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# HDPE COATED WOVEN MESH GABIONS AND MATTRESSES

**Gabions and Mattresses shall comply with the following specifications**

MANUFACTURE	Gabions shall be manufactured from a hexagonal double twist woven wire mesh. (sometimes also referred to as triple twist)
MESH SIZE	Mesh openings shall be of nominal dimension of 80mm (mesh type referred to as 80 x 100mm or 8x10 or type 8).
CORROSION PROTECTION	Wire shall be zinc coated to BSEN10244-2;2001 and additionally coated with an extruded UV stabilised HDPE coating of nominal radial thickness of 0.5mm  HDPE coating :- Borstar HE6063 density 0.942 Bimodal high density jacketing for communication and power cables, UV Stabilised, colourable
MESH WIRE	2.70mm wire diameter core for the mesh fabric and 3.4mm wire diameter core for selvedged ends, all to BS 1052
DIAPHRAGMS	Diaphragms are to be provided along the length of the unit at 1m intervals except for a unit length of 1.5m which does not have a diaphragm.
JOINTING	Gabions shall be provided with lacing wire 2.2mm wire diameter core of the same corrosion protection as the mesh fabric for assembly of the units. Stainless steel 'C' rings fixed with a pneumatic closing tool (1 clip every other mesh opening) can be used as an alternative to continuous lacing
GABION FILL	Gabion fill shall be a hard durable and non frost susceptible (rock ,stone or clean crushed structural concrete) having a minimum dimension not less than the mesh opening 80mm and a maximum dimension of 200mm.
CONSTRUCTION	Gabions should be unfolded from the pack and formed into the box shape.  The units are then assembled with continuous lacing wire or 'C' rings, a row of units are then joined together and require tensioning longitudinally prior to filling,  All gabion fill shall be packed tightly to minimize voids and the gabion fill on the exposed face of the gabion is to be hand packed.

Gabions are to be filled in 1/3<sup>rd</sup> height layers for 1m deep units and half height layers for 0.5m deep units. At no time should adjacent cells differ in filled height by more than 1 layer.

Internal windlass bracing ties (formed from the lacing wire) 4 per 1sqm at 1/3rd points vertically and third points horizontally on 1m deep units and at mid height and at third points horizontally on 0.5m deep units. End cells require units to internal windlass ties in both directions.

Units shall be overfilled by 25 to 50mm filled such that the mesh lid bears onto the gabion fill. The lid shall be wired down on all joints and across the diaphragms.

## Notes on Extruded HDPE v Extruded PVC Coatings

### Properties of Polymer Coatings

PROPERTY	EXTRUDED HDPE COATING	EXTRUDED PVC COATING
Oxidation resistance	excellent	excellent
Heat resistance	excellent	good to excellent
Oil resistance	good to excellent	fair
Low temperature resistance	Excellent ( -135 deg C)	poor to good (-40 deg C)
UV resistance	excellent	good to excellent
Ozone resistance	excellent	excellent
Abrasion resistance	excellent	fair to good
Elongation	700%	280%
Tensile Strength	Min 30kPa	Min 16kPa

### Resistance to chemicals

PROPERTY	EXTRUDED HDPE COATING	EXTRUDED PVC COATING
Water	excellent	fair to good
Acid	excellent	good to excellent
Alkali	excellent	good to excellent
Fuel	good to excellent	poor

The properties and chemical resistance of the Extruded HDPE coating is superior compared to the traditional Extruded PVC coating. The application of the HDPE coating for gabions represents a significant step forward in ensuring the durability and performance of the corrosion protection afforded.

A common problem with Extruded PVC coatings on woven wire mesh is that during manufacture (when the wires are twisted together) work hardening of the PVC coating takes place combined with the inferior of elongation properties of the PVC coating splitting of the PVC coating occurs reducing the long term durability of the product.

With the Extruded HDPE this problem is considerably reduced due to the greater elongation properties of the polymer coating splitting of the Extruded HDPE