

osmio

WATER TECHNOLOGY
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Installation Guide

This installation guide covers the complete Osmio Lightbest UV System range



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READ THIS BEFORE INSTALLATION

It is very important that the following must be considered before you install this product.

Incoming water pressure must be tested before the installation. You can do this by using a pressure gauge (available online or at plumbers merchants, an example shown FIG1). Please note that your standing water pressure can increase up an additional 2-5 bar at night time.

We highly recommending protecting your entire property with a Pressure Reducing Valve (PRV - see FIG2) which can protect all appliances and plumbing from any increases or spikes in water pressure that can and do happen, which causes filter systems and other plumbing to leak.



FIG1: WATER PRESSURE GAUGE

The system must not receive more than 6.0 bar. Fit a PRV on your incoming mains to control the pressure.



FIG2: PRESSURE REDUCING VALVE WITH GAUGE

TOOLS & MATERIALS

The system can be installed on copper or plastic pipe up to 1" BSP, which includes 28mm, 22mm, 15mm copper pipe, 15mm speedfit plastic pipe or using hoses and nipples (e.g. 1" male to 3/4" male nipples). So choice of fitting is up to you and what is easiest or most appropriate.

You will need the following parts:

Silicone Grease (Plumber's Grease), PTFE tape, jointing compound

Spanner & Plumbers Wrench

Philips head screwdriver & Flat edge screwdriver

Electric drill

Spirit level

Marker pen

Appropriate screws to mount the filter to the vertical surface (e.g. wood screws)

Plus any other tools used for the basic plumbing e.g. pipe cutter, elbows, copper pipe, hoses etc.

UV SYSTEM RANGE KEY INFO



**Lightbest UV1 (3 LPM - 1GPM)
UV Steriliser System 11w**

Suitable for up to 3 litres per minute flow rate. Used for RO systems, connecting to single dispensing taps.

Connections: 1/4" female thread
Lamp power: 11W
UV1 uv radiation is 85µW/cm2
11W

Dimensions

A: Base face to opposite pin length 557+/-2mm
B: Base face to base face length 550+/-2mm
C: Diameter 15mm
D: Base type G10q Arc length 470mm

Electrical Data (Normal Values)

Lamp Wattage 11W
Lamp Current 425mA
Lamp Voltage 69V

Physical Data UV

Output 253.7nm(100hr) 8.9W
Intensity 85µW/cm2
Rate Average Life 9000hrs



**Lightbest UV2 (7LPM - 2GPM)
UV Steriliser System 16w**

Suitable for up to 7 litres per minute flow rate. Used for RO systems, connecting to single dispensing or main kitchen taps, storage tanks.

Connections: 1/4" female thread
Lamp power: 16W
UV2 uv radiation is 85µW/cm2
16W

Dimensions

A: Base face to opposite pin length 557+/-2mm
B: Base face to base face length 550+/-2mm
C: Diameter 15mm
D: Base type G10q Arc length 470mm

Electrical Data (Normal Values)

Lamp Wattage 16W
Lamp Current 425mA
Lamp Voltage 69V

Physical Data UV

Output 253.7nm(100hr) 8.9W
Intensity 85µW/cm2
Rate Average Life 9000hrs



**Lightbest UV6 (23 LPM - 6GPM)
UV Steriliser System 25w**

Suitable for up to 23 litres per minute flow rate. Used for RO systems, connecting to single dispensing or main kitchen taps, storage tanks.

Connections: 1/2" male thread
Lamp power: 25W
UV6 uv radiation is 85µW/cm2
25W

Dimensions

A: Base face to opposite pin length 557+/-2mm
B: Base face to base face length 550+/-2mm
C: Diameter 15mm
D: Base type G10q Arc length 470mm

Electrical Data (Normal Values)

Lamp Wattage 25W
Lamp Current 425mA
Lamp Voltage 69V

Physical Data UV

Output 253.7nm(100hr) 8.9W
Intensity 85µW/cm2
Rate Average Life 9000hrs



**Lightbest UV8 (30 LPM - 8GPM)
UV Steriliser System 30w**

Suitable for up to 30 litres per minute flow rate. Used for RO systems, connecting to single dispensing or main kitchen taps, storage tanks.

