

Azura

## Column Thermostat CT 2.1

### Service Instructions



# HPLC

Document no. VSM-019



**Note:** For your own safety, read the instructions and observe the warnings and safety information on the device and in the instructions. Keep the instructions for future reference.

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# 1. Important safety notes

## Checking intended use

Only use the device for applications that fall within the range of the intended use. Otherwise, the protective and safety equipment of the device could fail.

The service instructions are an addition to the existing user instructions; it includes all work that requires the installation of certain components or the opening of a device's housing.

## Who may perform repairs?

This service instructions are intended for the professional service technicians group as follow:

- KNAUER service technicians
- Service technicians authorized by KNAUER with a certificate

The following knowledge is required:

- Good command of English to be able to use the English-language service software and online help.
- Participation during an installation of a device or a training by the company KNAUER or an authorized company.

If you do not belong to one of these professional groups, under no circumstances perform the work described in these instructions. In this case, please contact your superior.

## What must be taken into account?

Observe the following:

- All safety instructions in the maintenance instructions
- All safety instructions in the user instructions
- The environmental, installation, and connection specifications in the user instructions
- Only use spare parts, tools and cleaning agents recommended or prescribed by KNAUER.

## Safety equipment

When working with the device, take measures according to lab regulations and wear protective clothing:

- Safety glasses with side protection
- Protective gloves
- Lab coat





## Protective measures against any dangers

The following applies for all repairs on the device:

- Danger of electric shock! Switch off the device or power supply! Pull the power plug!
- Danger of toxic, corrosive, or radioactive substances in contaminated devices. The customer must ensure that the device has been thoroughly decontaminated before repairs are performed.
- Damage to microelectronic components related to electrostatic discharge (ESD) Take precautions against electrostatic discharge!

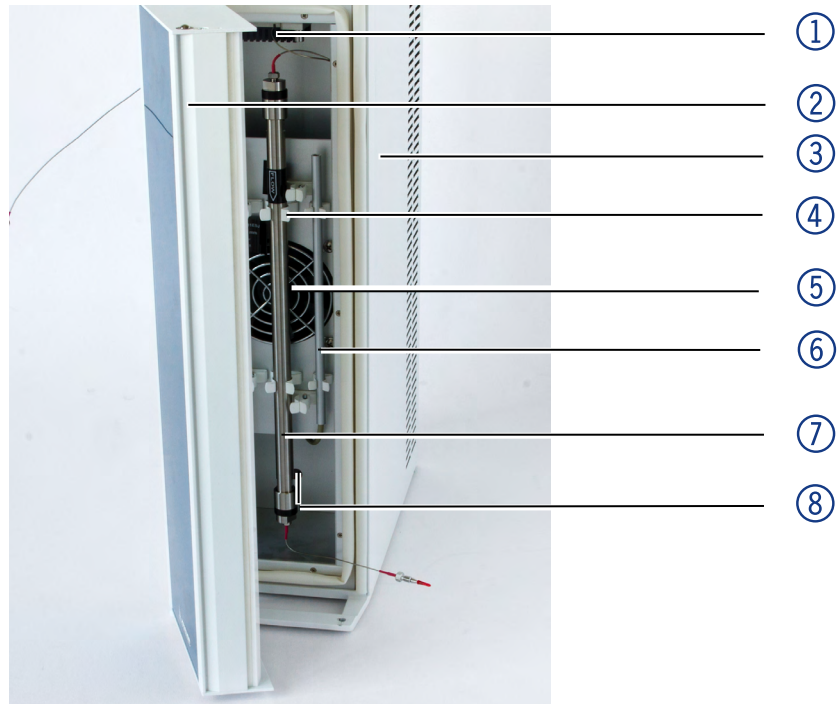
## 1.1 Definition of personal or material damage

Possible dangers related to the device are distinguished in personal and material damages in the service instructions.

Symbol	Meaning
	Lethal injuries will occur.
	Serious or moderate injuries can occur.
	Minor injuries can occur.
	Device defects can occur.

