SoilWeb®
Innovative Geocell Solutions. Since 1999.

SoilWeb® Geocells

Geotechnical solutions for earthworks and foundation engineering

HI-TEC
SOIL STABILIZATION

SoilWeb® Geocells

Innovative geotechnical solutions. Since 1999.

SoilWeb® Geocells are three-dimensional, flexible honeycomb units consisting of ultrasonically welded strips of HDPE with a particular surface texture and perforations. SoilWeb® is available in a variety of sizes to accommodate the most diverse aplications.

Content

Who we are

Soiltec GmbH has been in the erosion control / soil stabilization field for nearly 40 years providing diverse solutions to its customers. Through the development, production and distribution of technical products, Soiltec has gained the expertise to be a world leader in its field. We pride ourselves in supplying products that are not only effective, but also environmentally conscientious.

Simple, Fast and Sustainable
Our four product categories reflect our geotechnical experience:

- **GREENFIX® Erosion control blankets**
- **SoilWeb® Geocells made of HDPE**
- **FilterPave® Water-permeable pavement**
- **SkyGarden® Roof greening systems**

Our simple, cost effective, products are quick and easy to install, saving money while adding an environmentally conscientious solution. Our products are the result of extensive research and development as well as decades of field experience. Their quality is assured by manufacturing and testing in accordance with internationally recognized standards.

What we do

SOILTEC Geosystems designs and implements erosion control, soil stabilization and revegetation projects for public and private roads, landscaping and hydraulic engineering projects worldwide. We are involved in each step of the process from the inception to the final installation giving guidance and support. Our network of trained and experienced distributors have allowed us to successfully implement projects in over 50 countries worldwide. Strong cooperation between the local engineering team, the distributors and our Soiltec technical team allows us to offer project specific solutions that create results while saving time and money.

What distinguishes us

Since 1999, Soiltec has been delivering geotechnical solutions using geocell technology and sees itself as an innovation leader and is recognized as an expert in the field of geocell applications – particularly in load support projects. In 2007 Soiltec GmbH was honored by the German “Land of Ideas” initiative where it received an award for its research in the developing of an analytical deflection software for geocells. Each application is backed by extensive research through partnerships with leading universities and engineering firms. Additionally projects are delivered with technical documentation giving predictors of performance, necessary for long term planning and quality control. Soiltec GmbH is a member of the DGGT, the FGSV and the IECA, International Erosion Control Association.

We offer you:

- **Free Preliminary Design**
- **Worldwide installation support**
- **Technical documentation**
- **Factory warranty (product liability)**
- **CE - certified products**
- **Worldwide dealer network**

Germany
Land of Ideas

Our five areas of application

The SoilWeb® system provides solution for each application:

SLOPE PROTECTION

CHANNEL PROTECTION

LOAD SUPPORT

RETAINING WALLS

ROOF GREENING

Erosion Control

Near-surface erosion protection on slopes, if necessary in combination with greening, or securing of fill/cover materials on sealed slopes (land-fills, rainwater retention basins, etc.)

Channel Protection

For the stabilization river banks areas and riverbeds, permanent or intermittent, water-bearing systems.

Load Support

Temporary or permanent load distribution layer for road construction, foundation pads, construction sites, parking areas, fire roads, etc.

Retaining Walls

Stacked Soilweb layers to create heavyweight walls or back-anchored constructions (reinforced earth), can be vegetated or non-vegetated.

Roof Greening

Soilweb® secures the roof substrate for an ecologically valuable roof greening system aplicable even on complex roof shapes.

Filling materials

Filling material options are as varied as there are applications. The interaction between fill materials and the different types of SoilWeb® geocells will results in the most effective project solutions depending on the application and technical requirements.

