Stabilenka®

The World's Strongest Woven Reinforcement Fabric

HUESKER
Ideen. Ingenieure. Innovationen.

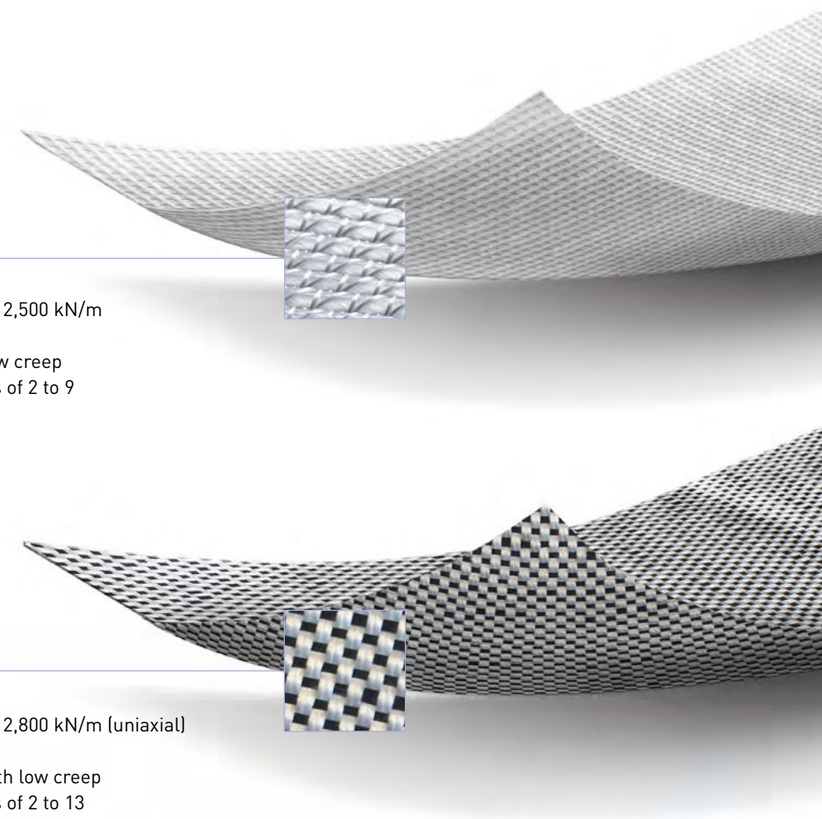
Mastering Extreme Challenges Economically

Also in highly alkaline soils

Boasting a product history of over 50 years, Stabilenka enjoys the distinction of being one of the world's first ever reinforcement geotextiles. Strengths of up to 2,800 kN/m, state-of-the-art weaving technology, a first class quality assurance regime, numerous certifications and proven resistance of up to 120 years, to chemical, physical and microbiological action have made Stabilenka one of the best performing woven reinforcement products anywhere in the world. As a new addition to the Stabilenka family, Stabilenka Xtreme excels by its outstanding durability, even in highly alkaline environments with pH values of up to 13.

Stabilenka offers an unbeatably cost-effective solution to the most stringent project requirements by combining three functions in a single product: reinforcement, separation and filtration. It is particularly suitable for the reinforcement of earthworks on weak subsoils, for sludge lagoon capping and for use in land reclamation schemes.

The constituent raw materials offer high tensile stiffness coupled with low creep, thereby reducing structural deformation under high long term loads. The use of Stabilenka on subgrades with low bearing capacity thus eliminates the need for soil replacement, conventional soil stabilisation measures and long consolidation times that delay the progress of the works.



