

SPECTRA[®] PAVEMENT OPTIMISATION SYSTEM

IMPROVING THE PERFORMANCE
OF FLEXIBLE PAVEMENT STRUCTURES



Pavement Optimisation with the Tensar® Spectra® System

The Spectra System uses the proven capability of Tensar TriAx® geogrids to create a mechanically stabilised aggregate layer that contributes to, and improves, overall pavement performance.

Suitable for any flexible pavement application, from car parks to highways, Tensar mechanically stabilised layers can increase support to surfacing layers and reduce the rate of structural degradation, increasing pavement life. They can also cut aggregate and asphalt costs, by reducing overall pavement thickness for faster, economical and environmentally-friendly construction.



Tensar® TriAx® geogrids

Launched in 2007, Tensar's TriAx geogrid was developed to maximise aggregate confinement, creating stiffer, mechanically stabilised layers to improve trafficking performance. TriAx geogrids have delivered benefits to thousands of projects around the world, in many different climates and ground conditions.

Pavement Optimisation

Pavement Optimisation delivers a design that meets a project's priorities in the most economical way, striking a balance between reducing pavement thickness with increased trafficking performance.

The benefits of Tensar Spectra Pavement Optimisation

REDUCED PAVEMENT COSTS

Pavement construction costs are typically reduced by 20%, by using fewer materials and accelerating construction programmes, while maintaining trafficking performance.

INCREASED PAVEMENT LIFE

Traffic capacity can be increased by up to six times that of traditionally-built pavements.

LOWER WHOLE-LIFE COSTS

Increased trafficking performance can reduce maintenance and repairs, delivering whole-life cost savings.

REDUCED CARBON FOOTPRINT

Road construction materials have high embodied energy in terms of CO₂e emissions. Reducing the amount of materials used in the road construction can reduce project carbon footprint.



Tensor® Spectra® System:

Mechanical stabilisation of aggregate layers for enhanced performance

An aggregate layer stabilised with Tensor TriAx geogrids performs as a composite, due to the interlocking mechanism and particle confinement that develops between the aggregate and the Tensor stabilisation geogrid. This Tensor mechanically stabilised layer provides more effective support to the entire pavement structure than aggregate alone.



Delaying early failure of flexible pavements

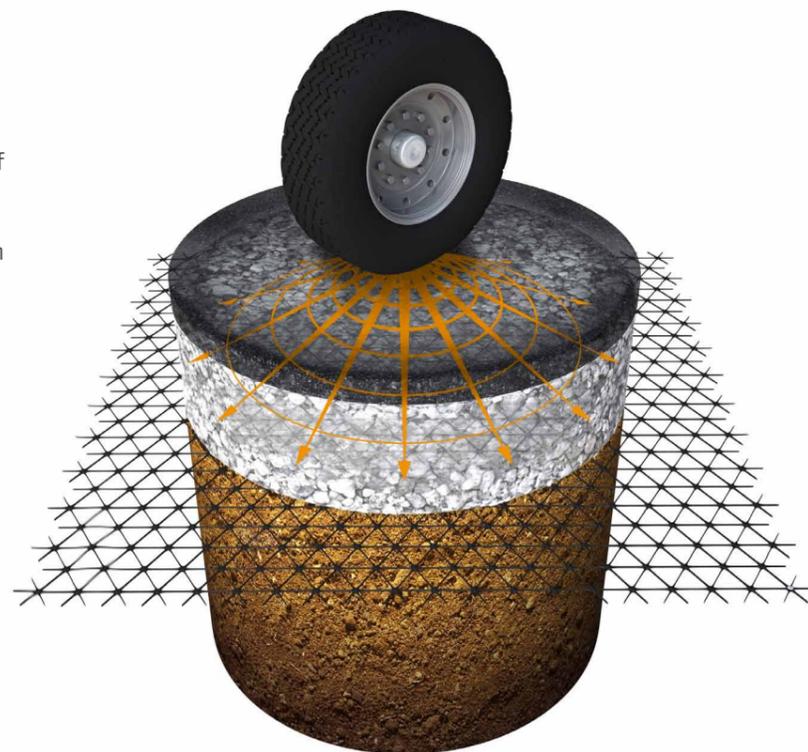
The Tensor Spectra System can delay the onset of failure of flexible pavements by controlling lateral and vertical displacement of aggregates from traffic loads. This reduces rutting and cracking of asphalt, helping to prevent moisture and contaminants entering and weakening the pavement structure.

