HDPE Geocell

HDPE Geocell is a three-dimensional mesh cell structure formed by high-strength welding of reinforced HDPE sheet material. Generally made by ultrasonic needle welding. Due to engineering needs, some holes are drilled in the diaphragm. It is flexible and can be folded and folded during transportation, and can be opened and filled with earth, stone or concrete materials during use. It can be used as a cushion to increase the bearing capacity of the foundation. It can also be laid on slopes to form slope protection structures. It can also be used to build retaining structures.

Geocells are prefabricated, expanded, three-dimensionally reinforced cell confinement systems used to improve foundation conditions. It is widely used in roadbed, slope protection, bank protection, retaining wall and other projects. Mainly used with geotextiles. Lightweight and foldable for easy transportation.
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[High-strength Integrally Welded Geocell]

HDPE Geocell belongs to special geosynthetics. It is used to reinforce the roadbed of the highway, slope protection, construction of retaining walls, etc. Its greater feature is that it can complete a variety of difficult problems that are difficult to deal with by conventional methods in rock engineering, such as bridge jumping, soft base subsidence, overturning, landslide and so on. With light material, wear-resistant, ageing-resistant, chemical corrosion-resistant, wide range of applicable temperatures, high tensile strength, rigidity, toughness, impact resistance, relative stability of size, easy to transport and so on.

HDPE Geocell Features:

- Light material, resistant to wear, stable in chemical properties, anti-aging, resistant to acids and alkalis applicable to different soil and desert and other geological conditions.
- THigh limit on lateral direction, anti-skidding, anti-deformation, effectively enhance the supporting ability and scattered load function of roadbed.
- High carrying capacity and good dynamic performance and high erosion ability.
- The geometry size can be changed to meet different needs of the project, such as height and welding distance.
- Retractable and small loading volume, convenient joint, speed construction.
- Local material can be used during construction, reduce the construction cost, easy to be transported after folding together.

Mobile: +86 15515596408 (WhatsApp/ Wechat/ Viber) Email: miki@glgeosynthetics.com Web: www.glgeosynthetics.com
Add: No. 69 Huanghe East Road, Yanggu County, Liaocheng City, Shandong Province, China 252000

APPLICATION

HDPE Geocell is widely used in the reinforcement of soft ground foundation, steep slope protection, and foundation reinforcement works for highway, railway, airport, wharf, etc. It is especially suitable for weathered mountain forests, deserts and swamps.

SPECIFICATIONS OF HDPE GEOCELL

Material Properties	unit					Tested Method
Cell Depth	mm	75	100	150	200	
Polymer Density	g/cm3	0.935-0.965				ASTM D 1505
Enviroment Stress Crack Resistance	Hours	>400				ASTM D 5397
Enviroment Stress Crack Resistance	Hours	6000				ASTM D 1693
Carbon Black Content	%	1.5%-2.0%				ASTM D 1603
Nominal Sheet Thickness Before Texturing	mm	1.27-5%,+10%				ASTM D 5199
Nominal Sheet Thickness After Texturing	mm	1.27-5%,+10%				ASTM D 5199
Strip Puncture Resistance	N	450				ASTM D 4833
Seam Peel Strength	N	1065	1420	2130	2840	EN ISO 13426-1B
Seam Efficiency	%	GRI100				GRI-GS13
Norminal Expanded Cell Size(width x length)	mm	320x287,475x508 etc				
Norminal Expanded Panel Size(width x length	M	2.56x8.35, 4.5x5.0, 6.5x4.5, 6.1x2.44				

SPECIFICATIONS OF HDPE GEOCELL

Product Type	Height (mm)	Welding Distance (mm)	Thickness(mm)	Tensile Strength of Welding Points (N/cm)	Tensile Strength of Connection of Cells (N/cm)	Tensile Strength at Yield of Each Sheet (MPa)
Smooth and Not Perforated	50≤H≤300	300≤A≤1000	1.0—1.5	≥100	≥120	≥20
Smooth and Perforated	50≤H≤300	300≤A≤1000	1.0—1.5	≥100	≥120	≥20
Textured and Not Perforated	50≤H≤300	300≤A≤1000	1.3—1.5	≥100	≥120	≥20
Textured and Perforated	50≤H≤300	300≤A≤1000	1.3—1.5	≥100	≥120	≥20

Remarks:

1. This is a basic technical specification.

2. All of the technical indexes can be reached according to the customers'demand, and the other special standards will be carried out by agreement or contact.

