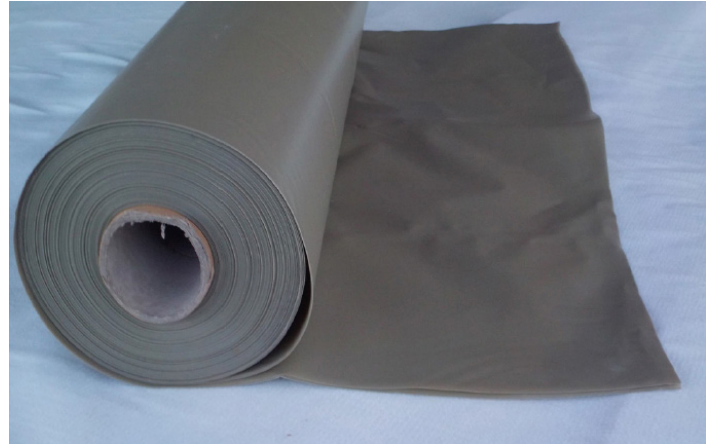


OPTIGREEN TGF 0.2

PE Separation and Slip Layer

As a slip layer under drainage mats capable of being driven and walked on (FKD 10, FKD 25 plus and FKD 60BU).



Material	Recycled polyethylene (PE)
Nominal thickness	Approx. 0.2 mm (200 µ)
Grammage	Approx. 185 g/m ²
Colour	Green (transparent cloudy)
Dynamic sliding friction coefficient	0.097 (in accordance with DIN 53375)
Delivery weight	Approx. 40.0 kg/roll - approx. 1,100.0 kg/Euro pallet (with protrusion)
Pack size	Diameter approx. 0.25 m, height approx. 1.1 m
Quantity/delivered unit	200 m ² /roll = 4.0 x 50.0 m 5,400 m ² /pallet
Delivery form	27 rolls on euro pallet 800 x 1,200 mm (with protrusion)
Resistant to bitumen and polystyrene	Yes
Rotproof	Yes
Recyclable	Yes
UV-resistant	No

Area of use

- As a separation and slip layer on waterproofing.
- As a second slip layer in conjunction with HDPE film 1.0 mm, or SGL 500 under public areas to prevent the transfer of shear and tensile forces
- For the chemically neutral separation of two incompatible materials

Specific properties

- 100% recycled polyethylene (PE)
- Resistant to bitumen and polystyrene
- Resistant to most chemicals
- Very smooth surface
- Limit of determination sliding friction coefficient according to FLL <0.6 for films ≤ 0.2 mm thickness
- Rotproof, not UV-resistant
- Recyclable

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OPTIGREEN SSV 800

Structured Storage Fleece

For use on pitched green roofs as protection layer with water reservoir function and ribbed structure on the underside to guide the excess water.



Material	PP plastic fibre
Nominal thickness	Approx. 10 mm
Grammage	Approx. 800 g/m ²
Colour	Green/white
Geotextile robustness class	GRC 3
Water storage capacity	Approx. 6.0 l/m ²
Water discharge capacity (DIN EN ISO 12958)	Measured at $\sigma=2$ kPa, soft/hard, MD $i = 0.09$ (=9 % roof pitch): 0.484 l/(m*s) $i = 0.27$ (=27 % roof pitch): 0.979 l/(m*s) $i = 1$ (vertical): 2.31 l/(m*s)
Opening width O_{90}	0.185 mm
Puncture resistance	1,500 N (EN ISO 12236)
Quantity/delivered unit	40 m ² /roll = 2.0 x 20.0 m
Delivery form	As individual roll(s)
Pack size	Diameter approx. 0.65 m, height approx. 2.0 m/per roll
Delivery weight	Approx. 32.0 kg/roll
UV-resistant	Yes
Detector tested	Yes

Area of use

- As a combined protective layer with water reservoir and drainage function for use on sloping green roofs.
- As a water reservoir and for the targeted guiding of excess water, above all at the eaves
- Full-surface laying for a roof pitch over 15° and substitute for RMS 500

Specific properties

- 100% PP plastic fibre
- UV-resistant
- Detector tested
- Puncture resistance 1,500 N
- Water storage capacity approx. 6.0 l/m²
- Recyclable

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OPTIGREEN FKD 10

Protection and Drainage Board

Made from deep-drawn HDPE with no water reservoir function with channel system on the upper side and fleece lining for drainage under flagging on roof areas. Use also as vertical building drainage on non-bituminous waterproofing.



Material	Recycled HDPE (napped sheet) PP (fleece)
Nominal thickness	approx. 10 mm
Grammage	approx. 750 g/m ² (total) approx. 615 g/m ² (napped sheet) approx. 135 g/m ² (fleece)
Colour	grey/black
max. compressive strength	Approx. 400 kN/m ² (40 t/m ²) with 18 % compression (in accordance with DIN EN ISO 25619-2) approx. 185 kN/m ² with 10 % compression
Filter fleece	PP thermally strengthened, GRC 2, flow rate with 100 mm water column 75 l/m ² x s
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with filter fleece on the upper side: i = 0.01 (=1 % roof pitch): 0.33 l/(m*s) i = 0.02 (=2 % roof pitch): 0.45 l/(m*s) i = 0.05 (=5 % roof pitch): 0.71 l/(m*s) i = 1 (vertical): 3.50 l/(m*s)
Reduction in foot fall sound inspected in accordance with EN ISO 10140 assessed in accordance with ISO 717-2	Improvement in foot fall sound for the following layer structures: ΔL_w 29 dB RMS 950 TS, FKD 10, 40 mm chippings, 40 mm concrete slab
Quantity/delivered unit	25 m ² /roll = 2.0 x 12.5 m Coverage dimensions 24.0 m ² /roll 150 m ² /pallet
Delivery form	according to size of order
Delivery weight	approx. 19.0 kg/roll approx. 138 kg/disposable pallet
Pack size	Diameter approx. 0.40 m, height approx. 2.0 m / per roll

Area of use

- As a drainage element under floor surfaces used on foot
- As a drainage element under vegetation areas with no need for water reservoir but increased pressure load
- Vertically along ascending, filled structural components or as foundation wall drainage
- Use only on roof surfaces with a minimum of 2% regular gradient of the sealing plane

Specific properties

- 100% recycled HDPE
- CE-marked CE-1213-CPD-5584
- Pressure stable
- Prevents accumulation of water
- Lightweight super structure with high drainage capacity
- Compressive strength approx. 400 kN/m² (40 t/m²)
- Thermally strengthened filter fleece layer with 75 l/m² x s flow rate with 100 mm water column.
- Recyclable

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OPTIGREEN FKD 12

Protection and Drainage Board

Made from deep-drawn recycled HDPE with no water reservoir function with channel system on the upper side and fleece lining as well as PE film adhered on the reverse as the first slip layer for drainage under load-bearing traffic areas.



