

# stealthRO™<sub>100</sub>

*Customized Reverse Osmosis Filter*



## User Manual

**HydroLogic®**  
PURIFICATION SYSTEMS

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[www.hydrologicsystems.com](http://www.hydrologicsystems.com)

# Description

The **stealthRO**<sup>™</sup><sub>100</sub> is a customized Reverse Osmosis water filter that is capable of reducing up to 99% of most contaminants. This system is designed for use with hydroponic or horticultural applications. This system is built to give the maximum amount of flow from the membrane while sending less waste water to the drain, compared to similar RO filters. Please read the following setup and maintenance guide to get the maximum results from your filter.

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**stealthRO**<sup>™</sup><sub>100</sub>  
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## Precautions:

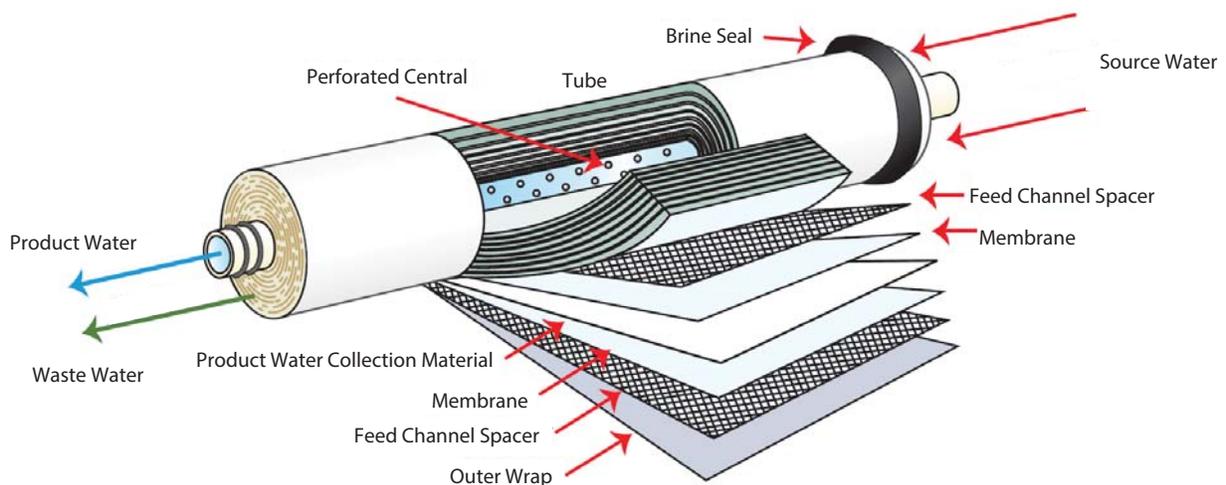
- Do not install the unit where the source/inlet pressure may be more than 80 psi or there are excessive water hammer/spike problems. If your inlet pressure is more than 80 psi, install a 3/8" pressure regulator (HL#10071 see pg. 12), available at your dealer or through Hydro-Logic. If you suspect you may have a problem with water hammer or pressure spikes, use the high limit pressure gauge (HL#19306 see pg. 13) to determine what your upper pressure reading is.
- Protect unit against freezing to prevent cracking of the filter housing and water leakage.
- Keep out of direct sunlight or high intensity lights, which degrade the housing and fittings over time. For added protection use the Algae Block Sleeve (HL# 26009 see pg. 12) to protect from sun or lights.
- Do not drop or place heavy objects on top of unit.
- When replacing filter cartridges use the filter wrench to remove housing. Do not use the wrench to tighten the housings. Hand tighten the housings only. Take care not to over tighten.
- Do not install where leakage or failure may cause damage to property.

## System Specifications:

	Hydro-Logic Part Number	Product Water Flow Rate	Inlet Tubing Size	Product Tubing Size	Waste Tubing Size
STEALTH-RO200	31035	100 GPD (Gallons Per Day) 4 GPH (Gallons Per Hour)*	3/8"	1/4"	1/4"

\*see page 11 for performance parameters

## How Does Reverse Osmosis Work?



# Filter Replacement Schedule:

	Hydro-Logic Part Number	Replacement Schedule
Membrane Element	22120	6 months - 2 years
Carbon Filter - Green - Coconut 10" x 2.5"	22110	1,250 gallons of purified water
Sediment Filter - Pleated 10" x 2.5"	22125	clean regularly, change every 6-12 months
Low Pressure, Cold Water, High Flow Membrane (optional upgrade)	22122	6 months - 2 years
KDF85/Catalytic Carbon Filter (optional upgrade)	22060	2,000 gallons of purified water



**HL#22120**



**HL#22110**



**HL#22125**



**HL#22122**



**HL#22060**

**Note:** Check with your municipality to see if your city uses Chlorine, Chloramines or a combination of both. This will determine if the standard green carbon filter is adequate or if you should upgrade to the optional KDF filter. The carbon or optional KDF filter are responsible for removing chlorine and/or chloramines. If you don't change these according to the above schedule chlorine and/or chloramines will break through into the membranes and deteriorate them quickly.

