VOLGRIP HP - High Performance





BENTONITE HYDRO-REACTIVE MEMBRANES

UNI EN 13491

PRODUCT DESCRIPTION

VOLGRIP HP is a self-gripping bentonite membrane for the effective protection against groundwater of structures built with reinforced concrete that is constant, fluctuating or due for demolition.
Thanks to the double layer, VOLGRIP + MDPE (polyethylene membrane), it guarantees double protection, also in the presence of high water head, and exceptional self-confinement.

PRODUCT APPLICATION

• Applications with reinforced concrete castings (beds and foundation walls against diaphragms, sheet pile and Berlinese retaining walls, existing foundations or disposable formwork) in constructions such as garages, cellars, warehouses, safety vaults, taverns, stores, multi-storey car parks, underpasses, tunnels etc...
Contact Volteco Technical Service for a different use.

ADVANTAGES

• Insuperable self-confinement
• High impermeability even in difficult sites and in the presence of water with high salinity or polluted
• It can be drilled, cut and shaped to adapt to the structure
• Natural-based product, it earns points for LEED certification
• Natural Sodium Bentonite-based product
• Easy and quick application

PREPARATION AND APPLICATION

How it works

When in contact with water, or just simply in contact with the ground humidity, the natural Sodium Bentonite contained in VOLGRIP HP turns into a waterproof gel through hydration and expands up to 16 times its initial dry volume while remaining waterproof tank to the self-containment implemented by outdoor non-woven textile.

The special VOLGRIP needle-punching allows perfect self-confinement in such expansion once the casting is carried out (which is very important to obtain high waterproofing).

In fact, the fibres of the non-woven textile (on the external side) protrude purposely from the textile (on the internal side) and during the casting, the fibres are embedded into the concrete, thereby resulting in excellent mechanical adhesion of all the product layers to the structure therefore not a simple surface adhesion (see drawing FIG. 1).

Through the calibrated mesh of the porous textile, the bentonite gel partially extrudes, thereby guaranteeing the seal of the overlaps and preventing water seepage between VOLGRIP and the concrete.

This phenomenon also allows the cracks that are normally caused by concrete shrinkage to be self-repaired.

Surfaces that are to be waterproofed can be damp, not necessarily clean but must not have great protrusions, cavities or continuous water flows that could compromise the self-sealing process of the overlaps.

The sheets can be folded and cut in any direction.

Laying the product under slabs

Level the surface with lean concrete.

Apply VOLGRIP HP with the textile surface facing upwards, with staggered joints and overlapping the edges by 10 cm.

Apply the sheets with FIX 1 or with nails and FIX 5 every 70 cm (approximately).

Laying the product on vertical surfaces

For existing walls (post-casting) waterproofing: use PLASTIVO 250 (see relative data sheet).

For walls that are to be built against diaphragms, Berlinese and sheet pile retaining walls or existing structures: apply VOLGRIP HP after having levelled large cavities and/or rough parts, especially where the sheets overlap, with the textile surface facing the structure, taking care to stagger the joints and overlap the edges by 10 cm.

Apply the sheets with FIX 1 or with FIX 5 and gun-driven nails with washers every 30 cm (approximately).

Then lay the reinforcements, internal formwork and the relative casting.

To seal all accessories with AKTI-SEAL 201, WT, AKTI-VO BS (see the relative technical data sheets) according to the type and size of the through body.

For walls to be built with formwork, including disposable: attach VOLGRIP HP to the formwork, leaving the face of the textile facing towards the inside of the building.

Then lay the reinforcements, formwork and related concrete casting.

Overlapping

The overlaps between the sheets must be at least 25 cm from each construction joint.

To make the overlaps:

• Peel off 10 cm of the MDPE geomembrane from the first VOLGRIP HP sheet, along the overlap line

• Insert the second VOLGRIP HP sheet, laying it on the previously exposed MDPE sheet

• Lower the first geomembrane sheet on the second one, paying attention to the overlap continuity and fasten it with nails (refer to the diagrams)

This procedure must also be followed for corners and edges.

Avoid cross overlaps.

