



BEDRAIN

Drainage Mats

KEY ADVANTAGES

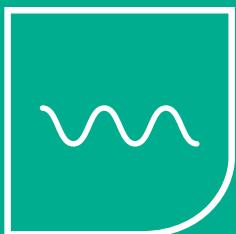
at a glance



→ Drainage, protection
and filter layer in a single
product



→ Excellent drainage
performance



→ Flexible and adaptable
structure



→ Environmentally-friendly
overall concept

BEDRAIN

Drainage Mats



One of the essential tasks of drainage mats is the collection and drainage of aquifer water, ground water and seepage water in earthworks and around structures. The objective is to ensure that sealing systems and structures that are in contact with soil are permanently protected from the damaging effects of pressing water and moisture penetration.

For this type of use, multi-layer composites such as BEDRAIN Drainage Mats have proved more effective than mineral drainage layers.

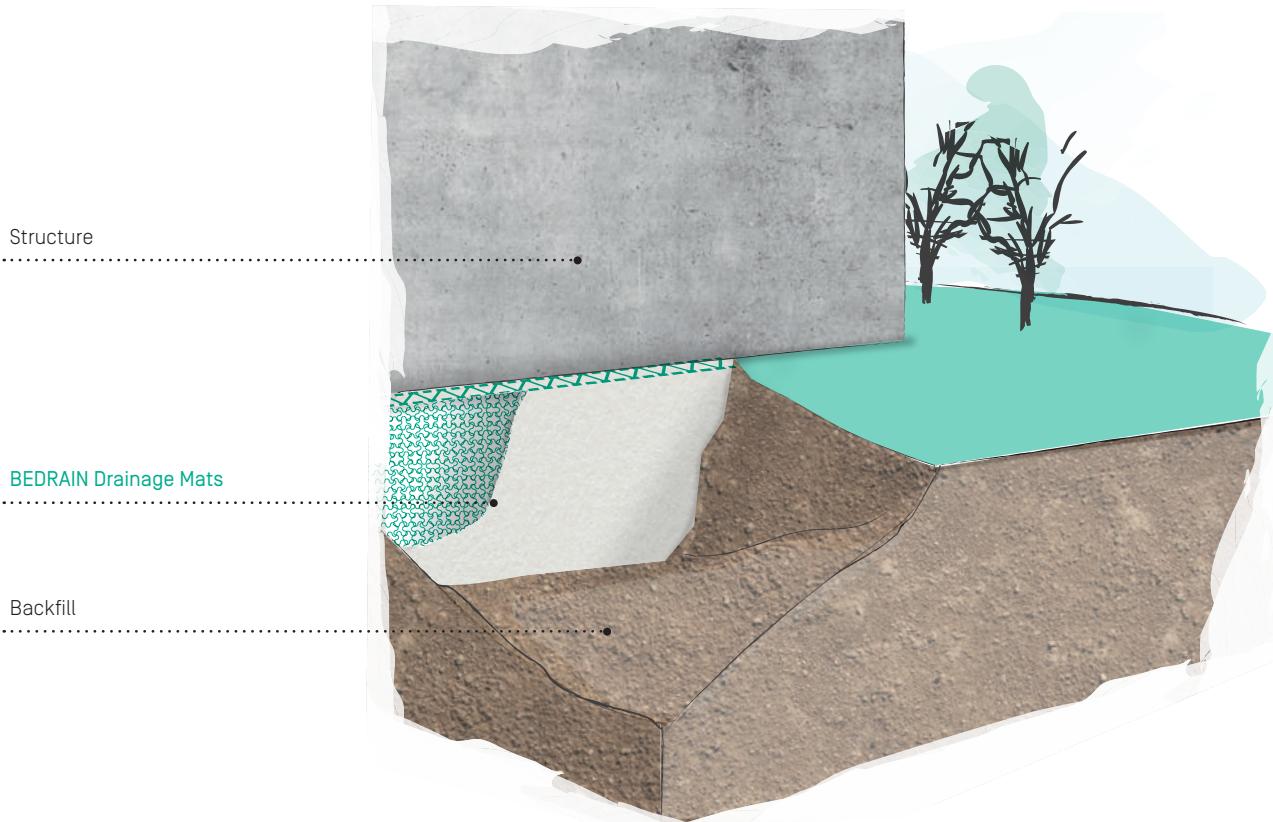
PRODUCT DETAILS

and properties

BEDRAIN Drainage Mats have a three-dimensional drainage core made of highly resistant polypropylene monofilaments (PP). The material is extremely temperature resistant. The drainage mats are resistant to salt water and UV radiation and are not susceptible to the chemicals commonly found in soils.

