



# ArtWeld Gabion Product Specification (Galvanized, 11 Gauge Wire)

## 1.0 DESCRIPTION

This work shall consist of Hilfiker ArtWeld Gabions (welded wire mesh) and filling the gabions with rock in accordance with the details shown on project plans and special provisions.

## 2.0 MATERIALS

Gabions shall be of a single unit construction. The base, ends, sides, and lid shall be either welded into a single unit or shall be connected in such a manner that strength and flexibility at the connection are at least equal to that of the wire mesh. The gabions shall be fabricated in such a manner that they can be assembled at the construction site with Spiral Binders and pre-formed stiffeners into rectangular baskets of the specified size.

The height, length, and width of the gabions shall not vary more than 5 percent from the dimensions shown on the plans.

Gabions shall be divided into cells of equal length, not more than 3 feet long, by diaphragms made of the same wire mesh as used for the gabion body. Each gabion shall be fabricated with the necessary diaphragm or diaphragms secured in proper position on the base in such a manner that no additional tying at the base will be necessary.

Wire for the manufacture and assembly of gabions shall *meet or exceed* any combination of the following requirements:

| <u>Description</u>  | <u>Requirement</u>  |
|---|---|
| 3"x3" (7.62 cm x 7.62 cm), 11 Ga. - 0.116 in. min. (2.95 mm) Welded Wire Fabric | ASTM, A1064, A370<br><i>Exception: Weld Shear at 600 lbf min.</i> |
| Galvanization: (9 Ga. 0.90 oz/SF)   | ASTM A641, A90  |
| 9 Ga. Galvanized Pre-Formed Stiffener   | N/A   |
| 9 Ga. Galvanized Spiral Binder - min. 0.144 in. (3.66 mm)                       | ASTM A641, A90  |
| 13.5 Ga. Tie Wire - min. 0.086 in. (2.2 mm) Galvanized 0.70 oz/SF               | ASTM A641, A90  |

## 3.0 ROCK

Rock for filling the gabions shall be as listed:

100% passing 8 inches (20.3 cm), 0-5% passing 4 inches (10.2 cm)

## 4.0 CONSTRUCTION

Gabions shall first be assembled individually as empty units. Each gabion shall be manufactured with the necessary panels, properly spaced and secured, so they can be rotated into position at the construction site with no additional tying of the rotation joint. The panels and diaphragms shall be rotated into position and joined along vertical edges.

When 13.5-gauge tie wire is used as the joint material, all vertical edges of each gabion panel shall first be constructed to form individual empty gabions. Simple spiraling (looping without locking) of 13.5-gauge tie wire is not permitted. For welded-mesh, the joint shall be constructed using alternating single and double half hitches (locked loops) in every mesh opening along the joint.





When 9-gauge spiral binders are used, the spiral shall be screwed into position such that it passes through each mesh opening along the joint. Both ends of all 9-gauge spiral binders shall be crimped to secure the spiral in place.

Temporary fasteners may be used to hold panels wherever gabions-to-gabion joints will be constructed. Temporary fasteners may remain in place.

#### **4.1 Assembly of Successive Gabions (Gabion-to-Gabion Joints)**

Empty gabions shall be set in place. Individually constructed empty gabions shall be joined successively to the next empty gabion with 13.5-gauge tie wire or 9-gauge spirals, before filling with rock begins. The 13.5-gauge tie wire or 9-gauge spiral binders shall secure, in one pass, all selvage or end wires of panels of all the adjacent gabions along the joint.

#### **4.2 Assembly of Multiple Layered Gabions**

Multi-layered gabion configurations can be stepped and staggered as shown on the plans or as directed by the Engineer. When constructing multi-layered gabion configurations, each layer of gabions can be joined to the underlying layer along the front and ends, or as shown on the plans.

#### **4.3 Assembly of Single-Layered Gabions**

Single-layered gabion configurations shall be butted and joined along the front, back, and ends as shown on the plans, including tops and bottoms of adjacent gabions.

#### **4.4 Assembly of Shear Key Gabions**

Shear key gabions (also called "counterforts") shall be spaced as shown on the plans. Shear key gabions shall be tied to adjacent gabions in the manner specified for "Assembly of Successive Gabions."

#### **4.5 Modified Geometry**

To match the geometry of the planned gabion configuration, or to meet specific conditions panels shall be folded, cut, and/or re-tied to dimensions shown on the plans or as approved by the Engineer.

#### **4.6 Filling with Rock**

Rock shall be placed in gabions to insure proper alignment, avoid bulges, and provide a minimum of voids. All exposed rock surfaces shall have a smooth and neat appearance. No sharp edges shall project through the wire mesh.

When constructing with 1.5-foot high or 3-foot high gabions, pre-formed stiffeners shall be used to produce a flat, smooth external surface.

Pre-formed Stiffeners shall be installed on the exposed face of the gabion prior to rock placement, two rows at 1/3 points on 3' high gabions, one row at 1/2 point in 1.5' high gabions.

When filling 3-foot high gabions, rock shall be placed in 3 nominal 12-inch layers; when filling 1.5-foot high gabions, rock shall be placed in two 9-inch layers.

The last layer of rock shall slightly overfill the gabions such that the lid will rest on rock when it is closed.



# HILFIKER RETAINING WALLS

*Welded Wire Wall • Eureka Reinforced Soil  
Gabion Faced M.S.E. • Reinforced Soil Embankment  
ArtWeld Gabions • Spiralnail • Steepened Slope • Trinity Wall*

## 4.7 Closure of Lids

Lids shall be tied along the front, ends, and diaphragms of individual gabions and to successive gabions with 9-gauge spiral binders in the same manner as specified elsewhere in this specification.

## 5.0 MEASUREMENT

Quantities of gabions to be paid for will be measured by the cubic yard and will be determined from the dimensions shown on the plans or the dimensions directed by the Engineer.

• End of Section •

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