



# RHINOWELD

## GABION STRUCTURES

Beauty, Strength  
and Style

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### Technical Data Sheet



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Simple and effective.  
The gabions really  
compliment the design.

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# Rhinoweld Welded Mesh Gabions 50x50mm Mesh

**MANUFACTURE:** Rhinoweld Gabions are manufactured from metallic-coated welded wire mesh in accordance with ASTM A974-1997

**MESH SIZE:** The mesh openings shall be square and of nominal dimension of 50mmx50mm and shall conform to ASTM A974-1997, EN10223-4 & EN10218-2

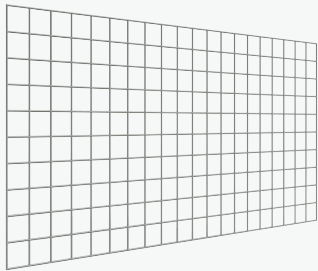
**MESH WIRE:** The nominal mesh wire shall be 4mm in diameter. The wire shall be in accordance with EN 10218-2 and EN 10223-4.

**WELD SHEAR STRENGTH:** The minimum average weld shear strength shall be 70% of the wire tensile strength

**CORROSION PROTECTION:** Galfan (Zn 95% + Al 5%) coated to EN 10244-2 Class A (280g/m2). Galfan shall be supplied from ingot source complying with ASTM B750 to include rare earth metals.

**JOINTING:** All joints and connections shall be formed with continuous 3mm Galfan spiral binders and/or high tensile 3mm diameter Galfan "C" rings.

**DIAPHRAGMS:** Fixed at 1.0m c/c across the gabion width for all units equal to or greater than 2m in length.



4mm Wire	
Wire diameter average	4.01mm
Wire diameter tolerance	+/- 0.08mm
Wire coating	280g/m2
Ultimate Tensile Strength (wire average)	442 MPa/mm2
Weld Shear Strength	3,800 Mpa

# Rhinoweld Welded Mesh Gabions 75x75mm Mesh

**MANUFACTURE:** Rhinoweld Gabions are manufactured from metallic-coated welded wire mesh in accordance with ASTM A974-1997

**MESH SIZE:** The mesh openings shall be square and of nominal dimension of 75mmx75mm and shall conform to ASTM A974-1997, EN10223-4 & EN10218-2

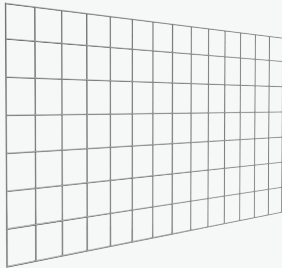
**MESH WIRE:** The nominal mesh wire shall be 4mm in diameter. The wire shall be in accordance with EN 10218-2 and EN 10223-4.

**WELD SHEAR STRENGTH:** The minimum average weld shear strength shall be 70% of the wire tensile strength

**CORROSION PROTECTION:** Galfan coated to EN 10244-2 Class A (280g/m2). Galfan shall be supplied from ingot source complying with ASTM B750 to include rare earth metals.

**JOINTING:** All joints and connections shall be formed with continuous 3mm Galfan spiral binders and/or high tensile 3mm diameter Galfan "C" rings.

**DIAPHRAGMS:** Fixed at 1.0m c/c across the gabion width for all units equal to or greater than 2m in length.



4mm Wire	
Wire diameter average	4.01mm
Wire diameter tolerance	+/- 0.08mm
Wire coating	280g/m2
Ultimate Tensile Strength (wire average)	442 MPa/mm2
Weld Shear Strength	3,800 Mpa

# Rhinoweld Welded Mesh Gabions 100x50mm Mesh

**MANUFACTURE:** Rhinoweld Gabions are manufactured from metallic-coated welded wire mesh in accordance with ASTM A974-1997

**MESH SIZE:** The mesh openings shall be rectangular and of nominal dimension of 100mmx50mm and shall conform to ASTM A974-1997, EN10223-4 & EN10218-2

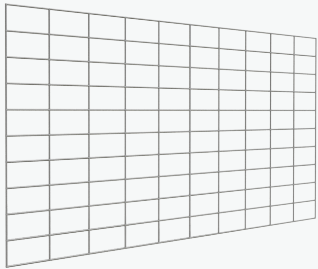
**MESH WIRE:** The nominal mesh wire shall be 4mm in diameter. The wire shall be in accordance with EN 10218-2 and EN 10223-4.

**WELD SHEAR STRENGTH:** The minimum average weld shear strength shall be 70% of the wire tensile strength

**CORROSION PROTECTION:** Galfan coated to EN 10244-2 Class A (280g/m2). Galfan shall be supplied from ingot source complying with ASTM B750 to include rare earth metals.

**JOINTING:** All joints and connections shall be formed with continuous 3mm Galfan spiral binders and/or high tensile 3mm diameter Galfan "C" rings.

