


LifeTech
WATERSOLUTIONS




**VIBRANT SOLUTIONS
FOR A
PURE FUTURE**

GERMAN  **MADE IN GERMANY**
ENGINEERING

 LifeTech-Watersolutions.com

 info@LifeTech-watersolutions.com

 +49 (0) 2303 037082-0



WATER PURIFICATION & WELL REGENERATION

WATER PURIFICATION

LifeTech: Sustainable Solutions for an Essential Resource

LifeTech is a values-driven organization dedicated to transforming the utilization of one of our most vital resources –water. We prioritize ensuring easy access to clean drinking water and implementing efficient wastewater treatment solutions.

OUR PHILOSOPHY

We assert that every individual is entitled to clean water, and we depend on innovative technologies to actualize this vision. By implementing sustainable solutions and maintaining a robust commitment to environmental stewardship and social responsibility, we contribute to a brighter future for all. With LifeTech, we are collectively advancing towards responsible and sustainable water utilization.





WELL- REGENERATION



WATER- PURIFICATION

A TECHNOLOGICAL ADVANCEMENT NUMEROUS ADVANTAGES

- More economical than traditional methods
- Eco-friendly - devoid of chemical usage
- Reduces substantial energy expenses
- for all wells and water connections
- inactivation of dubious ingredients
- Safeguards the well structure and piping.



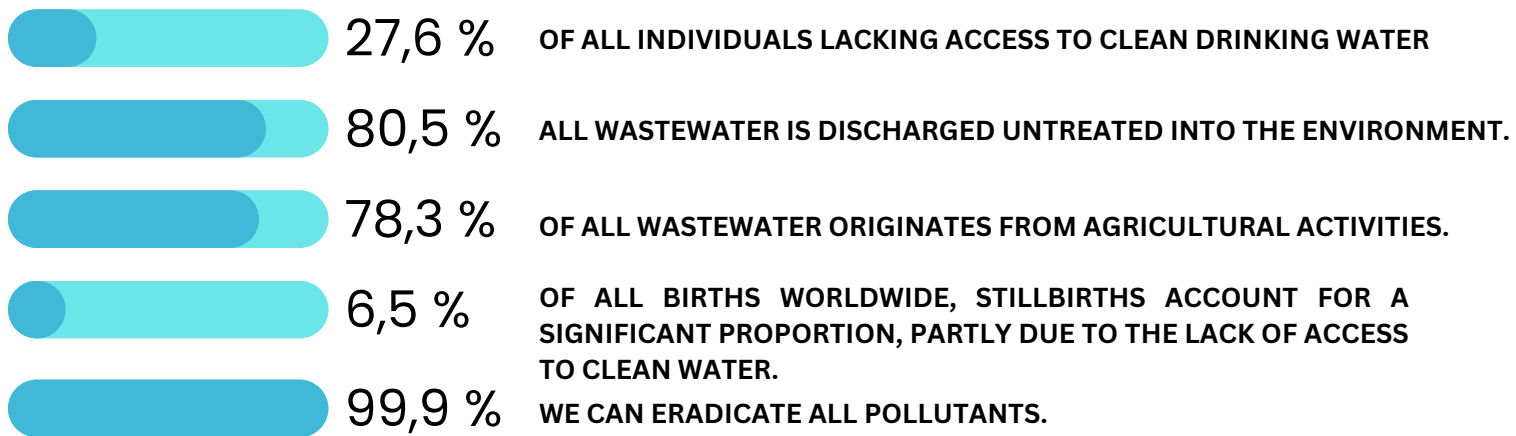
SUSTAINABLE

OUR INNOVATIVE AND PATENTED TECHNOLOGY IS FOUNDED ON

- HIGH-FREQUENCY ULTRASOUND
- MODIFIED UV UNITS
- Ozone Systems

Our systems are entirely environmentally sustainable. We refrain from utilizing any harmful chemicals or substances for water treatment or well regeneration.