Course crushed stone

Sand

Recycled asphalt material

Gravel

Topsoil

Planting substrate

Bark / Mulch

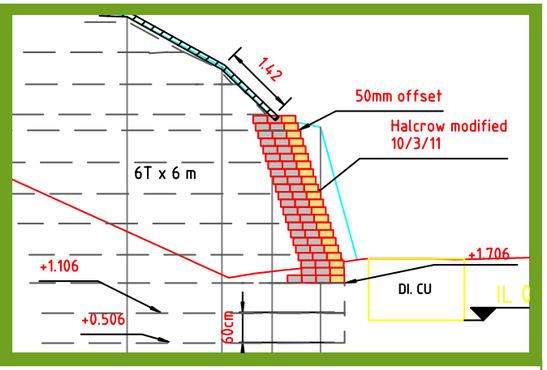
Concrete

	Course crushed stone, Recycled concrete (0/22 to 0/45)	Sand, Gravel sand, Frost protection layer	Recycled asphalt material (0/32 to 0/45)	Crushed stone/ Gravel (2/32 to 2/45)	Topsoil	Planting substrate	Bark / Mulch	Concrete
Load support	●	●	●					
Foundation pad	●	●						
Road construction	●	●	●					
Road shoulder	●							
Permeable roads / paths	●	●		●			●	
Erosion control				●	●	●	●	●
Roof greening					●	●		
Retaining wall	●	●						●
Hydraulic engineering				●	●			●
Tree root protection				●		●		
Drainage layers				●				

Spirit of innovation meets competence

Design & Innovation

We do not only talk about experience, we demonstrate it through the delivery of full designs, complete with static dimensioning for all applications. Depending on the application and requirements, we follow German (DIN), British (BS), European (EN) standards and the general guidelines of the EBGEO.



Project: The Cultural Village, Katara, Qatar
Customer: Presto Geosystems, Appleton/USA
Engineering office: Halcrow Ltd, Qatar
Mission: Calculation and execution statics according to Bristish Standard BS8006-1 for a geocell retaining wall up to 13m high and filled with local sand.

Project: Expansion of logistics area in the port of Invergordon, Scotland
Customer: GREENFIX UK Ltd, Evesham/England
Engineering office: Arch Henderson LLP, Aberdeen/Scotland
Mission: Settlement calculation and serviceability analysis in accordance with the standards DIN 4017, 4019, 4085 and EuroCode 7.1, including delivery of approx. 30,000 sqm of geocells.

Research & Development

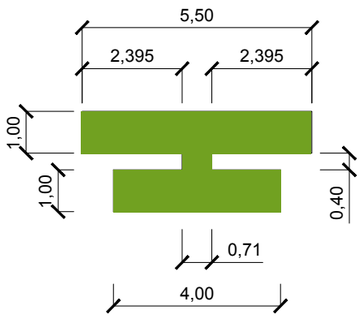
More than a dozen worldwide scientific publications are based on our research in cooperation with the Technical University of Clausthal. We are also the only company in the world to possess traffic route construction software that takes settlements of the entire structure in consideration according to the German standard DIN 4019 (serviceability analysis).

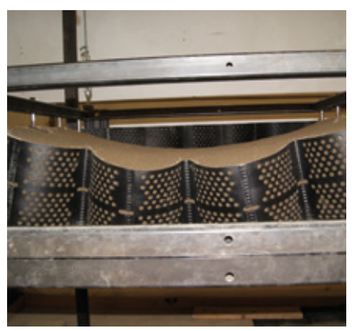
SOILTEC Geosystems has been a world leader in research & development with over 830 laboratory tests and over 680 on-site tests with geocells since 2004. Here, innovative product development along with new creative applications come together.

Over 4800 successful projects | Projects in over 50 countries around the world | Over 830 laboratory tests | Over 680 on-site tests

From our ideas workshop:

Development of a manual high tensile joint for geocells from 2007.





We advise engineers, surveyors, builders and construction companies worldwide

Our solutions are used in a wide variety of fields:

- Earthwork and foundation engineering
- Road construction / logistical infrastructure
- Oil and gas industry
- Rail Track construction
- Wind farms
- Gardening and landscaping
- Surface mining
- Hydraulic engineering and stormwater management
- Roof greening
- Airports and seaports

Project service

Our project service includes the preparation of project-related preliminary design on the basis of our specially developed programs for the various applications in accordance with German, European and American standards. In addition, we create AutoCad drawings and offer on-site service at your construction site through us or our distributors...worldwide!

