



asphalt reinforcement



advanced products and systems for asphalt and concrete pavements
a range of special products and services for highways, airport and industrial pavements

The ability of asphalt to withstand tensile stresses is limited.

When existing asphalt or concrete pavements are overlaid with new asphalt, cracks and joints will penetrate through the new asphalt layer within a very short period of time. This usually results in fast deterioration of the pavement, especially in areas where water can penetrate the pavement structure.

By applying reinforcement the tensile stresses are reduced and reflective cracking is delayed or even prevented. Also surface cracking, caused by for example frost heave, can be treated with asphalt reinforcement.

Requirements

Extensive research and long-term field experience have resulted in a number of requirements for effective reinforcement products:

- a high tensile strength;
- a high stiffness EA (which is elastic modulus times cross-sectional area), even under tensile creep conditions;
- no damage to the product by installing and overlaying with hot-mix asphalt;
- a good bond between the new overlay, the reinforcement and the old pavement;
- the reinforcement should remain flat during the whole construction process;
- low coefficient of thermal contraction.

Other important requirements are fast and easy application of the reinforcement and easy (and environmental friendly) removal, if required.

GlasGrid® meets all the requirements

Properties

GlasGrid® is an exceptionally strong reinforcing material, developed specially for pavements. It consists of glass fiber strands, arranged in a grid structure, covered with a polymer coating and a pressure sensitive adhesive. There is no loss of strength at paving temperatures and no damage during handling and paving operations.

Mechanical properties of GlasGrid®

Type	8501	8502	8550
TENSILE STRENGTH*			
longitudinal direction	100 kN/m	100 kN/m	50 kN/m
transverse direction	100 kN/m	200 kN/m	50 kN/m
STIFFNESS EA*			
longitudinal direction	4000 N/mm	4000 N/mm	2000 N/mm
transverse direction	4000 N/mm	8000 N/mm	2000 N/mm
YOUNG'S MODULUS E	69000 MPa	69000 MPa	69000 MPa
INSTALLATION DAMAGE			
RETENTION FACTOR	98%	98%	98%

* Values based on component strand testing (ASTM D6637).

Product data of GlasGrid®

Type	8501	8502	8550
ROLL LENGTH	100 m	60 m	150 m
ROLL WIDTH	1.5 m	1.5 m	1.5 m
WEIGHT (minimum)	370 g/m ²	560 g/m ²	185 g/m ²
GRID SIZE (mm)	12.5x12.5	12.5x12.5	25x25
MATERIAL	Glass fiber strands, coated with modified synthetic polymer and adhesive backing		
ADHESION	Pressure-sensitive adhesive		

On request GlasGrid® is also available with different grid sizes, different tensile strengths and different roll widths.

Installation

GlasGrid® is an easy to install, uniquely self-adhesive, reinforcing mesh.

GlasGrid® can be applied manually or with a specially designed tractor. The grid is pressed down with a rubber tired roller, which makes it adhere to the pavement surface, where it remains flat, even during paving operations.





Applications

GlasGrid® can be applied on all asphalt and concrete pavements, cracked due to thermal stresses and fatigue. It can also be used on cracks caused by uneven settlement (provided the crack formation is not due to excessive pavement and/or subbase and subsoil instability), on joints in concrete pavements (provided there is not too much vertical movement of the slabs) and for road widenings.

Due to the high tensile strength and excellent adhesion to the asphalt layer, GlasGrid® not only controls crack growth, but also increases the load bearing capacity of the pavement structure (as can be seen in 4-point bending tests).

A novelty is to use GlasGrid® in different asphalt layers on top of each other, e.g. in jointless/silent transitions at bridges (Invisible Joint Systems®) or above expansion joints in concrete pavements. Special design support (ARCDESO®) is available.

GlasGrid® types

GlasGrid® is available in different types. Most commonly used are 8501 and 8502.

Type 8501 is recommended for use in the case of cracking over the whole pavement surface and for reinforcement over the entire pavement width.

Type 8502, with a double quantity of reinforcing material in the transverse direction, is particularly suited for (local) application at transverse and longitudinal cracks and for all types of joints in asphalt and concrete pavements, as well as for road widenings.

Alternatively, type 8550 can be used in case of less serious cracking over the entire pavement width.

