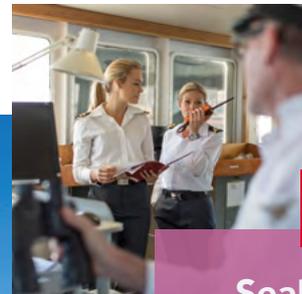
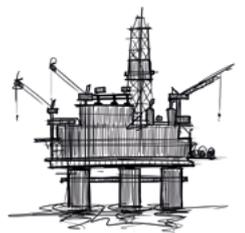


New Generation SeaRox Lightweight

Lightest stone wool solutions



NEW

**SeaRox
MA 7000 ALU**

Lightweight
mat for thermal
insulation

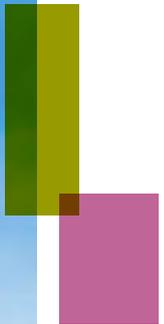


SeaRox®

Marine & Offshore
Insulation

Technical insulation

shaped by experts



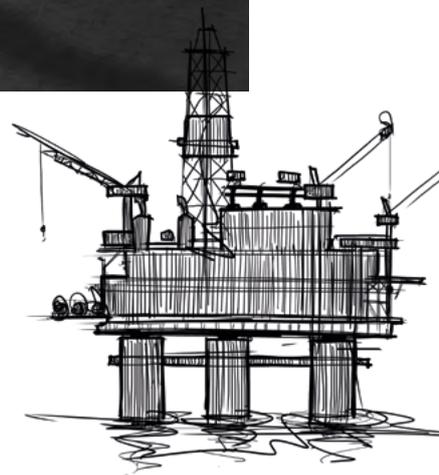
We share our knowledge to your advantage

ROCKWOOL Technical Insulation – a part of the ROCKWOOL International Group – offers innovative technical insulation solutions for the process & power generated industry and the ship-building & offshore market worldwide.

To that end, we have subsumed our product range into two specialist categories. SeaRox comprises the full marine and offshore range and ProRox covers all our insulation solutions for the process industry and for technical installations on board and offshore. Through our two product lines, our experts offer a full spread of products and systems guaranteeing the highest possible thermal, acoustic and fire safe insulation for all kinds of technical installations.

We have more than 80 years of experience, reflected in a complete set of high-grade products and expert advice. We remain fully committed to providing the very best service on the market and a complete range of cutting-edge insulation solutions.

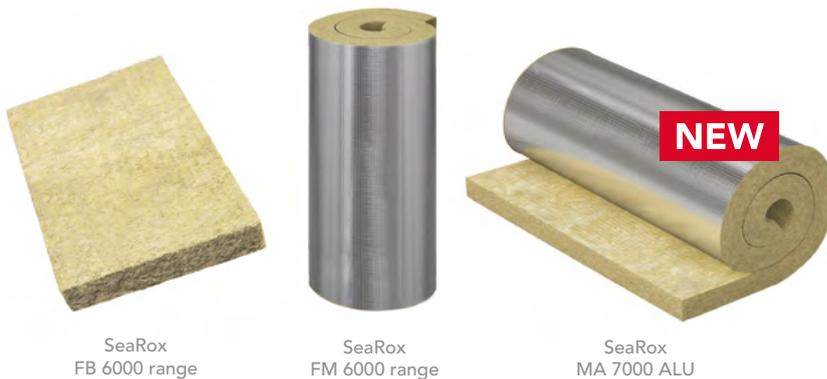
For many years we have been one of the biggest suppliers within the shipbuilding industry and offshore. As part of our global strategic approach we offer a uniform, transparent and harmonized product range throughout the world – from the United Kingdom to China. In the marine and offshore industry this is crucial. It makes it easier for you to ensure the right material in your own country and for your international projects across the borders.



Alongside the successful SeaRox lightweight fire insulation range

our experts present **SeaRox MA 7000 ALU** lightweight mat for thermal insulation

With this addition, we now offer an extended range of **fire and thermal insulation** products for passenger ships, naval ships and offshore accommodations focusing on low weight and fast installation...



