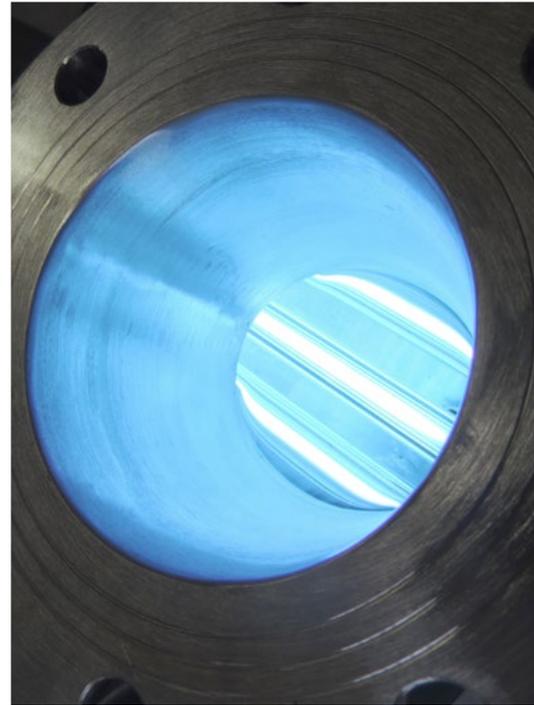
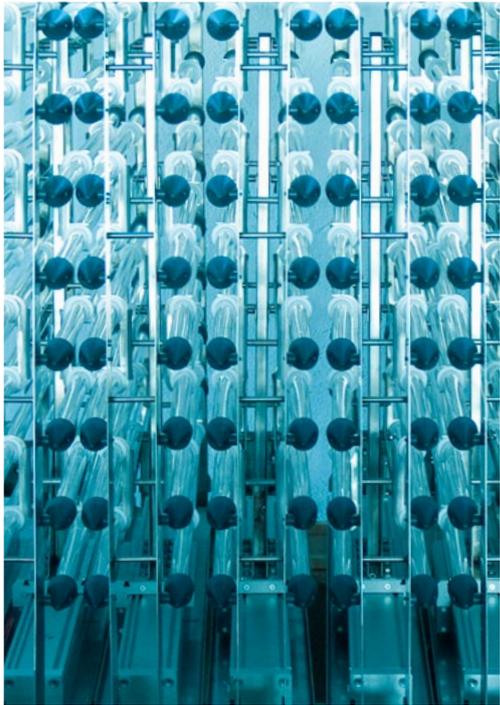




**MONTAGNA**

ULTRAVIOLET SYSTEMS



UV DISINFECTION SPECIALISTS SINCE 1960



**70%** OF THE  
WORLD'S SURFACE IS  
COVERED WITH WATER

**97,5%** IS SALT WATER,  
LEAVING ONLY **2,5%** AS FRESH WATER



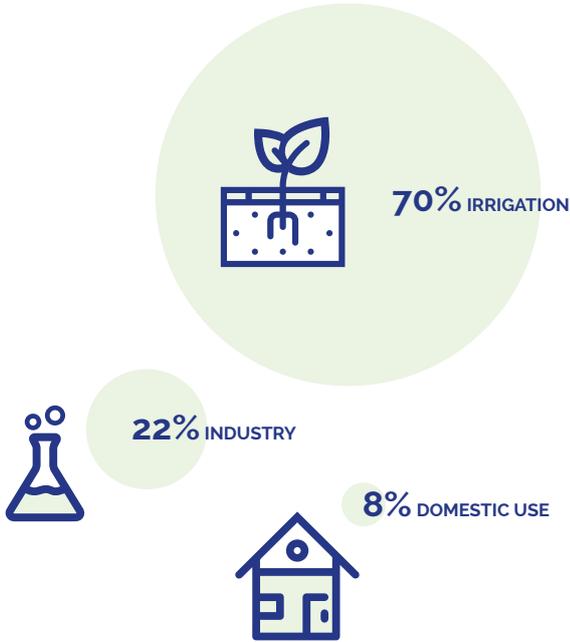
**70%**  
OF THAT FRESH WATER  
IS FROZEN IN THE ICECAPS  
OF ANTARCTICA  
AND GREENLAND

ONLY **1%**  
OF THE WORLD'S  
FRESH WATER  
IS ACCESSIBLE FOR  
DIRECT HUMAN USES

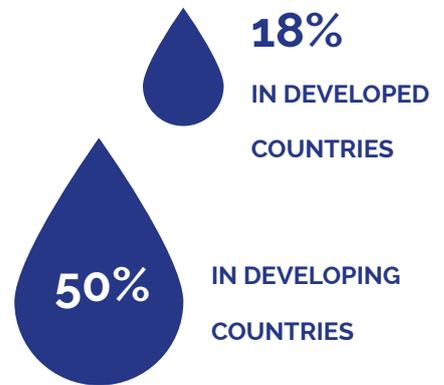


# WATER, A PRECIOUS RESOURCE

DID YOU KNOW THAT THE WORLD USES:



WATER WITHDRAWALS ARE PREDICTED TO INCREASE BY:



THE WORLD'S **SIX BILLION** PEOPLE ARE USING **54%** OF ALL ACCESSIBLE FRESHWATER CONTAINED IN RIVERS, LAKES AND UNDERGROUND AQUIFERS



**1,8** MILLION PEOPLE WILL BE LIVING IN COUNTRIES OR REGIONS WITH ABSOLUTE WATER SCARCITY



**2/3** OF THE WORLD'S POPULATION COULD BE UNDER STRESS CONDITIONS CAUSED BY WATER SCARCITY

We already knew what we could do, as far back as the Sixties, when the idea of ultraviolet disinfection seemed too far-fetched for this world.

Today, rising contamination and the scarcity of natural resources make it ever more necessary to protect and safeguard our most precious asset: water.

Our daily commitment is to design solutions to protect the environment and health of people, through eco sustainable systems for the treatment and reuse of water without the use of chemical products.



**Mauro Montagna,**  
General Manager

## **MONTAGNA srl**

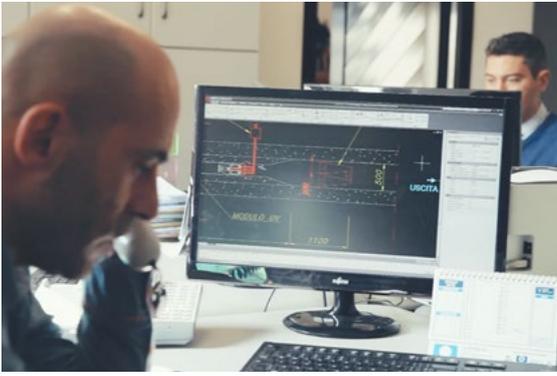
Montagna Srl designs, produces and installs systems for ultraviolet disinfection.

With headquarters in the outskirts of Milan (Italy), the company today counts on a team of expert technicians and an internal Research & Development department able to create custom-made solutions adapted to each client's specific needs. We design our installations with particular attention to quality and efficiency in order to guarantee maximum return on investment at minimum cost.

Profound knowledge of UV technology together with experience consolidated over more than 50 years allows the development of products for application to the treatment of water, air and land, serving clients all over the world.

Our UV-C disinfection systems are used daily in public works (aqueducts and purifiers), large processing industries (food, chemicals, pharmaceuticals, metalworking ...), agricultural and breeding operations, pools and thermal establishments, as well as in single, private installations for small domestic applications.

Our company is structured in order to meet our clients' every need, from design to the management of UV equipment, with the guarantee of complete service, including the following:



## Consulting and design

Our Technical Department, composed of engineers with solid experience in the area of Ultraviolet disinfection, offers a consulting service oriented toward individualized solutions better adapted to each client's specific disinfection needs.

Feasibility studies, design, research of the most suitable material for specific applications, special productions, non-standard dimensions, ad hoc configurations and designs for existing structures are only a few of the services offered by our Technical Department.



## Production and assembly

Systems are produced and tested in our facilities, to guarantee constant quality control of the product. Particular attention is paid to assembly of the electrical control panels that are the systems' essential "brains" and point of command.



## Installation and after-sales service

Our highly qualified staff of technicians handles the installation, start-up and training of the people who will operate our systems.

Our Help Department, certified UNI EN ISO 9001:2008, is always available to our clients, with a service designed to respond to any type of management demand: from rapid supply of spare parts to maintenance interval planning.

# A SUCCESS STORY LASTING FOR OVER 50 YEARS

"We born believing in a technology"



As far back as 1960, Federico Montagna, the company founder, introduced the use of ultraviolet light to disinfect water.

Today, the Company, led by the third generation, is a point of reference in the ultraviolet disinfection sector, a leadership position gained over more than 50 years of activity, working every day with commitment and ded-

ication, supporting and investing continuously in Research & Development, with the objective of offering a constantly improving product and service to a growing clientele.

Montagna does more than supply and install. It also offers design services, specific technical competence, process consulting and qualified assistance from design to after-sales service.

from 1960...

