

Benefits and Features:

Lifespan

- Extends crack life of pavement up to 300%
- Reduces maintenance cost

Installation

- Quick and efficient installation
- Strong bond between layers

Environment

- Excellent milling performance
- Recyclable
- Natural raw materials

Experience and Expertise

- Proven performance for 20+ years
- Global sales & distribution
- Project specific problem solving

The Economical Solution

- When asphalt pavement cracks, water permeates the base and reduces the life of a road.
- Improving the asphalt's natural ability to resist cracks, improves the drainage capabilities of a road and the Federal Highway Administration (FHWA) suggests by doing this a road's life can be extended.
- GlasGrid improves asphalt's natural ability to reduce cracking by up to 3 times by providing a tensile element to the asphalt. This helps keep water out of the base and improves the drainage capabilities of a road by 10%.

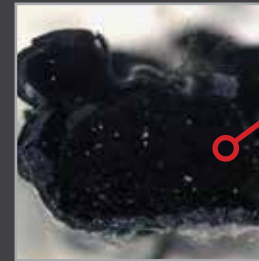
Based on 25+ years of successful installations around the world, GlasGrid typically provides a 50% reduction in future investment cost (e.g. maintenance, rehabilitation and use costs) over the life of an average road.



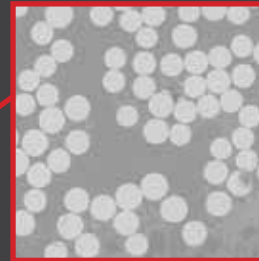
Temperature Stable Grid



High tensile-strength by minimal tensile elongation (<3%)



Filaments completely coated with an elastomeric polymer

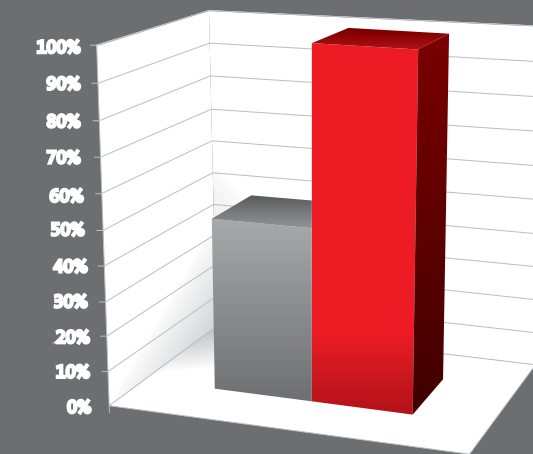


Installation performance per day - up to 20,000 m²/machine



Self-adhesive backing (GG, TF, and IM)

Future Life Cycle Costs



■ With GlasGrid*
■ Without GlasGrid

*With added life benefit of 1.1 due to improved drainage FHWA

Saint-Gobain ADFORS

World-class capabilities. Worldwide reach.

GlasGrid® is manufactured by Saint-Gobain ADFORS. Saint-Gobain ADFORS is a global company within the Innovative Materials Branch of Compagnie de Saint-Gobain. We are an industry leader in the manufacture and distribution of a wide range of reinforcement fabrics. We offer a diverse selection of products, including some of the world's best-known reinforcement brand names.

Our worldwide manufacturing plants ensure reliability, quality and cost-effective material supply, while our research facilities and global sales offices deliver world-class service. We are committed to providing innovative solutions to your challenges and to developing breakthrough products.

Asphalt Concrete Mix Considerations

Asphalt concrete (AC) mix varies by country and by region. GlasGrid has been designed for use with conventional hot asphalt mixes that are placed with proper compaction to at least 97% of bulk relative density or at least 93% of maximum relative density. AC must meet the local surface course hot mix specification for heavy traffic (high AADT) conditions, with sufficient stability and durability to carry traffic loadings and withstand temperature changes. The AC mix must be designed according to: a) Marshall method (Asphalt Institute Manual MS2), to achieve stability of at least 8000 Newtons (1800 lbs); or, b) Superpave method (Asphalt Institute Manual SP2) for surface course hot mix asphalt subject to heavy traffic conditions, incorporating aggregates and asphalt cement. When using any specialized mixes or additives in AC mixes with GlasGrid, please contact Saint-Gobain ADFORS for detailed technical guidance.

Learn more about how GlasGrid Pavement Reinforcement System products can increase the life of your paving projects.

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GlasGrid is manufactured at an ISO 9001:2008 registered facility of Saint-Gobain ADFORS.
GlasGrid is a registered trademark of SAINT-GOBAIN ADFORS. U.S. Patent 8,038,364 and 8,349,431.
Japanese Patent 2611064. Additional patents pending.
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Professional Asphalt Reinforcement

GLASGRID®



Save money and
extend pavement life
up to 300%

Stronger ideas for a sustainable world



Retard reflective cracking caused by traffic loading, age hardening and temperature cycling with GlasGrid®.

Your Problem

Cracks in asphalt surfaces

Issue:

- Increased traffic loading
- Huge temperature cycling
- Age hardening

Results:

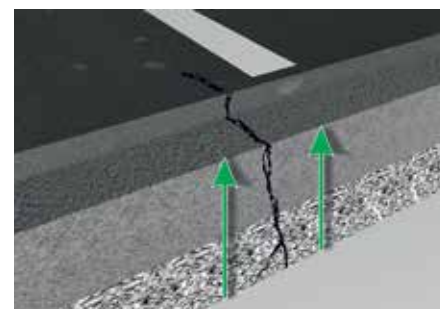
- Reduces pavement life
- Higher risk of accidents
- Erosion of vehicle parts
- Interruption of traffic flow due to construction
- Increases maintenance costs
- Potholes due to severe cracking



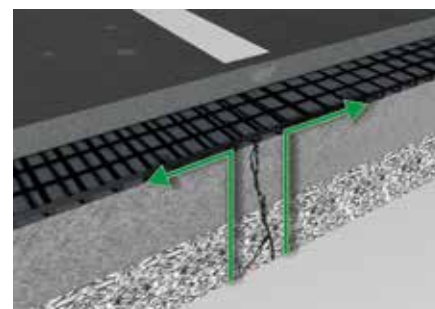
Our Solution

Retard reflective cracking with GlasGrid® pavement reinforcement

GlasGrid turns crack stresses horizontally and dissipates the stress.