GLOBAL WATER CRISIS



The worldwide water crisis:

- **Water scarcity:** In numerous regions globally, water is becoming progressively scarce. Climate change, population growth, and intensive agriculture are intensifying the strain on water resources.
- **Water pollution:** Industrial effluents, agricultural chemicals, and domestic waste contaminate rivers, lakes, and groundwater. This poses a significant threat to human health and the environment.
- **Inequitable access to water:** Millions of individuals, particularly in developing nations, lack access to clean drinking water and fundamental sanitation facilities.

2. Demand for innovative solutions:

To address the global water crisis, innovative technologies are essential for:

- **Water treatment:** Innovative technologies must be developed to purify contaminated water, rendering it suitable for human consumption or irrigation.
- **Well regeneration:** Silted or contaminated wells require regeneration to guarantee access to groundwater.

POLLUTANTS IN OUR WATER SUPPLY

Common contaminants:

- **Heavy metals, including lead, mercury, cadmium, and arsenic**, can infiltrate water sources through various channels, including industrial waste, mining activities, and agricultural practices. These substances pose significant health risks, including nerve damage, kidney impairment, and cancer.
- **Pesticides and herbicides:** These chemical agents for plant protection are utilized in agriculture and can infiltrate groundwater through soil and surface water. They may disrupt reproductive functions, harm the nervous system, and possess carcinogenic properties.
- **Nitrate and nitrite:** **Nitrate and nitrite** primarily originate from agricultural fertilizers and manure. In the body, they can be converted into nitrosamines, which are known carcinogens. Additionally, nitrate can diminish the oxygen-carrying capacity of blood in infants, potentially resulting in "blue baby syndrome."
- **Drug residues:** Pharmaceuticals and their degradation products infiltrate water systems through wastewater. They can foster the emergence of resistance in bacteria and adversely affect both flora and fauna.
- **Microplastics:** Minute plastic particles originating from cosmetics, clothing, and various products can infiltrate water systems through wastewater. These particles may be consumed by fish and other organisms, thereby entering the food chain.
- **Per- and polyfluorinated chemicals (PFAS)** are utilized in a range of industrial products and can infiltrate the environment through air and water. These substances are persistent and bioaccumulative, posing potential adverse effects on human health, including impacts on thyroid function, the immune system, and reproductive health.
- **Hormonally active substances:** These compounds can disturb the hormonal equilibrium within the body, adversely affecting reproductive capacity, child development, and increasing the risk of cancer.



TAP WATER & WASTEWATER

Sustainable, Efficient, and Cutting-Edge

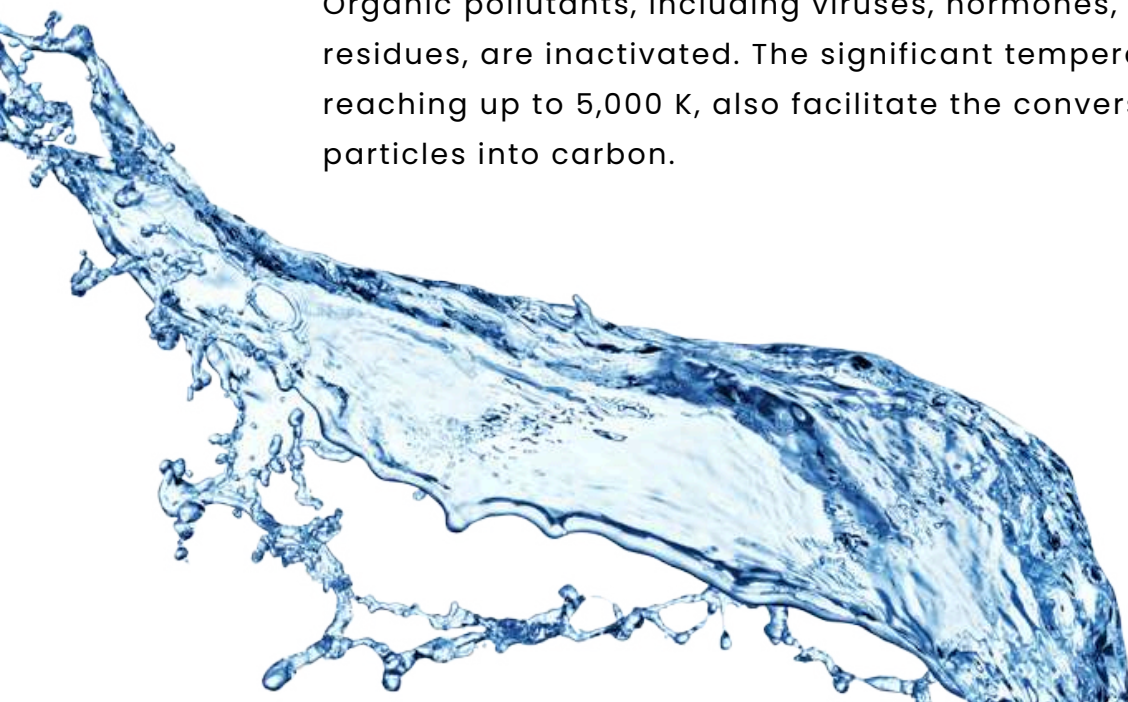
Years of development by our German engineering team are now evident in this distinctive and sophisticated technology. It effectively eliminates and inactivates organic pollutants, including viruses, bacteria, and pharmaceutical residues such as antibiotics and hormones. The elevated temperatures produced by cavitation enable us to diminish minute inorganic particles, including microplastics.

