ARMORMAX

SOFT ARMOR VEGATATIVE SYSTEM

TITAN
BUILD YOUR LEGEND

ARMORMAX® Engineered Earth Armoring Solution is the most advanced flexible armoring technology available for severe erosion and surficial slope stability challenges. The ARMORMAX® erosion control system can be used in applications where additional factors of safety are required, including protecting earthen levees from storm surge and wave overtopping, and stream, river and canal banks from scour and erosion. In addition, this system is ideally suited to protect storm water channels in arid and semi-arid environments where vegetation densities of less than 30% coverage are anticipated. For slope stability applications, the system can be further engineered to provide surficial slope stabilization to resist shallow plane failures. Consisting of PYRAMAT® woven three-dimensional High Performance Turf Reinforcement Mat (HPTRM) with X3® fiber technology and Engineered Earth Anchors (EEAs), you can count on the ARMORMAX® system to hold its ground.

TESTED PROPERTY	TEST METHOD	UNIT ENGLISH (METRIC)	VALUE ENGLISH (METRIC)
ORIGIN OF MATERIALS			
% US Manufactured		%	100
ENVIRONMENTAL IMPACT			
Carbon Footprint	GHG Protocol ISO 14064:2006 PAS2050:2011	kg CO_2e/m^2 (lbs CO_2e/ft^2)	2.7 (0.55)
PHYSICAL			
Mass/Unit Area[4]	ASTM D 6566	oz/yd^2 (g/m^2)	14.0 (475)
Thickness [2]	ASTM D 6525	in (mm)	0.40 (10.2)
Light Penetration (% Passing) [3]	ASTM D 6527	%	10
Color	Visual	Green or Tan	
MECHANICAL			
Tensile Strength [2]	ASTM D 6818	lbs/ft (kN/m)	4000 x 3000 (58.4 x 43.8)
Resiliency [2]	ASTM D 6524	%	80
Elongation [2]	ASTM D 6818	%	40 x 35
Flexibility [4]	ASTM D 6575	in-lb (mg-cm)	0.534 (616,154)
ENDURANCE			
UV Resistance % Retained @ 3,000hrs [4]	ASTM D 4355	%	90
UV Resistance % Retained @ 6,000hrs [4]	ASTM D 4355	%	90
UV Resistance % Retained @ 10,000hrs [4]	ASTM D 4355	%	85
PERFORMANCE			
Velocity (Vegetated) [4 5]	Large Scale	ft/sec (m/sec)	25 (7.6)
Shear Stress (Vegetated) [4 5]	Large Scale	lb/ft^2 (Pa)	16 (766)
Manning's n (Unvegetated) [4 6]	Calculated	0.028	
USACE / CSU Wave Overtopping	Large Scale	USACE Approved	
Seedling Emergence [4]	ASTM D 7322	%	619
Roll Sizes [7]		ft (m) ft (m)	8.5 x 120 (2.6 x 36.6) 15.0 x 120 (4.6 x 36.6)

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B1 Anchor Properties		
TESTED PROPERTY	**UNIT ENGLISH (METRIC)**	**VALUE ENGLISH (METRIC)**
PHYSICAL		
Anchor Head Length	in (mm)	3.6 (91)
Anchor Head Width	in (mm)	1.2 (30)
Anchor Head Bearing Area	in^2 (cm^2)	3.5 (23)
PERFORMANCE[4]		
Ultimate Assembly Strength	lb (kN)	1,300 (5.8)
Ultimate Cable Strength	lb (kN)	2,100 (9.3)
Typical Working Load	lb (kN)	100 – 600 (0.4 – 2.7)
Embedment Depth	ft (m)	3 – 5 (0.9 – 1.5)
Anchor Head Impact Strength	lb (kN)	11,000 (49)
Anchor Head Impact Fatigue	# Loading Cycles	> 12,000
Load Bearing Plate Punching Shear	lb (kN)	1,625 (7.2)
Load Bearing Plate/ HPTRM Pull-Through	lb (kN)	1,500 (6.7)

- Material Composition: Proprietary ultraviolet protection package in PYRAMAT HPTRM, and the durability of the anchor provides long-term design assurance.
- Tensile Strength: PYRAMAT HPTRM boasts 4000 x 3000 lb/ft (58.4 x 43.8 kN/m) of tensile strength, which exceeds the U.S. EPA definition of a High Performance Turf Reinforcement Mat.
- Seedling Emergence: PYRAMAT HPTRM features X3® fiber technology, which offers 40% more fiber surface area to capture the critical sediment and moisture needed to increase seed germination within the first 21 days.
- Flexibility: Allows the system to conform and maintain intimate contact with the prepared subgrade.
- Anchor Loading Capacity: Based on anchor size, tendon length and on-site soil parameters the anchor foot provides up to an ultimate of 500 to 3000 lbs of pullout resistance per Earth Engineered Anchor. Actual holding strengths depend upon soil characteristics, anchor type and installation techniques.

NOTES:

1. The property values listed above are effective 07/13/2015 and are subject to change without notice.
2. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
3. Maximum Average Roll Value (MaxARV), calculated as the typical plus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will meet to the value reported.
4. Typical Value.
5. Maximum permissible velocity and shear stress has been obtained through vegetated testing programs featuring specific soil types, vegetation classes, flow conditions, and failure criteria. These conditions may not be relevant to every project nor are they replicated by other manufacturers. Please contact us for further information.
6. Calculated as typical values from large-scale flexible channel lining test programs with a flow depth of 6 to 12 inches.
7. Master Roll (MR) is to be up to 600 feet in length.

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