

# **UV20 MULTISTAGE UV FILTER SYSTEM**

## **USER MANUAL**

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## **INTRODUCTION**

The BWT UV20 is designed to reduce turbidity and to inactivate harmful bacteria and viruses in water supplies. Using UV-C rays, a purification process that's eco-friendly and chemical-free, DNA and RNA of microorganisms are damaged, resulting in an effective germicidal action. A double-stage pre-filtration unit ensures that particulate matter does not shield micro-organisms from the UV-C light.

This system will effectively treat water, depending on the required UV dosage and existing water quality. It is designed for mains and rainwater supply.

The BWT UV20 system cartridges and lamp need to be regularly maintained and/or replaced to guarantee optimum performance. For replacements contact your nearest Reece store.

The quartz sleeve needs to be cleaned periodically to ensure optimum performance.

### **Warning**

According to the European standard EN 60204-1 (safety set-up off electrical equipment-general rules) low tension electrical equipment (rule 2006/95/CE) must be connected to an earthed current point.

## **SAFETY WARNING**

UV-C radiation can cause serious burns to unprotected skin and eyes, do not connect the appliance to Power without having first fit the UV lamp in its housing. Incorrect use of this appliance may increase the bacterial content of the water unless supplementary treatment is provided.

### **Important**

The BWT UV20 is designed to reduce turbidity and to inactivate harmful bacteria and viruses in water supplies. Do not use with chemically unsafe water (water that does not comply to health regulations) or with water of unknown quality. It is recommended to perform a complete water analysis and, if needed, adopt further treatment before using the system. Note: This water filtering appliance should only be installed by a fully qualified & licenced plumber. Any operation on the electrical part of the product must be carried out by a qualified electrician, closely following the instructions supplied. Incorrect operation due to unqualified personnel will void the warranty.

### **Standards**

Ensure connection of the device meets applicable plumbing code's in your area. Australia and New Zealand installation shall comply with AS/NZS 3500.1 and the Plumbing Code of Australia.

Refer to the NCC volume Three, the plumbing Code of Australia for the requirement of backflow prevention, including the installation of a certified device if not supplied.

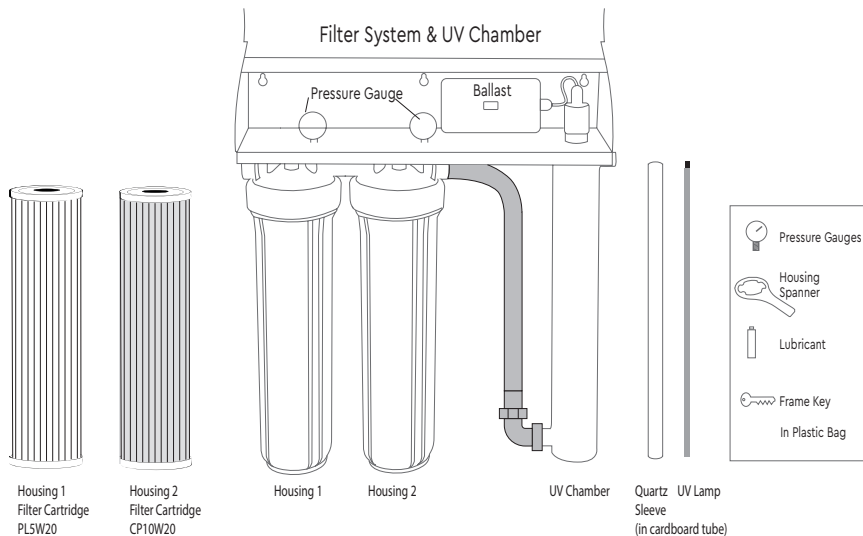
Only use thread sealant tape (not included). Do not use liquid sealant.

## **PREPARING YOUR SYSTEM**

Please read all instructions carefully as failures caused by incorrect installation or operation will void warranty.

Carefully check all the components (especially the lamp) are included and not damaged:

1. Filter System and UV chamber (with double-stage filtration unit, flexible steel hose and metallic frame).
2. UV Lamp and quartz sleeve (in cardboard tube).
3. Bag containing: spanner, pressure gauge (2), lubricant (2) and metallic frame key.
4. Ballast (BWT UV20 systems come with Ballast pre-installed).
5. This user guide



### POSITIONING YOUR SYSTEM

Choose a location with a structurally appropriate mounting position. Allow at least a chamber length space above the unit for removal of the lamp and quartz-sleeve and 120 mm below the housings for replacing the cartridges and maintenance.

