



Stabilenka® Xtreme

Installation Guidelines

Embankments on Soft Soil with Stabilenka Xtreme

1. General

These guidelines explain how to install Stabilenka Xtreme as basal reinforcement for embankments built on soft soil.

Varying project parameters, local conditions and other factors may necessitate adaptation of the work sequence. This document is therefore no substitute for detail design and production information. Moreover, the values and sizes specified here serve only as recommendations and may require project-specific adjustment. Please contact us if you need further details or have any queries. We will be happy to provide you with expert advice from design through to installation.

2. Summary

Basal reinforcement for embankments accommodates lateral spread through friction and interlock, thereby reducing the loads imposed on the foundation soil. It also helps to offset any deficits in the strengths needed to guarantee structural stability. Basal reinforcement serves to even out any later settlement while permanently separating the embankment material from the subgrade.

3. Delivery and storage

Stabilenka Xtreme is supplied in rolls wrapped in protective sheeting. In compliance with DIN EN ISO 10320, each roll is clearly identifiable and thus readily traceable through the quality assurance system. Attention shall nonetheless be paid to ensuring the conformity of the supplied materials with the project specifications. Stabilenka Xtreme is, among other things, BBA- and CE-certified and has been awarded the ivg (German Geosynthetics Industry Association) product certificate. The latter eliminates the need for on-site incoming goods inspections under the ZTV E-StB (Special Technical Conditions and Guidelines for Earthworks in Highway Engineering).

The products may be unloaded by forklift with stinger, self-unloader or other suitable site equipment, e.g. lifting/laying gear. All necessary precautions should be taken to prevent damage to the rolls. If no stinger is available, an unloading device and sling may be used.



Forklift with stinger



Use of lifting /laying gear

The Stabilenka woven rolls should be stored well away from site traffic routes on a dry, clean and even base. The rolls may be stacked and should be protected against slipping and unrolling. Unpacked goods should not be openly exposed to UV radiation for more than one month. The application guidelines in the M Geok E (Merkblatt über die Anwendung von Geokunststoffen im Erdbau des Straßenbaues) should be observed.



4. Installation

Safety

The installation of basal reinforcement for embankments is subject to all statutory regulations and other provisions governing on-site safety.

Cutting to size

Cutting can be done directly on site with standard carpet knives or ideally with a battery-powered hot cutter to prevent fraying. Trestles can be used to help unroll the sheets.

Subgrade

The sub-grade shall be prepared in accordance with the ZTV E-StB. Failure to meet the minimum bearing capacity requirements shall necessitate special measures (e.g. ground improvement or a geosynthetic reinforced foundation bed).

Installation of sheets

As a general rule, the reinforcement sheets shall be laid horizontally with their main direction of tension perpendicular to the slope or wall face. Particular attention should be paid to ensuring the correct orientation of the sheets during installation. Unless verified by the structural calculation, no overlapping of sheets is permitted in the main direction of tension. A minimum side overlap of 100 mm is recommended (though not structurally necessary). The reinforcement sheets should be laid taut, without any folds or creases, so as to allow immediate load take-up. However no special tensioning of the sheets is necessary. To prevent the formation of folds or creases, the placement of fill on the sheets should commence at the slope side and progress towards the sheet ends.



Ballasted / overlapping sheets



Overlapping sheets with soil cover

Soil placement

The fill material should be placed by the "end tipping" method and compacted in layers of 200 to 300 mm thickness. Here, the instructions and special requirements for reinforced retaining structures under the ZTV E-StB shall be observed. In the absence of particular specifications, a minimum compaction level of $DP_r = 97\%$ is recommended. Heavily loaded structures may require higher compaction levels of $DP_r = 100 - 103\%$.

The reinforcement sheets should not be directly driven over. Accordingly, a minimum soil cover of 200 mm should first be provided. Prior to any interruption of the works, all installed sheets should first be covered over with fill.

Wrap-back

After a thickness of 500 – 600 mm has been installed, the reinforcement woven should be wrapped back around the fill layer to a minimum length of 2.50 m – unless greater lengths are required for structural reasons. Project-specific measures may prove necessary to adapt adjoining slopes. These should be factored into the detail design/production information.

5. Further guidance

Further guidance on installation can be found in the relevant technical literature, e.g. the EBGE0 (Recommendations for Design and Analysis of Earth Structures using Geosynthetic Reinforcements), the M Geok E or DIN EN 14475 "Execution of special geotechnical works – Reinforced fill".

Stabilenka® Xtreme is a registered trademark of HUESKER Synthetic GmbH.
HUESKER Synthetic is certified to ISO 9001 and ISO 50001.



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