Material	Recycled HDPE (napped sheet) PP (fleece) PE (slip layer)
Nominal thickness	approx. 12 mm
Grammage	approx. 1,300 g/m ² (total) approx. 940 g/m ² (napped sheet) approx. 260 g/m ² (fleece) approx. 100 g/m ² (slip layer)
Colour	grey/black
Compressive strength	- approx. 1,600 kN/m ² with 18.8 % compression - approx. 400 kN/m ² with 10 % compression (DIN EN ISO 25619-2)
Filter fleece	PP thermally strengthened, GRC 4, 260 g/m ² flow rate with 100 mm water column 23 l/m ² x s
Slip layer	PE black, approx. 160 µ, friction coefficient <0.6
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with 260 g/m ² filter fleece on the upper side: i = 0.01 (=1 % roof pitch): 0.28 l/(m*s) i = 0.02 (=2 % roof pitch): 0.39 l/(m*s) i = 0.05 (=5 % roof pitch): 0.66 l/(m*s) i = 1 (vertical): 3.21 l/(m*s)
Quantity/delivered unit	25 m ² /roll = 2.0 x 12.5 m 150 m ² /disposable pallet
Delivery form	according to size of order
Delivery weight	approx. 33.0 kg/roll approx. 220 kg/disposable pallet
Pack size	Diameter approx. 0.45 m, height approx. 2.0 m/per roll

Area of use

- As a drainage element under public areas on buildings used by vehicles up to 16 t permitted total weight (corresponding to FLL guideline load class 3). According to FLL recommendation, an additional slip layer is added under the drainage element as per the manufacturer's recommendation to construct public areas on buildings where required.
- As a drainage element under vegetation areas with no need for a water reservoir but extremely high pressure load.
- Use only on roof surfaces with a minimum of 2% regular gradient of the sealing plane.

Specific properties

- 100% recycled HDPE
- CE-marked CE-1213-CPD-5584
- Pressure stable
- Prevents accumulation of water
- Lightweight super structure with high drainage capacity
- Compressive strength approx. 1,600 kN/m² (160 t/m²)
- Thermally strengthened filter fleece layer with 23 l/m² x s flow rate with 100 mm water column.
- Recyclable

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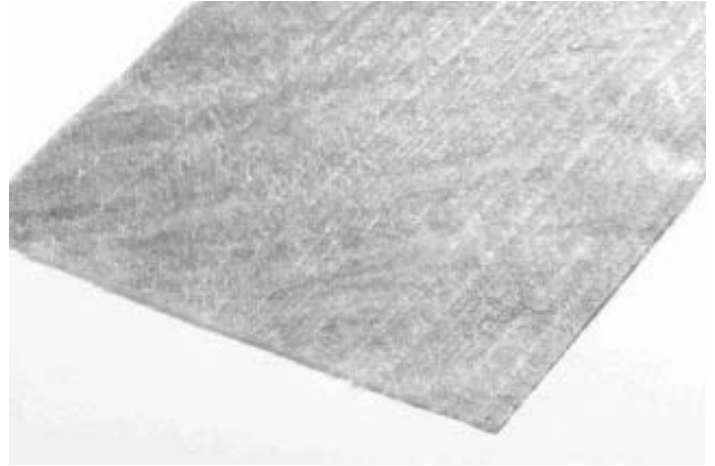
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OPTIGREEN FIL 105

Filter Fleece

Endless fibre fleece with tested water permeability as filter separation layer between drainage and substrate layers.



Material	PP (polypropylen)
Nominal thickness	Approx. 1.1 mm
Grammage	Approx. 105 g/m ²
Colour	Grey
Geotextile robustness class	GRC 2
Mechanical filter efficiency	0.06 ≤ gew. 0 ₉₀ ≤ 0.2 mm (EN ISO 12956)
Max. tensile strength	7.5 / 7.5 kN/m (EN ISO 10319)
Elongation longitudinal/lateral	90 / 75 % (EN ISO 10319)
Puncture resistance	1,200 N (EN ISO 12236)
Vertical water permeability	130 l/s x m ² (EN ISO 11058)
Quantity/delivered unit	200 m ² /roll = 2.0 x 100.0 m 2,200 m ² /pallet
Delivery form	11 rolls on euro pallet 80 x 120 cm
Pack size	Diameter approx. 0.28 m, height approx. 2.0 m / per roll
Delivery weight	Approx. 21.0 kg/roll - Approx. 255,0 kg/full euro pallet
Mechanically strengthened	Yes
Detector tested	Yes

Area of use

- Horizontal filter layer on green roofs between drainage layer and substrate
- Filtration of particles from the substrate.
- As separation between peddle strips and substrate.
- For superstructural parts that can be walked on as a horizontal filter layer

Specific properties

- 100% PP (polypropylene)
- CE-marked
- Puncture resistance 1,200 N
- Vertical water permeability 130 l/s x m²
- 7.5 kN/m tensile strength longitudinal/lateral
- Mechanically strengthened
- Detector tested
- Recyclable

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OPTIGREEN RMS 300

Protection and Storage Fleece

To protect the waterproofing with an additional separating and water reservoir function.



Material	PP/PES/acrylic recycled fibres
Nominal thickness	approx. 3.6 mm
Grammage	approx. 300 g/m ²
Colour	multicolour with print
Geotextile robustness class	GRC 2
Water reservoir	approx. 2.0 l/m ²
Delivery weight	approx. 30.0 kg/roll - approx. 205.0 kg/full euro pallet
Pack size	Diameter approx. 0.45 m, height approx. 2.0 m / per roll
Quantity/ delivered unit	100 m ² /roll = 2.0 x 50.0 m 600 m ² /euro pallet
Delivery form	6 rolls on euro pallet 800 x 1,200 mm
Storage	dry and protected from UV
Mechanically strengthened	Yes
Detector tested	Yes
Rotproof	Yes

Area of use

- As a protective layer on waterproofing with an additional separating and water reservoir function, in accordance with DIN 18195-Part 2
- Separation of products made from incompatible materials (e.g. PVC and bitumen)
- Storage of water and nutrients

Specific properties

- 100% recycled plastic fibre (PP/PES/acrylic)
- Water reservoir approx. 2.0 l/m²
- Fulfilment of the requirements of the FLL roof greening directives
- Mechanically strengthened
- Detector tested
- Rotproof
- Recyclable

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OPTIGREEN RMS 500

Protection and Storage Fleece

To protect the waterproofing with an additional separating and water reservoir function.



