

Condair RO-H Reverse Osmosis System



Condair RO-H Reverse Osmosis System User Guide

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Condair RO-H Reverse Osmosis System



Product Information

Specifications

- **Model:** Condair RO-H
- **Capacity:** 4.8 gal (18 l) tank, 3.17 gal (12 l) tank
- **Intended Use:** Humidification and Evaporative Cooling

Product Overview

The Condair RO-H Reverse Osmosis System is designed for humidification and evaporative cooling purposes. It ensures safe use, performance, and longevity of the equipment. This system is intended for use by engineers and properly trained technical personnel. Please read the manual thoroughly before specifying, designing, or installing the RO System from Condair Ltd.

Product Usage Instructions

Introduction

- **First things first:** Familiarize yourself with the Condair RO-H Reverse Osmosis System.
- **About this quick starting guide:** This guide is meant to provide quick setup instructions for initial use.

For your safety

- **Intended use and not intended use:** The pure water from the RO system is not for drinking and should not be connected to any drinking water outlet.
- **Hygiene:** Follow local health and safety guidelines to prevent the growth of microorganisms in the system.
- **Ensure safe operation:** Operate the system following safety guidelines provided in the manual.

- **Qualification of personnel:** Only qualified personnel should perform installation and maintenance work on the system.
- **Important note regarding warranty:** Warranty details are provided in the Installation, Operation, and Service Manual. Failure to follow installation and maintenance recommendations may void the warranty.

Product Overview

- **Condair RO-H description:** The system is designed for humidification and evaporative cooling purposes.

FAQs

- **Q: Can the RO water from this system be consumed?**

A: No, the pure water produced by the RO system is not for drinking and should not be connected to any drinking water outlet.

- **Q: What is the warranty coverage for the RO-H parts?**

A: RO-H parts are covered by a two-year warranty from the invoice date, except for replacement parts listed in the routine maintenance section.

Introduction

First things first

Thank you for choosing the Condair RO-H Reverse Osmosis System.

The Condair RO-H Reverse Osmosis System incorporates the latest technical advances and meets all recognized safety standards. Nevertheless, improper use of the Condair RO-H Reverse Osmosis System may result in danger to the user or third parties and/or property damage. To ensure a safe, proper, and economical operation of the Condair RO-H Reverse Osmosis System, please observe and comply with all information and safety instructions contained in the present documentation as well as in the separate documentation of the components used together with the Condair RO-H Reverse Osmosis System. If you have questions after reading this documentation, please contact your Condair representative. They will be glad to assist you.

About this quick starting guide

The subject of this manual is the Condair RO-H Reverse Osmosis System. This manual has been written to ensure the safe use, performance and longevity of the equipment, and is intended for use by engineers and properly trained technical personnel. Please read this manual thoroughly before specifying, designing or installing an RO System from Condair Ltd. Keep for future reference. As our policy is one of continuous research and development, we reserve the right to amend, without notice, the specifications provided in this document. Condair Ltd. does not guarantee nor accept liability for the accuracy of information in this document.

Scope of delivery

RO-HM:

- RO-H base
- Pressure tank 4.8 gal (18 l) including mounting kit
- Installation kit RO
- Sediment filter 5 µm
- Granular Active Carbon Filter
- RO Membrane 400 gal

- Wrenches (3x)



4.8 gal (18 l) tank

RO-HB:

- RO-H base
- Expansion tank 3.17 gal (12 l) including fittings
- Installation kit RO
- Sediment filter 5 µm
- Granular Active Carbon Filter
- RO Membrane 400 gal
- Wrenches (3x)
- Housing cover



3.17 gal (12 l) tank

For your safety

Intended use and not intended use

The Condair RO-H Reverse Osmosis System is intended to be used exclusively for pure water production within the operating conditions as specified in the Installation, Operation and Service Manual, chapter 5.3 and must not be installed/used in explosion hazard areas. Any other use without the written consent of Condair is considered as not conforming with the intended purpose and may lead to the Condair RO-H Reverse Osmosis System becoming dangerous and will void any warranty. Operation of the equipment in an intended manner requires that all the information contained in this manual are observed (in particular the safety and hygiene instructions).

Not intended use

Pure water (RO water) is not drinking water and must not be connected to any drinking water outlet.

