

ADFORS PAVEMENT REINFORCEMENT SYSTEM

GlasGrid® GG



Self-adhesive



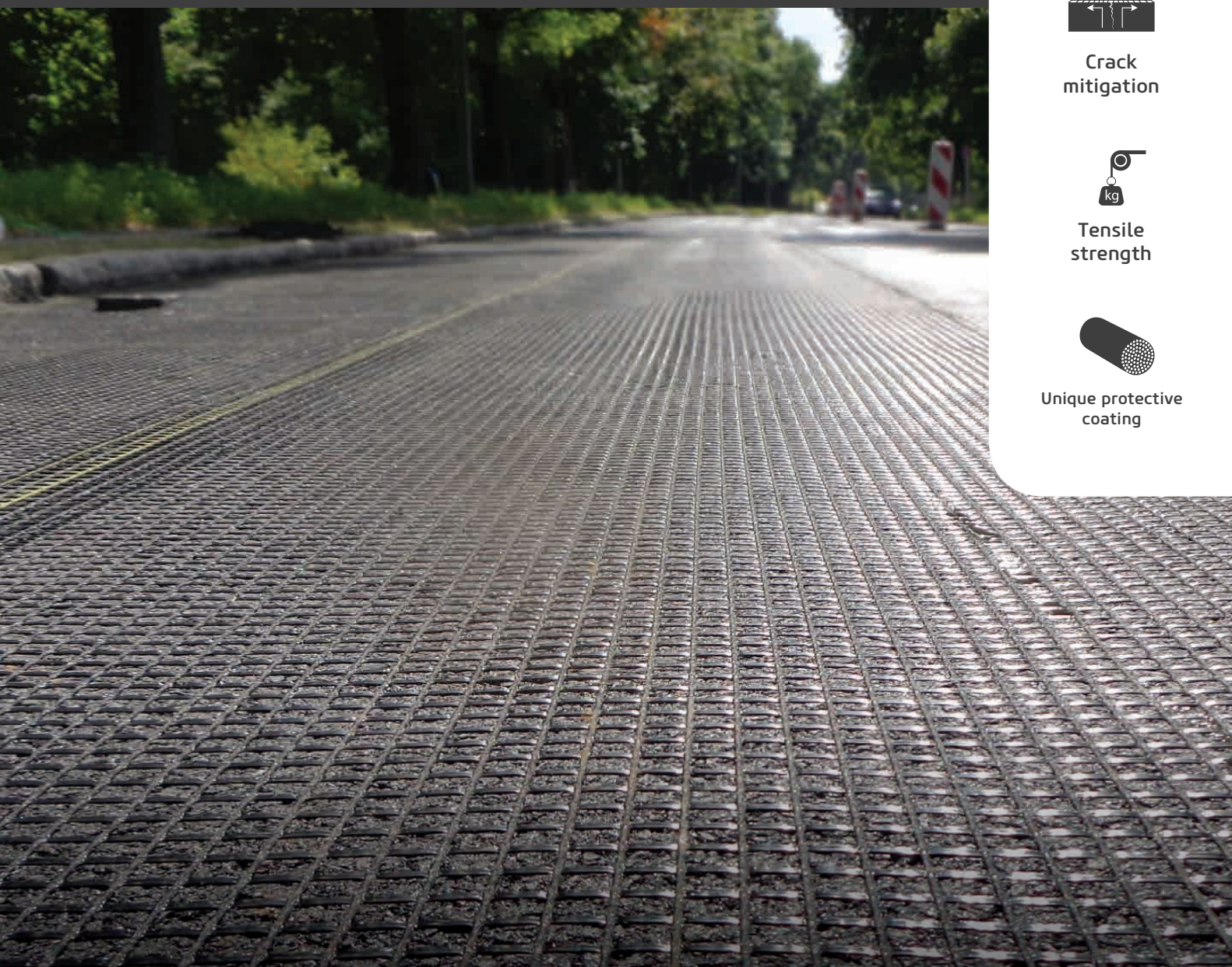
Crack
mitigation



Tensile
strength



Unique protective
coating



Installation Procedures

Your Partner for Innovative Textiles



The installation manual sets general recommendations for a successful installation of a GlasGrid GG50, GG100, GG200. Specific project conditions should be reviewed with a technical representative of Saint-Gobain ADFORS who can provide expert assistance during installation.

