MACCAFERRI

PRODUCT INSTALLATION GUIDE

UK/IG/TM/ Rev:02, Mar 11

TERRAMESH® SYSTEM

Material Delivery

Terramesh® System units are supplied folded and bundled. The bundles are compressed and strapped together at the factory for easy shipping and handling. Each bundle is labeled with a tag indicating the sizes of the units contained. Lacing wire is supplied in coils and ring fasteners (if ordered) are shipped in boxes.

Assembly

The folded units shall be taken out from the bundle and placed on a hard flat surface. Terramesh® System units shall be opened, unfolded and pressed out to their original shape. Unlike a gabion, the Terramesh unit consists of 3 pieces;

- Soil reinforcement tail / face / lid in one piece
- Fascia unit back and side panel in one piece
- Diaphragm

The back/sides panel and diaphragm are loosely attached in the factory to allow for site variability. It is very important that the fascia front and lid unit is folded in the correct locations to ensure the height and depth of the fascia unit meet the project requirements. The back/ side panels are lifted to a vertical position with side panels folded forwards. The line of the back panel is adjusted to ensure the dimension to the mesh leading edge matches the width + height of the side panels.

The side panels are then fastened to the base mesh selvedge. The loose inner diaphragm panel can then be fitted midway along the face and fastened to the base and back panel. The face panel is then folded to vertical. It can be initially held in position by using the protruding heavy selvedge wire at the top of the end and diaphragm panels, and then fully fastened to these panels to complete the face box assembly.

Be sure to check dimensional accuracy of the unit before filling with stone, as the unit can easily be adjusted at this stage. We recommend folding the front panel around a scaffolding board or similar to create a crisp fold to the top and bottom of the face of the unit.

Fastening Procedure

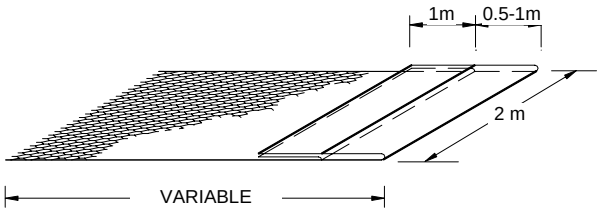
When using lacing wire, cut off a piece of wire approximately 1.5 times the length of the edge to be tied. The maximum length of the edge to be tied at one time shall not exceed 1 m. Longer edges shall be joined by several lengths of wire. Tie wires shall be secured around the selvedge wire or heavier edge wire, where present, by looping and twisting the lacing wire around itself. Proceed tying with alternate double and single loops. Double loops shall be made at intervals not greater than 150 mm. All panels shall be pulled tightly together during the tying operation. Pliers may be used to create tight joints. The other end of the lacing wire shall be secured by again looping and twisting the wire around itself. Care should be taken to avoid damaging the wire coating.

When steel ring fasteners are used, the use of either a mechanical or a pneumatic fastening tool is required. Rings shall be installed at the top and the bottom connections of the end and diaphragm panels and then at 150 mm (maximum spacing) along all edges. Connect with ring fasteners between adjacent units, or where ring cannot be fully closed, lacing wire will be needed.

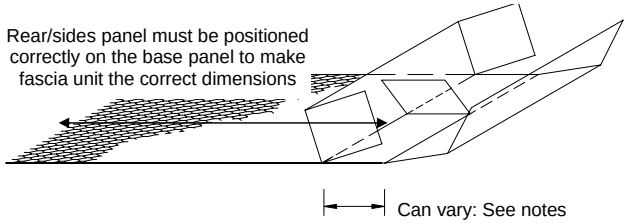
Foundation preparation

The foundation on which the Terramesh® System units are to be placed shall be level, and graded to the elevations as shown on the project construction drawings. It shall be free of surface irregularities, loose material, and organic matter in accordance with the project specifications. Appropriate measures shall be taken for filtering and drainage of the foundation, as per the project specifications. Geotextiles (if required) are to be installed in compliance with any requirements for subsurface drainage applications.

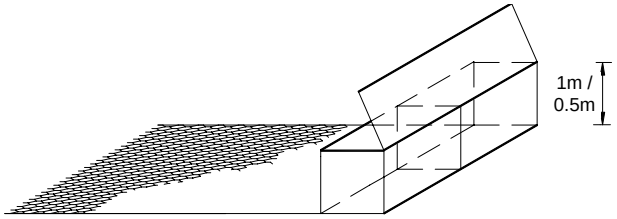
Unit unfolded



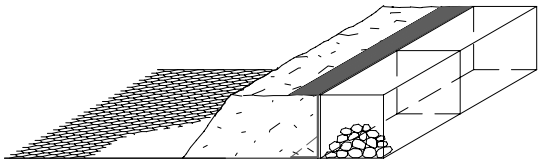
Unit lifted into vertical position



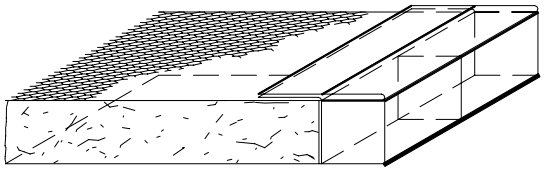
All edges secured to form a boxlike facing section



1. **Filling with rock on the facing section**
2. **Geotextile behind the facing section**
3. **Soil filling and compaction**



Placement of next Terramesh unit



Installation phases

NOTE: Refer to Maccaferri for further details on basket lacing & filling procedure

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Maccaferri reserves the right to amend product specifications without notice and specifiers are requested to check as to the validity of the specifications they are using.