ROCKWOOL Technical Insulation offers a wide range of excellent, innovative stone wool products. The SeaRox FB 6000 range of Fire Boards, the SeaRox FM 6000 range of Fire Mats and now SeaRox MA 7000 ALU set a new standard on the market for lower-weight stone wool insulation for the marine and offshore industry.

This new generation of SeaRox products combines the solid product performance of ROCKWOOL stone wool with exceptionally low weight.

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7 strengths of stone



The SeaRox lightweight assortment increases energy efficiency and lowers operating costs and CO₂ emissions.

The maritime challenge:

“Keeping energy consumption under control...”

Worldwide, economic and ecological requirements on the shipbuilding and offshore industry are becoming increasingly stringent, with significant effect on the sector’s energy use and environmental impact.

The **commitment to a sustainable approach** has gained a prominent spot in the agenda of priorities of ship owners, shipbuilders, naval architects and marine engineers. These areas include safety, environmental protection, operations efficiency and resource conservation.

Energy-efficiency measures also address the **reduction of CO₂ emissions** from international shipping; a key factor in ensuring international shipping contributes to efforts to mitigate climate change. Efforts to control energy consumption are likely to drive incremental efficiency improvement.

The expert solution: high performing low weight stone wool insulation

ROCKWOOL Technical Insulation meets this challenge thanks to a new range of high performing lightweight stone wool solutions: the SeaRox FB 6000 Fire Boards, SeaRox FM 6000 Fire Mats and SeaRox MA 7000 ALU. This new generation SeaRox products combines the solid product performances in fire, thermal and acoustic insulation of ROCKWOOL stone wool with an exceptional lower weight.

Our lightweight stone wool solutions not only lower fuel consumption. They above all optimize both the vertical and the longitudinal center of gravity. This results in improved stability and optimizes the trim. Needless to say that the reduced weight will have a positive effect on the speed AND the environment.

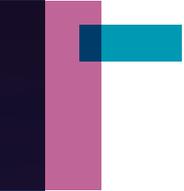
But the new lightweight solutions might offer even more benefits. Saving weight on insulation will also increase flexibility in several ways. The weight won by using lighter insulation material can now be used for additional equipment on board, both, within shipbuilding and offshore which in the end also might have a positive financial benefit. Specifically for offshore, a weight reduction in accommodation modules will increase flexibility handling individual units due to reduced weight.

The weight savings significantly reduce energy consumption and emissions, resulting in substantial financial benefits.

Less can deliver more!



**SeaRox FB and FM 6000
combine all the advantages of
conventional stone wool
insulation and at the same time
lowers the weight by 40%.**



SeaRox FB and FM 6000 series:

“Simply the new standard for maritime fire insulation...”

Under the SeaRox name we market a full range of highly available fire-safe solutions for the shipbuilding and offshore industry. All SeaRox products also offer excellent thermal and acoustic insulation, as well as efficient insulation solutions for technical installations on board.

Our extended **SeaRox FB 6000 and SeaRox FM 6000** product ranges for steel and aluminium constructions ensure we are able to respond to the increasing need for energy efficient insulation systems on the marine and offshore market.

Our dedicated team of experts and engineers have drawn on the results of extensive research and in-depth expertise to develop this **perfectly balanced insulation solution**, which retains all the advantages of ROCKWOOL stone wool while reducing weight by up to 40%.*

And there's more: our products are readily available at all times. We have set up our global production facilities to ensure we are able to meet your demand almost immediately. Our delivery policy helps you boost your operational efficiency and productivity.

40%
WEIGHT SAVING

*40% is the weight difference between SeaRox solution for A60 bulkhead based on SeaRox SL 620, 75 mm on steel plate and SeaRox SL 620, 30 mm around stiffeners.



This lightweight insulation for marine and offshore applications sets a new standard on the stone wool insulation market.