BE SURE TO CHANGE YOUR PREFILTERS BASED ON THE FILTER REPLACEMENT SCHEDULE!

# TFC Membrane Rejection Chart

Ion	Symbol	% Rejection
Aluminum	Al <sup>+3</sup>	97 – 98
Ammonium	NH <sub>4</sub> <sup>+</sup>	85 – 95
Borate	B <sub>4</sub> O <sub>2</sub> <sup>-2</sup>	30 – 50
Boron	B	60 – 70
Bromide	Br <sup>-</sup>	93 – 96
Cadmium	Cd <sup>+2</sup>	93 – 97
Calcium	Ca <sup>+2</sup>	95 – 98
Chloride	Cl <sup>-</sup>	92 – 98
Chromate	CrO <sub>4</sub> <sup>-2</sup>	85 – 95
Copper	Cu <sup>+2</sup>	96 – 98
Fluoride	F <sup>-</sup>	93 – 95
Iron	Fe <sup>+2</sup>	96 – 98
Lead	Pb <sup>+2</sup>	95 – 98
Manganese	Mn <sup>+2</sup>	97 – 98
Magnesium	Mg <sup>+2</sup>	95 – 98
Mercury	Hg <sup>+2</sup>	95 – 97
Nickel	Ni <sup>+2</sup>	97 – 98
Nitrate	NO <sub>3</sub> <sup>-</sup>	90 – 95
Phosphate	PO <sub>4</sub> <sup>-3</sup>	95 – 98
Polyphosphate	PolyP	96 – 98
Potassium	K <sup>+</sup>	92 – 96
Silica	Si	85 – 90
Silicate	SiO <sub>2</sub> <sup>-2</sup>	92 – 95
Silver	Ag <sup>+</sup>	95 – 97
Sodium	Na <sup>+</sup>	92 – 98
Sulfate	SO <sub>4</sub> <sup>-2</sup>	96 – 98
Thiosulfate	S <sub>2</sub> O <sub>3</sub> <sup>-2</sup>	97 – 98
Zinc	Zn <sup>+2</sup>	97 – 99

# stealthRO<sub>100</sub>™ Unit Includes:



## 3-stage Reverse Osmosis Water Filter

1. **Stage 1** - Pleated, Cleanable Sediment Pre-Filter  
*reduces dirt, sediment, silt, rust, etc.*
2. **Stage 2** - Green Coconut Carbon Block Pre-Filter  
*reduces chlorine and other toxins*
3. **Stage 3** - 100 GPD Reverse Osmosis Membrane  
*reduces total dissolved solids*
4. Inlet Pressure Gauge  
*shows dynamic line pressure and optimal operating zones*
5. 5 feet white 3/8" inlet tubing, 8 feet black 1/4" waste water tubing,  
8 feet blue 1/4" purified water tubing  
*food grade poly tubing*
6. Garden Hose Connector with 3/8" Quick Connect  
*for quick and easy hookup to source water*
7. Inline Shut-Off Valve with 1/4" Quick Connect  
*used to turn system on/off*
8. Double-Ended Filter Housing Wrench, *large end for pre-filter housing,*  
*small end for membrane housing cap*
9. Optional Eco-Waste Reducer, *gives 2:1 waste to product water ratio*

# stealthRO<sub>100</sub>™ Setup

## Connections:



1. Feed Line From Carbon Filter to Membrane
2. Purified Water Line
3. Waste Water Line (Black)
4. Automatic Shut-off Valve
5. Flow Restrictor

## Initial Setup:

Push in the 3/8" white inlet tubing into the 3/8" QC pressure gauge fitting. Connect the 1/4" blue purified water tubing to the outlet of the Automatic Shut-off valve. The system comes with a 3:1 waste water to purified water ratio. This is industry standard for most water sources and gives you the best trade off between membrane life and waste water. If you have relatively low PPM source water or need a more efficient ratio you can choose to use the optional 2:1 Eco-Waste Reducer included with your system. (see instructions on Eco-Waste Reducer) or purchase the **stealthRO** 100 1:1 flow restrictor **HL# 23187** (call your dealer or Hydro-Logic). Refer to specifications on these two options for detailed info on their applications.

