UltraSonic ANTIFOULING LTD

Sea Chest and Seawater Pipework

Antifouling Solutions for Superyachts

Prevent fouling, reduce cleaning and maintain flow in your sea chest and seawater pipe system

The problem of bio-fouling in sea chests and pipework

The attachment of marine growth such as bio-film, barnacles and mussels leads to partial and complete blockages in the seawater cooling system. This has a dramatic effect on engine running temperatures, increasing fuel consumption.

Other critical on-board systems vital to a yacht's effective and safe operation are also affected by a reduced flow of seawater. Removing blockages can be time consuming and expensive, especially where sections of pipe need removing for cleaning or replacement due to excessive corrosion caused by marine growth.

How it works

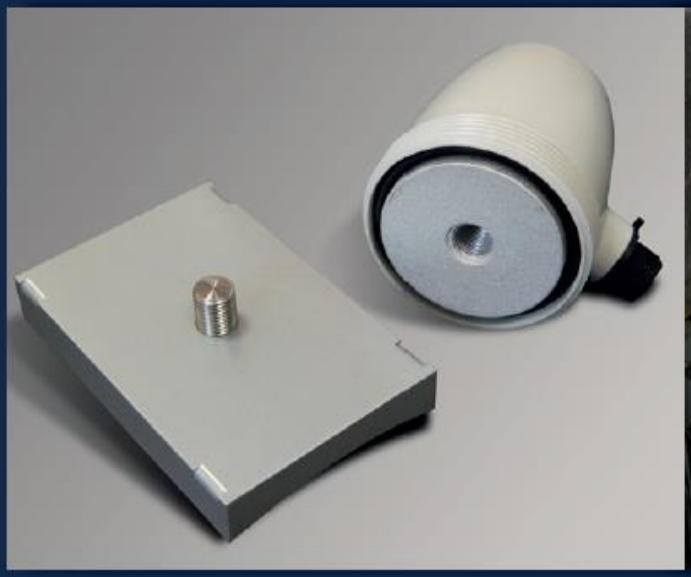
Ultrasonic Antifouling's **Ultra***System* has proven highly effective in preventing blockages in sea chest systems and seawater pipework. Using precise and scientifically proven frequencies, the **Ultra***System* creates an environment of resonating sound waves that target the unicellular micro-organisms and bacteria that form bio-films on underwater surfaces.

Ultrasonic sound waves resonate in the sea chest and pipe walls disrupting barnacle and mussel larvae settlement. Instead of attaching themselves to the sea chests, strainers, manifolds and pipework on which ultrasonic transducers are installed, these organisms and larvae pass through to the discharge point. The environment created also causes mortality, preventing further development.

Without a Marine Growth Prevention System (MGPS), sea chests and seawater pipes will very quickly be colonised by growth - creating partial or complete blockage of the seawater cooling system - significantly reducing their efficiency.

The benefits of the **Ultra***System* Sea Chest and Seawater Pipework Antifouling Solutions for Superyachts;

- Prevents blockages and maintains the flow of seawater to essential on-board systems
- Reduces maintenance for cleaning of filters and pipes
- Completely maintenance free. Because we don't use anodes there are no changeable parts
- Cost effective with transducers lasting more than 5 years
- Easy to install



Simple and straightforward installation

Installation is clean, simple and can be undertaken without dry-docking the yacht. There is no need to drain down the sea chest or pipework and no drilling is necessary to install the transducers. Depending on the yacht's specific fouling issue, transducers can be installed on the following system components:

- Sea chests
- Seawater intake pipes
- Filter/strainer units
- Manifolds
- Seawater pipes for engine cooling, air-conditioning and fire pumps

Ultrasonic antifouling is suitable for steel, cupro-nickel, aluminium and GRP sea chests and pipework. Transducer brackets designed and engineered to suit the exact diameter of each pipe, filter and manifold unit are bonded directly onto the outer surface. These brackets maximise the ultrasound transmission from the flat transducer face onto the curved surface of the parts to be protected against bio-fouling.
The ultrasonic control unit simply mounts onto a bulkhead or control centre panel and connects to a power supply.

Why choose Ultrasonic Antifouling Limited?

