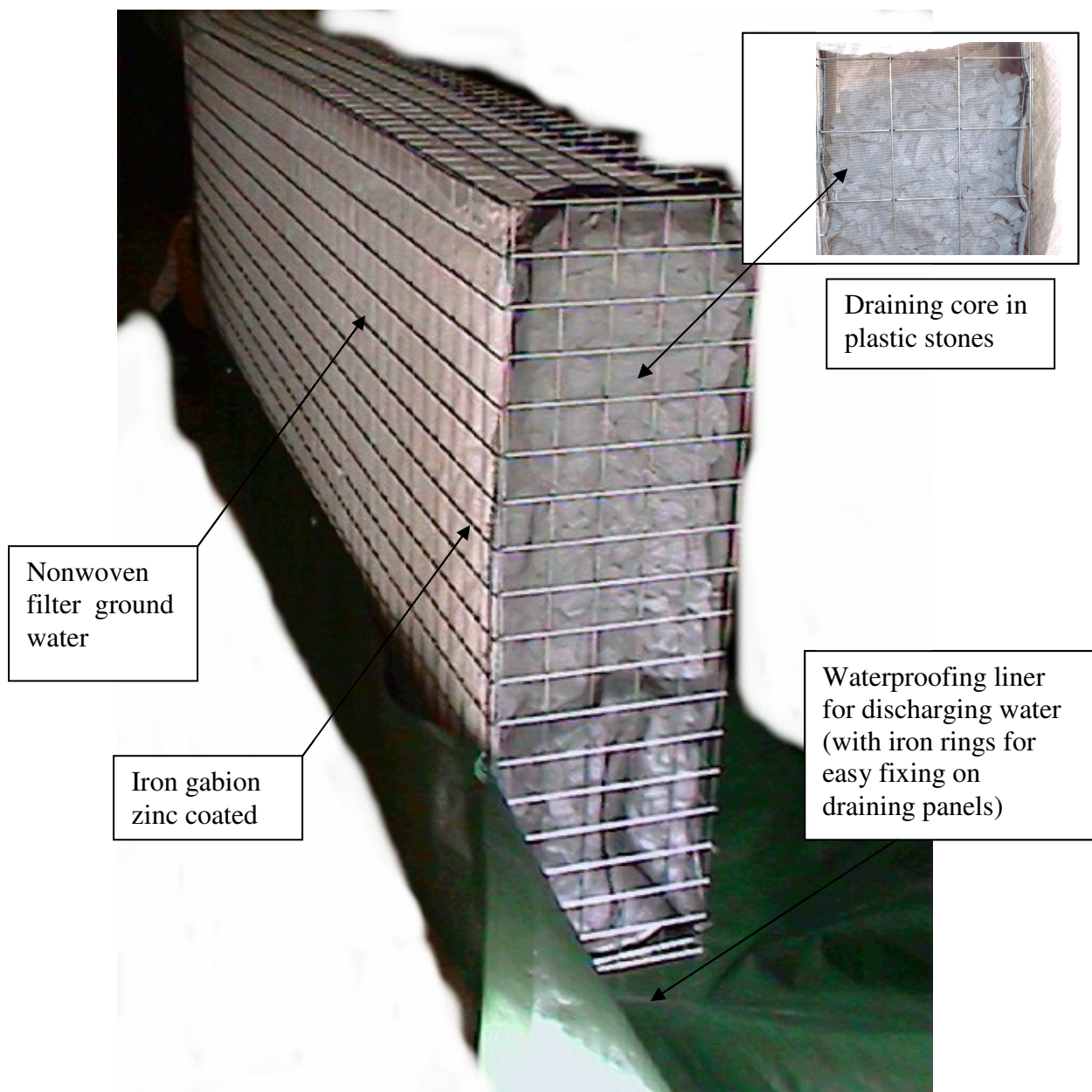


IDROTER di Martinelli Francesco  
Via Tevere 3-35030 Rubano (PD)-ITALY- phone 049/8979925 fax 049/5224306  
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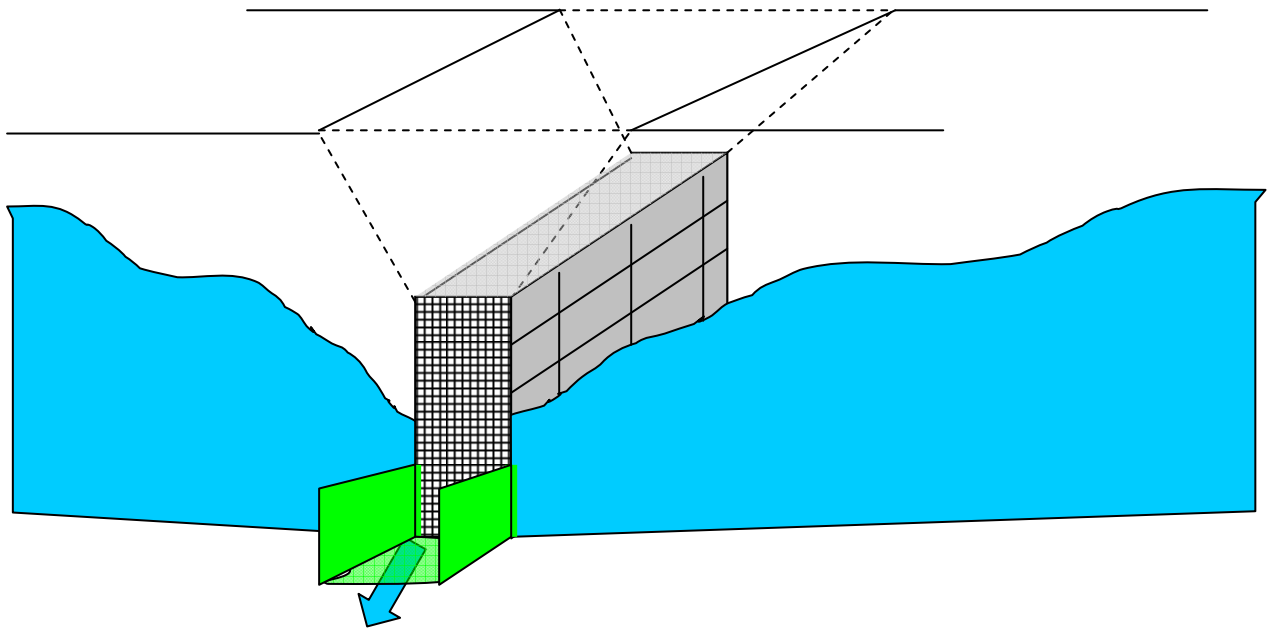
## DRENOTER

**The simple, lightweight and economical system to implement drainage under conditions of high stress geomechanical, without using gravel or inert**

**Applications:** deep drainage trench in areas of landslides, vineyards, retaining walls, diaphragm in defence of foundations



**Operation:** A sturdy wire armature wrapped in the bag non-woven geotextile, which has the function of filter ground-water and is filled with polystyrene chips.



These features give the finished product high resistance to crushing and a large amount of voids that can capture the water in the soil and channel it through the sheath at the