



Marine Insulation



ULTIMATE insulation solutions
The lighter way to go

CertainTeed
SAINT-GOBAIN

ULTIMATE – Safety, the lighter solution.



The requirements for shipbuilding are increasingly challenging. Above all, this applies to safety onboard, a key issue especially with respect to fire protection. Additionally, never before has weight reduction and the weight of materials played such an important role. ULTIMATE provides the optimal answer: The new generation of high-performance mineral wool made by ISOVER, the world market leader for insulation solutions. ULTIMATE combines all the advantages of conventional mineral wool products used for fire, thermal and acoustic insulation, while at the same time allowing substantial weight savings. This gives you complete confidence for the ultimate safety you can rely on.

With ULTIMATE you save so much more.

An excellent balance in every respect: ULTIMATE's thermal performance considerably increases energy efficiency while at the same time significantly lowering operating costs and CO₂ emissions. Since ULTIMATE comes in an exceptionally lightweight and compressed packaging, it requires much less transportation and storage capacity. This allows a more convenient, faster and thus cost-saving installation onsite. Save money, time, space and the environment – thanks to ISOVER know-how!



ULTIMATE – The new standard for top performance in Marine and Offshore.

The latest insulation innovation from ISOVER provides a unique high-performance profile: It combines safety (through top-level fire resistance) with low weight and high insulation efficiency. The all-in-one solution to meet your demands.



-  Unique lightness
-  Effective fire protection
-  Excellent thermal insulation
-  Optimal acoustic performance
-  Maximum compressibility
-  Comfortable installation
-  Maximum flexibility
-  Active environmental protection
-  Fast installation
-  Cost-effective solutions

AIDAdiva
Meyer Werft, Germany





ULTIMATE – The formula for efficient insulation in shipbuilding.

All strengths. One product. Perfectly combined by ISOVER.



Unique lightness

ULTIMATE combines peak performance in fire protection and thermal insulation to create a product that's extremely lightweight. Up to 50% lighter than conventional mineral wool thermal, acoustic and fire resistant constructions, ULTIMATE sets totally new standards.



Effective fire protection

ULTIMATE meets the highest standards for fire protection, ranging from top level in reaction to fire to excellent fire resistant qualities. Each ULTIMATE product contains the full innovative power of ISOVER.



Excellent thermal insulation

Even with permanently high maximum service temperatures of 660°C, ULTIMATE offers superior protection from heat. And since ULTIMATE is converted from 100% raw materials into efficient insulation, it guarantees much better thermal insulation values at a reduced weight.



ULTIMATE – A good feeling in every respect

Ever since the company was founded, ISOVER has advocated the protection of our environment, not just as a corporate philosophy, but with active and demonstrable contributions. Being the worldwide leading manufacturer of insulation systems, ISOVER plays a decisive role in improving our global energy efficiency, particularly with respect to reducing the climatically critical output of CO₂. ISOVER ULTIMATE mineral wool insulation products are not classified as hazardous materials (Resolution A 962(23), IMO Guidelines) and therefore not to be listed in the "Green Passport".



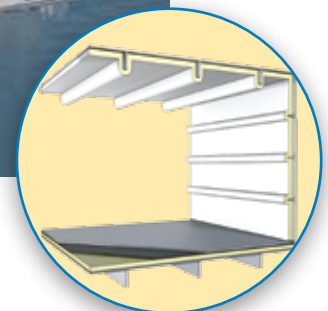
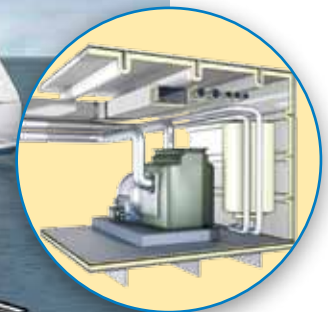
*Rainbow Warrior III
Fassmer GmbH, Germany*



Application Overview

ISOVER Insulation solution for marine and offshore – tailored to your needs

In many applications ISOVER mineral wool products help to fulfill the challenging requirements of the IMO rules and regulations. Either in shipbuilding, offshore, accommodation areas or technical installations, we provide extraordinary solutions in a wide assortment of tested and certified products and constructions for thermal insulation as well as for fire and sound protection.



Choose your application and find out more about the ISOVER product and construction range!

ULTIMATE	A- constructions	B- constructions	Floating floor	Thermal insulation	Acoustic insulation	Technical insulation		Subsea*	OEM marine constructions
						≤ 250 °C	> 250 °C		
Rolls	■	■		■	■	■	■	■	■
Panels	■	■	■	■	■	■	■		■
Wired Mats	■			■	■	■	■		■
Pipe Sections		■		■	■	■	■	■	■

* different mineral wool types



Changing deadload into payload – with ULTIMATE.

Increasing operational and building costs force the ship industry to go for more innovative and efficient solutions. Because in the end, a ship has to be profitable. Whether it's lower fuel consumption, higher speed, a decrease in emissions or lower startup costs: ULTIMATE gives you the possibility to benefit from up to 50% in weight savings in comparison to traditional stonewool solutions. See for yourself!

Aim of the ISOVER weight study:

Realize weight savings by replacing traditional stonewool with ULTIMATE products. More details about the weight study you'll find on: www.isover-technical-insulation.com.

Reference: RoRo Passenger Ferry, length 210 m, 2800 passengers, one car deck. This results in possible savings:

Result in weight reduction:
280,000 kg



Sometimes less is more. Lower costs – higher performance.