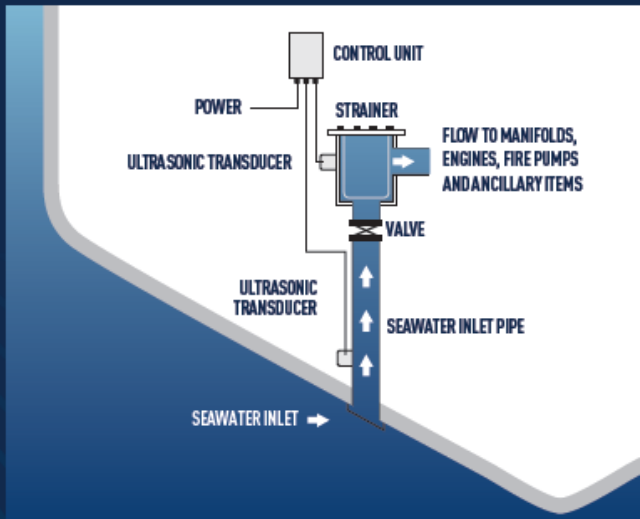
Ultrasonic Antifouling Limited has been providing market leading antifouling solutions for hulls since 2007. More recently the application of this technology to sea chest systems and seawater pipes has proven extremely successful in maintaining a clear water flow to critical on-board systems. This reduces maintenance time - specifically for the cleaning of filters and pipes - freeing up time for engineers to devote to other tasks.

Other systems can be expensive to maintain and require new components on a regular basis. The **Ultra***System* is maintenance free and the transducers' advanced technology means they will be effective for more than 5 years.

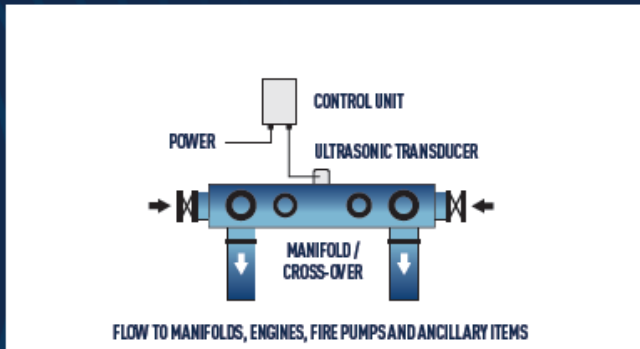
The **Ultra***System* is successfully in use on many superyachts including Baltic, Heeson, CBI Navi, Ferretti as well as the Sunseeker 155 Yacht. As world leaders in the provision of ultrasonic antifouling systems, Ultrasonic Antifouling Limited can provide expert advice on your specific installation.

For more information on our complete Marine Growth Prevention Systems call +44 (0) 1202 606 185 alternatively you can email us at info@ultrasonic-antifouling.com

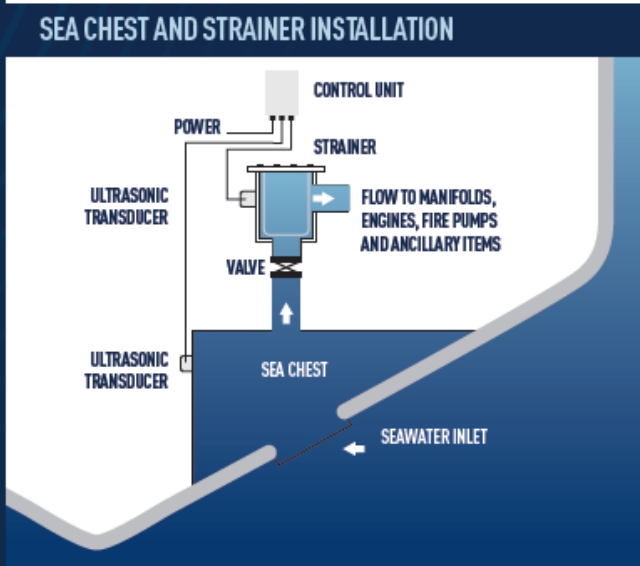
SEAWATER INLET PIPE AND STRAINER INSTALLATION



MANIFOLD INSTALLATION



SEA CHEST AND STRAINER INSTALLATION



What engineers have been saying...

"I took over the vessel from the previous engineer and he had installed the Ultrasonic Antifouling system to the strainers of the vessel. At first I was sceptical as to what effects it would have if any, I soon realised from previous vessels of this size that the system works well in several ways.

1. Cleaning of the sea strainers is usually required every 2-3 weeks. This has been extended to 8-10 weeks, allowing me to concentrate on other items around the vessel.

2. The effort required to clean the sea strainers is next to nothing as the actual marine growth is minimal, if the water ways contained less rubbish I am sure I could wait for as long as 12 weeks.