Use our inquiry forms to get your geotechnical project started right.

Quality standards

SoilWeb® geocells are manufactured exclusively from HDPE in accordance with CE guidelines. This guarantees consistent product quality and reliable material properties.

Applications:
- Highway and railway construction
- Foundation stabilization
- Road shoulders
- Foundation pads
- Road construction
- Construction site and fire access roads
- Sea and airport construction
- logistics areas

Load Support with SoilWeb®

Due to their proven mechanical action and load transfer behavior, SoilWeb® geocells are particularly suitable for increasing the load-bearing capacity of low load capacity subsoils.

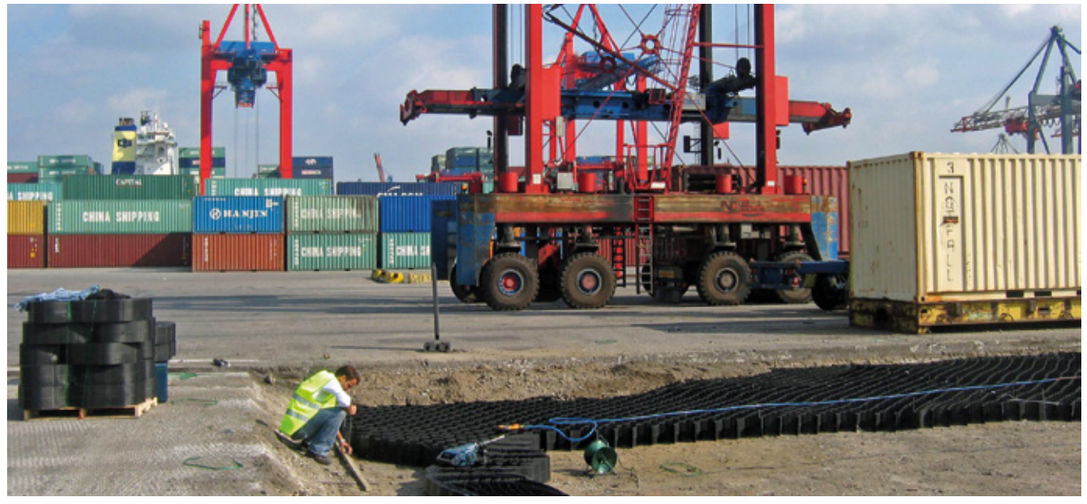
SoilWeb® Geocells Mechanism

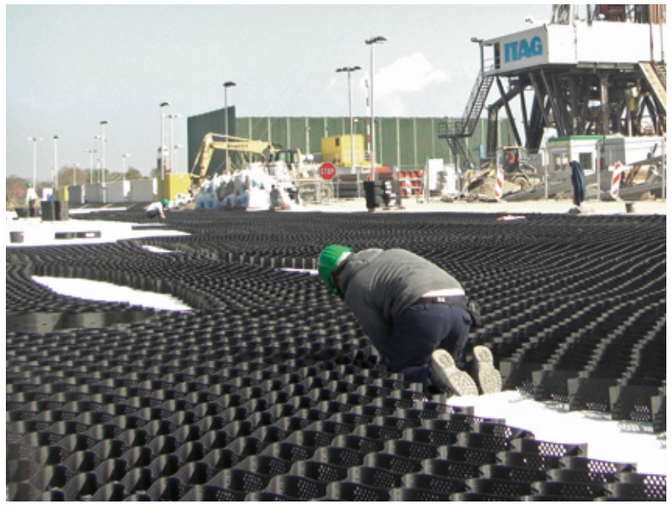
SoilWeb® geocells works by containing the fill material, restricting lateral expansion and increasing stiffness. SoilWeb® geocells allows the use of lower quality or reclaimed fill materials which many times are already available on site.

In combination with water-permeable, open-pored filling materials, surface stabilization with a low run-off coefficient or retention capacity can be produced. Additionally the system provides a larger load spreading angle underneath the SoilWeb® geocells which acts similarly to a rigid slab.

