



**Waste**  
series



With water scarcity on the rise, efficient and responsible water use is becoming increasingly important. Especially for organisations in the industrial, agricultural or maritime sectors. The Waste series UV allows you to return wastewater cleanly into nature and reuse it safely. In an energy-efficient way and with minimal maintenance. The Waste-series allows you to reduce the use of raw materials and bring down your organisation's carbon footprint, while maintaining access to clean and safe water. Now and in the future. With the W-series, you're opting for future-proof water use for your organisation.

### Contact details

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### Naturally Purified Water for the Efteling Theme Park

The Efteling, with an annual water requirement of 400,000 cubic meters, sought a sustainable water supply due to restrictions on groundwater pumping in North Brabant. Since 1997, the park has been purchasing treated domestic wastewater from the wastewater treatment plant in Kaatsheuvel. A constructed wetland filter (Helofytenfilter) was added to improve water quality, but due to elevated phosphate levels, an additional step was needed — a sand filter with iron dosing at the wastewater treatment plant. As a solution for the bacterial purification of the effluent, the Efteling introduced UV disinfection, temporarily replacing the existing constructed wetland filter on the golf course. Thanks to the in-house production and development of UV systems, Van Remmen can precisely determine which system can deliver the optimal dose to effectively kill bacteria in the water, resulting in energy savings and minimizing overall costs throughout its lifespan. With a treatment of 75 m<sup>3</sup> of effluent per hour at 300 J/m<sup>2</sup>, E. coli bacteria are successfully eliminated, allowing for safe reuse of wastewater treatment plant water, and the water quality meets the EU bathing water standards.



## Benefits



### **Future-proof discharge**

With the W-series UV systems, you're choosing future-proof. The UV disinfection breaks down microbiological contaminants, such as bacteria and fungi, so that the water can be discharged more safely into surface water. This way, your organisation is in compliance with the increasingly strict laws and regulations in the field of wastewater discharge.



### **Increased water reuse**

Water reuse in the future. The W-series effectively disinfects wastewater, so that you can use it safely for other purposes. By combining UV disinfection with other techniques, you can reuse process water several times. Cheaper, more sustainable and future-proof.



### **Safe, sustainable and high-quality systems**

The Waste series is a combination of innovative technology and high-quality materials. The low-pressure UV lamps achieve optimal disinfection with minimal energy consumption. The high-quality materials also require minimal maintenance. This gives you certainty about safe water for as long as possible and a very low Total Cost of Ownership.

# Specifications

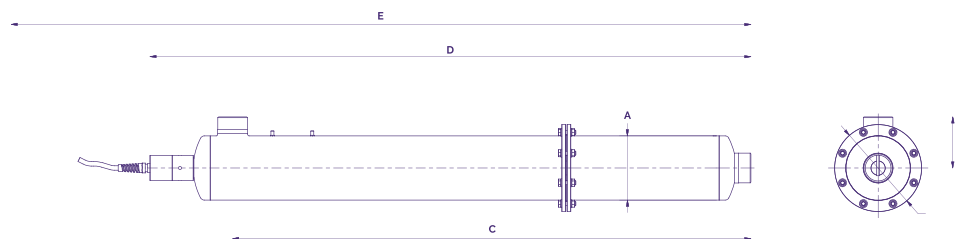


| Type                            | W0.5                          | W1                   | W3                   | W5             | W8             | W11            |
|---------------------------------|-------------------------------|----------------------|----------------------|----------------|----------------|----------------|
| <b>UV Chamber</b>               |                               |                      |                      |                |                |                |
| Material                        | 316L / 1.4404 Stainless steel |                      |                      |                |                |                |
| In-/Outlet Connections          | 1.5" BSP-T, PN16              | 1.5" BSP-T, PN16     | 1.5" BSP-T, PN16     | 2" BSP-T, PN16 | 2" BSP-T, PN16 | 3" BSP-T, PN16 |
| Pressure drop                   | < 0.1 bar                     |                      |                      |                |                |                |
| Max. Pressure                   | 10 bar at 25 °C               |                      |                      |                |                |                |
| Mounting orientation            | Horizontal/ Vertical          | Horizontal/ Vertical | Horizontal/ Vertical | Horizontal     | Horizontal     | Horizontal     |
| Diameter - A (mm)               | 60                            | 60                   | 60                   | 60             | 60             | 89             |
| Height - B (mm)                 | 68                            | 68                   | 68                   | 67             | 67             | 99             |
| Installation dimension - C (mm) | 550                           | 550                  | 1050                 | 1332           | 1602           | 1589           |
| Length - D (mm)                 | 697                           | 697                  | 1197                 | 1479           | 1749           | 1763           |
| Required working space - E (mm) | 1250                          | 1250                 | 2500                 | 2800           | 3350           | 3400           |
| Weight (kg)                     | 3.5                           | 3.5                  | 5.7                  | 7              | 8.2            | 11.4           |