Connections: 3/4" male thread
Lamp power: 30W

Flow Rate (US GPM) 8

Pipe Size (NMPT) 3/4"

Dimensions 63.5 mm x 885 mm



**Lightbest UV12 (45 LPM -
12GPM) UV Steriliser System
55w**

Suitable for up to 45 litres per minute flow rate. Used for RO systems, connecting to single dispensing or main kitchen taps, storage tanks.

Connections: 3/4" male thread

FEED WATER CONDITIONS

Water quality is extremely important for the optimum performance of your UV system. The following levels are recommended for installation:

Iron (Fe) < 0.3 ppm (0.3 mg/L)

Hardness < 7 gpg (120 mg/L)

Turbidity < 1.0 NTU

Manganese (Mn) < 0.05 ppm (0.05 mg/L)


Tannins < 0.1 ppm (0,1 mg/L)





Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness exceeds 7 gpg, the water should be softened.


SAFETY INFORMATION


Please read the entire manual before installation of the equipment. Please pay attention to all the danger, warning and caution statements in this manual. Do not install the product in any other way than specified by this manual. Personal injury or damage to the system could occur if not observed.


 Waste electrical and electronic equipment (WEEE). This symbol indicates that you should not discard wasted electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste centre.


 This symbol indicates there is Mercury present.


 This is the safety alert symbol. Obey all safety messages that follow this symbol to avoid potential injury. When on the equipment, refer to the Operational and Maintenance manual for additional safety information.


 This symbol indicates a risk of electrical shock and/or electrocution exists.


 This symbol indicates the marked equipment may contain a component that can eject forcibly. Obey all procedures to safely de-pressurize.


 This symbol indicates the system is under pressure.


 This symbol indicates there is a potential UV hazard. Proper protection must be worn.


 This symbol indicates the marked item could be hot and should not be touched without care.

 This symbol indicates there is a potential for VERY hot water when flow is started.


 This symbol indicates not to store any combustible or flammable material close to the system.


 This symbol indicates that the contents of the transport package are fragile and the package should be handled with care.


 This symbol indicates safety glasses with side protection is required for protection against UV exposure.

 This symbol indicates gloves must be worn.

 This symbol indicates safety boots must be worn.

 This symbol indicates the operator must read all available documentation to perform required procedures.

 This symbol indicates the plumber must use copper piping.

 This symbol indicates that the system should only be connected to a properly grounded, grounding-type controller receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI).

⚠ DANGER

Failure to follow these instructions could result in serious injury or death.



Electric Shock: To avoid possible electric shock, special care should be taken since water is present near the electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting sections, DO NOT attempt repairs yourself, refer to an authorized service facility.



GROUNDING: This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electrical shock. This system is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. DO NOT modify the plug provided with this system – if it does not fit in the outlet, have a proper outlet installed by a qualified electrician. DO NOT use any type of adapter with this system.

GROUND FAULT CIRCUIT INTERRUPTER PROTECTION:

To comply with the National Electrical Code (NFPA 70) and to provide additional protection from the risk of electric shock, this system should only be connected to a properly grounded, grounding-type controller receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI) or to a residual current device (RCD) having a rated residual operating current not exceeding 30 mA. Inspect operation of GFCI as per manufacturer's suggested maintenance schedule.

DO NOT operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it has been dropped or damaged in any manner.

DO NOT use this disinfection system for other than intended use (potable water applications). The use of attachments not recommended or sold by the manufacturer / distributor may cause an unsafe condition.

DO NOT install this disinfection system where it will be exposed to the weather or to temperatures below freezing.

