



W.E.T.



GmbH

WASSER ■ ENERGIE ■ TECHNOLOGIE

Innovative Water Treatment

Innovation and Progress
in Water Treatment

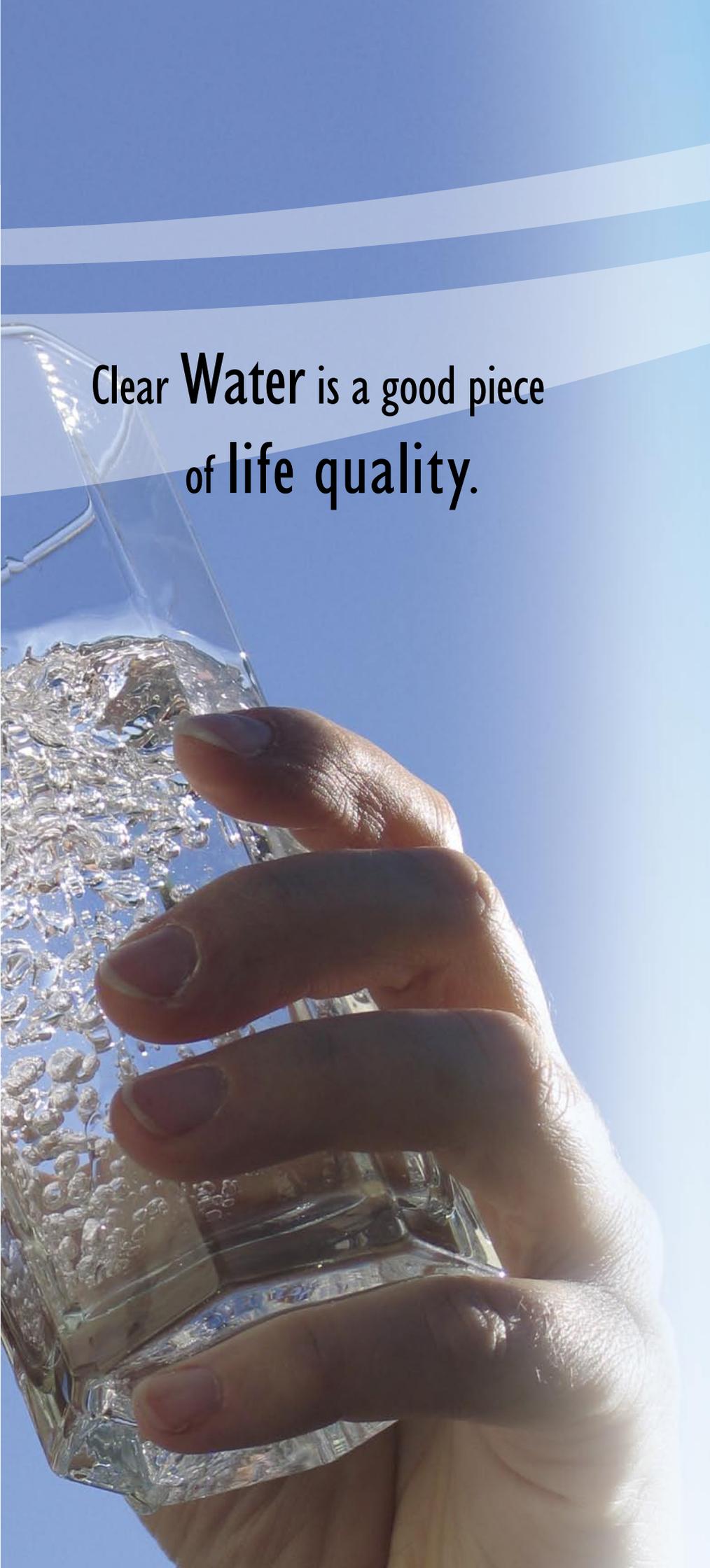
Philosophy

In our world, water is of fundamental importance. Water is the most important food and irreplaceable at the same time. It is an indispensable resource and working material for our economy.

The preventive protection of our waterbodies and the responsible handling of our water resources are central tasks of politics, economy and consumers.

The prerequisite for permanent safeguarding of the natural basic survival needs of the population and for economic development is the necessity to protect our water.

W.E.T. are contributing to the protection of the resource water in offering treatment of various water qualities to produce drinking water.



Clear **Water** is a good piece
of life quality.

The Company

W.E.T. GmbH has been founded in 2002.