Proven SoilWeb® benefits from our research

- Significant increase in load-bearing capacity for substrates with low capacity
- Stabilizing load distribution layer with plate effect
- Surface stabilization (e.g. bankfill protection):
  - Increase of the shear resistances - Reduced rutting - Reduced maintenance
- Stress reductions of 35 % on substrates with low load-bearing capacity
- Demonstrable reduction of permanent deformations/settlements as a result of cyclic, mechanical load
- SoilWeb® geocells stabilized superstructures can be constructed with up to 70% less thickness
- Faster installation in all weather conditions compared to lime / cement stabilizers.



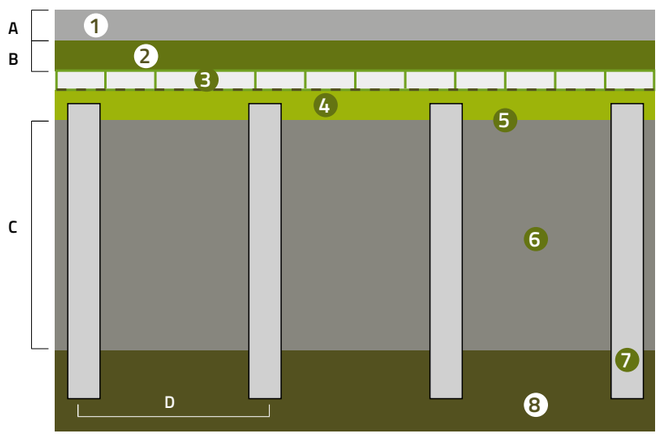


Advantages:
- Reduction of the overall height
- Load distribution up to 90% into the piles
- Stress reduction between the piles
- Larger pile spacing
- Construction time savings
- Use of sands instead of crushed stone

SoilWeb® Load Transfer Platforms (LTP)

Due to their mechanical properties (cf. plate effect), SoilWeb® geocells are particularly suitable as a load distribution layer above load-bearing elements such as piles. Compared to unstabilized systems, the use of SoilWeb® geocells allows a reduction of the superstructure thicknesses as well as a widening of the column grid resulting in time and cost savings.

A significant advantage in the use of SoilWeb® geocells as a load distribution layers lies in the ability to use low-cost bulk materials, e.g. sand.



1. Superstructure
2. Filling material
3. SoilWeb® geocells
4. Working level
5. Geotextile
6. Soft layer
7. Pile supports
8. Load bearing substrate

Advantages:
- Extremely fast installation
- Low maintenance
- Use of sands and lightweight construction materials
- Low installation height
- Air and water permeable
- Stable, heavy-duty surfaces

Water-permeable road construction with SoilWeb®

Perforated SoilWeb® geocells in coordinating with certain air and water permeable filling materials can produce ecologically oriented superstructures which also withstand high stresses.

Tree Root Protection

SoilWeb® geocells provides protection to the root zone of trees from compaction and mechanical stresses caused by traffic loads on access roads and parking lots through effective load distribution and stress reduction. Tests in Germany have proven that SoilWeb® geocells reduce compaction in the root zone and thus ensure a healthy tree root environment.

Access roads for wind farms

Our SoilWeb® geocells can be used to create cost-effective and resilient foundation pads for access roads and construction roads for wind farms. Very often, these access roads as well as heavy-duty assembly and logistics areas for wind farms can be erected in a very short time without major soil replacement using local fill materials and on subsoil with a low load-bearing capacity.

Applications:
- Gardening and landscaping
- Road and railway slopes
- Storage ponds
- Flood protection
- Ski runs and slope shoring
- Landfill construction
- Roof greening

SoilWeb® Erosion Control

The SoilWeb® geocell system in erosion control offers a wide range of solutions. On slopes, the filling material placed in the SoilWeb® geocells is protected against erosion and secured against sliding. No matter what the slope or length of the embankment, we have the right SoilWeb® geocell for your project.

