



Guardian Angel™ Ultrasonic Cart Owner's Guide

Guardian Angel™ Ultrasonic Cart Owner's Manual

1. Product Overview

Thank you for purchasing the Guardian Angel™ Ultrasonic Fog System. The Guardian Angel is a mobile, multi-function fogging platform designed for use in the winemaking, brewing, and distillation industries. The system provides precise environmental control and controlled chemical dispersion from a centralized, automated cart-based solution.

2. Safety Information

Read and understand all safety information in this manual before installing or operating the Guardian Angel™ Ultrasonic Fog System. Failure to follow these instructions may result in personal injury, chemical exposure, equipment damage, or electrical hazards. The Guardian Angel is intended for industrial and commercial use only by trained personnel.

WARNING – Chemical Compatibility:

Mixing chemicals may result in hazardous reactions, toxic vapors, reduced effectiveness, or damage to internal components. FreshTech Solutions assumes no responsibility for injury or damage resulting from the use of chemicals. Always consult chemical labels before introducing chemicals to the Guardian Angel Batch Adjunct Mix Tank.

WARNING – Chemical Mixing:

Do not mix different chemical products or adjuncts unless compatibility has been confirmed by the chemical manufacturer. Residual chemicals may remain within internal components if the system is not flushed between uses.

Personnel Safety:

Adjunct Batch Mix (ABM) operation should only be performed when no personnel are present in the treatment area unless explicitly permitted by the chemical manufacturer. Always follow all SDS requirements including PPE, ventilation, and re-entry times.

WARNING – Electrical Safety:

The Guardian Angel must be connected to a properly grounded, dedicated electrical circuit. Do not operate the system with damaged cords, loose connections, or improper grounding. Disconnect power before servicing. Electrical service should only be performed by qualified personnel.

3. Component Overview

- Mobile Cart Assembly – Heavy-duty cart with locking casters supporting all system components.
- Ultrasonic Fogger Assembly – High-output fogging unit for BRH and ABM operation. Refer to the Ultrasonic Fogger Manual included in this document for additional information.
- Reverse Osmosis (RO) Water Treatment System – Multi-stage purification of incoming tap water. Refer to the RCCP Series Reverse Osmosis System Manual included in this document for additional information.
- Accumulator / Reservoir Tank – Stores purified water prior to fogging.
- Mix Tank Pump – Draws solution from an external mix tank during ABM operation.
- Draft Hose Assembly – Flexible hose with weighted intake for batch mix solutions.
- *Control Interface – Operator controls for mode selection and output adjustment.*
- Humidity Sensor – Provides feedback for automated BRH operation.
- Electrical Power System – Locking power connector and internal electrical distribution.
- Water Inlet Connection – Labeled 'Tap Water In' for cold water supply.
- Drain Connection – Labeled 'To Drain' for RO reject water discharge.
- Optional Features – Ozone modules, automated flush cycles, and timers (if equipped). Refer to ultrasonic nebulizer operations manual for more information.

4. Operating Mode Summary

Feature / Parameter	BRH Mode (Barrel Room Humidification)	ABM Mode (Adjunct Batch Mix)
Primary Purpose	Maintain controlled relative humidity	Disperse approved chemical or adjunct solutions
Typical Application	Barrel rooms, aging facilities	Facility sanitation or treatment
Water / Solution Source	Purified tap water via RO system	External batch mix tank
Humidity Sensor Use	Enabled	Enabled
Control Mode	Sensor-based automatic control	Manual Mode (recommended)
Fog Output Control	Automatically adjusted	To be set at 100% output, confirm setting before operating
RO System Operation	Active	Not used
Mix Tank Pump	Off	On
Draft Hose Use	Not used	Required
Ozone Cycle	Preset for 5AM, Can be adjusted per Ultrasonic Nebulizer Manual. System does not operate during Ozone Cycle.	Preset for 5AM, Can be adjusted per Ultrasonic Nebulizer Manual. System does not operate during Ozone Cycle.
Hourly Flush Cycle	May remain enabled	Recommended OFF during operation
Personnel Presence	Permitted	Not permitted unless chemical allows
Post-Operation Flush	Not required	Strongly recommended
Typical Run Time	Continuous / cycles per humidity settings	Timed batch operation

5. Operating Instructions

5.1 Barrel Room Humidification (BRH) Mode

1. Position the Guardian Angel cart in the desired location and engage all locking casters.
2. Connect a dedicated cold water supply hose to the inlet labeled "Tap Water In."
3. Attach a drain hose to the fitting labeled "To Drain" and route to an approved floor drain.
4. Connect the system to a dedicated, grounded 120 VAC, 20-amp electrical receptacle.
5. Turn on the cold water supply.
6. Using the Ultrasonic nebulizer controller, set the desired humidity set point. System must remain set to 0-10V at all times, refer to Ultrasonic Nebulizer Manual for more information. This setting is factory set and should not need to be adjusted manually.

Notes: Initial startup may require up to 15 minutes for the reverse osmosis system to generate sufficient purified water to begin fogging. Expect a steady draining of reject water, this is normal operation.

5.2 Adjunct Batch Mix (ABM) Mode

1. Prepare an appropriately sized mix tank and position it near the Guardian Angel cart.
2. Dilute the selected chemical or adjunct according to the manufacturer's label instructions.
3. Place the weighted intake end of the draft hose into the mix tank.
4. Verify the system is connected to a dedicated electrical receptacle.
5. Set the Ultrasonic nebulizer controller to Manual Mode and adjust output to 100%.
6. Turn the switch labeled "Mix Tank Pump" to the ON position to begin fogging.
7. Use an external timer to shut off power before the mix tank is emptied to prevent pump damage.

6. Troubleshooting

The following table outlines common operational issues and recommended corrective actions. If issues persist, discontinue use and contact FreshTech Solutions technical support.

- No fog output: Verify power, water supply (BRH), mix tank level (ABM), and controller settings.
- Fogger shuts off unexpectedly: Check control mode, sensor settings, and flush/ozone cycles.
- Pump not drawing solution: Ensure draft hose is submerged and pump is not air-locked
- Low humidity control accuracy: Inspect humidity sensor placement and review controller settings to adjust desired humidity levels
- System alarms or errors: Refer to Ultrasonic nebulizer manual for fault codes
- Chemical odor persists: Flush system thoroughly with clean water

7. Limited Warranty & Limitation of Liability

FreshTech Solutions warrants the Guardian Angel™ Ultrasonic Fog System to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of original purchase.

This limited warranty applies only to the original purchaser and covers repair or replacement, at FreshTech Solutions' discretion, of defective components. This warranty does not cover damage resulting from misuse, improper installation, use of chemicals not appropriate for fogging per chemical manufacture, failure to follow operating instructions, lack of maintenance, unauthorized modification, or normal wear and tear.

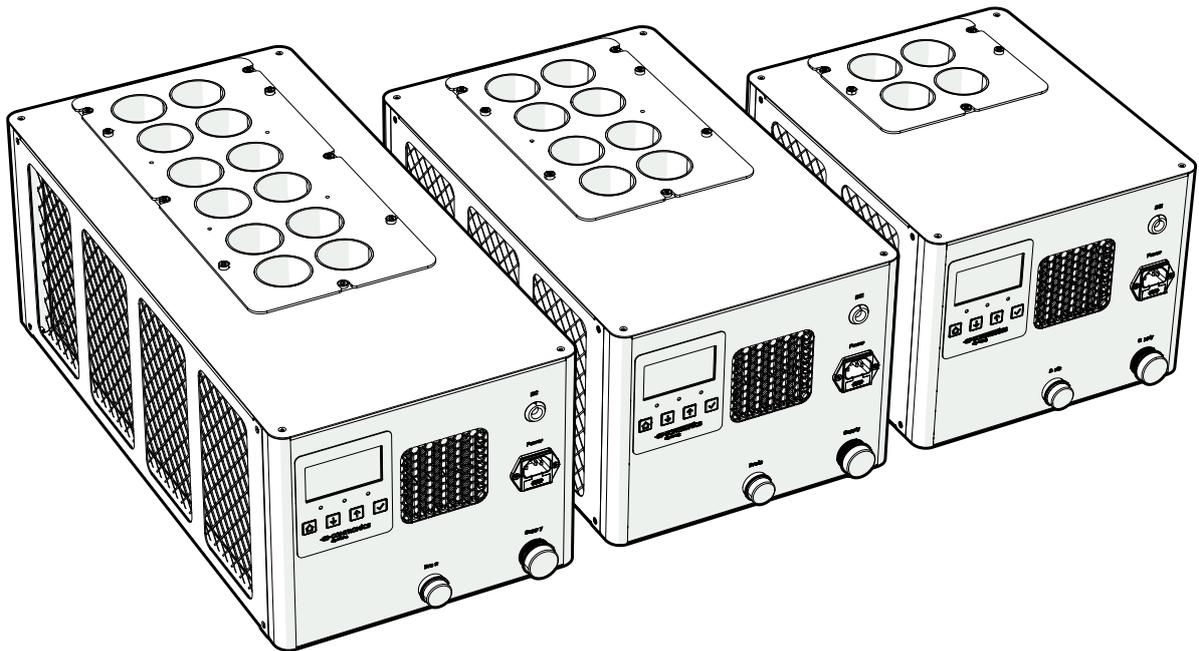
Limitation of Liability:

To the maximum extent permitted by law, FreshTech Solutions shall not be liable for any indirect, incidental, consequential, or special damages arising out of or related to the use or inability to use the Guardian Angel system, including but not limited to loss of product, revenue, or business interruption. FreshTech Solutions' total liability shall not exceed the original purchase price of the equipment.

Ultrasonic humidifier

EP DM4
EP DM8
EP DM12

EN - Original instructions



Preface

45% of all beautiful crops that grow on our fields ends up wasted. This not only puts a heavy burden on our environment, but is also unacceptable in a world with a growing population and so many mouths to feed.

Dry Misting is a technology that spreads tiny drops of water in the air, creating a thin layer of mist. As the mist evaporates, the humidity rises and the temperature drops naturally. When applied on fresh products, Dry Misting results in retaining freshness, colour and nutrients. Extending the shelf life of these products up to twice as long and hereby reducing food waste.

At Contronics, we are on a mission is to reduce food waste by applying Dry Misting throughout the entire fresh food supply chain.

Thank you for your purchase and joining us on this mission!

Copyright disclaimer

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Liability disclaimer

Contronics Engineering B.V. does not accept any liability due to incorrect installation, maintenance or operation of the equipment described in this manual, or due to the use of components that are not authorised by Contronics.

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1 About this document

This instruction manual contains the information necessary to properly and safely install, operate, commission and maintain your humidifier.

Store this manual in or near the humidifier for future reference.

1.1 Intended readers

This instruction manual is intended for the following readers:

- The owner of the humidifier.
- The technician that performs the installation, commissioning and/or maintenance of the humidifier.
- The operator of the humidifier.

Make sure you have fully read and understood the contents of this manual before installing, operating or performing maintenance on the humidifier.

1.2 Language

This instruction manual is originally written in English (GB) and has been translated to:

- Dutch (NL)
- French (FR)
- German (DE)

1.3 Symbols used in this manual

The following symbols are used throughout this manual to highlight important information:

Symbol	Definition
 WARNING	Indicates a hazardous situation that, if not prevented, could result in death or serious injury or serious damage to the product or the environment.
 CAUTION	Indicates a hazardous situation that, if not prevented, could result in moderate or minor injury or minor damage to the product or the environment.
 NOTICE	Indicates useful information that is not related to hazardous situations.
	Indicates a reference to another paragraph within this document.

Symbol	Definition
	Indicates a reference to tools or materials that are not provided along with the humidifier.
	Indicates a reference to an OEM manual or another external document.

1.4 Terminology

The following terms are used throughout this manual:

Term	Definition
Transducers	Components that convert an electrical signal to mechanical vibrations. Located on the bottom of the water reservoir.
Mist	The humidified air that is created by the humidifier.
Mist distribution system	The network of pipes through which the mist is transported to the area that needs to be humidified.
RO water	Demineralised water that has been filtered via reverse osmosis.

1.5 Product variations

This manual applies to the following humidifiers:

- EP DM4
- EP DM8
- EP DM12

All models have identical functionality. The models also vary in capacity, amount of air outlets and length.

NOTICE

The illustrations in this manual show the EP DM4, unless stated otherwise.

1.6 Warranty

A warranty period of one (1) year applies to this humidifier. The general terms and conditions of Contronics apply to this warranty.



The general terms and conditions of Contronics can be found in the appendix of this document.

1.7 Contact information-Distributor

FreshTech Solutions, Inc..
12607 NE 95th St. Suite A100
Vancouver, WA 98682
888-753-7374
Sales@freshtechsolutions.com
service@freshtechsolutions.com for troubleshooting

2 About the product

This chapter provides all the information necessary to understand the humidifier.

2.1 Intended use

The humidifier is intended to be used to generate and distribute humidified air with the goal of preserving fresh produce.

2.1.1 Unintended use

The humidifier is not intended for use in healthcare premises or other locations where the occupants or materials are adversely sensitive to airborne bacteria, viruses, dust, and debris.

The humidifier is not intended to be supplied with any other liquids other than water.

The humidifier is not intended for outdoor use.

NOTICE

Contronics does not accept liability for injury, product damage or reduced performance due to unintended use of the humidifier.

2.1.2 Other applications

The humidifier may be applied in other situations than described in this document.



Various information sheets and drawings about other applications can be downloaded from www.contronics.nl.

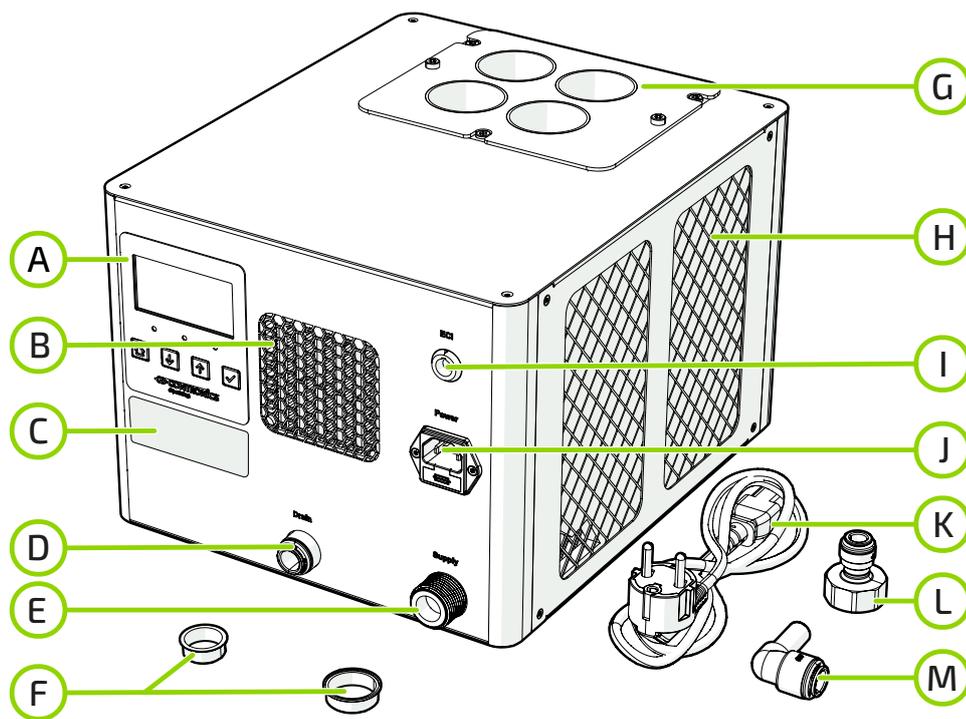
2.2 Description

The function of the humidifier is to generate and transport humidified air. This is done as follows:

- 1 Water is transported into an internal water reservoir. Excess water is discharged.
- 2 Air is sucked into the humidifier by a fan. The air passes through a filter to remove any pollution.
- 3 High-frequency vibrations (1.7 MHz) are generated by transducers at the bottom of the water reservoir.
- 4 Water droplets (1 – 3 μ) are ejected above the water surface.
- 5 Water droplets mix with the air.
- 6 Humidified air is transported out of the humidifier into the connected distribution system.

