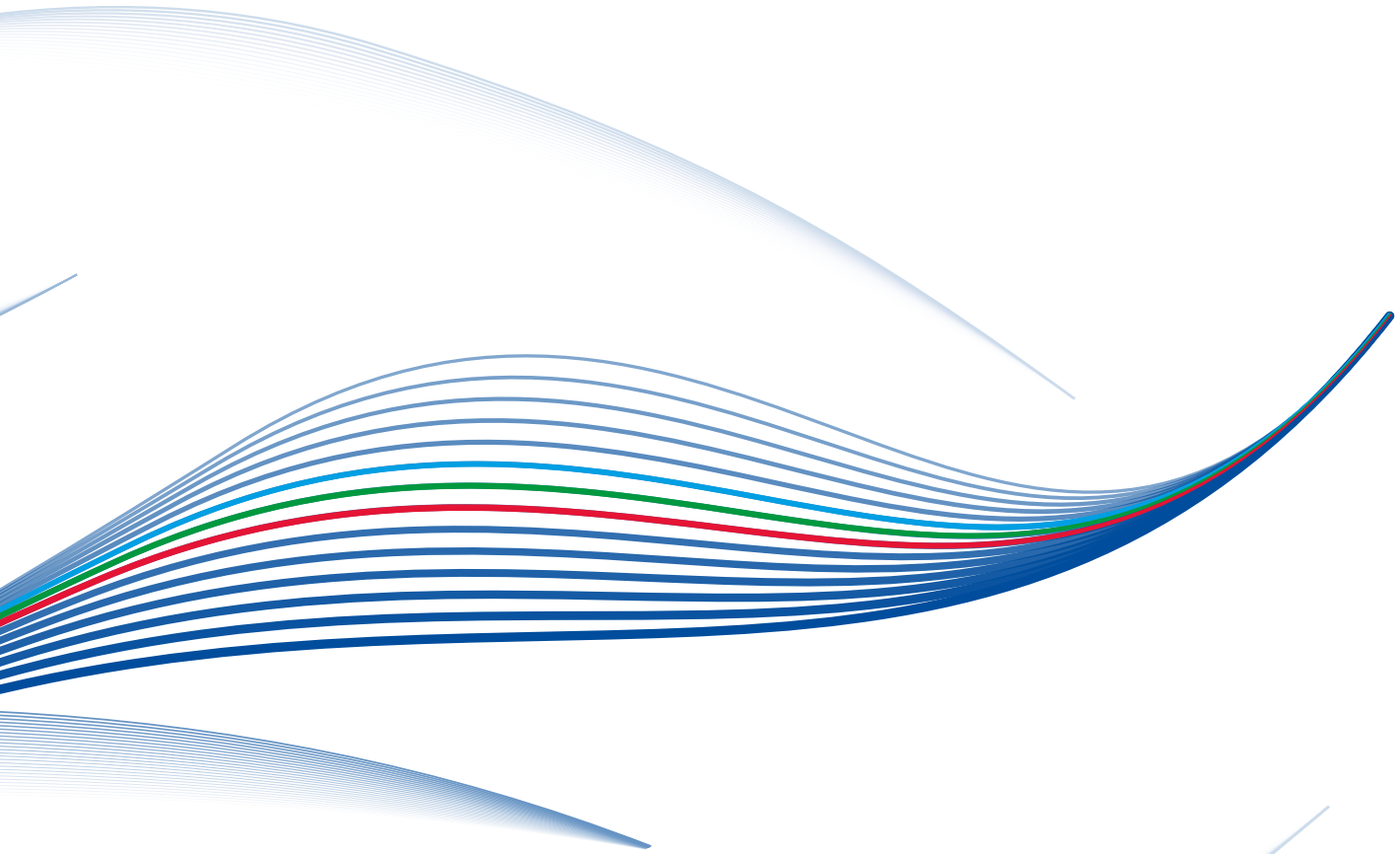
eternity**comfort**

R1 Elements for roof ventilation and accessories

R2 **Breathable membranes and vapour control layers**

R3 Waterproofing, air- and windtightness



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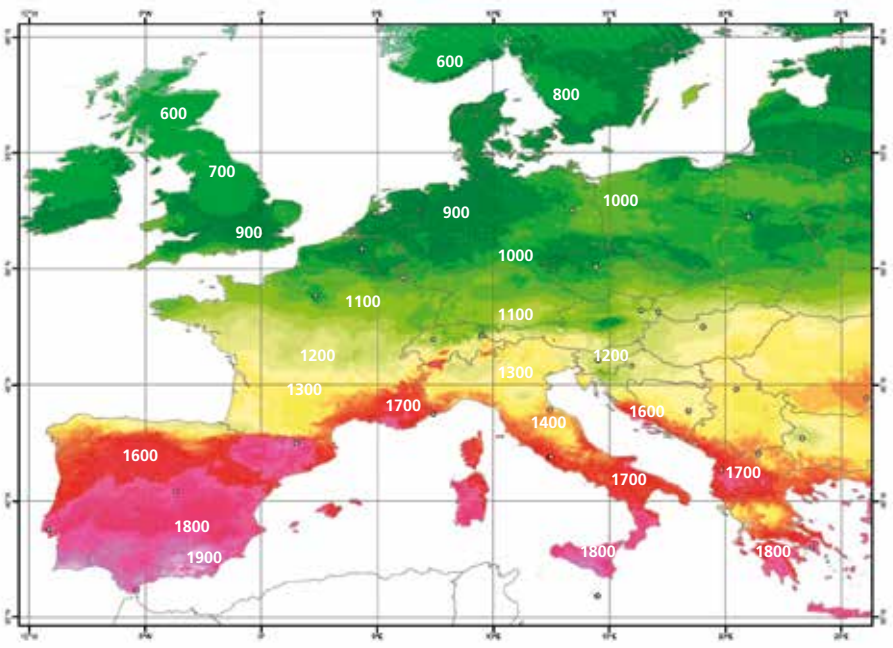
The evolution of breathable membranes

In Europe we have two types of climate divided by a natural watershed: the Alpine region. In the north we have a cool climate with low solar radiation, while in the southern part of the Alps, solar radiation and temperatures are more intense. In the northern part of this Alpine area (from Austria to Scandinavia) we have a yearly medium sun radiation of about 900 kWh/m² (from 600 to 1100) versus 1500 kWh/m² (from 1300 to 1800) in the south of the Alps (Mediterranean zone). Here the UV-radiation is ore than 70% higher than in the northern zone.

Depending on the location the product is exposed to UV-rays in various ways. As we protect our skin from UV-rays, the under-tile breathable membranes have to be protected as well. Membranes which are exposed to the sun for a long time whitout roof covering must be properly designed, produced and treated so that the the performance is given for a long time.

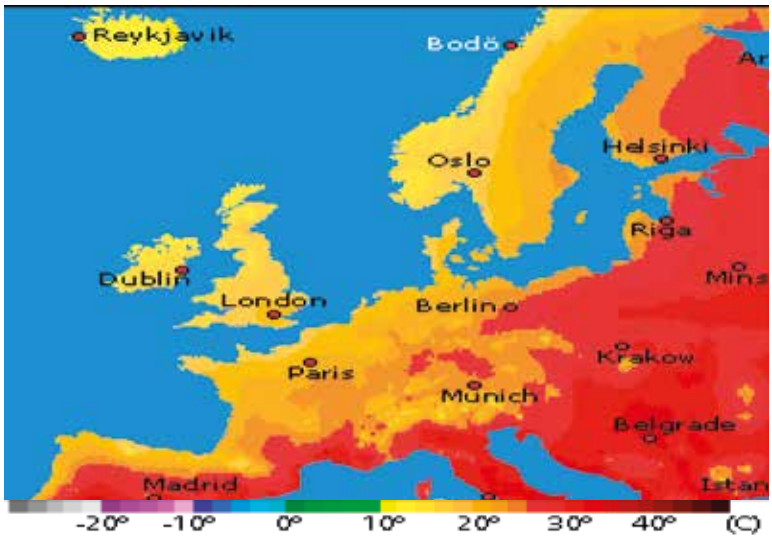
It is important to consider that the temperatures of a respective zone is influenced by solar radiation . In the south of the Alps the maximum temperatures can reach up to 40°C while in the northern part temperatures are rearly over 25°C.



Map of average annual solar radiation in kWh/m²

Obviously these variations in temperature and solar radiation have great influence on the building covering causing temperature differences under the tiles as well. This temperature, in the Mediterranean zone, is between 60°C (ventilated roofs) and 90°C (non-ventilated roofs), while in the northern zone the maximum undertile temperature is 40°C.

This means that the under-tile products used in zones with a Mediterranean climate must support extreme temperatures for their entire lifespan. To guarantee temperature and UV stability, the products must be designed, tested and produced with the best technologies and appropriate materials.



Map of maximum temperatures in Europe

Riwega has been present on the Italian market with synthetic under-tile products since 20 years. Inn the last few years Riwega has expanded the business to markets such as Spain, France, Slovenia, Croatia, Albania, Greece, Turkey as well as Northern Europe. In order to guarantee adequate protection against the above-mentioned climatic conditions, Riwega is always developing and producting the best possible quality materials.

First generation of breathable membranes: the European „standard“

UV stabilized (2%), protective top layer
Microporous film of 30% polypropylene and 70% gypsum powder
Protective bottom layer

In the first years, Riwega introduced breathable membranes according to the European standard, but immediately realized that something needed to be changed and improved.

Second stage of evolution: the USB Superior line

Protective, UV stabilized (4/5%) and water repellent top layer
Microporous **UV 10 Plus** layer, waterproof and breathable
Protective absorbent bottom layer

Thanks to Riwega's studies and tests on materials we have started to treat polypropylene fabrics with **specific UV stabilizers**, thus increasing the value from 2% to **4-5%**. As necessary for warmer climates, we added a **new functional film layer** called **UV 10 Plus**. This functional layer with lower gypsum powder content, guarantees optimum breathability and better resistance to UV rays and temperatures.
With this improvement Riwega has made a step ahead compared to the rest of the European competitors, introducing breathable membranes in absolutely superior quality: the **Riwega Superior line**.

The new generation in PUR/PET: Riwega USB Protector

UV stable protective top layer in polyester (PET)
Elastic, impermeable and breathable monolithic **UV 50** film in PUR
Protective bottom layer in polyester (PET)

Riwega has continued to research and develop its products, finally releasing in 2013 a new line of **USB Protector** products with a central elastic, monolithic film in **Reactive Polyurethane (PUR)** and fabrics in **polyester (PET)**.
The characteristics of Reactive Polyurethane (PUR) are: high mechanical resistance and flexibility, plus optimum resistance to ozone, UV rays and ageing. Polyester's characteristics are: optimum durability and resilience, high resistance to abrasion, folds and heat, optimum elasticity and a low coefficient of absorption.
Thanks to these characteristics, the **USB Protector GOLD 330** and **USB Protector SILVER 230** products started a **new era in the field of roof underlayers**, offering more security for the insulation package even in unfavourable conditions such as broken tiles, discontinuities of the covering or presence of solar or photovoltaic panels.

The latest evolution: Riwega USB Protector Head

Protective, UV stabilized (4/5%), water repellent top layer
Elastic, impermeable and breathable monolithic **UV 50** film in PUR
Protective polypropylene bottom layer

To combine the durability of the USB Protector membranes with the price-performance ratio of the Superior line, Riwega launched the new **USB Protector Head** line in January 2017.
The new membranes **USB Protector Head FH 200** and **USB Protector Head FH 330** combine the middle **UV 50** PUR film with protective layers in UV stabilized PP. The result is a durable membrane which provides the right mix of **quality/price/guarantee**. The FH factor has been added to improve the fire behaviour.

Our guarantees

Having a roof over your head means feeling safe, secure and protected.

The duty of producers is to supply high performance, long-lasting products to guarantee a feeling of security to those who live under the roof day by day. This is why the vapour control layers and breathable membranes must be designed, tested and produced using the best technologies combined with the best raw materials available.

For several years now, Riwega is working on a constant improvement of the material performance and in order to prove the high products´ standard, Riwega is providing a 10, 15 or even 20 years guarantee. Below you can find a list of the products with 10, 15 or 20 years guarantee:

20 YEARS Riwega® GUARANTEE

Products with 20 years guarantee

USB Protector GOLD 330
USB Protector SILVER 230

Membranes produced with:

· Middle film in elastic, impermeable and breathable monolithic UV 50 film in reactive polyurethane (PUR), UV stable and resistant to temperatures up to 120°C

· Fabric in UV stable polyester (PET), with high mechanical resistance, optimum behaviour in case of abrasion or action by chemical substances

For the **first ten years** of guarantee, Riwega guarantees the refund of the costs incurred for removing the defective product and installing a replacement, including repair of damages. In particular:
· Roof security during removal and replacement;
· Removal of roof covering and/or damaged elements;
· Repositioning of the above;
· Repair of damages caused by the defective product.

In the following **ten years** of guarantee, Riwega guarantees the replacement of the defective product*.

Products with 15 years guarantee

USB Protector Head FH 200
USB Protector Head FH 330

Membranes produced with:

· Middle film in elastic, impermeable and breathable monolithic UV 50 film in reactive polyurethane (PUR), UV and temperature stabilized up to 120°C

· Reinforcing fabric in polypropylene. UV stabilized (4-5%), with the addition of paraffin for water repellency and FH to reduce the propagation of surface flames

For the **first seven and a half years** of guarantee, Riwega guarantees the refund of the costs incurred for removing the defective product and installing a replacement, including repair of damages. In particular:
· Roof security during removal and replacement;
· Removal of roof covering and/or damaged elements;
· Repositioning of the above;
· Repair of damages caused by the defective product.

In the following **seven and a half years** of guarantee, Riwega guarantees the replacement of the defective product*.

