Ultra Violet Germicidal Disinfection Systems
105 Litres Per Minute Whole House UV (H7-90-AT)

Contents

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	800 kpa
Operating Pressure	500 kPa
Lamp Power	48W HO
System Dimensions	500mm (Length), 340mm (Between Ports)
Port Size	1" BSP Male or 3/4" 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 the unit is 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	2°C	45°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	0.05 mg/L
Hardness	0 mg/L	120 mg/L
Turbidity	0 NTU	1 NTU
UV Transmittance	>75%	-

V. Before You Begin Installation

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 H7-90-AT 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 they 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 is 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 re sellers)
    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.

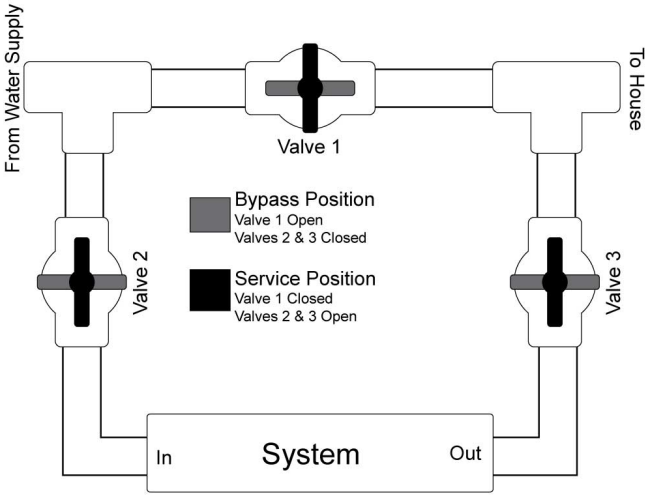
Calcite Filter: Calcite filters are usually installed on Rainwater Systems to counteract the pH of acidic rainwater which usually causes green/blue staining in the water or on fixtures. The calcite filter is usually installed as stage 1 as it is a back washable media vessel, followed by the Big Blue 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 → 20" x 4.5" Big Blue Filter System (Sediment + Carbon)→ H7-90-AT UV System → House

Installation Introduction

I. Site Preparation

The H7-90-AT UV 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.

NOTE: The H7-90-AT UV System is not weatherproof and all components (including the chamber and electronics) must be shielded from direct sunlight and weather extremes such as rain, storms, and frost.

II. System Installation

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). All units are rated up to 12bar. Check the rated working pressure for operation recommendations. Mount your Ultraviolet Sterilizer horizontally or vertically on a level and firm surface. Do not lay the system on the ground or where water may puddle. Do not submerge. Install sterilizer equipment in a readily accessible and well-lit location to facilitate inspection and maintenance. On all units allow space to change the UV Lamp and Thimble (typically leave a maintenance space equal to the overall UV system length) and other parts.

III. Mounting

Mount the UV system using the mounting brackets supplied. The system is best mounted with the power lead having access from the top. Allow enough space on either side for the plumbing connections and ensure there is enough space in front of the unit to allow easy access 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 access.

IV. Installing Connections

The outlet point is from the UV system has an internal and external thread to choose from depending on the installation requirements (i.e. 1” BSP male or ¾” BSP female).

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.

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.

