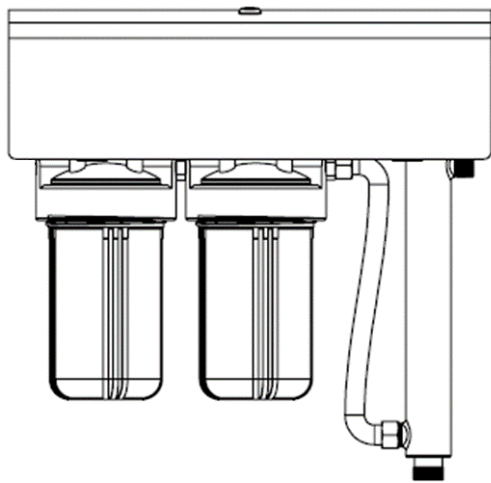
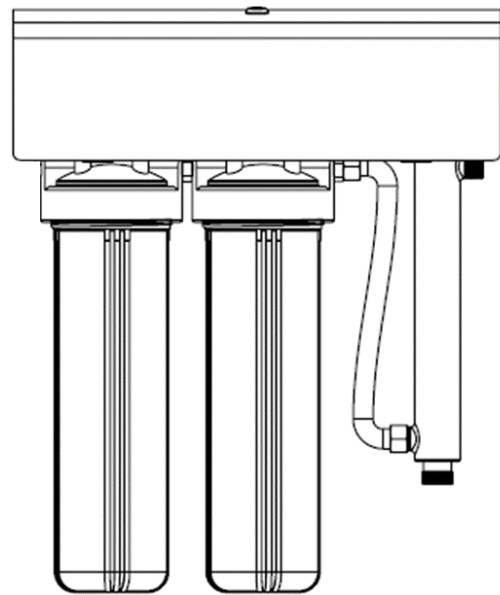


HYDROGUARD®

WATTS®



HG210UV



HG220UV

Installation and Operating Instructions

For correct operation of this product, it is essential to observe these instructions

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Introduction

Please read the entire manual before installing or operating this product. Failure to follow any instructions or operating parameters may lead to injury, untreated water or product damage.

General Warnings and Safety Information

General

- Do not use with water that is microbiologically unsafe or with water of unknown quality without adequate disinfection.
- The product must be installed in an upright position, it cannot be installed in any other orientation.
- Do not allow this product or the water system to freeze. Damage from freezing will void the warranty.
- This product contains a UV lamp which emits UV radiation. Even with little exposure, UV radiation can cause harm to the eyes and skin. The UV lamp should never be operated when it is removed from the housing.
- Whilst all care is taken to provide a robust system, like any plumbing product, failure can occur which can result in water damage or flooding. The location of the installed product should consider the risk of flooding and measures put in place to minimize the impact should a flood occur.
- Regularly inspect the product for signs of wear or damage. If any abnormality is found then immediately discontinue the use of the product.

Electrical

- All electrical connections must be made by a licensed electrician according to local standards and regulations
- The product is recommended to be installed with RCD and surge protection
- The power outlet and ballast controller must be grounded to reduce risk of electrocution
- Always disconnect power at the source before servicing the product
- There are no user-serviceable parts in the UV electronic controller. In the event of a failure, the entire ballast must be replaced by a certified installer.

Mechanical

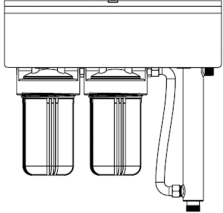
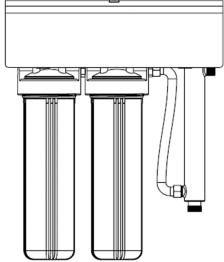
- Installation and plumbing of the product should be done by a certified installer and follow all local standards and regulations.
- Backflow prevention, if required, should be installed prior to the water inlet on the product
- Supply pressure to the unit must not exceed 500kPa. A certified pressure limited device should be installed by a licensed plumber upstream of the product if the supply pressure can exceed 500kPa.
- Protect the product from water hammer.
- Filter housings should only be hand tightened. A spanner is included to assist when loosening the filter housings during service, but it is not recommended to use to tighten the housing.
- Thread sealant tape should be used on all plumbing connections, do not use any other type of thread sealant.
- Only 100% silicone food grade lubricants should be used on O-rings. Do not use petroleum based lubricants such as Vaseline, oils, or hydrocarbon based lubricants.

