

MAC.RO. SYSTEM - STEELGRID STEEL GEOCOMPOSITE

STEELGRID

STEELGRID is a woven geo-composite made by assembling together steel wire and ropes during the production of hexagonal woven double twist wire mesh. STEELGRID mesh rolls have a standard length of 25 m or 50 m and a width of 3 m.

STEELGRID MO (Mono Oriented)

Steel ropes, 8 mm in diameter, are used in place of the conventional selvedge wire and also inserted longitudinally in the woven mesh at a distance of 1,5m and is particularly applicable to simple revetment type applications. (Figure 1).

STEELGRID BO (Bi Oriented)

Steel ropes, 8 mm in diameter are used in place of the conventional selvedge wire and also inserted longitudinally in the woven mesh at a distance of 1,5m (except for STEELGRID BO 300 where steel ropes are inserted at 3,0 m spacing). Steel ropes are also inserted in the transverse direction through the mesh securing the edge ropes with clips during manufacture at a distance of 1,5m, 2,0m and 3,0m, (STEELGRID BO 150, STEELGRID BO 200, STEELGRID BO 300), respectively. (Figure 2).

The STEELGRID geo-composite is particularly suitable for rockfall protection as a drapery system for surface or soil veneer slope stability. It has the big advantage of connecting the longitudinal ropes to the top anchor rope and the weaving of the ropes inside the steel mesh increases the lining's strength, resulting in a more effective anchoring ability.

The steel wire used in the manufacture of the double twisted wire mesh is heavily galvanised with Galfan, a 95%Zn-5%Al-MM (mischmetal) alloy.

The double twist prevents unravelling of the mesh should any accidental wire rupture occur.

Wire

All tests on wire are performed prior to manufacturing the mesh.

1. **Tensile strength:** The wire used for the manufacture of the mesh shall have a tensile strength exceeding the range 350-550 N/mm² according to EN10223-3 in order to increase the tensile resistance of the finished product. Wire tolerances Table 2) are also in accordance with EN 10218 (Class T1).
2. **Elongation:** Elongation shall not be less than 9% exceeding, in order to increase the tensile resistance of the finished products, as suggested in EN 10223-3.
3. **Galfan coating:** Minimum quantities of Galfan coating shown in Table 2 meet the requirements of EN 10244-2 (Table 2 and Class A).
4. **Adhesion of Galfan:** The adhesion of the Galfan coating to the wire shall be such that, when the wire is wrapped six turns around a mandrel having four times the diameter of the wire, it does not flake or crack when rubbing it with the bare fingers.

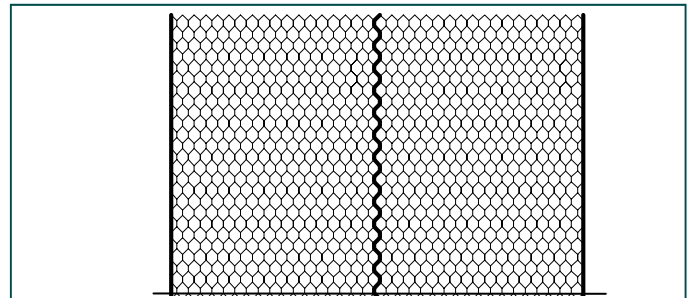


Figure 1 - Steelgrid MO (Mono Oriented)

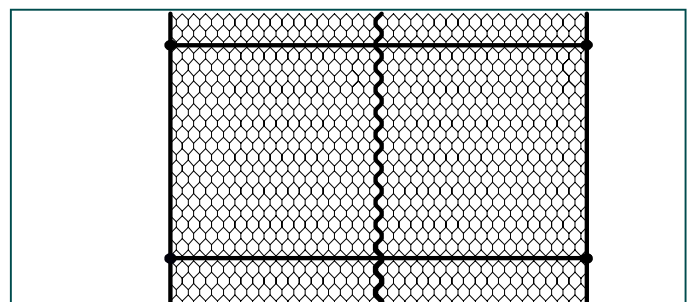


Figure 2 - Steelgrid BO (Bi Oriented)



