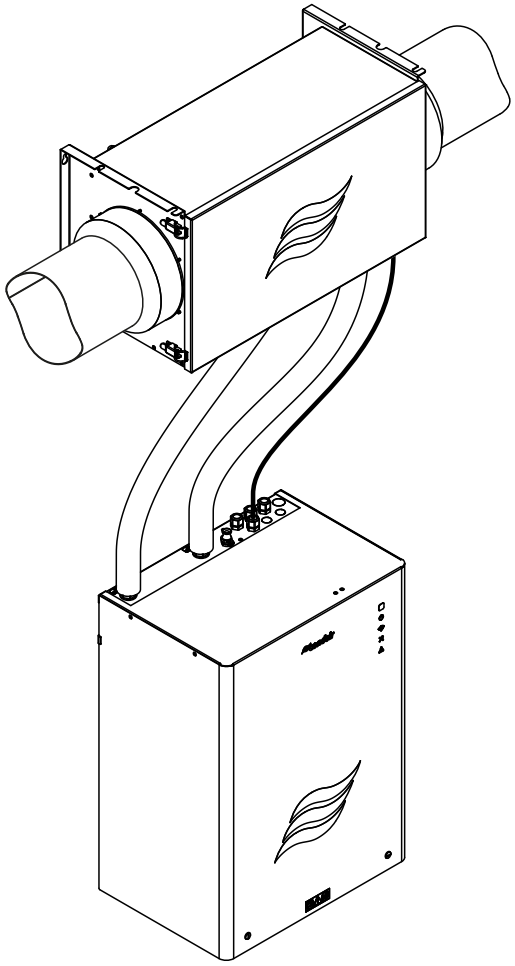
2603111-D EN 2504

MD SERIES



OPERATION MANUAL

Condair HumiLife – the efficient ERV solution
Condair MD

Humidification, Dehumidification
and Evaporative Cooling

condair

Thank you for choosing Condair

Important!

Please enter the system data listed below during commissioning.

Installation date (DD/MM/YYYY):
Commissioning date (DD/MM/YYYY):
Installation site:
Model:
Serial number:
Supply water hardness at the installation site:
Supply water pH value at the installation site:

Contents

1 Introduction

1.1 First things first!

Thank you for choosing the **Condair MD**.

The Condair MD has been built using state-of-the-art technology and in accordance with the latest safety regulations. However, improper use of the Condair MD may put users and/or third parties at risk and/or may also cause damage to material assets.

Please observe and comply with all information and safety instructions in this documentation and in the instructions to the components built into the humidifier system to ensure safe, proper and cost-efficient operation of the Condair MD.

Should you have any questions after reading these instructions, please contact your local Condair representative. They will be pleased to help you.

1.2 Notes on this operation manual

Delimitations

The subject of this operation manual is the Condair MD. Options and accessories are only described insofar as is necessary for proper operation. Please see the relevant instructions for additional information on the options and accessories.

The information in this operation manual are restricted to **initial commissioning**, **operation**, **service** and **troubleshooting** of the Condair MD and are aimed at **correspondingly trained specialist staff that has been adequately trained for the corresponding activity**.

This operation manual is supplemented by different, separate documentation (installation manual, spare parts list, etc.) that is also part of the scope of delivery. Where necessary, this operation manual may refer to these publications.

Symbols used in this manual

CAUTION!

The signal word "CAUTION" together with the hazard symbol in a circle indicates information provided in this documentation which, if ignored, could lead to **damage and/or the failure of the device or other material assets**.

WARNING!

The signal word "WARNING" together with the general hazard symbol indicates safety and hazard information in this documentation, which, if ignored, could result in **personal injury.**

DANGER!

The signal word "DANGER" together with the general hazard symbol indicates safety and hazard information in this documentation, which, if ignored, could result in **serious personal injury, including death.**

Storage

Please keep this operation manual in a safe place where they can be accessed at all times. If the Condair MD changes hands, this operation manual must be handed over to the new operator.

Should you lose the operating instructions, please contact your Condair representative.

Language versions

This operating manual is available in various languages. For more information, please contact your Condair representative.

2 For your safety

General information

Any persons tasked with working on the Condair MD must have read and understood this operation manual as well as the Condair MD installation manual prior to starting work.
Knowledge of the contents of the operation manual and the installation manual is a basic prerequisite for protecting personnel from danger, avoiding improper operation and thereby operating the Condair MD safely and properly.

All pictograms, signs and labelling applied to the Condair MD must be observed and kept in a clearly legible condition.

Personnel qualifications

Any work described in this operation manual may be carried out by the operator of the Condair MD in compliance with the information in this manual.
For safety and warranty reasons any action beyond the scope of this manual must be carried out only by qualified personnel authorized by Condair.

It is assumed that all persons working with the Condair MD are familiar and comply with the appropriate regulations on work safety and the prevention of accidents.

The Condair MD can be operated by children from the age of eight and persons with restricted physical, sensory or mental capabilities or a lack of experience and expertise if they are supervised by appropriately trained persons or if they have been instructed in the safe operation of the device and understand the resulting hazards. Children must not play with the device. Children must not carry out unsupervised cleaning and service activities on the device.

Intended use

The Condair MD is exclusively intended for duct air humidification together with an energy recovery ventilation (ERV) within the specified operating conditions. Any other use without the written permission of Condair is deemed to be improper use and can render the Condair MD hazardous. Any unintended use shall render guarantee claims void.
Intended use also includes **observing all information contained in this documentation (particularly all safety and hazard warnings)**.

Hazards that may arise from the Condair MD

DANGER!
Risk of electrocution

The hydraulic unit of the Condair MD operates using mains voltage. If the hydraulic unit is open, users may come into contact with live parts. Touching live parts may cause severe injury or death.

For this reason: Before commencing work on the Condair MD, set the Condair MD out of operation as described in *Section 5.4* (switch off the unit, disconnect it from the mains and stop the water supply) and secure the unit against inadvertent power-up.

Warning!
System contamination hazard

If the Condair MD is switched off, there is a risk of the fresh water supply line and the internal water system becoming contaminated, as the water system is then no longer being flushed regularly.

For this reason: After initial commissioning of the Condair MD, it must not be switched off again. This will ensure that the water system is flushed at regular intervals and any contamination is counteracted.

DANGER!
Health hazards as a result of improper hygiene

Improper operation and poorly serviced diaphragm humidifiers may pose a health hazard. In the event of improper operation or inadequate service harmful pathogens may reproduce in the Condair MD water system.

For this reason: the Condair MD must always be operated and serviced as described in this operation manual.

Avoidance of hazardous operating conditions

If it can be assumed that **safe operation is no longer possible**, the Condair MD must be immediately be shut down and secured against unintentional power-up according to *Section 5.4*. This may occur under the following circumstances:

– If Condair MD components have been damaged
– If the electrical installation has been damaged
– If the Condair MD is no longer operating correctly
– If connections or pipes are leaking

All persons entrusted to work on the Condair MD are obliged to immediately report any modifications to the device which impair the safety to the appropriate, responsible entity at the operator.

Unauthorized modifications to the device

No additions or modifications must be made to the Condair MD without **the written permission of** Condair.

When replacing any defective components of the device, exclusively use **genuine accessories and spare parts** provided by your Condair representative.

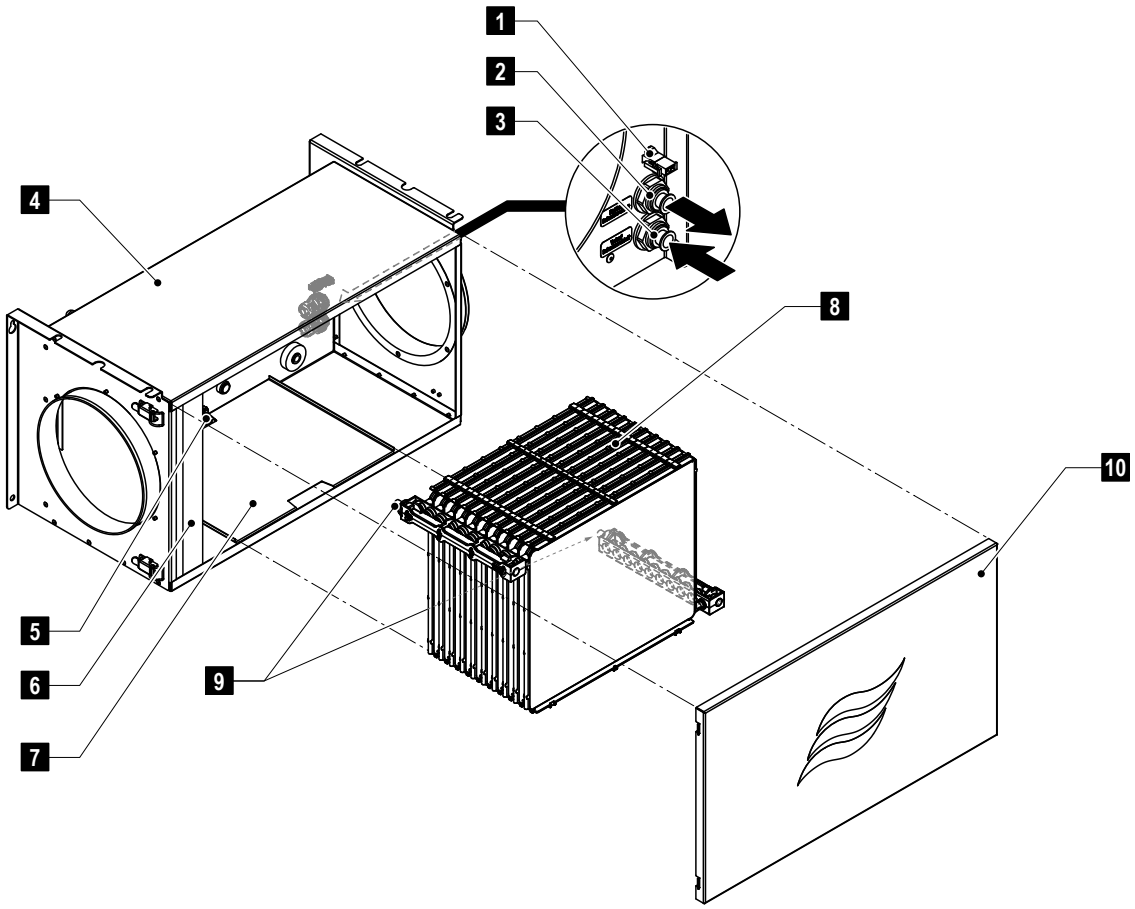
Exclusively use consumables provided by Condair that have been listed in the spare parts list to service the Condair MD.

3 Product overview

3.1 System design Condair MD

The Condair MD consists of a hydraulic unit and a humidifier unit designed for installation in horizontal ventilation ducts.

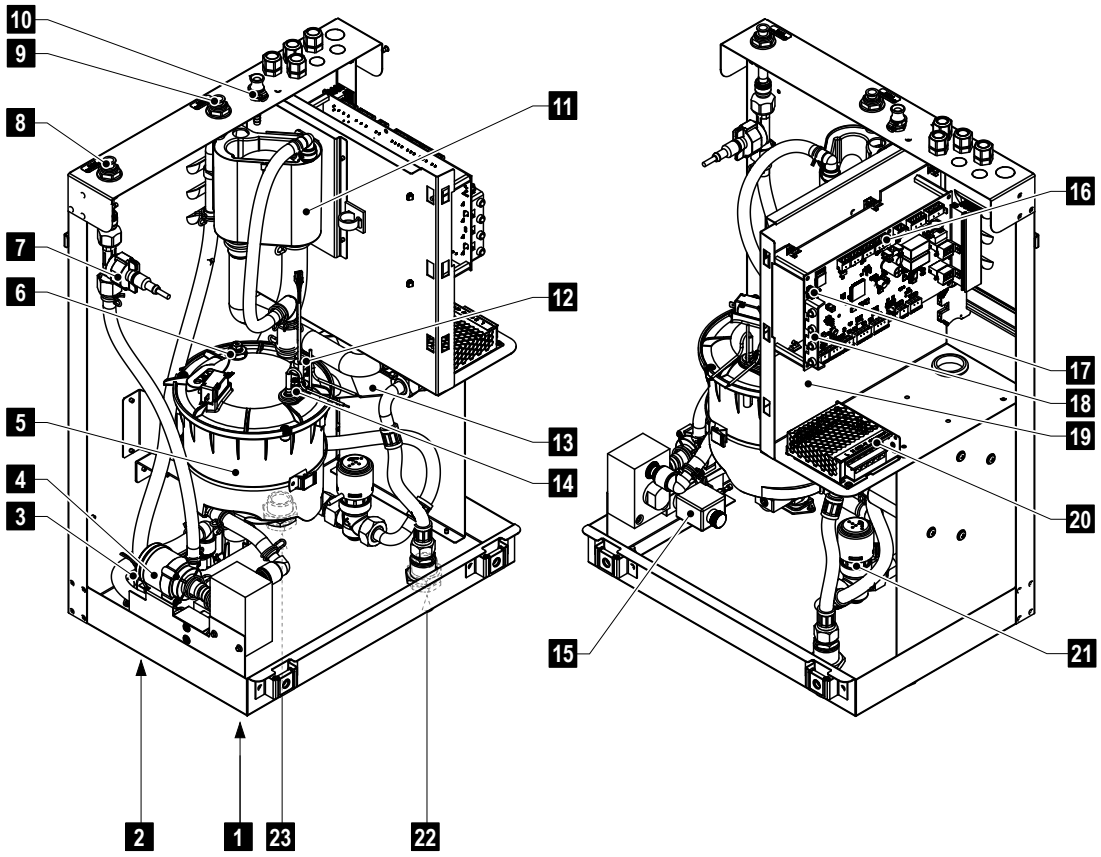
3.2 Humidifier unit design



1 Leakage sensor cable connection socket
2 Humidifier unit return connection
3 Humidifier unit supply connection
4 Humidifier housing
5 Leakage sensor
6 Air filter (optional accessory)
7 Base panel
8 Humidifier insert
9 Coupling pipes
10 Humidifier unit front cover

Fig. 1: Humidifier unit design

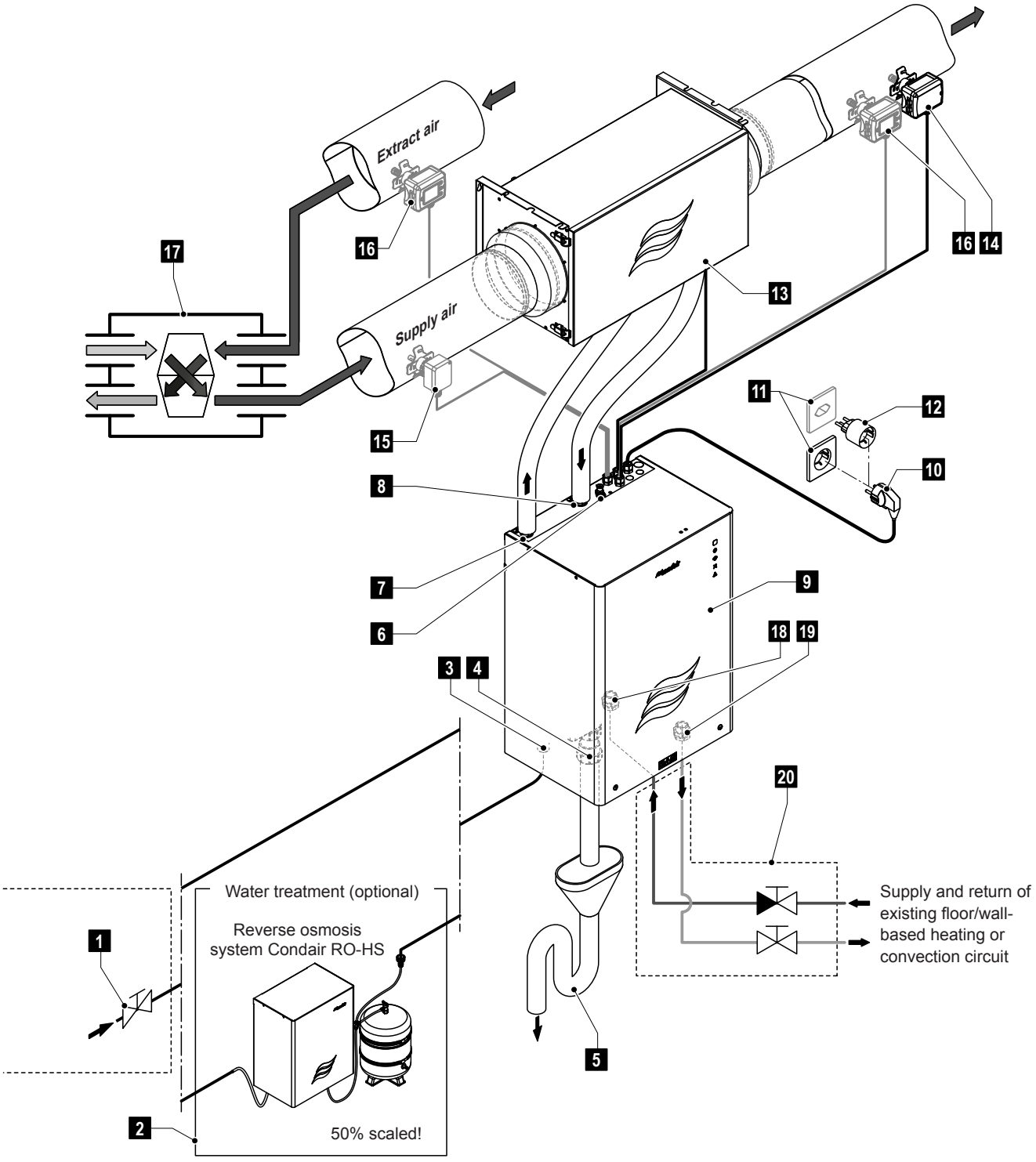
3.2.1 Hydraulic unit design



1 Fresh water supply connection
2 Drain connection
3 Inlet valve
4 Humidifier circuit circulation pump
5 Water tank
6 Overtemperature switch (optional)
7 Flow rate and temperature sensor
8 Humidifier unit supply connection
9 Humidifier unit return connection
10 Service fluid connection
11 Fill cup
12 Level sensor
13 Heat exchanger
14 Heating element
15 Drain valve
16 Driver board
17 Touch screen
18 On/Off switch
19 Operating status indications
20 24 V power supply
21 Heating water circuit temperature control valve
22 Heating water return connection
23 Heating water supply connection

Fig. 2: Hydraulic unit design

3.3 System overview Condair MD



1 Fresh water supply shut-off valve
2 Reverse osmosis system Condair RO-HS (optional)
3 Fresh water supply connection
4 Drain connection
5 Drain funnel with siphon
6 Service fluid connection
7 Humidifier unit supply
8 Humidifier unit return
9 Hydraulic unit
10 Mains connection cable
11 Mains socket (230V/1~/50Hz)
12 Power adapter CH
13 Humidifier unit
14 Humidity sensor with humidity limitation
15 Air flow monitor (optional)
16 High limit humidistat in the supply or extract air duct (optional)
17 Energy recovery ventilation (ERV)
18 Heating water supply connection
19 Heating water return connection
20 On-site heating water installation

Fig. 3: System overview Condair MD

3.4 Functional description

The Condair MD is based on the principle of the steam pressure difference between the dry air in the duct and the water in the humidifier. In this process pure steam diffuses through a semi-permeable diaphragm of the humidifier unit and humidifies the duct air.

Water supply

The building fresh water supply is fed to the hydraulic unit via a shut-off valve and, depending on the water hardness, via a water treatment system (reverse osmosis system Condair RO-HS). The water reaches the water tank via the level-controlled inlet valve and the open fill cup.
Note: the open fill cup is designed so that the supply water is separate to the device water and device water is unable to return to the supply line.

The supply water must meet valid drinking water specifications as per EN 1717 and SVGW/DVGW. The permissible supply water temperature is between 8°C and 30°C and the supply pressure between 1.5 and 5.0 bar.

Water heating

Depending on the humidity demands the water towards the humidifier unit must be heated to between 20°C and 40°C for an efficient operation of the Condair MD. With the Condair MD, the humidifier water is heated by a heat exchanger integrated in the hydraulic unit, which is fed by the water of a floor/wall-based heating with recirculation pump or a convection circuit with recirculation pump. If the water temperature in the water tank falls below 27°C, the water is heated to the required temperature by the heating element integrated in the water tank.

Level control

The level within the water tank is permanently monitored by a level sensor. If the water level drops below a specified level (as a result of the humidification process), the level sensor sends a signal to the control system. The control system opens an inlet valve and the water tank is topped up. Upon reaching the specified operating level the level sensor once again sends a signal to the control system and the inlet valve is closed.

