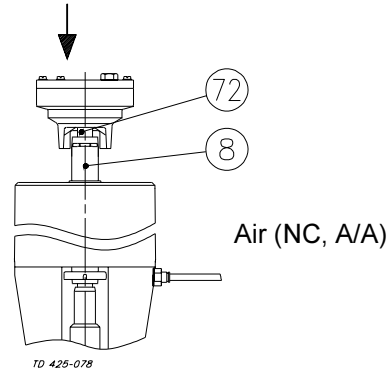
Fill further oil through the plug hole if large air bubbles occur under the plexiglas cover.

NOTE!

There should be a small air bubble which equalizes changes in the pressure because of temperature changes.

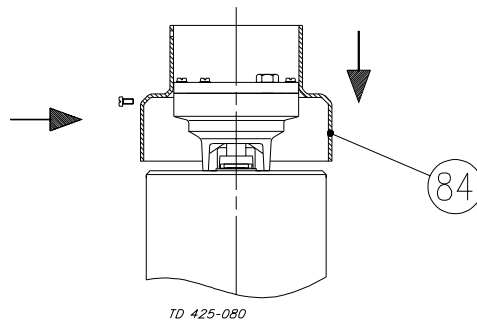
2

Ensure that no other equipment is fitted on the actuator top!



1. Supply compressed air to the actuator.
Pay special attention to the warnings!
2. Fit the damper so that damper piston rod (72) enters actuator piston rod (8).

4



1. Fit protective hood (84).
2. The valve is now ready for operation.

6

Removal/dismantling:

Remove the damper by following the instructions in reverse order.

Pre-use check:

1. Supply compressed air to the actuator.
2. Open and close the valve several times to ensure that it operates smoothly.
Pay special attention to the warnings!

Installation

8

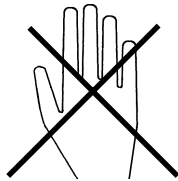
The valve can be fitted with the top unit *ThinkTop*[®]. It can also be fitted with an indication unit.

Study the instructions carefully and pay special attention to the warnings!
The items refer to the drawings and the parts list on pages 36-37.

5. Fitting of indication equipment (optional extra)

1

Atmospheric pressure required!



Burning danger!

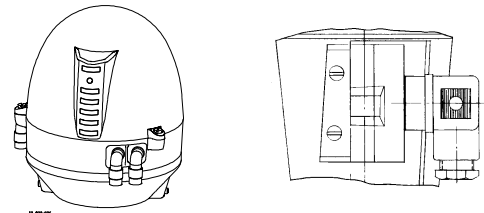


- The valve must **never** be hot when dismantling it.
- The valve and the pipelines must **never** be pressurised when dismantling the valve.

2

ThinkTop[®]

Indication unit



CAUTION!

The indication and control equipment must be electrically installed by authorized personnel.

- *ThinkTop*[®]:
(see the separate instruction manual)
- Indication unit:
(see the instructions on pages 8-10)

3

Dismantle the valve in accordance with instructions 1-2 on page 16.

Pay special attention to the warnings!

4

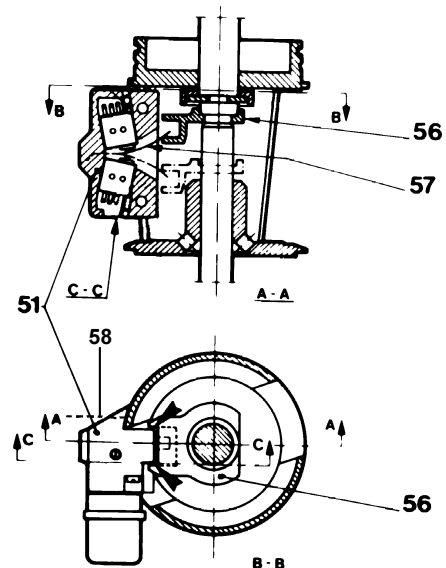
1. Fit ring (56) on the plug stem.
2. Assemble the valve in accordance with instructions 10-11 on page 19.

Pay special attention to the warnings!

5

Micro switch unit:

1. Assemble and fit the switch unit
2. Turn ring (56) so that the edges of holder (51) guide its movements.
3. Ensure that spring (57) enters the recess in the ring.
4. Fix the switch unit by means of screws (58).



The indication unit has one or two micro switches or an inductive proximity switch.

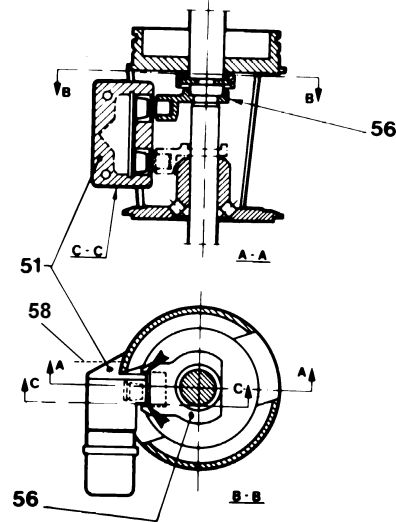
Study the instructions carefully.
The items refer to the drawings and the parts list on pages 36-37.

5. Fitting of indication equipment (optional extra)

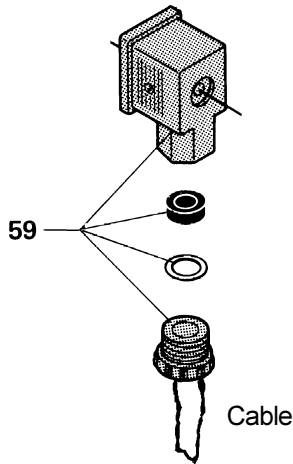
6

Inductive proximity switch unit:

1. Assemble and fit the switch unit
2. Turn ring (56) so that the edges of holder (51) guide its movements.
3. Fix the switch unit by means of screws (58).

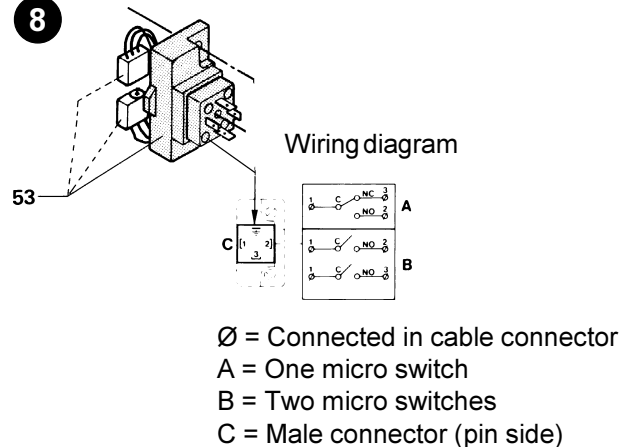


7



Fit the cable through the cable gland and assemble cable socket (59).

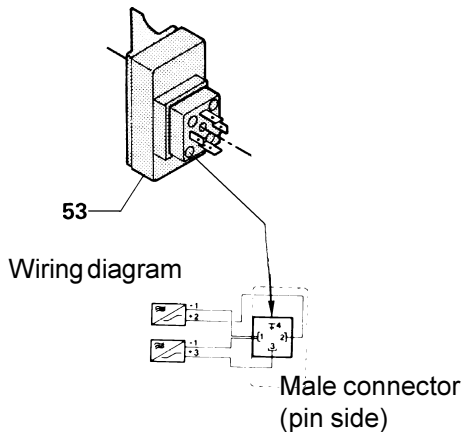
8



Micro switch unit:

Connect the cable to switch unit (53) as shown in the wiring diagram.

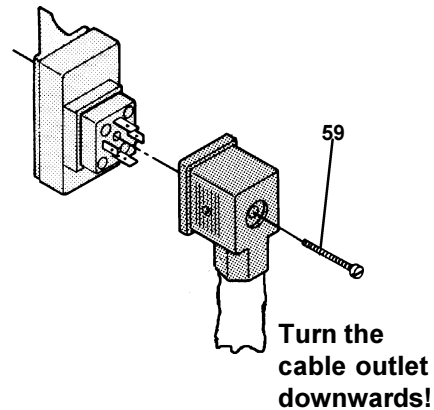
9



Inductive proximity switch unit:

Connect the cable to switch unit (53) as shown in the wiring diagram.

10



Tighten screw (59) firmly

NOTE!

The cable gland should be sealed with silicone rubber under extreme conditions.

Installation

Adjust the micro switch and inductive proximity switch units after installation.

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 36-37.