The complete range of lightweight stone wool products for fire insulation

The SeaRox FB 6000 range comprises exceptionally lightweight flexible stone wool fire boards. The SeaRox FM 6000 range consists of lightweight fire mats made out of stone wool, delivered with reinforced aluminium foil on one side as standard. The range is specially designed to optimize the insulation speed of stiffeners in general and facilitate installation of deck constructions as one-layer solutions. Today, the complete range of lightweight stone wool products for fire insulation of A-Class divisions consists of:

SeaRox FM 6000 series:

- SeaRox FM 6030 ALU: 30 mm, 50 kg/m³
- SeaRox FM 6040 ALU: 35 and 50 mm, 60 kg/m³

SeaRox FB 6000 series:

- SeaRox FB 6020: 70 mm, 40 kg/m³
- SeaRox FB 6040: 35 and 70 mm, 60 kg/m³
- SeaRox FB 6050: 30 mm, 70 kg/m³

The new lightweight SeaRox solutions are tested according to the latest IMO 2010 FTP Code.



Lightweight fire insulation:

"The SeaRox FB 6000 and FM 6000 range: new design possibilities..."

A complete range for improved workability and faster installation

Following the success of our lightweight SeaRox FB 6000 range, we introduced the SeaRox FM 6000 series of lightweight fire mats. This novel combination opens up new design possibilities.

Optimized pin design

We have developed a simple, uniform pin design for all products as part of our new optimized solutions. We have also reduced the number of pins on the steel plate by up to 20%, cutting the installation time. All our SeaRox Fire Mat solutions are tested and approved with no pin on stiffeners to ensure faster, safer installation.

Solutions certified by major classification bodies

The new ROCKWOOL Technical Insulation lightweight solutions are **MED approved by DNV-GL** with additional certification by other major classification bodies. New certificates are issued for all new solutions, specifying the product and clearly describing the alternative design. Our latest certificates are available at our website rti.rockwool.com

NEW aluminium constructions

Our range of lightweight fire rated constructions now also covers solutions for standard A60 bulkhead and deck aluminium constructions. All solutions are based on the latest development of the SeaRox FM 6000 range securing fast and safe installation based on only one product in one dimension.

NEW solutions for A15 steel constructions

As part of the ongoing development we now offer improved lightweight solutions for A15 steel bulkhead and deck. Both solutions with only 35 mm insulation on steel plate and no insulation around stiffeners. Besides low weight this secures fast installation and low thicknesses to maximize space available.

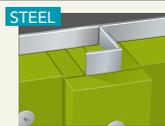
Greater flexibility to design the right insulation solution

The introduction of the SeaRox FM 6000 fire mats extends the range of lightweight insulation designs.

Type 1. Standard design – SeaRox FB 6000 range

Advantages:

- Easy handling – standard slab dimensions
- Softer and more flexible slabs



Type 2. Hybrid solution - SeaRox FB+FM 6000 ranges, alternative 1

Advantages:

- Fast installation
- Suitable for narrow spaces
- Safer (no pin on stiffeners)
- Reduced cut-off waste



Type 3. Hybrid solution - SeaRox FB+FM 6000 ranges, alternative 2

Advantages:

- Fast installation
- No open gaps
- Reduced cut-off waste



Type 4. SeaRox FM 6000 ALU series solutions

Advantages:

- Fast installation
- Reduced cut-off waste
- One-layer solution possible

Note: Only for A30 and A60 Deck application



Type 5. No insulation on stiffeners

Advantages:

- Fast installation (no insulation on stiffeners)
- Thin solution (no insulation on stiffeners)

Note: Only for A15 application



Type 6. SeaRox FM 6000 ALU range in two layers

Advantages:

- Fast installation
- Just one product in one size



NEW
optimized solutions for A-15 steel bulkhead and deck



The right solutions for **thermal insulation**
- creates a **pleasant environment** on board.

SeaRox MA 7000 ALU: **NEW**

"lightweight stone wool product for thermal insulation sets new standard on board"

The focus on indoor climate and comfort has increased in recent years, with stricter requirements as a result. Just like in buildings, thermal insulation plays a significant role in creating a comfortable indoor climate on board. Along with fire and acoustic insulation, thermal insulation of decks, bulkheads and outer bulkheads creates a safe and comfortable environment for passengers and crew.

