

DOUBLE TWIST WIRE MESH PRODUCTS DESIGN LIFE GABIONS, RENO MATTRESSES & OTHERS

TECHNICAL DATA SHEET - Ref: TN_DT_006 - Rev:01, Nov 12

1. Introduction

This document has been prepared to assist engineers in selecting the appropriate coating for steel wire mesh products for use in projects. The mesh products include; gabions, Reno Mattresses, rockfall protection mesh, **Terramesh®** and Green **Terramesh®** soil reinforcement products.

2. Standards and Guidelines

Each marketplace around the world and the authorities within them, have developed independently as a function of the conditions and demands of the local market. Therefore industry standards, and product testing protocols are different; what is appropriate in temperate Europe, may not be suitable for northern Russia, South East Asia, Latin America or Australasia.

It is therefore not possible for any wire mesh company with a global presence to create a standardised set of recommendations for the design life of products that can include all eventualities. There will always be contradictions and local anomalies that create exceptions to any standard. This is compounded when the mesh is used as a reinforcement element within the soil, in the case of **Terramesh®** and Green **Terramesh®**.

Engineering judgement on the part of the project designers and specifiers, taking into account the conditions, locally accepted product standards and suitable factors of safety, should always take priority. This judgement should include advice provided by experienced manufacturers and suppliers of the product. Accordingly, this document attempts to provide this advice, based not only upon material testing, but on years of supplying steel wire mesh products.

3. Product / Solution Selection

Too often, people purchasing materials focus on the price of the product alone without a true understanding of other important factors: quality, durability and time to install the solution. Figure 1 shows the typical value balance that must be achieved in the selection and specification of a particular product.

Geofabrics offers a wide range of coating types for its steel wire mesh products. Each coating is part of a graded logical range designed to offer value for money products appropriate to the conditions and project requirements. Clearly it is not appropriate to offer an expensive product, suitable for use in a saline environment, when the product will not be exposed to those conditions.

It is therefore very important for designers, specifiers and installers / contractors to fully understand the final use for the product and the clients expectations.

4. Comparing 'Apples with Apples'

The internet provides all of us with an easy to use mechanism to compare seemingly similar products. However, care should be taken. Something that appears too good to be true, often is; a product that seems to offer an equivalent specification but at a much lower price, should be regarded as potentially non-conforming. On numerous occasions, products which claim to match the specification requested (even with "manufacturers' certification") have been shown, by testing them at independent laboratories, to be significantly different; the lower cost product, naturally came with a price - lower quality / durability and were harder or slower to install (Figure 1). Specifiers should include within the contract documentation, a requirement for third party local testing of the product, to ensure compliance. As the costs of this are low, this can also be at the expense of the product supplier.

If the price seems too low, do not ignore it, investigate it.

Will this have an impact on the project?

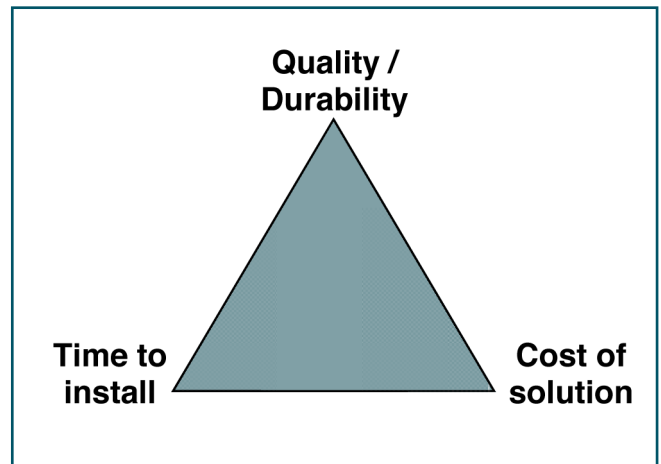


Figure 1: Product selection criteria 'value balance'

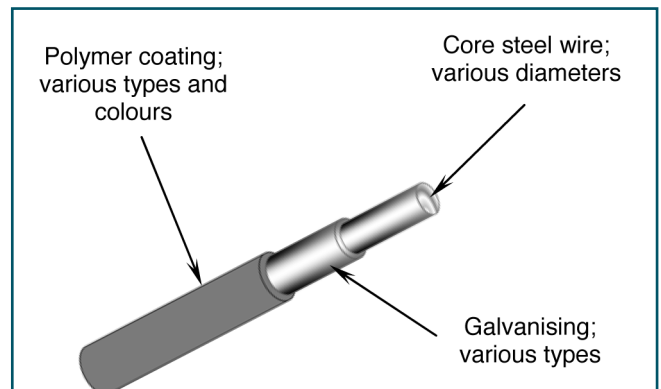


Figure 2: Variables in wire types used to make mesh products

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With nearly 140 years of experience and factories in over 25 countries, our manufacturer of gabions and mattresses is the largest in the world. The products have been used on many projects in a wide range of conditions and the authorities who demonstrate confidence, by continuing to use Geofabrics solutions, are many and varied. The number of failures caused solely by choice of mesh material have been very few. As with any other construction material, the service life and success of the structure depends greatly upon design, appropriate product selection, accurate workmanship and supervision during construction. Poor construction and installation are the single biggest cause of the reduction in design life of a solution.

No single material coating can claim to be the solution for all conditions, so by offering a range of coating types, Geofabrics believe that their mesh products offer the optimum balance of technical, environmental and economical performance.

Exposure type (combinations of extreme conditions will reduce design life)				
	ENVIRONMENTAL AGGRESSIVITY			
	VERY LOW	LOW	MEDIUM	HIGH
Water Presence	Dry	Dry	Often	Always
Saline Presence	None	None	Occassional	Often
Wind/Water carried abrasion	None	Very Little	Occassional	Often
Pollutant Exposure	None	Very Little	Occassional	Often
Soil Resistivity	Very low	Low	Medium	High
Product Coating	Anticipated Design Life (years)			
Zn (*)	60	20	N/R	N/R
Al/Zn(*)	120	60	N/R	N/R
Al/Zn (*) + PVC	>120	>120	120	60
Al/Zn (**) + PA6 (***)	>120	>120	>120	120

* = Coating weight as per EN 10244-2 (Table 2 - Class A)

** = Coating weight as per EN 10244-2 (Table 2 - Class E)

*** = PA6 polymer coating offers significant environmental benefits compared to PVC coatings and is recommended for use if 'green projects' where environmental impact is important, regardless of design life requirement.

N/R = Not recommended by Geofabrics for use in these exposure conditions

N.B. Combinations of exposure conditions can reduce the anticipated design life of the product. For technical support, on this or any other Geofabrics product, please consult your local Geofabrics office.

Geofabrics reserves the right to amend product specifications without notice and specifiers are requested to check as to the validity of the specifications they are using. The information presented herein is, to the best of our knowledge and belief, correct. The validity of the information relative to the soil and engineering conditions must be ascertained by a suitably qualified person. No warranty is either expressed or implied. Unauthorised reproduction or distribution is prohibited.