

## Harsonic® Product Range : different devices



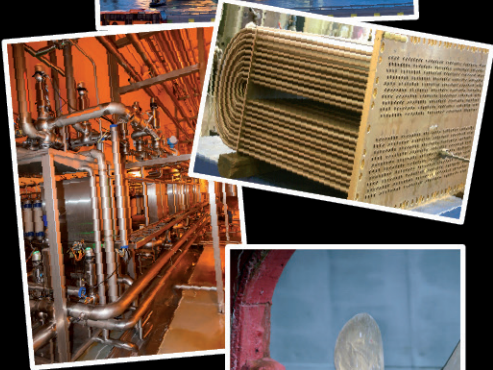
### Recreational Marine :

1. Harsonic® for BoatHull
2. Harsonic® for Propellers
3. Harsonic® for Gasoil tanks
4. Harsonic® for Watertanks



### Professional Marine & Offshore :

1. Harsonic® for Hull
2. Harsonic® for Propellers
3. Harsonic® for Tanks
4. Harsonic® for Boxcoolers
5. Harsonic® for Pipelines



### Industry :

1. Harsonic® for Cooling towers & Heat exchangers
2. Harsonic® for Industrial Tanks & Filters
3. Harsonic® for Industrial Pipelines

### Agriculture & Aquaculture :

1. Harsonic® for Tubes
2. Harsonic® for Tanks

### Open Waterstorage :

1. Harsonic® for Open Waterstorage (ponds, open tanks,..)
2. Harsonic for jacuzzi



# HARSONIC

## HARSONIC® INDUSTRIAL APPLICATIONS

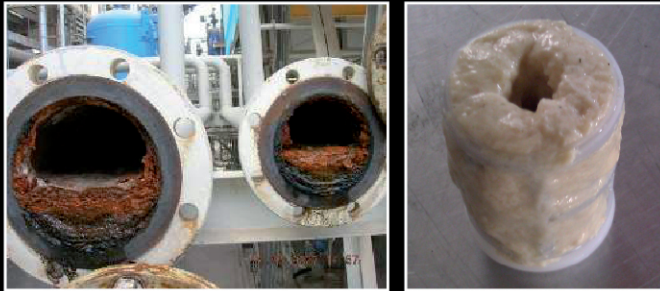
FOR PERMANENT  
BIOFILM REMOVAL  
WITHOUT CHEMICALS  
FOR PIPES, TANKS, FILTERS, ...



distributor for Harsonic®



www.Harsonic.com - info@harsonic.com  
Harteel bvba - Belgium



Rust, scale, fouling, ... in pipelines.

Biofilm in filter.

## TO CLEAN TANKS, PIPES, FILTERS, ...

Harsonic® completely cleans tanks, pipes, filters, walls for example in:

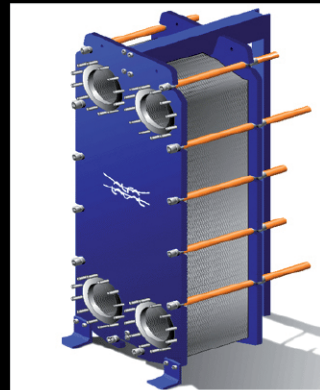
- » COOLINGTOWERS
- » HEAT-EXCHANGERS
- » MANUFACTURING PROCESSES IN FOOD INDUSTRY, PAPER-FACTORIES, GOLDMINES, ETC...



**WITHOUT ANY CHEMICALS but with highly powerful ultrasound devices:** Harsonic® devices are more than just ultrasound. They are improved with our **own unique HS-technique**. This technique is developed by our own engineers and guarantees the good result.



Coolingtower.



Heat-exchanger.

## POLLUTANTS IN WATER

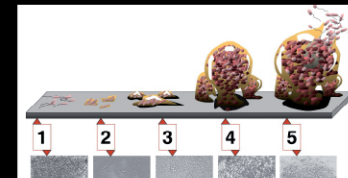
Water that is circulated, even in tap water, often contains pollutants that can cause a series of problems such as fouling, limestone formation, corrosion and biological growth.

## MICRO-ORGANISMS

Bacteria and other pathogenic micro-organisms are present everywhere in the environment. They can often be found in cooling tower water. When cooling towers contain an open recirculation system, micro-organisms can be spread from air to water. Micro-organisms & bacteria can rapidly multiply when a substrate is present. The perfect substrate for micro-organisms is BIOFILM.

## BIOFILM

We take pride that Harsonic® is the **undisputed leader in a mechanical system to remove biofilm and prevent all kind of fouling**. University studies have proven that Harsonic® gives the most stable result compared with peroxide or/and UV ([www.harsonic.com](http://www.harsonic.com))



As a result of biofilm formation, micro-organisms can attach themselves to surface layers. This biofilm layer allows micro-organisms to no longer be flushed away. Biofilms protect micro-organisms from toxic disinfectants. Water disinfection will be much more difficult when a biofilm is present.

Bacteria need a biofilm to develop, even legionella which develops between 20°C and 50°C. From 60°C on, they die. But when residing in biofilm they can survive up to 70°C. Inside the biofilm, Legionella bacteria are resistant against disinfectants. Workers in cooling towers, persons working in air conditioned rooms and people taking a shower are exposed to Legionella by inhalation, when the systems are not well maintained.

## BIOFILM CAUSES A NUMBER OF PROBLEMS, WHICH INCLUDE:

- » ATTACHMENT FOR MICRO-ORGANISMS, FOULING, LIMESTONE FORMATION, BIOLOGICAL GROWTH, ...
- » CLOGGING OR BLOCKING OF PIPES, FILTERS, ETC , ...
- » CORROSION OF THE WALLS: ANAEROBIC BACTERIA FORM SULPHIDE BYPRODUCTS, WHICH ARE CORROSIVE
- » AN INSULATION LAYER ON HEAT-EXCHANGE SYSTEMS, CAUSING THEM TO NO LONGER FUNCTION PROPERLY
- » OXYGEN DEFICIENCY IN THE SYSTEM
- » ORGANIC ACIDS, WHICH CAUSES A DECREASE IN PH



Harsonic® devices have a EMC certifiact which proves that Harsonic® devices have no influence on human beings nor on other electronic equipment.