READ AND SAVE THESE INSTRUCTIONS

RH SERIES

OPERATION MANUAL

Condair HumiLife
Whole-home Steam Humidifier

Humidification and Evaporative Cooling

≋condair

Cautions and Warnings

> ⚠ **CAUTION: Servicing**

- The unit is mains powered. Disconnect main power before any servicing.
- Electrical compartment contains high voltage components. Access should be limited to authorized personnel only.
- The unit is hot. Wait for the unit to drain and cool before servicing. During and following operation of the humidifier, the steam and components in contact with the steam such as the steam lines, steam distributors, and condensate lines can become hot and can burn if touched.
- Condair does not accept any liability for installations of humidity equipment installed by unqualified personnel, or the use of parts, components, or equipment that are not authorized or approved by Condair.

> ⚠ **CAUTION: Electrical**

- All electrical work should be done according to all applicable local and national codes.
- Electrical connection to be performed by a licensed electrician.

> ⚠ **CAUTION: Plumbing**

- (Recommended) Plumbing to be performed by a licensed plumber.
- Drain water from the humidifier can be very hot. Drain to an appropriate floor drain.
- All plumbing work should be done according to local plumbing code.

> ⚠ **CAUTION: Installation**

- **Do NOT** mount in area where freezing can occur.
- **Do NOT** mount on vibrating surface.
- **Do NOT** mount on the floor.
- **Do NOT** block the steam outlet.
- (Recommended) Install an air proving switch.
- Do install steam lines to prevent any restrictions that may cause back-pressure in the humidifier.
- Ensure furnace fan is operating while the humidifier is generating steam.
- Keep out of reach of children.

Contents

Receiving and Storage

Inspection

After receiving the shipment, inspect the goods as follows:

- Inspect the shipping boxes for damage. Report any shipping box damages to the shipping company without delay.
- Check the goods against the packing slip to ensure that all items have been delivered. Report any shortages to Condair within 48 hours of receipt of the goods. Condair does not assume responsibilities for any shortages beyond this period.
- Unpack the parts/components and check for any damage. If parts/components are damaged, notify the shipping company immediately.
- Verify the model type on the specification label to ensure that it is suitable for your installation.

Storage, Packaging, and Transportation

Storage

Store the Condair HumiLife RH in its original packaging inside a protected area that meets the following requirements until it is installed, or if it needs to be stored for an extended period of time:

- Room temperature: 41 to 104 °F (5 to 40 °C)
- Room humidity: 10 to 75% RH (non-condensing)

Transportation

For optimum protection always transport the unit and components in their original packaging.

Packaging

If the packaging needs to be disposed, observe local regulations on waste disposal. Please recycle packaging where possible.
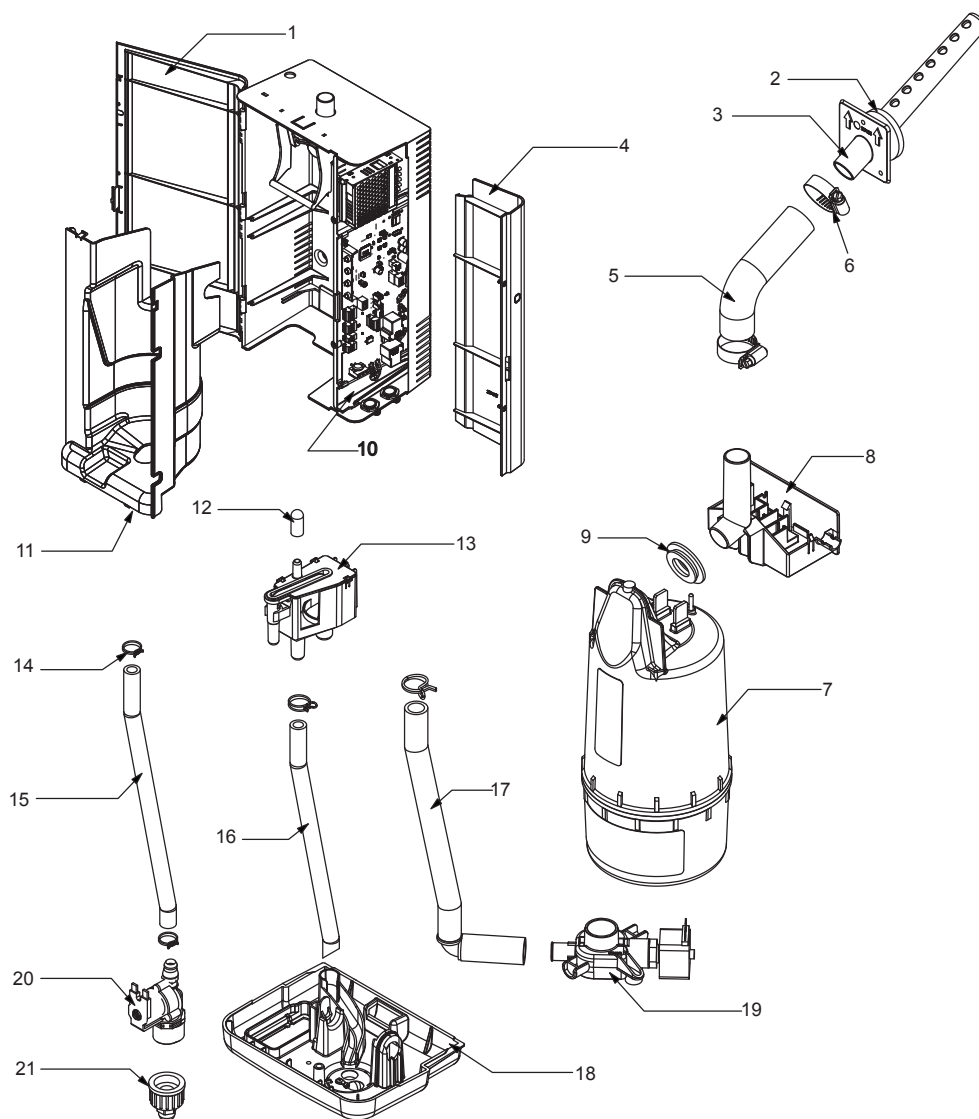
Product Overview

Figure 1 - Condair RH Humidifier Components

1 Plumbing door	8 Steam receptacle	15 Water supply hose
2 Gasket, steam distributor	9 Gasket, steam cylinder	16 Overflow hose
3 Steam distributor	10 Driver board	17 Drain hose
4 Electrical door	11 Plumbing cover	18 Drain pan
5 Steam hose	12 Condensate return cap	19 Drain valve
6 Steam hose clamp	13 Fill cup	20 Fill valve
7 Steam cylinder	14 Hose clip	21 Adapter, quick connect

Description

The Condair HumiLife RH is a residential steam humidifier designed by Condair. It is designed to provide steady, clean humidification for the home, and is designed to connect to a supply air duct. The humidifier may be mounted directly onto the duct, or remotely with connected steam hoses and distributor.
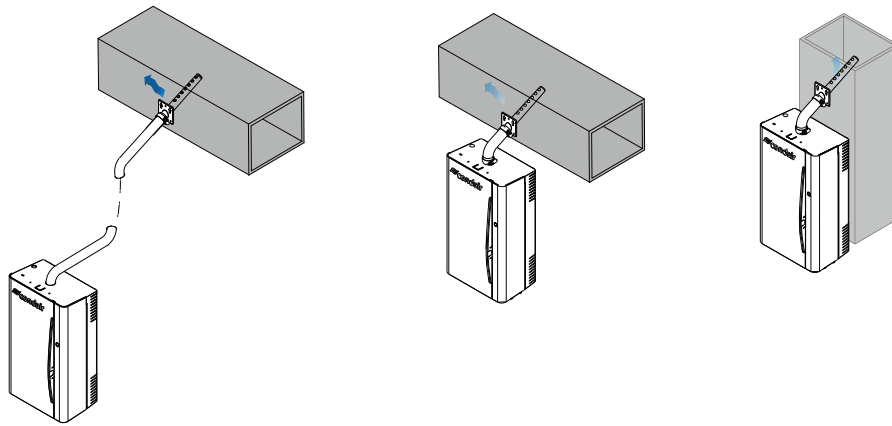

Figure 2 - Condair RH Humidifier Duct and Remote Installations

Principle of Operation

The Condair HumiLife RH is an atmospheric steam generator that uses heat generated by an electrical current flowing between submerged electrodes to generate steam.
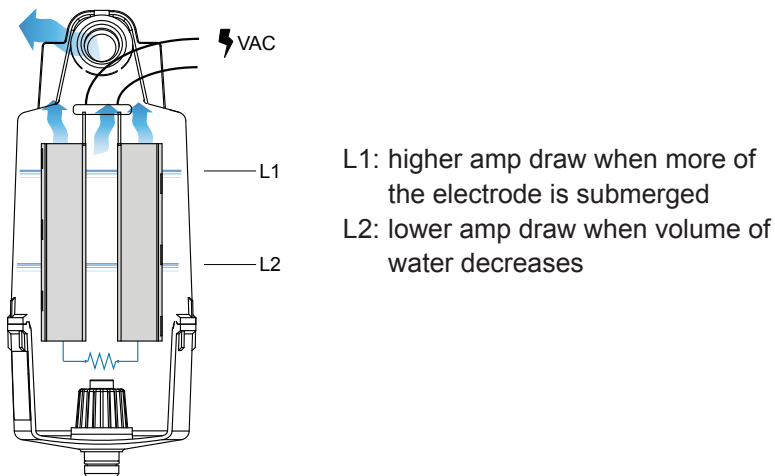

L1: higher amp draw when more of the electrode is submerged
L2: lower amp draw when volume of water decreases

Figure 3 - Principle of Operation

Increasing the water level submerges the electrodes. This increases the current draw at the electrodes.