## 2. Device view

- ① Cartridge for eluent pre-tempering (optional)
- ② Door
- ③ Housing
- ④ Column holder
- ⑤ Fan
- ⑥ Temperature sensor
- ⑦ Column (not included with the delivery)
- ⑧ Leak sensor



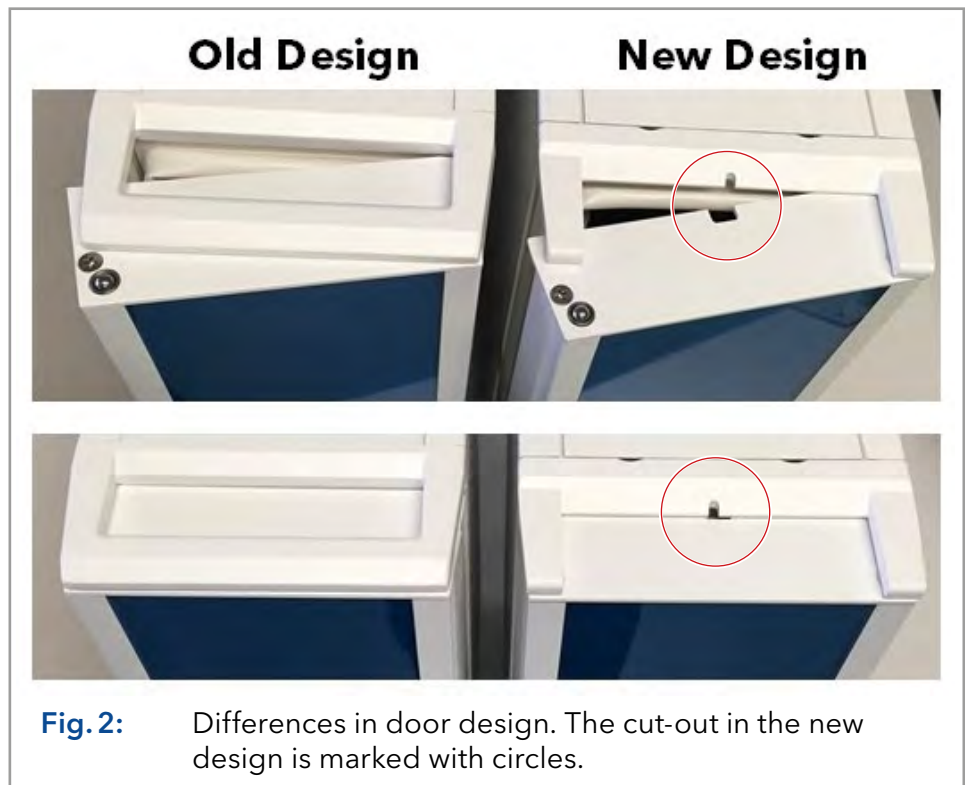
**Fig. 1:** Front view

## 3. Door

### 3.1 Design differences

Take note that there are differences of the door design, depending on the device version of the CT 2.1. To determine the correct version, check the serial number on the rear of the device.

- Devices with serial number lower than FCA183800001 have a closed door mount („old design“).
- Door of CT 2.1 with serial number FCA183800001 or higher have a opened door mount („new design“ with a cut-out for capillaries).



## 3.2 Door of CT 2.1 with serial number lower than FCA183800001 (closed door mount)

### 3.2.1 Removing the door

- Prerequisites**
- The device has been switched off.
  - The power plug has been removed.

**Tool** Phillips-head screwdriver 2.5 mm

#### Process

#### Figure

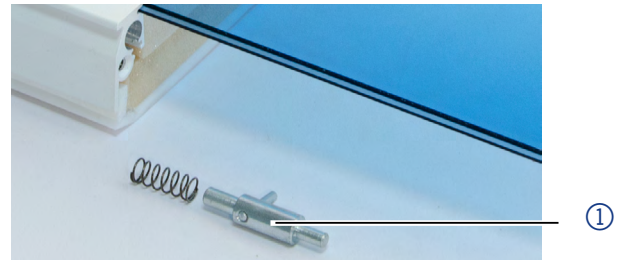
1. Push the Phillips head screwdriver between the door trim and door frame on the top of the device.



**Fig.3:** Phillips-head screwdriver between door trim and door frame

#### Procedure

2. Press the spring-loaded hinge pin ① down with the screwdriver until the upper part of the door can be unhinged.

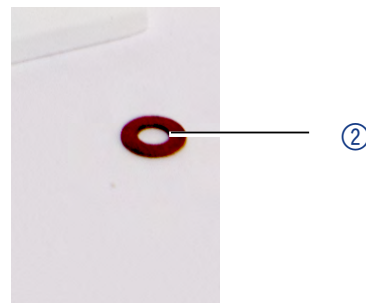


**Fig.4:** Spring-loaded hinge pin



**Note:** If the pin falls out, the spring has to be put back on as shown in figure 3 and inserted into the door.

3. Remove the washer ②, which is placed on top of the hinge pin, and store.
4. Unhinge the lower part of the door and store the washer of the lower hinge pin.