Product Information

Features

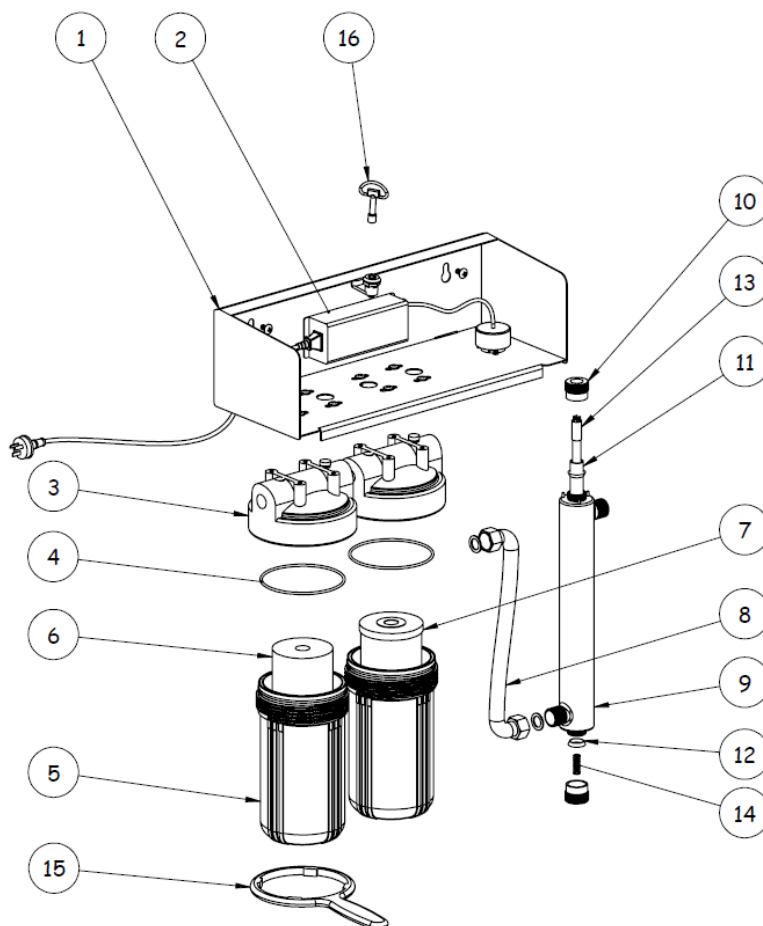
- Pre-assembled for easy assembly
- 3 stage water treatment for excellent water quality:
 - 5-micron sediment filtration
 - Chlorine, taste and odour treatment (CTO)
 - UV sterilisation of bacteria, viruses and pathogens
- UV lamp life countdown and replacement alarm
- Weather-proof housing
- Lockable lid for safety and tamper proofing
- Brass fittings for extra strength

Product Specifications

	HG210UV	HG220UV
		
Water Supply	1-40°C water only from tank, bore or mains supply	
Ambient Temperature	1-40°C	
Inlet/Outlet Connections	25mm (1") BSP	
Electrical Input	230V _{AC} / 50Hz	
Operating Power	48W	
Working Pressure	≤500kPa	
Maximum Pressure	800kPa	
UV dosage	40mJ/cm ² at 54 L/min 30mJ/cm ² at 72 L/min	
Max Flow Rate (500kPa dynamic pressure)	95 L/min	
Product Weight (No Water)	16 kg	21 kg
Product Weight (With Water)	24 kg	34 kg
Product Size (height x width x depth)	630 x 640 x 230 mm	750 x 640 x 230 mm

Parts Included

For quick and easy installation, the product components come assembled. Before installing the product, please check all contents are present and undamaged. All connections must be checked for leaks before operating the product.



Item	Description	Product Code	Product Code
		HG210UV	HG220UV
1	Weather Enclosure	-	-
2	UV Ballast and Power Cord	HGBPC	-
3	Filter Housing Cap (x2)	-	-
4	Housing O-ring (x2)	-	-
5	Filter Housing (x2)	HGFH10	HGFH20
6	Sediment Filter Cartridge	HG10SFC	HG20SFC
7	CTO Filter Cartridge	HG10CTOFC	HG20CTOFC
8	Stainless Steel Hose	-	-
9	UV Steriliser Housing	-	-
10	UV Housing Cap (x2)	-	-
11	Quartz Sleeve	HGUVQSS	-
12	Sleeve Seal (x2)	HGUVQSS	-
13	UV Lamp	HGUVL	-
14	UV Spring	-	-
15	Spanner	-	-
16	Key	-	-

