

FILTRATION & UV SYSTEM

Operation and Maintenance Manual



Model BBUV 2700 BBBUV 2700



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1.0 Introduction

Congratulations on the purchase of your new Filtration & UV System from Aquamarine Water Treatment. We thank you for your trust in us.

Treated with care and regular maintenance, your new system will provide you many years of trouble free operation.

This user's manual outlines installation, operation, maintenance and troubleshooting details vital to the sustained performance of your system.

If your system is altered at the site of operation, or if the feed water conditions change, please contact Aquamarine Water Treatment on +27 (0) 21 788 53 41

All rights regarding the design and configuration of this system may not be copied or passed on to a third party without permission from Aquamarine Water Treatment.

Note: Prior to operating or servicing an Aquamarine Water Filtration & UV System this user's manual must be read and fully understood. Keep it and other associated information for future reference.

2.0 Safety Precautions

2.1 General

This system should be operated only by trained personnel. During operation, the system volume and certain line items are under pressure (higher and / or lower than atmospheric pressure). Staff must comply with in this manual and the safety measures listed her own company in manipulating the system. Aquamarine will not be held liable for any damages, injury or death that may result from the use of this equipment.

2.2 Safety headings

The safety section of this user's manual outlines the various safety headings used throughout this manuals text and are enhanced and defined below

Note Indicates statements that provide further information and clarification.

Caution Indicates statements that are used to identify conditions or practices that could result in equipment or other property damage.

Warning Indicates statements that are used to identify conditions or practices that could result in injury or loss of life. Failure to follow warnings could result in serious injury or even death.

2.3 Risks Associated with the UV System

Incorrect operation or use for other than the intended purpose may:

- Endanger the health of the operator
- Damage the unit and other equipment
- Prevent efficient operation of the unit

All persons concerned with the installation, commissioning, operation, maintenance and repair of the unit must:

- Be suitably qualified
- Observe these Operating Instructions.

Take the time to read and understand the operating manual before attempting to use the system in order to ensure correct and safe operation.

2.4 2.2. Ultra Violet Light

Ultraviolet is electromagnetic radiation of wavelength 100 to 400nm. It lies beyond the violet end of the visible spectrum and precedes the X-ray Band. UV systems work typically from 250- 260nm. The emissions in this band are invisible and highly damaging to eyes and exposed skin. For this reason:

DO NOT ATTEMPT TO OPERATE THE UV LAMP OUTSIDE THE CHAMBER
DO NOT ATTEMPT TO LOOK AT AN OPERATING UV LAMP

3.0 Labeling

Do not remove any warning labels or system labels or direction arrows from the plant as they identify flows and warn against potential hazards.

4.0 Specifications

4.1 System Specifications

4.1.1 Size and Weight

Length	1050 mm
Width	200 mm
Height	900 mm
Weight (excl. Water)	20kg (BBUV) 25kg (BBBUV)

4.1.2 Filtration

Micro Filter Housing 1	Big Blue, 20", 20 Micron
Micro Filter Housing 2	Big Blue, 20", Carbon Block
Micro Filter Housing 3	Big Blue, 20", 5 Micron (only on BBBUV 2700)

4.1.3 Ultraviolet Water Sterilizer

UV Type	HC-720
Flow	2.7 m3/h
Power	1x230V/40Watt
UV Lamp	T540
Standard Ballast	UV-6(UN)
Quartz Sleeve	910QT

5.0 System Requirements

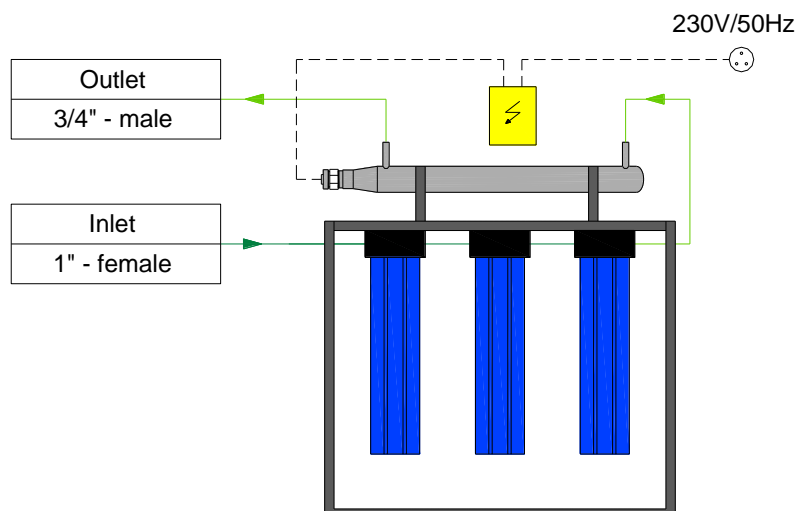
5.1 Plumbing

5.1.1 Connections

Feed Water Connection	1 inch Female thread
Fresh Water Connection	3/4 inch Male thread

Note: Maximum Pressure on system max. 4.0 bar.
Maximum Temperature on system max. 35°C.

