

# MARINE NOISE & HEAT CONTROL



**CELSUS**   
we deliver enjoyment



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# WHO WE ARE

## OUR STORY

Dynamat, Inc. is a privately held corporation located in Hamilton, Ohio, USA. Established in 1989, the company markets acoustic environmental solutions for Automotive, Marine, Architectural and Commercial applications.

## OUR PRODUCTS

Dynamat's patented formulas offer unmatched performance across multiple industries, backed by independent testing. Dynamat solutions are designed to eliminate unwanted noise and heat to deliver a more enjoyable experience.

Dedicated to absolute product quality, overseeing every aspect from their U.S. headquarters for **"better sound everywhere"**.



## OUR NETWORK

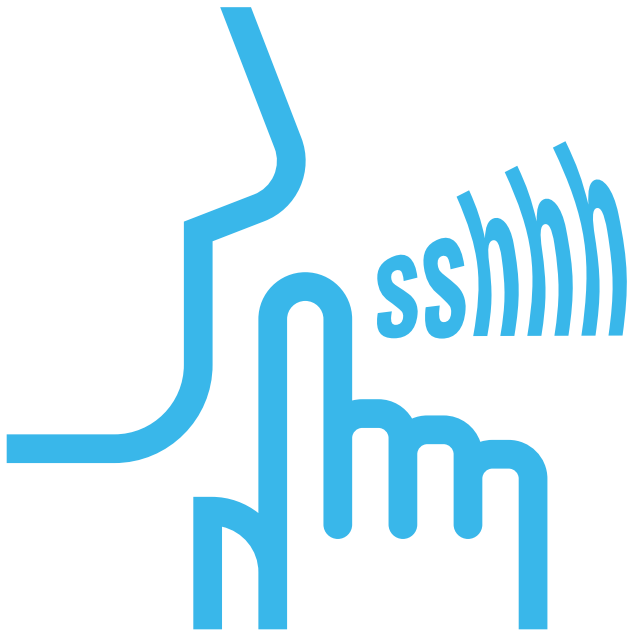
In 2010, Celsus UK Limited became Dynamat's European distributor, expanding the expert sales network. Established in 2003, Celsus UK is a trusted UK-based distribution specialist known for their service-focused approach and deep product knowledge. Since 2014, Dynamat products have gained prominence in the European marine sector.





# OUR MISSION

## THE PURPOSE



## REDUCE UNWANTED NOISE & VIBRATION

CREATE A NEUTRAL &  
COMFORTABLE ACOUSTIC  
ENVIRONMENT ONBOARD



**GUARANTEE ENJOYMENT ONBOARD, EXCEED EXPECTATION**

**MANAGE WHAT CANNOT BE ELIMINATED, FOCUS ON COMFORT**

**CRAFT THE BEST POSSIBLE EXPERIENCE FOR BOAT ENTHUSIASTS**

**FINEST BOATING ADVENTURES, IMPROVED ENTERTAINMENT**

## DID YOU KNOW

The World Health Organisation (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Acoustic comfort ensures undisturbed activity, safeguards hearing, promotes mental well-being, and enhances productivity and focus by minimizing noise-related disruptions and psychological stress.