6. Adjustment of indication equipment (optional extra)

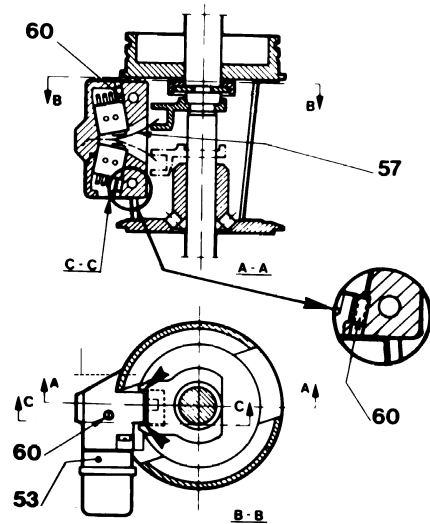
1

10

Micro switch unit:

(Adjustment of contact point between spring (57) and switch unit (53)).

1. Loosen switch unit (53) slightly (screw (58)).
2. Rotate adjustment screw (60) until a signal is obtained.
3. Tighten the switch unit.
4. Check that the signal is correct.
5. Readjust if necessary.



2

Pre-use check:

1. Supply compressed air to the actuator.
2. Open and close the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!

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

The items refer to the drawings and the parts list on pages 24-31.

1. Operation

1



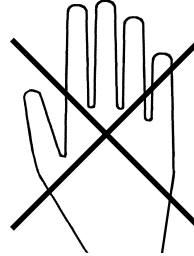
- **Always** observe the technical data (see page 22).
- **Always** release compressed air after use.

NOTE!

We cannot be held responsible for incorrect operation.

2

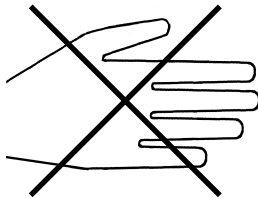
Burning danger!



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

3

Moving parts!



Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air.

4

CAUTION!

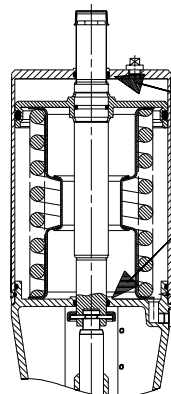
It is recommended **not** to re-use diaphragm (20b) after dismantling (risk of damage and leakage).

5

NOTE!

It is recommended **not** to use the valve under vacuum as there will be no visual leakage indication.

6



Lubricate if necessary!
(see page 15)

TD 425-054

Lubrication of actuator

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

Pay attention to possible faults.

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.

2. Fault finding

12

NOTE!

Study the maintenance instructions carefully before replacing worn parts. - See page 14!

| Problem | Cause/result | Repair |
|---|---|---|
| The valve plug jerks | The seals seize | Lubricate: - O-rings (2) - O-ring (6) and the inside of cylinder (3) |
| Product leakage at stem and/or clamp | Worn/product affected diaphragm stem seal and/or seal ring (17) | - Replace the seals - Select a different rubber grade |
| Product leakage (closed valve) | - Worn/product affected plug seal ring - Loose plug parts (vibrations) - Product deposits on the seat and/or plug | - Replace the seal ring - Select a different rubber grade - Tighten the loose parts - Frequent cleaning |
| Product leakage (too high pressure or too small actuator) | - Worn actuator O-rings - Too small actuator or actuator spring | - Replace the O-rings - Select a larger actuator (for valve sizes 38 - 63.5 mm (1½" - 2½")) - Fit a stronger spring - Use auxiliary air on the spring side (NOT-element) |
| Water hammer | The flow direction is the same as the closing direction | - The flow direction should be against the closing direction - Fit a damper on the valve (optional extra) - Use auxiliary air on the spring side (NOT-element) |
| The valve does not open/close | - Faulty clip assembly (11) - The pressure on the plug is too high | - Replace the clip assembly - Reduce the pressure - Fit stronger spring/larger actuator |

The valve is designed for cleaning in place (CIP).
CIP = Cleaning In Place.

Study the instructions carefully and pay special attention to the warnings!
NaOH = Caustic Soda.
HNO₃ = Nitric acid.

3. Recommended cleaning

1 Caustic danger!



Always use rubber gloves!



Always use protective goggles!



Always handle lye and acid with great care.

3

Clean the plug and the seats correctly.
- Stop valve: Open it.
- Change-over valve: Lift and lower momentarily (flip).

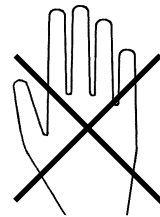
Pay special attention to the warnings!

5

- Avoid excessive concentration of the cleaning agent
⇒ **Dose gradually!**
- Adjust the cleaning flow to the process
⇒ **Milk sterilization/viscous liquids**
⇒ **Increase the cleaning flow!**
- Always** rinse well with clean water after the cleaning.

2

Burning danger!



Never touch the valve or the pipelines when sterilizing.

4

Examples of cleaning agents:

Use clean water, free from chlorides.

- 1% by weight NaOH at 70° C.

| | | | |
|--------------|---|----------------|-------------------|
| 1 kg NaOH | + | 100 l water | = Cleaning agent. |
|--------------|---|----------------|-------------------|

| | | | |
|-------------------|---|----------------|-------------------|
| 2.2 l 33% NaOH | + | 100 l water | = Cleaning agent. |
|-------------------|---|----------------|-------------------|

2. 0.5% by weight HNO₃ at 70° C.

| | | | |
|-------------------------------|---|----------------|-------------------|
| 0.7 l 53% HNO ₃ | + | 100 l water | = Cleaning agent. |
|-------------------------------|---|----------------|-------------------|

6

NOTE!

The cleaning agents must be stored/discharged in accordance with current rules/directives.

Maintenance

14

Maintain the valve carefully.
Study the instructions carefully and pay special attention to the warnings!

Always keep spare rubber seals and diaphragms in stock.

1. General maintenance

1



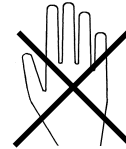
- **Always** observe the technical data (see page 22).
- **Always** release compressed air after use.

NOTE!

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

2

Burning danger!



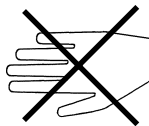
Atmospheric pressure required!



- The valve must **never** be hot when serviced.
- The valve and the pipelines must **never** be pressurised when the valve is serviced.

3

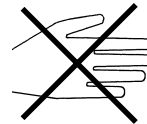
Cutting danger!



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

4

Moving parts!



Never touch the clip assembly or the actuator piston rod if the actuator is supplied with compressed air.

Ordering spare parts

- Contact the Sales Department.
- Order from the Spare Parts List.

Recommended spare parts: Service kits (see Spare Parts List).

Maintain the valve carefully.
Study the instructions carefully.

Always keep spare rubber seals and diaphragms in stock.
Check the valve for smooth operation after service.

1. General maintenance

| | Valve diaphragm unit | Valve rubber seals | Actuator rubber seals |
|--|--|--|---|
| Preventive maintenance | Replace after 12 months (depending on working conditions) | Replace when replacing the diaphragms | Replace after 5 years |
| Maintenance after leakage (leakage normally starts slowly) | Replace at the end of the day | Replace when replacing the diaphragms | Replace when possible |
| Planned maintenance | <ul style="list-style-type: none"> - Regular inspection for leakage and smooth operation - Keep a record of the valve - Use the statistics for planning of inspections Replace after leakage | Replace when replacing the diaphragms | <ul style="list-style-type: none"> - Regular inspection for leakage and smooth operation - Keep a record of the actuator - Use the statistics for planning of inspections Replace after air leakage |
| Lubrication (USDA H1 approved oil/grease) | Before fitting Silicone oil or silicone grease | Before fitting Silicone oil or silicone grease | Before fitting Oil or grease |

Pre-use check:

1. Supply compressed air to the actuator.
2. Open and close the valve several times to ensure that it operates smoothly.

Pay special attention to the warnings!

Maintenance

16

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.

Handle scrap correctly.
NC = Normally closed.
NO = Normally open.
A/A = Air/air activated.

2. Dismantling of valve

1

NC actuator:

1. Remove clip assembly (11).
2. Supply compressed air to the actuator.
3. Remove upper clamp (15).
4. Remove the actuator.
5. Release compressed air.

Pay special attention to the warnings!

3

1. Remove clamp (15).
2. Remove intermediate ring (13).

5

1. Remove the complete diaphragm/stem unit from valve body (16 or 18).
2. For valve sizes 76-101.6 mm and DN80-100 the unit is removed from diaphragm ring (21).

