

TERRE ARMEE



ArmaGrid – UX_{PET}

COATED POLYESTER UNIAXIAL GEOGRIDS

ArmaGrid – UX_{PET}

ArmaGrid – UX_{PET} is a knitted polyester Geogrid providing tensile reinforcement capacity in one direction. ArmaGrid – UX_{PET} is best suited for demanding soil reinforcement applications.

Applications

- **Steep Slopes:** Used as soil reinforcement for reinforced soil steep slopes and embankments.
- **Basal Reinforcement:** ArmaGrid – UX_{PET} improves the stability of soft sub-soils by interacting with engineered fill and providing a strong mattress foundation for embankments and platforms.
- **Foundation Improvement:** ArmaGrid – UX_{PET} is used to support shallow structural foundations, by improving stability, enhancing load distribution and reducing differential settlement.

Technical Parameters

Properties	Test Method	Units	AG-UX _{PET} 40	AG-UX _{PET} 60	AG-UX _{PET} 80	AG-UX _{PET} 100	AG-UX _{PET} 120	AG-UX _{PET} 150	AG-UX _{PET} 180	AG-UX _{PET} 200	AG-UX _{PET} 250	AG-UX _{PET} 300	
Minimum Average Roll Value (MARV)ⁱ													
Physical Properties													
Material			Polyester										
Mechanical Properties													
Ultimate Tensile Strength in Machine Direction	ASTM D 6637B	kN/m	40	60	80	100	120	150	180	200	250	300	
Ultimate Tensile Strength in Cross Machine Direction		kN/m	20	20	30	30	30	30	30	30	30	30	
Elongation at Designated Strength (±2%)		%	10	10	10	10	10	10	10	10	11	11	11
Tensile Strength at 5% Strain (±5%)			20	30	40	50	60	75	81	90	100	120	
Creep Reduction Factor (114 Years Design Life)	ASTM D 6637A	at 20°C	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	
		at 30°C	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	
Partial Factor - Installation Damage	ASTM D 5818	Particle size < 10mm (Silty Sand)	1.10	1.10	1.02	1.02	1.02	1.06	1.06	1.06	1.06	1.06	
		Particle size < 19mm (Gravely Sand)	1.12	1.12	1.06	1.06	1.04	1.10	1.10	1.10	1.10	1.10	
		Particle size < 75mm (Sandy Gravel)	1.19	1.19	1.16	1.16	1.11	1.11	1.11	1.11	1.11	1.11	
Partial Factor - Environmental Effects	GRI-GG7, GRI-GG8 Environment	4 < pH < 9	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
Standard Packaging													
Roll Width ⁱⁱ		m	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	
Roll Length ⁱⁱ		m	100	100	100	100	100	100	100	100	100	100	
Roll Area ⁱⁱ		m ²	380	380	380	380	380	380	380	380	380	380	
Weight Per Roll ⁱⁱⁱ		kg	90.5	112.9	138.4	157.8	182.1	199.2	232.6	246.7	287	315	

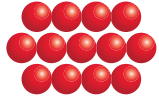
ⁱ All the values mentioned are of minimum average roll values (MARV).

ⁱⁱ These values are subject to ±1% variation

ⁱⁱⁱ Other roll sizes available

NOTES

- All prescribed values are minimum unless otherwise mentioned and tested in GAI-LAP accredited laboratories.
- These properties may change at the time of handling, storage and shipping.
- Roll weights are average values including shipping cores. Actual roll weight may vary.
- Customized rolls with varying lengths or master rolls can be manufactured.
- The above values are subject to change as per discretion of the company.



TERRE ARmee



Basal Reinforcement



ArmaGrid – BX_{PET}

COATED POLYESTER BIAxIAL GEOGRIDS

Sub-grade Stabilisation



ArmaGrid – BX_{PET}

ArmaGrid – BX_{PET} is a high strength and low strain biaxial knitted geogrid manufactured with high tenacity polyester yarns.