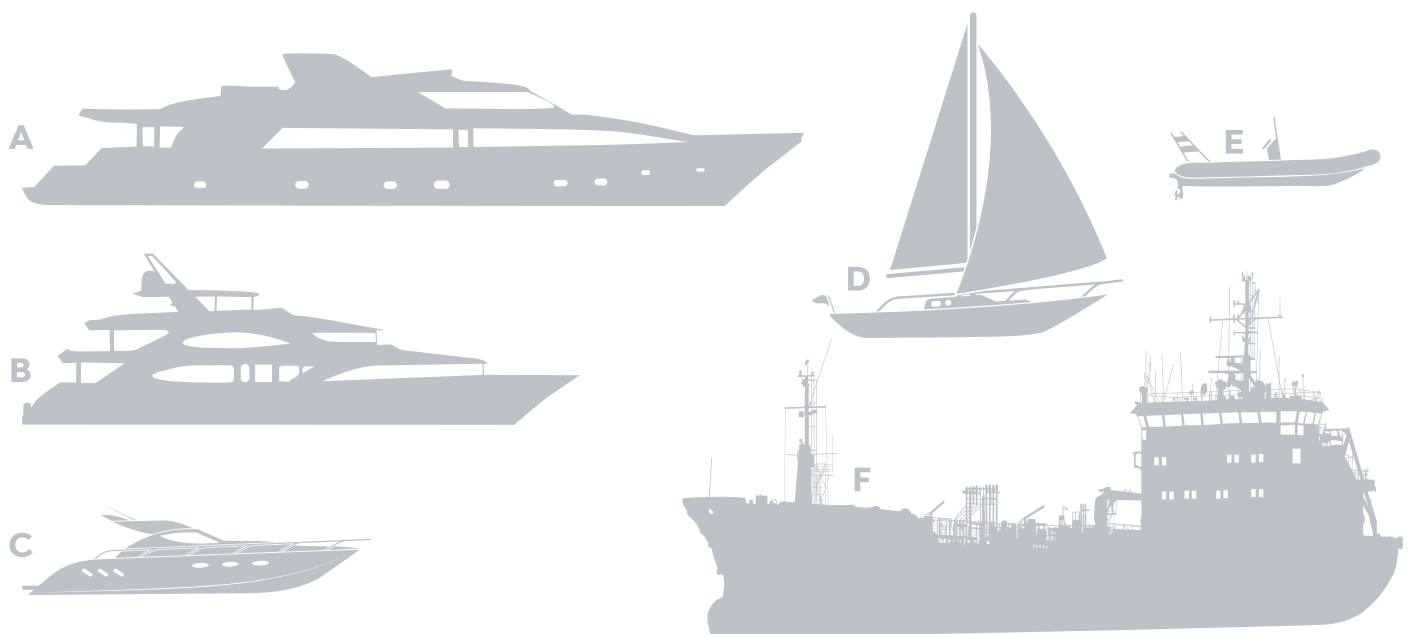
# APPLICATIONS

## EUROPEAN STYLE BOATS

TACKLING NOISE ON A DIVERSE RANGE OF VESSELS  
REQUIRES A MIX OF SOLUTIONS

## LEISURE & COMMERCIAL

AT WORK OR ENTERTAINING ONBOARD, BOATER  
SAFETY & ENJOYMENT IS VITAL



- (A) MEGA YACHTS
- (B) SUPER YACHTS
- (C) MOTORBOATS

- (D) POWERED SAIL BOATS
- (E) RIGID INFLATABLES
- (F) COMMERCIAL VESSELS

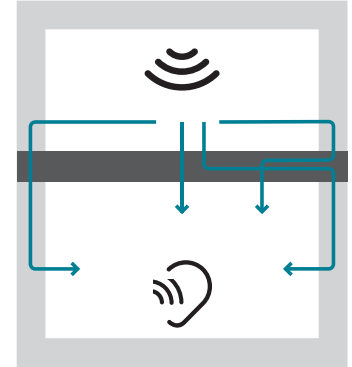
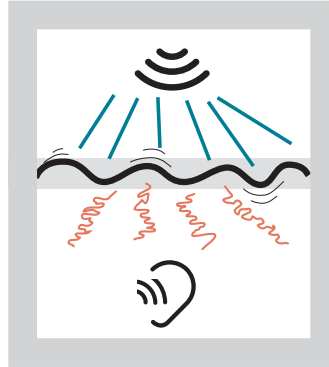
**EXPERTISE  
ON HAND**

NOISE SOURCE, LOCATION & SOLUTION WILL  
DIFFER BY VESSEL STYLE OR SIZE. OUR EXPERT  
TEAM ARE ON HAND TO CONSULT & ADVISE  
THE BEST SOLUTION FOR YOUR APPLICATION.

