TERRA AQUA
RENO MATTRESS
PVC COATED

General Description:

The Terra Aqua PVC coated Reno mattress is a mattress shaped container manufactured from heavily galvanized steel wire with an additional PVC coated jacket to form a flexible and effective surface protection to defend against erosion and scouring. The flexible wire mesh will accommodate significant deformation without failure. The base and sides of the Reno Mattress are made of a single sheet of wire mesh (main panel). Partition panels (diaphragms) are made of the same wire mesh as the main panel and are attached to the base of the main panel dividing the Reno Mattress into 3 foot cells. The lid is formed either by a single sheet or in rolls of a specified length from the same wire as is in the main panel.

Mesh:

The mesh shall be woven into a hexagonal pattern with the joints formed by twisting each pair of wires through three and a half turns or a complete double twist. Because of this appearance, the joints are often double twisted. The size of the mesh conforms to the specification issued by the manufacturing facility and shall be uniform in opening size where the smallest dimension shall be 6cm minimum but not larger than 8 cm.

Wire:

All wire used in the fabrication of the Reno Mattress and in the lacing operations shall conform to Federal Specification QQ-W-461H, Class 3, Finish 5, soft, and have an average tensile strength in accordance with the current ASTM A 641, Table 2, before PVC coating and fabrication of the netting. The nominal diameter of the wire used in the fabrication of the netting shall be 0.0866 inches minimum, subject to diameter tolerance in accordance with the current ASTM A 641, Table 3.

Elongation of Wire:

Tests shall be conducted on the wire before coating with PVC and fabrication on the mattresses on a sample 12 inches long. Elongation shall not be less than 12%.

Zinc Coating (Galvanized):

All wire used in the fabricating and construction of the gabions shall be galvanized according to ASTM A 641, Table 1. The minimum weight of the zinc coating shall be according to the table following when tested in accordance with ASTM A 90.

Description	*Nominal Diameter of Wire*	*Minimum Weight of Coating*
Mesh and Lacing	0.0866 inches (2.2mm) minimum	0.80 ozs / sq ft
Selvedge	0.106 inches (2.7mm) minimum	0.80 ozs / sq ft

Adhesion of the zinc coating to the wire shall be capable of being wrapped in a close helix at a rate not exceeding 15 turns per minute around a cylindrical steel mandrel having a diameter 3 times the nominal wire diameter being tested. After the wrap test is completed, the wire shall not exhibit any cracking or flaking of the zinc coating to such an extent that any zinc can be removed by rubbing with bare fingers.

Selvedges:

All edges of the Reno Mattress including end panels and the diaphragms, shall be mechanically selvedged in such a way as to prevent unraveling of the mesh and to develop the full strength of the mesh. The wire used for the selvedge shall have a diameter greater than that of the wire used to form the mesh.

Lacing Wire:

Sufficient lacing and connecting wire shall be supplied with the mattress for all wiring operations. The nominal diameter of lacing wire shall be 0.0866 inches minimum.

Alternative wire fasteners shall be ASTM approved wire fasteners used in lieu of lacing wire..

PVC Coating:

PVC (Poly Vinyl Chloride) Coating. The coating shall be gray in color and shall have a nominal thickness of 0.0216 inches but not less than 0.015 inches in thickness. The protective PVC plastic shall be suitable to resist deleterious effects from exposure to light, immersion in salt or polluted water and shall not show any material difference in its initial compound properties. The PVC compound shall also be resistant to attack from acids and resistant to abrasion.

A. Initial properties of the PVC coating shall meet the following requirements:

A.1 Specific Gravity:

According to ASTM D-2287 and ASTM D-792; in the range of 1.30 to 1.34.

A.2 Tensile Strength:

According to ASTM D-412; not less than 2980 psi.

A.3 Modulus of Elasticity:

According to ASTM D-412; not less than 2700 psi at 100% strain.

A.4 Resistance to Abrasion:

According to ASTM 1242; weight loss < 12% (Method B).

A.5 Brittleness Temperature:

According to ASTM D-746, Procedure A; shall be at least 8.3 degrees centigrade below the minimum temperature at which the gabions will be handled or placed but not higher than 9.4 degrees centigrade.

A.6 Hardness:

According to ASTM d-2240; shall be between 50 and 60 Shore D when tested.

A.7 Creeping Corrosion:

Maximum corrosion penetration to the wire from a square cut end section shall not be more than 25mm when the specimen has been immersed for 2000 hours in a 50% SOLUTION HCI (hydrochloric acid 12 Be).

B. Variation of the initial properties will be allowed, as specified following, when the specimen is submitted to the following accelerated aging tests:

B.1 Accelerated Aging Tests

B1.1 Salt Spray Test:

According to ASTM B-117
Period of test 3000 hours.

B1.2 Exposure to ultraviolet rays:

According to ASTM D-1499 and ASTM G-23 (Apparatus Type E).
Period of Test = 3000 hours at 63 degrees centigrade.

B1.3 Exposure to high temperatures:

Testing period: 240 hours at 105 degrees centigrade, when tested in accordance with ASTM D-1203 and ASTM D-2287.

* After the above tests have been preformed, the PVC compound shall exhibit the following properties.

C. Properties after Aging Tests:

C.1 Appearance:
The vinyl coating shall not crack, blister or split and shall not show any remarkable change in color.

