

# MARINE NOISE CONTROL

Calming the waves



Acoustic, fire and thermal insulation specialists



## Marine noise control

Modern performance motoryachts are creations of beauty and power. That power comes with a price, as engine performance increases so do sound levels. Once that sound energy is transmitted into the hull and other internal structures onboard it can become all pervasive, especially once the engine is at full throttle.

Sound power levels of 120dB are not uncommon in the engine room and the dominant frequencies can be found as low as 125Hz or even 63Hz. Low frequencies such as these are incredibly difficult to treat due to the huge amount of energy contained in their massive wavelengths (2.74m & 5.44m respectively).

SIDERISE has over 40 years experience in acoustics and noise control which when combined with extensive research and development, means that we can deliver engineered solutions to the unique challenges of the marine environment.

### Acoustic product range

SIDERISE acoustic products have been developed over a number of years and Third-Party tested to certify their performance. SIDERISE has been providing noise control solutions throughout Europe within the industries of power generation, wind turbines, automotive, HVAC, rail and marine. SIDERISE technical experts can tailor the material performance directly to the controlling frequencies of your application.

### Applications

- Engine room noise control
- Bulkhead & deck acoustic solutions
- Underfloor treatments
- Cabin / saloon acoustic insulation & absorption
- Compressor & genset noise control
- Hull acoustic & thermal insulation
- Acoustic seals & gaskets

### Benefits

- Engineered acoustic performance
- Optimum frequency attenuation at cruising speed
- Lowest possible weight
- Fire safety – fully RCD, MCA & Lloyds approved
- Aesthetic design
- Bringing comfort, security and protection to all passengers and crew



Having worked with the best companies in the European boat building industry, we've gained an intimate understanding of the unique challenges that marine craft noise control presents.

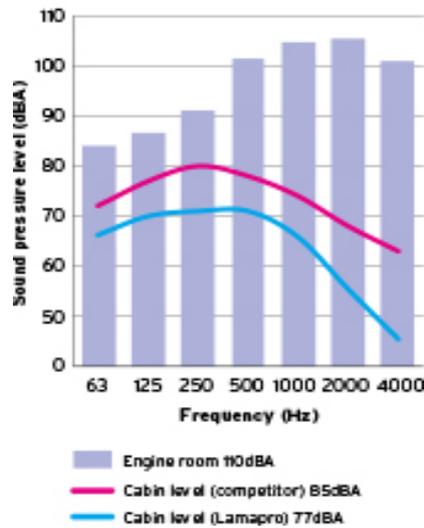
## The noise control challenge

The number one challenge with marine noise control is the structure of the craft itself. The engine creates high levels of sound energy which are transmitted into the GRP shell and become trapped in a confined space. With only light weight structures to insulate the occupants from this noise, it can quickly detract from the 'yachting experience'.

Historically, a lack of application of scientific acoustic theory regarding the many conflicting demands of marine craft, have caused other manufacturers to recommend simply adding more square metres of these products and more mass, without having a full understanding of the nature of the vessel's demands.

### Our solution

We understand that yacht builders want to maximise space, minimise weight and deliver maximum performance for their clients. SIDERISE sets out to deliver engineered performance keeping both large voids and mass to a minimum. Our innovative acoustic laminates can achieve previously unseen levels of acoustic attenuation at low frequency.



“We understand that yacht builders want to maximise space, minimise weight and deliver maximum performance to their clients.

Our marine insulation solutions provide them with exactly what they are looking for.”

### Controlling the noise

- Absorption – modern low density foam composites tuned to ultimate dominant frequencies
- Isolation – localising sound energy permits the most efficient reduction
- Insulation – mass used only where it is most effective
- Damping – to make the most efficient use of the mass employed

### Acoustic design

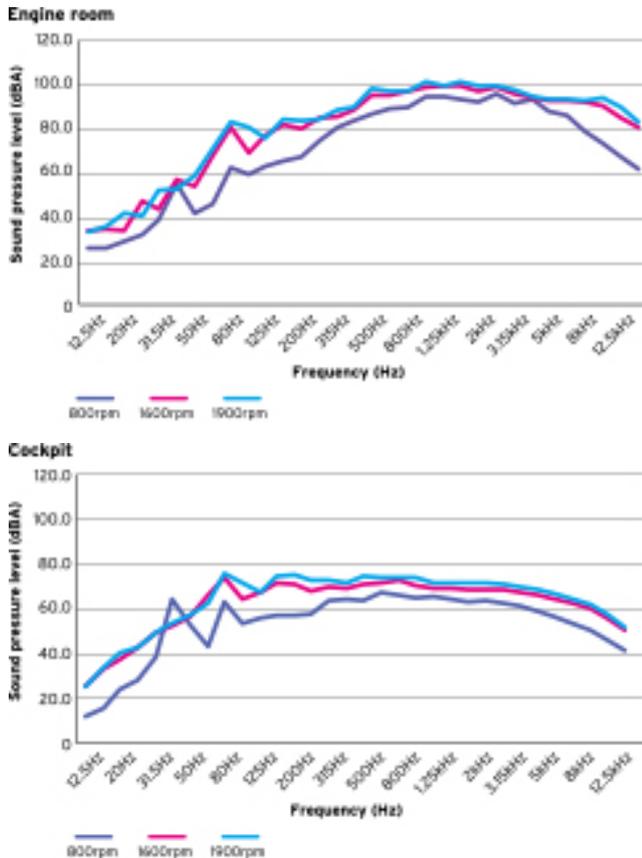
By working with the yacht design team, SIDERISE can 'build in' acoustics from the outset. This is much more efficient than a retrospective application of materials which can be more costly. We can deliver the ultimate balance between acoustic performance, weight and cost.

Modern advancement in materials and SIDERISE's commitment to continued research and development has yielded solutions that are tuned to the challenges of the marine environment.



Sound transmission & vibration within the craft can result in hearing loss, anxiety, stress, fatigue & sleep deprivation. This can be prevented using specialist insulation & sound proofing techniques.

## Improving acoustic performance



The controlling frequencies found within the engine room are not likely to be the dominating frequencies experienced within the occupied spaces. Use of predictive analysis and our extensive knowledge of the materials and the constructs involved, allows us to determine which

frequencies would become dominant in these spaces. Once this has been determined, it can be controlled at source by utilising tuned absorption.

Engines, props, compressors, gensets, and even structural elements can be isolated and de-coupled to prevent all elements creating a cacophony of sound, driven to the beat of two or more diesel engines.

The bulkhead and deck can have damping incorporated within them to utilise constrained layer theory and remove coincidence dip, thereby delivering maximum performance per kg.

The saloon and cabin materials can be designed with acoustic performance in mind to utilise natural absorption where possible and lower the cabin pressure levels in order to create a more comfortable space for all.

## Technical specification

- RCD & Lloyds approval
- Fuel & oil resistant facing
- Class 0 fire rated surfaces (BS476-7)
- All materials tested to ISO 4589-3 (oxygen index – elevated temperature)
- Compliant to ISO 9094-2 Fire Protection for craft with a hull over 15m
- Bulkhead performance up to Rw 54dB (EN ISO 717-1)

## Fire performance

SIDERISE can also offer B15 & A60 firebreaks for bulkheads and decks in accordance with RINA / MCA LY3 for charter vessels and yachts over 24m in length.

## Products available

The following SIDERISE products are available:

- SIDERISE Marine Noise Control (M-NC)
- SIDERISE Marine Fire Protection (M-FP)
- SIDERISE Marine Thermal Insulation (M-TI)

Contact our Marine team for sales & technical support ...



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