Applications

- **Subgrade and Subbase Stabilisation:** Improvement of sub-grade and sub-base performance in roads, railways and airport runways, taxiways and aprons by incorporating the ArmaGrid – BX_{PET} within appropriate interlayers.

Technical Parameters

Properties		Test Methods	Units	AG-BX _{PET} 30	AG-BX _{PET} 40	AG-BX _{PET} 60	AG-BX _{PET} 80	AG-BX _{PET} 100
Physical Properties								
Material				Polyester				
Aperture Size in MD ^{iv}			mm	24	24	17	20	30
Aperture Size in CD ^{iv}			mm	23	21	21	20	30
Mechanical Properties								
Nominal Tensile Strength MD ^{iv}		ASTM D 6637	kN/m	30	40	60	80	100
Nominal Tensile Strength CD ^{iv}			kN/m	30	40	60	80	100
Partial Reduction Factor - Creep ^{iv}	±2%	ASTM D 6637		1.41	1.41	1.41	1.41	1.41
Partial Reduction Factor - Installation Damage		ASTM D 5818	Particle size D _{max} < 5mm (Silty Sand)	1.10	1.10	1.10	1.02	1.02
			Particle size D _{max} < 35mm (Gravelly Sand)	1.12	1.12	1.12	1.06	1.06
			Particle size D _{max} < 75mm (Sandy Gravel)	1.19	1.19	1.19	1.16	1.16
Partial Reduction Factor - Environmental Effects ^v			4 < pH < 9	1.11	1.11	1.11	1.11	1.11
Standard Packagingⁱⁱ								
Roll Dimensions (width) ⁱⁱ			m	3.8/5.0	3.8/5.0	3.8/5.0	3.8/5.0	3.8/5.0
Roll Dimensions (length) ⁱⁱ			m	100	100	100	100	100
Roll Area ⁱⁱⁱ			m ²	380/500	380/500	380/500	380/500	380/500
Weight per Roll ⁱⁱ			kg	104/137	98/128	130/171	231/304	245/323

- Tolerance ±1mm
- These values are indicative and subject to variations.
- Other roll sizes available
- MD- Machine Direction, CD- Cross Machine Direction
- The creep and durability reduction factor given is applicable for 20°C temperature and 114 years. Reduction factors for other temperatures are available upon request.

NOTES

- All prescribed values are minimum unless otherwise mentioned and tested in GAI-LAP accredited laboratories.
- Roll weights are average values including shipping cores. Actual roll weight may vary.
- Customized rolls with varying lengths or master rolls can be manufactured.
- The above values are subject to change as per discretion of the company.

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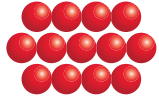
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September, 2021



TERRE ARmee



Embankment on Soft Soil



ArmaGrid – UX_{PP}

INTEGRAL POLYPROPYLENE
UNIAXIAL GEOGRIDS

Temporary Reinforced Slope

ArmaGrid – UX_{pp}

Uniaxial PP ArmaGrid is made of polypropylene, by the process of stretching of high quality punched sheet in one direction under strictly controlled conditions. ArmaGrid – UX_{pp} has consistent high performance properties including high tensile strength up to 300KN/m and high modulus, ageing resistance, chemical and biological durability. These products are used where high strength is required for a relatively short period, for example during the consolidation of embankment foundations.

Applications

- **Foundation Treatment:** ArmaGrid – UX_{pp} with their high tensile strength and optimum interlock characteristics, combined with compacted granular fill, with its high compressive strength, provide an integrated load-bearing platform on soft ground.

- **Embankment on Soft Soil:** Often considerable consolidation takes place in the soft soil before it develops adequate bearing capacity during the construction of high embankments. The conventional process is to build the embankment in stages so that the embankment height is only increased as the ground develops sufficient strength to support the embankment, without risk of global stability failures. Under these conditions, construction time can be significantly shortened by using High Strength Uniaxial PP TA Grids to reinforce the base of the embankment. ArmaGrid – UX_{pp} are useful for strengthening of soft soil for dam construction, land reclamation project and alike.