2.3 Main components

The humidifier consists of the following main components:



- | | | | |
|---|---------------------------------|---|-------------------------------|
| A | Display & controls | H | Air inlets & filters |
| B | Air outlet for internal cooling | I | External control interface |
| C | Label | J | Power cable socket (C13) |
| D | Water drain connection | K | Power cable |
| E | Water supply connection | L | Water supply connection piece |
| F | Water supply and drain covers | M | Water drain connection piece |
| G | Mist outlets | | |



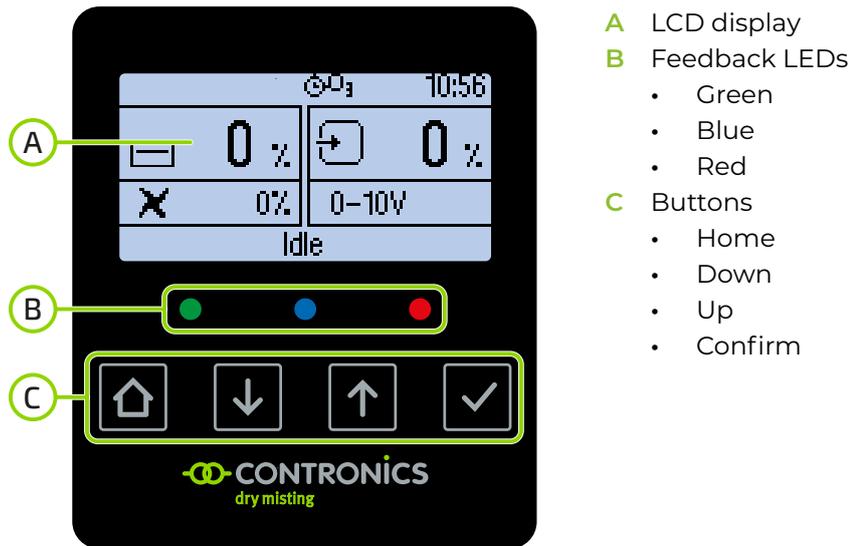
A detailed parts list of the humidifier can be found in §9.5.

2.4 Display & controls

The humidifier is controlled through a display, located on the front panel of the humidifier. The display allows you to:

- Monitor the performance.
- Change the performance settings.
- Receive error messages.

The display consists of the following components:



For instructions on how to use the display, see §7.2.

The feedback LEDs communicate information about the status of the humidifier:

Colour	Status	Meaning
Green	On	Flushing cycle is active.
	Blinking	Water reservoir is being filled.
	Off	Water reservoir is full.
Blue	On	Mist is being produced. The intensity of the LED indicates the set capacity of the humidifier: <ul style="list-style-type: none"> • Weak = Low capacity. • Strong = High capacity.
	Blinking	Ozone is being produced.
	Off	No mist or ozone is being produced.
	Off	No errors or warnings are shown.
Red	On	Error has occurred and is shown on the display.
	Blinking	Warning is shown on the display.
	Off	No errors or warnings are shown.

2.5 Ozone generator

The humidifier is equipped with an ozone generator. This component generates volatile ozone (O_3) gas that kills pathogens. The ozone is transported through the humidifier and distribution system to disinfect every component.

NOTICE

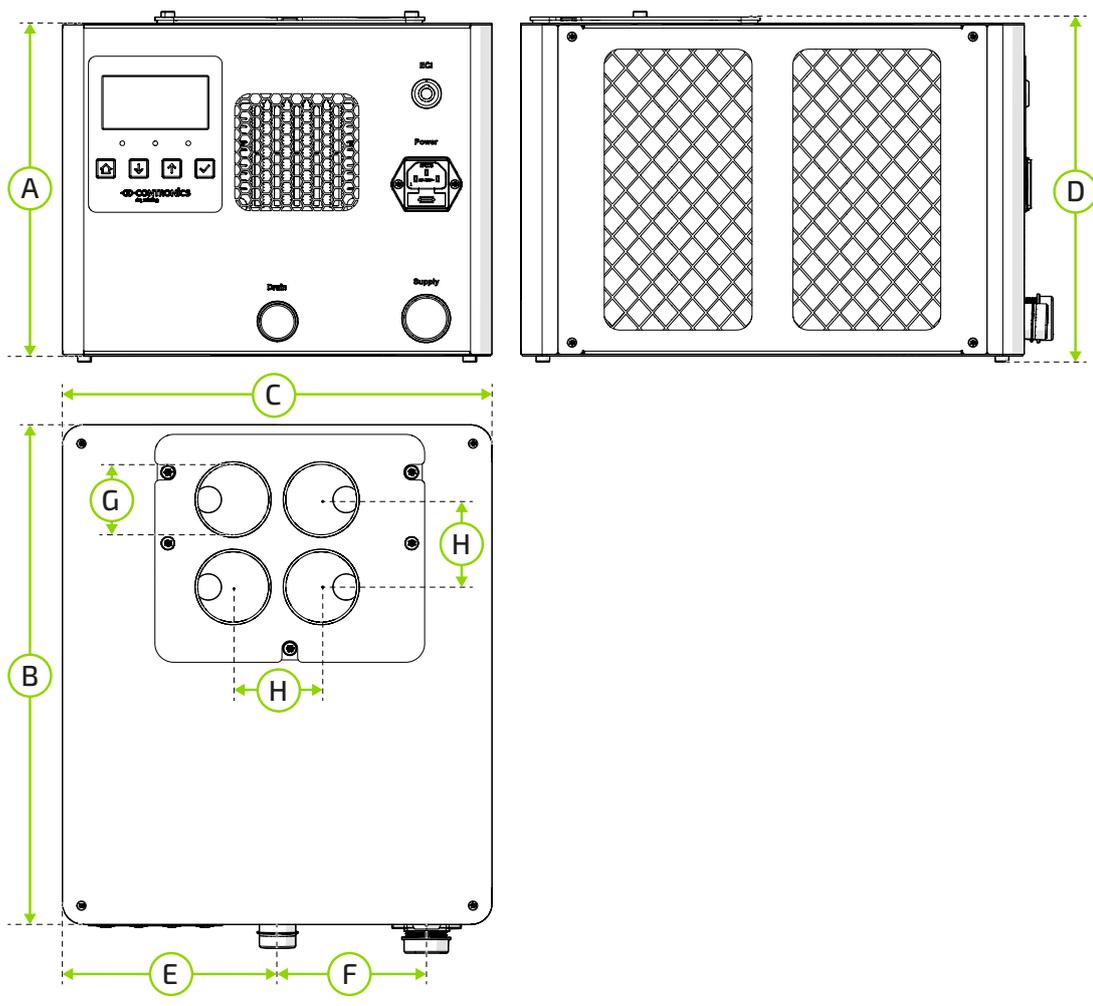
The amount of ozone generator modules varies per model:

- The EP DM4 has 1.
- The EP DM8 has 2.
- The EP DM12 has 3.



For instructions on how to program the ozone generator, see §7.4.

2.6 Dimensions



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
EP DM4	213	320	273	224.4	136.5	95	45.1	56
EP DM8	213	440	273	224.4	136.5	95	45.1	56
EP DM12	213	560	273	224.4	136.5	95	45.1	56

2.7 Label & specifications

Important specifications of the humidifier can be found on the label:



The label is located on the front panel, below the display (see §2.3).

2.7.1 Physical specifications

The physical specifications of the humidifier are shown in the following table:

Model	Unit	EP DM4	EP DM8	EP DM12
Weight	kg	10.2	13.6	17.1
Water reservoir volume	L	0.7	1.4	2
Water supply connection (outer diameter)	inch	¾ (BSP Male thread)		
Water drain connection (inner diameter)	inch	½ (Quick connection)		

2.7.2 Performance specifications

The performance specifications of the humidifier are shown in the following table:

Model	Unit	EP DM4	EP DM8	EP DM12
Capacity	kg/h	+/- 3.3	+/- 6.6	+/- 9.9
Air flow	m³/h	0 - 50	0 - 100	0 - 150
Supply voltage	VAC @Hz	110 - 240 @ 50 / 60		
Power consumption	W	210	400	600

Model	Unit	EP DM4	EP DM8	EP DM12
Fuse	AT	3.15	6.3	8.0
Water supply pressure	Bar	0.2 - 6	0.2 - 6	0.2 - 6
Water supply temperature	°C	1 - 25	1 - 25	1 - 25
Ambient temperature	°C	0 - 40	0 - 40	0 - 40

2.7.3 Service life

The transducers are the critical components that determine the service life of the humidifier. The expected service life of the transducers is 10,000 hours.

NOTICE

- Follow the instructions in this manual to maximise the service life of the transducers and the humidifier.
- If the transducers have reached the end of the service life, contact Contronics to replace these components.

2.8 Optional components

The following components of the humidifier can be included in the delivery upon request.

2.8.1 Coupling pieces

Various coupling pieces can be connected to one or more air outlets of the humidifier. These coupling pieces determine the air flow for each part of the distribution system.

The following coupling pieces are available:

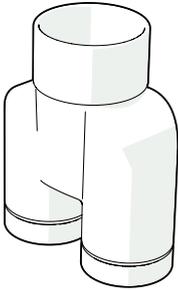
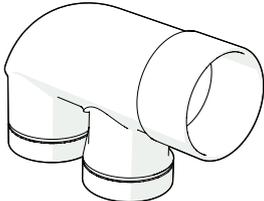
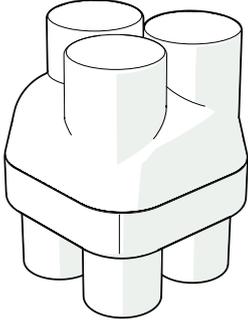
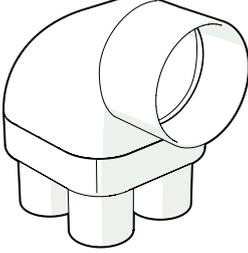
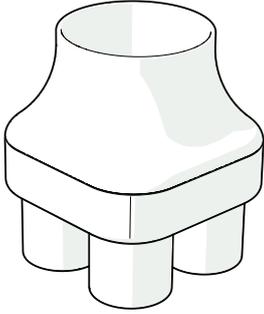
Image	Orientation	Air inlets	Air outlets	Outlet Ø	Part number
	Vertical	2	1	50 mm	MP DM-CON1X50V
	Horizontal	2	2	50 mm	MP DM-CON1X50H

Image	Orientation	Air inlets	Air outlets	Outlet Ø	Part number
	Vertical	4	3	50 mm	MP DM- CON3X50V
	Horizontal	4	1	80 mm	MP DM- CON1X80H
	Vertical	4	1	80 mm	MP DM- CON1X80V

2.8.2 Water filter unit

When a tap water supply is used, a RO water system must be installed between the water supply and the humidifier.

NOTICE

Reverse osmosis (RO) water filtration systems can be supplied by Contronics.

2.8.3 External control interface

An external controller or humidity sensor can be connect to the front panel of the humidifier (see §2.3).

NOTICE

For more information about the options of the external control interface, please contact Contronics.

2.9 Conformity

This humidifier carries the CE mark of conformity to the following directives:

- EMC directive: 2014/30/EU
- Low voltage directive: 2014/35/EU
- RoHs directive: 2011/65/EU
- WEEE directive: 2012/19/EU



The full declaration of conformity is available upon request. Please contact Contronics (see §1.7).

3 Safety

This chapter provides all the information necessary to safely interact with the humidifier.

3.1 Safety precautions

The following safety precautions are incorporated into the design of the humidifier to prevent dangerous situations:

- **Low water level shut-off system**
The transducers will overheat if they vibrate when there is no water in the reservoir. A float switch in the water reservoir is activated when the water level drops below the minimum height. The transducers are deactivated and an error message is shown on the display.
- **Overflow protection**
Overflow of the water reservoir may cause damage to the internal components of the humidifier. The water level in the reservoir is controlled by an overflow that is directly connected to the water drain.
- **Ozone generator back-up battery**
The timer of the ozone generator is powered with a non-rechargeable back-up battery (CR2032) when there is no mains power available.
- **Overheating protection**
When the internal temperature of the humidifier reaches the maximum allowed value (approximately 70 °C), a temperature sensor in the humidifier activates the overheating protection. The capacity of the humidifier is gradually reduced until the humidifier cools down.



For instructions on how to resolve overheating issues, see §8.3.

3.2 Personal protection

Equip yourself with at least the following personal protective equipment:

During installation	During maintenance
 Wear protective boots	 Wear protective gloves
	 Wear safety glasses

3.3 Qualification of personnel

All procedures described in this document must be performed by someone who:

- has fully read and understood the contents of this manual;
- has fully read and understood the applicable laws and regulations regarding workplace safety;
- is authorised by the owner.

In addition, the installation of the humidifier must be performed by someone who has completed the installation training offered by Contronics.

The humidifier may not be used by persons (including children) with reduced physical, sensory, or mental abilities, or persons lacking experience and knowledge, unless they are being supervised by a person responsible for their safety or have received proper instruction on the operation of the humidifier.

3.4 Safety instructions

The humidifier poses some residual risks when incorrectly installed, commissioned, operated or maintained. Follow the instructions in this section to prevent hazardous situations that may arise.

3.4.1 Transport & storage

⚠ CAUTION

Always transport the humidifier in the original packaging. Transporting the humidifier in any other packaging may damage the humidifier and void the warranty.

⚠ CAUTION

Risk of damage to internal components. Water residue may remain in the reservoir:

- Always transport or store the humidifier in upright position.
- Always transport or store the humidifier in temperatures higher than 5 °C.

3.4.2 Installation & commissioning

⚠ WARNING

Risk of electric shock. The humidifier is powered by the mains power supply. Live electric components are exposed when the access panels or casings are removed. Touching live parts may cause severe injury or even death. To prevent this:

- When performing maintenance on the humidifier, remove the power cable from the humidifier and wait until the display goes dark. Setting the capacity to 0 does not shut off the power supply to the humidifier.
- Do not remove any casing panels when the humidifier is connected to a mains power supply.
- Make sure both filters are installed.
- Make sure that all casing panels are present and fastened when the humidifier is in operation.

⚠ CAUTION

Risk of damage to internal components. The humidifier has an open water reservoir. Overflow of the reservoir may damage the components inside the humidifier. To prevent this:

- Disconnect the power cable from the humidifier and empty the water reservoir before transport or performing maintenance activities.
- Keep the humidifier level and motionless while it is in operation and for up to two (2) minutes afterwards.
- Make sure the water is properly discharged through the water drain. Make sure the water drain is never blocked.

⚠ CAUTION

Risk of electrostatic shock. The electronic components inside the humidifier are sensitive to electrostatic discharge (ESD). Do not touch the circuit boards or other electronic components inside the humidifier.

⚠ CAUTION

Risk of reduced performance. When the humidifier distributes humidified air to another room, make sure that both rooms have the same atmospheric pressure.

⚠ CAUTION

Risk of damage to the humidifier. Joining the outlets of multiple humidifiers together may cause water to flow into a humidifier that is switched off. Do not connect the air distribution system or water drain pipes of multiple humidifiers to each other.

⚠ CAUTION

Risk of contamination. Contamination may enter the humidifier or distribution system during installation or maintenance. To prevent this:

- Wear gloves when installing or performing maintenance on the humidifier.
- Keep all components clean during installation.
- Disinfect the humidifier after installation.

⚠ CAUTION

Risk of damage to electronic components. The humidifier contains sensitive electronic components. Only connect the unit to a mains power supply with a supply voltage that matches the voltage specified on the label (see §2.7).

⚠ CAUTION

Risk of damage to the humidifier. The water drain connection is not pressurized. A blocked drain channel may damage the humidifier:

- The outlet of the drain channel must be free. Do not place the outlet under water.
- Make sure that the water drain connection on the humidifier is the highest point in the water drain channel.
- Do not place the humidifier on a tray with raised edges.

3.4.3 Operation

⚠ WARNING

The humidifier is not intended for use in healthcare premises or other locations where the occupants or materials are adversely sensitive to airborne bacteria, viruses, dust, and debris.

3.4.4 Maintenance

⚠ WARNING

Risk of injury to respiratory system. Ozone is harmful to your health if the gas is inhaled over a longer period of time or in a higher concentration. To prevent this:

- Do not program the ozone disinfection process to run when there are people in the vicinity of the air distribution outlets.
- Do not disconnect the air distribution system or water connections or dismantle the casing when the ozone generator is active.

⚠ CAUTION

Risk of product damage. The use of harsh or abrasive cleaning materials may damage the humidifier. To prevent this:

- Do not clean the humidifier with solvents, aromatized, halogenized hydrocarbons or other harsh chemicals.
- Do not clean the humidifier with hard or metallic brushes, or any other cleaning materials that could leave scratches on wet, plastic and metal surfaces.

3.4.5 Hygiene

⚠ WARNING

Risk to hygiene and health. Improper maintenance of the humidifier may cause pathogens to originate from the water reservoir. These pathogens may be spread along with the humidified air and transported via the distribution system. Failure to prevent may cause injuries that require medical care. To prevent this:

- Regularly clean or replace the air filter panels on both sides of the humidifier.
- Supply the humidifier with demineralized water.
- Regularly run a flushing cycle (see §7.3).
- Regularly run an ozone disinfection program (see §7.4).

4 Transport & storage

This chapter provides all the information necessary to transport and store the humidifier.

4.1 Packaging

The humidifier is delivered in a reusable cardboard packaging.

NOTICE

- *Some traces of water may be found in the packaging. The humidifier is thoroughly tested before shipping and some water may remain in the reservoir before it is packed.*
- *Store the packaging for later use. The packaging is reusable and can be used for storage or for re-shipping the humidifier for maintenance activities.*

4.2 Storage

Store the humidifier in the original packaging until it is installed, or when storing the humidifier for a long period of time.

Store the humidifier in a room that meets the following requirements:

- Room temperature between 5 and 40 °C (41 and 104 °F).
- Room humidity between 10 and 75% (non-condensing).

4.3 Transport

⚠ CAUTION

Always transport the humidifier in the original packaging. Transporting the humidifier in any other packaging may damage the humidifier and void the warranty.

5 Installation

This chapter provides all the information necessary to install the humidifier.