Increasing the concentration of minerals in the water increases the current draw of the electrodes.

Increasing the current draw increases steam production.

High concentration of minerals in the water over time forms scale on the electrodes. This reduces the effective area for the electrodes and reduces steam output. To maintain the desired current draw, the cylinder automatically fills with water (submerging more of the electrode), or allows the water to boil off.

Specifications

Table 1: Specifications

Model	Nominal capacity gpd / kg/h / lb/h	Voltage V	Power kW	Current A (MCA)	Phase, Frequency	Max. external fuse A (MOCP)
Condair RH - NAP, 22	11 / 1.8 / 3.9	110-120	1.4	12.0	Phase 1, 50/60 Hz	15
	19 / 3.0 / 6.7	208	2.5			
	22 / 3.6 / 7.8	220-240	2.9			

Dimensions
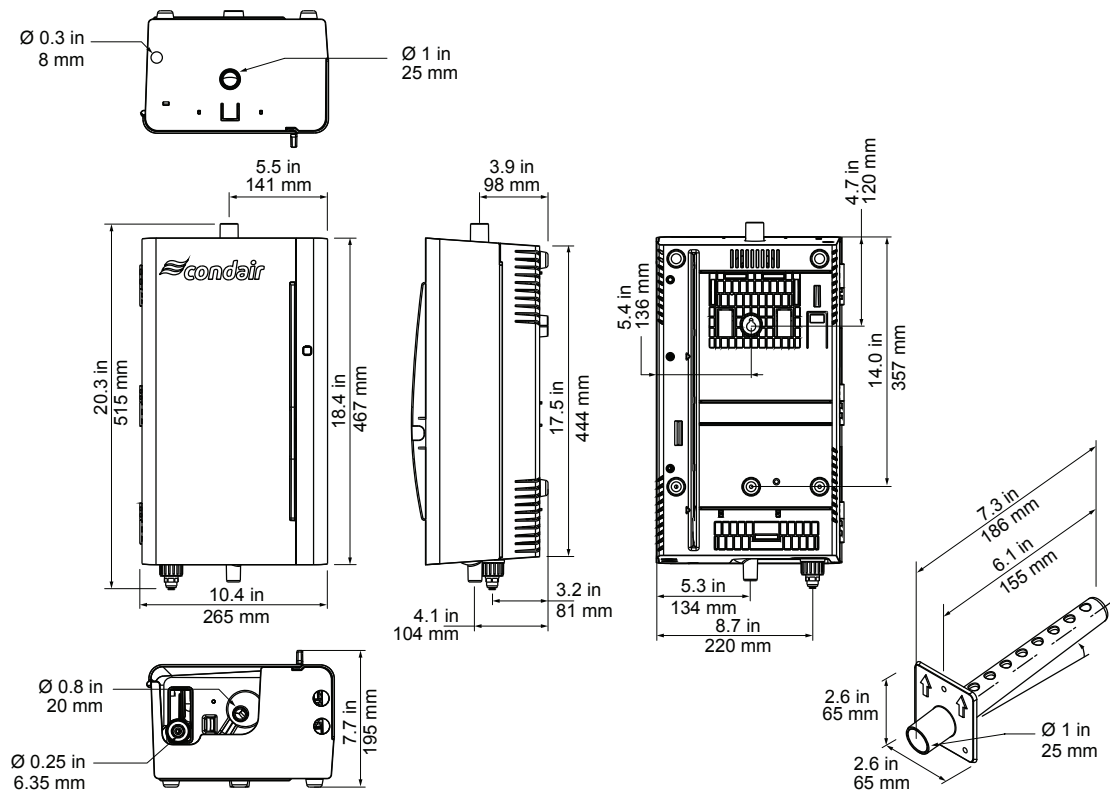
Figure 4 - Dimensions

Sequence of Operation
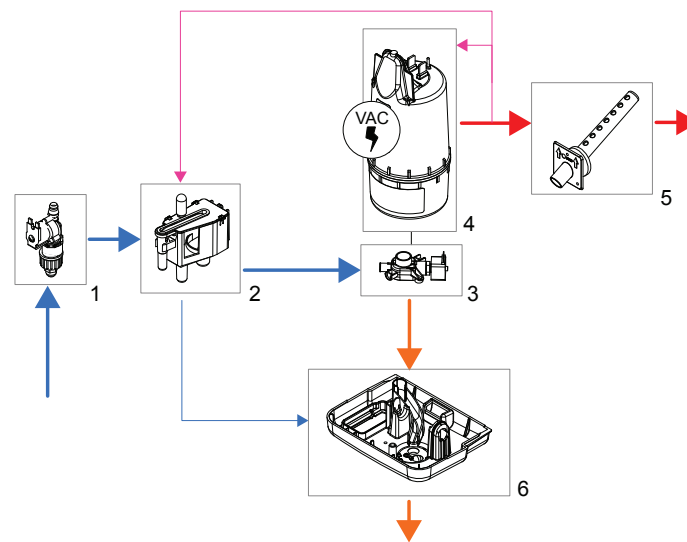
Figure 5 - Sequence of Operation

1	Fill valve	3	Drain valve	5	Steam distributor
2	Fill cup	4	Cylinder	6	Drain pan

Summary

Water flows into the humidifier through the fill valve and into the fill cup (with an air gap to prevent backflow). From the fill cup, water flows to the drain valve and into the cylinder. Excess water (due to a blockage in the cylinder, for example) flows from the fill cup to the drain pan.

Water enters and drains from the steam cylinder through the drain valve. During the draining sequence, hot water from the cylinder and cold water from the fill cup mixes. The cold water tempers the hot water so that the water exiting to the drain is cooled to 140 °F (60 °C).

In the steam cylinder, electrodes cause water to boil (heat generated from the electrical resistance of the water). Steam forms and flows through the top of the cylinder and out through the steam outlet. It then flows through the steam hose, and into the steam distributor. The steam distributor is installed in your duct ventilation system.

Some condensate is formed while steam travels through the steam hose. Typically, condensate will travel back down the hose and return to the steam cylinder. Other times (ex. in remote installations), condensate may get trapped inside a long run of steam hose. In this situation, a condensate return line should be installed (supplied by others) to prevent standing water in the steam hose. The condensate return line returns water to the fill cup, external drain, or high-temperature condensate pump.

Steam Generation

Once the unit receives a demand signal and the safety loop (SC on the control board) is closed, the humidifier closes the contactor and measures the electrical current between the electrodes in the steam cylinder (amp/current draw).

As soon as the water in the cylinder comes in contact with the energized electrodes, current flows through the water. The resistance of the water to the electrical charge generates heat, and the heat boils the water into steam. The electrical current (and steam output) increases as the level of water increases, as more of the electrode becomes submerged. The unit continues to fill until the electrical current matches demand or the high water sensor detects a high water level.

The humidifier repeats the fill and boil down cycle repeatedly to match output to demand.

Over time minerals in the water will form scale on the cylinder electrodes. The humidifier will automatically fill to a higher water level to maintain full capacity during the life of the cylinder. Eventually because of scale formation it will no longer be possible for the humidifier to reach its full capacity. The humidifier software monitors this condition and, when detected, will stop operating and alert the you when the steam cylinder needs replacement.

Controls

After setting the desired relative humidity (RH) setpoint through the Condair HumiLife app, the RH sensor (supplied) determines if the space requires more humidity.

The humidifier receives a humidity signal from the sensor, and if the sensed humidity is lower than the desired setpoint (desired relative humidity), the humidifier will start producing steam.

Steam enters the space and increases the relative humidity. The sensor in the humidified space or return air duct detects the humidity again and determines if the unit should continue producing steam.

Filling

Water flows into the fill cup. Water from the fill cup flows into the bottom of the cylinder through a hose connected to the drain valve.

Note: The cylinder is gravity fed from the fill cup. If backpressure from the steam line is too high it will cause water to back up in the fill cup and flow down the overflow line to the drain.

The steam cylinder has two sensors; one high water level sensor; and a sensor for current draw. Under normal circumstances, the inlet valve will deactivate when either the high water level sensor or the current draw sensor is triggered.

