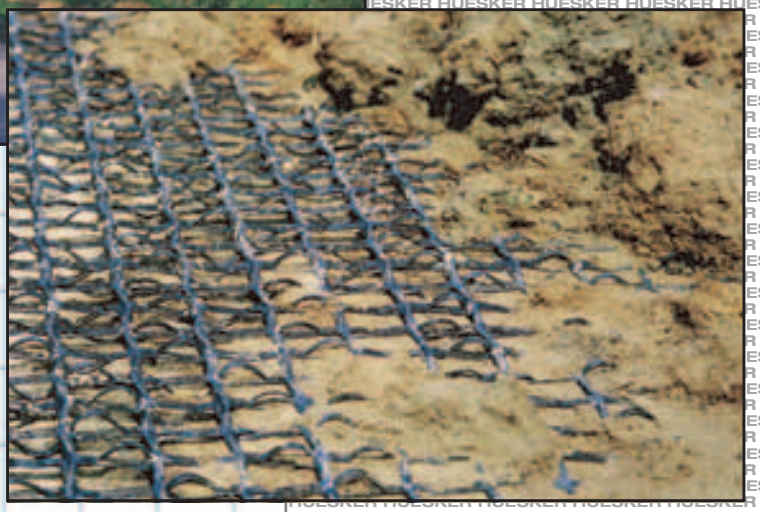
Fortrac® 3D

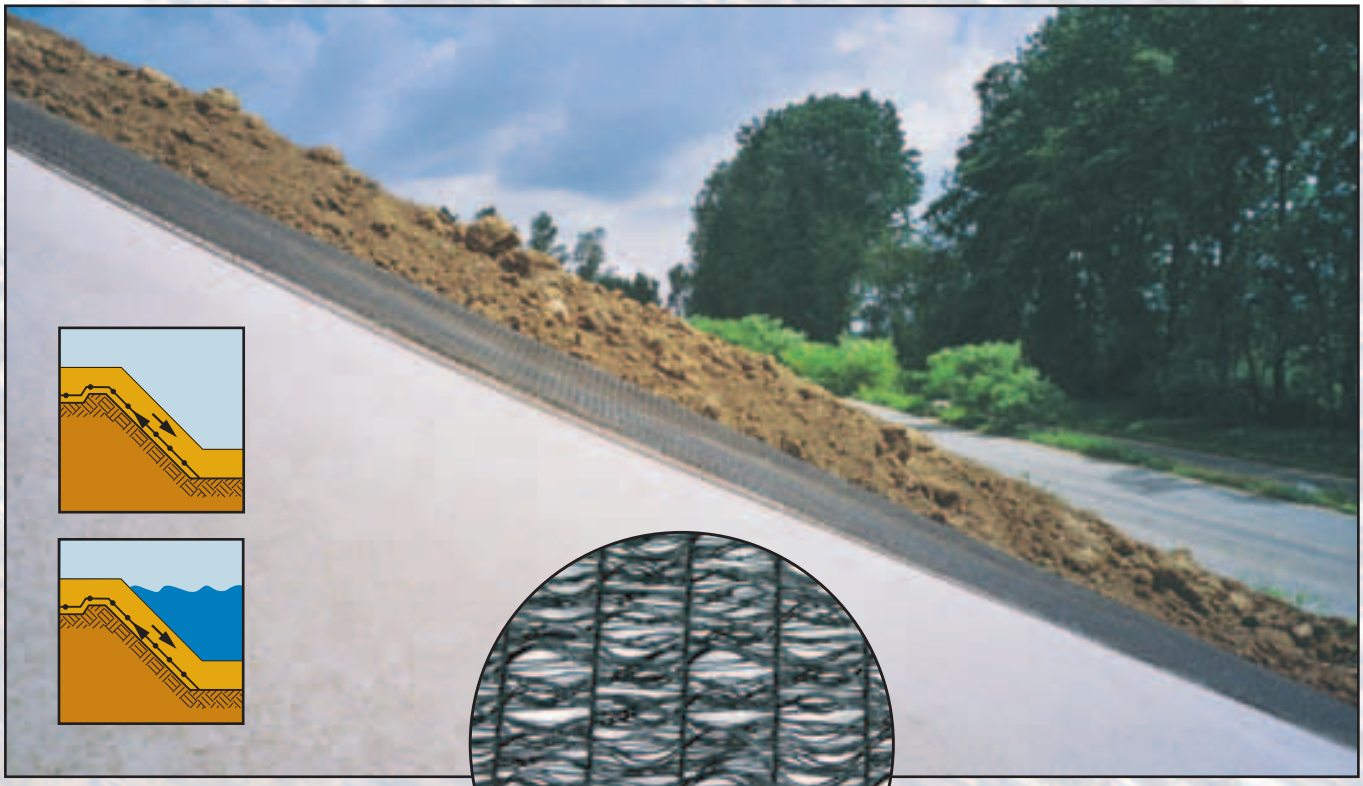
Reinforcement geogrid offering soil erosion protection