Material	PP/PES/acrylic recycled fibres
Nominal thickness	approx. 4.0 mm
Grammage	approx. 500 g/m ²
Colour	multicolour with print
Geotextile robustness class	GRC 2
Water reservoir	approx. 3.5 l/m ²
Delivery weight	approx. 50.0 kg/roll - approx. 275.0 kg/full euro pallet
Pack size	Diameter approx. 0.50 m, height approx. 2.0 m / per roll
Quantity/ delivered unit	100 m ² /roll = 2.0 x 50.0 m 500 m ² /pallet
Delivery form	5 rolls on euro pallet 800 x 1,200 mm
Mechanically strengthened	Yes
Detector tested	Yes
Rotproof	Yes

Area of use

- As a protective layer on waterproofing with an additional separating and water reservoir function, in accordance with DIN 18195-Part 2
- Separation of products made from incompatible materials (e.g. PVC and bitumen)
- Storage of water and nutrients

Specific properties

- 100% recycled plastic fibre (PP/PES/acrylic)
- Water reservoir approx. 3.5 l/m²
- Fulfilment of the requirements of the FLL roof greening directives
- Mechanically strengthened
- Detector tested
- Rotproof
- Recyclable

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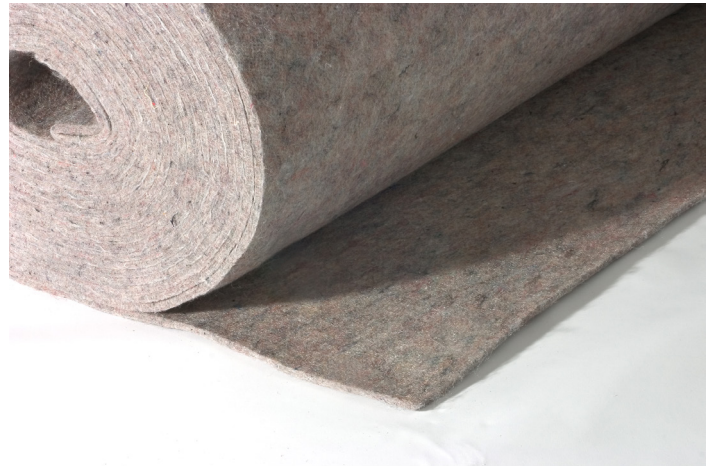
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OPTIGREEN RMS 900

Protection and Storage Fleece

To protect the waterproofing with a moderate load with an additional separating and water reservoir function.



Material	PP/PES/acrylic recycled fibres
Nominal thickness	approx. 6.0 mm
Grammage	approx. 900 g/m ²
Colour	multicolour with print
Geotextile robustness class	GRC 4
Water reservoir	approx. 6.0 l/m ²
Delivery weight	approx. 45.0 kg/roll - approx. 290.0 kg/full euro pallet
Pack size	Diameter approx. 0.42 m, height approx. 2.0 m / per roll
Quantity/ delivered unit	50 m ² /roll = 2.0 x 25.0 m 300 m ² /euro pallet
Delivery form	6 rolls on euro pallet 800 x 1,200 mm
Mechanically strengthened	Yes
Detector tested	Yes
Rotproof	Yes

Area of use

- As a protective layer on waterproofing with an additional separating and water reservoir function, in accordance with DIN 18195-Part 2
- As a protective layer on waterproofing with a moderate mech load
- Separation of products made from incompatible materials (e.g. PVC and bitumen)
- Storage of water and nutrients

Specific properties

- 100% recycled plastic fibre (PP/PES/acrylic)
- protects against damage to waterproofing with a moderate mechanical load.
- Water reservoir approx. 6.0 l/m²
- Fulfilment of the requirements of the FLL roof greening directives
- Mechanically strengthened
- Detector tested
- Rotproof
- Recyclable

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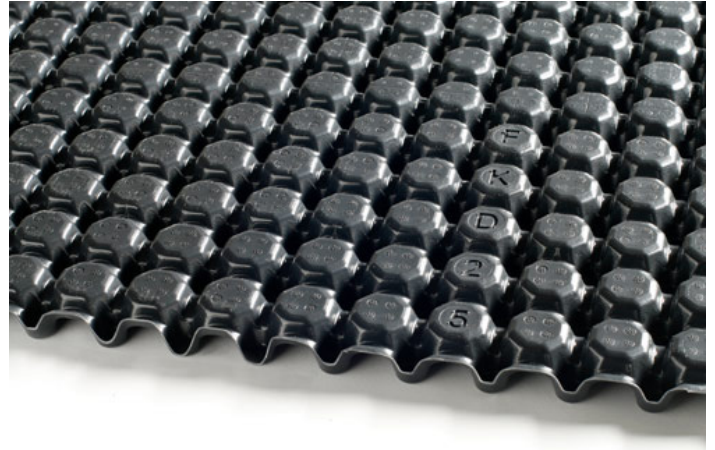
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OPTIGREEN FKD 25

Drainage and Storage Board

Made from deep-drawn recycled HDPE with water reservoir function, channel system on the underside for drainage, and with diffusion and drainage holes. For use on extensive green roofs with a single- or multi-layer construction and under path surfaces (can be walked on) with > 60 mm substructure. Suitable for use on inverted roofs.



Material	Recycled HDPE
Nominal thickness	approx. 25 mm
Grammage	approx. 1,350 g/m ²
Colour	black/grey
Max. compressive strength unfilled	approx. 200 kN/m ² (DIN EN ISO 25619-2) approx. 90 kN/m ² with 10% compression
Max. compressive strength filled	approx. 175 kN/m ² with 10% compression and 35 mm overfilling
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with a FIL 105 filter fleece on the upper side: i = 0.01 (=1 % roof pitch): 0.99 l/(m*s) i = 0.02 (=2 % roof pitch): 1.41 l/(m*s) i = 0.05 (=5 % roof pitch): 2.20 l/(m*s) i = 1 (vertical): 10.03 l/(m*s)
Filling volume	small naps facing up = approx. 14.5 l/m ² (surface side) large naps facing up = approx. 7.5 l/m ² (greening side)
Water reservoir unfilled	small naps facing up = approx. 3.6 l/m ² (surface side) large naps facing up = approx. 5.0 l/m ² (greening side)
Reduction in foot fall sound inspected in accordance with EN ISO 10140 assessed in accordance with ISO 717-2	Improvement in foot fall sound for the following layer structures: ΔL_w 33 dB RMS 950 TS, FKD 25, 40 mm chippings, 40 mm concrete slab. ΔL_w 35 dB EPS insulation 120 mm/150 kPa, RMS 950 TS, FKD 25, 40 mm chippings, 40 mm concrete slab.
Quantity/delivered unit	2 m ² /panel = 2.0 x 1.0 m 700 m ² /disposable pallet
Delivery form	700 m ² on disposable pallet 2.05 x 1.05m
Pack size	LxWxH 2,000 x 1,000 x 25 mm
Delivery weight	approx. 2.7 kg/panel - approx. 970.0 kg/full disposable pallet