Figure 3 - Steelgrid application

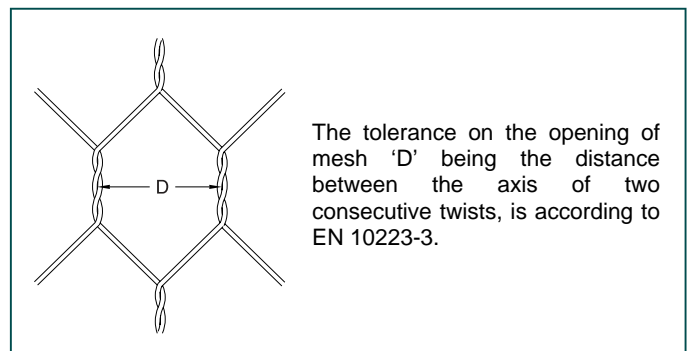


Table 1 - Mesh detail

Steel Ropes

- Galvanised steel : UNI EN 10264-2
DIN 3060, UNI ISO 2408
- Diameter (mm) : $\varnothing = 8$
- Drawn steel ropes type 6 x 7 IWR : DIN 3060, UNI ISO 2408
- Nominal tensile strength at breaking : 1770 N/mm²
- Minimum breaking load of the rope : 40,3 kN

Table 2 - Standard Mesh-Wire

Mesh Type	D (mm)	\varnothing Wire (mm)
8 x 10	80	3,00
Mesh wire	\varnothing mm	3,00
Wire tolerances	(\pm) \varnothing mm	0,07
Galfan minimum quantity	g/m ²	265
Longitudinal and Transversal Rope	\varnothing mm	8,00

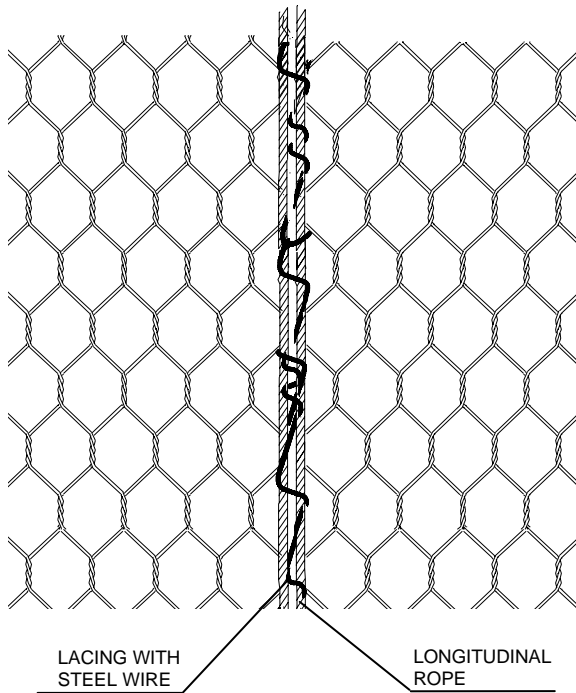
Table 3 - Standard typologies

Type	Length (m)	Width (m)	Longitudinal rope spacing (m)	Transversal rope spacing (m)
STEELGRID - MO	25,0 50,0	3,00	1,50	-
STEELGRID - BO (150)	24,5 49,5		1,50	1,50
STEELGRID - BO (200)	25,0 50,0		1,50	2,00
STEELGRID - BO (300)	24,5 49,5		3,00	3,00



Figure 4 - Particulars of Steelgrid anchorage

Lacing of adjacent rolls in case of distance between two trasversal wire ropes.



Lacing of adjacent rolls.

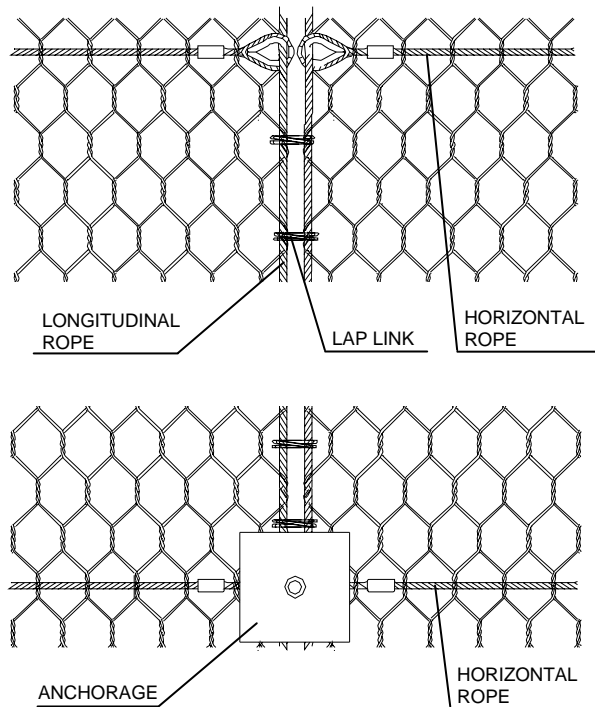


Figure 5 - Lacing details