bürkert
FLUID CONTROL SYSTEMS

Type 2063, 2064, 2065

Piston-controlled diaphragm valve
Kolbengesteuertes Membranventil
Vanne à membrane commandée par piston

Quickstart

English Deutsch Français

MAN 1000291778 EN Version: CStatus: RL (released | freigegeben) printed: 14.08.2018

Operating Instructions 1808/02_EU-ML_ 00810478/ Original DE

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Contents

1 QUICKSTART

The quickstart contains the most important information and notes regarding the use of the device. Keep the quickstart in a location which is easily accessible to every user, and make these instructions available to every new owner of the device.

Important Safety Information.

Failure to observe these instructions may result in hazardous situations.

▸ Quickstart must be read and understood.

A detailed description of the device can be found in the operating instructions for Type 2063, 2064 and 2065.

The operating instructions can be found on the Internet at: www.burkert.com

1.1 Definition of term

The term “device” used in these instructions always stands for the diaphragm valve Type 2063, 2064 and 2065.

1.2 Symbols

DANGER!

Warns of an immediate danger.

- Failure to observe the warning may result in a fatal or serious injury.

WARNING!

Warns of a potentially dangerous situation.

- Failure to observe the warning may result in serious injuries or death.

CAUTION!

Warns of a possible danger.

- Failure to observe this warning may result in a moderate or minor injury.

NOTE!

Warns of damage to property.

Important tips and recommendations.

Refers to information in these operating instructions or in other documentation.

- designates an instruction to prevent risks.

→ designates a procedure which you must carry out.

2 AUTHORIZED USE

Non-authorized use of the diaphragm valve Type 2063, 2064 and 2065 may be a hazard to people, nearby equipment and the environment.

- The device is designed for the controlled flow of liquid media.
- In areas at risk of explosion, only use devices approved for use in those areas. These devices are labeled with a separate Ex type label. When utilized in a potentially explosive atmosphere, always pay attention to the details on the separate Ex type label and the Ex additional instructions contained in the scope of delivery.
- During use observe the authorized data, the operating conditions and conditions of use specified in the contract documents and operating instructions.
- The device may be used only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- Protect device from damaging environmental influences (e.g. radiation, humidity, steam, etc.). If anything is unclear, consult the relevant sales office.
- Correct transportation, correct storage and installation and careful use and maintenance are essential for reliable and faultless operation.
- The exhaust air may be contaminated with lubricants in the actuator.
- Use the device only as intended.

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any

- contingencies and events which may arise during the installation, operation and maintenance of the devices.
- local safety regulations, whereby the operator is responsible for their compliance, by the installation personnel too.

Danger – high pressure.

- ▸ Before loosening the lines and valves, turn off the pressure and vent the lines.

Danger of bursting from overpressure.

- ▸ Observe the specifications on the type label for maximal control and medium pressure.
- ▸ Observe permitted medium temperature.

Risk of injury from electric shock (when electrical component installed).

- ▸ Before reaching into the device or the equipment, switch off the power supply and secure to prevent reactivation!

Observe applicable accident prevention and safety regulations for electrical equipment!

Risk of injury when opening the actuator!

The actuator contains a tensioned spring. If the actuator is opened, there is a risk of injury from the spring jumping out!

- ▸ Do not open the actuator.

Risk of injury from moving parts in the device!

- ▸ Do not reach into openings.

Risk of burns and risk of fire if used continuously through hot device surface.

- ▸ Keep the device away from highly flammable substances and media and do not touch with bare hands.

Danger due to loud noises.

- ▸ Depending on the operating conditions, the device may generate loud noises. More detailed information on the likelihood of loud noises is available from the relevant sales office.
- ▸ Wear hearing protection when in the vicinity of the device.

Leaking medium when the diaphragm is worn.

- ▸ Regularly check relief bore for leaking medium.
- ▸ If medium is leaking out of the relief bore, change the diaphragm.
- ▸ If the media is hazardous, protect the area surrounding the discharge point against dangers.

General hazardous situations.