Water temperature throughput quantity control

The water temperature and water throughput rate through the humidifier required for a certain humidity demand is detected by a control circuit within the control system on the basis of the humidity demand and the combined temperature and throughput sensor installed in the humidifier unit water circuit before it is set to the corresponding values.

Humidity control

The humidity demand is determined by the humidity setpoint adjusted by the user and a humidity sensor installed in the supply air duct. The water temperature and water throughput rate is controlled accordingly on the basis of the determined humidity demand.

Draining

As the humidifier unit of the Condair MD exclusively outputs water molecules to the duct air, the mineralisation within the water contained in the internal water circuit increases (particularly in the event of operation with untreated drinking water). A corresponding water quantity must be regularly drained from the water tank and replaced by fresh water to make sure this concentration does not exceed a certain value.

During the draining process, the drain valve is opened for a certain time and the inlet valve opens with a delay. If the lowest operating level within the water tank is reached during the draining process, the inlet valve remains open until the water level in the water tank has once again reached the normal operating level.

Periodic rinsing

In "Humidification switched On" mode and in "Humidification switched Off" mode the supply line and the internal water system of the Condair MD hydraulic system is flushed with fresh tap water every 47 hours according to a fixed schedule as per VDI 6022. For this reason, the water supply to the hydraulic unit must also always be open outside the humidification season and the device must not be disconnected from the mains power and/or be switched off (exception: device is being serviced). Outside the humidification season the Condair MD can be operated in "Humidification switched Off" mode (see *Section 5.6.2*).

Note: if the Condair MD has to be switched off for a prolonged period of time, please note the information in *Section 5.4*.

4 Initial commissioning

This section describes the initial commissioning of the Condair MD. Commissioning of any purchased options (e.g. reverse osmosis system Condair RO-HS) is described in the separate instructions for these options.

4.1 Notes on initial commissioning

Initial start-up must be performed by suitably qualified and trained Condair or Condair partner service technicians familiar with the hazards involved and the requirements for hygienic work only.

DANGER!
Risk of electrocution

Individual work steps during the initial commissioning of the Condair MD must be carried out with the hydraulic unit switched on and opened. If the hydraulic unit is open and switched on, users may **come into contact with live parts. Touching live parts may cause severe injury or death.**

For this reason: Such steps must exclusively be performed by trained Condair service technicians or Condair trained personnel familiar with the hazards involved.

4.2 Checking and preparing the system for the initial commissioning

Note: The following procedure for checking and preparing the system for the initial commissioning refers to a system with internal control system. For systems with external control system, please contact your Condair partner.

1. Switch off the ERV and secure it against reactivation.
2. Check the ERV filter:
   Install at minimum ISO Coarse 80% filters (recommended: ISO ePM1 60%) in the ERV to ensure hygienic operation of Condair MD. We generally recommend replacing the filters before initial commissioning of Condair MD. In the event of visible contamination (discolouration, traces of dust, streaks, etc.), the filters must always be replaced before starting up Condair MD.
3. Check electrical installations (see also the Condair MD installation manual):
   - ☐ Has the mains socket been correctly positioned so that the hydraulic unit can be connected via the integrated mains connection cable?
   - ☐ Has the mains socket been correctly fused (10 A slow-blow fuse) and connected via an RCD switch (30 mA)?
   - ☐ Has the humidity sensor been correctly positioned (correct installation position, sensor mounted in extract air duct?) and correctly connected to the terminals of terminal block X6 on the driver board in the hydraulic unit?

- ☐ Has the optional high limit humidistat been correctly positioned (correct installation position, installed at a minimum distance of 300 mm downstream of the humidifier unit in the supply air duct?) and correctly connected to the terminals of terminal block X5 on the driver board in the hydraulic unit?
- ☐ Has the optional air flow monitor been correctly positioned (correct installation position, installed at a minimum distance of 200 mm upstream of the humidifier unit in the supply air duct?) and correctly connected to the terminals of terminal block X4 on the driver board in the hydraulic unit?
- ☐ Has the optional floor leak sensor been placed correctly (below the hydraulic unit) and correctly connected to the terminals of terminal block X4 on the driver board in the hydraulic unit?
- ☐ Is the leak sensor cable from the hydraulic unit connected to the humidifier unit?
- ☐ Has jumper "JP4" been set to 24V?
- ☐ Have all cables been routed into the hydraulic unit via cable glands?

4. Carry out a visual inspection of the hydraulic unit (see also the Condair MD installation manual):
   - ☐ Has the fresh water supply pipe been correctly connected and tightened?
   - ☐ Has a shut-off valve been installed in the fresh water supply pipe?
   - ☐ Has the wastewater pipe been routed correctly (min. continuous slope of 15%) and routed into an open drain funnel with siphon (by others)? Has a minimum distance of 2 cm been maintained between the drain funnel and the end of the drain pipe?
   - ☐ Has the supply/return pipe of the heating water been correctly connected and tightened? Are the connections on the inside of the housing still tightly fastened? Have the necessary fittings (e.g. shut-off valves) been installed?
5. Install the humidifier insert:
   - Undo the four snap fasteners and remove the humidifier housing cover.

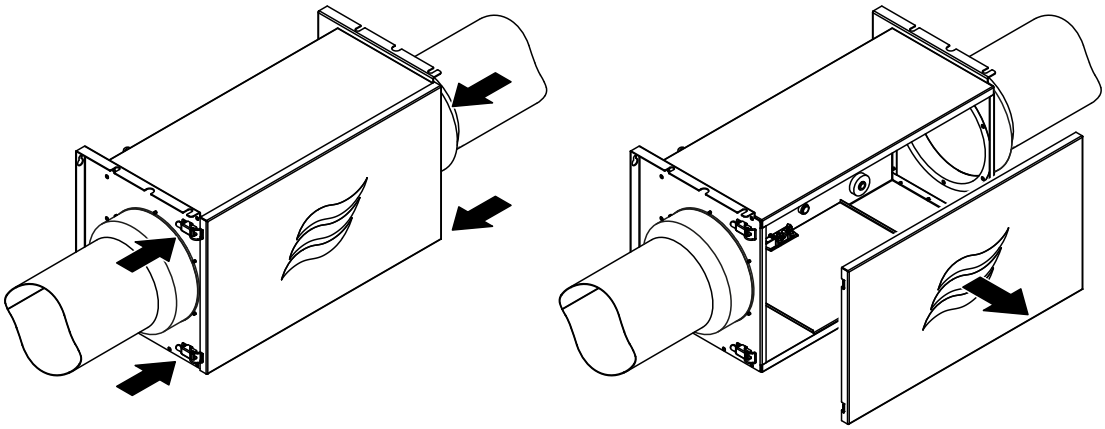


Fig. 4: Opening the humidifier unit

- Remove the base panel.

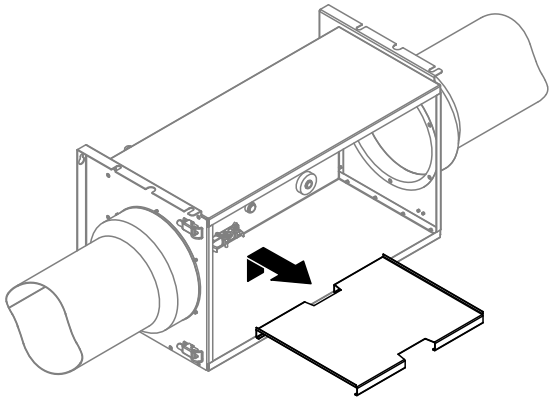


Fig. 5: Remove base panel

- Clean the inside of the humidifier housing and the base panel with a lint-free cloth. For this purpose, if necessary, use a mild cleaning and disinfection agent (do not use products featuring detergents).
- If the humidifier unit has been equipped with the optional air filter, install **a** new air filter in the humidifier housing on the air inlet side (see separate instructions for the air filter).
- Reinsert the base panel into the humidifier housing and remove the sealing plugs.

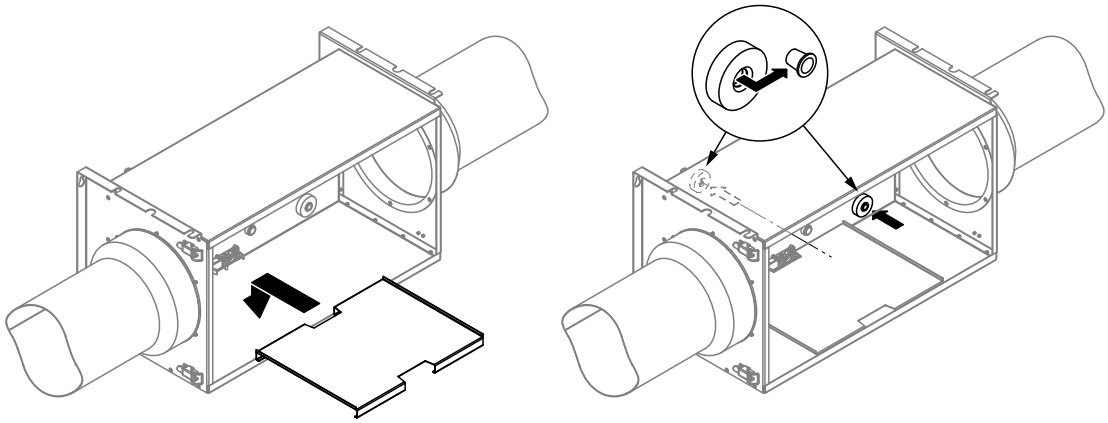


Fig. 6: Insert the base panel and remove the sealing plugs

CAUTION!

The humidifier insert is sensitive to contamination by fatty acids as well as pressure and abrasion.

For this reason: always wear the enclosed single-use gloves when handling the humidifier insert and handle the humidifier insert with care.

- Remove the humidifier insert from the packaging and check that the plastic film sealing the humidifier insert is undamaged.

CAUTION!

Do not use the humidifier insert if the plastic film is damaged. In this case please contact your Condair partner.

- Check the humidifier insert for damage (holes, rips, etc.). In this process, always hold the humidifier insert by the two black water distributors.
- Insert the two hose sections (from the installation set) into the plug connectors on the black water distributors of the humidifier insert as far as they will go.

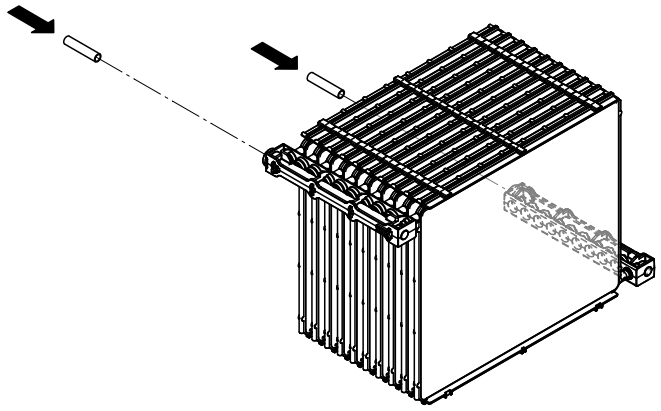


Fig. 7: Insert the hose sections into the plug connectors

- Position the humidifier insert on the base panel, push the humidifier insert into the humidifier housing up to the stop and press it into the end position.
  Important: Make sure that the arrows on the water nozzles of the humidifier insert elements match the water's direction of flow.

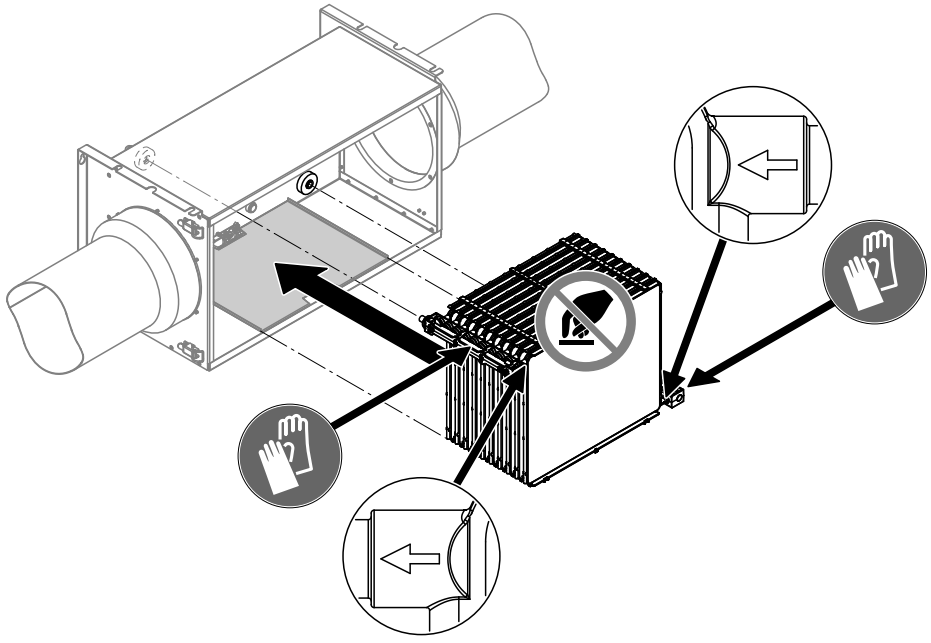


Fig. 8: Insert the humidifier insert

- Refit the housing cover and lock it.

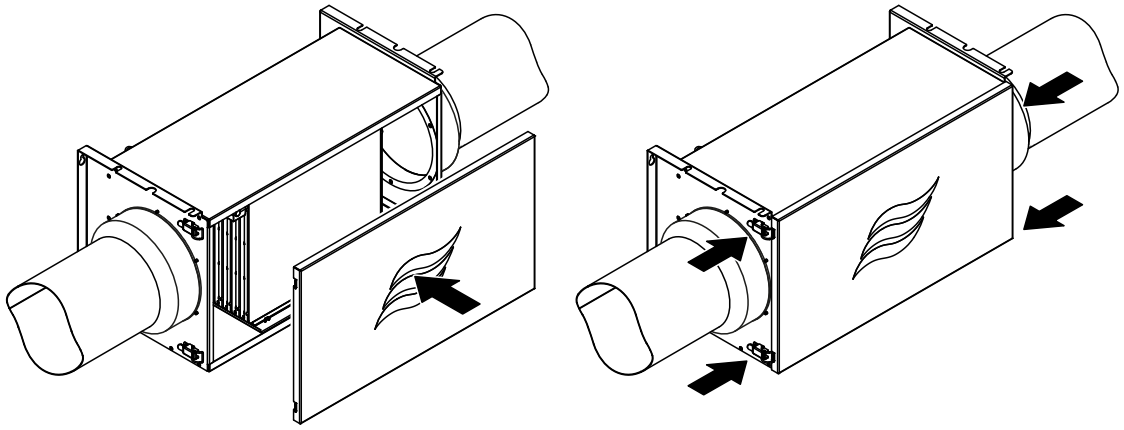


Fig. 9: Closing the humidifier unit

6. Commission water treatment device (if available).
   Note: This step only needs to be carried out if your system is equipped with an optional water treatment device (e.g. Condair RO-HS reverse osmosis system) in the fresh water supply. Please observe the instructions in the separate instructions for the corresponding product.
7. Open the shut-off valve in the fresh water supply pipe. Check the supply pipe and, if present, the water treatment device for leaks and seal them if necessary.
8. Start up the ERV.
9. Make sure that the cover on the hydraulic unit has been installed and locked. Plug the mains connection cable of the hydraulic unit into the mains socket and switch on the hydraulic unit (press On/Off switch on hydraulic unit for approx. 2 seconds).

4.3 Download and install the HumiLife-App and connect it to the Condair MD

4.3.1 Download the HumiLife-App

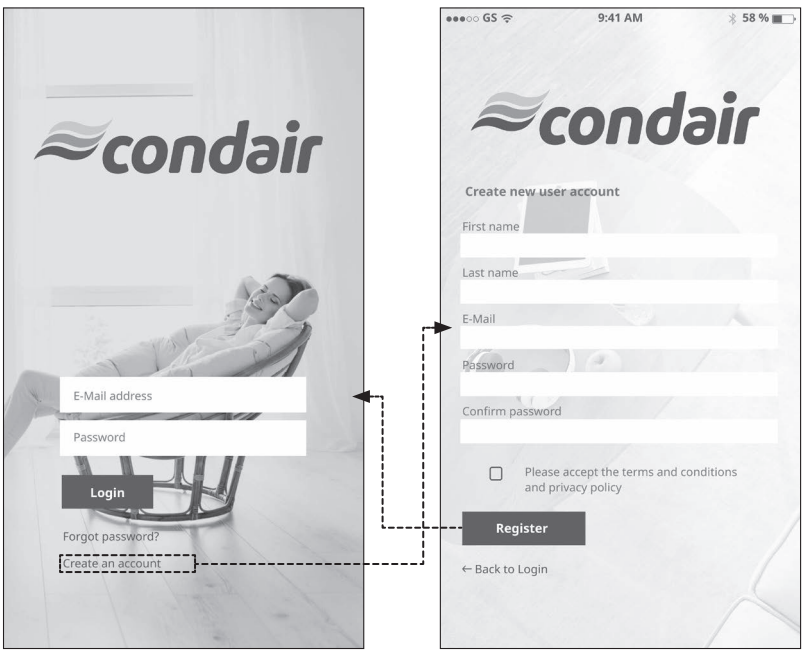
1. Download the Condair HumiLife-App from the App Store (iPhone) or the Google Play Store (Android). Use the camera or QR scanner on your mobile device and take a photo or scan the QR code to go to Google Play (Android) or the App Store (iOS).

Google Play (Android)	App Store (iOS)

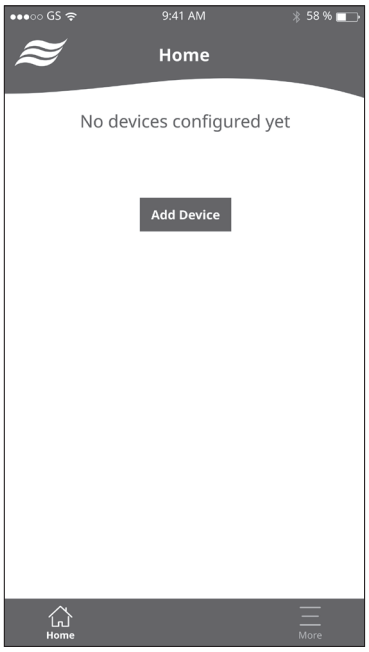
2. Then install the HumiLife-App on your mobile device.

4.3.2 Connect the HumiLife-App to the Condair MD

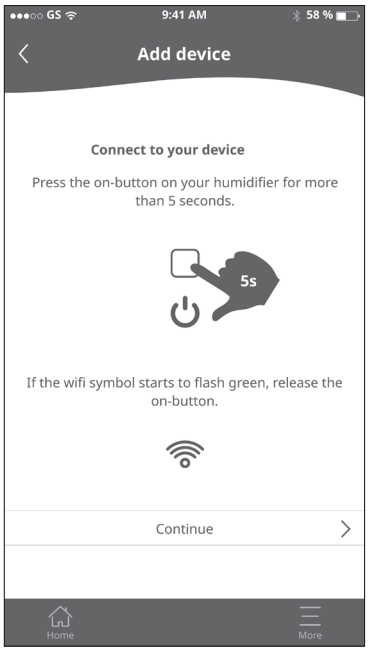
1. Go to "Settings" on your mobile device and activate the WLAN function.
2. Open the HumiLife-App. The login screen appears.
   - If you do not have a user account yet, click on **<Create an account>**. The registration screen appears. Enter your first name, your last name, your e-mail address and the desired password. Accept the terms and conditions and data protection regulations and confirm your entries by pressing the **<Register>** button. The login screen appears.
   - Enter your e-mail address and your password and confirm your entries by pressing the **<Login>** button.



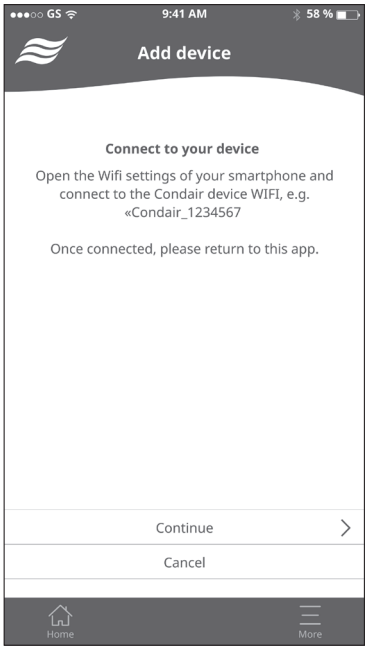
3. If no devices have yet been registered under your user account, press **<Add Device>** (left screen), otherwise press **<Add new device>** (right screen).