Products with 10 years guarantee

USB Elefant
USB Classic
USB Classic Light
USB Vita**
USB Weld SK**
USB Micro Strong
USB Micro 230/20
USB Micro
USB Micro Light
USB Micro 100/20**
USB Micro 100 Vario**

Membranes produced with:

· Middle film in impermeable, breathable microporous UV10 Plus in polypropylene (70%), gypsum powder (30%), UV stablized for 4 months and resistant to temperatures up to 100°C

· Top reinforcing fabric layer in polypropylene, UV stabilized (4-5%), with added paraffin for water repellency

For the **first five years** of guarantee, Riwega guarantees the refund of the costs incurred for removing the defective product and installing a replacement, including repair of damages. In particular:
· Roof security during removal and replacement;
· Removal of roof covering and/or damaged elements;
· Repositioning of the above;
· Repair of damages caused by the defective product.

In the following **five years** of guarantee, Riwega guarantees the replacement of the defective product*.

*The general conditions of guarantee are available on the website www.riwega.com
**Products realized with other production techniques; please consult the corresponding technical sheets

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Index: Breathable membranes and vapour control layers

Superior Line

R2
01

USB Protector GOLD 330

Art. **02050331**
Art. TOP SK **02020331**

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ II** | CH SIA 232 **UD EB-NB** | DE ZVDH **UDB-USB** | FR DTU **40.29** | IT UNI 11470 **A**

20 YEARS Riwega GUARANTEE

QUICK OVERVIEW: STRENGTHS

The first membrane with 20 years guarantee!

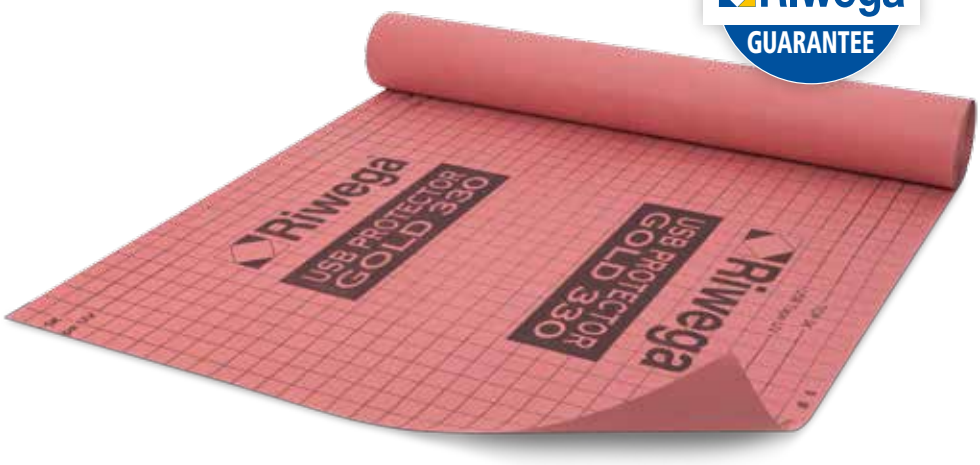
The high grammature and the mechanical resistance make it a safe product that is **not subject to lacerations or rips.**

Highly breathable (Sd 0,1 m) and **highly resistant to UV rays**, resistance guaranteed even with high temperatures on the roof (+120°C).

The excellence in our range!

Use underneath PV panels: **YES**

ProteCtor New Generation | WIND CONTROL Riwega | CE EN 13859-1



- UV stable, water repellent protective top layer in PET
- Monolithic UV 50 film in PUR, elastic, impermeable and breathable
- Protective bottom layer in PET

USB Protector GOLD 330 is a heavyweight, impermeable breathable membrane composed of three layers; the top and bottom layers are non-woven polyester fabric with high mechanical resistance that protect the elastic monolithic middle layer in UV 50 polyurethane. The three layers are bonded using an innovative procedure of molecular expansion. The technical characteristics allow an even longer UV exposure, a good resistance in case of extreme roof temperatures from -40°C to +120°C and make it a safe product, as it is not subject to laceration or tearing even in the presence of extreme mechanical stress due to treading or abrasion. These characteristics make USB Protector GOLD 330, Riwega's top-of-the-range in terms of resistance to and stability against external agents and for durability; this is the motivation behind Riwega offering 20 years of guarantee on USB Protector GOLD 330.

Technical data sheet

Material		**PET.PUR.PET**
Film		**UV 50 PUR monolithic elastic**
Colour		**salmon red**
Roll width (m)		**1,5**
Roll length (m)		**40**
Roll weight (kg)		**21**
Areal mass (g/m²)	EN 1849-2	**330 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,1**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 200**
Water column (cm)	EN 20811	**>800**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**660 / 620 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**40 / 45 (±15%)**
Tear strength MD/CD*	EN 12310-1	**400 / 400 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**8 months**
Temperature		**-40°/+120°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**388**
Thickness (mm)	EN 1849-2	**0,85**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**118**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**1,6356 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

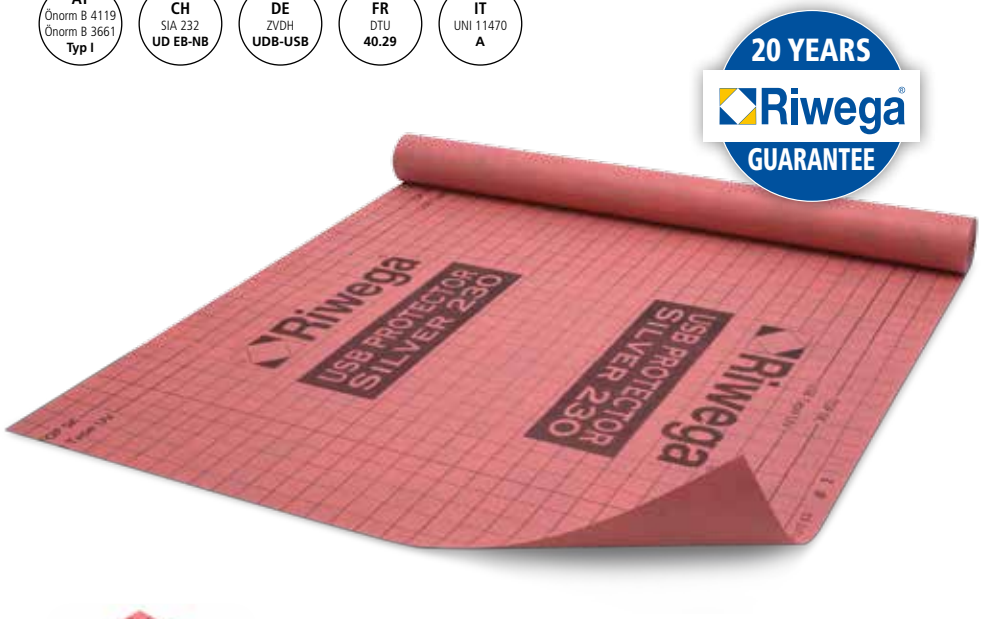
*MD = longitudinal CD = transversal

USB Protector SILVER 230

Art. ***02050230***
Art. TOP SK ***020202301***

Classification:

AT	CH	DE	FR	IT
Önorm B 4119 Önorm B 3661 **Typ I**	SIA 232 **UD EB-NB**	ZVDH **UDB-USB**	DTU **40.29**	UNI 11470 **A**



- UV stable, water repellent protective top layer in PET
- Monolithic UV 50 film in PUR, elastic, impermeable and breathable
- Protective bottom layer in PET

QUICK OVERVIEW: STRENGTHS

High performance and longevity!

The high weight and its high mechanical resistance make it a safe product **not subject to lacerations or rips.**

Highly breathable (sd 0,1m) and **highly resistant to UV rays**; resistant to temperatures up to +120°C.

Use underneath PV panels: **YES**

ProteCtor New Generation · WIND CONTROL Riwega · CE EN 13859-1

Technical data sheet

Material		**PET.PUR.PET**
Film		**UV 50 PUR monolithic elastic**
Colour		**salmon red**
Roll width (m)		**1,5**
Roll length (m)		**40**
Roll weight (kg)		**15**
Areal mass (g/m²)	EN 1849-2	**230 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,1**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 200**
Water column (cm)	EN 20811	**>800**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**440 / 430 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**35 / 40 (±15%)**
Tear strength MD/CD*	EN 12310-1	**230 / 220 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**8 months**
Temperature		**-40°/+120°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**329**
Thickness (mm)	EN 1849-2	**0,70**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**143**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**1,3497 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.

USB Protector SILVER 230 is a heavyweight (more than 230g/m²), impermeable breathable membrane composed of three layers; the top and bottom layers are non-woven polyester fabric with high mechanical resistance that protect the elastic monolithic middle layer in UV 50 polyurethane.
The three layers are bonded using an innovative procedure of molecular expansion. USB Protector Silver is stamped with a matrix of orthogonal lines 5 cm apart on the surface; this characteristic allow an easy and quick way of laying the counter battens for ventilation, without tracing the lines. The product is available in a standard version, to be sealed with our acrylic adhesive tape USB Tape 1 PE, or in the TOP SK version with two integrated adhesive strips for quick sealing of overlaps.

USB Protector Head FH 330

Art. 1,5 m ***02050330***
Art. 1,5 m TOP SK ***02020330***

QUICK OVERVIEW: STRENGTHS

Unbeatable mechanical resistance!

The FH factor improves the fire behaviour of the membrane.

Highly resistant against lacerations or rips caused by footsteps or high friction.

Highly breathable (Sd 0,1 m) and resistant to long UV rays exposure.

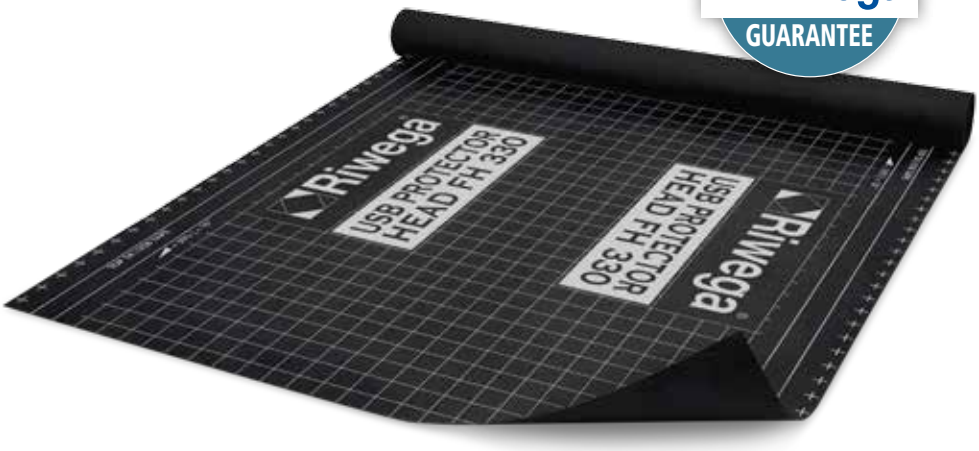
Guaranteed also with high temperatures on the roof (up to 120°C).

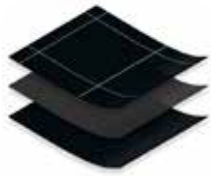
Use underneath PV panels: **YES**

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ II** | CH SIA 232 **UD EB-NB** | DE ZVDH **UDB-USB** | FR DTU **40.29** | IT UNI 11470 **A**

15 YEARS Riwega GUARANTEE





- Protective UV stabilized, hardly flammable, water repellent top layer in PP
- Monolithic UV 50 film in PUR, elastic, impermeable and breathable
- Protective, hardly flammable bottom layer in PP

new product

USB Protector Head FH 330 is a heavyweight (330 g/m²), impermeable breathable membrane composed of three layers: a monolithic middle layer in UV 50 polyurethan, combined with the UV stabilized, non-woven polypropylene fabrics with high mechanical resistance. This feature allows to lay this product also when a longterm UV exposure occurs (up to 6 months) due to delays during construction.
USB Protector Head FH 330 is stamped with a matrix of orthogonal lines 5 cm apart on the surface; this characteristic allow an easy and quick way of laying the counter battens for ventilation, without tracing the lines.
The product is available in a standard version to be sealed with our acrylic adhesive tape USB Tape 1 PE, or in the TOP SK version with two integrated adhesive strips for quick sealing of overlaps.

Technical data sheet

Material		**PP.PUR.PP**
Film		**UV 50 PUR monolithic elastic**
Colour		**black**
Roll width (m)		**1,5**
Roll length (m)		**40**
Roll weight (kg)		**15**
Areal mass (g/m²)	EN 1849-2	**330 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,1**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 200**
Water column (cm)	EN 20811	**>800**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**500 / 420 (±30/50mm)**
Elongation MD/CD*	EN 12311-1	**60 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**440 / 500 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**6 months**
Temperature		**-40°/+120°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**236**
Thickness (mm)	EN 1849-2	**1,4**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**71**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**2,7183 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

USB Protector Head FH 200

Art. 1,5m ***02050220***
Art. 1,5m TOP SK ***02020220***
Art. 3,0m ***020502200***
Art. 3,0m TOP SK ***020202200***

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**
CH SIA 232 **UD EB-NB**
DE ZVDH **UDB-USB**
FR DTU **40.29**
IT UNI 11470 **A**

- Protective UV stabilized, hardly flammable, water repellent top layer in PP
- Monolithic UV 50 film in PUR, elastic, impermeable and breathable
- Protective, hardly flammable bottom layer in PP

Technical data sheet

Material		**PP.PUR.PP**
Film		**UV 50 PUR monolithic elastic**
Colour		**Light tobacco**
Roll width (m)		**1,5 / 3,0**
Roll length (m)		**50**
Roll weight (kg)		**15 / 30**
Areal mass (g/m²)	EN 1849-2	**205 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,1**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 200**
Water column (cm)	EN 20811	**>800**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**320 / 320 (±30/50mm)**
Elongation MD/CD*	EN 12311-1	**130 / 145 (±15%)**
Tear strength MD/CD*	EN 12310-1	**310 / 340 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**6 months**
Temperature		**-40°/+120°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**214**
Thickness (mm)	EN 1849-2	**0,96**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**104**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**1,8558 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.

