



GALMAC ROCKFALL PROTECTION NETTING

GALMAC® COATED ROCKFALL PROTECTION NETTING

Wire mesh netting is often used to prevent rocks and debris from falling on to roads and railways.

The wire used in the manufacture of the rockfall protection netting is a mild steel heavily galvanized with GALMAC®, a Zinc 5%-Aluminium-MM (mishmetal) alloy.

This solution can also help to establish vegetation.

Maccaferri rockfall mesh has the same characteristics as that used for gabions and Reno mattresses.

Thanks to the double-twist weaving, it is strong enough to withstand the force of the falling rocks and, unlike chain-link mesh, does not unravel should some of the wires break.

Wire

1) **Tensile strength:** both the wire used for the manufacture of gabions and the lacing wire, shall have a tensile strength of 350-500 N/mm² according to EN 10223-3. Above values are referred to wire before manufacturing mesh.

Tolerances of wire shown at Tab. 4 meet the requirements of EN 10223-3.

2) **Elongation:** the test must be carried out before manufacturing mesh on a sample at least 25 cm long.

Elongation shall not be less than 10% as per EN 10223-3.

3) **Tolerances:** the wire diameter tolerances shown at table 4 meet the requirements of EN 10223-3.

4) **Galmac® coating:** minimum quantities of Galmac®, shown at Tab. 4 meet the requirements of ASTM A856, specific for Zn-5%Al-MM coatings

5) **Adhesion of galmac®:** the adhesion of the Galmac® coating to the wire should be such that, when the wire is wrapped six turns round on a mandrel having four times the diameter of the wire, it does not flake or crack when rubbing it with the bare fingers.

GALMAC® COATED ROCKFALL PROTECTION NETTING WITH PVC SLEEVE

More over when required in addition to the galvanization, the steel wire can be coated with a PVC sheath of a nominal thickness of 0,50 mm. The technical characteristics and the resistance of the PVC to ageing meet the relevant standards. The main values for the PVC material are as follows:

Colour: grey-RAL 7037 according to ASTM D 1482-57T;

Specific weight: between 1.30 and 1.35 dN/dm³, according to ASTM D792-91;

Hardness: between 50 and 60 Shore D, according to ASTM D 2240-91;

Tensile strength: not less than 210 dN/cm², according to ASTM D412-92;

Elongation: between 200% and 280% according to ASTM D412-92;

Weight loss: less than 5% after 24 hours at 105°C, according to ASTM D2287-92;

Residual ashes: less than 2% according to ASTM D2124-62T;

Abrasion resistance: loss in volume less than 0.30 cm³, according to ASTM D1242-56(75), test method A.

The specific artificial ageing tests are:

salt spray test: test period 1,500 hours, test method ASTM-B 117-90;

exposure to UV rays: test period 2,000 hours at 63°C, test method ASTM D1499-92 and ASTM G23-93 apparatus type E;

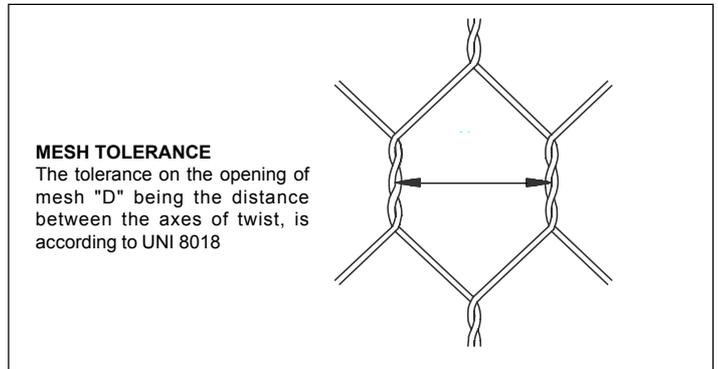
exposure to high temperatures: test period 24 hours at 105°C, test method ASTM D1203-89 and ASTM D2287-92;

brittleness temperature: Cold Bend less than -30°C test method BS2782-104 A; Cold Flex less than +15°C in accordance with BS 2782-151A (84).

