

Fabrication

Gabions shall be manufactured with all components mechanically connected at the production facility. The front, base, back and lid of the gabions shall be woven into a single unit. The ends and diaphragm(s) shall be factory connected to the base. The lid may be a separate piece made of the same type mesh as the basket. All perimeter edges of the mesh forming the basket and top, or lid, shall be selvedge with wire having a larger diameter.

Gabion is divided into cells by means of diaphragms positioned at approximately 1 m centres. The diaphragms shall be secured in position to the base so that no additional lacing is necessary at the jobsite.

Typical Gabion sizes (10 X12 -mesh type)

Length m	Width m	Height m	Number of Diaphragms
4.0	1.0	1.0	3
3.0	1.0	1.0	2
2.0	1.0	1.0	1
1.5	1.0	1.0	0
4.0	1.0	0.5	3
3.0	1.0	0.5	2
2.0	1.0	0.5	1

Construction Requirements

Gabion filling and lacing and erection at site should be strictly as per the instruction of approved (by engineer) manufacturer's instructions as per the site specific requirements.

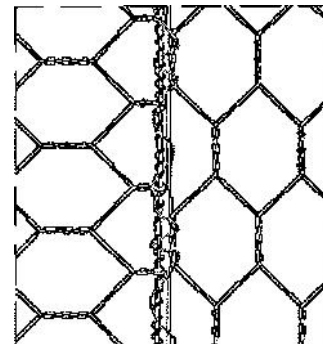
Assembly

Gabions are supplied folded flat and packed in bundles. Larger units may be supplied in rolls. The units are assembled individually by erecting the sides, ends, and diaphragms, ensuring that all panels are in the correct position, and the tops of all sides are satisfactorily aligned. The four corners shall be connected first, followed by the internal diaphragms to the outside walls.

The procedure for using lacing wire consists of cutting a sufficient length of wire, and first looping and/or twisting the lacing wire to the wire mesh. Proceed to lace with alternating double and single loops through every mesh opening, pulling each loop tight and finally securing the end of the lacing wire to the wire mesh by looping and/or twisting. Refer below figure.

Installation

After initial assembly, the gabions are carried to their final position and are securely joined together along the vertical and top edges of their contact surfaces using the same connecting procedure(s) described earlier. Whenever a structure requires more than one layer, the upper empty baskets shall also be connected to the top of the lower layer along the front and back edges of the contact surface using the same connecting procedure(s) described in section V above.



Filling

Gabions shall be filled with rock as specified. Refer below section 17.

Internal Connecting Wires installation

Internal Connecting Wires shall connect the exposed face of a cell to the opposite side of the cell. An exposed face is any side of a gabion cell that will remain exposed or unsupported after the structure is completed. Lacing wire or prefabricated internal connecting wires shall be used as internal connecting wires.

One (1) meter High Gabions

1-meter-high gabions shall be filled in three layers, 300 mm at a time. Connecting wires shall be installed after the placement of each layer, that is, at 300 mm high.

Half(0.5) meter High Gabions

0.5-meter-high gabions do not require connecting wires unless the baskets are used to build vertical structures. These units shall be filled in two layers 250mm at a time. Connecting wires shall be installed after the placement of the first layer, which is at 250mm high.

Lid Closing

Once the gabion baskets are completely full, the lids will be pulled tight until the lid meets the perimeter edges of the basket. The lid must then be tightly laced and/or fastened along all edges, ends and tops of diaphragm(s) in the same manner as described in earlier sections.

Mesh cutting and folding

Where shown on the drawings or otherwise directed by the engineer, the gabions shall be cut, folded and fastened together to suit existing site conditions. The mesh must be cleanly cut and surplus mesh either folded back or overlapped so that it can be securely fastened together with lacing wire or fasteners in the manner described in earlier Section. Any reshaped gabions shall be assembled, installed, filled and closed as specified in the previous sections.

Testing and Acceptance criteria

The material should get approval from the client before the actual supply start. The manufacturer of the Gabion facing unit should provide "Manufacturers Test Certificate" and Quality Conformity Certificate for the material with every lot/shipment. Tensile strength test and zinc coating test on basic wire shall be done on one sample per every 10,000 numbers of units supplied. PVC Coating Thickness: The thickness of the PVC coating shall be determined on a randomly chosen individual piece of wire removed from the coil at 3 places 1 metre apart.

Measure with a micrometre the diameter of the galvanized steel wire with PVC coating. Determine the thickness of the PVC coating by stripping the PVC coating from the wire and measure the reduced diameter with a micrometre, The thickness of the coating is the difference between the diameter of the galvanized steel wire with PVC coating and the measured diameter of the galvanized steel wire divided by two. The thickness values should be as per clause 1,2.4. While removing the PVC coating by stripping, take care not to remove any of the metallic

surfaces.

Selvedge strength test

A tensile test on mesh sample (10x12 Mesh Type) shall be carried out in order to estimate selvedge strength test. The test shall be carried out as per procedure outlined below. The selvedge strength shall be minimum 25 kN/m.

- a.) Take a DT mesh of approximately 1.0 m width.
- b.) The height of the sample shall be such that after selvedging on both the sides (1m), there shall be at least two mesh repetitions between the two selvedged wires, so that effective height of the sample shall be more than 300 mm.
- c.) Sample shall be loaded on the UTM in a direction parallel to twist, with the samples being gripped at the two selvedged wires & not mesh twist,
- d.) The distance between the two selvedge wires shall be recorded as Initial gauge length.

Distance between the two end gripping points (pins) along the width of the sample shall be recorded as the unit width under test. The width shall be at least 700 mm. The load shall be applied gradually to the sample and the test be continued till the break point. The peak load and the % elongation shall be recorded. The strength of the selvedge connection shall be (peak load/unit width under test) expressed in kN/m.