2

NO actuator:

1. Remove upper clamp (15).
2. Supply compressed air to the actuator.
3. Remove clip assembly (11).
3. Remove the actuator.
5. Release compressed air.

Pay special attention to the warnings!

4

Change-over valve:

1. Remove lower clamp (15).
2. Dismantle upper and lower valve bodies (16, 18).
3. Remove lower seal ring (17).

6

Stop valve:

1. Remove diaphragm ring (21) and seal ring (17), (only for valve sizes 76-101.6 mm and DN80-100).
2. Remove washer (14) from upper stem (19).

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.

Handle scrap correctly.
NC = Normally closed.
NO = Normally open.
A/A = Air/air activated.

2. Dismantling of valve

7

Turn upper stem (19) anticlockwise and remove it from lower stem (22a), (counterhold with a spanner).

9

Change-over valve:

1. Remove diaphragm ring (21) and upper seal ring (17), (only for valve sizes 76-101.6 mm and DN80-100).
2. Remove lower stem (22a) from upper valve body (16).

11

Stop valve:

1. Remove screw (22g), O-ring (22f) and washer (22e) from lower stem (22a).
2. Remove seal (22d or 22h) from the stem.

8

1. Remove diaphragm (20a), diaphragm (20b) and stem seal (20d) from lower stem (22a).
2. Remove L-seal (20c) from diaphragm (20b).

10

Change-over valve:

1. Remove screw (22g), O-ring (22f) and washer (22e) from lower stem (22a).
2. Remove seal (22d or 22h), middle piece (22c) and seal (22b or 22h) from the stem.

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.

Lubricate the rubber seals and the diaphragms before fitting them.

3. Assembly of valve

1

Stop valve:

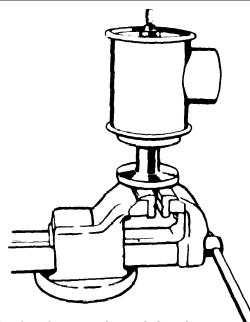
1. Fit seal (22d or 22h) on lower stem (22a).
2. Fit washer (22e), O-ring (22f) and screw (22g) on the stem (use Loctite 243 or similar!).

2

Change-over valve:

1. Fit seal (22b or 22h), middle piece (22c) and seal (22d or 22h) on lower stem (22a).
2. Fit washer (22e), O-ring (22f) and screw (22g) on the stem (use Loctite 243 or similar!).

3



Change-over valve:

1. Fit upper seal ring (17), (turn it with the diagonal surface upwards!) and diaphragm ring (21) on the top of the upper valve body (only for valve sizes 76-101.6 mm and DN80-100).
2. Fit lower stem (22a) in upper valve body (16) so that the stem flange contacts the bottom of the valve body.

4



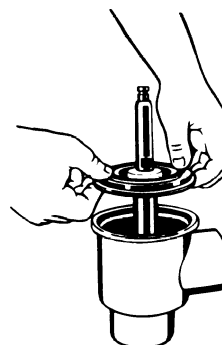
1. Fit lower stem (22a) through diaphragm ring (21), (only stop valve).
2. Fit L-seal (20c) on diaphragm (20b).
3. Fit stem seal (20d), diaphragm (20b) and diaphragm (20a) on lower stem (22a).

5



1. Apply Loctite 243 or similar on the thread of lower stem (22a).
2. Fit upper stem (19) on the lower stem, turn it clockwise and tighten until there is metallic contact between the upper and lower stems (counterhold with a spanner!).

6



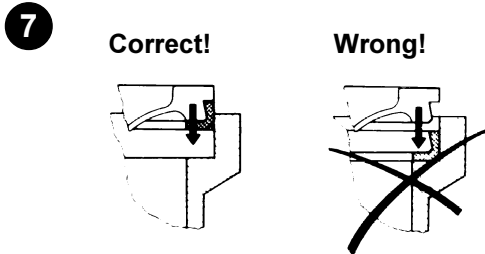
Stop valve:

1. Fit washer (14) on upper stem (19).
2. Fit seal ring (17), (turn it with the diagonal surface upwards!) and diaphragm ring (21) together with stem unit (22a) on the top of valve body (18), (only for valve sizes 76-101.6 mm and DN80-100).

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.

Lubricate the rubber seals and the diaphragms before fitting them.

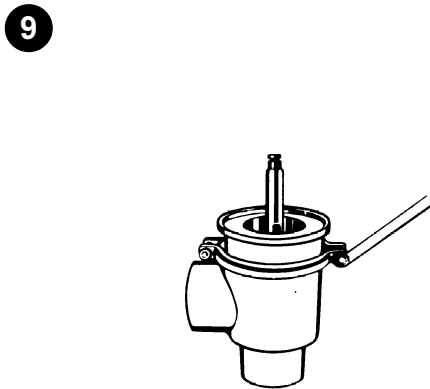
3. Assembly of valve



1. Fit the complete diaphragm/stem unit in valve body (16 or 18).
2. For valve sizes 76-101.6 mm and DN80-100 the unit is fitted in diaphragm ring (21).

NOTE!

Ensure that L-seal (20c) is fitted on diaphragm (20b) before placing the diaphragm unit in the valve body.



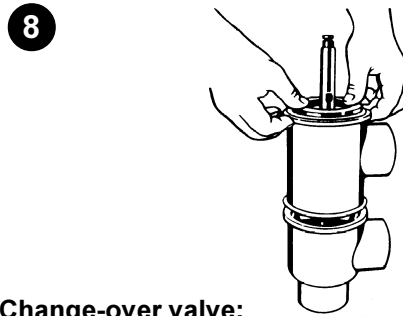
1. Fit intermediate ring (13) on valve body (16 or 18).
2. Fit and tighten clamp (15).

11

NC actuator:

1. Supply compressed air to the actuator.
2. Fit the plastic ring of clip assembly (11) on the actuator piston rod.
3. Fit the actuator on valve body (16 or 18) so that upper stem (19) enters the actuator piston rod.
4. Fit and tighten upper clamp (15).
5. Release compressed air.
6. Fit and assemble clip assembly (11).

Pay special attention to the warnings!



Change-over valve:

1. Fit lower seal ring (17), (Turn it with the diagonal surface upwards!) in lower valve body (18).
2. Fit upper valve body (16) and the complete diaphragm/stem unit together with the lower valve body.
3. Fit and tighten lower clamp (15).

10

NO actuator:

1. Fit the plastic ring of clip assembly (11) on the actuator piston rod.
2. Supply compressed air to the actuator.
3. Fit the actuator on valve body (16 or 18) so that upper stem (19) enters the actuator piston rod.
4. Fit and assemble clip assembly (11).
5. Release compressed air.
6. Fit and tighten upper clamp (15).

Pay special attention to the warnings!

Maintenance

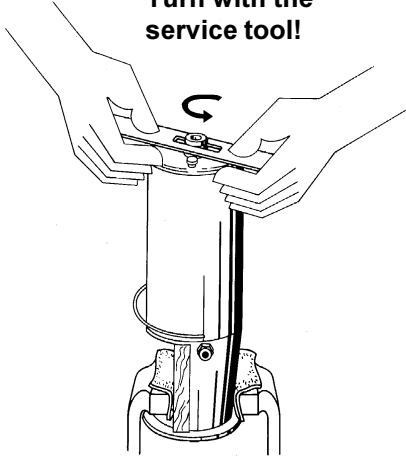
Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.

Handle scrap correctly.
A/A = Air/air activated.

4. Dismantling of actuator

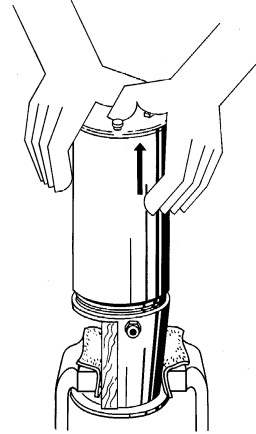
1

Turn with the service tool!



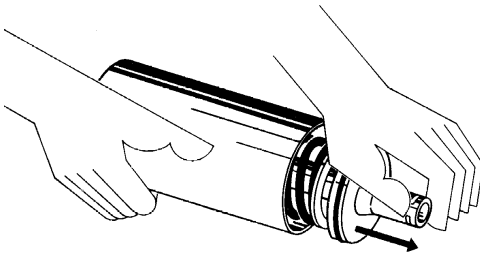
1. Turn cylinder (3).
2. Remove lock wire (4).