DO NOT store this disinfection system where it will be exposed to the weather.

DO NOT store this disinfection system where it will be exposed to temperatures below freezing unless all water has been drained from it and the water supply has been disconnected.

WARNING



- During extended periods of no water flow, the water in your chamber can become very hot (Approx. 60 °C) and potentially lead to scalding. It is recommended to run your water until this hot water has been purged from your chamber. Do not allow water to contact your skin during this time. To eliminate this condition, a temperature management valve can be installed at the outlet of your UV system.
- Do not pass water through the UV system for a minimum of 5 minutes after applying power (including after power interruptions) to avoid passing under-treated water that may, in rare instances, pose health hazards.
- This system contains a UV Lamp. Do not operate the UV Lamp when it is removed from the chamber. Unintended use or damage of the system may result in the exposure of dangerous UV radiation. UV radiation may, even in little doses, cause harm to the eyes and skin.
- Changes or modifications made to this system without the consent of the manufacturer could render the system unsafe for operation and may void the manufacturer's warranty.

CAUTION



Failure to follow these instructions could result in minor or moderate injury.

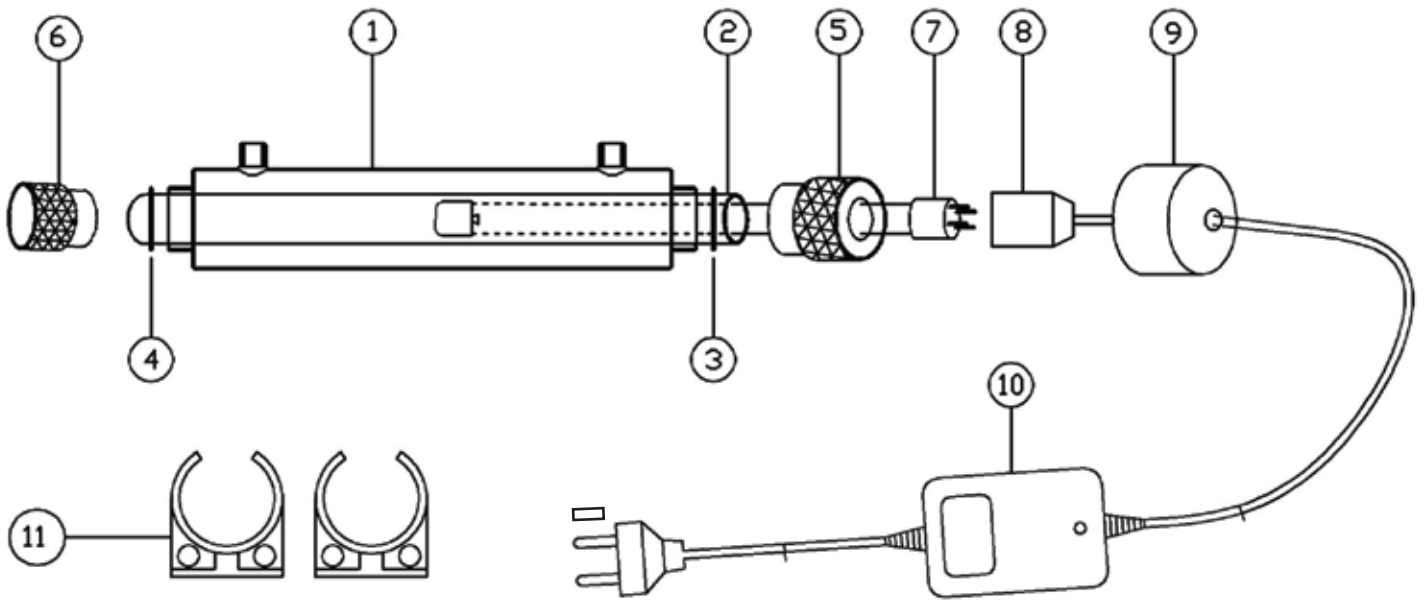
- Carefully examine the disinfection system after installation. It should not be plugged in if there is water on parts not intended to be wet such as, the controller or lamp connector.
- Due to thermal expansion concerns and potential material degradation due to UV exposure, it is recommended to use metal fittings and at least 10" of copper pipe on the outlet of your UV chamber.
- Hg EXPOSURE: The UV lamp contains mercury. If the lamp breaks, then avoid inhalation or ingestion of the debris and avoid exposure to eyes and skin. Never use a vacuum cleaner to clean up a broken lamp as this may scatter the spilled mercury. Obey local regulations and guidelines for the removal and disposal of mercury waste.