Hygiene

Please observe the local health and safety executive's technical guidance on the control of Legionellosis in water systems. The user is responsible for ensuring that the water system complies with local regulations, bylaws and guidelines (such as the HSE ACoP L8, VDI 6022, ISO 22000, HACCP or equivalent). If inadequately maintained, the RO System, can support the growth of microorganisms, including the bacterium that causes Legionnaires' disease. The RO-H is produced according to best hygiene standards, which means that we have considered all

aspects of this equipment to reduce the risk of Legionnaires' disease and other similar conditions. However, the user is responsible for ensuring that the installation, operation and maintenance work on the equipment is performed in a manner, ensuring that the system stays clean!

1. Guidelines to ensure your system stays clean and prevent the growth of Legionella

- Carry out a risk assessment of the water system using a competent person and implement an appropriate monitoring and control program.
- Initiate procedures for checking the system, cleaning tanks, changing filters, disinfection etc.
- The RO-H must be connected to a clean, potable mains water supply.
- Enter into a service contract that suits you or your company.
- Stop the system if polluted drinking water is found in your area.
- Avoid water temperatures above 77 °F that favor the growth of Legionella. If the water temperature surpasses 86 °F, the RO-H cannot be used in connection with a Condair MN.
- Do not stop the system unless it is faulty or leaking (avoid water stagnation).
- Disinfect the Condair RO-H System at least once a year and after every maintenance or repair. Always carry out a complete system disinfection inclusive humidifier if it has been turned off for more than 48 hours.
- Have water samples taken and tested for harmful bacteria at least once a year.
- Conduct follow-up measurements until the system is clean if bacteria have been detected in the system.

The Condair service team can help. Condair has expert technicians who can provide:

- Bacteriological troubleshooting on-site
- Cleaning and disinfecting
- Preventive maintenance
- Repair and fault finding
- Training and guidance

Ensure safe operation

If it is suspected that safe operation has been compromised, the RO-H should immediately be shut down and secured against accidental power-up.

Shut down the RO-H if:

- Components are damaged, worn or very soiled.
- The RO-H does not work correctly.
- Joints, pipes or hoses are leaking.

No modifications must be made on the RO-H without the manufacturer's consent. All persons working with the RO-H must report any alterations made to the RO-H to the owner immediately. Use only original accessories and spare parts available from your Condair representative.

Qualification of personnel

All installation work must be performed only by persons who are familiar with the Condair RO-H System and sufficiently qualified for such work. All work on electric installations must only be performed by adequately qualified electricians.

Further details of qualification of personnel, safety considerations and warranty can be found in the complete Installation, Operation and Service Manual.

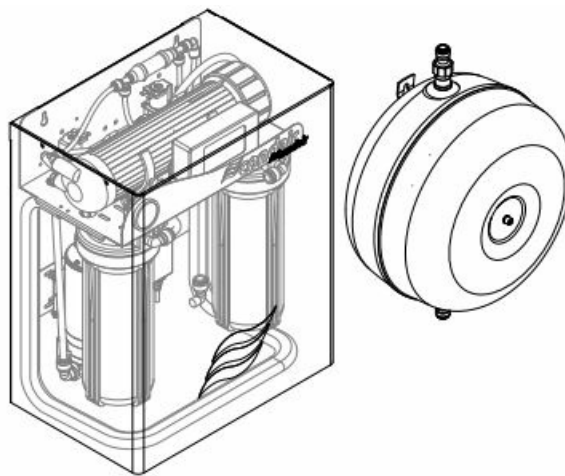
Important note regarding warranty

RO-H parts are covered by a two-year warranty from the invoice date except the replacement parts listed in the routine maintenance section. Failure to observe the manufacturer's installation and maintenance recommendations and instructions will invalidate the warranty. Condair Ltd. cannot be made liable for damage or injury attributable to failure to observe the manufacturer's installation and maintenance recommendations and instructions.

Product Overview

Condair RO-H description

Reverse osmosis system (from now on called RO) with reservoir tank for removal (>95 %) of salts and minerals in tap water. The systems are designed by Condair Ltd. with focus on reliable and hygienically correct solutions. The system uses a membrane separation process in which water molecules can pass through the membrane, while the majority of salts and minerals are retained and thereafter flushed out to drain. From the inlet, the water passes through a two steps of filtering before reaching the RO membrane. First step is an activated carbon filter to remove any residual free Chlorine in the inlet water. The second filter step is a sediment filter to remove particles above a size of 5 µm.