2



1. Remove cylinder (3).
2. Remove O-rings (2, 7) from bonnet (8).

3

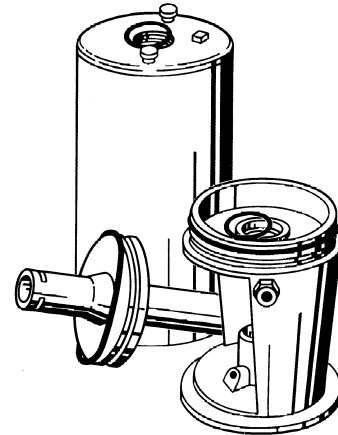


1. Remove piston (6) and spring assembly (10).
2. Remove O-ring (5) from the piston.
3. Remove O-ring (2) from cylinder (3).

NOTE!

The A/A actuator has no spring assembly.

4

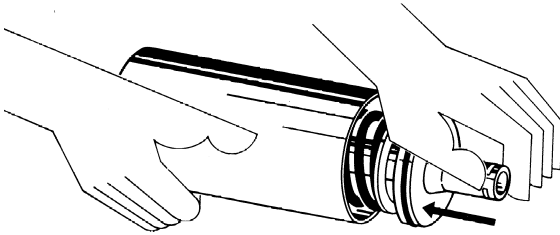


Replace the rubber seals.

Study the instructions carefully.
The items refer to the drawings and the parts list on pages 24-31.
Lubricate the rubber seals before fitting them.

5. Assembly of actuator

1

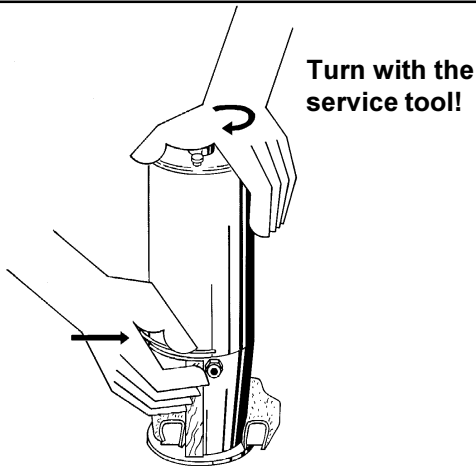


1. Fit O-ring (2) in cylinder (3).
2. Fit O-ring (5) on piston (6).
3. Fit the piston and spring assembly (10).

NOTE!

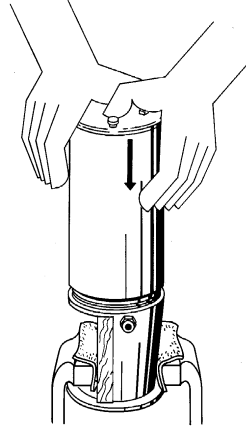
The A/A actuator has no spring assembly.

3



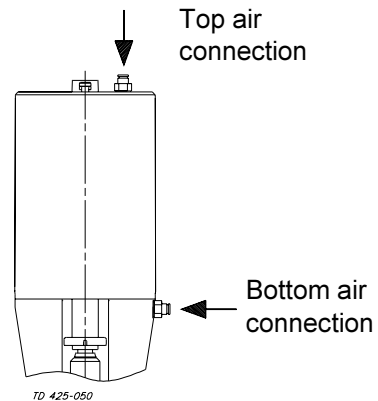
1. Fit lock wire (4) through the slot in cylinder (3) into the hole in bonnet (8).
2. Turn the cylinder 360° (see 4).

2



1. Fit O-rings (2, 7) in bonnet (8).
2. Fit cylinder (3).

4



NOTE!

It is recommended to turn cylinder (3) further 180° in relation to bonnet (8) so that the top and bottom air connections are fixed on the same side.

Technical data

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

*Inform the personnel about the technical data.
NO = Normally open.
NC = Normally closed.*

22

1. Technical data

Technical data

| | |
|---|---------------------------|
| Pressure range | 0 - 800 kPa (0-8 bar) |
| Temperature range | -10°C to 140°C (EPDM) |
| Optimum process conditions | >50 kPa (0,5 bar), > 20°C |
| Max. sterilisation temperature (steam – short time) ... | 150°C – 380kPa (3,8 bar) |
| Air pressure | 500 – 800 kPa (5-8 bar) |
| Air consumption (litres free air) | |
| 38mm, 51mm, DN40, DN50 | 0,2 x air pressure in bar |
| 63,5mm, 76mm, 101,6mm, DN65, DN 80, DN100 | 0,7 x air pressure in bar |

NOTE! Vacuum is not recommended in aseptic applications.

| Expected lifetime of diaphragm unit under normal conditions: (no pressure shocks or cavitation) | | |
|--|------------------------|-------------------------------|
| Size\Type | Stop valve activations | Change over valve activations |
| 38mm/DN40 | 25.000 | 10.000 |
| 51mm/DN50 | 25.000 | 10.000 |
| 63,5mm/DN65 | 25.000 | 5.000 |
| 76,1mm/DN80 | 5.000 | 5.000 |
| 101mm/DN100 | 5.000 | 5.000 |

NOTE! Activating the valve without internal product pressure reduces lifetime of diaphragm unit.

Materials

| | |
|----------------------------------|--------------------------------|
| Product wetted steel parts | Acid resistant steel AISI 316L |
| Other steel parts | Stainless steel AISI 304 |
| Finish | Semi bright |
| Product wetted seals | EPDM, PTFE |
| Other seals | NBR, EPDM |



Drawing/Parts list

The drawings and the parts list include all items.
 NO = Normally open.
 NC = Normally closed.

The items are identical with the items in the Spare Parts List.
 When ordering spare parts, please use the Spare Parts List!

Parts list ARC - stop valve

24

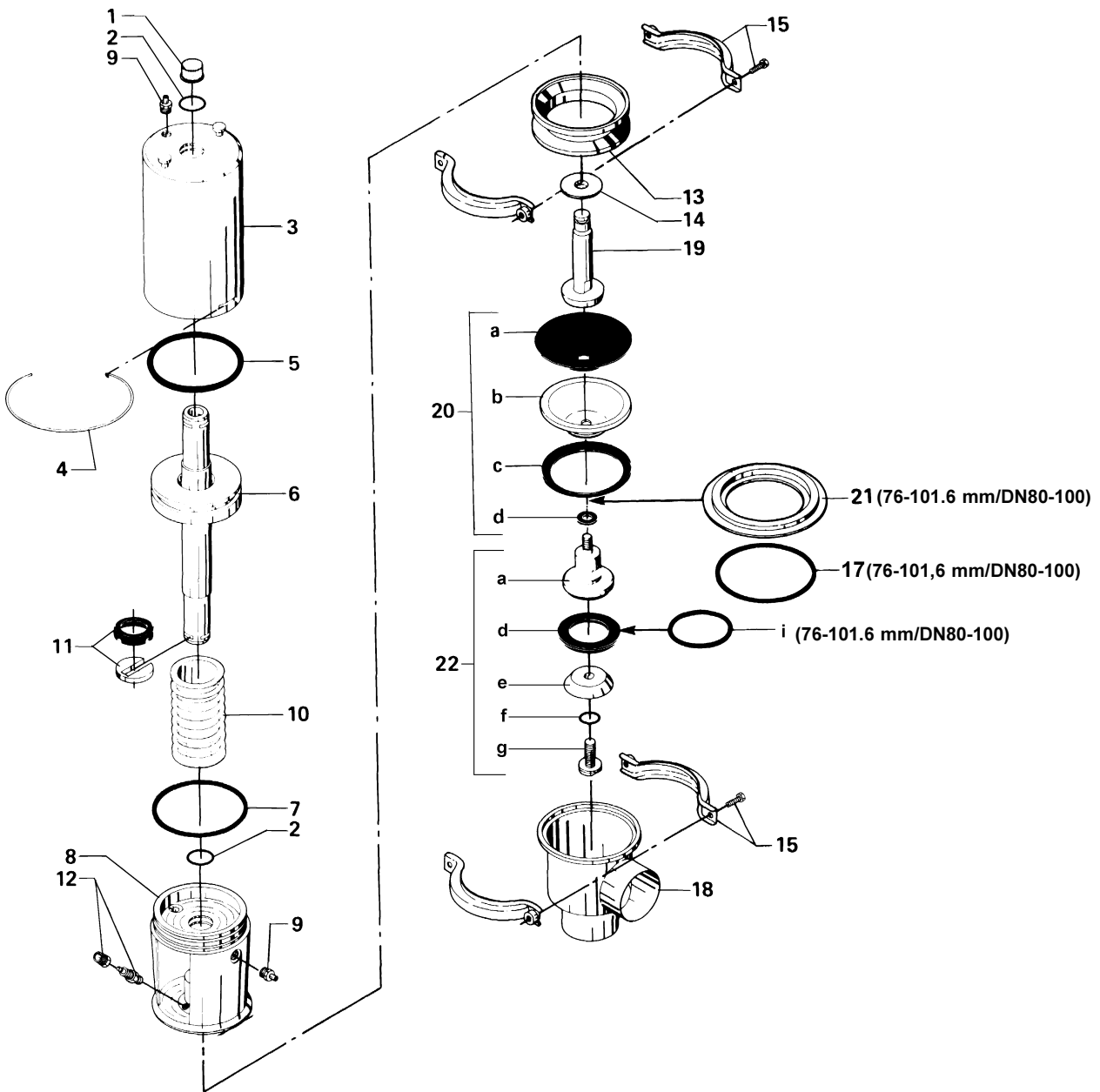
| Item | Qty. | Denomination |
|------|------|---|
| 1 | 1 | Cap |
| 2△ | 2 | O-ring |
| 3 | 1 | Cylinder |
| 4△ | 1 | Lock wire |
| 5△ | 1 | O-ring |
| 6 | 1 | Piston |
| 7△ | 1 | O-ring |
| 8 | 1 | Bonnet |
| 9 | 2 | Plug |
| 10◆ | 1 | Spring assembly (Standard, black) Extra strong spring (alternative, white) |
| 11△ | 1 | Clip, complete |
| 12 | 1 | Drain tube |
| 13 | 1 | Intermediate piece |
| 14 | 1 | Washer |
| 15 | 1 | Clamp and screws |
| 16 | 1 | Valve body, upper |
| 17△ | 1 | Seal ring (stop valve) |
| | 2 | Seal ring (change-over valve) |
| 18 | 1 | Valve body, lower |
| 19 | 1 | Stem, upper |
| 20△ | 1 | Diaphragm set |
| 20a | 1 | Diaphragm support |
| 20b | 1 | Diaphragm |
| 20c | 1 | L-seal |
| 20d | 1 | Stem seal |
| 21 | 1 | Diaphragm ring |
| 22 | | Plug, single, compl. |
| a | 1 | Stem, lower |
| b△ | 1 | Seal |
| c | 1 | Middle piece |
| d△ | 1 | Seal |
| e | 1 | Washer |
| f△ | 1 | O-ring |
| g | 1 | Screw |
| h△ | 1 | O-ring |
| i△ | 1 | O-ring |

