

EnkaDrain®

Horizontal drainage

Handling and installation guidelines

Various EnkaDrain applications

The primary application of EnkaDrain is drainage, but some EnkaDrain types have also proven themselves as a cost-effective vibration control layer, as well as for hydrostatic pressure relief.



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). Concrete-milk tight coating is provided on one side when needed (EnkaDrain CKL). The core can be v-shaped or consisting of looped filaments. The product has to be connected to a drainage collection pipe or any other outlet.

Description of the application

EnkaDrain's extensive range includes a large number of product types which are commonly used for drainage and protection over parking decks, green roofs and under artificial sports fields or concrete underground slabs. Some of them can provide mechanical decoupling function between protecting roofing concrete slab and watertight liner.

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.

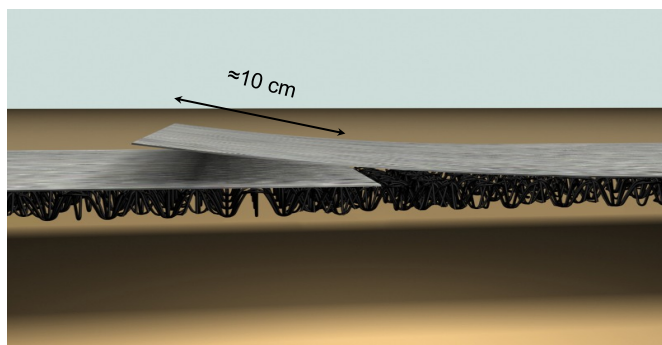
Dragging of the mats after unrolling should be prevented. Smoking or open fires are not permitted when handling EnkaDrain.

Preliminary checking

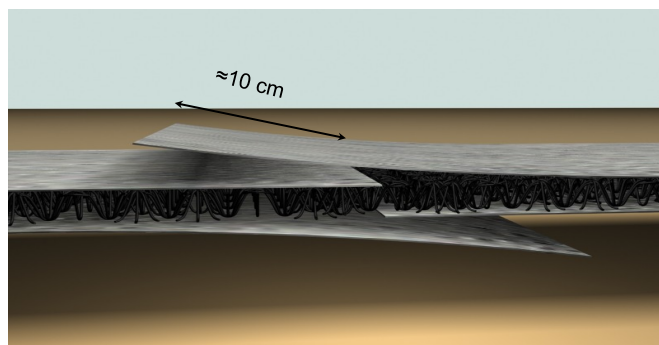
For application under artificial sports fields or concrete underground slabs, the bearing capacity of the foundation soil has to fulfill the local requirements for the given application. Geometry of the project (support slope angle, concrete slab thickness, drainage collection pipes spacing...) has to be in accordance with the hydraulic design data and local rules. In the event that the subgrade material has large and/or angular particles which might cause damage to the EnkaDrain, it is recommended that a levelling layer of sand be used.

Product installation

Product dimensions: the dimensions mentioned on the technical data sheets are the dimensions of the drainage core. Fleece is 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 can be scissors or cutter.



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

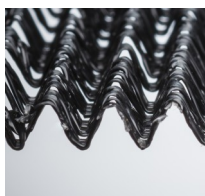


EnkaDrain composite (-2s) with one fleece on the both sides.

Laying direction



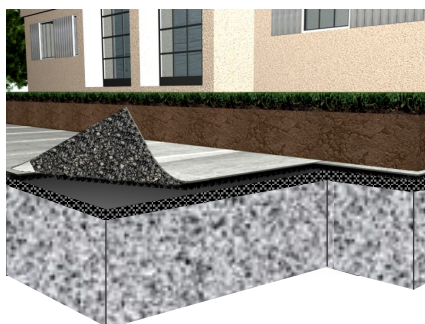
The cores, consisting of looped filaments, function equally in machine and cross machine directions and therefore can be installed parallel or perpendicular to the drainage collection pipe or any other outlet. Nevertheless, for application under concrete underground slabs, installation should be done in the flow direction, perpendicularly to the drainage collection pipe.



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.

Wood decking (Temporary Protection)

One has to be careful during handling of steel meshes or any other sharp object to prevent damage of the geocomposite. Wood decking can provide the needed protection during the works.