Through the implementation of innovative processes, we not only ensure a high standard of water purity but also actively contribute to the protection of the environment and human health. Our systems operate without the use of any chemicals! In this manner, we establish a solid foundation for sustainable water utilization.

DISTINCTIVE TECHNOLOGY CAVITATIONCLOUD FOR WATER PURIFICATION

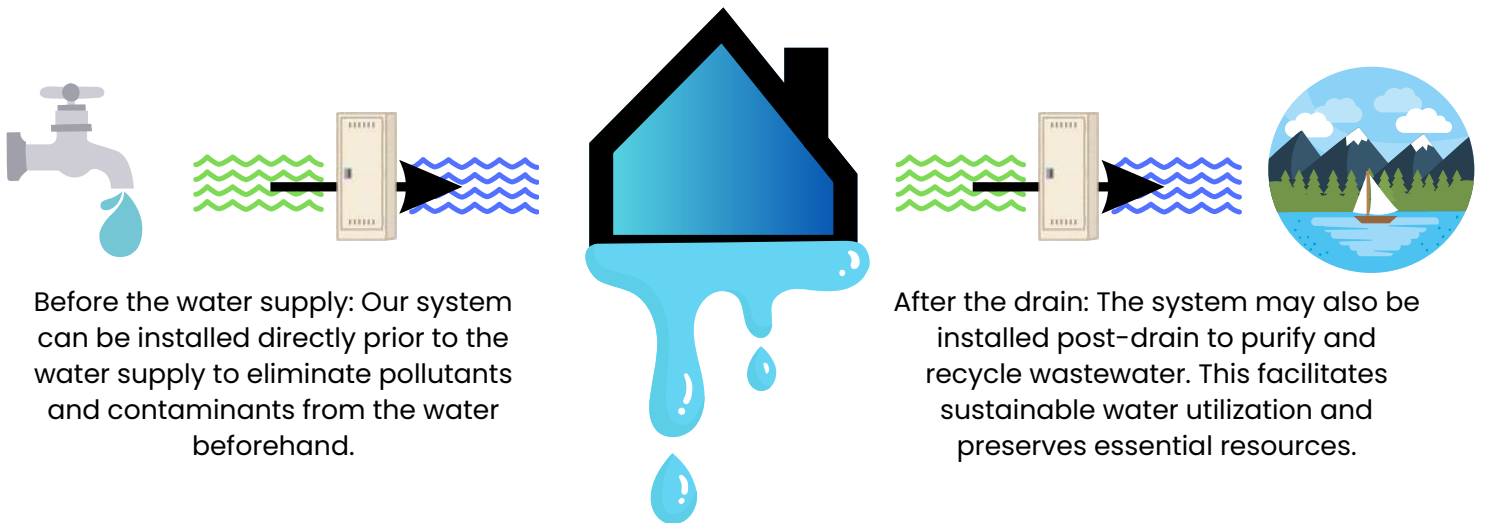
In our systems, a microbubble or cavitation cloud is produced within the ultrasonic reactor. This phenomenon is unparalleled globally.