Reducing costs is a good thing. Not to create any in the first place is even better. Take advantage of ULTIMATE's innovative properties, such as its unique lightness and high compressibility, throughout your project. Benefit from revolutionary advantages for construction already in the design phase. Count on ULTIMATE's efficiency and ease of installation. And finally, enjoy lower operating costs or higher speed without limiting your other needs.

Weight savings: economic and innovative insulation.

ULTIMATE helps you improve the statics of your ship with identical insulation performance and less weight – that ensures more freedom in the planning phase. Get a head start in terms of number of cabins and payload, that none of your competitors can match when they use traditional mineral wool insulation solutions.

Operating cost savings: ULTIMATE puts you ahead of the game.

Minimum weight – maximum advantage. ULTIMATE offers you an ideal chance to massively cut down on energy consumption. When every extra gram means higher costs, the enormous weight savings realized with ULTIMATE significantly reduces consumption and emissions. And all this is achieved with at least identical levels of safety and comfort as traditional solutions.

- Considerably reduce weight
- Significantly lower fuel consumption
- Decrease in emissions
- Increase of speed
- Substantial financial benefits



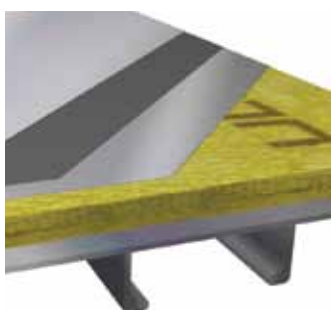


ULTIMATE – Top of the league.

Insulation solutions for steel constructions

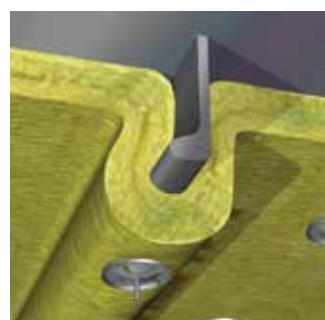
	Class	Between stiffeners			Around stiffeners			EC Type approval	Weight reduction up to*
		ULTIMATE Products	Thickness mm	Weight kg/m ²	ULTIMATE Products	Thickness mm	Weight kg/m ²		
Deck	A 15	U MPN 24	50	1.2	U MPN 24	50	1.2	■	35 %
	A 15	U MPN 24	50	1.2	U MPN 66	30	2.0	■	
	A 30	U MPN 24	50	1.2	U MPN 24	50	1.2	■	
	A 30	U MPN 24	50	1.2	U MPN 66	30	2.0	■	
	A 60	U MPN 36	60	2.2	U MPN 36	60	2.2	■	
	A 60	U MPN 36	60	2.2	U MPN 66	30	2.0	■	
Floating Floor	A 60	U MPN 90	50	4.5	steel layer			■	40 %
	A 60 dB-FLOOR	U MPN 90	50	4.5	floating screed (Weber)			■	
	A 60	U MPN 90	50	4.5	floating screed (Weber)			■	
Bulkhead	A 15	U MPN 24	50	1.2	U MPN 24	50	1.2	■	35 %
	A 15	U MPN 66**	30	2.0	U MPN 66	30	2.0	■	
	A 30	U MPN 36**	60	2.2	U MPN 36	60	2.2	■	
	A 30	U MPN 36**	60	2.2	U MPN 66	30	2.0	■	
	A 60	U MPN 66**	2 x 30	4.0	U MPN 66	30	2.0	■	
	A 60	U MPN 66**	70	4.6	U MPN 66	30	2.0	■	
	A 60	U MPN 48**	100	4.8	U MPN 66	30	2.0	■	
A 60 restricted	U MPN 36**	60	2.2	U MPN 66	30	2.0	■		

* with reference to conventional solutions using traditional stonewool per 2010/08, degree of weight reduction depends on construction details. Certificates apply also for faced products.
 ** also available with U Marine Wired Mats. For more information visit our ULTIMATE homepage www.isover-technical-insulation.com



Floating floor:
 Fire protection insulation with weight savings of up to 50% (e.g. up to 4.5 kg/m²). Single or double-layer solutions. Surface with steel or floating screed.

Steel bulkhead:
 Up to 35% weight saved in steel bulkhead constructions. ULTIMATE products are bendable around stiffeners, thus installation is very fast. Rolls, slabs or wired mats shown are available.



Steel deck:
 Weight reduction up to 35% for fire insulation of steel decks. Depending on the conditions, rolls can also be used for a safer and more economic installation.

Versatile facings:
 ULTIMATE products for fire constructions can be applied with different kinds of facings. Detailed information available in the fire certificates.



Products available with different certified and tested facings.

Insulation solutions for aluminum constructions

	Class	Between stiffeners			Around stiffeners		EC Type approval	Weight reduction up to*
		ULTIMATE Products	Thickness mm	Weight kg/m ²	Thickness mm	Weight kg/m ²		
Deck	A 30	U Marine Wired Mat 66 N	40	2.6	40	2.6	■	21 %
	A 60	U MPN 66	2 x 30	4.0	2 x 30	4.0	■	
	A 60	U Marine Wired Mat 66 N	70	4.6	70	4.6	■	
Bulkhead	A 60	U MPN 66**	2 x 30 both sides	8.0	2 x 30	4.0	■	40 %
	A 60	U MPN 66**	70 both sides	9.2	70	4.6	■	
	A 60 restricted	U MPN 66**	2 x 30	4.0	2 x 30	4.0	■	

