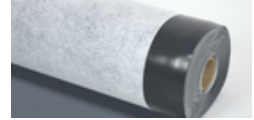


DANOPOL+ HSF 1.5 DARK GREY

DANOPOL+ HSF 1.5 DARK GREY is a synthetic PVC plasticized membrane, reinforced with polyester net carrier, and a 300gr geotextile fleece backing. It has an overlap without geotextile of 6 cm, on the right longitudinal zone, allowing overlaying and welding to the adjacent sheet. Designed for flat roof waterproofing, U.V. resistant.



TECHNICAL DATA

Characteristics	Declared Value	Units	Norm
External fire performance	Froof	-	EN 13501-5
Reaction to fire	E	-	EN 13501-1
Longitudinal & transversal tensile strength	> 1500 / > 1300	N/50mm	EN 12311-2 Método A
Longitudinal elongation at break	> 20	%	EN 12311-2 Método A
Transversal elongation at break	> 20	%	EN 12311-2 Método A
Longitudinal resistance to tearing (nail shank)	> 400	N	EN 12310-2
Transversal resistance to tearing (nail shank)	> 400	N	EN 12310-2
Overlaps resistance (Peeling of overlap)	> 300	N/50mm	EN 12316-2
Overlaps resistance (Shear of overlaps)	> 1200	N/50mm	EN 12317-2
Resistance to impact	> 800	mm	EN 12691
Resistance to static loading	> 60	Kg	EN 12730 Método B
Flexibility at low temperature	< -30	°C	EN 495-5
Resistance to root penetration	Pasa	Pasa/No Pasa	EN 13948
Humidity resistance factor	20.000 ± 30%	(m ² .s.Pa)/Kg	EN 1931
Heat and water durability 60 Kpa	PASA	Pasa/No Pasa	EN 1296
Chemical products and water durability, 60 Kpa	PASA	Pasa/No Pasa	EN 1847

Pasa = Positive or correct No pasa = Negative PND = No performance determined - = Not necessary

ADDITIONAL TECHNICAL DATA

ADDITIONAL DATA	Declared Value	Units	Norm
Straightness	< 50	mm	EN 1848-2
Flatness	< 10	mm	EN 1848-2
Visible defects	Pasa	Pasa/No Pasa	EN 1850-2
Length	15	m	EN 1848-2
Width	180	cm	EN 1848-2
Nominal minimum thickness	1.5 (-5%; +10%)	mm	EN 1849-2
Mass	2.2 (-5%; +10%)	kg/m ²	EN 1849-2
Longitudinal & transversal dimensional stability	< 0.3	%	EN 1107-2
Loss of plasticizers (mass change at 30 days)	< 4.5	%	EN ISO 177
Loss of elongation at break (UV 5000 h)	< 10	%	EN 1297, EN 12311-2

STANDARDS & CERTIFICATION

The membrane DANOPOL+ HSF 1.5 DARK GREY, complies with EN 13956; EN 13967; EN 13361; EN 13491. EN 13362.

The membrane DANOPOL+ HSF 1.5 DARK GREY, meets CE requirements.

The membrane DANOPOL+ HSF 1.5 DARK GREY, has Environmental Product Declaration EPD No.S-P-00691.

The membrane DANOPOL+ HSF 1.5 DARK GREY, has mechanical fixing systems BBA Agrément Certificate 14/5118.

The membrane DANOPOL+ HSF 1.5 DARK GREY, has European Technical Approval (ETA) for mechanical fixing systems DANOPOL HS FM N° 10/0054.

SCOPE

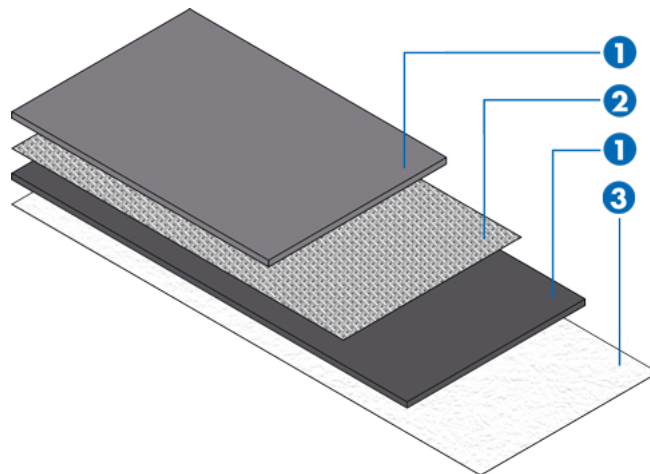
Flat roofing fully adhered waterproofing system (EN 13956), especially recommended for energy renovation over rigid insulation DANOPREN panels, also adhered to the roof slab, using projected adhesives DANOTHERM (insulation adhesive) and DANOBOND (DANOPOL HSF membrane adhesive). Suitable for residential, commercial or industrial projects.

Other applications in civil work waterproofing:

- Basement waterproofing (EN 13967).
- Waterproofing fluid barrier in the construction of tunnels and associated underground structures (EN 13491).
- Reservoirs and dams waterproofing (EN 13361).
- Canals waterproofing (EN 13362).

