GRID BIT DS

Diaphragm for road infrastructures

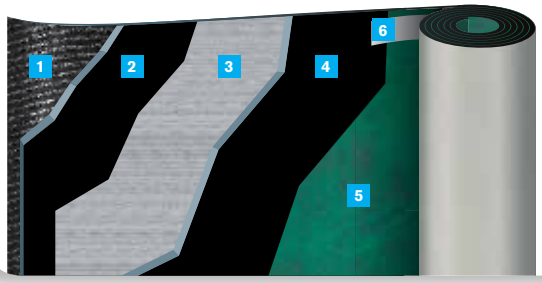
Technical data sheet

Description

GRID BIT DS is a polymer-based waterproofing diaphragm that increases adhesive power by transfer of induced heat.
The reinforcing material is a composite mineral fabric of excellent dimensional stability and exceptional mechanical properties.
The top side of the diaphragm is protected by means of a special woven-non-woven polymer fibre textile that permits application and transit on site without compromising in any way the layer of asphalt which is then laid, ensuring instead its perfect interconnection.
The underside has a removable layer of thermoplastic film.

Stratigraphy

1. Release film
2. Heat activated mass
3. Composite fabric reinforcement
4. Mass which promotes fast heat transmission
5. Polypropylene mat
6. Release film side selvedge



Uses

- For renovating deteriorated roads or sections of roads.
- For preparation of squares, freight villages or airport runways and for use in all conditions where there is a high volume of heavy loads.

Methods of application

Position the roll over the application surface, without torching. Remove the lower face release film, making sure to provide for side laps of 10 cm and head laps of 15 cm. When waterproofing roads works, the asphalt shall be applied directly over the membrane without using any form of separation layer. For further information and suggestions please refer to PLUVITEC'S technical literature; our Technical Office is always available to evaluate particular problems and to provide the necessary assistance to best apply our waterproofing membranes.

Benefits

- The particular structure of the GRID BIT DS distributes and reduces the induced stress of applied loads increasing the fatigue resistance and, therefore, the useful life of the road structure.
- It guarantees the complete waterproofing of unconnected layers and of the foundation and base, preventing pumping and rising of fine materials.
- The GRID BIT DS is applied loose laid and in a quick and easy manner: this means roads, bridges and parking areas never need to be closed for long.
- The GRID BIT DS, when correctly applied under a 4 cm layer of dense-graded asphalt or a 6 cm layer of self draining asphalt, guarantees the complete adhesion and waterproofing of the layers in between.
- A very environmentally friendly system, the GRID BIT DS is compatible with all types of asphalt and can be milled for complete recycling. Does not affect the functionality of the milling machine and the batching plant.

Technical specifications

Reinforcement and waterproofing for road paving by laying a road diaphragm between layers of bituminous conglomerate, consisting of a prefabricated thermo adhesive geo-membrane with a load redistribution and anti-pumping function, compatible with bituminous conglomerates, based on polymers that enhances the adhesive power by transferring the heat induced by the hot bituminous conglomerate. Geo-membrane consists of a composite glass fabric with high mechanical resistance, with a top face protected by a special non-woven polypropylene fabric that enables the passage of yard traffic and vehicles, without affecting the layer of bituminous conglomerate, and with a lower face that's thermo adhesive and supplied with a removable thermoplastic film. The side selvedge is supplied with a removable thermoplastic film. The thickness of the geo-membrane is 2.5 mm (EN 1849-1); this has a cold flexibility of -25°C (EN 1109), a flow resistance > 100°C (EN 1110) and a tensile strenght L/T of 40 kN/m (EN 12311-1); it must have an elongation at break L/T of 5% (EN 12311-1), a tearing resistance L/T 200/200 N (EN 12310-1) and a static puncture resistance ≥ 15 kg; it must pass a dynamic waterproofing test at a pressure of 500 kPa (EN 14694), have a shear resistance on CLS ≥ 0.15 N / mm^2 (EN 13653), a LEUTNER direct shear strength between the two layers of conglomerate > 1,900 kPa, a refractive propagation resistance > 15,900 cycles and 4-point dynamic flexural resistance strength (4PB) > 33,000 cycles.

The waterproofing membrane based on distilled bitumen and polymers, as shown in this data sheet does not require the issue of a MSDS, because it does not contain dangerous substances. The information data sheet for the proper use of products is available.