# NOISE SOURCES

## **NOISE** (NOUN)

A sound, especially one that is loud or unpleasant or that causes disturbance



## **NOISE FROM VIBRATION**



## **ONBOARD CONDUCTED NOISE**



## **AUDIO / SOUND MIGRATION**

## **COMMON SOURCES**

**ENGINE ROOMS & COMPARTMENTS**

**GENERATORS**

**THRUSTERS**

**PUMPS & EQUIPMENT**

**DECK / CABIN AREAS**

**WAVE SLAP**



**"ANNOYING UNDESIRABLE SOUND"**



# SCIENCE OF SOUND

## SOUND OR NOISE?

SOUND IS WHAT WE HEAR. NOISE IS UNWANTED SOUND

### SOUND

When this pressure wave reaches our ear, the signal is translated through a complex series of organs into a nervous stimulus. This finally becomes the feeling of sound we experience every day.



### NOISE

Related to the subjective judgement of a listening experience; it is commonly defined as an unwanted sound that disturbs the ongoing activities in our daily lives.

**AIRBORNE NOISE:** the medium carrying the sound energy is air.

**STRUCTURAL NOISE:** the sound crosses the structure carrying the vibrations from room to room, even when not adjoining

130dB	PLANE TAKE-OFF	140dB	PAIN, DAMAGE TO HUMANS
120dB	AMBULANCE SIREN	130dB	INTENSE DISCOMFORT PAIN
110dB	CLUB, CONCERT	120dB	STRONG DISCOMFORT
95-100dB	TRAIN PASSING	100dB	DISCOMFORT
85-90dB	HEAVY TRAFFIC	80dB	MODERATE DISCOMFORT
60-70dB	NOISY OFFICE	40dB	LACK OF CONCENTRATION
50dB	HOUSEHOLD	20dB	QUIET, SILENCE
35-40dB	FAN	0dB	AUDIBLE THRESHOLD
25-30dB	LIBRARY		
10-15dB	WHISPERING		



# TERMINOLOGY

## IMPORTANT TERMS

### UNDERSTANDING HOW WE TACKLE THE NOISE

<b>DAMPING</b>	A reduction in the amplitude of a vibration as a result of energy being dissipated as molecular level heat, changing one form of energy into another
<b>DECOUPLING</b>	To separate or dissociate (something) from something else to make it harder for sound to pass through
<b>BLOCKING</b>	Reduction in the transmission of unwanted direct sound waves from the source to an involuntary listener through the use of intervening objects in the sound path
<b>ISOLATION</b>	The property of blocking off outside sound through use of materials that reduce sound transmission from the exterior environment into the interior environment
<b>ABSORPTION</b>	Refers to the process by which a material, structure, or object takes in sound energy when sound waves are encountered, acting as a 'sound wave sponge'
<b>DIFFUSION</b>	Process of using a material that scatters sound in different directions eliminating pockets of noise
<b>REFLECTION</b>	The repetition of a sound resulting from reflection of the sound waves against a medium
<b>ATTENUATION</b>	Is a measure of the energy loss of sound transmission in a medium

# OUR SOLUTIONS

## DYNAMAT XTREME

### CONSTRAINED-LAYER DAMPING MATERIAL

PATENTED FORMULA BUTYL WITH AN ALUMINIUM TOP LAYER  
1.7MM THICKNESS WITH A WEIGHT OF 2.2 KG/M<sup>2</sup>

**COMBATS:** Vibration

**CONTROL METHOD:** Damping

**APPLY TO:** Glass reinforced plastic (GRP), metal & solid substrates  
Full coverage optimal, 30% upwards sufficient

**FIXING METHOD:** Self-adhesive (peel and stick) & roller tool.  
Always install Xtreme first, direct to substrate

**APPLICABLE TO VESSEL TYPES:** A-F (see pages 6 & 7)

**PERFORMANCE:** Acoustic loss factor 0.417 @ +20°C  
(Using astm method E756 @ 200 Hz)  
[Theoretical maximum loss factor is 1 (no vibration)  
undamped 1mm thick steel panel loss factor is 0.001]