Area of use

- As a drainage and storage board under extensive green roofs in a triple-layer structure with filter fleece FIL 105 and extensive multi layer substrate E on flat roofs up to RP 5° (= 8.8%).
- As a drainage element under thin-layer pedestrian pathways in gravel beds without compacted base layer without filter fleece directly filled with bedding material. Also lay the FKD 25 with min. 1 row of naps overlapping and overfill with the bedding material (without zero grading, e.g. chippings 2/5) min. approx. 3 cm. The large naps can face either downwards or upwards.

Specific properties

- 100% recycled HDPE
- CE-marked CE-1213-CPD-4265
- Drainage according to DIN 4095
- Safe and targeted guiding of excess water
- Depositing of water in the recesses
- Low weight
- Also suitable for non-pitched roofs
- Lightweight super structure with high drainage capacity
- Recyclable

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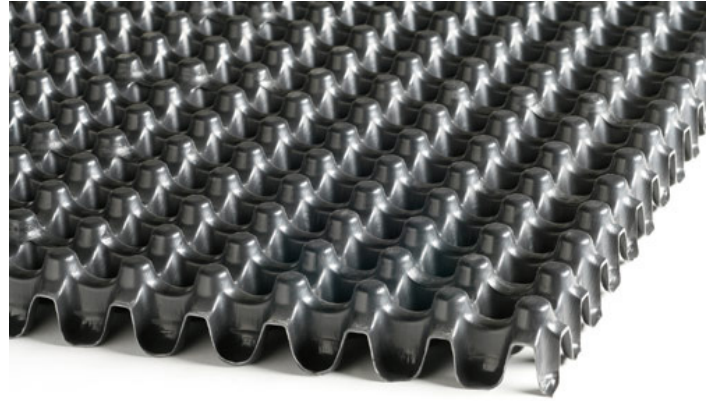
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OPTIGREEN FKD 40

Drainage and Storage Board

Made from deep-drawn recycled HDPE with water reservoir function, channel system on the underside for drainage, and with diffusion and drainage holes. For use with extensive and simple intensive green roofs with a multi-layer construction. Suitable for use on inverted roofs.



Material	Recycled HDPE
Nominal thickness	approx. 40 mm
Grammage	approx. 2,300 g/m ²
Colour	black/grey
Max. compressive strength unfilled	approx. 144 kN/m ² (DIN EN ISO 25619-2) with 8.4 % compression
Max. compressive strength filled	approx. 280 kN/m ² with 10 % compression and 20 mm overfilling
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with a FIL 105 filter fleece on the upper side: $i = 0.01$ (=1 % roof pitch): 1.60 l/(m*s) $i = 0.02$ (=2 % roof pitch): 2.31 l/(m*s) $i = 0.05$ (=5 % roof pitch): 3.76 l/(m*s) $i = 1$ (vertical): 16.64 l/(m*s)
Flammability	Construction material class E as per DIN EN 13501, certified in accordance with DIN EN ISO 11925-2
Water reservoir (unfilled)	small naps facing up (lettering readable): approx. 8.7 l/m ²
Filling volume	small naps facing up (lettering readable): approx. 16.0 l/m ²
Quantity/delivered unit	2 m ² /panel = 2.0 x 1.0 m 600 m ² /disposable pallet
Delivery form	600m ² on disposable pallet 2.05 x 1.05m
Pack size	LxWxH 2,000 x 1,000 x 40 mm
Delivery weight	approx. 4.6 kg/panel - approx. 1,405.0 kg/full disposable pallet LxWxH 2.05 x 1.05 x 1.50 m

Area of use

- Under extensive green roofs with increased layer structure (nature roof up to 250 mm)
- Under simple intensive green roofs with low layer structure (garden roof up to 300 mm)
- Not suitable under floor surfaces
- Suitable for long flow routes due to high drainage performance

Specific properties

- 100% recycled HDPE
- CE-marked CE-1213-CPD-4265
- Drainage according to DIN 4095
- Safe and targeted guiding of excess water
- Depositing of water in the recesses
- Low weight
- Also suitable for non-pitched roofs
- Lightweight super structure with high drainage capacity
- Recyclable

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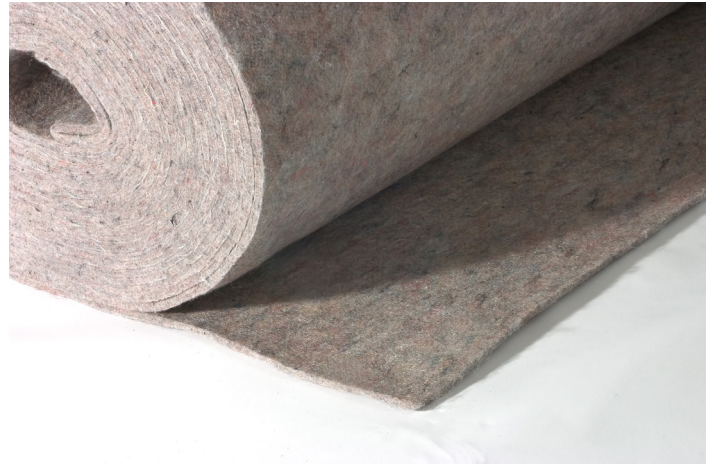
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OPTIGREEN RMS 1200

Protection and Storage Fleece

To protect the waterproofing with a high load with an additional separating and water reservoir function.



