

Ultra Violet Germicidal Disinfection Whole House Filtration System with UV in SS Enclosure



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Technical Overview

I. Important Notes

For correct operation of this appliance, it is essential to observe the manufacturer’s instructions.

Installation must be carried out by a qualified plumber or authorised technician to comply with Australian Plumbing Codes. This filter system is certified to WaterMark Standards AS/NZS 3497 Under the Certificate number 23247.

WaterMark certification is the level of certification required by law for a licensed plumber in Australia to install a water filter system.

This system contains electrical components and plumbing components. Use caution and if leaking occurs, turn the power off immediately before conducting maintenance or repair to the system. Installation must be carried out by a qualified plumber or authorised technician. The power supply should always be plugged directly into a surge protector. Standard power supplies are NOT water proof and must be installed out of the elements to avoid water damage.

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 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.

If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

II. UV Specifications

Flow Rate @ 30mJ/cm ²	105L/Min
Flow Rate @ 40mJ/cm ²	75L/Min
Voltage	230V – 240V (Ballast), 60V (Lamp)
Chamber Material	304SS
Max pressure	700 kpa
Operating Pressure	500 kPa
Lamp Power	48W HO
System Dimensions	600mm (Width) x 220mm (Depth) x 875mm (Height)
Port Size	1” BSP Female

III. WARNING

This appliance must be installed directly into a single socket surge protector before being connected to a 240V 10A General Power Outlet (Power Point). It must be a surge protector - Circuit Breakers and Residual Current Devices (RCDs) are not suitable substitutes as they do not protect the unit from power surges.

Danger: Dangerous electrical voltage is present inside the power supply box & chamber. These instructions must be followed closely to prevent serious personal injury. Ensure eye protection is worn when servicing and installing this unit to protect from harmful UV-C Radiation. This radiation can be harmful to eyes and skin, UV lamps should only be used when properly installed in the irradiation chamber. The UV lamp must not be operated outside the chamber.

- This unit must be used only for its intended purpose as described by the manufacturer.
- This unit must be installed in accordance with this manual.
- The unit must be unplugged when not in use, before fitting or removing any parts.
- The unit must be electrically isolated before Maintenance, Cleaning or Lamp Replacement.
- The System will need to be de-pressurised before maintenance.
- The UV lamp is designed for continuous usage to reach full disinfection capacity. Frequently turning the system on/off will reduce the lamp's effectiveness and may cause the lamp to fail.
- Do not attempt to use this sterilizer if it has been submerged. If this occurs, turn main power off, unplug the electrical connection and then retrieve the unit if safe to do so.
- Do not operate this unit if it has a damaged cord or plug, if it is malfunctioning or if it has been dropped or been damaged in any manner.
- Always disconnect the water supply and completely drain the water purifier if it will be subjected to temperatures below freezing for extended periods of time.

Overheating: For long periods of no flow the power should be turned OFF. If the system is used intermittently, it is recommended to install a Thermal Relief Valve (TRV), which can be purchased separately. Excessive build-up of temperature in the chamber may cause the O-ring to deform and fail, causing leakage which can blow the lamp/power supply causing damage or personal injury. Installing a UV system without a TRV may void warranty – check the Warranty details for further clarification.

IV. Before You Purchase/Open

The system requires specific working conditions to be met before installation, some general guidelines* are listed below. If these conditions are not met, the system may not be suitable for the application and may not function as specified. These systems are designed for use in home applications on Main Water or Tank Water. For applications where raw water supplies are used (E.g. Bore, Dam, Creek) please contact the manufacturer for technical assistance to determine if your application is suitable for these systems.

Feed Water Conditions	Min	Max
Inlet Pressure	175 kPa	700 kPa
Temperature	0.5°C	38°C
pH Level	2	11
TDS	0 mg/L	2,000 mg/L
Iron	0 mg/L	0.3 mg/L
Manganese	0 mg/L	0.01 mg/L
Hardness	0 mg/L	200 mg/L
Turbidity	0 NTU	1 NTU
UV Transmittance	>75%	-

V. Before You Begin Installation

The HPF-UV systems come pre-assembled on the bracket with centre joiners installed. These units are batch tested to ensure there are no leaks. **Due to transit, fittings and other components may be loosened or damaged – ensure the system is inspected for damages prior to employing a plumber for installation.**

- To ensure full germicidal protection, tanks should be treated with HydroSil-ULTRA (Hydrogen Peroxide Water Sanitiser) before the HPF-UV system is installed. After dosing, run water throughout the house (open each tap) and this will sanitise the plumbing within your house. This is required as UV systems are a point of contact sanitiser which do not have any residual effect (i.e., they only kill bacteria when flowing through the UV; UV radiation does not stay in the water as it moves throughout your house). Once this is completed, you can begin installation. The procedure for sanitising the plumbing system is readily accomplished as follows:
 1. Shut off the upstream water supply that feeds water into the reactor chamber and depressurise water system (if applicable).
 2. Remove the pre-filter cartridge and add the recommended dosage of Hydrosil Ultra as per manufacturer's instructions. (Available at your local resellers)
 3. Verify that the UV System is connected to the AC power voltage and operating properly.
 4. Open all faucets, fixtures and appliances and allow cold water to run until you are satisfied that the Hydrosil has reached every outlet. Shut the faucets off and leave the solution sit for a period of 30-60 minutes. You must ensure that all taps, including outside faucets, dishwashers, shower heads, washing machines, toilets, hot water heater, etc., and any device or appliance attached to the plumbing system pass the treated water.
 5. Open the upstream water supply and reinstall any filter cartridges (if applicable) into the filter and then you can run the system as per instructions.
 6. It is important to remember that in the event that a UV is briefly shut down for routine cleaning or during power interruptions where water could have passed through the system, the aforementioned pipe disinfection procedure must be conducted again.
- The UV system should be installed after a filter on the return line. This helps ensure that the water is clear of debris and impurities that could inhibit the disinfection process and increase the risk of damage to glass internals. The UV can be installed before a filter, however, it will take longer to work.
- If water pressure is above 12bar, add a PRESSURE REGULATING VALVE on the inlet side of the equipment to protect the Thimble.
- If water demand can possibly exceed the rated flow, install a flow restrictor on the inlet side of the device.