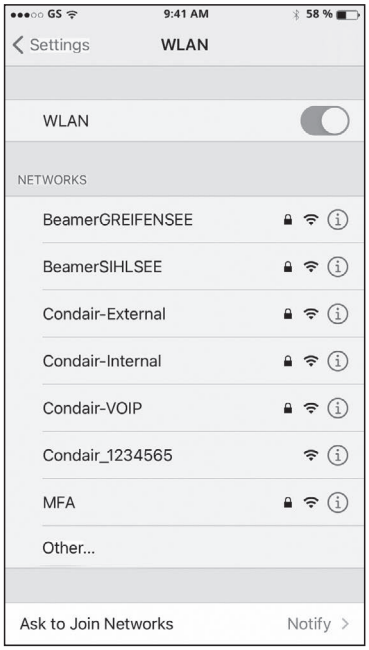


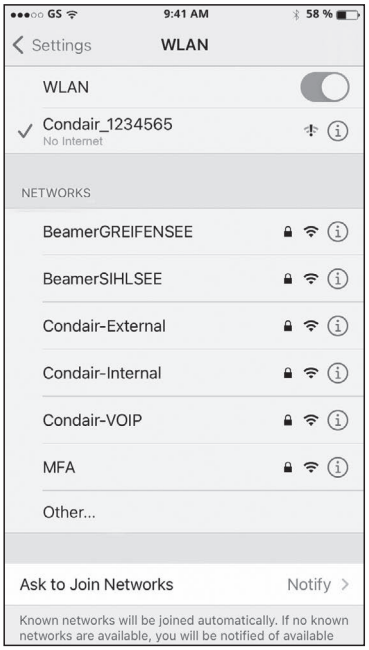
4. Press the device switch on the humidifier (approx. 5 seconds) until the WiFi symbol on the hydraulic unit flashes green. Press **<Continue>**.

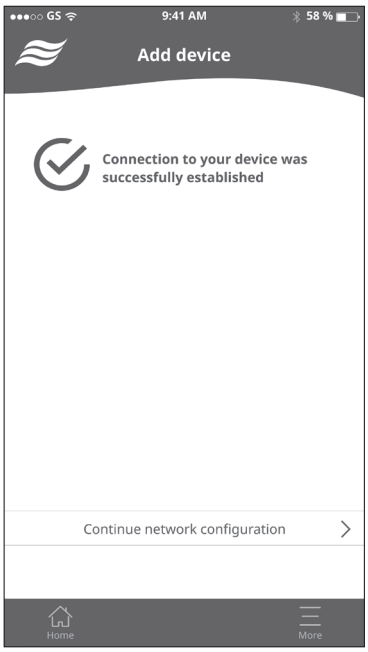


5. Connect your mobile device to the WLAN of the Condair MD:
   - Access "WLAN" in the "Settings" of your mobile device (figure in the middle). Then select the Condair MD from the list of WLAN devices (figure on the upper right) and return to the HumiLife-App.
   - Press **<Continue>** in the HumiLife-App screen (figure on the upper left).
   - The HumiLife-App confirms the successful connection with the Condair MD (figure on the bottom). Press **<Continue network configuration>**.

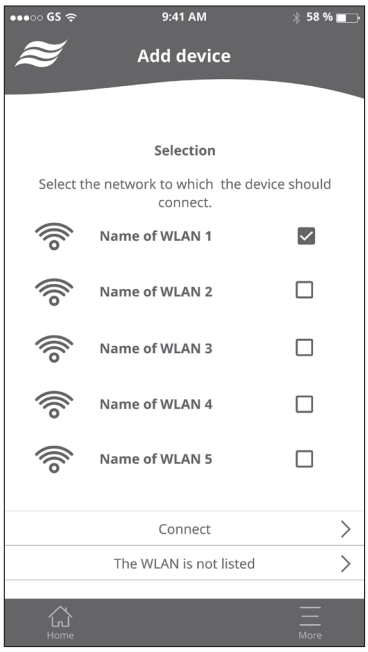


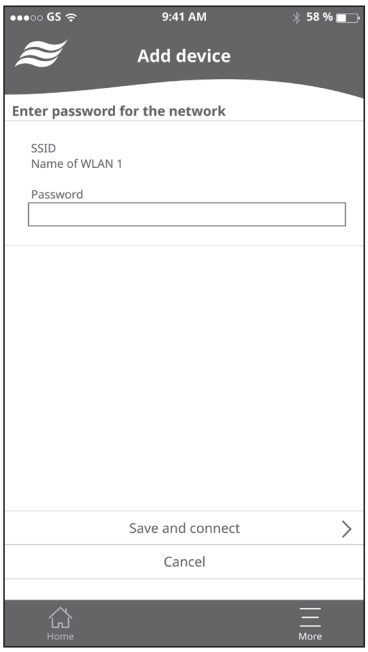


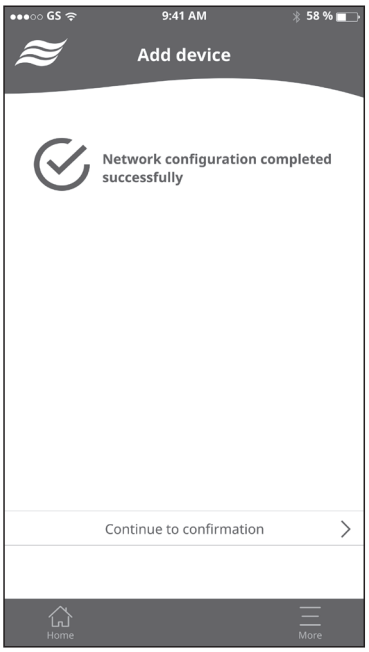


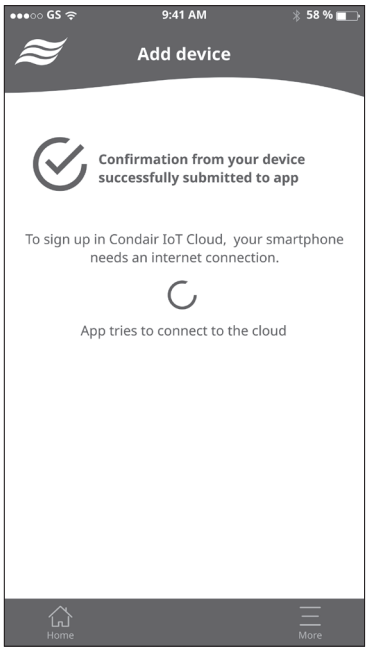


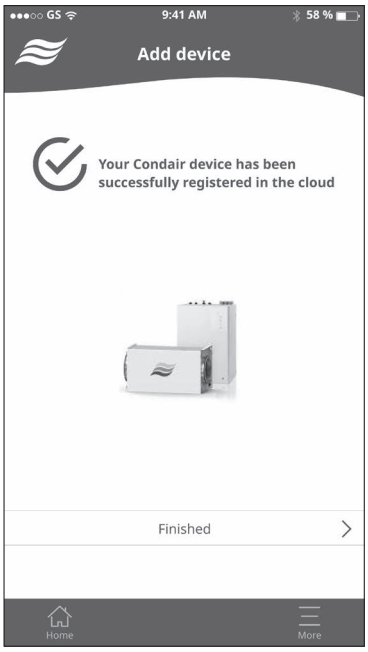
6. Configure the WiFi network:
   - Select the WLAN network to which the Condair MD should connect and press **<Connect>**.
   - Enter the password and confirm it with **<Save and connect>**.
   - The HumiLife-App confirms that the network configuration has been successfully completed. Press **<Continue to confirmation>**.
   - The HumiLife-App connects to the cloud.
   - Once the HumiLife-App has been registered in the cloud, the confirmation screen will appear. Press **<Finish>**. The HumiLife-App then shows the home screen.

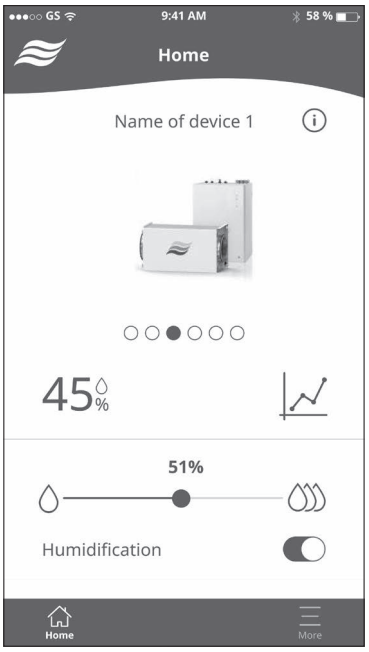










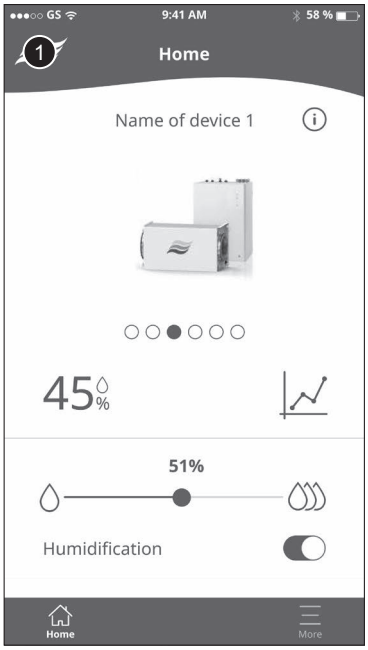


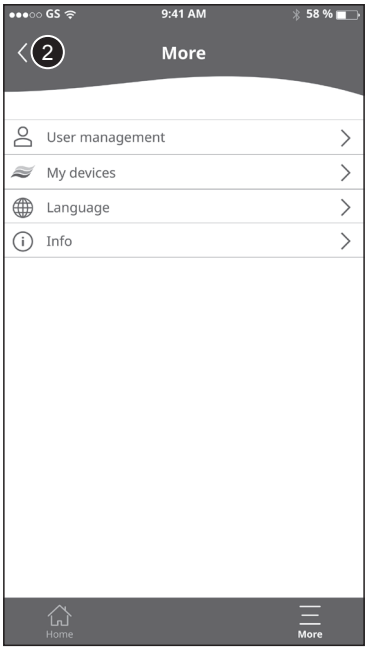
4.4 Configuration of the Condair MD with the commissioning wizard

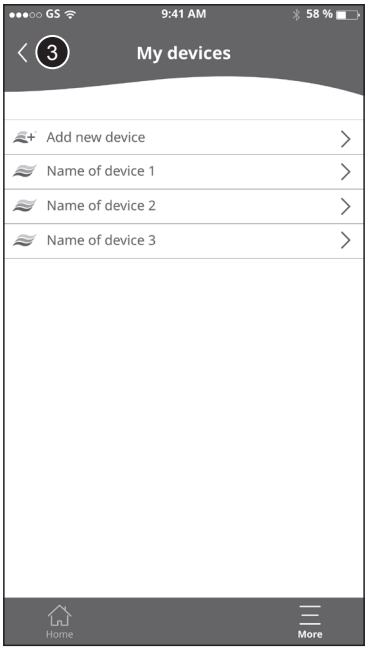
NOTE!

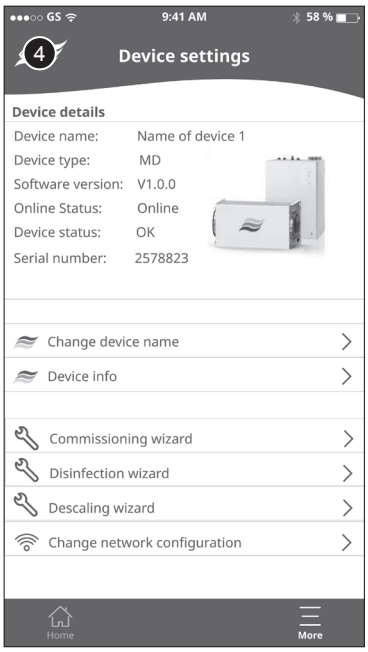
If individual settings were entered incorrectly during configuration with the commissioning wizard, the commissioning wizard can be restarted at any time and the values can be adjusted.

1. Start the HumiLife-App on your mobile device, the home screen appears. Press the <More> button.
2. Press the <My devices> button.
3. Press the button of the desired Condair MD in the device selection list.
4. Press the <Commissioning Assistant> button.

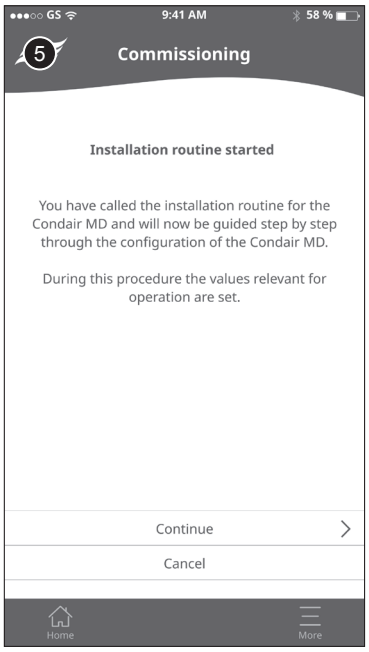


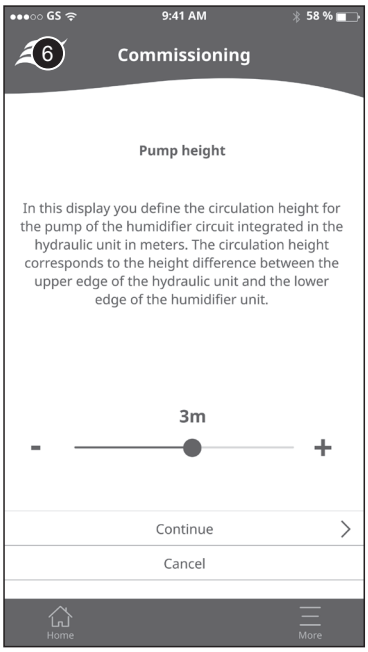


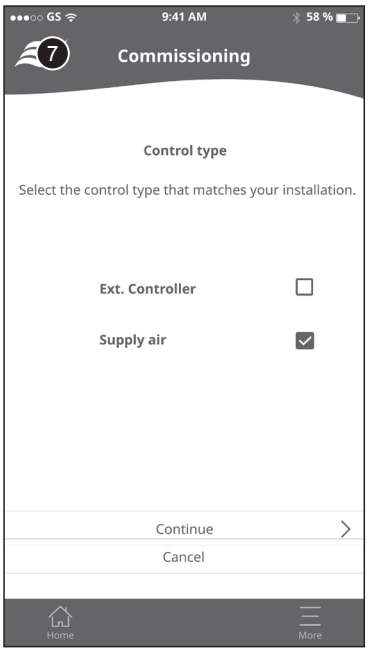




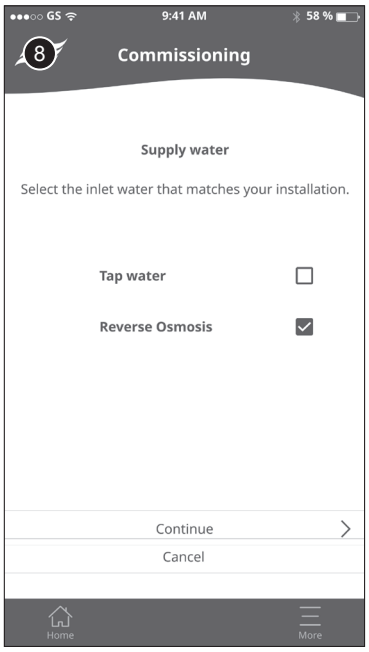
5. Press the <Continue> button.
6. Use the slider to set the delivery head of the circulation pump in meters, then press the <Continue> button.
7. Select the type of control used, then press the <Continue> button.

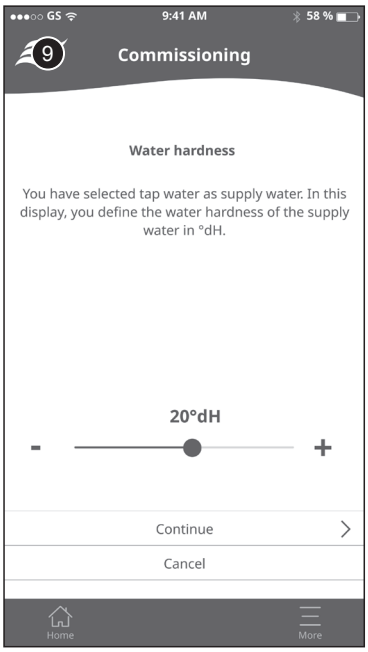


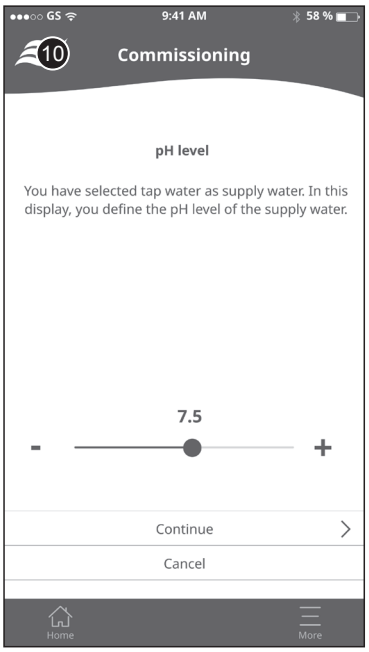




8. Select the type of supply water used, then press the <Continue> button.
9 This screen only appears if the "Supply water" setting is set to "Tap-Water". Use the slider to set the supply water hardness in °dH, then press the <Continue> button.
10. This screen only appears if the "Supply water" setting is set to "Tap-Water". Use the slider to set the pH value of the supply water, then press the <Continue> button.



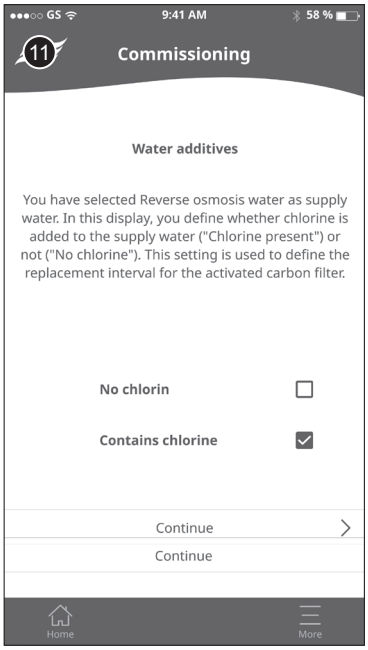


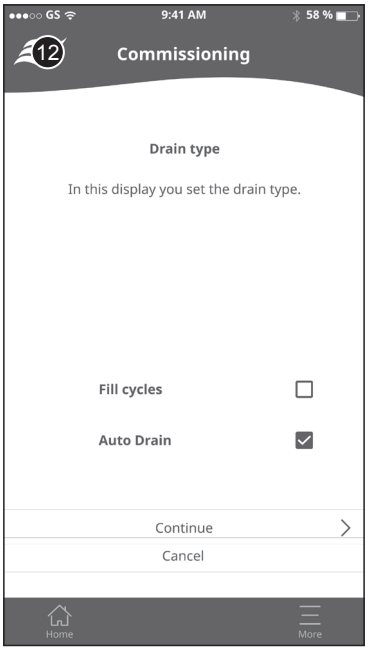


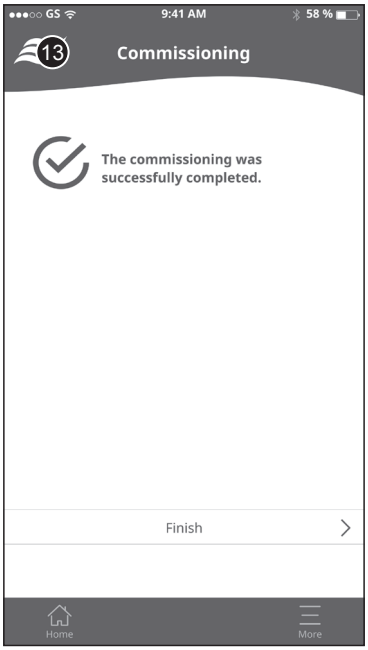
NOTE!

The water hardness and pH value must be requested in advance from the local water works for the installation site and entered in the corresponding fields on the first page of these instructions for documentation purposes. If the installation site receives water from various sources, the value for the hardest water must always be entered. If the water hardness is stated in °fH, the values are converted according to the following formula: °dH = 0.56 °fH.

11. This screen only appears if the "Supply water" setting is set to "Reverse Osmosis". Determine whether or not chlorine is added to the inlet water, then press the <Continue> button.
12. Determine whether the blowdown function should be controlled by filling cycles or calculated automatically based on the water hardness and the pH value of the water. Then press the <Continue> button.
13. This screen appears when all the necessary settings have been made and the installation routine is complete. Press the <Finish> button, the home screen appears.







