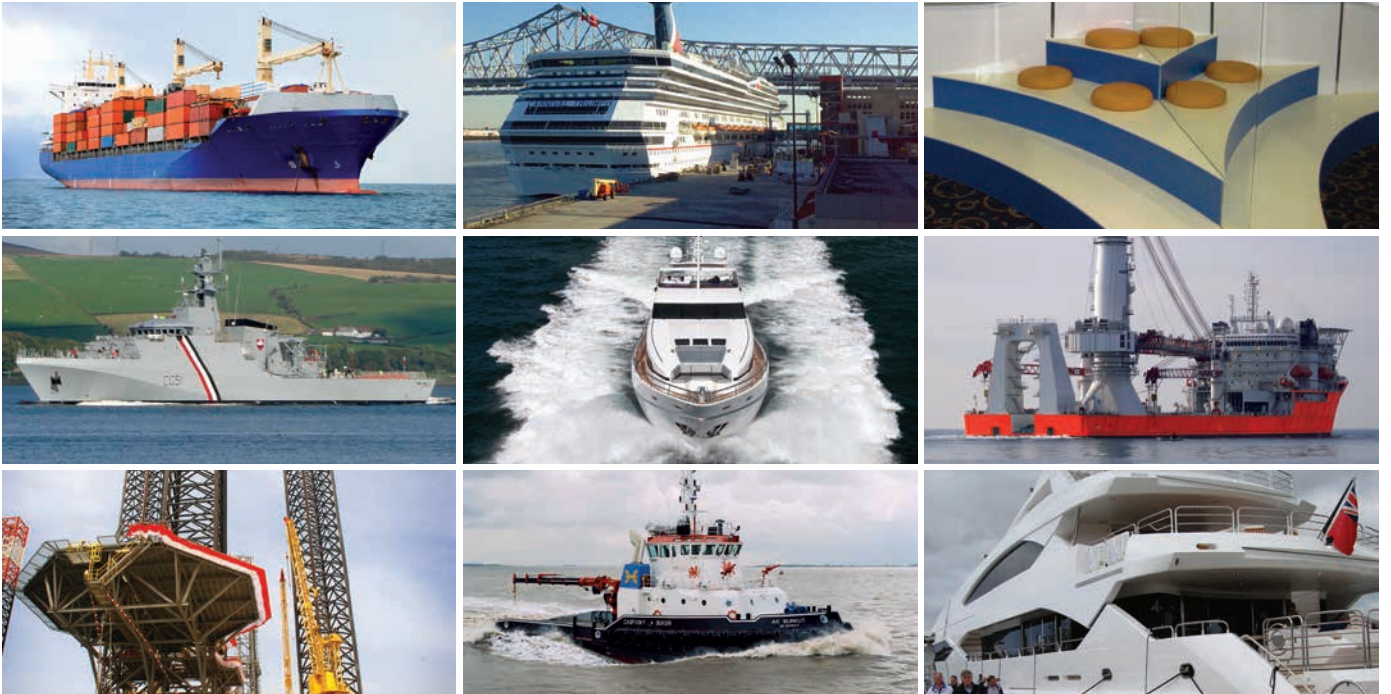


Marine Solutions Integrated fire, thermal and acoustic insulation



www.promat-marine.com





Introduction	3
Structural Fire Protection	4
Fire Rated Bulkheads and Partition Walls	5
Fire Protection to Ceilings, Linings and Floors	6
Marine Furniture Range	7
Acoustic Insulation Solutions	8
Integrated fire, thermal & acoustic insulation	9
Ancillary Marine Products	10
Promat PROMAGUARD® Range	11
Promat PROMARINE®-Range	12
Promat PROMARINE®-Technical Data	13
Promat PROMASOUND®-TL	14
Working, Handling, Storage/Health & Safety	15



About Promat

Promat's Marine Division is part of Etex SA, a leading Belgian industrial group with a worldwide presence. Etex manufactures and sells high quality building materials and solutions and is present in 44 countries, operating 121 production sites and employing more than 17,000 dedicated people. The Group brings together companies that are leaders in their markets and these products and brands enjoy an excellent worldwide reputation.

Promat is a leading manufacturer of passive fire protection panels and systems for marine applications, offering an extensive range of products including the Promat PROMARINE® range, designed to meet the most stringent of requirements of 21st century fire protection legislation.

In addition to traditional decorative fire protection panels, Promat have developed a range of high performance fire, acoustic and thermal insulation products, including PROMAGUARD® and PROMASOUND®-range.



Marine Fire Safety

It is the Duty of Care requirements of ship owners and operators that passengers and crew are protected from harm.

SOLAS Chapter II-2 Fire Protection details the legal requirements of measures required to prevent the occurrence of fire and explosion onboard, while also managing the containment of any fire or explosion and allowing the readily accessible means of escape for passengers and crew.

All Promat fire protection products fully comply with the latest International Marine Regulations and additionally, provide tailored lightweight solutions for both fire and acoustic insulation performance.