Sustainable & long-term erosion control

The SoilWeb® geocell system can be vegetated or not and in combination with appropriate filling material, provides permanent, near-surface stabilization which protects against erosion, sliding and shearing.

Different approaches with SoilWeb® geocells in erosion control:

Vegetated slopes
SoilWeb® geocells filled with topsoil can be planted directly with plants and grasses on the slope. The combination of SoilWeb® geocells and our GREENFIX® erosion control mats represents an ecologically optimized construction method, which allows us to green even extremely steep slopes.

Covers with crushed stone or gravel
By using SoilWeb® geocells, more cost-effective bulk materials with a smaller grain diameter can be used.

Protection of sealing systems
Sealed slopes can be protected with SoilWeb® geocells. In this application, the SoilWeb® Geocells are suspended from the top of the slope without damaging the sealing.

SoilWeb® geocells and concrete
If concrete is chosen as the filling material for structural reasons, SoilWeb® geocells can be used as a permanent formwork.

Applications:

- Residential buildings
- Municipal buildings
- Bus stops
- Industrial buildings
- Exhibition halls
- Office building

SoilWeb® Roof Greening

When the standard is not enough

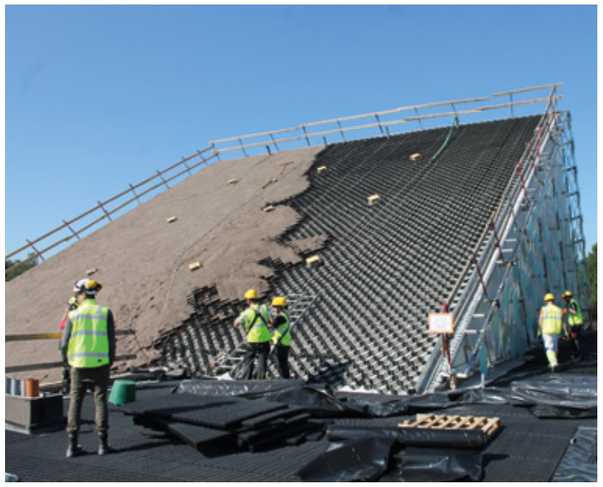
No matter what green technology challenge you are faced with, SOILTEC is capable of offering special solutions which meet even the most demanding roof constructions.

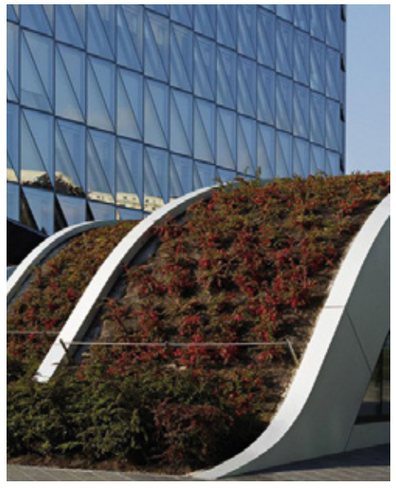
Particularly for more complex roof shapes (domed roofs, slopes and various inclinations), appropriate SoilWeb® solutions are designed with special accessories and fastening materials. Our SoilWeb® geocells adapt to the structure of the roof. The balanced perforations of the SoilWeb® geocell walls ensure an optimal water supply and rooting of the individual honeycombs. Depending on the orientation and slope of the roof, different SoilWeb® cell wall heights can be used so that the water and nutrient supply, which largely takes place via natural processes, is ensured and the need for maintenance is reduced to a minimum.

Take advantage of our years of green roofing experience. Our product portfolio does not end with securing the substrate on pitched roofs with our SoilWeb® geocells, but also includes the possible delivery of our SkyGarden sedum mats or US-patented roof garden cassettes.

A green roof from SOILTEC with SoilWeb® geocells - many advantages!