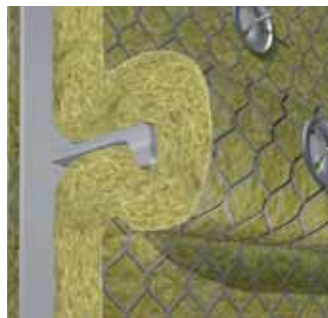
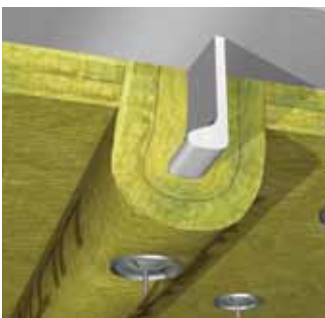
Insulation solutions for composite constructions

	Class	Between stiffeners			Around stiffeners		EC Type approval
		ULTIMATE Products	Thickness mm	Weight kg/m ²	Thickness mm	Weight kg/m ²	
Deck	FRD 60	U MPN 85/ U MPN 66	100	7.5	125	8.7	■
	FRD 30	U MPN 85/ U MPN 66	75	5.5	100	6.6	■
Bulkhead	FRD 60	U MPN 85/ U MPN 66	100	7.5			■
	FRD 30	U MPN 85/ U MPN 66	75	5.5			■

* with reference to conventional solutions using traditional stonewool per 2010/08, degree of weight reduction depends on construction details. Certificates apply also for faced products.
** also available with U Marine Wired Mats. For more information visit our ULTIMATE homepage www.isover-technical-insulation.com

Aluminum deck:

Weight savings up to 21% for light aluminum constructions. Very fast installation thanks to flexible slabs that can be bent around the stiffeners. The highest safety: Fire protection to A 60 standards.



Aluminum bulkhead:

Up to 40% weight savings with A 60 fire protection insulation. Either flexible slabs or one-layer wired mat solutions offer more rapid and efficient installation compared to traditional solutions.

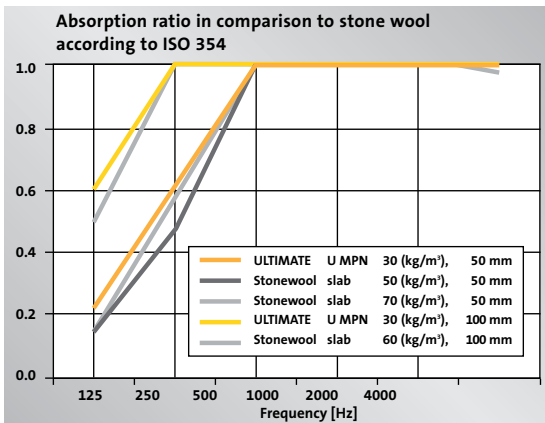
Composite deck and bulkhead:

Light structural fire protection system opens up a new era in shipbuilding. There is only one alternative wherever weight plays a significant role and the safety standards leave no space for tolerances. ULTIMATE meets the stringent requirements for fire protection of composite materials with as little as 7,5 kg/m² of insulation between the stiffeners. Two innovative materials working together.



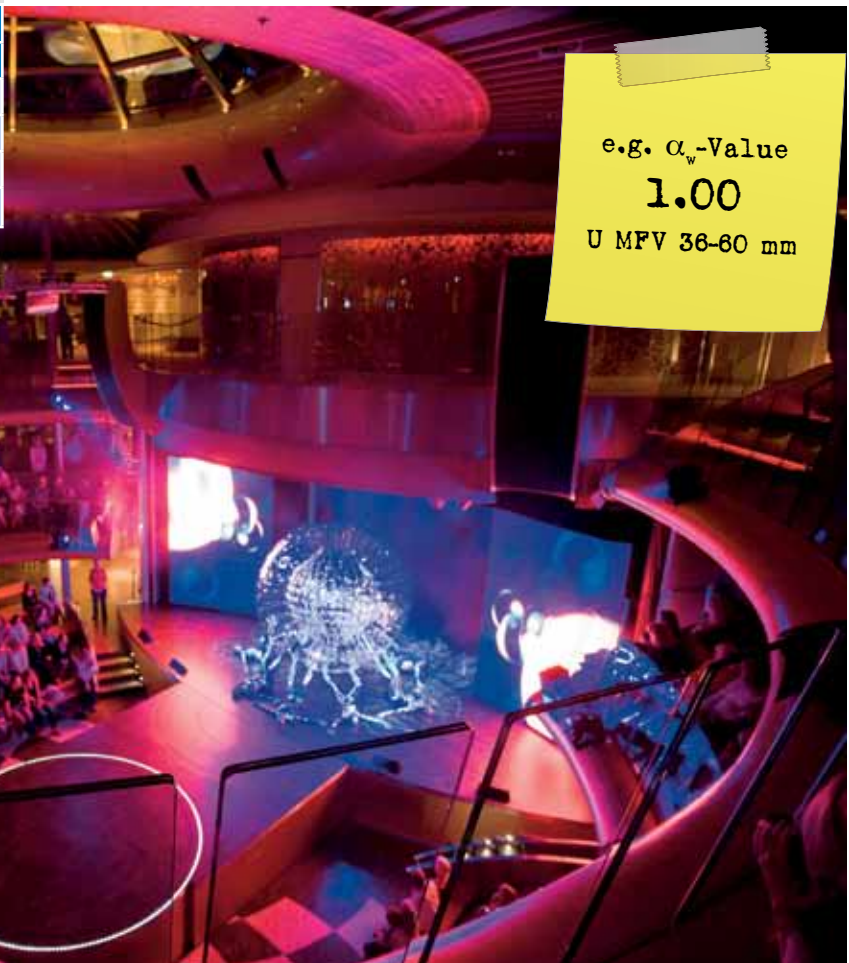


Pleasant voyage – with ULTIMATE quietness.