Material	PP/PES/acrylic recycled fibres
Nominal thickness	approx. 8.6 mm
Grammage	approx. 1,200 g/m ²
Colour	Multicolour
Geotextile robustness class	GRC 5
Water reservoir	approx. 7.0 l/m ²
Delivery weight	approx. 36.0 kg/roll - approx. 310.0 kg/full euro pallet
Pack size	Diameter approx. 0.40 m, height approx. 2.0 m / per roll
Quantity/ delivered unit	30 m ² /roll = 2.0 x 15.0 m 240 m ² /pallet
Delivery form	8 rolls on euro pallet 800 x 1,200 cm
Mechanically strengthened	Yes
Detector tested	Yes
Rotproof	Yes

Area of use

- As a protective layer on waterproofing with an additional separating and water reservoir function, in accordance with DIN 18195-Part 2
- As a protective layer on waterproofing with a high mechanical load
- Separation of products made from incompatible materials (e.g. PVC and bitumen)
- Storage of water and nutrients

Specific properties

- 100% recycled plastic fibre (PP/PES/acrylic)
- protects against damage to waterproofing with a high mechanical load.
- Water reservoir approx. 7.0 l/m²
- Fulfilment of the requirements of the FLL roof greening directives
- Mechanically strengthened
- Detector tested
- Rotproof
- Recyclable

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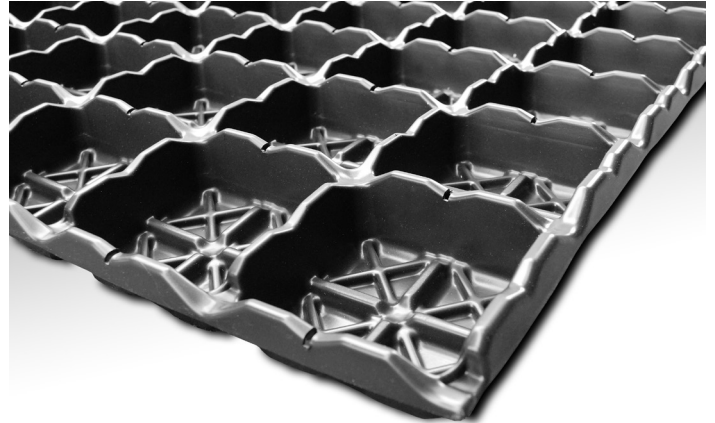
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OPTIGREEN FKD 60B0

Drainage and Storage Board

Highly resilient plastic panel made from deep-drawn recycled HDPE with water reservoir function, channel system with water vapour permeability on the underside for drainage and with diffusion and drainage holes on the top. For use on intensive green roofs with a multi layer construction with water accumulation. Suitable for use on inverted roofs.



Material	Recycled HDPE
Nominal thickness	approx. 60 mm
Grammage	approx. 2.5 kg/m ²
Colour	black/grey
Compressive strength filled	Approx. 695 kN/m ² with 10% compression, filled flush
Loose capacity	approx. 45.0 l/m ² (for Perl-type filling flush to upper edge of panel)
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with a FIL 105 filter fleece on the upper side: $i = 0.01$ (=1 % roof pitch): 0.578 l/(m*s) $i = 0.02$ (=2 % roof pitch): 0.833 l/(m*s) $i = 0.05$ (=5 % roof pitch): 1.356 l/(m*s) $i = 0.1$ (=10 % roof pitch): 1.944 l/(m*s) $i = 1$ (vertical): 6.483 l/(m*s)
Water reservoir	approx. 23.0 l/m ² (filled with drainage material Perl 8/16)
Quantity/delivered unit	approx. 2.06 m ² /panel approx. 370.8 kg/disposable pallet
Delivery form	Approx. 370.8 m ² / 180 pieces on disposable pallet 2.05 x 1.05 m
Pack size	LxWxH 1,998 x 1,031 x 60 mm
Delivery weight	approx. 5.15 kg/panel - approx. 950.0 kg/full disposable pallet

Area of use

- Under intensive green roofs filled with a drainage material 8/16
- Under greenable surfaces that can temporarily be driven on (e.g. fire brigade access, parking places, etc.) e.g. with gravel lawn base layers on the filter layer.

Specific properties

- Specifically on inverted roofs with a need for openness to vapour diffusion
- 100% recycled HDPE
- Drainage according to DIN 4095
- High water storage capacity
- Rapid discharge of excess water
- Low weight
- Prevents accumulation of water for non-pitched roofs and large drainage lengths
- Lightweight super structure with high drainage capacity
- Water accumulation possible
- Recyclable

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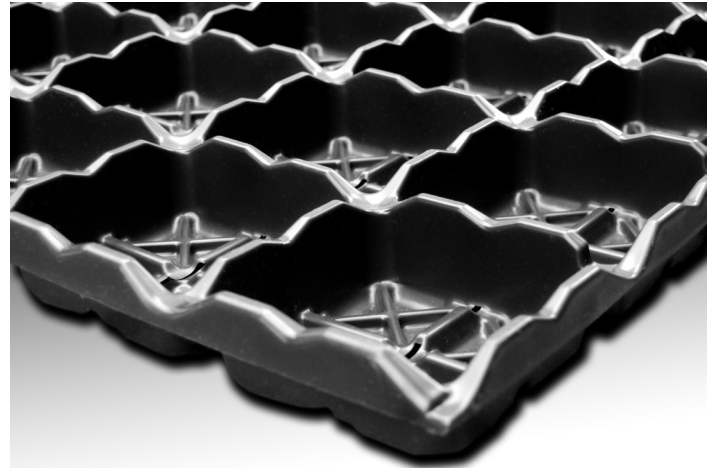
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OPTIGREEN FKD 60BU

Protection and Drainage Board

Highly resilient plastic panel made from deep-drawn recycled HDPE without water reservoir function, channel system with water vapour permeability on the underside for drainage and with drainage holes on the underside. For use on walking surfaces and terrace areas without water accumulation. Suitable for use on inverted roofs.



Material	Recycled HDPE
Nominal thickness	approx. 60 mm
Grammage	approx. 2.5 kg/m ²
Colour	black/grey
Compressive strength filled	approx. 695 kN/m ² with 10% compression, filled flush
Loose capacity	approx. 45 l/m ²
Water reservoir unfilled	approx. 0 l/m ²
Water discharge capacity (DIN EN ISO 12958)	Measured at: $\sigma = 20$ kPa, soft/hard, MD, with a FIL 105 filter fleece on the upper side: $i = 0.01$ (=1 % roof pitch): 0.578 l/(m*s) $i = 0.02$ (=2 % roof pitch): 0.833 l/(m*s) $i = 0.05$ (=5 % roof pitch): 1.356 l/(m*s) $i = 0.1$ (=10 % roof pitch): 1.944 l/(m*s) $i = 1$ (vertical): 6.483 l/(m*s)
Quantity/delivered unit	approx. 2.06 m ² /panel approx. 370.8 kg/disposable pallet
Delivery form	Approx. 370.8 m ² / 180 pieces on disposable pallet 2.05 x 1.05 m
Pack size	LxWxH 1,998 x 1,031 x 60 mm
Delivery weight	approx. 5.15 kg/panel - approx. 950.0 kg/full disposable pallet

Area of use

- For the drainage of public areas with and without roof pitch and without water accumulation, filled with drainage material, base layer gravel or drainage concrete for super structure heights from 150 mm.
- Can also be used as sacrifice shuttering

Specific properties

- Specifically on inverted roofs with a need for openness to vapour diffusion
- 100% recycled HDPE
- Drainage according to DIN 4095
- Low weight
- Prevents accumulation of water for non-pitched roofs and large drainage lengths
- Lightweight super structure with high drainage capacity
- Pressure stable and accessible to trucks
- Recyclable

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OPTIGREEN RMS 500K

Suction and Capillary Fleece

To protect the waterproofing with an additional separating and water reservoir function as well as especially good suction and capillary action.