**Fig.5:** Washer

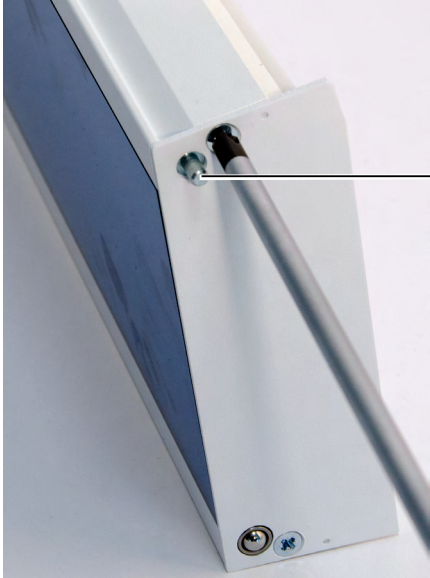
**Next step** Install the door.



### 3.2.2 Installing the door

- Prerequisites**
- The device has been switched off.
  - The power plug has been removed.

- Tools**
- Phillips-head screwdriver 2.5 mm
  - Tweezers

Process	Figure
<b>Procedure</b> <ol style="list-style-type: none"><li>1. Place the washer on the lower hinge pin ① and hinge the lower part of the door first.</li><li>2. Place the washer on the upper hinge pin.</li><li>3. Push in the hinge pins with tweezers and hinge the upper part of the door.</li><li>4. Lock the door into place.</li></ol>	

**Fig. 6:** Door with hinge pins

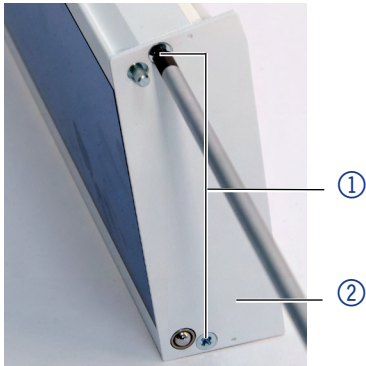
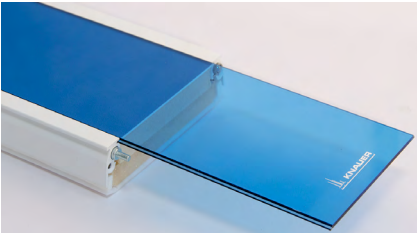
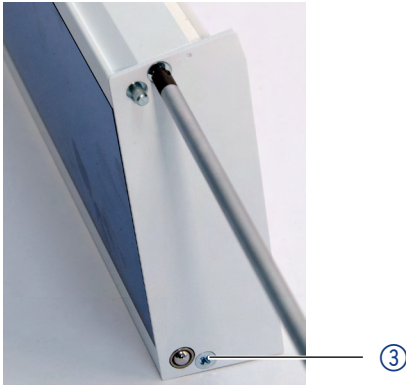
**Next step** Bring the device into operation.

### 3.2.3 Changing the hinge side

Optionally, the swing direction of the door can be changed.

- Prerequisites**
- The device has been switched off.
  - The power plug has been removed.
  - The door has been removed.

- Tools**
- 3 mm Allen screwdriver
  - Cross-head screwdriver 2 mm

Process	Figure
<p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Loosen and remove both screws ① on the upper retaining plate ② of the door.</li> <li>2. Loosen and remove both screws on the lower retaining plate of the door.</li> </ol>	 <p><b>Fig. 7:</b> Removing the plates</p>
<ol style="list-style-type: none"> <li>3. Rotate the blue door panel 180 degrees.</li> </ol>	 <p><b>Fig. 8:</b> Rotating outer door panel</p>
<ol style="list-style-type: none"> <li>4. Re-attach the retaining plates on the top and on the bottom.</li> </ol> <p><b>Note:</b> Fixate the plates in such a way that the flat head screws ③ have enough room.</p>	 <p><b>Fig. 9:</b> Flat head screws at the plate</p>