BEDRAIN Drainage Mats are used to drain water away from structures that are in contact with soil, as well as in surface drainage systems, green roofs, foundation wall protection systems, landfill sites and tunnel construction.





Depending on the type of application, a sheet of non-woven geotextile is bonded to one or both sides of the geonet core to ensure long-term filter stability. This effectively prevents fine particles in neighbouring soil layers from entering and gradually clogging the drainage core [colmation].

The non-woven geotextile is bonded across the entire surface of the geonet core to ensure a uniform flow of water through the mat. The specially structured geonet core of the BEDRAIN Drainage Mats guarantees long-term stability and functionality of the system under compressive loading.

The high void ratio and the bonded non-woven geotextile ensure a high drainage capacity. This makes BEDRAIN Drainage Mats equally suitable for vertical and horizontal drainage applications.

Thanks to their highly resistant structure, BEDRAIN Drainage Mats also protect sealing elements effectively against mechanical damage. BEDRAIN Drainage Mats are rot-proof and harmless to the environment. The mats are supplied on rolls and are exceptionally easy and cost-effective to lay, not least due to their low weight.

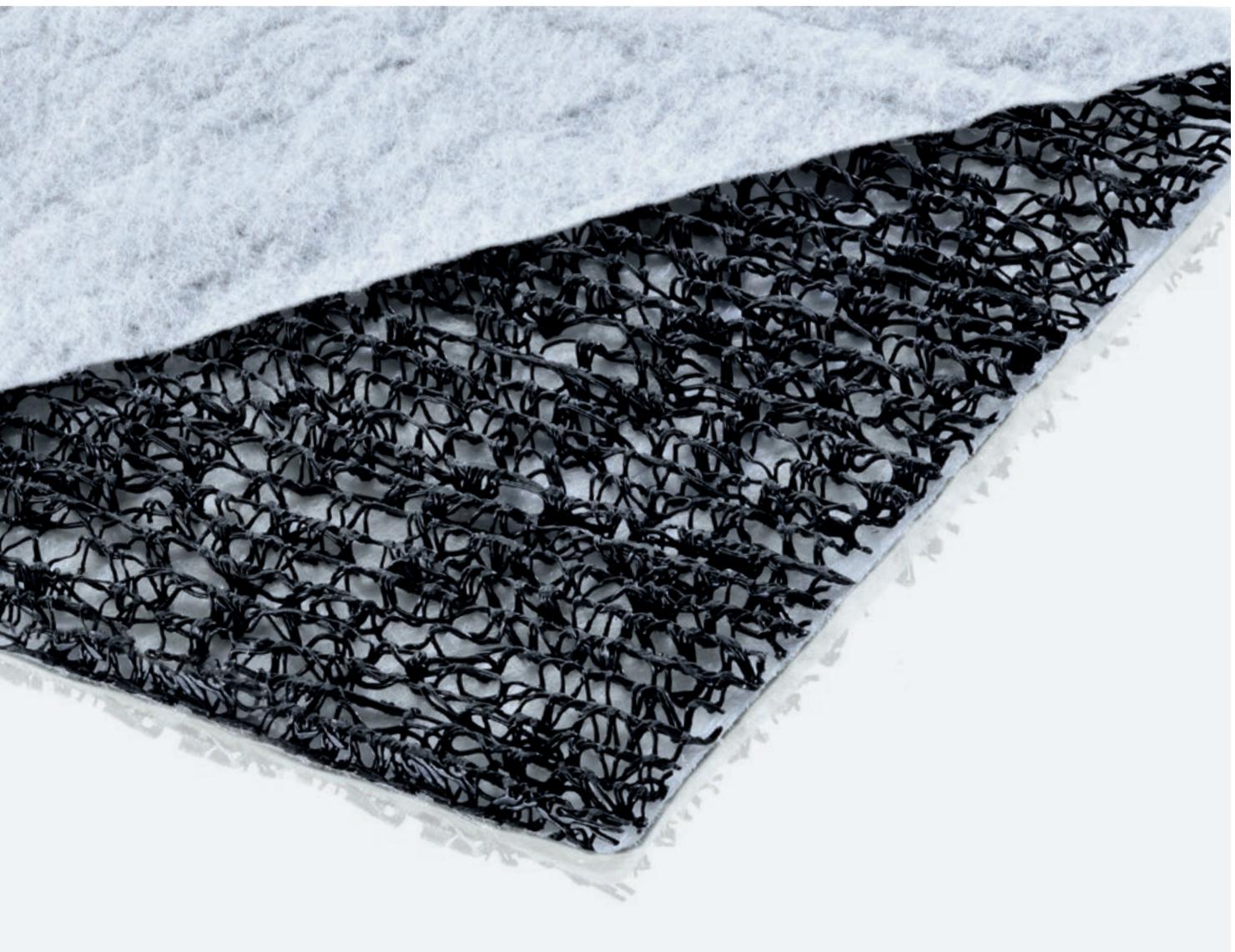
BEDRAIN Drainage Mats are equally suitable for vertical and horizontal drainage applications.