- △ : Service kit - EPDM, NBR, FPM
(See Spare Parts List)
- ◆ : Only for NO- and NC actuators

This page shows an exploded drawing of ARC, stop valve.

The drawing includes all items of the valve.
They are identical with the items in the Spare Parts List

Exploded drawing



Drawing/Parts list

The drawings and the parts list include all items.
 NO = Normally open.
 NC = Normally closed.

The items are identical with the items in the Spare Parts List.
 When ordering spare parts, please use the Spare Parts List!

Parts list ARC - change-over valve

26

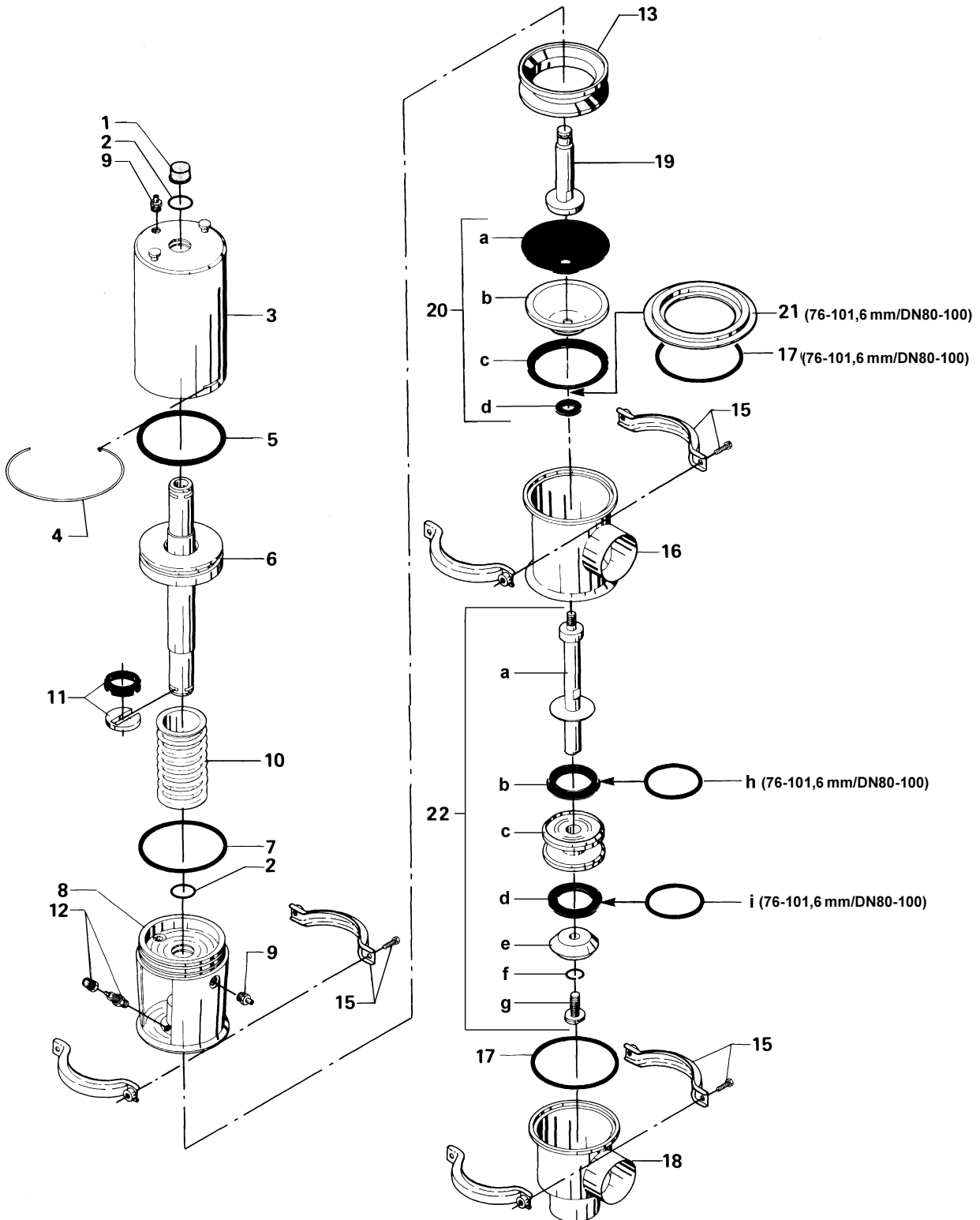
| Item | Qty. | Denomination |
|------|------|---|
| 1 | 1 | Cap |
| 2△ | 2 | O-ring |
| 3 | 1 | Cylinder |
| 4△ | 1 | Lock wire |
| 5△ | 1 | O-ring |
| 6 | 1 | Piston |
| 7△ | 1 | O-ring |
| 8 | 1 | Bonnet |
| 9 | 2 | Plug |
| 10◆ | 1 | Spring assembly (Standard, black) Extra strong spring (alternative, white) |
| 11△ | 1 | Clip, complete |
| 12 | 1 | Drain tube |
| 13 | 1 | Intermediate piece |
| 14 | 1 | Washer |
| 15 | 1 | Clamp and screws |
| 16 | 1 | Valve body, upper |
| 17△ | 1 | Seal ring (stop valve) |
| | 2 | Seal ring (change-over valve) |
| 18 | 1 | Valve body, lower |
| 19 | 1 | Stem, upper |
| 20△ | 1 | Diaphragm set |
| 20a | 1 | Diaphragm support |
| 20b | 1 | Diaphragm |
| 20c | 1 | L-seal |
| 20d | 1 | Stem seal |
| 21 | 1 | Diaphragm ring |
| 22 | | Plug, single, compl. |
| a | 1 | Stem, lower |
| b△ | 1 | Seal |
| c | 1 | Middle piece |
| d△ | 1 | Seal |
| e | 1 | Washer |
| f△ | 1 | O-ring |
| g | 1 | Screw |
| h△ | 1 | O-ring |
| i△ | 1 | O-ring |

- △ : Service kit - EPDM, NBR, FPM
(See Spare Parts List)
- ◆ : Only for NO- and NC actuators

This page shows an exploded drawing of ARC, change-over valve.

