

EcoValve7 20 Control Valve 2K with Diaphragm Seal

Operation manual

MCV00007EN, V03



Information about the document

This document describes the correct handling of the product.

- » Read the document prior to every activity.
- » Prepare the document for the application.
- » Pass on the product only together with the complete documentation.
- » Always follow safety instructions, handling instructions and specifications of every kind.
- » Illustrations can deviate from the technical construction.

Validity range of the document

This document describes the products:

N32350010 EcoValve7 Diaphragm 1-way	
N32350011 EcoValve7 Diaphragm 2-way	
N32350012 EcoValve7 Diaphragm 4-way	
N32350014 EcoValve7 Diaphragm 3-way	
N32350015 EcoValve7 Diaphragm 5-way	
N32350016 EcoValve7 Diaphragm 6-way	

Hotline and Contact

If you have queries or would like technical information, please contact your dealer or sales partner.

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1 Product overview

1.1 Overview

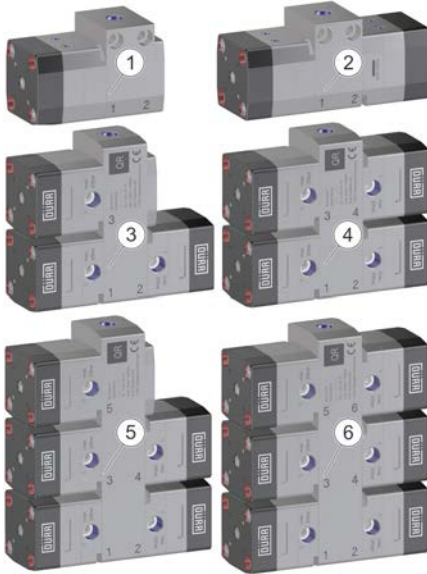


Fig. 1: Overview

1.2 Short description

The control valve is a combination of a connector block and diaphragm valves.

The control valve is available in these versions:

- » 1-way, with one diaphragm valve (1)
- » 2-way, with two diaphragm valves (2)
- » 3-way, with three diaphragm valves (3)
- » 4-way, with four diaphragm valves (4)
- » 5-way, with five diaphragm valves (5)
- » 6-way, with six diaphragm valves (6)

The control valve controls the material feed to the application components. There is a designed separator (diaphragm) between the control air and material.

Construction

The position of the diaphragm valve to the connector block differs in the various versions of the control valve. The position of the diaphragm valve for the control valves 1-way and 2-way is rotated by 90° compared to the other versions.

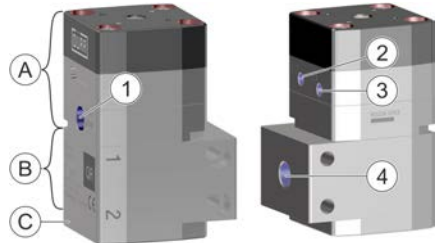


Fig. 2: Construction of 1-way control valve

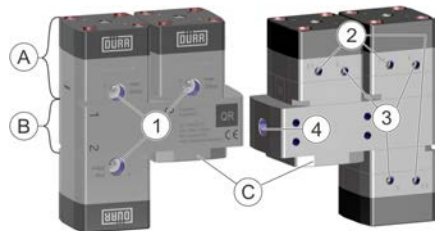


Fig. 3: Construction of 3-way control valve

- A Diaphragm valve
- B Connector block
- C End plate
- 1 Material inlet
- 2 Control air
- 3 Leakage opening
- 4 Material outlet

Function

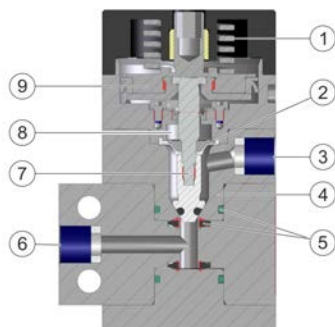


Fig. 4: Cut

The control valve is pneumatically switched. Via the control air connection, the piston (9) is pushed upwards. The needle (7) is drawn from the needle seat (4) and opens the control valve. The material reaches the control valve through the material inlet (3). If the control valve is open, the material flows out into the material outlet (7).

If the control air connection is no longer charged with compressed air, the spring (1) pushes the piston (9) downwards. The control valve closes.

