

HYDRALOOP

USE WATER TWICE



Hydraloop H350, H300 & H600

OWNER MANUAL



Certified to
NSF/ANSI
Standard 350

Dear customer,

Thank you for purchasing this Hydraloop device.

Read this manual before using the product and keep it in a safe place for future reference. To ensure safe and proper operation, we recommend regular maintenance of the product. Our Service and customer service organization can help with this. We hope you will enjoy the product for many years to come.

Contents

1. Safety.....	4
1.1 General safety instructions.....	4
1.2 Recommendations.....	4
1.3 Responsibility and Liability	5
1.3.1 Manufacturer.....	5
1.3.2 Installer.....	5
1.3.3 User	5
2. Introduction.....	6
3. Product definition.....	6
4. Design, construction & components.....	6
5. Installation principle	7
6. Startup time.....	8
7. Period of 'non activity'	8
8. Power cut.....	9
9. System malfunction	9
10. Explanation visual alarm light and audible alarm	9
11. Maintenance	10
12. FAQs	10
13. Limitations.....	12
14. Warranty	13
15. Specifications & Data Plate.....	13

1. Safety

1.1 General safety instructions

WARNING



- Read this manual before installing and/or using the Hydraloop.
- This Hydraloop creates NON-POTABLE water. DO NOT use the output water as drinking water.
- The Hydraloop devices should only be opened or serviced by authorized persons/installers. Risk of electric shock may occur.
- The Hydraloop should be placed and installed according to installation directions for safe operation.

WARNING



- A damaged power supply cable should always be replaced by authorized persons/installers to avoid dangerous situations.
- Always disconnect the Hydraloop from the mains before servicing or maintenance.

ATTENTION



- After servicing the Hydraloop, the installation should always be checked for leakages.

1.2 Recommendations

ATTENTION



- The Hydraloop should only be placed indoors with an ambient temperature between 14-35°C | 57-95°F.
- The Hydraloop should never be placed in direct sunlight.
- The Hydraloop should always be easily accessible for service and maintenance.

ATTENTION



- The Hydraloop should only be moved or transported in an upright, vertical position.

ATTENTION



- Never use greywater from kitchen sinks, dishwashing machines or laundry machines as input water to the Hydraloop. Only use water from shower, bath, or air conditioning units.

1.3 Responsibility and Liability

1.3.1 Manufacturer

Hydraloop warrants the proper working of the system according to its general sales conditions.

As a manufacturer, Hydraloop is not liable in the following cases:

- Failure to follow the instructions for installation and maintenance of the Hydraloop.
- Failure to follow the instructions for use of the device.
- Inadequate or insufficient maintenance of the device.

1.3.2 Installer

The installer is responsible for the installation and initial commissioning of the Hydraloop device.

- The Hydraloop device should always be installed according to the local legislation and standards.
- Perform initial commissioning and necessary checks.
- Explain the installation to the user.
- Hand over all manuals to the user.

1.3.3 User

To ensure optimal functioning of the Hydraloop device, please observe the following:

- Read and observe the instruction manuals of the Hydraloop device.
- Request the assistance of a qualified installer for installation, commissioning, service and maintenance.
- Ask the installer for an explanation of the installation.

2. Introduction

Hydraloop Systems B.V. offers a range of patented residential greywater recycling products. Grey water from the shower and bath is collected, cleaned and disinfected and reused for flushing the toilet, the laundry machine and garden. Optionally, approximately 50% of the laundry machine water can be recycled through the laundry machine recycling option. The pipes need to be prepared in the house by isolating the drainpipes of the showers/baths from the drainpipes of other water sources (such as sinks, kitchen and toilets). The toilet fixtures and the laundry machine have separate supply pipes for the water recycled by the Hydraloop system (separated from potable water). Hydraloop residential water recycling products are certified to NSF/ANSI standard 350.



3. Product definition

- Hydraloop models are H150, H300, H350 and H600*
- Hydraloop water recycling unit for bathing water with one or more water outlets.
- one recycled water outlet to feed the toilet cisterns,
- a second recycled water outlet for feeding the laundry machine,
- a third recycled water outlet to use for the garden.
- in addition to recycling bathing water + 50% of the laundry water can be recycled by the Hydraloop.