5.1 Safety

⚠ WARNING

Before installing the humidifier, make sure you have read and understood the relevant safety instructions in §3.4. Important safety instructions will be repeated throughout this chapter.

5.2 Removing and inspecting the packaging

After receiving the humidifier, do the following:

- 1 Inspect the outside of the packaging for damage.
- 2 Open the packaging and remove the contents. This includes the following:
 - Humidifier
 - Power cable
 - Water connection pieces
 - Quick start guide

NOTICE

Any custom components are delivered separately (see §2.8.1).

- 3 Inspect the humidifier and other components for damage.
- 4 Verify that the model type on the type plate of the humidifier matches the one on the order confirmation.

NOTICE

- *Report any damage to the packaging, damage to the components or missing components to Contronics or your supplier within 48 hours after delivery.*
- *Store the packaging for later use. The packaging is reusable and can be used for storage or for re-shipping the humidifier for maintenance activities.*

5.3 Placing the humidifier

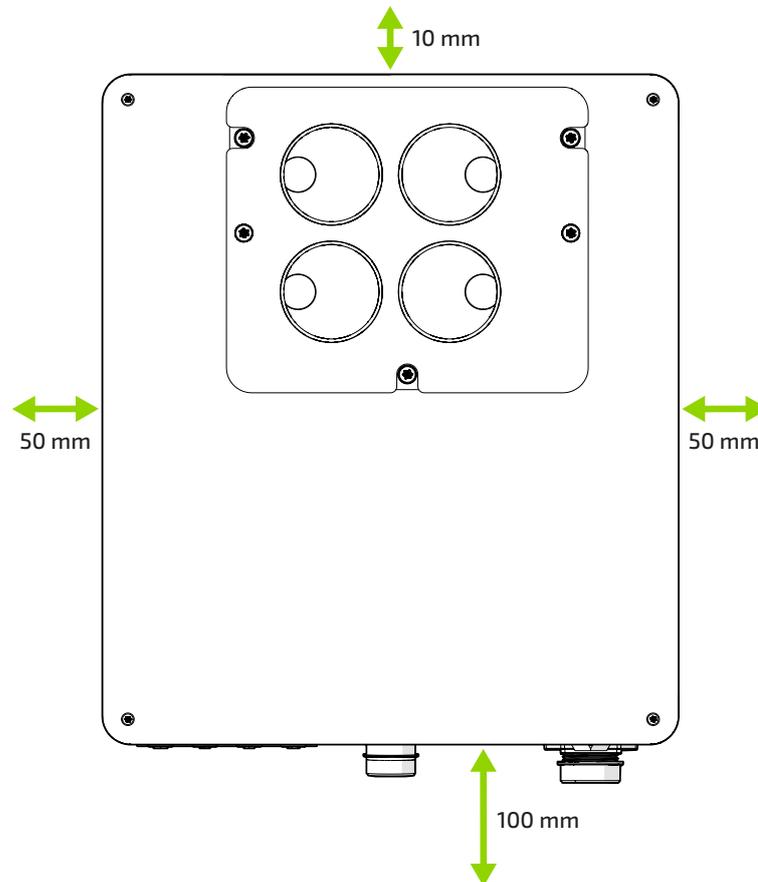
5.3.1 Location requirements

Select a location that meets the following requirements:

- Ambient temperature between 0 and 40 °C.
- Humidity of less than (<) 100%.
- Accessible for operation and maintenance.
- An unused earthed power outlet nearby.

5.3.2 Clearances around the humidifier

To ensure optimal performance and allow for easier operation and maintenance, place the humidifier with the following clearances:



5.3.3 Instructions

Place the humidifier as follows:

- Place the humidifier on a flat, stable and level surface.
- Do not place the humidifier:
 - in a closed tray with raised edges;
 - on hot or cold surfaces;
 - near vibrating components;
 - near a heat source.

5.4 Water connections

The humidifier must be connected to a water supply and water drain.

5.4.1 Connecting the water supply



Required materials:

- Water supply
- *Dynamic pressure: 0.2 - 6 Bar*
- *RO water*
- *Temperature: 1 - 25 °C*
- *Backflow preventer*
- *Hose 3/8" HG*

To connect the water supply:



- 1 Remove the protection cap from the water supply connection of the humidifier.
- 2 Screw the connection piece onto the water supply connection.
- 3 Thoroughly flush the supply pipe with clean water.
- 4 Connect the piping to the connection piece.
- 5 Connect the piping to a water supply.

NOTICE

If the water supply is far away from the humidifier or if multiple humidifiers are connected to the same water supply, install a shut-off valve on the supply pipe, close to the humidifier.

5.4.2 Connecting the water drain



Required materials:

- Hose
- ½" JG
- Max. length of 50 cm
- Air gap funnel (min. Ø 40 mm)

Make sure the water drain meets the following requirements:

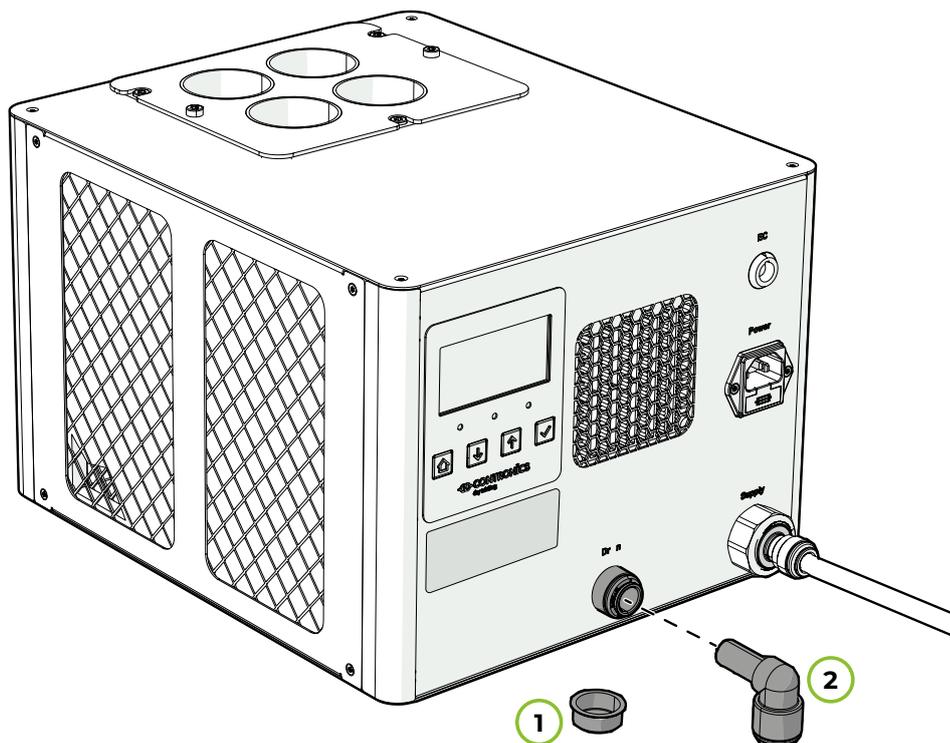
- Drain piping material is suitable for RO water.

NOTICE

Do not use copper piping.

- Drain line connections must be installed according to local plumbing codes.
- The drain line must be properly fixed and easily accessible for service.
- Each drain line must be installed with a constant decline (minimum of 2 degrees).
- The drain line should be as short as possible.
- Each drain line must lead to its own separate air gap funnel with trap, before connecting to the drain.
 - The open end of each drain line should not touch the funnel.
 - The minimum allowed air gap is 20 mm.
 - Each drain line must be secured to prevent the line from slipping out of the funnel or going through the funnel.
- Floor drains present under the humidifier in case of leaks or overflowing water are recommended.

To connect the water drain:



- 1 Remove the protection cap from the water drain connection of the humidifier.
- 2 Insert a connection piece into the water drain connection.
- 3 Thoroughly flush the drain pipe with clean water.
- 4 Connect the drain pipe to an air gap funnel, or another connection type that does not apply pressure or suction to the drain pipe.
- 5 Secure the drain pipe to prevent it from slipping out of the funnel.
- 6 Connect the air gap funnel to a vertical water drain.

⚠ CAUTION

Risk of damage to the humidifier. The water drain connection is not pressurised. Any pressure or suction applied to the drain pipe may damage the humidifier:

- The outlet of the drain pipe must be free. Do not place the outlet under water.
- Make sure that the water drain connection on the humidifier is the highest point in the water drain channel. Ensure a constant decline of at least 2 degrees.
- Do not place the humidifier on a tray with raised edges.

5.5 Electrical connections

The humidifier must be connected to a power supply. An optional humidity sensor or external controller can also be connected to the humidifier.

5.5.1 Connecting to a power supply

To connect the humidifier to a power supply:



- 1 Plug the power cable into the socket (C13) on the front panel of the humidifier.
- 2 Plug the other end of the power cable into an earthed power outlet.

5.5.2 Connecting the external controller or sensor (optional)

To connect the sensor:

- 1 Mount the sensor near an outlet of the distribution system.
- 2 Plug the external controller or sensor cable into the external interface connection on the front panel of the humidifier.

NOTICE

The external control signal should not be earthed.

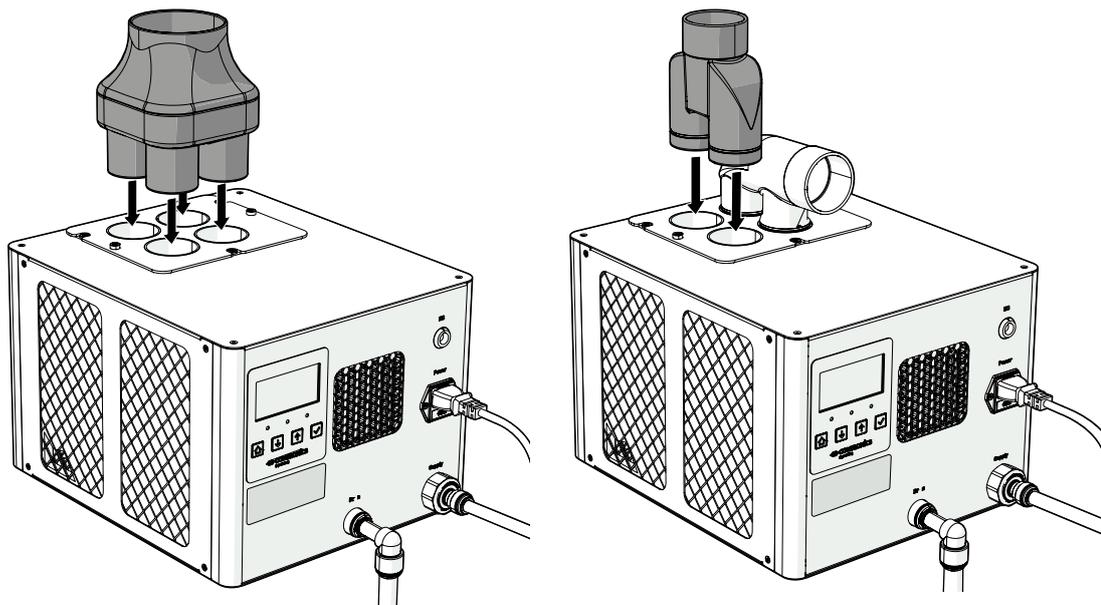
5.6 Connecting the air distribution system



Required tools:

- Coupling pieces (see §2.8.1)
- Piping (Ø80 or Ø50 mm)
- Flexible hose with connector

To connect the air distribution system to the humidifier:



Example 1

Example 2

- 1 Place the coupling piece on the air outlets on top of the humidifier. Make sure all air outlets are connected.

NOTICE

All air outlets of the humidifier must be connected to the air distribution system. Open air outlets will severely hinder the capacity of the humidifier.

- 2 Connect the distribution piping to the coupling pieces. Pay attention to the following:
 - Use piping with a constant inner diameter of 80 mm or 50 mm.
 - Avoid sharp bends. The recommended maximum bend angle is 30 °.
 - Keep any flexible piping as short as possible, with a maximum length of 2 meters.
 - Flexible piping should allow condensate to flow back to the humidifier.
 - Avoid horizontal sections in the distribution system.
 - Avoid merging flexible pipes.
- 3 Tighten all connections.

6 Commissioning

This chapter provides all the information necessary to commission the humidifier after installation.

6.1 Safety

⚠ WARNING

Before commissioning the humidifier, make sure you have read and understood the relevant safety instructions in §3.4. Important safety instructions will be repeated throughout this chapter.

6.2 Installation checklists

Use the checklists in this section to evaluate the installation of the humidifier.

6.2.1 Placement

The placement of the humidifier must meet the following requirements:

- The humidifier is placed on a stable, flat and level surface.
- The humidifier is placed nearby an unused earthed power outlet.
- The room has an ambient temperature between 0 and 40 °C and humidity of less than (<) 100%.
- The humidifier is accessible for operation and maintenance.

6.2.2 Electrical connections

The electrical connections must meet the following requirements:

- The power supply meets the voltage and current requirements that are shown on the label (see §2.7).
- All cables are free of tension.
- All electrical connections conform to applicable national and local regulations.
- All casing panels are present and fastened.

6.2.3 Water connections

The **water supply connection** must meet the following requirements:

- The water supply pipe is clean and free of leaks.
- All connections are properly fastened.
- A shut-off valve has been installed on supply pipe if necessary.
- The water supply meets the following requirements:
 - Pressure: 1 - 6 bar
 - Hardness: < 8 °dH
 - Temperature: 1 - 25 °C (34 - 77 °F).

The **water drain connection** must meet the following requirements:

- The water drain pipe is clean.
- All connections are properly fastened.
- The end of the water drain pipe is unobstructed.
- The water drain connection is the highest point in the water drain channel, with a minimal decline of at least 2 degrees to the end point.
- The drain piping is suitable for RO water (non-copper piping).

6.2.4 Air distribution system

The connection to the air distribution system must meet the following requirements:

- All bends have an angle of less than (<) 30°.
- All piping has a constant inner diameter. The recommended diameter is Ø 80 mm OR Ø 50 mm, depending on the coupling piece.
- There are no horizontal sections of piping in the system.
- The system contains no unnecessary flexible piping.
- Any pieces of flexible piping are shorter than 2 meters.
- Flexible pipes are not merged.

6.3 Performing a functional test

Perform a functional test of the humidifier when the humidifier is switched on for the first time:

- 1 Open the water supply.
- 2 Set the humidifier to maximum capacity.
- 3 Plug the power cable into the socket (C13) on the humidifier.
- 4 Make sure the humidifier is connected to a mist distribution system.
- 5 If installed, open the shut-off valve in the water supply line.



For instructions on how to adjust the settings of the humidifier, see §7.2.

- 6 Check the following:
 - Water flows into the humidifier through the supply pipe.
 - The water supply pipe and connection are free of leaks.
 - The water flow stops after approximately 60 seconds.
 - The production of mist starts after a few seconds.
- 7 Unplug the power cable from the humidifier.
- 8 Check the following:
 - After ± 20 seconds, water flows out of the humidifier through the drain pipe.
 - The water drain pipe and connection are free of leaks.
 - After ± 2 minutes, the water reservoir is completely empty.

NOTICE

The green feedback LED blinks when the water reservoir fills up.

- 9 Plug the power cable into the socket (C13) on the humidifier.
- 10 Set the humidifier to the desired capacity.
- 11 If necessary, adjust the air speed.



For instructions on how to adjust the settings of the humidifier, see §7.2.

7 Operation

This chapter provides all the information necessary to operate the humidifier.

7.1 Safety

⚠ WARNING

Before operating the humidifier, make sure you have read and understood the relevant safety instructions in §3.4. Important safety instructions will be repeated throughout this chapter.

7.2 Using the display

The humidifier is operated via the display on the front panel.

7.2.1 Controls

The display is operated with the four buttons below the screen:



Press to go back to the previous menu.



Press to select the next option.



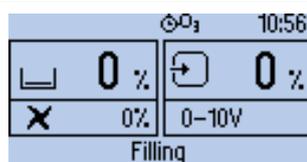
Press to select the previous option.



Press to proceed or to confirm.

7.2.2 Status screen

The display shows a status screen when the humidifier is active. The status screen contains current information about the performance of the humidifier.



Complete status screen



Ozone disinfection cycle status and time



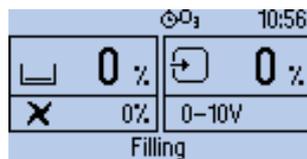
Water reservoir level and misting capacity



Fan mode and capacity

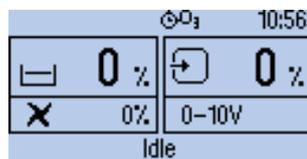
	Humidification mode and capacity
	External control signal
	Humidifier status

The following status screens are commonly shown during each humidifier status:



Filling

The humidifier is filling the water reservoir.
 The fan and mist generator are not active.
 An ozone disinfection cycle is set on a timer.
 An external control signal of 0 - 10 V is present.



Idle

The water reservoir is full.
 The humidifier is idle and ready to start the humidification process.



Misting

The humidifier is generating and distributing mist at 50% capacity.
 The fan is operating at 30% capacity.



The humidifier is generating and distributing mist at 100% capacity.

7.2.3 Main menu

Press  to exit the status screen and enter the main menu.