- Extension of the roof service life
- Improvement of air quality (filtering of fine dust and air pollutants)
- Improvement of insulation properties (heat/cold)
- Improvement of the micro and local climate
- Habitat for plants and insects
- Promotion of ecological drainage management (runoff reduction)
- Green design element (working and living environment)





Applications:

- Coastal and shore protection
- Dike construction (lowering/raising)
- Overflow areas
- Rainwater retention basin
- Flood protection
- Pond construction
- Renaturation and river engineering

SoilWeb® Channel Protection

SoilWeb® geocells can be used to stabilize and protect surface waters. In combination with different filling materials, even the highest flow velocities can be withstood.

Protection by vegetation

Replaces costly, higher maintenance rockfill-material with lower maintenance, lower cost stabilization by vegetation. Effective for channels with low flow velocities and intermittent water levels. With additional GREENFIX erosion control matting, the ecological SoilWeb® system can withstand flow velocities of up to 9 m/s. Ideal for drainage ditches, swales and retention basins.

Protection by broken filling material

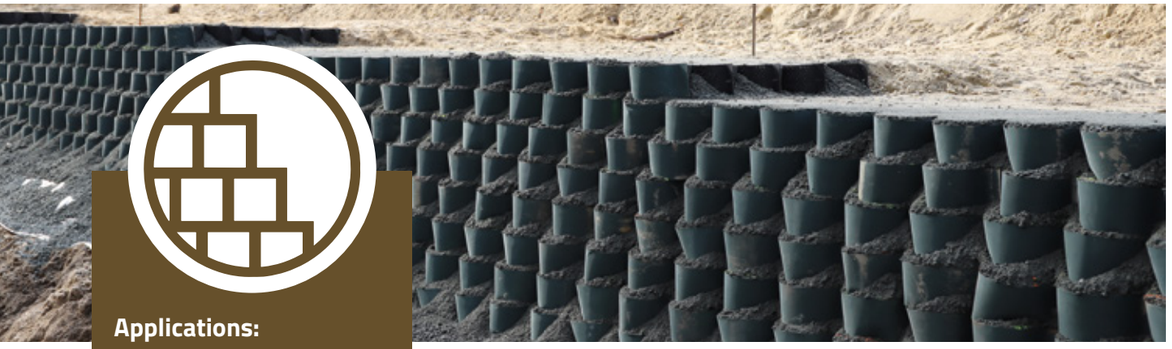
The SoilWeb® structure ensures good interlocking with broken fill materials. Therefore, instead of coarse, unwieldy rockfill material, less expensive, smaller sized fill material can be used for a variety flow rates.

Protection through concrete reinforcement

Concrete-filled SoilWeb® geocells are ideal for surface waters that are exposed to high hydraulic loads. Concrete is poured into the cells on site, creating a system that easy-to-install, flexible and resilient, that is less expensive than using pre-formed concrete elements.

Protection through supporting structures

Channels with layered, planted SoilWeb® geocells create natural living retaining walls that can withstand high flow velocities for short periods of time. They compensate for differential settlement rates in the substrate without losing structural integrity and are faster and easier to install than typical block systems.



Applications:

- Vegetated slopes
- Gravity walls
- Tied-back retaining walls
- Vegetated canal linings
- Terrain jumps
- Flood protection dams
- Noise barriers
- Avalanche protection systems

SoilWeb® Retaining Walls

With multilayer SoilWeb® geocells, heavyweight walls or tie-back structures can be constructed. In the case of tie-back construction, the SoilWeb® geocells are used as the final front element. These two constructions can usually be greened, depending on the structure / geometry.

Structural stability

Supporting structures with SoilWeb® geocells improve durability and structural stability. When in accordance with the static verification provided, constructions with SoilWeb® geocells can be built in areas with subsoils prone to settling as well as in areas with seismic activity.

Terraced, vegetated supporting structures

Depending on the geometry of the structure, vegetation can be planted directly into the SoilWeb® geocells due to their honeycomb shape. Thanks to the flexibility of the material and its ability to adapt to terrain, visually sophisticated and ecologically valuable constructions can be built.

Filling materials / practicability

By using SoilWeb® Geocells, low qualified filling materials can also be used (e.g. sand or material extracted on site). The lightweight SoilWeb® Geocell units are easy to install, especially in areas with a limited work space.