Acoustic insulation onboard – especially in passenger shipbuilding – has been the subject of continuously rising standards. But ULTIMATE will easily help you make that decisive leap forward to state-of-the-art solutions. With acoustic insulation properties improved by up to 50%, this high-performance insulation clearly distinguishes itself from traditional solutions. ULTIMATE achieves identical sound absorption properties with only about half of the weight, compared to traditional stonewool. This means that ULTIMATE offers you improved acoustic comfort due to its high-level sound absorption properties as well as very good sound reduction. Unheard of advantages – for your passengers and you.

Air flow resistivity kPa·s/m²	
ULTIMATE	Stonewool
24 (kg/m³): ffl 12	30-50 (kg/m³): ffl 5
36 (kg/m³): ffl 20	70 (kg/m³): ffl 18
66 (kg/m³): ffl 48	100 (kg/m³): ffl 25
80 (kg/m³): ffl 70	120 (kg/m³): ffl 35



Innovative theater area aboard AIDA cruise vessel

ULTIMATE

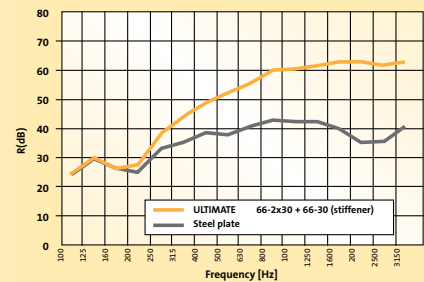
– And noise stays outside.

Acoustic insulation is one of the major tasks insulation materials have to achieve, especially in passenger liners. You not only want to protect your passengers from distracting and potentially harmful noise, you want to create a pleasant acoustic environment. Installing sound absorption materials like ULTIMATE is an excellent way to achieve this. The following set of acoustic measurements shows that lightweight products achieve extraordinary results in sound reduction. It's not weight that counts, it's performance!



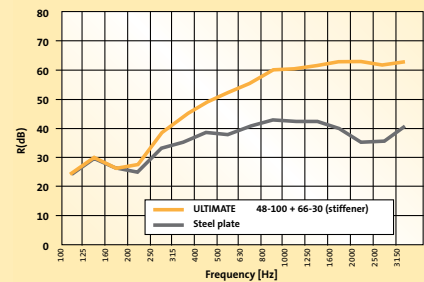
U MPN 66 (66 kg/m³), 2 x 30 mm
U MPN 66 (66 kg/m³), 30 mm (stiffeners)

R_w = 47 dB



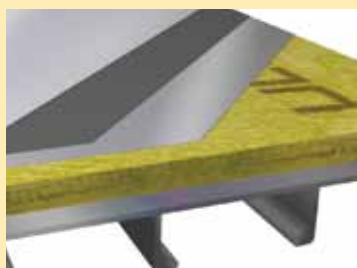
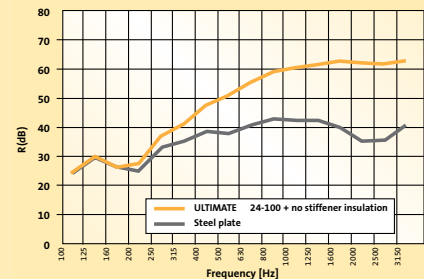
U MPA 48 (48 kg/m³), 100 mm
U MPA 66 (66 kg/m³), 30 mm (stiffeners)

R_w = 49 dB



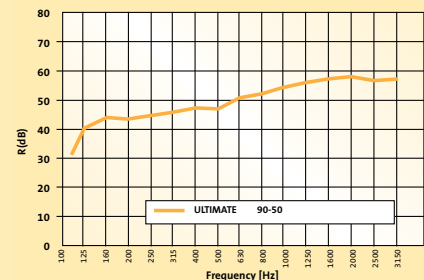
U MPN 24 (24 kg/m³), 100 mm
without stiffener insulation

R_w = 48 dB



U MPN 90 (90 kg/m³), 50 mm
Steel layer 2 + 3 mm

R_w = 53 dB



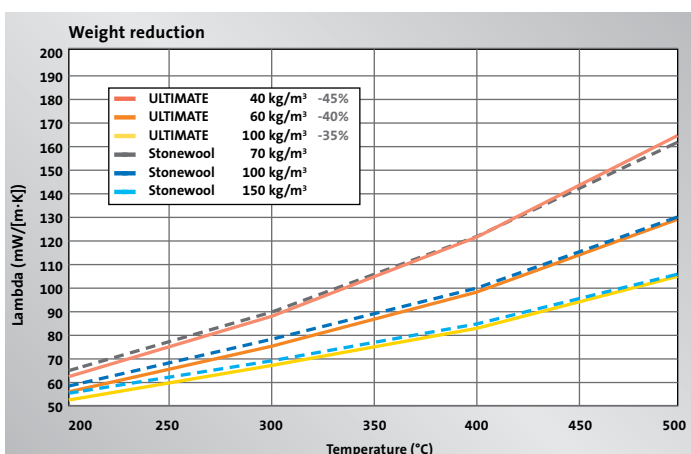
Acoustic result with screed layer see page 19



Same performance – lower weight. Same weight – better performance.