**DIAPHRAGMS:** Fixed at 1.0m c/c across the gabion width for all units equal to or greater than 2m in length



4mm Wire	
Wire diameter average	4.01mm
Wire diameter tolerance	+/- 0.08mm
Wire coating	280g/m2
Ultimate Tensile Strength (wire average)	442 MPa/mm2
Weld Shear Strength	3,800 Mpa

AGGRESSIVITY OF ENVIRONMENT	ESTIMATED LIFESPAN
C1: Very Low (Internal buildings with clean atmospheres)	100 years +
C2: Low (Low level of pollution, mostly rural areas)	100 years +
C3: Medium (Urban and industrial atmospheres, moderate sulphur dioxide pollution, coastal areas with low salinity)	93 years
C4: High (Industrial areas and coastal areas with moderate salinity)	47 years
C5: Very High (Industrial areas with high humidity and aggressive atmosphere, coastal and offshore areas with high salinity)	25 years
CX: Extreme (Extreme industrial areas, coastal and offshore areas with occasional contact with salt spray)	< 10 years

## INSTALLATION GUIDE

### 1) FOUNDATION PREPARATION

The foundation on which the gabions are to be placed shall be cut or filled and graded as required.

Surface irregularities, loose material, vegetation, and all foreign matter shall be removed from foundation surface area. Gabions and bedding or specified geotextiles shall not be placed until the foundation preparation is completed, and the subgrade surfaces have been inspected and approved by the engineer or the engineer's representative. Compaction of bedding or filter material will be required per plans and specifications. The surface of the finished material shall be to grade and free of mounds, dips or windrows.

Extra care should be taken with foundation preparations in order to ensure a level and smooth surface. Geotextile shall be installed in accordance with the requirements of the plans and specifications.

### 2) ASSEMBLY AND PLACEMENT

The assembly and placement of gabions shall be in accordance with the following procedures:

**ASSEMBLY.** Rotate the gabion panels into position and join the vertical edges with fasteners for gabion assembly. Where spiral fasteners are used, crimp the ends to secure the spirals in place. Where C ring type alternate fasteners are used for basket assembly, install the fasteners at a maximum spacing of 150mm. Use the same fastening procedures to install interior diaphragms where they are required. Interior diaphragms will be required where any inside dimension exceeds 1m for gabion baskets. Diaphragms will be installed to assure that no open intervals are present that exceeds 1m.

**PLACEMENT.** Place the empty gabions on the foundation and interconnect the adjacent gabions along the top, bottom, and vertical edges using spirals or C rings.

**MODULAR ASSEMBLY.** Gabion cages can be built in a modular method by eliminating an end panel for each cage so no two panels need be connected together. The same method may also be used for successive courses including lid and base panels.

Interconnect each layer of gabions to the underlying layer of gabions along the front, back, and sides.

### 3) FILLING OPERATION

After adjacent empty wire gabion units are set to line and grade and common sides properly connected, they shall be placed in straight-line tension to gain a uniform alignment. Staking of the gabions may be done to maintain the established proper alignment prior to the placement of rock. No temporary stakes shall be placed through geotextile material. Connecting lacing wire and other fasteners (as allowed) shall be attached during the filling operation to preserve the strength and shape of the structure.

Internal connecting cross-tile (stiffener) wires shall be placed in each unrestrained gabion cell, including gabion cells left temporarily unrestrained. Two internal connecting wires shall be placed concurrently with rock placement, at each 300 mm interval of depth. In welded mesh gabions these crossties or stiffeners will be placed across the corners of the gabions (at 300 mm from the corners) providing diagonal bracing. Lacing wire or preformed wire stiffeners may be used.

The gabions shall be carefully filled with rock, either by machine or hand methods, ensuring alignment, avoiding bulges, and providing a compact mass that minimizes voids. At no point in the filling process may rock be mechanically placed from a height of over 1m from machine to fill area. Machine placement will require supplementing with handwork to ensure the desired results. The cells in any row shall be filled in stages so that the depth of rock placed in any one cell does not exceed the depth of rock in any adjoining cell by more than 300 mm. Along the exposed faces, the outer layer of stone shall be carefully placed and arranged by hand to ensure a neat, compact placement with a uniform appearance.

The last layer of rock shall be uniformly leveled to the top edges of the gabions. Lids shall be placed over the rock filling using only approved lid closing tools as necessary. The use of crowbars or other single point leverage bars for lid closing is prohibited due to the potential for damage to the baskets.

The gabion lid shall then be secured to the sides, ends, and diaphragms with spiral binders, approved alternate fasteners, or lacing wire wrapped with alternating single and double half-hitches in the mesh openings.