Inlet water quality requirements

The quality of the water being used in the Condair RO-H System should be checked before system commissioning. The RO-H system must be connected to a clean, potable drinking water quality mains. If the inlet water does not meet the quality specified in the preconditions table in Chapter 3.3, it may be necessary to install additional water treatment.

Installation considerations

Do not install the RO-H in a room that often surpasses an air temperature of 77 °F. Also keep installation away from heat-producing applications, such as boiler, central heating etc.

Observe the following restrictions concerning the length of piping:

- Junction from tap water line to RO inlet: max. 6.5 ft
- RO to tank: max. 6.5 ft
- Tank to product inlet: max. 9.8 ft
- RO to drain siphon: max. 16.3 ft

Preconditions for Condair RO-H water treatment:			
Water supply:	Tap water / drinking water quality, no pathogens allowed		
Incoming dynamic pressure at max. flow	8–50 psi *1)		
Min. flow requirement at min. dynamic pressure of inlet water connection	52.8 gal/h		
*2) Water temperature (**)	41–77 °F *3)		
	pH in incoming water		
	pH 6.5–7.0	pH 7.1–7.5	pH 7.6–8.0
*2) Max. US hardness	31 gpg	18 gpg	10 gpg
*2) Max. conductivity incoming @ pH:	1300 µS/cm	750 µS/cm	600 µS/cm
*2) Max. TDS incoming @ pH:	210 ppm/gal	130 ppm/gal	100 ppm/gal
*1) If the pressure exceeds 50 psi, it is mandatory to install a pressure reducer upstream of the RO-H in the supply line, which is set to 50 psi max. pressure. A suitable pressure reducer is available from Condair (2600230). *2) If any of these values are higher, a water softener should be installed in front of the RO-H. ** When used with Condair MN max. 68 °F *3) The RO-H may only be connected to a cold water line.			