Excellent thermal insulation combined with unique efficiency: ULTIMATE is not only a top level thermal insulator with a permanent maximum service temperature up to 660°C, it also offers thermal insulation properties that provide a 45% weight reduction in comparison with conventional mineral wool solutions of the same thermal performance. Consequently, it is possible to achieve the same insulation values coupled with a significant savings in weight. ULTIMATE achieves these excellent lambda values, because it is converted from raw material into 100% efficient insulation and is completely free of slugs. This pays off with increased insulation efficiency and a feel-good atmosphere for your passengers.

e.g. U-Value
0.33
U MFA 24-100 mm



Best working conditions thanks to ULTIMATE.

Protection from heat below deck is very important: Whether in the engine room or when running operational equipment. At extreme temperatures ULTIMATE proves its great worth. And your staff will see the benefit.

ULTIMATE guarantees excellent comfort onboard.

The prerequisite for a pleasant voyage onboard is a well-balanced, comfortable climate. With cabins that have been insulated with ULTIMATE, passengers can feel as comfortable as they do at home, or even better.

ULTIMATE – All in One

Effective fire protection, excellent thermal and optimal acoustic insulation are performances combined in all constructions where ULTIMATE is involved. The high performing lightweight mineral wool, often in one-layer constructions, is already fulfilling most of the comfort and safety requirements. Additionally, it saves installation time.

ULTIMATE All-in-One

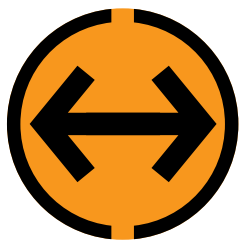


	Product	Thickness mm	Class	Weight kg/m ²	Weighted sound absorption coeff.* (level product) α_{w}	Weighted sound reduction index* R_w [dB]	Dynamic stiffness* MN/m	Thermal transmission coeff. (level product) W/m K
	U MPN 48 / U MWM 48	100	A 60 Bulkhead	4.8	1.0	49	-	0.31
	U MPN 66 / U MWM 66	2 x 30	A 60 Bulkhead	4.0	1.0	47	-	0.50
	U MPA 66 alu foil	70	A 60 Bulkhead	4.6	0.85	47	-	0.44
	U MPN 36	60	A 60 Deckhead	2.2	1.0	47	-	0.54
	U MPN 36	60	A 30 Bulkhead	2.2	1.0	47	-	0.54
	U MPN 24	100	A 0 Bulkhead	2.4	1.0	48	-	0.33
	U MPV 24 glass tissue	50	A 15 / A 30 Deckhead	1.2	0.95	47	-	0.67
	U MPN 90	50	A 60 Floating Floor Steel top layer	4.5	-	53	< 7	-
	U MPN 90	50	A 60 Floating Floor Screed top layer	4.5	-	61	< 7	-

* For more information visit our homepage www.isover-technical-insulation.com. Measurements under laboratory conditions.



MEYER WERFT GmbH



Get your insulation into perfect shape with ULTIMATE.

Thanks to its unique flexibility, ULTIMATE perfectly adapts to all onsite conditions, such as uneven surface structures. This makes installation surprisingly easy while at the same time opening up totally new construction solutions. Even bending around the stiffeners is possible without any problems. Save yourself the time-consuming work of encasing or the cost of expensive prefabrications. With its high flexibility, ULTIMATE easily adapts to your individual needs.



Fewer thermal bridges thanks to continuous installation.



All fire protection products are marked with density and thickness for easier differentiation.



Bending around the stiffeners – fast, easy and efficient. Example shown with ULTIMATE U MPN 66.

Labor savings. Better conditions for shipyard and dock workers.



Thanks to its low weight, the handling of ULTIMATE onboard is very efficient and user-friendly. The transportation of the material, especially to areas difficult to access, can be managed more easily. ULTIMATE can be easily lifted due to light weight and handy packaging. And the cutting and installation turns out to be much more convenient than with conventional products.



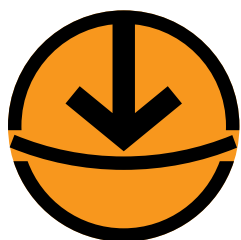
On the safe side with ULTIMATE. Easy workability is integral.



From easy cutting to easy bending around stiffeners – the installation of ULTIMATE is fast and flexible. And since edge breaks are finally a thing of the past, ULTIMATE can be installed without problems – even in the most difficult corners. On top of it all, ULTIMATE is installed with minimal site waste. Even off cuts can be used for filling niches and holes.



- Easy cutting
- Robust and stable
- Even off cuts can be used
- Flexible forming
- No edge breaks
- Virtually waste-free



Compact insulation for maximum logistic efficiency.

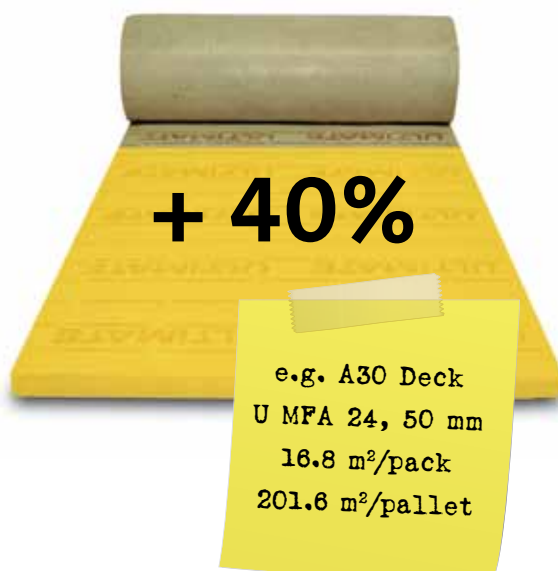
When it comes to transportation and load capacity, ULTIMATE reveals the full potential of its highly flexible fiber structure. Due to its extreme compressibility, the material saves you up to 60% of total freight mileage. In addition, the remarkably low weight helps to cut down on fuel consumption during transit. ULTIMATE not only saves space, time and expense, it also contributes to protecting our environment.