- **Temporary Reinforced Slope:** ArmaGrid – UX_{pp} can be used to build reinforced steep slopes required for relatively short service life periods (typically, less than 5 years), in which the long term design strength of soil reinforcement is ignored in design. Such applications are necessary for construction of temporary elevated diversions, protective bunds, steep slopes and overpass embankments and for short term construction needs like for flyovers, interchanges, bridging and underpass solutions where space constraints and site encumbrances prevent permanent works at early construction stages.

Technical Parameters

Properties	Test Method	Unit	AG-UX _{pp} 120B	AG-UX _{pp} 160B	AG-UX _{pp} 200B	AG-UX _{pp} 260B	AG-UX _{pp} 300B
Physical Properties							
Material			Polypropylene				
Atd ⁱ		mm	19	19	19	19	19
Bw ⁱ		mm	19	19	19	19	19
Sw ⁱ		mm	5.5	5.5	5.5	5.5	5.5
Tb ⁱ		mm	4	5	6.2	6.8	6.9
Tr ⁱ		mm	1.4	1.7	2.1	2.6	2.8
Pnom ⁱ		mm	450	450	450	450	450
Mechanical Properties							
			Minimum Average Roll Value (MARV)ⁱⁱ				
Ultimate Tensile Strength	ASTM D6637 B	kN/m	120	160	200	260	300
Tensile Strength 2% Strain ^{iv}	ASTM D6637 B	kN/m	45	60	80	100	110
Tensile Strength 5% Strain	ASTM D6637 B	kN/m	90	120	150	200	220
Typical Stain at Peak Load		%	8	8	8	8	8
Standard Packaging							
Roll Width ^v		m	3	3	3	3	3
Roll Length ^v		m	50	50	50	50	50
Standard Roll Area ⁱⁱⁱ		m ²	150	150	150	150	150

ⁱ Refer to figure 1

ⁱⁱ Values shown are minimum average roll values

ⁱⁱⁱ Other roll option available

^{iv} At 2% strain under 3600 radial loading. Determined from tests in accordance with ISO 10319.

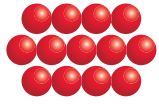
^v These values are subject to ±1% variation



Figure 1

NOTES

- These properties may change at the time of handling, storage and shipping.
- Other grades and polyester material also available as per requirement
- The values can be customized.
- The above values are subject to change as per discretion of the company
- All Strength and Load figures are based on test results from the manufacturer's laboratory in accordance with ISO 10319 at the temperature of 21±1°C and calculated as a lower 95% Confidence limit in accordance with ISO 2602.
- Carbon Black content ≥ 0.5%.
- Measured by comparing the results of tests in accordance with test methods GRI/GG2 and GRI/GG1.



TERRE ARmee



Sub-grade Stabilisation



ArmaGrid – BX_{pp}

INTEGRAL POLYPROPYLENE
BIAXIAL GEOGRIDS

Track Bed Stabilisation

ArmaGrid – BX_{pp}

ArmaGrid – BX_{pp} is a biaxial geogrid made from polypropylene by accurate punching, and then stretching in two directions under strictly controlled conditions with a continuous orientation through the nodes. ArmaGrid – BX_{pp} is inert to chemicals, including acids, alkalis and salts, normally found in soils. ArmaGrid – BX_{pp} does not suffer any attack by microorganisms in soil.

Applications

- **Railways:** Enhancing the ballast performance in railways and stabilisation of track foundation layers with reduced ballast degradation and settlement.
- **Roadways:** Subbase and sub-grade improvement by reinforcement and stabilisation; and increase in durability of flexible pavement and unpaved roads.
- **Airport Runways and Taxiways:** Subbase and sub-grade improvement for the runway and taxiway pavements of airfield.
- **Ports:** Sub-grade reinforcement and load distribution for container yards, under warehouse or similar load carrying platforms.