Installation Instructions

Electrical Supply Requirements

- 3-pin outlet with ground connection (suitable waterproof rating required if outdoors)
- 230V_{AC} / 50Hz
- 48W Operating Power
- Do not use extension cords to supply the product
- Recommended to use RCD and surge protection

Water supply Requirements

- Cold water inlet only, working water temperature 1-40 °C. Protect from freezing at all times.
- Supply pressure ≤ 500 kPa. An approved pressure limiting valve must be installed by a licensed person in situations where supply pressure could exceed 500kPa.
- Bacteria or contamination could be present in the water system before the product is installed. Flush the water system after installation and consult an expert if water treatment is required at the source.
- The supply water quality impacts the effectiveness of water treatment. It is recommended to get your water supply tested by a qualified professional. Water quality parameters should remain below the following limits:
 - **Max Turbidity:** ≤ 5 NTU
 - **Dissolved iron:** ≤ 0.3 ppm (0.3 mg/L)
 - **Hydrogen sulfide:** ≤ 0.05 ppm (0.05mg/L)
 - **Suspended solids:** ≤ 10 ppm (10mg/L)
 - **Magnanese:** ≤ 0.05 ppm (0.05 mg/L)
 - **Hardness:** ≤ 180 mg/L

Environment Requirements

- The Hydroguard can be installed indoors or outdoors, but should be protected from harsh chemical or salt air environments to prevent premature corrosion.
- The mounting fixture must be solid and capable of supporting the weight of the product when filled with water.
- Minimise exposure of the filter housings to direct sunlight and protect the system from freezing at all times. Ambient temperature 1-40 °C.

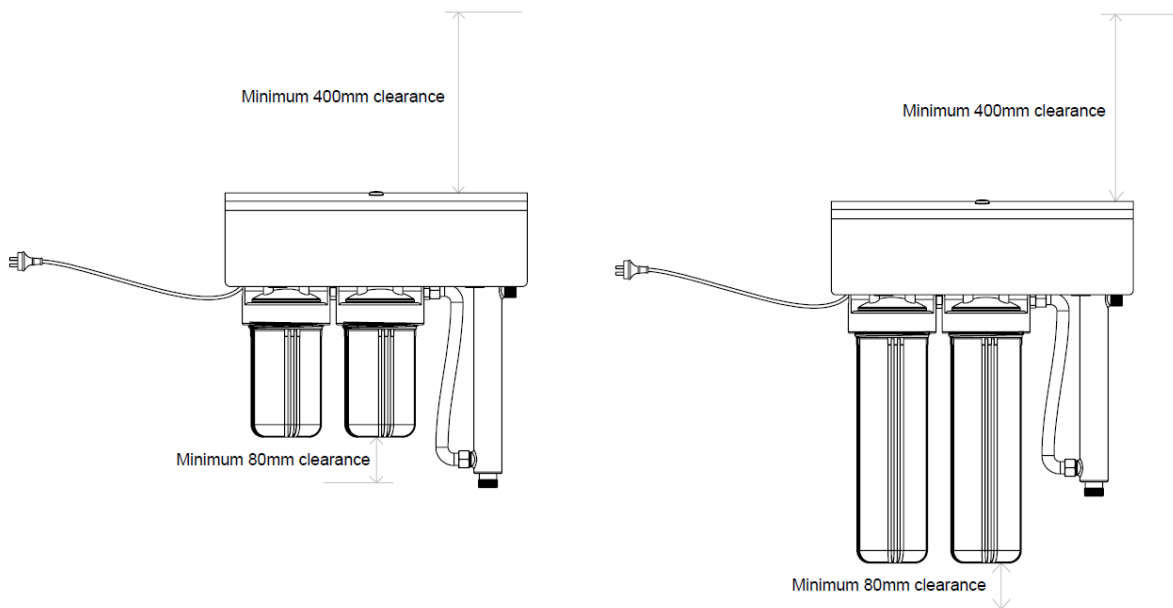
Product and Position Preparation

Remove all packaging and dispose of it responsibly. Check all components are present and undamaged.

Select a suitable location to install:

- The wall fitting needs to be sufficiently strong to support the weight of the product when filled with water.
- Avoid locations where the unit is in direct sunlight or at risk of freezing.