■ Installation Follow-up

- Transport and Storage
- General Site Review
- Weather Considerations
- Installation
- Overlap and Custom Fitting
- Test for Proper Adhesion
- Boundary Conditions
- Tack Coat
- Paving
- Health & Important Issues
- Final Note

■ Transport and Storage

- Maintain storage of product in manufacturer's original packaging until ready for installation.
- GlasGrid GG must be stored in dry, dust, dirt free environment and kept such at the job site.
- Prevent material from coming into contact with debris, asphalt, vegetation or other deleterious materials.
- Store and transport at temperatures between minus 30 °C and 80 °C and with a maximum relative humidity of 85%.
- Pallets with product should be stored and transported on dry and flat surface.
- Storage of pallets with product as well as unsecured product rollers one another are not recommended. Product performance could be affected at contractor responsibility.

■ General Site Review

- Prior to the installation of GlasGrid interlayer system, evaluate and complete repairs to the existing pavement.
- Existing pavement should show no signs of poor drainage, pumping of fines, excessive deflections or structural instability. Sub-grade repairs shall be made to all areas where structurally instability is present.
- Potholes and cracks larger than 6 mm should be filled and compacted with appropriate material. Seal cracks between 3 mm and 6 mm with appropriate crack filler.
- The surface receiving the interlayer must be dry, dust-free mechanically cleaned by sweeping and vacuuming and be free of oil, vegetation, sand, dirt, water, gravel, and other contaminants prior to placement of interlayer reinforcing. **(Pic. 1)**
- Moisture and dirt will interfere with adhesion of the grid to the pavement surface. Therefore placement should not be undertaken, if rain is likely to fall prior to covering the grid with an asphalt mat overlay. Grid that is placed and will not adhere due to moisture or dirt shall be removed and replaced at the contractor's expense.
- GlasGrid GG can be installed directly on an old asphalt surface or on a leveling/binder course. **(Pic. 2)**
- Receiving surface shall be smooth, with the existing cracks pre-treated. Milled surfaces shall receive a levelling course prior to the GlasGrid installation.
- For maximum performance GlasGrid GG should be installed over a recently placed leveling or binder course with a minimum thickness of 20 mm **(Pic. 2)**. Full contact between surface and grid must be ensured.
- Consultation with an ADFORS technical specialist is recommended for any undescribed application.



Pic. 1: Ultra High Pressure technology to clean the surface



Pic. 2: Typical installation and glue activation on a leveling course

Weather Considerations

- Local weather guidelines must be maintained for paving (e.g. temperature, precipitation).
- Extra care should be taken when paving at either end of the temperature range. As an example, the use of a particular type of tack coat material may benefit the process in hot weather conditions over another type.
- Should the surface containing GlasGrid become wet; it should be left undisturbed until fully dried out. Trafficking of the GlasGrid while it is wet may break the bond.

Installation

- GlasGrid GG and tack coat must be installed and applied by trained personnel. Fabric tractor installation is recommended. Alternatively manually installing GlasGrid® is possible using the correct equipment. **(Pic. 3, 4)**
- Commence placement of GlasGrid only if previously described conditions are fulfilled.
- Reinforcement grid shall be installed with adhesive side facing down using sufficient pressure to eliminate ripples. Remove any ripples by pulling the grid tight. Cutting of the grid can be done on tight radii to prevent ripples.
- The surface receiving the reinforcement shall be between 5 °C and 60 °C and support GlasGrid installation. Fresh laid asphalt surface must harden with respect to the local paving guidelines. Is recommended to permit new paved asphalt surface to cool at least once to 43 °C.
- Place and secure the leading edge of material onto pavement in the direction of the work. Once the leading section is secure proceed dispensing the balance of the roll until the roll is completed using a tractor, truck or hand device moving slowly away.
- Full contact between the lower surface and grid must be ensured.
- After proper grid placement the activation of the self-adhesive by rolling the material with a rubber coated drum roller or a pneumatic tire roller is recommended **(Pic. 2)**. Roller tires shall be kept clean to the satisfaction of the Engineer.
- Rolling of the material with one or two passes should be sufficient to develop a strong bond to the true and leveling course. **(Pic. 2)**
- Protect the asphalt reinforcing grid until placement of the finished asphalt topping. If installed interlayer is damaged due to not sufficient protection and traffic on site it needs to be removed and replaced at the contractor's expense.
- Place the asphaltic overlay course within 24 hours the interlayer reinforcing grid is placed.