bottom, toward the drains. The cap is loaded with a sturdy polyethylene square mesh grid to allow the radial flow of water from one module to another..

**Package size:** galvanized iron forms metallic lining nonwoven fabric, the core consists of small drainage blocks of plastic foam.

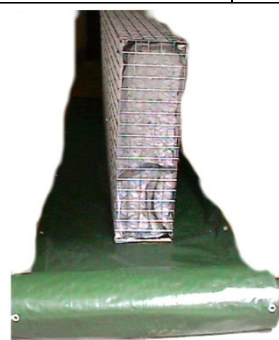
<i>PRODUCT</i>	<i>HEIGHT (mm)</i>	<i>LENGTH (mm)</i>	<i>THICKNESS (mm)</i>
DRENOTER 1.000	1.000	2.000	300
DRENOTER 500	500	2.000	300
<i>PRODUCT</i>	<i>HEIGHT (m)</i>	<i>LENGTH (m)</i>	
LINER 0.9 X 50	0.9	50	



DRENOTER 1.000



DRENOTER 500



LINER IN ROLLS

## ***LAYING HINTS OF DRENOTER***

### **EXECUTIVE STEPS**

- 1) turns out the area from the coated tape

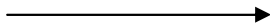


A

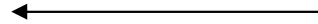


B

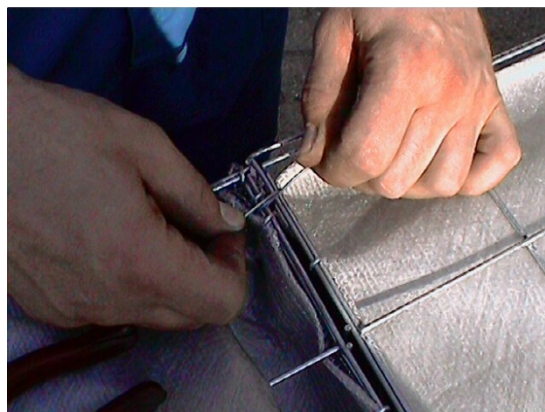
- 2) Join two sides of the modules to be joined