* Product availability may vary by state or country.

It is not allowed to feed the Hydraloop unit with water from hand basins, dishwashers, kitchen sink or floor drains.

4. Design, construction & components

The Hydraloop unit is a turnkey water recycling product. The Hydraloop is a pre-assembled product that includes:

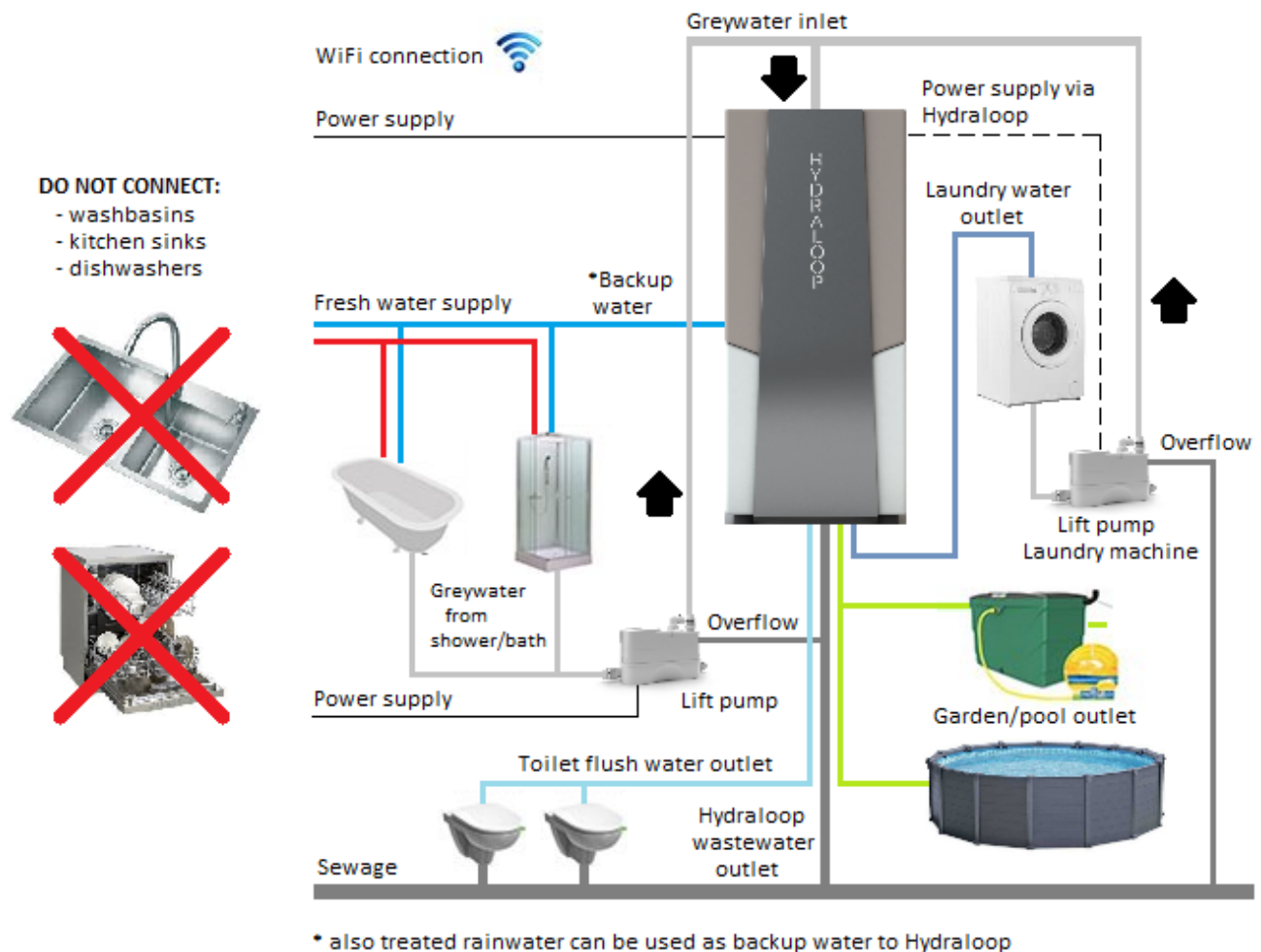
- all water tanks for treatment and storage of the treated recycled water
- a boost pump to distribute the recycled water by independent outlets to the users of the recycled water like toilets, laundry machine and garden.