NOTICE



- The UV lamp inside the disinfection system is rated at an effective life of approximately 9000 hours. To ensure continuous protection, replace the UV lamp annually.
- The UV system is not to be used or played with by children. Persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, are also not to handle the UV system unless they have been given supervision or instruction.
- This system is intended to be permanently connected to the water lines.
- This system is not intended to be used in or above water or outdoors or used in swimming pools when persons are in the pool.
- EXTENSION CORDS: If an extension cord is necessary, use only 3-wire extension cords that have 3-prong grounding-type plugs and 3-pole cord connectors that accept the plug from this system. Use only extension cords that are intended for outdoor use. Use only extension cords having an electrical rating not less than the rating of the system. A cord rated for less amperes or watts than this system rating may overheat. Exercise caution when arranging the cord so that it will not be tripped over or pulled. DO NOT use damaged extension cords. Examine extension cord before using and replace if damaged. DO NOT abuse extension cord. Keep extension cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting this system from the extension cord. Never yank cord to pull plug from outlet. Always grasp the plug and pull to disconnect.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
- SYSTEM PROTECTION: To protect your Controller, a UL1449 certified (or equivalent) transient voltage surge suppressor is strongly recommended.
- The UV lamp in this system conforms to the applicable provisions of the Code of Federal Regulations (CFR) requirements including, Title 21, Chapter 1, Subchapter J, Radiological Health.
- Read and understand the Owner's Manual before operating and performing any maintenance on this equipment.

UV SYSTEM SCHEMATIC



- 1) Reactor Chamber (304SS)
- 2) Quartz Tube
- 3) O-Ring
- 4) O-Ring
- 5) Open End Nut
- 6) Closed End Nut
- 7) UV Lamp
- 8) 4-pin Electrical Socket
- 9) Cover Cap
- 10) Electronic Ballast
- 11) Mounting Brackets

KEY POINTS FOR INSTALLATION

1

Ideally install the reactor chamber vertically with the ballast at the top, so its easy to change the lamp. **ALLOW ENOUGH SPACE FOR LAMP CHANGES**

2

Ideally always leave the power on and lamp on. Turning a UV lamp on and off can severely impact lamp life

3

It is best to have a spare UV lamp, quartz sleeve and ballast as spare parts to keep in stock for when you need them

4

Ballasts will blow if there is a urge in power. Ensure your circuit is able to control this with a voltage surge suppressor to ensure the Ballast does not blow . It is normal for this to happen within 5 to 7 years.



INSTALLATION STEPS

STEP 1: PLANNING THE INSTALLATION

All UV systems must be fitted with a pre sediment filtration system. If you have any storage of water, the pre-sediment filter and UV system must be fitted after the tank. It is always recommended to site the UV system as the very last system if used in conjunction with anything else (filters, softeners etc.).

Depending on the flow rate of the UV system you are installing, it will either be sited at the point of entry or at a single point of use. Or it can be for example serving part of a building e.g. a kitchen area.

Point of Entry

Locate the rising main. If you don't already know where it is, this could be anywhere in the house, there will always be an outside one, but we are looking for an inside one, which is the point where the water comes into the house and before it branches off around the house - it could be in a basement, garage, utility room, under stairs, under the kitchen sink or somewhere else). The mains incoming stopcock usually has a yellow and green earthing cable attached to it. Make sure you know where the mains stop tap is in the street and have mains stop tap key if needed). In rare cases there are more than one entry points and some apartments have communal hot water. If this applies please contact us.