Stabilenka (PET)

- Unmatched tensile strengths of up to 2,500 kN/m (uniaxial) and 1,000 kN/m (biaxial)
- High tensile stiffness coupled with low creep
- High durability in soils with pH values of 2 to 9

NEW

Stabilenka Xtreme (PVA)

- Unmatched tensile strengths of up to 2,800 kN/m (uniaxial) and 1,400 kN/m (biaxial)
- Very high tensile stiffness coupled with low creep
- High durability in soils with pH values of 2 to 13

Unbeatable Quality and Outstanding Strength

Supreme production standards for maximum safety

Reliable reinforcement fabrics are always characterised by their favourable stress-strain behaviour. In other words, they should exhibit a combination of high tensile stiffness and low-creep properties. Through HUESKER, you can reap the benefits of truly high performance products based on decades-long manufacturing experience and in-depth expertise in high modulus fibre technology.

Unlike many alternative products on the market, Stabilenka is manufactured from special multifilament yarn that allows the achievement of moduli exceeding 45,000 kN/m. Users thus benefit from a premium product which is unmatched worldwide and capable of mobilising high-tensile forces at low strains to offer maximum reliability for their projects. Stabilenka exhibits an extremely low creep strain of less than 1% when subjected to a permanent load equal to 50% of the short-term strength after the construction phase.

Quality guarantee

- Moduli exceeding 45,000 kN/m
- State-of-the-art weaving technology
- Regular quality controls
- Tests performed by accredited in-house testing laboratory
- Numerous independent certifications
- Over 50 years' project experience

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 13/4979

SGS TÜV SAAR ISO 9001

ivg.

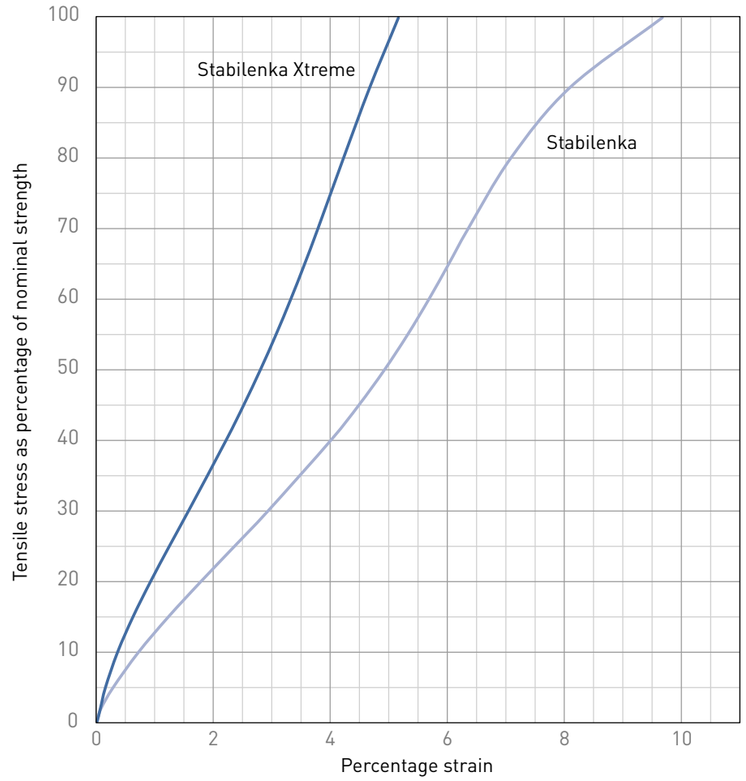
TÜV NORD DIN EN ISO 14001

CE

DAkkS Deutsche Akkreditierungsstelle D-PL-19299-01-00

NorGeoSpec

Specimen short term tensile stress-strain curves



Safety for Your Applications

Ideal for embankments on weak soils

Stabilenka is suitable for all applications that require soil reinforcement as a means of guaranteeing structural stability and serviceability.

Where embankments are built on soft or weak subgrades such as peat or alluvial clay, an overly rapid construction programme may lead to bearing or slope failure if the shear strength of the subsoil is exceeded. The incorporation of Stabilenka between subgrade and embankment fill serves to increase bearing capacity. Structural stability is thus guaranteed, even during the consolidation period. Stabilenka allows embankments to be built on practically all soft soils and in all alkaline environments.