VI. What is Standard Filtration

Standard Filtration generally refers to systems designed to remove dirt/sediment & chemicals (such as chlorine) from drinking water. Standard Filtration and UV systems are NOT designed to remove **Fluoride** or other dissolved salts or minerals from water. Such units are generally simple to install/run, have a low cost to maintain and help improve the taste of the water whilst removing common impurities.

VII. Product Application: What is UV light and How Does It Work?

UV water disinfection systems are a popular, highly effective, and easy to use way to protect your family from water-borne living organisms. It is trusted by thousands of people worldwide and is widely used in homes, offices, commercial and industrial applications.

Advantages of UV include:

- Effectiveness: Application of UV light triggers a reaction almost instantly; more effective than chlorination and other water disinfection systems on a wide range of pathogens.
- Safe and chemical-free: UV light does not result in the creation of harmful disinfection by-products; UV does not alter water chemistry and its constituents, such as pH, taste, odour, colour etc.
- Low Cost: Capital cost is low and operating cost is low compared to alternative disinfection methods.
- Simple to install and operate: no moving parts to wear out; installation flexibility.

CAUTION: UV light is not visible to the human eye, but is harmful to eyes and skin.

UV light is comprised of electromagnetic radiation of wavelengths ranging from 100 to 400 nanometers (nm). The UV spectrum is divided into four regions, which are designated vacuum UV, UV-A, UV-B, and UV-C. UV-C. Short-wave ultraviolet occurs between 200-280nm and the optimum UV germicidal action is at 265nm. It has strong disinfection ability to kill microorganisms by altering or disrupting their DNA or RNA without the need for chemicals.

IX. Installation with other Systems

It is common for UV Systems to be installed alongside other additional filtration systems for different applications. Below are some example scenarios. NOTE: These are just guidelines and may be different depending on the requirements of the job. Check with the client or supplier as to which type of installation order is required for non-standard installations.

Sediment & Carbon Filters: Sediment filters can reduce sediment as fine as 1 Micron, whilst Carbon Block filters can reduce sediment as fine as 0.5 Micron. Carbon Blocks are also particularly effective as adsorbing taste and odour molecules, and can provide a slight improvement in water clarity.

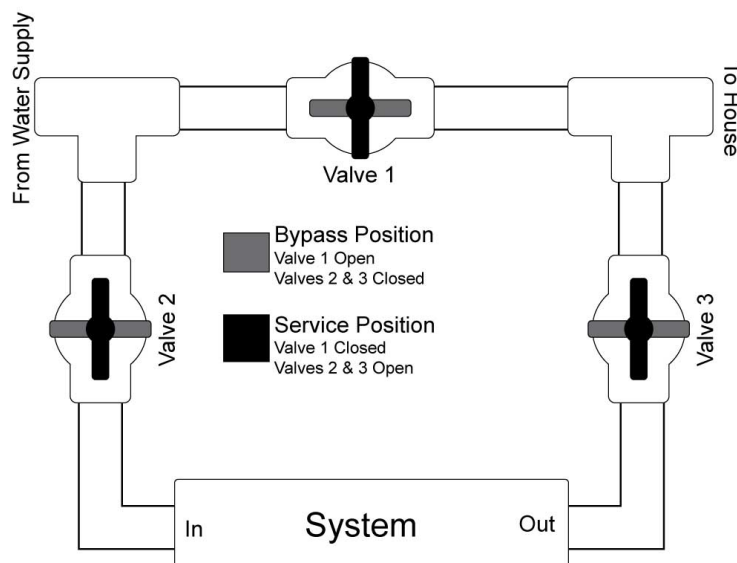
Calcite Filter: Calcite filters are usually installed on Rainwater Systems to counteract the pH of acidic rainwater which usually causes green/blue staining in the water or on fixtures. The calcite filter is usually installed as stage 1 as it is a back washable media vessel, followed by the Big Blue components of the HPF-UV System.

Water Softener: Water softeners are common on both mains water and also bore water installations. For bore water installations it is best to check with the supplier as to the installation position and any other requirements such as flow controllers and float switches. The most common bore water installation will go in order of Bore → Softener → Tank → Calcite Filter → HPF-UV → House

Installation Introduction

I. Site Preparation

The HPFUV System will need to be installed on the water line between the water supply and your house. Ideally if you can find where the cold water enters the building or tees off to the HWS. Either way, you will need access to modify the pipe work to install the system in place.



Allow enough room to install a bypass for the filtration system. If something goes wrong with the system, or during maintenance you can still get a water supply to the house. Below is an example of a bypass installation.

The HPF-UV System is weather resistant, however, where possible it is best for the longevity of the system to install the unit undercover, if possible, to shield it from direct sunlight and weather extremes such as rain, storms, and frost.