|                            |              |             |                |                |                |                |
|----------------------------|--------------|-------------|----------------|----------------|----------------|----------------|
| <b>UV-C lamp</b>           |              |             |                |                |                |                |
| Lamp type (low pressure)   | 25 W Regular | 50W Regular | 120W Long Life | 205W Long Life | 325W Long Life | 325W Long Life |
| Preferred water temp. (°C) | 5°C - 30°C   |             |                |                |                |                |
| Total UV-C output (Watt)   | 7            | 15          | 38             | 58             | 116            | 116            |
| Lamp lifespan (hours)      | 8000         | 8000        | 16000          | 16000          | 16000          | 16000          |
| Number of lamps            | 1            | 1           | 1              | 1              | 1              | 1              |

|                                    |  |    |     |     |     |     |
|------------------------------------|--|----|-----|-----|-----|-----|
| <b>Control Unit</b>                |  |    |     |     |     |     |
| Material                           | Aluminium and recycled ABS   |    |     |     |     |     |
| Dimensions (lxbxh)                 | 280x150x90 mm  |    |     |     |     |     |
| Control features                   | Lamp status, lamp hours, system running time, volt free alarm contacts, 4/20mA output, Remote Start/Stop |    |     |     |     |     |
| Options                            | UV Sensor, Temperature Safety Sensor, Temperature Safety Dumpvalue, Modbus RTU, Remote monitoring        |    |     |     |     |     |
| Operating voltage                  | 230 VAC, 50/60 Hz  |    |     |     |     |     |
| Electrical connection              | 6A C-char./4A D-char.  |    |     |     |     |     |
| Protection rating                  | IP55   |    |     |     |     |     |
| Preferred ambient temperature (°C) | 5°C - 35°C   |    |     |     |     |     |
| Total Power Consumption (Watt)     | 30   | 60 | 145 | 230 | 365 | 365 |
| Length lamp cable                  | 1 meter (3 or 6 optional)  |    |     |     |     |     |

|                  |  |
|------------------|--|
| <b>Approvals</b> |  |
| Complies with    | Low Voltage Directive (LVD) 2014/35/EU, Electromagnetic Compatibility Directive (EMC) 2014/30/EU, Machinery Directive 2014/42/EC |



# Specifications



| Type                            | W30                           | W50         | W60         | W70         | W90         |
|---------------------------------|-------------------------------|-------------|-------------|-------------|-------------|
| <b>UV Chamber</b>               |                               |             |             |             |             |
| Material                        | 316L / 1.4404 Stainless steel |             |             |             |             |
| In-/Outlet Connections          | DN100, PN16                   | DN150, PN16 | DN150, PN16 | DN200, PN16 | DN200, PN16 |
| Pressure drop                   | < 0.2 bar                     |             |             |             |             |
| Max. Pressure                   | 10 bar at 25 °C               |             |             |             |             |
| Mounting orientation            | Horizontal                    | Horizontal  | Horizontal  | Horizontal  | Horizontal  |
| Diameter - A (mm)               | 204                           | 204         | 204         | 254         | 254         |
| Height - B (mm)                 | 159                           | 220         | 220         | 322         | 322         |
| Installation dimension - C (mm) | 1431                          | 1573        | 1573        | 1588        | 1588        |
| Length - D (mm)                 | 1621                          | 1824        | 1824        | 1903        | 1903        |
| Required working space - E (mm) | 3100                          | 3650        | 3500        | 3660        | 3660        |
| Weight (kg)                     | 42.2                          | 52.3        | 54.6        | 75.8        | 77.6        |

## UV-C lamp

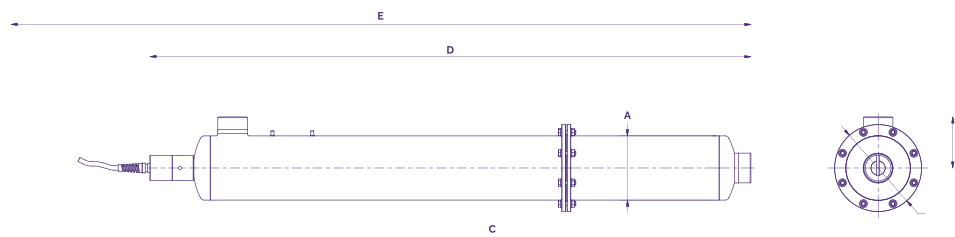
|                            |                |                |                |                |                |
|----------------------------|----------------|----------------|----------------|----------------|----------------|
| Lamp type (low pressure)   | 205W Long Life | 325W Long Life | 325W Long Life | 325W Long Life | 325W Long Life |
| Preferred water temp. (°C) | 5°C - 30°C     |                |                |                |                |
| Total UV-C output (Watt)   | 232            | 464            | 580            | 696            | 812            |
| Lamp lifespan (hours)      | 16000          | 16000          | 16000          | 16000          | 16000          |
| Number of lamps            | 4              | 4              | 5              | 6              | 7              |