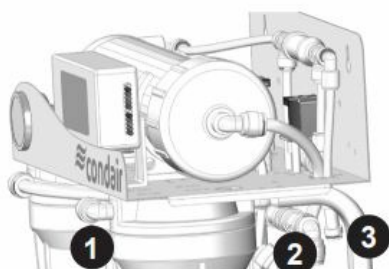
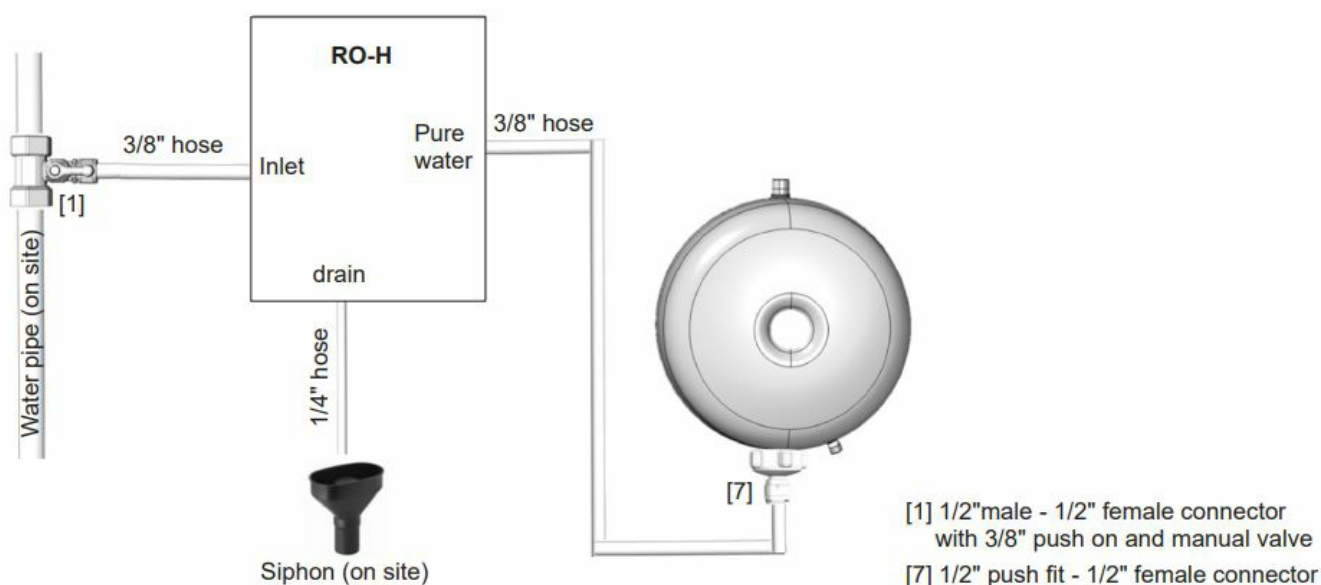
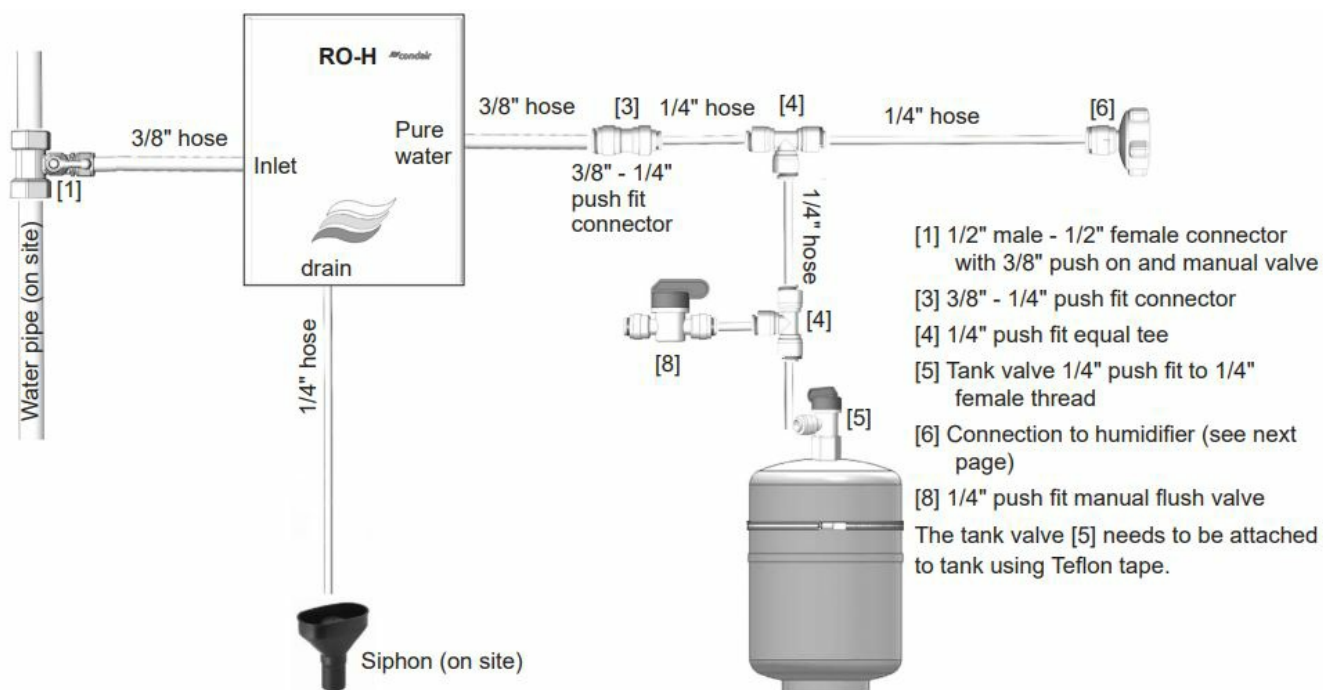
Installation Condair RO-H

Important notes on installation

- **WARNING!** Do not retighten/unscrew hoses while the system is pressurized!
- **CAUTION!**
 - Do not use oil, grease, glue, silicon, O-ring lubrication, etc.
 - when assembling pipes or hose connections.
 - All of the above products can act as food for bacteria and are thus pose health risks.
 - Only approved lubricant: Liquid dish soap.
 - Wash your hands before or wear clean gloves while assembling parts in direct contact with water.
 - Keep dust covers on pipes and hoses until just before assembly.
- **CAUTION!** Do not fasten the pump station or hoses/pipes to vibrating installations.