Organic pollutants, including viruses, hormones, and pharmaceutical residues, are inactivated. The significant temperature variations, reaching up to 5,000 K, also facilitate the conversion of microplastic particles into carbon.



TAP WATER & WASTEWATER

Our most extensive system can purify up to 100,000 liters of tap water, process water, and wastewater each hour. We can design a system tailored to your requirements, even if it is slightly smaller.

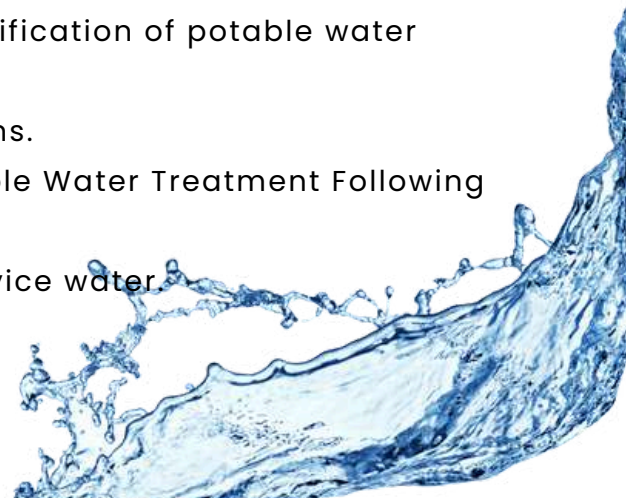


Before the water supply: Our system can be installed directly prior to the water supply to eliminate pollutants and contaminants from the water beforehand.

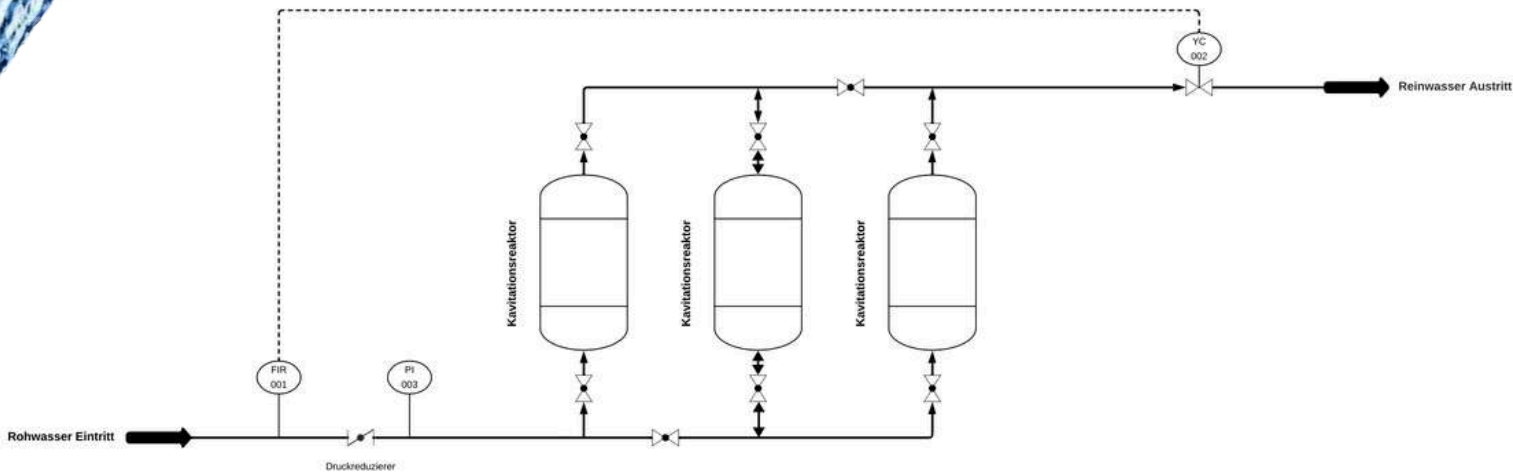
After the drain: The system may also be installed post-drain to purify and recycle wastewater. This facilitates sustainable water utilization and preserves essential resources.