Installation, filling and soil compaction

After the foundation has been prepared, the pre-assembled Terramesh® System units are placed in position empty, and shall be tied or fastened to adjacent units along all containing edges in order to form a continuously connected, monolithic structural unit. The units are then lightly tensioned (parallel to the wall alignment) using a cable winch/tirfor or similar. This very simple technique holds the faces taught during the filling operations and provides a crisp wall alignment. The Terramesh units are then laced to the course below (if present).

Rocks for the gabion facing section 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.
Rocks shall range between 100 mm and 200 mm. The range in sizes may allow for a variation of 5% oversize and/or 5% undersize rock, provided it is not placed on the exposed surface. In all cases, the oversize rock shall not be larger than 250 mm, and the undersize rock shall not be smaller than 50 mm.
Rock shall be placed in 300 mm lifts for 1 m high Terramesh® System units, and 250 mm for 0.5 m high units. The fill layer shall never be more than 300 mm higher than any adjoining cell. Care shall be taken when placing the stone to ensure that the PVC coating is not damaged. After a layer of rock has been placed in the cell, sufficient hand manipulation of the rock shall be performed to minimize voids and achieve a maximum density of the rock. The rock in **exposed vertical faces** shall be hand placed to reduce voids in the **outer face**. This is not necessary throughout the whole unit, but at the face only. Internal cross ties shall be installed connecting the front and back faces of any supported or exposed face at the vertical third points for a 1 m high unit, as the cell is being filled. The gabion facia unit of the Terramesh® System shall be overfilled to approximately 25 to 40 mm to allow for natural settlement. The top surface shall be smoothly levelled, minimizing voids. Ensure that diaphragm tops are accessible for connecting to the lid.

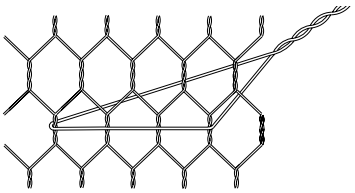
Closing

After the rock has been levelled and the voids minimized, fold the lid down and pull edges of the panels together. It should require a light stretching using an appropriate closing tool or lid closer in order to bring the mesh panel pieces together. Care shall be taken that the mesh is not deformed or the coating on the wire damaged. The projecting selvedge wire of the lid shall be wrapped two complete turns around the selvedge wire or edge wire on the sides. The lid shall be tightly tied along all edges, ends and tops of diaphragms. Adjacent lids may be tied or attached simultaneously. All projecting sharp ends of wire shall be turned in on the completed gabion structure.

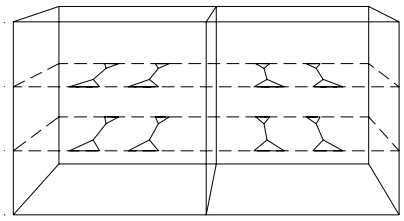
Backfill structural embankment

Prior to starting this operation, a geotextile filter shall be placed at the facing section and backfill interface. The geotextile should have a 0.3 m return at both top and bottom. Compaction within 1 m of the face should be carefully performed with a walk-behind compactor to prevent any distortions in the wall or slope face.
Place soil fill in approximately 300 mm lifts and compact it to the required level. Mechanically stabilized earth structures shall be made of a good quality, free draining, granular and/or selected fill. The recommended soil gradation is in the range of 0.02 mm to 6 mm, or as indicated by the project construction drawing. Soils outside of this range may be suitable, providing they have been approved by a geotechnical engineer. Compaction shall be performed to 95% of Standard Proctor, by use of conventional compaction equipment.

Lacing Wire

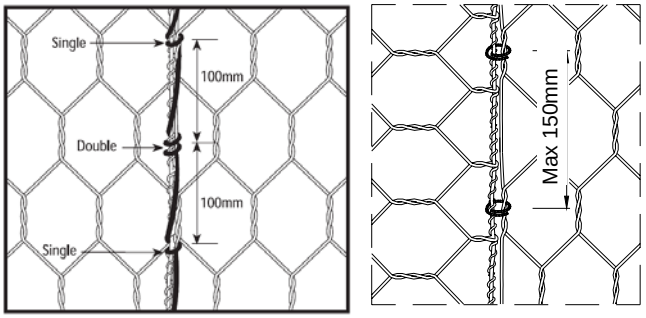


Cross ties



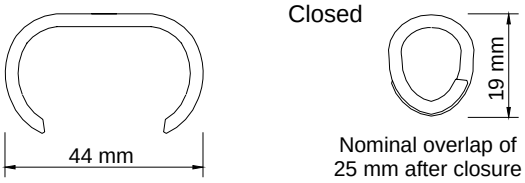
Detail of cross ties

Lacing wire | Rings



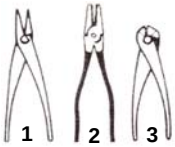
Connection detail

Open | Closed



Nominal overlap of 25 mm after closure

Steel Rings



1. Pliers
2. Pliers with nipper
3. Nipper

Pneumatic Spenax tool

Fastening Tools

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