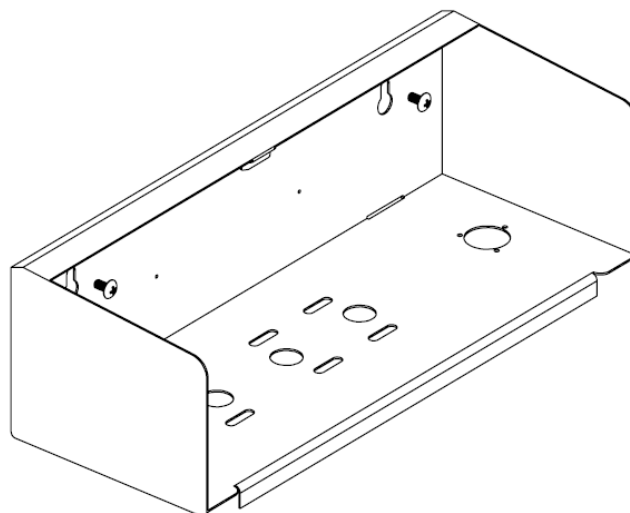
- Check the location has suitable access to the supply and building plumbing, and be within x m of a suitable power outlet. A licensed plumber or electrician may be required if appropriate fixtures are not available.
- The water supply must enter the left side (filter side) of the product and the outlet must be the right side (UV side) of the product.
- At least 400 mm of clearance space above the product is required for the removal of the UV lamp. At least 80 mm of clearance below the filter housings is required for the replacement of filter cartridges. Refer to diagram below.



Mounting Installation

Installation steps:

1. Mark the desired location for the mounting fixings. See **Product and Position Preparation**
2. Drill the holes and install the anchors (not included).
3. Align the product with the anchors and lower into place.
4. Tighten the fixings to hold the system securely in place.



Plumbing and UV Installation

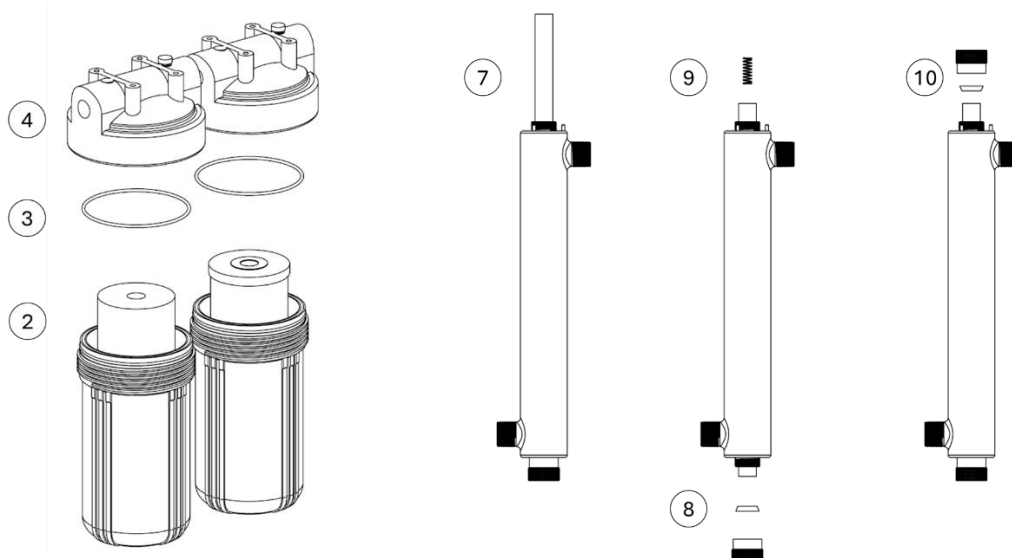


If installing on a mains water supply, an approved backflow prevention valve must be installed by a licensed plumber according to local regulations.