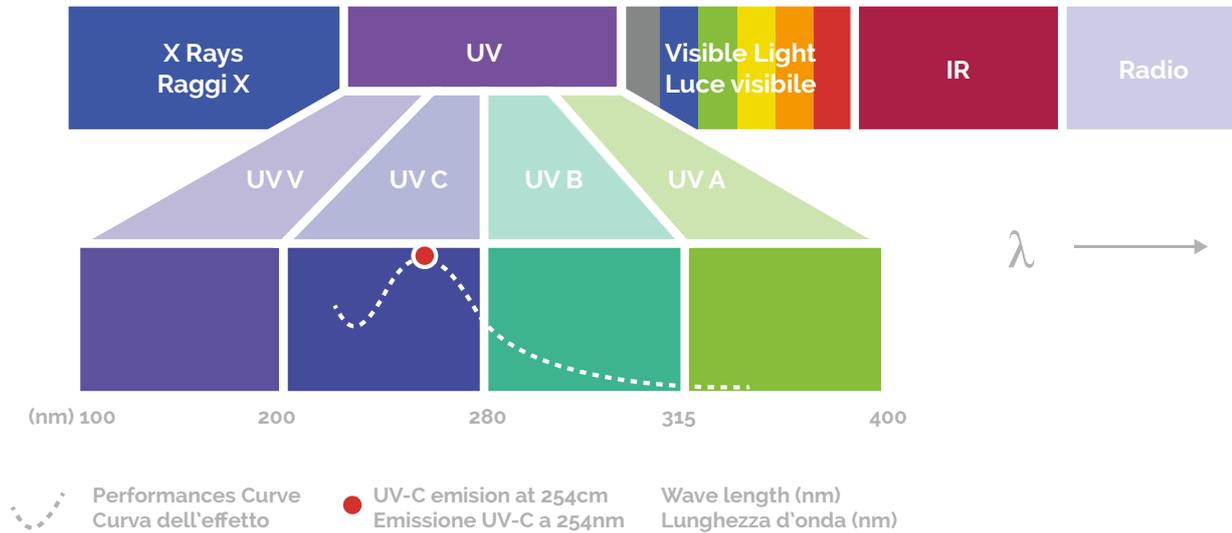


...until today



# UV TECHNOLOGY

Cellular DNA luminous irradiation absorption curve, showing maximum UV-C absorption at a wavelength of **254 nm**.



Disinfection with UV-C rays is a continuously growing sector stimulated on the one hand by ever more stringent standards for potable water and purified wastewater and, on the other hand, by growing interest in treatments that do not require the use of chemical substances.

UV light is one of the components of the solar spectrum outside the atmosphere, which has the capacity to destroy microorganisms by changing the information of their genetic code.

Living organisms do not carry adequate defence mechanisms against ultraviolet rays, having always been protected by the ozone sphere. The photochemical reaction derived

from exposure to UV-C light kills or inactivates microorganisms by disrupting their DNA and leaving them unable to perform certain vital cellular functions, such as reproduction.

Peak DNA sensitivity to ultraviolet light is located at 260 nm of the wavelength, which explains the greater effectiveness of treatment with low monochromatic pressure lamps that emit 2,537 Angstroms (254 nm) during the process.

In just a few seconds, with limited encumbrances, fluids under treatment are irradiated and the bacterial load inactivated, without the use of chemical products, with no alteration of the organoleptic qualities of the

water and without generating any undesirable by-products that could be harmful to human health or to the environment.

A system that is unarguably eco-compatible and useable for some types of diffi-

cult-to-treat fluids (e.g. emulsified oils, glucose syrups, industrial waste), thanks to the geometry of the irradiation, specifically designed for optimal performance.

## CHOOSING ULTRAVIOLET...

... means using a form of energy present in sunlight. UV-C rays, with a light spectre that ranges from 100 to 280 nanometres, are able to destroy pathogenic microorganisms present in water in matter of seconds.

### UV-C ray technology contains some distinctive features:

**ECOLOGIC:** ultraviolet rays do not alter the physical-chemical composition of water and its organoleptic characteristics (smell and taste)

UV treatment does not add chemical substances (specifically, chlorine and its derivatives) thereby preventing the formation of by-products that could be harmful and/or unpleasant (trihalomethanes, chlorophenols, etc.) without the risk of releasing – even accidentally – aggressive or hazardous reagents into the environment.