Once you have located where your external and internal stopcock is and where the cold pipe goes before it branches off around the property, then you can now plan your installation.

Please note installation can occur at any suitable point and must be installed after a tank or last in the line, so long as you can run the pipe from the internal stopcock (before the pipe branches off) to the filter system and then back.

This could mean that an external installation is possible if this is the desired option, please note that you must build a box and weatherproof it by lagging pipes and using some loft insulation to protect from harsh weather and freezing.

When planning the installation, if you are measuring over 5 bar incoming pressure we suggest fitting a PRV right after the internal stopcock.

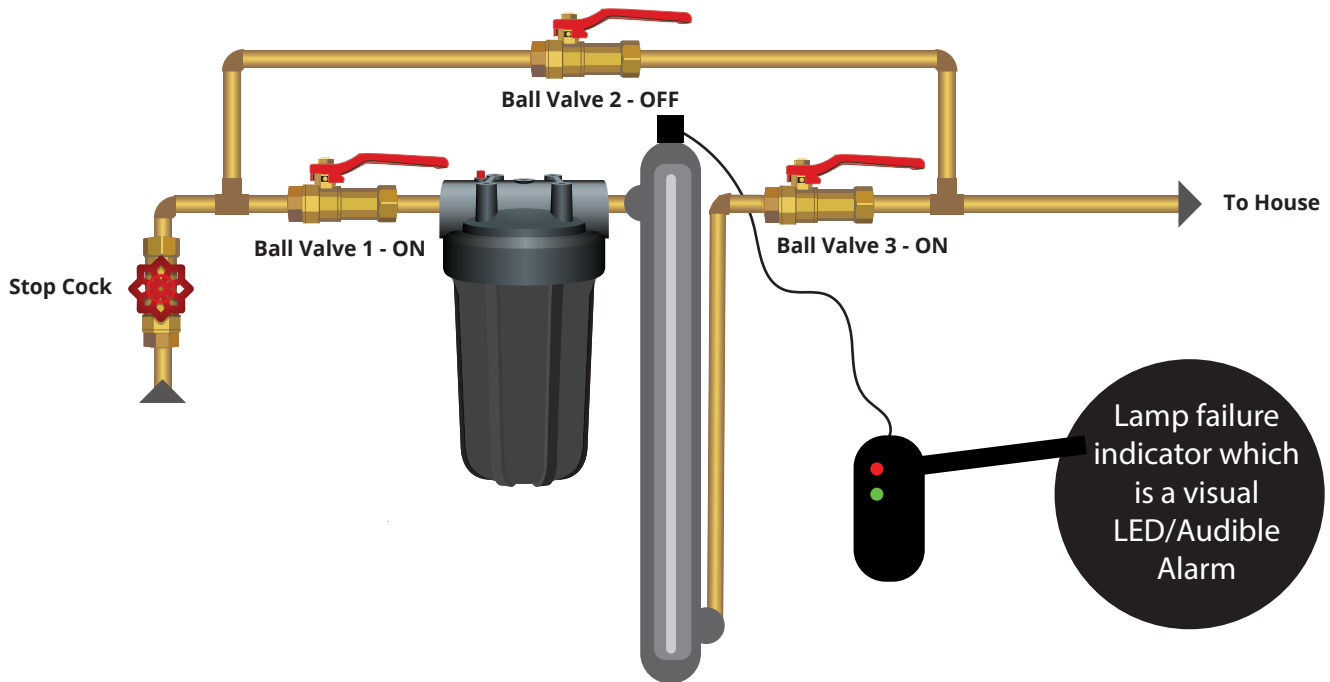
It is important at this stage to note that there must be at least 2 inches on clearance from the bottom of the housing to the floor to allow for space for the housing to drop down when taking it on and off.