If the measured amp draw is lower than the required amp draw, the inlet valve is kept closed and output is reduced by letting the water level in the cylinder decrease by boiling and evaporation. This causes the conductivity in the water to increase.

In situations where the current draw is too high, the humidifier will initiate a drain sequence to reduce the conductivity, or fill the cylinder with more clean water to dilute it.

Drains

As steam is produced, minerals are left behind, increasing the conductivity of the water. The patented auto adaptive cycle will monitor the water conductivity and perform drains to maintain the water at optimal conductivity for peak performance.

The auto adaptive cycle ensures cylinder life is maximized. It does this by keeping the tightest control and most efficient use of water during the entire cylinder life.

Steam Distribution

Steam generated by the humidifier may be introduced into the air by mounting a steam distributor tube in a supply air duct.

Condensate Return

Insulating the steam line is one important way to reduce the amount of condensate formed in the steam distribution system. Steam lines are sloped so that condensate does not collect in the lines and create a restriction to steam flow. The condensate must be collected and removed from the system so that it does not build up and leak into the duct. Condensate can be returned to the fill cup to reduce water waste or can be fed to an external drain, or high-temperature condensate pump.

Operation

Starting Up

IMPORTANT! Damaged or improperly installed units must NOT be operated. Damaged or improperly installed units may present a danger to persons and property.

To turn on the humidifier

1. See the below instructions if you are starting the humidifier for the first time.
    Press the power button for 2 seconds. The unit will turn on. The unit will begin humidification once it receives a demand for humidity.

(first time) Start Up Procedure

To start the humidifier for the first time (or after extended shut down):

1. Examine the humidifier and installation for damage or improper installation.

2. Ensure the following **before powering the unit**:

    a. Ensure the cylinder is properly seated in the drain valve.

    b. Ensure the front covers are in place and the electrical cover is secured with retaining screws.

    c. Ensure the water supply valve is open.

    d. Ensure there is sufficient air flow through the duct.

        •   Install an air proving switch, high limit humidity sensor, or wire the unit with a furnace fan (fan activation feature) if available.

3. If a disconnect switch is installed, turn it "on" to supply power to the unit.

4. Press the power/ button. Wait 10 minutes for the water to submerge the electrodes in the cylinder and heat up. Steam will be produced if there is a demand for humidity.

    •   The humidifier will perform a self-diagnostic sequence. The LED lights and internal components will activate temporarily during this time. After this diagnostic sequence, the humidifier will enter normal operation.

    •   If operating on low conductivity water, it may take several hours for the humidifier to produce steam at full capacity. During this time, the humidifier will not perform any drains (so the conductivity of the water in the cylinder may increase).

5. Check and adjust the setpoint on the humidistat for the desired humidity or temperature level control (setpoint on the control humidistat, RH sensor, or high limit humidistat). The factory default for the setpoint in the humidifier is 0% RH.

    •   The relative humidity (RH) sensor detects the humidity of the space. If the detected humidity is equal to or greater than the setpoint, the unit will stop humidifying. If the humidity is less than the setpoint, humidification proceeds.

    •   When the external humidistat generates a demand for humidity and the security loop is closed, the power relay on the control board will engage, and the water fill valve will activate (after a delay). The cylinder will fill with water.

72 Hour No-Demand Auto-Drain

If the humidifier does not receive a request for humidification for 72 hours, a full cylinder drain will occur automatically. The humidifier will remain in this state, with an empty cylinder, until there is a demand for humidification. At that point, the cylinder will begin filling with water automatically and proceed with the normal humidification process.

This feature eliminates the need for user interaction at the end of the humidification season. The system does not need to be drained, or shut-down at the end of the season, since it will automatically fill and drain the cylinder as required.

Shutting Down

IMPORTANT! Shutting down the unit does not remove power from the unit. To remove power to the unit, use the external disconnect switch.

To turn off the humidifier:

1. Press and hold the power button for 2 seconds.

   - The humidifier stops humidifying.

   - The cylinder drains (approximately 11 minutes).

Should the unit be disconnected for an extended period of time, allow the humidifier to drain and shut down prior to disconnecting the power with the external disconnect. After removing power from the humidifier, close the water supply valve.

Draining the Humidifier

To drain the humidifier:

1. Drain the cylinder by proceeding with the shut down sequence (refer to *"Shutting Down"* above). **Press and hold the power button for 2 seconds.**

Connecting to Wireless Network

Control the humidifier through the Condair HumiLife app on your wireless network. Connection to the wireless network requires the Condair HumiLife app, which can be found in the Google Play Store (Android), or the App Store (iOS).

To connect your humidifier to the app, refer to *"Connecting to Condair HumiLife App" on page 12*.

Connecting to Condair HumiLife App

Once the humidifier is mounted, and steam, water, drain, and wiring connections have been established, you can turn on the unit and control it with the Condair HumiLife app on your mobile device.

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 phone 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 phone.

Connect the HumiLife app to the Condair RH

1. Go to "Settings" on your mobile phone 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).
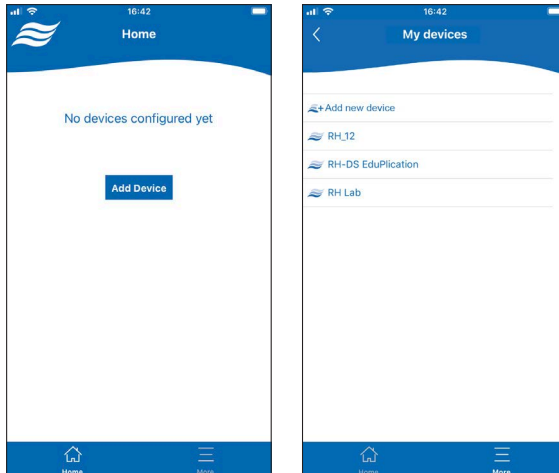

4. Press the device switch on the humidifier (approx. 5 seconds) until the WiFi symbol flashes green. Press **<Next>**.

5. Connect your mobile phone to the WLAN of the Condair RH:

- Access "Settings" on your mobile phone.

- Then select the Condair RH from the list of WLAN devices and return to the HumiLife app (figure in the middle).

- Press **<Continue>** in the HumiLife app screen (figure on the far left).

- The HumiLife app confirms the successful connection with the Condair RH (figure on the far right). Press **<Continue network configuration>**.
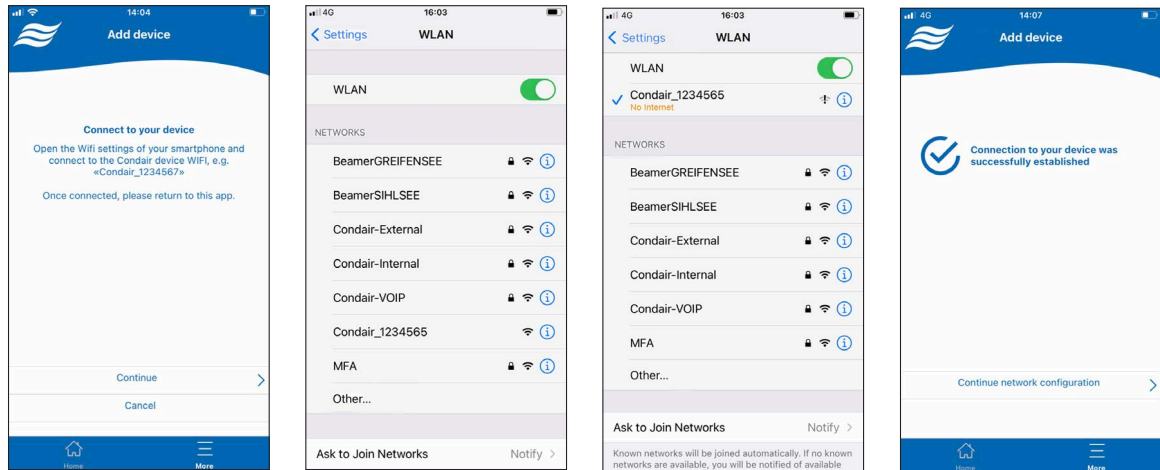
6. Configure the WiFi network:

- Select the WLAN network to which the Condair RH 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.
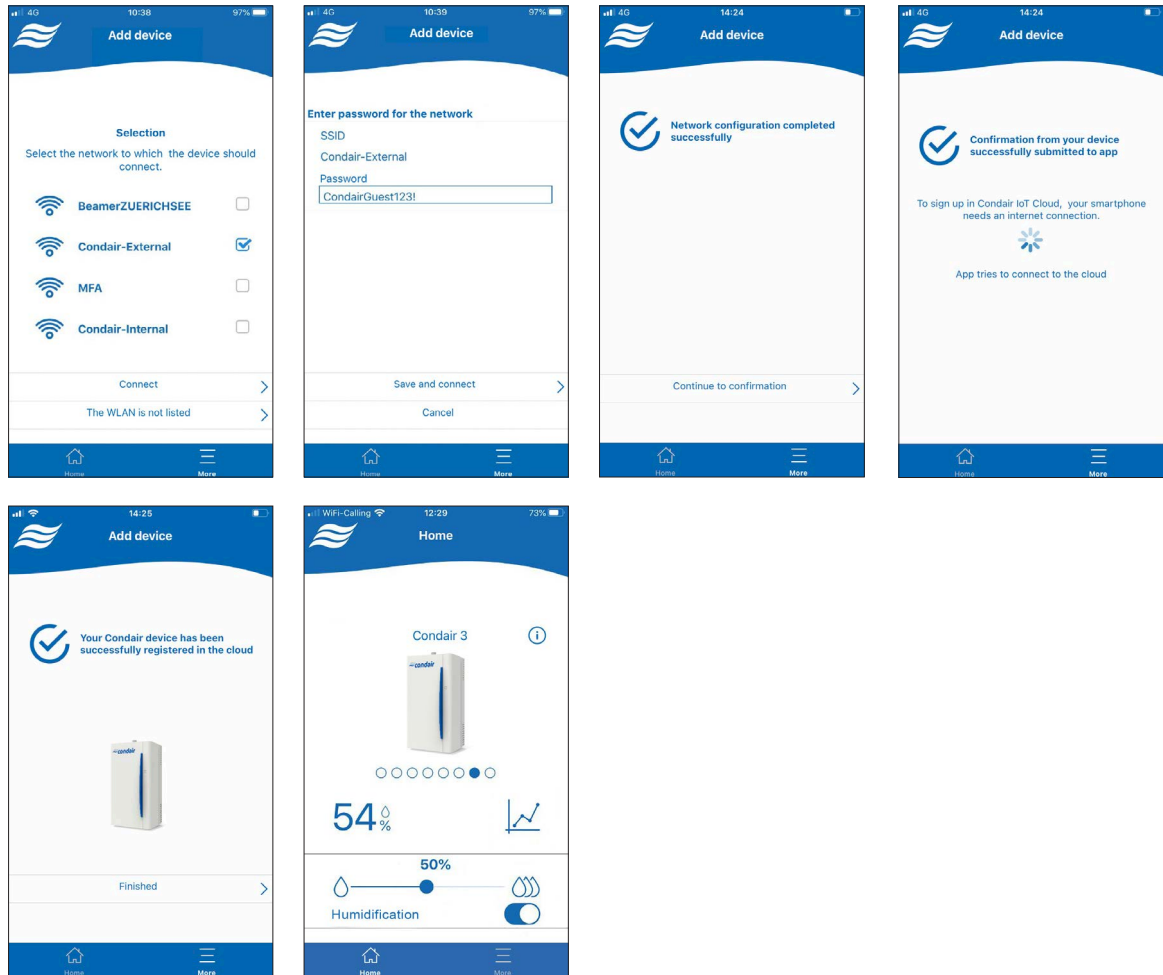
Operation of the HumiLife app

Operation of the home screen
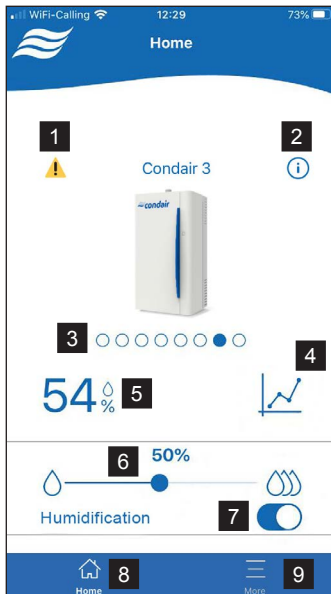
1 Fault indication: Appears if there is a warning or an error.

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

3 Selection of the device to be controlled

4 Accessing the measured value graphic and maintenance information

5 Actual measured humidity value in %rh

6 Slider for setting the humidity setpoint in% RH

7 Switching the Condair RH on and off

8 Accessing the home screen (this screen)

9 Accessing the "User Settings" Menu

Measured value graph and maintenance information

Press the graphic symbol (4) on the home screen. The measured value graphic appears (figure on the right). Here you can:

• Use the <Day>, <Week> and <Month> control fields 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 using the **<Maintenance>** button. The maintenance progress (completed cylinder changes) and the remaining time until the next replacement of the steam cylinder are displayed here. Use the **<Responses>** button to return to the display of the measured value graphic.
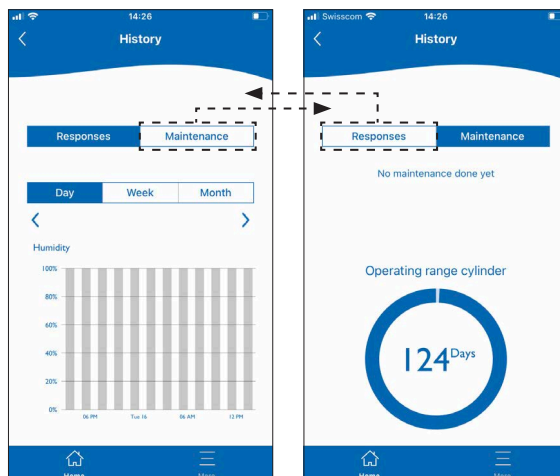
Menu "User Settings

Press **<More>** (9) on the home screen. The user menu appears.
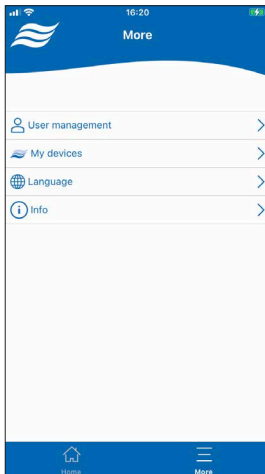
Here you can:

– Under user data:

  • View the data of the user account

  • Change the user password.

  • Log out.

  • Delete the user account.

  • View the terms and conditions.

– Under my devices

  • Add a new device to your account

  • Select a device from the list of devices in your account and then,

    • view the current device data.

    • change the device name.

    • change the sensor type used.

    • change the network configuration of the device.

– 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.

User Interface

The humidifier has a power button with the following functions:

Function	After April 2022 Update	Pre-April 2022 Update	Action
Turn the Humidifier On/Off	2 s	2 s	Hold power putton for 2 seconds. If the unit is off (Power LED is red) the humidifier will activate all functions. If the unit is on (power LED is steady blue, fading blue, or blinking blue), this will start a 10 minute drain cycle after which the LED will turn red (Standby).
Drain the Humidifier	2 s	2 s	Activate Drain: Hold power button for 2 seconds. This will start a 10 minute drain after which the humidifier will turn off (Power LED will turn red). Cancel Drain: Hold power button for 2 seconds.
Switch to Hotspot Mode (Allows Wifi Settings to be changed)	5 s	5 s	Hold power button for 5 seconds. The Wifi LED will turn green. Follow the instructions in the Humilife App to connect to the humidifier. If the user takes no action, the previous settings will be restored after 30 minutes.
Reset Faults/Warnings	10 s	4 s	Hold power button for 10 seconds. The warning/error LED will turn off.

Aside from the power button, the humidifier is controlled using the Condair Humilife app.

The humidifier has four LEDs that indicate the status of the humidifier:

power	wireless	cylinder	warning/error

⏻	Description
Blue	Humidifier is on (operational).
Fading	(Blue) The unit is on standby. The humidifier will product steam when the humidity is lower than the setpoint (defined in the Condair HumiLife app).
	(Red) The unit is on standby. The humidifier is disabled through the Condair HumiLife app. The humidifier will not humidify unless it is re-enabled through the Condair HumiLife app.
Blinking	Security loop is open (W2).
Red	Humidifier is not on. It is still connected to the power supply.

ᯤ	Description
Blue	Wifi/Cloud/Hostpot connection established.
Green	Hotspot (AP) mode activated. The humidifier is connected to your phone.
Fading	(Blue) The software in the humidifier is updating.
	(Green) The humidifier is in Hotspot (AP) mode. The humidifier is attempting to connect to your phone.
Red	No Wifi connection (W6).

💧	Description
Blue	Cylinder OK.
Blinking	Cylinder is draining.
Fading	Cylinder is filling. Appears on first fill cycle on a new cylinder.
Yellow	Cylinder end of life approaching expiry (W5). Replace soon.
Red	Cylinder end of life reached (E5).
	Invalid cylinder installed (E6).

⚠	Description
Yellow	Warning: The humidifier will still operate, but requires maintenance.
Red	Error: The humidifier stops operation to protect system components.

Note: After the initial setup process is completed, the humidifier will continue to operate regardless of whether a network connection is available or not. An network connection is not required for the humidifier to operate, however it is recommended to simplify controlling the humidifier and adjusting humidity levels. For installations where an network connection is not desired, it is recommend that the humidifier be controlled by an external humidistat that can be adjusted by the owner. If a sensor signal is used and a network connection is not provided, then the owner will be unable to adjust humidity levels after the initial setting.

