BWT Ultraviolet Disinfection
Bewades Ultraviolet Disinfection
for a wide range of applications
environmentally benign, safe and economical
Environmentally benign disinfection with ultraviolet disinfection units

Responsibility for the environment and nature

To an ever increasing degree, we can today supply treatment methods which use no chemicals. Drinking water is the most important foodstuff for human beings. For this reason, it is subject to official monitoring to ensure that it cannot harm the health and well-being of its users. The most important requirement is:

Drinking water must be free of pathogenic agents and must not endanger the health of the consumer.

The use of the BWT Bewades ultraviolet disinfection units results in absolutely no changes to
- the chemical composition,
- the pH value,
- the taste,
- the smell,
- the colour
of the water being treated.

Ultraviolet disinfection is thus the best disinfection process from the environmental point of view. Due to the short reaction times and the absence of any changes to the water composition, ultraviolet disinfection can be integrated at any desired and necessary location within a water treatment system, even just before the consumer outlet.

What is ultraviolet disinfection?

In general, disinfection means the reduction of the pathogenic germs detected in water by 99.99%. In order to achieve this with ultraviolet disinfection, the water must be subjected to a dose of 400 J/m² of radiation. The application conditions of the Bewades units determined with the aid of computer simulation ensure a dose of at least 400 J/m² of ultraviolet radiation. In the case of the Series N units, this dose has been proved and certified biodosimetrically (in accordance with the Austrian standard ÖNORM M5873).
UV disinfection has many advantages

UV disinfection is today virtually indispensable in many sectors.

It is used primarily wherever the microbiological requirements are particularly high or where chemical disinfectants are unacceptable for quality or environmental reasons.

To an ever increasing degree, UV disinfection is the preferred method when a

- safe,
- environmentally benign

disinfection method is needed.

Application areas of UV disinfection at a glance

The number of installed UV disinfection units is increasing continuously. Due to its wide performance spectrum and its simple use, this environmentally benign method is being used in more and more application areas.

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Bewades technology

The Bewades units are made of high-quality stainless steel. All irradiation chambers are designed in accordance with the applicable pressure-vessel regulations. Built-in turbulators ensure optimum disinfection with minimum pressure loss. The Bewades UV radiators and the Bewades ballast units are matched to each other to ensure maximum output of disinfecting UV radiation with minimum power consumption. The Bewades UV sensors measure only the disinfecting radiation. They meet the strict requirements of the German (DVGW Worksheet W 294) and Austrian (ÖNORM M5873) regulations with respect to selectivity and measuring accuracy. The Bewades UV units are controlled and monitored by our UV-Control, an electronic controller which is capable of handling even the requirements of a large water treatment plant.

The UV radiation deactivates individual points thus killing the germ and preventing it from multiplying.
Ultraviolet disinfection units from BWT
Environmentally benign, safe, economical

BWT Bewades UV
The design of these disinfection units complies with the valid standards and regulations such as the DVGW Worksheet W 293. On this basis, a minimum radiation dose of 400 J/m² at the end of the radiators’ operating lifetime is assumed by BWT as necessary for reduction of the germs by a 99.99%.

UV disinfection is specifically permitted by the laws on foodstuffs and utility goods for the disinfection of drinking water. The water treated in this manner leaves the BWT UV disinfection unit with a quality which fully complies with the requirements of the Drinking Water Regulations for disinfected water. This high objective is always preceded by specialist advice on the selection of optimum UV system from BWT's experts, who explain the most important terms of this technology in simple words.

Compact design – easy installation
Bewades UV disinfection units are compactly constructed continuous-flow reactors made of stainless steel. This makes it easy to install them in pipe systems. The control electronics are mounted on the wall - that's all.

Bewades – economical and safe
Special low-pressure UV lamps generate the disinfecting radiation very economically. In order to prevent the generation of ozone and dangerous by-products in the water, the materials used for the UV radiators are specially selected to prevent transmission of radiation with a wavelength of less than 240 nm.