Consider bypassing the garden tap if appropriate.

INSTALLING A BYPASS

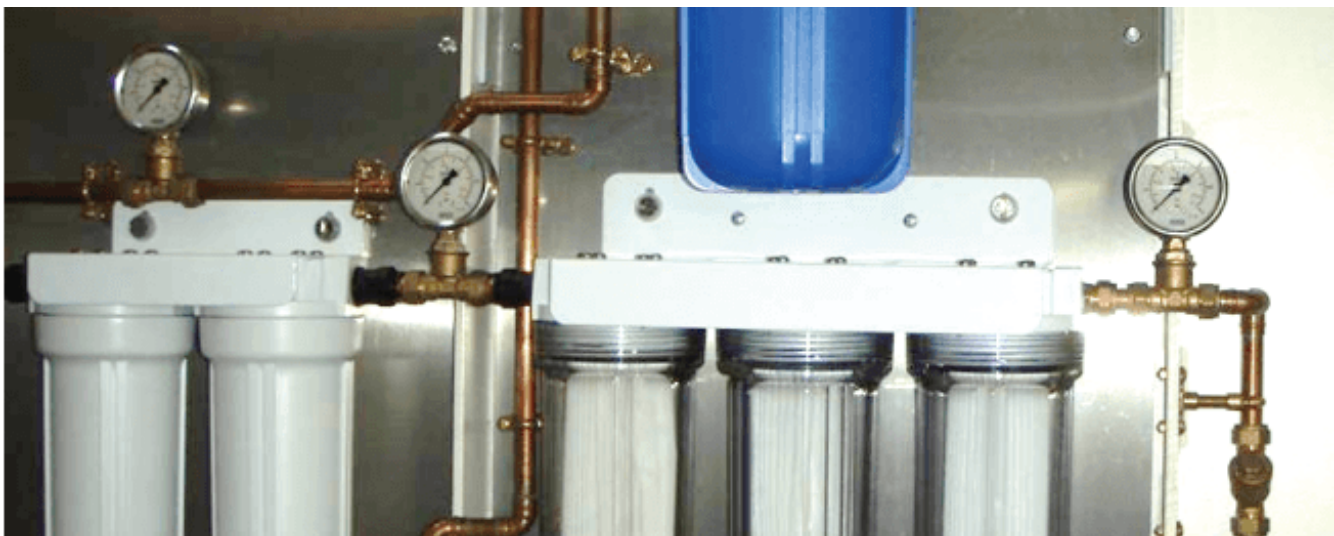
Installation of a bypass is recommended. This might not always be possible if there is constricted space for example under a sink, but a bypass enables you to continue service if you ever encounter a problem or while you are changing filters.

You can install a bypass using 3 stopcocks (Ball Valves). Ball Valve 1 goes before the system and will be on during normal service. Ball Valve 2, goes around the system and is in the off position when the system is in service. Ball Valve 3 goes after the system and is in the on position during normal service.



INSTALLING PRESSURE GAUGES

Installation of pressure gauges inline on the pipe are a great idea, as they can help indicate if there are blockages in the filters and provide a visual way to read this without needing to open the housing and inspect the filter.



INSTALLING PRE-FILTER

Once you have tested your pressure and planned your installation, the next step will be to source the necessary plumbing parts that will be needed.

Whether you use plastic or copper pipe, take measurements of the necessary length of pipe work you will need to run a bypass. You will also need elbows, stop-cocks and any other compression or nipple type fitting to connect with the existing plumbing. You may have also wisely chosen to install a Pressure Reducing Valve and pressure gauges. All of the above you can source from good online or bricks and mortar plumbers merchants.

For high quality plumbing parts, pressure reducing valves and so on we recommend you shop at Screwfix.

Remove the packing of the filter and insert them into the housing bowl. The o rings must be greased **thoroughly** with silicone grease (plumbers grease). This will ensure the o ring will slip as the housing bowl is screwed onto the head and make a water tight connection.