The Hydraloop unit requires:

- isolated greywater inlet from bathing water and optionally laundry water via the laundry water recycle option,
- one or more independent recycled water outlets depending on model and version,
- a connection to back-up water supply (potable water or rainwater),
- a connection of wastewater drains to sewer,
- a connection to electrical power,
- a connection to WiFi.

5. Installation principle

The installation and commissioning of the HydraLoop unit can only be carried out by approved installers who have been trained by HydraLoop Systems B.V. The image below shows an overview of the installation principle. (use this image for reference).



IMPORTANT:

Use shower & bath water as source water and optionally laundry machine water in case a HydraLoop laundry machine recycle option is installed. No washbasins, kitchen sinks & dishwasher may be connected!

6. Startup time

The Hydraloop unit needs 21 days to develop the biological treatment process and to become fully operational. The greywater treatment will start from the very first day, however this recycled water will be purged into the sewer and backup water will be supplied instead of recycled water. After this start up period of 21 days, the Hydraloop unit will automatically switch over to offer recycled water to the toilets, laundry machine and/or garden.

7. Period of 'non activity'

Hydraloop works complete automatic and adapts to the activity in the house. It is advised to always keep the Hydraloop switched on and never disconnect the Hydraloop when leaving the house for some weeks up to one month. If the Hydraloop unit does not detect any incoming or outgoing water flow for a period of 72 hours, it assumes there is no occupancy of the house and activates the purge valve to empty the lower recycled water storage tank until 15 lit|3.5 gal is left in the storage tank. The upper processor treatment tank and the upper collector tank will keep the minimum amount of water in standby mode and will continue to aerate this water in intervals, so the treatment system is standby for the next incoming water. If the inactive period is longer than 1 month the system will purge the upper processor tank as well and the system will go into 'deep' standby mode. As soon as new incoming water enters the Hydraloop unit it will 'wakeup' immediately and starts working again automatically. However, after a 'deep' standby mode the treatment system needs to be reactivated again, just like at the initial startup at the installation of the Hydraloop unit. This will be done fully automatically by the system itself.

8. Power cut

In case the electric power to the unit is cutoff, the Hydraloop unit will not supply water to the toilets and laundry machine until power is restored. However, the Hydraloop Electronic Control Unit (ECU) will continue to work on its back-up batteries. If electric power is restored within one (1) hour, the Hydraloop unit will automatically start working again as normal. Stored recycled water or backup water will be available immediately. In case the power is not restored after more than one (1) hour, recycled water in the storage tank and all water in the upper processor treatment tank will be purged to the sewer using the backup battery power. After power is restored, the Hydraloop unit will automatically be fully operational again, supplying backup water until new recycled water is available. If power cuts happen quite often in your area you could opt to install a low-cost Uninterrupted Power Supply (UPS) to maintain power to the Hydraloop unit during a power cut.

9. System malfunction

The Hydraloop unit is reliable, and all critical components are monitored continuously by the unit itself and by the Hydraloop server through the WiFi internet connection. In the unlikely event a component fails - for example the UV lamp - the Hydraloop unit will automatically switch to its backup water and everything in-house will function as usual, but no recycled water will be distributed as a precaution. The visual alarm light on the Hydraloop front plate will blink red 4 times per minute indicating an abnormal situation, a warning message is sent via the WiFi connection to the Hydraloop monitoring server and to the customers Hydraloop App and an audible beep as well will sound 4 times per minute. (See more about alarms in Ch 10).

Warning: Hydraloop is designed for 'normal usage' and is not designed to receive solid materials like stones, chemicals, paint residues, hair dye, bleach and disinfectants or any other matter that is unusual for shower/bath and laundry machine water. In the event these substances are entered into the Hydraloop unit, the system itself can be damaged and the water treatment can be disturbed.

Note: Hydraloop Systems BV is not liable for any damage if the above or any other abnormal substances are entered into the Hydraloop unit and the unit and/or the laundry machine/laundry is therefore damaged.