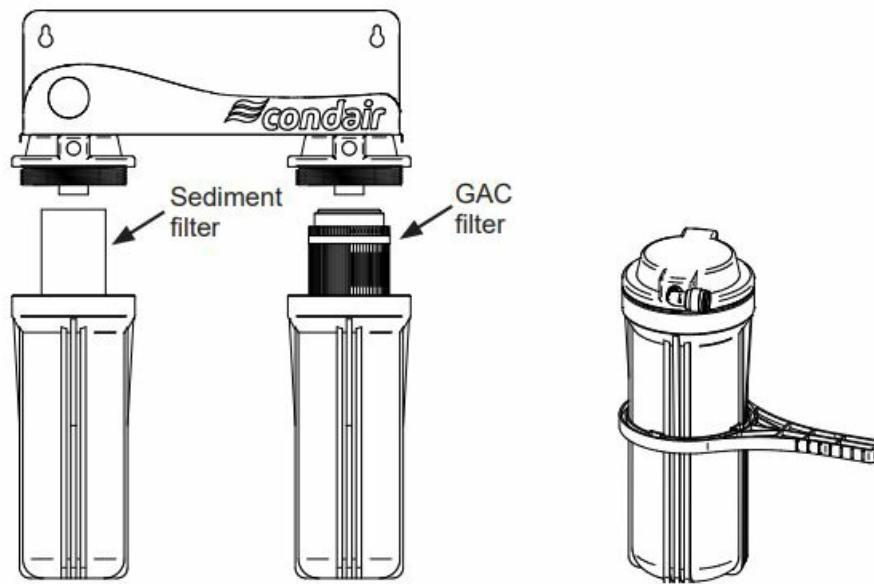
1. Water piping and connections

The following flow diagram shows the needed fittings and their placement for RO-HM. Please follow the information strictly.

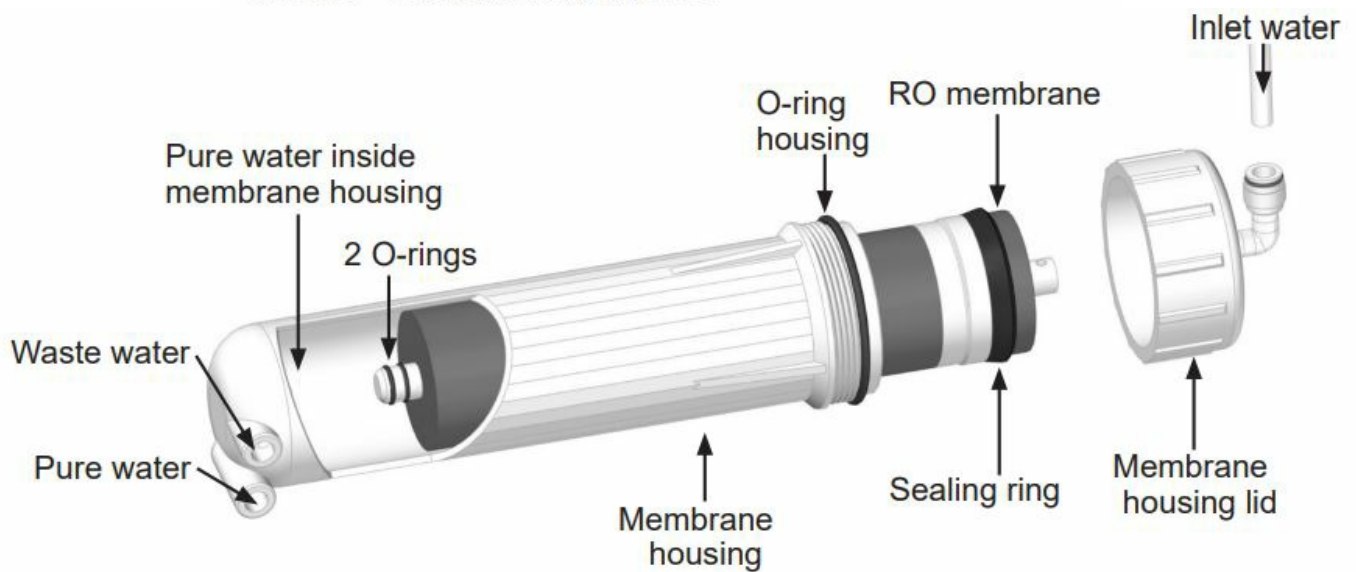


Installation of filters and RO membrane

CAUTION! The first time a new RO membrane is to be used, it is important to flush out any preservation fluids so that they do not end up in the system.



GAC filter = Granular Active Carbon filter



Maintenance

For regular maintenance please consult the full Installation, Operation and Service Manual.