Comparison of methods and solutions

Selection of the most suitable foundation method is dictated by the soil conditions, loads and requirements placed on the structure. Key parameters for describing the soil conditions include the CBR, <p-break>E_{V2} and c_u. The geotextile-encased column system, with Stabilenka incorporated as horizontal reinforcement above HUESKER's Ringtrac® columns, offers a means providing reliable foundations in soft strata with cu < 0.5 kN/m².

CBR [%]	E_{V2} [MN/m²]	C_u [kN/m²]	Soil conditions
9	35	270	good
7	30	210	
6		180	
5	25	150	Average
4	20	120	
3	15	90	Adequate
2	10	60	Poor
		30	
1		15	
			Very poor

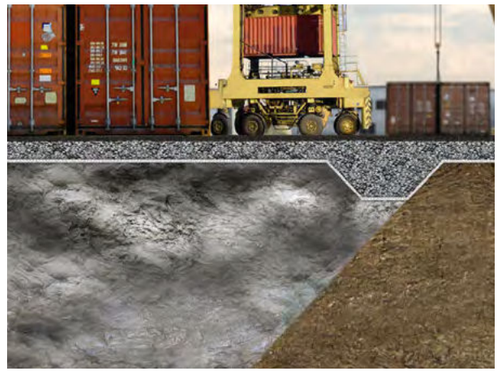
CBR California Bearing Ratio (%)
C_u Undrained shear strength (kN/m²)
E_{V2} Deformation modulus on reloading (MN/m²)

Embankments on Soft Soil

- Single layer reinforcement, also for very high embankments thanks to high tensile strengths
- Ensures global and local stability
- Reduction of horizontal pressure in soft soil
- Allows steep slopes with smaller base width and lower volume of soil fill
- Shortens waiting times for consolidation

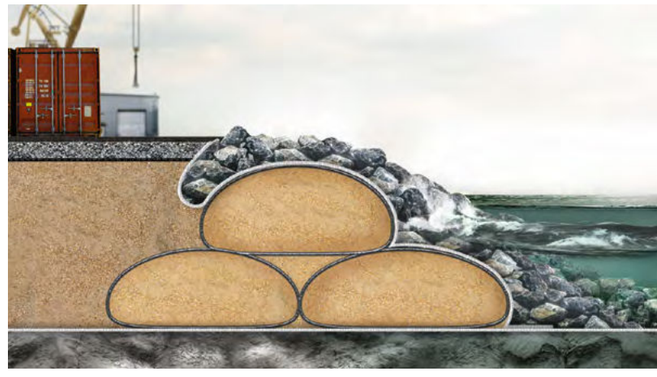
Geotextile-encased columns

- System solution with Stabilenka as horizontal reinforcement for extremely soft soils, with proven performance for cu < 0.5 kN/m²
- Highly cost-effective, single layer reinforcement made possible by high tensile strengths
- High tensile strength allows maximisation of column grid size
- Rapid construction of high embankments without risk of bearing or slope failure
- Embankment is fully loadable immediately after completion



Sludge lagoon capping

- Capping, stabilisation and overlaying of extremely soft subgrades
- High chemical resistance of Stabilenka Xtreme
- Less differential settlement thanks to high tensile stiffness
- Enhanced durability and low deformation due to high-modulus, low-creep material
- Capping operation accelerated by use of large prefabricated panels



Land reclamation

- Filtration-stable system assembly for greater long-term stability
- Geosynthetic reinforcement, separation and filtration layer
- Straightforward underwater installation compared to other solutions
- Evening out of settlement
- Maximisation of bearing capacity and reduced base course thickness

Application Examples

The ideal solution to every challenge

HUESKER will be happy to apply its know-how and project experience to help you tackle your challenges. Here is a small selection of interesting projects completed by us, in partnership with our customers during the past 50 years:

A26 motorway extension

Germany: motorway extension through areas of weak soil. Embankments safely built on geotextile-encased columns and basal reinforcement plus temporary haul roads with Stabilenka Xtreme.

A4 motorway widening

Italy: widening of A4 motorway in Italy on land with difficult soil conditions. Over 111,000 m^2 Stabilenka Xtreme incorporated as embankment basal reinforcement to maximise slope inclination and improve safety.