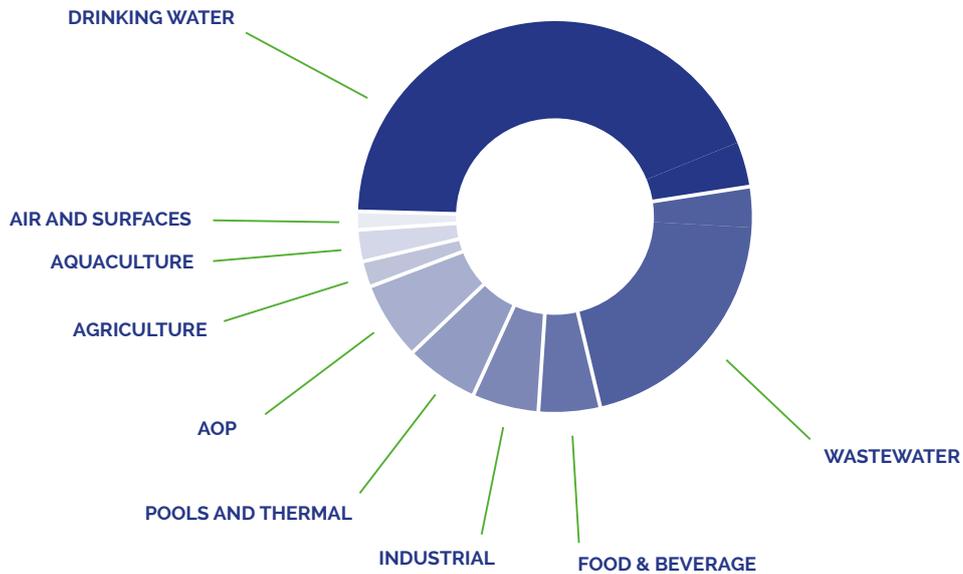
**ECONOMIC:** more contained cost of application, compared with all other solutions available on the market. Consider that, indicatively, consumption of just one KW can disinfect 90,000 litres of water per hour.

**SIMPLE:** just like lighting a lamp. UV bacteria irradiators do not possess exterior moving parts, do not require precautions to handle toxic or corrosive products, are easy to install and often do not require construction for storage.

**SAFE:** it is scientifically proven that UV rays provoke definitive photochemical mutations in cellular DNA. When these rays are emitted on a wavelength of 254 nm and with the right dosage, they strike the nucleus of any microorganism that could be present in the water (bacteria, viruses, fungi, algae, yeasts, mould, etc.) and wipe them out. What's more, there is no risk of overdose.

**INDISPENSABLE:** UV technology can reach a level of performance like no other of its kind, simple and versatile to manage. The resulting economic advantages make UV germ irradiators, with their particular characteristics, the only valid solution for the disinfection of process water in many practical and productive applications – for food processing, electronics, cosmetics and pharmaceuticals.

# FIELDS OF APPLICATION



**Drinking water:** the use of ultraviolet rays to disinfect potable water is a safe and reliable solution suitable for aqueducts and public entities charged with managing water. UV systems also are used by private establishments, like hotels, restaurants, clinics and hospitals, or for the treatment of water stored on ships and trains.



**Wastewater:** Cities are expanding and becoming greater and more populated. Assuring the efficient treatment and disposal of wastewater is a complex challenge that requires close attention. The use of UV is widespread as an alternative to chemical disinfection for the elimination of the bacterial load carried by wastewater.



**Food & Beverage:** the absence of chemical additives makes UV particularly suitable for food applications. Beer brewers, cheese makers, beverage producers and meat processors use UV effectively in order to ensure high standards of hygiene and higher levels of quality, while extending the shelf life of their products.



INDUSTRIAL

**Industrial:** The use of ultraviolet light is widespread throughout industry, for the disinfection of feed water, as well as for its reuse and treatment of wastewater. Other applications are de-chlorination, ozone removal or disinfection of process fluids like emulsified oil.



POOLS AND THERMAL

**Pools and thermal waters:** Efficient and effective disinfection of pool water is essential for public as well as private swimming pools in order to preserve the health of users and the hygiene of use. UV is a chemical-free solution that ensures a better level of wellbeing for bathers, as well as for poolside operators.



AOP

**AOP:** in advanced oxidation processes (AOP) and for the decomposition of organic waste (TOC). This process is particularly effective when water must be reused or when fluids are highly contaminated. To date, the advanced oxidation sector is developing rapidly with a widening range of possible applications.



AGRICULTURE

**Agriculture:** Every day, farmers face two huge challenges: the need to optimise available water resources and to increase the productivity of land under cultivation. The spread of intensive farming methods (e.g. hydroponic) and the need to reuse water for irrigation have seen UV come to the aid of farmers to ensure a water supply free of pathogenic microorganisms.



AQUACULTURE

**Aquaculture:** Water treatment with UV rays is one of the most effective ways to prevent the spread of pathologies to the fish in aquariums or breeding tanks, guaranteeing the elimination of pathogenic agents like bacteria, viruses, protozoa, mould and algae.



AIR AND SURFACES

**Air and surfaces:** even if it so far has been applied mainly to the treatment of fluids, UV technology is coming to be used to treat the air and land surface in residential and health settings (e.g. air conditioning and recycling systems), food (e.g. packaging, cutting and processing stations, transport lines, hotels and restaurants (e.g. elimination of cooking odours).

made in italy 



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