Technical Parameters

Properties		Test Method	Unit	AG-BX _{pp} 1616	AG-BX _{pp} 2020	AG-BX _{pp} 3030	AG-BX _{pp} 4040	AG-BX _{pp} 2020L	AG-BX _{pp} 3030L	AG-BX _{pp} 4040L
Physical Propertiesⁱ										
Material				Polypropylene						
Pitch Size	Pmd ^{vi}		mm	40	40	40	38	66	66	61
Pitch Size	Ptd ^{vi}		mm	40	40	40	38	66	66	61
Rib Width	Wmd ^{vi}		mm	2.3	2.3	2.4	2.6	4.4	4.4	4.7
Rib Width	Wtd ^{vi}		mm	3.1	3.1	3.7	4.5	5.5	5.6	6.1
Rib Depth	Tmd ^{vi}		mm	1.2	1.3	2.4	2.8	1.4	2	2.8
Rib Depth	Ttd ^{vi}		mm	0.6	0.7	1	1	0.7	0.9	1.1
Tj ^{vi}		-	mm	1.7	2.1	2.5	3.5	3	3.6	4.5
Mechanical Properties										
Minimum Average Roll Value (MARV)ⁱⁱ										
Ultimate Tensile Strength	MD ^v	ASTM D6637 B	kN/m	16	20	30	40	20	30	40
	CD ^v	ASTM D6637 B	kN/m	16	20	30	40	20	30	40
Maximum Elongation (±6)	MD ^v	ASTM D6637 B	%	15	15	15	15	15	15	15
Maximum Elongation (±3)	CD ^v	ASTM D6637 B	%	10	10	10	10	10	10	10
Tensile Strength @ 2% Strain	MD ^v	ASTM D6637 B	kN/m	5.6	7	11	14	7	11	14
	CD ^v	ASTM D6637 B	kN/m	5.6	7.4	11	14	7.4	11	14
Tensile Strength @ 5% Strain	MD ^v	ASTM D6637 B	kN/m	11.2	14	21	28	14	21	28
	CD ^v	ASTM D6637 B	kN/m	11.2	14.6	21	28	14.6	21	28
Junction Efficiency		ASTM D7737/D6637	%	95%	95%	95%	95%	95%	95%	95%
Radial Stiffness ^v		ASTM D6637	kN/m	280	350	550	700	350	550	700
Standard Packaging										
Roll Width ^{viii}			m	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Roll Length ^{viii}			m	100	51.3	51.3	30.8	51.3	51.3	30.8
Standard Roll Area ⁱⁱⁱ			m ²	390	200	200	120	200	200	120

ⁱ All the values are Nominal values
ⁱⁱ Values shown are minimum average roll values determinate in accordance with ASTM D4759.
ⁱⁱⁱ Other weight option available
^{iv} At 2% strain under 360° radial loading. Determined from tests in accordance with ISO10319.
^v MD= Machine Direction, CD= Cross Machine Direction
^{vi} Refer to figure 1
^{vii} These values are subject to ±1% variation

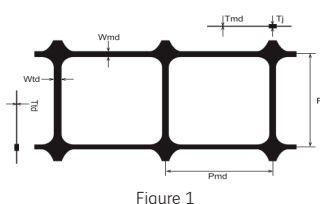


Figure 1

- NOTES**
- A. These properties may change at the time of handling, storage and shipping.
 - B. The values can be customized.
 - C. The above values are subject to change as per discretion of the company
 - D. All mechanical properties are based on the manufacturer's laboratory test results at 21±1°C.
 - E. Carbon black content ≥ 2%
 - F. ASTM D7737 performed at 10% per minute strain rate.
 - G. Expressed as a comparison of ASTM D7737 strength to ASTM D6637 strength of the same sample.
 - H. Using specimens 2 ribs wide with ribs transverse to the specimen cut flush with the exterior edges of the ribs in the direction of the specimen.

Local Contact:

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