A leakage chamber (8) with leakage bore separates the diaphragm (2) from the control air connection. The needle seat (4) is sealed against the connector block by means of two seals (5).

The control valve has a mechanical pressure release function. Above a pressure of 30 bar, the control valve has a self-opening function. This protects the material hoses from bursting.

2 Safety

2.1 Presentation of Notes

The following notes can appear in this instruction:

DANGER!

High risk situation that can lead to serious injuries or death.

WARNING!

Medium risk situation that can lead to serious injuries or death.

CAUTION!

Low risk situations that can lead to minor injuries.

NOTICE!

Situations that can lead to material damage.

ENVIRONMENT!

Situations that can lead to environmental damage.



Additional information and recommendations.

2.2 Intended Use

Use

The diaphragm valve is intended to be used in components for the paint supply unit. The valve controls the flow in the components of:

- » Paint
- » Hardener
- » Cleaning agents
- » Compressed air

The control valve may only be operated within the allowable technical data 10 "Technical data" and in accordance with the Ex labeling. The control valve is approved for use in Ex zone 1.


Misuse

If used improperly, it can cause serious injuries.

Examples of wrong use are:

- » Use in explosive areas Ex zone 0
- » Use of unapproved materials
- » Use of unapproved components
- » Unauthorized modifications

Ex labeling

 II 2G Ex h IIA T6 Gb X

- II - Device group II: all areas except mining
- 2G - Device category: 2 (for gaseous atmosphere)
- h - Ignition protection category
- IIA - Explosion group
- T6 - Temperature class
- Gb - Device category and device protection level: Gb (zone 1)
- X - Restriction: The device is configured for operation in an ambient temperature of 15°C to 40°C.

2.3 Residual risks

Explosion

Sparks, open flames and hot surfaces can cause explosions in explosive atmospheres. Serious injury and death could be the consequence.

- » Before carrying out any work, make sure that there is no explosive atmosphere.
- » Do not use sources of ignition and open light.
- » Do not smoke.
- » Wear suitable protective equipment.

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- » Ensure that the flashpoint of the fluid is at least 15 K above the ambient temperature.
- » Note explosion group of the fluid.
- » Follow the safety data sheet.
- » Ensure that technical ventilation and fire protection equipment are in operation.
- » Do not use sources of ignition and open light.
- » Do not smoke.
- » Wear suitable protective equipment.

Escaping material

Material escaping under pressure can cause serious injuries.

Before working on the product:

- » Disconnect the system, in which the product is installed, from compressed air and material supply.
- » Depressurize the lines.
- » Secure the system against being switched on again.

Danger from harmful or irritant substances

Contact with hazardous liquids or vapors, can result in serious injury or death.

- » Ensure that the forced ventilation is operational.
- » Follow safety data sheets.
- » Wear specified protective equipment.

2.4 Conduct in the event of a hazardous situation

Conduct in case of danger depends on the operator's installation situation.

Perform the following activities:

- » Close material supply lines.
- » Secure against reconnection.
- » Depressurize the lines.

2.5 Staff qualification



WARNING!

Inadequate qualification

Wrong estimation of dangers can cause serious injury or death.

- Only sufficiently qualified persons may execute all work.
- Some work requires additional qualification. Additional qualifications of specialized personnel are marked with a “+”.

This document is intended for qualified personnel in industry and craftsmanship.

Dürr Systems offers special product training for ↪ “Hotline and Contact”.

2.6 Personal protective equipment

Wear the required personal protective equipment when working. Provide the following personal protective equipment:



3 Transport, scope of supply and storage

3.1 Scope of delivery

The scope of supply includes the following components:

- » Control valve has been fully assembled.
- » Fastening screws

Inspect delivery on receipt for completeness and integrity.

Report defects immediately ↪ “Hotline and Contact”.

3.2 Handling of packaging material



ENVIRONMENT!

Incorrect disposal

Incorrectly disposed packaging material can damage environment.

- Dispose of material no longer required in an environment-friendly manner.
- Observe local disposal specifications.

3.3 Storage

Requirements for the warehouse:

- » Do not store outdoors.
- » Store Valve only when dry.
- » Store in a dust-free place.
- » Do not expose to aggressive media.
- » Protect from solar radiation.
- » Avoid mechanical vibrations.
- » Temperature: 10°C to 40°C
- » Relative humidity: 35% to 90%

4 Assembly

4.1 Safety recommendations

EX DANGER!