BEDRAIN VWV 8

BEDRAIN VWV 8 Drainage Mats have been specially developed for use as drainage elements in surface sealing systems in landfill sites and contaminated sites. These drainage mats comprise a corrugated drainage core bonded on both sides with a non-woven geotextile that satisfies the requirements of geotextile robustness class GRK 3, as specified in the "Merkblatt über die Anwendung von Geokunststoffen im Erdbau des Straßenbaues" [Leaflet on the use of geosynthetics in earthworks for highway construction].

The BEDRAIN VWV 8 Drainage Mat satisfies the requirements of specification drawing "Was 7" for bridge structures in contact with soil.



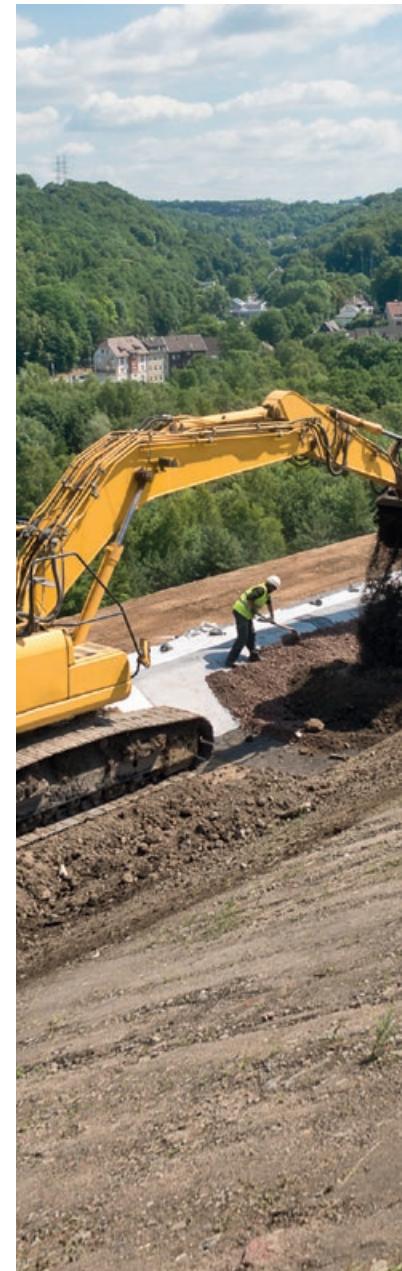
FUNCTIONS

BEDRAIN Drainage Mats

Drainage

The main function of BEDRAIN Drainage Mats is to collect rainwater, groundwater and other liquids or gases and to drain these away in a controlled manner within the plane of the drainage mat.