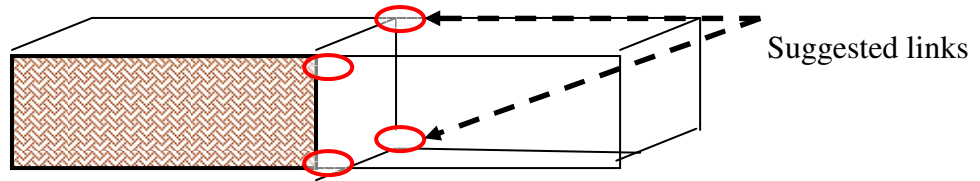
C



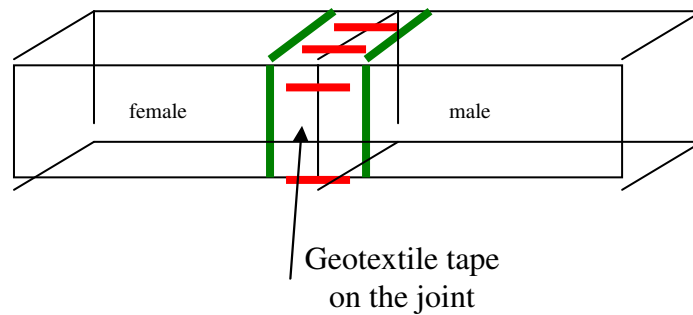
3. You run the attachment of the modules (with wire or metal rings), suggested a ligation for each edge



D



You run the other side of the collar of geotextile to cover the area of junction between the modules:

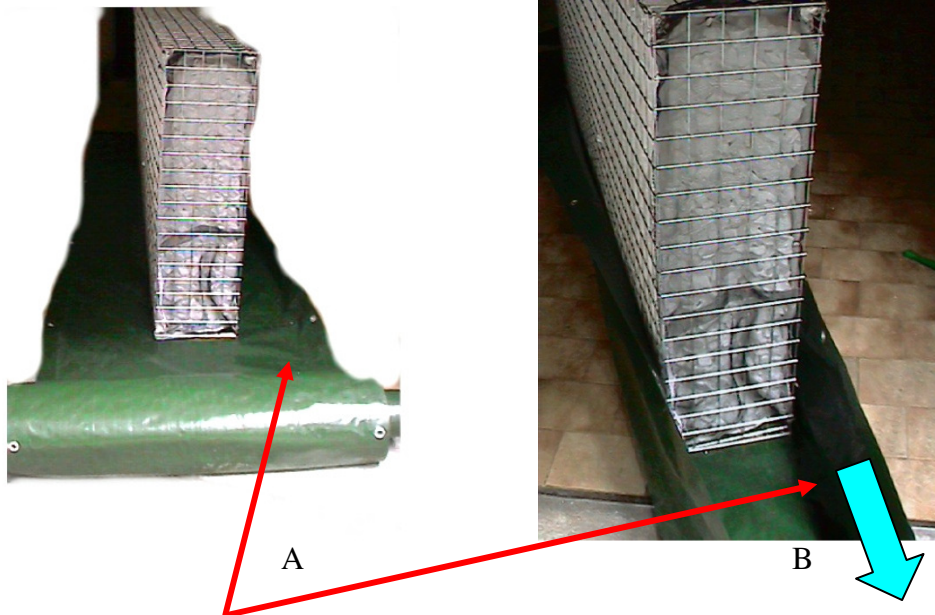


The bands of geotextile is to prevent the soil can enter the junction between the modules

completed the connection of the modules between them was obtained a desired length of the strip drain



At this point you switch to fix the waterproof sheathing at the base of the modules, through the metal eyelets



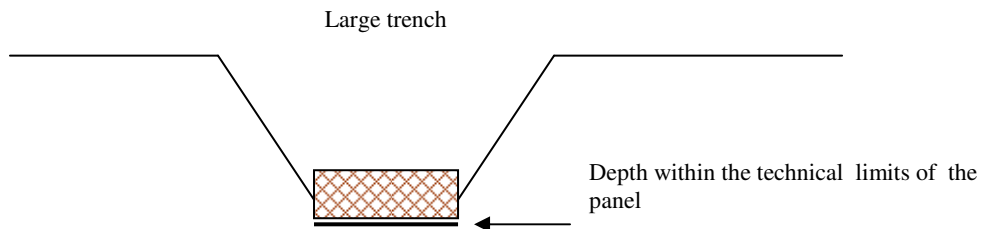
Laying of the liner in rolls under the draining panels (fig.A), fixing of the modules one each other, then linking to the iron gabion of the liner to obtain a channel and discharging water