The know-how of our engineers and employees is dominated by the technical expertise of our staff, matured over years, combined with practical experiences in the water treatment sector and in the automation technology.

The combination of expert knowledge and practical experiences in designing, executing and commissioning more than 150 pools and drinking water treatment systems form the basis for the development of new innovative processes in water treatment.

Our flexible management of communication and engineering allows us to consider individual customer's requests. Custom-made problem solutions also for germ-troubled water distributors and pool operators are our qualified offer.

Wasser
Energie
Technologie



W.E.T. is the ideal partner for everyone who makes special demands to the water quality and for whom clean water means a good piece of life quality.

Ask for an individual offer and benefit from our experience and expertise in plant engineering and automation technology for water treatment.

Benefits and Advantages

We can meet the requirements of every customer better, faster and cheaper than others.

Better

- Detailed design documentation for standardised units
- Optimal customer-specific solutions: We are adjusting our systems to your requirements
- Consulting and coordination of planning issues with our competent and motivated employees is possible at any time
- Innovative products: permanent product advancement by continuous transfer of new experiences
- Cooperation in a network of experts in different sections, with expert companies and suppliers

Faster

- Synergy effects: cooperation with the sections control equipment, mineralogy, process engineering and mechanical engineering in our own house
- Immediate order execution with most modern DP systems
- Process innovations

Cheaper

- Fully automatic self-cleaning means no personnel costs
- Backwash water storage is not required
- Over 50 % less space requirement
- Room height of 2.20 m is mostly sufficient
- Low investment costs
- Lower payback periods
- Continuous endeavour to find cost reduction potentials, to realise it consequently and to pass it on to the customer

After having done a detailed analysis of your individual requirements we will issue a time schedule in cooperation with you, which will guarantee the adequate realisation of the jointly elaborated concept.



Advantages that
will convince you

Fields of Activity

Drinking Water

- Drinking water treatment by means of ultrafiltration (small decentralised units and complete water works)
- Deacidification
- Removal of iron and manganese
- Removal of nitrate, sulphate and hardness by means of reverse osmosis
- Central drinking water disinfection in buildings

Swimming Pools

- Circular treatment for municipal swimming pools and hotel pools
- Backwash water treatment
- Circular demineralisation by means of reverse osmosis

Waste Water

- Disinfection of sewage treatment plant discharge
- Waste water recycling for swimming pool water, drinking water and industrial water

Industry

- Germ-free water for the foodstuffs industry
- Cleaned water for the manufacturing industry

Customer-specific Special Applications

Services

- Design and dimensioning of water treatment systems
- Elaboration of rehabilitation concepts
- Cost estimates
- Calculation of operating costs
- Construction and operation of pilot plants
- Plant maintenance
- Water analyses for plant dimensioning or solution of problems
- Leasing
- Contracting

For consideration of customer-specific requirements your project planner will optimise the properties and characteristics of the system together with our expert engineer. After a detailed analysis of the customer's problem a time schedule will be coordinated with the purchaser. This will guarantee an adequate realisation of the conjointly elaborated concept.

For existing systems we will suggest a rehabilitation concept with inexpensive alternatives in order to fulfil the requirements. The data of water analyses will be introduced into this concept.

We will continuously be at your disposal for any questions whatsoever during execution and installation and will be available on site during realisation if you should so desire. Upon request W.E.T. will issue documentation for the delivered system with interfaces to the entire project in terms of an efficient communication management also on data carrier.

Cost estimates and calculations of operating costs for the chosen system will help our customers to gain an idea about future costs right from the beginning.

The immediate processing of enquiries, flexible operational readiness of the employees and the continuous DP-supported monitoring of the value-added process will result in an absolute compliance with the delivery dates even for short-term orders.

A maximum amount of quality will be ensured in all functions and levels by the contribution of all employees.

