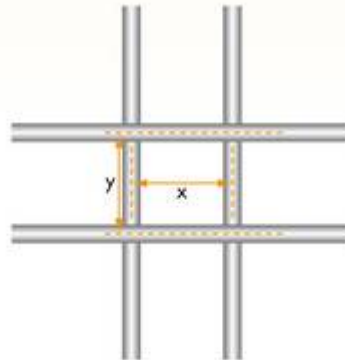




## Gabion 27 Design Specification : Bi-Axial Welded Mesh

### 4.00mm WIRE DIAMETER – CLADDING – GALFAN COATED



**SPECIFIED MESH BI-AXIAL WELDED**

Nominal dimensions (x) and (y) : Gabions, 75mm Mattresses, 75mm

The certification, materials, manufacture, assembly and installation of the above-mentioned product shall comply with all of the following criteria:

### Certification

All gabion materials and accessories must be certified in accordance with **British Board of Agrément (BBA)** requirements. This is for current General Building Regulation's where the gabions are considered to have a life expectancy of **up to 80 years** in a mild environment. Evidence of current BBA certification and relevant certificates of conformity with respect to wire strength, weld strength and coating weights used in the manufacture of the mesh fabric and wire products are to be issued upon request.

### Materials

The wire used in the manufacture of the gabions and installation accessories shall comply with the following:

#### Mesh Fabric

The mesh fabric shall be formed by electrically welding at each and every intersection, hard drawn steel line and cross wires into a dimensionally stable bi-axial square metric mesh of size **75mm x 75mm**.

The weld strength shall be **75%** of the minimum ultimate tensile strength of the wire.

The nominal wire diameter shall be **4.00mm** for the rear, ends, diaphragms, bases, lids (where fitted) and front exposed face panels all within the tolerances specified in BS EN 10218-2:1997 and shall have a tensile strength that falls within a range of **540-770**



**N/mm<sup>2</sup>.** Tensile strengths of less than 540 N/mm<sup>2</sup> that can result in increased deformation of filled units as well as reduction in weld strength shall not be permitted.

### Lacing Wire

The lacing wire used for site assembly shall be of a nominal **2.2mm** wire diameter in accordance with BS EN 10218-2:1997 and shall have a tensile strength that falls within a range of **380 to 550 N/mm<sup>2</sup>.**

### Helical Binders *(where specified)*

Full height helical binders for the vertical joints for gabion installation and assembly shall be of a nominal **3.00mm** wire diameter in accordance with BS EN 10218-2:1997 and shall have a tensile strength that falls within a range of **600 to 800 N/mm<sup>2</sup>.**

### Pre Formed Corner Bracing Ties

Pre formed corner bracing ties are to be formed from a nominal **3.00mm** wire diameter in accordance with BS EN 10218-2:1997 and shall have a tensile strength that falls within a range of **350 to 550 N/mm<sup>2</sup>.**

### Corrosion Resistance

All wire used in the mesh fabric or accessories shall be Galfan coated (95% Zinc / 5% Al) in accordance with BS EN 10244-2:2009 (Class A).

## Manufacture

### Unit Formation

The gabion is to be formed from mesh panels such that for single module height units, the lid, base, ends and diaphragms are connected to the rear panel and the front panel is connected to the base.

For multi-lift module units, the lid, base, ends and vertical diaphragm panels are connected to the rear panel and the first lift face panel is connected to the base panel. Intermediate horizontal diaphragms are connected to the intermediate face panels for on site fixing to the rear panel. With the exception where combined lids and bases are specified, no other panels should be omitted in the manufacturing process.

All cladding gabions should be pre assembled in a factory controlled environment with **Galfan coated CL50 'C' rings** at a maximum spacing of **225mm** for all joints.

**Under no circumstances should cladding gabions be formatted on site from individual loose panels.**

Diaphragm (partitioning panels) spacing's should not exceed 0.675m across the length of the unit unless specified by design.



### Gabion Sizes

It should be noted that it is industry standard for gabions to be quoted as overall nominal sizes. The actual gabion sizing is dependant upon the physical mesh configuration. Clarification should always be sought from the manufacturer in relation to gabion sizing.

## Assembly and Installation

### Jointing

Where specified, Gabions are supplied with either helicals, lacing wire or 'C' rings (or a combination thereof) for jointing adjacent units whilst empty.

Where lacing wire is used it is to be continuous along all joints both vertically and horizontally using alternate single and double twists at a maximum spacing of 100mm ensuring that it forms a tight joint. Start or termination of lacing is formed by three turns ensuring the free end is turned in to the unit.

Where helical binders are requested for use on verticals, the top and bottom helical turn should be rotated through 90 degrees to prevent movement. All horizontal joints are to be laced as described above unless specially requested.

### Internal Bracing

Pre formed internal bracing ties are used to restrain the face. 4 ties are to be used on 1m high units placed at one third and two third lifts and 2 corner ties on 0.675m high units placed centrally on the face cell. Please note that for units greater than 300mm in width they are installed as corner ties.

### Geo-synthetic Separators

Where a separator between the rear of the gabion and the structure is specified, refer to the engineers design proposal and specification. If a membrane is used then a suitably approved geo-textile is required between the gabion rear panel and membrane to prevent puncture.

### Foundations and Face Configurations

Reference to the engineers design proposal must be made with respect to foundation requirements and face configuration (stepped, flush, inclined or combination thereof).

### Filling

Units are to be filled with a hard, durable, non-frost susceptible rock, stone or clean crushed concrete as specified. The grading of the fill is to be 100 to 150mm (6G).

The units shall be filled in layers not exceeding 340mm. If large voids are present then the stone must be re-orientated to minimize voids. The gabions are to have a hand placed front face and shall be filled such that the mesh lid bears down onto the gabion filling material.



Filling should be staged so that no adjacent cells have more than a third difference in the level of filling for 1m high units or half height in the case of 0.675m units.

To assist in maintaining face alignment and reduce deformation, the use of external formwork i.e. timber or scaffold tubes can be tied onto the external face of the structure at third heights and then removed upon completion.

### **Corner details**

At corners and where faces are inclined, to obtain a clean joint, special pre cut formed panels are available with the required inclination from the vertical as specified by design. These replace the face mesh panel to achieve the required aesthetic appearance.

### **Fixing to Structure**

This is scheme specific and is specified by design.