4.5 Set the high limit humidistat

When the hydraulic unit is switched on, the display of the high limit humidistat shows the currently measured air humidity as well as the setpoint (see *Fig. 10*). If this is not the case and the high limit humidistat has been correctly connected, switch on the high limit humidistat with the ON/OFF button. Then use the ▲/▼ keys to set the setpoint to 55% (High limit humidistat installed in the extract air duct) or to 85% (High limit humidistat installed in the supply air duct).

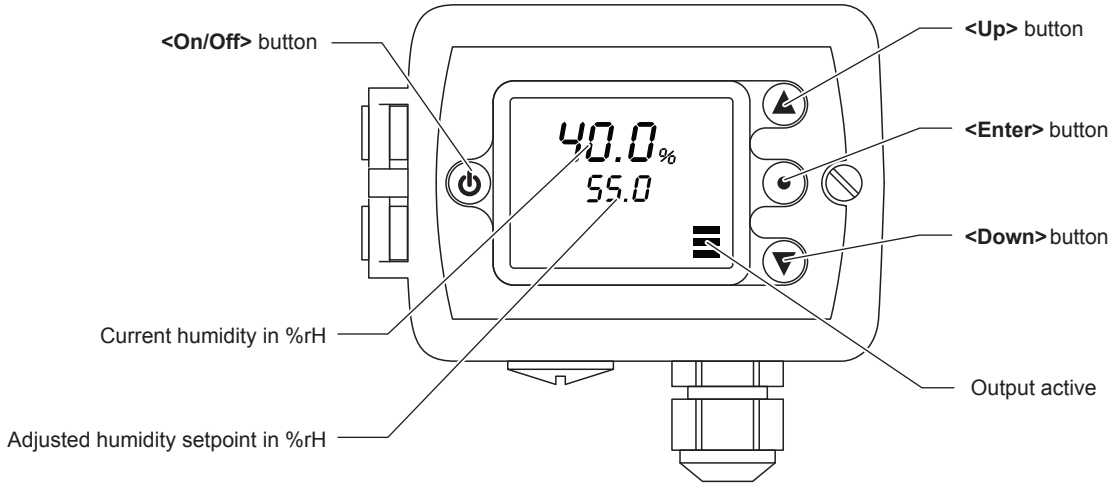


Fig. 10: High limit humidistat operating elements

4.6 Adjusting the air flow monitor (if installed)

- Undo the 2 Phillips screws on the cover of the air flow monitor and remove the cover.
- Set the "Sensitivity" trimmer (white arrow) to minimum sensitivity (counter-clockwise = left stop).

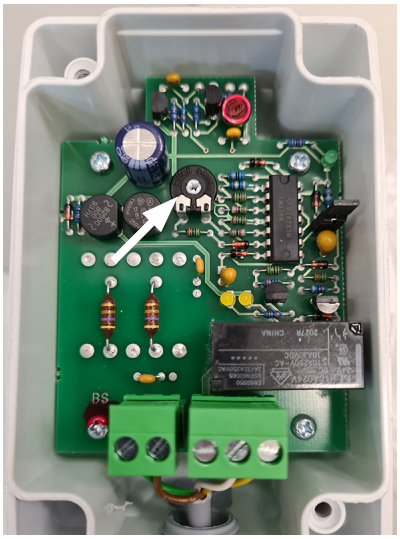


Fig. 11: "Sensitivity" trimmer

- Switch on the Condair MD hydraulic unit.
- Switch the ERV to the lowest fan speed.
- Slowly turn the "Sensitivity" trimmer clockwise towards maximum until the yellow LED lights up. You should slightly turn beyond the switching point to achieve stable switching conditions.
- To check the flow monitoring: Switch off the ERV completely. The yellow LED should go out.
- Repeat the procedure 2-3 times to ensure that the Condair MD switches off if the fan of the ERV is not running.
- Reinstall the air flow monitor and fasten with the 2 Phillips screws.

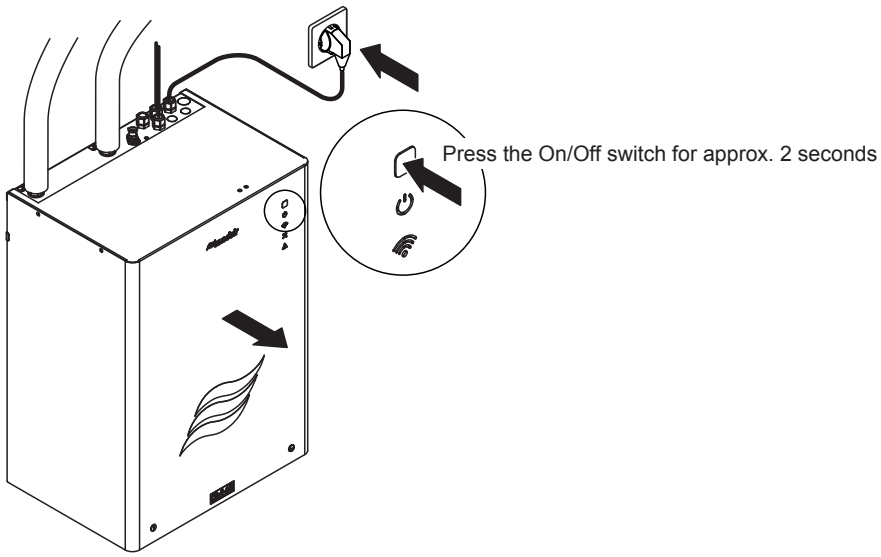
4.7 Venting the heating water system

DANGER!
Risk of electrocution

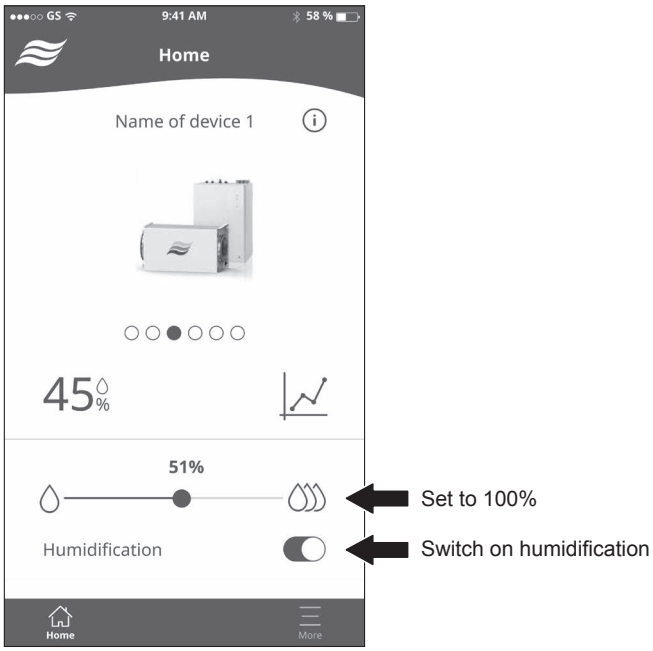
The hydraulic unit must be opened to vent the heating water system. If the hydraulic unit is open and switched on, users may come into contact with live parts. Touching live parts may cause severe injury or death.

For this reason: Be careful not to touch any components in the control box.

1. Connect the hydraulic unit to the power supply and switch it on (press the On/Off switch for approx. 2 seconds). Then remove the housing cover.



2. In the homescreen of the HumiLife-App set the humidity setpoint with the slider to maximum humidification (100%) and "Humidification" to "On" .



3. Open the shut-off valve in the fresh water supply. The water system of the hydraulic unit is automatically rinsed for 60 seconds. After rinsing, the water tank is refilled. Once the operating level in the water tank has been reached, the pump in the internal water circuit starts. As soon as you hear faint splashing from the hydraulic unit, the water is circulating in the humidifier circuit.

   The water heater is switched on after a 120 s delay.

   – With the Condair MD, the humidifier water is heated by the heat exchanger. A valve is used within the hydraulic unit to control the heat flow of the heating water circuit. Bleed the heating water circuit to ensure correct operation. As a rule, this is done automatically using the air vent valve installed on site in the supply pipe after the shut-off valves in the supply and return pipe have been opened.

     If bleeding using the air vent valve installed on site in the supply pipe is inadequate, e.g. the heating water pipes are routed below the hydraulic unit, the heating water circuit must be bled on the heat exchanger inside the hydraulic unit. Manual bleeding can only be carried out after the control valve has opened. This valve opens automatically after 180 seconds once the water circulates in the water circuit between the hydraulic unit and the humidifier unit. This waiting time must be observed before starting manual bleeding.

4. Manually bleeding the heating water circuit:

WARNING!
Risk of scalding

During manual bleeding, a small amount of hot water can escape and so there is a risk of scalding. It is therefore essential to follow the instructions.

For this reason: Always follow the information described in the corresponding steps.

- Make sure that the heating water circuit is in operation.
- Place an absorbent cloth under the screw connection at the return connection of the heat exchanger (see *Fig. 12*).
- Unscrew the valve actuator of the zone valve (see *Fig. 12*).
- Undo the screw connection of the armored hose at the return pipe of the heat exchanger (max. 1/2 turn)
- Push the spring of the zone valve by hand or with a pipe wrench all the way down until water escapes from the previously loosened connection at the heat exchanger (see *Fig. 12*).

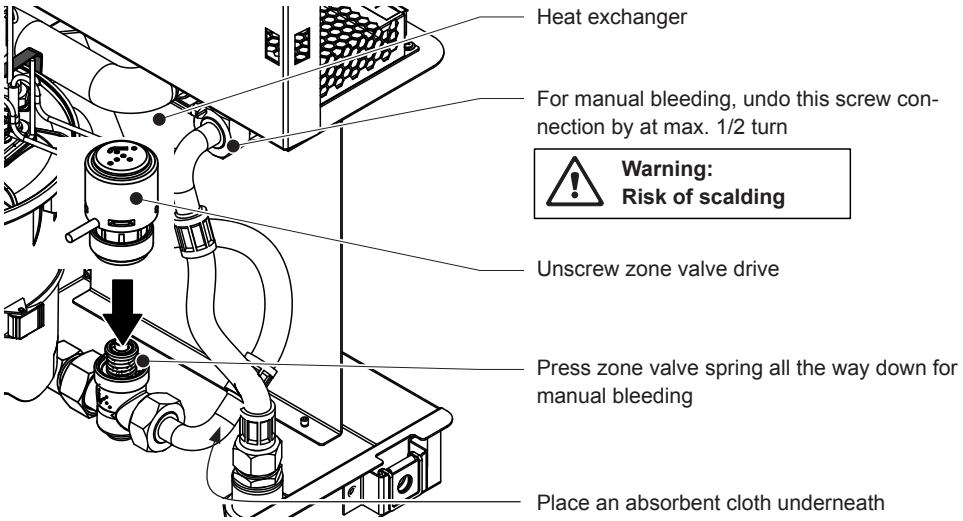
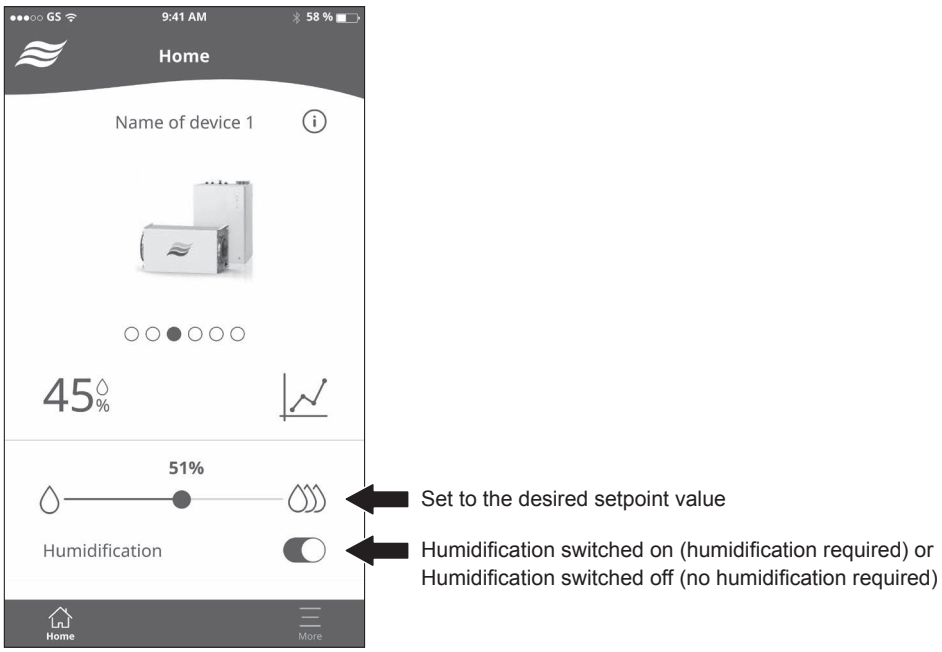


Fig. 12: Manual bleeding of the heating water circuit

- Retighten the screw connection of the armored hose and wipe away any water residue with the cloth.
- Screw the valve actuator back onto the zone valve.

5. Check the hydraulic system inside the hydraulic unit for leaks and repair any leaks.
6. Check whether the heat exchanger in the hydraulic unit is heating up. If the heat exchanger heats up, the hot water system is properly vented.
   If the heat exchanger does not heat up, the heating water circuit has not been completely vented. In this case repeat the steps under 4.
7. On the home screen set the humidity setpoint with the slider to the desired humidity setpoint.



8. Install the housing cover and lock it with the two screws. From now on, keep the hydraulic unit always switched on.

WARNING!
Guaranteeing of hygienic operation

After initial commissioning, the Condair MD must no longer be switched off and can either be operated with "humidification switched on" (humidification required, e.g. in winter) or "humidification switched off" (no humidification required, e.g. in summer). This is the only way to ensure that the water system is periodically rinsed and that no contamination of the system is caused by standing water.

Important!

Please enter the system data in the corresponding fields on the second page of these manual.

5 Operation

The Condair MD must only be operated by persons that are familiar with operating the Condair MD and who have read this operation manual.

5.1 Display and operating elements

5.1.1 Display and operating elements on the hydraulic unit

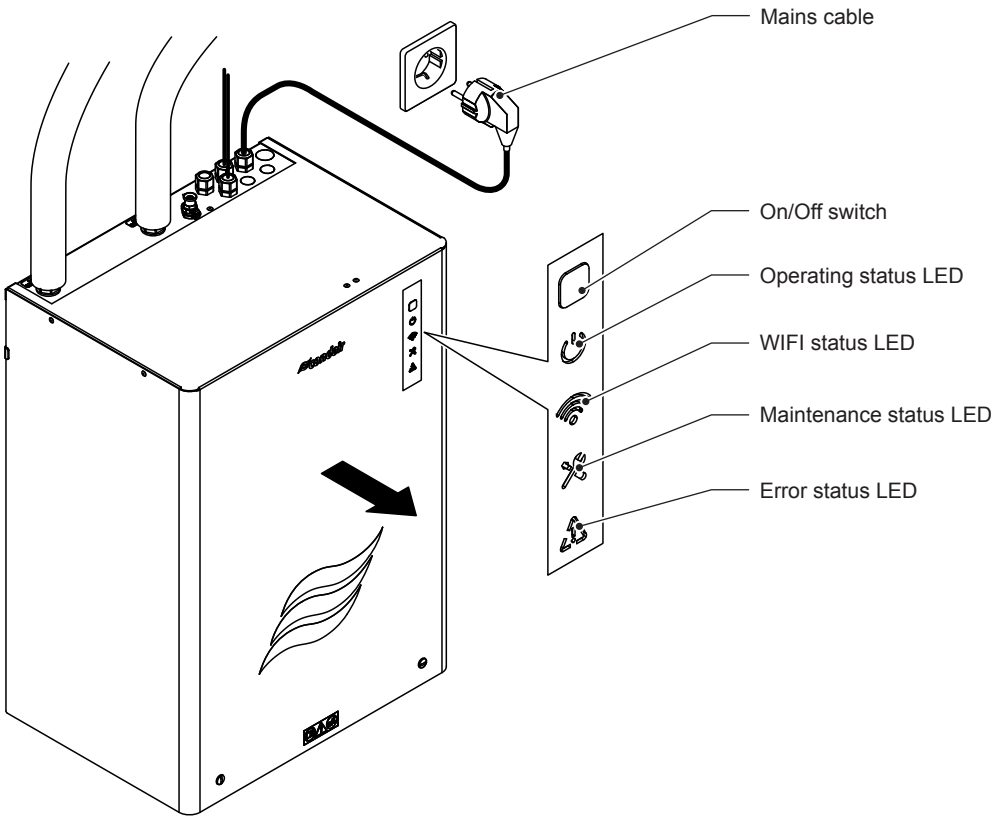


Fig. 13: Display and operating elements

DANGER!
Risk of electrocution!

A voltage continues to apply within the Condair MD hydraulic unit after having switched off the system at the device switch. **For this reason, it is paramount to disconnect the mains supply to the hydraulic unit by removing the mains plug prior to opening the hydraulic unit**.

5.1.2 Functions of the display and operating elements

On/Off switch

The On/Off switch on the hydraulic unit has the following functions:

- Switching the Condair MD on and off (press the switch for approx. 2 s)
- Connecting to WiFi network (press the switch for approx. 5 s)
- Resetting a fault display (press the switch for at least 10 s)

Operating status LED

	Description/function
LED does not light	The Condair MD is not connected to the power supply.
LED lights blue	The Condair MD humidifies,
LED swells on and off (blue)	The Condair MD is in standby mode (no humidity demand present).
LED swells on and off (red)	The Condair MD was switched off via the HumiLife-App. The Condair MD does not humidify again until it is switched on via the HumiLife-App.
LED blinks blue	Safety loop open.
LED lights red	The Condair MD has been switched off via the On/Off switch on the hydraulic unit. The Condair MD does not humidify again until it is switched on again via the On/Off switch on the hydraulic unit.

WiFi status LED

	Description/function
LED lights blue	The Condair MD is connected to the WiFi network.
LED lights green	The hotspot mode (access point) is activated. The Condair MD is connected to the mobile device.
LED swells on and off (blue)	The control software of the Condair MD is updated.
LED blinks green	The Condair MD is in hotspot mode (access point) and tries to establish a connection to the mobile device.
LED lights red	There is no connection to the WiFi network.

Maintenance status LED

	Description/function
LED lights blue	No service required
LED lights yellow	A maintenance is due soon. The Condair MD remains in operation, at the same time the error status LED lights up yellow. The corresponding maintenance must be carried out within a specified time, otherwise the operation of the Condair MD will be stopped.
LED lights red	A maintenance was not carried out within the specified time after the corresponding warning message occurred. The operation of the Condair MD was stopped, at the same time the error status LED lights up red.

Error status LED

	Description/function
LED lights yellow	A malfunction with the status "Warning" has occurred. The Condair MD remains in operation.
LED lights red	A malfunction with the status "Fault" has occurred. The operation of the Condair MD has been stopped.

5.2 Commissioning after having stopped operation

The following section describes the procedure for commissioning after having stopped operation (e.g. following service of the Condair MD). It is assumed that the initial commissioning has been correctly carried out by the service engineer deployed by your Condair representative or by authorized and trained specialist staff and that the Condair MD has been configured correctly.

Warning!
Maintaining hygiene

If the Condair MD has been switched off for over 48 hours or if you are not sure about how long the Condair MD was switched off, the fresh water supply line must be thoroughly flushed using the drain valve for hygiene reasons prior to recommissioning. If an optional water treatment is installed, it must be flushed according to the information in the manual of the corresponding water treatment.

1. Check the Condair MD and the installations **for damage and potential leaks**.

DANGER!

A damaged device or a humidification system with damaged installations may put the life of persons at risk or cause severe damage to material assets.

For this reason: do not commission damaged devices or devices with damaged, leaking or incorrectly installed installations**.**

2. Make sure that the front cover has been installed on the hydraulic unit and that it has been locked.
3. Open the shut-off valve in the water supply line.
4. Connect the mains cable of the hydraulic unit to the mains socket.
5. Switch on the hydraulic unit via the On/Off switch and open the shut-off valve(s) in the water supply line.

   The Condair MD runs an automatic system test and flushes the water system. If a malfunction is detected during the system test, the malfunction status LED on the hydraulic unit lights up yellow (malfunction with "Warning" status is present) or red (malfunction with "Fault" status is present).

   Once the system test has been completed successfully, the water tank is filled up and subsequently the system checks whether the level sensor is operating correctly.
   Note: If a malfunction is detected during the function check of the level control unit, the malfunction status LED on the hydraulic unit lights up red.