5.1.2 Drawing Basic Flow



6.0 System Description

6.1 Filtration

6.1.1 Micro Filter

The polypropylene Micro Filters are designed to remove any particulate material such as iron, rust, scale, algae etc. The system comprises the following Micro Filters:

- 20 micron, Big Blue Cartridge, Melt blown Polypropylene
- 5 micron, Big Blue Cartridge, Melt blown Polypropylene

6.1.2 Activated Carbon Filter

The carbon filter is designed to remove unwanted tastes, odours, organics and Chlorine. This filter needs to be replaced every 2-6 month or when any unwanted tastes or odours are detected. The system comprises the following Activated Carbon Filter:

- Carbon Block or GAC, 20 inch, Big Blue Cartridge

6.2 UV System

6.2.1 Electrics

U.V lights generate heat which is dissipated by the flow of water over the tubes. If this heat is allowed to build up failure of the seals could ensue and the units could leak on start up. In addition the flow of cold water over the hot glass could cause the glass to shatter.

The warning lights will glow permanently when the unit is on line, if a warning light goes out, this indicates a lamp failure, ballast failure or starter failure.

Contact Aquamarine Water Treatment c.c for replacement parts (see spare parts at the end).

The U.V tubes should be replaced every **8000 hrs or at least once a year.**

Always ensure that the by-pass valve is fully closed when the unit is in operation. This ensures that no contaminated water can by-pass the system and mix with treated water.

Caution: Ultra Violet light can cause severe eye problems, blindness or skin problems similar to extreme sun burn. Never connect the light up outside of its casing or look at it without protection.

7.0 System Installation

7.1 Placing

Firstly take the plant and secure it firmly in position on site. Make sure to have at least 1.0 m free space to the left or right of the system (determined by which end the UV lamp is inserted) for maintenance reasons.

7.2 Plumbing

Connect pipe work from the feed water tanks or the municipal supply lines to the inlet feed water connection. Connect pipework from the clean water outlet to the clean water storage tank or point of use. Maximum inlet pressure is 4 bar. A pressure reducing valve will be required if the feed pressure exceeds 4 bar.

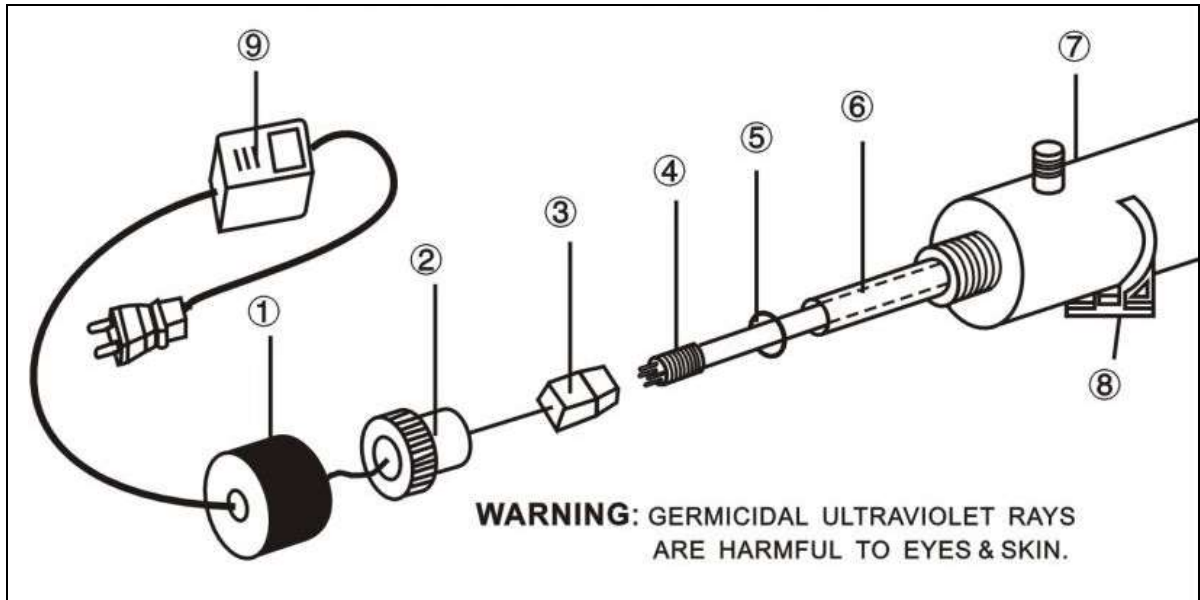
7.3 Electrical

Connect the power supply 220V/50Hz to the UV ballast.