The drainage mats are dimensioned according to the expected loading and required drainage flows.



Filtration

The non-woven geotextile that is bonded to the BEDRAIN Drain Mat acts as a filter, holding back soil components and other particles, while allowing liquids or gases to flow through at right-angles to the filter plane.

The geotextile thus acts as a filter element between the soil to be drained and the drainage layer.



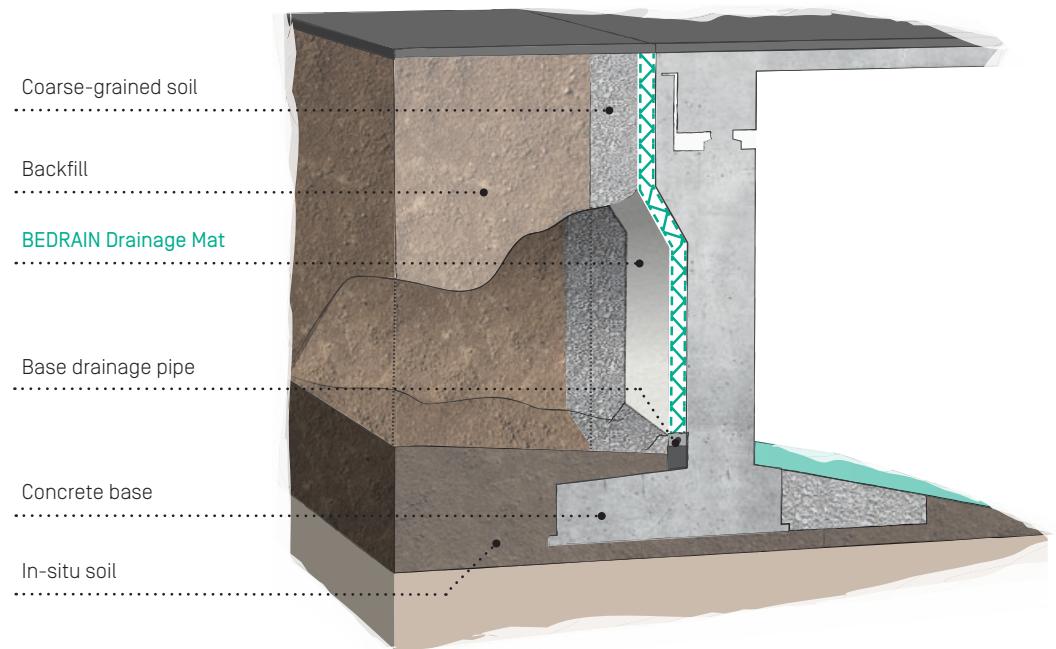
APPLICATIONS

BEDRAIN Drainage Mats



Bridge abutments

[in compliance with specification drawing Was 7]



The Was 7 specification drawing issued by the Bundesanstalt für Straßenwesen (German Federal Highway Research Institute) specifies various minimum requirements for drainage elements used for draining surfaces that come into contact with soil and for backfilling bridge structures.

In accordance with the technical specifications for geosynthetics in earthworks for highway construction (TL Geok E-StB), the drainage mat must be highly weather-resistant, have a thickness ≥ 5 mm, an aperture width of $0.06 \text{ mm} \leq 0.90 \leq 0.20 \text{ mm}$, a water permeability value of $kV \geq 100 \text{ K}_{s,soil}$ and a drainage rate of $q \geq 0.3 \text{ l/s.m}$. These requirements are met by the BEDRAIN VWV 8 Drainage Mat.