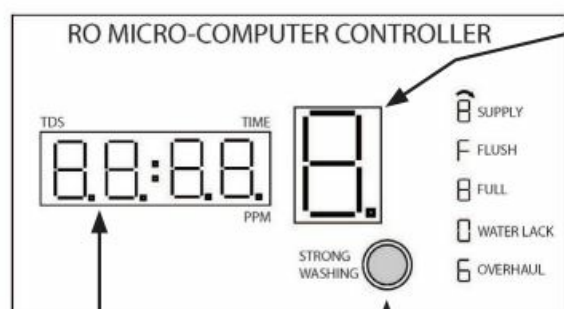
Maintenance work

To ensure safe, hygienic and economic operation of the RO-H, vital components must be checked and maintained periodically according to the table below. The maintenance intervals and maintenance work stated below are guideline values. Local conditions, quality of the water etc. could influence the maintenance intervals. The relevant personnel is responsible for any maintenance work not carried out.

Service, to be carried out	Service interval [months]
Control weekly monitoring checklist	12
Check the condition of the pump (pressure & noise) pressure should be min. 60 psi above inlet water pressure – if pressure is unstable – replace filters and test again.	12
Functional testing of pressure switch. Close inlet water and check that system stops – Close pressure tank valve and check that RO system stops. "8" should be shown in display.	12
Leak testing (check for leaks).	6
Disinfection/cleaning of tank	12
Control units	
Test display for errors (visual inspection)	6
Hygiene	
Disinfection/cleaning of the system	12

Controller menu

The computer box controls the working status, to ensure the machine work normally, and the RO membrane is in good working condition.



Function display:

- F: Flushing
- Running 8: Water production
- Lit 8: Tank full, not water need
- Lit 0: No water, too low incoming pressure
- Lit 6: Service needed

Quality flush
countdown
+ TDS display

Manual quality flush

Letter state	Display instructions
8 (dynamic rotation) means water production	When the high-pressure switch detects that the water pressure in the tank is lower than the set value, the water purifier enters the water production process.
F means flushing	Flushing of RO either at startup or when the “strong washing” button has been pressed. If there has not been any pure water production within 12 h, the function is triggered automatically.
8 (static display) means the water tank is full and there is no water demand	When the high-pressure switch detects that the water pressure in the tank reaches the set value, the RO will stop production.
0 means lack of water	When the low-pressure switch detects that the inlet water pressure is lower than 8 psi, the water purifier will stop working and the buzzer sounds.
6 means maintenance	The buzzer sounds. A service (filter, RO membrane change) is necessary. Please contact Condair Service.

Troubleshooting

Fault indication	Cause of the problem	Indication	Resolution
RO not starting	Power off	Lights off on RO Detected by humidifier – low water pressure	Plug power. Check power supply.
	No water	Status of RO = “0”	Check inlet valve.
	Too low water pressure	Detected by humidifier – low water pressure	Check raw water pressure.
	High/low-pressure switch damaged		Switch needs replacement. Call Condair support.
No pure water production / no visible drain water	Inlet valve failed to open or clogged	No drain/pure water on RO. Detected by humidifier – low water pressure	Inlet valve needs replacement. Call Condair support.
	Check valve blocked.	No pure water, only drain water on RO. Detected by humidifier – low water pressure	Check valve needs replacement. Call Condair support.
	Check valve defect.		
	RO membrane clogged or scaled	Very little pure water on RO. Detected by humidifier – low water pressure	Replace RO membrane, check incoming water quality and drain valve.
RO starts over repeatedly	Expansion/pressure tank defect	Detected during optical inspection of RO. Detected by humidifier – low water pressure.	Replace tank.
	System loses pressure (possible leak)	Insufficient water production. Detected by humidifier – low water pressure.	Call Condair support. Locate leak and replace defect part(s).
	High-pressure switch defect	Insufficient water production. Detected by humidifier – low water pressure.	Switch needs replacement. Call Condair support.
Permeate quality decreases	Membrane defect	TDS meter in RO display will indicate a value >30. Detected by humidifier – filter exhausted.	Replace membrane.
Permeate flow decreases (below 5.3 gal/h)	Membrane scaled or clogged	Detected by humidifier – low water pressure.	