Up to **60 %** space gain

Up to 40 % more product from every roll

ULTIMATE high compressibility does more than just ensure excellent logistical efficiency. Despite a very compact package size, the insulation amount in m² per roll is up to 40% higher than comparable products. Install ULTIMATE – and see what full performance looks like.



+ 40%

e.g. A30 Deck
U MFA 24, 50 mm
16.8 m²/pack
201.6 m²/pallet

ULTIMATE – On the safe side.



ULTIMATE’s pleasant handling is mainly due to its flexible, elastic fiber structure. Being free of slugs, ULTIMATE is also noticeably easier to grip. ULTIMATE meets the EU criteria for the quality label “Products made of Mineral Wool”.

- Free of slugs and shot
- Extremely grip-friendly
- Not harmful to health
- EUCB and RAL certificates



ULTIMATE – Referencing success.

In comparison, ULTIMATE already proves its worth by offering top performance coupled with substantial weight savings in:

- Cruise ships
- Ferries
- Luxury Yachts
- Navy Ships (military ships)
- Offshore platforms and supply vessels
- OEM Marine Constructions

Interested in further testimonials – or in becoming a reference yourself? Just contact us – we will be glad to inform you.



*Seabourn Sojourn,
Mariotti Yard, Italy*



*Alexander von Humboldt II
BVT, Germany*



*Accommodation Platform Ekofisk,
built in Singapore*



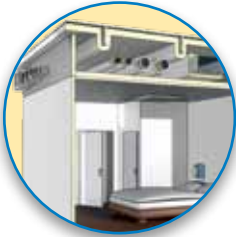
Swath Pilot vessel "Elbe"
Abeking & Rasmussen, Germany

Other applications in Marine.



HVAC and Technical Equipment

Our product range can meet all kinds of requirements in many different fields of application. Most of the different applications can be connected to the aspects of safety and/or comfort. Various applications where ULTIMATE can and have been used include: Engine rooms, heating systems, air conditioning & ventilation, piping, boilers and others.



OEM Marine Constructions

Many solutions have been developed by working with our customers and using the advantages of the high performing product range that we are offering. We will find the right product for your requirements, whether it's fire protection or noise abatement. This has resulted in solutions for panels, cabin walls, ceilings, fire doors or even containerized room systems.



Offshore/ Subsea

With the ISOVER SeaLine product range we offer solutions for pipe-in-pipe in offshore applications. We also manufacture pre-formed segment pipe sections and flexible mats that are designed to provide thermal insulation of subsea pipelines and specialized industrial applications.

For further information on our wide range of products please visit us on www.isover-technical-insulation.com



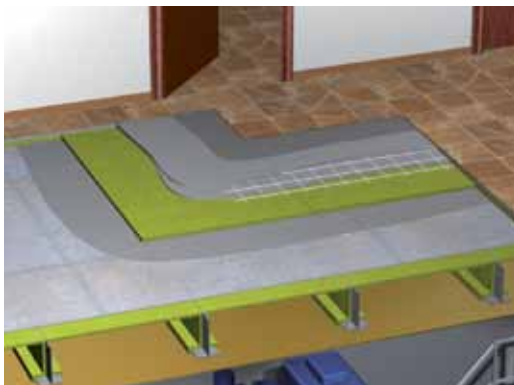
Electrical vessel, STX Lorient, France



The ultimate Floating Floor solutions.

ISOVER and Weber Marine Flooring systems are built layer by layer to provide the optimum solution for each individual client's requirements. High performing, lightweight mineral wool insulation, together with pumpable self-leveling floor screeds, allow you to achieve the thinnest floors possible with a high strength that performs to exact standards even in highly demanding environments.

Weber Marine A-60 Floor

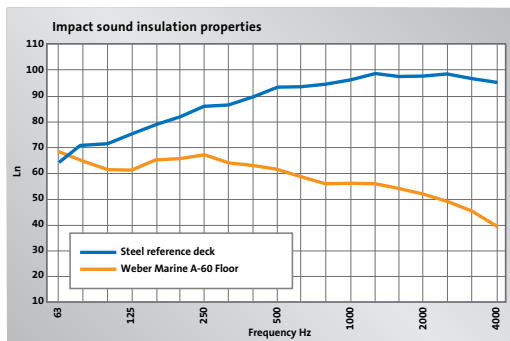


Composed of the following layers:
 1: 50 mm ISOVER ULTIMATE U MPN 90
 2: Interglass woven glass fabric with weight 100-300 g/m², or equivalent product
 3: Steel reinforcement net Ø 5mm, grid 150 x 150mm
 4: 25mm weber.floor 4665 Marine Fire (cement based leveling compound with nominal density of 1.7 kg/m²/mm)



Acoustic results:

- Airborne sound: $R_w = 60\text{dB}$
- Impact sound: $L_{n,w} = 60\text{dB}$



- Structure borne sound: results available in the acoustic report

Advantages:

- Pumpable and self-leveling floor screed is ready to receive surface finish after 1-3 days.
- Rapid installation, fast curing of screed.
- Rapid drying times mean floors are walkable after 1-3 hours.
- High strength, low thickness characteristics minimize loss of floor-to-ceiling height.
- Certified optimal acoustic performance with effective fire protection.