First clean your hands and then apply the grease to the ring generously and run your finger around the ring as shown.



Use the screws provided with your filter housing to mount the bracket to the head of the filter unit. The screws are self-tapping and will thread themselves into the sockets of the housing head. Use a spanner or socket spanner for this.

Please note the direction of the inlet and outlet of the filter housing on the in and outlet ports. You can choose to mount the bracket either way around depending on how you are doing the pipework.

SCREWING ON THE FILTER BOWLS

Hand-tighten the housing bowl onto the head using both hands turning anticlockwise.

Always ensure the black O-ring in the housing bowl is in good condition and seated correctly in the housing bowl before screwing the bowl onto the head.

Then use the housing spanner to tighten it up a bit more. It is not necessary to over tighten the bowl using the spanner provided as this can damage the black o-rings. **DO NOT OVERTIGHTEN!!!**



Leave a tube of silicone grease and the spanner next to the filter system. You will need it later!



Installing the system vertically is better because when changing the quartz sleeve, water will not spill out. If you cannot do it vertically then horizontally is fine.

INSTALLING THE UV QUARTZ SLEEVE, LAMP AND O-RINGS



To set up the UV system, follow these steps. Use a towel or blanket or something soft to lay your glass tube and UV lamp onto. **CAUTION - THEY ARE VERY FRAGILE!**

- 1) We recommend to use sterile gloves. Once you have those, unscrew both caps.
- 2) Remove Quartz Sleeve packaging and gently insert the sleeve through the hole ensuring that you slide it in gently and straight. (see FIG:1)



FIG: 1

- 3) Place the o rings on either end of the quartz sleeve. (see FIG:2). Make sure it is pushed up nicely against the thread and not rolled up and this can twist it.



FIG: 2





FIG: 3

4) Screw on both end caps (FIG: 3).

5) Tighten them up and much as you can by hand. (FIG: 4)

6) At this point you can now plumb in the UV System. It does not matter which way round you plumb it in. As previously noted, we suggest vertical with ballast (the open end) at the top.



FIG: 4

Once you have plumbed in everything you can then test for any leaks. Make sure the hand tightened end caps are not leaking. Avoid using any tools on the end caps if possible and if using tools, be careful not to damage the end caps.



FIG: 5

6) Gently slide the UV lamp into the quartz sleeve being careful to keep it straight and keep hold of it all the way to the end. **DO NOT DROP THE LAMP IN.** (FIG: 5)

7) Plug your ballast into an RCD electrical socket. Your ballast can be wall mounted if you prefer. The most important thing is that the ballast is kept dry.



FIG: 6

8) Connect the ballast to the UV lamp 4 pin end. (FIG: 6)

9) Push the black cover over it to the end. (FIG: 7)

10) Turn on the power and check the UV is lighting up. We recommend to ensure the power cable runs down and not up to ensure no condensation runs into the lamp.



FIG: 7

Your UV system is now assembled and you can turn on the nearest taps and gently open the incoming water up and flush your system for a while.

STEP 9: COMMISSIONING

Once all the plumbing is done, you can then start commissioning. Take the following steps.

1) Open the nearest cold tap to the filter system. Then **GENTLY AND SLOWLY** open the mains stopcock to start allowing water to fill up.

2) If you have installed a bypass, ensure the bypass is closed so to allow water the flow through the filter system.

3) The first water to come out the tap may run black at first and soon after start running clear.

4) Allow the nearest cold tap to tap on at full flow rate for 5 minutes to allow the filters to properly flush.

5) Turn off the tap and then let the standing pressure build.

6) Check the whole installation carefully with a torch for any leaks. After 10 minutes, press the red pressure release button to release any built up air pressure until water comes through. If you are using Osmio Small Active Ceramics it has a screw not a button so ensure it is screwed.