Fire Protection Classifications

A Class

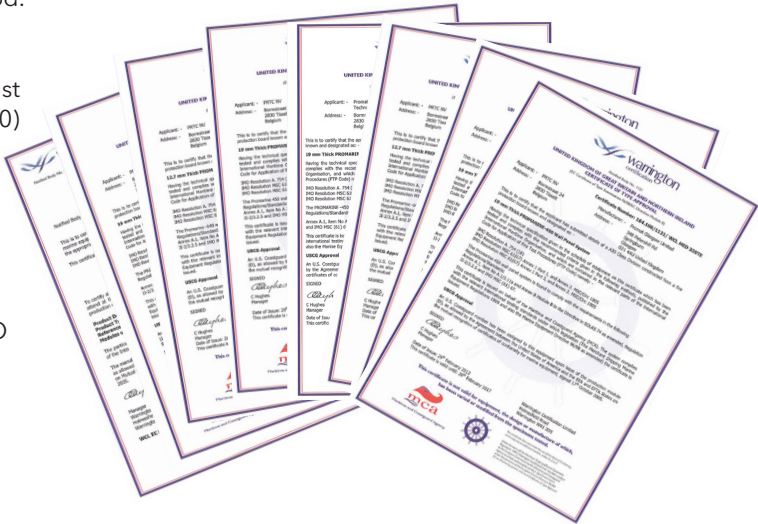
'A' Class barriers are tested to IMO resolution MSC.307 (88) (FTP Code 2010). An 'A' Class division must prevent the passage of smoke and/or flames for a minimum of 60 minutes. The number after the 'A' indicates the required insulation period.

B Class

'B' Class barriers, in addition to 'C' Class requirements, must be tested to IMO Resolution MSC.307 (88) (FTP Code 2010) and prevent the passage of smoke and/or flames for a minimum of 30 minutes. The number after the 'B' indicates the insulation period.

C Class

'C' Class is the minimum classification of fire protection. All 'C' Class components must be non-combustible to IMO Resolution MSC.307 (88) (FTP Code 2010). There are no mandatory installation requirements.





PROMAGUARD® is a new generation microporous material developed to provide more than A60 Class structural fire protection.

Thanks to its exclusive mineral, non-fibrous composition, PROMAGUARD® provides advantages and technical characteristics that make it safe and unique for fire protection and thermal insulation on ships and yachts, saving weight and reducing thickness by up to 4 times compared with traditional materials.

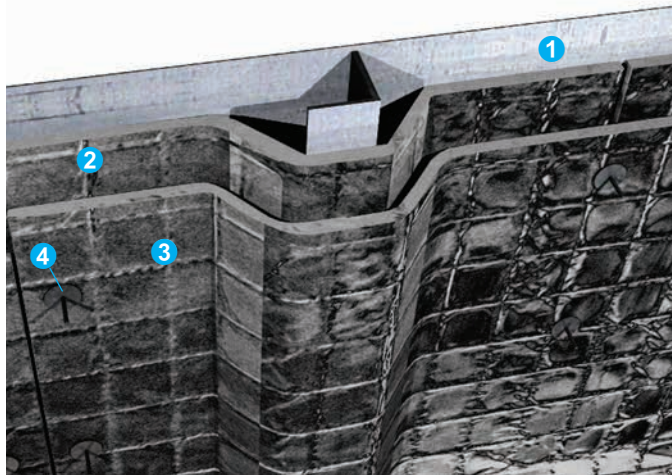
In particular, PROMAGUARD® is the most technologically advanced and successful solution for passive fire protection for aluminium, steel and GRP decks and bulkheads.

All solutions are developed in our R&D facilities & certification obtained in accredited laboratories.



PROMAGUARD® Applications

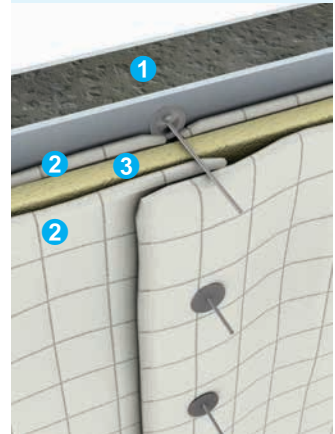
A60 Aluminium Bulkhead



1. Aluminium bulkhead (4mm minimum thickness)
2. First layer Promat PROMAGUARD® (1200mm x 600mm x 10mm thick)
3. Second layer Promat PROMAGUARD® (1200mm x 600mm x 10mm thick)
4. Bi-metallic pins and steel washers

Sandwich GRP

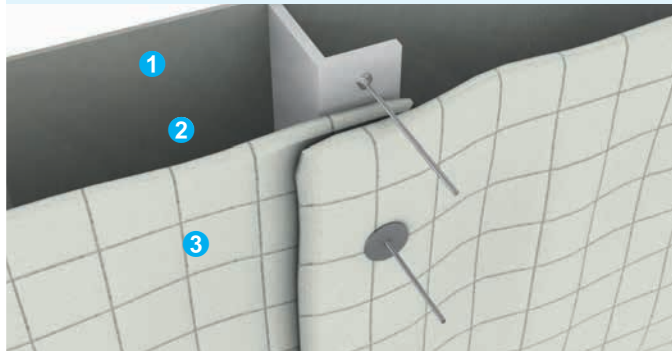
B15 Class Deck/Bulkhead
(L.A.P.I 123/06/MM and
072/06/MM)