Without GlasGrid
Stress travels uninterrupted, causing cracks



With GlasGrid
Stress is redirected horizontally and is dissipated, minimizing cracks

Our Products

Installation on leveling course

Product	Characteristics	Applications
 Pavement Reinforcement System	• Self-adhesive backing • Patented polymer coating • High-tensile fiberglass grid • Effective bonding during installation	• Airports • Highways and roads • Industrial ports • Parking lots
 Complete Reinforcement System	• Patented, highly engineered tack film • Eliminates tack coat curing time • Lower environmental impact	• Airports • Highways and roads • Industrial ports • Parking lots
 Protective Indicator Mesh	• Fluorescent orange self-adhesive reinforcing mesh • Protective indicator layer for bridge decks • Easy visibility during the milling process, eliminates the risk of damaging the grid • Savings up to 20% when compared to red asphalt	• Bridges



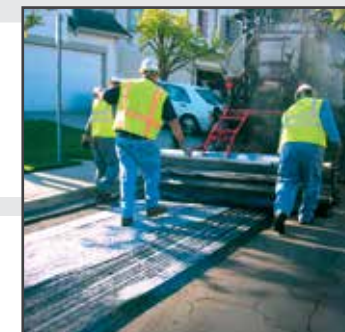
GlasGrid GG



GlasGrid TF

Installation on milled surface and leveling course

Products	Characteristics	Applications
 Composite Reinforcement Solution	• Effective moisture barrier • Composite product contains fiberglass grid coated with patented polymer and a non-woven fabric layer	• Airports • Highways and roads • Industrial ports • Parking lots
 Waterproofing Paving Mat	<i>Economical combination of</i> • Moisture barrier • Asphalt reinforcement and a unique high strength fiberglass scrim embedded between two lightweight polyester geotextiles	• Airports • Highways and roads • Industrial ports • Parking lots
 Rapid Repair System	• Quick and efficient installation due to self-adhesive bitumen layer	• Detail repair
 Manhole Patch Solution	• Self-adhesive repair ring for asphalt areas around any iron works	• Manhole covers



GlasGrid GP

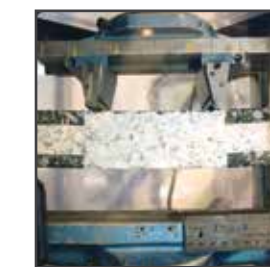


GlasGrid PM

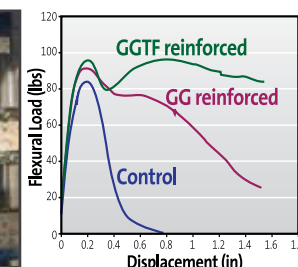
Tested in the lab, proven in the field

4-point Bending Flexural Fatigue Test

The 4-Point Bending Flexural Fatigue Test was used to assess the flexural resistance of a GlasGrid reinforced pavement structure. A GlasGrid reinforced test beam was subjected to a nominal load of 240N and a fatigue test was conducted at a frequency of 5 Hz with varying amplitude of +/- 40N. The results indicated flexural improvement of the pavement up to 500% for GlasGrid TF, lowering maintenance costs significantly.



Test setup



Altering crack development

The Leutner Shear Test – RWTH Aachen University

The Leutner Shear Test was used to conclude that GlasGrid reinforcements coated with our patented polymeric coating provide a highly effective interlock between asphalt layers. GlasGrid reinforced asphalt reached a test value higher than the minimum requirement of 15kN.



Core sample



Test set-up in labor

Milling Performance and Recyclability – RWTH Aachen University

In this test, a 200kN/m glass fiber grid was installed on an existing binder course and covered with 4cm thick top layer. After the milling process, no adverse effects were realized and milling depth was not affected. A second test, the Cycling Tension test, concluded that the partial reuse of milled asphalt granulate (including glass fibers) in a new asphalt mixture improved the results of the recycled asphalt.



Milling the reinforced area



Milling drum after milling operation



Asphalt granulate without glass fibres (left) and with glass fibers (right)

More international testing

Reinforcing Fiberglass Grids for Asphalt Overlays
Lytton, R. L., Texas A&M University, 1988

Anti-Reflective Cracking Design of (Reinforced) Asphalt Overlays
De Bondt, A. H., Ph.D thesis, Delft University of Technology, 1999

A Study of Grid Reinforced Asphalt To Combat Reflective Cracking
Brown, S.F., Thom, N.H. and Sanders, P.J., AAPT Annual Meeting, 2001

Characterization of Reinforced Asphalt Pavement Cracking Behavior Using Flexural Analysis
Tebaldi, G. and Romero, E., University of Parma, 2012

Asphalt-Reinforcement Testing with MMLS3
Part, M. and Raab, C., EMPA Materials Science & Technology (CH), Test Report No 456298, 2012

Review of Glass Fiber Grid Use for Pavement Reinforcement and APT Experiments at IFSTTAR
Nguyen, M.L., Blanc, J., Kerzrého, J.P. and Hornych, P., IFSTTAR, 2013

Investigation on millability and recycling of glass fibre reinforcement asphalt layers
Meyer, A. and Schulze, C., RWTH University Aachen Germany, 2013
Please contact ADFORS for further information.