Explosive atmosphere

The product is installed in potentially explosive atmospheres. Disregarding the safety regulations of these areas may cause death due to explosion.

- Stop the system before carrying out any work.
- Disconnect the system from compressed air and material supply system.
- Secure the system against being switched on again.
- Relieve the lines.
- Check for an explosive atmosphere prior to entering into a potentially explosive area.
- Observe all general safety instructions for handling the total system.

EX WARNING!

Unsuitable tools in explosive areas

Tools that do not have Ex approval can generate sparks and cause a fire or an explosion in Ex zones. It can cause serious injuries or death.

- If possible, carry out cleaning and maintenance work outside the Ex zones.
- For work within the Ex zone, use tools with the corresponding Ex labeling.

! NOTICE!

Sealed leakage bores

If all leakage bores are sealed with sealing screws or due to dirt, the material cannot escape if there are leakages. Leakages are not detected. Material can harden up in the valve. This can result in irreparable damage.

- Keep at least one leakage bore free.
- Remove leaking material immediately.
 - Check seals, replace if necessary.

4.2 Assembly

Protective equipment:

- » Protective gloves

The control valve is pre-assembled. The connector block has holes for fastening. Connector blocks differ with regard to the fastening:

- » “Single” connector block
- » “Multiple” connector block

“Single” connector block

The “single” connector block can be attached by screws without a spacer. The arrangement of the connections ensures direct accessibility.

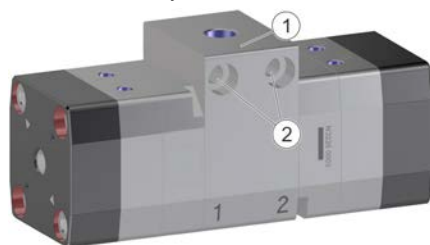


Fig. 5: Bores in the “single” connector block.

1. Thread-in screws through the bores (2) of the “single” connector block (1).

“Multiple” connector block

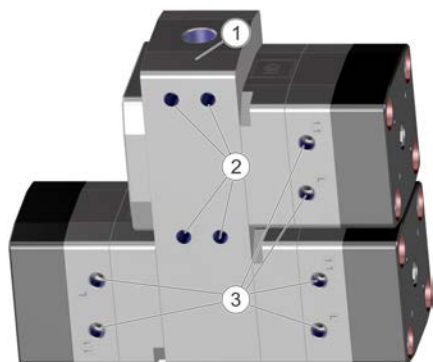


Fig. 6: Bores in the “multiple” connector block.

A spacer must be mounted on the “multiple” connector block (1). The spacer ensures accessibility of the connections (3).

Requirements:

- » Spacer for the control valve

1. Screw spacer into the bores (2) of the “multiple” connector block (1).

4.3 Connecting

Protective equipment:

- » Eye protection
- » Protective gloves

Requirements:

- » Material supply is switched off and secured against restart.
- » Compressed air supply is switched off and secured against being switched on again.
- » Lines are depressurized.

Control air connection

The control air connection is an optional accessory. ↪ 11.3 “Accessories”.

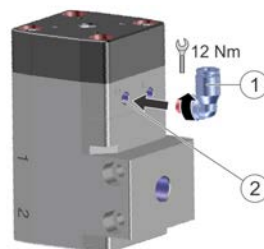


Fig. 7: Assemble control air connection

1. Thread-in control air connection (1) into the control air opening (2).
⇒ Observe tightening torques:
2. Insert control air hose in the connection (1).
⇒ The control air hose must engage perceptibly.

Material connection

The material connection is an optional accessory. ↪ 11.3 “Accessories”.

The material connection consists of:

- » Adapter
- » Nipple insert



Fig. 8: Assembling material connection

1. Check whether the sealing ring is in the housing.

2. Screw adapter (2) into the material inlet (1).
⇒ Observe tightening torques:
3. Assemble hose on the nipple insert (3).
4. Fix nipple insert (3) in the adapter (2).

5 Commissioning

5.1 Setting operating parameters

The operating parameters are:

- » Control air pressure
- » Material pressure
↳ 10.4 "Operating values"

6 Operation

6.1 General notes

A higher level control guides the product. The production process does not allow manual intervention by the operator.