Maintenance

The software in the humidifier advises when maintenance is required.

Regular maintenance consists of:

- Checking the humidifier to ensure it is in good condition.
- *"Replacing the Cylinder:" on page 22*.
- *"Cleaning the Drain Valve and GFCI Plate" on page 24*.
- *"Cleaning the Fill Valve" on page 27*.
- *"Cleaning the Fill Cup" on page 28*.

Before you Start!

- Review the warnings in this manual.
- Drain and shut down the humidifier.
- Use the external disconnect to remove power to the unit.
- Close the water supply valve.
- Allow the unit to cool down.
- Open the humidifier cabinet (see *Figure 6*).
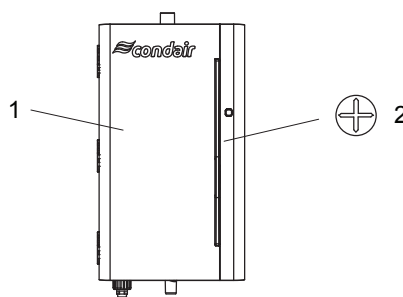
Figure 6 - Door panels

| 1 | Plumbing door | 2 | Electrical door. |
| | | | Note: Access requires an open plumbing door and Phillips screw driver. |

Recommended tools for maintenance:

– Phillips (+) and flat-head (–) screwdrivers

– Adjustable wrench

– Needle-nose Pliers

– Small plastic brush or damp cloth (for cleaning)
  Do NOT use abrasive materials (ex. metallic bristles) or harsh cleaning agents.

Note: The cylinder may contain residual water and scale that may spill.

	DANGER!
	Risk of electric shock!

The unit is mains powered. Using the On/Off switch on the humidifier to shut down the unit will NOT shut off power to the control cabinet. Live parts may be exposed when the access panels or doors are removed. Touching live parts may cause severe injury or even death.

Prevention: Before performing any work inside the humidifier, shut down the humidifier properly, as described in *"Shutting Down" on page 11*. The unit must be connected to the mains only after all mounting, installation, and maintenance work has been completed, checked for correct workmanship, and the access panels/doors are closed and fastened securely. Secure the unit against accidental power-up.

Only authorized personnel should perform maintenance or repairs on the unit.

	WARNING!
	Risk of severe burns from contact with hot surfaces!

The components in the humidifier plumbing cabinet get very hot during operation. Contact with hot surfaces can result in severe burns.

Prevention: Avoid contact with hot surfaces. Shut down the humidifier and allow components to cool down before working on the humidifier. Refer to *"Shutting Down" on page 11*.

	WARNING!
	Risk of severe burns from contact with hot steam vapors!

The humidifier unit uses hot steam vapor for humidification. Bare skin in contact with hot steam vapor can result in severe burns.

Prevention: Never perform any work on the steam system (including the steam lines, steam distributors, etc.) while the humidifier is operating. Shut down the humidifier and wait for the components to **cool down** before working on the steam system. Wear appropriate personal protective equipment when working near hot vapors. Refer to *"Shutting Down" on page 11* before fixing any leaks in the steam system.

Replacing the Cylinder

IMPORTANT! Ensure that the new cylinder is free of damage or defects.
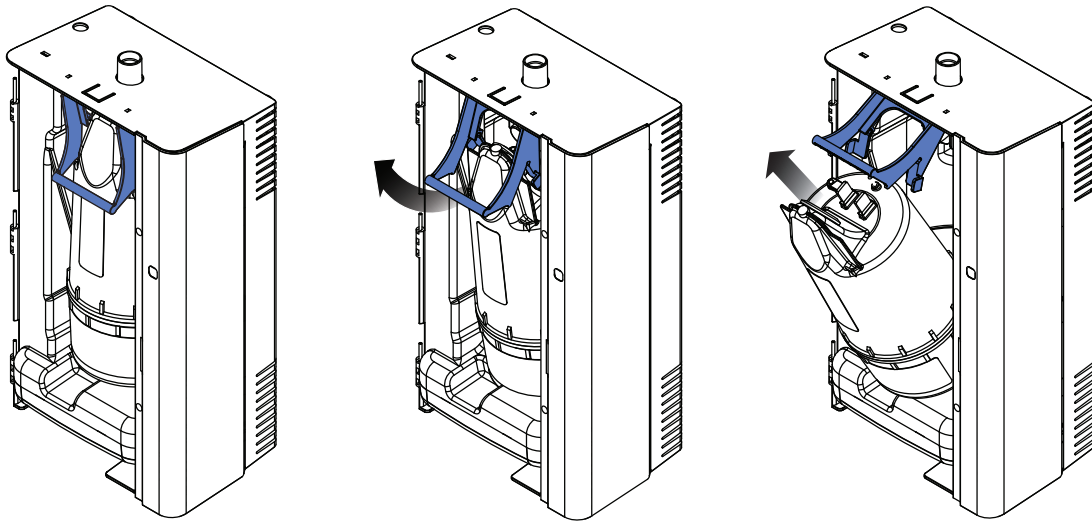

Figure 7 - Removing the Cylinder (front panel removed for clarity)

Replacing the Cylinder: Warning/Fault

When the cylinder needs to be replaced, you will receive a notification on the Condair HumiLife and on the humidifier (⚠ and 🔧). If the cylinder is not replaced within roughly 3 weeks, the warning notification upgrades to a fault notification and the humidifier stops steam production.

Replacing the Cylinder:

1. Turn off the humidifier and allow the cylinder to drain. Close the water shut-off valve. Allow the cylinder to cool down. Use the electrical disconnect to remove power from the unit.

2. Open the door to the humidifier.

3. Pull the lever upwards. The lever will push the cylinder out.

4. Pull the cylinder out of the humidifier. Caution: some left over water may spill.

   • The plumbing cover may now be removed, if necessary, to gain access to the hoses, fill cup, fill valve, and drain valve. Refer to *"Removal and Installation of the Plumbing Cover" on page 23*.

5. Return the plumbing cover (if removed), then replace the cylinder with a new one. Put the new cylinder into the humidifier and secure it with the lever.

6. Shut the door, restore power, and open the water supply. The unit will go through a new cycle and will automatically detect a new cylinder.

Note: It takes some time for the unit to verify a new steam cylinder. Allow some time for the humidifier to regain normal humidification capacity.

If you still receive an warning or error for the new cylinder; reset the error (press and hold the power button for 3 seconds). If the problem still persists, you may have a defective steam cylinder.

Removal and Installation of the Plumbing Cover

Removing the plumbing cover:

1. Remove the steam cylinder according to the information in section *"Replacing the Cylinder" on page 22*.

2. Undo the two screws on the control compartment cover and remove the cover.

3. Use a flat-blade screwdriver to press in the two tabs that secure the cover of the internal water system to the housing of the Condair RH. One tab is on the top and one is on the separating plate of the control compartment.

4. Pull out the top of the cover, then lift the cover out of the humidifier housing.
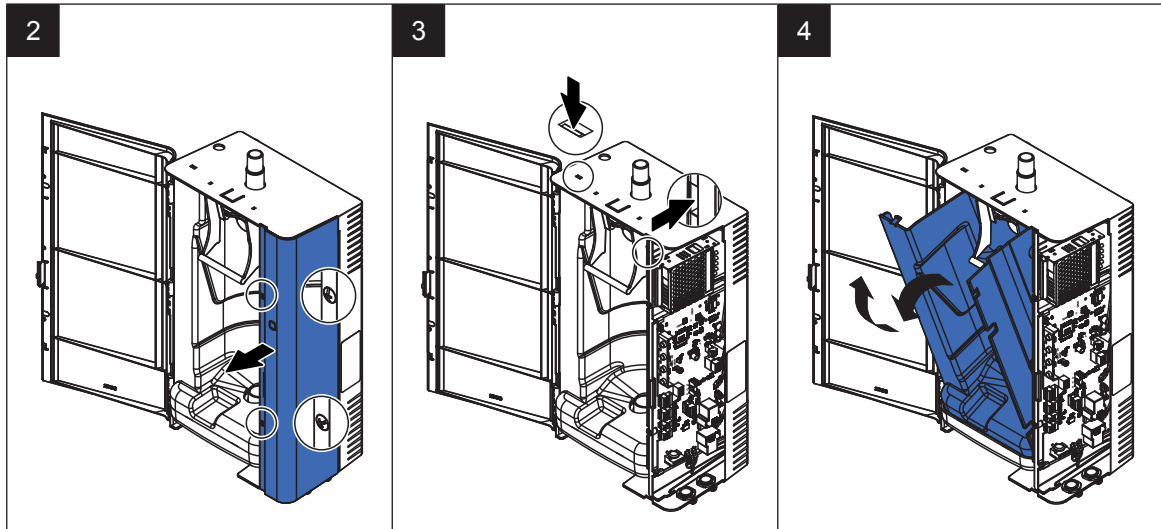
Installing the plumbing cover:

The cover of the internal water system is **installed** in the reverse order of the removal. When installing, make sure that the two tabs on the cover correctly snap into the slots in the housing.