BWT UV20 systems must be installed in a sheltered position, protected from direct sun, weather, rain, frost and have adequate ventilation.

All BWT UV20 systems should be protected from harsh environments where overexposure to salt or aggressive chemicals can occur.

### ELECTRICAL POWER SURGE PROTECTION

An electrical power surge or spike can travel through the supply lines and cause serious damage to your electrical equipment. The BWT UV20 has a fuse to protect the circuit. The fuse is not a lightning arrestor and may not protect the product if lightning or a very powerful surge hits the unit. If the installation is subject to electrical power surges or lightning we strongly recommend the use of suitable additional surge protection devices on all electrical equipment. We recommend the use of an RCD or earth leakage circuit breaker on the power supply to your unit.

**The flow rate MUST be equal or below the maximum values. Excessive flow will reduce UV dose and may render the unit ineffective.**

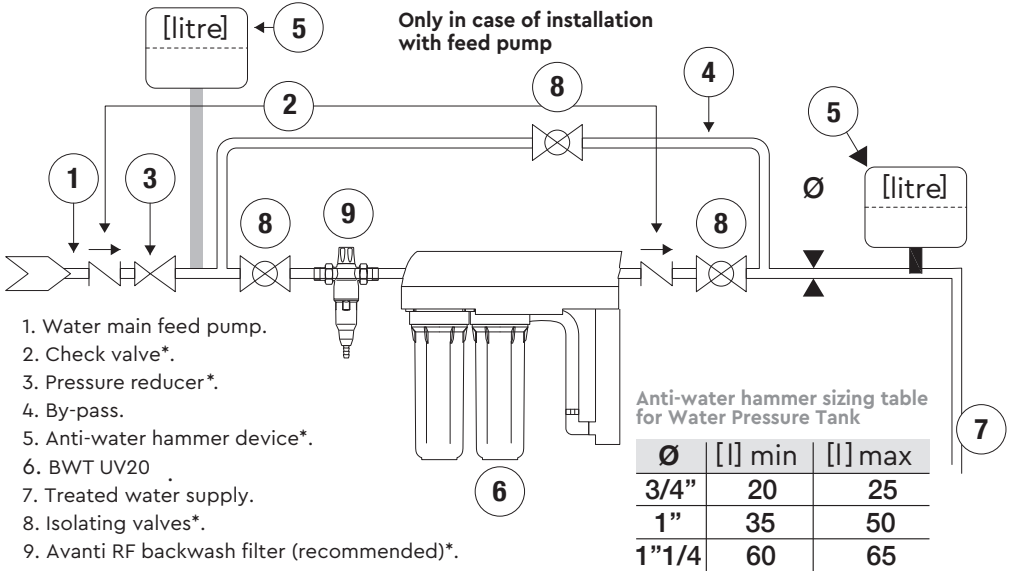
### INLET WATER QUALITY

For correct performance of the system the inlet water must meet the below parameters:			
Hydrogen sulphide	< 0,3 mg/L	Total hardness	< 120 mg/L
Iron	< 0,3 mg/L	UV transmittance	> 95% - 1 cm
Manganese	<0,05 mg/L		
Failure to comply with water quality parameters may affect system performance.			

# INSTALLATION

## Important

- Only use the system in the operating conditions indicated on the label on the filter bowl.
- If the label is tampered, damaged, not legible or missing, applicable working conditions are:
- Max supply pressure 860 kPa (AS/NZS 3500.1) install a pressure limiting valve if pressure exceeds this value.
- Max temperature: 40°C Min temperature: 4°C
- Install an "anti-water hammer" device to protect the filter. In case of installation on systems powered by a pump and especially on those equipped with a pressure and flow controller, an additional expansion vessel is recommended to be installed between the pump and the first filter unit to minimize pressure fluctuations. BWT UV20 systems have 1" BSP plumbing connections (Inlet 1" BSP female, Outlet 1" BSP male).