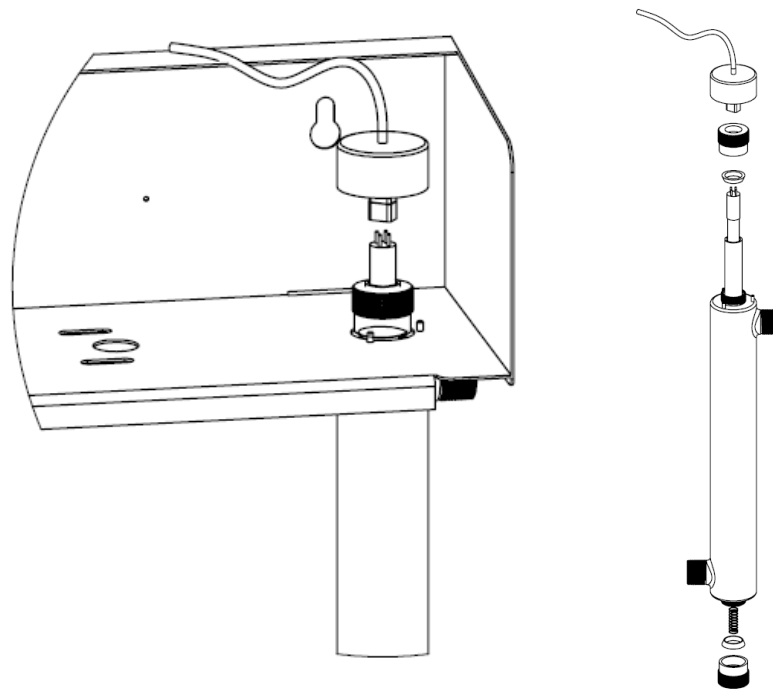


Only use thread sealing tape on threaded connections, do not use liquid sealants. Do not connect PVC pipe within 1 meter of the product outlet due to exposure to the UV light.

1. Ensure the water supply is off. Connect the inlet and outlet plumbing to the product 1” (25mm) connections. Unions (not supplied) are recommended at the inlet and outlet for easy disconnection and maintenance. An isolation valve should be installed upstream and downstream of the product to allow easy maintenance of the product.
2. Check that filter cartridges are installed in both housings. The 5 micron sediment filter should be in the first housing, and the CTO filter should be in the second housing (next to the UV sterilizer).
3. Check that 2 sealing O-rings are clean, undamaged and assembled correctly to the filter housing. If the O-rings are not lubricated, use 100% silicone food grade lubricant to assist with assembly.
4. Screw the filter housings into the housing caps. Do not overtighten the housings.
5. Open the lid with the key. Ensure the power and water supply are off.
6. Unscrew the top cap and bottom cap of the UV sterilizer housing.
7. Carefully insert the Quartz Tube into the top hole of the UV sterilizer housing and feed it slightly out the bottom hole. Care should be taken to prevent marks or fingerprints on the Quartz Sleeve, so it is recommended to wear gloves during the installation.
8. Install the first silicone seal around the bottom of the quartz sleeve and then screw on the bottom cap. Do not over-tighten. The bottom of the quartz sleeve should not touch the cap.
9. Drop the spring into the quartz sleeve through the top cap.
10. Install the second silicone seal around the top of the quartz sleeve and then screw on the top cap. Do not over-tighten. The top of the quartz sleeve should not touch the cap. If it does you may need to unscrew the caps again and adjust the position of the quartz sleeve.



11. Connect the UV connector to the UV lamp. Care should be taken to prevent marks or fingerprints on the UV lamp.
12. Gently lower the UV lamp into the quartz sleeve and install the seal around the top cap.



13. Slowly turn on the water supply and check for leaks at all connections in and around the product.
14. If there are no leaks, increase the supply pressure up to the maximum of 500kPa. Check for leaks again and then open an outlet downstream to flush water through the line for 3-5 minutes. Check again for leaks and then close the downstream outlet.

Electrical Connection



All electrical connections must be made by a licensed electrician according to local standards and regulations. The ballast casing must be grounded.

Ensure the electrical circuit supplying the product is capable of continuously supplying the required power.

1. Ensure there is no moisture around the power supply, UV Ballast controller, cords or UV lamp connection. Check the UV lamp is installed in the housing correctly before switching on the power.
2. Connect the power cord to the power outlet and turn on power to the product. Ensure the UV lamp is operating by checking the green LED is illuminated on the Ballast Controller.
3. Leave the UV lamp running for at least 2 minutes before starting the water supply, to allow for the UV lamp to reach full intensity.
4. The system is now ready for use.

Operating Instructions

UV lamps are designed to run continuously. It is not recommended to turn the lamp on and off regularly as this can reduce its useful operating life. The green LED light will be illuminated to indicate that the UV lamp is operational. If the UV lamp is not operational, the red LED light will blink and an alarm will sound

Do not allow the water system to run dry, which can cause the UV lamp to overheat and reduce its useful operating life.

