

**MILD TENSILE  
STEEL WIRE  
GABION AND  
MATTRESS  
PRODUCT  
SPECIFICATION**

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## 1. **SCOPE OF WORK**

This standard specifies the characteristics of steel wire gabion cages of hexagonal woven wire mesh, that are to be used as gabions and mattresses when filled with stones.

## 2. **DEFINITIONS**

For the purposes of this standard, the following definitions apply:

### 2.1 **Acceptable:**

Acceptable to the parties concluding the purchase contract.

### 2.2 **Diaphragm:**

An internal division of a gabion cage that is attached to the bottom, the sides, and, after the gabion cage is packed with stones, the lid of the cage.

### 2.3 **Gabion:**

A cage of galvanized steel wire mesh (with or without PVC coating) that is packed with stones and is used in material-retaining structures and in various situations to counter erosion.

### 2.4 **Gabion cage:**

An unfilled gabion.

### 2.5 **Selvedge:**

A boundary or edge for the panels of a gabion cage that is intended to strengthen and facilitate connections between panels, and other cages.

## 3. **REQUIREMENTS**

### 3.1 **Dimensions**

The dimensions of a gabion cage shall be as required (see annex A), but the width and length shall not exceed the dimensions given in columns 2 and 3 of table 1, appropriate to the required depth given in column 1. If the length of a cage exceeds 1 m, diaphragms shall be used to divide the cage into sections of length not exceeding 1 m.

**Table 1 – Dimensions of cages**

Dimensions in metres

<b>1</b>	<b>2</b>	<b>3</b>
<b>Required depth not exceeding</b>	<b>Maximum width</b>	<b>Maximum length</b>
1,0	1,0	4,0
0,5	2,0	6,0
<b>Tolerance on required dimension</b>		
± 5%	± 5%	± 10%

### 3.2 **Materials**

#### 3.2.1 **Steel Wire**

The wire used in the fabrication of the wire mesh and for lacing (binding) and bracing operations shall be plain zinc-coated mild steel wire that complies with the relevant requirements of SABS 675 and that has a class A zinc coating, except that

- a) the nominal diameter of the wire may be any specified value within one of the ranges given in columns 1 and 2 of table 2; and
- b) the zinc coating shall have a mass per unit at least equal to the value given in column 3 of table 2 appropriate to the nominal diameter.

**Table 2 - Minimum mass of zinc coating**

<b>1</b>		<b>2</b>	<b>3</b>
<b>Nominal diameter of wire</b>		<b>Minimum mass of zinc coating per unit area</b>	
<b>mm</b>		<b>g/m<sup>2</sup></b>	
Exceeding	Not exceeding		
2,40	2,50		260
2,51	3,50		275
3,51	5,00		290

### **3.2.2 PVC Coating**

Where polyvinyl chloride (PVC) coated wire is required (see annex A), the wire shall have a zinc coating as specified above, and shall in addition be coated with PVC by means of an acceptable extrusion process.

#### **3.2.2.1 Thickness of PVC coating**

When PVC coated wire is tested with a micrometre, the nominal thickness of the coating shall at no point be less than 0,45 mm.

#### **3.2.2.2 Bonding of PVC coating to wire core**

When PVC coated wire is tested in accordance with SABS 1580, the bonding of the coating to the wire core shall be such that the potassium permanganate does not penetrate further than 25 mm from the square cut ends.

#### **3.2.2.3 Resistance of PVC coating to sodium chloride solution**

When PVC coated wire is tested in accordance with SABS 1580, there shall be no loss of mass.

#### **3.2.2.4 Resistance of PVC coating to accelerated weathering**

When a sample of PVC coated wire used in a gabion cage is tested in accordance with SABS 1580, the PVC coating shall show no signs of chalking, crazing or cracking.

#### **3.2.2.5 Resistance to creeping corrosion**

When PVC coated wire is tested in accordance with SABS 1580 penetration of corrosion of the wire core from a square cut end shall not exceed 25 mm.

### **3.3 Requirements for steel wire mesh and connections of panels of gabion cages**

#### **3.3.1 Steel wire mesh and wire mesh twisted joints**

Steel wire mesh shall be of a wire woven into a hexagonal mesh, the joints being formed by twisting each pair of wires through three half-turns, as shown in figure 1. The twisted joints shall be such that, when the wire mesh is tested in accordance with SABS 1580 a force of at least 1,7kN is required to separate one wire from the other. The size of the mesh used to fabricate gabion cages of various depths shall be as required (see annex A) but shall conform to the appropriate values given in table 3, with reference to figure 1.

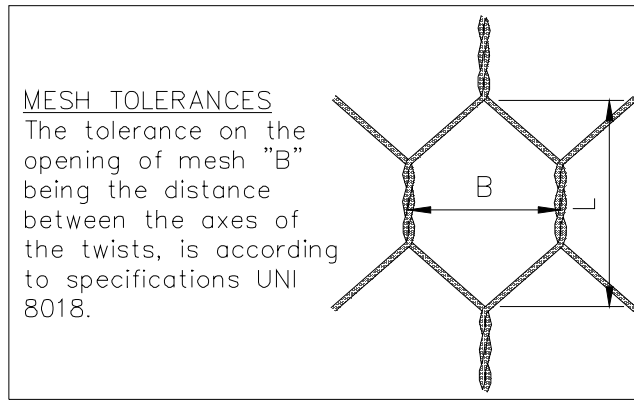


Figure 1 – Twisted joints for steel wire mesh

**3.3.2 Steel wire for lacing (binding) and bracing**

Steel wire used for lacing (binding) and bracing shall have a nominal diameter of 2,2 mm.

**Table 3 – Dimensions of wire mesh for gabion cages**

1	2	3	4	5	6
Depth of cage m		Nominal mesh dimensions mm		Nominal wire diameter mm	
Exceeding	Not exceeding	Cross dimension <i>B</i> Tolerances: - 2 + 5	Long dimension <i>L</i> Tolerance: ± 25	Mesh wire	Selvedge
0,17	0,3	80	100	2,5	3,0
0,3	1,0	80	100	2,7	3,4

**3.3.3 Selvedge Binding**

Selvedge wire shall be in accordance with table 3.

Except where the selvedge wire has to be fastened to the cut ends of the mesh, the selvedge wire shall be woven integrally with the mesh.

When a selvedge formed by binding with the cut ends of the mesh is tested in accordance with SABS 1580 the force required to separate the selvedge binding from the mesh shall be at least 8,5 kN.

**3.3.4 End Panels**

When the connection between an end panel and the selvedge of a bottom panel is tested in accordance with SABS 1580, the force needed to separate the end panel from the bottom panel shall be at least 8,5 kN per metre.

### **3.3.5 Diaphragms**

When the connection of a diaphragm to the bottom panel is tested in accordance with SABS 1580, the force needed to separate the diaphragm from the bottom panel shall be at least 6 kN per metre.

## **4. MARKING**

The following information shall be legibly impressed on a corrosion-resistant metal tag that is securely attached to the longest side wall of a gabion cage:

- a) the manufacture's name or trade name or trade mark;
- b) the date of manufacture; and
- c) the size of the cage.
- d) colour coding on mesh
- e) the number of units in the bundle

Relevant testing of product

Kindly contact Land Rehabilitation Systems for more information in this regard, or obtain the current SABS 1580 specification.