The main menu has four options:



Option	Humidification	Airflow	Ozone	General
Description	Settings and information regarding the humidification process.	Setting the airflow from the humidifier.	Settings regarding the schedule of the ozone disinfection cycle.	Settings and information about the humidifier in general.
Contents	<i>Humidity set-point*</i>		<i>Mode</i>	<i>Language</i>
	<i>Manual capacity</i>		<i>Start</i>	<i>Clock</i>
	<i>Mode</i>		<i>Duration</i>	<i>Advanced</i>
	<i>Bandwidth*</i>			<i>Factory defaults</i>
	<i>Minimum capacity</i>			<i>Device information</i>
	<i>Maximum capacity</i>			

* Only available when the humidification mode Sensor is active.

7.2.4 Selecting a humidification mode

The display can be used to select the way in which the humidification process is regulated. The following options are available:



Manual capacity

The humidification capacity is set manually in the display of the humidifier.



Controller

The humidification capacity is controlled via an external controller that is connected to the external interface of the humidifier.

- Use "Controller 0-10 V" with most accessories.
- Use "Controller 4-20 mA" if requested.



Sensor

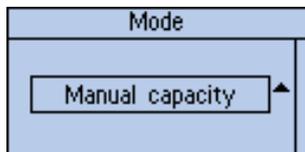
The humidification capacity is controlled via a humidity sensor in the area that is being humidified.

- Use "Sensor 0-10V" for EP HS-91P-DM sensors.
- Use "Sensor 0-1 V" for EP HS-91P sensors.
- Use "Sensor 4-20 mA" for sensors with a 4-20 mA current output.

To select a humidification mode:



- 1 Press to open the main menu.
- 2 Navigate to Humidification and press to confirm.



- 3 Navigate to Mode and press to confirm.
- 4 Press or to select an option.
- 5 Press to confirm.

7.2.5 Adjusting the humidification capacity

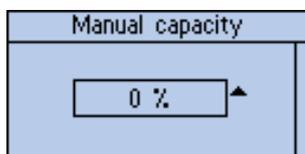
NOTICE

This setting is only available when the humidification mode is set to Manual capacity (see §7.2.4).

The display can be used to adjust the humidification capacity of the humidifier:



- 1 Press to open the main menu.
- 2 Navigate to Humidification and press to confirm.



- 3 Navigate to Manual capacity and press to confirm.
- 4 Press or to increase or decrease the capacity.
- 5 Press to confirm.

7.2.6 Adjusting the humidification bandwidth and humidity setpoint

NOTICE

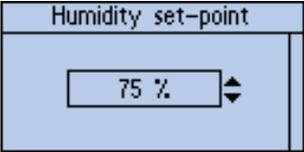
These settings are only available when the humidification mode is set to Sensor (see §7.2.4).

When the humidifier is controlled via a humidity sensor, the bandwidth and humidity setpoint determine how the humidification capacity is regulated. The humidity setpoint describes the air humidity level that is desired. The bandwidth describes the offset from the setpoint at which the humidifier starts to regulate the capacity.

To set the humidification bandwidth:

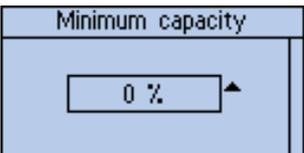
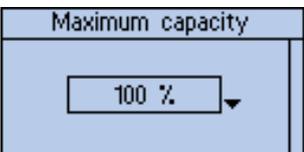
	<ol style="list-style-type: none">1 Press  to open the main menu.2 Navigate to Humidification and press  to confirm.
	<ol style="list-style-type: none">3 Navigate to Bandwidth and press  to confirm.4 Press  or  to increase or decrease the bandwidth.5 Press  to confirm.

To adjust the humidification setpoint:

	<ol style="list-style-type: none">6 Navigate to Humidity setpoint and press  to confirm.7 Press  or  to increase or decrease the setpoint.8 Press  to confirm.
---	--

7.2.7 Adjusting the humidification capacity range

To adjust the humidification capacity range:

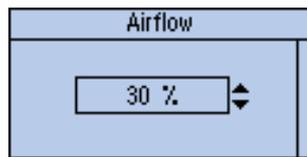
	<ol style="list-style-type: none">1 Press  to open the main menu.2 Navigate to Humidification and press  to confirm.
	<ol style="list-style-type: none">3 Navigate to Minimum capacity and press  to confirm.4 Press  or  to increase or decrease the capacity.5 Press  to confirm.
	<ol style="list-style-type: none">6 Navigate to Maximum capacity and press  to confirm.7 Press  or  to increase or decrease the capacity.8 Press  to confirm.

7.2.8 Adjusting the airflow

The display can be used to adjust the airflow of the humidifier:



- 1 Press  to open the main menu.
- 2 Navigate to Airflow and press  to confirm.



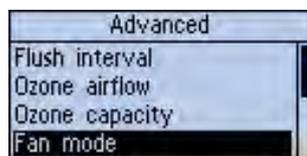
- 3 Press  or  to increase or decrease the air flow.
- 4 Press  to confirm.

7.2.9 Adjusting the fan mode

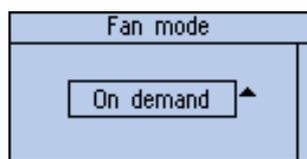
The display can be used to select the way in which the fan is regulated. The following options are available:

- **On demand**
Fan is only active when there is a humidification demand. This is the default mode.
- **Continuous**
Fan is always active, even when there is no humidification demand.

To select a fan mode:



- 1 Press  to open the main menu.
- 2 Navigate to General and press  to confirm.
- 3 Navigate to Advanced and press  to confirm.



- 4 Navigate to Fan mode and press  to confirm.
- 5 Press  or  to select an option.
- 6 Press  to confirm.

7.3 Performing a flushing cycle

The humidifier frequently performs an automatic flushing cycle. This procedure prevents pathogens from forming by removing any stagnant water from the humidifier.

7.3.1 Flush sequence

A flushing sequence consists of the following steps:

- The green feedback LED starts glowing. This indicates that the flushing cycle has started.
- The distribution of humidified air stops.
- All water is drained from the humidifier.

- The water reservoir is flushed for approximately 15 seconds.
- The humidifier is filled with fresh water. The green feedback LED blinks during this procedure.
- The green feedback LED stops glowing when the reservoir is full.
- The humidifier restarts normal operation.

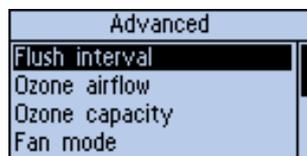
7.3.2 Adjusting the frequency

The standard factory setting for the flushing cycle is once per hour. If necessary, you can decrease the frequency.

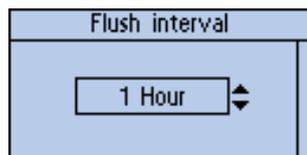
⚠ WARNING

Do not disable the flushing cycle.

To adjust the frequency of the flushing cycle:



- 1 Press to open the main menu.
- 2 Navigate to General and press to confirm.
- 3 Navigate to Advanced and press to confirm.



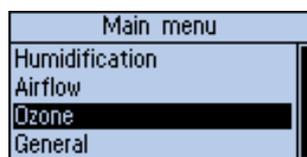
- 4 Press or to increase or decrease the amount of hours in between the flushing cycles.
- 5 Press to confirm.

7.4 Programming the ozone generator

The ozone generator contains a timer that controls the frequency of the ozone disinfection cycle. You can program the to match the application.

The standard factory setting for the ozone disinfection cycle is once per day, between 2:00AM and 4:00AM.

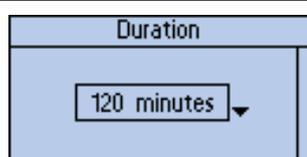
To adjust the starting time and duration of the ozone disinfection cycle:



- 1 Press to open the main menu.
- 2 Navigate to Ozone and press to confirm.

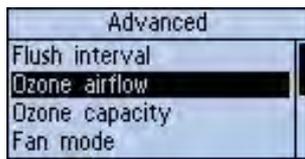


- 3 Press or to adjust the hours and press to confirm.
- 4 Press or to adjust the minutes and press to confirm.

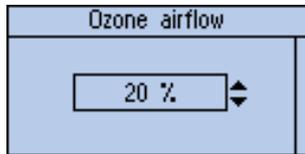


- 5 Navigate to Duration and press to confirm.
- 6 Press or to adjust the duration of the cycle.
- 7 Press to confirm.

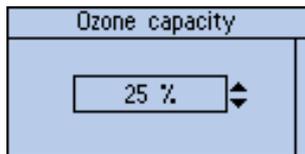
To adjust the properties of the ozone disinfection process:



- 1 Press  to open the main menu.
- 2 Navigate to General and press  to confirm.
- 3 Navigate to Advanced and press  to confirm.



- 4 Navigate to Ozone airflow and press  to confirm.
- 5 Press  or  to adjust the ozone gas air flow.
- 6 Press  to confirm.



- 7 Press .
- 8 Navigate to Ozone capacity and press  to confirm.
- 9 Press  or  to adjust the ozone gas capacity.
- 10 Press  to confirm.

WARNING

Risk of injury to respiratory system. Ozone is harmful to your health if the gas is inhaled over a longer period of time or in a higher concentration. To prevent this:

- Do not program the ozone disinfection process to run when there are people in the vicinity of the air distribution outlets.
- Do not disconnect the air distribution system or water connections or dismantle the casing when the ozone generator is active.

NOTICE

The timer of the ozone generator is powered with a non-rechargeable back-up battery when there is no mains power available.

8 Troubleshooting

This chapter provides all the information necessary to resolve the most common errors that occur in the humidifier.

NOTICE

Please contact Contronics if you are unable to resolve an error with the instructions in this chapter or if an error occurs that is not mentioned in this chapter.

8.1 Performance issues

The following table provides an overview of potential performance issues. Follow the instructions to resolve an issue:

Message	Cause	Instructions
The humidifier does not reach the set capacity.	Oil or grease residue in the water reservoir, as a result of a dirty water supply pipe. This is common in stainless steel piping.	<ol style="list-style-type: none">1 Disconnect the water supply pipe and clean it with water and dish soap.2 Clean the water reservoir with water and dish soap.3 Rinse the supply pipe and water reservoir with clean water.
The humidifier does not switch on when a capacity is set.	The water supply valve is disabled during long periods without a water supply.	<ol style="list-style-type: none">1 Set the humidifier to a capacity above 0.2 Wait 3 minutes. The humidifier should start taking water automatically.

8.2 Display messages

The following table provides an overview of the error or warning messages that may be shown on the display. Follow the instructions to resolve an error:

Message	Type	Cause	Instructions
Heatsink temp. sensor fault	Error	Heatsink temperature sensor is faulty	Check connections or replace sensor
Water temp. sensor fault	Warning	Water temperature sensor is faulty	Check connections or replace sensor
Pressure sensor fault	Warning	Pressure sensor is faulty	Replace the electronics box.
Cooling fan fault	Warning	Cooling fan is faulty or has a bad connection.	Re-connect or replace the cooling fan
Blower fan x fault	Error	Blower fan x faulty or has a bad connection.	Re-connect or replace the blower fan x.

Message	Type	Cause	Instructions
Drain fault	Error	Water reservoir full: Clogged drain connection or faulty drain valve	Clean the drain valve and make sure it is open. or Replace the drain valve.
		Water reservoir empty: Faulty or sticky float switch	Clean the float switch. or Replace the float switch.
Water supply valve safety	Warning	Water supply valve is open for 3 minutes without float switch detecting a high level. Fill valve is automatically disabled for 6 minutes to let it cool down.	Check the water supply pressure. or Replace the water supply valve.
MDRV no communication	Error	MDRV PCB faulty	Check the connections. or Replace the electronics box.
OZONX no communication	Error	OZON x PCB faulty	Check the connections. or Replace the fan/ozone module assembly.
RTCC no communication	Error	Clock chip faulty	Replace the electronics box.
RTCC oscillator failed	Warning	Clock not working	Replace the electronics box.
Time not set, OG disabled	Warning	Time was never set.	Set the correct time in the General menu.
Low battery, OG disabled	Warning	Clock back-up battery is empty.	Replace the CR2032 battery on the MAIN PCB.
High temp. reduced cap.	Warning	High ambient temperature.	Lower the ambient temperature or move the humidifier to a cooler location.
Overheating	Warning	Various	See §8.3.

NOTICE

- Error messages are shown on the display, in place of the humidifier status (see §7.2.2).
- The red feedback LED shows the severity of the error (see §2.4).

8.3 Overheating

You can recognise overheating of the humidifier as follows:

- The red feedback LED starts to blink.
- A warning message is shown on the display.
- The capacity of the humidifier is reduced
- The humidifier switches off automatically.
- The humidifier will automatically switch on again when it has cooled down.

The following table provides an overview of potential issues that cause the humidifier to overheat. Follow the instructions to resolve an issue:

Cause	Instructions
Air inlet is blocked.	Make sure the humidifier has enough free space in every direction (see §5.3.2).
Air outlet is blocked.	
Ambient temperature is too high.	Reduce the ambient temperature of the room where the humidifier is installed. The temperature must be lower than 40 °C.
Water supply temperature is too high.	Reduce the temperature of the water that is supplied to the humidifier. The temperature must be lower than 25 °C.
Water drain is blocked.	Make sure: <ul style="list-style-type: none">• The end of the water drain pipe is unobstructed.• The water drain connection is the highest point in the water drain channel, with a minimal decline of at least 2 degrees to the end point.
Ventilator speed is set too low.	Increase the speed of the fan.

9 Maintenance

This chapter provides all the information necessary to perform maintenance on the humidifier.

9.1 Safety

⚠ WARNING

Before operating the humidifier, make sure you have read and understood the relevant safety instructions in §3.4. Important safety instructions will be repeated throughout this chapter.

⚠ CAUTION

All maintenance must be carried out by Contronics or by maintenance personnel authorised by Contronics. The humidifier can be shipped to Contronics in the original packaging.

9.2 Regular maintenance

The humidifier requires yearly maintenance to ensure optimal and safe performance.

9.2.1 Preparation

⚠ CAUTION

Keep the humidifier level while dismantling.

To prepare the humidifier for maintenance:

- 1 Remove the power cable from the power outlet.
- 2 Wait until the ventilator stops moving and the display goes dark.
- 3 Close the water supply.
- 4 Disconnect the water supply pipe.
- 5 Disconnect the humidity sensor or external controller.
- 6 Tilt the humidifier forward until no more water flows out of the water drain connection.
- 7 Disconnect the water drain pipe.

9.2.2 Cleaning the water reservoir



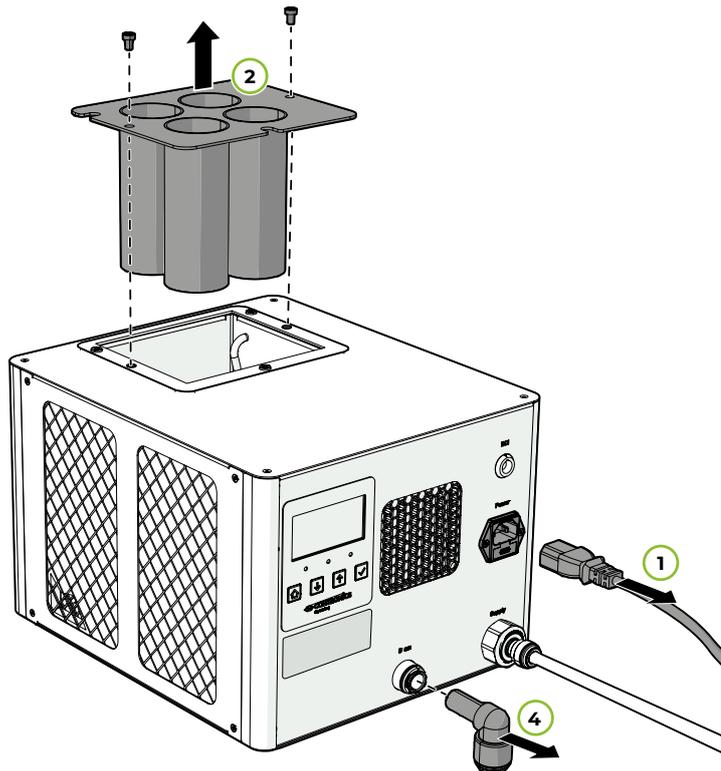
Required tools

- Torx screwdriver (T25)
- Soft brush or cloth

To clean the water reservoir:

CAUTION

Make sure that the transducers are not damaged during cleaning.



- 1 Disconnect the power cable from the humidifier.
- 2 Wait until the display goes dark.
- 3 Remove the mounting plate for the coupling pieces. Use a Torx screwdriver (T25).
- 4 Wait until the water reservoir is completely empty.
- 5 Clean the water reservoir. Use a soft brush or cloth.
- 6 Remove the connector piece from the water drain connection.
- 7 Clean the water drain connection with a small, round brush.

- 8 Insert the connector piece back into the water drain connection.
- 9 Flush the water drain channel with clean water.
- 10 Reassemble the water reservoir.
- 11 Connect the power cable to the humidifier.

9.3 Replacing the transducers

The transducers are the most sensitive components of the humidifier and must be replaced after approximately 10,000 operating hours.