AREAS OF APPLICATION

- **Cruise ships:** Safeguarding the quality of tap water on board and the elimination of pollutants in wastewater.
- **Agriculture:** Water management for agricultural and irrigation systems.
- **Wastewater treatment facilities:** effective wastewater treatment and purification.
- **New construction initiatives:** Ensuring access to clean water in expanding urban regions.
- **Textile industry:** management of process water and wastewater treatment.
- **Clinics:** Impeccably hygienic water for medical facilities.
- **Urban groundwater wells:** safeguarding and purification of potable water sources.
- **War zones:** Mobile water supply in conflict regions.
- **Environmental Disasters:** Prompt and Dependable Water Treatment Following Natural Catastrophes.
- **Hotel amenities:** Potable drinking water and service water.



FLOWCHART (PFD)



To treat the introduced water, a microbubble or cavitation cloud is generated within the ultrasonic reactor. Our proprietary technology effectively inactivates organic pollutants, including viruses, hormones, and pharmaceutical residues. The significant temperature differentials, reaching up to 5,000 K, also facilitate the conversion of microplastic particles into carbon.

SUPPLEMENTARY MODULES



The ultrasound systems can be enhanced by us with the following modules customized for the process.

- Energy-efficient LED UV-C lamps featuring an extended service life.
- ozone enrichment system
- desalination facilities
- Pre- and post-filtration for solid particulates
- Modules for revitalizing potable water



TAP WATER & WASTEWATER

Our mobile and permanently installed systems are offered in a wide range of sizes—either predefined or custom-designed to meet your specific requirements.

Examples of our systems.

from 3m³ / HOUR



Symbol image



FLOW RATE:	3m ³ / hour
UV-MODULE	Optional
ULTRASOUND DEVICES	1 x Ultrasonic Reactor
LET US PROCEED WITH THE CUTTING.	
SUPPLY VOLTAGE	32 A (optional)
DIMENSIONS W x D x H in cm	150cm x 360cm x 150cm

Mobile water treatment facility on a trailer

- Target group: Applications including mobile water supply for military use, disaster relief efforts, remote regions lacking fixed infrastructure, agricultural applications, or events.
- Additionally, it can be powered externally through an external power source.

up to 100m³ / HOUR



FLOW RATE:	100 m ³ /hour
UV-MODULE	Optional
ULTRASOUND DEVICES	4 ultrasound systems
LET US PROCEED WITH THE CUTTING.	
SUPPLY VOLTAGE	64 A
DIMENSIONS W x D x H	210cm x 310cm x 210cm
WEIGHT	650 KG
NOURISHING IN	from 2 inches to 4.3 inches

massive industry

- Target audience: Large industrial facilities, municipal water treatment plants, extensive agricultural operations, mining enterprises.
- Application: Ongoing water treatment for extensive and rigorous industrial applications.

PLANNING YOUR SYSTEM



Customized to your specifications

We create customized systems specifically designed to meet your unique needs. In addition to our standard models, we can accommodate all requirements, irrespective of project size. Our planning team transforms your visions into reality.

This encompasses a thorough analysis of your current system and water quality. We also provide extensive service and maintenance for the equipment, although such interventions are infrequently necessary. Our objective is to guarantee that your systems consistently function efficiently and reliably.