Ultrafiltration

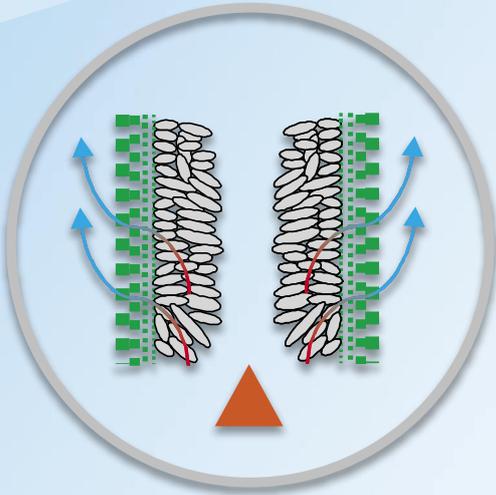
Comparison with Conventional Processes

- Full barrier for micro organisms and particles
- The filtered water quality is independent of the quality of the raw water
- Ultrafiltration will also remove chlorine-resistant germs e.g. cryptosporidium
- The concentrate (waste water) contains only the original raw water ingredients
- The compact design of the system considerably reduces construction costs for new buildings
- For existing buildings this means high flexibility for plant extensions
- Ultrafiltration can be fully automated
- By removal of almost all surface-depositing substances, the subsequent membrane processes, e. g. reverse osmosis, can be designed with a higher surface load thus becoming smaller

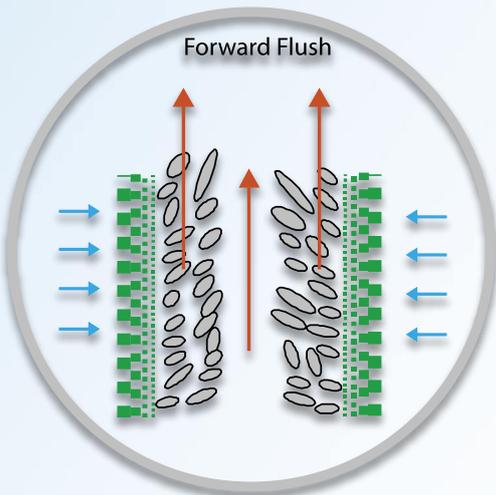


Process Description

Filtration



Backwash

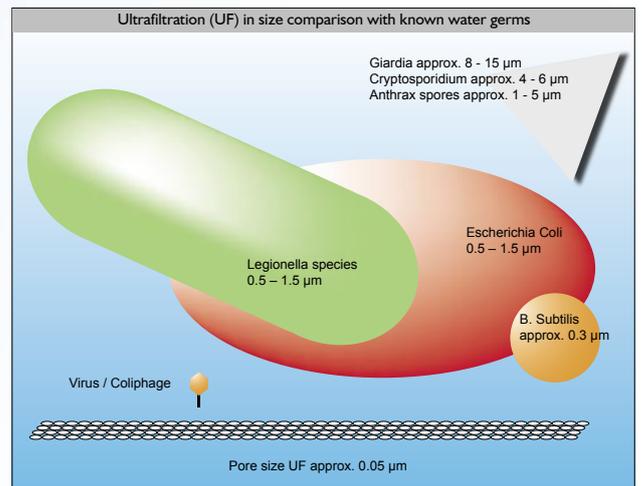


Ultrafiltration (UF)

With ultrafiltration, the water to be filtered will be pressed with pressure through small plastic tubes with an inner diameter of approx. 0.5 – 2 mm. However, the proper filters are the walls of these small tubes with filter pores of 0.05 μm (for comparison: a human hair as a diameter of approx. 50 μm – 1000 times the size). These walls (membranes) can hold back pollutions up to a certain size. Particles or pollutions which are too big for the ultrafiltration membranes will be washed out again at the end of the small tubes, whereas dissolved materials (salts and organic matters) can pass the membranes of the small filter tubes.

The great advantage, however, of ultrafiltration compared to conventional filtering methods is absolute sterility of the filtered water. The pores of the UF membranes are so tiny that bacteria or even viruses from their dimensions are too large to pass the UF membrane.

Bundling of many of such small filter tubes in so-called filter modules creates the required surface thus making possible a higher water flow rate. Depending on the field of application, these modules are of different sizes and can therefore allow for different filter capacities. The use of several modules leads to results that leave almost nothing to be desired in water treatment.



Reverse Osmosis (RO)

During the reverse osmosis procedure, the water will be pressed through a so-called "tight" (i. e. mostly pore-free) membrane. Dissolved substances can hardly penetrate the membrane and will be separated. The result is almost demineralised water.

Automation of the Systems

Automation and Process Control Systems

Belong to the most important success factors of modern industry. Therefore it is essential to focus on experienced yet innovative partners in the capital goods market.

Individual consulting and exclusive use of technically mature and reliable high tech components will be guaranteed now as before in order to ensure high customer satisfaction.

Processes can be checked regarding optimum automation possibilities and procedures can be specified. Detailed planning of automation will be issued on CAD; our specialists will do programming of the control system, of the visualizing and of the SPC.