Connect the 1/4" black waste water tubing to the outlet of the flow restrictor. You are now ready to connect the included garden hose adaptor to your source water and the other end of the 3/8" white inlet tubing. There are a variety of feed valve options available to connect to any existing plumbing. Inquire at your dealer, or through Hydro-Logic.

# stealthRO100™ Setup (cont)



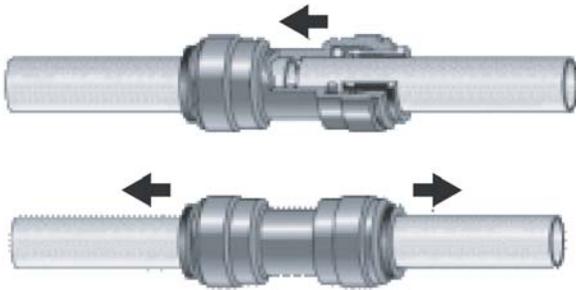
Upon initial start up of system, slowly turn the source water on until both the carbon and sediment filters have water in the housings. Next, open source water up all the way (do not exceed 80 psi). Flush the system for 30-45 minutes when the system is new and/or when you replace your membrane. This will flush out the food grade preservative in the membrane .

The first time you run water through the system please turn the inline shut-off valve to the 'off' position as soon as you see water flow from the blue purified water line. This will pressurize the system and is a good way to make sure that all fittings and connections are secured properly and that there are no leaks. It is also a good way to make sure that the automatic shut-off is working properly, meaning the black drain line is shutting off. If there are problems of any kind please contact Hydro-Logic directly at 888-426-5644.

**Note:** It may take up to 24 hours of running the system for the PPM & pH of the purified water to stabilize.

# Push In/QuickConnect Fittings

## Connecting Push-In Fittings:

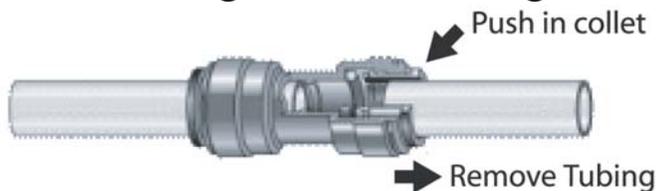


## Link To Instruction Video

[youtu.be/EhWXj6DWcH0](https://youtu.be/EhWXj6DWcH0)

Push tubing firmly into the fitting, all the way to tube stop. The collet (gripper) has stainless steel teeth which hold the tube firmly in position while the 'O' Ring provides a permanent leak proof seal. Pull tubing to check for security. If some tube pulls out, then push all the way in again until it stops. It is good practice to test the system prior to leaving site and/or before use.

## Disconnecting Push-In Fittings:



Ensure system is depressurized before removing fittings. Push in the collet evenly against the face of the fitting. With the collet held in this position the tube can be removed by simply pulling. You can use a collet release tool (available from your dealer) or small crescent wrench. The fitting can then be re-used. If the tube has been removed several times you may see score marks on the ends, this can lead to leaks. It is best to cut the end off of the tubing with a sharp blade being careful to cut straight across; any angle to the cut can prevent an improper fit in the collet.

# Filter Changes / Maintenance

It is essential that you change your pre-filters regularly. The green carbon filter has a rated life of approximately 1,250 gallons\* of purified water produced. The sediment filter can be cleaned at your faucet or with a garden hose as often as you like. You should change the sediment filter at least once a year or sooner if you have extremely dirty water.

\*2,000 gallon filter life with KDF85 carbon filter

# Filter Changes / Maintenance (cont.)

Dirt can become embedded and cause slower flow rates. Use the included filter wrench to loosen the clear filter housing. Be careful not to overtighten when reinstalling. It is preferable to hand tighten filter housings after a filter change.

The Reverse Osmosis membranes have a useful life of 6 months to 2 years depending on how high your source water PPM reading is, if there are high levels of certain contaminants (such as iron & silica), how much water you produce and regular prefilter maintenance.

If your water is highly contaminated, then you may need to change the membranes more often. If your water is relatively clean and you keep up with your pre-filter changes they may last you 2 years+.