CAUTION

The replacement of the transducers can only be done by Contronics or representatives authorised by Contronics.

9.4 Cleaning or replacing the air filters

The air filters must be cleaned at least every 12 months of operation.

The air filters must be replaced ever 24 to 36 months.

Clean or replace the air filters more often if:

- the performance of the humidifier is reduced.
- the humidifier is installed in a room with poor air quality.

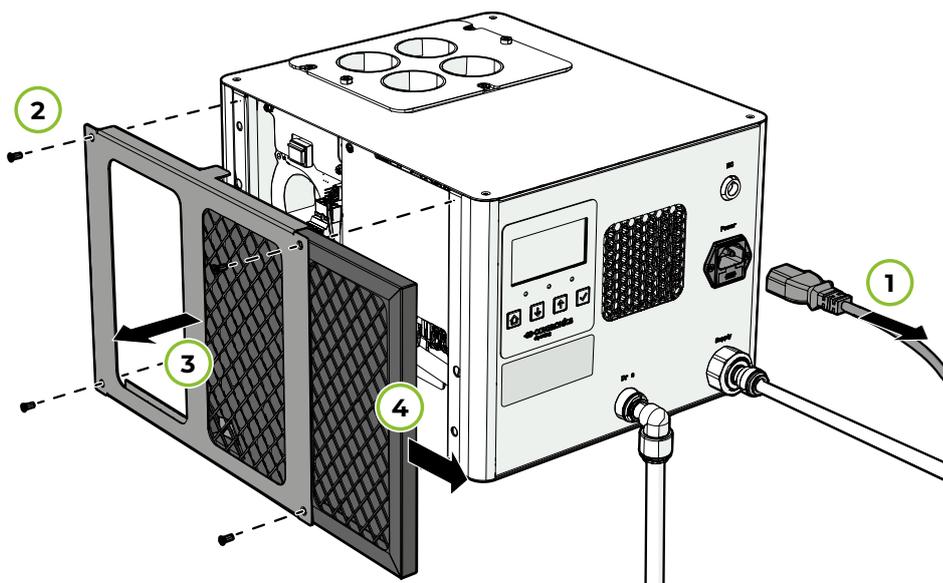


Required tools:

- Torx screwdriver (T10)
 - Vacuum cleaner or compressed air
-

To remove the air filters:

- 1 Disconnect the power cable from the humidifier.
 - 2 Wait until the display goes dark.
-



- 3 Remove the screws of the left side panel of the humidifier.
 - 4 Remove the side panel.
 - 5 Slide the air filter out of the side panel.
 - 6 Repeat for the other side panel.
-

To clean the air filters:

- Use compressed air to blow pollution out of the filter.
- or
- Use a vacuum cleaner to suck pollution out of the filter.
-

To replace the air filters:

- Order replacement parts from Contronics. See §1.7.

To place the air filters back:

- 7 Slide the air filters into the side panels. Make sure the arrow on the filter points inward.
- 8 Place the side panels on the humidifier.
- 9 Insert and tighten the screws.
- 10 Connect the power cable to the humidifier.

9.5 Exploded view & replacement parts

NOTICE

To order any replacement parts, please contact Contronics (see §1.7).

The humidifier consists of the following components:

No.	Description	Art. no.
1	Cable assembly Ozon-line A	RP CA-FAN-DM4
	Cable assembly Ozon-line B	RP CA-FAN-DM8
	Cable assembly Ozon-line C	RP CA-FAN-DM12
2	M6 5kOhm 35cm AWG24 yellow	RP CA-TEMPSENS-02
3	Cable assembly TRANSDUCER C (DM4/8/12)	RP CA-TRANS-DM12
	Cable assembly TRANSDUCER A (DM4)	RP CA-TRANS-DM4/8/12
	Cable assembly TRANSDUCER B (DM4/8)	RP CA-TRANS-DM8/12
4	DM4 electronics box	RP DM4-ELEC
	DM8 electronics box	RP DM8-ELEC
	DM12 electronics box	RP DM12-ELEC
5	DM4 Gasket Reservoir/Top plate	RP DM4-GASKET
	DM8 Gasket Reservoir/Top plate	RP DM8-GASKET
	DM12 Gasket Reservoir/Top plate	RP DM12-GASKET
6	Air filter 45 PPI/208x240x12.7	RP DM4-AIRFILT
	Air filter 45 PPI/208x360x12.7	RP DM8-AIRFILT
	Air filter 45 PPI/208x480x12.7	RP DM12-AIRFILT
7	DM drain assembly	RP DM-DRAIN-01
8	DM fan/O3 module assembly	RP DM-FAN-01
9	Front plate membrane keyboard	RP DM-KEYB-01
10	Tin: Transducer holder set DM	RP DM-TRANS-01
11	DM Water inlet assembly	RP DM-WINLET-01
12	Float switch assembly	RP SFLOAT-01

10 Decommissioning & disposal

This chapter provides all the information necessary to decommission and dispose of the humidifier.

10.1 Decommissioning the humidifier

To decommission the humidifier:

- 1 Remove the power cable from the power outlet.
- 2 Wait until the ventilator stops moving and the display goes dark.
- 3 Close the water supply.
- 4 Disconnect the water supply pipe.
- 5 Disconnect the humidity sensor or external controller.
- 6 Tilt the humidifier forward until no more water flows out of the water drain connection.
- 7 Disconnect the water drain pipe.

10.2 Disposing of the humidifier



The humidifier consists of various materials that require specific disposal methods. By disposing of each material correctly, you may help prevent damage to the environment and public health. In addition, recycling of materials helps preserve natural resources.

10.2.1 Packaging

Dispose of the cardboard packaging along with the household paper waste.

10.2.2 Mechanical components

Bring any damaged or worn out mechanical components of the humidifier to certified recycling center. These components include:

- Casing
- Water connection pieces
- Water reservoir
- Gaskets
- Airfilters

10.2.3 Electronic components

Bring any damaged or worn out electronic components to a certified recycling center separately. Take into account local regulations. These components include:

- Display
- Water supply valve
- Float switch
- Transducers
- PCBs
- Cable assemblies (transducer & ozon generator)
- Electronics boxes

10.2.4 Battery

The humidifier contains a Lithium CR2032 button cell battery. The battery powers the internal clock and is located on the main PCB behind the panel on the left side.

To dispose of the battery:

- Deliver the battery to a local recycling facility.

⚠ CAUTION

Batteries may contain toxic heavy metals and meet the requirements of hazardous waste. Do not dispose of the battery along with household waste.

Appendices

Declaration of conformity

Contronics Engineering B.V.
Ambachtsweg 8
5492 NJ Sint-Oedenrode
The Netherlands

Hereby declares that products:

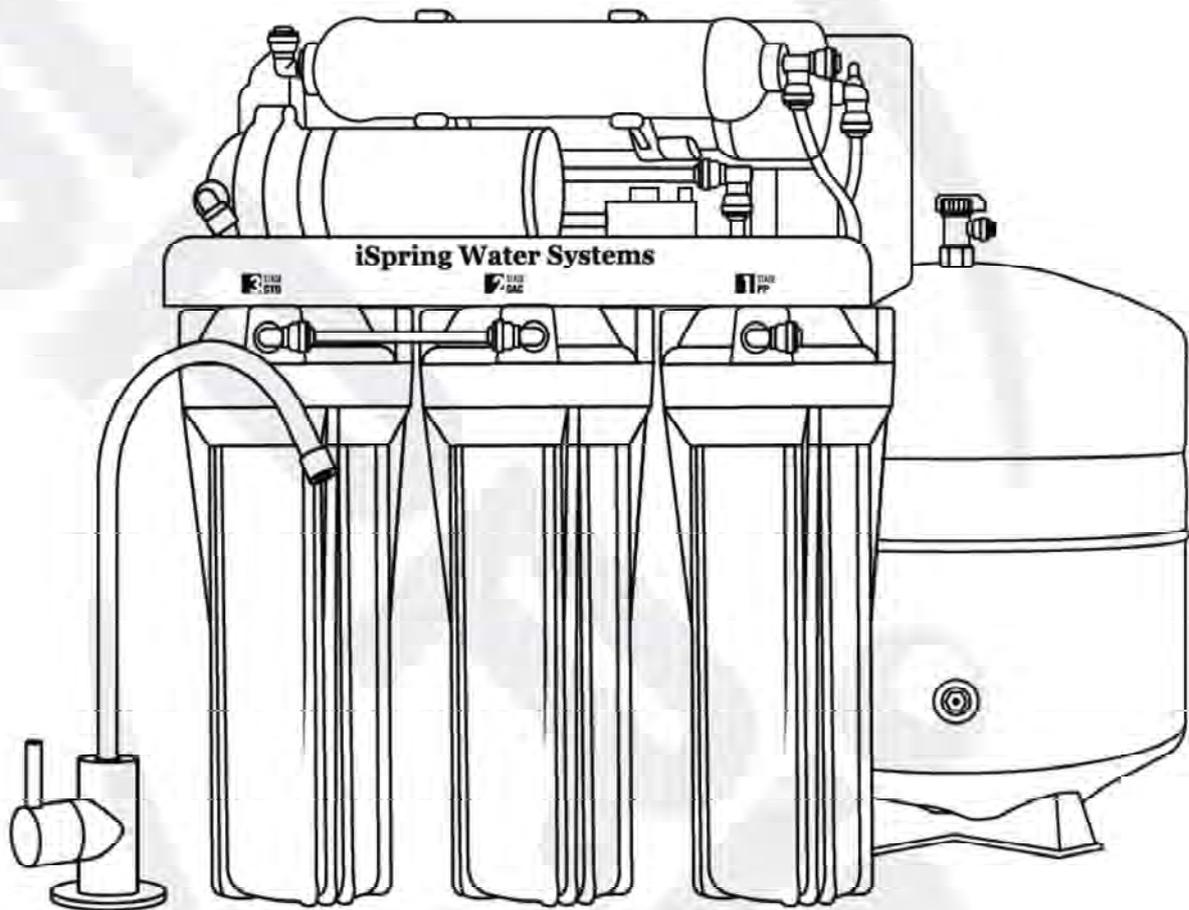
- EP DM4;
- EP DM8;
- EP DM12;

produced and delivered by Contronics Engineering B.V., are in accordance with the following CE directives:

- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility Directive 2014/30/EU
- RoHS Directive 2011/65/EU
- Batteries and Accumulators Directive 2013/56/EU

UNDER SINK

iSpring RCCP Series Reverse Osmosis System with Pump



Installation Instructions & User Manual

Ver. 11/2022



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We stand behind our products

Since 2005, iSpring has been dedicated to providing high-quality drinking water to families across the United States. We provide various residential faucets and water filtration systems that purify your water in everyday life and deliver pure, healthy, and tasty water to you and your family.

At iSpring, we strive to develop products to the highest of standards and aim to make excellent drinking water accessible for all households. With affordable pricing, reliable quality, prompt delivery, and top-notch customer service, we hope to assist in bringing you great water for years to come.

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User Information

The user must adhere to the installation specifications described in this Product Installation and Operation Manual (hereinafter referred to as the "instruction manual"). iSpring is not responsible for damage, loss, or injury resulting from neglect, improper maintenance, or unauthorized modification of products.

- This product is designed for residential use only. Contact iSpring customer service to inquire about usage in non-residential settings.
- The operating temperature range is 40°F - 100°F (4 - 37 °C). This RO system is NOT designed for HOT water. If the water temperature or ambient temperature falls below 40°F, immediately shut off the inline water supply and drain the remaining water from the system. Within the range, the warmer the water is, the faster is the RO process.
- In case of malfunction due to damage or failure of the power supply system, unplug the system immediately and contact iSpring customer service for guidance.
- If leaking occurs, shut off the inline water supply by turning off the adapter. Then unplug the system and contact iSpring customer service.
- Use only authorized iSpring parts and filters. Using unauthorized or aftermarket components will void the product warranty.
- It is recommended that users check external fittings and connections regularly to ensure all components are secure and operating properly.
- Unauthorized modification and disassembly are strictly prohibited and will void the warranty.
- Never touch the power cord connector when your hands are wet, as this may result in electric shock.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.
- The new hose-sets supplied with the appliance are to be used and that old hose-sets should not be reused.

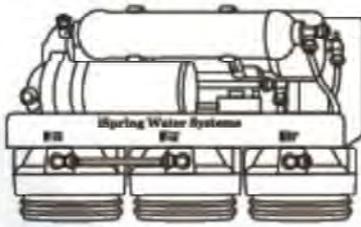
Product Features

Operating Conditions

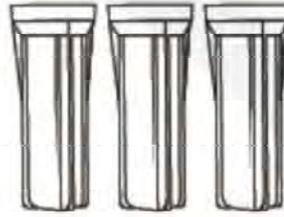
Parameter	Specification
Minimum Inlet Water Pressure	30 psi
Maximum Inlet Water Pressure	70 psi
Incoming Water Temperature	40 - 100 °F
Maximum TDS	750 ppm

- Maximum water pressure: 70 psi, or a pressure regulator (part# APR70) is required if there is high water pressure or water hammer.
- Minimum water pressure: 30 psi, or a booster pump is needed to improve RO efficiency
- Install this RO system where it is protected from hot/cold weather and direct sunlight. Avoid hitting, dropping, or dragging as they may cause cracks and leaks.

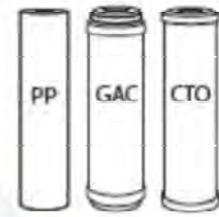
Component Identification



RO Machine Head
(membrane not yet installed)



3 Pre-filter Housings



3 Pre-filter Cartridges



RO Membrane



Storage Tank
(Model: T32M)



**RO Faucet w/
Installation Kit**



Feed Water Adapter
(Model: AFW43)



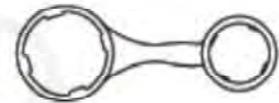
**Tubing and Spare
Parts**



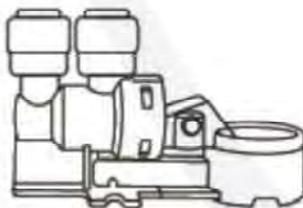
Drain Saddle 1/4\"
(Model: ADS1K)



**Plumber's
Tape**



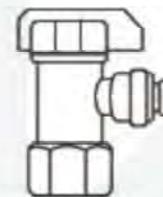
Housing Wrench
(Model: AWR2)



Leak Stop Valve
(Model: ALS1)



**Faucet
Bracket**

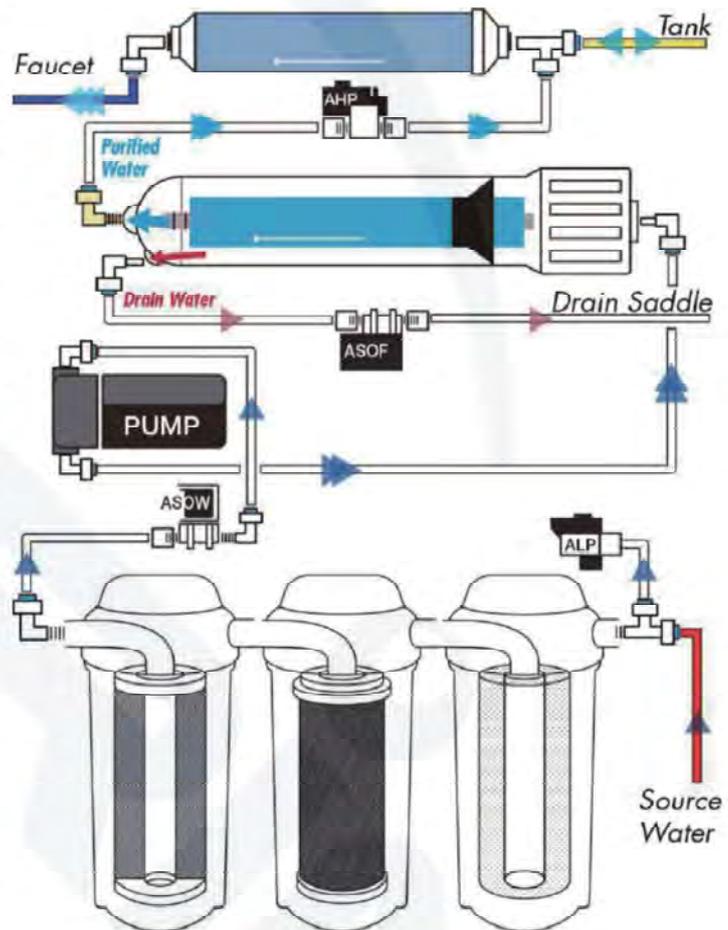


Tank Valve
(Model: ABV2K)

* If your system is a 6-stage or 7-stage with an Alkaline, DI, or UV filter, they are already pre-installed on the machine head.