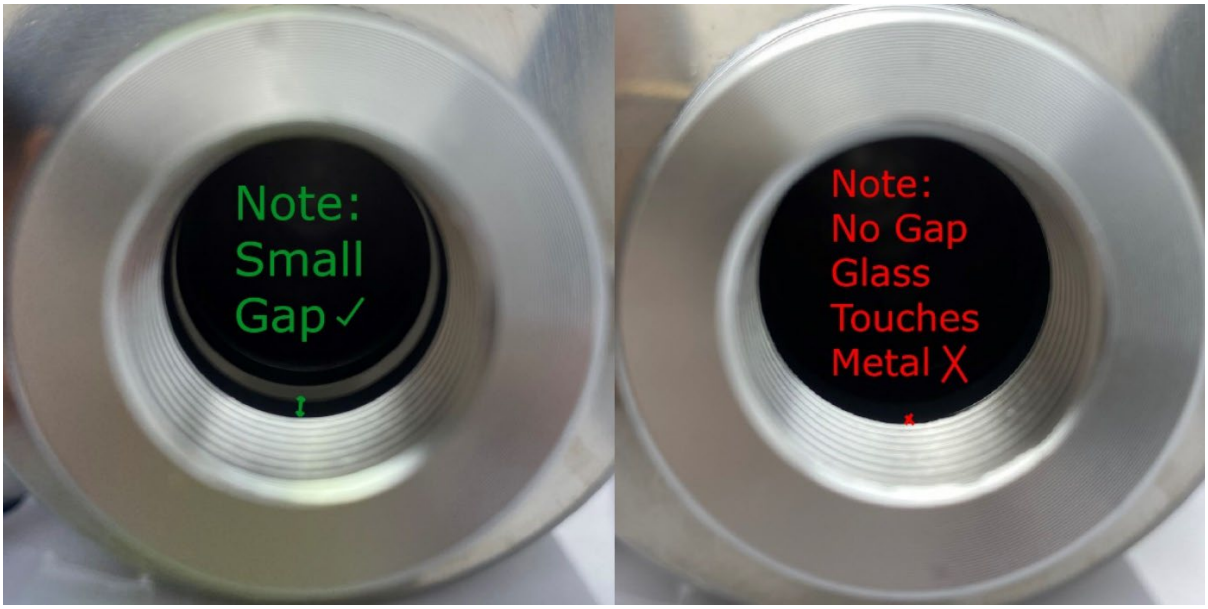
Balanced (Ideal) Thimble Position

Thimble Seated too High

Thimble Seated too Deeply

4. 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.**

5. 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.



6. 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.

7. 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* (above) 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.

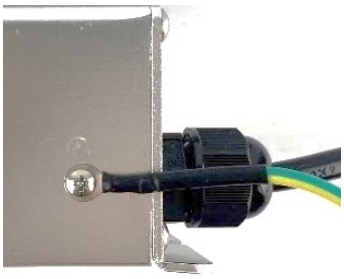
III. Ballast Operation

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 in 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.

Maintenance

I. General Maintenance

1. Lamp replacement is recommended every 9000 hours of operation. After 9000 hours, the lamp may still light, but the UV intensity has diminished.
2. Cleaning of the Thimble once 3-6 months with alcohol or a mild detergent.

II. 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 Replacement Due”.

III. 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. Slowing 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.

IV. Replacement UV Parts

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 | 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

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
Leaking from Chamber	1. O-Rings Not Seated	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. Knurled Nut too loose	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. Damaged Thimble	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 short distance between the outlet and the point of use. Whole house systems have a larger length of cold plumbing pipes downstream.
	2. Oversized System	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.
Hot SS Chamber	1. Low Usage	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.

Ballast is alarming	1. Lamp Failure	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.
	2. Lamp Failure on a new Lamp	2. This may be caused by a loose connection between lamp base and socket, so reconnect the lamp with a tight fit. Moisture build-up in the connector may also prevent the lamp and socket from making a solid connection, so dry the area and components thoroughly and re-connect.
	3. Interrupted power supply	3. 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.
No Lights on Ballast	1. Ballast failure	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.
	2. interrupted power supply	2. cheque 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.
Lamp is working but the ballast is alarming	1. Faulty lamp	1. The lamp may be lighting up but not working at its full capacity which may be caused by it not drawing 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.
	2. Faulty ballast	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.
Water Pressure has Dropped	1. Clogged Pre-Filter 2. Issue with Pump	1. Replace pre-filter cartridges. 2. Check pump.

High bacteria counts	1. Thimble is stained or dirty 2. Feed water quality changed 3. Contamination in water after UV system 4. Possible break-through of sediment through pre-filter	1. Clean the Quartz Sleeve 2. Have raw water tested to ensure that water quality is still within bounds 3. It is imperative that effluent water stream be treated with HydroSil Ultra before water leaves UV system-disinfection system must have a bacterial free distribution system to work effectively 4. Have source water test for turbidity-use cartridges with higher filtration precision
Water appears milky	1. Caused by air in the water lines	1. Run water till air is purged
Moisture inside the Quartz Sleeve	1. Quartz Sleeve is broken, cracked or O-ring not properly sealed.	1. Visually inspect the Quartz Sleeve. If broken or cracked, replace thimble. Re-install the Thimble if the O-rings are not properly seated.
System shutting down intermittently	1. Interrupted power supply	1. Ensure system has installed on its own circuit, as other equipment may be drawing power away from UV (ie. pump or fridge) 2. UV system should not be installed on a circuit which is incorporated into a light switch

Warranty

I. General Warranty

Water Filter Systems[1] (Excluding consumables) Manufactured or Assembled[2] 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-imbursement 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 recommendations[3] 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 H7-90 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

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 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, Thimble (Quartz Tube), 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.