**Result** The hinge side has been changed.

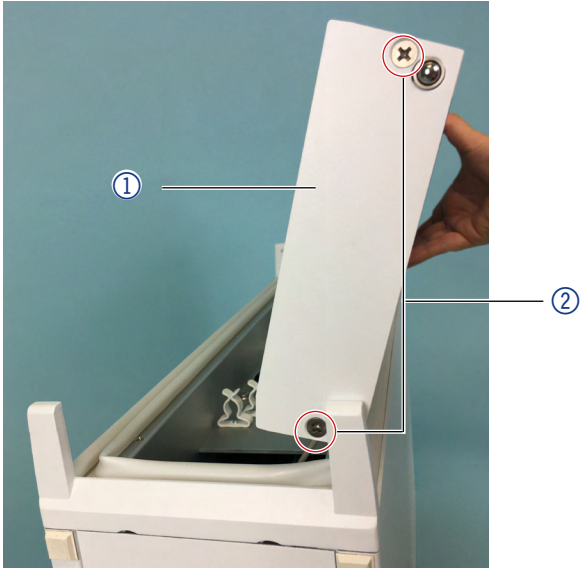
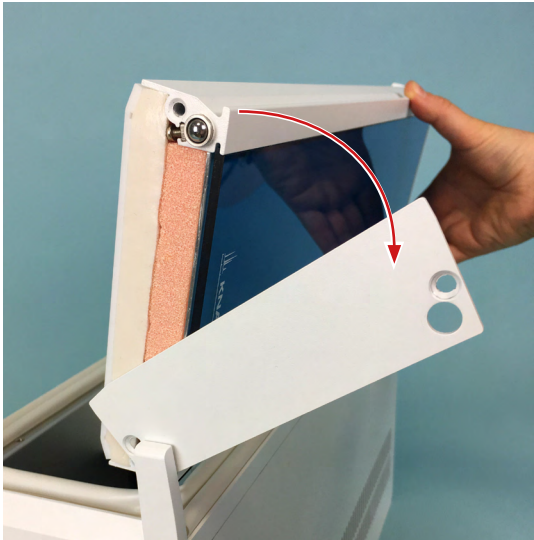
**Next step** Install the door.

### 3.3 Door of CT 2.1 with serial number FCA183800001 or higher (opened door mount)

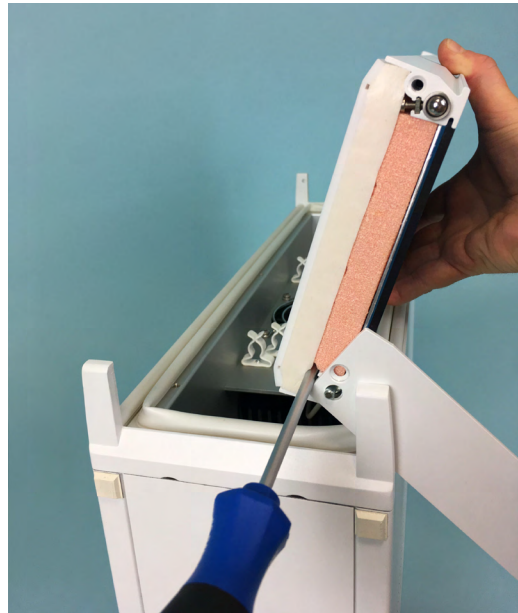
#### 3.3.1 Removing the door

- Prerequisites**
- The device has been switched off.
  - The power plug has been removed.

**Tool** Phillips-head screwdriver 2.5 mm

Process	Figure
<b>Procedure</b> <ol style="list-style-type: none"><li>1. Loosen and remove both screws ① on the upper retaining plate ② of the door.</li><li>2. Loosen and remove both screws on the lower retaining plate of the door.</li></ol>	
<ol style="list-style-type: none"><li>3. Twist the lower retaining plate of the door.</li></ol>	

4. Use a screwdriver and push in the hinge
5. Remove the door
6. Be careful and fix the retaining plate of the door so it cannot fall down.



**Fig. 12:** Remove door

7. Safely store the 2 white washers (one at the top and one at the bottom side of the door)



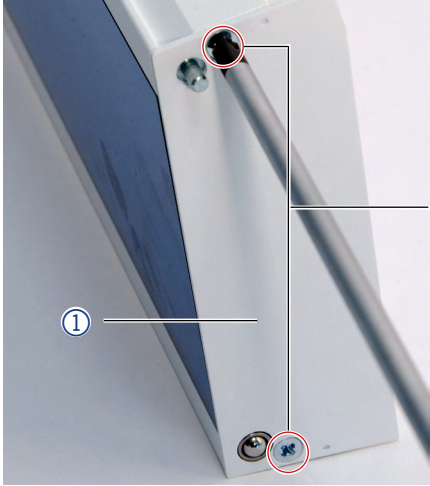


**Fig. 13:** Washer

**Next step** Install the door.

### 3.3.2 Installing the door

- Prerequisites**
- The device has been switched off.
  - The power plug has been removed.
  - The door has been removed.