7.4 UV System

7.4.1 General Function

The system is on and in operation when the power is switched on and the green light on the ballast (9) is illuminated. A problematic bulb will be indicated by the red light on the ballast (9) illuminating and by a buzzing sound being emitted from the ballast (9).



7.4.2 Installation Process

- Caution:** Before attempting any maintenance insure the power supply is off. Ultra Violet light can cause severe eye problems, blindness or skin problems similar to extreme sun burn.
- Step 1:** Carefully insert the quartz sleeve (6) into the stainless steel housing (7) until it reaches the support spring on the opposite end.
- Step 2:** Slip the silicone O-ring (5) onto the outside of the quartz sleeve (6) until it makes contact with the stainless steel threaded nipple.
- Step 3:** Screw the securing nut (2) onto the threaded nipple and tighten until the sealing face makes contact with the silicone O-ring (5). Take caution not to over tighten as this can crack the quartz crystal sleeve.
- Step 4:** Pressurise the system and make sure there are no leaks from the silicone O-ring (5) seal.
- Step 5:** Once the system has been checked and rectified from leaks insert the UV lamp (4) into the stainless steel housing (7)
- Step 6:** With the power disconnected carefully fit the lamp plug socket (3) onto the 4 pins located on the UV lamp (4) and insert the UV lamp (4) all the way into the stainless steel housing (7)
- Step 7:** At this stage the power can be turned on for a few seconds to insure the lamp is burning, which is evident by a blue glow. This must only be done for a few seconds after which the power must be turned off to avoid eye and skin exposure to the UV rays.
- Step 8:** Slip the plastic sleeve (1) over the securing nut (2) to conceal the UV lamp (4) and plug end (3) and to insure there is no risk of exposure to the UV rays.
- Step 9:** Once the UV lamp (4) has been concealed in step 8 the power can be turned on and the unit put into operation. Always insure there is water flow or at least water in the stainless steel housing (7) before the power is switched on and put into operation.

8.0 Maintenance

8.1 Replacing Filter Cartridges

8.1.1 Sediment Filtration Cartridges Replacing Process

1. **Loosen** blue filter housing 1 (and 3 on BBBUV Model) with the filter spanner provided in a **clockwise direction** as shown in the photo below.
2. Remove the dirty filter and expose of it. **DO NOT TRY TO CLEAN FILTERS!**
3. Fit the replacement 20 Micron cartridge into the blue filter bowl 1 (and 5 Micron in filter bowl 2 on BBBUV Model)
4. **Tighten** blue filter bowls up onto the black filter cap in an **anti-clockwise direction** with the spanner provided.

Note: depending on sediment loading and water usage filters should be replaced every 1-6 months.



8.1.2 Activated Carbon Cartridges Replacing Process

5. **Loosen** blue filter housings 1 with the filter spanner provided in a **clockwise direction** as shown in the photo previously.
6. Remove the dirty filter and expose of it. **DO NOT TRY TO CLEAN FILTERS!**
7. Fit the replacement activated carbon cartridge into the blue filter bowl 2.
8. **Tighten** blue filter bowl up onto the black filter cap in an **anti-clockwise direction** with the spanner provided.

Note: Depending on usage and possible chlorine levels carbon filters should be replaced every 2-6 months.

8.2 UV System

The U.V lamp should be changes every **8000 hrs or at least once a year**.

Contact Aquamarine Water Treatment c.c for replacement parts (see spare parts at the end).

Caution: Ultra Violet light can cause severe eye problems, blindness or skin problems similar to extreme sun burn.

9.0 Troubleshooting

Should you have a problem with a Filtration & UV System please contact one of the following people at Aquamarine Water Treatment.

- Wade Bills (Engineering, Sales)
- Lee Hodgins (Engineering, Sales)
- Gary Farquar (Service, Aftersales)
- Mathias van Rensburg (Manufacturing)
- John Patterson (Electrical)
- Rene Foxcroft (Spares and consumables)

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10.0 Consumables

Generally the following consumables are required when operating these filtration and UV plants:

Description	Part N°	Consumption
<i>Filters</i>		
Big Blue, 20", 20 Micron	APPBB20-20	2-12 pce. per year
Big Blue, 20", Carbon Block 5 Micron	CB20-5	6-12 pce. per year
Big Blue, 20", 5 Micron	APPBB20-20	2-12 pce. per year
<i>UV Lamp</i>		
Quartz Sleeve for HC-720	910QT	If needed
<i>Quartz Sleeve</i>		
UV Lamp 29 Watt for HC-720	T540	8000 hr / once a year