

## DANODREN H15 PLUS

DANODREN H15 PLUS is a high density polyethylene (HDPE) brown nodular sheet bonded by thermofusion to a nonwoven calendered polypropylene geotextile. Its main use is for protection and vertical drainage.



### TECHNICAL DATA

TECHNICAL DATA	VALUE	UNIT	STANDARD
Longitudinal tensile strength	15,0 -4	kN/m	UNE EN ISO 10319
Transversal tensile strength	15,0 -4	kN/m	UNE EN ISO 10319
Longitudinal elongation	70±15	%	UNE EN ISO 10319
Transversal elongation	65±15	%	UNE EN ISO 10319
Static puncture resistance (CBR)	2,5 -0,5	kN	UNE EN ISO 12236
Dynamic puncture resistance (cone)	10 +5	mm	UNE EN 13433
Characteristic aperture measurement	60 ± 5	µm	UNE EN ISO 12956
Water permeability perpendicular to the plane	0,12 -0,02	m/s	UNE EN ISO 11058
Water flow capacity in the plane	0,54142	l/m.s	UNE-EN ISO 12958
Durability		AÑOS	ANEXO B DE LA NORMA APLICABLE
Dangerous substances	NPD	-	-

### ADDITIONAL TECHNICAL DATA

ADDITIONAL DATA	VALUE	UNIT	STANDARD
Compressive strength	180 ±20%	kN/m <sup>2</sup>	UNE EN ISO 604
Water permeability perpendicular to the vertical plane	0,12 -0,02	m/s	UNE EN ISO 11058
Water permeability perpendicular to the horizontal plane	0,002 -0,0002	m <sup>2</sup> /s	UNE-EN ISO 12958
Air volume between nodules	5,9	l/m <sup>2</sup>	-
Temperature range	-30 a 80	°C	-
Nodules number	1907	-	-

### ENVIRONMENTAL INFORMATION

PARAMETERS	VALUE	UNIT	NORM
Pre-consumer recycled content	20	%	-
Post-consumer recycled content	80	%	-
Manufacturing Location	Fontanar, Guadalajara (España)	-	-
Volatile organic compounds (VOC)	PND	-	-
Solar reflectance index (SRI)	PND	-	-

### STANDARDS AND CERTIFICATION

#### Main regulatory

- EN 13252: Geotextiles and geotextile-related products. Characteristics required for use in drainage systems.

#### CE marking

- In accordance with standard EN 13252 for all high density polyethylene products manufactured by DANOSA.
- AENOR marking granted to DANODREN H PLUS, in accordance with standard EN 13252.

#### Quality management

Company registration BUREAU VERITAS according to EN ISO 9001 granted to DANOSA manufacturing plant in Fontanar (Guadalajara).

#### Environmental management

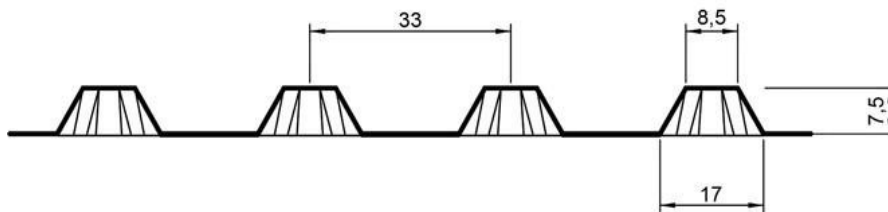
Company registration BUREAU VERITAS according to EN ISO 14001 granted to DANOSA manufacturing plant in Fontanar (Guadalajara).

## SCOPE

1. Drainage and protection of the waterproofing of buried walls in building and civil works, such as false tunnels and underpasses.
2. Floors drainage and protection, when there is not hydrostatic pressure or the floor is over the phreatic level.
3. Drainage for walkable inverted roofs with continuous pavements. The drainage is placed between the thermal insulation and the pavement.

## PRESENTATION

PRESENTATION	VALUE	UNIT
Length	15±0,3	m
Width	2,10±0,04	m
Roll surface	31,5	m <sup>2</sup>
Rolls per pallet	6	rolls
Product Code	314321	-



## ADVANTAGES AND BENEFITS

1. Quick and easy installation.
2. It provides a permanent drainage thanks to the chamber generated between the drainage sheet and the geotextile.
3. The geotextile fused to the nodules, absorbs and filters the water of the ground, avoiding the filling of the drainage system and facilitating the evacuation of the water towards the drains.
4. Due to the composition of the geotextile, polypropylene, DANODREN H PLUS can be left uncoated temporarily in the job site without deteriorating its mechanical and hydraulic properties.
5. Resistant to breakage, impact and deformation.
6. Resistant to chemical agent of the soil. Rot.
7. Provides great durability of the building and the structures against humidity and external factors.
8. Protection of the waterproofing against punching of soil.