Cleaning the Drain Valve and GFCI Plate

Scale from the spent cylinder may have fallen into the drain valve and may prevent proper operation. Scale may also accumulate on the Ground Fault Circuit Interrupter (GFCI) plate. Clean the drain valve and GFCI plate when substantial scale buildup is evident, especially if the scale prevents the drain valve from sealing.

The drain valve and the GFCI plate must be removed and disassembled for it to be properly cleaned.

Removing the drain valve and the GFCI plate:

1. Disconnect the plug connection of the connection cable on the drain valve.
2. Disconnect the hose from the connector on the drain valve.
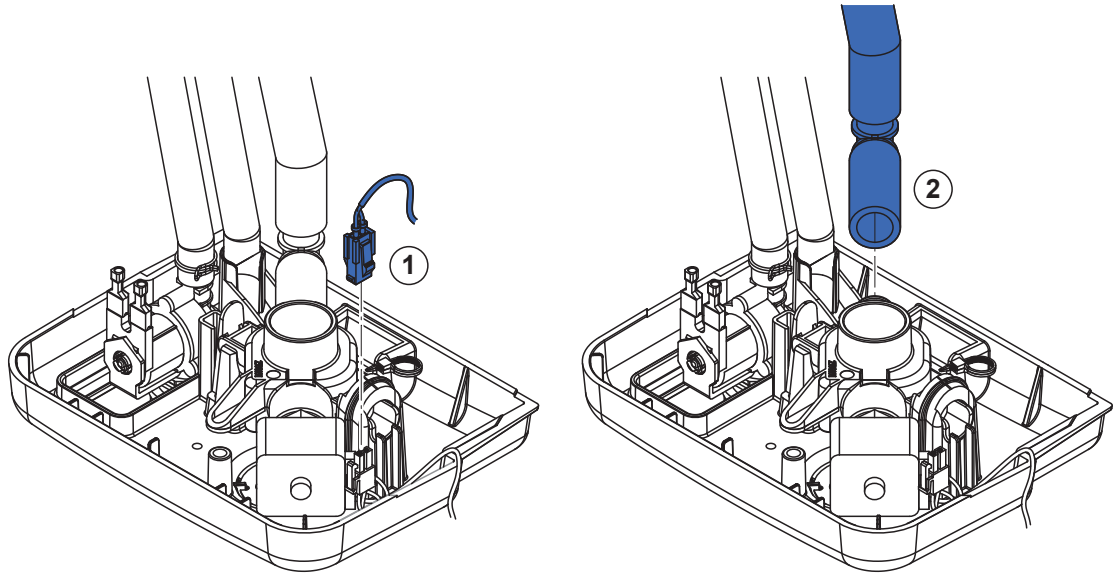

Figure 8 - Unplug the connection cable and pull off the hose

3. Push the tab that secures the left side of the drain valve into the drain pan to the left and lift the drain valve.
4. Pull the drain valve upwards at an angle from the holder in the drain pan.

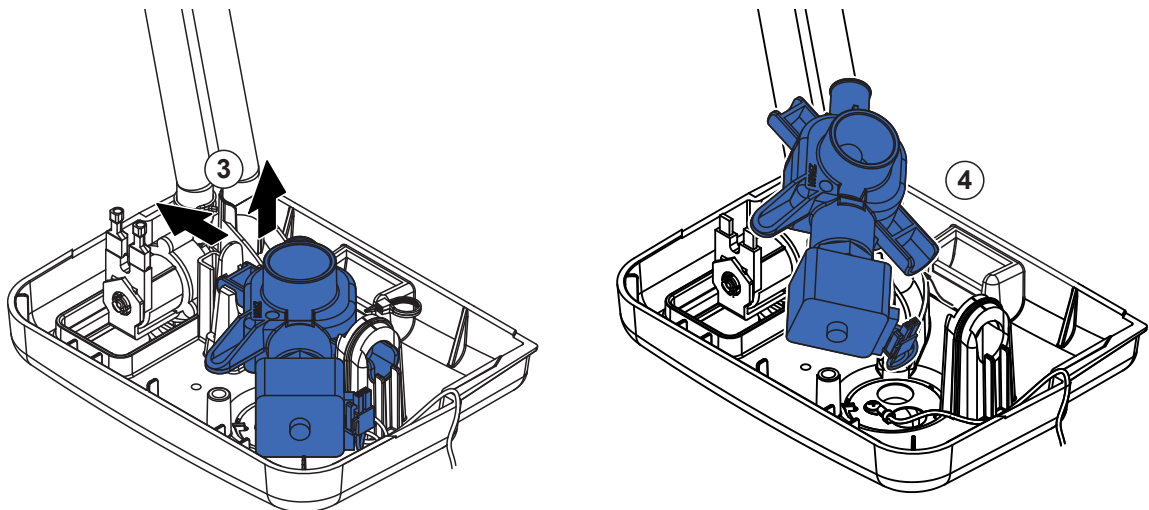*Figure 9 - Removal of the drain valve*

5. Remove the screw and ground wire on the GFCI plate and lift the GFCI plate.
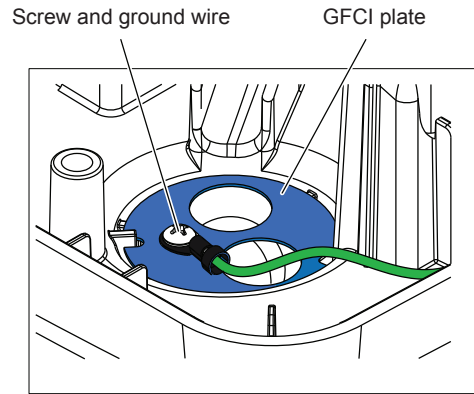
Screw and ground wire   GFCI plate

Figure 10 - Removal of the GFCI plate

Reinstalling the drain valve and the GFCI plate:

After cleaning (see following paragraphs) the GFCI plate and the drain valve are **installed** in the reverse order of the removal.

Cleaning the GFCI plate:

Clean off the accumulated scale. Use a descaling agent if the scale is too difficult to remove.

Cleaning the drain valve:

Note: The drain valve contains small parts (including a spring) and must be disassembled to clean. Disassemble and clean the valve at a suitable location. Do not lose any of the drain components.
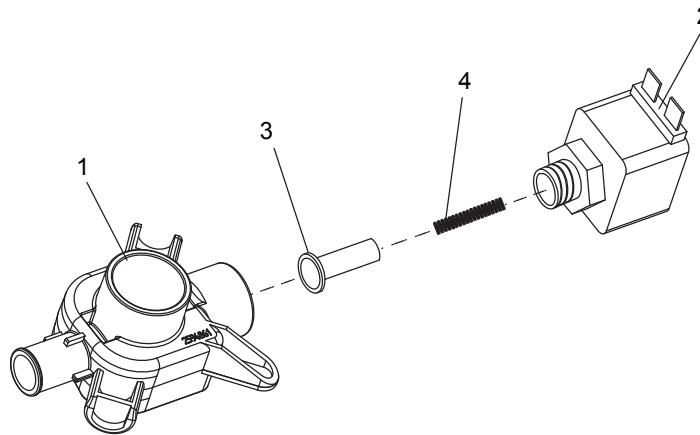

Figure 11 - Drain Valve Components

1	Drain valve body	3	Plunger
2	Solenoid (note orientation)	4	Spring

1. Disassemble the drain valve:

    a. Remove the solenoid from the drain valve using a Phillips screwdriver (+).

    b. Pull the solenoid from the core.

    c. Unscrew the core (counter clockwise) from the drain valve body with a wrench.

    d. Carefully remove the actuator (contains the core, return spring, plunger, and plunger seal) from the drain valve body.

2. Clean the following components:

    • Plunger seal - use a plastic brush or damp cloth.

    • Drain valve body - rinse the valve body with cold water to remove any debris.

3. Reassemble the drain valve by following the above steps (1-a through 1-d) in reverse. Before reassembly, ensure the following:

    • The core is first threaded back onto the drain valve body by hand, until it is fully threaded. Once fully threaded, tighten the core an additional 1/4 turn with a wrench.

    • The hose(s) connecting the fill cup to the drain valve is tucked back in the cabinet to create space for the cylinder.

Cleaning the Fill Valve

The fill valve contains a water filter. Debris can restrict water going to the cylinder or the drain valve. The frequency of cleaning the fill valve filter is dependent on supply water quality, and should be performed at the end of each humidification season.

