UV Disinfection System

Chemical-free disinfection with ultraviolet light

Overview

A UV disinfection system passes water through a chamber with a UV-C lamp inside a quartz sleeve. The light damages the DNA of bacteria, viruses and cysts so that they cannot multiply, without adding chemicals or changing taste, colour or smell.

Arukal supplies UV systems in stainless steel chambers with quartz sleeves, UV lamps, ballasts and control panels, sized to the flow and the water quality. We also supply replacement lamps and sleeves.

254 nm	30 – 40 mJ/cm²	up to 99.99 %	0.5 – 100 m³/h
Wavelength	UV dose	Bacteria kill	Capacity

Key features

No chemicals No chlorine taste, smell or by-products.	**Stainless steel chamber** SS 304 or 316 for long life.
Fast and effective Disinfects as the water passes, with no contact tank.	**Lamp monitoring** UV intensity sensor and lamp-hours alarm available.
Wide capacity range From small units to large plants.	**Lamps and sleeves** Replacement lamps, sleeves and ballasts from Arukal.

Applications

Drinking water plants • Bottled water lines • Treated sewage reuse • Food and beverage • Hospitals and hotels • Pharma and process water

How it works

1. Water enters the chamber	2. UV exposure	3. Microbes inactivated	4. Safe water out
Pre-filtered water flows through a stainless steel chamber.	The UV-C lamp, inside a quartz sleeve, exposes the water to 254 nm light.	The dose damages microbial DNA so organisms cannot multiply.	Disinfected water leaves for storage or use.

Care and handling

Pre-filter. Filter the water first. Turbidity and iron shield microbes from the light.
Replace lamps. Replace lamps at the rated hours even if they still glow; the UV output has dropped.
Clean the sleeve. Clean the quartz sleeve regularly, because scale and dirt reduce the dose.

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Technical specifications

Typical values. Values are typical for the product family and given for guidance. Exact figures depend on the make and model supplied; ask us for the data sheet of the specific model.

System (typical)

Lamp type	Low-pressure UV-C, 254 nm
UV dose	30 – 40 mJ/cm² at end of lamp life
Microbial reduction	up to 99.99 % (4 log) bacteria
Feed UV transmittance (UVT)	> 75 % (higher is better)
Lamp life	approx. 9,000 – 12,000 hours (about 1 year)
Power	230 V single phase (larger systems three phase)

Construction

Chamber	SS 304 or SS 316
Sleeve	High-purity quartz
Controls	Ballast, lamp indicator, optional UV sensor and flow switch
Connections	Flanged or threaded

Typical system sizes

Model	Flow	Lamps	Typical use
UV 1	1 m³/h	1 × 25 W	Homes, small commercial
UV 5	5 m³/h	1 × 80 W	Institutions, small plant
UV 10	10 m³/h	2 × 80 W	Plants, bottling lines
UV 25	25 m³/h	4 × 80 W	Industry, municipal
UV 50	50 m³/h	8 × 80 W	Large plants

Flow is at a typical UVT of 90 % and a dose of 30 mJ/cm². Lower UVT needs a larger unit.

To receive a recommendation, send us:

- Water flow rate (m³/h) and operating pressure
- Water source and UV transmittance, or a water analysis
- Required dose or standard to meet
- Power supply and space