#### STANDARDS:

Meets FMVSS302 (ISO3795)  
Meets Salt fog corrosion ASTM B117

#### PACK TYPE(S) & SKU DETAIL:

##### Industrial Pack (DYN-ID1001)

9 sheets at 609mm x 1219mm  
Total Coverage: 6.68 M<sup>2</sup>

##### Utility Pack (DYN50400)

24 pcs at 100mm x 254mm  
Total Coverage: 0.62 M<sup>2</sup>





# OUR SOLUTIONS

## DYNAMAT DYNACORE

### BLACK CORE THERMO-ACOUSTIC FIBER

PROPRIETARY FIRE-RESISTANT FIBER BLEND WITH PET SCRIM FACING.  
RESISTANT TO MOISTURE, UV & FUEL - LIGHTWEIGHT & COMPRESSABLE

#### COMBATS:

Sound transmission, thermal transfer

#### CONTROL METHOD:

Blocking, isolation, absorption & insulation

#### APPLY TO:

On top of Xtreme – or direct to any solid substrate  
Full coverage required

#### FIXING METHOD:

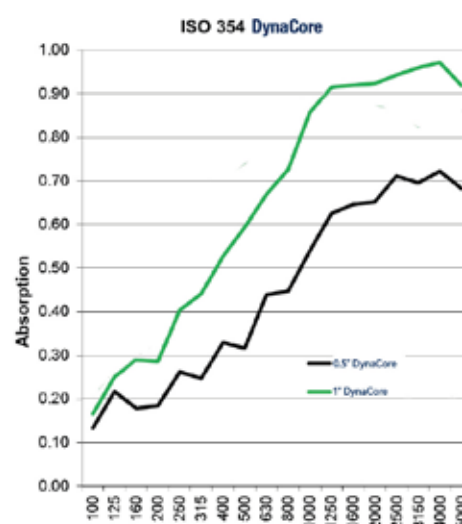
Self-adhesive (peel and stick) & roller tool.  
Always install Xtreme first, direct to substrate

#### APPLICABLE TO VESSEL TYPES:

A-F  
(see pages 6 & 7)

#### PERFORMANCE:

Absorption coefficient  
0.97 @ 4KHz  
(To ISO354,  
1" Dynacore)



#### STANDARDS:

Meets FMVSS302 (ISO3795), UL94,  
UL HF1, UL HBF standards.  
Meets Salt fog corrosion ASTM B117.

#### PACK TYPE(S) & SKU DETAIL:

**1/2" Dynacore (DYN11901)**

**1" Dynacore (DYN11902)**

1 sheet at 810mm x 1370mm

Total Coverage: 1.12 M<sup>2</sup>

## DYNAPAD

### HEAVY-DUTY 4 LAYER COMPOSITE BARRIER

TWO LAYERS OF SOUND-SOAKER ACOUSTIC FOAM, A VINYL BARRIER & WATERPROOF POLYURETHANE FACING  
9.53MM THICK WITH A WEIGHT OF 6.49 KG/M<sup>2</sup>

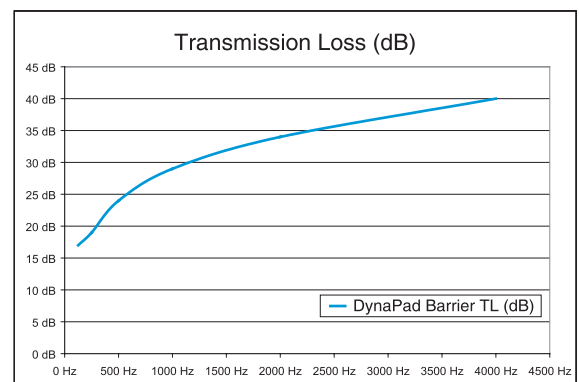
**COMBATS:** Conducted noise, low frequency sound transmission, heat transfer

**CONTROL METHOD:** Decoupling, blocking, attenuation, isolation, absorption & dissimilar layer insulating

**APPLY TO:** On top of Xtreme – any solid substrate  
Full coverage required

**FIXING METHOD:** Spray adhesive and /or mechanical fix

**APPLICABLE TO VESSEL TYPES:** A - F (see pages 6 & 7)



#### PERFORMANCE:

Sound transmission class (STC) rating 28

#### STANDARDS:

Meets FMVSS302 (ISO3795),  
UL94-V0 (barrier) & UL94HF (foam)