1. Sandwich GRP
 2. Sandwich of 10mm PROMAGUARD®
 3. 15mm PROMAGLAF®-WB ALU MCA approved.
- Contact solution: HDT 115°C

PROMAGUARD® Applications

A60 Steel Deck

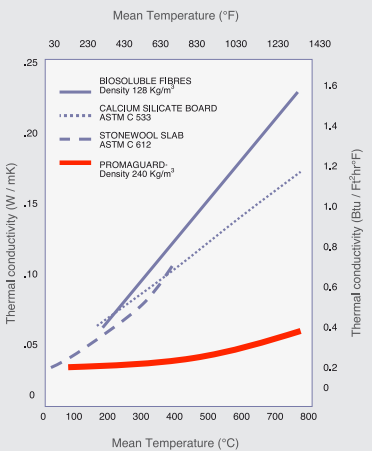


1. Steel deck 4mm minimum thickness
2. 95mm Air Gap
3. 10mm PROMAGUARD®

PROMAGUARD®

Installation

Bulkhead



Promat invests in calcium silicate technology

Promat factories are continuously investing in calcium silicate technology. This technology is the basis of a selection of marine boards with high-performance characteristics.

Chemically seen, the composition of calcium silicate is not that complex. The secret of the technology is the extensive and complex calcium silicate matrices. The calcium silicate technology is based on the mastery of a controlled crystal growth. A significant example is PROMAXON®, a synthetic mineral with a composition, which is very similar to the one of the natural occurring Xonotlite, but which has a unique spherical crystalline form.

Product	Density	Thickness
PROMINA®-M	1000kg/m ³	3-6-9-12-15mm
PROMATECT®-H	870kg/m ³	6-8-10mm
PROMARINE®-640	640kg/m ³	9.5-12.7-15.9-19.1-22.2-25.4-31.8mm
PROMARINE®-450	450kg/m ³	16-19mm
PROMASIL®-MARINE	285kg/m ³	20mm
PROMARINE®-PX1	760kg/m ³	12-15-19mm

Bulkheads

PROMARINE® panels can be installed in any thickness to provide a 'C Class', non-combustible bulkhead/partition assembly. Where a specific fire rating is mandatory, PROMARINE® panels must be installed as detailed on the relevant MED approval certificate.

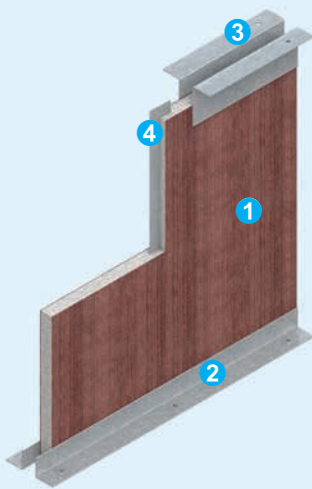
For example, minimum thickness for a 'B-15' rated bulkhead is 19mm (excluding decorative laminates), and vertically joined using C-spline, solid spline or omega profiles.

PROMARINE® panels and PROMASIL®-MARINE boards are also available with lightweight, non-structural "A" Class certification: (A-0, A-30 and A-60).



EXAMPLE 1

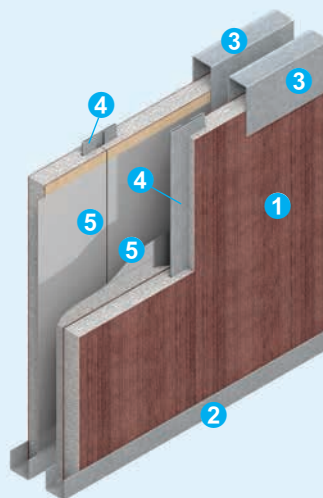
Bulkhead A0 Class Certified with PROMARINE®-640



1. 12.7mm PROMARINE®-640 2420 x 1210mm
2. Bottom angle 20 x 20 x 1.2mm
3. Top angle 50 x 20 x 1.2mm
4. Solid spline 20 x 1mm

EXAMPLE 2

Bulkhead A60 Class Certified with PROMARINE®-450



1. 19mm PROMARINE®-450 2420 x 1210mm
2. Bottom channel PC-15-E 20 x 22 x 20mm - 1.2mm thick
3. Top channel PC-17-G 50 x 22 x 50mm - 1.5mm thick
4. "C" spline PJ-1-A 38mm - 3.6mm overall thickness
5. Aluminium foil 0.025 mm + PROMASEAL®-Glue fixed with 50 x 50mm dabs at 300mm centres



Ceilings

Promat PROMARINE®-450 panels provide a 'B-15' rated decorative ceiling system at only 16mm thickness.

"C" Class ceiling are provided by PROMATECT®-H , PROMINA®-M at 6 to 8 mm thickness.

Linings

Fire rated linings can be provided using Promat PROMARINE® panels, or the low density PROMASIL®-MARINE.

The Promat PROMARINE® panels are generally installed where aesthetics are a primary consideration, such as public spaces on passenger vessels and yachts.