INSTALLATION

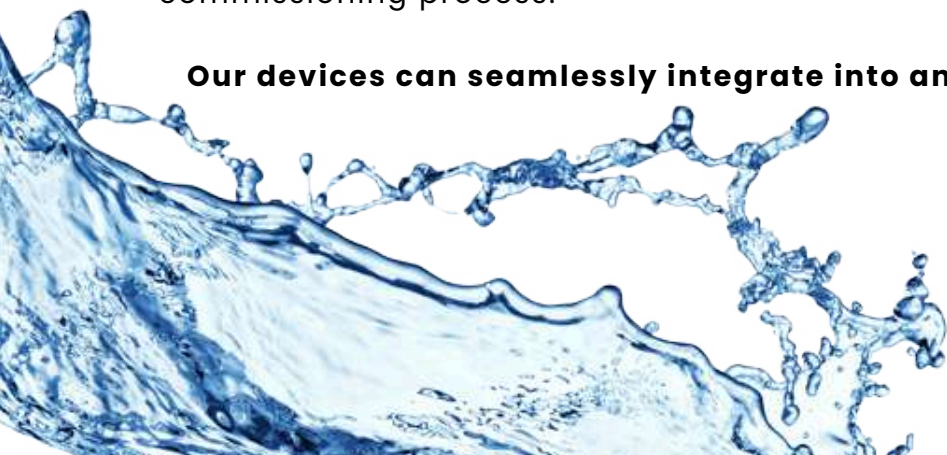
Worldwide installation by our specialists

Our modules can be installed globally by our skilled technicians. The entire installation process is streamlined and typically requires only a brief duration.

Professional and straightforward

We assure a professional and straightforward installation, enabling you to swiftly reap the benefits of our technologies. Our team is consistently available to assist and ensure a seamless commissioning process.

Our devices can seamlessly integrate into any existing system.



WELLS REGENERATION

Efficiently clear obstructed wells using high-frequency ultrasound.

Problem:

Throughout the operational lifespan of a well, deposits accumulate within the pore spaces of the filter gravel packing. This accumulation results in a gradual decline in the well's performance and may ultimately lead to its complete depletion. The removal of these deposits poses a challenge, as the impacted areas are not mechanically accessible.

Previous solutions:

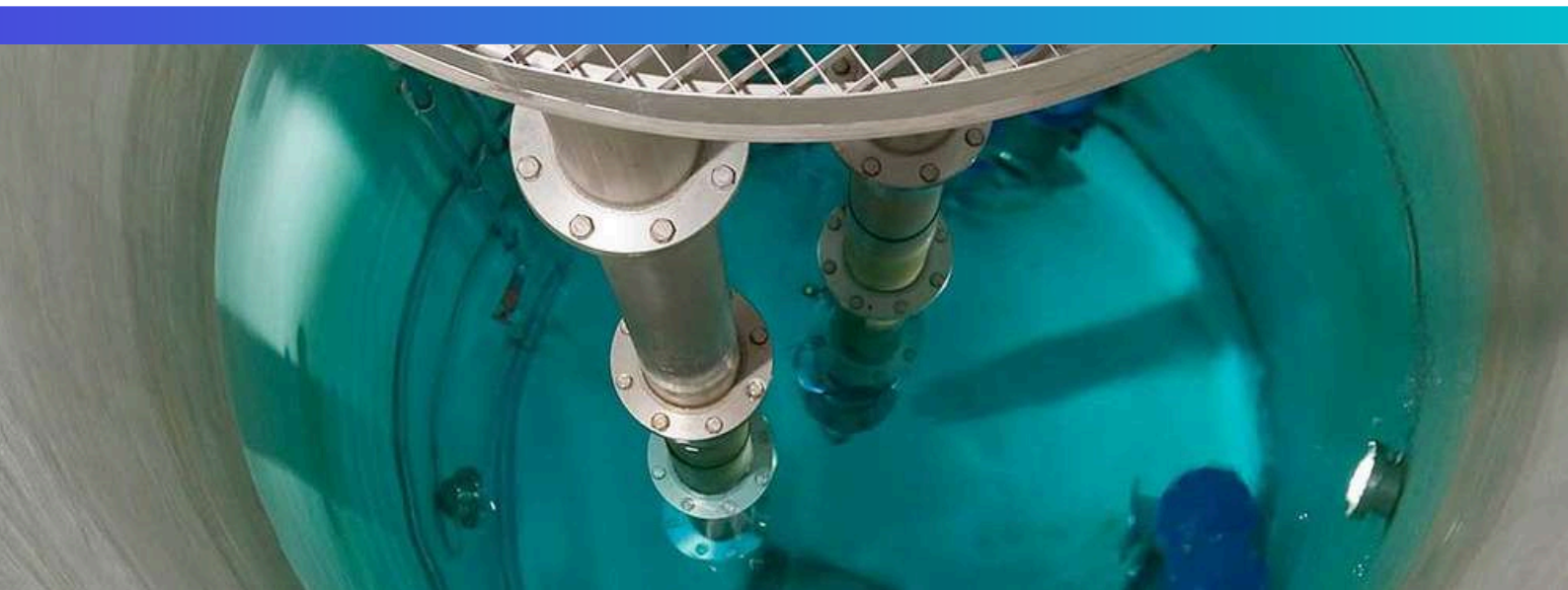
Numerous techniques exist for well cleaning, operating on either a chemical or hydromechanical basis. Nonetheless, these methods present environmental risks and have the potential to contaminate the well materials.

