

GRID BIT APP VIADUCTS

Modified APP waterproofing membrane for civil engineering works

Description

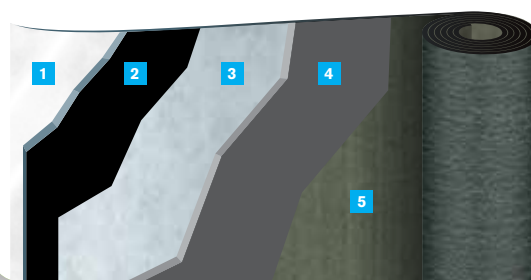
Pre-fabricated waterproofing membrane made of distilled bitumen and elasto-plastic polymers (APP), reinforced with a woven non woven single strand composite polyester fabric, with very high mechanical characteristics and resistance to both static and dynamic puncture.

The particular structure of these products make them suitable for the waterproofing of complex works where the stress on the waterproofing system require the use of products with proven reliability.

Due to the characteristics, the membranes of the GRID BIT APP VIADUCTS series are used with success for the waterproofing of both civil and industrial works, in particular for those with great mechanical stress such as: bridges, viaducts, water works, foundations, parking lots.

Stratigraphy

1. PE film
2. Waterproofing mass
3. Single strand composite polyester fabric
4. Waterproofing mass
5. Sand or talc finish



Methods of application

For the application of the membrane the use of heat is generally used by means of a gas torch or specific hot air machine. Use protective devices required by law. The application by heat is not suggested when on heat sensitive materials (polystyrene insulation).

- Coordinate the operations in a way to not cause damage to the construction elements and underground structure. Avoid to leave the structure for the night or for periods of prolonged work interruptions without having been properly sealed.
- **The application surface must not have any depressions to avoid the risk of ponding water, the slope must be at least 1.5% on concrete decks and 3% for steel or wooden ones, this to guarantee a proper run off of rainwater.**
- The water drainage spouts should be sufficiently big enough to allow for rain water to be eliminated in an efficient way.
- Prepare cementitious substrates, including verticals and details, with a bituminous primer either by brush or airless, approx. 300/400 g/m².
- Allow this preparation layer to dry before proceeding with any other operation.
- With prefabricated constructions, apply a suitable reinforcing strip along all joints. In the presence of construction joints,

prefabricated panels or metal decks, suitable expansion joints are to be considered.

- The membranes must be applied to the substrate fully bonded.
- All details, perimeters, verticals, change of slope as well as projecting area must be fully bonded.
- If using the membrane for application under hot asphalt, the thickness of the binder course must be minimum 6 cm with a granulometry of 0-15 mm, while for the surface course the thickness must be minimum 4 cm and granulometry of 0-12 mm.
- If used on a new laying surface with a residual humidity of more than 5% or in case of refurbishing an existing driveway cover, the product must be applied on original support (all existing waterproofing layers must be removed). On the clean application surface it must applied PRIMER EPOX, as indicated in the product technical data sheet.

For further information and news it is recommended to consult the PLUVITEC technical literature; our Technical Office is always available to evaluate particular problems and to provide the necessary assistance to best apply our waterproofing membranes.

Fields of use



EN14695 Viaducts (Certificate n° 0958-CPR-2045/1)

	N° layers			Method of application						Type of application			Type				
	Single Layer	Double Layer	Multilayer	Torch	Hot Air	Mixed (Torch / Air)	Cold Bond Glue	Mechanical Fixing	Thermo Adhesive / Self Adhesive	Fully Bonded	Partially Bonded	Loose Laid	Complimentary Layer	Top Layer	Heavy Protection	Anti-root	Other Uses
GRID BIT APP VIADUCTS P 4 MM	■	■	■	■						■			■		■		
GRID BIT APP VIADUCTS P 5 MM	■	■	■	■						■			■		■		

How to apply



1



2



3



4

Sizes & packing

	P 4 mm	P 5 mm
Rolls size [m]	10x1	8x1
Rolls per pallet	24	23
Square meters per pallet [m²]	240	184

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.