1. Water main feed pump.
  2. Check valve\*.
  3. Pressure reducer\*.
  4. By-pass.
  5. Anti-water hammer device\*.
  6. BWT UV20
  7. Treated water supply.
  8. Isolating valves\*.
  9. Avanti RF backwash filter (recommended)\*.
- \*Not included

1. Before attempting installation, check that the UV lamp and its quartz sleeve are intact inside their respective packaging.
2. Locate a suitable position for the BWT UV20 system remembering to allow 120mm under the housings and at least a chamber length space above the unit for removal of the lamp and sleeve. A power outlet with residual current protection is required.

## Important

Pay attention to ensure the earth strap has been connected. Check the water will be flowing through the filters in the correct direction.

The water MUST always pass through the Filter Housings BEFORE the UV unit.

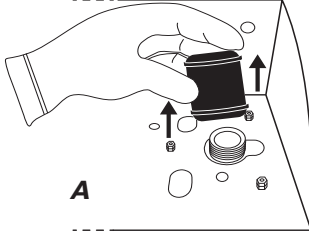
3. BWT UV20 systems have 3 mounting holes at the rear of the mounting bracket. Use the mounting holes to mark the desired position on the wall where the fixings are required to go.
4. Drill the holes and install the anchors (fixing anchors not included).
5. Position the mounting bracket on the wall. Insert and tighten the fixings to hold the system securely to the wall. Note: The outlet is always on the UV side of the system.
6. Turn off the water mains.
7. Plumb inlet and outlet pipework to the BWT UV20 unit. The inlet is 1" BSP female and the outlet is 1" BSP male.
8. Once the BWT UV20 has water connected, check all connections for leaks.

**Drain system of water to install lamp and or sleeve.**

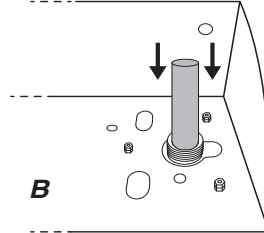
**Use gloves to handle the quartz (glass) and lamp surface as marks or fingerprints may interfere with UV transmission. If lamp is soiled, please clean lamp with an alcohol based cleaner.**

## 9. ASSEMBLY OPERATIONS:

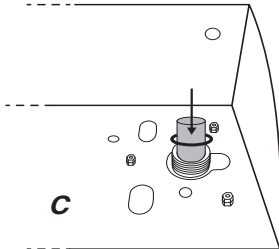
Turn power and water off and disconnect when working on the system.



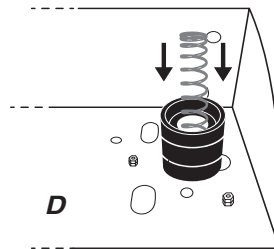
- (A) Open the cover. Remove the lamp connector from the top nut, disconnect the ground wire and unscrew the black sleeve. Warning: pay attention to the blue gasket inside.



- (B) Insert the quartz sleeve carefully centring the seat at the bottom plate of the UV chamber.

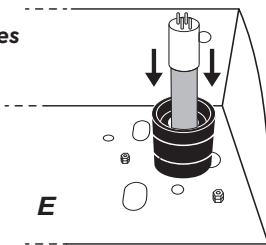


- (C) Insert the o-ring onto the quartz sleeve.

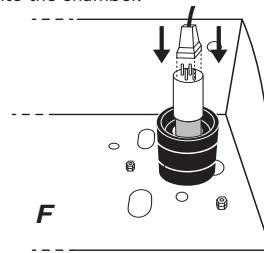


- (D) Gently tighten the sleeve – do not overtighten. Insert the spring into the quartz tube by dropping it into the chamber.

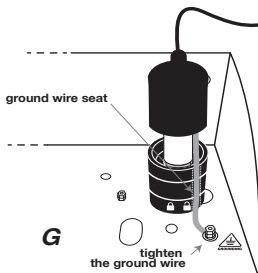
**Use gloves**



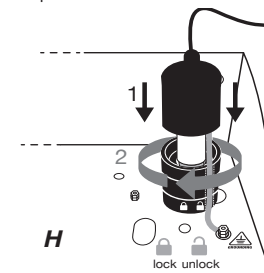
- (E) Slowly insert UV lamp into the quartz sleeve.



- (F) Connect the lamp connector to the pins on the lamp.