#### PACK TYPE(S) & SKU DETAIL:

##### **Dynapad (DYN21100)**

1 sheet at 813mm x 1372mm

Total Coverage: 1.11 M<sup>2</sup>

# OUR SOLUTIONS

## DYNALINER

### ULTRA-LIGHTWEIGHT CLOSED CELL SYNTHETIC RUBBER

THERMAL INSULATOR, ACOUSTIC ABSORBER & ISOLATOR  
AVAILABLE IN 3 THICKNESSES

<b>COMBATS:</b>	Sound transmission, thermal transfer
<b>CONTROL METHOD:</b>	Acoustic isolation, absorption, insulation
<b>APPLY TO:</b>	On top of Xtreme – any solid substrate Full coverage required
<b>FIXING METHOD:</b>	Self adhesive with high temp acrylic adhesive
<b>APPLICABLE TO VESSEL TYPES:</b>	A - F (see pages 6 & 7)
<b>PERFORMANCE:</b>	R-value (thermal resistance) 0.07KM <sup>2</sup> hr/w, 0.15KM <sup>2</sup> hr/w & 0.3KM <sup>2</sup> hr/w respectively
<b>STANDARDS:</b>	Meets FMVSS302 (ISO3795), UL 94 HF-1 (DYN11101 & DYN11102), UL 94 HBF (DYN11103)



#### PACK TYPE(S) & SKU DETAIL:

**1/8 (DYN11101)** 1 sheet 813mm x 1372mm  
Total Coverage: 1.11 M<sup>2</sup>  
3.18mm thick & 0.21KG/M<sup>2</sup> weight

**1/4 (DYN11102)** 1 sheet 813mm x 1372mm  
Total Coverage: 1.11 M<sup>2</sup>  
6.35mm thick & 0.41KG/M<sup>2</sup> weight

**1/2 (DYN11103)** 1 sheet 813mm x 1372mm  
Total Coverage: 1.11 M<sup>2</sup>  
12.7mm thick & 0.82KG/M<sup>2</sup> weight



## DYNABOX

### A UNIQUE RETROFIT-ABLE CEILING SPEAKER ENCLOSURE

ACOUSTIC BARRIER, SOUND SNAKE & BACK-WAVE FOAM

**COMBATS:** Audio migration, back-wave distortion, moisture ingress

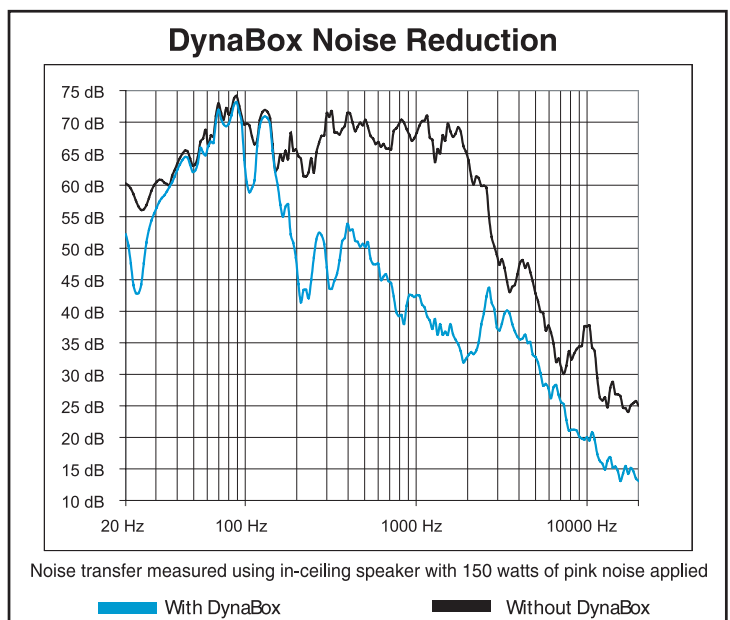
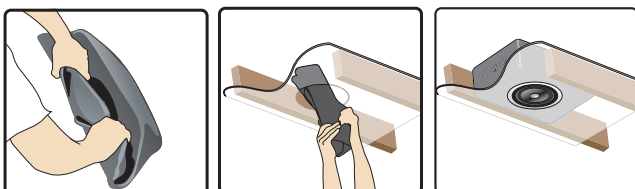
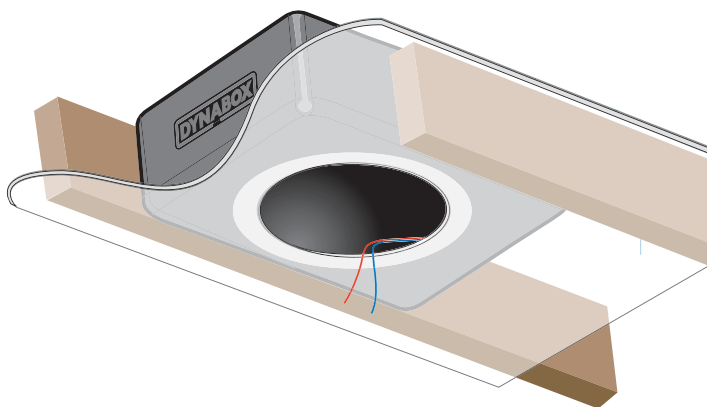
**CONTROL METHOD:** Blocking, decoupling, absorption, diffusion