To prevent injury, ensure:

- That the system cannot be activated unintentionally.
- Installation and repair work may be carried out by authorized technicians only and with the appropriate tools.
- After an interruption in the power supply or pneumatic supply, ensure that the process is restarted in a defined or controlled manner.
- The device may be operated only when in perfect condition and in consideration of the operating instructions.
- Observe the safety regulations specific to the plant for application planning and operation of the device.
- The plant operator is responsible for the safe operation and handling of the plant.
- The general rules of technology apply to application planning and operation of the device.

To prevent damage to property of the device, ensure:

- Supply the media connections only with those media which are specified as flow media in the chapter entitled “6 Technical data”.
- Do not put any loads on the valve (e.g. by placing objects on it or standing on it).
- Do not make any external modifications to the valves. Do not paint the body parts or screws.
- Do not transport, install or remove heavy devices without the aid of a second person and using suitable auxiliary equipment.

4 GENERAL INFORMATION

4.1 Contact address

Germany

Bürkert Fluid Control Systems
Sales Center
Chr.-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. : 07940 - 10 91 111
Fax: 07940 - 10 91 448
E-mail: info@burkert.com

International

Contact addresses are found on the final pages of the printed operating manual.

Information on the Internet under: www.burkert.com

4.2 Warranty

The warranty is only valid if the device is used as authorized in accordance with the specified application conditions.

4.3 Information on the Internet

The operating instructions and data sheets for 2063, 2064 and 2065 can be found on the Internet at: www.burkert.com

5 STRUCTURE AND FUNCTION

5.1 Structure

The piston-controlled diaphragm valve consists of a pneumatically operated piston actuator and a 2/2-way valve body.

The actuator is manufactured from stainless steel.