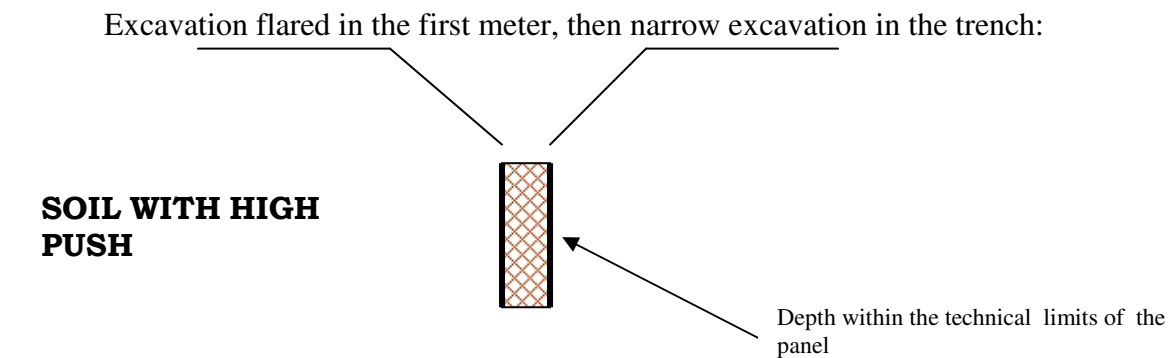
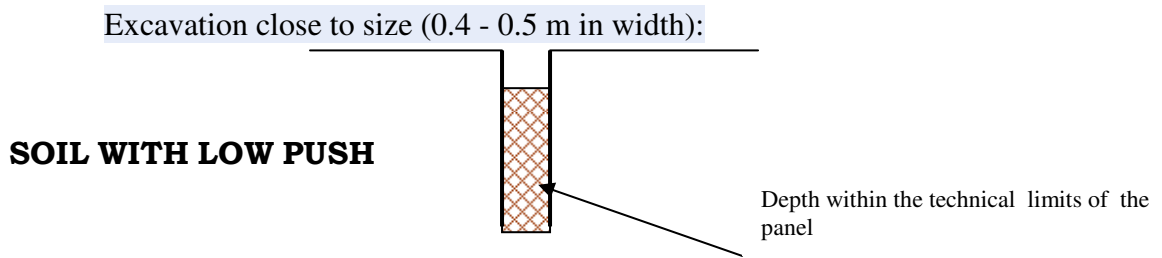
Modules DRENTER assembled in one strip waterproofed at the bottom, before laying into the trench.

**Tips for the excavation and the laying of the module DRENTER**

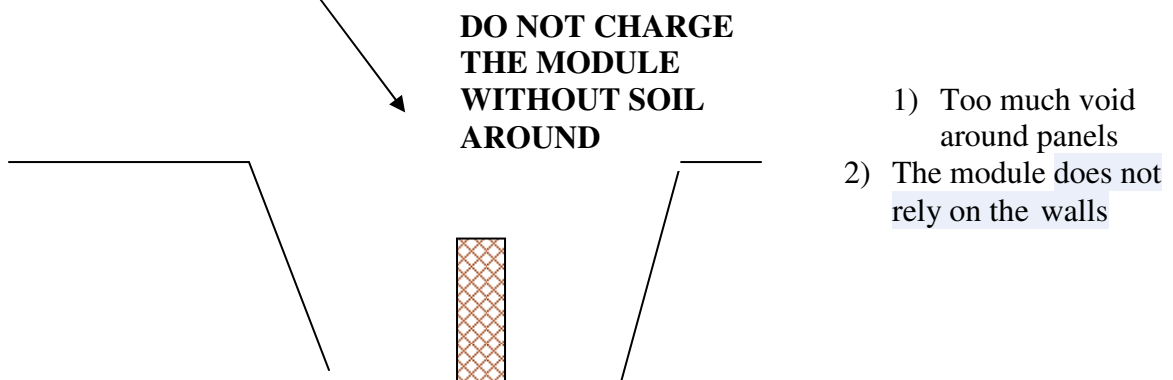
1) lying horizontal:



2) placed vertically:



**3) METHOD'S MISTAKEN FOR PLACEMENT OF MODULES**



## ***Drenoter 1.000***

Draining panel high-performance hydraulic / mechanical

### **DATA SHEET**

#### **EXTERNAL IRON GABION**

Type: welded mesh knitted rectangular / square

Height: 1.000 mm

Length: 2.000 mm

Thickness: 300 mm

Wire thickness: 3 mm

Galvanizing of the wire: in accordance with DIN 1548

#### **GEOTEXTILE FOR COATING**

Type: continuous filament spunbonded needle-punched geotextile mechanically

Raw material: polypropylene

Weight: between 125 and 155 g/m<sup>2</sup>

Thickness (at 2 kPa): between 1.0 and 1.2 mm

Water permeability (at 2 kPa): 100 l/s/m<sup>2</sup> with  $\Delta h = 50$  mm

Effective diameter of pores: between 100 and 105  $\mu$ m

Tensile Strength: from 9.5 and 11.5 kN / m

Elongation (long / transverse): 90 / 75%

COVERING THE HEADS Geogrids

#### **BLACK COVER IN GEOGRID OF HEADS**

mesh square / rectangular with dimensions able

to retain the draining plastic core

Raw material: polyethylene / polypropylene

#### **LINKING GEOTEXTILE/GEOGRID ON THE HEADS**

The geotextile filter is sewn to the geogrid by multifilament and monofilament polyethylene polypropylene, so as to prevent the leakage of drainage material.

#### **DRAINAGE CORE (BULK SHAPED ELEMENTS OF SYNTHETIC RESIN) HYDRAULIC PERFORMANCE OF CORE DRAINAGE**

Hydraulic gradient ( $\Delta h/L$ )	0.35	0.75	1.5	3	6.8
Permeability K (m/s)	$2.8 \times 10^{-4}$	$4.2 \times 10^{-4}$	$5.81 \times 10^{-4}$	$7.99 \times 10^{-4}$	$1.10 \times 10^{-3}$

These permeability values are obtained through laboratory tests with permeameter cell.

## ***Drenoter 500***

Draining panel high-performance hydraulic / mechanical

### **DATA SHEET**

#### **EXTERNAL IRON GABION**

Type: welded mesh knitted rectangular / square

Height: 500 mm

Length: 2.000 mm

Thickness: 300 mm

Wire thickness: 3 mm

Galvanizing of the wire: in accordance with DIN 1548

#### **GEOTEXTILE FOR COATING**

Type: continuous filament spunbonded needle-punched geotextile mechanically

Raw material: polypropylene

Weight: between 125 and 155 g/m<sup>2</sup>

Thickness (at 2 kPa): between 1.0 and 1.2 mm

Water permeability (at 2 kPa): 100 l/s/m<sup>2</sup> with  $\Delta h = 50$  mm

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These permeability values are obtained through laboratory tests with permeameter cell.

*Waterproofing liner in rolls for base of draining panels*



**DATA SHEET**

Geomembrane low density polyethylene (LPDE), reinforced with internal armature fabric of high density polyethylene (HPDE), UV stabilized

<b>Tensile strength (MD)</b>	<b>20 kN/m</b>	<b>DIN 53354</b>
<b>Tensile strength (TD)</b>	<b>20 kN/m</b>	<b>DIN 53354</b>
<b>Resistance to tearing (MD)</b>	<b>150 N</b>	<b>DIN 53356</b>
<b>Resistance to tearing (TD)</b>	<b>150 N</b>	<b>DIN 53356</b>
<b>CBR puncture resistance</b>	<b>2.500 N</b>	<b>EN ISO 12236</b>
<b>Mass per unit area</b>	<b>200 g/m<sup>2</sup></b>	<b>UNI 8202/7</b>
<b>Thickness</b>	<b>0,30 mm</b>	<b>UNI 8202/6</b>
<b>Permeability to water vapor</b>	<b>0,94 gr/m<sup>2</sup> x 24 h</b>	<b>UNI 8202/23</b>
<b>permeability</b>	<b>1,47 x 10<sup>-14</sup> m/sec</b>	<b>UNI 8202/23</b>
<b>U.V. resistance</b>	<b>Yes</b>	
<b>Chemical stability</b>	<b>Typical of PE</b>	
<b>Temperature resistance</b>	<b>from - 40° to + 80° C</b>	
<b>Quality assurance</b>	<b>ISO 9002</b>	
<b>Tolerance</b>	<b>5%</b>	