- (G) Place the ground wire in the appropriate seat of the black sleeve.



- (H) Push the black cap on the black and turn it clock wise to lock it. Connect again the ground wire to the frame.

10. Open the filter housing by unscrewing the bowl/ensure the cartridges are installed in correct housing/ Lubricate the oring; check if it is properly located,and free of any damage / Tighten the housing bowl to housing's head using supplied spanner. Do not over-tighten.
11. Turn-on the water mains, paying attention to completely remove the air left inside the housing using the vent valves / Slowly turn-on a water supply (tap) downstream of the BWT UV20 / Open the vent-valve of the head, wait for air purge from the vent-valve, then screw and tighten the vent-valve. Flush the unit for at least 5 minutes. Check thoroughly for leaks.
12. Turn the power on and ensure that the lamp is operating (see lamp ballast operation).
13. Close and lock the cover. Note: Your cabinet comes with 1 key for your convenience. Please store it safely.

Prior to performing any work on the UV disinfection system, always disconnect the power supply first.

**Warning:** Do not look directly into ultraviolet rays emitted from the UV lamp as they will cause serious burns to unprotected eyes.

The treated water may seem warm for a short period at first flow. This is because the UV lamp emits heat. When turning on a tap, let the water run for a short time to purge any warm water.

### LAMP BALLAST OPERATION

Any operation on the electrical part of the product must be carried out by a qualified electrician, closely following the instructions supplied.

<b>UV20</b>		<b>BWT</b>	
<b>BWT MULTISTAGE UV FILTER SYSTEM UV20</b>			
MODEL NO.	<input type="text" value="UV20"/>	<p><b>⚠ Danger Ultraviolet light. UV light is harmful to eyes and exposed skin</b></p> <p><b>⚠ Possible high temperature and pressure</b></p> <p><b>⚠ Danger high voltage. Disconnect mains supply before maintenance</b></p> <p><b>REPLACEMENT PARTS</b>            STAGE 1 SEDIMENT            5 MICRON (PL5W20)            STAGE 2 CARBON            10 MICRON (CP10W20)            STAGE 3            ULTRAVIOLET DISINFECTION            UV lamp 56 watt (UV20LP56)</p> <p style="font-size: small;">UV20 Product Information:  </p>	
MFG. YEAR.	<input type="text" value="2023"/>		
SER NO.	<input type="text"/>		
SUPPLY VOLTAGE.	<input type="text" value="220-240V 50Hz"/>		
MANUFACTURED.	<input type="text" value="ITALY"/>		
CONTACT NO.	<input type="text" value="1300 720 299"/>		
<b>WARNING:</b> For correct operation of this filter system		 <small>Waters AS 3077 WH220P CATEGORY II</small>	

### Ballast Display Information

The Ballast Display provides the following information;

- Working days count down
- System total working days
- Alarm 1 Indicating end of lamp life
- Alarm 2 Lamp failure

**ATTENTION** Turn power off and disconnect before working on any electrical parts.

### Start up

01.0

365


Power on   Software version indicated   Working days count down   ( lamp life 1 year )

To show working days count-down press for less than 1 second

## Display Alarms

**Alarm 1-AL1** indicates the end of lamp life, the count down display will show 000 days and a buzzer alarm will sound

000

To stop the alarm buzzer. Press and hold the  > 5 seconds, buzzer will stop.  
The buzzer will be stopped for 1 week – will be repeated for 4 more weeks.  
The UV lamp should be replaced (see lamp replacement procedure page 11)

**Alarm 2-AL2** indicates lamp failure and a buzzer alarm will sound


### Check

Lamp connection

If the lamp is burnt out, replace with a new lamp

If the lamp starter has failed by testing a new lamp – new lamp will not work, exchange ballast

DISPLAY 113 ( 0 – 365 ) working days count down – lamp failure

To stop the alarm buzzer Press and hold the  > 5 seconds, buzzer will stop

113

AL2

The connection to the UV lamp should be checked


**ATTENTION** Turn power off and disconnect before checking the UV lamp connection

If the DISPLAY alternates between

AL2

OFF

turn power off and on to reset

If  remains replace the UV lamp (see lamp replacement procedure page 11)

### Warning

**DISPLAY OFF:** The pcb fuse is blown. Turn off system power and isolate. Unscrew the cap of the power supply box. Remove the small box close to the power supply plug, replace the fuse (mod. 5×20 1,6A Fast).



