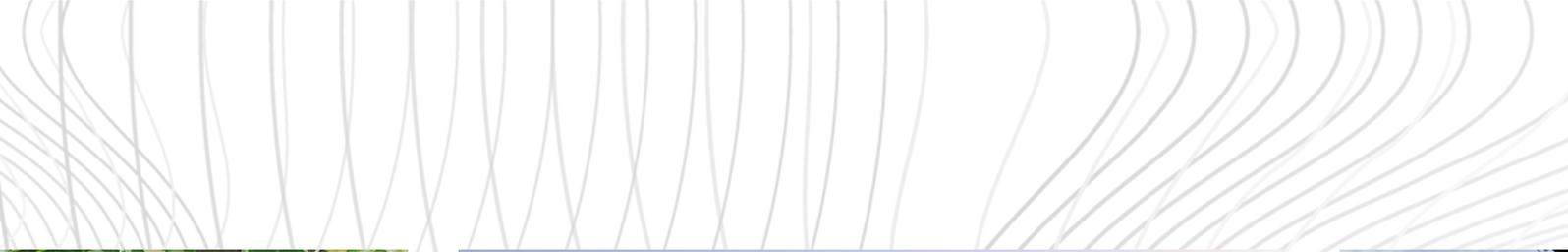




 **ultrasonic group**[®]



About biofilm

Biofilm, a group of micro organisms, commonly observed as a slimy layer, occurs anywhere water accumulates, and causes many problems for professional breeders:

- Clogged pipes and drinking nipples
- Development of pathogen bacteria.
- Reduction of the effectiveness of medicines which are mostly administered via the drinking water
- Leaking drinking nipples which causes wet stable floors.

Most biofilm related bacteria are extremely difficult to eradicate with conventional chemical and mechanical methods and require constant attention to avoid infections. This biofilm protects the present bacteria and can produce harmful toxins. *Salmonella* is capable to develop a biofilm under several circumstances, as well in biotic as in abiotic surfaces. This biofilm protects these bad bacteria against disinfectants and antibiotics. *Salmonella* infection can be avoided by preventing the formation of biofilm.



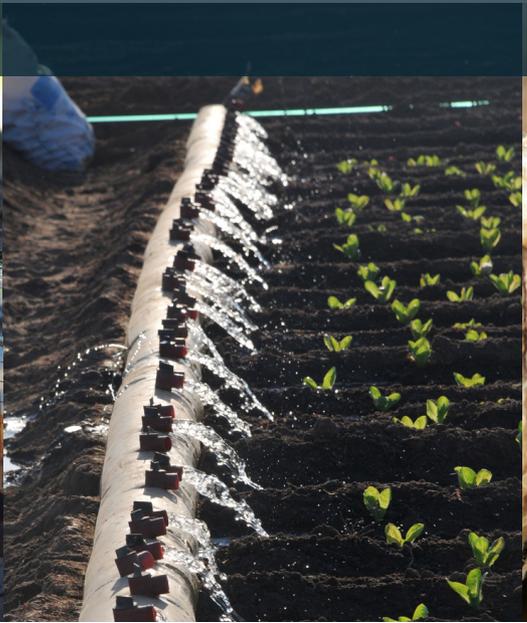
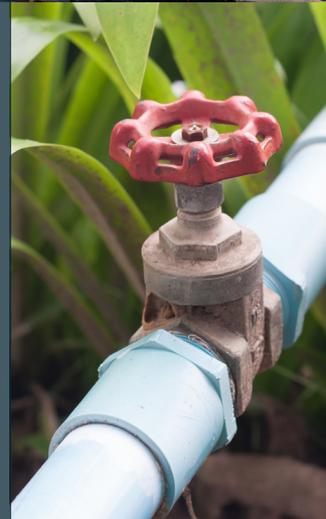


Resistant biofilm

Using chemicals to clean the pipes is not without risk, as the toxic residue can be harmful for the animals or crops. Moreover, the constant usage of chemicals can make biofilm resistant. With frequent usage and treatments, biofilm can become up to 500 times more resistant to chlorine.

This resistant biofilm can't be removed with the conventional methods, and can remain a habitat for certain tenacious germ strains. Chemicals will have no impact on them, especially in small gaps, where the most harmful and resistant bacteria such as e-coli or enterococci reside.

A very high level of hygiene in drinking and irrigation lines is required to keep live stock and crops disease-free. Most biofilm-related bacteria are extremely difficult to eradicate with conventional chemical and mechanical methods and require constant attention to avoid infections.