Understanding the Booster Pump and RO Process

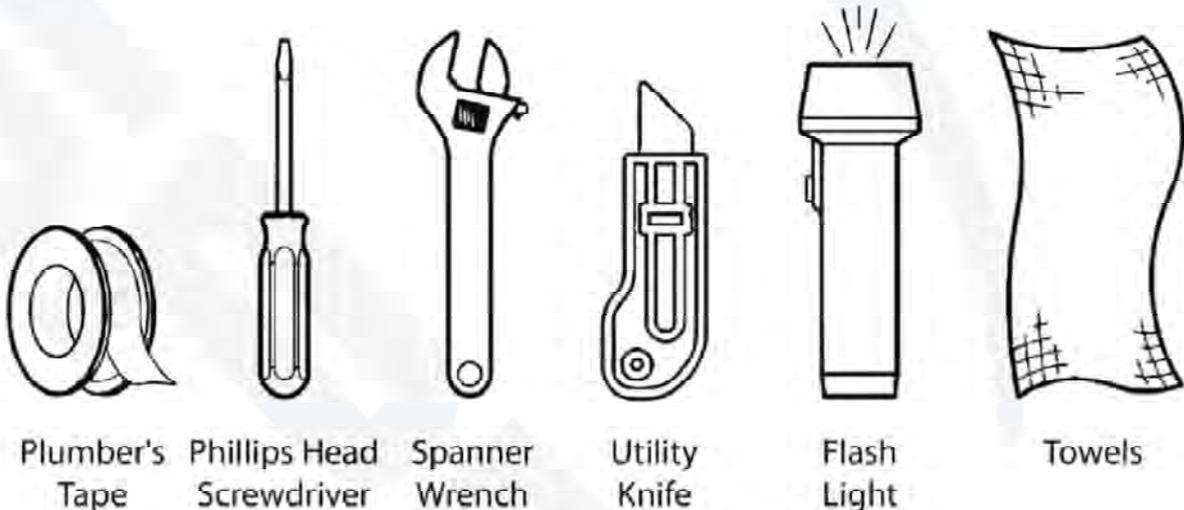
1. Source water enters the system and passes through the stage 1, 2, and 3 pre-filters. Located between the pre-filters is the **Low-pressure Switch**. This switch turns on when the incoming water pressure is 6 psi or greater.
2. The **High-pressure Switch** turns on when the pressure from the pressurized tank is below 20 psi, and turns off at 45 psi (e.g., when the tank is full).
3. When the Low-pressure Switch and High-pressure Switch are both on, the **Feed Water Solenoid Valve** opens, allowing water to the **Booster Pump**.
4. The source water passes through the Booster Pump, bringing it to approximately 135 psi entering the membrane housing.
5. Coming out of the RO membrane is a pure water port and wastewater port. The RO water is forced through the .0001 micron-sized holes of the RO membrane and exits through the one-way **Check Valve** on the membrane's pure water exit port. The water rejected by the RO membrane exits through the wastewater exit port. On the drain line before the wastewater is disposed of is the **Flow Restrictor**, limiting the amount of drain water allowed out to keep pressure in the system.
6. The pure water is then routed to the pressurized storage tank. As the storage tank fills, the tank pressure rises. When the pressurized storage tank reaches 45 psi, the tank pressure triggers the High-Pressure Switch off, shutting the booster pump and system off.
7. When you open the RO faucet, the water exits the tank, passes through the FT15 post-carbon filter, and is dispensed from the RO faucet. As the RO water is dispensed, the tank pressure will gradually drop back down, triggering the High-Pressure Switch back on to refill the water removed from the tank.



Installation

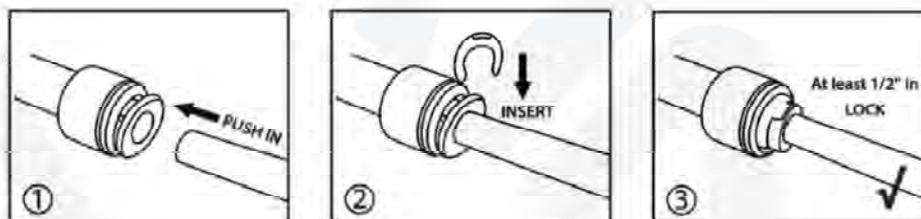
Before you start the installation

- It is highly recommended that you watch the video “**iSpring RCCP Series RO System with Booster Pump DIY Installation | Step by Step**” on YouTube.
- Choose a suitable location for the system. Again, it must be placed on a flat surface and make sure this system is to be installed on **INDOOR** cold-water supply **ONLY**.
- Check the packing list to confirm all accessories are included in the package. Contact iSpring customer service if any components are missing.
- Required tools:

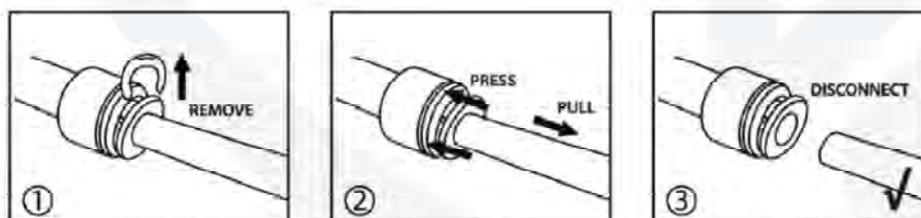


- Recommended tools:
 - Variable speed drill with two bits: 1/4" (for drilling a hole on PVC drain pipe), 1/2" hollow diamond (for drilling a hole on the countertop for drinking faucet)
 - 5/8", 9/16" open-end wrench, or adjustable wrench, pliers
- Quick connect instruction:

HOW TO CONNECT



HOW TO DISCONNECT



It is highly recommended that you watch the video “**How to Connect and Disconnect Quick Connect Fittings | DIY Installation**” on YouTube.

Cut the tubing end squarely using utility knife or scissors. Insert the tubing into the quick connect fitting for at least 1/2". You will need to wiggle the tube and apply additional pressure to create a seal.

Step 1: Install Feed Water Adapter (AFW43)

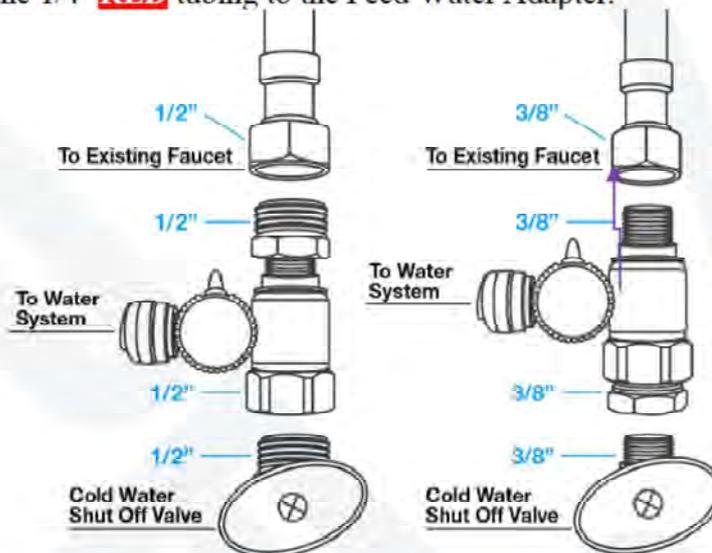
It is highly recommended that you watch the video “How to Install a Feed Water Adapter for Reverse Osmosis (RO) and Other Applications | iSpring AFW43” on YouTube.

Step 1. a. Turn off the Cold Water Supply Valve (CWSV) under the sink and open the kitchen faucet to release pressure. Get a towel or bucket to catch any water drips. Disconnect the kitchen faucet connector pipe from the CWSV.

Step 1. b. Install the Feed Water Adapter onto the CWSV and tighten it using a wrench or pliers. Make sure the O-ring is seated inside the adaptor.

Step 1. c. Re-install the kitchen faucet connector pipe onto the male end of the Feed Water Adapter. Turn the handle of the Feed Water Adapter to the perpendicular OFF position. Turn on the CWSV slowly, and ensure you are getting a proper seal.

Step 1. d. Connect the 1/4" **RED** tubing to the Feed Water Adapter.



The included bushing can be threaded on either side of the Feed Water Adapter to fit the configuration of both 3/8" COMP and 1/2" NPT.

Step 2: Install Drinking Water Faucet



How to Drill a Hole in Sink or Counter-top

1. It is highly recommended that you watch the YouTube video "How to Drill Faucet Holes."
2. Choose a 1/2" Diamond Core Bit for granite and a titanium drill bit for steel. Do NOT use a hammer drill on natural stone, glass, and ceramic.
3. An indent should be made with a punch on steel before drilling to help guide the bit.
4. Use caution when drilling on a Porcelain sink, as it could be easily chipped—set drill speed on slow. Press the bit downward firmly until it breaks through the slippery surface.
5. Use a coolant to disperse heat. Choose water for granite and oil for steel. Use the Water Suction Cup to hold coolant inside and prevent the drill bit from slipping.
6. Hold the drill firmly and vertically at the slowest speed to prevent the drill bit from slipping on the counter.
7. Once you break through the smooth surface, swirl the drill a little to evenly apply pressure in a circle. Be patient and deliberate. It can take 20 – 40 minutes to drill through 1".

Step 2. a. If your kitchen sink does not have an existing 1/2" faucet hole, you will have to drill one. (Refer to ***How to drill a Hole on Sink or Countertop***). Wipe clean, and dry the area.

Step 2. b. Slip the front plate on the faucet stem, followed by the rubber washer. Insert the faucet stem into the hole on the countertop. Under the sink, slip on the back rubber washer, and tighten the nut with the plastic wing.

Step 2. c. Slide the quick connecting up the push-in adapter on the base so that it seats securely into the faucet stem, then lock it in place by sliding the blue clip under the collet.

Step 2. d. Insert the **BLUE** tubing about 1/2" into the push-in fitting, and again, secure it with the blue clip.

Step 3: Install Drain Saddle (ADS1K)



It is highly recommended that you watch the video “**How to Install iSpring Drain Saddle (ADS1K) for Reverse Osmosis (RO) System | DIY Installation**” on YouTube.

Step 3. a. Choose a proper spot anywhere before the P-trap on the drain pipe to install the drain saddle and tubing. Remember the drain saddle should NOT be installed after the P-trap to prevent potential microorganism growth.

Step 3. b. Drill a 1/4" hole in the drain pipe, and paste the black sticky pad around the hole.

Step 3. c. Cut the **BLACK** tubing end to make a 45° angle. Insert the tubing into the 1/4" hole in the drain pipe, install the back plate, and tighten the two screws with hex nuts while the tubing remains in the hole.

Step 3. d. Insert Lock Clip. Pull the tubing lightly to make sure it is secure.

Step 4: Install the Vertical Filters: Stages 1, 2, and 3

Step 4. a. Make sure that the O-ring is seated inside the groove at the top of the filter housing. Food-grade silicone jelly may help the O-ring stay in place and seal better.

Step 4. b. Filter cartridges are preserved in shrink wrap. Note the direction sign on the sticker before removing the wrap.

Step 4. c. When placing the filter cartridge into its housing, make sure it is centered, and the knob is protruding from the bottom of the housing fits in the central hole of the filter.

Step 4. d. Screw the housing, with filters attached, onto the housing caps (caps are pre-assembled on the machine head). The cap also has a center knob that should be inserted into the center hole of the filter cartridge. Twist the housing on in a counter-clockwise direction by hand, and then use a housing wrench to tighten it up for about 1/4 – 1/2 turn. **Do not overtighten. This can cause leaks and make it difficult to unscrew the housing when replacing filters.**

Note the second stage GAC is the only filter that must go in a certain direction. Make sure that the end with the rubber washer faces up, attaching to the housing cap.



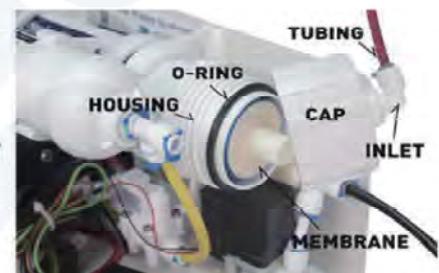
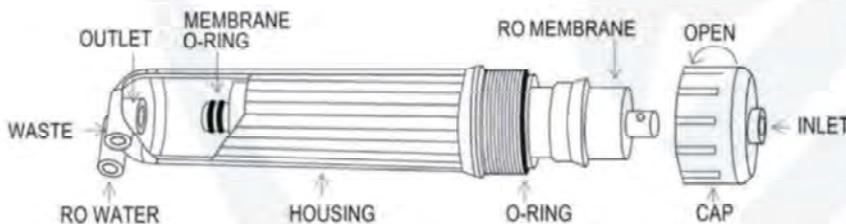
Step 5: Installing Tank Shut-off Valve (ABV2K)

Step 5. a. Add 10 - 15 wraps of Plumber's tape clockwise (when looking from above) onto the metal thread at the top of the tank.

Step 5. b. Screw the Tank Shut-off Valve onto the tank and tighten it by hand. **Do not over tighten.**

Step 5. c. Connect the **YELLOW** tubing into the Quick-Fitting on the TSV.

Step 6: Installing the Reverse Osmosis Membrane



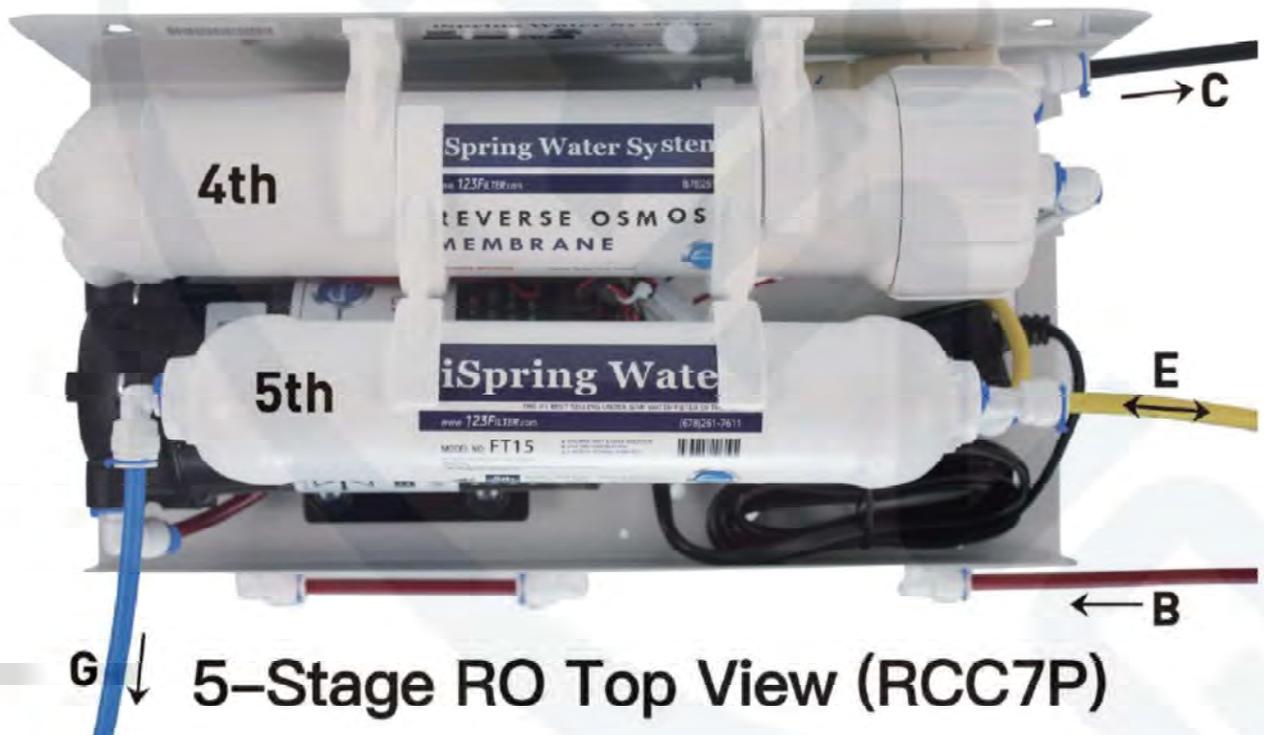
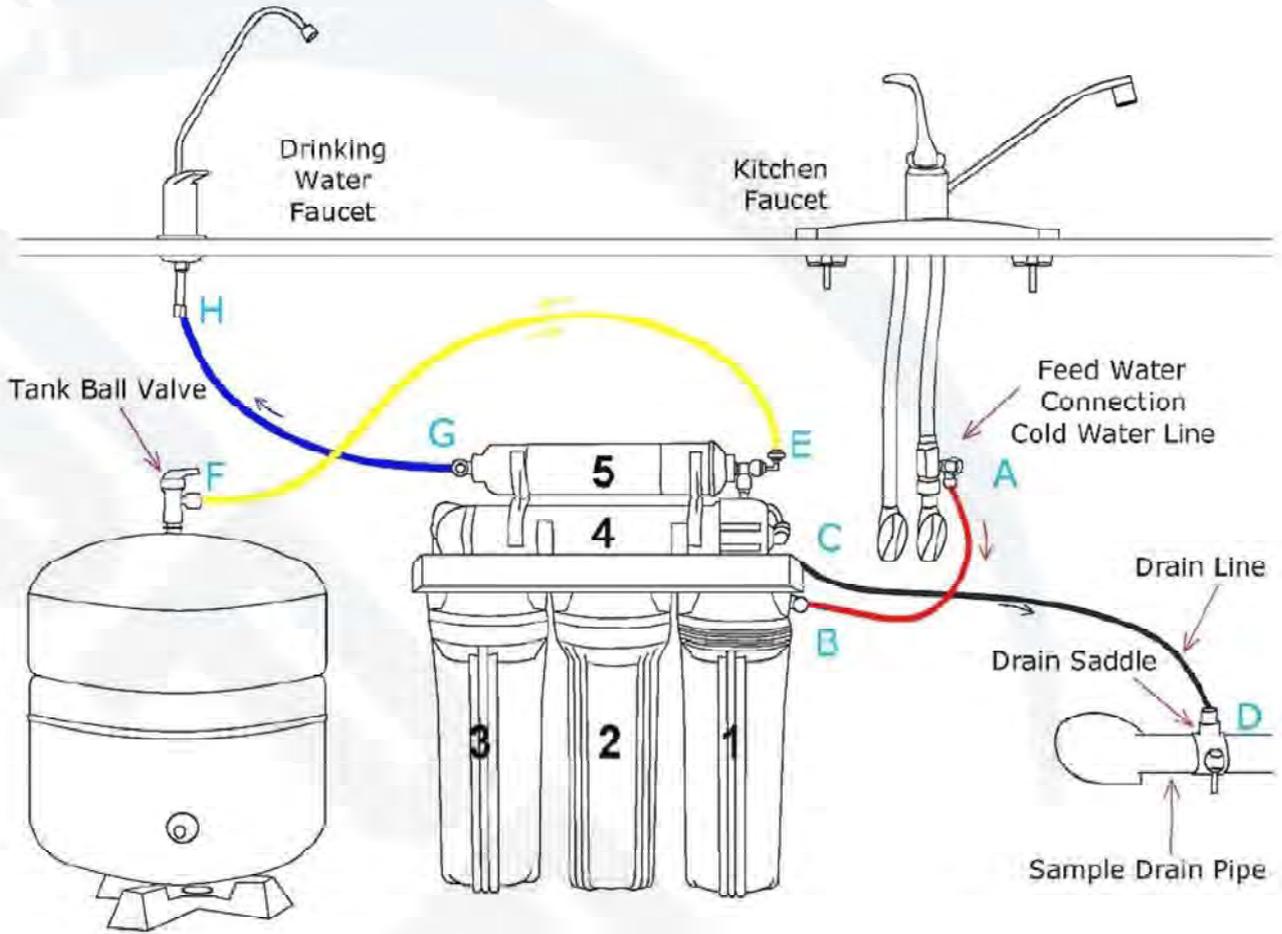
Step 6. a. Disconnect the tubing from the quick-fitting connection on the membrane cap.