Material	PES
Nominal thickness	approx. 3.6 mm
Grammage	approx. 500 g/m ²
Colour	white
Geotextile robustness class	GRC 4
Water storage capacity	approx. 4.0 l/m ²
Max. tensile strength long./lat.	10 / 28 kN/m (EN ISO 10319)
Charact. opening width	0.066 mm (EN ISO 12956)
Puncture resistance	2,600 N (EN ISO 12236)
Vertical water permeability	37 l/s m ² (EN ISO 11058)
Quantity/delivered unit	50 m ² /roll = 2.0 x 25.0 m 400 m ² /pallet
Delivery form	8 rolls on euro pallet 800 x 1,200 mm
Pack size	Diameter approx. 0.35 m, height approx. 2.0 m / per roll
Delivery weight	approx. 25.0 kg/roll - approx. 225.0 kg/full euro pallet
Mechanically strengthened	Yes
Detector tested	Yes
Rotproof	Yes
PES hydrophilic	Yes

Area of use

- Installation generally under the green roof structure directly on the waterproofing as a protection and storage fleece, amongst other things due to the high capillary suction effect, specifically to avoid ponding on uneven roofs
- Can also be used above drainage layers, for example for distribution of water over a surface in conjunction with irrigation facilities or retention roofs because sufficient water permeability exists according to the requirements of the FLL guidelines

Specific properties

- 100 % PES needle fleece
- Puncture resistance 2,600 N (EN ISO 12236)
- Vertical water permeability 37 l/s x m² (EN ISO 11058)
- Mechanically strengthened
- Detector tested
- Rotproof
- PES hydrophilic
- Recyclable

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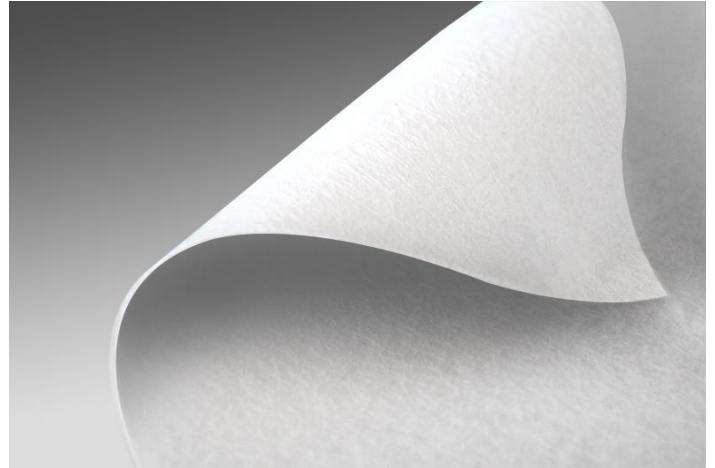
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OPTIGREEN RSV 120

Trickle Protection Fleece

For use on the insulation level for inverted roofs (XPS).



Material	PP (polypropylene)
Nominal thickness	approx. 0.75 mm
Grammage	approx. 120 g/m ²
Colour	white
Geotextile robustness class	GRC 2
Opening O_{90,W}	0.08 mm (EN ISO 12965)
Tensile strength	8.0 kN/m (EN ISO 10319)
Water permeability	100 l/s x m ² (EN ISO 11050)
Puncture resistance	1,500 N (EN ISO 12236)
Quantity/ delivered unit	450 m ² /roll = 4.5 x 100.0 m
Delivery form	1 roll
Pack size	Diameter approx. 0.40 m, height/length approx. 4.5 m / per roll
Delivery weight	approx. 54.0 kg/roll
Mech. and thermally strengthened	Yes

Area of use

- Trickle protection on the insulation level for inverted roofs, without requirements concerning joint building authority approval for insulating material and the separating layer

Specific properties

- Prevents fine particles from forming sludge in the drainage layer
- Mechanically and thermally strengthened
- Puncture resistance 1,500 N
- Vertical water permeability 100 l/s x m²
- Water-repellent
- Cannot be used as a replacement for separating layers from various manufacturers and approved by the building authority
- Recyclable

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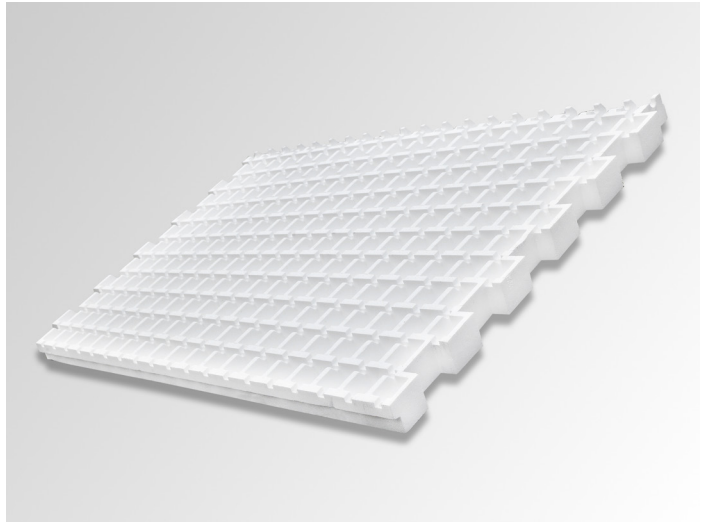
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OPTIGREEN FKD 58SD

Pitched Roof Board

For use as anti-slip, drainage and water reservoir panel for pitched green roofs from 15° - approx. 35° roof pitch.