The drawing includes all items of the valve. They are identical with the items in the Spare Parts List.

Exploded drawing



Drawing/Parts list

The drawings and the parts list include all items.
 NO = Normally open.
 NC = Normally closed.

The items are identical with the items in the Spare Parts List.
 When ordering spare parts, please use the Spare Parts List!

Parts list ARC

28

| Item | Qty. | Denomination |
|------|------|---|
| 1 | 1 | Cap |
| 2△ | 2 | O-ring |
| 3 | 1 | Cylinder |
| 4△ | 1 | Lock wire |
| 5△ | 1 | O-ring |
| 6 | 1 | Piston |
| 7△ | 1 | O-ring |
| 8 | 1 | Bonnet |
| 9 | 2 | Plug |
| 10◆ | 1 | Spring assembly (Standard, black) Extra strong spring (alternative, white) |
| 11△ | 1 | Clip, complete |
| 12 | 1 | Drain tube |
| 13 | 1 | Intermediate piece |
| 14 | 1 | Washer |
| 15 | 1 | Clamp and screws |
| 16 | 1 | Valve body, upper |
| 17△ | 1 | Seal ring (stop valve) |
| | 2 | Seal ring (change-over valve) |
| 18 | 1 | Valve body, lower |
| 19 | 1 | Stem, upper |
| 20△ | 1 | Diaphragm set |
| 20a | 1 | Diaphragm support |
| 20b | 1 | Diaphragm |
| 20c | 1 | L-seal |
| 20d | 1 | Stem seal |
| 21 | 1 | Diaphragm ring |
| 22 | | Plug, single, compl. |
| a | 1 | Stem, lower |
| b△ | 1 | Seal |
| c | 1 | Middle piece |
| d△ | 1 | Seal |
| e | 1 | Washer |
| f△ | 1 | O-ring |
| g | 1 | Screw |
| h△ | 1 | O-ring |
| i△ | 1 | O-ring |

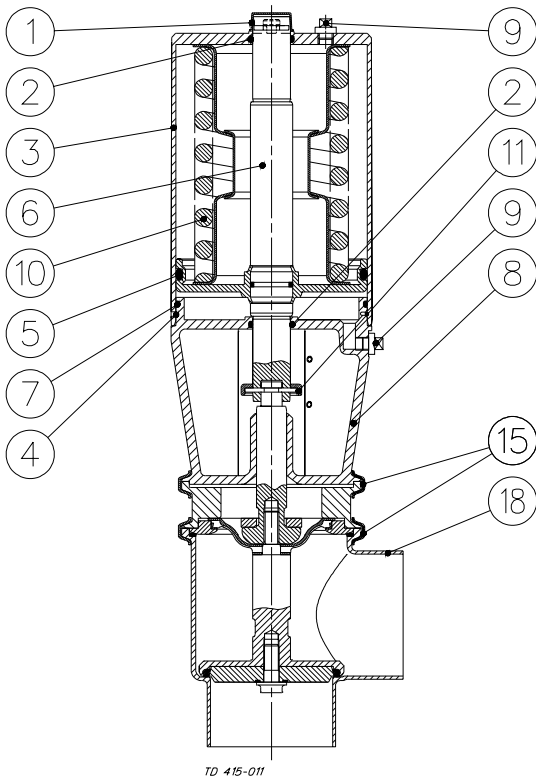
- △ : Service kit - EPDM, NBR, FPM
 (See Spare Parts List)
 ◆ : Only for NO- and NC actuators

The drawings below show ARC, stop valve and change-over valve.

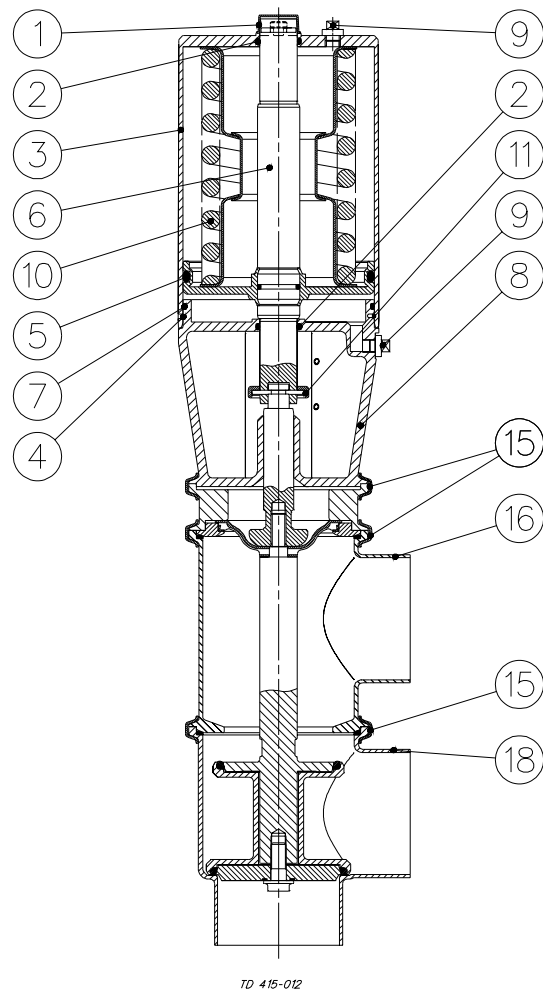
The items refer to the parts list on the opposite part of the page.

Drawings

Stop valve



Change-over valve



Drawing/Parts list

The drawings and the parts list include all items.
 NO = Normally open.
 NC = Normally closed.

The items are identical with the items in the Spare Parts List.
 When ordering spare parts, please use the Spare Parts List!

Parts list ARC

30

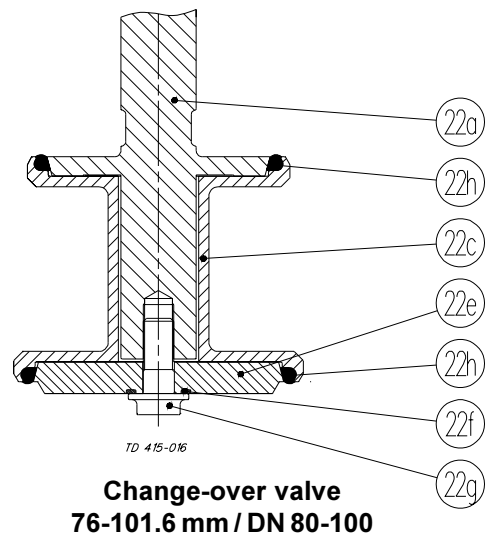
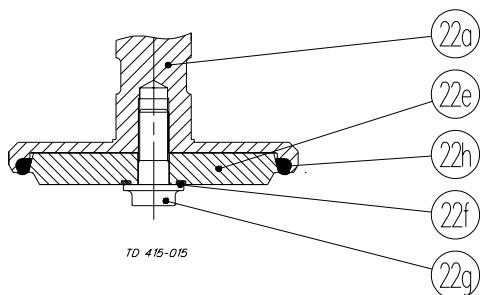
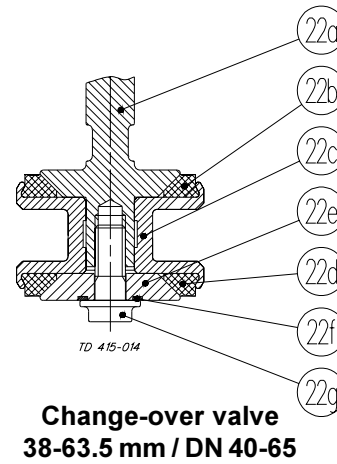
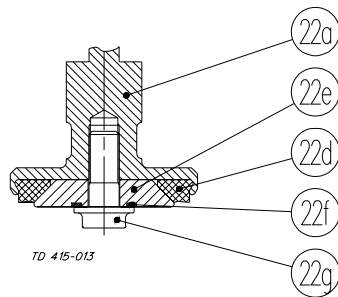
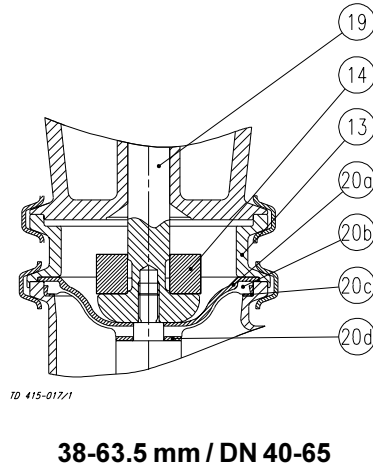
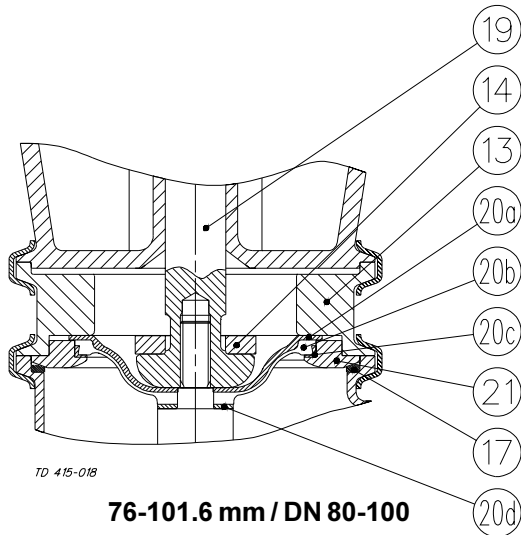
| Item | Qty. | Denomination |
|------|------|---|
| 1 | 1 | Cap |
| 2 Δ | 2 | O-ring |
| 3 | 1 | Cylinder |
| 4 Δ | 1 | Lock wire |
| 5 Δ | 1 | O-ring |
| 6 | 1 | Piston |
| 7 Δ | 1 | O-ring |
| 8 | 1 | Bonnet |
| 9 | 2 | Plug |
| 10 ♦ | 1 | Spring assembly (Standard, black) Extra strong spring (alternative, white) |
| 11 Δ | 1 | Clip, complete |
| 12 | 1 | Drain tube |
| 13 | 1 | Intermediate piece |
| 14 | 1 | Washer |
| 15 | 1 | Clamp and screws |
| 16 | 1 | Valve body, upper |
| 17 Δ | 1 | Seal ring (stop valve) |
| | 2 | Seal ring (change-over valve) |
| 18 | 1 | Valve body, lower |
| 19 | 1 | Stem, upper |
| 20 Δ | 1 | Diaphragm set |
| 20a | 1 | Diaphragm support |
| 20b | 1 | Diaphragm |
| 20c | 1 | L-seal |
| 20d | 1 | Stem seal |
| 21 | 1 | Diaphragm ring |
| 22 | | Plug, single, compl. |
| a | 1 | Stem, lower |
| b Δ | 1 | Seal |
| c | 1 | Middle piece |
| d Δ | 1 | Seal |
| e | 1 | Washer |
| f Δ | 1 | O-ring |
| g | 1 | Screw |
| h Δ | 1 | O-ring |
| i Δ | 1 | O-ring |

