Uniaxially Stretched PP Geogrid

Uniaxially Stretched PP Geogrid is made of high molecular polymer, which is plasticized and extruded into sheets, punched, heated and then stretched longitudinally. It is laid in the soil, and through the interlocking and interlocking effects between the grid mesh and the soil, an efficient stress transmission mechanism is formed, so that the local load can be quickly and effectively spread to a large area of soil. This reduces local damage stress and improves the service life of the project.

This structure has a relatively high tensile strength and modulus, reaching 100-200Mpa in tensile strength, which is close to the level of low-carbon steel and greatly superior to traditional or existing reinforced materials. It has a high early tensile strength and modulus (with an elongation of 2-5%) that exceeds international standards.

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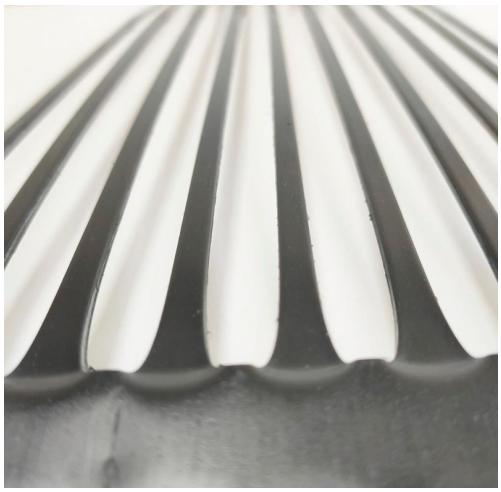
Uniaxially Stretched PPGeogrid

Uniaxially stretched HDPE geogrid is a kind of high-strength geogrid, which is mainly made of high molecular polymer, added with certain anti ultraviolet and anti-aging additives, re oriented and arranged in a linear state through uniaxial stretching, extruded and pressed into thin plates, punched into regular pore networks, and then stretched longitudinally.In this process, the polymer is oriented in a linear state and forms a uniformly distributed, high node strength, long elliptical network overall structure.



Uniaxially Stretched PP Geogrid Features:

- Uniaxially Stretched PP Geogrid has extremely high tensile strength and tensile modulus;
- Polyethylene unidirectional geogrid has excellent creep strength and durability, is not eroded by harmful substances and microorganisms in the soil, and has a lifespan of up to 120 years when covered with vegetation or soil;
- Reinforce the roadbed, which can effectively distribute the diffuse load, improve the stability and bearing capacity of the roadbed, and extend the service life;
- Save investment and shorten the construction period;
- Construction is simple and fast, reducing construction costs.

APPLICATION

Uniaxial Stretched PP Geogrid is mainly applied in highway, railway, slope protecting projects, retaining wall, dam to strengthen land loading capacity and extend its service life. Features in reducing area, project cost and maintainance cost, convenient to construct.

1.It is used to reinforced asphalt or cement pavement: it can reduce rut depth and asphalt or cement pavement thickness to save cost.

2.It is used to reinforcing River seawall: it can be made into gabion, and then used together with grid to prevent the dam from collapse caused by sea water erosion.

SPECIFICATIONS OF UNIAXIALLY STRETCHED PP GEOGRID

Uniaxial PP Geogrid:GB/T 17689-2008												
Specification	Unit	TGDG 25	TGDG 35	TGDG 50	TGDG 80	TGDG 110	TGDG 120	TGDG 160	TGDG 200	TGDG 220	TGDG 260	TGDG 300
Polymer		PP										
Carbon Black	%	2										
Tenslle strength	kN/m	25	35	50	80	440	120	160	200	220	260	300
Elongation	%	11.5										
Tensile strength at 2%strain	kN/m	7	10	12	26	32	36	45	56	80.0	94	120
Tensile strength at 5%strain	kN/m	14	22	28	48	64	72	90.0	112	156	185	220
Width	m	1 or 1.1 or 2.5 or 3										

SPECIFICATIONS OF UNIAXIALLY STRETCHED PP GEOGRID

Uniaxial PP Geogrid:ASTM												
Property	Test Method	TGDG 35	TGDG 50	TGDG 80	TGDG 100	TGDG 110	TGDG 120	TGDG 150	TGDG 170	TGDG 200	TGDG 220	TGDG 240	TGDG 300
Ultimate tensile strength(KN/m)	ASTM D 6637	35	50	80	100	110	120	150	170	200	220	240	300
Ultimate tensile strength(%)		10											
Tensile strength @ 2% elongation(KN/m)		9	10	23	29	30	35	39	45	55	59	65	90
Tensile strength @ 5% elongation(KN/m)		18	25	44	55	58	65	77	90	110	120	132	182
Creep Limit Strength(KN/m)		15	21	30	39	40	46	49	57	64	71.5	79	100
Minimum Carbon Black	ASTM D 4218	2											

PROJECTS CASE OF UNIAXIALLY STRETCHED PP GEOGRID

[Dam reinforcement in Australia]

[Highway reiforcement in Egypt]

UNIAXIALLY STRETCHED PP GEOGRID CONSTRUCTION

Construction method of Uniaxially Stretched PP Geogrid

• The paving surface of the geogrid should be relatively flat. After the paving layer has passed the acceptance inspection, in order to prevent longitudinal skew, first draw a white line or a hanging line on the paving layer according to the width, and then the paving can begin. Fix the ends of the grille with iron nails (8 nails per meter wide, fixed at even distances).

• After fixing the ends of the grille, use a paving machine to slowly pull the grille forward. Manually tighten and straighten it every 10 meters until one roll of grille is laid, and then lay the next roll. Volume, the operation is the same as before.

• After paving one roll, use a 6T-10T roller to roll it from the starting point in the forward direction. (If it is paved on the mid-surface layer and leveling layer, it is better to use a steel roller roller; if the grid is laid directly on the concrete pavement, it is better to use a rubber roller roller.).

• Joint paving: The unit of roll length is used as the paving section length. After the section length that should be paved with grating is covered, the overall paving quality is checked again, and then the next section is paved.

• When paving the next section, the grid and grating can be overlapped with a length of 10-15cm and fixed with iron nails or wooden wedges before continuing to pave the second section in the forward direction. By analogy, the operation requirements are the same as before.

• Used to reinforce weak foundation: Geogrid can quickly increase the bearing capacity of the foundation and control the development of settlement.
• Uniaxially Stretched HDPE Geogrid is used to reinforce asphalt or cement pavement.
• Used to reinforce embankments, slopes and retaining walls: Using geogrids to reinforce the embankment slope or retaining wall can reduce the area occupied by half and extend the service life, reduce the cost by 20-50%.
• Used to strengthen river and sea embankments: it can be made into gabions and used together with gratings to prevent the embankments from being washed away by sea water and causing collapse. Gabions are permeable and can slow down the impact of waves, extend the life of embankments, save manpower and material resources, and shorten the construction period.
• Used to treat landfills: Geogrids are used in combination with other soil synthetic materials to treat landfills, which can effectively solve problems such as uneven settlement of foundations and derived gas emissions, and can maximize the storage of landfills.
• Special purpose of unidirectional geogrid: low temperature resistance. Adapt to -45℃---50℃ environment. Suitable for less frozen soil in the north.