Note: Cleaning the filter may be performed without removing the fill valve, but removal is recommended.
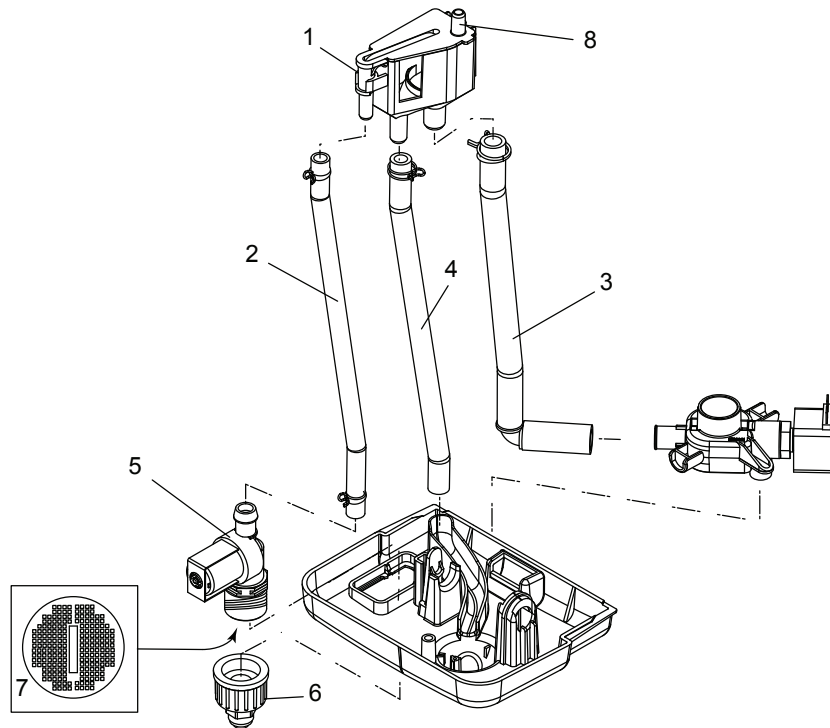

Figure 12 - Internal Plumbing Components

1	Fill cup	5	Fill valve
2	Hose, fill valve - fill cup	6	Quick connect fitting
3	Hose, fill cup - cylinder (via drain valve)	7	Filter, fill valve
4	Hose, fill cup - drain pan (overflow)	8	Condensate return cap

Removing the fill valve:

1. Remove the cylinder and plumbing cover. Remove the spade connectors from the fill valve.

2. Twist off the quick connect fitting from the fill valve, and slide the fill valve towards the front of humidifier, then lift the valve.

Cleaning the fill valve filter:

1. Remove the quick connect fitting from the fill valve and remove the fill valve filter using needle-nosed pliers.

2. Rinse the filter with water then use a damp cloth or soft brush to clean the filter.
    Do NOT use soap or harsh chemicals.

3. Return and secure the filter to the fill valve.

4. Re-attach the quick connect fitting by hand, and wrench-tighten 1/4-turn at the end.

5. Return the fill valve (if removed).

Cleaning the Fill Cup

The fill cup distributes water from the supply to the cylinder and drain water cooling process. The fill cup should not normally require maintenance or replacement, however, debris may reside inside the fill cup if the supply water is not filtered, or the fill cup may be damaged.

Note: Disconnect the hoses to provide easier access to the tab.
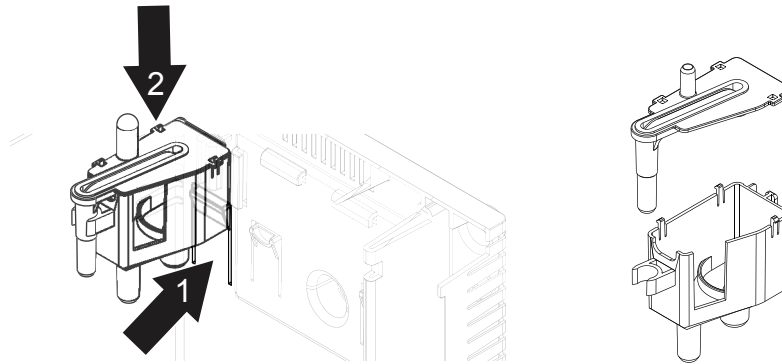
Figure 13 - Removing the Fill Cup

Removing and cleaning the fill cup:

1. (Recommended) Remove hoses and clamps from the fill cup. Refer to *Figure 12 on page 27*.
2. On the inside wall of the humidifier cabinet, there is a tab securing the fill cup in place. Push the tab behind the fill cup while pulling the fill cup down.
3. Open the fill cup by pushing in the tabs on its side and lifting the cover.
4. Remove any scale build-up or debris, and rinse the fill cup with clean water.

Troubleshooting

General Troubleshooting

Condensation on the inside of windows.

Humidity is set too high	• Reduce the humidity setting on the humidifier.
Seals around window are broken	• Seal any gaps between the window pane and the window.

Humidifier appears to have no power and nothing happens when the On/Off/Drain button is pressed.

Electrical disconnect is engaged	• Disengage the electrical disconnect to allow power to the humidifier.
Incorrect wiring	• Ensure all high-voltage (mains) wires are connected. Check with a multimeter to register the connection between end points. • Check if the switch mode power supply is functional. • Check if the 'heart beat' LED on the PCB is lit.

Humidifier will not humidify or is not reaching the relative humidity setpoint.

Humidity sensor is not working	• Check the voltage on the humidity sensor. If the Condair sensor (supplied) is being used, **10 V indicates no demand, and 0 V indicates full demand**. If another control device is used, refer to the manual of that device. • Check the humidity setpoint on the humidifier. Ensure that the setpoint is higher than the sensed humidity.
Humidistat terminals are not closed	• Check the voltage.
Safety loop open	• Check if there is 24 VAC at terminal "SC" (Safety Chain). • Check wiring and operation of On/Off devices connected to "SC" terminals.
No demand signal	• Check the voltage between terminals GND and HUM. For demand configuration 20% of full-scale signal must be present for the humidifier to start.
Low conductivity water	• The cylinder includes a salt tablet that allows quick boil when run for the first time on low conductivity water. The salt tablet will be consumed and washed away after the first 20 minutes of operation. • A minimum inlet water conductivity of 125 µS/cm is required for continuous operation. • Ensure the supplied water is NOT reverse osmosis or deionized water. Clean tap water (or potable) is acceptable.

No airflow in the ducts	• Check that the humidifier fan enable, terminals RF and GF, are properly wired to the furnace.

Liquid water is found in the duct.

Installation clearances not observed	• Outlets of the distributor tube may be too close to the duct walls. Ensure that clearances are observed. Relocating the distributor may be required.
Air supply temperature too low or humidity too high	• Indicates the design conditions have changed. Contact your Condair representative.
Steam line not installed correctly	• Ensure that the distributor is oriented correctly, and the steam lines (if used) are sloped correctly: – minimum 15° for steam moving upwards. – minimum 2° (below horizontal) for steam moving downwards. • Ensure the steam line is insulated. • Ensure that the steam holes on the distributor are facing up. • Ensure that the steam distributor is installed in the supply duct.

Resetting Faults and Warnings

Error and warning codes may be reset (active faults cleared), however, if the issue has not been resolved, the warning or error code will return.

To reset the error/warning:

1. Press and hold the power button for 4 seconds.

Error and Warning Codes

Warning and error messages triggered by the control software in the humidifier are shown below.

Error/Warning LED Interpretation

⏻	📶	💧	⚠	Description
Blinking				Security loop is open (W2).
Fading				(Red/Blue) Standby mode. Activate the humidifier through your app and ensure the setpoint is between 40-60%.
Red				Unit is off (but still powered). Turn on the humidifier with the power button.
	Red		Yellow	No WiFi connection (W6).
		Yellow		Cylinder end of life approaching expiry (W5).
		Red	Red	Cylinder end of life reached (E5).
		Red	Red	Invalid cylinder installed (E6).
			Yellow	Control sensor broken (W3).
			Yellow	Limiter sensor broken (W4).
			Yellow	WiFi signal timeout reached (W6).
			Red	Over current detected (E1).
			Red	Inlet/Drain problem (E2).
			Red	No current detected (E3).
			Red	PCB error (E4).

Fault indication in the HumiLife app

If a malfunction occurs, the yellow warning triangle appears on the home screen of the HumiLife app. If you tap on it, a window appears with the error message (warning or error), the error code and information on how to remedy the malfunction.
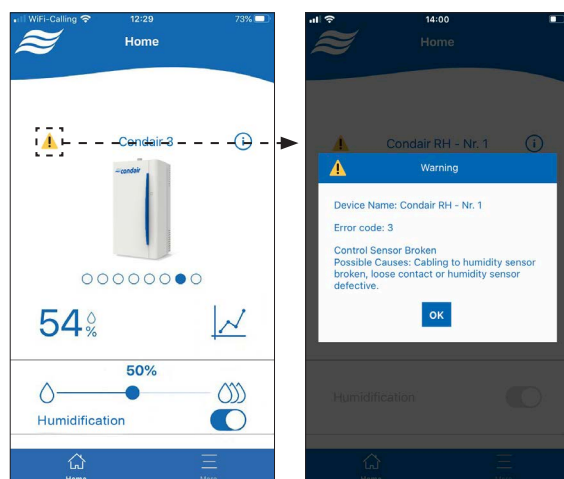
Errors / Faults

Faults indicate an error with the humidifier operation. The control software will automatically attempt to resolve any issues with the unit. However, if an issue affecting the proper functioning of the unit persists, a fault is created. When a fault is detected, the humidifier will stop operation (unit drains and will remain in standby mode).