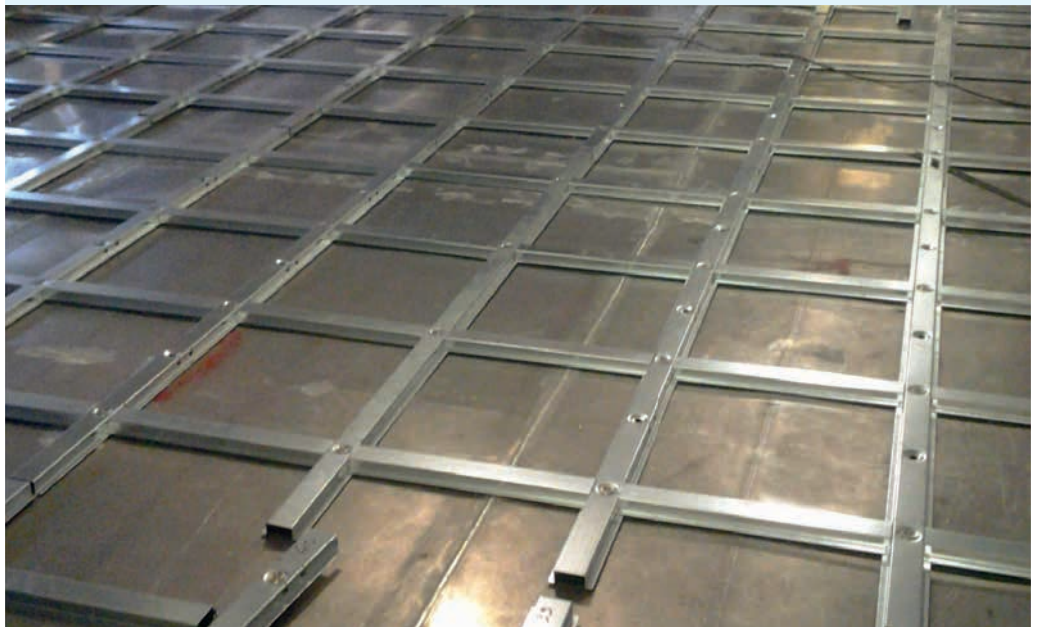


Flooring

Fire rated decks can be achieved using either PROMARINE® panels, PROMAGUARD® sheets or Promat®-SYSTEMFLOOR.



Promat®-SYNTHESIS Floor



Promat marine furniture is a range of non-combustible ship's furniture that has been developed to meet the requirements of the latest SOLAS Fire Regulations for passenger carrying vessels. This allows accommodation areas containing furniture and furnishings of restricted fire risk to be downgraded from 'Moderate Fire Risk (Category 7)' to 'Minor Fire Risk (Category 6)'.

This has the advantage of reducing the level of fire protection required between the accommodation areas and their surroundings*.

The marine furniture range consists of:

- Pre-manufactured items from stock
- Customised production to suit client designs

The pre-manufactured furniture consists of an attractive range of bed frames, wardrobes, kneehole desks and bedside cabinets, all finished in a matching hard wearing woodgrain laminate. These are available 'off the shelf' for turnkey projects. Drawings detailing the dimensions of each item are readily available.

For those customers looking for individuality, our team of experienced professionals can provide assistance and advice from the design stage, through to manufacture by craftsmen and finally on board assembly.

Custom manufactured furniture is available using HPL laminate and real wood veneers for all types of furniture, including some of the following examples:

Cabin furniture

- Single and double berths
- Chest of drawers
- Bedside tables
- Wardrobe lockers
- Desks
- Desk cabinets
- Night stands

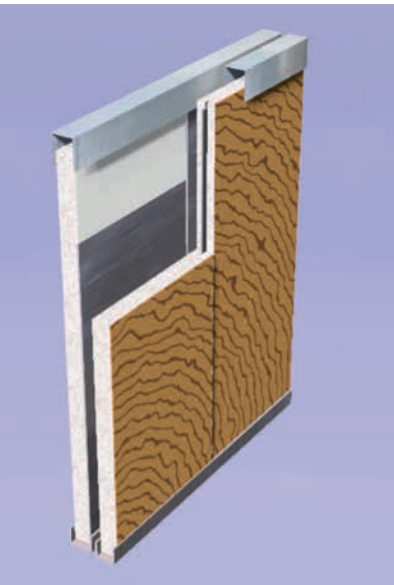
Storage cabinets

- Custom entertainment furniture
- Coffee tables
- End tables
- Wall book cases
- Any customised furniture pieces, using HPL, laminate, or veneers

Dining room pieces

- Waiter stations
- Kiosks
- Menu cabinets
- Podiums
- Dinettes
- Privacy screens





Noise pollution from engine compartments is a major consideration for marine designers, owners and operators of small and large vessels alike.

Promat are able to offer a unique combination of robust products and services to allow the selection of the optimum acoustic solution at a very early stage in the design process.

Our versatile portfolio of acoustic insulation materials are designed to provide high levels of sound-proofing, combined with lightweight, ease of installation and low toxicity.