Product Data

Technical parameters	Unit	Value
Voltage/frequency; protection	VAC / Hz	110–120 / 60 *1)
Power Rating	W	90
Incoming water quality		Tap water

Incoming conductivity (see page 12)	µS/cm	150–1000
Incoming TDS	ppm	95–700
Incoming pressure (see page 12)	psi	8–50 *2)
max. permissible operating pressure	psi	116
Incoming water temperature	°F	41–77 *3)
RO permeate capacity @ 5 °C	gal/h	4.5
Salt rejection	%	95–98
Water efficiency	%	≈ 50/50
Output pressure	psi	43.5–87.0
Prefilter 1	Act. Carbon	
Prefilter 2	Micron	5
Low pressure switch trigger	psi	8
High pressure switch trigger	psi	32.0–43.5
Tank sizes and types	gal (liter)	3.17 (12) Expansion tank 4.8 (18) Pressure tank
Noise	dBA	<50
Connection inlet		Adapter to 3/8" push to connect
Connection pure water		JG 3/8" push fit
Connection drain		JG 1/4" push fit
Outer dimensions RO (HxLxW)	inch	18.3 x 14.0 x 8.5
Outer dimensions hood (HxLxW)	inch	18.5 x 15.2 x 9.8
Outer dimensions tank 3.17 gal (12 l) DxH	inch	12.68 X 8.15
Outer dimensions tank 4.8 gal (18 l) DxH	inch	11.0 x 16.7
Weight RO	lbs	18.7
Weight hood	lbs	8.8
Weight tank 3.17 gal (12 l)	lbs	13.2
Weight tank 4.8 gal (18 l)	lbs	9.0

- The Condair RO-H is energized by 24 VDC from an UL-listed class 2 power source. The system needs to be

protected by a ground fault circuit interruptor ≥ 5 A.

- If the pressure exceeds 50 psi, it is mandatory to install a pressure reducer upstream of the RO-H in the supply line, which is set to 50 psi max. pressure. A suitable pressure reducer is available from Condair (2600230).
- The RO-H may only be connected to a cold water line.

Spare parts and Consumables

Spare parts

SAP No.	Description
2600097	Low/high-pressure switch, set
2600098	Inlet/drain valve, set
2606940	Réservoir d'expansion 3,17 gal (12 litres), kit
2601023	SP Worm drive bracket 260-280/12, Set
2601024	SP Housing cover RO-H
2501660	Hydraulics Installation set
2599774	Booster pump 5bar/72.5psi, 3/8" female

Consumables

SAP No.	Description
2604425	Service-kit RO-H (2599771 & 2600099)
2599771	RO membrane 3013 400G
2600099	GAC/Sediment filter set
2600112	Disinfection fittings set, RO-H
2300001	Disinfection HaloMist HM10 Ag, 5 % – Qt

Declaration of conformity

EC

Konformitätserklärung

Declaration of conformity

Déclaration de conformité

Wir,
Condair Group AG
CH-8808 Pfäffikon SZ
erklären in alleiniger Verantwortung,
dass das Produkt

We,
Condair Group AG
CH-8808 Pfäffikon SZ
declare under our sole responsibility, that
the product

Nous,
Condair Group AG
CH-8808 Pfäffikon SZ
déclarons sous notre seule
responsabilité, que le produit

Condair RO-H

auf das sich diese Erklärung bezieht,
mit den folgenden Normen oder
normativen Dokumenten
übereinstimmt

to which this declaration relates is in
conformity with the following standards or
other normative standards

auquel se réfère cette déclaration est
conforme aux normes ou autres
documents normatifs

EN 60335-1
EN 60335-2
EN 60335-3
EN 61000-3-2
EN 61000-3-3

und den Bestimmungen der folgenden
Richtlinien entspricht

and is corresponding to the following
provisions of directives

et est conforme aux dispositions des
directives suivantes

2014 / 35 / EU
2014 / 30 / EU
2014 / 68 / EU

2599874 DE/EN/FR 2008

Pfäffikon, August, 2020

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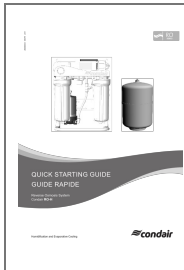
For the download of the detailed Installation, Operation and Service Manuals please use the following QR codes.

Manual in English



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Documents / Resources



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RO-H Reverse Osmosis System, RO-H, Reverse Osmosis System, Osmosis System

References

- [≈ Humidification, Dehumidification and Evaporative Cooling | Condair Group](#)
- [≈ Industrial Humidification & Dehumidification | Commercial Humidifiers | Condair](#)
- [User Manual](#)

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