**INSTALL:** In-ceiling behind loudspeakers (space permitting)

**FIXING METHOD:** Gravity & adhesive (not supplied)

**APPLICABLE TO VESSEL TYPES:** A & B  
(see pages 6 & 7)

**PERFORMANCE:** STC 28  
(Vinyl Enclosure & Dynil)



### STANDARDS:

Meets UL94 HF-1  
(Sound snake & back-wave foam)  
Meets UL94-V0 (Dynil in sound snake)

### SKU DETAIL:

#### Dynabox (DYN50306)

Including: barrier enclosure,  
sound snake & back-wave foam  
Dimensions 438 x 311 x 165mm  
Weight 3.7KG

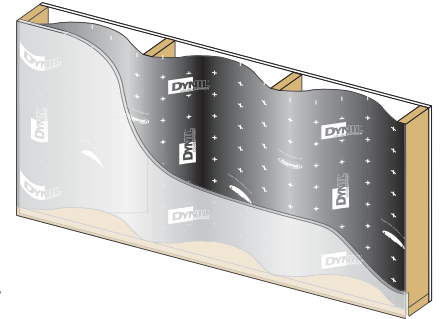


# FURTHER MATERIALS

## DYNIL (DYN50100)

### BLOCK NOISE BETWEEN ROOMS & FLOORS

Reduce noise, isolate listening spaces and maximise sonic privacy. Dynil is a dense, ultra-pliable acoustic barrier that works over a broad frequency range reducing sound transmission.



## HOODLINER (DYN11905)

### SOUND ABSORPTION & HEAT REFLECTION

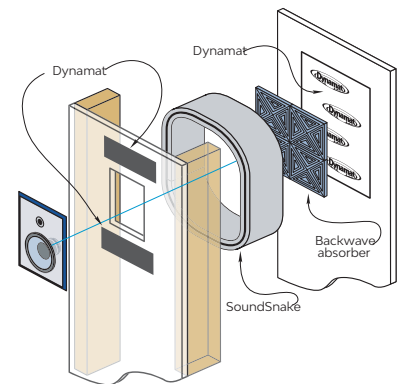
19mm thick polyether urethane based thermo-acoustic foam with a reinforced aluminized facing and pressure sensitive adhesive. Open & closed cell foam with effective sound absorption and 97% heat reflection.



## EN-WALL (DYN50504, 50506)

### IN-WALL SPEAKER ENCLOSURE

En-wall enclosure systems combine Xtreme, back-wave foam and the sound snake to damp, diffuse and decouple in-wall speakers. Significantly reduces wall vibration, unwanted noise transfer & improves loudspeaker audio quality.