Checks

The product is suitable for continuous operation. Note the following points during operation:

- » Cleanliness
- » Tightness
- » Operating temperature
 - » Material temperature
 - » Ambient temperature
- » Operating pressure
↳ 10.4 "Operating values"

7 Cleaning and maintenance

7.1 Safety recommendations



WARNING!

Danger of fire and explosion

Flammable coating materials and their detergents and cleaning agents can cause a fire or an explosion.

- Ensure that the flashpoint of the fluid is at least 15 K above the ambient temperature.
- Note explosion group of the fluid.
- Follow the safety data sheet.
- Ensure that forced ventilation and fire protection equipment are in operation.
- Do not use sources of ignition and open light.
- Do not smoke.
- Check grounding.



WARNING!

Danger from harmful or irritant substances

Contact with hazardous liquids or vapors can result in serious injury or death.

- Follow safety data sheets.
- Wear specified protective clothing.



WARNING!

Risk of injury from unsuitable replacement parts in explosive areas.

Replacement parts not compliant with the specifications of the ATEX guidelines can cause explosions in an explosive atmosphere. Serious injuries and death can be the consequence.

- Use exclusively original replacement parts.

! NOTICE!

Unsuitable cleaning agents

Unsuitable cleaning agents can damage the product.

- Only use cleaning agents approved by the material manufacturer.
- Follow safety data sheets.
- Place heavily soiled components in a cleaning bath.
 - Only place those parts in the cleaning bath, which are suitable for the cleaning bath.
 - Use only electrically conductive containers.
 - Ground the container.
 - Do not use ultrasound baths.

Requirements:

- » Material supply is switched off and secured against being switched on again.
 - » Lines are depressurized.
1. Cleanse surfaces using a cloth or a brush and a suitable cleaning agent.
⇒ Remove dirt completely.
 2. Ensure that all cleaning agent residue is removed.
 3. If necessary, clean leakage bores.

7.2 Cleaning

Protective equipment:

- » Eye protection
- » Protective gloves
- » Respirator mask

7.3 Maintenance

7.3.1 Maintenance schedule



If a maintenance assistant is used in the system visualizer, the maintenance intervals of the maintenance assistant are valid.

Interval	Maintenance work
monthly	Check tightness ↪ “Checks”.
After a number of switchings per vehicle body	<p>Replace diaphragm valves as a preventive measure ↪ 7.3.2 “Replacing diaphragm valve”.</p> <p>Replacement intervals if following conditions exist:</p> <ul style="list-style-type: none"> at fewer than 3 switchings per vehicle body - after 2 million cycles at 3 to 5 switchings per vehicle body - after 2 million cycles or 3 years at more than 5 switchings per vehicle body - after 2 million cycles or one year <p>Adverse operating conditions can, under certain circumstances, require shorter replacement intervals.</p> <ul style="list-style-type: none"> » Contaminants » Faults in the process

7.3.2 Replacing diaphragm valve

Protective equipment:

- » Eye protection
- » Protective gloves

Requirements:

- » Material supply system is securely disconnected and secured against reconnection.
- » Compressed air supply is securely disconnected and secured against reconnection.
- » Lines have been rinsed and de-pressurized.

Disassembling

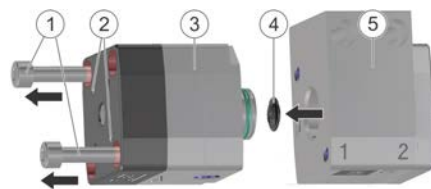


Fig. 9: Remove diaphragm valve from the connector block

1. Thread-off screws (1) marked with a triangle (2).

2. Pull out diaphragm valve (3) from the connector block (5).
3. Remove sealing ring (4) from the connector block.



If the diaphragm valve is removed, the sealing ring in the connector block must also be replaced.

Assembling

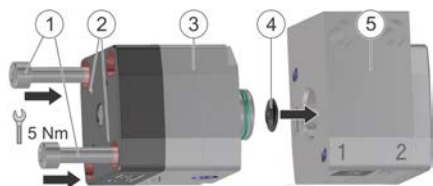


Fig. 10: Attaching diaphragm valve to connector block

1. Lightly grease sealing ring (4).
⇒ The grease layer on the sealing ring must be thin.
2. Press sealing ring (4) in the connector block (5).
⇒ The sealing ring must sit flat in the connector block.
3. Insert diaphragm valve (3) in the connector block (5).
⇒ Bores of diaphragm valve and connector block must align flush.
4. Thread-in screws (1) into the bores marked with a triangle (2).
⇒ Observe tightening torques:

7.4 Dismantle and assemble

7.4.1 Dismantling

Protective equipment:

- » Eye protection
- » Protective gloves

Requirements:

- » Diaphragm valve is disconnected from the connector block. ↪ 7.3.2 "Replacing diaphragm valve".