3. The unit is small, maintenance free and environmentally friendly.

I have recommended this to many people and continue to do so. This is a great product and I am now fitting another unit to the main sea chest to reduce the yard periods in the required removal of the piping every 2 years. Being an aluminium vessel it is very hard to find a good product that does not impress current in the hull and have the risk of creating corrosion. This is a great product."

Chief Engineer M/Y JEMS
Heesen 44m Motor yacht, Antibes, France

"The sea water inlets were in good condition throughout last year and not full of marine life since your ultrasonic kit was fitted. The yacht was hauled out last fall and I have attached a picture of the intake pipe showing this. We were launched in early May and when I checked the strainers last week they were spotless. Please see attached picture of the portside sea strainer as it looks now after two months in the water, I think that is a very good result! "

Chief Engineer Officer M/Y Metsuyan IV
CBI Navi 36m Motoryacht, Mediterranean

Our ultrasonic antifouling system is now successfully operating in more than 60 countries. Visit our website at www.ultrasonic-antifouling.com for more information and to read what our customers are saying.

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UltraSonic
ANTIFOULING LTD
UltraSystem
...PowerPlus
The most advanced and powerful ultrasonic antifouling technology on the market
FOR SAILING YACHTS, MOTORYACHTS AND SUPERYACHTS

Why choose the Ultra*System* PowerPlus?

The very latest in the Ultrasonic product range is the **Ultra***System* PowerPlus which has been specifically designed with larger yachts and superyachts in mind. Yachts moored in warm climates where fouling is more prolific can achieve significantly higher levels of anti-fouling protection all year round.

The **Ultra***System* PowerPlus is the result of 3 years of research, development and comprehensive testing. This revolutionary new product combines our intelligent and unique ultrasonic software with our advanced digital control program (ADCP) which has the ability to deliver the precise level of ultrasound output to 3 or 4 transducers simultaneously while monitoring temperature, voltage and output loads.

The **Ultra***System* PowerPlus takes Ultrasonic Antifouling to a whole new level eradicating waterborne unicellular micro-organisms that otherwise would attach to create bio-film (slime) and algae growth. The ultrasound generator and control program of the **Ultra***System* PowerPlus has been extensively developed to provide a higher concentration of ultrasound levels to prevent bio-fouling on the hull and sea chest systems.

- The **Ultra***System* PowerPlus delivers more than twice the ultrasound output compared to Series II. Making it the most powerful system available on the market.
- PowerPlus simultaneously delivers output to 3 or 4 transducers.
- PowerPlus uses a wide range of key frequencies between 20 – 140Khz. This is unique to the **Ultra***System.*
- PowerPlus uses high quality 50w multi-frequency mounted piezoelectric crystal transducers.
- The **Ultra***System's* unique program has been developed in a collaboration with engineers and marine biologists at some of Europe's leading universities.
- PowerPlus is manufactured in Europe using high quality components.
- The **Ultra***System* PowerPlus is available as a full custom designed system for hull and sea chest fouling protection.

Specifications

Control unit
Input voltage: *24vdc (12v option available).*

Frequency range: *20 – 140Khz*

Dimensions: 250mm (w) x 160mm (h) x 92mm (d).

Power consumption:
3 transducers – 2.5amps/hr (60W); 4 transducers - 3.4amps/hr (80W).

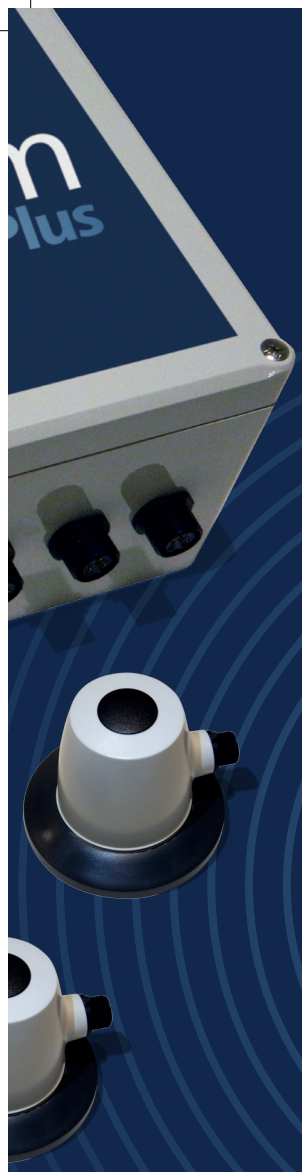
Warranty: *2 years.*

Transducer
50 Watt multi-frequency, IP68 waterproof.

Options: *a) Standard face (mounting ring attachment);*
b) Tapped face (bolt attachment).