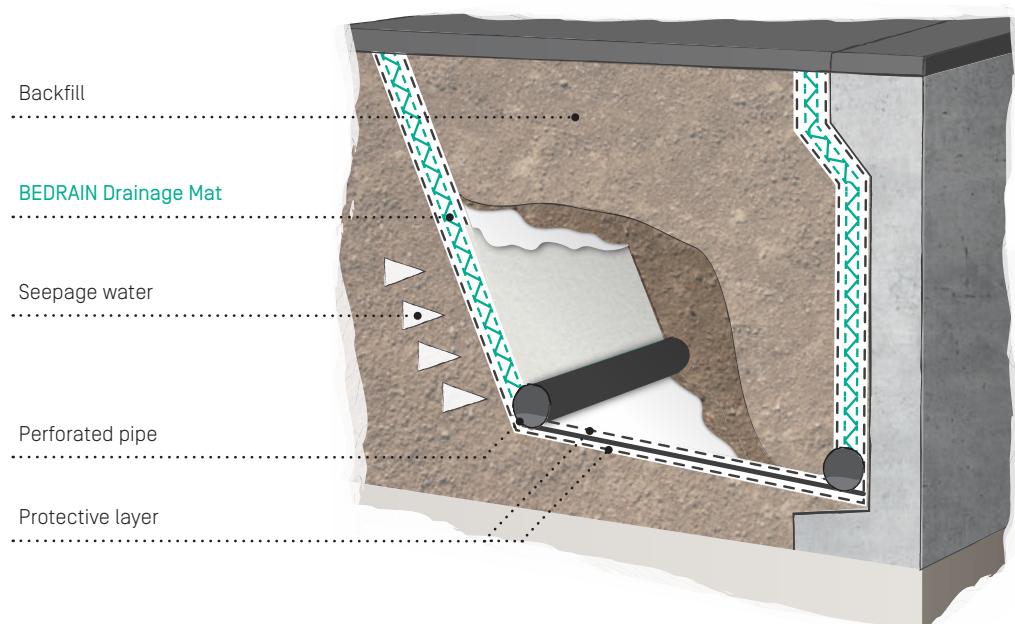


Foundation wall protection and drainage of structures

Buildings need to be protected against moisture and water. Accumulating seepage water and aquifer water, and pressing groundwater can result in undesirable moisture penetration, despite the presence of a sealing layer. This is because the sealing layer can fail if the water pressure is too high. The situation can be remedied, however, by installing an effective drainage system.

Cellar walls, underground garages and foundations are particularly affected. BEDRAIN Drainage Mats provide the ideal solution here, as a durable drainage element that ensures reliable drainage of water from vertical walls and foundations.

Drainage of backfill to structures





Landfill sites and contaminated sites

The storage of waste and residues in landfill and contaminated sites harbours a long-term risk for nature and mankind. For this reason, comprehensive waste legislation, guidelines and standards have been issued over the last few decades in an attempt to prevent contamination of the environment.

In order to prevent emissions from the waste from polluting the air and to prevent rainwater from entering the deposited waste, landfill sites are permanently sealed off using surface sealing systems.

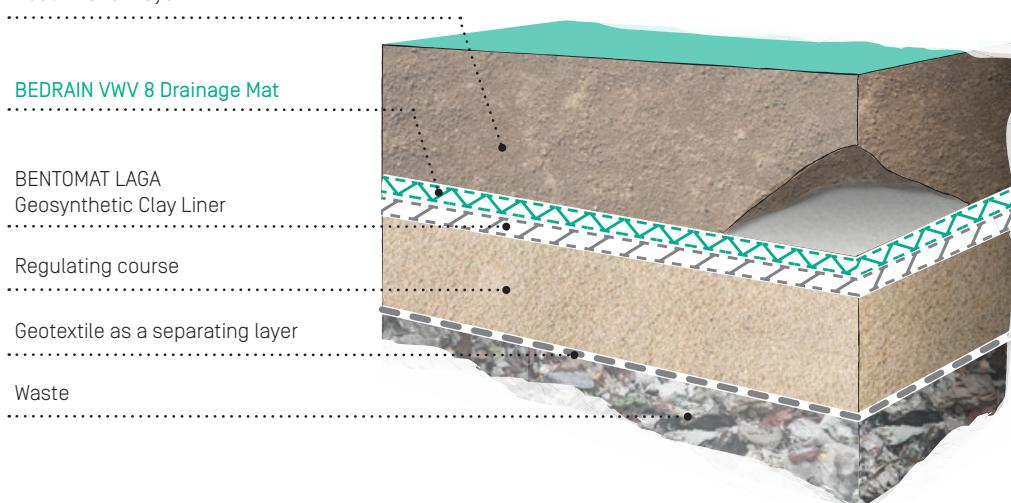
These surface sealing systems consist of various functional components, such as sealing, drainage and recultivation layers, which are tailored to the requirements of the particular landfill or contaminated site.