Carry out the work on the diaphragm valve in the workshop. The diaphragm valve consists of small parts that can easily fall down and get lost.

Dismantling diaphragm valve



Fig. 11: Dismantling diaphragm valve

1. Carefully loosen screws (1) on the housing lid (2).
⇒ The housing lid is under tension due to the spring (3). Hold housing lid firmly when unscrewing.
2. Remove housing lid (2).
3. Remove spring (3).

4. Remove bottom part (4).

Dismantle central part

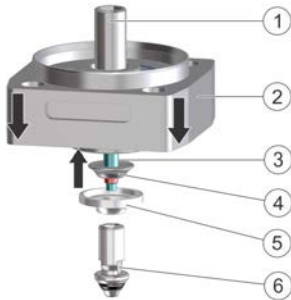


Fig. 12: Disassemble needle tip

1. Unscrew needle tip (6).
⇒ The needle tip is secured by means of screw locking. It needs application of a higher force. Hold it against the threaded bushing (1).
2. Remove diaphragm seal (5) and diaphragm chuck (4).
3. Push needle (3) up and out from the needle seal.
⇒ Place needle (3) on a flat surface. Push central part (2) straight down.
4. Pull threaded bushing (1) upwards.

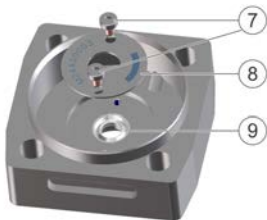


Fig. 13: Remove needle seal

5. Thread off screws (7) of the safety washer (8).
6. Remove safety washer (8).
7. Use a blunt object to leverage needle seal (9) out of the housing.
⇒ Do not damage seal seat.

If the seal seat is damaged, the bottom part of the housing must be replaced.

Dismantle piston

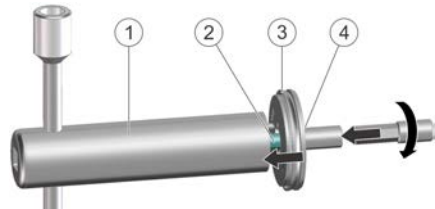


Fig. 14: Dismantle piston

1. Insert needle (2) into the assembly tool (1).
2. Unscrew threaded bushing (4).
3. Remove needle holder and needle from the assembly tool.
4. Remove piston seal (3) carefully from the threaded bushing (4).
⇒ Do not damage threaded bushing.

If the threaded bushing is damaged, it must be replaced.


7.4.2 Assembly

Protective equipment:

- » Eye protection
- » Protective gloves

Requirements:

- » Diaphragm valve is dismantled ↪ 7.4.1 "Dismantling".

 Carry out the work on the diaphragm valve in the workshop. The diaphragm valve consists of small parts that can easily fall down and get lost.

! NOTICE!

Faulty functioning due to leaking valve

If you use used seals or assemble them badly, the valve will not be tight.
 If the seal is greased too much, the grease can block the bores.

- Use only new seals.
- Only grease the seals lightly. The grease should be hardly visible.
- Do not twist O-rings when inserting them.

Assemble piston

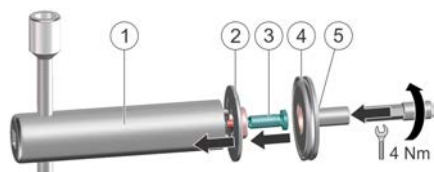


Fig. 15: Assemble piston

1. Place piston seal (4) on a clean, flat surface.
2. Set threaded bushing (5) on the piston seals and press in.
 - ⇒ Ensure that the seal is fully in contact.
3. Push needle (3) into the needle holder (2).
 - ⇒ Do not grease threads.
4. Insert needle and needle holder into the assembly tool (1).
5. Fit threaded bushing (5) with piston seal.
6. Tighten threaded bushing.

⇒ Observe tightening torque.

