

Commercial Ultra Violet Disinfection





Ultra Violet Disinfection

What is Ultra Violet Disinfection?

Ultra Violet disinfection (commonly abbreviated to U.V) is a well established, simple and safe technology, used for the purpose of disinfecting water without the use of chemicals. UV disinfection effectively renders Legionella, Salmonella, Ecoli and most other waterborne bacteria harmless, with no undesirable by-products to dispose of.

UV disinfection works with a UV light penetrating the cell of microorganisms living in the water, halting their reproduction and rendering them harmless. The outer wall of bacteria and viruses differ in thickness. The thickness of their cell wall determines the amount of UV light exposure required to prevent their reproduction. The intensity of the light is measured in Joules per metre squared (J/m^2). Drinking water applications require a dose of $400 J/m^2$. Rain water harvesting applications typically require a lesser dose.

Intended Use

UV treatment of water is an extremely effective and low cost solution that kills most waterborne viruses and bacteria. UV disinfection does not result in any negative changes in the taste or odour of the treated water, so it is ideal for drinking water supplies in the private, community and business sectors.

How the system works

The water to be treated flows through the stainless steel or UPVC radiation chamber and past the UV lamps. The UV lamps generate UVC light at a wave length of $254nm$, which is particularly effective for the disinfection of water and destroys the DNA within the bacteria cells and viruses.

The UV system is accurately controlled by modern electronics, whilst the UVC sensor (where fitted) monitors lamp ageing, the radiation intensity, the UV transmission of the water to be treated and any deposits formed on the quartz sleeve. Water passing through the system will be disinfected, but there is no residual effect. Due consideration must be paid to the overall design and installation of any system to ensure that contamination does not occur downstream of the unit. Two sample points should be provided prior to and after the unit for periodic testing.

Sizing Considerations

The most important aspect when deciding on the choice or size of a UV system is determining the UV transmission of the water to be treated. This will differ depending on the maximum flow rate, type and origin of the water. Performance will be compromised if the maximum flow rate is exceeded. Where local site conditions are unpredictable, then additional control systems must be installed.

Pre-treatment

The quality and type of water source may make it necessary to pre-treat the source water before disinfection. Our technical team are available to offer free advice on a full range of water pretreatment including: sediment filtration, water softening and iron removal.

A suitable sediment filter should always be installed prior to the UV unit to protect it from particulate matter and shadowing. Over time, the output of the UV lamp reduces with age. This means that typically, the UV lamp will need replacing on an annual basis. For most models, a UV intensity monitor is available separately to accurately monitor lamp output. This enables optimum performance to be maintained without unnecessary lamp replacement.

NOTE:

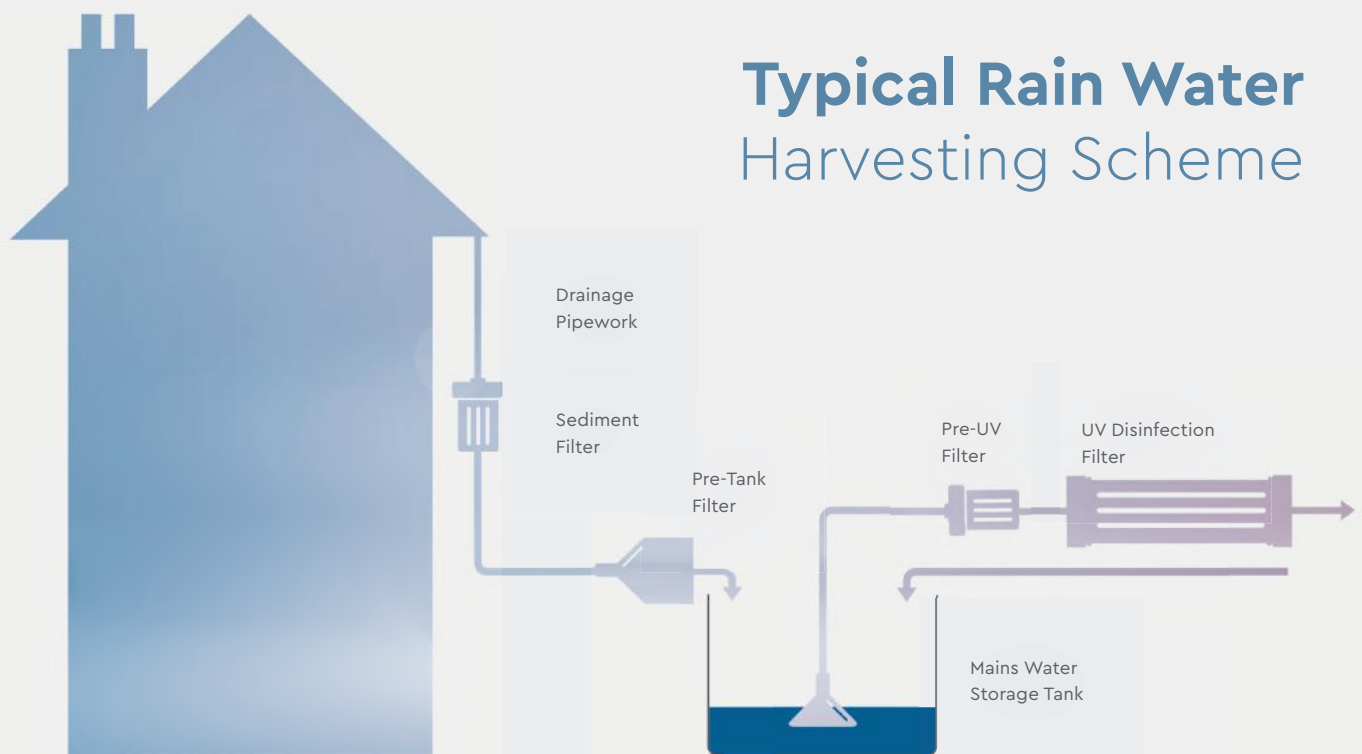
It is recommended that isolating valves are fitted to either side of the unit and sufficient clearance should be left on at least one side of the unit to withdraw the lamp and quartz sleeve for maintenance purposes.

