STAR Grid TM

Pavement Reinforcement Grids

STAR Grid G-PS

_{i1}rid with glass fiber yarns

STAR Grid G+PF grid with paving fabric





STAR Grid - The choice for long-lasting pavements

Paving fabrics, with *over* 20 years of successful applications, have consistently demonstrated an ability to retard reflective cracking and provide a water barrier in asphalt overlays. More recently, however, higher strength geosynthetic materials incorporated into asphalt overlays are providing even higher levels of remediation than obtained with paving fabric alone.

LUCKENHAUS STAR Grid[™] G-PS and STAR Grid G+PF fi11

the need for an all-inclusive geosynthetic reinforcing element for asphalt pavement overlays. These innova*tive* products, when properly installed in conjunction with an asphalt concrete (AC) overlay, extend the *over*lay's service life and reduce routine maintenance. Their high-strength, high-modulus structure reinforces the overlay while interrupting reflective crack propagation from the old surface.

STAR Grid G-PS pavement reinforcement grids are based on high strength, flexible woven fiberglass geosynthetic grids. The grid material is factory-coated with a polymer modified bituminous adhesive. **STAR Grid G+PF** is a composite structure consisting of **STAR Grid** reinforcing flexible woven fiberglass grid factory-bonded to a polyester nonwoven paving fabric.



STAR Grid paving fabrics provide longer overlay life.

While **STAR Grid G-PS** imparts tensile reinforcement to the AC overlay, **STAR Grid G+PF** has the added feature of providing a moisture barrier via its paving fabric/grid composite structure.

The STAR Grid difference

Although paving fabrics are effective moisture barriers and can absorb slight differential movements between the old and new surfaces, they do little to reinforce an overlay. **STAR Grid G+PF** and **STAR Grid G-PS** are designed specifically to reinforce the overlay, while also controlling the reflective crack propagation. Asphalt overlays reinforced with **STAR Grid** fabrics result in significantly longer life.

	Control Sections	Paving Fabric	Paving Grid w/ Fabric
Fatigue Life - Number of cycles at crack development	19,200	38,130	240,930
Increase in Fatigue Life - Compared to control sections		+ 198.5%	+1,254.8%

LIFE CYCLE IMPROVEMENTS OF ASPHALT REINFORCEMENT

Test sections subjeded to c.ydicol, voriable concentroled oppfied loads up to o maximum of 200 pounds. •fatigue Lifen wos determined os lhe stulisticolly mean number of lood cycles of 27 test specimens at which one or more cracks developed ond propogoted through !he 3-inch thick povamenf lest section.

Source: Chhote Saraf and Kamran Majidzadeh, Research International, Inc., Transportation Research Board, January, 1996.

Deciding which STAR Grid to use

Successful rehabilitation of existing pavement surfaces can involve solving problems that include reflective crack control, establishing a moisture barrier, and improving the structural capacity of the deteriorated pavement. **STAR Grid**[™] can meet these challenges.

- STAR Grid G-PS provides tensile strength, improves dynamic loading capacity and fatigue behavior of asphalt. It is specially designed for applications where a moisture barrier is not required.
- **STAR Grid G+PF** adds tensile reinforcement but has the added feature of providing a moisture barrier via its paving fabric/grid composite structure.

Why STAR Grid?

With **LUCKENHAUS STAR Grid** pavement reinforcement, you can count on a high-quality product that meets all of your asphalt overlay needs.

APPLICATIONS

- Roadways
- Interchange rehabilitation
- Airport resurfacing
- Parking lots
- Overlaying distressed pavement
- Roadway durability in freeze-thaw areas
- · Bridge decks

BENEFITS

- Increased pavement life
- · Retards reflective cracking
- Moisture barrier for longer pavement life
- Reduces paving fatigue
- Excellent bonding to the overlay
- · Strengthens the asphalt overlay

PRODUCT ADVANTAGES

- High ultimate tensile strengths
- Task-designed products
- · Light-weight, easy to handle on job site
- Cost-effective
- · Wide-width designs



STAR Grid G-PS fabrics are bitumen-coated for improved bonding.

The dangers of Reflective Cracking in pavements

Roadways typically become candidates for new pavement when ordinary wear and tear becomes apparent.

When traffic and water variations create stresses and shearing forces that exceed the reduced bearing capacity, pavement cracking begins and rapidly multiplies. While a total rebuild may sometimes be warranted, pavement overlays are often the best and most economical solution. Where ordinary AC overlays often present problems, however, is when applied on pavement sections with reduced structural capacities. Reflective cracks soon appear, and the surface degradation process quickly begins anew.

Overlays installed with paving fabrics, like **LUCKENHAUS STAR Grid** paving grids, provide a good defense against reflective cracking. Geotextile paving fabrics that meet the requirements of AASHTO M 288 effectively reduce the amount of cracks that can propagate to the surface of the new overlay. Paving fabrics also play an important role in establishing a barrier against water penetration that reduces the bearing capacity of the structural base. **STAR Grid G+PF**'s unique composite structure provides the benefits of a paving fabric plus extended durability due to its tensile reinforcement of the overlay.

Ease of installation makes using STAR Grid a snap

The **STAR Grid**TM family of paving grids are designed with both the engineer and contractor in mind. The fiberglass grids and the polyester fabrics in the composite products provide excellent resistance to shrinkage and high tem perature degradations. Melt point is above 480° Fahrenheit (250° Celsius).

STAR Grid G-PS and **STAR Grid G+PF** can be installed d i rectly i nto the hottest tack coats without damage, speed ing installation and reducing construction costs. Polypropylene grids and fabrics, by comparison, can be damaged by temperatures as low as 320° F (1 60° C).

STAR Grid G-PS and **STAR Grid G+PF** are packaged in shrink wrap for protection during shipping and storage outdoors. Uncovered **STAR Grid G-PS** rolls should not be stored outside longer than six months, and u ncovered **STAR Grid G+PF** should always be stored indoors.



STAR Grid products are shipped in rolls and can be easily installed by machinery (as shown above), or manually if required by the job site.

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THE LUCKENHAUS FAMILY OF CONSTRUCTION PRODUCTS

- · STAR Grid pavement reinforcement grids
- RAUGRID geogrids for soil and aggregate reinforcement

For more information, call LUCKENHAUS Technical Textiles.



175 Mehler Lane Martinsville, VA 24 1 12 Phone: (276) 632-1605 Toll free: (866) 513-6275 Fox: (276) 638-4704