Warranty: *5 years.*

Cable length: *8m (standard).*
Options: *10m; 15m and 20m.*
Total permissible combined transducer cable length in system is 75m.



Ultrasonic Antifouling Ltd.

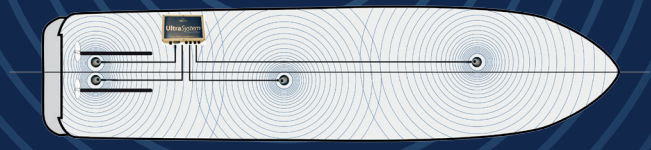
Ultrasonic Antifouling Ltd., the world-leading manufacturer and developer of the original ultrasonic antifouling system introduces the revolutionary new **Ultra***System* PowerPlus. Since we first introduced Ultrasonic Antifouling Technology to the boating market in 2007, it has developed into THE most effective way to maintain hull performance, save fuel and increase the time your yacht spends in the water. More recently, its application in sea chest systems on Superyachts is proving beneficial at maintaining a clear water flow to critical on-board systems.

The use of ultrasound is an innovative and advanced method for protecting your hull and sea chest system from fouling using low power, high frequency sound waves to destroy algae and prevent weed and barnacle growth.

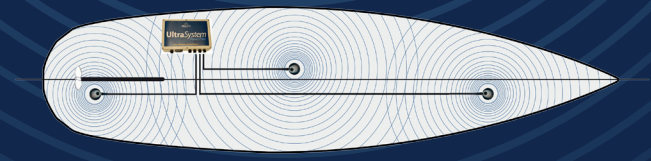
It works by emitting a unique range of specific and scientifically researched, low powered, pulsed ultrasonic frequencies via transducers that are installed on the inside of the hull or onto the sea chest pipes, filters and manifolds.

Sample sytem configuration

Motoryacht 16 - 22m waterline (LWL)
PowerPlus – four transducer system



Sailing yacht 16 - 22m waterline (LWL)
PowerPlus – triple transducer system



PowerPlus delivers twice the ultrasound output when compared to the **Ultra***System* **Series II**.

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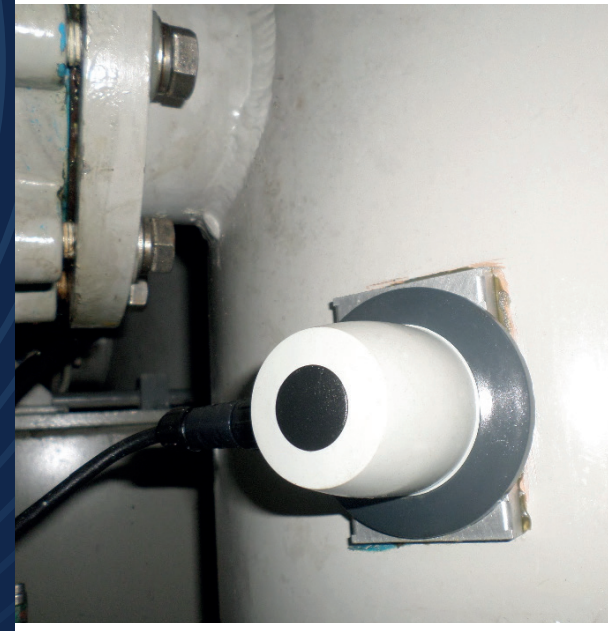
Sea Chest Protection

The **Ultra***System* was developed to provide the same high level of protection against the fouling issues experienced with blocked intakes, strainers and pipes for sea chests.

Using bespoke engineered transducer mounting brackets for each application, maximum sound wave transmission is achieved into the parts to be protected. The **Ultra***System* keeps these critical parts much clearer for longer, reduces maintenance and keeps critical on-board systems running efficiently.



Single transducer fitted with bracket on a sea chest pipe.

The **Ultra***System* PowerPlus utilises proven, world leading technology to provide the best protection for your vessel.

Ultrasonic Antifouling are a team of highly knowledgeable experts and market leaders in this field so to find out how we can provide the best configuration to fully protect your vessel just call the number below.

"The Ultra systems have definitely been worth their weight on board the yacht 'Nilaya' over the last two years and the difference it makes to the growth on the bottom of the boat has been unbelievable!"

S/Y Nilaya - Baltic 112ft yacht

Our ultrasonic antifouling system is now in successful operation in over 60 countries. Visit our website at www.ultrasonic-antifouling.com for more information and to read what our customers are saying.

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