## Filter Cartridges to suit UV20 Multistage UV Filter System

Performance will vary based on local water conditions.

Variables in drinking water can affect the life of the filter cartridge.

Please consider the filter life and be aware that a drop in pressure at the outlet or a change in the taste of water can indicate it's time to change the filter.

MODEL	TYPE	DUTY	MICRON RATING	DIMENSIONS mm	
PL5W20	Pleated	Sediment	5	114 OD x 508 L	Stage 1
CP10W20	Pleated Carbon	CTO	10	114 OD x 508 L	Stage 2

CTO = Chlorine, Taste & Odour

CARTRIDGE OPTIONS	TYPE	DUTY	MICRON RATING	DIMENSIONS mm	
PS20W20	Polypropylene	Sediment	20	114 OD x 508 L	Stage 1
PS5W20	Polypropylene	Sediment	5	114 OD x 508 L	Stage 2

## Replacement Parts

You can obtain replacement parts from your local Reece dealer. To maintain performance and warranty, use genuine BWT replacements.

REPLACEMENTS LIST	DESCRIPTION
UV20 LP56	UV LAMP 56W
UV20 QS1	QUARTZ SLEEVE 56W + SPRING (mod. 156-256)
UV20 CTRLR	UV20 LAMP CONTROLLER - AUS plug
UV20 AB35505066	O-RING FOR QUARTZ SLEEVE

## Maintenance

The BWT UV20 series has been designed and manufactured with simple and functional features which make maintenance procedures and periodical servicing simple.

To maintain a high quality of disinfected water, cartridges, lamp and quartz-sleeve should be regularly checked/replaced (dependent on water quality and usage).

Maintenance operations should only be carried out by personnel who have been trained and authorized for this work by the owner and/or user. The owner and/or user must ensure that the maintenance personnel are familiar with the safety measures and regulations, they have read and understand the operating instructions.

Flush system for 10 minutes after any period of non-use of more than 2 days. For a period of non-use of 2 weeks or more, it may be necessary to replace the cartridges.

Only original BWT replacement parts should be used.

The following are the recommended service intervals for replacement parts:

SERVICE INTERVALS	
<b>Filter cartridges</b>	Replace with a new cartridge a minimum of every 6–12 months or with a pressure drop more than 1Bar(100Kpa/15PSI).
<b>UV lamp</b>	Minimum once per 9000 hours/one year.
<b>UV quartz sleeve</b>	Quartz sleeve cleaning is recommended at least quarterly, more frequent cleaning may be required depending on your water quality, please seek the advice of your retailer.
<b>O-ring for quartz sleeve</b>	Annually.

## Cartridge Replacement Procedure

Change the cartridges at least every 12 months or when a drop in downstream water pressure of 1 bar or more is observed. To change the filter cartridges please adhere to the following procedure:

1. Before opening the filter housing turn-off the Power, disconnect power supply and turn off water mains.
2. Release the pressure from the product by un-screwing the vent-valve on the head or a tap downstream. Then tighten again.
3. Open the housing by unscrewing the bowl using the supplied spanner.
4. Remove the used cartridge.
5. Wipe clean the filter housing with cold water and a soft sponge.
6. Open the new cartridge and discard wrap.
7. Put a new cartridge in the filter housing.
8. Change the O-ring in the top of the filter housing. Check it is properly located, lubricated and free of any damage. Tighten the housing bowl to housing's head using supplied spanner. Do not over-tighten. (this is an oring seal only)
9. Turn-on the water mains, paying attention to completely remove the air left inside the housing using the vent valves.
10. Slowly turn-on a water supply (tap) downstream of the BWT UV20.
11. Let the water flow for at least 5 minutes before use.

## Important

Change the o-ring with a new one and carefully lubricate before tightening the bowl to the head. Make sure that there are no water leaks from the product and be careful not to overtighten the filter bowl. Continue checking there is no water leakage for 48 hours following the installation and start-up. In case of leak, turn off power and water supply, open the housing, remove the o-ring from the bowl, replace with a new o-ring and apply lubricant, then re-tighten the bowl to head and repeat as above.