GridSeal®

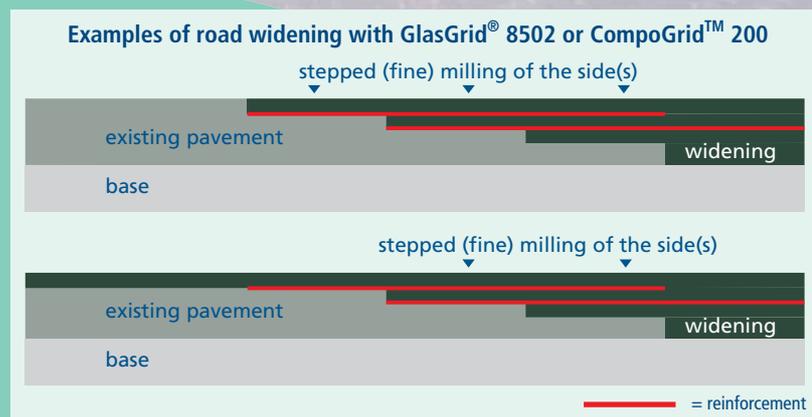
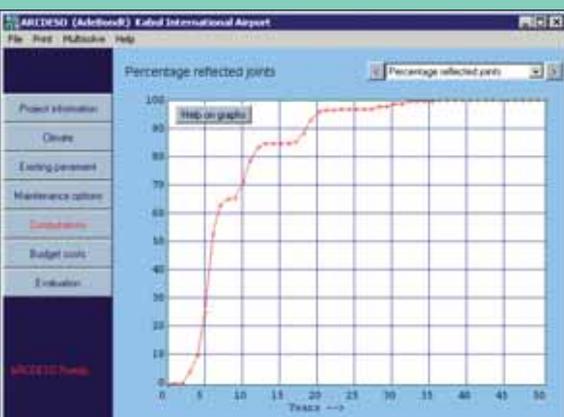
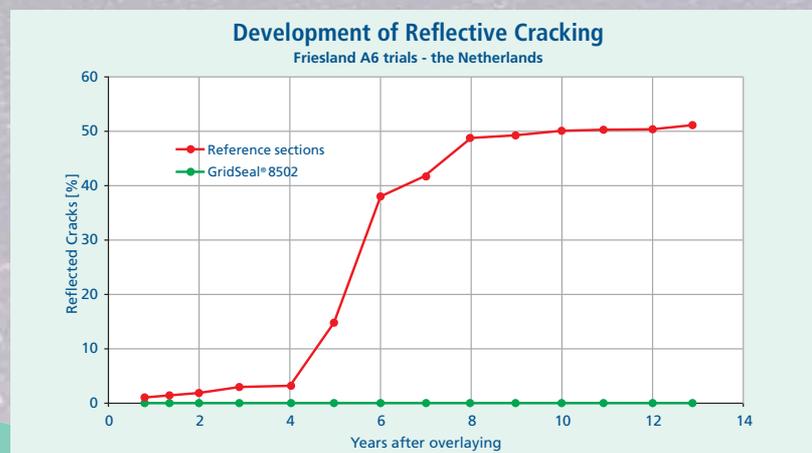
GridSeal® is a composite reinforcing system, developed by Ooms Nederland Holding bv, consisting of GlasGrid® and a bond coat of polymer modified bitumen.

Depending on the circumstances, GlasGrid® is covered with 1.0 to 2.5 kg/m² hot sprayed Sealoflex® SC and then treated with approximately 7 kg/m² crushed aggregate.

Advantages

The advantages of the GridSeal® system are:

- improved protection against reflective cracking;
- excellent and durable (tough) visco-elastic bond between the existing pavement and the new overlay;
- durable and tough anchorage of the reinforcement;
- durable waterproofing of the underlying pavement structure.



CompoGrid™

CompoGrid™ is a composite of GlasGrid® and a non-woven paving fabric.

Moisture barrier

Before overlaying with asphalt, CompoGrid™ is saturated with (polymer modified) bitumen or bituminous emulsion. In this way CompoGrid™ can be used as a pavement reinforcement and a moisture barrier system.

Cement treated bases and concrete slabs

Due to its special characteristics, CompoGrid™ is ideally suited for use on 'hard' surfaces.

Milled surfaces

Because of reduced effectiveness and the risk of damaging the reinforcement, the application of reinforcement directly on milled (or rough) surfaces is not recommended.

However, the non-woven fabric can act as a padding between the milled surface and the glass fiber reinforcement. In these cases the installation of CompoGrid™ is preferred.

CompoGrid™ types

CompoGrid™ is available in the types CG50, CG100 and CG200.

CG50 has the same reinforcing strength as GlasGrid® 8550, CG100 as GlasGrid® 8501 and CG200 as GlasGrid® 8502.

The different types of CompoGrid™ are recommended to be applied in the same situations as the matching GlasGrid® types.



Recycling

Pavements containing GlasGrid® and CompoGrid™ can be removed with established milling techniques and reused in a normal asphalt recycling process. GlasGrid® and CompoGrid™ are made of environmental friendly material. No toxic substances are released when they are recycled.

GlasGrid® and CompoGrid™ are registered trademarks

of Saint-Gobain Technical Fabrics

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