

Century Mesh™ Estimated Lifespan

Century Mesh™

Century Mesh™ Gabion is manufactured to a minimum wire coating of 300 grams per m² (gsm) made from a composition of Aluminium 10% and Zinc 90%. Century Mesh™ is manufactured in Australia to meet and exceed gabion specification ASTM A974-97.

Estimated Lifespan

Although difficult to qualify as lifespan of all steels is largely dependent upon the environment and location. Generally, you can expect 20 years life for galvanised wire, and 2-3 times longer life span for Century Mesh™, PVC coated and stainless steel. The wire of Century Mesh™ is given a general lifespan based on ISO 9223. Your Geotechnical Engineer will have specified minimum ratings and specifications for your project.

The mesh lifespan is dependent upon no damage to the coating during installation or during the lifetime of the wall. Because the wire is a coated mild steel any damage to the mesh which removes the Zinc/Aluminium coating will eventually corrode. If upon inspection damage to the coating is seen or corrosion has occurred it needs to be rectified.

Other considerations when determining lifespan is soil PH levels if the product is placed directly on the earth. A geotextile fabric should be used as a separation layer. Some rock such as limestone has a high PH (alkaline) which may have a detrimental effect on the mesh.

Time to first maintenance or DBR, is defined as the time to 5% rusting of the steel surface. The gabion structure at 5% rust still holds the rocks in place, so is still structurally sound, for many years after 5% DBR (Dark brown rust) stage.

Good Drainage

Good drainage behind and below your gabion retaining wall will not only improve the retaining walls stability, it will also increase the expected design life of the gabion wall

Wire Thickness

Century Mesh™ has a gauge width 4mm due to the balance of rigidity and appearance. The wire is not obvious at a distance, especially as it turns grey over time. A 4mm Century Mesh™ wire mesh with a minimum of 300 gsm coating will still have a 50 year plus life span under moderate conditions and will outlast a 5mm galvanised wire mesh made from standard zinc coated mesh.

Physical Properties

ASTM 974-97 is the American Standard Test Method and is the only standard for welded mesh gabions. According to this standard the mesh must meet the following as per Table 1:

PROPERTY	UNIT	ASTM 974-97	Average Value	Outcome
Wire Diameter	mm		4.00	
Wire Diameter Tolerance	mm		+/- 0.05	
Tensile Strength	N/mm ²	350 - 750	420	EXCEEDS
Coating Mass (average)	g/m ²	275	330	EXCEEDS
Coating Mass (minimum)	g/m ²	275	300	EXCEEDS
Coating Type (Aluminium/Zinc)	%		Al10 Zn90	

Table 1: Physical Properties of Century Mesh™ AS/NZS 4534:2006 (June 2017)

Note: Mill data sheets are available to qualified professionals, projects and tenders

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Durability

Expected lifetime for the different coating classes and different corrosivity categories is shown in the table 2, below. Corrosion is a complex issue. Due to the many variables including prevailing wind direction, type and concentration of corrosive contaminants, the amount of sea spray present and the relative periods of moisture or condensation and dryness, only an estimate of expected life can be made regarding the wire life expectancy. The corrosivity classes are based upon the standard ISO 9223:2012.

AGGRESSIVITY OF ENVIRONMENT	Galfan Coating (Al5% Zn95%)	Century Mesh™
C1: Very Low (Internal buildings with clean atmospheres)	100 years +	100 years +
C2: Low (Low level of pollution, mostly rural areas)	100 years +	100 years +
C3: Medium (Urban and industrial atmospheres, moderate sulphur dioxide pollution, coastal areas with low salinity)	50 years	90 years
C4: High (Industrial areas and coastal areas with moderate salinity)	27.5 years	50 years
C5: Very High (Industrial areas with high humidity and aggressive atmosphere, coastal and offshore areas with high salinity)	14 years	25 years
CX: Extreme (Extreme industrial areas, coastal and offshore areas with occasional contact with salt spray)	< 5 years	< 10 years

Table 2: Expected Lifetime (average) Years Until 5% DBR (Dark Brown Rust)



STANDARDS

ASTM A974-97 (2016) - Standard Specification for Welded Wire Fabric Gabions and Gabion Mattresses (Metallic-Coated)
AS/NZS 4534:2006 (R2017) - Zinc and zinc/aluminium-alloy coatings on steel wire
ISO 9223:2012 - Corrosion of metals and alloys – Corrosivity of atmospheres -- Classification, determination and estimation

TRADEMARKS

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