Use only original o-rings, lubricant and other spare parts.

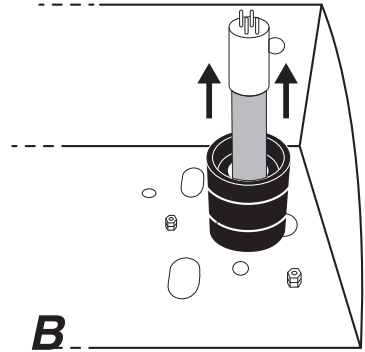
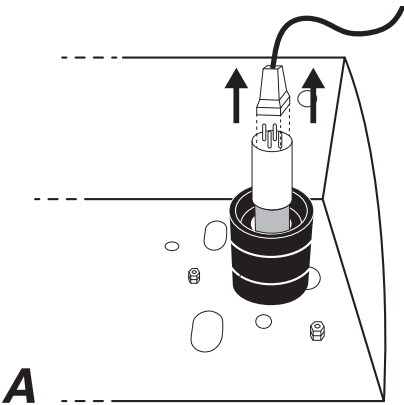
## Lamp Replacement Procedure



Change the UV lamp every 9000h/12 months (alarm will sound, remaining days are displayed on the ballast) Use gloves to handle the quartz (glass) and lamp surface as marks or fingerprints may interfere with UV transmission.

1. Disconnect the power supply and turn off the water.
2. Unlock and open the metallic cover.
3. Release the water pressure using the valves on the top of the housing or a downstream tap.

**ATTENTION:** Wait until the lamp has cooled down.

4. Lift the black cap slightly turning, carefully loosen the electrical 4-pin connection (A), and remove the old lamp from the quartz sleeve (B).
5. Remove the new lamp from the packing, handling it carefully by its ends.
6. Insert the new lamp into the quartz sleeve of the UV System.
7. Connect the lamp to the electrical 4-pin connection and reposition the black cap on the black bolt and turn it clockwise to lock.
8. Reconnect the power supply and slowly turn on the water.



9. Once the UV lamp has been replaced the count down display must be re set.
10. To re set the count down timer press and hold the  button. The value of the days - meter will start to flash
11. Keep pressing the  button to reset the count down days at 365. Wait, count down days will be set at 365

## ***Quartz Sleeve Maintenance/Replacement Procedure***

Minerals dissolved in water may form a coating on the quartz sleeve. The quartz sleeve must be regularly checked and cleaned to remove this coating in order to maintain correct disinfection performance.

1. Disconnect the power supply and turn off the water.
2. Unlock and open the metallic cover.
3. Release the water pressure using the filter housing valves on top of the housing head or open a downstream tap.
4. Remove the lamp, as per the lamp replacement procedure. (Page 11)

**ATTENTION:** Wait until the quartz sleeve has cooled down and completely drain UV chamber of water.

5. Unscrew the sleeve on top of the UV chamber and extract the quartz sleeve with care.
6. Clean the quartz sleeve by wiping it with a cloth soaked with an acid-based solution such as vinegar, lemon or calcium lime rust remover (CLR). If the quartz sleeve cannot be cleaned or is damaged, it should be replaced with a new one.
7. Repeat steps of initial installation procedure (page 6).
8. Turn on the water supply, checking for leaks.
9. Install the lamp, its electrical connection and cover.
10. Reconnect the power supply.
11. To rinse the system after maintenance, slowly turn on a water supply (tap) downstream of the unit and let the water flow for at least 5 minutes before use.

**WARNING:** After a period of inactivity, it is suggested to perform all the maintenance operations, replacing the sediment cartridges, cleaning the quartz-sleeve and checking/replacing the UV lamp. To rinse the system after maintenance, slowly turn on a water supply (tap) downstream of the unit and let the water flow for at least 5 minutes before use.

## ***System disinfection***

Use the following step for a full disinfection of the home and facility lines for a new installation, after service or shut down of the unit.

1. Unscrew the sumps and remove the cartridges. Fill the first sump with 1 cup (200ml) of unscented bleach ( 5.25% chlorine ) and replace the sump.
2. Slowly turn on the water supply and run the water through each faucet, toilet, shower heads etc, until bleach can be smelled and shut off the water supply. Wait 30 minutes to let the chlorine disinfect the utilities.
3. Turn off the water inlet to the UV system and replace the cartridges in the unit. Turn on again and flush every faucet, shower heads etc until chlorine smell can no longer be detected.