E1 Excess Current

Standard: Current detected greater than 130% of max allowable current.

Auxiliary: Current detected surpasses the default threshold (set by the current sensor).

⚠️ - red

If the current detected remains greater than 130% (of the max current load) for an extended period of time, the unit will stop operation.

If the auxiliary current exceeds the threshold defined by the current sensor while the heating circuit is energized, the unit will stop operation.

E2 Inlet or Drain Problem

Inlet is active (much) longer than expected.

⚠️ - red

This fault may occur if the inlet valve is activated for an unexpectedly long time. Typically, the software automatically attempts to resolve the issue. During the self-correcting , the unit will attempt to pulse the drain valve repeatedly while witholding voltage to the inlet valve and heating circuit.

However, after 2 (default) failed attempts and if the problem persists, this fault will appear and the unit will stop humidification.

This fault indicates an issue with one or more of the following:

• Low water conductivity. The two long electrodes in the cylinder come into contact with the water. As the water level increases, the amp draw increases. For low water conductivity, even as the water level increases, the amp draw would not be sufficient for the control software to stop the inlet valve. Water may rise until it reaches the high water sensor. Add a small amount of salt (1/4 teaspoon) to the cylinder and restart the unit. Ensure wiring to the electrodes (at the top of the cylinder) are installed correctly.

• Drain valve is leaking or clogged. This causes excess draining and sensors in the cylinder will not detect a water level high enough to shut off the inlet valve. Ensure the drain line and drain valve are free of obstructions. Clean the drain valve, or replace if necessary.

• High system back pressure. Ensure that the steam line does not have any kinks or low points (where condensate will collect) that may cause back pressure to form.

• F2 fuse blown: If the unit is filling water continuously, check if the fuse is blown or not.

E3 No Current Detected

No current is detected in the water when it should.

⚠ - red

This fault occurs if the high water level sensor has been triggered while the unit is in standby mode (on, but not humidifying). This condition should not exist while the heating circuit is activated.

The fault may also appear if the water level was high enough to trigger the high water level sensor, but the (long) electrodes do not detect a current. This should not exist because if there is enough water to trigger the water level sensor, there should be some current draw at the electrodes.

This fault indicates an issue with one or more of the following:

* Heating circuit active (should not be on while in standby).
* Sensors detecting the water level defective or poorly installed.
* Electrodes are improperly installed or defective.
* Inlet filter is clogged. Clean the filter in the supply water valve.

E4 PCB Fault

Unexpected current detected.

⚠ - red

The cylinder fuse is monitored throughout the operation of the humidifier. It is required to supply the cylinder with heating voltage. If the fuse remains "on" 5 seconds after the heating circuit de-energizes, a PCB Fault is created and the unit stops humidifying.

This may indicate a problem with the fuse or the heating circuit.

E5 Replace Cylinder

The cylinder is expired and the unit stopped humidifying.

⬡ - red ⚠ - red

The cylinder electrodes are covered with scale and the humidifier cannot meet demand.

See also W5.

E6 Invalid Cylinder Installed

The humidifier cannot verify the installation of the new cylinder.

Polarity of L1 and N to the circuit board is reversed.

⬡ - red ⚠ - red

The cylinder contains a fuse that opens when sufficient heating (from the heating circuit) is applied. The humidifier software will validate the installation of a new cylinder by detecting the fuse upon installation (within the first 30 seconds), and then checking if the fuse "opens" within 50 running hours. If the system sees the fuse, but it does not "open" within this time period, this error is created. This fault will cause the humidifier to shut down.

To override this, ensure that the installed cylinder has been approved by Condair. Next, reset the fault (press and hold the power button for 4 seconds).

Warnings

Warnings do not stop the operation of the humidifier. Care should be taken to resolve the warning messages before they develop into faults.

W1 Over Current detection

Current detected remains greater than 115% of default max current.

If the current is greater than 115% of the max output current/ full load (but less than 130%), the heat circuit deenergizes and restarts again.

During the restart, the drain valve will pulse on and off while the fill valve and heating circuit remain inactive. After a brief pause, the unit will resume normal operation and the cylinder will fill with supply water. This will reduce the current in the water

Conductivity of the water in the cylinder is too high.

This warning may indicate poor filling and draining (blowdowns) that would normally reduce the conductivity of the water. This warning may also indicate the presence of excess minerals in the supply water. Evidence may include the presence of scale in the drain line, drain valve, or in the cylinder.

Ensure the drain line is not blocked, and the drain valve is functioning properly. Ensure that the water supply is within an acceptable range, 125-1250 µS/cm.

Spent cylinder undetected.

The cylinder may be spent, and not detected by the software. Check for excessive scale, and replace the cylinder if necessary.

Cylinder is filling too quickly.

Check the fill valve for defects, and replace if necessary.

Back pressure present.

Ensure the steam line has no low points or kinks, where condensate may form.

W2 Security Loop Open

External controls not wired properly.

⏻ - blinking quickly

Humidification disabled until the following conditions are met:

- Limiter signal detected and greater than minimum.
- Security Loop closed.
- Air proving switch closed.
- No system faults.
- No system lockouts.

W3 Control Sensor Broken

Control (demand) sensor input (transducer or WiFi) is broken or not wired properly.

⚠ - yellow

For a transducer input signal, this warning will appear if the value of the transducer or WiFi signal is 5% of the full signal.

Check the connections between the humidifier and its sensors. This warning may indicate improper wiring, or a blocked wireless signal. Reduce the length of wire between the humidifier and the sensor(s), or extend the range of your wireless device, or remove obstructions between the humidifier and wireless access point.

W4 Limiter Sensor Broken

Limiter sensor input (transducer or WiFi) is broken or not wired properly.

⚠ - yellow

For a transducer input signal, this warning will appear if the value of the transducer or WiFi signal is 5% of the full signal.

Check the connections between the humidifier and its sensors. This warning may indicate improper wiring, or a blocked wireless signal. Reduce the length of wire between the humidifier and the sensor(s), or extend the range of your wireless device, or remove obstructions between the humidifier and wireless access point.

W5 Replace Cylinder Imminent

The cylinder will soon be expired.

⬡ - yellow ⚠ - yellow

The unit will continue to run for approximately one-three weeks once this warning appears, depending on the condition of your water. After this period, warning W5 will upgrade to fault, E5 Replace Cylinder, and the unit will not operate.

When ordering the replacement cylinder, ensure that the model number is correct.

Replace the cylinder then reset the warning or fault status.

W6 WiFi Signal Timeout

No WiFi signal received.

📶 - yellow ⚠ - yellow

This warning appears when the humidifier is set to receive a WiFi control signal, but a WiFi signal is not received. The timeout occurs if this period is greater than 300 seconds.

Ensure that your WiFi set-up is working correctly, and is not interrupted by any obstructions.

Restart the humidifier, turning it off and then on again.

Reconnect the humidifier to your device. You may need to remove the device first, and then add it again.

- Press and hold the power button for 5 seconds.
- On the HumiLife app, press Add device.

Decommissioning

If the Condair HumiLife RH needs to be replaced or removed from service for disposal, strictly follow the instructions in this section.

Safety

Refer to *"Cautions and Warnings" on page 2*.

Remove the unit from service for disposal, or long-term storage, as follows. Use a qualified service technician.

1. Disconnect the humidifier from the power source.
2. Disconnect the control signal inputs (including any power and security loop connections) from the terminal strips in the humidifier.
3. Disconnect the water and drain connections to the humidifier. Empty out all fluids.
4. Remove the Condair HumiLife RH from its mounting surface.
5. If the unit is to be put in long-term storage, store the unit in its original packaging inside a protected area.

Notes

Notes

Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warranty

Condair Inc. and/or Condair Ltd.(hereinafter collectively referred to as THE COMPANY), warrant for a period of five years from the date of purchase by the customer, that THE COMPANY's manufactured and assembled products, not otherwise expressly warranted, are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.

THE COMPANY's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY's factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.

The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.

THE COMPANY's parts or materials that are considered consumables, including but not limited to: cylinders, filters, nozzles, membranes, media, gaskets, O-rings, etc. are NOT covered by the warranty.

THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase and by a contractor approved by THE COMPANY to install such equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for damage resulting from freezing of the humidifier, supply lines, drain lines, or quality of the water used.

THE COMPANY retains the right to change the design, specification and performance criteria of its products without notice or obligation.

THE COMPANY's limited warranty on accessories, not of the companies manufacture, such as controls, humidistats, pumps, etc. is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.