7) Water may appear cloudy at first and then quickly become clear for a few days after the installation. This is air priming out of the system and filters and is nothing to be concerned about.

8) Make a note of when you installed the filters. Put some stickers on the housing bowls with the installation date, date of filter change and the contact details of the installer.

Contact Osmio Water or your dealer for any further help.

ESSENTIAL MAINTENANCE

Your UV lamp should be changed every 9000 hours or around 12 months or whenever the system is alarming.

To change the UV lamp, simply follow the same process as per this installation manual.

As your UV system ages, the quartz sleeve will eventually become dirty. It can be removed and cleaned by soaking in ascorbic acid to remove limescale and reused. If not, you can find this as an available spare from your dealer. Please follow this user manual for how to change your UV lamp and quartz sleeve (it is the same process as the installation).

How to change filters:

1) Turn off water supply and depress pressure relief button. Open the nearest cold tap.

2) Unscrew the housing bowl turn it clockwise and use the housing spanner (push the spanner as far up the housing bowl as possible). If you are having trouble getting it off (it could be because it was done up too tight or filters left inside too long) then you can use a second spanner for more leverage. Contact us if you need help.



Maintaining a healthy system means keeping it clean and doing filter changes on time. It is vital to re-grease the O-ring on your housing bowl every time you do a filter change. This will make it nice and easy to take the bowl off next time and help prevent leaks. O-rings when they get dried or cracked or stretched can be the cause of leaks. We suggest that you check the system o rings and fittings for any leaks every 6 months. If you have installed a PRV, then there is little chance of any issues due to pressure but o-rings can get damaged with limescale and sediments. Contact Osmio or your dealer if you need spare o-rings. .

WHAT IF I HAVE A FAULT OR DAMAGE?

if you are experiencing any problem WITH DAMAGED, MISSING OR FAULTY PARTS, please contact our technical support team. We may ask for pictures so please be prepared to take pictures which you can email info@osmiowater.co.uk.

LIMITED WARRANTY

Osmio "The Company" warrants Osmio Lightbest ultraviolet disinfection product to be free from defects in material and workmanship under normal usage for the following periods beginning on the date of original shipment:

- Stainless steel reactor chamber – 5 years
- Electronics and ballast – 1 years prorated
- UV lamp, quartz sleeve - 1 year if voltage control is in place

In the event of such defects within the applicable warranty period, Osmio will, at its option, repair or replace the product without charge. Defective components are subject to inspection by the Company before any warranty remedy is provided. The Company will cover the cost of shipping any repaired or replaced product to you in the event the original product was found by the Company to be defective. The Company reserves the right to make changes or substitutions in defective parts or components with material of equal quality or value. The Company provides parts and repair only, which does not include labour if this is applicable. No labour warranty is provided.

A return authorization number, issued by the Company, is required before returning any product to the Company for warranty claim evaluation. You must provide the product model number, serial number, and invoice number when making a warranty claim within the applicable warranty period. The original serial number and model number labelling must be intact on any product at the time any warranty claim is made in order for it to be eligible for a warranty remedy. You are responsible for the cost of shipping any defective product to the Company for inspection. Damage caused by improper handling while the product is in transit is not covered by this limited warranty. This limited warranty is provided by the Company to the original purchaser and is non-transferable.

Conditions

The Osmio Lightbest products must be installed in applications with water quality adhering to the Feed Water Conditions set forth in this manual. The product must be installed and operated in compliance with this operation manual, product specification sheet, and local plumbing codes. This product must be installed in connection with an approved water supply. This product must be operated at water pressures and temperatures that do not exceed the Company's published specifications. This product is limited to use within atmospheric environments indoors that are within ambient temperature limitations, free from external water contact, where relative humidity is below 95% non-condensing, and that are non-corrosive to the product's materials of construction, including its electronic components. The use of any unauthorized or inappropriate replacement parts will void this limited warranty.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described above in this Limited Warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labour charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT