CASTORO MATTRESSES

Castoro Mattress
Castoro mattresses are manufactured from hexagonal woven steel wire Mesh Type 60, commonly referred to as double twist wire mesh as per SANS 1580:2010 & EN 10223-3:2013 : (Figure 1 and Table 1). The Castoro mattresses are filled with rock at the project site to form flexible, permeable, monolithic structures for river bank and scour protection, channel linings for erosion control and underwater pipeline protection.

The steel wire used during the manufacture of the mattress is to SANS 675:2011 and is heavily zinc or zinc alloy Class A coated (Galfan Zn 95Al5). If required, a polymer coating is extruded over the galvanized wire to provide added protection for use in aggressive environments such as, acidic soils and water, salt water and in water carrying a high abrasive sediment load. The two types of Polymer coatings available are, PVC coating to SANS 1580:2010 & EN 10223-3:2013 which is available in grey or tan and has a nominal thickness of 0,5 mm.

For more information on the wire and coatings and the mesh see TDS:

TDS-ZA-Wire & Coatings-Rev:01-Oct17
TDS-ZA-Mesh-Rev02-Oct17

The base, diaphragms, front, end and sides of the Castoro are manufactured from one continuous panel of mesh. The base is folded onto itself at 1,0m intervals to form double diaphragms that are automatically secured with spirals, prior to folding up the sides and securing to the diaphragms. To reinforce the unit, all mesh panel edges are selvedged with a wire having a greater diameter than the mesh wire. Dimensions and sizes of Castoro mattresses are shown in Table 2.

Filling and Lacing
Castoro mattresses should be filled with rock ranging between 80 mm and 120 mm. The range in sizes may allow for a variation of 5% oversize and / or 5% undersize rock, provided it is not placed at the exposed surface. Rocks shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure. Care should be taken when placing the stone to ensure that any Polymer coating of the Castoro mattress is not damaged. All visible faces should be carefully hand-packed for appearance purposes.

In place of lacing wire, lacing operations can be made by using a Spenax tool (Figure 4B) available from our offices together with stainless steel rings (Figure 3A) having the following specifications:
- diameter: 3mm
- tensile strength: 156-178 kg/mm^2

Spacing of the rings or loops when lacing must not exceed that shown in Figure 3B.

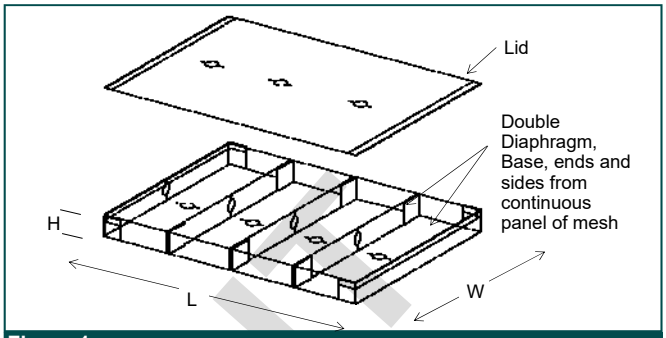
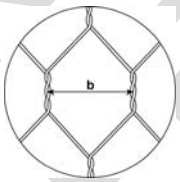


Figure 1

STANDARD MESH-WIRE			
Mesh Type 60	b	Tolerance (mm)	OD Wire Ø (mm)
Galvanized	60	-4 +10	2,2
Galvanized + PVC	60	-4 +10	2,2 / 3,2



MESH TOLERANCE
The tolerance on the opening of mesh "b" being the distance between the axis of two consecutive twists according to SANS 1580:2010 & EN 10223-3

Table 1

STANDARD CASTORO MATTRESS SIZES		
Length (m)	Width (m)	Height (m)
6,0	2.0 / 3.0	0,17 / 0,23 / 0,30

Tolerances : Height, Width: ±5%; Length: ±10%
All sizes and dimensions are nominal.

Table 2

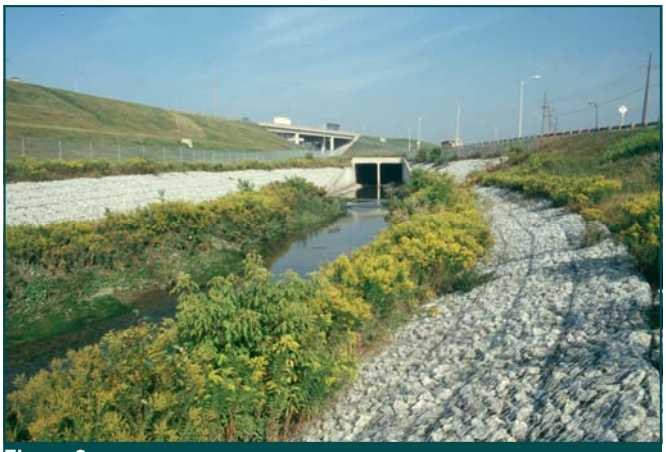


Figure 2

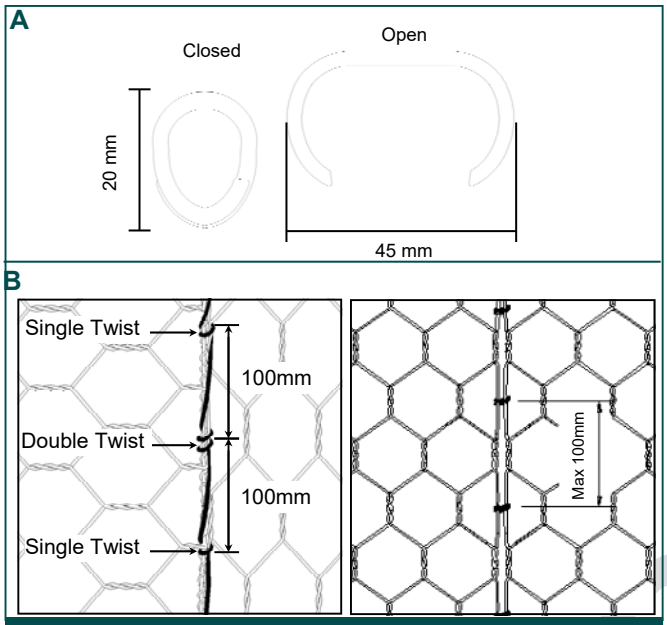


Figure 3

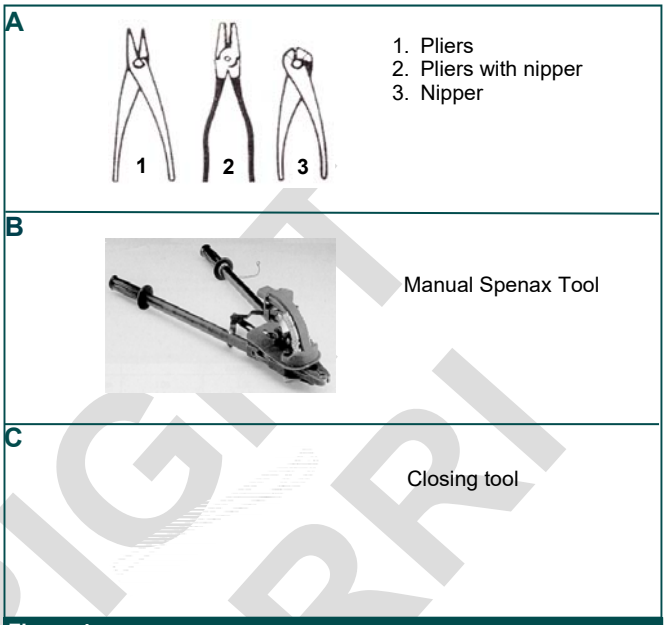


Figure 4

Sand River

Maccaferri SA (Pty) Ltd t/a
Maccaferri Africa

Head Office: Durban
Branches: Cape Town
East London
Johannesburg
Tongaat (Factory)

P O Box 815
New Germany
3620

National Tel: 087 742 2710
International Tel: + 27 31 705 0500
Fax No: 087 742 2734
www.maccaferri.com/za

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