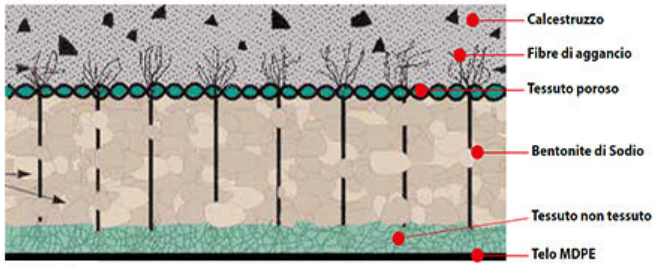
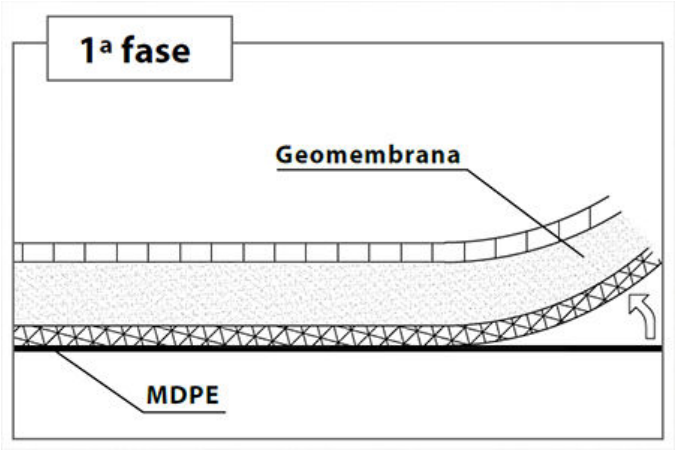
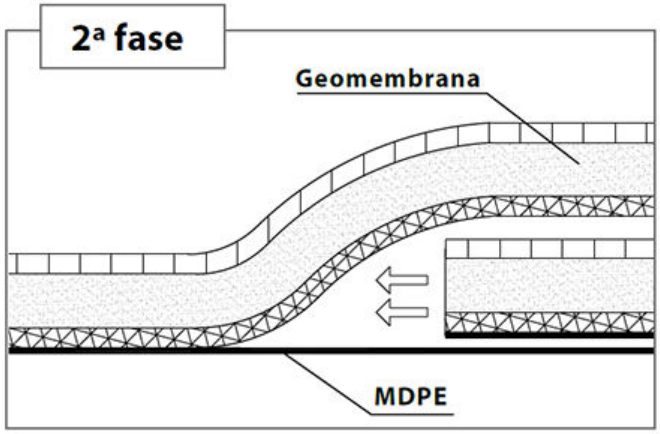
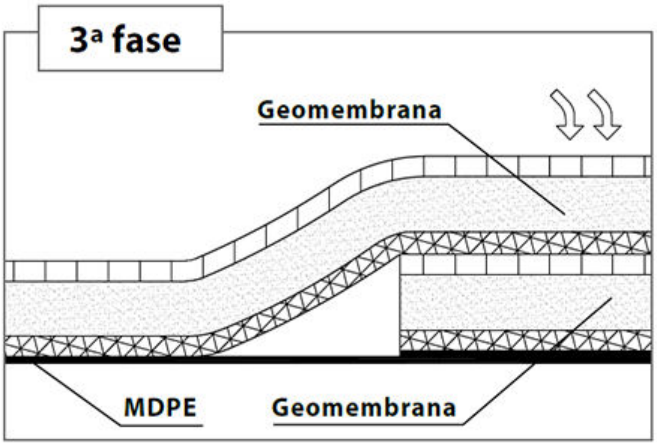


FIG. 1







References available at www.volteco.com

WARNINGS - IMPORTANT NOTES

Compact and smooth concrete castings are required beneath VOLGRIP HP, both in horizontal and vertical applications, which form the structure and are suitably sized for the working and hydraulic loads.

PLEASE NOTE: For installations in the presence of water with high salt concentration and polluted soils, ask Volteco Laboratory for preventive tests.

All horizontal and vertical construction joints must be sealed with WT gasket.

Any structural joints must be sealed with the appropriate WT profile.

PACKAGING AND STORAGE

The product is packed in rolls as follows:

• 2.50x30 m, reaching a total length of 75 m^2 and a weight of about 385 kg (packaging excluded)

The products must be stored in a dry place protected from sun and humidity.

PHYSICAL AND TECHNICAL SPECIFICATIONS

Parameters subject to company Quality Control	Standards	Values
Thickness	UNI EN ISO 9863-1	> 4 mm
Sodium Bentonite content	UNI EN 14196	> 4 kg/m^2
Free swelling	ASTM D 5890	> 24 ml/2g
Fluid Loss Index	ASTM D 5891	< 18 ml
Montmorillonite content	XRD	80%
Tensile strength	UNI EN ISO 10319	8.5 kN/m
Resistance to static punching (CBR)	UNI EN ISO 12236	1.8 kN
Hydraulic capacity of the geocomposite	ASTM D 5887	$6E^{-9}$ $m^3/m^2/s$
Hydraulic capacity with MDPE membrane	ASTM D 5887	no flow
Resistance to peeling off from concrete	ASTM D 903	> 1.5 kN/m

WATCH VIDEOS AND INSIGHTS

Safety Data Sheets | Declaration of performance | Specifications | Technical drawings and BIM | EPD Declaration | YouTube Video

SAFETY

Refer to the related Safety Data Sheet.

CE	**VOLTECO S.p.a** Via delle Industrie, 47 - 31050 Ponzano Veneto (I)
21 **DOP 0021** **EN 13491:2004** **1488-CPR-0638/Z** **VOLGRIP HP** Geosynthetic bentonite with barrier function (GBR-C), to be used as a barrier against fluids in the construction of tunnels and underground structures	
Tensile strength (MD): 8.5 kN/m Tensile strength (CMD): 8.5 kN/m Resistance to static punching (CBR): 1,8 kN Hydraulic capacity (with MDPE membrane): Absence of flow Durability (Annex B): To be checked within one day of installation. Minimum duration of 25 years on natural soils with pH between 4 and 9 and temperature of less than 25°C. See SDS	

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