

EnkaDrain® Vertical drainage

Handling and installation guidelines

EnkaDrain in a vertical drainage application

EnkaDrain product portfolio can be used as a vertical drainage layer in many application areas like basement walls, retaining walls, bridge abutments or tunnels.



Product description

Drainage composites that consist of a polymer drainage core with a 3D monofilament structure, which is thermally bonded or spot welded to a protective and separating nonwoven filter on one (-1s) or both sides (-2s). The core can be v-shaped or consisting of looped filaments. The product has to be in contact at the bottom with a drainage collection pipe or any other outlet.

Description of the application

EnkaDrain's extensive range includes a large number of product types, although the primary application is drainage of basement walls, retaining walls, bridge abutments and shotcrete structures for building and civil engineering, some EnkaDrain types have also proven themselves as a cost-effective vibration control layer.

Storage and handling

Roll dimensions (gross weight, length, width and diameter): see the technical data sheet of the specific EnkaDrain product type.

Wrapping must not be damaged during handling to not alter durability of the product. Maximum allowed UV exposure of the product without its wrapping: see technical data sheet of the product

The rolls should be stored horizontally on a dry, clean and even surface, they should not be stacked more than three rolls high to avoid residual deformation of the rolls which would make their installation less easy.

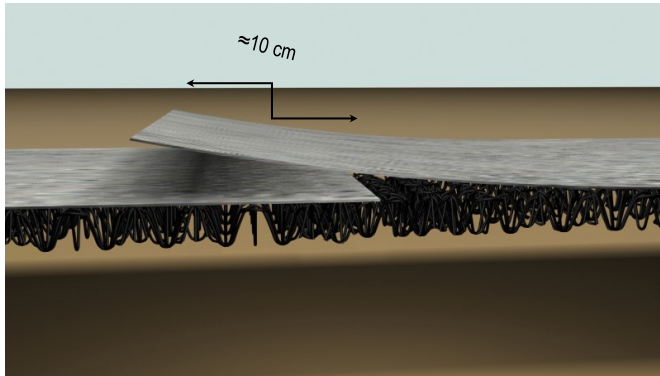
Dragging of the mats after unrolling should be prevented. Smoking or open fires are not permitted when handling EnkaDrain.

Product installation

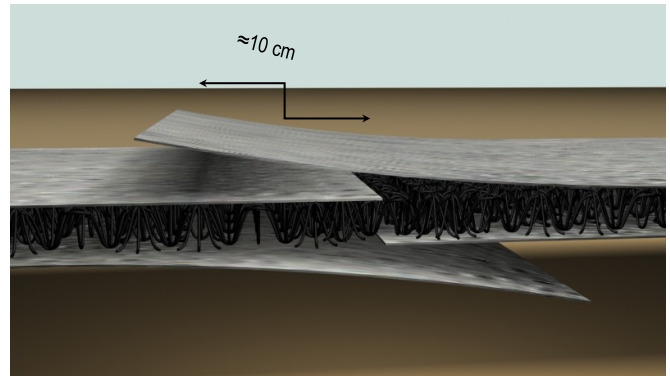
Product dimensions: the dimensions mentioned on the technical data sheets are the dimensions of the drainage core.

Fleeces are 10 cm wider than the drainage core to provide an overlap between lanes, they have to be unfolded for correct installation (i.e. both overlaps have to be unfolded for (-2s) geocomposites). Drainage products have to be installed core to core without any lateral overlap.

Cutting tools: cutter, scissors



EnkaDrain geocomposite (-1s) with one fleece on one side only

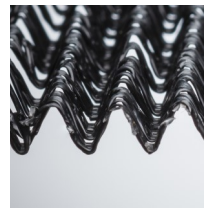


EnkaDrain geocomposite (-2s) with one fleece on the both sides

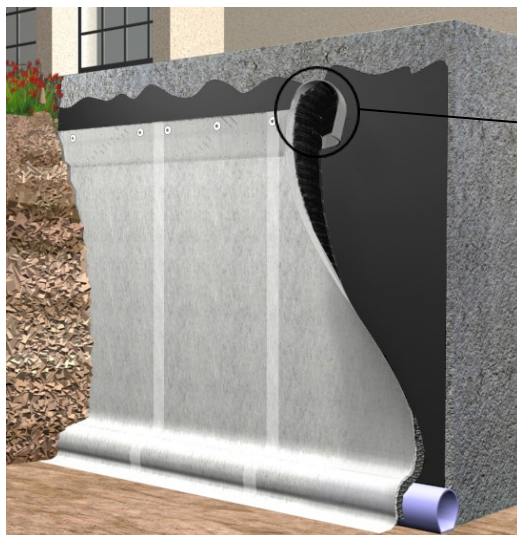
Laying direction



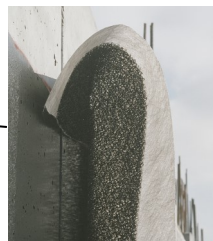
The cores, consisting of looped filaments, function equally in machine and cross machine direction and therefore can be installed horizontally or vertically.