PRESENTATION

PRESENTATION	VALUE	UNIT
Reinforcement type	Polyester net	-
Thickness	1.5	mm
Width	1.80	m
Length	15	m
Roll surface	27	m ²
Color	Dark grey	-
Product Code	210312	-



1. Plasticized PVC
2. Polyester net
3. 300gr geotextil

ADVANTAGES AND BENEFITS

ADVANTAGES:

- Excellent resistance to tearing.
- High dimensional stability.
- High tensile strength
- High puncture resistance
- Very good resistance to micro-organisms, putrefaction, mechanical impact, root penetration, natural aging, weathering, UV radiation and swollen.
- Excellent flexibility

BENEFITS:

- Improves performance in mechanically fastened sheets, assuming a high value of resistance to wind suction, optimizing the fixation density.
- Limits strains and tensions in the waterproofing membrane caused by high temperatures and temperature changes, very common in flat roofs.
- Absorbs structural movements.
- Presents good puncture protection to mechanical damage, derived from pedestrian transit, common in flat roofs.
- Very high durability to possible degradation related to chemical cases.
- High adaptability to different kind of supports.

INSTRUCTION FOR USE

Substrate preparation:

- The base support surface must be durable, uniform, smooth, be clean, dry and free from foreign bodies. If thermal insulation defines the substrate, insulation boards should be installed fully adhered to the basis with DANOTHERM, without bigger separation than 1mm between insulation boards.
- Before laying the waterproofing membrane, DANOBOND adhesive must be used in the whole substrate surface or insulation boards.
- The membrane should climb on the vertical face a minimum of 20 cm above the surface of the pavement.
- Any joint between metal profiles and the vertical surface, will be always sealed with elastic sealant ELASTYDAN PU 40 gris.

Waterproofing layer placement:

The membrane will be placed fully adhered over the support or the insulation board, installed perpendicular to the roof maximum slope line, from the lowest point to the top of the roof.

- The watertightness between DANOPOL membranes will be achieved through thermoplastic welding with hot air welder, or using chemical agent THF (tetrahydrofuran). The overlaps between membranes must be 5 cm minimum and the welding must be at least 4cm. During the thermoplastic welding, use a silicon pressure roll. After the installation, it is recommendable to use a blunt metal needle (with a 1-3mm head radius), passing it along the union edge, verifying all the connections.
- There should not be more than 3 membranes coinciding in a single point.
- Special attention will be paid to T-Joints (three sheets intersecting at the same point).
- All membrane vertexes will be cut in a curve shape..
- To perform transversal membrane overlaps, or if any metal profile is intended to be set on the waterproofing membrane, they will be covered by welded 21cm DANOPOL HS 1.5 COVERSTRIP, with the same color.

INDICATIONS AND IMPORTANT RECOMMENDATIONS

- Make sure the chemical compatibility of DANOPOL+ HSF 1.5 DARK GREY with other materials.
- Weldability and weld quality depends on atmospheric conditions (temperature, humidity), welding conditions (temperature, velocity, pressure, cleanliness) and by the state of the membrane surface (cleanliness, humidity). Therefore must meet the hot air machine for the correct assembling
- Once the surface has been cooled, a strict welding control should be made using a blunt needle.

- This product is part of a waterproofing system, please pay attention to all DANOSA documents and all rules and mandatory law in this regard.
- Special attention should be paid to the implementation of the singular points and special details.

HANDLING, STORAGE AND CONSERVATION

- DANOPOL+ HSF 1.5 DARK GREY is not toxic or flammable.
- DANOPOL+ HSF 1.5 DARK GREY should be stored in a dry place protected from rain, sun, heat and low temperatures. It should remain in its original packaging, horizontal and parallel (never crossed) on a flat and smooth support.
- DANOPOL+ HSF 1.5 DARK GREY will be used as soon as it arrives at the building construction.
- DANOPOL+ HSF 1.5 DARK GREY is easy to cut in order to adapt it to the work's geometry.
- No waterproofing works should be performed when weather conditions may be harmful, particularly when it is snowing or there is snow or ice on the deck, neither when the roof is covered by raindrops, surface moisture > 8%, or strong wind.
- No waterproofing works should be performed when the ambient temperature is less than -5 ° C for hot air welding.
- In all cases, please keep Health and Safety standards at work, and good construction practice.
- Danosa recommends to consult this product TDS, which is available permanently at www.danosa.com or can be obtained by writing to our Technical Department.
- For any further clarification, please do not hesitate to contact our Technical Department.

WARNING

The information contained in this document and any other advice provided, are given in good faith, based on DANOSA's current knowledge and experience when products are properly stored, handled and applied, in normal situations and in accordance with the recommendations of DANOSA. The information applies only to the application (s) and the product (s) to which reference is expressly made. In case of changes in the parameters of the application, or in case of a different application, consult the DANOSA Technical Service before using the DANOSA products. The information contained herein does not exonerate the responsibility of the building agents to test the products for the application and intended use, as well as their correct application in accordance with current legal regulations.

Orders are accepted in accordance with the terms of our current General Sales Conditions.
DANOSA reserves the right to modify, without prior notice, the data reflected in this documentation.

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