II. Stainless Steel Enclosure

The Stainless-Steel Enclosure & Frame of the HPF-UV system is proudly Australian Made & Owned. Manufactured locally here in SE QLD. It features a robust stainless-steel frame & thick heavy duty mounting plate for the filtration. The front cover is a sleek & stylish brushed chrome finish with premium laser etching rather than plastic stickers/labelling to blend in with a more modern and upmarket style home. The top cover has a toughened glass viewing window for easy monitoring of the UV system and the pressure gauges. Durable automotive grade 3M™ compressed foam tape lining fixed to the joins to reduce metal on metal contact and reduces the chance of water and dust from entering the top section. Toolless fixing screws are used to mount the front cover and top cover in place which can easily be removed by hand OR a flat head screwdriver.



III. System Installation & Mounting

NOTE: All units are quality tested from the factory. When you receive your system, open package to check all components are inside (Reactor Chamber, UV Lamp, Thimble (Quartz Tube), O-ring, Electronic Ballast and Support). Check the rated working pressure for operation recommendations. Install sterilizer equipment in a readily accessible and well-lit location to facilitate inspection and maintenance. On all units allow sufficient head-space to change the UV Lamp and Thimble (typically leave a maintenance space equal to the overall UV system length) and other parts.

The system is constructed from Stainless Steel and has two keyhole mounts at the rear of the top plate for mounting the unit. Allow enough space on either side for the plumbing connections and ensure there is enough space in front of the unit to allow easy removal of the front/top covers and for maintenance. Also allow at least 500mm height clearance for the UV lamp installation & maintenance. The mounting location will require a 10A GPO within ~1.5m from the left side of the system for the UV power supply. If mounting on an uneven surface (such as rough brick), it is recommended to install a spacer behind the mounting holes, so the unit is sitting slightly off the wall to allow easier installation & removal of the top cover.

IV. Installing Connections

The HPF-UV system has a standard 1" Female BSP port for the inlet connection into the stage 1 Big Blue filter housing. The outlet point from the UV system has an internal and external thread to choose from depending on the installation requirements (i.e. 1" BSP male or 3/4" BSP female).

DO NOT use any type of liquid thread sealant as this will cause the cap to split shortly after it cures – warranty will not cover this.

Thread tape is the only form of sealing material permitted for use on these housings. Alternatively, you can also use a suitable 1" BSP fitting with an O-ring for sealing.

V. Filter Protection

If there is no Pressure Limiting Device (PLV) installed on the main line incoming to the house to limit the water pressure to 500 kPa, you will need to install one prior to the UV and any pre-installed filtration system to reduce the pressure in compliance with Australian Plumbing Codes & HPF Warranty. Failure to do so may cause excessive pressure & potentially damage the system.

It is recommended that an anti-water hammer device is installed on the house to dampen water hammer commonly caused by washing machines. It is best to install these devices at the point of hammer such as on the cold-water line at the washing machine or dishwasher.

VI. Pressure Gauge Installation

The HPF-UV system is supplied pre-fit with gauges, if the gauges are to be removed or replaced, follow the below.

Kit Contains: Opening Spanner, Pressure Gauges (If applicable), Gauge Port Bungs, O-Rings

Install with Gauge Plugs: The housings are supplied with a thin o-ring in a zip-lock bag. Install this o-ring into the gauge port then screw in the gauge plugs firmly without thread tape.

Install with Pressure Gauges: When installing pressure gauges, use the thin o-ring supplied in the zip-lock bag, the O-ring is to go in the port at the bottom – NOT around the thread of the gauge.

Firmly hand tighten the gauge without the use of thread tape – **Do not overtighten the gauge.**

NOTE: If there is no reading on the pressure gauge, it is likely that the gauge is too tight – causing the o-ring to obstruct the hole on the gauge.

If the o-rings do not provide an adequate seal, you are permitted to remove them and use 6 to 8 wraps of **white** plumber's tape. Excess thread tape or thread glue/sealant will cause the port to split.

VII. Cartridge Installation

Cartridges should be installed in order of: Pleated Before Polyspun, Polyspun Before Carbon, Highest Micron Before Lowest Micron. As an example, a common filter set would be a 5uM Polyspun Sediment Filter, followed by a 5uM Silver Carbon. You would install them in that order as per the above guideline.

Cartridges will need to have the outer plastic shrink wrapping removed before being installed. Maintain minimal contact with the surface of the carbon filter, handle by the end caps only to avoid contamination as carbon will absorb smells and oils from the skin. **NOTE: Cartridges may be supplied already inside the housings for transport, however they will still be wrapped in their original wrapping as per regulatory guidelines. MAKE SURE TO REMOVE THE WRAPPERS BEFORE SCREWING UP THE SUMPS!**

Gently lower the cartridge into the blue sump and locate the filter so the stem in the bottom of the sump inserts into the centre hole of the cartridge. **Do not drop the filter** in as this centre stem may break the plastic caps of the filters. Once the filter is located, screw the sump into the cap (in a vertical position). It can help to wobble the sump to help the filter locate into the guide lugs in the top of the cap.

The caps should screw up rather smoothly with little resistance so it is usually suitable to firmly hand tighten the housings. If you encounter resistance before the housing is more than $\frac{3}{4}$ tightened you may not have the cartridge aligned with the guide lugs; remove the sump and line it up correctly before tightening. An opening spanner is provided with these systems and is only required for installation if hand tightening is not easily achieved or if slight leaking occurs. It is important not to overtighten the housings as this can lead to excessive stress on the cap thread which may cause damage to the housing long term. The spanner can be used to help unscrew the housing when filter changes are required as the housings are usually more difficult to unscrew over time being installed.