There are two indications as to when to change your membranes.

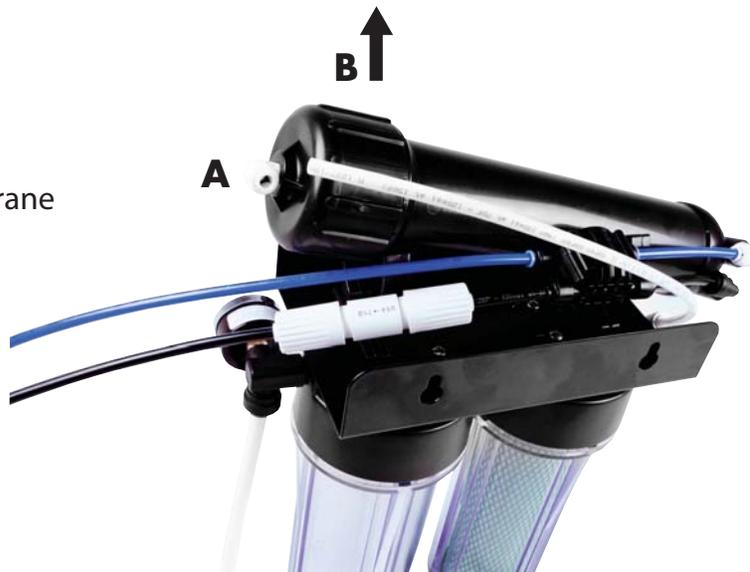
**1)** test the RO and source/inlet water to see what percentage of the inlet water's PPM the **stealthRO**<sub>100</sub>™ is filtering out (rejection %). You should see approximately 98% of the inlet PPM's being removed when the membrane is new. If the rejection % falls under an acceptable level (typically 90%) it's time to change the membrane.

**2)** when the flow rate of the product water slows down significantly. This can also happen if your pre-filters are clogged. If you change your pre-filters and the product water still flows slowly then it's an indication you need a new membrane. When in doubt contact Hydro-Logic.

## Changing the RO Membrane:

### STEP 1:

- A)** Remove the white 1/4" tubing from the membrane housing by following directions on page 8
- B)** Next, pull that same end of the membrane housing straight up to release it from the clip



# Filter Changes / Maintenance (cont.)



## **STEP 2:**

Firmly grip the membrane housing and twist the membrane cap counter clockwise using the provided filter wrench.

## **STEP 3:**

You can now remove the membrane with either a strong set of needle nose pliers or something similar. Hold onto the membrane housing body and pull straight out until you release the membrane. It may seem tight, but with even pressure it will come out.



# Changing the RO Membrane (cont.)

## STEP 4:

Push the new membrane back into the housing with the end that has the two black o-rings going in first. Push firmly until it bottoms out and can't go in further. Then thread the cap back on tightly and reconnect the white 1/4" tubing.



## STEP 5:

Flush the system for 30-45 minutes before using.

## Important Information & Performance Parameters

Reverse Osmosis is the most efficient and cost-effective way to remove the majority of all contaminants from your water. The key component of the system is the RO membrane composed of tightly wrapped sheets of a semi-permeable material. Under pressure the membrane allows pure water to pass through it and rejects, or flushes away, most impurities down the drain. That is why all RO systems have a certain amount of wastewater. The ratio of waste water is determined by the restrictor used on the drain line. The **stealthRO**<sup>100</sup>™ is designed to waste at a ratio of 3:1

Included optional Eco-Waste Reducer can reduce this ratio to 2:1 (See instructions before use).

Optional Flow Restrictor can reduce this ratio to 1:1 **HL# 23187** (Ask your dealer or call Hydro-Logic).

The flow of purified water is determined by the GPD rating of the membrane, inlet pressure, inlet temperature, and inlet PPM. The **stealthRO**<sup>100</sup>™ has the capacity to produce 100 gallons per day, (approx. 4 gal./Hr.) At 77° F, 60 PSI, 550 PPM. **You will notice in colder areas or in the winter, when water temperatures are lower, that the flow rate will be slower.** If your inlet pressure is less than 60 psi, you may experience less than the rated 100 GPD flow rate. A minimum of 40 psi is required to properly operate the system. The higher the inlet pressure, the better the flow. A booster pump is available as an option in case of low pressure and is necessary if your pressure is below 40 psi (**HL# 29020**).