HUESKER

Engineering with Geosynthetics

Fortrac® 3D – the ideal reinforcement against soil slippage and erosion protection



Introduction

Fortrac® 3D is a further development of the well-known **Fortrac®** geogrid and is introduced as a slope protection material. **Fortrac® 3D** is a flexible, three-dimensional reinforcement grid made from high-tenacity, low-creep polyester with the additional function to protect against soil erosion.

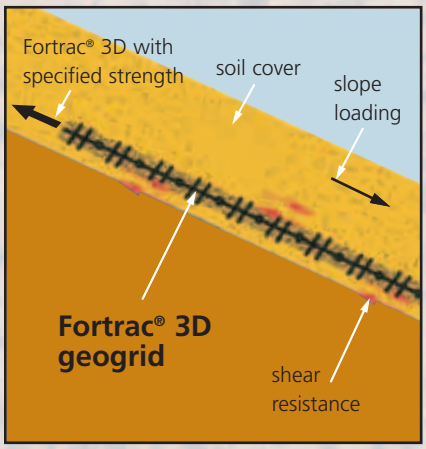
A special polymeric coating provides protection against UV degradation und mechanical damage. Based on known long-term properties **Fortrac® 3D** can be dimensioned for project specific design lives.

Product types

Fortrac® 3D is available in several strengths, offering a comprehensive project range. Information on standard products is given in the table below.

All technical product data presented in data sheets are based on ISO or/and EN standards.

As with all HUESKER products **Fortrac® 3D** can be manufactured as a project-specific material – please discuss it with us!



Fortrac® 3D	30	40	60	90	120
Tensile strength – MD	30	40	60	90	120
Extension – MD	12.5	12.5	12.5	12.5	12.5
Thickness	10	10	10	10	10
Weight (approx.)	~300	~380	~450	~550	~620
Roll size	4.5 x 100	4.5 x 100	4.5 x 100	4.5 x 100	4.5 x 100

Functions

- Reinforcement on the slope (veneer stability)
- Erosion protection of the surface layer

• Reinforcement on the slope

As a high tenacity geogrid **Fortrac® 3D** provides an ideal reinforcement against soil slippage on the slope. This failure can occur, for example, on highway embankments between the topsoil and the compacted core material or on thin landfill covering, which can be caused by inadequate relief for pore water pressure. **Fortrac® 3D**, through its structure, improves the soil retention on a vulnerable slip plane surface and its tensile strength carries the loading forces imposed on the anchorage zone. The surface stability of the structure is increased, resulting in a safer and more economical construction method.

• Erosion protection on the surface

Due to its distinctive three-dimensional structure **Fortrac® 3D** presents a valuable soil-retention method, which significantly increases erosion resistance. Fine soil particles are contained until such time as the root structure of new vegetation is established. This property is especially relevant when heavy rainfall generates high surface-water movement. **Fortrac® 3D** finds further use, for example, in river bank protection, water retention schemes, canal banks (in combination with bitumen-bound granular material) and hydro-seeding on steep slopes.

1. Unstable soil cover
*2. **Fortrac® 3D** installation*
3. Completed slope construction
4. Slope after vegetation growth

Application

With the right design the use of **Fortrac® 3D** provides a safer and more economical construction approach, avoiding the problem of subsequent remediation work. Different geometries with various soils and sealing systems have already been designed and built. The flexibility, robustness and simple installation of **Fortrac® 3D** ensure a successful end result. The product properties offered by HUESKER are verified by detailed laboratory testing. High frictional values confirm the superior retention property of **Fortrac® 3D**.

Design and technical support

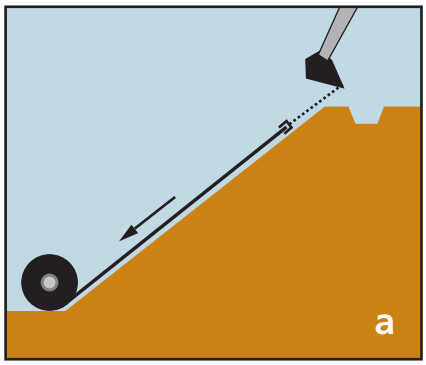
Documented and proven design guidelines are available.