Ultraviolet System Installation

I. Thimble (Quartz Tube) Installation

Due to the fragile nature of the thimble, care must be taken when handling and installing the thimble and lamp. The below steps are for horizontal installations.

1. Remove the knurled nuts from either end of the UV chamber (shown below).



2. Wearing clean gloves or handling with a micro-fibre cloth, remove the thimble from the packaging and check for any marks or blemishes. Insert the glass thimble into the chamber from the top (see picture right). DO NOT DROP THE THIMBLE INSIDE THE CHAMBER AS IT WILL SHATTER.
3. Allow equal parts of the thimble to be exposed from each end of the chamber and slide the O-Rings over each end of the glass (shown below). Be careful not to drop the glass at this point. Once the O-rings are seated, this will assist in holding the glass in place. It is recommended to put something soft underneath the system just in case the glass does slip through, as this it may help prevent the glass from breaking if dropped.



Balanced (Ideal) Thimble Position



Thimble Seated too High



Thimble Seated too Deeply



- When the O-rings are seated, firstly loosely install the bottom nut and then the top nut until you feel resistance. Simultaneously tighten (by hand) the top and the bottom nut equally to keep the thimble centred in the chamber. **Caution: Do not apply any thread tape, grease, or sealant as this will void the warranty. Overtightening the nuts may cause the thimble to crack.**



- You can look through the open end of the nut to see if the o-ring is seated correctly or feel this with your fingers (shown below). There should be a slight gap between the end edge of the thimble and the recessed stop-end of the knurled nut.



- If you see that the thimble is hitting the stop end of the top nut (i.e. glass on metal), stop tightening the nuts because it is likely that the bottom nut has caused the thimble to shift off centre. You will need to loosen off the bottom nut and push the glass back down before continuing with tightening. If you experience issues with this, please contact the distributor or manufacturer for assistance.
- When following the next commissioning steps, take the time to check the chamber for leaks once it is pressurised. If a leak occurs, the knurled nuts may need to be tightened slightly. A gripping tool can be used if required if the stop-end is not in contact with the glass. The thimble should be bone dry before the UV lamp is installed. It is extremely important that there are no slow leaks, as over time, these will fill up the thimble with water and cause a short in the lamp, which can result in injury or damage to the lamp & ballast. **NOTE: Damage caused by leaking or defective installation is not covered under warranty.**

II. UV Lamp Installation

Once the chamber has been pressure tested and there are no water leaks, the lamp can be installed. It is usually recommended to complete step 1 to 4 of *I. Plumber Commissioning (below)* before installing the lamp.

1. Drop the spring into the thimble chamber. The spring should sit at the bottom of the thimble. This prevents the UV lamp from falling/hitting the bottom of the glass, and keeps the lamp in the correct position for the power connection.
2. Remove the lamp from its protective wrapping & inspect for damages. Before the lamp is installed, the chamber, thimble and surrounding plumbing must be dry and free from water or leaks. Plug the ballast (power supply) into a certified single socket surge protector, then into a 240V 10A GPO. Ensure the ballast (power supply) is turned OFF at the wall. **Note: No warranty will be covered for a blown lamp if the ballast is not plugged directly into a surge protector.**



3. You will need to connect the ballast connection to the lamp prior to lowering the lamp into the thimble. Firmly hold the white cap of the UV lamp and the connection of the Ballast (see picture below), then push (wiggle) the power supply connection onto the UV lamp pins. NOTE: There is a long and short side of the pins so they will only go into the power supply one way. Ensure the connection is firm and plugged in all the way.



4. Lower the lamp carefully down into the thimble until the lamp makes contact with the spring (as shown to the right). Then, gently slide/wiggle the white cap over the knurled nut.
5. Connect the Green/Yellow earth wire to the small nut (per the below) and finger tighten the nut over it to hold it in place.



6. At this point the lamp should be tested briefly to ensure it is working and the connection is sound. Use appropriate Safety Eyewear for this step.
 - a. You can check that the lamp has illuminated by unscrewing the RED plug on the White UV Connection Cap, or by carefully lifting the White Cap/UV Tube up (as shown to the right).
 - b. Keep your hands clear of the system and turn on the power for 5 seconds to allow the lamp to illuminate. Do not look directly at the lamp without eye protection.
 - c. Confirm that the lamp lights up correctly, and the ballast is showing a green light to signify that the lamp is running correctly.
 - d. Replace the red plug or slide the white cap back over the knurled nut.
7. When you are ready to start 24/7 UV Sanitation, turn on the power supply and leave it on.
 - a. If there is a green light (per Ballast Operation - Working Conditions), everything is running correctly. If not, turn the power off, check for leaks and refer to Ballast Operation/Troubleshooting to diagnose the issue, or contact the supplier.



III. Ballast Operation

This appliance must be installed directly into a single socket surge protector before being connected to a 240V 10A General Power Outlet (Power Point). It must be a surge protector - Circuit Breakers and Residual Current Devices (RCDs) are not suitable substitutes as they do not protect the unit from power surges.

To guarantee user safety, this ballast features complete control and protection functions which are caused by.

1. UV Lamp exceeding life cycle (365 Days).
2. UV Lamp Failure.
3. Working beyond rated voltage and load.

This ballast is designed to work with germicidal UV lamps. Do not mistake the input/output wire to avoid ballast failure.

- Ensure the voltage is within the specification of the ballast.
- Match the UV lamp with the power output of the ballast.
- Ensure the connections (plugs) are fitted correctly. Connect (screw) the earth wire to the lug on the bottom of ballast (power source) as shown (picture to the right). The earth wire must be affixed securely.