GRID BIT APP VIADUCTS

Application

- On cementitious surfaces and similar apply primer by roller or airless.
- Apply by torch application a 25 cm strip of membrane reinforced with polyester along all vertical up stands.
- To have all overlaps with the slope, position the membrane always starting from the lowest point.
- Position the membrane sheets staggered, avoiding to create any overlaps against the slope and the drains.
- Cut the corners of membrane sheet which will be laid under the next sheet at a 45° angle (10 x 10 cm).
- The joints, both side and head, must be respectively overlapped by 10 & 15 cm.
- The bituminous membrane will be applied with a propane gas torch to the substrate. It is necessary to heat the entire surface, except for the side & head laps, making sure that the compound forms a liquid mass in front of the roll to assure that it saturates any superficial porosity. (Draw. N.1)
- The side laps (10 cm) and head laps (15 cm) will be heat welded with an appropriate torch; during this stage the overlaps should be pressed by using a roller (15 kg) from which a bead of compound should flow and therefore avoiding to have to iron the overlaps. (Draw. N.2)
- Apply the vertical membrane sheet having the same characteristics of the waterproofing membrane and dimensions equal to the width of the roll, making sure that it overlaps the horizontal one by at least 10 cm, heating it with a gas torch and squeezing it with a trowel until a bead of compound appears from underneath. (Draw. N.3)
- The height of the verticals must be equivalent or superior to the finished surface by at least 15 cm.
- Apply the hot asphalt directly over the GRID BIT APP VIADUCTS using a paving-machine. The bituminous emulsion is required only on the perimeter area. The thickness of the structural course has to be minimum of 6 cm (size 0-15 mm) while the thickness of the friction course has to be 4 cm at least (size 0-12 mm). (Draw. N.4)

Recommendations

To best use the technical characteristics of bituminous membranes and guarantee the maximum performance and durability of the jobs where they are used, some simple but fundamental rules must be respected.

- 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 rolls shall be kept in a warm or heated storage area during application, should the workability of the material deteriorate or become stiff and difficult to install during application, these should be returned to the heated storage area and substituted with new rolls. The rolls that are temporarily stored on the roof before application, shall be kept elevated by being left on their own pallets and shall be covered and protected from the weather.
- The application surface must be smooth dry & clean.
- The application surface must be previously treated with a suitable primer, to eliminate dust and enhance the adhesion of the membrane.
- The application surface must not have any depressions to avoid the risk of ponding water, the slope must be at least 1.5% on concrete decks and 3% for steel or wooden ones, this to guarantee a proper run off of rainwater.
- 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	P		Tolerance
Type of reinforcement			Single strand polyester		
Upper face finish			Sand or talc		
Lower face finish			PE film		
Length	m	EN 1848-1	10 -1%	8 -1%	
Width	m	EN 1848-1	1 -1%		
Thickness	mm	EN 1849-1	4	5	±5%
Cold flexibility	°C	EN 1109	-10		
Flow resistance	°C	EN 1110	120		
Tensile strength L / T	N / 5 cm	EN 12311-1	1200/1000		±20%
Elongation at break L / T	%	EN 12311-1	45/45		±15
Tearing resistance L / T	N	EN 12310-1	300/300		±30%
Static puncture resistance	kg	EN 12730	25		
Dynamic puncture resistance	mm	EN 12691	1750		
Fire resistance		EN 13501-5	F ROOF		
Fire reaction		EN 13501-1	F		
Dimensional stability	%	EN 1107-1	-0,5		
Watertightness	kPa	EN 1928	60		
Bond strenght	N/mm²	EN 13596	0,49		≥
Shear strenght	N/mm²	EN 13653	0,23		≥
Compatibility by heat conditioning	%	EN 14691	177		≥
Crack Bridging Ability	°C	EN 14224	-10		≥
Resistance to dynamic water pressure		EN 14694	pass		
Resistance to compaction of an asphalt layer		EN 14692	pass		
Behaviour of bitumen sheets during application of mastic asphalt	%, mm, %	EN 14693	NPD		

NPD = No Performance Declared in accordance with the EU Construction Products Directive.