5.1.1 2/2-way valve Type 2063

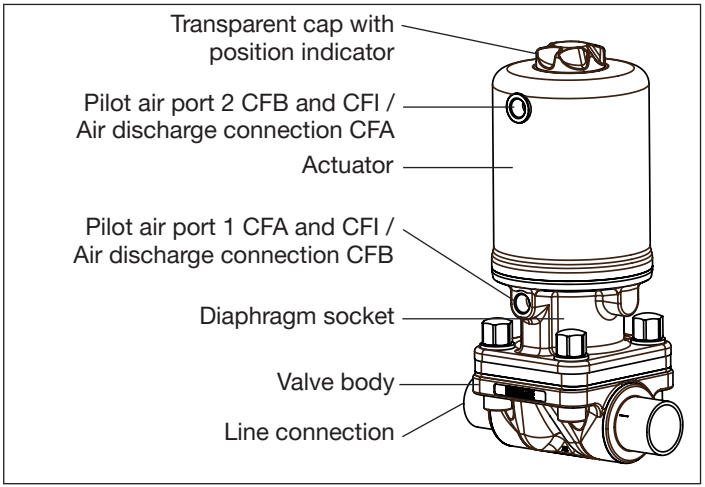


Fig. 1: Piston-controlled diaphragm valve, structure and description

5.1.2 T-valve Type 2064

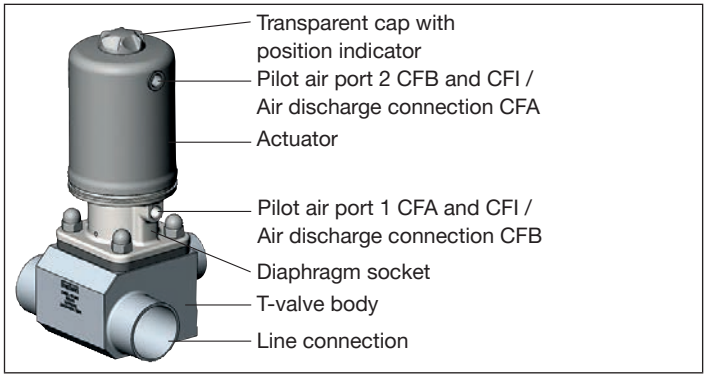


Fig. 2: T-valve Type 2064, structure and description

5.1.3 Tank bottom valve Type 2065

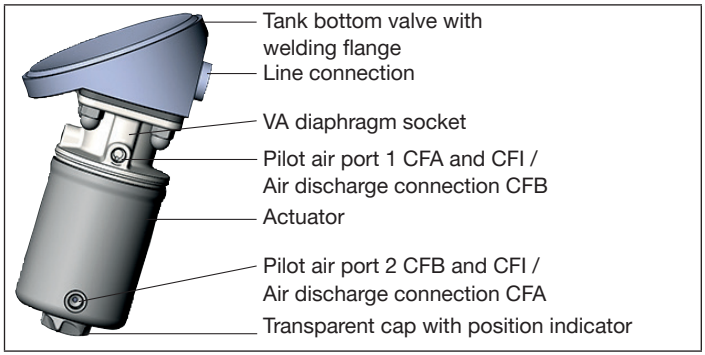


Fig. 3: Tank bottom valve Type 2065, structure and description

5.2 Function

Spring force (CFA) or pneumatic pilot pressure (CFB and CFI) generates the closing force on the diaphragm pressure piece. The force is transferred via a spindle which is connected to the actuator piston.

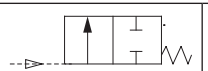
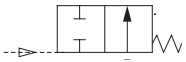
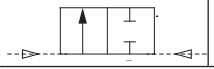
5.2.1 Control functions (CF)

WARNING!

For control function I: Danger if pilot pressure fails.

For control function I (CFI) control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

A		Closed by spring force in rest position
B		Opened by spring force in rest position
I		Actuating function via reciprocal pressurization

6 TECHNICAL DATA

6.1 Conformity

Type 2063, 2064 and 2065 conforms with the EU Directives according to the EU Declaration of Conformity (if applicable).

6.2 Standards

The applied standards (if applicable), which verify conformity with the EU Directives, can be found on the EU-Type Examination Certificate and / or the EU Declaration of Conformity.

6.3 Labeling of the forged body

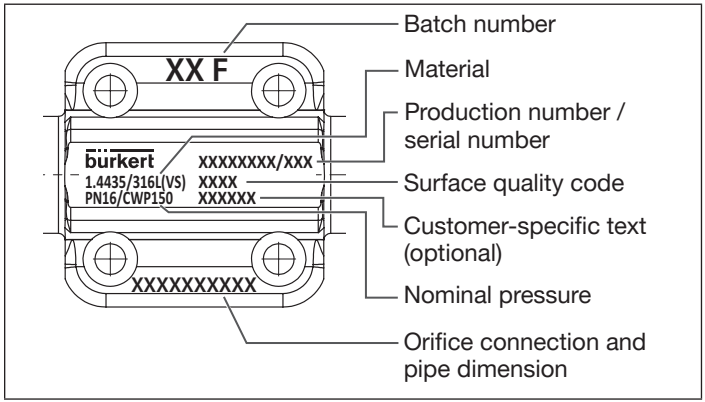


Fig. 4: Labeling of the forged body

6.4 Labeling of the tube valve body

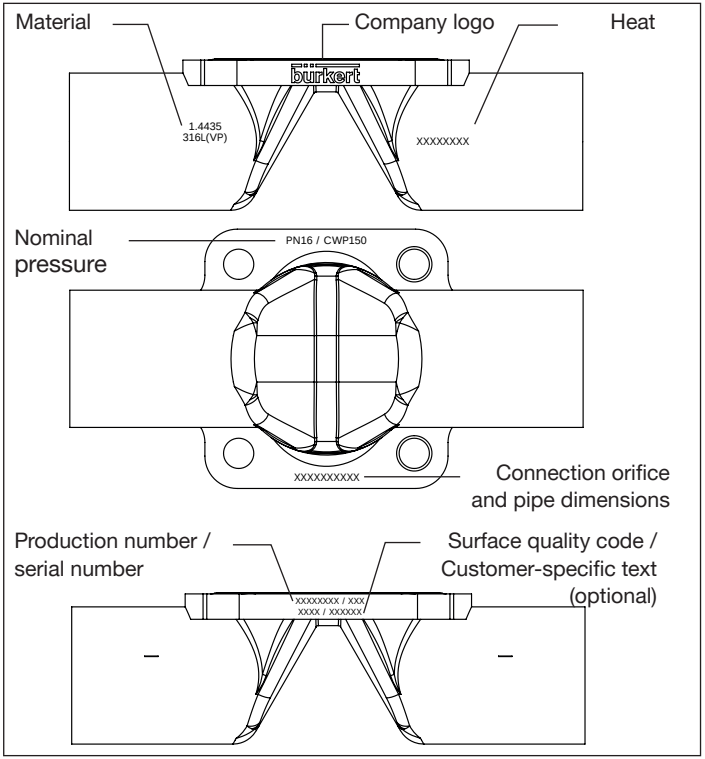


Fig. 5: Labeling of the tube valve body

6.5 Type label

WARNING!