Any damage to the wire or coatings during assembly, placement and filling shall be repaired promptly in accordance with the manufacturer's recommendations or replaced with undamaged gabion baskets.

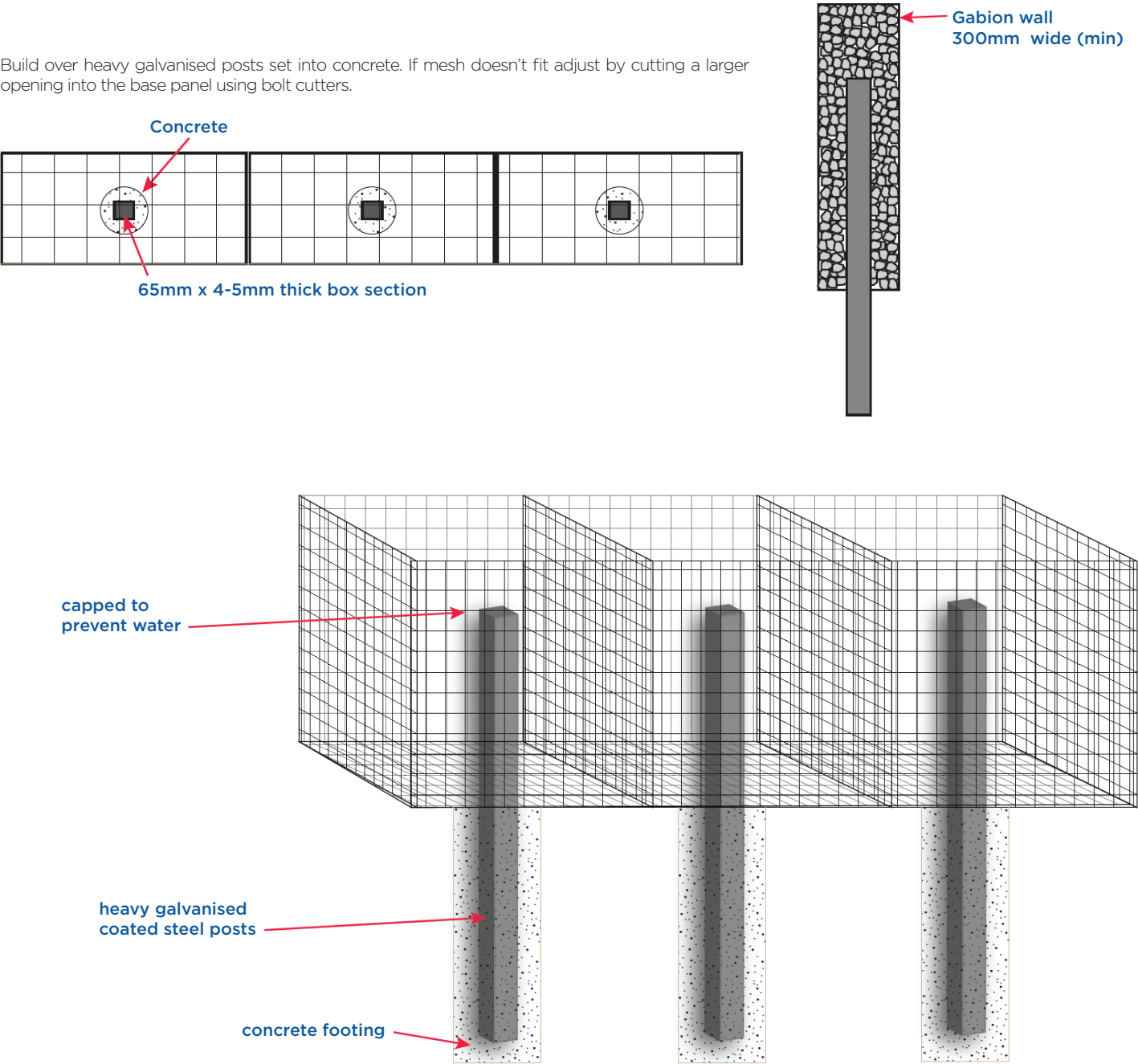
# FREE STANDING GABION WALL REINFORCEMENT

When constructing a gabion wall it is imperative to consider stability and whether the wall can be toppled over and what force is required to do so.

Below is an example of reinforcing a free standing wall. In the example reinforcing is done using capped 65mm square x 4-5mm thick steel (coated internally and externally with heavy galvanising or at least 100g/m<sup>2</sup> or other approved rust protection), set into a concrete footing.

The gabion wall is constructed over these posts which are placed every metre and extended approximately 3/4 of the way into the wall.

**NOTE:** The depth of the footing and reinforcing steel dimensions must be determined based upon soil type and height of wall. Check with your builder, concrete supplier or engineer for advice.





# RHINOWELD

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Superb product,  
couldn't be happier  
with the result, looks  
stunning.

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