In the past, mineral clay layers were used as the sealing element. Today, geosynthetic clay liners, synthetic geomembranes or combination products are the materials of choice.

Important functions include the removal of seepage water from the recultivation layer and the protection of the sealing layer against mechanical damage. BEDRAIN VWV 8 Drainage Mats have proved particularly effective in this respect.



Recultivation layer



As a drainage and protection component, BEDRAIN VWV 8 is simply laid directly on the sealing layer and then covered with suitable fill material.

Green roofs

The greening of buildings has become a key component of modern architecture and town planning. In addition to ecological benefits, near-natural ecological off-set areas also offer a multitude of economic benefits for both property developers and users. Visually attractive green roof systems are particularly suitable for flat roofs. Green roofs create new habitats for plants and animals and generate an agreeable microclimate.

From an economic standpoint, green roofs also make sound financial sense. They provide effective protection against harmful environmental influences and extend the service life of the entire roof structure. Large quantities of rainwater can be buffered and discharged in a controlled manner. The purpose of modern green roof systems is to increase the value of the property and at the same time minimise its ecological impact.

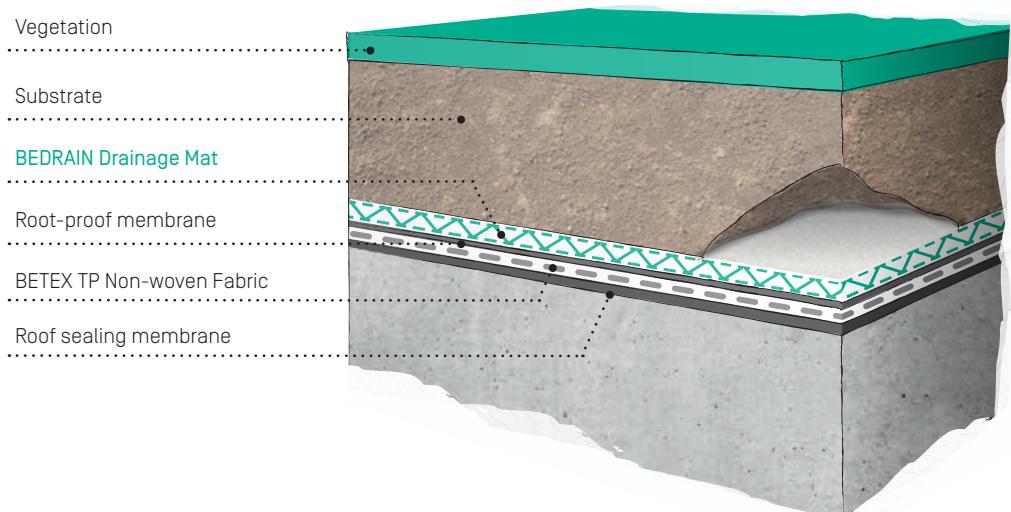
Efficient regulation of the water cycle plays a key role in green roofs, which is why effective drainage is of vital importance to the functional performance of the overall system. Since the excess rainwater that falls on a green roof cannot soak away in the usual manner, a special high-performance drainage system is required in the form of a drainage membrane. Without this, there is a risk that the vegetation could become waterlogged and perish. Depending on the weather, the rainwater is taken up and stored by the vegetation and the substrate. Excess water is drained away via the drainage layer and discharged, after a delay, into the sewer network.

BEDRAIN Drainage Mats are rot-proof and environmentally friendly. The flexible structure of the BEDRAIN Drainage Mats makes them easy to handle and simple to install. With BEDRAIN Drainage Mats, green roofs for flat carport roofs, garages and small roof areas can be installed inexpensively.