A turbulator ensures particularly uniform irradiation of the water flowing through the unit.
Simple operation and monitoring

The electronic control unit monitors and controls up to four radiators and any necessary valves. No unnecessary operator intervention and personnel costs - that's economical operation. All important data are displayed clearly, and all controls are easily accessible. Valve positions, transmission reduction, necessary lamp replacement and faults can be signalled to central control systems via potential-free contacts. The UV-C power output can also be transferred via a 0 - 20 mA output for remote indication. High-quality UV sensors ensure reliable disinfection in Bewades units. Both the UV-C power output and lamp operation are monitored during operation, thus providing twice the safety. Water flows to the consumer outlets only when the control unit has checked all parameters and when the unit has been flushed. Automatic flushing of the units during idle periods can also be implemented.

Bewades – the disinfection system which grows to match your needs

The Bewades modular system is also ideal for subsequently increasing the disinfecting power. It is thus extremely simple to equip projects which are built in several stages with Bewades disinfection units. Even after completion of the planning phase, the system can be adapted to changing requirements by fitting additional or more powerful modules. Bewades units with their graduated nominal flow rates cover a wide range of requirements. Projects which require more power, higher UV-C doses or lower transmission values can be planned and implemented by our engineers at any time.

Bewades UV – radiators

<table>
<thead>
<tr>
<th>Type</th>
<th>Power consumption</th>
<th>UV-C output (after 100 hours)</th>
<th>Bewades UV Series</th>
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<tr>
<td>Bewades 200 Hg/In amalgam</td>
<td>200 W</td>
<td>76 W</td>
<td>HI, HW, D</td>
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<tr>
<td>Bewades 100 Hg, low – pressure</td>
<td>100 W</td>
<td>34 W</td>
<td>N, EU</td>
</tr>
<tr>
<td>Bewades 80 Hg, low – pressure</td>
<td>80 W</td>
<td>21 W</td>
<td>N, EU, P</td>
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Bacteria
Ultraviolet disinfection units from BWT
Environmentally benign, safe, economical

UV disinfection of drinking water with Bewades, without chemicals

Regardless of whether you are running a public water supply company or your private water supply system, UV disinfection improves safety. Above all, the regular or sporadic occurrence of microbial contamination which causes the limit values of the Drinking Water Regulations to be exceeded justifies the use of a BWT Bewades UV system. The range of available disinfection units extends from those capable of processing only a few cubic meters per hour, suitable for hotels, power stations and mountain cabins, up to large plants for public water supply companies. The drinking water disinfection units are designed for a minimum UV-C dose of 400 J/m².

Usage of rainwater without risks

One of the main arguments against the use of rainwater is the possible occurrence of pathogenic agents. UV disinfection provides a problem-free solution to this.

Ventilation systems - UV disinfection is the solution

The air used to ventilate buildings, which is circulated, is frequently underestimated as a source of infections. Particular attention must therefore be paid to air washers and moisturising chambers. UV disinfection is a suitable method which has practically no side-effects.
Prophylaxis against Legionella

The Legionella bacteria, which can cause serious illness and in many cases death, are often found in warm water circuits and are a danger which should not be underestimated. The remedy is a Bewades hot-water UV disinfection system, together with specialist advice from our experts (see also the special BWT information sheet "Prophylaxis against Legionella").

Ultraviolet disinfection in the drinks, foodstuffs and pharmaceutical industries

Water for the production of drinks, foodstuffs and pharmaceutical products must comply with the legal and hygienic requirements. In many cases, the microbiological quality required by the Drinking Water Regulations is insufficient for the drinks, foodstuffs and pharmaceutical industries.

Furthermore, the consumer generally expects the products to have a long shelf life. UV disinfection ensures the necessary microbiological unobjectionableness of the production water.

Germ-reduced process water

Germ-reduced water is also needed for many production processes. In such cases, UV disinfection units with suitably high UV-C dose rates are used to ensure that the necessary percentage of the germs are killed. The use of ultraviolet disinfection permits fulfilment of the requirements without the addition of chemicals.

Germ-reduced ultra-pure water by means of UV disinfection

UV disinfection is used in various phases of the generation of ultra-pure water: before the actual water treatment unit, to prevent sporadic outbreaks of germs, and after the water treatment unit.
The Bewades product range

BWT offers standard or special systems to meet all requirements.

BWT water technology:
Leaders in the treatment of the important natural resource water.

We are a company with a proud tradition, clear objectives and modern products and, as such, your efficient partner. For more than 40 years now, we have been providing customer-specific technical solutions for all sectors of water treatment.

As specialists for plant construction, we design complete treatment plants.