QUICK OVERVIEW: STRENGTHS

The importance of the FH factor!

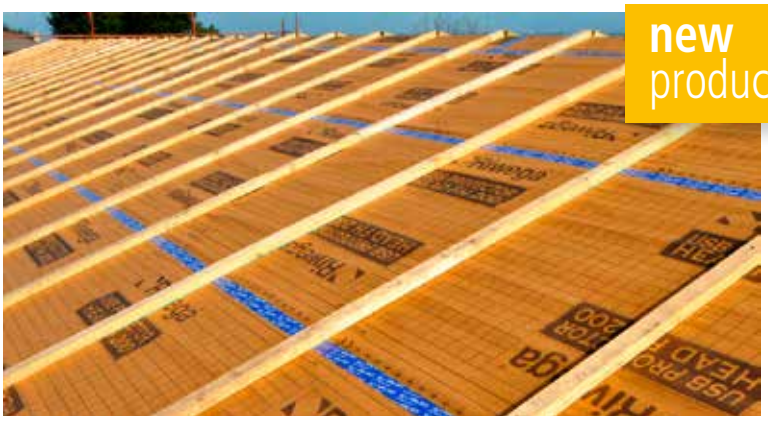
The FH factor improves the fire behaviour of the membrane.

Highly breathable (Sd 0,1 m) and resistant to long UV rays exposure.

Guaranteed also with high temperatures on the roof (up to 120°C).

Use underneath PV panels: **YES**

ProteCtor New Generation
WIND CONTROL Riwega
CE EN 13859-1



new product

USB Protector Head FH 200 is a heavyweight (205 g/m²), impermeable breathable membrane composed of three layers: a monolithic middle layer in UV 50 polyurethan, combined with the UV stabilized, non-woven polypropylene fabrics with high mechanical resistance. This feature allows to lay this product also when a longterm UV exposure occurs (up to 6 months) due to delays during construction.
USB Protector Head FH 200 is stamped with a matrix of orthogonal lines 5 cm apart on the surface; this characteristic allow an easy and quick way of laying the counter battens for ventilation, without tracing the lines.
The product is available in a standard version to be sealed with our acrylic adhesive tape USB Tape 1 PE, or in the TOP SK version with two integrated adhesive strips for quick sealing of overlaps.

R2
04

USB Elefant

Art. 1,5 m ***02050150*** *1,5 m TOP SK* ***02020233***
Art. 3,0 m ***020501500*** *3,0 m TOP SK* ***020202330***

QUICK OVERVIEW: STRENGTHS

Thick, rough and resistant like the skin of an elephant!

Thanks to its mechanical resistance and thickness it is the ideal membrane to make waterproof **concrete pitched roofs** (non-insulated) or as a base for the application of curved or flat tiles using mortar or foam.

Highly breathable membrane (Sd 0,02 m), **resistant to heavy rain**.

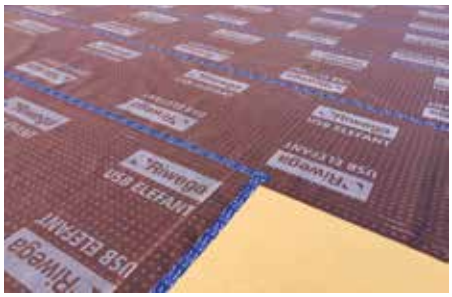
Use underneath PV panels: **NO**

Classification:

AT	CH	DE	FR	IT
Önorm B 4119 Önorm B 3661 **Typ I**	SIA 232 **UD EB-NB**	ZVDH **UDB-USB**	DTU **40.29**	UNI 11470 **A**

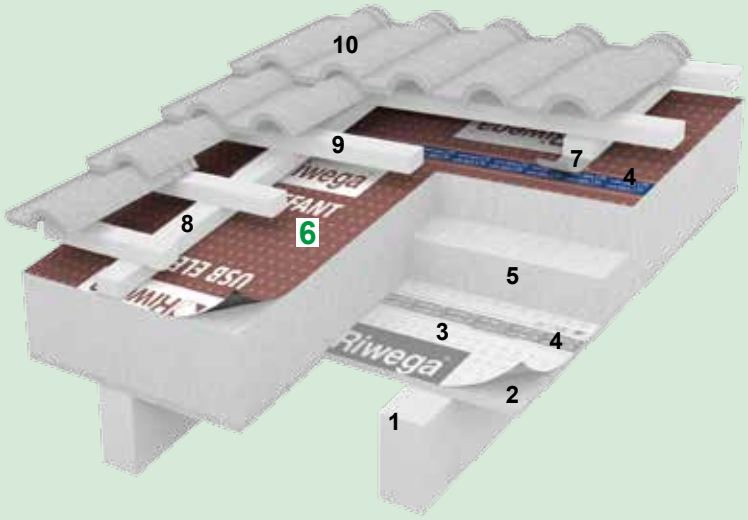
10 YEARS Riwega GUARANTEE

- Protective UV stabilized, water repellent top layer
- Impermeable and breathable UV 10 Plus film
- Special protective, absorbent bottom "grip" layer



USB Elefant is a highly breathable, 3 layer, impermeable membrane; the top and bottom layers are made of non-woven heavyweight polypropylene fabric that protect the middle UV 10 Plus polypropylene film. The three layers are bonded using an innovative procedure of molecular expansion.
The UV 10 Plus microporous film, in conjunction with a UV stabilizing treatment of the top non-woven fabric layer (corresponding to approximately 5% of the weight of the fabric) make the USB Elefant membrane resistant to UV exposure during installation of the roof covering. In this case the technical characteristics of the product are guaranteed for exposures of up to 4 months. The membrane's considerable weight (230 g/m²) makes USB Elefant a product with high mechanical resistance, that is extremely resistant to heavy rain (water column of more than 8 metres); thanks to these characteristics, USB Elefant is one of the best solutions for waterproofing roofs, even when it rains heavily during the construction stages: the ideal membrane for walking around on the roof without breaking or tearing the membrane.

Example of stratigraphy to be verified with Hygrotherm Europe



1. Supporting structure
2. Planking/Plasterboard
3. Vapour control layer **USB Micro Strong**
4. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
5. Insulation
6. **Breathable membrane USB Elefant**
7. Nail sealing tape **USB Tip KONT**
8. Ventilation counter batten
9. Roof covering support batten
10. Roof covering

Thanks to its mechanical resistance and thickness, **USB Elefant** is the ideal membrane for two particular uses:
1. Waterproofing a (non-insulated) concrete pitched roof, where the main risk is tearing of the membranes caused by the presence of rough areas or protuberances of inert elements from the concrete.

Technical data sheet

Material		**PP.PP.PP**
Film		**UV 10 Plus**
Colour		**wine red / grey**
Roll width (m)		**1,5 / 3,0 (on request from 1,0 m to 2,0 m)**
Roll length (m)		**40 / 30**
Roll weight (kg)		**14 / 21**
Areal mass (g/m²)	EN 1849-2	**230 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,02**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 1000**
Water column (cm)	EN 20811	**>800**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**420 / 320 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**50 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**250 / 310 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**219**
Thickness (mm)	EN 1849-2	**1,05**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**19**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**10,1579 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.

2. Subsequent application of curved or flat tiles using mortar or foam. In this case, Riwega guarantees that the USB Elefant breathable membrane, thanks to the particular roughness of its surface, is the ideal base for mortar and/or polyurethane foam to adhere to. Riwega cannot, however, guarantee the fixing system, which should be guaranteed by the roofer using suitable mortar or foam.

IMPORTANT: Riwega strongly recommends laying the roof covering using anti-slip hooks in order to achieve a mechanically stable and ventilated roof and to avoid the interruption of the waterflow towards the drainpipe.

USB Classic

Art. 1,5 m ***02010160*** *Art. 1,5 m TOP SK* ***02020161***
Art. 3,0 m ***020101600*** *Art. 3,0 m TOP SK* ***020201610***

QUICK OVERVIEW: STRENGTHS

For 20 years on the European market!
Best price-quality ratio!

Highly breathable membrane (Sd 0,02m), for a perfect sealing of insulated pitched roofs.

The most used membrane of Riwega's product range.

Very good mechanical resistance and UV stability of 4 month.

Use underneath PV panels: **NO**

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**
CH SIA 232 **UD EB-NB** wU-fU
DE ZVDH **UDB-USB**
FR DTU **40.29**
IT UNI 11470 **B**

10 YEARS Riwega GUARANTEE

- Protective UV stabilized, water repellent top layer
- Impermeable and breathable UV 10 Plus film
- Protective absorbent bottom layer

USB Classic is a highly breathable, 3 layer impermeable membrane; the top and bottom layers are made of non-woven polypropylene fabric which protect the middle layer of UV 10 Plus polypropylene film. The three layers are bonded using an innovative procedure of molecular expansion. The UV 10 Plus microporous film, in conjunction with the UV stabilizing treatment of the top non-woven fabric layer (corresponding to approximately 5% of the weight of the fabric) make the USB Classic membrane resistant to UV exposure during installation of the roof covering. In this case the technical characteristics of the product are guaranteed for exposures up to 4 months. The membrane's weight (185 g/m²) makes USB Classic the basic product for installing a roof package that combines current regulations and at the same time offers good value for money.

Technical data sheet

Material		**PP.PP.PP**
Film		**UV 10 Plus**
Colour		**green / white**
Roll width (m)		**1,5 / 3,0**
Roll length (m)		**50**
Roll weight (kg)		**14 / 28**
Areal mass (g/m²)	EN 1849-2	**185 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,02**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 1000**
Water column (cm)	EN 20811	**>400**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**350 / 260 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**55 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**180 / 210 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**208**
Thickness (mm)	EN 1849-2	**0,89**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**22**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**8,7727 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

USB Classic Light

Art. ***02010140***
Art. TOP SK ***020201501***

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**
CH SIA 232 **UD EB-NB** wU-fU
DE ZVDH **UDB-USB**
FR DTU **40.29 31.2**
IT UNI 11470 **B**

- Protective UV stabilized, water repellent top layer
- Impermeable and breathable UV 10 Plus film
- Protective absorbent bottom layer

QUICK OVERVIEW: STRENGTHS

The lightest membrane for roofs, the most resistant for walls!

3 layer **highly breathable** (Sd 0,02 m) **impermeable** membrane, recommended on roofs with slopes over 30% and for covering of the insulation in ventilated walls.

Non-reflective and slip-proof.

Use underneath PV panels: **NO**

WIND CONTROL Riwega

CE EN 13859-1/2

Technical data sheet

Material		**PP.PP.PP**
Film		**UV 10 Plus**
Colour		**azure / white**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**12**

Areal mass (g/m²)	EN 1849-2	**155 (±5 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,02**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 1000**
Water column (cm)	EN 20811	**>400**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**300 / 190 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**61 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**150 / 190 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**207**
Thickness (mm)	EN 1849-2	**0,75**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**27**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**7,1481 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

USB Classic Light is a highly breathable, 3 layer, impermeable membrane; the top and bottom layers are made of non-woven polypropylene fabric which protect the middle UV 10 Plus polypropylene film. The three layers are bonded using an innovative procedure of molecular expansion.
Its areal mass of 155 g/m² makes USB Classic Light the lightest breathable membrane for roofs (according to UNI regulations, only for slopes of more than 30%), but at the same time it is the heaviest and strongest of the breathable wall membranes to be used as a protective layer for thermal insulation in ventilated walls.
USB Classic Light is the heaviest breathable membrane (for closed façades) with high technical resistance to guarantee waterproofing and windtightness.

USB Weld SK

Art. 1,5 m SK ***02010350***
Art. 3,0 m SK ***02010351***

QUICK OVERVIEW: STRENGTHS

Perfect sealing of the overlaps and joints!

Breathable membrane (Sd 0,2 m), **weldable** (cold or hot) overlaps and interruptions for a total sealing.

Accidental breaks or tears can be reapaired by hot or cold welding pieces of the same material.

Can be used on roofs with very gentle slopes (up to 5° or 8,75 %).

Pre-sealed side edges preventing water rising via capillary action.