Material	EPS (expanded polystyrene, HBCD-free)
Nominal thickness	Approx. 58 mm
Grammage	Approx. 870 g/m ²
Colour	White
Compressive strength filled	Approx. 100 kN/m ² with 9.5% compression
Filling volume	18 l/m ²
Substrate quantity	Extensive multi layer substrate E 70/lm ² , corresponds to approx. 40 mm overfilling of the panel with compression factor 1.2
Water reservoir unfilled	Approx. 4.3 l/m ² (at 15°) up to 3.2 l/m ² (at 35°)
Shear load	Per structurally effective abutment in flow direction = 7.0 kN
Water discharge capacity (DIN EN ISO 12958)	2010-08 with 20 kN/m ² superimposed load: i = 0.17 (approx. RP 10°): 1.56 l/(m*s) i = 0.26 (approx. RP 15°): 1.94 l/(m*s) i = 0.34 (approx. RP 20°): 2.24 l/(m*s) i = 0.42 (approx. RP 25°): 2.53 l/(m*s) i = 0.57 (approx. RP 30°): 2.94 l/(m*s)
Quantity/delivered unit	Approx. 0.83 kg/panel
Delivery form	Approx. 33.2 m ² /panel disposable pallet
Pack size	4 bundles of 10 panels on a disposable pallet 1,200 x 800 x 2,090 mm
Coverage dimensions	LxWxH 1195 x 725 x 58 mm (approx. 0.87 m ²)
Delivery weight	LxWxH 1165 x 715 x 58 mm (approx. 0.83 m ²)
Special feature	Free from HBCD

Area of use

As a drainage, anti-slip and water reservoir element for pitched green roofs with roof pitch up to 35° with an anti-slip effect due to the direct filling of the storage chambers. Vegetation mats are to be laid with stretch-resistant fabric lining from a roof pitch of 15°.

Specific properties

- 100% EPS (expanded polystyrene)
- Free from HBCD (flame retardant)
- Shear load: Per structurally effective abutment in flow direction = 7.0 kN
- Drainage according to DIN 4095
- Depositing of water in the recesses
- Low weight
- Delayed guiding of water due to cascade-type spillway function of the chambers
- Water storage capacity after filling: 4.3 l/m² (at 15°) up to 3.2 l/m² (at 25°)
- Ideal for accurate fitting around roof protrusions and sloping vergeboard connections or chamfers.
- Anti-slip laying and minimal tricking of the substrate on the protective layer due to accurate lateral interlinking and horizontal overlap
- Accurately fitting Z-shaped rabbet at upper and lower edge as well as side box toothing for the secure transfer of shear load in the flow direction as well as for substrate trickle protection, holder for irrigation hoses

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OPTIGREEN WRB 85v

Water Retention Box

Infiltration trough made from recycled PP for surface drainage on roof areas with inverted insulation and with the requirement for a high water retention potential with 0° roof pitch and heavy layer structures above 500 kg/m² (e.g. intensive green roofs and public areas with high layer thicknesses). Can be combined with patented flow control system for targeted regulation of the water discharge.



Material	PP (polypropylene)
Nominal thickness	approx. 85 mm
Grammage	approx. 9.0 kg/m ²
Dimensions/element	708 x 354 x 85 mm
Area/element	0.25 m ²
Colour	black
Number of elements per m²	4 pieces
Compressive strength (DIN ISO 25619-2)	715 kN/m ²
Usable accumulation volume	approx. 95.0 Vol. %
Water reservoir	up to 80 l/m ²
Quantity/delivered unit	0.25 m ² /element = 704 x 354 mm 29.25 m ² /117 elements/disposable pallet Disposable pallet 1.2 x 1.1 m
Delivery weight	approx. 2.25 kg/individual element approx. 295.0kg/pallet/ individual elements

Area of use

Specifically designed for 0° roof areas with inverted insulation and heavy layer structures (see comment above) with an on-site requirement for the temporary storage of excess water based on property-related restrictions on discharge into the drainage system e.g. after heavy rainfall. Usually combined with the retention roof structure with the patented flow control system from Optigrün for controlled water discharge.

Comment

Compared with the WRB 85i, the WRB 85v element is reinforced with a stable base panel with a fine meshed structure. This results in a greater pressure transmission area the application of greater loads from the layer structure above on inverted insulation with min. 300 kPa compressive strength. E.g. for intensive green roofs with substrate layer thicknesses greater than 200 mm and/or heavy public roof structures e.g. with gravel base layers, underlay with chippings and surfaces made from natural stone or precast concrete.

Specific properties

- 100% recycled PP (polypropylene)
- Approx. 95.0 Vol. % cavity volume for water retention
- Coordinated via super structure above
- High water storage volume
- Low weight
- With capillary columns
- Recyclable

Accessories

- Plastic connectors with double dove-tails to connect the longitudinal and transversal sides of the infiltration trough
- Capillary columns for the vertical transporting of water between the drainage level and vegetation layer. 2 pieces/m² with extensive green roof, 4 pieces/m² with intensive green roof
- Flow control system to regulate water discharge. In this case, planning and calculation by Optigrün is required

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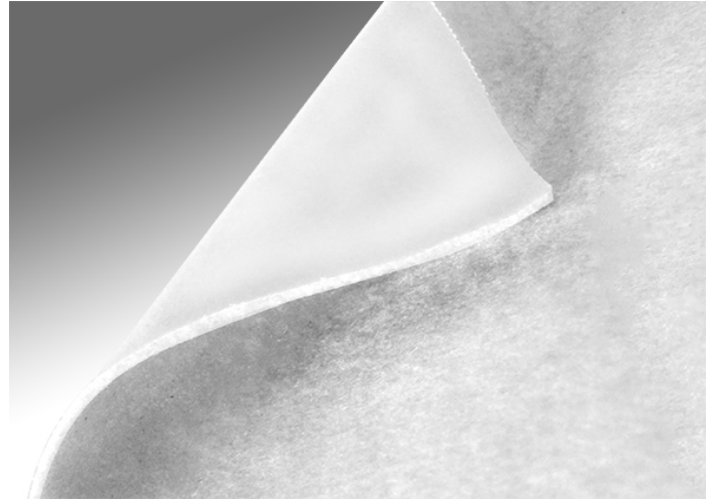
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OPTIGRÜN SGL 500

Protection, Separation and Slip Layer

Special fleece to protect the waterproofing with combined separating and sliding function. Suitable as a slip layer under public roof structures thanks to the integrated slip layer in combination with the Optigrün Separation and Slip Layer TGF 0.2.