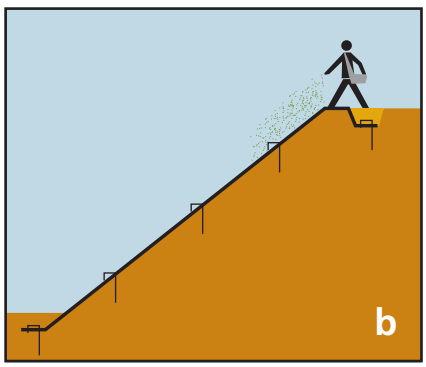
The HUESKER team is always available to answer your questions on design or installation.

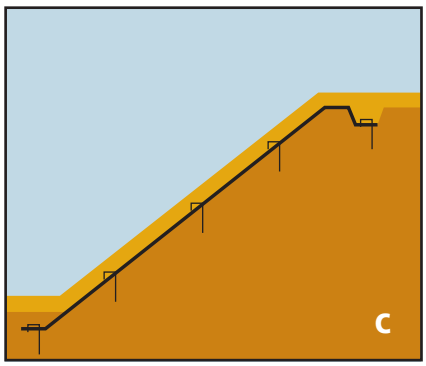
Installation

Advice on laying

- lay **Fortrac® 3D** in the slope direction and cut (**a**)
- ensure **Fortrac® 3D** is lightly tensioned to pull out any folds. In a reinforcement application use a designed anchor trench (**b**)
- in surface erosion and vegetative cover applications use soil pegs (2 – 3 per m²) to hold **Fortrac® 3D** securely onto the sub-layer (**b**)
- complete the toe detail as per the design (**b**)
- introduce over-seeding onto **Fortrac® 3D** (**b**)
- fill **Fortrac® 3D** with soil cover material and complete surface cover (**c**)

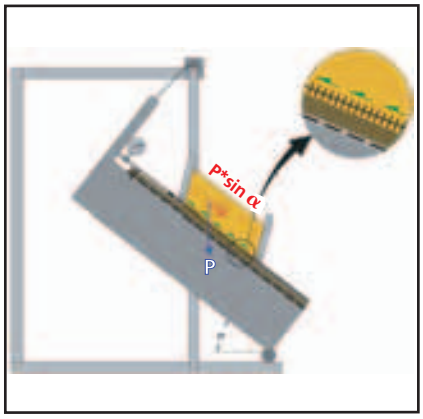






Property testing

Fortrac® 3D's excellent soil interaction properties have been verified by extensive shear- and pull-out tests. Interaction values greater than 1.0 confirm an ideal bond with commonly used soils and so with **Fortrac® 3D** no new potential slip planes are introduced. The low-creep property throughout the **Fortrac® 3D** family of products is fully verified. Testing also confirms high resistance to installation damage.



Fortrac® 3D's polymeric coating provides high resistance to UV-degradation and protection from any adverse effects in naturally occurring soil conditions.

Examples of the shear and pull-out tests.

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HUESKER Synthetic GmbH is a certified manufacturer:

TÜV CERT EN ISO 9001

Deutscher Akkreditierungs Rat DAR DAP-PL-3226.00 Akkreditiert nach DIN EN ISO/IEC 17025

CE

As a manufacturer with decades of experience we offer you convincing technical solutions – economical, safe and progressive.

Geosynthetics for:

Earthworks and foundation engineering, landfill construction, hydraulic engineering, transportation schemes

Technical assistance, planning, realisation - worldwide

Reliable and advanced techniques characterise our products in many applications:

Fortrac® - flexible, high-modulus and low-creep geogrid for soil reinforcement

HaTelit® - flexible, high-modulus and temperature-resistant grid for asphalt reinforcement

Stabilenka® - high-modulus polyester woven for reinforcement and separation of soils

Fornit® - biaxial geogrid for subbase reinforcement

Comtrac® - geocomposite for reinforcement, separation and filtration of soils

NaBento® - geosynthetic clay liner for sealing

Incomat® - concrete- or sand-mat for sealing and erosion control

Ringtrac® - tube fabric for reinforcement and soil containment

HaTe® - wovens and nonwovens for separation, filtration, drainage and protection

Geosynthetics made by HUESKER -reliability by experience!

HUESKER

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