WIND CONTROL Riwega

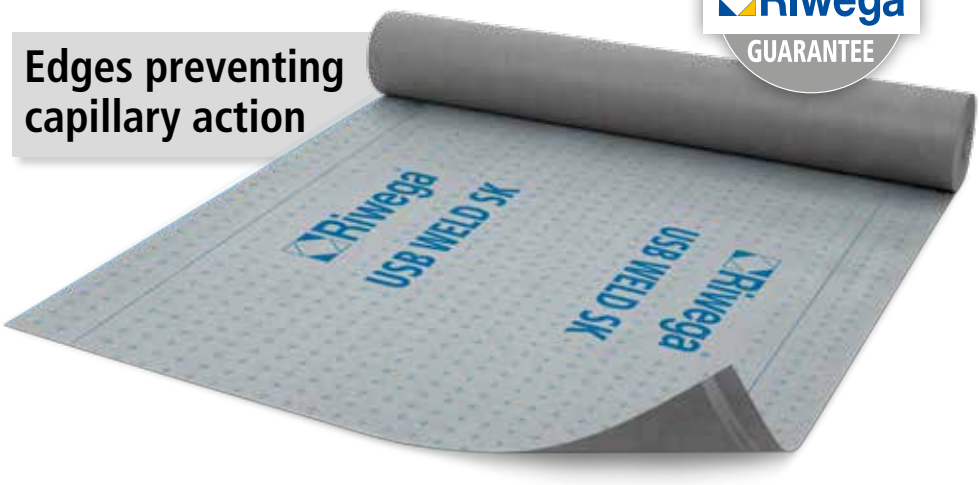
CE EN 13859-1

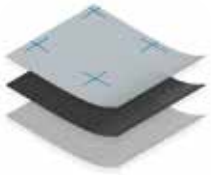
Classification:

AT	CH	DE	FR	IT
Önorm B 4119 Önorm B 3661 **Typ II**	SIA 232 **UD AB-EB-NB**	ZVDH **UD-UDB-USB**	DTU **40.29**	UNI 11470 **A**

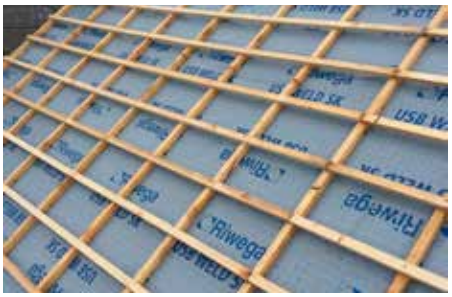
10 YEARS Riwega GUARANTEE

Edges preventing capillary action





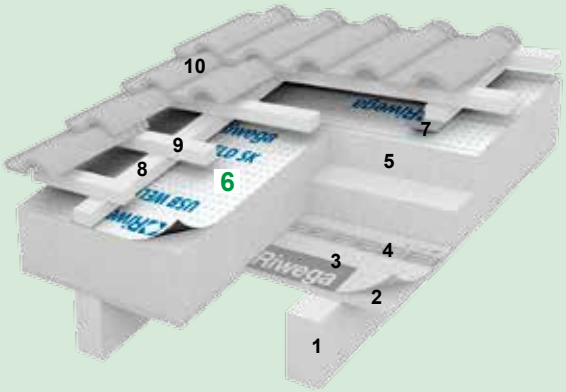
- Hot or cold weldable PUR film
- Polyester fibre carrier layer
- Hot or cold weldable PUR film

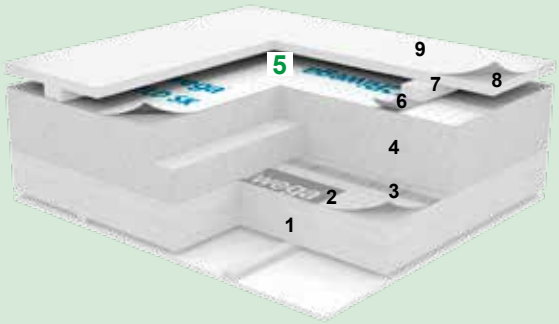


USB WELD SK is a breathable, heavyweight three-layer impermeable membrane (360 g/m²); a polyester fibre carrier layer covered on both sides with a coating of the innovative hot or cold weldable synthetic material PUR. On the overlap area, at 70mm from the edge, there is an integrated self-adhesive strip (SK version) to stabilize the position of the membrane when laid, in order to ensure a perfect stable seal. The edges along the length of the roll are sealed, in order to avoid water rising through the central polyester fibre mat.

Technical characteristics and performance: the main feature of USB Weld SK is the possibility of hot or cold welding (with the appropriate solvent) for sealing overlaps or interruptions. In fact, an operator simply needs to pass a manual or automatic hot air welder (approx. 250-300°C) over the membrane overlap to seal the PUR surfaces, thus obtaining a perfect seal guaranteeing total waterproofing, air- and windtightness at the critical points, even on pitched roofs with very gentle slopes (up to 5° or on flat roofs with additional waterproofing).The alternative cold welding is achieved using the THI solvent applied with its dispenser onto the overlap area. The solvent works chemically, creating a long-lasting fusion of the two layers. Accidental breaks or tears in the USB Weld SK membrane can be repaired by welding sections of the membrane to the damaged area. If adhesive tape is required for sealing, we recommend using USB Tape 1 PE.

Example of stratigraphy to be verified with Hygrotherm Europe





Example of installation on pitched roof

1. Supporting structure
2. Planking/Plasterboard
3. Vapour control layer **USB Micro Strong**
4. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
5. Insulation
6. **Breathable membrane USB Weld SK**
7. Nail sealing tape **USB Tip KONT**
8. Ventilation counter batten
9. Roof covering support batten
10. Roof covering

Example of installation on flat roof

1. Supporting structure (planking, hollow-core, concrete)
2. Vapour control layer **USB Micro Strong**
3. Adhesive tape **USB Tape 1 PE** or version **TOP SK**
4. Insulation
5. **Breathable membrane USB Weld SK**
6. Nail sealing tape **USB Tip KONT**
7. Ventilation counter batten
8. Second planking or OSB board
9. Impermeable membrane **Planus**

Technical data sheet

Material		**PUR.PET.PUR**
Film		**double PUR Film**
Colour		**grey / grey**
Roll width (m)		**1,5 / 3,0**
Roll length (m)		**30**
Roll weight (kg)		**17 - 33**
Areal mass (g/m²)	EN 1849-2	**360 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,2**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 115**
Water column (cm)	EN 20811	**>300**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**420 / 490 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**50 / 65 (±15%)**
Tear strength MD/CD*	EN 12310-1	**310 / 280 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**3 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**571**
Thickness (mm)	EN 1849-2	**0,63**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**317**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,6088 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.

Accessories:

USB Welding Strip (Art. 02010353) Bonding strips of the same material measuring 0.3x20 m for connections and perimeters

THI Welding Liquid (Art. 02010352) THI solvent for cold welding of the membrane

Dispenser with brush (Art. PLA13601)

USB Vita

Art. **02010303**
Art. TOP SK **02020310**

QUICK OVERVIEW: STRENGTHS

The best membranes for fire resistance (Class B)!

Highly breathable roof underlayer (Sd 0,02m), thanks to its polyacrylic coating.

Ideal for roofs with slope of more than 10° or 17,63%.

Highly resistant to UV rays: **up to 9 month, even without covering.**

Use underneath PV panels: **YES**

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**
CH SIA 232 **UD EB-NB** wU-fU
DE ZVDH **UDB-USB**
FR DTU **40.29**
IT UNI 11470 **A**

10 YEARS Riwega GUARANTEE

Reaction to fire class B

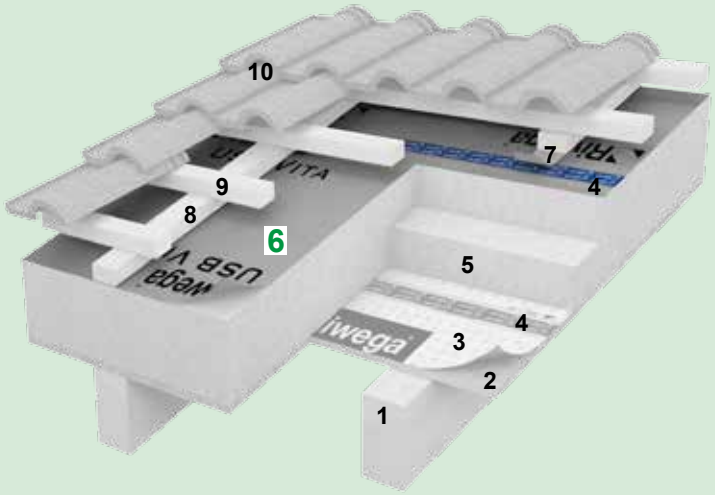
- Polyacrylic coating, highly resistant to UV rays
- Polyester non-woven fabric

new product

USB Vita is a highly breathable membrane produced by Riwega. It is made of polyester fabric coated with a special pearl grey polyacrylic mixture.
The USB Vita membrane guarantees waterproofing and windtightness, excellent and long-lasting resistance to UV rays (even without the roof covering) and extremely high breathability thanks to its polyacrylic coating.
These characteristics make USB Vita a perfect breathable membrane to guarantee tightness and mechanical resistance even under prolonged exposure to UV rays due to site delays. In fact, the 9 months of UV stability make it one of the most durable products for withstanding these types of conditions.

News: the product optains the fireclass B following the EN 13501-1; this makes it a safe product against flame propagation.

Example of stratigraphy to be verified with Hygrotherm Europe



1. Supporting structure
2. Planking/Plasterboard
3. Vapour control layer **USB Micro**
4. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
5. Insulation
6. **Breathable membrane USB Vita**
7. Nail sealing tape **USB Tip KONT**
8. Ventilation counter batten
9. Roof covering support batten
10. Roof covering

Thanks to its composition, USB Vita is guaranteed for UV exposure for up to 9 months. The seals must therefore also be able to guarantee the same resistance too. The best product to be used to seal this type of membrane is **USB Tape 1 PE**, an acrylic adhesive tape with polyethylene backing, guaranteeing UV stability for up to 24 months. As an alternative, the TOP SK version with integrated double adhesive can be chosen.

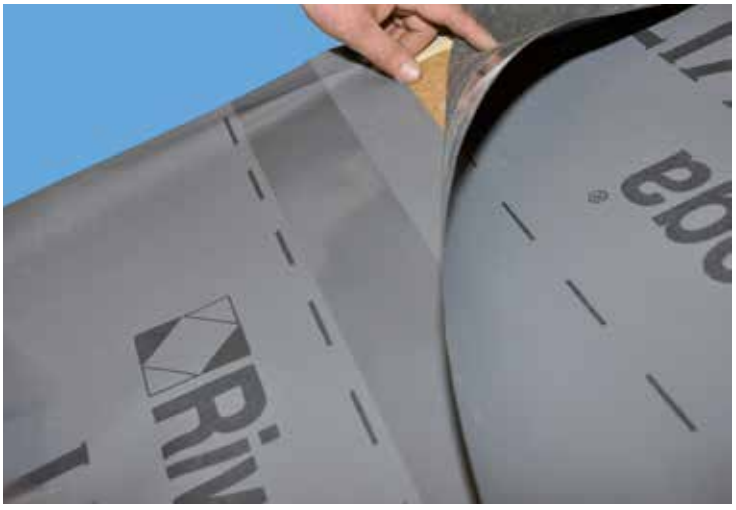
Technical data sheet

Material		**PET-Acrylic**
Film		**-**
Colour		**grey perl/grey anthrazite**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**21**
Areal mass (g/m²)	EN 1849-2	**270 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,02**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 1000**
Water column (cm)	EN 20811	**>200**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**320 / 200 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**30 / 35 (±15%)**
Tear strength MD/CD*	EN 12310-1	**130 / 140 (±15N)**
Fire class	EN 13501-1	**B-S1, d0**
UV stability		**9 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**540**
Thickness (mm)	EN 1849-2	**0,5**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**40**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**4,8250 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal



USB Reflex Plus

Art. **02010302**
Art. TOP SK **02020309**

QUICK OVERVIEW: STRENGTHS

The first highly breathable membrane with reflecting effect!

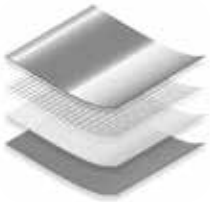
4 layer thermobonded reinforced membrane, with a pre-perforated aluminium top layer that guarantees **high breathability** (Sd 0,045 m), **waterproofing and reduces passage of heat to the insulation material**.

Recommended in hot areas or to cover synthetic insulating materials, which provide a barrier against cold, but not against heat.

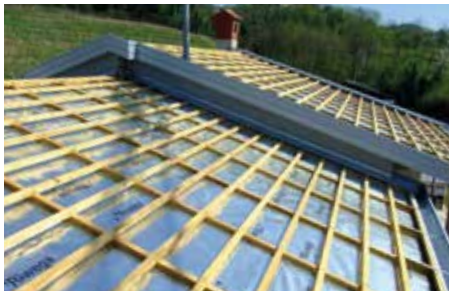
Use underneath PV panels: **NO**

Classification:

AT	CH	DE	FR	IT
Önorm B 4119 Önorm B 3661 **Typ I**	SIA 232 **UD EB-NB** wU-fU	ZVDH **UDB-USB**	DTU **40.29**	UNI 11470 **A**

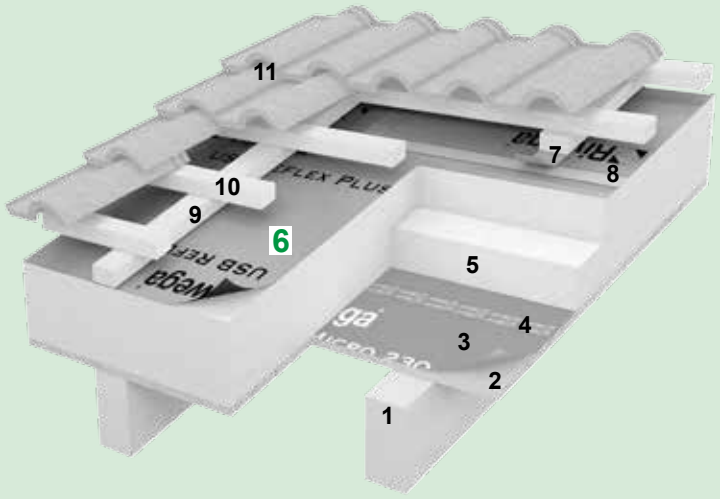


- Reflective top layer in pre-perforated aluminium with antioxidant transparent protective film in PE
- Polyehtylene reinforcement mesh
- Functional membrane in PP, impermeable and breathable
- Absorbent protective bottom layer



USB Reflex Plus is a thermobonded 4 layer reinforced membrane. The outer layer is made of a pre-perforated aluminium film, protected by another layer of antioxidant PE film; the aluminium film reflects the infrared rays coming from outside which carry heat by radiation. Emissivity is the ability of a material's surface to emit energy in the form of radiation depending on its surface temperature. It is a value which falls between the following intervals: $0 < \varepsilon < 1$. The lower the emission value, the lower the energy radiated from its surface. USB Reflex Plus has an emission coefficient of 0,05%; this means that 0,05% of the incident energy is emitted, passing inwards. Consequently, this minimal passage of energy translates into a lower heat input on the underlying insulation and therefore a considerable improvement of the insulation package's performance both in summer and in winter.
The concept of waterproofing, air- and windtightness and thermoreflectance, as defined for roofs, must be interpreted in the same way for walls. In this case, it is essential that any insulation of a ventilated wall is externally protected by a breathable membrane. USB Reflex Plus is the heat reflective breathable membrane for walls that combines waterproofing and windtightness with improvement of the thermal capacity of the insulation in summer and winter.