Promat PROMASOUND®-TL

Promat PROMASOUND®-TL provides the first viable insulating barrier (mass), aimed at replacing lead foils; it provides a number of unique advantages for installation, it is an easy, fast and safe material to install.

Acoustic and Fire Insulation Combinations

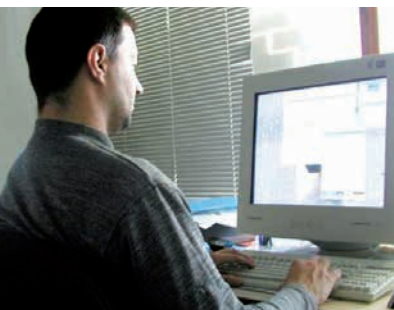
To meet the most demanding fire and acoustic insulation specifications, Promat®-SYNTHESIS has been developed to offer the optimum balance of cost, weight and space saving as well as a reduction in installation times. Promat®-SYNTHESIS is a combination of PROMASOUND®-TL with other Promat products such as PROMAGUARD® (Promat®-SYNTHESIS GUARD), PROMAGLAF® (Promat®-SYNTHESIS WOOL) and PROMARINE® (Promat®-SYNTHESIS WALL), each tailored to meet exacting specifications.



Acoustic Product Range

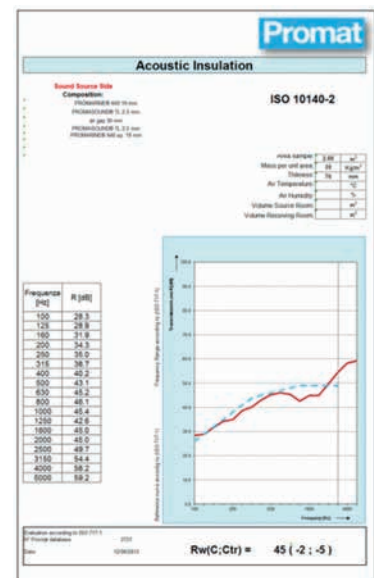
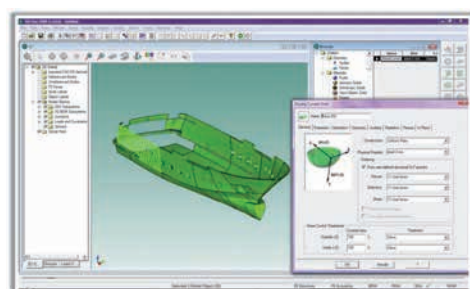
Promat are able to offer a full portfolio of products and services to the marine industry including:

- PROMADAMP®-CL SK: a self adhesive, lightweight, flexible vibration damping product which provides excellent reaction to fire performance and low spread of smoke and flame.
- PROMAPHON®-Pe: a latest generation sound absorption felt, achieving excellent acoustic performance even with low densities.
- Promat®-VERMAPOR: an anti-drumming and anti-condensation coating providing condensation control through moisture absorption and release cycles.



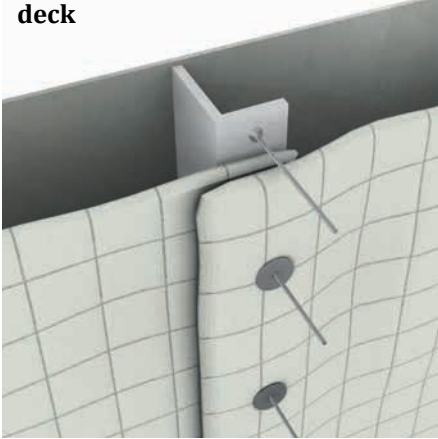
Acoustic Engineering Services

Promat is able to overcome the limitations associated with laboratory trials by offering acoustic engineering assessments, which accurately predict the acoustic behaviour of materials in situ, allowing customers to select the optimum solution at an early stage in the design process.

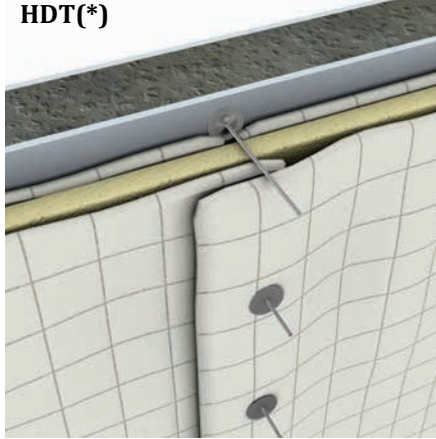


A selection of our solutions Fire

Only 10mm and 2.4kg/m² for A60 on your steel bulkhead and deck



GRP structure light & thin from A60 to B15 for all ranges of HDT(*)