Material	PP (fleece) and LDPE (coating)
Nominal thickness	approx. 4.0 mm
Grammage	approx. 500 g/m ² (total) approx. 300 g/m ² (fleece) approx. 200 g/m ² (coating)
Colour	white
Tensile	Longitudinal: ≥ 12 kN/m (DIN EN ISO 10319) lateral: ≥ 25 kN/m (DIN EN ISO 10319)
Geotextile robustness class	GRC 5
Friction coefficient with additional PE film	< 0.6 in accordance with the requirements of FLL (DIN 53375)
Delivery weight	approx. 30.0 kg/roll - approx. 265.0 kg/full euro pallet
Pack size	Diameter approx. 0.30 m, height approx. 2.0 m / per roll
Quantity/delivered unit	60 m ² /roll = 2.0 x 30.0 m 480 m ² /pallet
Delivery form	8 rolls on pallet 800 x 1,200 mm with slight protrusion
Mechanically strengthened	yes
Detector tested	yes
Weather resistance	max. 2 weeks exposure

Area of use

- As a protection and separation layer on waterproofing
- To be used in conjunction with a second film (e.g. 0.2 mm PE film) at the same time as a protection and slip layer under public areas

Specific properties

- 100% PP
- Rotproof, not UV-resistant
- Friction coefficient with additional PE film < 0.6 in accordance with the requirements of FLL (DIN 53375).
- Mechanically strengthened
- Detector tested
- Recyclable

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OPTIGREEN FIL 300

Filter Fleece

Stable filter separation layer with tested water permeability.



Material	PP (polypropylene)
Nominal thickness	approx. 3 mm
Grammage	approx. 300 g/m ²
Colour	white
Geotextile robustness class	GRC 5
Mechanical filter efficiency	0.08 mm (EN ISO 12956)
Max. tensile strength longitudinal/lateral	21 / 24 kN/m (EN ISO 10319)
Elongation longitudinal/lateral	65 / 75 % (EN ISO 10319)
Puncture resistance	3,800 N (EN ISO 12236)
Vertical water permeability	57 l/s m ² (EN ISO 11058)
Quantity/delivered unit	120 m ² /roll = 2.0 x 60.0 m 720 m ² /pallet
Delivery form	6 rolls on euro pallet 800 x 1,200 mm
Pack size	Diameter approx. 0.45 m, height approx. 2.0 m / per roll
Delivery weight	approx. 36.0 kg/roll - approx. 240.0 kg/full euro pallet
Mechanically strengthened	yes
Detector tested	yes
CE certified	yes (1213 CPR 5930)
Resistance	min. 25 years

Area of use

- Horizontal filter layer between the drainage and gravel base layers, under public areas where cars and trucks circulate, as well as pedestrians
- Filtration of particles from the substrate
- For superstructural parts accessible to vehicles and pedestrians
- Can also be used above drainage layers, for example for distribution of water over a surface in conjunction with irrigation facilities or retention roofs.

Specific properties

- 100% PP (polypropylene)
- CE-marked CE-1213-CPR-5930
- Puncture resistance 3,800 N (EN ISO 12236)
- Vertical water permeability 57 l/s x m² (EN ISO 11058)
- 21 kN/m or 24 kN/m tensile strength longitudinal/lateral
- Mechanically strengthened
- Detector tested
- Recyclable

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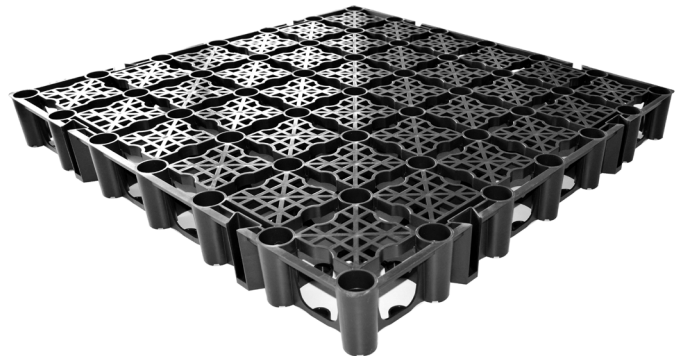
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OPTIGREEN WRB 85i

Water Retention Box

Infiltration trough made from recycled PP for surface drainage with the requirement for a high water retention potential with 0° roof pitch. Can be combined with patented flow control system for targeted regulation of the water discharge.



Material	recycled PP (polypropylene)
Nominal thickness	approx. 85 mm
Grammage	approx. 5.6 kg/m ²
Weight/element	approx. 2.8 kg/pc.
Dimensions/element	approx. 710 x 710 x 85 mm
Area/element	approx. 0.5 m ²
Colour	black
Compressive strength (DIN ISO 25619-2)	approx. 825 kN/m ² with approx. 10 % compression
Usable accumulation volume	approx. 95.0 Vol. %
Water reservoir	up to 80 l/m ²
Discharge capacity	roof pitch 0% = 2.00 l/s*m Roof pitch 1% = 4.52 l/s*m Roof pitch 2% = 6.30 l/s*m Roof pitch 3% = 7.70 l/s*m
Quantity/delivered unit	0.5 m ² /element = 0.71 x 0.71 m 36 m ² /72 elements/disposable pallet Disposable pallet 2.1 x 1.4 m
Pack size extensive segment	pre-installed extensive segment consisting of 6 individual elements 3.0 m ² (2.13 x 1.42 m) including connectors and 6 pre-fitted capillary columns. 12 extensive segments on one disposable pallet = 36.0 m ² disposable pallet L 2.13 x W 1.42 x H 1.2 m 18 disposable pallets per truck = approx. 648 m ²
Delivery weight	approx. 2.8 kg/individual element approx. 16.8 kg/extensive segment approx. 190.0 kg/pallet/individual elements approx. 240.0 kg/pallet/extensive segment

Area of use

On roofs with 0° pitch and different layer structures (e.g. extensive and intensive green roofs and/or public areas). Especially designed for the temporary storage of excess water e.g. following heavy rainfall and additional guidance of excess water from adjacent roof areas into the drainage level. Together with controlled water discharge with the help of the patented flow control system from Optigreen, requirements on the restriction on discharge into the drainage system, for example, can be observed. Also suitable for permanent water accumulation to supply water to green roofs with a high water requirement (e.g. lawn areas). If necessary, several layers of infiltration troughs may be stacked to obtain greater storage capacities

Specific properties

- 100% recycled PP (polypropylene)
- Approx. 95.0 Vol. % cavity volume for water retention
- High pressure stability
- Coordinated via super structure above
- High water storage volume
- Low weight
- With capillary columns
- Recyclable

Accessories

- Plastic connectors with double dove-tails to connect the longitudinal and transversal sides of the infiltration trough.
- Capillary columns for the vertical transporting of water between the drainage level and vegetation layer. 2 pieces/m² with extensive green roof, 4 pieces/m² with intensive green roof.
- Flow control system to regulate water discharge. In this case, planning and calculation by Optigreen is required.

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