The basic structure of a green roof system is relatively simple:

- Vegetation layer
- Filter layer
- Drainage layer
- Protective layer
- Root protection barrier with a separating layer or root-resistant waterproofing membrane

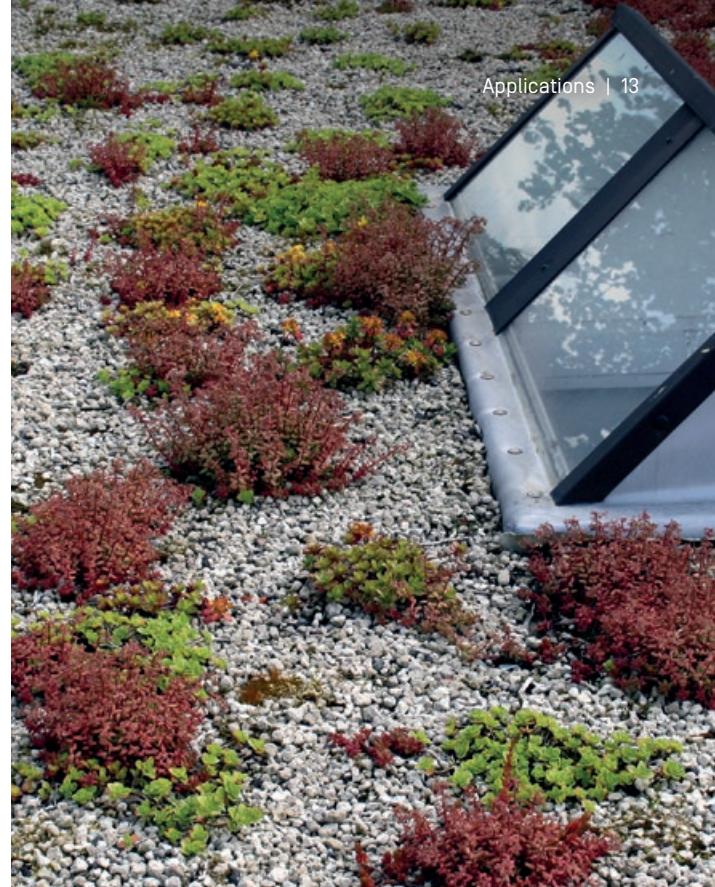
Green roofs



Applications matrix at a glance

We are happy to supply current data sheets, specifications, certificates and technical verifications on request.

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Properties	VW 13 - B	VW 20 - B	VWV 13 - B	VWV 20 - B	VWV 8
Product type	Drainage mat with one-sided non-woven fabric		Drainage mat with double-sided non-woven fabric		
Raw material		Drainage mat: PP; Non-woven: PP			
Thickness [mm]	14	19	14	19	5
Fields of application					
Bridge abutments					●
Roof greening	●	●	●	●	●
Landfill construction and contaminated sites					●
Drainage systems	●	●	●	●	●
Foundation wall protection	●	●	●	●	●

● suitable

INSTALLATION

BEDRAIN Drainage Mats



To be considered:

1. Always handle the product with care when unloading.
2. The mats can be laid in all normal weather conditions. The work need only be interrupted or postponed in the case of heavy rain or strong winds.
3. The surface onto which the mat is to be laid must be flat and free of pointed or sharp-edged objects.
4. BEDRAIN Drainage Mats should be laid in the direction of slope, where possible, and without creasing.
5. Drainage mats with a non-woven geotextile on one side must be laid with the geotextile side next to the soil.
6. The BEDRAIN Drainage Mats are laid with butt joints or with an overlap, like roof shingles, in the direction of slope.
7. The bonded geotextile protrudes beyond the edge of the mat, which allows it to overlap the butt joint.

Our detailed installation and laying instructions for BEDRAIN Drainage Mats must also be followed.

ADVANTAGES

BEDRAIN

Drainage Mats

- Drainage, protection and filter layer, all combined in a single product
- Excellent drainage performance
- Flexible and adaptable structure
- Excellent chemical and microbiological resistance
- Unaffected by temperature
- Easy to lay and to cut
- Cost-effective installation
- Wide variety of applications
- Environmentally-friendly overall concept





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