



**Hilsonic**



**Ultrasonic** equipment for the **Heat Exchanger & Intercooler Industries**

The  
**Engineer's**  
Choice



## The Engineer's Choice

**HILSONIC** is the world's leading manufacturer of specialist ultrasonic equipment with over 25 years experience in the design and build of bespoke custom built equipment to suit any application.

Our patented generator technology features predetermined frequency sweep and twin tandem transducers capable of driving up to 2 metres in height with full cavitation, a most important feature in the cleaning of the larger intercooler and heat exchanger.

### What is **Ultrasonic cleaning**

The principle of the ultrasonic cleaning process is as follows. Piezo electric transducers are attached to the cleaning tank. They generate ultrasound waves that vibrate the cleaning fluid at very high velocity, creating a process called cavitation. Millions of tiny bubbles implode within the solution and penetrate into every orifice of the item being cleaned, removing dirt and grime.

### How does it work on **Intercooler/Heat Exchangers?**

Our process of ultrasonic cleaning works by producing millions of jets or streams of cavitation bubbles within a liquid, which collapse against any hard surface removing contaminated particles with each implosion. As these cavitation bubbles are smaller than one micron they penetrate into all areas of the intercooler/heat exchanger. Our patented frequency sweep move the cavitation bubbles up and down the item to be cleaned at a hundred times a second, ensuring no part of the item gets too much or too little cavitation.

Cavitation not only breaks down the contamination but also speeds up the chemical reaction time thereby not only cleaning to 'like new' standard but in a fraction of the time taken with more traditional methods.

This type of cleaning extends the life of the intercooler/heat exchanger and because it cleans to a 'like new' condition the downtime between cleans is reduced to the levels it was when the heat exchanger/intercooler was new. Methods that only partially clean quickly re-contaminate, leading to loss of efficiency and greater downtime.



### Before **and** After



## Product Range

MODEL	TECHNICAL SPECIFICATION
 <p><b>IST2000</b></p>	<ul style="list-style-type: none"> <li>● Internal Dimensions 500mm x 500mm x 300mm deep, constructed from 2mm high quality 316L stainless steel</li> <li>● Ultrasonically driven using 12 transducers bonded and mechanically affixed to the base</li> <li>● Powered by 1 FMG600 ultrasonic generator producing 600w PK, 1200w PK-PK, housed within the unit</li> <li>● Heating is applied using 2 x 1kw mat heater</li> </ul>
 <p><b>IST3000</b></p>	<ul style="list-style-type: none"> <li>● Internal Dimensions 1000mm x 1000mm x 1000mm deep, constructed from 2mm high quality 316L stainless steel with all joints double TIG welded</li> <li>● Ultrasonically driven using 36 transducers bonded and mechanically affixed to the base</li> <li>● Powered by 3 FMG600 ultrasonic generators producing 1800w PK, 3600w PK-PK, housed within the unit</li> <li>● Heating is applied using 3 x 1kw strip heaters</li> </ul>
 <p><b>IST4000</b></p>	<ul style="list-style-type: none"> <li>● Internal Dimensions 2000mm x 1500mm x 1500mm deep, constructed from 2mm high quality 316L stainless steel with all joints double TIG welded</li> <li>● Ultrasonically driven using 72 transducers bonded and mechanically affixed to the base and side walls to provide all round cleaning.</li> <li>● Powered by 6 FMG600 ultrasonic generators producing 3600w PK, 7200w PK-PK, housed in a separate control cabinet</li> <li>● Introducing our unique 'turbosonics' underwater jetting system incorporating a standard pump filtration system</li> <li>● Heating is applied using 1 x 9kw immersion heater</li> </ul>
 <p><b>IST5000</b></p>	<ul style="list-style-type: none"> <li>● Internal dimensions 3000mm x 2000mm x 2000mm deep, constructed from 2mm high quality 316L stainless steel with all joints double TIG welded.</li> <li>● Ultrasonically driven using 144 transducers bonded and mechanically affixed to the base and side walls to provide all round cleaning.</li> <li>● Powered by 12 FMG600 ultrasonic generators producing 7200w PK, 14400w PK-PK. housed in a separate control cabinet</li> <li>● Introducing our unique 'turbosonics' underwater jetting system incorporating a standard pump filtration system</li> <li>● Heating is applied using 2 x 12kw immersion heaters</li> </ul>

### Further information:

The transducers are built in house to a unique patented design to minimize erosion and provide all round cleaning operating at 30 kHz +/-2. The FMG600 generator features a frequency sweep for more uniform and intense cavitation, auto-follow to maintain power levels independent of loading, protected from over-voltage, over-temperature and mains born transients. With its high efficiency this generator requires no forced air cooling and directs the energy directly into the transducers.

## Bespoke Solutions



Due to the vast variation within the industry, in addition to our 4 distinct standard systems Hilsonic also offer a unique bespoke service working closely with the requests of the

client to manufacture high quality systems to accommodate this diversity.

Hilsonic's ultrasonic cleaning systems offer a multi-purpose solution to the cleaning requirements of both the power generation and marine industries including the cleaning / decarbonising of engine parts such as pistons, valves, injectors, cylinder heads, engine blocks etc...

Hilsonic supply a range of cleaning tanks suitable for most 4-Stroke engine cooler cleaning applications including:

- Wartsila
- Bergen Diesel / Rolls Royce
- Paxman
- Ruston Diesel
- Caterpillar
- MAN B&W Holby
- Pilstick
- Sulzer
- GMT / Fiat.

# Hilsonic Accessories

## Chemicals

**The ultrasonic cleaning business is in constant evolution, with new applications requiring special ultrasonic cleaning solutions almost every day.**

Hilsonic have always been at the forefront of ultrasound chemistry development, with special processes including the breaking down of particles, liquid sanitising and the decontamination of mining waste.

Special partnerships are in place with leading authorities in ultrasound technology and research so that ultrasonic solutions can be found for virtually any cleaning problem. Basic component degreasing to heavy duty decarbonising, Hilsonic will find the solution.

## Sonic Marine

**Sonic Marine is our new specially formulated chemical additive for use in ultrasonic cleaners for the cleaning, descaling and decarbonising of intercoolers and heat exchangers.**

Sonic Marine is a highly cost effective concentrated Phosphoric based chemical Clean Heat Exchanger After Cleaning that can be diluted as low as 5% and is available in 25L and 205L containers.

In addition Sonic Marine also acts as a good degreasing agent and is also used as a degreaser/decarboniser of engine components including pistons, valves, cylinder heads etc...

For further information please contact our sales team today

## Oil Skimming



## Pumps and Filters



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