Example of stratigraphy to be verified with Hygrotherm Europe



1. Supporting structure
2. Planking/Plasterboard
3. Vapour control layer **USB Micro 230/20**
4. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
5. Synthetic insulation (EPS, XPS, PUR)
6. **Breathable membrane USB Reflex Plus**
7. Nail sealing tape **USB Tip KONT**
8. Adhesive tape **USB Tape Reflex** or **TOP SK** version
9. Ventilation counter batten
10. Roof covering support batten
11. Roof covering

Technical data sheet

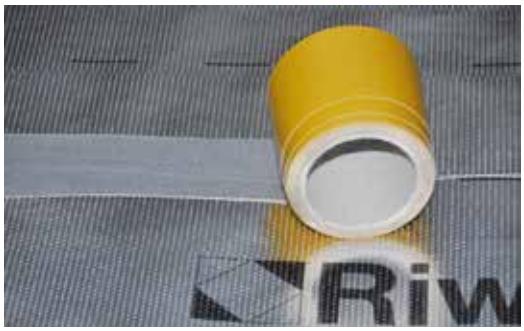
Material		**PP.PP.Alu.PE**
Film		**PP**
Colour		**silver/grey**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**15**
Areal mass (g/m²)	EN 1849-2	**200 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,045**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 530**
Water column (cm)	EN 20811	**>350**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**350 / 190 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**30 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**200 / 200 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**
Reflection coefficient		**R 0,832**
Absorption coefficient		**α 0,168**
Emission coefficient	EN 15976	**ε 0,05**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**400**
Thickness (mm)	EN 1849-2	**0,5**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**90**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**2,1444 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Due to its composition, USB Reflex Plus is a breathable membrane with a highly reflective surface; therefore, the product to be used to seal this type of membrane is USB Tape Reflex (Art. 02040180), an acrylic adhesive tape with aluminium backing, which reflects too.



USB Drenlam

Art. Diff TOP SK ***02064011***
Art. Light ***02064010***

QUICK OVERVIEW: STRENGTHS

Stop noise and condensation!

Sound-deadening layer for metal roofs: reduces the accoustic diffusion caused by rain or hail.

Guarantees an **optimal micro-ventilation for the evacuation of condensate** that may occur under metal coverings.

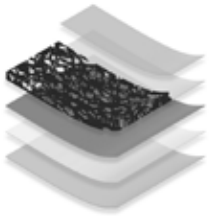
Unique because of the double integrated adhesive tape.

Use underneath PV panels: **NO**

Classification:

AT	DE	FR	IT
Önorm B 4119 Önorm B 3661 **Typ I**	ZVDH **UDB-USB**	DTU **40.29**	UNI 11470 **A**

USB Drenlam Diff TOP SK



- Silicon liner
- Three-dimensional netting in PP with carbon black/acrylic glue
- Water repellent, UV stabilized protective top layer
- Functional film in PP, waterproof and breathable
- Protective absorbent bottom layer

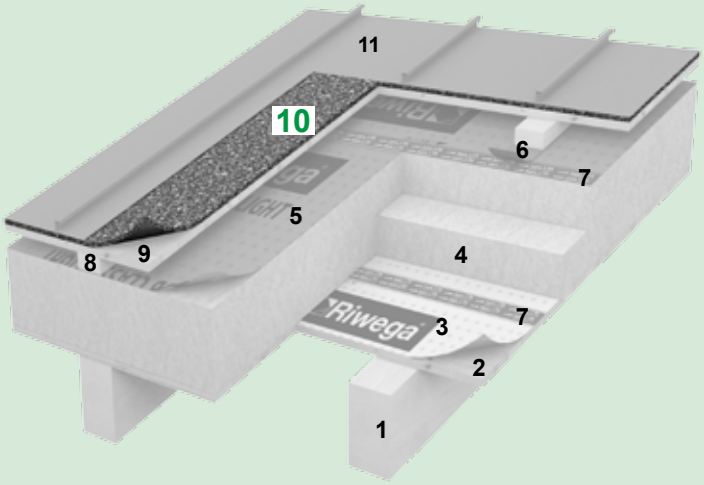
USB Drenlam Light

- Three-dimensional netting in PP with carbon black

USB Drenlam Diff TOP SK combines the three-dimensional layer and a highly breathable impermeable membrane, offering the features of both components in a single installation; USB Drenlam Diff TOP SK has double integrated adhesive tape to guarantee a perfect seal on the membrane overlaps.

USB Drenlam Light is a three-dimensional layer composed of extruded polyethylene, carbon black monofilaments (UV stabilized), with isometric pyramid morphology (which creates a separate drainage) and a sound-deadening layer against the noise made by rain and hail. To be used underneath metal roofs (metal sheet, copper, titanium zinc, etc.) thanks to the effective soundproofing provided by the extreme elasticity of its monofilaments.

Example of stratigraphy to be verified with Hygrotherm Europe



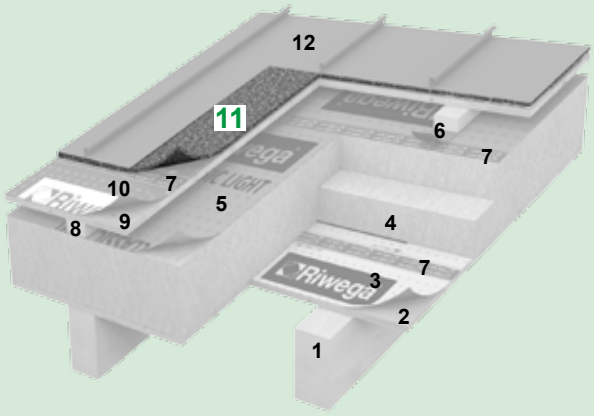
1. Supporting structure
2. Planking/Plasterboard
3. Vapour control layer **USB Micro**
4. Insulation
5. Breathable membrane **USB Classic Light**
6. Nail sealing tape **USB Tip KONT**
7. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
8. Ventilation counter batten
9. Second planking or OSB board
10. **USB Drenlam Diff TOP SK**
11. Metal roof covering

USB Drenlam Light is a drainage and sound-proof layer which separates the metal roof covering from any waterproofing layer laid previously on the roof; this layer makes it possible, that condensation, built up underneath the metal roof covering, is able to evacuate and noise, caused by rain and hail hitting the roof, is reduced.

Technical data sheet		USB Drenlam Diff TOP SK	USB Drenlam Light
Material		PP. 3 layers + PP with carbon black	PP with carbon black
Film		PP	-
Colour		black/grey	black
Roll width (m)		1,5	1,25
Roll length (m)		24	28
Roll weight (kg)		19	13
Areal mass (g/m²)	EN 1849-2	500 (150+350) (±10 g/m²)	350 (±10 g/m²)
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	0,02	-
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	ca. 1000	-
Water column (cm)	EN 20811	>200	-
Heavy rain test		passed	-
Impermeability class	EN 1928	W1	-
Tensile strength MD/CD*	EN 12311-1	300 / 200 (±30N/50mm)	-
Elongation MD/CD*	EN 12311-1	60 / 70 (±15%)	-
Tear strength MD/CD*	EN 12310-1	185 / 230 (±15N)	-
Fire class	EN 13501-1	F	F
UV stability		3 months	3 months
Temperature			-40°/+90°C
Necessary data for hygrotermic calculation:			
Density (kg/m³)	EN 1849-1	244 (200 + 44)	44
Thickness a 2 kPa (mm):	EN 1849-2	8,75 (0,75 + 8)	8
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	27	-
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	7,1481 *10^{-12}	-
Thermal conductivity lambda-λ (W/mK)		0,22	-
Specific heat (J/KgK)		1700	-

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.



Positioning USB Drenlam Light

1. Supporting structure
2. Planking/Plasterboard
3. Vapour control layer **USB Micro**
4. Insulation
5. Breathable membrane **USB Classic Light**
6. Nail sealing tape **USB Tip KONT**
7. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
8. Ventilation counter batten
9. Second planking or OSB board
10. Breathable membrane **USB Elefant**
11. **USB Drenlam Light**
12. Metal roof covering

Another two very important technical specifications of USB Drenlam products are:

- Void ratio 95%

- Noise reduction ΔLW (dB) 28 (EN ISO 712-2)

USB Windtop UV

Art. **02010301**

QUICK OVERVIEW: STRENGTHS

Stop to ageing!

Ideal membrane for waterproof and windtight **thermal insulation** in ventilated façades with open structure joints.

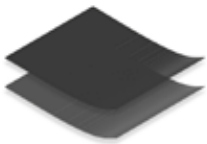
The special polyurethane coating makes it **practical and resistant to UV rays.**

Breathable (Sd 0,14m) and **waterproof**.

It creates a neutral colour surface under ventilated walls with open structure joints.

Classification:

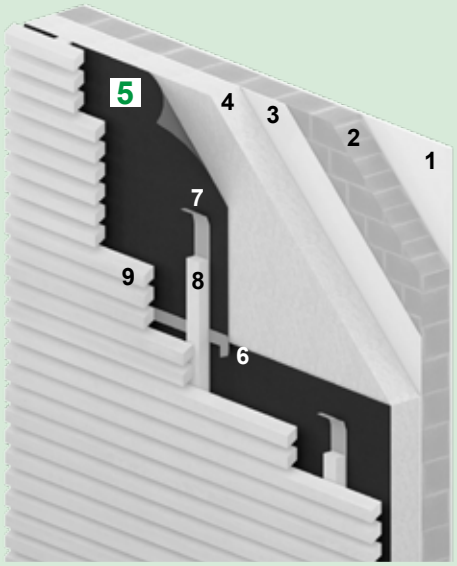
AT
Önorm B 4119
Önorm B 3661
Typ I

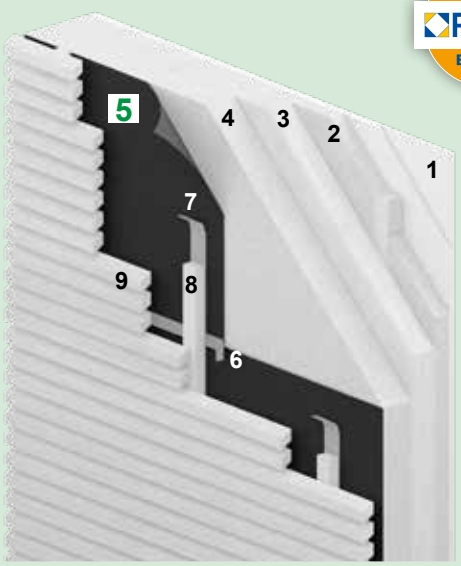


- UV stable polyurethane coating
- Polyester non-woven fabric

USB Windtop UV is a dual layer breathable membrane for walls. The polyester fabric backing has a special UV stable polyurethane coating. This particular composition makes USB Windtop the ideal membrane for waterproof and windtight thermal insulation in ventilated walls in which the cladding has a discontinuous surface (slats, panels, planks, etc.) which allow the passage of light and UV rays through gaps. In order to guarantee a correct seal, the gaps in the discontinuous external cladding should not be larger than 30 mm (should not cover more than 40% of the façade).

Example of stratigraphy to be verified with Hygrotherm Europe





Variant for brick wall

1. Internal plaster
2. Brick wall
3. External finishing
4. External insulation
5. **Breathable membrane USB Windtop UV**
6. Adhesive tape **USB Tape UV**
7. Nail sealing tape **USB Tip KONT**
8. Ventilation batten
9. Discontinuous external cladding

Variant for wooden wall

1. Internal cladding and finishing
2. Internal insulation
3. Structural panel X-Lam (or wood frame)
4. External insulation
5. **Breathable membrane USB Windtop UV**
6. Adhesive tape **USB Tape UV**
7. Nail sealing tape **USB Tip KONT**
8. Ventilation batten
9. Discontinuous external cladding

Technical data sheet

Material		**PUR.PP**
Film		**-**
Colour		**black**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**13**
Areal mass (g/m²)	EN 1849-2	**160 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**0,14**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 200**
Water column (cm)	EN 20811	**>200**
Heavy rain test		**passed**
Impermeability class	EN 1928	**W1**
Tensile strength MD/CD*	EN 12311-1	**210 / 205 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**55 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**245 / 225 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**stable (gaps max.30mm - max.40%)**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**320**
Thickness (mm)	EN 1849-2	**0,50**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**280**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,6893 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Thanks to its composition, USB Windtop UV is guaranteed as being UV stable (with maximum gaps of 20 mm). Therefore, the seals must be able to guarantee the same resistance. The product that should be used to seal this type of membrane is **USB Tape UV**, an acrylic adhesive tape with UV stabilized polyethylene backing.

USB Wall 120 / 100

Art. 100 1,5m ***02010080***
Art. 120 1,5m ***02010090***
Art. 120 TOP SK 1,5 m ***02020121***
Art. 120 3m ***020100900***

QUICK OVERVIEW: STRENGTHS

Stop to the wind!

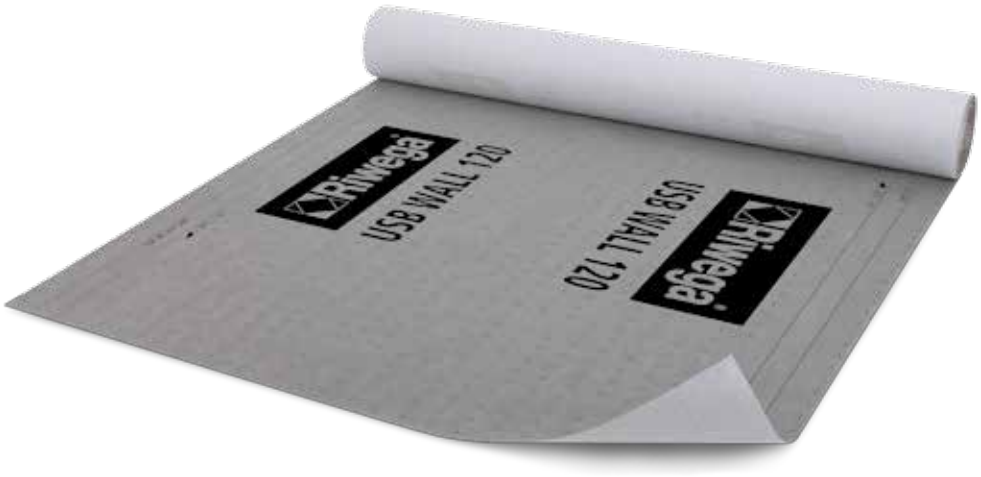
The ideal membrane for guaranteeing waterproofing and **windtightness** of the insulation of ventilated façades with continuous cladding.