TYPICAL APPLICATIONS

- Potable water supplies
- Grey water and water re-use
- Cold water services
- Private water supplies
- Rain water harvesting systems
- Humidifiers
- Laboratory water supplies

MARKETS

- Office blocks, hotels and apartments
- Schools, colleges, and universities
- Local authorities
- Leisure centres/ leisure parks
- Food and manufacturing industries
- Pharmaceutical industry
- Paper and electronics industries
- Public buildings



Typical Rain Water Harvesting Scheme

BWT Liff Ultra Violet Disinfection

The BWT Liff branded entry level range of UV units provide a cost effective, chemical free solution to the treatment of problem water that is, may or likely to suffer from microbiological contamination. A wide range of models make these units the ideal choice for projects of all sizes.

- Quartz sleeve,
- Stainless steel body
- Suitable for pipe sizes from 1" to 4"
- Flow rates 0.5 – 22.6 m³/h
- Optimal wavelength 254 nanometres
- Environmentally friendly with no by-products



MODEL	CONNECTIONS	FLOW RATE AT 300J/m ² (m ³ /hr)	FLOW RATE AT 400J/m ² (m ³ /hr)	POWER CONSUMPTION (Watts)	MAXIMUM PRESSURE (Bar)	CONSTRUCTION	NUMBER OF LAMPS	DIMENSION L x D x H (mm)	WEIGHT (kg)
S15ND	3/4" bspm	0.65	0.5	18	10	S/ST	1	465 × 78 × 111	6
S30ND	3/4" bspm	1.65	1.25	33	10	S/ST	1	920 × 78 × 111	11
S55ND	3/4" bspm	4.1	2.1	50	10	S/ST	1	920 × 78 × 111	11
LS6ND	2" bspm	8.4	6.4	90	10	S/ST	1	950 × 140 × 190	15
LS6NAD	2" bspm	9.5	7	100	10	S/ST	2	950 × 180 × 240	22
LS7ND	2" bspm	15.5	12	145	10	S/ST	3	950 × 180 × 240	20
LS7NAD	4" bspm	40	30	290	10	S/ST	4	950 × 184 × 365	40

NOTE:

- WRAS approved units available on request
- For increased flow rates, multiple units can be used
- Cold water only
- 220 Volts
- Intensity monitor optional on selected units

AS & AL Series Systems

CONSTRUCTED FROM 304 STAINLESS STEEL THROUGHOUT, THE WATER CHAMBER IS PRESSURE RATED TO 10 BAR.

The chamber incorporates low pressure UV lamps contained within a high purity quartz sleeve, physically isolating it from the liquid.

Chamber connections are as per the specification table. Other fittings are available on request.

Note 1: the stated flow rates are based on deionised / RO water. Poorer water quality will result in a lower flow rate. We will calculate the actual flow rate for an application. Please contact our office for further details.

**Intensity UV monitor optional on all units*



MODEL	CONNECTIONS	FLOW RATE AT 300J/m ² (m ³ /hr)	FLOW RATE AT 400J/m ² (m ³ /hr)	POWER CONSUMPTION (Watts)	MAXIMUM PRESSURE (Bar)	CONSTRUCTION	NUMBER OF LAMPS	DIMENSION L x D x H (mm)	WEIGHT (kg)
AS1	DN80	33	21	200	10	S/ST	1	954 × 270 × 420	45
AS2	DN80	84	35	390	10	S/ST	2	955 × 270 × 420	47
AS4	DN80	109	80	780	10	S/ST	4	956 × 270 × 420	50
AL1	DN100	78	51	360	10	S/ST	1	1678 × 270 × 420	62
AL2	DN100	130	83	680	10	S/ST	2	1679 × 270 × 420	64
AL4	DN150	260	195	1330	10	S/ST	4	1680 × 270 × 420	67
AL6	DN150	365	250	1990	10	S/ST	6	1681 × 270 × 420	70



AQA Pure

The AQA Pure system is a compact, economical UV system that is designed with the consumer in mind. The AQA Pure system utilises commonplace single ended low pressure UV lamp technology, thus making the system not only economical for energy running costs, but also for replacement UV lamps. The single ended UV lamp also makes servicing the equipment very simple.