   If the level control unit function test has been completed successfully, the Condair MD is then started in the last set operating mode ("Humidification switched on" or "Humidification switched off"). If the operating mode "Humidification switched on" is active, the humidification starts (the operating status LED lights up blue) as soon as there is a humidification demand.

5.3 Notes on operation

5.3.1 Operator inspections during operation

The hygiene regulations defined in the VDI 6022 standard stipulate that during operation, the operator must regularly visually check the condition of the humidifier and the components of the humidification system that are installed in the air duct. It is recommended that these visual inspections be conducted every two months during the humidification season and every six months at other times. These inspections include:

- Visual inspection of the external water installation towards the hydraulic unit and to the humidification unit for leaks.
- Visual inspection of the bottom of the hydraulic unit and humidification unit for leaks.
- Visual inspection for condensation on the water lines connected to the hydraulic unit and the humidifier unit.
- Visual inspection and, if necessary, replacement of filters in the supply air duct and in the extract duct of the ERV. At minimum ISO Coarse 80% filters must be installed for a hygienic operation of the Condair MD (recommended: use ISO ePM1 60%).
- Check the hydraulic unit and the humidifier unit as well as other components of the humidification system have been correctly attached and whether they have been damaged.
- Check the electrical installation for damage.

If you have established irregularities (e.g. leaks, displayed malfunction) or damaged components, shut down the Condair MD as described in *Section 5.4*. If a malfunction is displayed, note the malfunction code shown in the HumiLife-App. Then contact your Condair representative.

5.3.2 Operating modes

The Condair MD can be operated in two operating modes. The operating mode must be set accordingly via the HumiLife-App (see *Section 5.6.2*):

– **"Humidification switched on"**: Humidification demand (typically in the winter season)

– **"Humidification switched off"**: **No** humidification demand (remainder of the year)

If the Condair MD has been switched off (e.g. for servicing) and it is subsequently switched on again, the device is in the operating mode that was selected last.

5.3.2.1 "Humidification switched on" operating mode

"**Humidification switched on**" operating mode is intended for operating the Condair MD in periods with humidification demands.

As soon as there is a humidification demand in "Humidification switched on" operating mode, the water within the humidification circuit is heated up as per the demand and the Condair MD starts humidifying. The Condair MD will humidify until the adjusted setpoint has been reached. Humidification is subsequently reduced gradually and the humidification water is heated to a lesser extent. The circulation water is kept within the device. If there is no humidity demand for more than three hours, the internal water system is completely drained.

Hygiene functions in "Humidification switched on" operating mode

The Condair MD features different functions to guarantee hygiene in "Humidification switched on" operating mode:

– During normal operation in "Humidification switched on" operating mode the entire volume of the internal water system (approc. 6 l) is replaced by freshly supplied water each day. The water is replaced depending on the humidity demand over the entire day.

– If there is no humidification demand within 47 hours in "Humidification switched on" operating mode, the Condair MD changes to temporary standby mode. In temporary standby mode the internal water system is flushed with fresh water for approximately 2 to 3 minutes every 47 hours.
  As soon as there is once again a humidification demand, the Condair MD changes from temporary standby mode to "Humidification switched on" operating mode. The internal water system is subsequently initially flushed with freshly supplied water, then the drain valve is closed, the water tank is once again topped up to operating level and the Condair MD starts humidification after having heated up the humidifier water circuit.

– In the event of a power cut in "Humidification switched on" operating mode the drain valve at the bottom of the water tank opens in the hydraulic unit and the internal water system of the Condair MD is drained to prevent that the water system is contaminated by standing water in the event of a prolonged power cut.

If the ERV must be shut down for more than 48 hours for maintenance and repair work, the operating mode of the Condair MD must be set to the "Humidification switched off" via the HumiLife-App until the ERV is restarted. After having recommissioned the ERV, depending on whether or not it is intended to humidify, set the operating mode to "Humidification switched on" or leave the system on "Humidification switched off".

In the event of a leak in the humidifier unit the leaking water is routed to the drain via an integrated tank which drains into the hydraulic unit. At the same time the leakage sensor integrated into the humidifier unit tank activates; operation of the Condair MD is stopped and the internal water system is drained via the drain valve. The error status LED lights up red. In this case, it is absolutely necessary to notify Condair Service.

5.3.2.2 "Humidification switched off" operating mode

"Humidification switched off" operating mode is intended for operating the Condair MD in periods without humidification demands.

If the Condair MD is set to "Humidification switched off" operating mode, the drain valve at the bottom of the water tank in the hydraulic unit opens after 3 hours and the internal water system of the Condair MD is drained. The system remains empty until the operating mode is once again reset to "Humidification switched on" operating mode using the HumiLife-App.

Hygiene function in "Humidification switched off" operating mode

In "Humidification switched off" operating mode the internal water system is flushed for a certain period of time every 47 hours with freshly supplied water to counteract any pathogens in the fresh water supply caused by standing water.

Important: Do not close the water supply in "Humidification switched off" operating mode to guarantee the periodic flushing function.

5.4 Decommissioning

Proceed as follows to shut down the Condair MD for service work:

1. Close the **shut-off valve** in the water supply.
2. Switch off the Condair MD via the device switch on the hydraulic unit.
3. **Disconnect the Condair MD from the mains power**: disconnect the mains connection cable from the mains socket.
4. Wait a minimum of 10 minutes until the internal water system has fully drained before starting to remove components.

If it is intended to switch off the Condair MD for a prolonged period of time it is necessary to close the fresh water supply line and drain it.
Note: If an optional water treatment is installed in the fresh water supply to the hydraulic unit of the Condair MD, it must be flushed according to the information in the manual of the corresponding water treatment prior to the recommissioning.

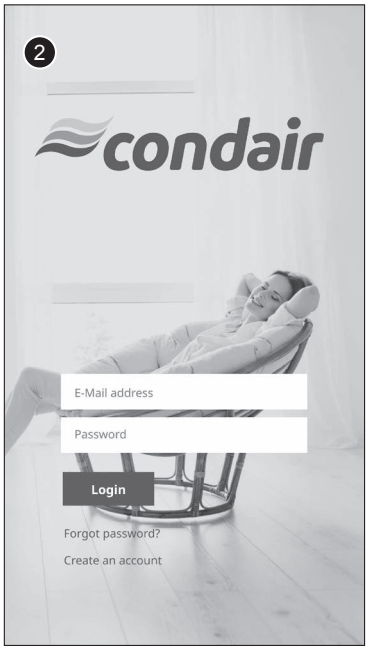
5.5 Shutting down the ERV

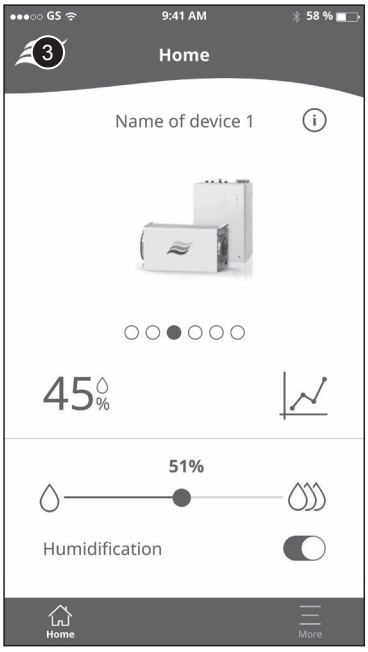
If it is intended to shut down the ERV for a prolonged period of time and the Condair MD is in "Humidification switched on" operating mode, it is necessary to set the Condair MD to "Humidification switched off" operating mode via the HumiLife-App before the ERV is shut down. After having **waited 60 minutes** it is subsequently permitted to switch off the ERV. This is the only way to make sure that the humidifier insert in the humidifier unit is completely dry to guarantee hygienic operation of the system.

5.6 Operating the Condair MD via the HumiLife-App

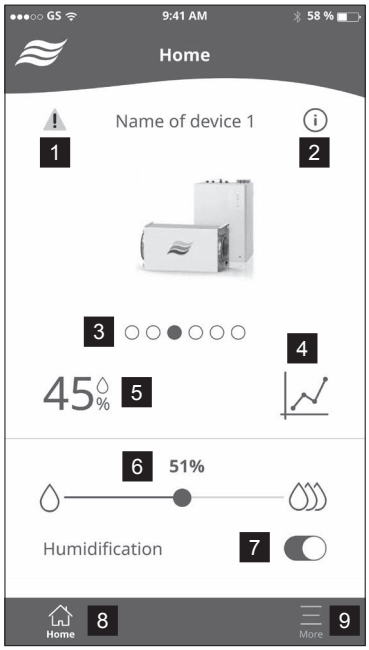
5.6.1 Starting the HumiLife-App

1. Put the Condair MD into operation (see *Section 5.2*).
2. Start the HumiLife app on your mobile device. The login screen appears. Enter your user name and password.
   Note: If you have forgotten your password, press the <Forgot password?> button. You will then be guided step by step through the process for defining a new password.
3. The homescreen appears.





5.6.2 Operating the home screen



1 Error indication: Fault indication: Appears if there is a warning or a fault.

2 Accessing the help screen (contains information on using the home screen).

3 Selection of the device to be controlled.

4 Accessing the measured humidity value graphic and maintenance information.

5 Actual measured humidity value in %rh.

6 Slider for setting the humidity setpoint in %rh.

7 Switching humidification on and off
Note: When the humidification is switched off, the hygiene flushes remain active.

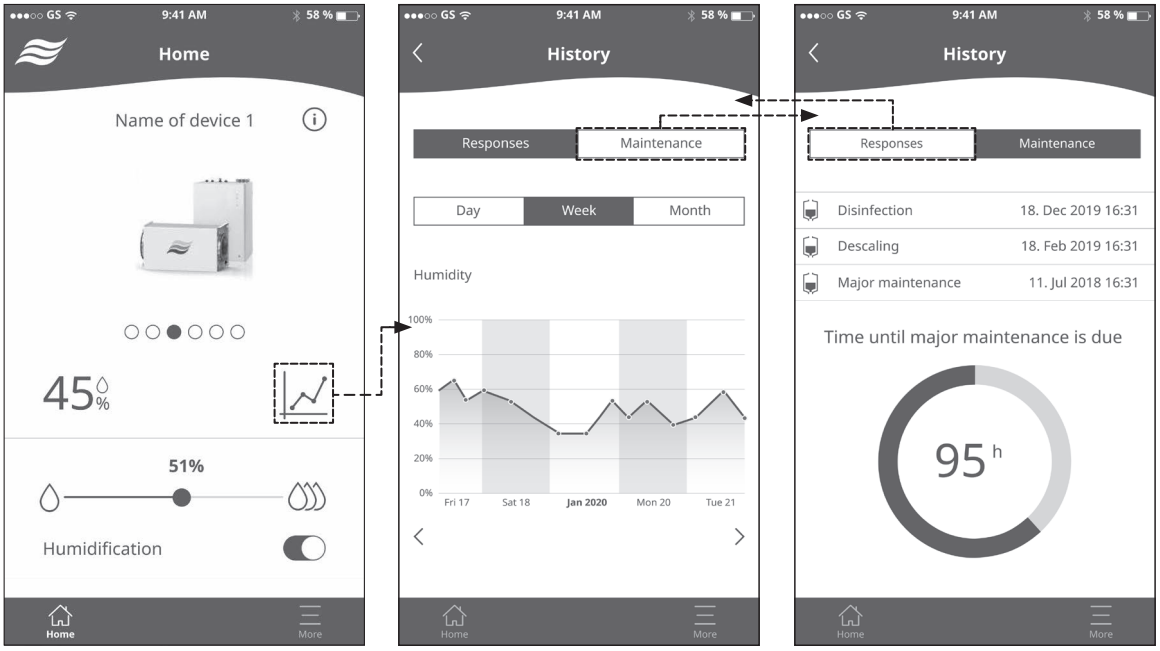
8 Accessing the home screen (this screen)

9 Accessing the "User Settings" Menu

5.6.3 Query humidity value history and maintenance information

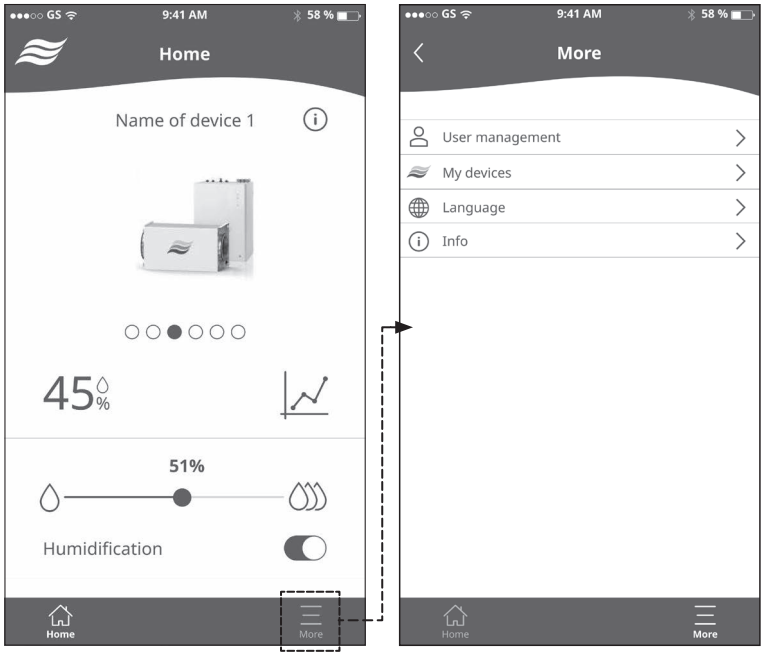
Press the graphic symbol on the home screen. The measured value graphic appears (figure in the middle). Here you can:

- Use the **<Day>**, **<Week>** and **<Month**> buttons to display the graphical progression of the humidity value in% RH for the current day, the current week or the current month.
- Display the maintenance information screen (figure on the left) using the **<Maintenance**> button. The maintenance progress (completed maintenance works) and the remaining time until the next maintenance (e.g. Disinfection, Major maintenance, etc.) are displayed here. Use the **<Responses>** button to return to the display of the measured humidity value graphic.

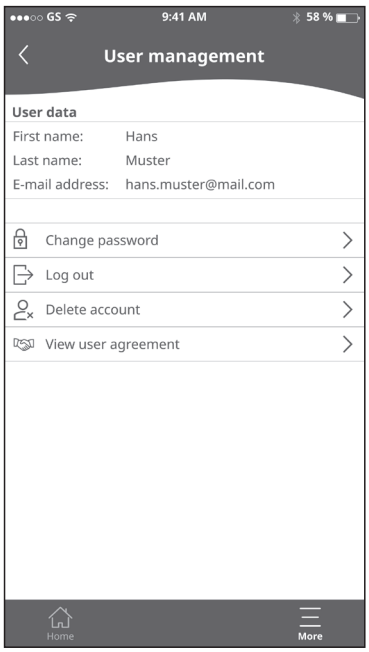


5.7 User settings

Press the **<More>** button on the home screen. The user menu appears.

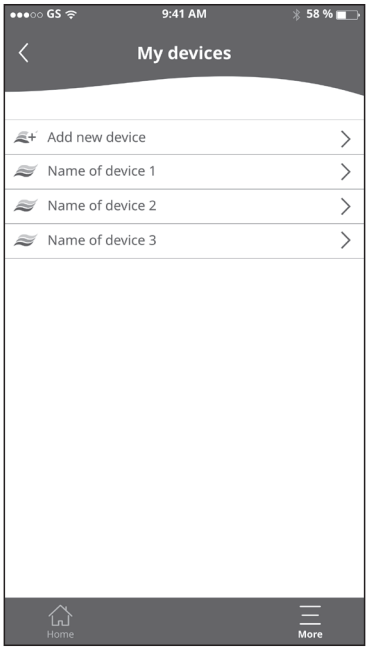


– Under "User management" you can:



- View the details of your user account.
- Change the user password.
- Log out.
- Delete the user account.
- View the terms and conditions.

– Under "My devices" you can:



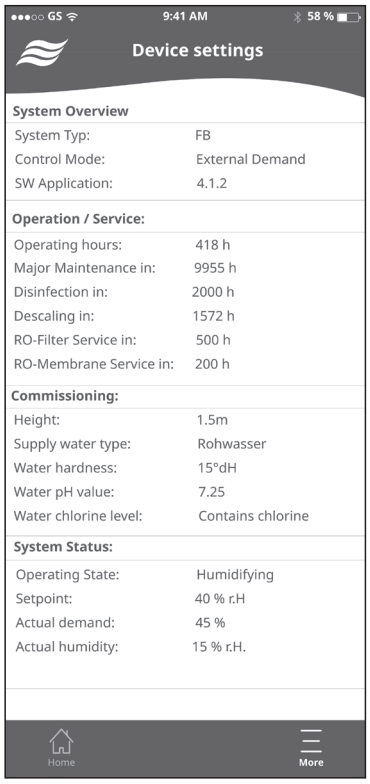
- Add a new device to your account (see *Section 4.3.2*).
- Select a device from the list of devices in your account. Then the screen with the device settings and other functions appears. Here you can:

  - View the current device data (see figure above).
  - Change and save the device name.
  - View the current device settings (see *Section 5.7.1*).
  - Start the commissioning wizard (see *Section 4.4*).
  - Start the disinfection wizard (see *Section 6.5.2*).
  - Start the descaling wizard (see *Section 6.5.1*).
  - Change the network configuration of the device (see *Section 4.3.2*, *steps 4-6*).

– Under "Language"
  • Change the dialog language of the HumiLife-App.
– Under "Info"
  • View the current software version of the HumiLife-App and information about the time zone.

5.7.1 View current device settings

Press the <Device Info> button on the device settings screen. The screen with the current device settings appears.



System Overview:
– Designation of the system type
– Humidity control mode (Ext. Cont., Supply air).
– Software version of the HumiLife-App.

Operation / Service:
– Number of operating hours since initial commissioning.
– Remaining number of operating hours before major maintenance.
– Remaining number of operating hours until the next disinfection.
– Remaining number of operating hours until the next descaling.
– Remaining number of operating hours until the next replacement of the filters of the optional reverse osmosis system Condair RO-HS.
– Remaining number of operating hours until the next replacement of the RO membrane of the optional reverse osmosis system Condair RO-HS.

Commissioning:
– Set delivery head of the integrated humidifier water circulation pump.
– Specified type of inlet water (tap water or reverse osmosis water).
– Specified water hardness of the inlet water in °dH.
– Specified pH value of the inlet water.
– Set chlorine value of the supply water (chlorine present or no chlorine present).

System Status:
– Set operating mode ("humidification switched off" or "humidification switched on").
– Set humidity setpoint value in %rh.
– Current demand in %.
– Currently measured humidity in the supply air duct.

6 Service

6.1 Important service information

Personnel qualifications

All maintenance work may be carried out by the operator of the Condair MD in compliance with the information in this manual.

General information

The instructions and information on maintenance work must be observed and complied with.

Exclusively carry out the maintenance work described in this documentation.

6.2 Service intervals

The Condair MD must be serviced at regular intervals to maintain hygienic operation and operational safety. For this purpose, the Condair MD control software features five service counters for the following:

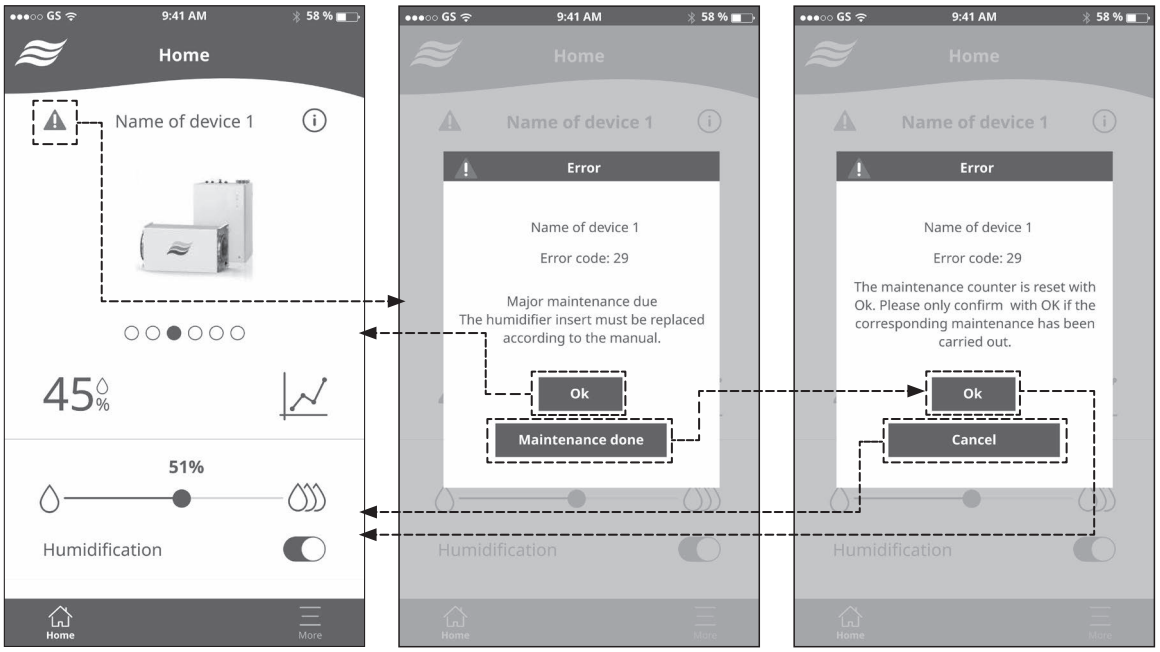
- Descaling the internal water system
- Disinfecting the internal water system
- Replacing of the activated carbon and fine filter cartridges of the optional reverse osmosis system Condair RO-HS
- Replacing of the RO membrane of the optional reverse osmosis system Condair RO-HS
- Major maintenance (replacing the humidifier insert, checking and cleaning the hydraulic unit)

The service counters are automatically calculated upon initial commissioning by entering the local water quality values.
Note: if it is established at a later point that the water quality values have changed, these can be adapted by restarting the commissioning wizard in the HumiLife-App (see *Section 4.4*). The service counters are subsequently recalculated on the basis of the new values.

6.3 Maintenance indication

If one of the maintenance counters has expired, the yellow or red maintenance LED and the yellow or red fault LED on the hydraulic unit of the Condair MD notify you that maintenance must be carried out. Proceed as follows:
Note: If the maintenance LED and the fault LED light up red, the operation of the Condair MD is stopped.

1. Start the HumiLife app on your mobile device and, if necessary, select the relevant Condair MD from the list of your devices. Then press the yellow or red warning triangle on the home screen (see picture below, left).
2. A window with the corresponding maintenance message appears on the home screen (see figure below center).
3. Carry out the corresponding maintenance according to the information in these operation manual (disinfection, decalcification, major maintenance) or the information in the installation and commissioning instructions for the optional reverse osmosis system Condair RO-HS (filter replacement of the RO membrane).
4. After completing the corresponding maintenance, the maintenance counter must be reset using the <Maintenance done> button (see figure below, center) and the reset must be confirmed with the <OK> button (see figure below, right)
   Exception: During the disinfection and descaling process, the maintenance counter is automatically reset after the corresponding wizard has been carried out.



6.4 Maintenance list

Maintenance notifications	Work due
W27/E27 Descaling due	• Descale the internal water system (see *Section 6.5.1*)
W28/E28 Disinfection due	• Disinfection of the internal water system (see *Section 6.5.2*)
W66/E66 Activated carbon filter/Fine filter	• Replace the activated carbon filter and fine filter cartridges of the optional reverse osmosis system Condair RO-HS (*see installation and operating instructions of the reverse osmosis system Condair RO-HS*)
W67/E67 RO Membrane	• Replace the RO membrane of the optional reverse osmosis system Condair RO-HS (*see installation and operating instructions of the reverse osmosis system Condair RO-HS*)
W29/E29 Large maintenance	• Replacement of the humidifier insert (see *Section 6.5.4*)

6.5 Maintenance work

Note: Information on replacing the filters and the RO membrane of the Condair RO-HS reverse osmosis system are described in the corresponding manuals for these products.

6.5.1 Descaling the internal Condair MD water system

Descaling the internal Condair MD water system and disinfection (see *Section 6.5.2*) serve to maintain hygienic system operation.

CAUTION!

You require a special descaling agent for descaling, available from your Condair representative. Do not use any other descaling agents as these may damage the humidifier insert diaphragm.

WARNING!

The Condair descaling agent used for descaling can attack and damage the skin and mucous membranes.

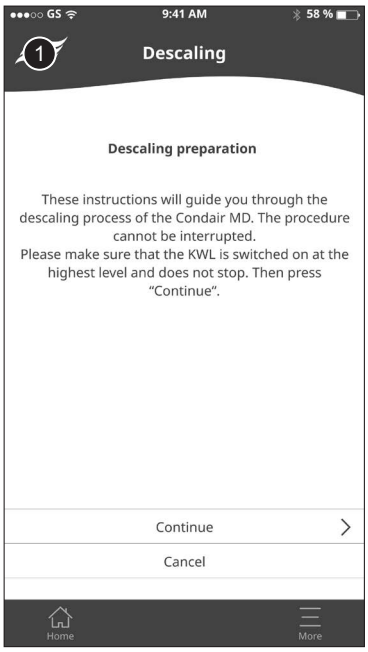
For this reason: Read the information and safety instructions in the product data sheet for the Condair descaling agent and wear appropriate protective equipment (protective goggles, protective gloves, etc.).

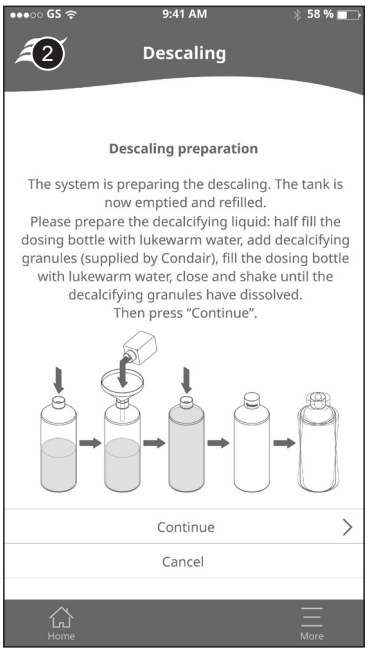
The descaling process is software-controlled via the HumiLife-App and takes around 2.5 hours. After having started the descaling wizard you are guided through the descaling process step by step.

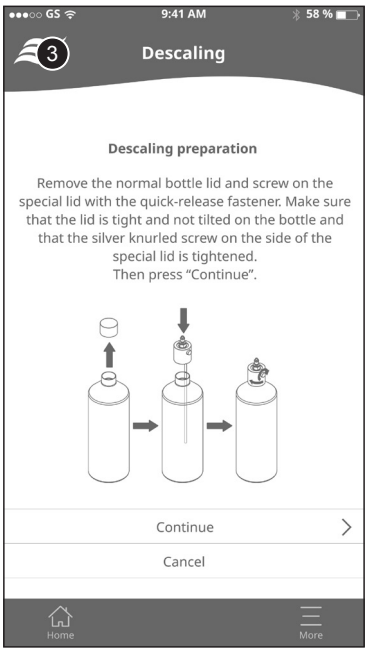
Proceed as follows to descale the internal water system:

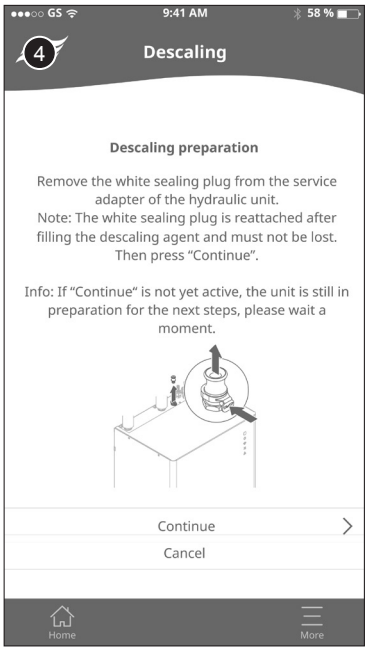
1. Start the HumiLife app on your mobile device and, if necessary, select the relevant Condair MD from the list of your devices.
2. Start the descaling process using the <Descaling wizard> button in the device settings of the relevant Condair MD.

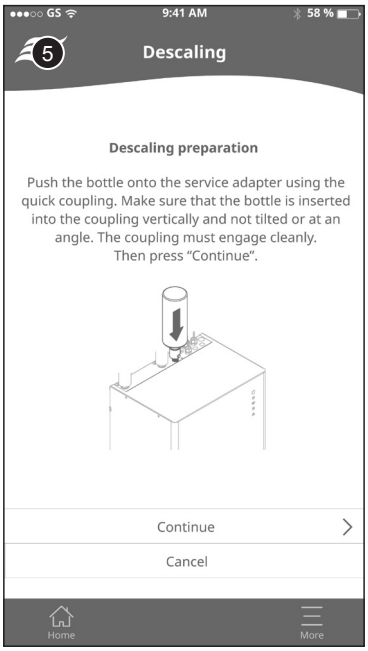
You will now be guided step by step with corresponding instructions through the descaling procedure.

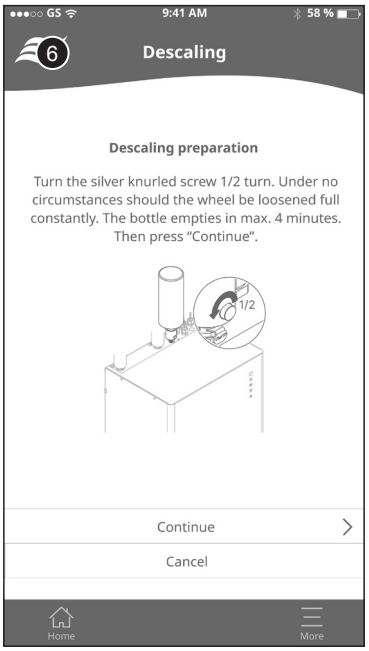


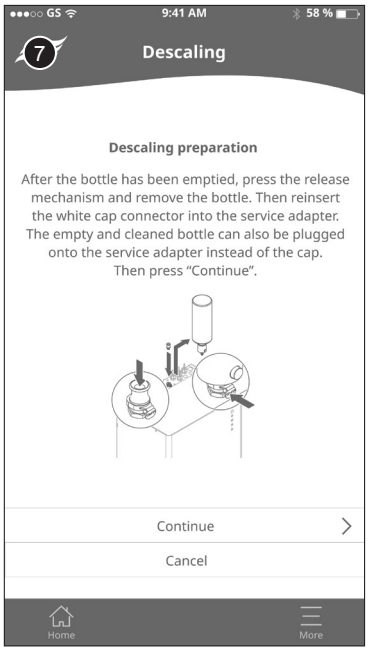


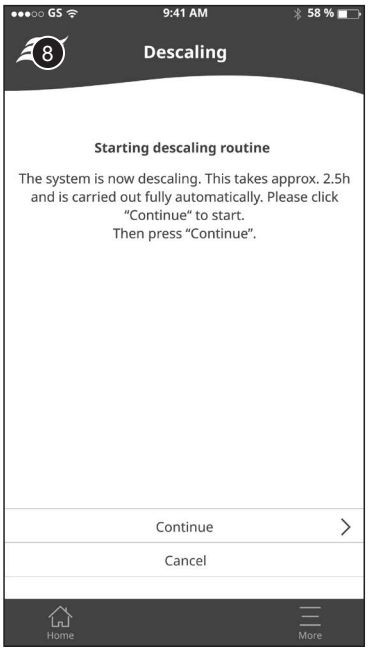


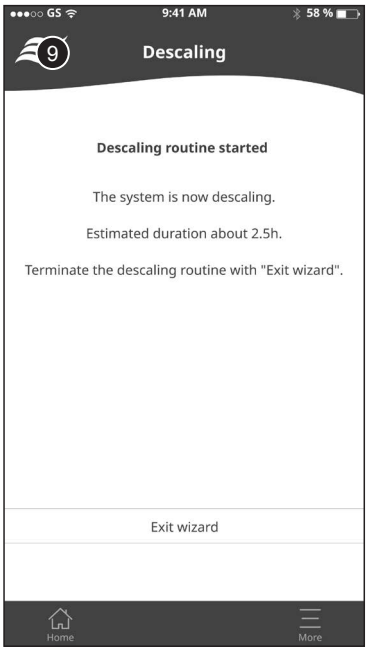












As soon as the descaling process and the subsequent rinsing of the internal water system have ended, the home screen is displayed again. The last selected operating mode "Humidification switched on" or " Humidification switched off" is automatically reactivated and the maintenance counter is reset.

Important: if the descaling process is prematurely cancelled as a result of a malfunction and a corresponding error message is output, contact your Condair representative.

6.5.2 Disinfecting the internal Condair MD water system

Disinfecting the internal Condair MD water system and descaling (see *Section 6.5.1*) serve to maintain hygienic system operation.

CAUTION!

You require a special disinfection agent for descaling, available from your Condair representative. Do not use any other disinfection agents as these may damage the humidifier insert diaphragm.

WARNING!

The Condair disinfection agent used for disinfection can attack and damage the skin and mucous membranes.

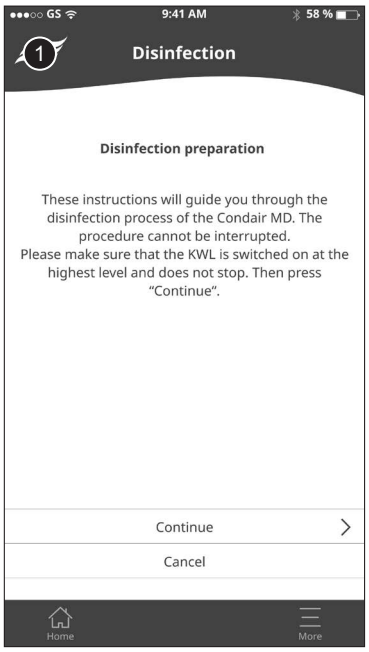
For this reason: Read the information and safety instructions in the product data sheet for the Condair disinfection agent and wear appropriate protective equipment (protective goggles, protective gloves, etc.).

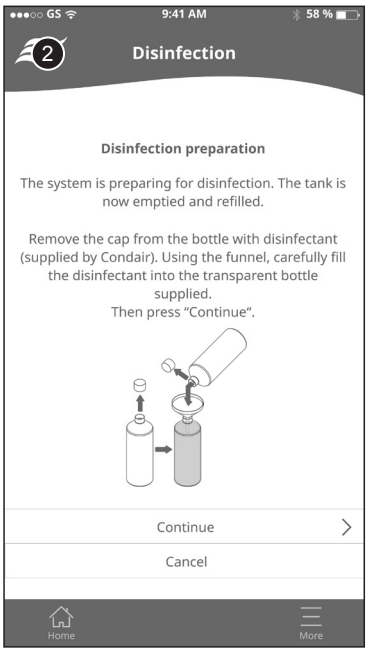
The disinfection process is software-controlled via the HumiLife-App and takes around 2.5 hours. After having started the disinfection wizard you are guided through the disinfection process step by step.

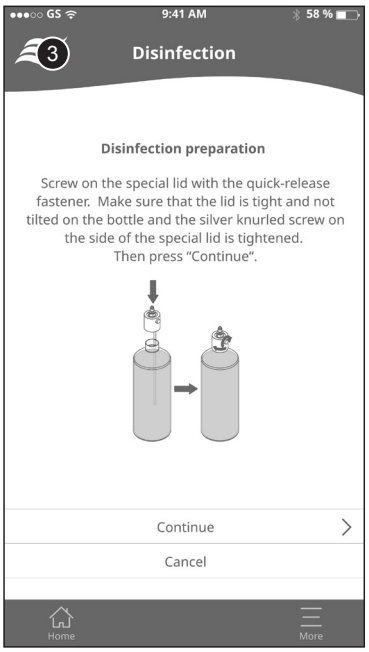
Proceed as follows to disinfect the internal water system:

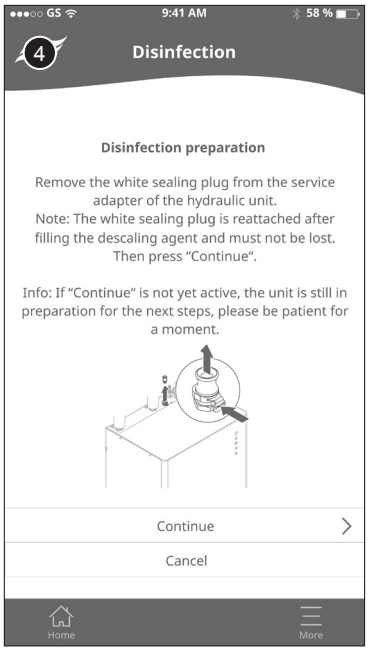
1. Start the HumiLife app on your mobile device and, if necessary, select the relevant Condair MD from the list of your devices.
2. Start the disinfection process using the <Disinfection wizard> button in the device settings of the relevant Condair MD.

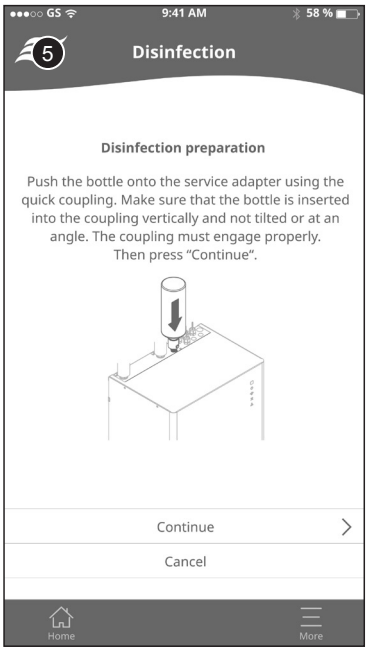
You will now be guided step by step with corresponding instructions through the disinfection procedure.

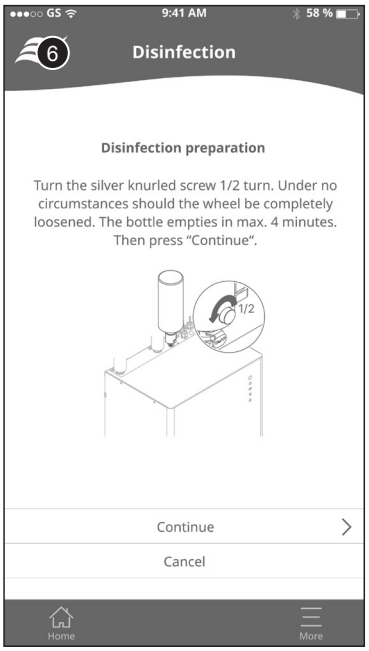


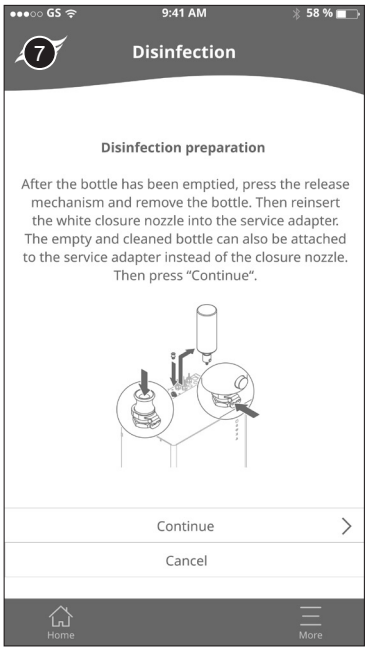


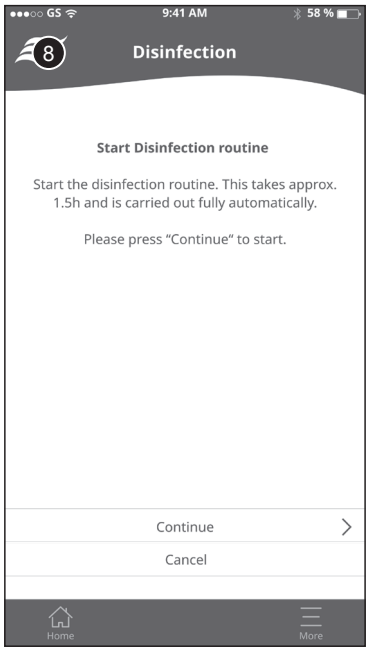


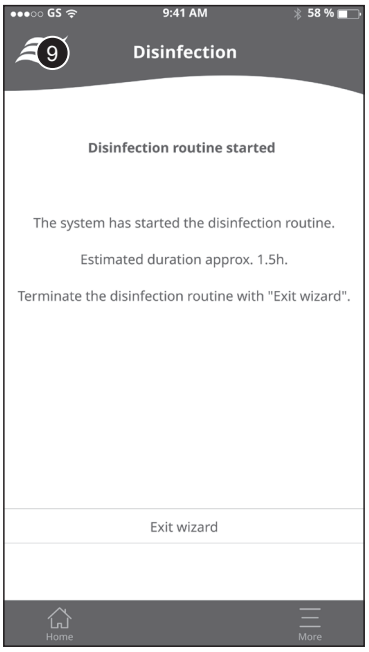












As soon as the disinfection process and the subsequent rinsing of the internal water system have ended, the home screen is displayed again. The last selected operating mode "Humidification switched on" or " Humidification switched off" is automatically reactivated and the maintenance counter is reset.