For EnkaDrain geocomposite with one fleece on one side only (1s), the black drainage core has to be faced downwards (i.e. faced to concrete structure).

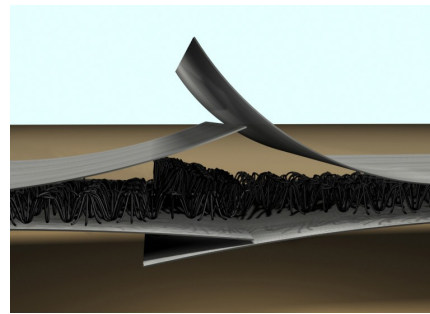
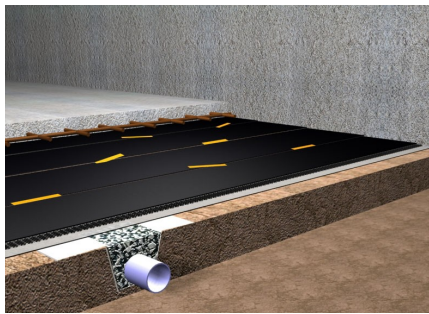


For EnkaDrain CKL, the black fleece has to be faced upwards (i.e. faced to concrete slab).

Fastening:

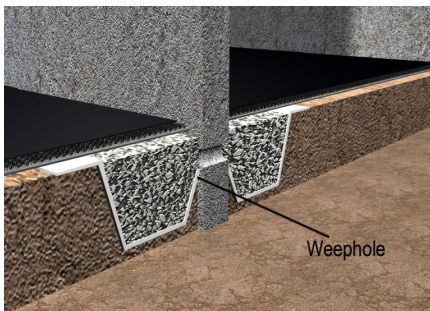


Concrete/synthetic turf mat installation: Mounds of sand or any other soil material or adhesive tape when applicable are required to prevent moving of the lanes and to keep overlaps closed when backfilling.



End-to-end jointing: lanes should be installed with their cores butted against each other.

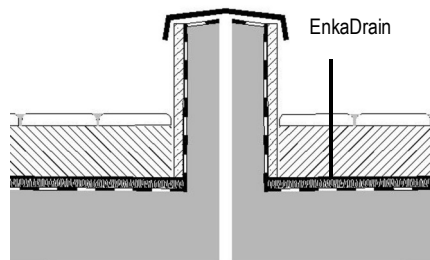
Junctions with structural elements:



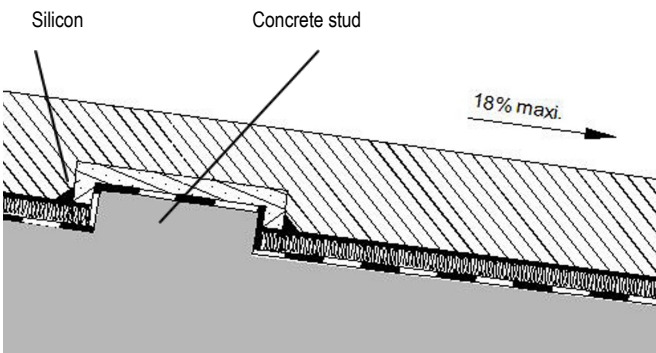
When a wall prevents the flow up to the drainage collection pipe, weephole and a trench on both sides of the wall are needed to ensure the continuity of the flow.



EnkaDrain is cut in close contact with the concrete pole.

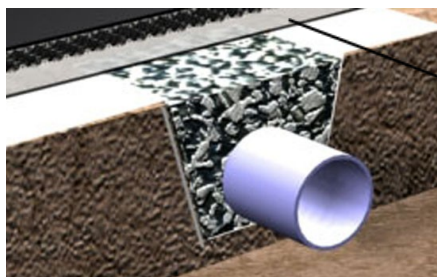


Expansion joint junction detail



Drainage and decoupling under concrete slab slope with traffic loads

Junctions with collection pipes:

