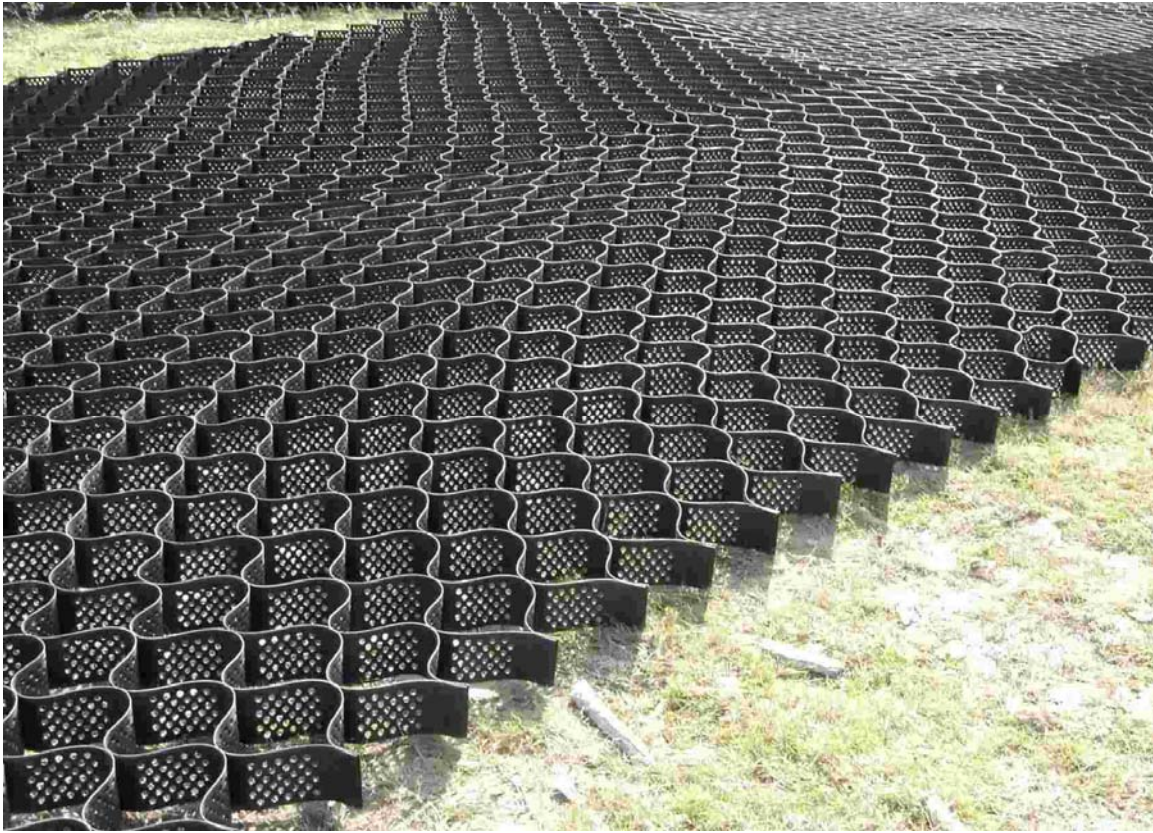


3D Structural Geocells



Description

3D Structural Geocells are designed for stabilising thick layers of soil on steep slopes, independent of the vegetation. The honeycomb structure is made from HDPE under an ISO9001 quality assurance program. The cell joints are ultrasonically spot-welded and seam strengths are the same across the entire height of the cell joint. The geocells are resistant to rotting and vertical deflection.

When installed, 3D Structural Geocells create a series of interconnected cells which confine unconsolidated materials within the cells and prevent their movement even from substantial dragging forces such as hydraulic currents. This reduces surface water run-off, prevents the formation of erosion channels and improves the structural and functional behaviour of soil and aggregate infill materials.

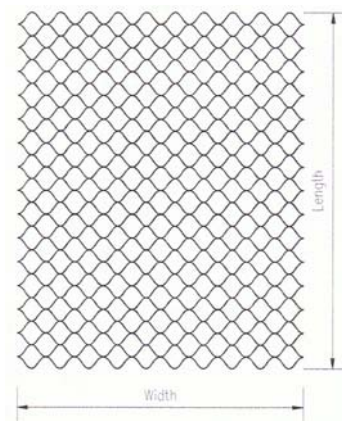
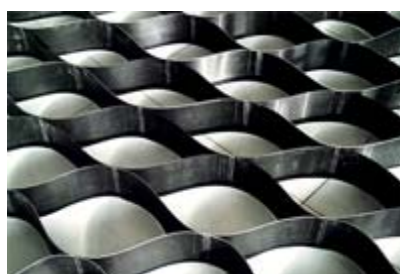
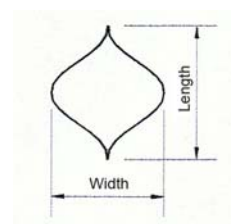
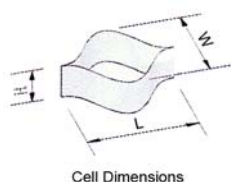
Applications: Flexible 3D Structural Geocells are easy to handle and install. They can be used:

- As an economical alternative retaining system to hard engineering solutions such as reinforced concrete or rock armour.
- To provide durable protection for impervious geomembranes.
- As the basis for establishing vegetation on sub-bases which do not generally allow the growth of vegetation such as very steep surfaces, slag heaps and rocky slopes.
- To protect slopes from the erosion of topsoil and channel embankments under low to moderate and intermittent flow conditions.
- As a competitive retaining system for reinforced soil walls.

Technical Data

Properties	Test Method	3DSG200	3GSG150	3GSG100
Raw Material		HDPE		
Density (g/cc)	ASTM D 1505	0.93-0.96		
Carbon Black Content (%)	ASTM D 1603	1.5 - 2.0		
Colour		Black		
Crack Resistance (hr)	ASTM D 1693	≥ 2000		
Wall Thickness (mm)	ASTM D 5199	1.3±0.05	1.3±0.05	1.3±0.05
Cell Height (mm)		200	150	100
Average Seam Peel Strength (N)	ASTM D5035	2850	2140	1450
Expanded Dimension (width x length) (m)		4 x 6		
Expanded Cell (width x length) (mm)		203 x 240 and 400 x 406		

** 3D Structural Geocells can be supplied with either solid or perforated walls.



Installation

3D Structural Geocells are supplied as collapsed, lightweight bundles that are easily transported and installed on site. The high tensile strength ensures that the whole system can tolerate the strains that occur from the installation stage and keep the surface secure over a long period of time.

- Any gullies must be filled and the surface level and well compacted.
- An anchor shelf 0.2m deep and 0.5m wide should be excavated along the top of the slope.
- The 3D Structural Geocell is pulled out laid at the top of the slope. The geocells follow the gradient of the slope without buckling or warping.
- Depending on the design requirements and application, high strength Polyester Tendons, Galvanized Industrial staples, Steel J pins and Earth Anchors are used to fix the Geocells to the substrate prior to filling.
- Infill materials include: topsoil with selected vegetation; granular fills such as sand/gravel/stone; and concrete. Geocells allow the use of on-site poor quality granular infills instead of costly imported material.

The rigidity of the HDPE walls prevents buckling during topsoil filling. Once the cells are filled to their maximum size, the structure becomes rigid and monolithic. Vegetating the site improves the efficiency of the Geocells.