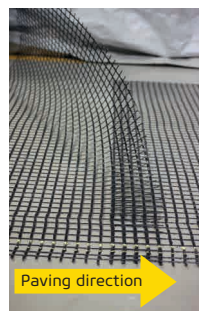
Pic. 3: Fabric Tractor Installation of GlasGrid



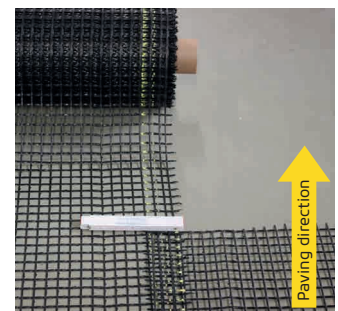
Pic. 4: Manual Installation of GlasGrid

Overlap and Custom Fitting

- GlasGrid GG must be applied without ripples. Sufficient tension during application will eliminate this problem.
- Overlap at end of end roll joints 100–150 mm. Ensure that the overlaps are shingled in the direction of paving. **(Pic. 5)**
- Overlap longitudinal joints at minimum 50 mm. **(Pic. 6)**
- GlasGrid GG can be custom cut to fit around structures by using a sharp utility knife or other similar tool. Reinforcement laid out and rolled over ironworks (i.e., manhole covers, drainage grates, etc.) shall be removed in such an areas by cutting the reinforcement grid.
- GlasGrid GG does not bend or stretch around curves. Shortened lengths should be placed in these areas.
- Overlapping areas shall be arranged that areas do not coincide with paving lanes, cracks, joints or seams in the base. Overlapping area should be kept in minimum distance $\geq 0,5$ m.



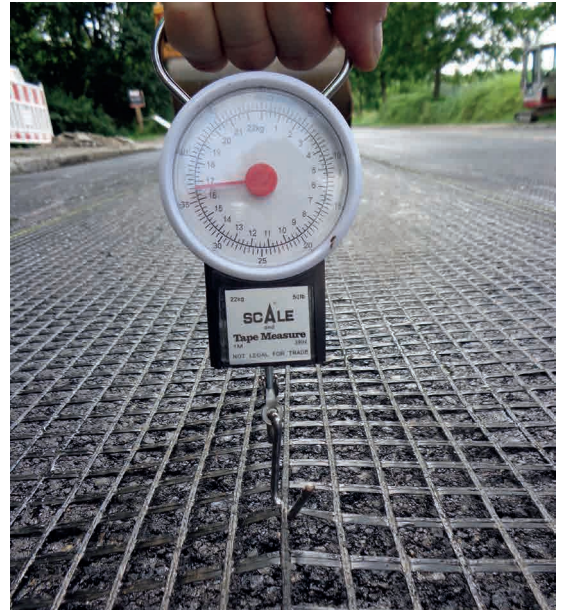
Pic. 5: End of joints



Pic. 6: Longitudinal joints

■ Test for Proper Adhesion

- Cut 1 m² of GlasGrid GG.
- Place on area that is representative of the project condition.
- Activate self-adhesive glue by rolling with a recommended rubber-tired roller.
- Insert hook of calibrated spring balance under center of GlasGrid GG.
- Pull upward until GlasGrid GG starts to pull away from the surface.
- If result is 9 kg or more it is OK to pave. If less than 9 kg do not continue installation GlasGrid GG without corrective action to address this issue. **(Pic. 7)**
- Consult the manufacturer if grid does not meet this pull rating and do place asphalt topping until an acceptable adhesion is achieved.
- If bond is not achieved then determination of the cause is required. This is typically due to contamination on the smooth surface, in the form of either water or debris.
- After application, provide a minimum of one test per 300 m² of surface area and record result in kg.