Inlet water that is very high in total PPM or very hard with calcium or magnesium, or high in certain contaminants such as iron or silica may shorten the life of the membrane and/or cause slower flow rates. The RO membranes included with the filter can handle water up to 1000 PPM and with a hardness of 170 PPM or 10 grains of hardness per gallon. Note that this is considered both very contaminated and very hard water and may shorten the life of your membrane.

At these levels of contamination and hardness, and especially beyond, you may consider pre-treatment in the form of a water softener or other equipment. Softened water can be run through your **stealthRO**<sup>100</sup>™ system for optimal performance. The membrane in the **stealthRO**<sup>100</sup>™ is capable of removing 99% of salts that are introduced by the softener.

All RO systems exhibit "TDS creep". The first few ounces of RO water produced are higher in PPM than after the system has run a few minutes. Take any PPM readings a full five minutes after turning the system on to ensure accuracy. Call us with questions about how to customize your water filtration needs and pre-treatment equipment.

# Options



## Booster Pump HL# 29020

For low inlet pressure under 40 PSI. Boosts pressure to 60+ PSI, giving faster flow rates. Simply connects onto the source/inlet line.



## Float Valve - 1/4" HL# 27015

Fill any tank or reservoir unattended. Can be installed in lid or sidewall of tank. NEVER FLOOD YOUR GARDEN AGAIN!



## KDF85/Catalytic Carbon Upgrade Filter HL# 22060

Reduces chloramines, chlorine, iron, sulfur and heavy metals. Great for well or city water sources.



## Algae Block Sleeve HL# 26009

Neoprene sleeve that covers all standard clear housings. Blocks light so no algae can grow easily removed to check status of filters. Reversible blue and black.



## 1:1 Flow Restrictor HL#23187

Replaces standard Stealth-RO100™ flow restrictor to save 50% of the drain water. **Gives 1:1 ratio.**



## Leak Detector & Shut Off Valve 3/8" HL# 19023

Installs on source/inlet line. If there is a leak anywhere in the system and water reaches the pad on the bottom of the leak protector the valve shuts off all incoming water preventing further damage from the leak.



## Membrane Flush Kit HL# 26040

Extends life of your RO membranes. Manually power flushes the membranes and clears away scale build up.



## Pressure Regulator - 3/8" HL# 10071

For high inlet pressure. Limits pressure to below 85 PSI. Simply connects onto the source/inlet line.



## Cold Water, Low Pressure, High Flow Membrane HL# 22122

Replaces standard membrane and is capable of producing 200 Gallons Per Day. Approximately 93% PPM rejection. Overcomes low pressure and low temperature issues that can decrease flow rates.



## Flowmaster - 1/4" Ultra Low Flow Model HL# 19014

Gallonage & filter capacity monitor. Operates at flow rates between 0.01-0.5 GPM. Ultra low-flow model. Alerts you when it's time to change your filters and measures total number of purified water gallons produced.



### UV Sterilizer Kit HL# 35015

Kills 100% of all bacteria and viruses. Ensures the safest water.



### stealth 100 to 200 Upgrade Kit HL# 33015

Convert your **stealthRO<sub>100</sub>**™ into a **stealthRO<sub>200</sub>**™ with this kit.



### Drinking Water Upgrade Kit HL# 26016

The Stealth drinking water add-on kit is for the horticulture enthusiast that also wants to use their system as a home drinking water system.



### TDS Monitor HL# 19006

Measures unpurified water PPM going into reverse osmosis system and purified water PPM coming out. Monitors the performance of your RO system. Instantly displays values and allows you to switch back and forth between dirty and clean water TDS.



### De-ionization Add On Kit HL# 33005

This de-ionization filter is designed to serve as a post polishing stage for any Reverse Osmosis system delivering ultra pure 000 PPM water. Color-changing resin indicates when it is time for a replacement.



### Pressure Gauge - High Limit HL# 19306

Measures static pressure as well as high limit pressure. Used to diagnose water hammer or pressure spike issues. Also used to get accurate inlet pressure to determine if pressure booster is necessary for a Reverse Osmosis system.