- Tool**
- Phillips-head screwdriver 2.5 mm

Process	Figure
<p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Reinstall the upper retaining plate ① of the door by tightening both screws ②.</li> <li>2. Repeat step 1 to reinstall the lower retaining plate.</li> </ol> <p><b>Note:</b> Fixate the screws in such a way that the flat head screws have enough room.</p>	 <p><b>Fig. 14:</b> Tightening screws</p>
<ol style="list-style-type: none"> <li>3. Put the washer back on the hinge pin of one side of the door</li> <li>4. Reinstall this side of the door by pushing the hinge pin of the retaining plate with the washer in the hinge.</li> </ol>	 <p><b>Fig. 15:</b> Door with hinge pin</p>
<ol style="list-style-type: none"> <li>5. Put the washer back on the hinge pin of the second side of the door.</li> <li>6. Reinstall the second side of the door by pushing the hinge pin in the door until stop and push the door in the right direction and the hinge pin in the hinge.</li> </ol>	 <p><b>Fig. 16:</b> Push washer back to hinge</p>

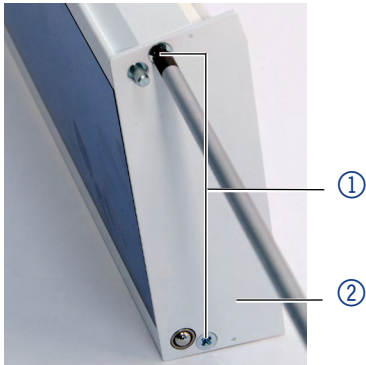
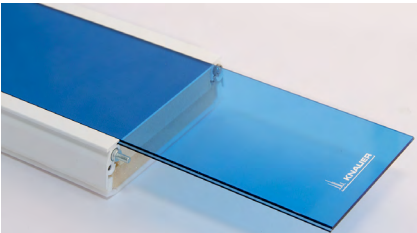
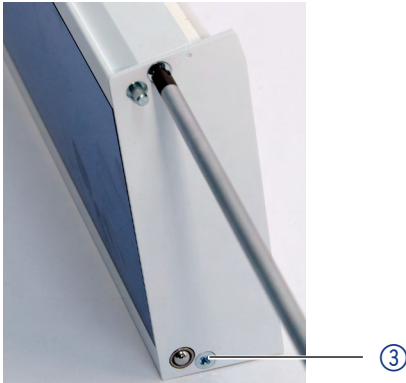
**Next step** Bring the device into operation.

### 3.3.3 Changing the hinge side

Optionally, the swing direction of the door can be changed.

- Prerequisites**
- The device has been switched off.
  - The power plug has been removed.
  - The door has been removed.

- Tools**
- 3 mm Allen screwdriver
  - Cross-head screwdriver 2 mm

Process	Figure
<p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Loosen and remove both screws ① on the upper retaining plate ② of the door.</li> <li>2. Loosen and remove both screws on the lower retaining plate of the door.</li> </ol>	 <p><b>Fig. 17:</b> Removing the plates</p>
<ol style="list-style-type: none"> <li>3. Rotate the blue door panel 180 degrees.</li> </ol>	 <p><b>Fig. 18:</b> Rotating outer door panel</p>
<ol style="list-style-type: none"> <li>4. Re-attach the retaining plates on the top and on the bottom.</li> </ol> <p><b>Note:</b> Fixate the plates in such a way that the flat head screws ③ have enough room.</p>	 <p><b>Fig. 19:</b> Flat head screws at the plate</p>

**Result** The hinge side has been changed.

**Next step** Install the door.



### 3.4 Exchanging the door trim

- Prerequisite**
- The device has been switched off.
  - The power plug has been removed.
  - The door has been removed.