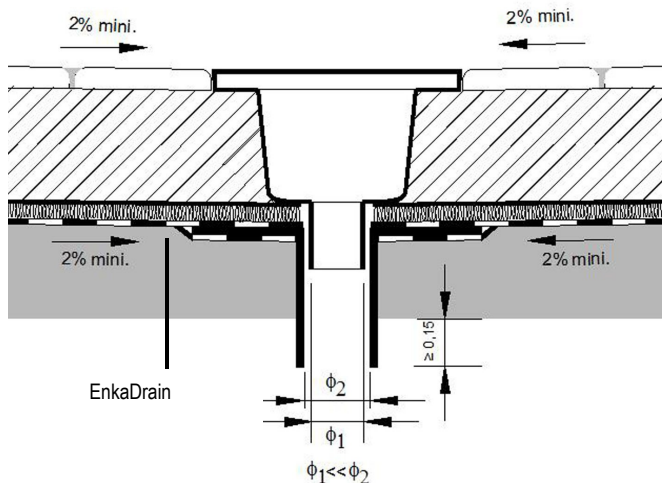


Separation geotextile remains open

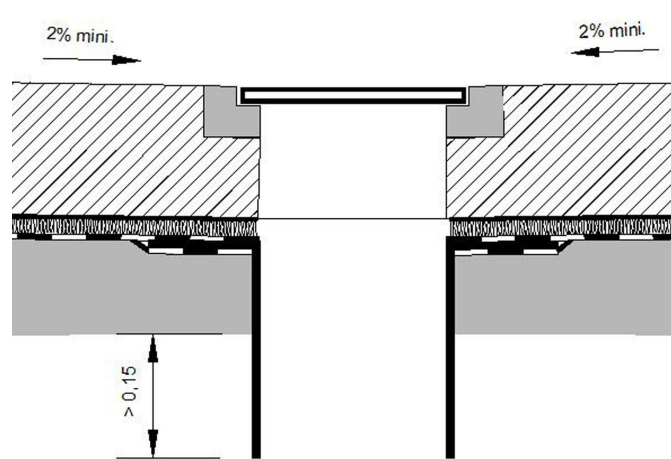
EnkaDrain must be laid in contact with the gravel of the draining trench.

Application under concrete underground slabs: Vent pipes, grids and rodding eyes, directly connected to drainage collection pipes, are required to prevent slab collapse in case of breakdown of the drainage pump. Vent pipes have to be located outside of traffic area.





Drainage and decoupling under pedestrian areas



Drainage and decoupling under areas with traffic loads

Installation of backfill material/concrete/synthetic turf mat

Traffic directly over the geocomposite is not allowed. Usually a soil layer minimum 30 cm thick over the geocomposite is required to avoid damage of the geocomposite. As alternative, wood decking can provide the needed protection. Synthetic turf mats provide the required protection for the usual traffic conditions for works phase and maintenance. Backfill material has to fulfill local rules for the application. It has to allow water flow up to the EnkaDrain. This is the case for soils with permeability $k_v > 5 \cdot 10^{-8} \text{ m/s}$, therefore, clay is not allowed. Backfill material/concrete/synthetic turf mats have to be installed in due time to cover the EnkaDrain in accordance with the maximum allowed UV exposure of the product.

Backfill material and concrete has to be installed in the direction of the “roof-tile-overlap” of the drainage composite to avoid opening of the overlaps. Backfilling and compaction have to be carried out in accordance with the local rules depending on the specific soil of the project.

Products



EnkaDrain

10 or 20 mm thick with drainage core consisting of looped filaments, thermobonded with one or two fleeces. One meter wide.



EnkaDrain® CKL

10 or 20 mm thick, with drainage core consisting of looped filaments, thermobonded with a grey nonwoven filter on the first side and a black fleece with a polypropylene coating on the second side. One meter wide.



EnkaDrain® Wide

4 or 6 mm thick with v-shape drainage core, spot welded (2m) or sewn (5m), with two fleeces. Two meter wide (5 meter wide if relevant).

China +86 519 6858 5555
France +33 1 74 90 00 13

Germany +49 6022 812020
Hungary +36 23 610 870

The Netherlands +31 85 744 1300
USA +1 800 365 7391

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