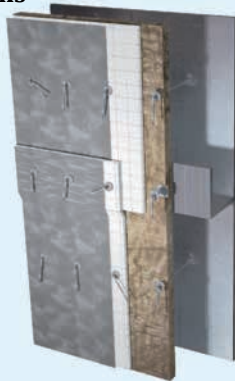
Our product portfolio

- PROMAGUARD®
- PROMASTOP®-UNICOLLAR®
- SYNTHESIS GUARD
- PROMAGLAF®-WB ALU

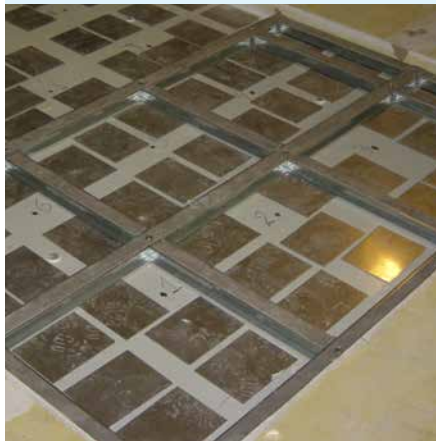
(*) Heat
Deflection
Temperature

Fire & Acoustic

Complete range of fire rated and acoustic insulation solutions



Promat SYNTHESIS®-Floor with transmission loss up to

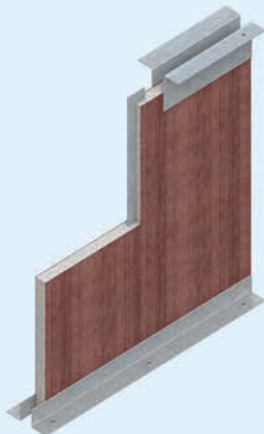


Our product portfolio:

- PROMASOUND®-TL
- PROMADAMP®-CL SK
- Promat®-VERMAPOR
- PROMAPHON-Pe
- PROMACOUSTIC
- Promat®-SYNTHESIS Floor

Interiors

Fire rated A and B Class walls, A0: 12.7mm @ 8kg/

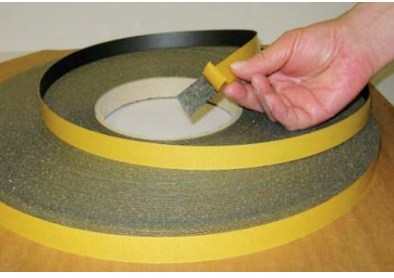


Low density B15 WALL 20mm @ 5.8kg/m²



Our product portfolio:

- PROMARINE®-640
- PROMARINE®-450
- PROMASIL®-MARINE
- PROMATECT®-H
- PROMINA®-M
- SYNTHESIS WALL
- PROMARINE®-PX1



Promat are able to supply a full range of ancillary products to compliment our marine solutions, including:

Intumescent strips

PROMASEAL®-L and LC

Intumescent gaskets. Suitable for sealing of doors, hatches, gaps. Available in self-adhesive version (SK). No MED certification, since they are not certified on their own, but only as an integral part of the finished element. Certified by our customers in their "system certification" (as allowed by regulations).



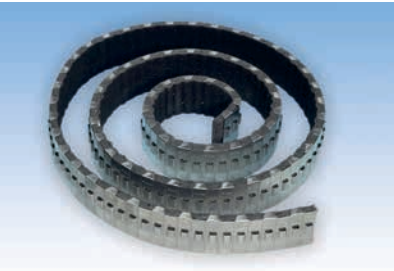
Glues

PROMASEAL®-F1

Water-based vinyl glue that, together with PROMASOUND®-TL on stone wool, has obtained MED certification for low flame spread.

PROMASEAL®-M105 EV

Elastic water-based vinyl glue with MED certificate for low flame spread obtained with PROMASOUND®-TL on steel and, therefore, on high density boards (Module B).

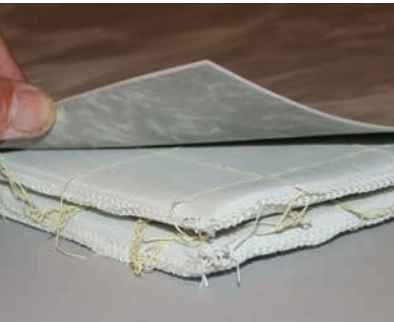


PROMASEAL®-GLUE

Water-based glue, ready to use for applications up to 1000°C. Mainly suitable for glueing different types of materials onto calcium silicates. MED certification for low flame spread with Module B.

Promat®-KLEBER K84

Water-based glue, for gluing calcium silicates and other materials for fire protection. MED certification for low flame spread with Module B.



Fire Stopping

UniCollar®

This strip system – patented by Promat – allows fire insulation thanks to a single element, that can be cut to suit many diameters, for fire insulation of plastic pipes. In case of fire and subsequent collapse of the pipe, the collar intumescent liner expands, thus sealing the hole and creating a barrier against flame and smoke. Easy and versatile installation.

Product Description

Promat PROMAGUARD® is a new concept in passive fire protection, using microporous insulation technology. Promat PROMAGUARD® is a microporous thermal insulation sheet, made as an insulation board in a skin of glass cloth with very good thermal and mechanical properties.

The sheet is sewn through using special thread to become a flexible board. Due to its light weight and flexibility, a wide range of applications in marine fire protection can benefit from the use of Promat PROMAGUARD®.