Building practice / application

Retaining wall elements can be constructed with inclinations up to 80° with the 20 cm high SoilWeb®. Depending on static requirements and construction, units with bond lengths of 0.54, 0.80, 1.07, 1.33 up to 1.60 m are used.
The units are pretensioned by means of mounting frames or mounting brackets (see also separate installation instructions).

SoilWeb® product information

SoilWeb® geocell units are available in various dimensions. Products are tailored to your project to meet the technical requirements, offering an economical and geotechnically sound solution. The cell size and height depend on the type of application, conditions on the construction site and the desired outcome. Please contact us or your local dealer for more information.

SoilWeb® units for traffic route construction, erosion control & hydraulic engineering

SoilWeb® Type	SW20P	SW30P	SW40P
Cell size	8.8 x 10.2 in	11.3 x 12.6 in	18.7 x 20.0 in
Cell area	44.8 in²	71.3 in²	187.0 in²
Perforation of the cell wall	20.9% ± 1.5%	16.8% ± 1.5%	19.8% ± 1.5%
Cells per yd²	28.9	18.2	6.9
Cell wall height	2 in, 3 in, 4 in, 6 in, 8 in and 12 in		
Cells per unit	10 x 34	8 x 34 *8 x 21	5 x 34 *5 x 21
Unit dimensions	25.4 x 8.5 ft	31.8 x 8.5 ft *19.7 x 8.5 ft	51.8 x 8.5 ft *32.5 x 8.5 ft
Unit area	24.0 yd²	30.0 yd² *18.5 yd²	49.0 yd² *30.5 yd²

*) 12 inch high SoilWeb® units are available in sizes SW30 and SW40.

SoilWeb® units for retaining wall constructions

SoilWeb® Type SW30P	Cells per unit	Unit dimensions
Cell size 11.3 x 12.6 in, height 8 in **front cell wall:** closed, colour: pine green, lateral connection openings Ø 0.4 in **back cell walls:** perforated 16.8% ± 1.5%, colour: black	2 x 8	1.9 x 8.5 ft
	3 x 8	2.8 x 8.5 ft
	4 x 8	3.8 x 8.5 ft
	5 x 8	4.7 x 8.5 ft

SoilWeb® units road shoulder applications

SoilWeb® Type SW20P	Cells per unit	Unit dimensions
Cell size 10.4 x 8.1 in, Cell wall height 6 in perforated 20.9% ± 1.5%, colour: black	3 x 34	2.0 x 29.5 ft
	5 x 34	3.3 x 29.5 ft

Product Accessories SoilWeb®

Our innovative finn™ series accessories not only allow you to install the SoilWeb® geocells quickly and cost-effectively but also guarantee a long-term geotechnical solution. The finn™ series accessories are designed to meet or exceed the properties of the SoilWeb® geocells and the use of them is integrated in all our projects.

finn™-Clip

finn™-Ray

One Click Solution

Designed for paving speed, productivity and overall economy, the new finn™-Key connects SoilWeb® geocells faster than ever with just one 'click'. With the finn™-Key, all four walls of the SoilWeb® units are assembled together, providing a more secure load transfer connection. The use of finn™-Keys guarantees a proven frictional connection of a minimum of 850 N, up to 1,700 N (DIN 13426-1-2003) per joint, depending on cell wall height.

finn™-Key Advantages:

- 3 x faster installation than with conventional methods
- No additional devices or electricity required - cost saving
- quick connection even on steep slopes
- requires only one worker to establish a connection
- extremely high tensile strength
- weather resistant, long service life

finn™-Key

Project Accessories SoilWeb®

We know that your project rarely stops with our SoilWeb® geocells. By combining our European made GREENFIX® erosion control blankets and our SkyGarden® roof greening systems you can get a complete geotechnical system solution from a single source.

SoilWeb® Geocells and GREENFIX® Erosion Control Blankets

SoilWeb® Geocells and SkyGarden® Green Roof Mats

SoilWeb®
Innovative Geocell Solutions. Since 1999.

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Your specialist dealer:

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