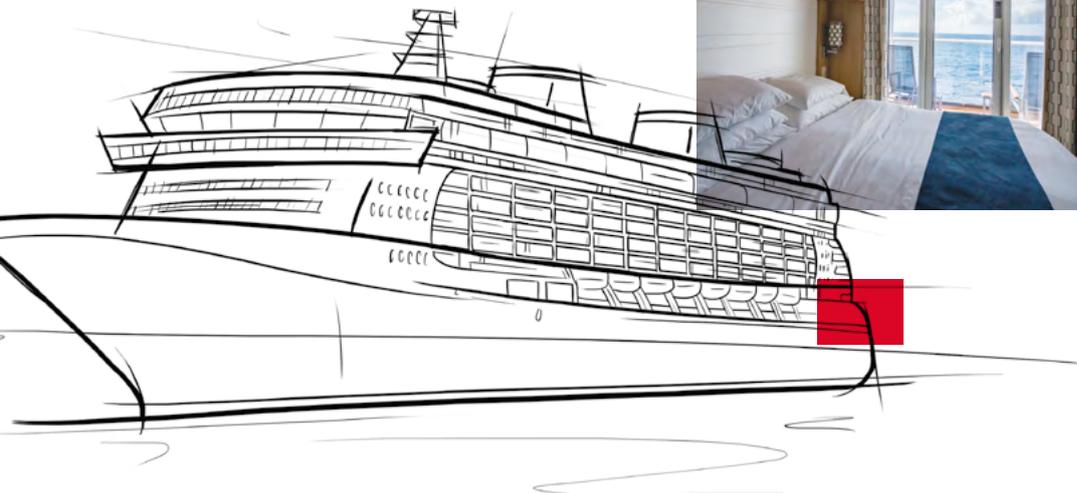
The right solution for thermal insulation provides a comfortable temperature, a pleasant acoustic environment and potential energy savings.

SeaRox MA 7000 ALU offers an optimal combination of thermal insulation with low weight, good thermal properties, excellent acoustic performance and low water absorption. The product is delivered as a highly compressed compact roll (26 kg/m³) and comes as standard with aluminium facing on one side. This ensures easy handling while also functioning as a vapour barrier.

The low density, combined with the traditional stone wool fibre structure, ensures easy handling and tight, efficient insulation.

The low weight has a direct positive impact on fuel consumption and CO₂ emissions. Using the right thermal insulation in the right thickness also reduces the need for electricity to maintain the right indoor climate in all weathers. This electricity is typically produced by diesel generators. So by reducing the fuel needed on board, it is possible to reduce the total weight of the ship.

SeaRox MA 7000 ALU adds a low-weight thermal insulation product to our range of lightweight products and sets a new standard for thermal insulation on board.



SeaRox lightweight range

The advantages start here

The SeaRox lightweight range fulfill all your safety, energy and comfort requirements. They combine all the advantages of ROCKWOOL stone wool with a unique lightness, making it the new standard for top performance in marine and offshore.



Lightest stone wool product

For decades stone wool has been recognized for its superior product properties and extensive use in the marine and offshore industry. The traditional SeaRox solutions are well-known for their high performance regarding fire safety combined with excellent thermal, acoustic and water repellent properties. Due to intensive research, development and product optimization we have now been able to combine these unique properties into one unique, significantly lighter product.

Highest fire safety

As of 1 July 2012 a new fire test procedure – the IMO 2010 FTP Code – was introduced into the market. After a long transition period due to moving away from existing test certificates, demand for products and solutions compliant with the new standard is on the increase. All our new SeaRox solutions are future-proofed and tested according to the latest standard. This secures the highest level of safety on board with no compromises.



Outstanding thermal insulation

The requirements for indoor climate and comfort have been more stringent over recent years, with insulation playing an important part. Apart from the main optimal fire safety properties, the new SeaRox range offers our usual excellent level of thermal conductivity and insulation. The thermal performance of our new certified solution can even become better by increasing thickness or adding low weight comfort insulation on top.



Excellent acoustic properties

As part of the increasing focus on comfort the requirements and documentation for the noise level on board have increased. A new IMO noise code – resolution MSC.337(91) – entered into force on July 1st 2014 (new contracts), January 1st 2015 (keel laying) and July 1st 2018 (full implementation). The new noise code is mandatory and introduces new requirements regarding noise reduction measures on ships; the design, documentation and performance, as well as actual noise levels on board. All our new fire rated solutions are tested and documented for their acoustic properties giving the best possibility to fulfill the new and more severe requirements. The solutions have been tested in a standard setting as well as with an additional layer of comfort insulation.