Important: if the disinfection process is prematurely cancelled as a result of a malfunction and a corresponding error message is output, contact your Condair representative.

6.5.3 Periodic visual check of the humidifier insert

The periodic visual check of the humidifier insert must be carried out at certain intervals to guarantee hygienic operation.

Proceed as follows to check the humidifier insert:

1. Shut down the Condair MD, as described in *Section 5.4*.
2. Wait until the internal water system has drained (approximately 10 minutes).
3. Shut down the ERV (see ERV instructions).
4. Undo the four snap lock mechanisms and remove the lid of the humidifier housing.

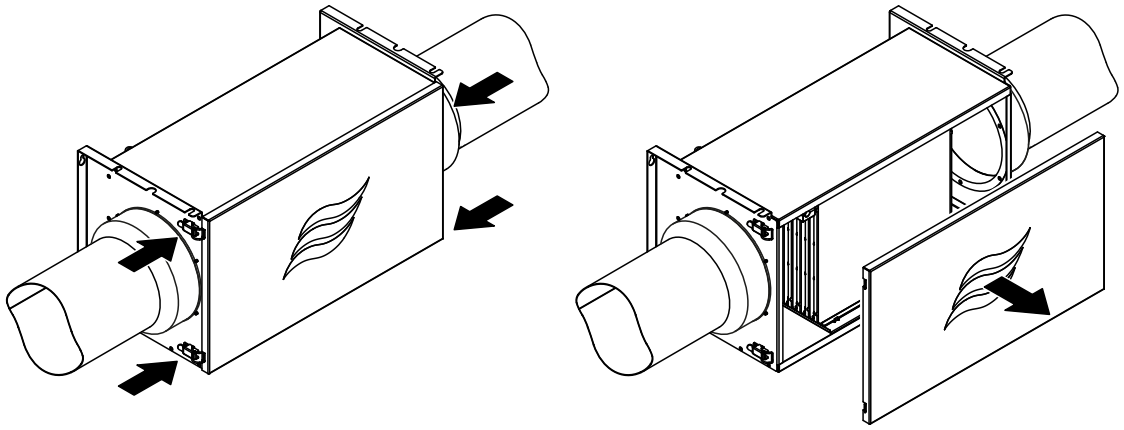


Fig. 14: Opening the humidifier unit

5. **Important: Put on the enclosed single-use gloves and make sure you do not touch the diaphragm during the following removal and visual check of the humidifier insert under any circumstances.**

CAUTION!

The humidifier insert is sensitive to contamination by fatty acids and damage.

For this reason: always wear the enclosed single-use gloves when handling the humidifier insert and handle the humidifier insert with care.

6. Hold the humidifier insert at the two black water distributors and carefully pull it from the humidifier housing. Subsequently, remove the base panel from the humidifier housing.

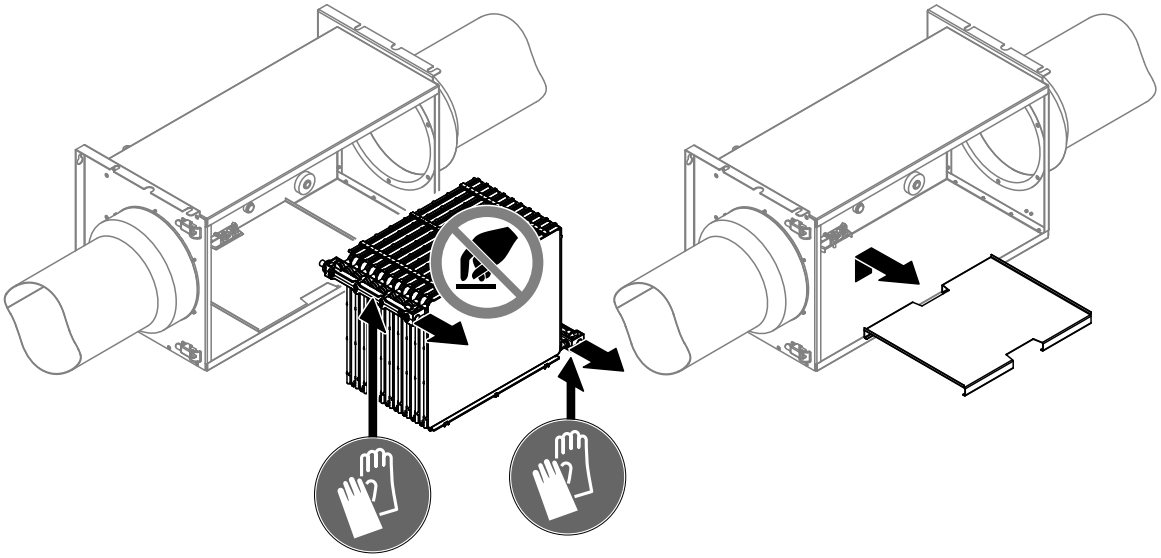


Fig. 15: Removing the humidifier insert and base panel

- Note: If the humidifier unit is equipped with the optional air filter, remove the air filter (see separate instructions for the air filter).

7. Check diaphragm surface "A" (see *Fig. 16*) of the humidifier insert for traces of dust, discolouration and check the duct for contamination and water residue.

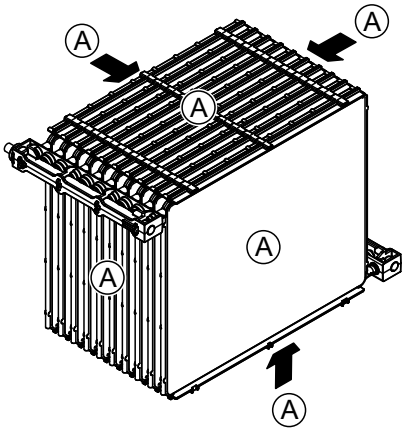


Fig. 16: Diaphragm surface

– If there are traces of dust on the humidifier insert, these can be washed off. Proceed as follows for this purpose:

  • Carefully place the humidifier insert in a tub.

  • Carefully wash off the traces of dust using a hand-held shower head set to a soft water jet (see Fig. 17). The internal humidifier elements can also be cleaned like this.

CAUTION!

Do not use cleaning agents and do not use a cloth, brush or similar tools to clean the diaphragm.

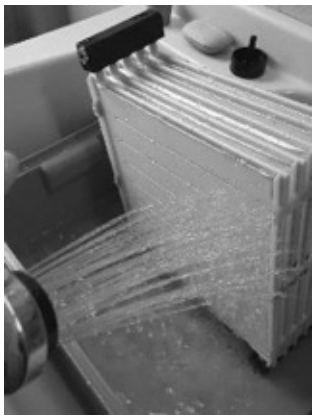


Fig. 17: Washing off dust

Please contact the Condair partner if it is not possible to remove the traces of dust or contamination.

  • Let the humidifier insert dry for approximately 30-60 minutes after having cleaned it. In this process, do not expose the humidifier insert to direct sunlight and keep it away from any sources of hot or cold temperatures.

– If the diaphragm is discolored or water residue is visible within the duct, the humidifier insert must be replaced by a Condair service engineer or a specialist who has been authorised and trained by Condair. In this case, please contact your Condair partner. Continue with step 8 if you are not immediately replacing the component. However, stop using the humidifier.

– You can continue to use the humidifier insert if it does not feature any discolouration. Continue with step 8.

8. Clean the humidifier housing, base panel and the lid of the humidifier housing (including seal) using a lint-free cloth. For this purpose, if necessary, use a mild cleaning and disinfection agent (do not use products featuring detergents).
   Note: If the air duct is dirty, remove any dirt using a moist cloth.
9. If the humidifier unit is equipped with the optional air filter, install a new air filter on the air inlet side in the humidifier housing (see separate instructions for the air filter).

10. Insert the base panel into the humidifier housing (see *Fig. 18*).
11. Position the humidifier insert on the base panel in the humidifier housing, push the humidifier insert into the humidifier housing up to the stop and press it into the end position.
    Important: make sure that the hose sections have been connected to the plug-in couplings on the black water distributors of the humidifier insert and that the arrows on the water collar of the humidifier insert elements correspond to the flow of the water.

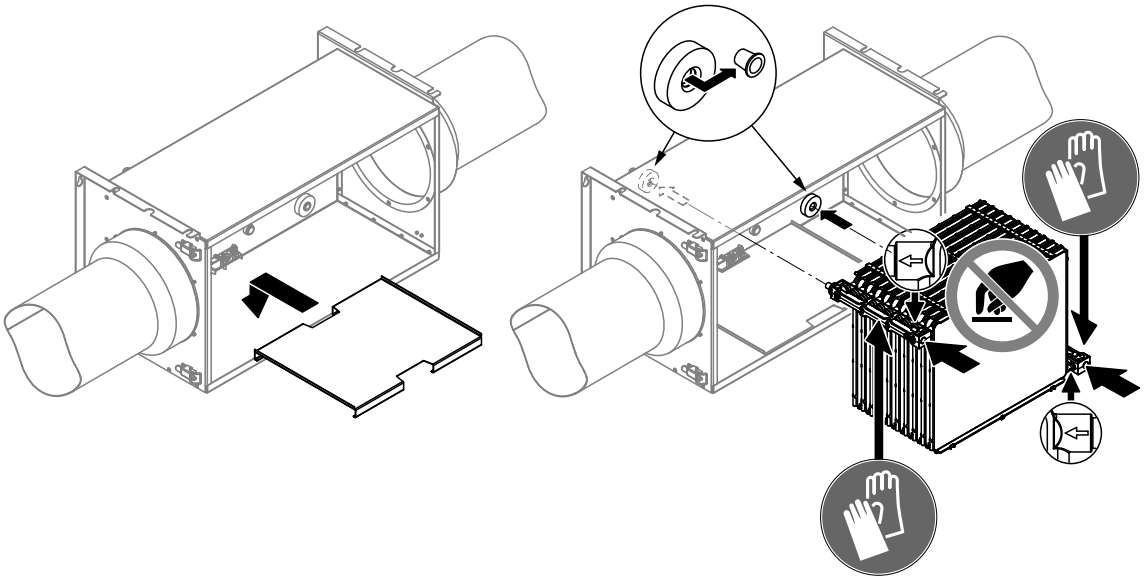


Fig. 18: Installing the base panel and humidifier insert

12. Reattach the housing cover of the humidifier insert and lock with the snap lock mechanisms.

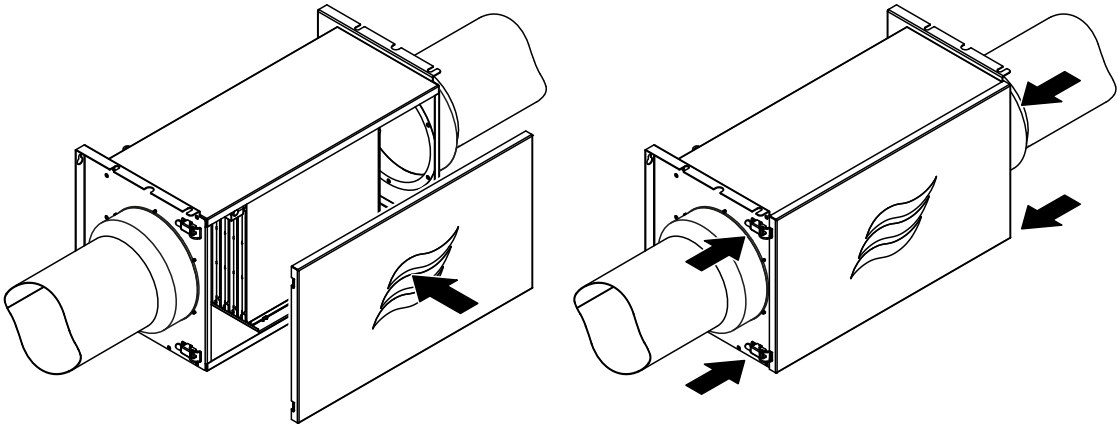


Fig. 19: Closing the humidifier unit

13. If you are not forced to carry out any further service activities, immediately recommission the Condair MD as described in *Section 5.2*.

6.5.4 Major maintenance (Replacement of the humidifier insert)

Proceed as follows to replace the humidifier insert:

1. Shut down the Condair MD, as described in *Section 5.4*.
2. Wait until the internal water system has drained (approximately 10 minutes).
3. Shut down the ERV (see ERV instructions).
4. Undo the four snap lock mechanisms and remove the lid of the humidifier housing.

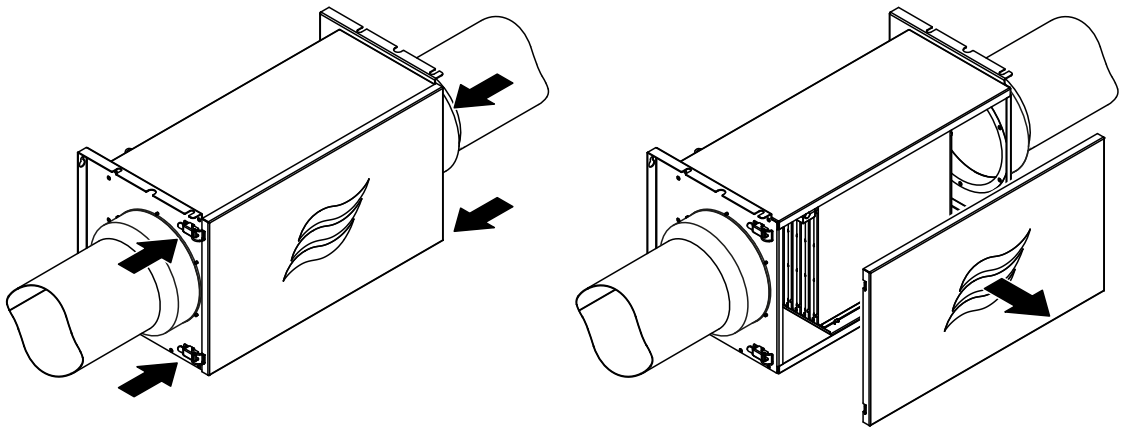


Fig. 20: Opening the humidifier unit

5. **Important: Put on the enclosed single-use gloves and make sure you do not touch the diaphragm during the following removal of the old and remounting of the new humidifier insert under any circumstances.**

CAUTION!

The humidifier insert is sensitive to contamination by fatty acids and damage.

For this reason: always wear the enclosed single-use gloves when handling the humidifier insert and handle the humidifier insert with care.

6. Hold the humidifier insert at the two black water distributors and carefully pull it from the humidifier housing. Subsequently, remove the base panel from the humidifier housing.

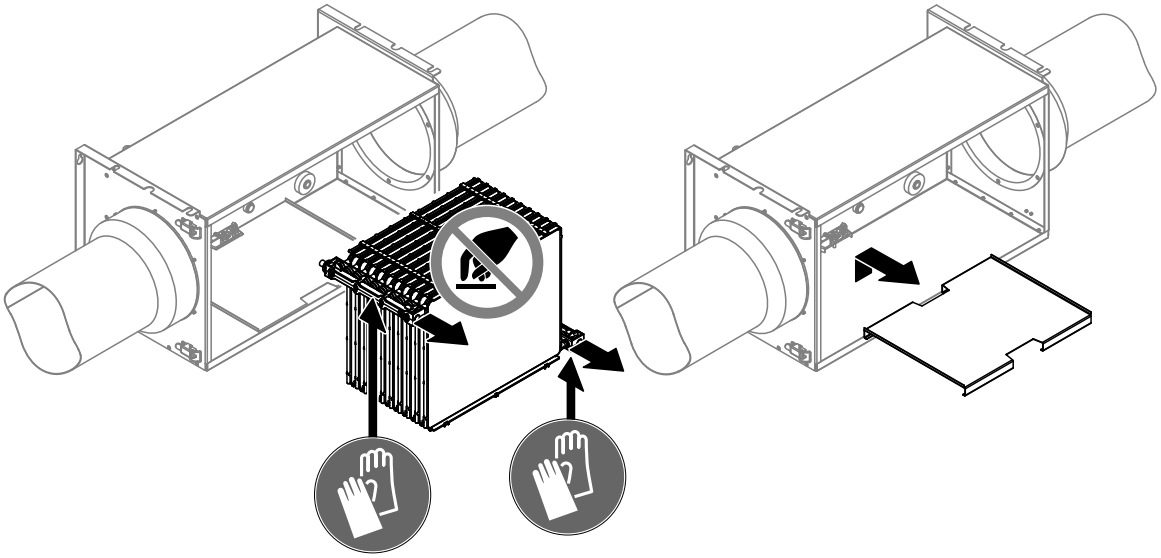


Fig. 21: Removing the humidifier insert and base panel

Note: If the humidifier unit is equipped with the optional air filter, remove the air filter (see separate instructions for the air filter).

7. Remove the hose pieces from the plug-in couplings on the humidifier insert.

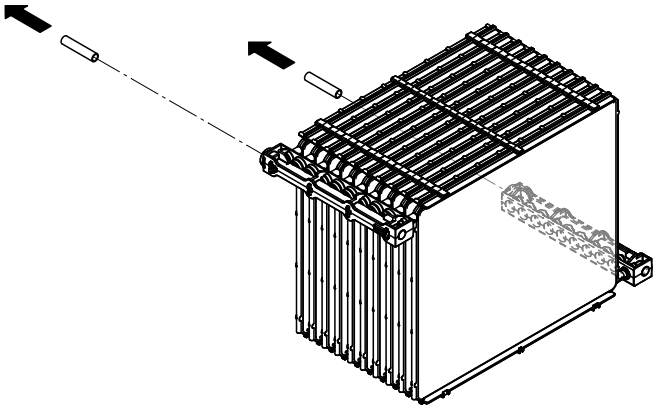


Fig. 22: Removing the hose pieces

Note: The old humidifier insert can be disposed of with household waste.

8. Unpack the new humidifier insert and remove the plugs from the connections on the humidifier insert. Insert the two (cleaned) hose pieces into the plug-in couplings on the humidifier insert as far as they will go.

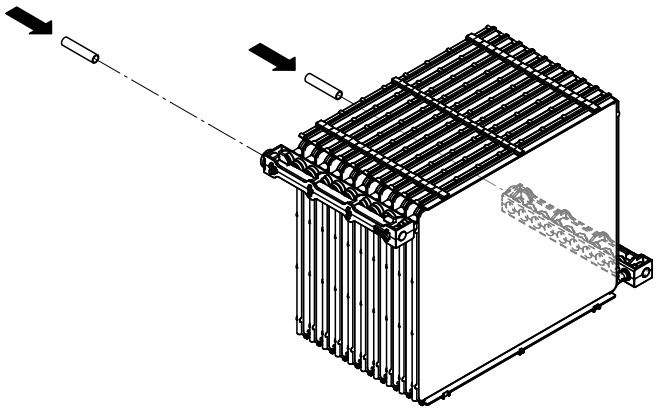


Fig. 23: Inserting the hose pieces into the plug-in couplings

9. Clean the humidifier housing, the base plate and the cover of the humidifier housing (including the seal) with a lint-free cloth, using a mild detergent and disinfectant if necessary (do not use surfactant products).
   Note: If the traces of dust or soiling cannot be removed, please contact your Condair partner.
10. If the humidifier unit is equipped with the optional air filter, install a new air filter on the air inlet side in the humidifier housing (see separate instructions for the air filter).
11. Insert the base panel into the humidifier housing (see *Fig. 24*).
12. Position the humidifier insert on the base panel in the humidifier housing, push the humidifier insert into the humidifier housing up to the stop and press it into the end position.
    Important: make sure that the hose sections have been connected to the plug-in couplings on the black water distributors of the humidifier insert and that the arrows on the water collar of the humidifier insert elements correspond to the flow of the water.