Features and Benefits

- Non-combustible
- High working temperature
- Very lightweight
- Flexible
- Excellent thermal insulation
- Easy to handle
- Up to four times thinner than conventional insulation
- Applicable to glass-reinforced plastic (GRP), fibre-reinforced plastic (FRP), steel, aluminium, wood

Physical Properties Promat PROMAGUARD®

Thickness (mm)	6, 10, 15
Width x Length (mm)	600 x 1200
Tolerances on length and width (mm)	+/- 3
Tolerances on thickness (mm)	+/- 1
Dry Density (kg/m ³)	240 +/- 10%
Thermal Conductivity (W/mK) (at 200°C)	0.026

Main Applications

- Areas where weight saving is a priority
- Areas where space saving is a priority
- Machinery spaces of GRP yachts to achieve MCA LY3 Code approval
- Naval and coast guard vessels

Finish

- Glass cloth finish
- Aluminium foil finish
- Promat PROMASOUND®-TL as Promat®-SYNTHESIS GUARD



Main Approvals

- A-60 rating directly onto a steel bulkhead at only 16mm thickness (4kg/m²)
- A-60 rating directly onto a steel deck at only 20mm thickness (5kg/m²)
- A-60 rating directly onto an aluminium bulkhead and deck at only 20mm thickness (5kg/m²)
- B-15 and A-60 ratings directly onto GRP to comply with MCA LY3 Code



Health and safety

Safety data sheets are available from the Promat Customer Relations Department and, as with any other materials, should be read before working with the product. The materials are not classified as a dangerous substance and no special provisions are required regarding carriage and disposal.

PROMARINE®-640 and PROMARINE®-450

Product Description

PROMARINE®-640 and PROMARINE®-450 are non-combustible, autoclaved calcium silicate boards, reinforced with selected minerals, inorganic fibres and have nominal dry densities of 640kg/m³ and 450kg/m³ respectively.

The boards are off-white in colour, both have smooth sanded surfaces. The boards can easily be finished with high pressure laminates. They are resistant to the effects of moisture and will not physically deteriorate when used in damp or humid conditions.

The combination of moisture resistance, mechanical strength and fire protection cannot be matched by boards using other binder systems. The boards are rigid, robust, easy to handle and can be worked using normal woodworking tools.

A truly international market leader, PROMARINE®-640 has been supplied to almost every major shipyard in the world and installed on most types of sea-going vessels and offshore platforms.

PROMARINE®-450 is a lightweight 'B-15' rated bulkhead and ceiling system. Now available with A-0, A-30 and A-60 bulkhead MED certificates.

Features and Benefits

- Non-combustible to IMO A799 (19)
- Moisture resistant
- Good chemical resistance
- Rot and vermin proof
- Quick and simple to fit
- Excellent workability
- Durable

Chemical Properties

PROMARINE®-640 and PROMARINE®-450 panels are unaffected by brine or chloride and are chemically inert. The panels are resistant to attack by insects or vermin and will not nourish growth of mould or bacteria.

The panels will not disintegrate or swell if immersed in water. A temporary loss of strength will occur when panels are fully saturated, but normal strength is regained when panels dry out.

Main Applications

- A, B and C Class Bulkhead and Ceiling constructions
- Linings
- Floors
- Non-combustible furniture



Health and safety

Safety data sheets are available from the Promat Customer Relations Department and, as with any other materials, should be read before working with the board. The boards are not classified as dangerous substances and no special provisions are required regarding the carriage and disposal of the products.



Physical Properties PROMARINE®-640

Thickness (mm)	9.5, 12.7, 15.9, 19.1, 22.2, 25.4, 31.8
Width x Length (mm)	1220 x 2440/3050
Tolerances on length and width (mm)	-0 / +5
Tolerance on thickness (mm)	-0.8 / +0
Dry Density (kg/m ³)	640 +/- 10%
Thermal Conductivity (W/mK)	0.134
Alkalinity (pH value)	7 - 10
Coefficient of thermal expansion (20-100°C) (x10 ⁻⁶ m per °C)	6
Moisture content : Ex works (%)	8 - 12
Modulus of rupture (N/mm ²) Average, 2 directions (minimum)	3.0
Tensile strength (N/mm ²)	1.9
Comprehensive strength (N/mm ² , 1% deformation)	2.4

Physical Properties PROMARINE®-450

Thickness (mm)	12, 16, 19
Width x Length (mm)	1220 x 2440/3050
Tolerances on length and width (mm)	-0 / +5
Tolerances on thickness (mm)	-0.8 / +0
Dry Density (kg/m ³)	450 -10% +15%
Thermal Conductivity (W/mK)	0.109
Alkalinity (pH value)	7 - 10
Coefficient of thermal expansion (20-100°C) (x10 ⁻⁶ m per °C)	5.5
Moisture content : Ex works (%)	8 - 12
Modulus of rupture (N/mm ²) Average, 2 directions (minimum)	2.2
Tensile strength (N/mm ²)	1.1
Comprehensive strength (N/mm ² , 1% deformation)	2.5

NOTE: The properties in these tables are mean values given for guidance only. If certain properties are critical for a particular application it is advisable to consult Promat.





Product Description

PROMASOUND®-TL is the latest generation of innovative visco-elastic products. PROMASOUND®-TL provides high performance acoustic insulation, low spread of flame and is MED certificated. Acoustically, PROMASOUND®-TL represents the first viable insulating barrier able to replace lead foils. PROMASOUND®-TL provides unique advantages, is a safe, harmless material and is easy to install.