NEW



Highest water repellency grade – lowest water absorption

The marine and offshore industry is an environment highly exposed to high levels of humidity and water. As a result it is important that not only the products are handled and stored with normal precautionary measures, but also that the products themselves feature sufficient water repellent characteristics, to lower the risk of water penetration. Water penetration can seriously reduce the performance of the insulation material. It will significantly reduce its thermal properties, increase risk of corrosion and undo any initial advantages regarding weight reduction. All SeaRox products come with a very low water absorption as a standard, offering an optimal solution without any compromises.



Green Passport and EUCEB Trademark

During recent years we have been confronted with an increased focus on health and safety on board. As a result Green Passports have been introduced according to IMO Res A.980 (24). The idea of a green passport is for all vessels to carry a document listing all the potentially hazardous materials on board a vessel.

ROCKWOOL Technical Insulation fibers are bio-soluble and non-hazardous. Our products are subject to the requirements in EUCEB (The European Certification Board for Mineral Wool Products) with an external conformity inspection as quality guarantee. EUCEB certifies that the mineral fibre is exonerated from classification and provides you the highest level of health and safety on board.



**SeaRox lightweight insulation
delivers the best water
repellency as standard.**



Customers demand full protection:

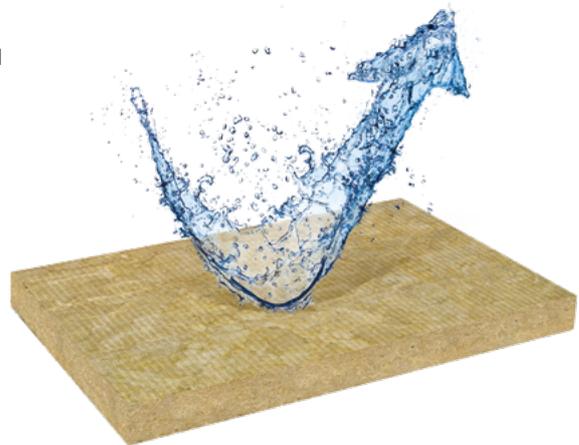
“What about the water repellency grade? It’s all in the details...”

When deciding on the right insulation material, many characteristics need to be evaluated, including fire retardancy, acoustic properties and thermal conductivity. However, a basic characteristic that is often overlooked is the water repellency of the insulation material.

The risk

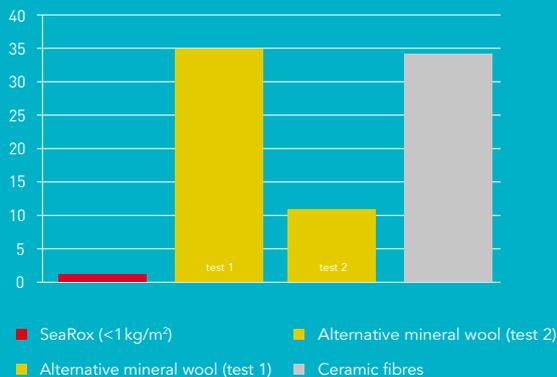
Water repellency is an important factor in humid and water-rich environments, so typical of the marine and offshore industry. Water penetration and absorption can seriously impair or even destroy the basic properties of the insulation material. Reducing its thermal properties, increasing the risk of corrosion and neutralizing any initial weight savings.

Alternative products with different water repellency grades are available on the market. As a result, you may end up choosing the wrong product. So how can you be sure you are getting the product stated in the fire test documentation, with the required water repellency grade?



Water absorption (kg/m²) - short term (according to EN1609)

The results below from tests on standard SeaRox material and alternative competitor material show that our SeaRox stone wool products have the best water repellency grade.



Note: Results from random in-house product testing.

The solution

ROCKWOOL Technical Insulation makes it easy for you to choose the right insulation material. All our standard material for marine and offshore, including SeaRox FB and FM 6000 lightweight insulation, is delivered with the best water repellency grade as standard. All fire tests and documentation relate to the highest water repellency grade, to ensure you do not choose the wrong product.

Because customers are fully aware of the importance of choosing the right product.