Highly breathable membrane (Sd 0,02 m).

Available in **3 m width**.

Classification:

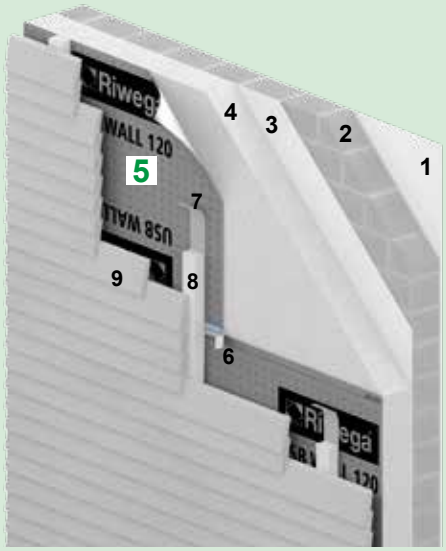
AT
Önorm B 4119
Önorm B 3661
Typ I



- UV stabilized protective top layer
- UV 10 Plus film
- Protective bottom layer

USB Wall 120 and **USB Wall 100** are highly breathable, thermobonded lightweight (120 and 100 g/m²) 3 layer membranes. These characteristics make these products ideal for guaranteeing waterproofing and windtightness on the outer layer of ventilated façades. They are installed directly on the external insulation in the case of ventilated walls with continuous external cladding.

Example of stratigraphy to be verified with Hygrotherm Europe



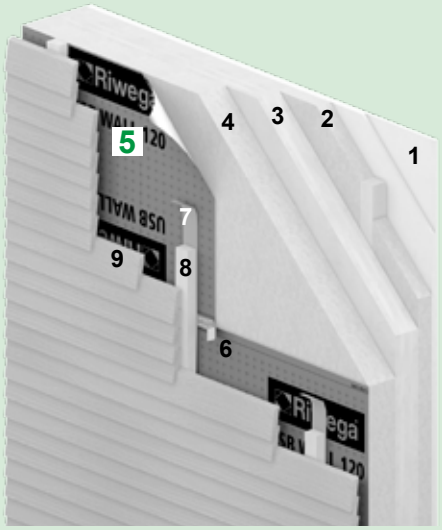
Variant for Brick wall

1. Internal plaster
2. Brick wall
3. External finishing
4. External insulation
5. **Breathable membrane USB Wall 120/100**
6. Adhesive tape **USB Tape 1 PE**
   or **TOP SK** version (available only in USB Wall 120)
7. Nail sealing tape **USB Tip KONT**
8. Ventilation batten
9. Continuous external cladding

To guarantee the total seal provided by USB Wall 120 or USB Wall 100 breathable membranes against water and wind penetration, the reinforced acrylic adhesive tape with polyethylene backing USB Tape 1 PE must be used . This tape is particularly effective in different seal points, such as horizontal overlaps, vertical joins or the join between membrane and different building components (masonry, wood, doors and windows, plastic or metal vents, etc.).

Technical data sheet		USB Wall 120	USB Wall 100
Material		PP.PP.PP	PP.PP.PP
Film		UV 10 Plus	UV 10 Plus
Colour		grey/white	grey/white
Roll width (m)		1,5 / 3,0	1,5
Roll length (m)		50	50
Roll weight (kg)		9 / 18	8
Areal mass (g/m²)	EN 1849-2	120 (±10 g/m²)	100 (±10 g/m²)
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	0,02	0,02
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	ca. 1000	ca. 1000
Water column (cm)	EN 20811	>200	>200
Heavy rain test		passed	passed
Impermeability class	EN 1928	W1	W1
Tensile strength MD/CD*	EN 12311-1	260 / 155 (±30N/50mm)	210 / 130 (±30N/50mm)
Elongation MD/CD*	EN 12311-1	60 / 70 (±15%)	75 / 60 (±15%)
Tear strength MD/CD*	EN 12310-1	105 / 140 (±15N)	90 / 120 (±15N)
Fire class	EN 13501-1	E	E
UV stability		3 months	3 months
Temperature			-40°/+100°C
Necessary data for hygrotermic calculation:			
Density (kg/m³)	EN 1849-1	185	172
Thickness (mm)	EN 1849-2	0,65	0,58
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	31	35
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	6,2258 *10^{-12}	5,5143 *10^{-12}
Thermal conductivity lambda-λ (W/mK)		0,22	0,22
Specific heat (J/KgK)		1700	1700

*MD = longitudinal CD = transversal



Variant for wooden walls

1. Internal cladding and finishing
2. Internal insulation
3. Structural panel X-Lam (or frame system)
4. External insulation
5. **Breathable membrane USB Wall 120/100**
6. Adhesive tape **USB Tape 1 PE** or **TOP SK** version (available only in USB Wall 120)
7. Nail sealing tape **USB Tip KONT**
8. Ventilation batten
9. Continuous external cladding

USB Micro Strong

Art. **02030195**
Art. TOP SK **02020191**

QUICK OVERVIEW: STRENGTHS

The vapour control layer with double protection!

The thick top and bottom layer guarantee a **high mechanical resistance.**

The top layer with **high tear resistance** protects the functional middle film against trampling.

The bottom "grip" layer provides abrasion protection even if the product is laid on rough surfaces.

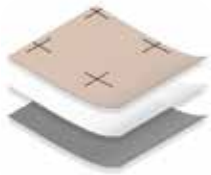
Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**

CH SIA 232 **VO**

IT UNI 11470 **A**

10 YEARS Riwega GUARANTEE



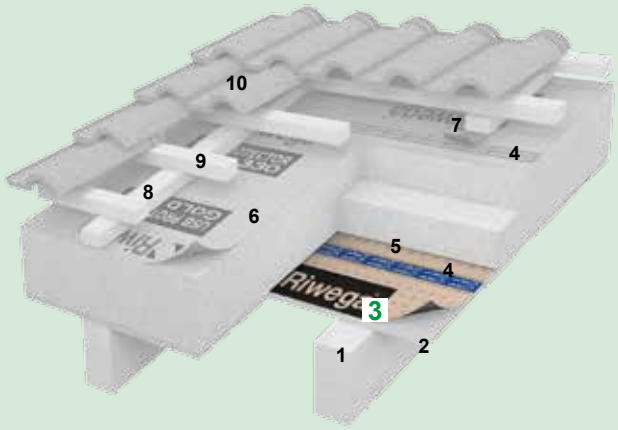
- Water repellent, UV stabilized protective top layer
- Functional PP film, waterproof and slightly breathable
- Special protective absorbent bottom "grip" layer

AIR CONTROL Riwega

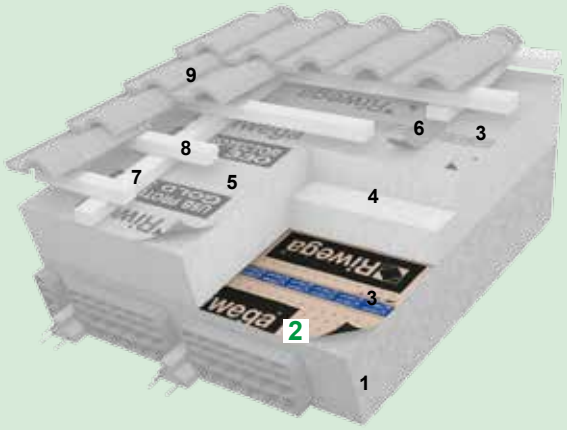
CE EN 13984

USB Micro Strong is a 3 layer vapour control layer which is waterproof and airtight; the top layer is made of non-woven polypropylene fabric which protects the middle microporous film in polypropylene with low breathability, against trampling on the roof; the bottom layer is also made of non-woven polypropylene dual layer fabric known as "grip", which provides abrasion protection for the middle film even when laid on particularly rough surfaces such as untreated planks or hollow core concrete slabs. The three layers are bonded using an innovative procedure of molecular expansion to obtain a vapour control layer with an areal mass of 230 g/m², with particularly impressive tear resistance (380 N/50mm machine direction; 300 N/50mm cross direction) and mechanical characteristics that guarantee the product even in particularly difficult laying situations. USB Micro Strong is the ideal vapour control layer for use on wooden or hollow core concrete roofs, thanks to the particular mechanical resistance of the bottom dual non-woven fabric "grip" layer. As it is also a vapour control layer with an areal mass of 230 g/m² and thus a Class A product according to UNI 11470:2015, it is ideal for any type of roof structure (wood, hollow core concrete) and for any type of slope, regardless whether the slope is higher or lower than 30%.

Example of stratigraphy to be verified with Hygrotherm Europe



1. Supporting structure
2. Planking/Plasterboard
3. **Vapour control layer USB Micro Strong**
4. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
5. Insulation
6. Breathable membrane **USB Protector GOLD 330**
7. Nail sealing tape **USB Tip KONT**
8. Ventilation counter batten
9. Roof covering support batten
10. Roof covering



1. Hollow core concrete roof
2. **Vapour control layer USB Micro Strong**
3. Adhesive tape **USB Tape 1 PE** or version **TOP SK**
4. Insulation
5. Breathable membrane **USB Protector GOLD 330**
6. Nail sealing tape **USB Tip KONT**
7. Ventilation counter batten
8. Roof covering support batten
9. Roof covering

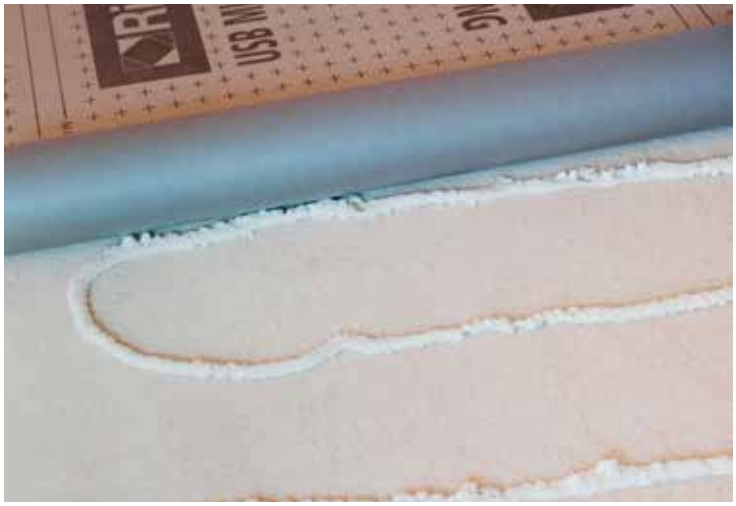
Technical data sheet

Material		**PP.PP.PP**
Film		**PP**
Colour		**beige/grey**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**18**
Areal mass (g/m²)	EN 1849-2	**230 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**>2**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 15**
Water column (cm)	EN 20811	**>900**
Heavy rain test		**passed**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**380 / 300 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**50 / 65 (±15%)**
Tear strength MD/CD*	EN 12310-1	**300 / 390 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**217**
Thickness (mm)	EN 1849-2	**1,06**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**1887**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,1023 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal



USB Micro Strong can be laid directly onto hollow core concrete roofs by gluing it onto the concrete slab using the butyl adhesive foam USB Glue (Art. 02040510) applied in 2 cm wide strips about 25 cm apart (a serpentine design may be used). Let dry for 1-3 minutes and then extend the vapour control layer. After 8-10 minutes at 20°C and 65% RH it will be firmly glued and walkable; for every 75 square meter roll of vapour barrier, 3 cans of USB Glue are recommended.

USB Micro

Art. 1,5 m ***02030140***
Art. TOP SK 1,5 m ***02020141***
Art. 3,0 m ***020301400***

QUICK OVERVIEW: STRENGTHS

The first and original!

The most sold because of **price-quality ratio.**

3 layer product, environmentally friendly/recyclable.

Water repellent, UV stabilized protective top layer.

Regulates the passage of water vapour.

Available in **3 m width**.

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**
CH SIA 232 **VU-VO**
IT UNI 11470 **B**

10 YEARS Riwega® GUARANTEE

- Water repellent, UV stabilized protective top layer
- Functional PP film, waterproof and slightly breathable
- Absorbent protective bottom layer

AIR CONTROL Riwega

CE EN 13984

USB Micro is a 3 layer, water- and airtight, vapour control layer. The top and bottom layers are made of non-woven polypropylene fabric which protect the middle polypropylene microporous film with low breathability. The three layers are bonded using an innovative procedure of molecular expansion.
The top layer is treated to make it water repellent so that rain water runs directly off it. In very heavy rain which cannot be easily diverted, the middle membrane can also provide the necessary watertightness.
The product's weight (155 g/m²) makes USB Micro the essential vapour control layer for installing a roof which combines current standards but offers also good price-quality ratio.

Technical data sheet

Material		**PP.PP.PP**
Film		**PP**
Colour		**beige/white**
Roll width (m)		**1,5 / 3,0**
Roll length (m)		**50**
Roll weight (kg)		**12 / 24**

Areal mass (g/m²)	EN 1849-2	**155 (±5 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**>2**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 15**
Water column (cm)	EN 20811	**>550**
Heavy rain test		**passed**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**310 / 240 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**70 / 80 (±15%)**
Tear strength MD/CD*	EN 12310-1	**190 / 230 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**199**
Thickness (mm)	EN 1849-2	**0,78**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**2564**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,0753 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

USB Micro Light

Art.1,5 m ***02030115***
Art. 3,0 m ***020301150***

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**

CH SIA 232 **VU - VO** G+R

IT UNI 11470 **D**

- Water repellent, UV stabilized protective top layer
- Functional PE film, waterproof and slightly breathable
- Absorbent protective bottom layer

Technical data sheet

Material		**PP.PE.PP**
Film		**PE**
Colour		**yellow/white (semitrasparente)**
Roll width (m)		**1,5 / 3,0**
Roll length (m)		**50**
Roll weight (kg)		**9 / 18**
Areal mass (g/m²)	EN 1849-2	**120 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**10**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 3**
Water column (cm)	EN 20811	**>400**
Heavy rain test		**passed**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**210 / 160 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**60 / 80 (±15%)**
Tear strength MD/CD*	EN 12310-1	**180 / 220 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**211**
Thickness (mm)	EN 1849-2	**0,57**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**17544**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,0110 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.

QUICK OVERVIEW: STRENGTHS

The lightweight vapour control layer!

Thanks to its **lightweight and handiness** the USB Micro Light is the ideal vapour control layer for walls and to be applied on roofs working from inside.

Guarantees water and airtightness, regulates the passage of water vapour.

Semi-transparent, easy to install.

AIR CONTROL Riwega

CE EN 13984

USB Micro Light is a 3 layer waterproof and airtight vapour control layer. Its top and bottom layers are made of non-woven polypropylene fabric which protect the middle PE microporous film with low-breathability. The three layers are bonded using an innovative procedure of molecular expansion.
The main feature of this particular vapour control layer is its light weight (120 g/m²) which makes it the ideal product for walls or to be applied on ceilings or roofs working from inside.
Riwega has created an entire range of sealing products (see R3) to guarantee a building envelope with perfect airtightness and control of vapour passage. All holes caused by screws for fixing finishing panels or substructures must be sealed with the nail sealing tape USB Tip Kont.

USB Micro 230 / 20

Art. **02030230**
Art. Top SK **02020126**

QUICK OVERVIEW: STRENGTHS

The Super Breaker!

The vapour control layer with extra **low breathability and high mechanical resistance.**

Indicated for installation in buildings with high water vapour concentration (swimming pools, industrial kitchens, etc.).

Ideal with low breathability insulation or in particularly cold areas where there is a high risk of interstitial condensation inside the insulation layer.

Classification:

AT	CH	DE	FR	IT
Önorm B 4119 Önorm B 3661 **Typ I**	SIA 232 **VO**	ZVDH **UDB**	DTU **31.2**	UNI 11470 **A**

10 YEARS Riwega GUARANTEE

- Water repellent, UV stabilized protective top layer
- Functional PP film, waterproof and slightly breathable
- Absorbent protective bottom layer

AIR CONTROL Riwega

CE EN 13984

USB Micro 230/20 is a heavyweight vapour barrier (220 g/m²) and therefore it has particularly impressive mechanical characteristics, perfect for guaranteeing the product even during installations where there is considerable wear and tear. Its low breathability (Sd 20 m) makes this particular vapour control layer ideal for roofs of buildings that have a high water vapour concentration (swimming pools, industrial kitchens, industrial sites where steam is used, etc.), in places where the use of low breathability insulation is required (for example EPS panels) or in particularly cold areas where there is a high risk of interstitial condensation forming inside the insulation layer. Thanks to the water column of more than 9 m, USB Micro 230/20 can be used instead of the bituminous sheats as the final under-tile waterproofing layer in roofs which require a second planking with ventilation between the insulation layer and the planking itself.

Technical data sheet

Material		**PP.PP.PP**
Film		**PP**
Colour		**dark blue/grey**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**18**
Areal mass (g/m²)	EN 1849-2	**220 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**20**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 1,5**
Water column (cm)	EN 20811	**>900**
Heavy rain test		**passed**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**400 / 280 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**60 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**250 / 320 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**208**
Thickness (mm)	EN 1849-2	**1,06**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**18868**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,0102 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

USB Micro 100 / 20

Art. 1,5 m ***02030143***
Art. 3,0 m ***020301430***

Classification:

AT Önorm B 4119 Önorm B 3661 **Typ I**
CH SIA 232 **VU**
FR DTU **31.2**
IT UNI 11470 **D**

10 YEARS Riwega GUARANTEE

- Water repellent, UV stabilized ,protective and semi-transparent top layer
- Functional film in PP, waterproof and slightly breathable

QUICK OVERVIEW: STRENGTHS

Lightness and transparency!

Semi-transparent vapour barrier, adaptable and with **very low breathability** (Sd 20m).

Perfect for applying the insulation on the inside structure: **cladding, ceiling or wall**.

Waterproof, airtight and regulates vapour passage.

AIR CONTROL Riwega

CE EN 13984

Technical data sheet

Material		**PP.PP**
Film		**PP**
Colour		**white (semitrasparente)**
Roll width (m)		**1,5 / 3,0**
Roll length (m)		**50**
Roll weight (kg)		**8 / 16**

Areal mass (g/m²)	EN 1849-2	**100 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	**20**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 1,5**
Water column (cm)	EN 20811	**>400**
Heavy rain test		**passed**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**180 / 120 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**65 / 70 (±15%)**
Tear strength MD/CD*	EN 12310-1	**80 / 90 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**4 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**238**
Thickness (mm)	EN 1849-2	**0,42**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**47619**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,0041 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

Riwega Srl is not responsible for negligent or improper use of its products.

USB Micro 100/20 is a thermobonded, UV stabilized dual layer polypropylene vapour barrier. Thanks to its adaptability, semi-transparency and Sd value of 20 metres, it is the perfect product to be applied as an internal layer to the insulation laid between wooden structures, whether roof or walls. USB Micro 100/20 guarantees perfect airtightness and controls the passage of water vapour, filtering only a small amount of it.
For this kind of application, USB Micro 100/20 can be fixed to the wooden wall with staples or mechanical anchoring. The overlapping parts are sealed with USB Tape 1 PAP or glued with USB Sil; the same product can be used to seal overlapping parts of more layers.

USB Micro 100 VARIO

Art. **02030144**

QUICK OVERVIEW: STRENGTHS

The first vapour barrier able to change its hygrometric properties!

Perfect for application as a cladding, partly on the inside and partly on the outside of wooden structures.

It offers **perfect regulation of vapour passage** in relation to temperature and humidity.

Perfect to be used during renovation works of the building envelope with internal insulation.

AIR CONTROL Riwega

CE EN 13984

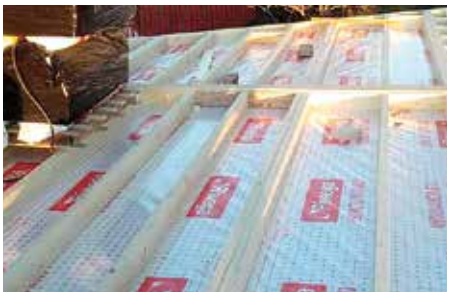
Classification:

AT	CH	FR	IT
Önorm B 4119 Önorm B 3661 **Typ I**	SIA 232 **VU**	DTU **31.2**	UNI 11470 **A**

10 YEARS Riwega GUARANTEE

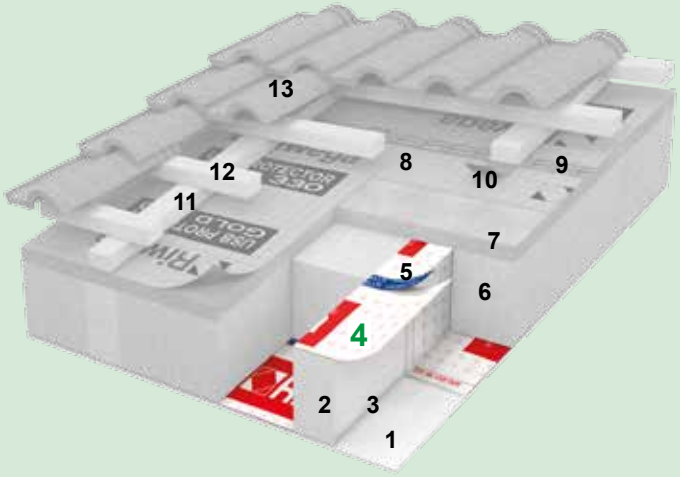
Variable Sd

- Functional film in PA
- PET Support layer



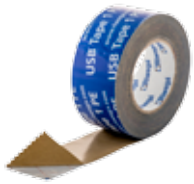
USB Micro 100 VARIO is a UV rays stabilized vapour control layer with two thermobonded layers in PET and PA with hygrometric capacity, sensitive to variations in humidity. Because of its adaptability, semitransparency and an Sd value oscillating between 0.2 and 20 meters, it is the ideal product that can be laid partly on the inside and partly on the outside of wood structures (especially in renovation), whether in walls or roofs. USB Micro VARIO guarantees perfect airtightness and controls the passage of vapour depending on the climate and humidity: in the winter, it filters only a minimal part where it is installed inside the insulating package, while it increases its breathability when installed outside of the structure. In summer the function is reverse: it limits the entrance of humidity from the outside and opens the breathability towards the inside.

Example of stratigraphy to be verified with Hygrotherm Europe



1. Planking/Plasterboard
2. Supporting structure
3. Adhesive tape **USB Tape 2 AC BOLD**
4. **Vapour control layer USB Micro 100 VARIO**
5. Adhesive tape **USB Tape 1 PE**
6. Insulation low density
7. Insulation high density
8. Breathable membrane **USB Protector GOLD 330**
9. Adhesive tape **USB Tape 1 PE** or **TOP SK** version
10. Nail sealing tape **USB Tip KONT**
11. Ventilation counter batten
12. Roof covering support batten
13. Roof covering

To guarantee the total seal provided by USB micro 100 VARIO vapour control layer against air penetration, the reinforced acrylic adhesive tape with polyethylene backing **USB Tape 1 PE** (Art. 02040160) must be used . This tape is particularly effective in different seal points, such as horizontal overlaps, vertical joins or the join between membrane and different building components (masonry, wood, doors and windows, plastic or metal vents, etc.).



Technical data sheet

Material		**PET.PA**
Film		**PA**
Colour		**white**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**9**
Areal mass (g/m²)	EN 1849-2	**100 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m):	UNI EN ISO 12572	**0,2 - 20**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 100 - 1**
Water column (cm)	EN 20811	**>200**
Heavy rain test		**passed**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**210 / 190 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**35 / 35 (±15%)**
Tear strength MD/CD*	EN 12310-1	**59 / 65 (±15N)**
Fire class	EN 13501-1	**E**
UV stability		**3 months**
Temperature		**-40°/+100°C**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**333**
Thickness (mm)	EN 1849-2	**0,30**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**667 - 66667**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,2894 *10^{-12} - 0,0029 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

To guarantee anchoring to the structure without damaging the control layer and the airtightness of the system, USB Tape 2 AC BOLD (Art. 02040210) can be used. A highly adhesive acrylic mass with a polyester reinforcing layer, viscoelastic and thicker, specially created for gluing and sealing breathable membranes and vapour control layers to any type of building structure (wood, masonry, plaster, cement, metal).

Synthetic vapour barriers

Art. DS 46 PE ***02064009***
Art. DS 65 PE ***02064006***
Art. DS 188 ALU ***02064008***

QUICK OVERVIEW: STRENGTHS

Stop vapour!

Vapour barrier.

Synthetic, light, manageable, vapourtight.

Waterproof, air- and windtight.

Ideal for every kind of situation thanks to the single product's specific features.

AIR CONTROL Riwega

CE EN 13984

Classification: AT Önorm B 4119 Önorm B 3661 Typ I | CH SIA 232 VU - VO | FR DTU 31.2 | IT UNI 11470 D

AT Önorm B 4119 Önorm B 3661 Typ I | CH SIA 232 VU - VO G+R | FR DTU 31.2 | IT UNI 11470 B

AT Önorm B 4119 Önorm B 3661 Typ I | CH SIA 232 VU - VO | FR DTU 31.2 | IT UNI 11470 B

Technical data sheet		DS 46 PE	DS 65 PE	DS 188 Alu
Material		PE reinforced	PE	PE reinforced.Alu
Film		-	-	-
Colour		white transparent	transparent/blue	alu/white
Roll width (m)		1,5	3,0	1,5
Roll length (m)		50	33	50
Roll weight (kg)		9	19	13
Areal mass (g/m²)	EN 1849-2	110 (±10 g/m²)	188 (±10 g/m²)	170 (±10 g/m²)
Equivalent air layer to vapour passage - Sd (m):	UNI EN ISO 12572	40	140	200
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	ca. 0,6	ca. 0,2	ca. 0,2
Watertightness	EN 13984	passed	passed	passed
Tensile strength MD/CD*	EN 12311-1	220 / 190 (±30N/50mm)	175 / 160 (±30N/50mm)	290 / 260 (±30N/50mm)
Elongation MD/CD*	EN 12311-1	30 / 35 (±15%)	500 / 570 (±15%)	15 / 15 (±15%)
Tear strength MD/CD*	EN 12310-1	155 / 145 (±15N)	130 / 135 (±15N)	180 / 180 (±15N)
Fire class	EN 13501-1	F	E	E
Temperature		-40°/+80°C	-20°/+80°C	-40°/+80°C
Necessary data for hygrotermic calculation:				
Density (kg/m³)	EN 1849-1	500	940	567
Thickness (mm)	EN 1849-2	0,22	0,2	0,3
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	181818	700000	666667
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	0,0011 *10^{-12}	0,0003 *10^{-12}	0,0003 *10^{-12}
Thermal conductivity lambda-λ (W/mK)		0,4	0,4	0,4
Specific heat (J/KgK)		1800	1800	1800

*MD = longitudinal CD = transversal

DS 1500 SYN

Art. **02064007**

Classification:

AT Önorm B 4119 Önorm B 3661 Typ I | CH SIA 232 VU - VO G+R | FR DTU 31.2 | IT UNI 11470 C

- Protective top layer in PP
- PE film
- Alu film
- PE film
- Protective bottom layer in PP

QUICK OVERVIEW: STRENGTHS

Stops vapour and radon gas!