### Fittings HL# various - see website

Fittings are available to customize your setup. Visit [www.hydrologicsystems.com](http://www.hydrologicsystems.com)



### Tubing HL# various - see website

Extra tubing is available to customize your setup. Visit [www.hydrologicsystems.com](http://www.hydrologicsystems.com)

# Component Specifications

## **Sediment Filter - Pleated, Cleanable**

- 5 micron nominal filtration
- SURFACE AREA: Approximately 4 sq. ft. (0.37 M2)
- TEMPERATURE LIMIT: Up to 140°F (60°C) depending on pressure and time under load
- FILTER MEDIA: Polyester - Plus™
- END CAPS: Plastisol (pliable PVC)

## **Carbon Filter - Coconut, Earth Friendly**

Hydro-Logic is proud to introduce the first Carbon Block to use NSF61 listed Greencarbon. This high performance coconut shell carbon is manufactured using a patented process that significantly reduces harmful greenhouse gas emissions.

These carbon blocks are made using coconut shell Greencarbon which has more micropores than other types of carbon and a unique binder system delivering a product with superior absorption capacity and kinetic dynamics.

This combination of high performance carbon, unique binders, and proprietary manufacturing processes delivers exceptionally low pressure drop, high dirt holding capacity, and excellent contaminant reduction.

### Features and Benefits

- 10 micron nominal filtration
- No release of carbon fines
- Exceptionally low pressure drop
- Meets NSF61 standards
- Performance validated by WQA
- NSF certified for material safety
- Industry leading performance

**NOTE:** Use only with microbiologically safe and adequately disinfected water. Do not use with water of any unknown origin or water quality. When in doubt contact Hydro-Logic for a detailed water analysis.

# Component Specifications (cont.)

## RO Membrane:

**stealthRO**100™ TF Membrane Elements are recognized as one of the industry's most reliable and highest performing membrane elements that deliver consistent performance and quality. Advanced membrane technology and manufacturing processes allow these elements to deliver consistent results.

- DOW flat sheet material
- Superior Quality and Cost Savings
- 96% – 99% PPM Rejection
- Individually Tested and Sanitized
- Improved System Performance
- Made in the U.S.A.

## RO Membrane Operating Limits: **Very Important**

- MEMBRANE TYPE: Thin Film Composite
- MAXIMUM OPERATING TEMPERATURE: 113°F (45°C)
- MAXIMUM OPERATING PRESSURE: 100 PSI
- MAXIMUM FEED FLOW RATE: 2 GPM
- MAXIMUM TDS: <1000 PPM
- MAXIMUM HARDNESS: <10 Grains Per Gallon (170 PPM)
- PH RANGE, CONTINUOUS OPERATION: 2 - 11
- MAXIMUM FEED WATER TURBIDITY: 1 NTU
- MAXIMUM FEED SILT DENSITY INDEX (SDI): 5 SDI
- CHLORINE TOLERANCE: 0 PPM
- CHLORAMINE TOLERANCE: 0 PPM
- MANGANESE TOLERANCE: 0 PPM
- IRON TOLERANCE: <1 PPM
- SILICA TOLERANCE: <10 PPM

NOTE: Operating your membrane outside of the parameters voids the warranty.

# Warranty & Support

A one year warranty against manufacturer's defects comes with each unit.

This does not include clogged or damaged prefilters or RO membranes due to lack of regular maintenance or excessive sediment, chlorine, chloramines, iron, silica, manganese, sulfur or Parts Per Million in the source water.

This warranty also excludes damage to units caused by using the unit outside of the specified operating parameters listed on page 15. Do not operate unit if incoming pressure exceeds 80 psi or there is problem with water hammer or pressure spikes.

You should contact Hydro-Logic directly for questions and warranty issues.

**DO NOT BRING UNIT BACK TO THE DEALER WITHOUT CONTACTING HYDRO-LOGIC FIRST.**

The manufacturer believes the information and data contained herein to be accurate and useful. The information and data are offered in good faith, but without guarantee, as conditions and methods of use of products are beyond the manufacturer's control. The manufacturer assumes no liability for results obtained or damages incurred through the application of the presented information and data. It is the user's responsibility to determine the appropriateness of the products for the user's specific end uses.

## Tech Support / Contact:

Please contact Hydro-Logic for all questions.

[info@hydrologicsystems.com](mailto:info@hydrologicsystems.com) or visit [stealthRO.com](http://stealthRO.com) for trouble shooting videos

1-888-H2O-LOGIC

(1-888-426-5644)

Visit us on the web at: [www.hydrologicsystems.com](http://www.hydrologicsystems.com)

There are a variety of videos under the resources tab



pure water's not **magic**  
it's **logic**



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**stealthRO**<sup>™</sup><sub>100</sub>  
*Customized Reverse Osmosis Filter*

MEMBER



ACCREDITED  
BUSINESS



Earth Friendly Company



Built in USA



what's  
your  
water  
footprint?