Our solution: High-frequency ultrasound

Our process employs high-energy ultrasound to liberate the filter gravel pack from performance-degrading deposits. Ultrasonic waves penetrate the pore spaces with minimal obstruction, effectively dissolving deposits and biofilms. This effect reaches deep into the filter gravel pack, also clearing obstructed pore channels.

Advantages of the process:

- Effective cleaning: Highly efficient elimination of deposits and biofilms.
- Environmentally sustainable: No chemical usage, no contamination of groundwater.
- Gentle cleaning: The integrity of the material is preserved.
- Deep cleaning effect: Effectively penetrates deep deposits within the filter gravel packing.
- Versatile: Appropriate for wells of varying depths and diameters.



ULTRASOUND PROBE

FOR THE RESTORATION OF GROUNDWATER WELLS

Our specially designed probe for cleaning groundwater wells is unparalleled globally. It effectively cleans deep within the filter gravel without employing chemicals or high-pressure equipment. This innovative approach allows for the preservation of the well structure and significantly prolongs its service life.

The probe operates at high ultrasonic frequencies beginning at 20,000 Hz and can efficiently clean wells with a diameter of up to 600 mm and a depth of up to 200 meters. Utilizing the probe in the shaft just once also results in significant time savings.



ab 240 cm / ca 80 kg

Designed,
developed and
made in Germany



No chemicals are necessary, and the probe is entirely environmentally friendly. This eco-conscious technology guarantees a gentle cleaning process that safeguards both the well structure and the surrounding environment.



DISTINCT ADVANTAGES

- Eco-friendly - free from chemicals
- Safeguard the fountain
- More economical than traditional methods
- Wells exhibit increased longevity.
- Manufactured in Germany

WELLS REGENERATION ADVANTAGES

Efficient cleaning and rejuvenation:

- Removal of Deposits and Biofilms: Our high-frequency ultrasonic probe efficiently eliminates deposits, biofilms, and other contaminants that may compromise the performance and longevity of groundwater wells.
- Enhanced water quality: The removal of contaminants leads to a substantial improvement in water quality, yielding clean and safe groundwater.
- Enhanced water permeability: Ultrasonic treatment elevates the water permeability of the well bottom, leading to increased water flow and improved well productivity.

Sustainable and eco-friendly solution:

- Chemical-free: In contrast to traditional cleaning methods, our ultrasonic probe operates without harsh chemicals, thereby safeguarding the environment and preserving water quality.
- Low energy consumption: Ultrasonic treatment is highly energy-efficient, utilizing considerably less energy compared to alternative cleaning methods.
- Extended durability: Our durable ultrasound probe is engineered for prolonged use and is distinguished by its extended lifespan.

Distinctive selling propositions:

- High-frequency technology: Our ultrasonic probe operates at an exceptionally high frequency, facilitating more efficient cleaning and regeneration.
- Modular design: The probe's modular design facilitates flexible adaptation to various well shapes and sizes.
- Robust construction: The probe is crafted from premium materials and engineered for operation in demanding environments.
- User-friendly: The ultrasound probe is straightforward to operate and does not necessitate any specialized prior knowledge.

In a world where access to clean water is becoming increasingly limited, LifeTech Watersolutions AG positions itself as a leader in the battle against water scarcity and environmental degradation.