Step 6. b. Open the membrane housing cap. A thick rubber band can be slipped on the housing body for better grip.

Step 6. c. Find the **inner end with 2 O-rings**, cut open the end of the sealed bag, use it to hold the RO membrane to avoid contamination, and firmly insert the membrane into the housing until the outer end without O-ring is completely inside the housing. See Figure above.

Step 6. d. Before twisting the housing cap back on, check that the **O-ring is evenly snagged on the membrane housing**. Hang tight and tighten up for about 1/4 – 1/2 turns using a small plastic housing wrench, but do not over tighten. **DO NOT** reconnect the tubing to the inlet on the cap at this point (will do it in system startup).

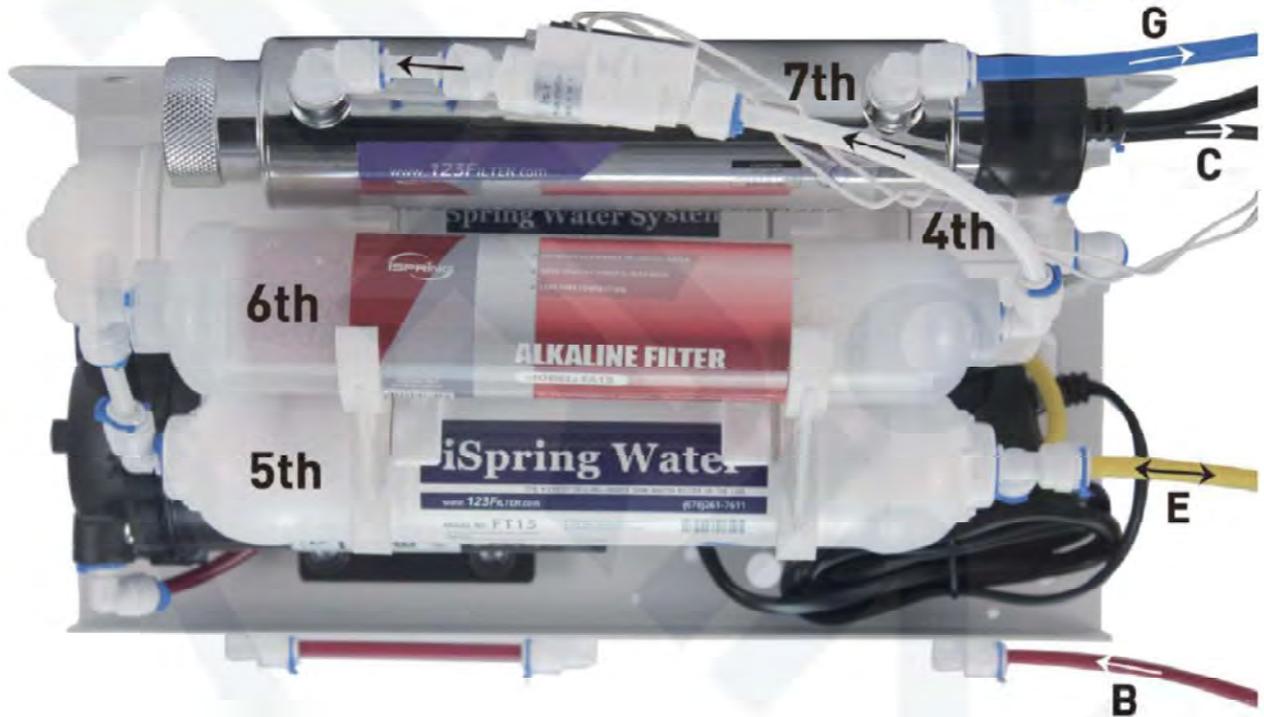
Step 7: Tubing Hook Up



5-Stage RO Top View (RCC7P)



6-Stage RO Top View (RCC7P-AK)



7-Stage RO Top View (RCC1UP-AK)

Note: The sequence of connection for different colors can be adjusted.

RED tubing: connect source water from the Feed Water Adapter (**Point A**) to the 1st Stage water inlet elbow fitting (**Point B**)

BLACK tubing: connect wastewater from the Flow Restrictor (**Point C**) to the Drain Saddle/drain pipe (**Point D**)

YELLOW tubing: install the T-fitting to the 5th Stage Post Carbon Filter (**Point E**) and then connect it to the Storage Tank Valve (**Point F**)

BLUE tubing: connect the 5th Stage Post Carbon Filter (**Point G**) and the drinking faucet (**Point H**)

Note: For models with AK/DI/UV filter, the **BLUE** tubing should be used to connect the output of the final stage and RO faucet (Point H).

You may neatly organize the tubing, but make sure to leave enough length so the filter system can be moved freely in and out of the cabinet when replacing filters.

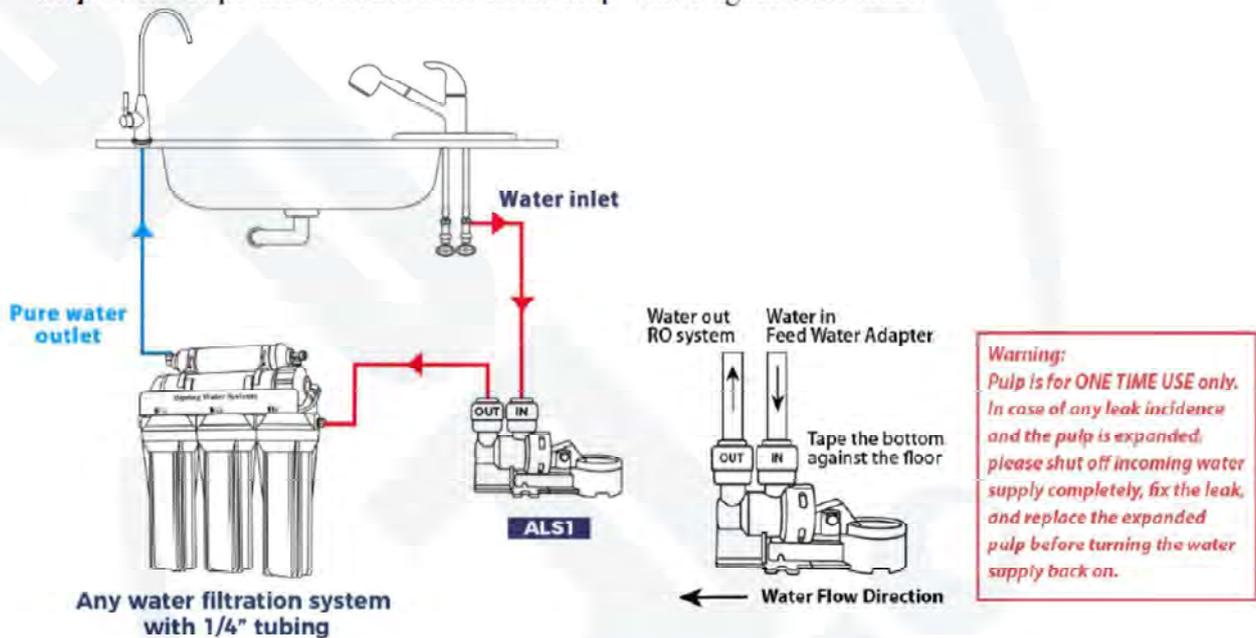
Step 8: Leak Stop Valve (ALS1) Installation

The Leak Stop Valve is a reusable mechanical leakage protector. Whenever a water leakage is detected, it will shut down the feed water.

Step 8. a. Make sure the end of the tubing is cut square before connecting it to the fitting.

Step 8. b. Follow the water flow direction indicated on the Leak Stop Valve to connect it to the water inlet pipeline.

Step 8. c. Tape the bottom of the Leak Stop Valve against the floor.



Step 9: Mounting the System (Optional)

- Mounting the system is NOT required. The system does NOT need to be mounted to work correctly.
- Please note if the system is to be mounted, it is recommended to use two 10 x 1-1/4 Phillips Flat Wood Screws (not included). This will make replacing filter cartridges easier.



Note: If you plan on mounting/hanging the system, it is highly recommended to include supports under each of the bottom three housings. Supports under the housings will take the water weight off the housing threads and ensure the thread strength does not decay over the years.

Step 10: System Start-up (model specific sub-steps are marked with a *)

Note: You may now plug in the booster pump to an outlet. The pump will not turn on until the water is flowing.

* If your model has a UV stage, do not plug in the UV power until the system has been fully flushed.

Step 10. a. Make sure no tubings are kinked. Turn the Tank Shut-off Valve OFF (perpendicular to the **YELLOW** tube). Place a towel under the system to catch any possible water leaks.

Step 10. b. Disconnect the RO membrane housing cap inlet tubing. Open the Feed Water Adapter Valve (AFW43) and Cold Water Supply Valve (CWSV), and flush the first three stages into a bucket until the water turns clear.

Step 10. c. Once the water is clear, shut off the AFW43 and reconnect the tubing to the RO membrane housing cap. **You will want to flush the first three stages like this whenever they are changed.**

Step 10. d. Open the RO faucet. Slowly open the AFW43 and **check for any leaks. The top 3 causes of leaks are 1) The tubing is not fully inserted into the quick-connect fitting. 2) The O-ring is not in the correct place or is kinked. 3) The Housing/Cap is not tightened properly or is misaligned with the threads.**

Step 10. e. Within 5 minutes, the booster pump will kick on, and RO water will start slowly trickling from the faucet. Let the faucet trickle for at least 15 minutes to flush out the entire system apart from the tank. The water may appear black at first due to loose carbon from new carbon filters. It will eventually turn clear apart from many tiny air bubbles leaving the system.

Step 10. f. Shut off the RO Drinking Faucet. Open the Tank Shut-off Valve. Wait for the tank to fill up completely. It will take 1 to 2 hours depending on your water temperature (40°F -100°F, the warmer, the faster) and source water TDS (up to 750 ppm, the lower, the faster). The pump will shut off automatically when the tank is full.

Step 10. g. After the tank is full, open the RO Drinking Faucet to drain the tank completely. **Do not use the first tank of water.** Let it drain into the sink until the stream turns back to a trickle. This means the tank has emptied, and you can close the RO faucet to let it begin filling again.

Step 10. h. * If your system has a UV filter, plug in the UV power and check to ensure the UV light turns on when water flows through it. The UV filter has a Flow Sensor Switch that detects water flow and only turns the light on when needed. If the UV is not turning on when water flows through, confirm the power source you are using has power. Typically, the garbage disposal outlet only has power when the disposal is switched on.

Step 10. i. The TDS (total dissolved solids) of the water should be tested periodically to verify that the system is performing properly. iSpring RO systems have exceeded the minimum requirements for NSF/ANSI standard 58. They should be giving an average TDS reduction rate of 90%+, so if your tap water is 100 ppm, you should be getting 10 ppm or less from the RO water (200/20>, 400/40>, etc This reverse osmosis system contains a replaceable treatment component critical for the effective reduction of total dissolved solids. That product water should be tested periodically. TDS is measured with a TDS meter - it is an inexpensive, easy-to-use device that can be found on Amazon.com or 123filter.com by searching "iSpring TDS."

Step 10. j. Check for leaks daily for the first two weeks after installation to ensure the system is functioning properly. Install the Flood Alarm (optional, model: WD01) to provide additional peace of mind and protection.

Note: Do not use microbiologically unsafe water or unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected water that may contain filterable cysts.

**Congratulations, you have successfully installed your
iSpring Reverse Osmosis Water Filtration System!**

Start enjoying fantastic reverse osmosis water right from your tap!

-----End of Installation Section-----

System Maintenance

All iSpring RO systems are designed with ease of use and low maintenance in mind. If the filter cartridges are changed on schedule as suggested, the system will work properly for years to come. See the chart below for the filter pack model numbers for your system. The filter packs can be found on 123filter.com, Amazon, or HomeDepot.com.

<u>System Model</u>	<u>1-Year Filter Pack</u>	<u>2-Year Filter Pack</u>	<u>3-Year Filter Pack</u>
RCC7, RCC7P	F7-GAC	F15-75	F22-75
RCC7AK, RCC7P-AK	F9K	F19K75	F28K75
RCC7AK-UV	F10KU	F21KU75	F31KU75
RCC7D	F9D	F19D75	F28D75
RCC7U	F8U	F17U75	F25U75
RCC100P	F7-GAC	F15-100	F22-100
RCC1UP	F8U	F17U100	F25U100
RCC1UP-AK	F10KU	F21KU100	F31KU100



STAGE 1 Sediment #FP15 Up to 1 year	STAGE 2 GAC #FG15 Up to 1 year	STAGE 3 CTO #FC15 Up to 1 year	STAGE 4 RO Membrane MC1/MC5/MC7 Up to 3 years	STAGE 5 Post Carbon #FT15 Up to 1 year	STAGE 6 Alkaline #FA15 Up to 1 year	STAGE 6 Deionization #FD15 Up to 1 year	STAGE 6 or 7 UV Lamp #UVB11 Up to 1 year
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*Please note, the general filter cartridge replacement schedule is for reference only. Not all filters included in the same filter pack. Carefully choose the filter pack that suits your RO system. Filter replacement schedule may vary depending on the quality of your source water.

Note: Stages 6 and/or 7 only exist on specific models.

When to change the filter?

The filters are highly suggested to be replaced when they reached their recommended replacement cycle. However, the actual lifespan of filters may vary depending on the source water quality and daily usage. If you notice a great decrease in the tap water flow, or detect a unpleasant smell, taste, and odor, it would be a good time to get your filters changed.

How to change the filters?

Carefully follow the instructions that comes in with the filter package.

O-rings: Replace every 3 years or sooner if leak happens at O-ring.

The package comes with spare O-rings for the pre-filter housing and the membrane housing. Please save them with this manual.

Tank Maintenance

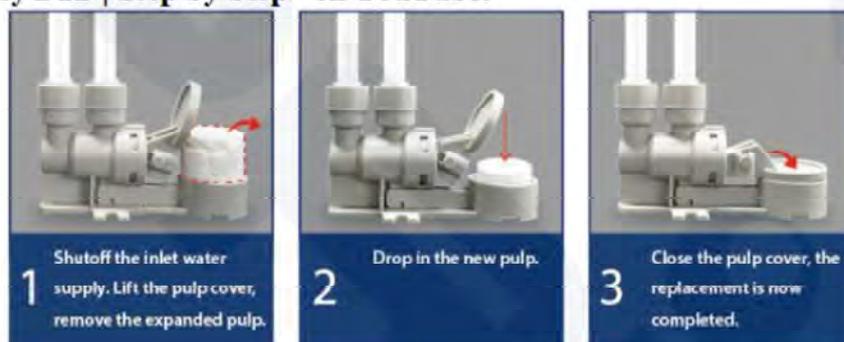
It is recommended to empty and refill the tank at least once a month. This keeps the water inside the tank fresh and not sitting for an extended period.