NORSOK standard C-002

Edition 4, September 2015
“All insulating materials used externally and in areas that may be exposed to moisture/condensation shall be water repellent and suitable for the marine environment and the intended context”.

Application overview

SeaRox FB 6000 and FM 6000: the best possible fire protection



The SeaRox FB 6000 fire boards and the FM 6000 fire mats are tailored to the needs of the marine and offshore industry. This high quality, low weight stone wool insulation complies with all IMO rules and regulations. Whatever the application.

That ensures the best possible fire protection and comfort in any situation.

- All products are available with reinforced aluminium foil on one side (e.g. SeaRox FB 6050 ALU).
- Estimated weight based on 1 sqm. Insulation split: 60% steel plate, 40% stiffener insulation.
- Acoustic measurements are performed according to ISO 10140-2 and ISO 717-1 on 6 mm steel plate.

Universal product name

Each SeaRox product name is structured in the same clear way:

SeaRox product line name followed by a product identifier (e.g. FB for fire board, FM for fire mat). This letter code refers to the form of the product. For example: SeaRox FB 6040. The digits reference the specific product characteristics and applications.

The first digit represents the product application:

- 3 = acoustic insulation
- 6 = fire protection
- 7 = comfort, product mainly for thermal insulation of accommodations
- 9 = thermal insulation, mainly for thermal insulation of technical installations

A-Constructions (aluminium)

LIGHTWEIGHT SOLUTIONS

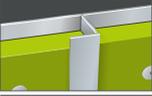
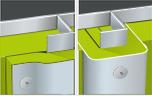
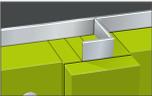
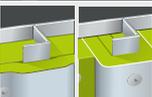
IMO
2010
FTP Code

Fire Class	Design	Products	Thickness (mm)	Density (kg/m ³)	Weight (kg/m ²)	Thermal conductivity (W/mK) at 10°C mean temp	U-value plate product (W/m ² K)	Weighted sound absorption (plate product)	Weighted sound reduction (Rw (dB))
Alu Bulkhead									
A60 Bulkhead	Mat	Plate: SeaRox FM 6040 ALU Insulation on both sides of the alu plate	2 x 35	60	8.4	0.034	0.49	-	46
		Stiffener: SeaRox FM 6040 ALU	2 x 35	60					
A60 Bulkhead restricted	Mat	Plate: SeaRox FM 6040 ALU	2 x 35	60	4.2	0.034	0.49	-	43
		Stiffener: SeaRox FM 6040 ALU	2 x 35	60					
Alu Deck									
A60 Deck	Mat	Plate: SeaRox FM 6040 ALU	2 x 35	60	4.2	0.034	0.49	-	43
		Stiffener: SeaRox FM 6040 ALU	2 x 35	60					

A-Constructions (steel)

LIGHTWEIGHT SOLUTIONS

IMO
2010
FTP Code

Fire Class	Design	Products	Thickness (mm)	Density (kg/m ³)	Weight (kg/m ²)	Thermal conductivity (W/mK) at 10°C mean temp	U-value plate product (W/m ² K)	Weighted sound absorption (plate product)	Weighted sound reduction Rw (dB)	
Steel Bulkhead										
NEW A15* Bulkhead		Slab	Plate: SeaRox FB 6040	35	60	1.3	0.034	0.97	-	45
			Stiffener: No insulation							
A30 Bulkhead		Slab	Plate: SeaRox FB 6020	70	40	2.5	0.034	0.49	0.95	46
			Stiffener: SeaRox FB 6050	30	70					
A30 Bulkhead		Slab/ Mat	Plate: SeaRox FB 6020	70	40	2.3	0.034	0.49	0.95	46
			Stiffener: SeaRox FM 6030 ALU	30	50					
A60 Bulkhead		Slab	Plate: SeaRox FB 6040	70	60	3.4	0.034	0.49	0.90	48
			Stiffener: SeaRox FB 6050	30	70					
A60 Bulkhead		Slab/ Mat	Plate: SeaRox FB 6040	70	60	3.4	0.034	0.49	0.90	48
			Stiffener: SeaRox FM 6040 ALU	35	60					
A60 Bulkhead restricted		Slab	Plate: SeaRox FB 6020	70	40	2.5	0.034	0.49	0.95	46
			Stiffener: SeaRox FB 6050	30	70					
A60 Bulkhead restricted		Slab/ Mat	Plate: SeaRox FB 6020	70	40	2.5	0.034	0.49	0.95	46
			Stiffener: SeaRox FM 6040 ALU	35	60					