GEOCELL MESH SIZE AND UNFOLDED AREA CALCULATION

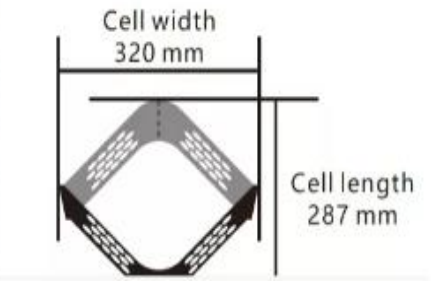
Geogrid Model	Sheet material Height(mm)	Weld spacing(mm)	Sheet thickness(mm)		Peeling strength ≥(N)	Expanded panel size (mm)	Section expanded panel size
			Smooth surface	Perforated			
TGLG-50-330	50	330	1.1	1.5	500	244X203	2.44X6.15
TGLG-75-330	75				750	244X203	2.44X6.15
TGLG-100-330	100				1000	244X203	2.44X6.15
TGLG-150-330	150				1500	244X203	2.44X6.15
TGLG-200-330	200				2000	244X203	2.44X6.15
TGLG-100-356	100	356	1.1	1.5	1000	259X224	2.56X6.52
TGLG-100-400	100	400	1.1	1.5	1000	295X250	4X5 5x6
TGLG-100-445	100	445	1.1	1.5	1000	320X287	2.56X8.35
TGLG-100-500	100	500	1.1	1.5	1000	370X310	3.7X6.2
TGLG-100-660	100	660	1.1	1.5	1000	488X406	2.44X12.24
TGLG-100-712	100	712	1.1	1.5	1000	508X475	2.56X13.72
TGLG-100-800	100	800	1.1	1.5	1000	590X500	4X10

DETAILS OF HDPE GEOCELL

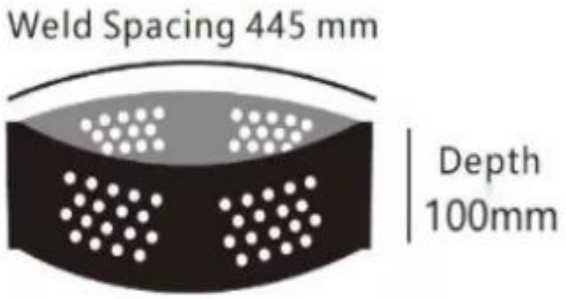
Geogrid 100-445（Hight:100mm weld spacing:445mm）diagrammatic sketch

Seam peel strength

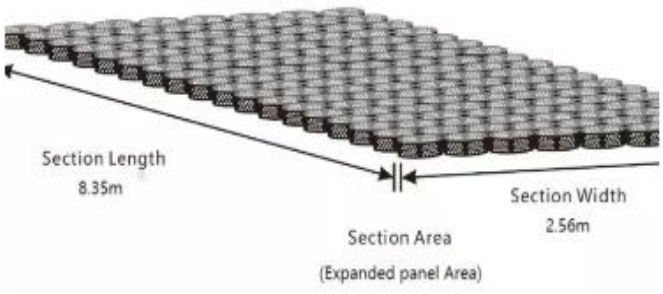
Sheet thickness



Cell size



Weld spacing



Expanded panel size

APPLICATION SCENARIOS OF HDPE GEOCEL

[Stabilize river embankments in Morocco]

[Road support in Senegal]

HDPE GEOCELL CONSTRUCTION

Construction method of HIGH-STRENGTH INTEGRALLY WELDED GEOCEL:

• Level the slope and remove some debris that is not conducive to the laying of the cells to keep the slope smooth.

• The two adjacent vertical joints should not be on a horizontal line, and it should be staggered by more than 1m.

• The cells should be laid from top to bottom in the main direction of stress, so that the cell sheets are perpendicular to the highway subgrade.

• First slope and backcourt.

• Fully open the compartment assembly and drive a hook-shaped rivet stake into eachcompartment at the top.

• After the grid is stretched, fill the grid space from top to bottom with high-quality soil suitable for planting turf or grass seeds.

• When used on the lower slope of a highway, drainage ditches should be set up to prevent accumulated water from directly eroding the slope protection..

• After the construction is completed, re-inspection should be done.

• David weather and wind force affect the construction of the geomembrane, the HDPE geomembrane to be welded and the sandbags are applied.

• In slope repair projects, high-strength integrally welded geocells are used to reinforce soil and plant grass and greening.
• In highway construction, high-strength integrally welded geocells are used for soft soil foundation treatment.
• In railway construction, high-strength integrally welded geocells are used for high-fill soil treatment.
• In the bridge abutment reinforcement project, high-strength integrally welded geocells are used to improve the shear resistance of the bridge abutment.
• In the flood control cofferdam construction project, high-strength integrally welded geocells are used to improve the erosion resistance of the cofferdam.