Risk of injury from high pressure.

Excessive pressure can damage the device.

▸ Comply with pressure range values on the type label.

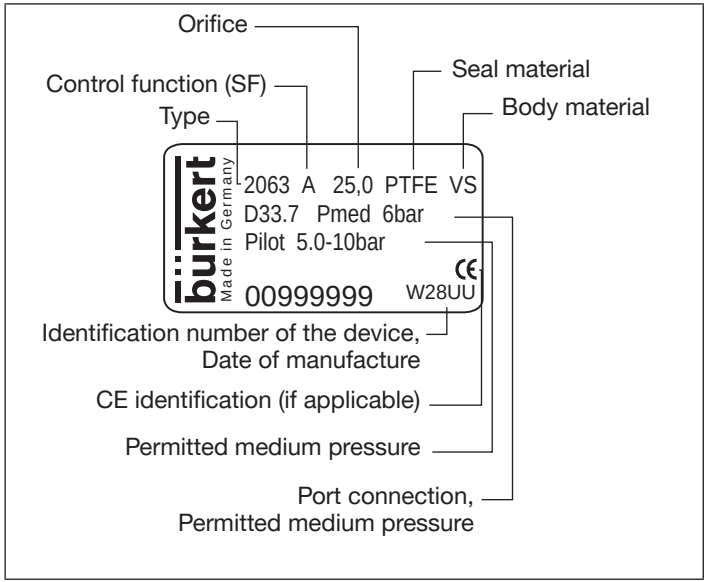


Fig. 6: Description of the type label (Example)

6.6 General technical data

Media

Control medium	neutral gases, air
Flow media	liquids; ultrapure, sterile, dirty, aggressive or abrasive media

Installation position

Type 2063, 2064	at will, preferably actuator in upright position
Type 2065	preferably with the actuator to the bottom (tank bottom valve)

7 INSTALLATION

DANGER!

Danger - high pressure.

- Before dismounting the lines and valves, turn off the pressure and vent the lines.

WARNING!

Risk of injury from improper installation.

- Installation may only be performed by qualified and trained personnel.
- Use an open-end wrench for the assembly.
- Following assembly, perform a controlled restart.

For control function I – Danger if pilot pressure fails.

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

CAUTION!

Risk of injury due heavy devices!

- During transport or during assembly, a heavy device may fall and cause injury.
- Do not transport, install or remove heavy devices without the aid of a second person and using suitable auxiliary equipment.
- Use appropriate tools.

7.1 Installation position

Installation for self-drainage of the body

It is the responsibility of the installer and operator to ensure self-drainage.

Installation for leakage detection

One of the bores in the diaphragm socket for monitoring leakage must be at the lowest point.

7.1.1 Installation position Type 2063

Installation position: at will, preferably with the actuator upright.

To ensure self-drainage:

→ Install body inclined by an angle α = 10° to 40° to the horizontal.
Forged and cast body: Mark on the body must point upwards (12 o'clock position, see "Fig. 7").

→ Observe an inclination angle of 1° to 5° to the line axis.

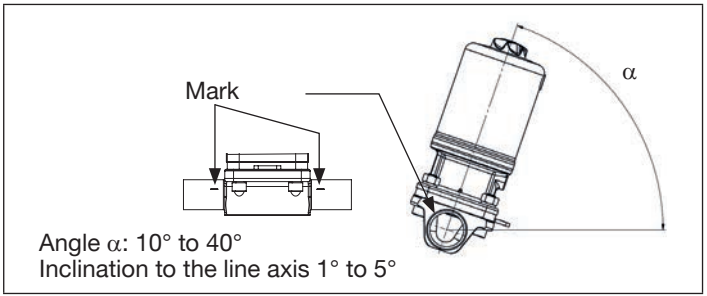


Fig. 7: Installation position for self-drainage of the body

7.1.2 Installation position Type 2064

For the installation of the T-valves into circular pipelines, we recommend the following installation positions:

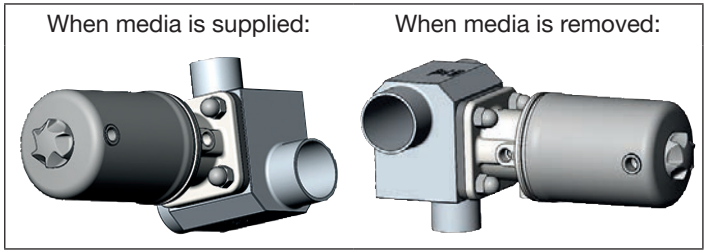


Fig. 8: Installation position type 2064

7.1.3 Installation position Type 2065

Preferably with the actuator to the bottom.

7.2 Before installation

- Before connecting the valve, ensure the pipelines are flush.
- The flow direction is optional.

7.2.1 Preparatory work

→ Clean pipelines (sealing material, swarf, etc.).

→ Support and align pipelines.

Devices with VG/VS/VP welded body

NOTICE!

Damage to the diaphragm or the actuator.

- ▸ Before welding in the body, remove the actuator

7.3 Remove the actuator from the valve body

NOTE!

Damage to the diaphragm or the seat contour.

- ▸ When removing the actuator, ensure that the valve is open.

→ Control function A pressurize the pilot air port 1 with compressed air: valve opens.

→ Remove actuator with diaphragm by loosening the body screws.

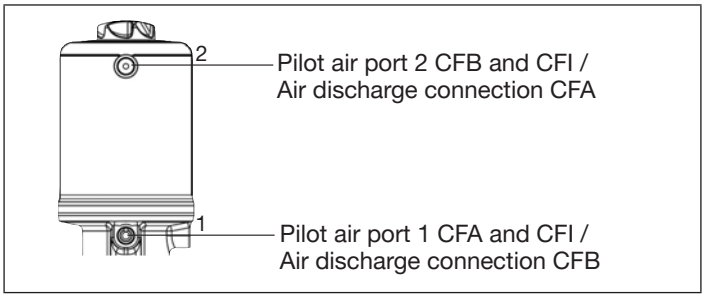


Fig. 9: Pneumatic connection

7.4 Installation of the valve body

WARNING!

Risk of injury from improper installation.

- ▸ Installation may only be performed by qualified and trained personnel.
- ▸ For installation use an open-end wrench.
- ▸ Observe the tightening torque.

7.4.1 Installation 2-way body and T-valve body

Welded bodies

→ Weld valve body in pipeline system.

Other bodies

→ Connect body to pipeline.

7.4.2 Welding tank bottom body type 2065

Observe sequence:

1. Weld the tank bottom body onto the base of the tank before installing the tank.
   Welding onto a tank which has already been installed is possible but more difficult.
   Weld the tank bottom body in the middle of the tank base so that the tank can be optimally drained.
2. Weld valve body into the pipeline.

Installation requirements:

Pipelines: Ensure that the pipelines are aligned.

Preparation: Support and align pipelines. To ensure that the pipeline is self-draining, observe an inclination angle of 1° – 5°.

DANGER!

Risk of injury from high pressure!

- Before working on the system, switch off the pressure and vent or drain lines.

For information on tanks and instructions on welding observe the standard ASME VIII Division I.
Before you start welding, check the batch number indicated on the supplied manufacturer's certificate 3.1 .

Observe the applicable laws and regulations of the respective country with regard to the qualification of welders and the execution of welding work.

1. Welding tank bottom body onto the tank:

ATTENTION!

Before welding, note the following:

- Use only welding material which is suitable for the tank bottom body.
- The tank bottom valve must not collide with any other installation part. The actuator must be easy to install and remove.

2. Welding tank bottom body into the pipeline:

→ Weld in tank bottom body.

⚠ Ensure installation is de-energized and low-vibration.

After welding in the valve body:

Install the diaphragm and the actuator.

7.5 Installation of the actuator (welded body)

NOTE!

Damage to the diaphragm or the seat contour.

- When installing the actuator, ensure that the valve is open.

Installation for actuator with control function A:

→ Pressurize the pilot air port 1 with compressed air: valve opens.

→ Lightly cross-tighten the body screws until the diaphragm is between the valve body and actuator.
Do not tighten the screws yet.

→ Actuate the diaphragm valve twice.