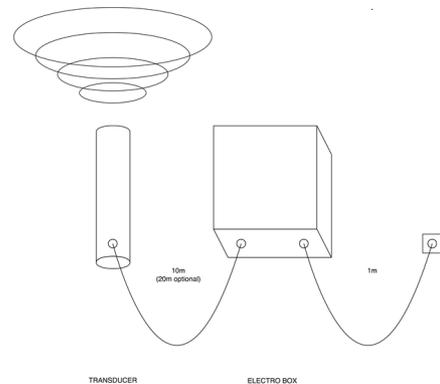
**NOW THERE IS A SUSTAINABLE
SOLUTION THAT PREVENTS BIOFILM
WITHOUT CHEMICALS**

Ultrasonic Group distributes ultrasound systems based on very soft cavitation that doesn't damage any materials even after long term use, unlike other systems based on hard cavitation. By bringing the walls and liquid in resonance the biofilm is removed and any further attachment of micro organisms is prevented.



ultrasound biofilm control system

- Is suitable for all water and other liquid nutrient transportation lines
- Avoids the attachment of biofilm
- Reaches every gap that any other mechanical cleaning method can't reach
- Is very easy to install and to maintain
- Reduces or even totally avoids the usage of chemicals and antibiotics
- Has a very low energy consumption
- Has a continuous cleaning effect
- Requires a very low investment





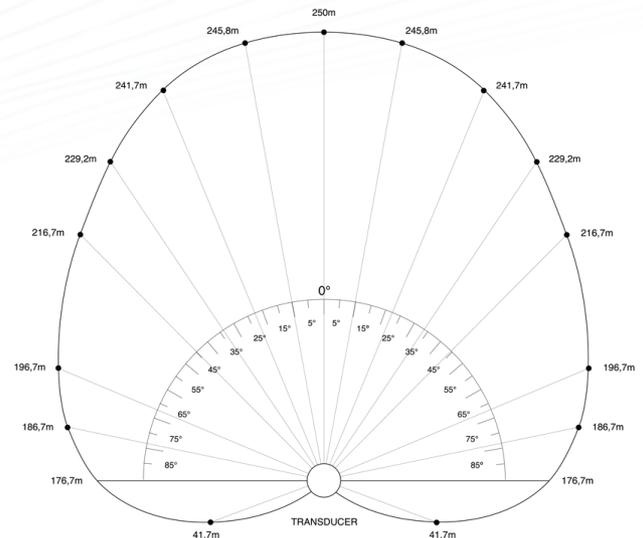
ULTRASOUND BIOFILM CONTROL

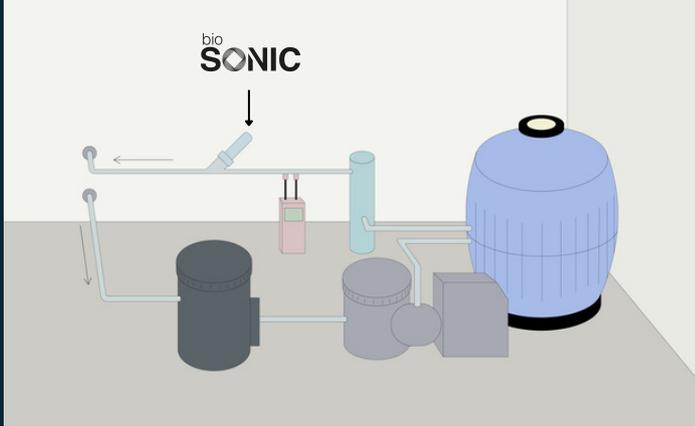
How does it work?

Ultrasonic Group distributes a biofilm control system in which ultrasonic vibrations are spread by transducers into a liquid. By breaking the vacuole of algae, these vibrations prevent micro organisms to attach to the walls and to form biofilm. Ultrasonic vibrations can cover very long distances. The effectiveness of the vibrations is reinforced by the system's patented HS-Technology, which makes it the only solution against resistant biofilm.

- ➔ Reduced usage of antibiotics
- ➔ Improved disease control
- ➔ Better daily growth rates
- ➔ Robust health - better uniformity
- ➔ Strongly reduced mortality

The only effective solution against
resistant biofilm





ABOUT ultrasonic group®

The technology distributed by the Ultrasonic Group was developed in Belgium, and originated in the marine industry for defouling ship hulls, boxcoolers etc. Being very successful in that industry, Ultrasonic Group distributes further applications for several other industries where biofilm is a serious problem, which is about every industry that uses water of any kind.

