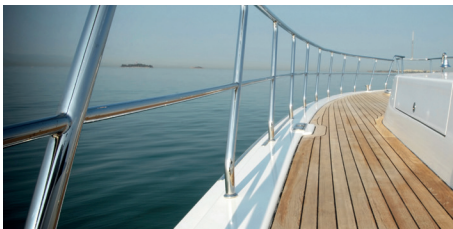


Fire Protection Solutions for FRP Structures Thin and Lightweight Marine Solutions



www.promat-marine.com



The Background

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

In addition to fire protection systems for standard steel and aluminium structures, Promat have engineered solutions for passive fire protection on laminated and sandwich Fibre Reinforced Plastic (FRP) structures.

More than 50 tests leading to **20 certificates (A and B class)** on **different FRP configurations** were achieved by testing according to **IMO Resolution A754(18)** and **FTP Code** as per IMO Res. MSC.61(67). Criteria for testing was the average temperature on the exposed-to-fire face to be below the specified Heat Deflection Temperature (HDT as defined in ISO75) of the resin at the end of the fire test, which is either 30 minutes for B Class equivalent or 60 minutes for A Class Equivalent.

Recently, IMO introduced guidelines for the adoption of FRP element in ships according to Solas section 2-II, regulation 17. The main issue for such application is considered to be the fire protection.

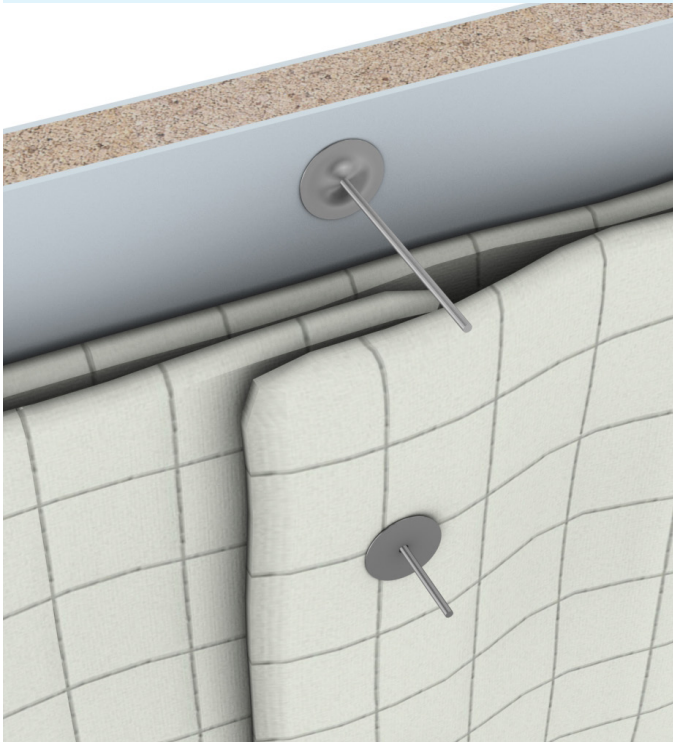
The Solution

Based on the experience gained in Mega-yacht market, Promat has the possibility of selecting a range of configurations from their database and check the applicability of Type Approval Certificates to the Marine Guidance Note 407, issued by the Maritime Coastal Agency.

Below are given two examples of FRP Certified Fire Protection systems.

Example 1

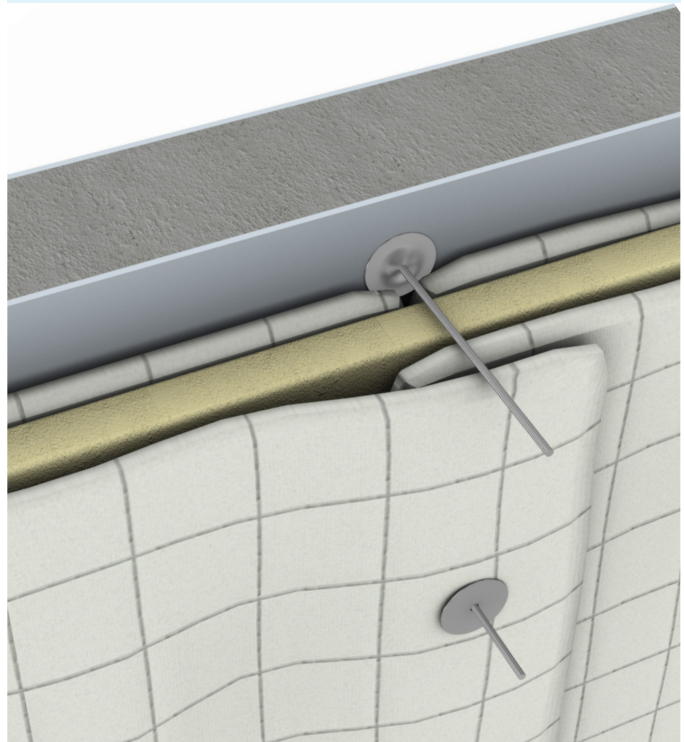
Sandwich B15 Class Bulkhead



GRP Sandwich: 2.76mm skin
PVC Core 130kg/m³ 50mm thick
HDT: 105°C
1st layer: 10mm PROMAGUARD®
2nd layer: 10mm PROMAGUARD®
Direct contact
Weight: 4.8kg/m²
MCA Approved, LAPI RIM1718/08

Example 2

Monolithic A60 Class Bulkhead



GRP Monolithic: 52mm
HDT: 115°C
1st layer: 10mm PROMAGUARD®
2nd layer: 20mm PROMAGLAF®.WB
3rd layer: 10mm PROMAGUARD®
Direct contact
Weight: 7.4kg/m²
MCA Approved, LAPI 084/06/MM, Lab. 022/06

The Application

One application of fire protection on a FRP Mega Yacht was provided to the engine room of Mangusta 165 as shown below



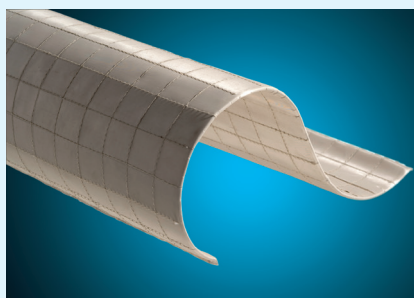
with the courtesy of OVERMARINE

PROMAGUARD® + PROMAGLAF®-WB
Engine Room - Waterjets detail

PROMAGUARD® + PROMAGLAF®-WB
Engine Room - Deck Insulation Detail

Product Information

PROMAGUARD® Lightweight Passive Fire Protection Product



PROMAGUARD® is a new generation product used for passive fire protection and thermal insulation. Formulated with exclusive mineral and non-fibrous materials based on microporous and PROMAXON® technologies, PROMAGUARD® provides efficient solutions for ships and yachts saving weight and reducing thickness by up to four times compared to traditional materials and solutions.

PROMAGLAF®-WB ALU Non-Combustible Stone Wool Needled Felt



PROMAGLAF®-WB ALU is a flexible stone wool needled felt; it is compact and free from binders and coated on one side with reinforced aluminium foil. PROMAGLAF®-WB ALU has excellent tear resistance and is particularly appropriate for marine applications, where both high acoustic and thermal performance is required.

PROMAGLAF®-GM E-type Glass Fibre Needled Felt



PROMAGLAF®-GM is a very flexible E-fibre felt. It is compact and free from binders, for insulation at medium-high temperatures. Thanks to its excellent tensile strength and vibration resistance, it is suitable for marine application, where both acoustic and thermal requirements must be met.

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