Fig.1



Fig.2



Tab. 1

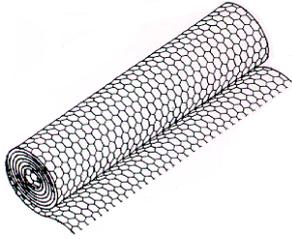
STANDARD COMBINATIONS	
Mesh type	Wire Dia. mm
10x12	2.70 zn
	3.00 zn
8x10	2.70 zn
	3.00 zn
6x8	2.20 zn
	2.70 zn
5x7	2.00 zn
8x10	2.70 int- 3.70 ext. PVC
6x8	2.20 int- 3.20 ext. PVC

Tab. 3

Mesh wire	Dia.mm	2.70	3.00
Selvedge wire	Dia.mm	3.40	3.90
Lacing wire	Diamm	2.20	2.40

Tab. 4

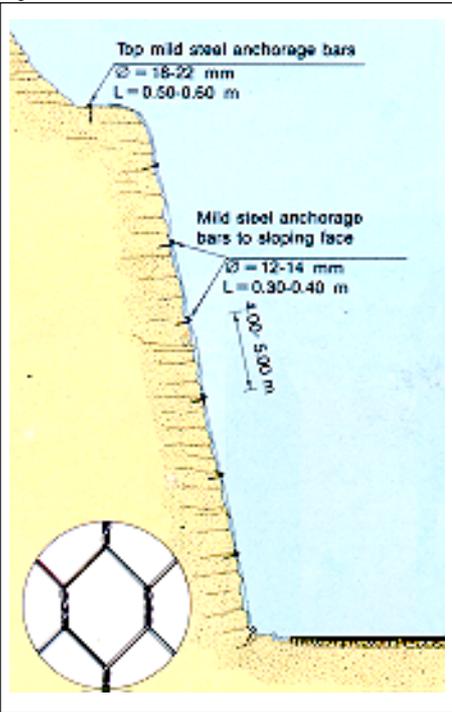
Mesh wire	Dia.mm	2.00	2.20	2.40	2.70	3.00
Wire tolerance	Dia.mm±	0.06	0.06	0.06	0.08	0.08
Quantity of Galmac gr/m ²		215	230	230	245	255



Tab. 5

Standard sizes			
Length (m)	Tolerances	Height (m)	Tolerances
50m	0/+1%	2-4m	±D

Fig. 3



Anchoring at the top

The distribution of top anchorages must be calculated on the basis of the maximum load that may occur at each anchorage, bearing in mind the breaking strain of the double twist netting. In all cases it is preferable to link the individual anchorages with a steel rope which must be tied to the mesh.

Treatment at the foot (Fig 4-5-6)

When only a small amount of material is likely to collect at the toe of slope, the following alternatives can be adopted:
 - simply leave the lower end of the netting open, about 0.30 m, to facilitate removal of the detritus deposited;
 - close the netting at the foot to contain the loose material.
 The bottom fixing must allow for periodic removal of the accumulated material as necessary, after which the netting must be anchored again.

Anchoring on the face

On the rock face the sheets of netting must be securely and continuously laced together using bind wire of diameter equal to, or less than that of the wire of which the mesh is made, or with metal stakes of various types (Fig. 7-8-9). In considering the layout with regard to the morphology when it is necessary to keep the sheets close to the face to prevent fragments of rock from rolling or for other reasons, suitable anchorages must be provided at one every 15-30m² of covered surface.

Fig. 4



Fig. 5



Fig. 6



Fig.7



Fig.8

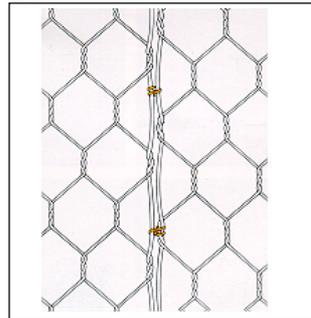
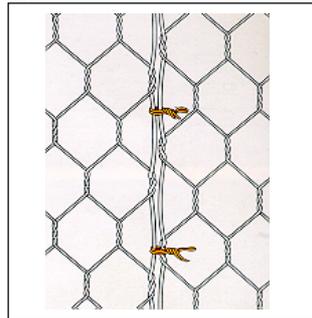


Fig.9



When requesting an offer, please specify:
 quantities per each size
 size per rolls (length x height)
 type of mesh opening
 wire diameter

Example: Qty. 1000 m² of mesh 50x2 m - mesh type 8x10 - wire Δ1α. 2.7 mm GALMAC coated

For the optimisation and improvement process of the technical characteristics of the products, the producer reserves the faculty to modify standard and characteristics at the product without any warning. The information contained herein is to the best of our knowledge accurate, but since the circumstances and conditions in which it may be used are beyond our control, we do not accept any liability for any loss or damage, however arising, which results directly or indirectly from the use of such information nor do we offer any warranty or immunity against patent infringement.



Environmental solutions

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 production, certified internal management and technical
 assistance in compliance with ISO 9002