- To cycle the display between lamp life remaining and total running days, press the silver button once.
- To reset lamp life countdown timer for 7 days, press and hold the silver button for 2-5 seconds. This can be done a maximum of 4 times (28 days).
- To reset the lamp life countdown timer after replacing the lamp, press and hold the silver button for 10 seconds.

Maintenance Instructions

Before any maintenance, disconnect the power to the product, turn off the water supply to the product and open a downstream fixture for a few minutes or until the water flow stops. After the water flow has stopped close the downstream fixture, and then press the red buttons on top of the filter housing caps to release the pressure in the system. Place a tray underneath, if required, to catch any water that splashes. You may now begin maintenance.

After any maintenance, check there is no moisture around the power supply, UV Ballast controller, cords or UV lamp connection. If there is any water, ensure that the power is disconnected before removing the water and allowing to fully dry before connecting the product to power.



Connecting the product to power when there is water on or near the electronics could cause electrocution and/or product damage

To start the product after maintenance, slowly turn on the water supply to the product and check for leaks. Open a fixture downstream of the product for 3 minutes to flush water through the system and remove any air pockets. Close the fixture downstream and then check for leaks again. Connect the product to the power supply and wait for 2 minutes for the UV lamp to reach full intensity.

Filter Cartridge Replacement

Replacement of the filter cartridges is recommended at least every 1 year, or as required due to the supply water quality.

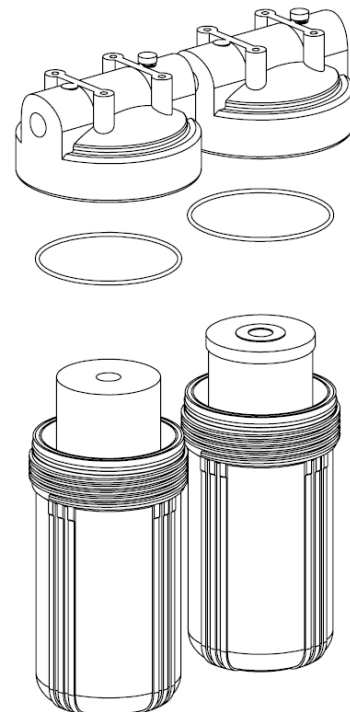


Sterilisation is achieved by exposing water to strong UV light for a period of time. Excessive sediment in the water will block some of the UV light from reaching pathogens, meaning that they may exit the UV sterilizer untreated. Good filtration of sediment is a critical step to ensure complete UV sterilization.

A 5-micron sediment filter (or smaller) must be installed upstream of a UV sterilizer. For your convenience, this product comes with a 5-micron sediment filter pre-installed to ensure optimum water treatment. The same cartridge should be used for replacement.

Steps to replace the filter cartridge (recommended at least every 1 year or as required):

1. Read the general maintenance instructions before starting the filter cartridge replacement.
2. After isolating and release the system pressure. Loosen the filter housing from the cap using the spanner to assist (turn clockwise when looking from above).
3. Carefully unscrew the filter housing, taking care as the weight of the filter housing with water can be heavy.
4. Empty excess water from the housing and remove the filter cartridge. Please dispose of the filter cartridge responsibly.
5. If necessary, clean the housing with dish soap and warm water and then rinse thoroughly.
6. Remove all packaging from the replacement filter cartridge. Record the model number of the cartridges you use & install date in the maintenance log at the back of this manual.
7. Insert the filter cartridge into the filter housing. For CTO filters, ensure that the rubber seal on the top and bottom are firmly in place before inserting into the housing. Ensure the filter cartridge is correctly seated on the spigot at the base of the filter housing.
8. Check O-rings are clean, undamaged and assembled correctly to the filter housing. Replace if necessary and lubricate using only 100% silicone food grade lubricant.
9. Hold the filter housing vertically whilst screwing the filter housing back into the cap. Ensure the top spigot is aligned with the center of the filter housing. Hand tighten the housing until firm, being careful not to overtighten. Do not overtighten the housings.
10. Read the general maintenance instructions on how to restart flow after replacing the cartridges.



UV Lamp Replacement

Steps to replace the UV Lamp (recommended at least every 1 year or as required):

1. Check that power has been disconnected from the product and turn off the water supply to the product. The UV lamp is hot when operating, let it cool down before removing.
2. Remove the seal from the top cap of the UV sterilizer.
3. Gently lift the UV lamp vertically out of the quartz sleeve and then disconnect the cord.