Pic. 7: Adhesion pull out test

■ Boundary Conditions

- Prior to paving, only construction and emergency vehicles should be allowed to drive on installed GlasGrid GG and with max. speed up to 20 km/h.
- Vehicles should limit turning and breaking on installed GlasGrid GG.
- To reduce the crack stresses distribution over individual cracks and distresses installation width has to be kept ≥1,0 m (minimum 0,5 m each side from the crack).
- To reduce potential transfer of tack to the equipment tires, stone chips for example 1–1,5 kg/ (1–3 or 2–5 mm grain size) can be applied over the grid depending on project requirements.
- Extra care should be taken when paving at either end of the temperature range. For extreme heat, a higher grade of PGAC may be considered to address high temperature conditions.

■ Tack Coat

- Apply tack coat per project requirements. **(Pic. 8)**
- Generally recommended is tack coat application after GlasGrid GG installation.
- If tack coat is specified by project or required by order of procedure on site it may be applied before the installation of GlasGrid GG.
- The general recommended final tack coat spray rate should accommodate range of potential project/environmental local conditions, type of GlasGrid GG and type of emulsion. Recommended is polymer modified tack coat with minimum 60 % bitumen content (as example C60BP1-S). Application rate vary depending on site conditions between 0,2–0,5 kg/m² residual bitumen content. **(Tab. 1)**
- Tack must be completely cured prior to paving. **(Pic. 9)**

GlasGrid GG Total Residual Tack Coat Rate Recommendation (100% solids)	
New Asphalt Surface	Heavily Oxidized Asphalt Surface
0,20–0,35 kg/m ²	0,35–0,50 kg/m ²
<p>Application rate formula: $R = A * \frac{100}{S}$</p> <p>R... total emulsion application rate for project A... project application rate defined by 100% bitumen required S... solid concentration of the used emulsion</p>	<p>Example: Project application rate is 0,3 kg/m² [100% bitumen]. For project is used emulsion with 60% solid content.[C60BP1-S].</p> $R = 0,3 * \frac{100}{60} = 0,5 \text{ kg/m}^2$

Tab. 1: GlasGrid GG Total Residual Tack Coat Rate Recommendation

■ Paving

- Hard braking and/or locking up of the trucks wheels on the grid shall be prohibited to not damage installed grid during the truck move and dispensing mix into the paver.
- Once tack coat is fully cured and GlasGrid GG secured it is recommended to pave within 24 hours.
- Installed GlasGrid GG system shall be covered by hot asphalt layer with minimum width after compaction 40 mm generally recommended is minimum width 50 mm overlay after compaction. **(Pic. 9)**
- Paving in high slopes, tight curves and in areas with high shear forces applied to the pavement structure are generally considered as critical.
- Stop paving immediately if GlasGrid GG moves or ripples.



Pic. 8: Tack coat application over GlasGrid GG

■ Health & Important Issues

- Because fiberglass is considered as a skin irritant, workers should wear protective clothes, gloves and glasses while handling GlasGrid GG.

■ Final Note

- The installation of any asphalt reinforcement interlayer shall follow the local regulations for asphalt road construction.
- This guideline outlines recommendations for a quality installation and is based on familiarity with the product, and the consolidation of decades of project site experiences.
- If you have any questions or unique installation parameters, do not hesitate to contact us.
- Warranty claims cannot be based and forced on present information in this guideline. Each project should be consulted with a SG ADFORS technical specialist.
- In as much as Saint-Gobain ADFORS has no control over installation design, installation workmanship, accessory materials, or conditions of application, Saint-Gobain ADFORS does not warrant the performance or results of any installation or use of GlasGrid. This warranty disclaimer includes all implied warranties, statutory or otherwise, including the warranty of merchantability and of fitness for a particular purpose. The purchaser and/or user should perform its own tests to determine the suitability and fitness of the product for the particular purpose desired in any given situation.



Pic. 9: Pave Overlay

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CE 1021-CPR-040/15
2015

GlasGrid® is manufactured at an ISO 9001:2008, EN15381:2008 registered facility of Saint-Gobain ADFORS.

GlasGrid® is a registered trademark of SAINT-GOBAIN ADFORS. U.S. Patent 8,038,364 ; 8,349,431 and 8,882,385. Additional patents pending.

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CE 0799-CPD-123
2012

1836/2016.08