C.2 Specific Gravity:
Shall not show change higher than 6% of its initial value.

C.3 Durometer Hardness:
Shall not show change higher than 10% of its initial value.

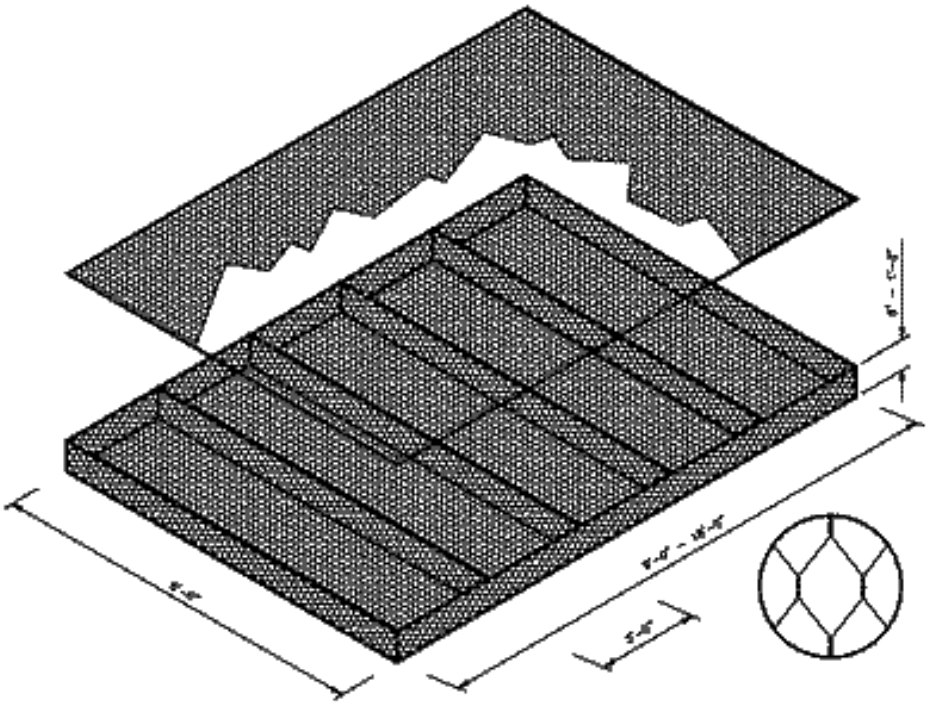
C.4 Tensile Strength:
Shall not show change higher than 25% of its initial value.

C.5 Elongation:
Shall not show change higher than 25% of its initial value.

C.6 Modulus of Elasticity:
Shall not show change higher than 25% of its initial value.

C.7 Resistance to Abrasion:
Shall not show change higher than 10% of its initial value.

C.8 Brittleness Temperature:
Cold Bend Temperature - shall not be higher than -20 degrees centigrade.
Cold Flex Temperature - shall not be higher than +18 degrees centigrade.



Terra Aqua Reno Mattress Standard Sizes:

Reno mattress unit size	*Capacity cubic yard*	*No. of internal cells*
9'x6'x6"	1	3
12'x6'x6"	1.333	4
9'x6'x9"	1.5	3
12'x6'x9"	2	4
9'x6'x12"	2	3
12'x6'x12"	2.666	4

*Unit sizes are listed length x width x depth.
*Tolerances- All reno mattress dimensions shall be within a tolerance limit of plus or minus 5% of the manufacturers stated dimensions.
*Standard reno mattress units are available with unit or roll top lids.

Terra Aqua Reno Mattress Custom Jumbo Sizes:

Reno mattress lengths	Reno mattress widths	Reno mattress depths
15', 18', 21', 24', 27', 30'	3', 6'	6",9",1'

*Tolerances- All custom reno mattress dimensions shall be within a tolerance limit of plus or minums 5% of the manufacturers stated dimensions.
*Custom jumbo reno mattress units are available with unit or roll top lids.

Diaphragms:

According to engineering requirements the Terra Aqua Reno Mattress is designed to incorporate internal diaphragms to form cells having a nominal length of three feet. The internal diaphragms will prevent stone fill migration within the reno mattress.

Manufacturing Tolerances for Terra Aqua Reno Mattress:

A tolerance of $\pm$5% on the width and on the length of the Reno Mattress and a tolerance of $\pm$10% on the height within the manufacturers stated dimensions shall be permitted.

Stone Size:

The Terra Aqua Heavy Duty Reno Mattress was designed specifically to accommodate stone size of 3 to 6 inches (75-105mm) allowing for two layers of stone fill. Only hard durable stone shall be used as mattress fil.

Installation / Placement:

On channel slopes, the mattress shall be placed perpendicular to the flow of the channel with the length dimension of the reno mattress going up and down the slope. On the channel bed, the length dimension of the reno mattress shall be placed parallel to the flow, while the width of the reno mattress runs across the channel bed. An approved corner closure tool shall be used to adjoin adjacent mattresses to insure a tight, neat seam and minimize mattress wire joint deformation.

* Terra Aqua Gabions reserves the right to amend these specifications without notice.

Terrra Aqua gabion material is manufactured according to ASTM A975-97 guidelines for double twisted hexagonal mesh gabions.

ASTM A975-97

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