Further ultimate

solutions with
Weber and ISOVER:

- Weber Marine dB A-60 Floor
- Weber Marine dB Floor

For more information
 visit us on
www.weber-marine.com or
www.isover-technical-insulation.com

Your product compass.

ULTIMATE offers solutions for all fire resistant constructions in shipbuilding, based on a streamlined portfolio of standard products. This clearly defined assortment not only provides advantages for storage and transportation, but also for onboard installation where mix-ups can be effectively avoided.



Rolls

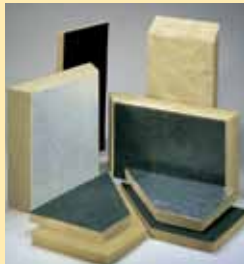
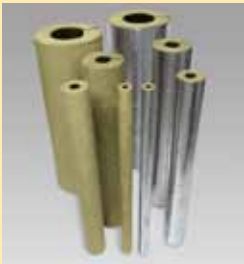


Slabs



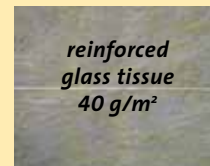
Wired Mats

Insulation performance – tailored to your needs.



The ULTIMATE standard product range already meets most of the diverse demands for fire, sound and thermal insulation. Additionally, we offer a huge range of special solutions for cutting and packaging to fulfill your individual needs. Furthermore, a broad range of certified facings (e.g. for moisture protection) complete the product portfolio.

Facings



Accessories

Marine Tape G 120
(self-adhesive glass fabric tape)



Marine Tape Alu
(self-adhesive pure alufoil tape)

Only what complies with all norms can set new standards.



ULTIMATE is fully certified according to the IMO Resolutions, in particular for fire protection in shipbuilding. In order to meet the challenges of tomorrow, ULTIMATE is continuously being further developed based on ISOVER's expertise. The products are certified with a broad range of facing types.

DNV verified that ULTIMATE complies with "Rules of classification of ship and mobile offshore units" and "DNV Offshore Standard".

Form	Product	Facings	EC Type Examination (MED)	US Coast Guard	Bureau Veritas	WIEB (German Navy)	Russian Maritime RS	Germanischer Lloyd	American Bureau of Shipping (ABS)
Rolls	U MFN 13 - U MFN 36	unfaced	■	■	■	■	■	■	■
	U MFA 13 - U MFA 36	reinforced alufoil	■	■	■	■	■	■	■
	U MFV 13 - U MFV 36	glass tissue	■	■		■	■	■	■
	U MFG 20-220 to U MFG 36-220	glass cloth	■	■	■	■	■	■	■
Wired Mat	U Marine Wired Mat 36 N to U Marine Wired Mat 66 N	unfaced	■	■	■	■		■	
	U Marine Wired Mat 36 Alu 1 to U Marine Wired Mat 66 Alu 1	reinforced alufoil	■	■	■	■		■	
Pipe sections	Protect 1000 S	unfaced	■	■	■	■		■	■
	Protect 1000 S Alu	reinforced alufoil	■	■	■	■		■	■
Slabs	U MPN 20 - U MPN 100	unfaced	■	■	■	■	■	■	■
	U MPA 20 - U MPA 120	reinforced alufoil	■	■	■	■	■	■	■
	U MPV 20 - U MPV 90	glass tissue	■	■	■	■	■	■	■
	U MPG 20 - U MPG 90 (120 - 420 g/m ²)	glass cloth	■	■	■	■	■	■	■
	U MPB 20 - U MPB 100	glass cloth / alu composite	■	■					
Tape	Marine Tape G 120	glass cloth	■*	■*					
	Marine Tape Alu	pure alu	■*	■*					

■ In preparation. For more information visit our homepage www.isovert-technical-insulation.com
* low flame spread certification



Product Data

Logistics						Acoustic properties			Thermal properties		Key application
ULTIMATE product density kg/m ³	Type	Thickness mm	Length mm	Width mm	Content m ³ /pack	Weighted sound absorption coefficient ⁽²⁾ α_w (glass tissue faced)	Weighted sound reduction Index ⁽⁴⁾ R_w dB (steel sheet 6 mm thick)	Airflow resistivity ⁽⁵⁾ kPa*s/m ²	Thermal conductivity 10°C [W/mK]	U-Value 6 mm steel sheet [W/m ² K]	
24	roll ⁽¹⁾	50	14,000	1,200	16.80	≥ 0.95	47	≥ 12	0.033	0.67	Mainly thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		60	12,000	1,200	14.40	≥ 0.95 ⁽³⁾				0.56	
		80	9,000	1,200	10.80	≥ 0.95 ⁽³⁾				0.42	
		100	7,000	1,200	8.40	≥ 0.95 ⁽³⁾	48			0.33	
36	roll ⁽¹⁾	50	8,000	1,200	9.60	measurement in progress		≥ 20	0.032	0.65	Fire protection, thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		60	6,500	1,200	7.80	1.0	47			0.54	
		80	5,000	1,200	6.00	1.0 ⁽³⁾				0.40	
		100	4,000	1,200	4.80	1.0 ⁽³⁾				0.32	
36	WNM ⁽¹⁾	50	6,300	600	7.56	measurement in progress		≥ 20	0.032	0.65	Fire protection, thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		60	5,200	600	6.24	1.0				0.54	
		80	3,900	600	4.68	1.0 ⁽³⁾				0.40	
		100	3,100	600	3.72	1.0 ⁽³⁾				0.40	
48	WNM ⁽¹⁾	50	6,300	600	7.56	1.0	46	≥ 30	0.031	0.63	Fire protection, thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		80	3,900	600	4.68	1.0 ⁽³⁾				0.39	
		100	3,100	600	3.72	1.0 ⁽³⁾	49			0.31	
66	WNM ⁽¹⁾	30	10,000	600	12.00	≥ 0.7		≥ 48	0.030	1.05	Mainly fire protection (thickness to be checked with certificates)
		40	7,500	600	9.00	≥ 0.7 ⁽³⁾				0.80	
		50	6,000	600	7.20	≥ 0.7 ⁽³⁾				0.63	
		60	5,000	600	6.00	1.0	47			0.53	
		70	4,300	600	5.16	1.0 ⁽³⁾	47			0.44	
		80	3,700	600	4.44	1.0 ⁽³⁾				0.39	
		100	3,000	600	3.60	1.0 ⁽³⁾				0.31	