## DYNADECK (DYN21200, -03, -06, -09, -12)

### ULTRA-DURABLE WEATHERPROOF MAT

A weatherproof and waterproof floor covering pad. The 3.2mm embossed vinyl layer with the 6.35mm dynaliner layer combine to stop noise and heat transfer through the floor. The durable, deep twist, embossed dynadeck mat is water, oil & wear resistant.





# MATERIAL COMBINATIONS

## BETTER TOGETHER

PAIR OUR MATERIALS TO TACKLE MULTIPLE NOISE CONCERNS ONBOARD, FOR THE ULTIMATE SOLUTION



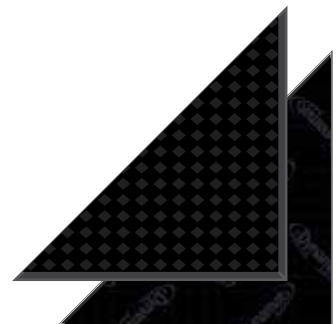
### XTREME & DYNAPAD

Heavy-duty pairing to tackle three complaints; structure-borne vibration, conducted noise and low frequency sound transmission



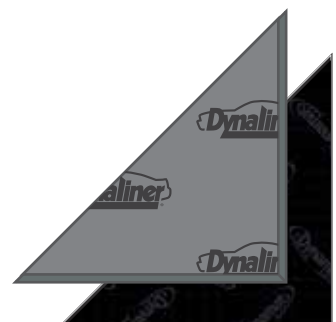
### XTREME & DYNACORE

Dynacore has the unique structure needed to dissipate sound waves and absorb heat. A lightweight, flexible, compressible and thermally insulating solution for noise & heat



### XTREME & DYNALINER

Combine Xtreme with Dynaliner and benefit from damping, acoustic absorption & isolation whilst also insulating against heat



# COMBO KIT

## MARINE COMBO KIT

### ALL-IN-ONE COMBO KIT FOR BOAT OWNERS

Marine noise can be extremely annoying and reduce the enjoyment of any voyage. Some of the many applications: engine cover soundproofing, generator housing, outboard engine cowl, wave slap, thrusters and noise migration into cabin areas. As well as, vibration from the hull, decks and other structures

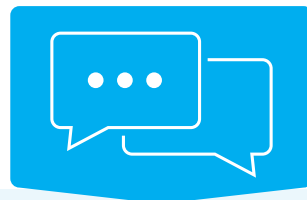
#### INCLUDES:

1.1 M<sup>2</sup> (12sqFt) Xtreme (3 sheets)  
1.1 M<sup>2</sup> (12sqFt) 1/2" Dynacore (1 sheet)  
Pro 2" application tool