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technical data sheet

How to apply

Application

- Position, without torching, the GRID BIT DS over the substrate.(Draw. N.1)
- Provide both side and head joins between the sheets respectively of 10 cm & 15 cm, in order to guarantee the mechanical performances of the membrane, making sure to remove the side lap release film.
- Remove the lower face release film from the membrane. (Draw. N.2)
- Apply the hot asphalt directly over the GRID BIT DS, with a paver-finisher at a minimum temperature of +130°C, in order to assure the perfect adhesion strength of GRID BIT DS which is activated by the heat of the asphalt.(Draw. N. 3)

Recommendations

- The rolls are to be stored in an upright position, indoors in a dry and ventilated area, away from heat sources. Absolutely avoid the stacking of rolls and pallets for storage or transport to avoid possible deformations which may compromise a perfect installation. It is recommended to store the product at temperatures above 0°C.
- The application surface must be smooth dry & clean.
- The application must be done at temperature higher than + 5°C.
- The application must be interrupted in adverse weather conditions (high humidity, rain, etc.).
- The pallets on which the rolls are packaged are intended for normal warehouse use.
- The materials on stock should be rotated following a first in first out rotation.

Technical data

Technical Characteristics	Measure units	Reference norm	GRID BIT DS	Tolerances
Type of reinforcement			Composite fabric reinforcement	
Upper face finish			Polypropylene mat	
Lower face finish			Release film	
Length	m	EN 1848-1	15 250	±1%
Width	m	EN 1848-1	1	±1%
Thickness	mm	EN 1849-1	2,5	±5% (±0,1)
Cold flexibility	°C	EN 1109	-25	
Cold flexibility after ageing	°C	EN 1296-1109	-15	+15°C
Flow resistance	°C	EN 1110	100	≥
Flow resistance after ageing	°C	EN 1296-1110	90	-10°C
Tensile strength L / T	kN/m	EN 12311-1	40/40	±20%
Elongation at break L / T	%	EN 12311-1	5/5	±15
Tearing resistance L / T	N	EN 12310-1	200/200	±30%
Static puncture resistance	kg	EN 12730	20	≥
Dynamic puncture resistance	mm	EN 12691	1250	≥
Dimensional stability	%	EN 1107-1	-0,1	≤
Fire resistance		EN 13501-5	F ROOF	
Fire reaction		EN 13501-1	E	
Watertightness	kPa	EN 1928	60	≥
Watertightness after ageing	kPa	EN 1847 EN 1928-B	60	≥
Dynamic watertightness	kPa	EN 14694	500	≥
Head and side joints dynamic watertightness	kPa	EN 14694	500	≥
Compatibility for thermal conditioning	%	EN 14691	80	≥
Resistance to adhesion (Cohesion Force)	N/mm²	EN 13596	0,4	≥
Shear strength	N/mm²	EN 13653	0,15	>
Resistance to the compaction of the asphalt		EN 14692	Pass	
Air impermeability head and side junctions	kPa	Vacuum test EN 12730	15	≥
Testing coating on steel	N/5 cm	UEAtc technical guide	40 - 73 max	≥
Testing coating on steel after ageing	N/5 cm	UEAtc technical guide	95 - 165 max	≥
Testing coating on steel with Primertec AD	N/5 cm	UEAtc technical guide	40 - 73 max	≥
Testing coating on steel after ageing with Primertec AD	N/5 cm	UEAtc technical guide	140 - 220 max	≥
Resistance to dynamic wind lifting forces	kPa	UEAtc technical guide M.O.A.T. number 64	10	
Resistance to dynamic wind lifting forces with mechanical fixing	kPa	BRL 1511 PART 1	7	
Resistance to dynamic wind lifting forces with hot application	kPa	BRL 1511 PART 1	5	
FM Approvals test			Class 1	
Performance characteristics between two layers of conglomerate, resistance to cracking - New asphalt - Flexible 4-point flexural test (4PB)				
Frequency 1 Hz - Temp. 20°C maximum load 0,8 kN	cycles		33000	
Frequency 1 Hz - Temp. 20°C maximum load 1,6 kN	cycles		25000	
Performance characteristics between two layers of conglomerate, resistance to cracking (Universita di Ancona CIRS)				
Dynamic flexion under controlled load			> 15900 cycles	>
Dynamic flexional controlled shift	%		87 *	
Performance characteristics between two layers of conglomerate, resistance to direct shear LEUTNER (Universita di Bologna DICAM)				
Interlayer resistance	kPa		1986	
Last load	kN		35,9	

* Values closer to 100% indicate little or no damaged material, values closer to 0% indicate significant damage.

Sizes & packing

	2,5 mm	
Rolls size [m]	15x1	250x1
Rolls per pallet	25	1
Square meters per pallet [m²]	375	250

Sizes & packing may vary depending on the type of transportation. The technical data given is based on average values obtained during production. We reserve the rights to change or modify the nominal values without prior notice or advice. The information contained in this data sheet are based on our experience. We cannot take any responsibility for a possible incorrect use of the products. The customer has to choose under their own responsibility a product fit for the intended use.

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Company with certified system

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