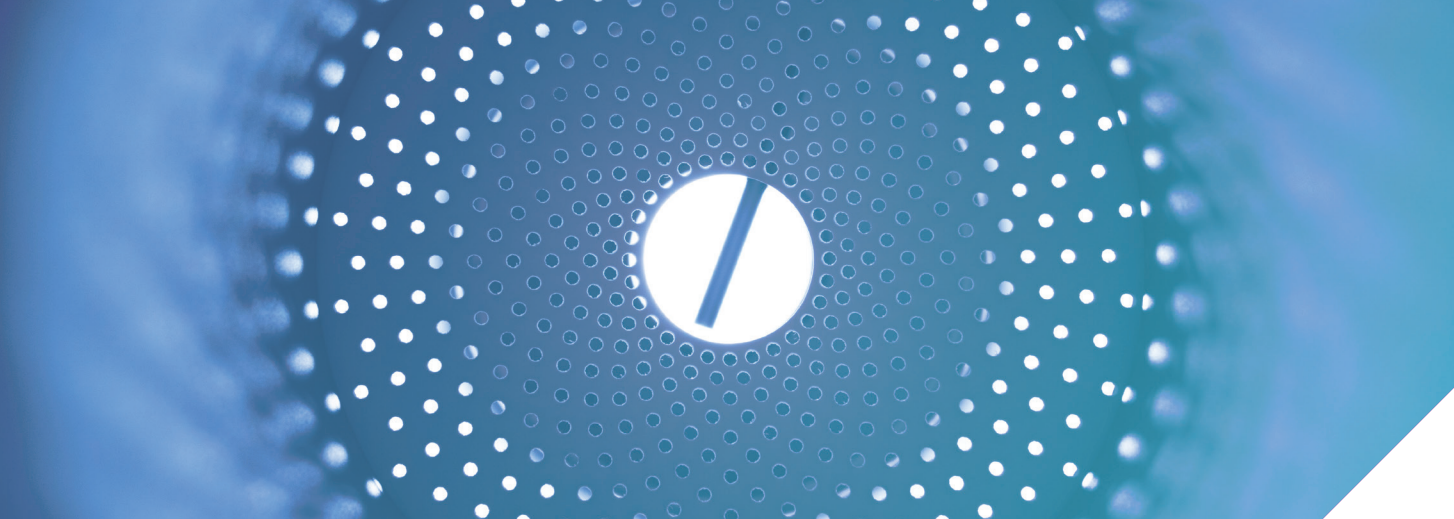
## Control Unit

|                                    |  |                         |                         |                         |      |
|------------------------------------|--|-------------------------|-------------------------|-------------------------|------|
| Material                           | Coated steel   |                         |                         |                         |      |
| Dimensions (lxbxh)                 | 600 x 600 x 210 mm   |                         | 800 x 800 x 210 mm      |                         |      |
| Control features                   | Lamp status, lamp hours, system running time, volt free alarm contacts, 4/20mA output, Remote Start/Stop |                         |                         |                         |      |
| Options                            | UV Sensor, Temperature Safety Sensor, Temperature Safety Dumpvalue, Modbus RTU, Remote monitoring        |                         |                         |                         |      |
| Operating voltage                  | 230 VAC, 50/60 Hz  |                         |                         |                         |      |
| Electrical connection              | 20A C-char./10A D-char.  | 25A C-char./16A D-char. | 32A C-char./16A D-char. | 40A C-char./20A D-char. |      |
| Protection rating                  | IP54   |                         |                         |                         |      |
| Preferred ambient temperature (°C) | 5°C - 35°C   |                         |                         |                         |      |
| Total Power Consumption (Watt)     | 915  | 1445                    | 1810                    | 2170                    | 2530 |
| Length lamplabel                   | 3 meter (6m optional)  |                         |                         |                         |      |

## Approvals

|               |  |
|---------------|--|
| Complies with | Low Voltage Directive (LVD) 2014/35/EU, Electromagnetic Compatibility Directive (EMC) 2014/30/EU, Machinery Directive 2014/42/EC |
|---------------|--|





### Capacities in m<sup>3</sup>/h at a doses of 300 J/m<sup>2</sup>

| Unit | T10 40% | T10 45% | T10 50% | T10 55% | T10 60% |
|------|---------|---------|---------|---------|---------|
| W0.5 | 0.5     | 0.5     | 0.6     | 0.6     | 0.6     |
| W1   | 0.8     | 0.9     | 1       | 1       | 1.1     |
| W3   | 2.4     | 2.6     | 2.7     | 2.9     | 3.1     |
| W5   | 4.8     | 5.2     | 5.5     | 5.8     | 6.2     |
| W8   | 7.2     | 7.7     | 8.2     | 8.7     | 9.2     |
| W11  | 9.1     | 10.2    | 11.2    | 12.3    | 13.5    |
| W30  | 23      | 26      | 30      | 34      | 39      |
| W50  | 38      | 44      | 51      | 58      | 67      |
| W60  | 48      | 55      | 63      | 73      | 83      |
| W70  | 54      | 63      | 73      | 85      | 99      |
| W90  | 68      | 78      | 89      | 103     | 119     |