→ Tighten body screws without pressurization in diagonal pairs in three stages (approx. 1/3, approx. 2/3, 3/3 of the tightening torque), according to Table (see "Tab. 1"). The diaphragm should be positioned and pressed evenly all around the actuator and body.

Installation for actuator with control functions B and I:

→ Lightly cross-tighten the body screws without pressurization until the diaphragm is between the valve body and actuator. **Do not tighten the screws yet.**

→ Actuate the diaphragm valve twice.

→ Tighten body screws with pressurization in diagonal pairs in three stages (approx. 1/3, approx. 2/3, 3/3 of the tightening torque), according to Table (see "Tab. 1"). The diaphragm should be positioned and pressed evenly all around the actuator and body.

Orifice DN (diaphragm size)	Tightening torques for diaphragms [Nm]	
	EPDM/FKM	PTFE/ advanced PTFE/ laminated PTFE
15	3.5	4
20	4	4.5
25	5	6
32	8	10
40	8	10
50	12	15

Tab. 1: Tightening torques for installation of the actuator

→ A tolerance of +10% of the respective tightening torque applies to all values.

7.6 Pneumatic connection

WARNING!

Risk of injury from unsuitable connection hoses.

- Use only hoses which are authorized for the indicated pressure and temperature range.
- Observe the data sheet specifications from the hose manufacturers.

For control function I: Danger if pilot pressure fails.

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

7.6.1 Connection of the control medium

Control functions A and B

→ Connect the control medium to the pilot air port 1 of the actuator
(see "Fig. 10: Pneumatic connection").

Control function I

→ Connect the control medium to the pilot air port 1 and 2 of the actuator (see "Fig. 10: Pneumatic connection")
Pressure on connection 1 opens the valve.
Pressure on connection 2 closes the valve.

If used in an aggressive environment, we recommend conveying all free pneumatic connections into a neutral atmosphere with the aid of a pneumatic hose.

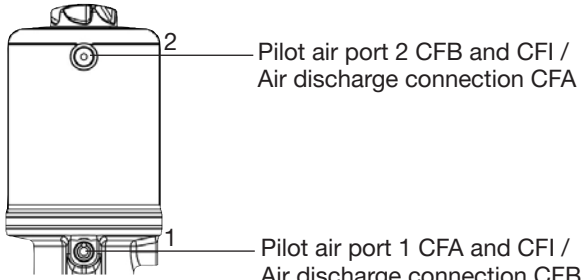


Fig. 10: Pneumatic connection

8 REMOVAL

DANGER!

Risk of injury from discharge of medium and pressure.

It is dangerous to remove a device which is under pressure due to the sudden release of pressure or discharge of medium.

▸ Before removing a device, switch off the pressure and vent the lines.

→ Loosen the pneumatic connection.

→ Remove the device.

9 MAINTENANCE WORK

9.1 Actuator

The actuator of the diaphragm valve is maintenance-free provided it is used according to these operating instructions.

9.2 Wearing parts of the diaphragm valve

Parts which are subject to natural wear:

- Seals
- Diaphragm

→ If leaks occur, replace the particular wearing part with an appropriate spare part.

A bulging PTFE diaphragm may reduce the flow.

9.3 Inspection intervals

The following maintenance work is required for the diaphragm valve:

→ After the first steam sterilization or when required retighten body screws crosswise.

→ After maximum 10^5 switching cycles check the diaphragm for wear and replace if required.

Muddy and abrasive media require correspondingly shorter inspection intervals!

9.4 Cleaning

Commercially available cleaning agents can be used to clean the outside.

NOTE!

Avoid causing damage with cleaning agents.

▸ Before cleaning, check that the cleaning agents are compatible with the body materials and seals.

10 TRANSPORT, STORAGE, REMOVAL

NOTE!

Transport damages.

Inadequately protected equipment may be damaged during transport.

- During transportation protect the device against wet and dirt in shock-resistant packaging.
- Avoid exceeding or dropping below the permitted storage temperature.

Incorrect storage may damage the device.

- Store the device in a dry and dust-free location.
- Storage temperature -20...+65 °C.

Damage to the environment caused by device components contaminated with media.

- Dispose of the device and packaging in an environmentally friendly manner.
- Observe applicable regulations on disposal and the environment.

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