4. When replacing the UV lamp, check the condition of the quartz sleeve, and clean or replace as necessary. See **UV Quartz Sleeve Service and Replacement**.
5. Unpackage the new UV lamp and connect the cord.
6. Gently lower the new UV lamp into the quartz sleeve. Replace the seal around the top cap.
7. Read the general maintenance instructions on how to restart the system after replacing the cartridges.

UV Quartz Sleeve Service and Replacement

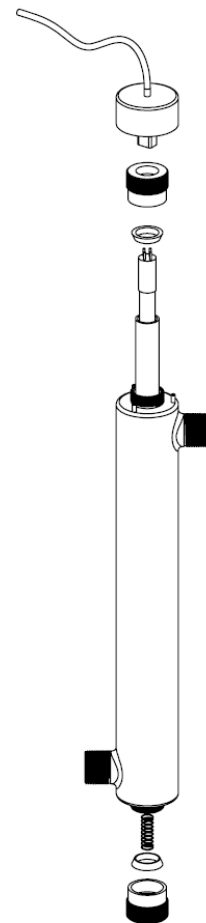
Cleaning of the quartz sleeve is recommended at least every 3 months, or as required due to the supply water quality.



The quality of the incoming water may cause the UV quartz sleeve to become scaled or cloudy over time. This will block some of the UV light from the water, reducing the effectiveness of the sterilization treatment. Regularly check and clean the quartz sleeve and avoid any marks or fingerprints when replacing the quartz sleeve.

Steps to check and clean the quartz sleeve (recommended at least every 3 months or as required):

1. Check that power has been disconnected from the product and turn off the water supply to the product. The UV lamp is hot when operating, let it cool down before removing.
2. Remove the seal from the top cap of the UV sterilizer. Gently lift the UV lamp vertically out of the quartz sleeve and then disconnect the cord.
3. Unscrew the top cap of the UV sterilizer housing and then unscrew the bottom cap. Take care not to lose the spring when removing the bottom cap.
4. Whilst holding the top of the quartz sleeve, remove the bottom silicone seal from the quartz sleeve and gently lift the sleeve up out of the housing.
5. Check the quartz sleeve for any debris, scale or marking. Clean with an alcohol based cleaner if required.
6. Carefully insert the Quartz Tube into the top hole of the UV sterilizer housing and feed it slightly out the bottom hole. Care should be taken to prevent marks or fingerprints on the Quartz Sleeve, so it is recommended to wear gloves during the installation.
7. Install the first silicone seal around the bottom of the quartz sleeve and then screw on the bottom cap. Do not over-tighten. The bottom of the quartz sleeve should not touch the cap.
8. Install the second silicone seal around the top of the quartz sleeve and then screw on the top cap. Do not over-tighten. The top of the quartz sleeve should not touch the cap. If it does you may need to unscrew the caps again and adjust the position of the quartz sleeve.
9. Drop the spring into the quartz sleeve through the top cap.
10. Connect the UV connector to the UV lamp. Care should be taken to prevent marks or fingerprints on the UV lamp.
11. Gently lower the UV lamp into the quartz sleeve and install the seal around the top cap.
12. Read the general maintenance instructions on how to restart the system after replacing the UV lamp or quartz sleeve.



Spare Parts List

Product	Sediment Filter (1 st Stage)	CTO Filter (2 nd Stage)	UV Lamp	Quartz Sleeve	UV Controller Ballast	Filter Housing
HG210	HG10SFC	HG10CTOFC	-	-	-	HGFH10
HG220	HG20SFC	HG20CTOFC	-	-	-	HGFH20
HG210UV	HG10SFC	HG10CTOFC	HGUVL	HGUVQSS	HGBPC	HGFH10
HG220UV	HG20SFC	HG20CTOFC	HGUVL	HGUVQSS	HGBPC	HGFH20