Some of the products have to be ordered with minimum order quantities (MOQ)

(1) Other facings and thicknesses on request (e.g. glass tissue, glass cloth, alu foil...)

(2) Sound absorption coefficients have been measured according to ISO 354. α_w is calculated according to ISO 11654.

(3) Sound absorption coefficient is improving by increasing the thickness of the product

(4) Sound reduction indexes have been measured according to ISO 140-3 (replaced by ISO 10140-1/2/4/5 since 2010) on bulkheads/deckheads of 2m².

R_w is calculated according to ISO 717-1

(5) Airflow resistivity is measured according to ISO 9053.

Logistics						Acoustic properties			Thermal properties		Key application
ULTIMATE product density kg/m ³	Type	Thickness mm	Length mm	Width mm	Content m ³ /pack	Weighted sound absorption coefficient ⁽²⁾ α_w (glass tissue faced)	Weighted sound reduction Index ⁽⁴⁾ R_w dB (steel sheet 6 mm thick)	Airflow resistivity ⁽⁵⁾ kPa*s/m ²	Thermal conductivity 10°C [W/mK]	U-Value 6 mm steel sheet [W/m ² K]	
24	slab ⁽¹⁾	50	1,200	600	7.20	≥ 0.95	47	≥ 12	0.033	0.67	Mainly thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		60	1,200	600	5.76	≥ 0.95 ⁽³⁾				0.56	
		80	1,200	600	4.32	≥ 0.95 ⁽³⁾				0.42	
		100	1,200	600	3.60	≥ 0.95 ⁽³⁾	48			0.33	
36	slab ⁽¹⁾	30	1,200	600	9.36	measurement in progress		≥ 20	0.032	1.11	Fire protection, thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		40	1,200	600	7.20					0.80	
		50	1,200	600	5.76					0.65	
		60	1,200	600	4.32	1.0	47			0.54	
		80	1,200	600	3.60	1.0 ⁽³⁾				0.40	
		100	1,200	600	2.88	1.0 ⁽³⁾				0.32	
48	slab ⁽¹⁾	50	1,200	600	5.76	1.0	46	≥ 30	0.031	0.63	Fire protection, thermal and acoustic insulation of all kind of constructions (fire protection to be checked with certificates)
		100	1,200	600	2.88	1.0 ⁽³⁾	49			0.31	
66	slab ⁽¹⁾	30	1,200	600	9.36	≥ 0.7	44	≥ 48	0.030	1.05	Mainly fire protection to be checked with certificates
		40	1,200	600	7.20	≥ 0.7 ⁽³⁾				0.80	
		50	1,200	600	5.76	≥ 0.7 ⁽³⁾				0.63	
		60	1,200	600	4.32	1.0	47			0.53	
		70	1,200	600	3.60	1.0 ⁽³⁾	47			0.44	
		80	1,200	600	3.60	1.0 ⁽³⁾				0.39	
		100	1,200	600	2.88	1.0 ⁽³⁾				0.31	
90	slab ⁽¹⁾	30	1,200	600	9.36			≥ 70	0.030	1.05	Mainly fire protection and acoustic insulation for Floating Floor constructions (to be checked with certificates)
		40	1,200	600	7.20					0.80	
		50	1,200	600	5.76	≥ 53				0.63	
		60	1,200	600	4.32					0.53	

Some of the products have to be ordered with minimum order quantities (MOQ)

(1) Other facings and thicknesses on request (e.g. glass tissue, glass cloth, alu foil...)

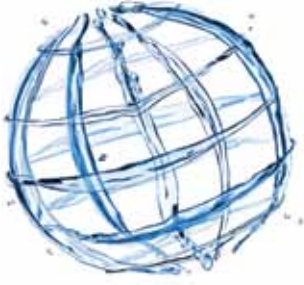
(2) Sound absorption coefficients have been measured according to ISO 354. α_w is calculated according to ISO 11654.

(3) Sound absorption coefficient is improving by increasing the thickness of the product

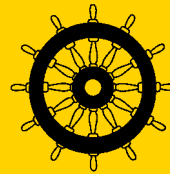
(4) Sound reduction indexes have been measured according to ISO 140-3 (replaced by ISO 10140-1/2/4/5 since 2010) on bulkheads/deckheads of 2m².

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(5) Airflow resistivity is measured according to ISO 9053.



ULTIMATE – An answer to every question.



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