- Δ : Service kit - EPDM, NBR, FPM
 (See Spare Parts List)
 ♦ : Only for NO- and NC actuators

The drawings below show ARC, stop valve and change-over valve.

The items refer to the parts list on the opposite part of the page.

Drawings



Drawing/Parts list

The drawings and the parts list include all items.
NO = Normally open.
NC = Normally closed.

The items are identical with the items in the Spare Parts List.
When ordering spare parts, please use the Spare Parts List!

Parts list Oil damper for ARC (optional extra)

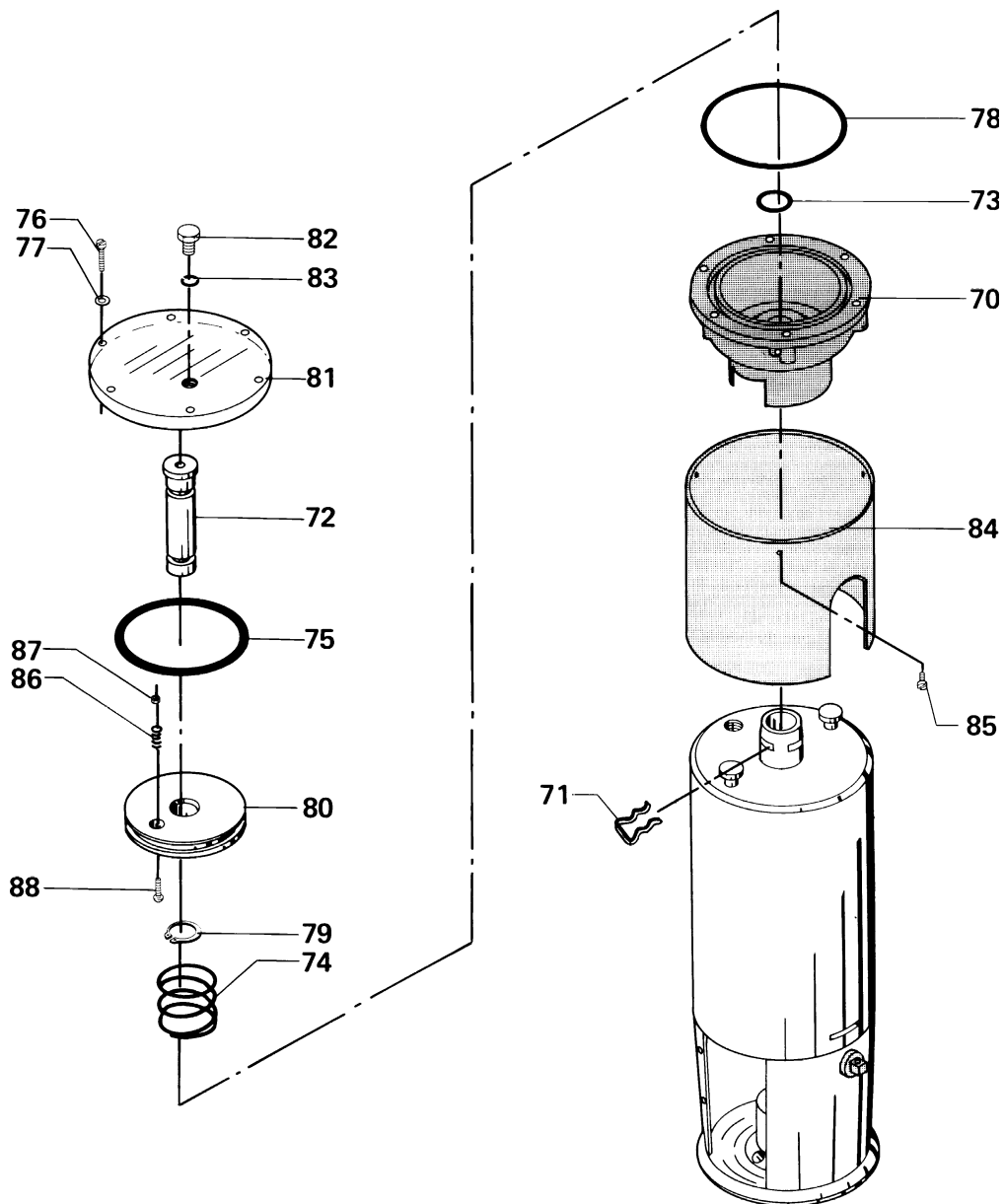
32

| Item | Qty. | Denomination |
|------|------|-----------------|
| 70 | 1 | Housing |
| 71 | 1 | Clip |
| 72 | 1 | Piston rod |
| 73 | 1 | O-ring |
| 74 | 1 | Spring |
| 75 | 1 | O-ring |
| 76 | 6 | Screw |
| 77 | 6 | Washer |
| 78 | 1 | O-ring |
| 79 | 1 | Circlip |
| 80 | 1 | Piston |
| 81 | 1 | Cover |
| 82 | 1 | Plug |
| 83 | 1 | O-ring |
| 84 | 1 | Protective hood |
| 85 | 3 | Screw |
| 86 | 1 | Spring |
| 87 | 1 | Nut |
| 88 | 1 | Screw |

This page shows an exploded drawing of the oil damper for ARC.
The damper is an optional extra.

The drawing includes all items of the valve.
They are identical with the items in the Spare Parts List.

Exploded drawing



Drawing/Parts list

The drawings and the parts list include all items.
NO = Normally open.
NC = Normally closed.

The items are identical with the items in the Spare Parts List.
When ordering spare parts, please use the Spare Parts List!