* Certification is in progress

Steel Deck

A15 Deck		Slab	Plate: SeaRox FB 6020	70	40	1.7	0.034	0.49	-	45
			Stiffener: No insulation							
NEW A15 Deck		Slab	Plate: SeaRox FB 6040	35	60	1.3	0.034	0.97	-	45
			Stiffener: No insulation							
A30 Deck		Slab	Plate: SeaRox FB 6050	30	70	2.1	0.034	1.13	0.55	45
			Stiffener: SeaRox FB 6050	30	70					
A30 Deck		Mat	Plate: SeaRox FM 6030 ALU	30	50	1.5	0.034	1.13	-	46
			Stiffener: SeaRox FM 6030 ALU	30	50					
A30 Deck		Slab/ Mat	Plate: SeaRox FB 6050	30	70	1.9	0.034	1.13	0.55	45
			Stiffener: SeaRox FM 6030 ALU	30	50					
A60 Deck		Slab	Plate: SeaRox FB 6020	70	40	2.5	0.034	0.49	0.95	46
			Stiffener: SeaRox FB 6050	30	70					
A60 Deck		Mat	Plate: SeaRox FM 6040 ALU	50	60	3,0	0.034	0.68		47
			Stiffener: SeaRox FM 6040 ALU	50	60					
A60 Deck		Slab/ Mat	Plate: SeaRox FB 6020	70	40	2.5	0.034	0.49	0.95	46
			Stiffener: SeaRox FM 6040 ALU	35	60					



7 strengths of stone

There is something truly remarkable about the natural power of stone



Fire-resilience

Withstands temperatures above 1000°C.



Thermal properties

Saves energy by maintaining optimum indoor temperature and climate.



Acoustics capabilities

Blocks, absorbs or enhances sound.



Robustness

Longer-lasting performance and robustness with easier installation.



Aesthetics

Matches performance with aesthetics: see our sister brands Rockfon & Rockpanel.



Water properties

When engineered to repel water, stone wool can defend valuable industrial equipment from CUI.



Circularity

Reusable and recyclable material.

SeaRox insulation

Each of our SeaRox products combines most of the 7 strengths of stone with one ambitious goal in mind: to minimise the human impact on our surroundings, whilst maximising the safety and wellbeing of all the people interacting with our products.

ROCKWOOL stone wool is made from materials that nature itself produces in abundant quantities, one of the earth's inexhaustible resources - volcanic rock. In addition, stone wool withstands temperatures above 1000°C, making it highly fire resilient. This means our SeaRox product line provides the highest level of fire safety to protect people on ships and offshore platforms. Our fire safe solutions are tested according to the latest international fire test procedures, IMO 2010 FTP Code. At the same time we are able to offer both solutions in a low weight construction to reduce energy consumption and cut construction thicknesses to maximize space.

Our SeaRox products protect against noise and secure a pleasant thermal environment on board, as well as the outstanding water repellency guarantee to maintain the optimal insulation performance of the product.

ROCKWOOL Technical Insulation

ROCKWOOL Technical Insulation, is part of the ROCKWOOL Group, and is offering advanced technical insulation solutions for the process industry as well as the marine & offshore.

At the ROCKWOOL Group, we are committed to enriching the lives of everyone who experiences our product solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our product range reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With approximately 11,000 passionate colleagues in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine & offshore.

All explanations correspond to our current range of knowledge and are therefore up-to-date. The examples of use outlined in this document serve only to provide a better description and do not take special circumstances of specific cases into account. ROCKWOOL Technical Insulation places great value upon continuous development of products, to the extent that we too continuously work to improve our products without prior notice. We therefore recommend that you use the most recent edition of our publications, as our wealth of experience and knowledge is always growing. Should you require related information for your specific application or have any technical queries, please contact our sales department or visit our website rti.rockwool.com

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