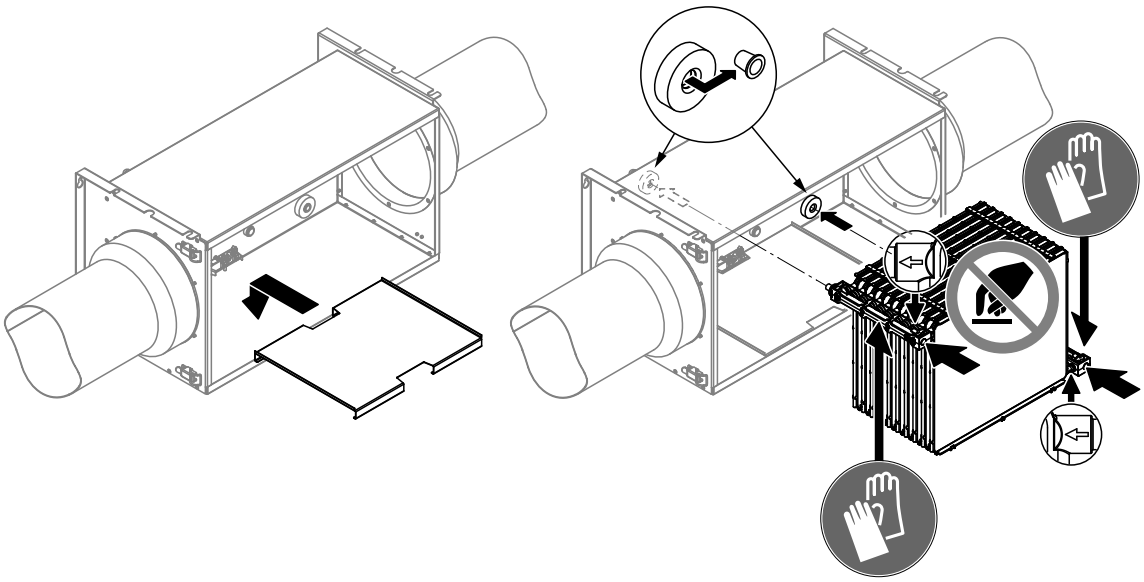


Fig. 24: Installing the base panel and humidifier insert

13. Reattach the housing cover of the humidifier insert and lock with the snap lock mechanisms.

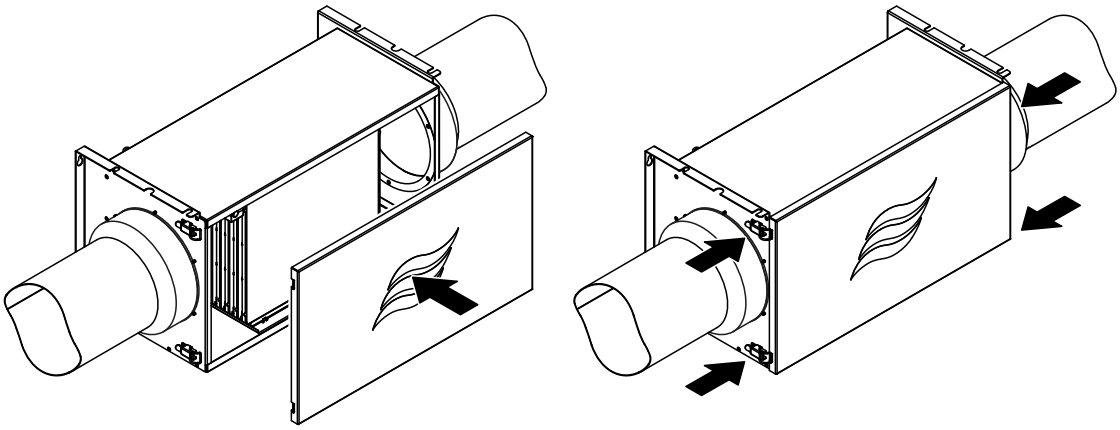


Fig. 25: Closing the humidifier unit

14. If you do not have to carry out any further maintenance work, immediately put the Condair MD back into operation as described in *Section 5.2*.

7 Troubleshooting

7.1 Safety information regarding troubleshooting

DANGER!
Risk of electrocution!

Shut down the Condair MD and disconnect it from the mains prior to starting any troubleshooting work (see *Section 5.4*).
Make sure that the power supply to the Condair MD has been interrupted and that the shut-off valve in the water line has been closed.

CAUTION!

Electronic components on the inside of the Condair MD hydraulic unit are very sensitive to electrostatic discharge.

For this reason: take measures to prevent damage caused by electrostatic discharge (ESD protection) prior to repair work on the electrical equipment of the hydraulic unit.

7.2 Important information for troubleshooting

Personnel qualifications

Compliance with the data on the malfunction list (see *Section 7.4*) is mandatory so that operators of the Condair MD can eliminate malfunctions.

Malfunctions affecting the electrical installation or components within the hydraulic unit must exclusively be eliminated by a **Condair service engineer** or **instructed and trained specialists**. It is the responsibility of the operator to check the qualification.

General information

Exclusively use Condair genuine spare parts to replace faulty components.

7.3 Malfunction indication

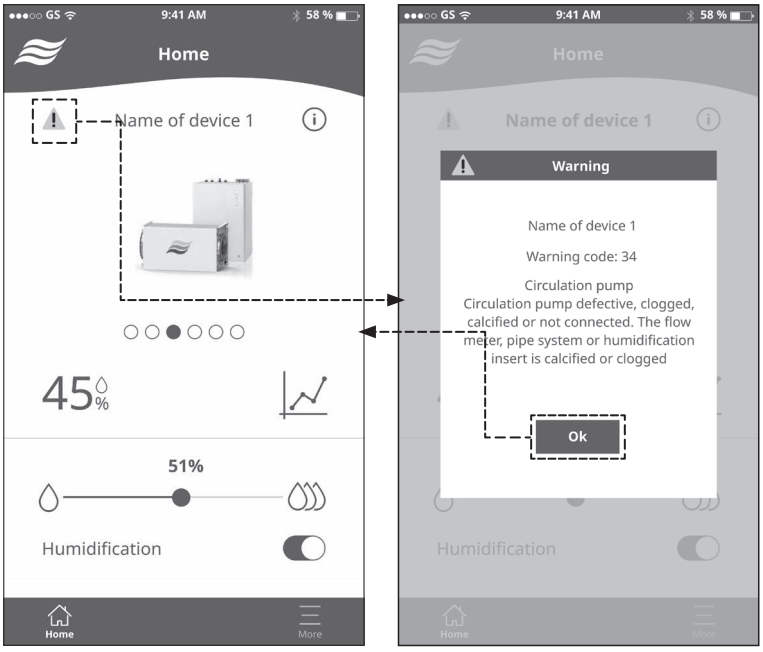
Malfunction indication on the hydraulic unit of the Condair MD

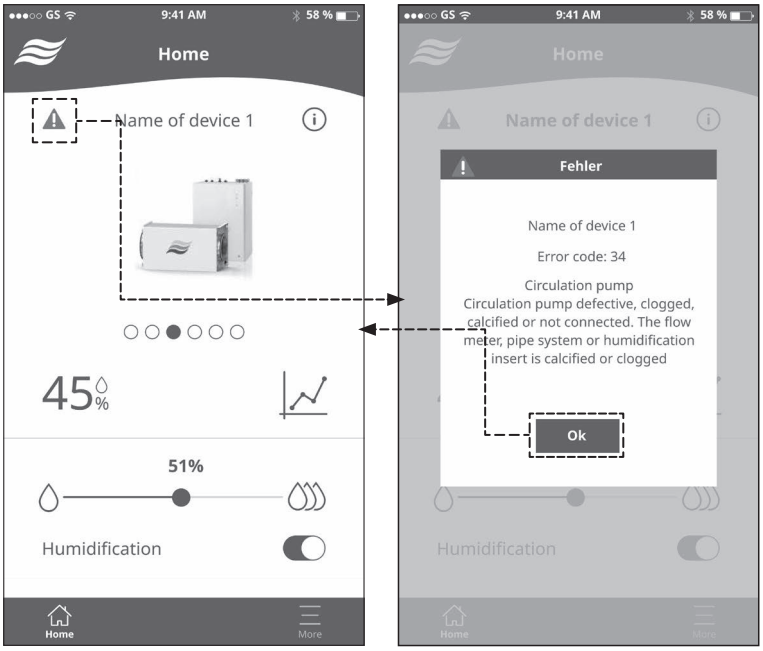
Malfunctions during operation that are detected by the control are indicated by the yellow glowing Error LED (Warning status, operation still possible) or the red glowing Error LED (Fault status, operation is only limited or no longer possible) on the hydraulic unit of the Condair MD (see also notes in *Section 5.1.2*).

Malfunction indication in the HumiLife-App

Malfunctions during operation that are detected by the control are indicated by the yellow warning triangle (Warning status, operation still possible) or the red warning triangle (Fault status, operation is only limited or no longer possible) on the home screen of the HumiLife-App of the corresponding device.

If you press the warning triangle, a window appears in the home screen with information on the warning/ fault (error number, error description). Information on the individual faults can be found in *Section 7.4*.





7.4 Malfunction list

The cause for the majority of malfunctions is not based on insufficient device functionality, but in many cases on incorrectly completed installations or a non-observance of planning specifications. For this reason, also always check the system when troubleshooting (e.g. hose connections, humidity control, etc.).

Code		Message on the error list	Cause	Remedy/procedure
Warning	Fault			
W20	—	**Ext. Safety Loop**	The external safety chain (air stream watchdog) at terminal X4 on the driver board has triggered, humidification has been stopped.	1. Check whether the ERV is switched on? 2. If the ERV is running and warning "W20" is still displayed, contact the Condair representative.
W21	—	**Max. Hygro**	The high limit humidistat at terminal X5 on the driver board has triggered, humidification has been stopped!	1. Wait two hours to check whether the error is reset individually. 2. If warning "W20" is still displayed after two hours, check the high limit humidistat setting (adjustment value 85%). 3. If the high limit humidistat has been set correctly, contact the Condair representative.
W22	—	**Fill timeout**	The maximum required time to fill the water tank has been exceeded.	1. Check whether the fresh water supply is open. 2. If the fresh water supply is open, check the supply water pressure (permissible supply water pressure 1.5 to 5 bar). 3. If the supply water pressure is within the permissible range, contact the Condair representative.
—	**E26 ****	**Heating voltage**	It is no longer possible to switch the heating voltage at the driver board.	1. Switch the Condair MD off and on again. 2. If the error reappears, contact the Condair representative.
W27	**E27**	**Descale due**	The maintenance counter for descaling has elapsed. Note: the Condair MD will only run for a short period of time. Carry out descaling as soon as possible!	Carry out descaling according to *Section 6.5.1*.
W28	**E28**	**Disinfection due**	The maintenance counter for disinfection has elapsed. Note: the Condair MD will only run for a short period of time. Carry out disinfection as soon as possible!	Carry out disinfection according to *Section 6.5.2*.
W29	**E29 ****	**Major maintenance**	The maintenance counter for the major maintenance has elapsed.	Replace the humidifier insert according to *Section 6.5.4*.

Code		Message on the error list	Cause	Remedy/procedure
Warning	Fault			
——	E32	Measuring error	The signal at the humidity signal input is outside the permitted range.	1. Switch the Condair MD off and on again. 2. If the error reappears, contact the Condair representative.
			No signal transferred in the event that a radio sensor is used (rH) Note: the Condair MD continues to run as soon as signal transmission resumes.	1. Check/replace the battery of the radio sensor. 2. Check the signal path (radio sensor must be within the reception range of the hydraulic unit). If possible, install the radio sensor within the reception range or install a signal repeater. 3. Switch the Condair MD off and on again. 4. If the error reappears, contact the Condair representative.
W34	——	Circulation	Water quantity within the humidifier circuit is too low.	1. Switch off the Condair MD, wait 10 minutes and switch it on again. 2. If the warning reappears, contact the Condair representative.
W42	——	Max. Hygrostat	High limit humidistat in the supply or extract air duct has triggered (reasons: excessive humidity in the supply or extract air duct, e.g. as a result of ERV failure, high limit humidistat faulty).	1. Wait whether the error is reset individually. Note: as soon as the humidity in the supply or extract air duct drops below the adjusted setpoint the Condair MD automatically continues to run. 2. Check/adjust ERV. 3. Check the high limit humidistat, if necessary, replace it. 4. Switch the Condair MD off and on again, if the warning reappears, contact the Condair representative.
——	E44	Water Temperature	Water temperature within the humidifier circuit is too high.	1. Check the fresh water supply temperature (at max. 30°C). 2. If the temperature is within the permissible range, contact the Condair representative.
——	E46	Drain Time	The maximum required time to drain the water tank has been exceeded.	1. Wait 10 minutes to check whether the error is reset individually. 2. If the error does not automatically reset, switch the Condair MD off and on again. 3. If the error reappears, contact the Condair representative.
——	E47	Level invalid	The level sensor in the water tank shows an invalid water level.	1. Switch the Condair MD off and on again. 2. If the error reappears, contact the Condair representative.
——	E52	Leak sensor	The internal monitoring of the leakage sensor in the humidifier unit has triggered (no water escaping!)	1. Switch the Condair MD off and on again. 2. If the error reappears, contact the Condair representative.
——	E53	Floor leak sensor	Optional floor leakage sensor has triggered (water on the ground).	1. Localise the leak. 2. If a leak is established at the Condair MD, contact the Condair representative.

Code		Message on the error list	Cause	Remedy/procedure
Warning	Fault			
——	**E54**	**Leak Hum.Elem.**	Leakage sensor in the humidifier unit has triggered (humidifier unit leaking).	1. Switch off the hydraulic unit, wait 30 minutes, once again switch on the hydraulic unit. 2. If the error reappears, check the high limit humidistat setting (adjustment value: 85%). 3. Contact the Condair representative
——	**E56**	**Thermostat**	Overtemperature switch on the water tank has triggered. Heating elements have overheated.	Contact the Condair representative.
W66	**E66 ****	**Activated carbon filter/Fine filter**	The replacement interval for the activated carbon filter and the fine filter of the reverse osmosis system Condair RO-HS has expired. Note: The Condair MD continues to run for a short time after the warning "W66" has appeared. If the activated charcoal filter and fine filter cartridge are not replaced during this time and the service message is reset, the error message "E55" appears and humidification is stopped. The Condair MD must only be put into operation again when the filter cartridges have been replaced.	Replace the activated carbon filter and fine filter cartridge of the reverse osmosis system Condair RO-HS (see installation and operating manual for the reverse osmosis system Condair RO-HS).
W67	**E67 ****	**RO Membrane**	The replacement interval for the RO membrane of the reverse osmosis system Condair RO-HS has expired. Note: The Condair MD continues to run for a short time after the warning "W67" has appeared. If the RO membrane is not replaced during this time and the service message is reset, the error message "E67" appears and the humidification is stopped. The Condair MD must only be put into operation again when the RO membrane has been replaced.	Replace the RO membrane of the optional reverse osmosis system Condair RO-HS (see installation and operating manual for the reverse osmosis system Condair RO-HS).
——	**E68**	**Water Flow Sensor**	The flow sensor of the hydraulic unit has been disconnected, the connection is interrupted or faulty.	Contact the Condair representative.
——	**E69**	**Water Temp. Sensor**	The water temperature sensor in the flow sensor has been disconnected, the connection is interrupted or faulty.	Contact the Condair representative.
——	**E87 ****	**Supply 24V local**	The internal 24V voltage is outside the valid range, too high or too low.	Contact the Condair representative.
——	**E88 ****	**Supply 5V local**	The internal 5V voltage is outside the valid range, too high or too low.	Contact the Condair representative.
——	**E89 ****	**Supply ext. 24V**	The external 24V voltage is outside the valid range, too high or too low.	Contact the Condair representative.
——	**E90 ****	**Supply ext. 10V**	The external 10V voltage is outside the valid range, too high or too low.	Contact the Condair representative.

Code		Message on the error list	Cause	Remedy/procedure
Warning	Fault			
——	E91 **	Supply ext. 5V	The external 5V voltage is outside the valid range, too high or too low.	Contact the Condair representative.
——	E103 **	Short circuit pump	The circulation pump in the hydraulic unit has blocked due to heavy calcification or has a short circuit.	Contact the Condair representative.

** These error messages must be reset by switching the Condair MD off and on again (see *Section 7.5*)

7.5 Resetting the error display

To reset the error indication (Error LED on the hydraulic unit lights up red, red warning triangle is displayed in the home screen of the HumiLife-App) proceed as follows:

Press the On/Off switch on the hydraulic unit (at least 10 seconds) until the Error status LED no longer lights up yellow or red or until the red warning triangle disappears on the home screen of the HumiLife-App.

Note: if the cause of the malfunction has not been eliminated, the error indication reappears after a short period of time.

8 Decommissioning/Disposal

8.1 Decommissioning

If it is necessary to replace the Condair MD or if the Condair MD is no longer required, proceed as follows:

1. Decommission the Condair MD as described in *Section 5.4*.
2. Have the Condair MD (and potentially required, other system components) removed by a specialist.

8.2 Disposal/recycling

Components that are no longer needed must not be disposed of with household waste. Dispose of the components of the Condair MD in accordance with local regulations at an authorised disposal collection point.

If you have any questions, please contact the relevant authority or your Condair representative.

Thank you for your contribution to the protection of the environment.

9 Product specifications

9.1 Technical data of the hydraulic unit

	Condair MD
Dimensions/weight	
Dimensions of the hydraulic unit (HxWxD)	596 x 430 x 307 mm
Weight of the hydraulic unit	Approx. 19 kg
Hydraulics	
Flushing water quantity in standby mode	2 - 3 l per flushing process every 47 hours
Electrical system	
Connection voltage/fuse	200 to 240 VAC/50 Hz, 10 A
Power consumption, control system/heating (including solenoid valves)	700 W
Solenoid valve voltage (Y1-Y3)	24 V DC
Control signals for ext. humidity sensor	0-5VDC, 1-5VDC, 0-10VDC, 2-10VDC, 0-16VDC, 3-16VDC, 0-20VDC
Internal humidity controller	Yes
External humidity controller	Lockable
Noise emissions	
Sound level	approx. 45 dB(A)
Interfaces	
WiFi (STA- and HotSpot-Mode)	Yes
Connections towards humidifier	
Supply connection	JG ø10 mm
Return connection	JG ø10 mm
Water connections	
Fresh water supply connection	G 3/4" outer thread
Permissible water connection pressure	Flow pressure 150 to 500 kPa (1.5 to 5 bar)
Permissible water temperature	min. 8°C/max. 30°C
Water quality requirements	Drinking water without additives Permissible water hardness: 1 to 30 °dH Permissible pH value: 6.5 to 9.0
Water drain connection	Adapter to ø40 mm
Protection type	IP20
Conformity	CE

9.2 Technical data of humidifier unit

Dimensions/weight	
Installation length in the ventilation unit/air duct – with transition pieces DN125 – with transition pieces DN160 – with transition pieces DN180 – without transition pieces (DN200)	 727 mm 693 mm 673 mm 547 mm
Humidifier unit length	610 mm
Humidifier unit width	288 mm
Humidifier unit height	320 mm
Humidifier unit weight empty/in operation	12 kg / 18 kg
Hydraulics	
Humidification output	2 kg/h
Air	
Pressure drop	10 Pa @ 300 m^3/h
Druckabfall mit optionalem Filter ISO ePM1 60%	37 Pa @ 300 m^3/h
Air filter quality upstream of humidifier unit	min. ISO Coarse 80%, recommended ISO ePM1 60%
Min. recommended air temperature	14°C (upstream of humidifier unit)
Max. recommended air temperature	40°C (upstream of humidifier unit)
Water	
Supply connection	JG ø10 mm
Return connection	JG ø10 mm
Protection type	IP22
Test certificates	CE

9.3 CE Declaration of Conformity

EC

Konformitätserklärung	Declaration of conformity	Déclaration de conformité
Wir, Condair Group AG CH-8808 Pfäffikon SZ erklären in alleiniger Verantwortung, dass das Produkt	We, Condair Group AG CH-8808 Pfäffikon SZ declare under our sole responsibility, that the product	Nous, Condair Group AG CH-8808 Pfäffikon SZ déclarons sous notre seule responsabilité, que le produit
	Condair MD	
im Seriennummernbereich	in the serial number range 1152773 to 4999999	pour les numéro de serie
auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt	to which this declaration relates is in conformity with the following standards or other normative standards	auquel se réfère cette déclaration est conforme aux normes ou autres documents normatifs
	EN 60335-1 **EN 60335-2-98** **EN 61000-3-2** **EN 61000-3-3** **EN 61000-4-2** **EN 61000-4-3** **EN 61000-4-4** **EN 61000-4-5** **EN 61000-4-6** **EN 61000-4-11** **EN 61000-6-3**	
und den Bestimmungen der folgenden Richtlinien entspricht	and is corresponding to the following provisions of directives	et est conforme aux dispositions des directives suivantes
	2014 / 35 / EU **2014 / 30 / EU**	

2591578 DE/EN/FR 2110

Pfäffikon, October 22, 2021

Condair Group AG

Eric Roth
Chief Technology Officer

Adrian Spörri
Corporate Systems Manager

Condair Group AG
Gwattstrasse 17
8808 Pfäffikon, Switzerland
Tel. +41 55 416 61 11, Fax +41 55 588 00 07
info@condair.com, www.condairgroup.com

Notes

CONSULTING, SALES AND SERVICE:

CH94/0002.00

Condair Group AG
8808 Pfäffikon SZ, Switzerland
www.condairgroup.com

condair