- Water resistant power control module (IP55) – Long life/high reliability UV lamp – Maximum 10 bar working pressure
- Simple to install – Lamp on indicator – Simple to service – Electropolished chamber – Commonplace UV lamps

MODEL	CONNECTIONS	FLOW RATE AT 300l/m ² (m ³ /hr)	FLOW RATE AT 400l/m ² (m ³ /hr)	POWER CONSUMPTION (Watts)	MAXIMUM PRESSURE (Bar)	CONSTRUCTION	NUMBER OF LAMPS	DIMENSION L x D x H (mm)	WEIGHT (kg)
AQA Pure 1	3/4" bspm	1.05	0.78	16.5	10	S/ST	1	419 × 122 × 89	5
AQA Pure 2	3/4" bspm	1.8	1.35	30	10	S/ST	1	562 × 122 × 89	6
AQA Pure 3	3/4" bspm	3.2	2.4	38.5	10	S/ST	1	563 × 122 × 89	6
AQA Pure 4	1" bspm	3.65	2.8	42	10	S/ST	1	980 × 122 × 89	8
AQA Pure 7	1" bspm	7.1	5.35	68	10	S/ST	1	981 × 122 × 89	9
AQA Pure 10	1" bspm	9.6	7.2	68	10	S/ST	1	980 × 160 × 114	12

AQA Pure+

As AQA Pure system Plus: – Additional lamp status information, – Resettable hour counter, Volt free contact facility for remote monitoring of lamp status, via a plug and socket (sealed and capped when not in use. Both configurations are rated to >IP65) UV lamp running indicator – UV lamp status, with a three way indicator display, showing the status of the system.

SYSTEM STATUS	POWER ON	LAMP ON	LAMP STATUS
System operating correctly, lamp less than 11 months old	Green	Blue	Green
System operating correctly, lamp between 11 and 12 months old	Green	Blue	Alternating Green & Red
System still operating, but more than 12 months old	Green	Blue	Red
Lamp Failed	Green	Off	Red

V Series Systems

- Validated UV system according to NEN – EN 14897
- Sustainable system (low cost)
- Unique flow management system
- Easy to operate and maintain
- Constant monitoring of lamp status
- Supplied with Certificate of validation
- Complies with CE and EMC approvals
- Validated: BS14897



MODEL	CONNECTIONS	FLOW RATE AT 300J/m ² (m ³ /hr)	FLOW RATE AT 400J/m ² (m ³ /hr)	POWER CONSUMPTION (Watts)	MAXIMUM PRESSURE (Bar)	CONSTRUCTION	NUMBER OF LAMPS	DIMENSION L x D x H (mm)	WEIGHT (kg)
V100	1" bspm	1.0	0.8	30	10	S/ST	1	637 × 60 × 93	5
V110	1" bspm	1.9	1.5	60	10	S/ST	1	637 × 60 × 93	5
V120	1" bspm	3.1	2.5	60	10	S/ST	1	647 × 89 × 122	7
V130	1.5" bspm	4.8	3.6	60	10	S/ST	1	657 × 129 × 169	9
V140	1.5" bspm	8.3	6.2	70	10	S/ST	1	657 × 129 × 169	9
V150	2" bspm	11.9	8.9	90	10	S/ST	1	1155 × 129 × 169	15
V160	2" bspm	17.8	13.3	140	10	S/ST	1*	1115 × 129 × 169	15
V170	2" bspm	25.5	19.2	230	10	S/ST	1*	1448 × 88.9 × 129	16
V180	2.5" bspm	37.9	28.4	230	10	S/ST	1*	1455 × 129 × 194	18
V190	3" bspm	55.9	41.9	365	10	S/ST	1*	1738 × 129 × 186	22
V200	DN100	95.3	71.5	435	10	S/ST	3*	1269 × 204 × 261	51
V220	DN100	113.1	100.4	690	10	S/ST	3*	1569 × 204 × 261	51
D SERIES - (D100 & D150 WRAS APPROVED)									
D100	DN150	182	136	915	10	S/ST	4*	1569 × 204 × 261	75
D150	DN150	240	180	1085	10	S/ST	3*	1989 × 254 × 314	85

STANDARD LAMP LIFE 8,000, MARKED WITH* 16000 HOURS

OPTIONS:

- UV Sensor with digital display
- Temperature control – lamp off type or via solenoid activated dump valve

BWT reserve the right to make changes without prior notice



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FOR YOU AND PLANET BLUE.

BWT 2020 in the interests of product development we reserve the right to alter specifications without prior notice.
All photographs and dimensions are given for guidance only.
Terms and conditions apply E&OE.

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