WORKING CONDITIONS:

- ✓ The Lamp and Ballast are working correctly when the Green LED Indicator Light shows:



- ✓ **Display Screen** - Press the “SELECT” button (for 2 seconds) to toggle between the Lamp Life Remaining (Days) Default Display Screen and the Total Running (Days) Ballast Operation Time:
 - ✓ **Lamp Life Remaining (Days) Default Display Screen** - By default, the display screen will show the lamp life, which counts down from 0365 to 0 days. Once the lamp life timer reaches 0, the ballast will alarm to remind you to change the lamp.
 - ✓ **Total Running (Days) Ballast Operation Time** - Press the switch button (for up to 2 seconds) to display the ballast operation time, which counts up from 0 to 9999 days. After 10 seconds the screen will return to the default display.

LAMP REPLACEMENT DUE:

- ✓ **End of Lamp Life/UV Lamp Replacement Alarm:** Once the Lamp Life Remaining timer reaches day 0, the digital display will show “A3”, the Red LED Error light will flash and an audible alarm will sound (beeping). This indicates that it is time to replace your UV lamp.



- ✓ **Temporary (7 Day) Alarm Pause/Cancellation:** If the UV lamp cannot be immediately replaced, you can temporarily pause the alarm by pressing the “SELECT” button for 5 seconds until the buzzer sound stops. This will reset the Lamp Life Remaining display to 7 days, however, the display will continue to show “A3” and the Red Error LED Light will still show. Once those 7 days are up (i.e. lamp life reaches 0), the alarm will re-start. The ballast will provide 4x 7-Day alarm cancellations (for a total of 28 days), after which point the alarm will alarm will not stop until the lamp is replaced.



✓ **Lamp Change/Ballast Reset:**

- ✓ Disconnect the power supply (See Part III: Installing New Lamp for detailed instructions on changing the Lamp).
- ✓ Remove the expired/failed lamp, and install the new lamp.
- ✓ Press and hold the “SELECT” button for 15 seconds – at the 10 second mark the display will show “RSET”, and after continuing to hold the button for a further 5 seconds, the display will then flash “0365” and give off an audible beep. Release the button and the timer is successfully reset.



ERROR/FAULT CONDITIONS:

Whilst it is usually the lamp that requires replacement, please refer to the below guidance along with the Troubleshooting section of this guide to diagnose which element requires replacement.

- × **LAMP FAILURE:** The Lamp has failed when the Red LED Indicator Light shows and/or the system is alarming. Note: The Lamp Life will display “0”, but the Total Running (Days) count will continue.



BALLAST FAILURE: The display will be totally blank if the ballast has failed.

Ultraviolet Disinfection Water System are designed for continuous operation and frequent switching will reduce Ultraviolet radiation and service life. **Do not electrically cycle (i.e. do not turn on/off) the UV unit more than THREE on/off cycles in a 24 hour period.** If the water to the house is not going to be used for over 48 hours, the UV system should be turned off to prevent overheating in the chamber. For periods of time over 1 week, the above also applies, however we would suggest briefly flushing the system before use (allow the first few minutes to run down the drain) specifically for drinking water. Allow 15 minutes for UV lamp to achieve full operating capacity before using the water.

System Start Up & Operation

I. Plumber Commissioning

When you are confident that the system is correctly installed, do the following steps to start up the system and commence the flushing procedure.

1. Open a tap downstream from the system to allow air to bleed from the plumbing – if this is not easily achievable disregard, just note that sputtering may occur more prevalently in the house until the air has vented from the lines.
2. Close off the bypass and open the system valves to allow water to flow through the system, depress the red button on top of the 1st housing until water comes out (to bleed the air), repeat for each housing inline.
3. The water coming out of the system will likely run cloudy or discoloured temporarily which is normal as this is the fines coming off the carbon filter.
4. Shut off the downstream tap and allow the system to hold under static pressure and check for any leaks in the filter plumbing connections.
5. While the filter is new, there may be some slight taste issues with the water (such as a metallic or ‘chemical like’ taste. This is normal and is the reaction that activated carbon has with water when the filters are new. Flushing the filters will help reduce the time until the water is back to normal taste. The metallic taste is usually due to the high pH that is created due to this reaction, it is only temporary and is usually gone within 1 week from installation if not sooner.

II. Turning the System On/Off

This will depend on the style of bypass that is installed on the system. Refer to the above diagrams of a bypass in service and bypass position.

If the water to the house is not going to be used for over 48 hours, it is recommended to turn the system into bypass mode to avoid static pressure build up in the system. The UV system should also be turned off to prevent overheating in the chamber. For periods of time over 1 week, the above also applies, however we would suggest briefly flushing the system before use (allow the first few minutes to run down the drain) specifically for drinking water.

Maintenance

I. Stainless Steel Enclosure + Filter Housing Replacement Parts

There are generally no parts (excluding consumables) on the system that will require periodic replacement at regular intervals. Below is a list of parts that may be applicable:

GT8-13G	20" x 4.5" Housing (Includes Cap)
GT8-11G-CAP	BB Cap 1" Ports Suit GT8-11G + GT8-13G
GT19-35SC	1" Poly Nipple Joiner with O-Rings
GT16-3S	60mm Bottom Mount Pressure Gauge
GT19-127	¼" Gauge Port Stopper
GT23-1LS	BB O-Ring
GT17-2LS	BB Opening Spanner

II. Replacement Cartridges

Cartridges have a varying life span but generally can be replaced under the following guidelines under normal working conditions. For clean water supplies (commonly found in Metro locations on the E & SE coast of Australia), filters should generally last up to 12 months. For harsher water conditions (high hardness, scale and TDS) commonly found in rural areas or the North, West and South parts of Australia, filters may need to be changed every 6 months. Filters that are exposed to raw water sources (rain, tank and bore water) may be more susceptible to clogging due to sediment, and may be prone to bio-fouling (given that bacteria breeds on carbon ash).

NOTE: Usage will also be a factor for filter changes – if your pressure begins to drop and the water slows down through the filters it can be an indication that the filters are blocking and may be due for a replacement. These guidelines are based on appropriately sized/quoted systems for the intended application. Systems purchased without recommendation by the supplier may not perform to the above expectations.

III. Testing Filters

Differential pressure is a good test to determine if the filters are beginning to block and need replacement. When new filters are installed, record the pressure on each gauge while the water is static (no flow) then again measure the pressure with an outlet running (such as a shower). This will give you a baseline for static and flowing differential pressure. There is no set rule as to when filters need replacing due to high differential loss, it more comes down to personal preference. Filters should be replaced at least every 12 months.

IV. UV System Replacement Parts & Maintenance

The 48W lamp in this system is rated for an effective lifespan of 9000 hours (12 months). They are designed for continuous running, not for intermittent operation. Lamp replacement is recommended every 9000 hours of operation (approx. 365 days of constant runtime). After 9000 hours, the lamp may still light, but the UV intensity has diminished. Cleaning of the Thimble is recommended once every 3-6 months with alcohol or a mild detergent.

Lamp replacement | Every 12 Months

Replace Quarts Sleeve and O-Rings | Every 2 years

H7-90-Lamp	48W HO UV Lamp to suit H7-90-AT
H7-90-Thimble	470mm x 23mm OD Quartz Domed End Thimble
H7-90-OR	23mm OD O-Rings

Replacement Ballast

H7-90-PS	HPF Electronic Ballast 33W – 120W with Countdown Timer
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V. Lamp Replacement

CAUTION: DO not touch the Lamp with your fingers. Handle by the ends only or wear soft non-abrasive heat-resistant gloves to prevent any finger marks or burning.

1. No need to shut off water supply to UV system.
2. Disconnect main power source and allow the unit to power down for 30 seconds.
3. Remove the cover cap.
4. Withdraw wire with lamp carefully until approximately 2 inches of the lamp is exposed. Lamp case can be very hot - be careful and do not drop the Lamp into the Thimble as both are easily broken.
5. Remove the 4-pin electrical socket from the lamp pins and keep a firm hold of the UV lamp.
6. Withdraw Lamp from Thimble carefully. Be sure to withdraw lamp straight out without angling until completely clear of Thimble.
7. Follow up Lamp installation steps (UV Lamp Installation Steps 2 to step 6) to reinstall new lamp.
8. Reset the Ballast Timer per Ballast Operation Instructions “Lamp II. Replacement Due”.

VI. Thimble (Quartz Tube) Replacement

1. Turn off power.
2. Shut off water supply to UV system via inlet and outlet valves.
3. Drain the chamber.
4. Follow lamp replacement steps (above) to remove UV lamp.
5. Twist off nuts from reactor chamber.
6. Remove O-ring.
7. Remove quartz sleeve and withdraw it from chamber carefully.
8. If the thimble is broken, please follow next steps before reinstallation.

- a. Remove the input/output water pipe connector and withdraw the reactor chamber.
 - b. Carefully remove as much of the broken thimble as possible from both ends of the chamber.
 - c. To remove any fragments of glass, hold the system vertically and shake. The fragments will break and drop out from threaded fitting of the chamber. Flush water through chamber, being careful to remove all fragments from the interior of the chamber.
 - d. Carefully discard all pieces of the broken quartz sleeve.
9. Follow the installation steps (Thimble (Quartz Tube) Installation steps 1 to 7) to re-install the thimble into the chamber.
 10. Slowly restore water supply to UV system and check for leaks.
 11. Follow the lamp installation steps (per the above) to reinstall new lamp.
 12. Turn power back on.

Troubleshooting

In order to maintain UV unit in optimum operation condition, if specific problems are detected during the routine inspection, refer to applicable maintenance instructions for recommended repair procedure.

Problem	Possible Cause(s)	Solution
Twin 20" x 4.5" Filter System		
Leaking from Centre Joiners	1. Transit Damage	1. The system will need to be dismantled to fix the leak. A plumber should be capable of fixing this; however, it is best to contact the supplier immediately.
Leaking from in/out Ports	1. Insufficient Thread Tape 2. Crack/Split 3. Incorrect Fitting	1. Remove existing tape and apply slightly more tape – do not apply excessive amounts to avoid damage to port. 2. Check the port for a hairline crack or split – if there is one, the cap will need to be replaced, it is not reparable. 3. The caps are 1" BSP and will require preferable a 1" BSPT male fitting.
Pressure Gauges Not Showing a Reading	1. Obstruction	1. If there is no reading on the pressure gauge, it is likely that the flat washer was not removed, or the gauge is too tight – causing the washer to obstruct the hole on the gauge. Loosen the gauge to correct this.
Leaking from Gauge Port	1. Not tight enough 2. Missing O-Ring 3. Cracked port	1. There can be a fine line for these gauges to seal, if required, remove the seals and use thread tape as directed previously. 2. Install the O-ring into the port and try again 3. If there are any signs of damage to the port it may need replacing with a new cap.
No Water Flow	1. Valve Position 2. Insufficient pressure 3. Damaged or Blocked Filter 4. Filter Wrapping	1. Check that the bypass and service valves are in the correct position. Ensure the mains is also turned on. 2. Check the incoming water pressure and ensure it meets the requirements of the selected filters. NOTE: some filters require higher pressure to operate (carbon filters). 3. Isolate each filter by process of elimination to determine which filter is not allowing water to pass. Check for damages. The filter may also need replacing due to being blocked by some form of contamination. 4. Ensure the filters are unwrapped before installation.
High pH Reading	1. Carbon Filter 2. Insufficient Testing Equipment	1. If you have a GAC or Block filter (Carbon), this will naturally increase the pH of the water. pH is the measure of Hydrogen in the water and this hydrogen will vent off the water if you leave it to stand and the pH will then drop back down to the normal level. 2. pH testing equipment can range from a cheap test pen right up to lab grade equipment. Before coming to a conclusion on pH issues, it is best to ensure the equipment used to measure the pH of the filtered water is of high standards and suitable for reading

		pH levels in lower EC water (i.e. The guy at the pool shop is not going to cut it). We have access to high quality testing equipment and frequently test our units and conduct research. If you feel that there is an issue with your pH, please contact us.
Strange taste to the water (New System)	<ol style="list-style-type: none"> 1. Residue 2. pH Alteration 3. Contamination 	<ol style="list-style-type: none"> 1. The filters are dry packed, the carbons, alkaline filters will have 'fines' on them. 2. As previously stated, Activated Coconut carbon will react with the water when new and will increase the pH. People who are not accustomed to higher pH water may notice a strange taste/sensation due to the large variance of pH. Flushing the system will help stabilise the pH from the system and also allowing the water to stand before drinking can also help allowing the water to 'vent' the pH 3. Bacterial contamination is highly unlikely, but not impossible. If there is a strong 'foul smell' or organic taste to the water, it is possible that there is some form of contamination. Contact us straight away so we can rectify (or diagnose) the problem if there is one present.
Cloudy Water	1. Air in water	1. Air is common whenever the system is opened. This will dissipate over time as the air flushes from the system/plumbing.
Slimy Feeling Water	1. Activated Carbon Reaction	1. This is a common symptom with activated coconut carbon. It gives the feeling of ultra-softened water and can feel slimy and also cause soaps to have an increased lather making it harder to rinse off. This is only temporary and does not happen with every installation.

Ultraviolet Sanitation System

Leaking from Chamber	<ol style="list-style-type: none"> 1. O-Rings Not Seated 2. Knurled Nut too loose 3. Damaged Thimble 	<ol style="list-style-type: none"> 1. If there is any issue with the o-ring in the way they are seated this will need to be fixed. Remove the thimble and repeat steps 3 – 5 2. If the nut is not tight enough, the o-rings will not have a good enough compression and will cause a leak. Slightly tighten up the nut until a watertight seal is achieved. It is better to tighten slightly at a time to prevent overtightening. 3. If there is a crack or hole in the thimble, it will fill from the inside out. Turn off the water, carefully remove the thimble and replace with a new one. If the thimble releases and shards of glass, this chamber and downstream plumbing will need to be thoroughly checked and any glass removed before re-connection.
High Water Temperature	1. Low Flow Rate	1. If there are periods of low water usage or the water is allowed to stand for long periods of time, the water may be prone to heating up and may become lukewarm or hot in extreme cases. Generally, this only occurs on systems that have a

	2. Oversized System	<p>short distance between the outlet and the point of use. Whole house systems have a larger length of cold plumbing pipes downstream.</p> <p>2. If the system is too large for the application it is likely that even with frequent water usage the water does not get a chance to cool down effectively. If there are significant fluctuations in usage or flow rates, it is good practise to instal a thermal relief valve sold separately on the outlet of the UV chamber which can bleed water from the chamber and keep temperatures below 56°C.</p>
Hot SS Chamber	1. Low Usage	<p>1. As Above, if the water is allowed to stand for periods of time the chamber will heat up naturally. This is normal, however if the heating is excessive to the point where it is causing damage to the chamber or surrounding fixtures, a thermal relief valve should be fitted.</p>
Ballast is alarming	<p>1. Lamp Failure</p> <p>2. Interrupted power supply</p>	<p>1. Usually if the ballast is alarming and showing a red flashing status indicating light, the lamp has failed, and it will require replacement. Before replacing a lamp, it is best to check firstly for an external cause for lamp failure, turn off the power then check for water ingress from either rain, or leaks or any signs of moisture or condensation in or around the electricals. Due to the elevator temperature of the lamp, high humidity may cause condensate to form. If there are no signs of leaking, check for signs of shorts or charring on the lamp connection with the ballast. lastly inspect the tube to see if there are any dark patches or if the filaments are burnt out.</p> <p>2. Sometimes the ballasts may trigger failure alarm if the connection to the lamp is interrupted or perhaps the connection is not solid enough. If the above steps reveal no faults and the lamp is still working, turn the power off for five minutes, check connections and then turn it back on to see if the fault clears.</p>
No Lights on Ballast	<p>1. Ballast failure</p> <p>2. interrupted power supply</p>	<p>1. in the event of a large surge it is possible that the ballast failed. This can also occur from shorts and water ingress. cheque for signs of a short around the lamp connexion end. The ballast will need to be replaced. The UV lamp may also have blown at the same time or could be the cause for the ballast failure. for safety it is best to replace both the lamp and ballast together. If it is within warranty. Please contact the manufacturer for further instructions.</p> <p>2. Check the wall socket with a different electrical appliance to cheque if the GPO is functioning. Also check your circuit breaker to see if any switches are off.</p>
Lamp is working but the ballast is alarming	1. Faulty lamp	<p>1. The lamp may be lighting up but not working at its full capacity which may be caused by it not drawing</p>

	2. Faulty ballast	<p>enough power from the ballast. The lamp will require replacement. Turn the system off, check connections and turn back on to see if it fixes the alarm.</p> <p>2. The ballast could have a problem with the lamp failure protection and may require replacement. Turn the system off, check connections and turn back on to see if it fixes the alarm.</p>
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I. General Warranty

Water Filter Systems¹ (Excluding consumables) Manufactured or Assembled² by High Performance Filtration (HPF) are covered under a 12-month Warranty Against Defects (Manufacturer's Warranty). This warrants the water filter system to be free from defects in material and workmanship for a period of 12 months from date of sale.

If applicable, HPF may cover the return freight in the form of a re-imbusement after the system has been inspected and confirmed it is a valid warranty claim.

HPF will not cover any labour charge incurred by the consumer for the replacement or repair of a product. The warranty is strictly parts only for the parts supplied by HPF. This warranty only applies to the original consumer of the product and is non-transferable. If you have purchased the system through a re-seller, please contact them to facilitate the warranty on your behalf. All replaced or exchanged parts become the property of HPF.

HPF does not cover the workmanship of the plumber who originally installed the system. Responsibility for damages that occur during installation fall with the plumber.

II. Qualification for Warranty

As per Australian Plumbing Codes, all filter systems must be installed by a qualified plumber. The consumer is responsible for keeping record and proof of installation in the form of an invoice and/or receipt.

Filter systems must be maintained as per HPF recommendations³ including the use of replacement filters, fittings and components supplied by HPF. Failure to maintain the filtration systems using HPF supplied/approved products may void warranty.

The warranty only applies if the product was used and/or installed in accordance with the user guide and/or installation instructions. This warranty is given in lieu of all other express or implied warranties and manufacturer shall in no circumstance be held liable for damages consequential or otherwise or delays caused or faulty manufacturing except as excluded by law.

Warranties need to be approved by HPF to ensure the product was not incorrectly used, installed, or claimed. False and incorrect claims will be pursued at HPF's discretion including chargeable inspection and transit costs incurred. HPF does not take responsibility for retaining customer records, it is the consumer's responsibility to retain all invoices or proof of purchase from the original sale and ongoing maintenance records as proof of upkeep.

III. Exclusions

HPF Standard Warranty shall be void if the product sustains damage or failure resulting from any of the following:

- If the system was not installed in accordance with the manufacturers instruction manual.
- If your system(s) fails to be maintained in accordance with recommended servicing and as per the manufacturers operating instructions.
- Cross threading or damage to screws and/or threads
- Unauthorised or abnormal use or operation.
- Exposure to unsuitable environmental conditions*.

Warranty - Australia

This warranty is given by High Performance Filtration (Jacknel Pty Ltd ATF The J & N Family Trust). ABN 64 855 305 562 Located at 7/38 Jade Drive, Molendinar QLD 4214. Ph 07 5597 6142 & email info@hpfiltration.com.au

This warranty is provided in addition to other rights and remedies you have under law. Our products come with guarantees which cannot be excluded under the Consumer Guarantees Act.

IV. Extended Warranty

The HPF-UV system is eligible for a conditional extended 4-year warranty (commencing no later than 12 months from the sale date), to provide a total warranty period of 5 years. This extended warranty is subject to terms and conditions outlined below. This extended warranty covers the below parts of the system.

- Ultraviolet Chamber
- 20" Blue Housings & Centre Joiner
- PVC Manifold (Between UV and Filter System).
- HPF-UV Stainless Steel Frame & Enclosure

Extended Warranty Qualification

Extended Warranty is valid only if the following conditions are met:

- The system was installed by a licenced plumber – proof of installation required in the form of an invoice for the works.
- The system was maintained in accordance with our recommendations in **Maintenance**.
 - UV Parts & Filter cartridges must be genuine HPF products purchased through a registered HPF supplier.
 - Proof of purchase for replacement parts also required.

Pro-Rata & Consumable Warranty

Some components are considered consumables including the Lamp, Quartz Thimble, O-Rings & Cartridges. **General Warranty** does not apply to these consumables.

Pro-Rata warranty applies to:

- UV Lamp (12 months)
- UV Ballast (2 years)

Pro-Rata Warranty is determined by the period remaining of the components 'Lifespan' as dictated in the instruction manual or advertisement. A discount of the remaining balance of value (in life) will be deducted from the price of a new replacement part.

For example, A lamp has a successful warranty claim after 6 months from date of original invoice, the discount will be 50% from the next purchase of a replacement UV lamp. Pro-Rata Warranty only applies for a single use within the pro-rata period (12 months).

Pro-Rata Warranty only applies to components purchased new at full list price or as part of an applicable UV system. Due to a large range of factors, cartridges for the filter system are not covered under a warranty or pro—rata warranty. Rather they are regulated based on consumer law of the cartridge being advertised correctly and fit for purpose.



**HIGH
PERFORMANCE
FILTRATION**

Definitions

¹ Water Filter Systems are defined as systems designed for drinking water under our Water filter Systems, Reverse Osmosis Systems & Ultraviolet

Sanitation Categories – Excluding Cartridges and Shower Filters.

² Other products not manufactured or assembled by HPF are covered under the applicable manufacturer's warranty.

³ HPF specifies recommended or required filter maintenance – see product information for further details. If a maintenance schedule is not

specified, filter maintenance is required at least once per 12-month period.

* Unsuitable environmental conditions include but are not limited to; Excessive hot or cold, Weather extremes.