7. Remove assembled piston unit from the assembly tool.

Assemble central part

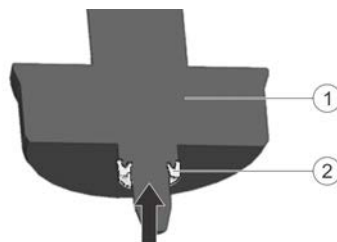


Fig. 16: Needle seal on assembly tool

1. Slide needle seal (2) with the groove on the assembly tool (1).

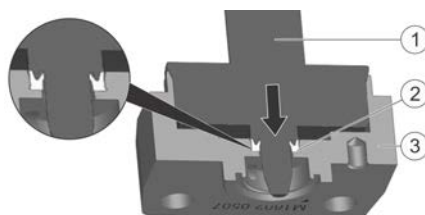


Fig. 17: Press in needle seal

2. Press needle seal (2) into the central part (3) using the assembly tool (1) without canting it.
 - ⇒ Press in needle seal on mechanical stop.

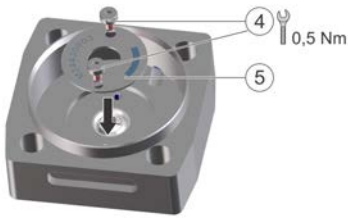


Fig. 18: Fix needle seal

3. Place safety washer (5) on the needle seal.
4. Screw and tighten safety washer using the screws (4).
⇒ Observe tightening torque.

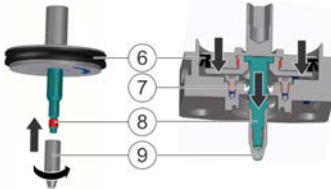


Fig. 19: Install piston

5. Lightly grease piston seal (6) of the pre-assembled piston unit.
⇒ Spread a thin layer of grease on the seal.
6. Screw the centering sleeve (9) on the needle (8).
7. Slide needle (8) straight through the needle seal (7).
⇒ Press piston into the central part up to the mechanical stop.
8. Remove the centering sleeve (9).

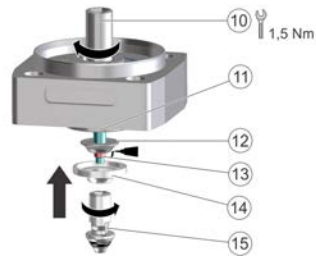


Fig. 20: Assemble needle tip

9. Slide diaphragm chuck (12) and diaphragm seal (14) on the needle with the straight side in front.
⇒ Diaphragm chuck and diaphragm seal must rest on the housing (11).
10. Place screw locking part ↻ 10.7 "Operating and auxiliary materials" on the threads of the needle (13).
11. Screw-in and hand-tighten needle tip (15).

12. Fix needle tip (15) using an open-end wrench.
13. Tighten threaded bushing (10).
⇒ Observe tightening torque. An excessive torque will destroy the needle.

Assembling Housing

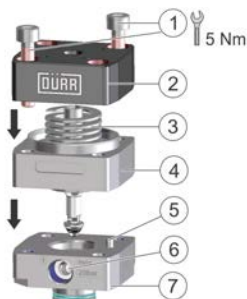


Fig. 21: Assembling Housing

1. Place housing bottom part (7) on a flat surface.
⇒ Position material entry (6) towards the front.
2. Fit pre-assembled central part (4).
⇒ Note the centering pin (5).
3. Set spring (3) on threaded bushing.
4. Set housing lid (2).
⇒ Align "Dürr-Logo" towards the front.

5. Insert screws (1) through the bores.
⇒ Use bores without marking.
6. Press housing lid (2) and lightly tighten screws until the lid is locked.
⇒ The lid is under tension due to the spring. Hold the lid firmly.
7. Tighten screws (1) alternately.
⇒ Observe tightening torque.

8 Faults

8.1 Behavior during faults

If faults occur:

- » Securely disconnect material supply system.
- » Secure the material supply system against reconnection.
- » Securely disconnect control air supply.
- » Secure the control air supply against reconnection.
- » Purge the lines.
- » Depressurize the lines.
- » Follow the defects table to correct the fault.

If it is not possible to rectify the fault:
⇒ "Hotline and Contact".

Troubleshooting jobs require the following protective equipment.