## BWT UV20 Specifications

GENERAL INFORMATION	
Max flow rate (95% - 1 cm UV transmittance)	54 l/m (40 mJ/cm <sup>2</sup> ) - 70 l/m (30 mJ/cm <sup>2</sup> ) - 131 l/m (16 mJ/cm <sup>2</sup> )
UV-C dose	40 mJ/cm <sup>2</sup> - 30 mJ/cm <sup>2</sup> - 16 mJ/cm <sup>2</sup>
Water temperature range	4°- 40° C
Total consumption	61W
Mounting	vertical

UV REACTOR	
Material	Stainless steel 304
Connections	Thread 1" BSP Male outlet, 1" BSP Female inlet
Max working pressure	8.6 bar
Protection class	IP 54
Shape	Z
Flow direction	From bottom to top

UV LAMP	
Number	1
Lifespan	9000 hr / Annually
Lamp power	56 W
Type	LPHO

CONTROL PANEL	
Material	Thermoplastic
Dimension	218×113×60 mm
Protection class	IP 54
Ambient temperature range	4°- 40° C
Power supply	230 V / 50-60 Hz
Lamp cable length	0,6 m
Power supply cable	2 m
Feed plug	AUS Type L
Monitor display	Digital
Days meter	Yes for total system life
Resettable days meter	Yes for lamp life
Audio alarm	With mute options

## Performance Data – Treatment and Tests

Class	Treatment Type	Function	Pass
I	Microbiological Status Bacteriostatic	Will stop bacteria increasing	N/A
II	Microbiological Treatment		N/A
IIa	Bacteria removal	Will remove or inactivate bacteria	N/A
IIb	Virus removal	Will remove or inactivate virus	N/A
IIc	Protozoa removal	Will remove or inactivate Cryptosporidium and Giardia	N/A
III	Turbidity and particulate reduction	Will reduce cloudiness	YES
IV	Taste/ Odour reduction	Will reduce taste and odour	N/A
V	Chemical Treatment	Will decrease chlorine compounds	N/A

The substances reduced by this product are not necessarily in your water.

Note: Performance will vary based on local water conditions.

The large amount of variables in drinking water can effect the working time of the filter cartridge.

Please consider the filter life and be aware that a drop in pressure of the outlet or a change in the taste of water can indicate it's time to change the filter.

Use only original BWT replacement cartridges and spare parts.

# BWT UV20 Water Treatment System

## **EC DECLARATION OF CONFORMITY**

The undersigned hereby declares, under full responsibility, that the unit:

### **BWT UV20**

IS IN COMPLIANCE WITH

- 2014/35/UE (low voltage directive)
- 2014/30/UE (electromagnetic compatibility)
- 2015/863/UE (RoHS3)
- 2012/19/UE (WEEE)
- IEC -EN 60204-1 norms (safety of machinery-electrical equipment of machinery)
- IEC -EN 55022 norms (characteristics of radio interference)
- D.Lgs. 31/2001 (Implementation of Directive 2015/1787/UE on the quality of water intended for human consumption)
- 2014/68/UE (art.4 comm.3) (PED)

The validity of CE marking is subordinated to the equipment integrity. Any modification, if not authorized, will cancel the use of the CE marking. This will occur in case the relevant risks have not been previously analyzed by our company, and a new EC Declaration of Conformity has been issued.

**Warranty Statement** – BWT Australia warrants that the products supplied will be free from any defects in workmanship or materials for 12 months from the date of purchase. Further, the warranty provided herein applies only when products are installed in accordance with installation instructions, used within the product specifications and service life; beyond which time or use BWT is absolved of any and all liability for any use of the product. No liability is accepted where pressure, temperature or other specifications are exceeded. The warranty does not cover the service life of the filter cartridges, lamps/sleeve.

In the event of defect or non-conformity, buyer shall properly notify BWT in writing, supplying proof of purchase dates, installation dates, and will protect and retain the products for investigation. There are no other warranties, either merchantability or fitness, either expressed or implied except as excluded by law.



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Category III



  
BEST WATER TECHNOLOGY

N1UG19