What should I do with the system when going out of town?

When you are leaving for an extended time, you will want to shut off the water supply to the system and empty the tank. To do this, close the knob on the feed water adapter, and open the faucet until it stops running. This will signify that the tank is empty. The filters should be replaced if the system is not used for over a week as they will be sitting in stagnant water.

Leak Stop Valve Pads (ALS1P3) Replacement

It is highly recommended that you watch the video “Absorb Pad Replacement of iSpring Leak Stop Valve | Easy DIY | Step by Step” on YouTube.



Optional Add-on

Ice Maker Connection Kit (Model# ICEK)

The iSpring ICEK can be purchased separately to feed RO water to your refrigerator for crystal clear ice cubes and great tasting water. It can be easily installed to connect the RO system to the ice maker or water dispenser of your fridge.

TDS Test Meter (Model# TDS2 or TDS3)

The TDS test meter can be used to check your tap water quality regularly and help determine the time for filter replacement.

Tubing (Model# T14B or T14W)

1/4" food-grade tubing in a 50' roll, which is good to use for tubing replacement and extension as needed.

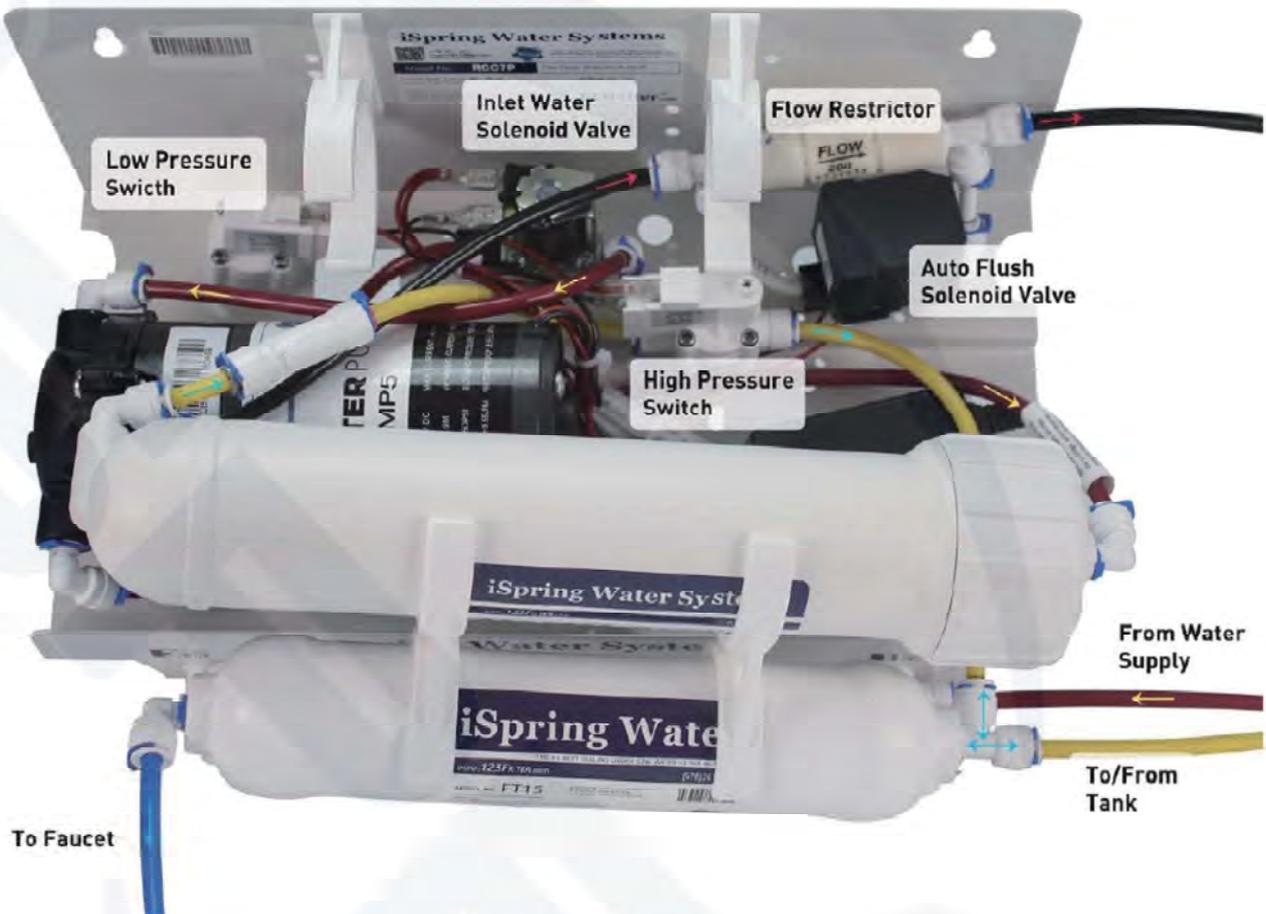
Top Mount Faucet Installation Kit (Model# AIG1)

A US patent pending tool-free product for Countertop RO faucet installation. It works great for countertops with 1" - 1 1/2" (D) holes and also fits standard 7/16" drinking faucet stem. It is highly recommended that you watch the video “How to install a drinking water faucet WITHOUT reaching under sink | iSpring AIG1 Installation Kit” on YouTube.

iSpring Tanks

This RO system can be used with a 20 – 200 gallons storage tank. A tank helps meet the impulsive high volume demand and build a commercial or whole house Reverse Osmosis solution.

Troubleshooting Guide



1) Zero output water from RO faucet

- a) Water supply is closed. Open the water supply to the system, so the valve is in line with the red tubing.
- b) Incorrect installation. Verify all tubing connections.
- c) The pump is not running, therefore not allowing water through. Make sure the pump is plugged into a live outlet that gets continuous power.
- d) A tubing is crimped, blocking the water flow. Check all tubings and uncrimp any crimped tubings.

2) Tank not filling after several hours

- a) Pump is not running, therefore not allowing water to pass through. See "Pump does not start."
- b) Incorrect installation. Verify all tubing connections.
- c) Tank valve is closed. Make sure the tank valve is in line with the yellow tubing.

3) Leaking from where the tubings are inserted into the fittings

- a) The tubing is not pushed in past the O-ring inside the fitting, therefore not creating a seal. Make sure the tubing is pushed in a full 1/2" into the fitting. It will take some extra pressure, but you will feel the tube go entirely into the fitting when it does so.
- b) The O-ring inside the fitting is not creating a seal with the tubing. Unscrew the elbow fitting, and replace it with one of the extra elbow fittings. Make sure to wrap the new fitting thread several times with Teflon tape before screwing it in.

4) Leaking from between the membrane cap and membrane housing

- a) If the membrane housing is leaking, make sure the O-ring is seated correctly, as shown in sections "Installing the RO Membrane" and "How to Change the RO Membrane." It should

be seated on the end of the membrane housing before the threads begin. The membrane cap is then screwed on over it. When positioned incorrectly, it will create a gap or damage the O-ring. When in the correct place, there will not be any pressure or tension on the O-ring.

5) Low water flow (trickle) at RO faucet

- a) Tank has not been given a chance to fill. Allow approximately two hours for the tank to fill.
- b) Tank valve is closed. Make sure the blue tank valve is in line with the yellow tube.

6) High TDS in RO water

- a) The system will provide a 90%+ TDS rejection rate when working correctly. Meaning if your tap water TDS is 500 ppm, the water from the system should be 50 ppm or lower.
- b) Incorrect installation. Verify all connections on the system.
- c) If the TDS of the tap water and water from the system is about the same, ensure the RO membrane is installed. The semi-permeable membrane is blue, comes in sealed packaging, and goes in the stage 4 membrane housing.
- d) If you are getting some reduction in TDS but not 90%+, some water could be bypassing the membrane. Contact iSpring customer support to identify the exact cause.

7) Cloudy water after installation

- a) In the weeks after installing the system or changing the filters, you will see many tiny air bubbles in the RO water. This can cause the water to appear "cloudy." The bubbles will disappear as the system clears itself of trapped air and are harmless for the time being.

8) The system drains water 24/7 (continuous drain)

- a) Keep in mind that it will take anywhere from 1-3 hours for the system to fill the tank from empty, and the drain line will be trickling during this time. If the drain line continues to run for 4+ hours, one of the following reasons could be the problem.
- b) The pump is running 24/7. See "Pump runs 24/7".
- c) The inlet water solenoid valve is bad and cannot shut off the incoming water supply.

9) Leak from tank valve connection

- a) Make sure you have applied Teflon tape to the tank threads before screwing on the tank valve. There should be at least 8-10 wraps of Teflon tape to ensure a proper seal. If you have done this and it continues to leak, contact iSpring customer support for a replacement.

10) Water from the system tastes the same as tap water

- a) Incorrect installation. Verify all connections on the system.
- b) The RO membrane is not installed in the housing. Ensure the membrane has been installed.

11) Pump does not start

- a) No power. Make sure the pump is plugged in. If it is plugged in and still not kicking on, make sure it is not plugged into the same outlet as the garbage disposal. Typically this outlet only has power when the garbage disposal is switched on.
- b) Incoming water pressure is below 30 psi. The low-pressure switch kicks on the booster pump at 30 psi, and if this pressure is not reached, the pump will not turn on.
- c) Low-pressure switch is not functioning correctly and is therefore unable to turn the pump on.

12) Pump runs 24/7

- a) If the pump is running 24/7 and the output flow remains normal, the high-pressure switch is faulty and not triggering the pump to turn off.
- b) If the pump is running 24/7 and you are getting little to no output flow, either the check valve is losing pressure, or the pump itself is faulty.
- c) Tank pressure is too low, never reaching the pressure required to shut the pump. Empty the tank and set it between 7-10 psi, and reconnect.

Glossary and Terms to Know

Add-On Kit (#ACL1): Filter add-on kit for adding additional in-line filters to an existing system. It comes with quick-connect elbow fittings, filter clamps, and extra tubing

Alkaline Remineralization Filter* (#FA15): 6th stage. Remineralizes the RO water and neutralizes the pH

Auto Flush Solenoid Valve (#ASOF7): Automatically flushes the RO membrane to preserve membrane life and efficiency

Booster Pump (#PMP5): 24-volt booster pump used by residential iSpring RO systems

Check Valve (#ACV1K): One-way valve that does not allow water back into the membrane housing. It looks like a standard fitting and is located on the RO water port of the membrane housing

CTO Carbon Block Filter (#FC15): 3rd stage. 5-micron 10" carbon block filter. Further reduces any residual chlorine, tastes, and odors before the water reaches the RO membrane

Drain Saddle (#ADS1K): Attaches to your under-sink drain pipe to secure the drain tube coming from the system

Drinking Faucet (#GA1-BN): The output source for the RO water. The faucet is a non-air gap faucet with a 1/4" tubing connection. The optimally sized counter-top hole for the faucet is 1/2", but holes up to approximately 1 1/2" will work

Elbow Fittings (#4044K): Quick connect elbow fittings used on the system (except the membrane housing and cap). 1/4" tubing connection and 1/4" NPT male thread

Feed Water Adapter (#AFW43): It goes in line with your cold water line and branches off a water supply line to the RO system. Can adapt to 3/8" and 1/2" cold water lines

Feed Water Solenoid Valve (#ASOW7): Opens the water supply to the booster pump when the low-pressure switch and high-pressure switch are both on. Shuts off the water supply when one or both turn off

Flow Restrictor (#AFR200): Limits the drain water flow, keeping pressure in the system and allowing the RO process to occur

Flow Sensor Switch* (#FSS): Detects water flow to turn the UV filter on and off as needed

GAC Filter (#FG15): 2nd stage. 5-micron 10" granulated activated carbon filter. Reduces chlorine, tastes, and odors from the water

GPD: Gallons Per Day

High-Pressure Switch (#AHP1): Receives pressure signals from the pressurized storage tank. It turns on when the tank pressure is below 20 psi and turns off when tank pressure reaches 45 psi (e.g., tank full)

Housing Wrench for Membrane and Stages 1, 2, and 3 Housings (#AWR2): Housing wrench used to screw on and unscrew the membrane housing cap and the stage 1, 2, and 3 filter housings

Ice Maker Kit (#ICEK): Add on kit that allows you to run water from the system to your fridge ice maker or fridge water dispenser

Leak Stopper (#ALS1): Protects from any possible leaks by cutting off the water supply when the sponge absorbs water

Low-Pressure Switch (#ALP1): Turns on when the source water pressure reaches 6 psi, turns off when source water pressure drops below 6 psi

Membrane Housing and Cap (#NW12): Horizontal housing that the RO membrane is inserted into

Membrane Housing O-Ring (#ORM): 2 1/2" O.D. O-ring used to create the seal between the membrane housing and the membrane cap

Post Carbon Filter (#FT15): 5th stage. Works as a final polishing filter before the water is delivered to the faucet

PPM: Parts Per Million, a unit used to measure TDS readings

Pressurized Holding Tank (#T32M): 3.2 gallons capacity pressurized water holding tank. The air bladder forces the water to the drinking faucet when the faucet is opened. The tank comes pre-pressurized and should read 7-10 psi when empty

psi: Pounds Per Square Inch, a unit used to measure water pressure

Quick Connect Fitting: A secure, easy-to-connect, and disconnect type of fitting used on the system. The tubing is inserted past the tiny O-ring located inside each fitting, then locked into place by the spider lock and blue clip

Reverse Osmosis (RO) Membrane (#MC7 / #MC1): 4th stage. High rejection, 0.0001 micron, thin-film composite (TFC) reverse osmosis membrane, the heart of the reverse osmosis process

Sediment Filter (#FP15): 1st stage. 5-micron 10" polypropylene sediment filter. Traps particulate matter such as dirt, rust, and silt

Stage 1, 2, and 3 housing O-Rings (#ORF): 3 5/8" O.D. O-ring used to create the seal between the stage 1, 2, and 3 filter housings and their respective caps

Stage 1 See-Through Sediment Filter Housing (#HC12): Transparent stage 1 housing holds the sediment filter. The see-through housing allows for the sediment filter to be visually inspected

Stage 2 GAC Filter Housing (#HW12): Solid white housing that holds the stage 2 GAC filter

Stage 3 CTO Filter Housing (#HW12): Solid white housing that holds the stage 3 CTO filter

T Fitting on Stage 5 Post Carbon Filter (#7544K): T fitting located on the right side of the stage 5 Post Carbon Filter

Tank Valve (#ABV2K): On/off valve that screws onto the top of the tank

TDS: Total Dissolved Solids, a measure of the contamination level of a water source

TDS Meter (#TDS3): Handheld meter used to measure water quality

Transformer for Booster Pump (#ATRF5): Power supply used for the PMP5 booster pump on residential iSpring RO systems

Tubing (#T14B / #T14W): 1/4" food grade tubing used on the system

UV Replacement Bulb* (#UVB11): Replacement bulb for the UV filter

UV Transformer/Ballast* (#UVT11A/UVT11B): Power supply for the UV filter. Indicator lights on the ballast will only light up when water is flowing. UVF11A is for 110V power sources, UVF11B is for 220V power sources

iSpring Standard Limited Warranty (End-Users Only)

In order to be eligible for this warranty, the end-user must register at www.123filter.com.

For all water filtration systems, and upon registration by the end-user, iSpring Water Systems, LLC (iSpring) warrants for a one year from the date of purchase that the product is free of defects in materials and workmanship and that it will function for the duration of the warranty according to its specifications (the "Limited Warranty"). EXCEPT FOR THIS LIMITED WARRANTY, ISPRING EXPRESSLY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTIES OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. iSpring has no liability for any defect or deterioration which results from the improper installation, service, repair or use of the product. End-user's sole and exclusive remedy for any breach of the Limited Warranty shall be repair or replacement, at iSpring's option and expense. This warranty is only provided to end-users and only applies to products purchased directly from an authorized iSpring dealer or reseller.

However, we do not have the order information from websites other than 123Filter.com (Amazon, Home Depot, etc.), so please be sure to fill in that information upon registration of your system. If you have any questions or concerns about your product, please do not hesitate to call or email us, or put it in the notes/comments upon your warranty registration. Your satisfaction is our business!

If you are happy with our products and service, please show your support by writing a product review on Amazon, even just a single line. It takes you just a minute but means a lot to us. Thank you!

Warranty Registration Form

Name _____ Order# _____

Email _____ Phone _____

Address _____

City _____ State _____ Zip Code _____

Model #/ Serial Number

Purchased at (e.g. Amazon, Home Depot)

iSpring Water Systems, LLC
2480 Industrial Park Blvd, Cumming, GA 30041
678-261-7611

Plumber's information (Optional)

To best serve our customers, we'd like to recommend good plumbers throughout the USA. If you are happy with your installer, please provide their information so that we can pass it on as a courtesy.

Thank you!

Name of the plumbing company used to install your system:

Phone #: (____) - _____ or email : _____
of the technician.



Like our products?
Please show your support by writing a product review on the marketplace where you make your purchase. Even just a quick statement means a lot to us.

Thank you!

iSpringFilter.com



For questions, comments, or technical support, please contact us at:

✉ support@123filter.com

☎ +1 (678) 261-7611

💬 +1 (470) 560-0012

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