Visualizing is more than just operating and watching

The implemented modular visualisation software, no matter if single station or network system, can be adjusted to the individual case of need independent from any technology or business line. The uniform, transparent project engineering under Windows is standing in the foreground.

The process flow will get obvious. The production data can be archived and can be indicated completely or in selectable sections, processed continuously or event-controlled and removed from storage.

Apart from the preparation of process diagrams for the processing of signals, measuring values, dependency parameters and reports also production data for quality assurance can be collected. These process data will then be available for a quick defect analysis.

Remote maintenance and remote diagnosis allow for a quick default analysis and are saving travelling expenses.



Standardized Units



W.E.T.pur 300



W.E.T.pur 4



W.E.T.building 18



W.E.T.pool 18



W.E.T.waste 40 X

Drinking Water

W.E.T.pur

- Ultrafiltration systems for drinking water treatment as compact, fully automatic units with integrated backwash water tank.
- Ultrafiltration systems for drinking water treatment as customer-specific constructed water works.
- For decentralized treatment in water works and high-level tanks.

W.E.T.building

Ultrafiltration systems for the disinfection of drinking water, as compact, fully automatic units.

- For central filtration of drinking water in buildings, hospitals and clinics, old people's homes and nursing homes, hotels and public buildings, private needs.

Swimming Pool

W.E.T.pool - W.E.T.pool - x

Ultrafiltration systems for circular treatment for swimming pools (see practical examples page 10).

W.E.T.pool - waste

Ultrafiltration systems for circular treatment for swimming pools, with integrated backwash water treatment.

W.E.T.waste

Ultrafiltration system for backwash water treatment in swimming pools with activated carbon filter for discharge into the receiving waters, with a reverse osmosis for the recirculation to the circuit.

W.E.T.opti

Systems for the reduction of operating costs in pools.

Filtration Process Water

W.E.T.filt

Ultrafiltration systems in order to remove flocculated substances; e. g. for iron removal or for disinfection of service water, waste water or for water recycling.

Possible extensions: reverse osmosis, UV disinfection, activated carbon filter, dosing of powdered activated carbon.

Practical Examples

Waldsassen Public Outdoor Swimming Pool

The new technology is an alternative also for outdoor pools.

In Waldsassen public outdoor swimming pool in total 360 m³/h are being treated by means of ultrafiltration. The operators can look forward to the peak days with record attendance very calmly; the water quality will be perfect.



Backwash Waste Water Treatment acc. to DIN 19645

Very often the water consumption is a considerable portion of the operating costs but it can be reduced.

The wastewater produced during filter backwashing will be treated with ultrafiltration and subsequent reverse osmosis to such an extent that it can be returned into the swimming pool circuit as filling water or that it is available as service water.



Europatherme Bad Füssing

Circular treatment of swimming pool water by means of ultrafiltration with 160 m³/h.

The outdoor basin in Europatherme Bad Füssing has been constructed new during the first half of 2004 and is being operated with sulphurous thermal mineral water. As the equipment room is located underneath the basin, special importance was attached to the height of the equipment room. Ultrafiltration with an overall height of 2.2 m was particularly suitable for this case of need.

The plant is constructed with two lines. Filtration is being done by two independent ultrafiltration units (80 m³/h) with own prefilter.



Drinking Water Treatment

The requirements for drinking water quality are increasing. Apart from turbid matters also viruses and bacteria will be removed by ultrafiltration.

The illustration shows a waterworks facility in the Rhoen, which has been equipped by W.E.T. with ultrafiltration and deacidification.



Ultrafiltration for Drinking Water Disinfection

Newspaper reports on diseases caused by Legionella bacteria are a daily occurrence meanwhile.

Along with the drinking water, Legionella are being delivered franco domicile, where they find optimum conditions for reproduction.

They are being fought with intricate thermal methods and numerous chemicals.

With an ultrafiltration as bacteria barrier at the building entry, the chemical consumption and thermal disinfections can be reduced substantially.



Reverse Osmosis for the Deacidification of Water

The pictured reverse osmosis unit is one step in a treatment chain for the treatment of boiler feed water in a power station.

This is just one possibility for the application of reverse osmosis units. W.E.T. are using this technology also for the recycling of backwash wastewater in swimming pools, in order to prevent any increase of salinity in the pool water circuits.

Further fields of application are the reduction of nitrate and hardness in drinking water. In this case, reverse osmosis is mostly being used for deacidification of a partial stream. After mixing with the raw water, the nitrate value has dropped under the limit value, the water hardness has been reduced and there are sufficient ingredients left for a healthy drinking water.



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