PROMASOUND®-TL has excellent acoustic characteristics due to its visco-elastic constitution. PROMASOUND®-TL is thin, flexible and can be delivered with bespoke finishing.

Features

- Excellent acoustic performance
- Visco-elastic composition
- Totally flexible and elastic
- Non-flammable
- Non-toxic
- Rot proof
- Completely recyclable

Benefits

- Low relative thickness and weight
- Easy to install and shape
- In a fire it carbonises without melting (unlike lead)
- Does not emit any harmful substance or oils (unlike PVC)
- Does not contain heavy metals, lead and other harmful materials according to Regulation 67/548/CEE
- Properties do not undergo alteration over time
- Can be disposed of as standard waste in accordance with local regulations

Health and safety

A safety data sheet is available from the Promat Customer Relations Department and, as with any other materials, should be read before working with the product. The product is not classified as a dangerous substance and no special provisions are required regarding carriage and disposal.

Installation

PROMASOUND®-TL can be installed using standard 'pins and washers', alternatively a self-adhesive aluminium finish are available.

Additional Services

Promat can provide an 'acoustic solution' service using the latest statistical energy analysis technology. Details available upon request.

PROMASOUND®-TL Standard Sizes

Thickness (mm)	Roll Length (m)	Width (mm)
1.00	100	1220
1.50	70	1220
1.75	50	1220
2.00	50	1220
2.50	50	1220
3.00	50	1220
4.00	50	1220
5.00	25	1220

Tolerances - Standard Rolls

Width (%)	Length (%)	Thickness (%)
± 2	± 5	± 10

Acoustic R_w Index per Thickness ISO 717/1 (dB), Tested in Acoustic Laboratory According to ISO 10140-2

1mm	1.5mm	1.75mm	2mm	2.5mm	3mm	4mm	5mm
23	25	26	27	29	31	33	35

NOTE: All physical property values are averages based on standard production. The figures can change dependent on the test methods used. If a particular value is of prime importance for a specification, please contact Promat Customer Relations Department.

PROMARINE® Boards

No special precautions are necessary when working with the PROMARINE® boards. High pressure laminate (HPL) is suitable for bonding using a number of adhesives. The type of adhesive to be used is determined by adhesive specified on the laminate manufacturer's Type Approval Certificate, issued by the National Authority, Classification Society or Notified Body.

The most important factor in achieving stability in bonded panels is the pre-conditioning of the core panels, surfacing and backing laminates prior to bonding, so that all materials reach equilibrium. When materials are brought into a workshop from temperatures or humidity levels different from ambient, they should be allowed to stabilise for a minimum of 72 hours before fabrication. Both core panels and laminates should always be stored in an enclosed dry storage (not less than 18°C for HPL) and should be fabricated in similar conditions.

PROMARINE® boards can be cut and/or drilled using standard joinery tools, although dust extraction equipment is recommended if using power tools. Boards do not require any specialised handling equipment and should be stored indoors on the pallet until required.

PROMARINE® boards have good screw holding qualities. However, we recommend that where possible, normal wall fixtures, such as bookcases, shelves and lights, are attached to the panel steelwork. If fixing directly into the board, the decorative laminates face should be drilled approximately 2mm larger than the screw to prevent laminate cracking.

It is also recommended that the screw threads be coated with PVA glue, prior to final fitting. Where aesthetically acceptable, wall and ceiling fittings should be bolted through - heavier items such as wash hand basins, handrails and ceiling fans, can also be adequately fastened with the aid of inserts and dowels. The board laminate face should also be 'overdrilled' with this option. All above fixtures, fittings and fasteners can be supplied directly with all deliveries of PROMARINE® boards and profiles.

PROMARINE® boards laminated with HPL, when performing cut-outs, all corners must be drilled and radiused. Square corners will result in cracking of the HPL laminate, and does not comply with the HPL laminate manufacturer's specifications.

PROMASOUND®-TL

PROMASOUND®-TL is flexible and can be cut with cutters, scissors, knives or by using automatic slitters. It can be easily die-cut to be adapted to specific tailor-made geometry to meet specific customer's requirements. When cutting it does not release any dust or aerial particles.

PROMAGUARD®

PROMAGUARD® can be cut and shaped on site using basic cutting blades, provided that the panel edges are fully re-sealed with glass cloth for PROMAGUARD® plain or with the aluminium tape for PROMAGUARD® aluminium finish. Metallic pins are used to fix PROMAGUARD® to the surface.

Health and safety

Safety data sheets are available from the Promat Customer Relations Department and, as with any other materials, should be read before working with the products. The fire and acoustic products mentioned in the brochure are not classified as dangerous substances and no special provisions are required regarding carriage and disposal.

PROMARINE®-laminated boards should not be used, or stored, in conditions where the relative humidity falls below 35% or rises above 85% and where maximum temperatures exceeds 35°C.

Special consideration must be taken into account in areas where the boards will be subject to continuous drying, i.e. behind radiators, or in areas that are constantly wet. Advice should be sought from the Promat Customer Relations Team on +44 1344 381 400.