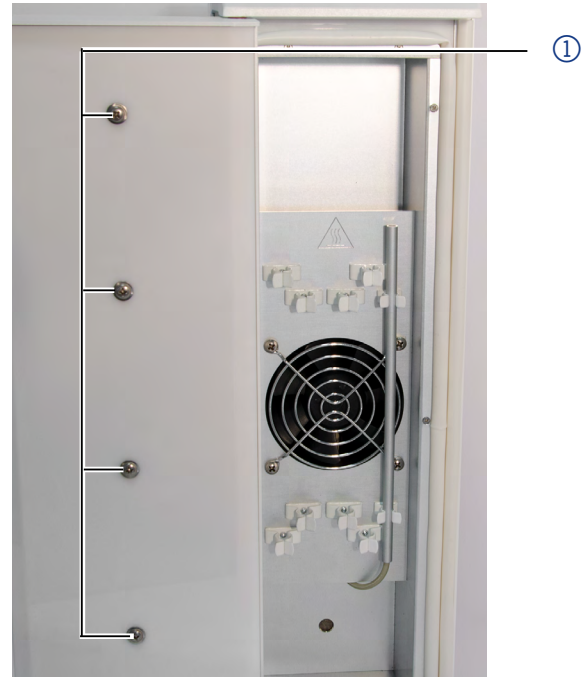
- Tool**
- Cross-head screwdriver 1.5 mm
  - Flat screwdriver

#### Process

#### Figure

#### Procedure

1. Loosen the five cross-head screws ① at the door trim.



**Fig.20:** Screws on the door trim

2. Carefully lift the door trim ② with a flat screwdriver and remove.



**Note:** Do not exert too much force when removing the door trim because the foam might be damaged.





**Fig.21:** Removed door with screws removed from the trim

**Next steps** Install the new door trim in reverse order.

### 3.5 Exchanging the door seals

- Prerequisite**
- The device has been switched off.
  - The power plug has been removed.
  - The door has been removed.

- Tool**
- Scissors

Process	Figure
<b>Procedure</b> <ol style="list-style-type: none"><li>1. Remove the three parts of the door seal manually.</li><li>2. Measure the amount of seal that is needed on the door.</li><li>3. Cut the three parts of the new door sealing and press in manually.</li></ol>	 <p><b>Fig.22:</b> Removed door seal</p>  <p><b>Fig.23:</b> Attached door seal</p>

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**Next steps** Bring the device into operation.



## 4. Removing the fan plate

### WARNING

#### Hot surface

Danger of burns from 185 °F ( 85 °C) hot surfaces in the column compartment.

→ Wear protective gloves.

- Prerequisite**
- The device has been switched off.
  - The power plug has been pulled.

**Tool** Phillips-head screwdriver 2 mm

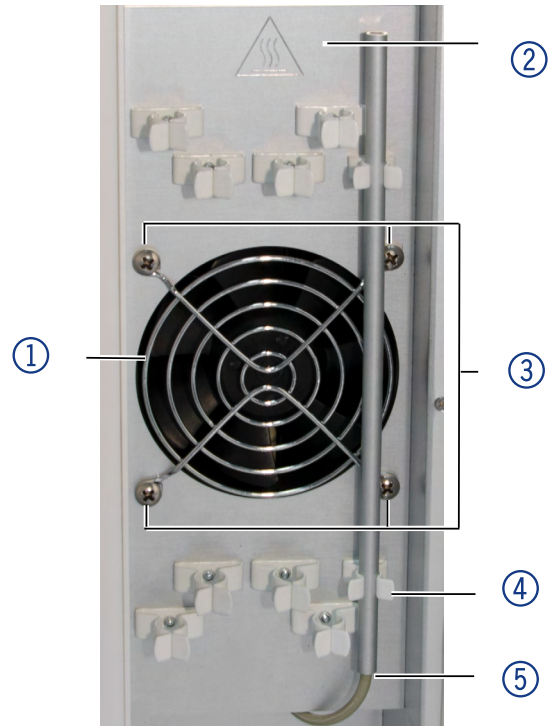


**Note:** To prevent the fan from the falling out, it is recommended to place the device on its side.

### Procedure

1. Remove the temperature sensor ⑤ from the column fixture ④.
2. Loosen the 4 screws ③ on the fan plate ②.
3. Carefully, lift off the fan grating ①.
4. Remove the fan plate.

### Figure



**Fig.24:** Fan plate

**Result** The fan plate has been removed.

**Next steps** Install new fan plate in reverse order.

## 5. Firmware updates

<b>Prerequisites</b>	The device's current firmware is functional.
<b>Firmware update process</b>	<p>The device is connected to the KNAUER service software (Service Tool).</p> <p>All firmware updates are installed on the connected device via the service software.</p>

## 6. Spare parts

Component	Order number for CT 2.1 with serial number lower than FCA183800001	Order number for CT 2.1 with serial number FCA183800001 or higher
Door sealing 8 mm	M2771	M2771
Fan plate with clips	M2772	M2772
Door outside plate, blue	M2773	M2773A
Door inside plate, white	M2774	M2774A

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