Certified as a vapour and radon gas barrier.

Ideal for **protection of internal insulation** of a reinforced concrete wall and for prevention of interstitial condensation.

Reflecting barrier, waterproof, air- and windtight, **light and manageable**.

Sd 1500 m !

AIR CONTROL Riwega

CE EN 13984

Technical data sheet

Material		**PP.PE.Alu.PE.PP**
Film		**-**
Colour		**white**
Roll width (m)		**1,5**
Roll length (m)		**50**
Roll weight (kg)		**10**
Areal mass (g/m²)	EN 1849-2	**130 (±10 g/m²)**
Equivalent air layer to vapour passage - Sd (m):	UNI EN ISO 12572	**>1500**
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	**ca. 0,02**
Watertightness	EN 13984	**passed**
Tensile strength MD/CD*	EN 12311-1	**170 / 110 (±30N/50mm)**
Elongation MD/CD*	EN 12311-1	**60 / 45 (±15%)**
Tear strength MD/CD*	EN 12310-1	**75 / 90 (±15N)**
Fire class	EN 13501-1	**E**
Temperature		**-40°/+100°C**
Diffusione gas radon (D)	ISO 11665-10	**1,64 x 10^{-14} m^2s^{-1}**

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	**289**
Thickness (mm)	EN 1849-2	**0,45**
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	**6666667**
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	**0,00005 *10^{-12}**
Thermal conductivity lambda-λ (W/mK)		**0,22**
Specific heat (J/KgK)		**1700**

*MD = longitudinal CD = transversal

The vapour barrier **DS 1500 SYN** is a part of the DS Line vapour barriers range, whose products' use is suitable for internal surfaces of vertical, horizontal and oblique structures in order to limit vapour passage from the warm part to the cold part of the structures and to prevent condensation. Ds 1500 SYN is also a radon certified barrier, a gas that seeps out from the ground and tends to infiltrate in buildings through walls and building's foundations because of the pressure difference between warm rooms and humid rooms in contact with the ground.
The synthetic vapour barrier DS 1500 SYN is certified by IHK Bonn (Test Report Nr.2017032401d from 24.03.2017) as an anti-radon vapour barrier with the following radon gas diffusion coefficent: D = 1,64 x 10^{-14}m2s^{-1}.

Bituminous vapour barriers

QUICK OVERVIEW: STRENGTHS

Total watertightness!

Waterproofing products can be used on the second ventilated planking.

Bituminous vapour barriers with very low permeability.

High tear strength.

Perfect for all types of situations thanks to the specific characteristics of the single product.

Anti-slip and anti-reflection.

CE
EN 13859-1

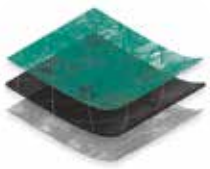
Classification:

AT Önorm B 4119 Önorm B 3661 **Typ II**

DE ZVDH **UDB**

IT UNI 11564 **P/SR3/A P/SR2/A**

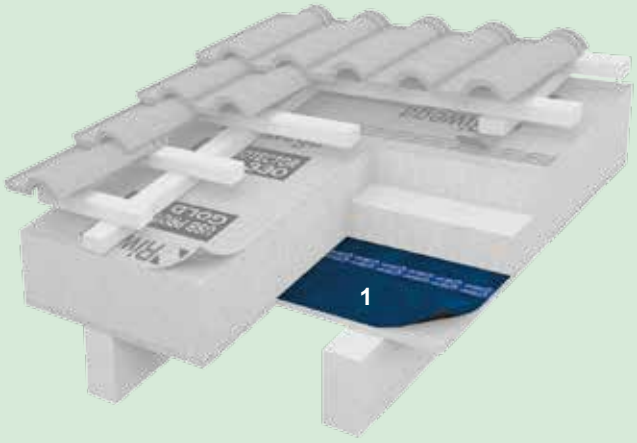
Art. DS 22 430 PP ***02064004***
Art. DS 28 750 TOP SK ***02064019***
Art. DS 48 1000 PP ***02064014***
Art. DS 48 1100 PP ***02064005*** *TOP SK* ***02064020***
Art. DS 48 1300 PP TOP SK ***02064013***
Art. DS 48 1500 PP ***02064015***
Art. DS 48 2200 TOP SK ***02064021***



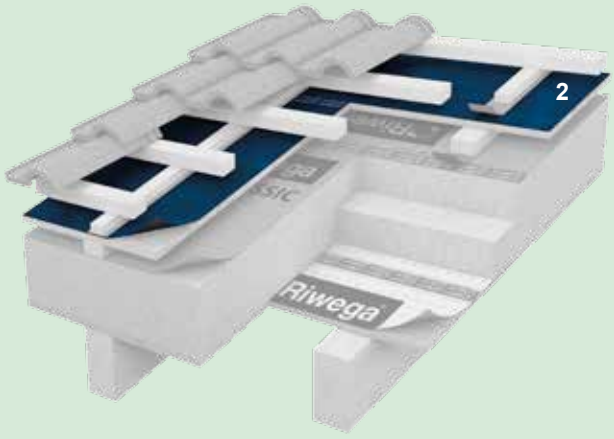
- Polypropylene non-woven fabric
- Bitumen with non-woven fabric in reinforced PET
- Polypropylene non-woven fabric

The bituminous vapour barriers in the DS-PP line are produced using a bitumen mixture and have a polypropylene non-woven fabric on both sides. They have a dual purpose and can be used either as a vapour barrier on roofs by laying them underneath the insulation or as an under-tile impermeable membrane on top of ventilated plankings. The range offers eight different versions that differ from one another in terms of their areal mass and mechanical resistance.

Example of stratigraphy to be verified with Hygrotherm Europe



Use of DS bituminous membranes **(1)** as a vapour barrier in the covering under the insulation layer.



Use of DS bituminous membranes **(2)** as a waterproof layer of the covering; they can only be used this way if laid on ventilated plankings.

Technical data sheet		**DS 22 430 PP**	**DS 28 750 TOP SK**	**DS 48 1000 PP**	**DS 48 1100 PP**	**DS 48 1300 PP TOP SK**	**DS 48 1500 PP**	**DS 48 2200 TOP SK**
Material					polyester bit. PP			
Colour		blue/white	blue/white	black/black	blue/white	green/white	green/white	green/black
Roll width (m)		1	1	1	1	1	1	1,1
Roll length (m)		50	30	25	25	20	20	10
Roll weight (kg)		21	21	24	29	28	32	24
Other versions		-	-	-	TOP SK	-	-	-
Adhesive strip TOP SK		-	bituminous	-	acrylic	acrylic	-	bituminous
Areal mass (g/m²)	EN 1849-2	400	700	900	1100	1300	1500	2200
Equivalent air layer to vapour passage - Sd (m)	UNI EN ISO 12572	50	95	70	152	152	152	150
DVA diffusion of vapour (g/m²/24 hours)	UNI EN ISO 12572	ca. 0,85	ca. 0,5	ca. 0,61	ca. 0,28	ca. 0,28	ca. 0,28	ca. 0,28
Impermeability class	EN 1928	W1	W1	W1	W1	W1	W1	W1
Tensile strength MD/CD* (N/50mm)	EN 12311-1	450 / 370	530 / 350	470 / 360	700 / 440	730 / 450	700 / 440	500 / 400
Elongation MD/CD* (%)	EN 12311-1	40 - 60 50 - 70	30 - 50 40 - 60	25 - 45 30 - 50	35 - 55 45 - 65	35 - 55 45 - 65	35 - 55 45 - 65	40 40
Tear strength MD/CD* (N)	EN 12310-1	280 / 280	200 / 200	195 / 220	220 / 230	250 / 250	250 / 270	150 / 150
Fire class	EN 13501-1	E	F	F	E	E	E	E
Reinforcement	UNI 11564	P	P	P	P	P	P	P
Dimensional stability 80°C (%)	EN13859-1	-0,5 < ΔL < 0,5	-0,5 < ΔL < 0,5	-0,7 < ΔL < 0,7	-0,5 < ΔL < 0,5	-0,5 < ΔL < 0,5	-0,5 < ΔL < 0,5	-0,3 < ΔL < 0,3
Class of mechanical resistance	UNI 11564	SR3	SR2	SR3	SR2	SR3	SR3	SR2

Necessary data for hygrotermic calculation:

Density (kg/m³)	EN 1849-1	615	778	900	1000	1000	1000	1100
Thickness (mm)	EN 1849-2	0,65	0,9	1,0	1,1	1,3	1,5	2,0
Coefficient of vapour passage resistance (μ)	UNI EN ISO 12572	77000	105556	80000	138000	117000	101500	75000
Permeability of vapour (kg/m*s*Pa)	UNI EN ISO 12572	$0{,}0025*10^{-12}$	$0{,}0018*10^{-12}$	$0{,}0024*10^{-12}$	$0{,}0014*10^{-12}$	$0{,}0016*10^{-12}$	$0{,}0019*10^{-12}$	$0{,}0026*10^{-12}$
Thermal conductivity lambda-λ (W/mK)		0,17	0,17	0,17	0,17	0,17	0,17	0,17
Specific heat (J/KgK)		840	840	840	840	840	840	840

*MD = longitudinal CD = transversal

Accessories

Temporary rain sheet

PVC tarpaulin

QUICK OVERVIEW: STRENGTHS

Protect your work!

Perfect sheet for **temporary protection** during working phases.

Quick to be installed thanks to the hooks and grommets provided for anchoring.

Waterproof sheet for emergencies.

High tear strength thanks to reinforcement strips.

Description and use: the RAPID green sheet is a temporary rain sheet with reinforcements at various points: all of the sheet's reinforcement strips are arranged in a certain direction (white arrows) with a distance between the centre points of 60-70 cm. These strips increase the tear resistance in this direction by approximately 1000 N to 2100 N. In addition, other two reinforcement strips are diagonally welded onto the sheet, i.e. from one corner to the other (black arrows). This also increases the sheet's mechanical resistance. Thanks to these reinforcement strips, the temporary rain sheet has 4 layers in the middle where it reaches a tear resistance up to 4000 N; this feature makes it possible to fix a special hook in the middle of the sheet which can be used to lift the sheet with a crane.
The RAPID green sheet acts as a temporary cover used to protect a building quickly when it rains. For a quick use, the RAPID green sheet is supplied pre-assembled and folded. Just cut and fix the provided straps to adjust the sheet on the building.

Green rectangular sheet RAPID

Green rectangular sheet with metal grommets around the perimeter and a central hook for easy hook-up to the crane, to place the sheet on the roof more quickly.

Measurements: • 15 x 15 m (Art. 02070001)

Green rectangular sheet

Green rectangular sheet with metal grommets around the perimeter only.

Measurements: • 6 x 10 m (Art. 02070002)
• 8 x 10 m (Art. 02070003)
• 10 x 12 m (Art. 02070004)

Application: lift the RAPID green sheet in the middle using a lifting belt, strap or ring fixing it to the crane's hook. Adjust the sheet to the corners with the straps and, if necessary, fix the sheet to the roof structure using wooden battens. Important: the strap is only to be used for adjusting the sheet! The grommets at the corners are not to be used to fix the sheet to the structure but, combined with the strap provided, they are meant to be used for adjusting the sheet. Riwega is not responsible for any damage caused by improper use. This applies also when the instructions for installation and use of the sheet are supplied to third parties.

Important: please read the instructions. The RAPID green sheet is not a normal tarpaulin. With the help of a crane, the RAPID green sheet acts as a temporary cover when it rains unexpectedly and therefore provides a quick way to protect your buildings. The grommets on the corners are not to be used to fix the sheet to the structure but, together with the strap provided, they are to be used for adjusting the sheet.

Mistakes to avoid:

- If you leave the RAPID green sheet attached to the crane's hook: in case of wind, the crane will start to move causing the eye-bolt to break and, in the worst case, the sheet may detach from the building or break in the middle. If the sheet breaks in the middle, the sheet will remain attached to the building only if it has been fixed with wooden battens.

- If the sheet is not attached with wooden battens the movement of the crane could drag the sheet off the building. The sheet may also hit against the corners of wooden or concrete structures and become torn. In these cases, even the greatest tear resistance and the multiple layers of sheet and its reinforcement strips will not be able to prevent the sheet from being damaged. Fixing the sheet using battens allows the sheet to remain adherent to the structure without flapping against it.

Fixing the sheet in windy conditions: in this case, the sheet is adjusted on the ground with straps, starting with the side the wind is coming from.

Preparation: take the eyebolt, fix the washer and pass it through the hole in the centre of the sheet. Screw the Plexiglas base plate through the lower side of the sheet onto the eyebolt and screw tightly. Divide the strap provided into four equal sections and fasten it to the corners. Important: the strap is only for adjusting the sheet!

Technical data sheet	
Article	**02070001**
Material	**PVC**
Measurements	**15 m x 15 m**
Colour	**green**
Weight	**200 g/m² (reinforced with PE belts - 220 g/m²)**
Tear resistance	**1000 N (ca. 100 kg)**
Tear resistance with reinforced belts	**2100 N (ca. 210 kg)**
UV stability	**stable**
Resistance to temperature	**from -40°C to + 80°C**
Perimetral reinforcement	**ca. 5 cm**
Perimetral rings distance	**each 100 cm rings with Ø 12 mm**
Coating	**on both sides**
Impermeability class	**impermeable**

Important: the eyebolt must only be screwed on the Plexiglas base side.

This is important. Failure to do this may cause the threaded eyebolt to come away from the Plexiglas base plate and it may not be able to be repaired in an emergency.

Hammer tacker

for fixing membranes and under-ridge elements

HFVZ10

with 6 mm staples
(Art. 05TAKZ10)

HFPF09

with 9 mm staples
(Art. 05TAKF09)

Staples

6 mm hammer tacker staples HFVZ10 - 6700 pieces/box (Art. 05TAKZ06)
9 mm hammer tacker staples HFPF09 - 5000 pieces/box (Art. 05TAKPF9)

*MD = longitudinal CD = transversal