Protective equipment:

- » Eye protection
- » Protective gloves

8.2 Defects table

Fault description	Cause	Remedy
Control valve does not open.	No control air.	Disconnect control air supply.
Control valve does not close.	Needle seat is contaminated.	Clean the needle seat. ↳ 8.3.1 "Work on the needle seat"
	Needle seat is damaged.	Replace needle seat ↳ 8.3.1 "Work on the needle seat"
	Seal of the needle tip is damaged or worn out.	Replace needle tip ↳ 7.4 "Dismantle and assemble"
	Spring is broken.	Replace the spring. ↳ 7.4 "Dismantle and assemble"
Material leaks out from the leakage bores.	Diaphragm is torn.	Replace the diaphragm. ↳ 7.4 "Dismantle and assemble"
Compressed air leaks out from the leakage bores.	Needle seal is leaking.	Replace needle seal. ↳ 7.4 "Dismantle and assemble"
Compressed air leaks out from the release bores in the lid.	Piston seal leaks.	Replace piston seal. ↳ 7.4 "Dismantle and assemble"
Material exits between diaphragm valve and connection.	Outer O-ring at material outlet leaks.	Replace O-ring. ↳ 8.3.2 "Replacing O-ring at material outlet"

8.3 Troubleshooting

8.3.1 Work on the needle seat

Requirements:

- » Diaphragm valve is dismantled ↳ 7.4.1 "Dismantling".

Clean the needle seat

! NOTICE!

Unsuitable cleaning agents

Unsuitable detergents can cause material damage.

- Only use cleaning agents approved by the material manufacturer.
- Follow safety data sheets.

! NOTICE!

Unsuitable Cleaning Tools

Unsuitable cleaning tools can cause damage.

- Only use cloths, soft brushes and paintbrushes.
- Do not use abrasive cleaning tools.
- Do not use compressed air for cleaning.
- Do not use any thinner spray guns.
- Do not use high pressure for cleaning agents.

1. Clean the needle seat.
⇒ Remove material residues completely.
2. Wipe cleaned surfaces dry with a cloth.

Replace needle seat

If the needle seat is damaged, the bottom part of the housing must be replaced ↪ 7.4 "Dismantle and assemble".

8.3.2 Replacing O-ring at material outlet

Requirements:

- » The diaphragm valve is disconnected from the connector block.
↪ 7.3.2 "Replacing diaphragm valve"

Removing O-rings



Fig. 22: O-ring at material outlet

1. Carefully remove O-ring (2).

⇒ Do not damage groove (1).

Assembling O-ring

! NOTICE!

Faulty functioning due to leaking valve

If you use used seals or assemble them badly, the valve will not be tight.

If the seal is greased too much, the grease can block the bores.

- Use only new seals.
- Only grease the seals lightly.
The grease should be hardly visible.
- Do not twist O-rings when inserting them.

1. Lightly grease O-ring (2).
2. Insert O-ring in the groove (1) from below.
3. Check O-rings for correct seating and damage.

9 Disassembly and Disposal

9.1 Safety recommendations

! WARNING!

Squirting material and compressed air

When working on the product, spurted material and leaking compressed air can cause irreversible damage to the eyes.

Before working on the product:

- Rinse the system.
- Disconnect the system with the product from material supply and compressed air.
- Secure the system against being switched on again.
- Depressurize the system.
- Wear eye protection.


WARNING!
Danger to health from harmful or irritant substances

Contact with hazardous chemicals can cause serious injuries.

- Follow safety data sheets.
- Wear specified protective clothing.

9.2 Disassembly

Protective equipment:

- » Eye protection
- » Protective gloves

Requirements:

- » Material supply is switched off and secured against reconnection.
- » Control air supply is disconnected and secured against reconnection.
- » Lines have been rinsed and de-pressurized.

Disconnect control air supply.

1. Pull out control air hose from the plug-in connection.
2. Remove plug-in connection.

10 Technical data

10.1 Dimensions and weight

Control valve

Valve	Height	Width	Depth	Weight
N32350010 1-way	50 mm	74 mm	40mm	0.817 kg
N32350011 2-way	50 mm	108 mm	40mm	1.084 kg
N32350014 3-way	91 mm	106 mm	40mm	1.787 kg

Disconnect material supply

1. Remove material hose from the nipple insert.
2. Remove nipple insert from the adapter.
3. Unscrew adapter.

Disassemble control valve.