Parts list Oil damper for ARC (optional extra)

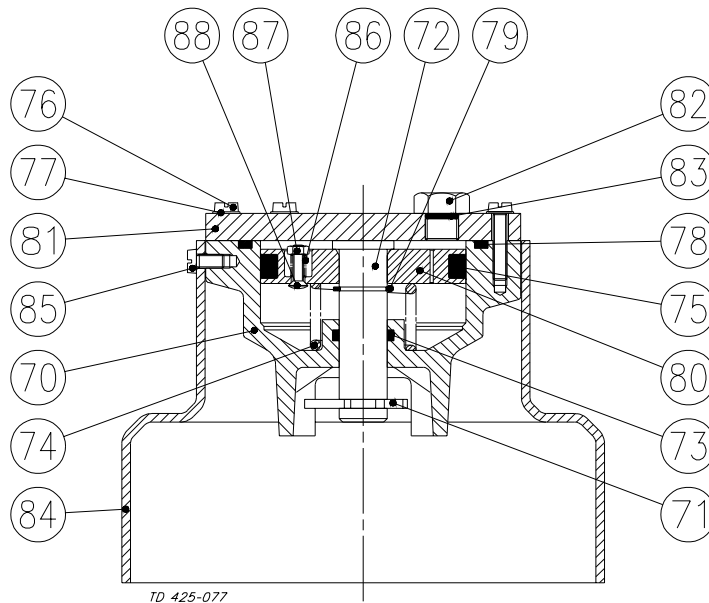
34

| Item | Qty. | Denomination |
|------|------|-----------------|
| 70 | 1 | Housing |
| 71 | 1 | Clip |
| 72 | 1 | Piston rod |
| 73 | 1 | O-ring |
| 74 | 1 | Spring |
| 75 | 1 | O-ring |
| 76 | 6 | Screw |
| 77 | 6 | Washer |
| 78 | 1 | O-ring |
| 79 | 1 | Circlip |
| 80 | 1 | Piston |
| 81 | 1 | Cover |
| 82 | 1 | Plug |
| 83 | 1 | O-ring |
| 84 | 1 | Protective hood |
| 85 | 3 | Screw |
| 86 | 1 | Spring |
| 87 | 1 | Nut |
| 88 | 1 | Screw |

The drawings below show the oil damper for ARC.
The damper is an optional extra.

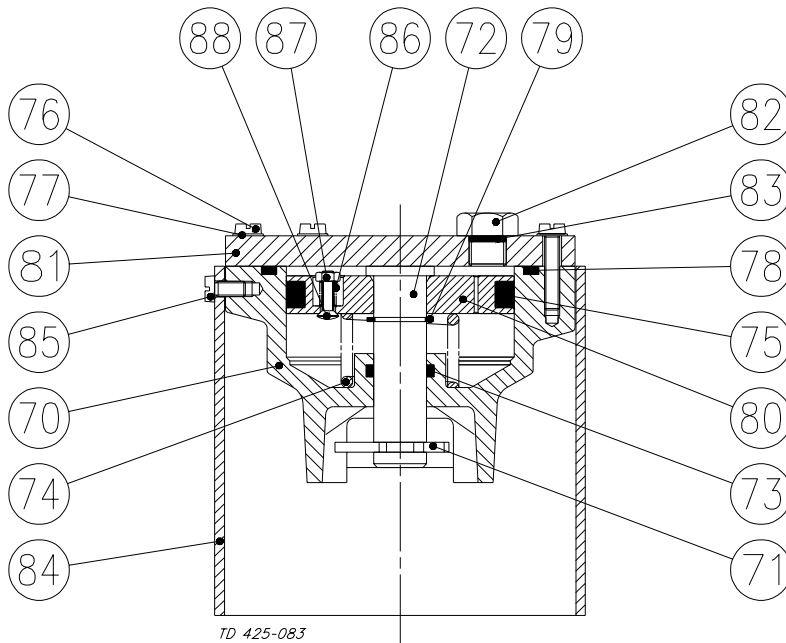
The items refer to the parts list on the opposite part of
the page.

Drawings



TD 425-077

76-101.6 mm / DN 80-100



TD 425-083

38-63.5 mm / DN 40-65

Drawing/Parts list

The parts list includes all items.

The items are identical with the items in the Spare Parts List.

When ordering spare parts, please use the Spare Parts List!

Parts list

Indication units for ARC (optional extra)

36

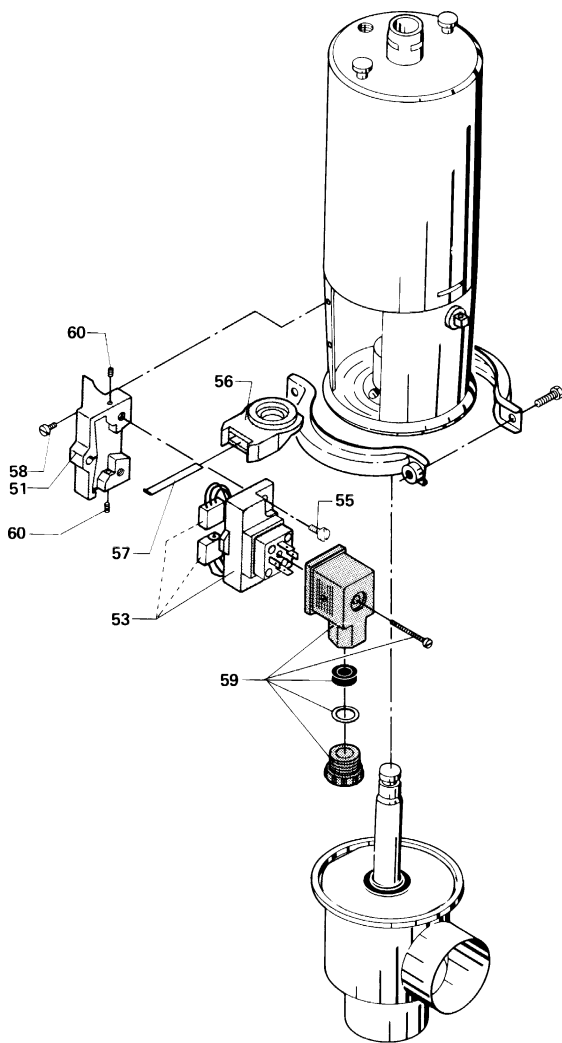
| Item | Qty. | Denomination |
|------|------|--|
| 51 | 1 | Holder |
| 53 | 1 | Switch unit, 1 micro switch |
| | 1 | Switch unit, 2 micro switches |
| 53♦ | 1 | Switch unit complete with 2 switches |
| 55 | 2 | Screw |
| 56 | 1 | Ring |
| 56♦ | 1 | Ring (grey), change-over valve |
| | 1 | Ring (black), stop valve |
| 57 | 1 | Spring |
| 58 | 2 | Screw |
| 58♦ | 2 | Screw |
| 59 | 1 | Cable connector complete for 4.5-7mm cable |
| 60 | 2 | Adjustment |

♦: Inductive proximity switch unit.

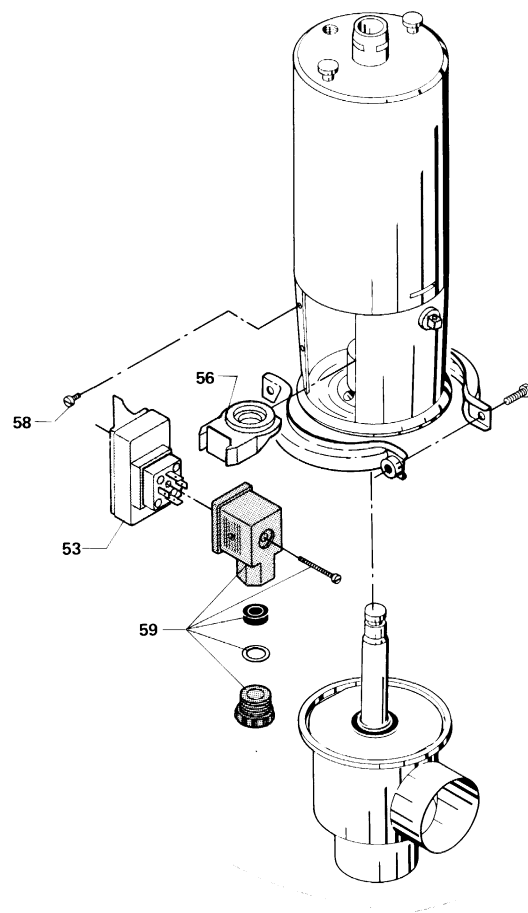
This page shows exploded drawings of the indication unit with micro switch or with inductive proximity switch.

*The indication unit is an optional extra.
The drawings include all items of the valve.
They are identical with the items in the Spare Parts List.*

Exploded drawing



Micro switch unit



Proximity switch unit (◆)

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 direct.