Troubleshooting

Symptom	Possible Cause(s)	Solutions
Low water flow	Filter cartridge(s) are blocked	Replace the cartridge(s), see Filter Cartridge Replacement . Cartridges should be replaced every 6-12 months depending on water quality.
	Low supply pressure	Investigate cause of low pressure at the source.
	Isolation valves are restricting flow	Check all isolation valves before and after the filter product are fully open.
Water leak at inlet or outlet	Plumbing connection is leaking	Remove any fittings, clean all threads thoroughly and reseal with thread sealant tape and tighten.
	Filter cap is damaged, causing a leak	Contact Watts for a replacement if the part has been overtightened, exposed to freezing, high pressure or other damage.
Water leak at filter housing	Seal is leaking due to missing, dirty, damaged, or unlubricated O-ring.	Unscrew the filter housing. Check that 2 sealing O-rings are present, clean, undamaged and assembled correctly to the filter housing. Use 100% silicone food grade lubricant on O-rings to assist with assembly and prevent pinching. See Filter Cartridge Replacement .
	Filter housing is damaged, causing a leak	Replace filter housing if the part has been overtightened, exposed to freezing, high pressure or other damage. See Spare Parts List .
Water leak at UV sterilizer connections	UV Housing Cap or flexible hose nuts are loose, internal seal is missing, dirty or damaged.	Loosen the nut and check the seal inside the connection is present, clean, undamaged and assembled correctly. Retighten the connection and check for leaks. Contact Watts for a replacement if required.
Inconsistent or bubbly water flow	Trapped air in the system	Shut off water supply and release pressure in the system by pressing the red buttons on top of the filter housing caps. Slowly turn on the water supply and open a fixture downstream of the product for 3 minutes to flush water through the system and remove any air pockets.

Table continues on next page

Troubleshooting continued:

UV ballast screen is off, no green LED light	Power cord is not plugged in, power supply is not switched on	Check power cord is plugged into the UV ballast and the power outlet. Check the power outlet is active and switched on.
	UV Ballast or power cord is damaged	Replace UV Ballast and/or power cord if the part has been subjected to electrical surge or damage. See Spare Parts List .
Filters are becoming blocked very quickly	High sediment from water source	Consider adding pre-filtration before the product with a larger nominal micron size (e.g. 20 micron) to remove large sediment before reaching the filter.
Contaminants in the outlet water	Filter cartridges are at capacity	Cartridges should be replaced every 6-12 months depending on water quality. See Filter Cartridge Replacement .
	Contamination in the filter housings	Remove the filter housings, clean the housing with dish soap and warm water, rinse thoroughly and then reassemble. See Filter Cartridge Replacement .
	Insufficient flushing of the filter cartridge	Shut off water supply and release pressure in the system by pressing the red buttons on top of the filter housing caps. Slowly turn on the water supply and open a fixture downstream of the product for 3 minutes to flush water through the system. See Filter Cartridge Replacement .
	Source of contamination after the filter	Flush the system for at least 3 minutes. Investigate possible sources of contamination after the product.
	System bypass is open	If the filter product has a bypass, check that the valve is fully closed.
	Poor water quality at the source	Consult an expert to test if additional water treatment is required at the source.
Bacteria detected in the outlet water	UV lamp has reached end of operating life	The UV lamp should be replaced every year. See UV Lamp Replacement .
	Poor water quality at the source	Consult an expert to test if additional water treatment is required at the source.
	There is a source of bacteria after the product	Ensure the water system is fully flushed before operating. Consult an expert to investigate possible sources of contamination after the product. Chemical treatment of the system may be required.
UV ballast alarm and/or blinking red LED light	Lamp is reaching end of operating life	Check the counter on the UV ballast. See Operating Instructions and UV Lamp Replacement .
	UV lamp not operating	Check the cord is correctly plugged into the UV lamp, and that there is no moisture around the connection. Replace lamp, see UV Lamp Replacement .

Limited Warranty

Watts warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of purchase. In the event of such defects within the warranty period, Watts will, at its option, replace or recondition the product without charge.

Watts shall in no way be liable for any loss, damage (direct, indirect or consequential), cost or expense incurred other than those rights a consumer has under the Consumer Guarantees Act 1993. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product including the following:

1. Faulty operation due to foreign matter in the water supply
2. Installation of the product in water supplies that contain excessive dissolved salt or chemicals.
3. Installation that does not comply with NZ Building Code G12, NZS 4607:1989, any other relevant approved Standard or manufacturers instructions and recommendations.
4. Abuse or mutilation of a valve during installation or in an attempt to repair or replace the product.
5. Installation of a product in an application where its intended use is not that for which the valve was designed without the prior written consent of Apex Valves Limited.
6. Failure due to a lack of maintenance.

Watts reserves the right at any time to modify any product specifications.