1. Unscrew the control valve from the support bracket.

9.3 Disposal


ENVIRONMENT!

Incorrect disposal

Improper waste disposal threatens the environment and prevents re-use and recycling.

- Always dispose of components in accordance with their characteristic.
 - ↳ 10.5 "Materials used"
- Collect leaked out operating and auxiliary materials completely.
- Dispose of operating and auxiliary materials according to the disposal provisions in force.
- In case of doubt, refer to the local disposal authorities.

Technical data

Valve	Height	Width	Depth	Weight
N32350012 4-way	91 mm	106 mm	40mm	2.054 kg
N32350015 5-way	132 mm	106 mm	40mm	2.784 kg
N32350016 6-way	132 mm	106 mm	40mm	3.052 kg

Diaphragm valve

Valve	Height	Width	Depth	Weight
N32260003	48.7 mm	40mm	40mm	0.337 kg

10.2 Connections

Detail	Value
Material inlet	G 1/8"
Material outlet	G 1/8"
Control air connection	M5
Leakage bore	M5

10.3 Operating conditions

Detail	Value
Ambient temperature, min.	15°C
Ambient temperature, max.	40 °C
Humidity, min.	35%
Humidity, max.	90%
Material temperature, min.	15°C
Material temperature, max.	40 °C
Switching frequency per second, max.	5

10.4 Operating values

Pressure

Detail	Value
Material operating pressure, min.	1 bar
Material operating pressure, max.	20 bar
Self-opening pressure	30 bar
Pressure resistance	40 bar
Burst pressure	> 50 bar
Control air operating pressure, min.	5 bar
Control air operating pressure, max.	10 bar

Quality of compressed air

- » Purity classes ISO 8573-1:2010 1:4:1
- » Limitations for purity class 4 (pressure dew point max.):
 - » ≤ -3 °C at 7 bar absolute
 - » ≤ +1 °C at 9 bar absolute
 - » ≤ +3 °C at 11 bar absolute

10.5 Materials used

Component	Material
Metal parts	Stainless steel
O-ring	FKM
Seals	PTFE FFKM

10.6 Material specification

Approved material:

- » Paint
 - » Flammable
 - » Non-flammable
- » Hardener
- » Cleaning agents
- » Solvent

Specification

Detail	Value
Viscosity, min.	50 mPa*s

Detail	Value
Viscosity, max.	180 mPa*s
Temperature of the material, min.	15 °C
Temperature of the material, max.	40 °C
The maximum temperature must be at least 15 K under the flash point.	

10.7 Operating and auxiliary materials

Material	Specification
O-rings assembly lubricant	Syntheso GLEP 1
Screw locking part	Loctite 222

11 Replacement parts, tools and accessories

11.1 Spare part

Repair kit pneumatic (N32960001)



Fig. 23: Repair kit pneumatic

Item	Description	Amount	Material number
1	Piston seal	1	M08050098
2	Needle seal	1	M08130063
3	Safety washer	1	M24430003

Item	Description	Amount	Material number
4	Compression spring	1	M68010249
5	Special screw M2 x 3 TX6 for clamping washer	2	M41060180

Repair kit material (N32960002)



Fig. 24: Repair kit material

Item	Description	Amount	Material number
1	O-ring 13 x 1.5 for housing bottom part	1	M08030733
2	Needle body	1	M32010091
3	Needle tip with O-ring	1	M32030043
4	Membrane	1	M08510056

Repair kit connector block (N32960004)



Fig. 25: Sealing ring connector block

Item	Description	Amount	Material number
1	Sealing ring	10	M08010497

11.2 Tools

Denomination	Material number
Tool for needle mounting	W02020019
Tool for pressing in the needle seal	W16120058
Tool for centering needle tip	W02020303

11.3 Accessories

Description	Material number
Control air connection straight	M57380020 M57380030
Control air connection angle bracket	M57310016 M57310021
Material connection	

Description	Material number
Adapter	M57380083
Nipple insert	M58030121
	M58030134
	M58030136

11.4 Order



WARNING!

Risk of injury from unsuitable replacement parts

Parts of third party suppliers may not bear the loads. Serious injuries and death can result.

- Only use original replacement parts.

Ordering replacement parts, tools and accessories as well as information on products that are listed without order number.

↳ “Hotline and Contact”

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