TRANSDUCER FOR PIPES

The transducer for pipes is premounted on a y-junction.
1 transducer for approx. 250 m of pipe

TRANSDUCER FOR VESSELS

1 transducer for approx. 20000L

CONTROL UNIT

Possibility to connect 2 transducers to 1 control unit

Together with the biofilm, every other fouling that attaches to the biofilm is also avoided, such as limescale, rust...

Numerous tests being done in Belgium as well as in foreign universities did not only prove its effectiveness, it also proved that the technology distributed by Ultrasonic Group doesn't have any impact on living creatures, nor does it influence any electronic devices.

5 year
warranty

SYSTEM FEATURES AND BENEFITS

- Removes biofilm permanently without chemicals
- Very low investment
- Very easy to install
- Needs little or no maintenance
- Extremely low electrical consumption
- Cost savings on cleaning products and labor
- Improves the effect of cleaning/disinfecting agents
- Ultrasound vibration reaches every gap and folds
- Standard with a 5 year warranty

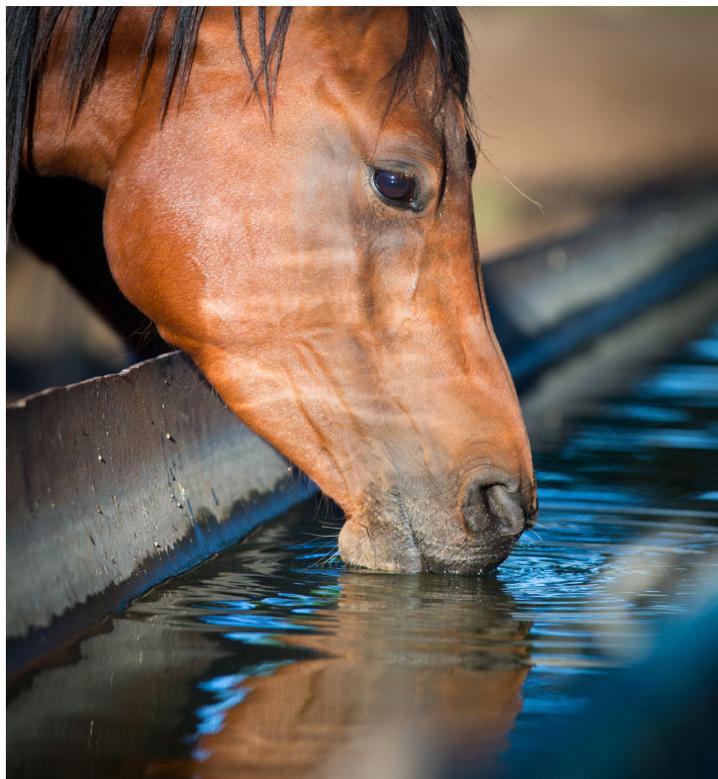
Ultrasonic Group meets the following standards

- RoHS-directive 2002/98/EC *transp. test report FMEC:RoHS:1306/53*
- EMC-directive 2004/108/EC *acc.test report FMEC:EMC:1306/53*
- LVD-directive 2006/98/EG



CONTROL UNIT (CU)

| | |
|---|---------------------------|
| Dimensions | 180 x 120 x 90 mm |
| Transducers / CU | 1 or 2 |
| Power supply CU | 12VDC 6,3 A |
| Power supply inlet | 100 - 240 VAC 50/60 Hz |
| Power consumption | 6W |
| To be mounted in an IP67 electrical cabinet | |



TRANSDUCERS

| | |
|----------------------|-------------------|
| Diameter (for pipes) | 50 mm (3kg) |
| Diameter (for tanks) | 63 mm (4kg) |
| Height | 110 mm |
| Protection index | IP69 |
| Temperature range | -30°C to 100°C |





ABOUT US

We firmly believe "going green" is not just an option, but the only way to move forward in an ever deteriorating world. The human is the only species that willingly and knowingly destroys its own habitat, as if it can be thrown away and it simply can move to another planet. Nowadays, clean technology has come to such a level of maturity, that it became the best economical solution. If every industry in the world would take in all the energy they need at the same point of time, not enough energy can be generated from fossil combustibles to supply all of it. Let alone in 20 years from now.

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