10. Explanation visual alarm light and audible alarm

If one of the below mentioned alarms are activated, the Hydraloop unit will stop offering recycled water and will offer backup water unless in case of Water distribution pump failure.

High water alarm: Audible alarm 2 beeps every minute, visual alarm 2 light pulses every minute

Air pump alarm: Audible alarm 3 beeps every minute, visual alarm 3 light pulses every minute

UV-C disinfection lamp alarm: Audible alarm 4 beeps every minute, visual alarm 4 light pulses every minute

Water circulation failure: Audible alarm 5 beeps every minute, visual alarm 5 light pulses every minute

Water distribution pump failure: Audible alarm 6 beeps every minute, visual alarm 6 light pulses every minute

In case of a water distribution pump failure, it can happen that water distribution to the users is blocked or limited

If you need assistance call your Hydraloop dealer or contact Hydraloop technical support via email support@hydraloop.com or phone on number: +31 88 100 3500 (EU) | +1 414 89 500 21 (USA)

11. Maintenance

We recommend a check performed by a Hydraloop accredited installer once every two years.

This check contains the following elements:

- Descale the Hydraloop unit with a citric acid solution to descale the integrated water tanks.
- Remove, clean and descale the air diffuser.
- Replace the rubber membranes of the air pump every three years (according to the manual of the air pump supplier).
- Replace the UV light bulb every two years by unscrewing the lid on the UV-C lamp housing.
- Effluent samples can be collected using the water valve that is connected to the washing machine.

In regions with very high levels of water hardness more frequent descaling of the water tanks may be necessary. Please check water hardness during installation.

12. FAQs

How does the Hydraloop unit treat the greywater?

The Hydraloop unit uses a unique patented water cleaning and disinfection technology. Other systems use filters or membranes to treat the water, which clog and need frequent maintenance. The unique patented Hydraloop technology, that is the heart of Hydraloop unit, removes dirt, soap and other pollution from bath, shower and washing machine water without using a physical filter or chemicals. The Hydraloop unit automatically cleans itself every few weeks without you having to do anything. Because of this, maintenance requirements are low. Water from the shower, bath and optionally washing machine are collected into the unit. The treatment system combines 5 technologies to remove dirt, soap and other particles from the water. These technologies are sedimentation, flotation, dissolved air flotation (DAF), foam fractionation and an MBBR (biological treatment with an aerobic bioreactor). The 6th technology, which is the final treatment, is disinfection using UV-C light. The recycled water quality the Hydraloop unit provides is clean, clear, safe (disinfected) and certified.

The recycled water quality Hydraloop offers is on average:

- CBD05 (mg/L) < 10
- TSS (mg/L) < 10
- Turbidity (NTU) < 5
- E. coli (MPN/100mL) < 14
- PH (SU) 6.0 - 9.0

Hydraloop residential water recycling products are certified to NSF/ANSI standard 350.



What is greywater?

Greywater is lightly contaminated wastewater from the bath, shower and washing machine. It does not include wastewater from the kitchen sinks, dishwashers or toilets.

How safe is recycled water from the Hydraloop unit?

The water quality Hydraloop offers is clean, clear, safe and is certified to meet the water quality values of international standards. Hydraloop is certified by NSF/ANSI standard.

The recycled water offered by Hydraloop cannot be used as drinking water.

What can I use Hydraloops treated and recycled water for?

The treated Hydraloop water is perfectly suitable to use to flush toilets, use for the washing machine or irrigate the garden. The recycled water offered by Hydraloop cannot be used as drinking water.

Can I prioritize what I wish to utilize my Hydraloop recycled water for?

Yes. With the Hydraloop App you decide and prioritize for which purpose you want to use your recycled water. For example, you can setup the Hydraloop to first supply recycled water for toilet flushing and laundry machine, however in summer you may prioritize to use the recycled Hydraloop water first to irrigate your garden and use mains water to flush the toilets and for the laundry machine. All this will be done completely automatically based on the settings you set on your App.

Does the Hydraloop unit make a noise?

The Hydraloop unit makes some noise, approximately 44 dB. The sound comes from the air pump and air bubbles that is part of the dissolved air floatation treatment that is used in the cleaning process. Also, the distribution pump that pumps water to toilets, laundry machine and optionally garden makes a slight noise, but is only active when it is used to pump water. The self-cleaning of the system also makes some noise and is performed every 7 to 10 days and takes about 3 minutes.

What does the smartphone App offer?

Every Hydraloop unit comes with built-in hardware and software which continuously monitors and controls the system. It has to be connected to your in-house WiFi network. The system works completely automatic, without user intervention required, but if you like, you can optimize water saving by checking your App. For example, checking the availability of recycled water before switching on the laundry machine.

Is my personal data used for other purposes?

Our central server monitors all Hydraloop units automatically, so we can send information about the performance to your smartphone App, as well as provide you with over-the-air software updates and pro-active maintenance advise. We do not share this information with third parties other than our qualified partners. We only inform our partners on behalf of support about the status of your Hydraloop unit.

What precautions are in place to protect contamination with potable water?

Every house needs to have a dual pipe system, which means the recycled water is transported in a separate and isolated pipe system from the potable water. Clear notification has to be made on taps that the recycled water is not potable water.

Can I drink Hydraloop's recycled water?

No, you are not allowed to use the Hydraloop recycled water for drinking. Treated greywater is not suitable for drinking. It also shouldn't be used for showering or food preparation or cooking. Hydraloop's recycled water is disinfected so the water is safe to use for toilet flushing, laundry machine and garden.

What happens if all of Hydraloop's recycled water is used up?

In case you have used up all of the recycled water, the system automatically switches to backup water. As soon as new recycled water becomes available the Hydraloop unit will automatically switch to provide recycled water.

What happens whilst I am on holiday?

In case the Hydraloop unit detects no activity in the house it will switch over to 'standby mode'. When activity is detected again the system automatically returns into normal operation. Depending on the length of the vacation period, Hydraloop will have a start-up period of up to 21 days to redevelop the biological treatment. As the owner, you don't have to take any action and the Hydraloop must remain switched on.

How often do I need to do maintenance?

One of Hydraloop's benefits is that it doesn't have any filters, so it doesn't clog or need filter changing. The Hydraloop unit has many safety systems checks, 24 hours a day. All important components within the Hydraloop unit are monitored and in case of abnormal behavior of a part, the system automatically switches to backup water and sends a caution message to you and your installer. We recommend to having an annual preventative maintenance done by an accredited Hydraloop installer.

Can I use a water softener?

There is no problem using a water softener if you have a Hydraloop unit installed.

Can I dye my hair and rinse it out under the shower?

No. You cannot rinse out your hair dye with shower water that will enter the Hydraloop unit. This might damage the Hydraloop treatment system. If this happened by accident you can purge the water tanks using the Hydraloop App.

Why can the waste water from the hand basins in my house not be recycled?

The Hydraloop water treatment process takes about 5 hours and starts from the last time water has entered the Hydraloop unit. So, every time a little bit of water from the hand basin would enter the Hydraloop unit, the treatment process would restart. This would delay the availability of recycled water. However, if two or more Hydraloop units are installed in a Hydraloop Cascade set-up, hand basins can be connected because the treatment process is divided and spread out over several Hydraloop units.

Why is it not allowed to feed the dishwasher, kitchen sink and kitchenette water into the Hydraloop?

Wastewater from these sources contains too much grease, and therefore is not suitable for the Hydraloop treatment.

13. Limitations

The maximum water temperature

Hydraloop can process is 140 degrees Fahrenheit/60 degrees Celsius. Using higher temperatures than 140 degrees Fahrenheit/60 degrees Celsius can damage the Hydraloop unit.

Hair dye entering the Hydraloop is not allowed. Doing so may damage the functioning of the Hydraloop unit's biological treatment system and may also affect its seals. If this happens by accident, you have to set the Hydraloop to back up water with the smartphone App and contact your installer. Hydraloop Systems B.V. is not responsible for damage caused by products such as hair dye, paints or bleach to your laundry.

It is not allowed to use your shower and bath as a toilet. It is not a problem when some urine enters the unit by accident and the water quality will be fine. However, this may only happen incidentally, not frequently.

Cleaning the shower and bath with aggressive cleaning products containing bleach is not allowed. Doing so may damage the functioning of Hydraloop's biological treatment system and may also affect its seals. If this happens by accident, you have to set the Hydraloop to backup water with the smartphone App and contact your installer. We recommend using environmentally friendly cleaning products. If using more regular cleaning products, please check they do not contain bleach.

The operating temperature of Hydraloop is between a minimum temperature of 57 degrees Fahrenheit/14 degrees Celsius and a maximum temperature of 95 degrees Fahrenheit/35 degrees Celsius. The Hydraloop unit must be protected from direct sunlight onto the Hydraloop unit itself.

Do you still have some questions unanswered?

We're here to help! Please don't hesitate to contact us with your questions and send your e-mail to info@hydraloop.com.

Notes

Hydraloop can only accept greywater from the shower & bath (and optionally laundry machine water).

Product warranty will be void if greywater from other sources such as the kitchen / bathroom sinks or dishwasher water is fed to the Hydraloop unit.

Hydraloop units equipped with the optional laundry machine water recycle option can also recycle about 50% of the laundry machine water.

14. Warranty

Hydraloop Systems B.V. provides a 5-year warranty starting on the delivery date on all non-wearing parts, and a 1-year warranty on all other parts.

15. Specifications & Data Plate

Dimensions (WxDxH):

80cm|31.5" x 34cm|13.5" x 185cm|75" *

*please note that with the incoming water pipes 210cm|83" of height is required.

Material specification:

The water tanks are made of Medium Density Polyethylene.

Backup water (potable or rainwater) connections:

Flow minimal 20 lit.|4.5 gal. per minute, pressure minimal 2 bar|29 Psi.

Power supply:

100/240V, 20W (24V internal)

Expected power consumption: ±200 kWh/year

Average recycled water quality:

Hydraloop Residential water recycling products are certified to NSF/ANSI standard 350

- CBD05 (mg/L) < 10
- TSS (mg/L) < 10
- Turbidity (NTU) < 5
- E. coli (MPN/100mL) < 14
- PH (SU) 6.0 - 9.0

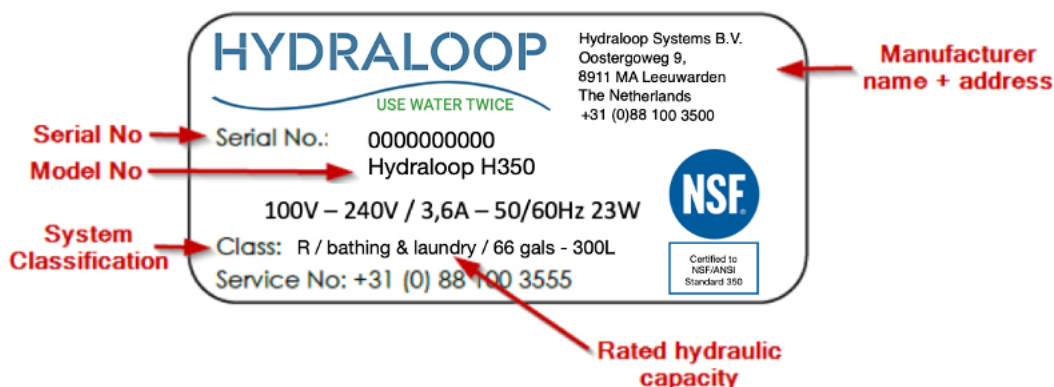
Noise level:

+ 44 dB



Data Plate / Service Label:

The Hydraloop unit has a permanent data plate attached on the top of the unit that should look like the example below.



This document and its contents are the sole property of Hydraloop Systems B.V. and must not be copied to a third party either in part or whole without prior written consent of Hydraloop Systems B.V.

Hydraloop reserves the right to change the specifications stated in this document.

Hydraloop products are protected by patents and patents pending. The Hydraloop brand name is a registered



trademark.

Hydraloop Inc.
Global Water Center,
247 W. Freshwater Way, Suite 210
Milwaukee, WI 53202
United States of America
+1 414 89 500 21

Hydraloop Systems B.V.
Wetsus Building, WaterCampus
Oostergoweg 9
8911 MA Leeuwarden
The Netherlands
+31 88 100 3500

E-mail: info@hydraloop.com

Website: www.hydraloop.com