## INSTRUCTION FOR USE

### Buried walls

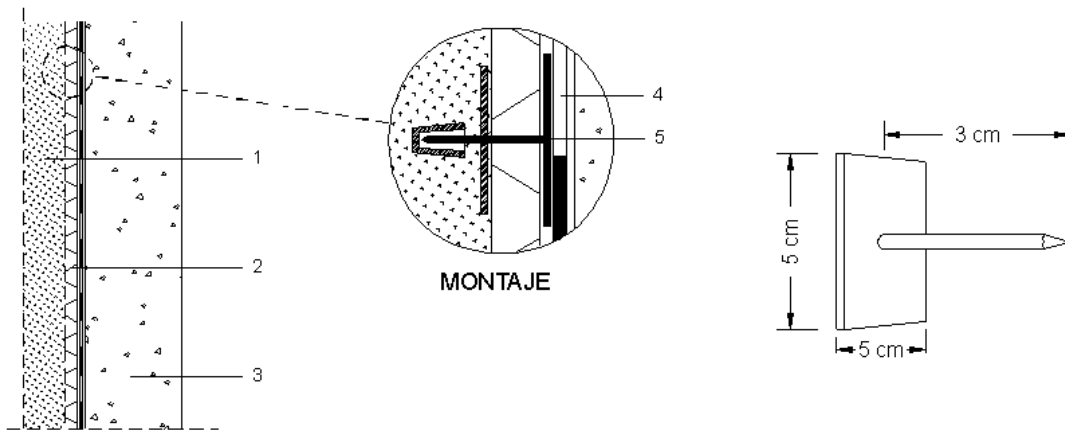
1. Surface and singular points must be uniform, clean, dry and free of foreign objects.
2. The support of DANODREN H PLUS can be a waterproofing membrane.
3. DANODREN H PLUS is placed with the geotextile against the ground.
4. The geotextile layer has a width of 5 cm less than the drainage sheet to facilitate the overlap of roll with roll. To perform the overlap, the geotextile is detached 7 cm, exposing 12 cm of drainage sheet, where the overlap will be made with the following sheet.
5. DANODREN H PLUS is fixed every 50 cm along the length and width of the overlap with DANODREN fixings. You can also use HILTI fixings, model X-SW.
6. DANODREN H PLUS is fixed mechanically in their upper part with the DANODREN metallic profile. This protects the drainage layer of land dumping, filling and compacting of the ditch and the water entrance. This fixation must be done 10 cm over the waterproofing membrane.
7. The corners should be made by folding the membrane.
8. Lay the drain pipe.
9. Rolls can be extended from top to bottom or vice versa and from left to right or vice versa, depending of the characteristics of work.

### Floors

1. Where there is hydrostatic pressure or the floor is under the phreatic level, DANODREN H PLUS is extended with the geotextil against the ground. The overlaps are done as same as underground walls

### Walkable inverted roofs with continuous pavement

1. In walkable inverted roofs with a continuous pavement, DANODREN H PLUS must be placed on the thermal insulation with the geotextile upwards. The overlaps are done as same as underground walls.



## INDICATIONS AND IMPORTANT RECOMMENDATIONS

1. DANODREN H PLUS drains, protects and filters.
2. DANODREN H PLUS does not waterproof, therefore, it does not replace in any case the waterproofing membrane.
3. DANODREN fixations must be used when placing DANODREN H PLUS.
4. DANODREN metallic profile must be used when placing DANODREN H PLUS.
5. Appropriate precautions must be taken not to puncture the waterproofing during the placement of DANODREN H PLUS.
6. It must be verified that the product is at the site with its original packaging, duly labeled with CE marking and in perfect conditions.
7. It is recommended to check the existence of Declaration of Performance.
8. It is recommended to check the existence of the voluntary quality mark.

## HANDLING, STORAGE AND CONSERVATION

1. This product is not toxic or inflammable.
2. The product should be stored in a dry place protected from rain, sun, heat and low temperatures and upright position.
3. For further information, check the security data sheet.

**WARNING**

The information that appears in the following document makes reference to the uses and utilities of TIKIDAN's products and systems, and it is based on the knowledge that have been learnt until present, by Danosa. This is only possible if products have been stored and used in an appropriate way.

Nevertheless, TIKIDAN is not responsible for unsuitable uses of the products neither any other facts, such as meteorological facts. So TIKIDAN is just responsible for the quality related to the provided products. TIKIDAN reserves the right to carry out modifications without previous notice.

The values that appear in the technical sheet are the results of the tests that have been performed in our laboratory. May 2016.