

GABIONS & MATTRESSES

• twisted wire mesh

(Alu-Zinc Galvan and Alu-Zinc Polypropylene)

Description

One of the key factors in the long term performance of gabions is the quality of the wire used for the mesh, selvedge wire and lacing wire. Our gabions are manufactured from mild steel wire woven into a triple twist hexagonal mesh to give both mechanical strength and prevent unravelling. The quality of the wire is strictly controlled and conforms to BS 1052:1980 for tensile strength.

All gabions and mattresses supplied by Permathene Ltd are galvanized, and for extra protection, the galvanized wire can be coated with Polypropylene. The hot dip galvanizing process conforms to BS 443:1982 while the PP coating process is carefully controlled to ensure a consistent quality and thickness. In addition we are able to offer a technical and design support service for projects where gabions are being used or considered. We welcome any enquiries concerning the design, specification or construction of gabions.

Advantages

Each principle highlights advantages of a gabion structure over other methods.

Flexibility

The ability of gabions to deform while still retaining their integrity has advantages over other types of construction. When exposed to differential settlement or erosion comparable concrete structures may crack and fail. In addition, the simple construction techniques required to erect a gabion structure can be advantageous when compared to other forms of construction.

- » No need for heavy plant or machinery
- » Local labour can rapidly be trained to construct high quality structures
- » Construction makes use of low cost locally available stone
- » Structures may be added to at a later date
- » Rapid construction makes them ideal for emergency works

Retaining

Their use as earth retaining structures provides a low cost alternative to concrete or masonry retaining walls.

Drainage

The permeability of gabion structures has the benefit of reducing pore water pressures behind the structure and allowing free drainage.

Erosion

The use of gabions allows erosion protection to be achieved using smaller stones and reduced thickness than would be required for conventional rip-rap. Gabions can also provide a cost effective, more

aesthetically pleasing and environmentally friendly alternative to concrete systems.

Retaining Walls

Flexible gabion structures used in the construction of retaining walls are a simple, functional solution. These structures can withstand harsh environmental and climatic conditions.

Protection of Highways

Highways are infrastructures representing heavy investment. It is therefore vital to protect them from environmental disasters. Gabion mattresses are used to stabilize the slopes protecting the shoulders of highways that are prone to erosion. Highway protection work also includes rockfall protection, retaining structures, culvert and bridge protection, where mesh fabric, gabion boxes or mattresses are used depending on the situation.

Rockfall Protection

Protection against rockfall from slopes can be guaranteed by using various structural solutions or by merely using gabion mesh fabric as a passive measure. The gabion mesh obstructs rockfall and protects infrastructures. This is achieved by joining together rolls of mesh fabric with lacing wire and using it as a blanket to cover slopes. Alternatively, gabion retaining walls are built which stop falling rocks.

Protection of Culverts and Bridges

An unconfined flow of water causes erosion and may result in costly damage to main structures. In order to prevent this potential danger, gabion boxes and mattresses are used to guide the flow of water. These gabion boxes and mattresses are used extensively in the construction of culverts.

Channel Lining

The main function of the gabion structures is to control and guide the course of water through channels and prevent the erosion of banks. Due to the flexibility and permeability of these structures, they permit the natural movement of ground water.

Marine Works

Special Polypropylene coated wires, highly resistant to corrosion and other environmental effects are used in the manufacture of gabions for marine works. Beach protection, marinas, retaining walls, ramps, piers and small jetties can be built at great speed and minimum cost. Gabions allow wave energy to be dissipated thus conserving beaches and preventing erosion.

	Mesh size	Length	Width	Height
Gabions	80 x 100 mm	1 m	1 m	0.5 m
		1 m	1 m	1 m
		2 m	1 m	1 m
Mattresses	60 x 80 mm	6 m	2 m	0.23 m

Note: available as Alu-zinc Galfan coated and Alu-zinc Galfan PP coated, other sizes available upon request.

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