Steel mill on soft ground

Brazil: steel mill development on approx. 900 ha site. Soft, waterlogged soil strata with low bearing capacity. Solution included geotextile-encased columns with Stabilenka Xtreme as reinforcement.

Riverbed relocation onto embankment

Macedonia: relocation of River Temnica onto embankment. Stabilenka basal reinforcement for construction of approx. 2 km long and, in places, 40 m high embankment on soft soil.

Port of Wilmington land reclamation

USA: biggest geotextile construction project worldwide in 1990s. 2.5 km long dike incorporating over 300,000 m^2 20 x 230 m Stabilenka panels, custom fabricated for underwater installation.

Land reclamation for Airbus site

Germany: extension to DASA Airbus plant at Mühlenberger Loch site in Hamburg, made possible by reclamation of 140 ha of land. Foundation system comprising 60,000 geotextile-encased columns and Stabilenka for 2.4 km long dike.

New housing directly on Ijmeer

Netherlands: eight new islands east of Amsterdam, as site for 18,000 houses. Highly customised geotextiles placed in three weeks. Roll lengths between 68 and 114 m, labelled for rapid on-site installation.

Sludge lagoon capping in Hamburg

Germany: capping of interim silt tip at Rodewisch-hafen dock basin/canal in Hamburg. Combined use of Stabilenka and Fortrac®. Site now used for storage purposes.

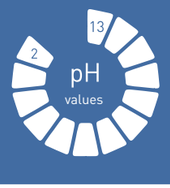
Benefits of Stabilenka at a Glance

You too can profit from our many years of project experience, integral service portfolio, premium products and innovative system solutions. However stiff the challenges posed by your project, the numerous benefits offered by Stabilenka will ensure delivery of a fast, reliable and cost-effective solution:

3 in 1

Economical, water-permeable woven geotextile

- Woven fabric sheet for reinforcement, separation and filtration
- Fewer material layers required
- Optimum aperture size for efficient water permeation



Suitable for practically all subgrades

- High resistance to microbiological, chemical and physical action
- Stabilenka (PET), suitable for 2 ≤ pH ≤ 9
- Stabilenka Xtreme (PVA/PP), suitable for 2 ≤ pH ≤ 13

High-tensile properties while retaining flexibility

- High tensile strength in conjunction with low strain
- High-modulus, low-creep material
- Strengths of up to 2,800 kN/m generally allow single-layer reinforcement concepts

Reliable solution for very weak soils

- Suitable for all soil types, e.g. even peat and alluvial clay.
- As part of geotextile-encased column system, also for use in soft soils with c_u < 0.5 kN/m²
- Eliminates need for soil replacement, conventional soil stabilisation measures and long consolidation times

Top quality for improved safety

- State-of-the-art production and first class quality assurance regime
- Moduli exceeding 45,000 kN/m
- Proven durability of up to 120 years

Versatile application possibilities

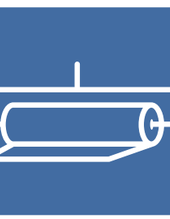
- Embankment basal reinforcement
- Reinforcement, as part of geotextile-encased column system, for embankments built on soils with low bearing capacity
- Land reclamation, sludge lagoons etc.

Rapid availability

- Our standard products are available for immediate delivery from our warehouse
- Other predefined product models can be fabricated for you at short notice
- Manufacture of project specific products tailored to customer needs

Customised configuration

- Calculation and design by our engineers
- Customised strengths, roll lengths and placement plans
- Factory prefabrication and stitching together of sheets into large panels



Straightforward installation

- Pre-marked overlap areas facilitate on-site quality assurance
- Technical guidelines available, together with optional on-site instruction by our engineers
- Mechanical installation aids available

Multiple certification

- BBA (British Board of Agrément)
- IVG (German Geosynthetics Industry Association)
- NorGeoSpec (Nordic geotextile specification)
- EPD (environmental product declaration)

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