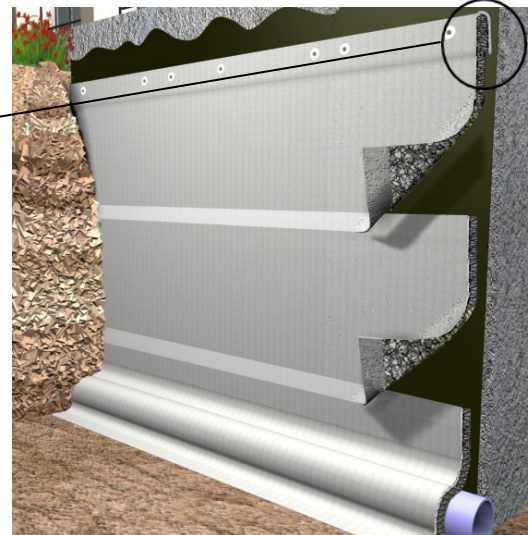
The v-shape cores provide higher performances in machine direction (channel direction) and have to be installed accordingly, i.e. channel direction perpendicular to the drainage collection pipe.



Vertical laying direction over bituminous coating.

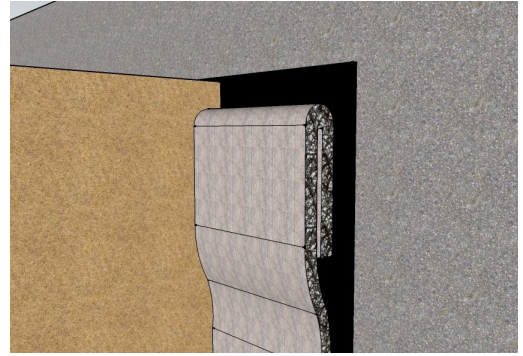
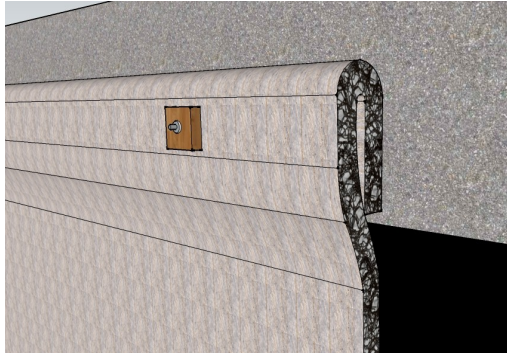


For EnkaDrain geocomposite with one fleece on one side only (1s), the black drainage core has to be faced to the wall and the fleece to the soil side.



Horizontal laying direction over bituminous coating. In this case, the fleece overlap has to be installed downwards.

Fastening:



- Nail for concrete or masonry with soft washer or wood piece (on top of the wall only above the watertight membrane edge level when applicable)
- Neoprene or bituminous glue
- Fast curing polyurethane sealant

Finishing phase in case of installation over a watertight membrane: once the filling material reaches the final level, fastening is removed and the geocomposite is wrapped around itself under the final level.

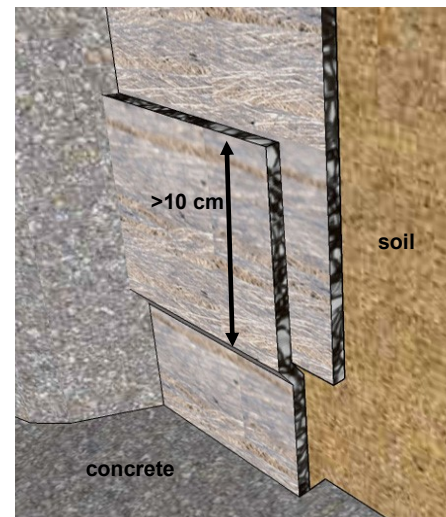
On top of the wall, the geocomposite has to be wrapped around itself to prevent penetration of soil particles in the drainage core.

Junction between two lanes in length direction

The overlap has to prevent penetration of soil particles in the drainage core



Bottom overlap for shotcrete applications.



On the soil side, open end of the drainage core has to face downwards.

Lanes have to cover the whole of the structure in one piece. No connections are allowed on the structure in length direction.



Junction with the drainage collection pipe



EnkaDrain covers the pipe to protect it from clogging.



A manhole is recommended for each change of direction of the drainage pipe.

Installation of backfill material

Backfill material has to fulfill local rules for the application. It has to allow water flow up to the EnkaDrain, we can consider that's the case for soils with permeability $k_v > 5 \cdot 10^{-8}$ m/s. Therefore, clay is not allowed.

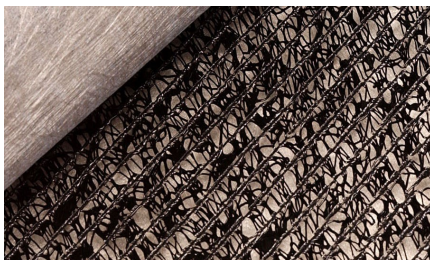
Backfill material has to be installed in due time to cover the EnkaDrain in accordance with the maximum allowed UV exposure of the product.

Backfilling and compaction have to be carried out in accordance with the local rules depending on the specific soil of the project. Vibrating plate compactor or tandem ride on rollers have to be used close to the wall.

Products



EnkaDrain®
EnkaDrain 10 or 20 mm thick with drainage core consisting of looped filaments, thermobonded with one or two fleeces. 1 m wide.



EnkaDrain® Wide
EnkaDrain 4 or 6 mm thick with v-shape drainage core, spot welded with two fleeces. 2 m wide or 5 m wide if relevant.

China	+86 519 6858 5555	Hungary	+36 23 610 870
France	+33 1 74 90 00 13	Netherlands	+31 85 744 1300
Germany	+49 6022 812020	USA	+1 800 365 7391

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