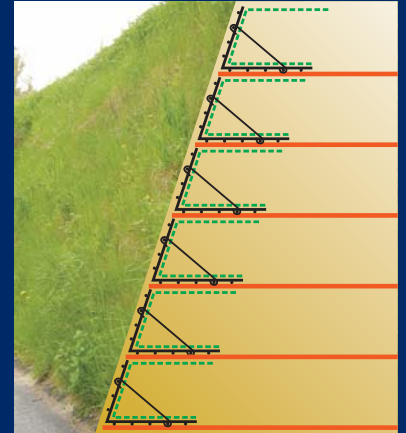


Polyslope S System Description

Polyslope S is an environmentally friendly and economic alternative to conventional retaining structures, such as concrete gravity walls. It allows the construction of aesthetically attractive slopes with slope angles of up to 70°, and heights between 1,5 and 20 m. As local plants can be propagated at the slope surface, the structure can be integrated into the surrounding landscape within a very short period of time, and very often cannot be identified as man-made structure.



Polyslope S



The Benefits



The System Components

Polyslope S consists of four components: (1) TenCate reinforcing geosynthetics, (2) Formwork elements, (3) TenCate Polyfelt Green erosion-protection geosynthetics, and (4) Fill material

(1) TenCate Geosynthetic reinforcement

The high-quality TenCate geosynthetics stabilize and reinforce the soil mass. Due to the frictional compound effect, a reinforced earth structure with high internal shear strength is created.

Dependent on the type of fill material used, two different product options are available. With cohesive soils, we recommend the use of TenCate Polyfelt Rock PEC (system designation Polyslope S-GP), with non-cohesive soils (fines content <15%) TenCate Miragrid GX should be used (system designation Polyslope S-GG).

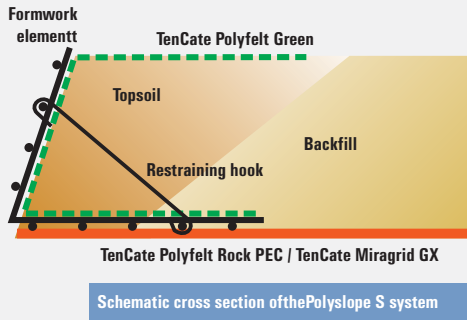
Both products provide excellent tensile strength properties. They are characterized by stable long-term behaviour (low creep tendency), high friction to soils, and ease of handling and installation.

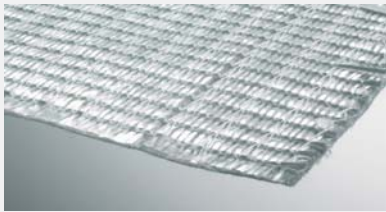
TenCate Polyfelt Rock PEC

Rock PEC is a high-strength geocomposite, consisting of a mechanically bonded continuous-filament nonwoven and high-strength polyester yarns. Apart from high tensile strength at low elongation, this product offers a high in-plane water flow capacity. This guarantees that excess pore water pressure is dissipated during the compaction of fine-grained fill material. In addition, seepage water is drained off, ensuring that the development of significant hydraulic pressure within the retaining structure is avoided.

TenCate Miragrid GX

GX is a high-strength geogrid made from polyester yarns with polymeric protective coating. The flexible nature of GX facilitates simple installation and allows the geosynthetic to develop an intimate contact with the structural fill thus creating an effective frictional interaction.





TenCate Polyfelt Rock PEC - high strength geocomposites, recommended for cohesive fill material



TenCate Miragrid GX - high strength geogrids, recommended for non-cohesive fill material



Prefabricated steel meshes acting as lost formwork elements



Green B 110 - erosion-protection grids



On-site soil as backfill material

(2) Formwork elements

Pre-fabricated steel meshes bent to the required angle are used as sacrificial formwork. This guarantees that the slope can be constructed in exact accordance with the design. The relatively flexible nature of the facing element permits subsequent settlements of the fill without creating problems with deformations of the slope surface.

Protection against corrosion is not required, as following the completion of construction and any associated settlements the formwork elements perform no further stabilising function.

(3) Erosion-protection grid TenCate Polyfelt Green B110

The system is completed by the erosion-protection grid TenCate Polyfelt Green 110 B. During construction stage, it protects the slope surface from erosion and facilitates a permanent vegetation.

On a long-term basis, Green B110 provides local slope stability of the surface. Important parameters are therefore UV and chemical resistance, low inflammability, and adequate tensile strength. On one hand, the mesh size chosen minimizes surface erosion, and on the other hand supports the free growth of vegetation.

(4) Fill material

Generally, the locally available soil can be used as fill material, provided it can be compacted adequately to an approved specification. Care must be taken that no stones > 60 mm are located at the slope surface, as this could inhibit vegetation growth. Additionally, good quality topsoil with adequate water storage capacity should be used along the slope surface (30 - 50 cm from the front edge).



Quick, easy and economical installation as well as optimum conditions for plant growth are the main characters of the Polyslope S System (top: construction phase, below: condition after one year).



Polyslope S - Vegetated steep slope with geosynthetic reinforcement and prefabricated formwork elements

The Installation

The construction of Polyslope S requires no special foundation precautions. The subgrade should be graded, compacted and needs to provide adequate bearing capacity. It should be noted that reinforced soil structures can accommodate relatively large differential settlements, therefore the allowable bearing capacity requirements may be relaxed in this regard.

First, the reinforcing geosynthetics are placed according to the required anchor length evenly and free of folds or wrinkles. The formwork elements are then placed, lined with TenCate Polyfelt Green B110, and fixed with restraining hooks.

Then the fill material is placed and compacted. The overhanging part of Green B110 is folded back over the compacted fill layer and fixed. The installation of the next layer starts with the placement of TenCate Polyfelt Rock PEC or TenCate Miragrid GX.

The time required for the construction of one layer depends strongly on the boundary conditions of the project. As a rough guideline, 30 to 50 m² surface area can be erected per day. This requires two workers for the placement of the Polyslope S system, one compactor, and one excavator for installation and distribution of the fill material.

The information given in this brochure is to the best of our knowledge true and correct, however new research results and practical experience can make revisions necessary. No guarantee or liability can be drawn from the information mentioned herein. Furthermore, it is not our intention to violate any patents or licences.

Vegetation

The slope surface of Polyslope S allows a free growth of plants. If quick and intensive vegetation is required, we recommend hydro-seeding.

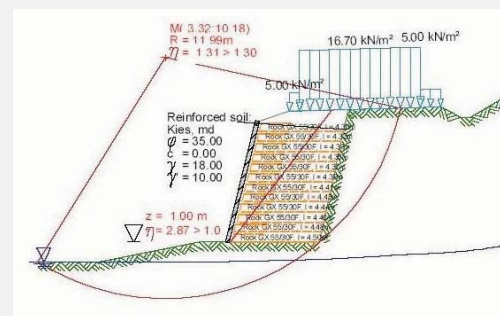
Slopes exposed to excessive sunshine or wind should be irrigated by adequate means. In general, artificial irrigation is recommended in all cases until vegetation has become established. For details, please contact your local landscaping professional.

For more details on installation, please refer to our Installation Guidelines - our technical department is always at your service!



The Design

For designing geosynthetic reinforced slopes and walls, we offer a comprehensive service based on specialized design software!



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