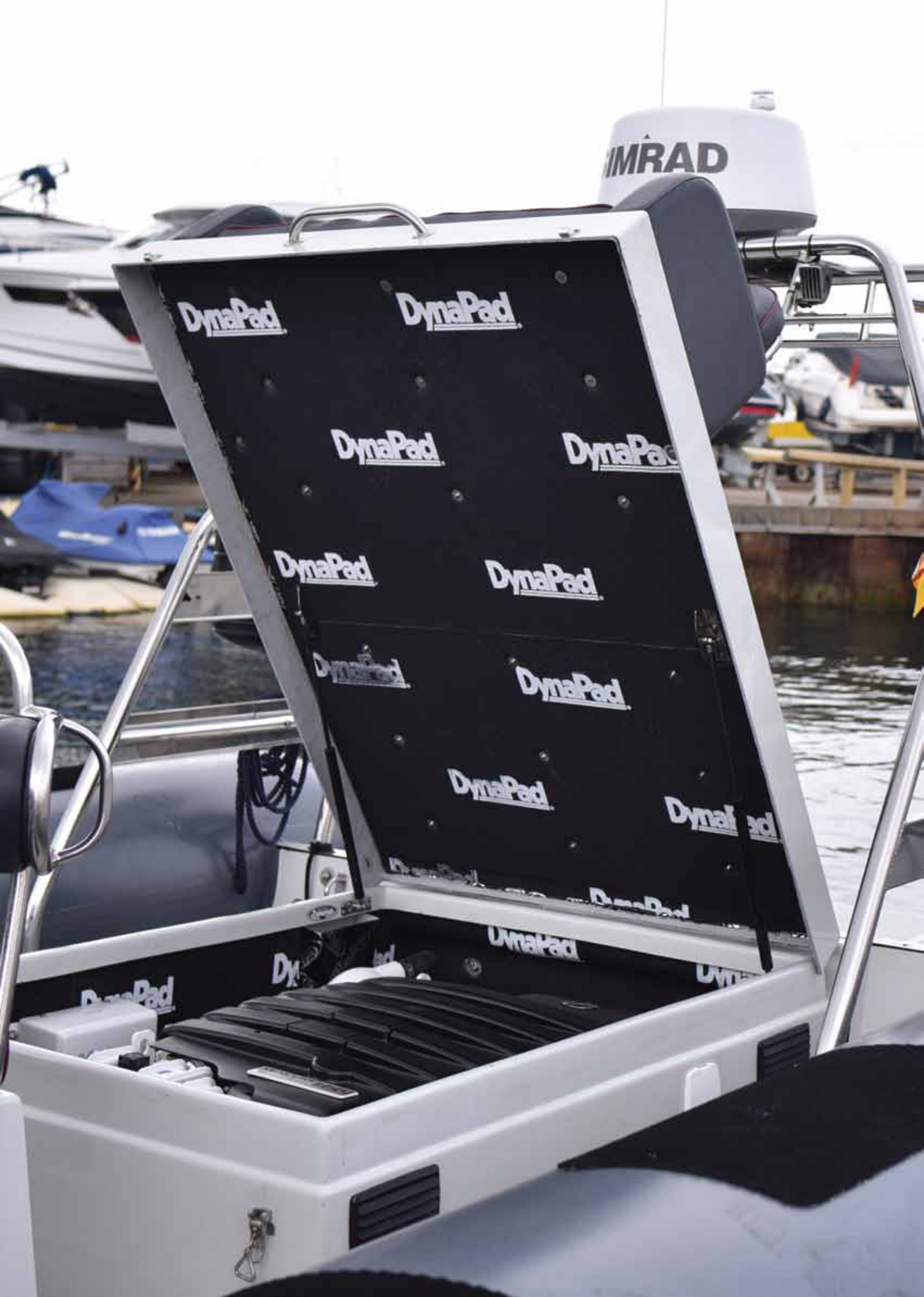


## CUSTOMISATION AVAILABLE

Need custom parts to speed up installation?  
Contact us about our bespoke precision CNC service



**WE ARE ON HAND TO OFFER HELP & CONSULT  
ON YOUR SPECIFIC APPLICATION. OUR EXPERTS  
WORK WITH YOU TO DEFINE THE BEST SOLUTION**





# OUR CUSTOMERS



**BOAT BUILDERS & SHIPYARDS**



**N.V.H CONSULTANTS & ENGINEERS**



**OWNERS & RETRO-FIT SPECIALISTS**

## FREQUENTLY ASKED QUESTIONS

"A silver faced insulation matting is already used"

This type of material is an industry favourite but its primary function is heat reflection not noise control. Using this material is not an effective way of managing noise. It will simply mask vibration and conducted noise, which will travel to another area.

"Your product is much thinner, it can't work better"

Thicker, inefficient 'deadeners' use weight (mass loading) to change the noise to a frequency less offensive to the human ear. Our Xtreme material is optimum thickness for leading performance (independently tested) & easy installation.

"What level of noise reduction can be expected?"

This depends on factors including the substrate, noise source and environment. Assessment of sea trials before and after treatment are the best way to gain accurate data for your specific project. Material performance is noted on our spec sheets.

"Dynapad is an open cell foam, will water ingress?"

The poly-urethane facing of Dynapad is waterproof but the edges will need to be sealed at any joins. This can be achieved by using an approved adhesive or tape specific for marine environments.

[illegible]

**ENQUIRE  
NOW**

Our team is on hand to  
advise on product selection,  
consult on specific applications  
and guide you towards the best  
solution for your specific needs.

Trade & international  
enquiries are welcome.



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