Our patented ultrasound technology transforms well regeneration and water treatment, establishing new benchmarks in water management.

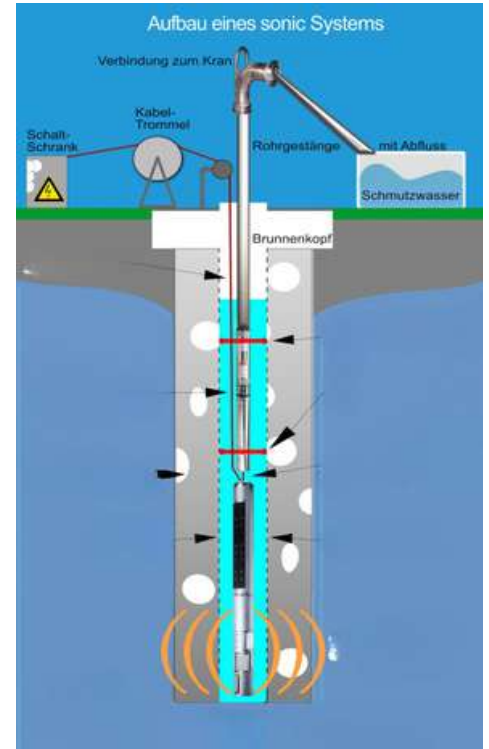
In contrast to traditional methods that frequently employ harsh chemicals and contribute to environmental pollution, our technology offers a thorough and efficient cleaning solution without the use of any chemicals. Robust sound waves effectively disintegrate deposits, biofilms, and contaminants, even in inaccessible areas, guaranteeing a gentle yet profound cleaning process.

WELLS REGENERATION PROCESS

The process of well regeneration utilizing ultrasound parallels traditional methods while simultaneously providing notable advantages. Below, you will find a comprehensive description of the individual steps:

Preparation:

1. **Removal of the pump and riser pipes:** To facilitate access to the filter section, the pump and riser pipes are extracted from the well.
2. **Inspection with a television camera:** A television camera is employed to thoroughly evaluate the condition of the well and the filter section. This facilitates the early identification of any damage or blockages, enabling targeted repairs.
3. **Performance Test:** Prior to the actual cleaning, a performance test is conducted to ascertain the flow rate and water quality of the well. These metrics serve as a benchmark for evaluating the effectiveness of the regeneration.



Cleaning:

- Mechanical pre-cleaning involves the initial removal of coarse dirt and deposits through mechanical means. This process can be facilitated, for instance, by utilizing a brush or a flushing pipe.
- Optional performance assessment: Following the mechanical pre-cleaning, an additional performance assessment may be conducted to quantify the impact of the pre-cleaning.
- Ultrasound Treatment: Central to well regeneration is ultrasound treatment. A high-frequency ultrasound probe is maneuvered along the filter section from top to bottom. The sound waves efficiently dislodge deposits and biofilms from the surfaces of the filter gravel and the pore walls.
- Dirt removal: The debris dislodged by the ultrasound treatment is promptly extracted following the procedure using an underwater pump. This pump is positioned directly above the ultrasound probe.
- Sump Cleaning: Ultimately, the sump cleaner is thoroughly cleaned to guarantee that no residues persist.

Post-cleaning:

- Optional camera inspection: To document the effectiveness of the cleaning and identify any remaining contamination, a new camera inspection may be conducted.
- Performance Test: Upon completion of the regeneration process, a final performance test is conducted to assess the new flow rate and water quality of the well, thereby documenting the effectiveness of the intervention.
- Reinstallation of the pump and riser pipe: Upon completion of the regeneration process, the pump and riser pipes are reinstalled within the well.

ALLOW US TO PROVIDE GUIDANCE.

We would be pleased to create a customized concept for you.



[LifeTech-Watersolutions.com](https://www.LifeTech-Watersolutions.com)



info@LifeTech-Watersolutions.com



+49 (0) 2303 9379827

Designed,
developed and
made in Germany



Tested and validated by:



LifeTech
WATERSOLUTIONS