Tensor® Spectra® System: For all ground conditions

While it has built its reputation for construction over weak subgrades, the Tensor Spectra System can help reduce pavement thickness and increase trafficking capacity over all ground conditions.

Increasing value in road construction

The Spectra Pavement Optimisation System uses the improved performance properties of a Tensor mechanically stabilised layer (MSL) in whole pavement construction to give designers an innovative way of reducing both aggregate and asphalt costs and increasing value in road construction.

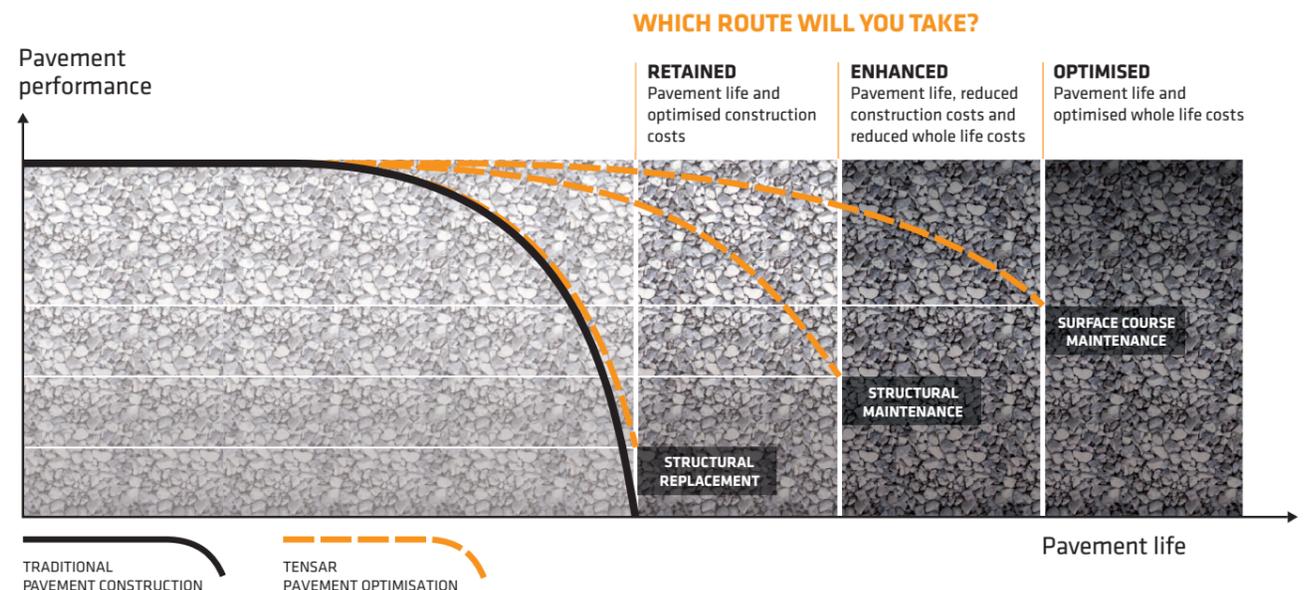


Tried and tested design and performance

Road authorities around the world recognise the benefits of incorporating geogrids in pavements and their use has become standard practice in many countries.

The American Association of State Highway Authorities (AASHTO) R50-09 (2009) for example, confirms that including geosynthetics can “Reduce pavement thickness and/or increase pavement life” but recommends full scale trials to quantify the benefits of products.

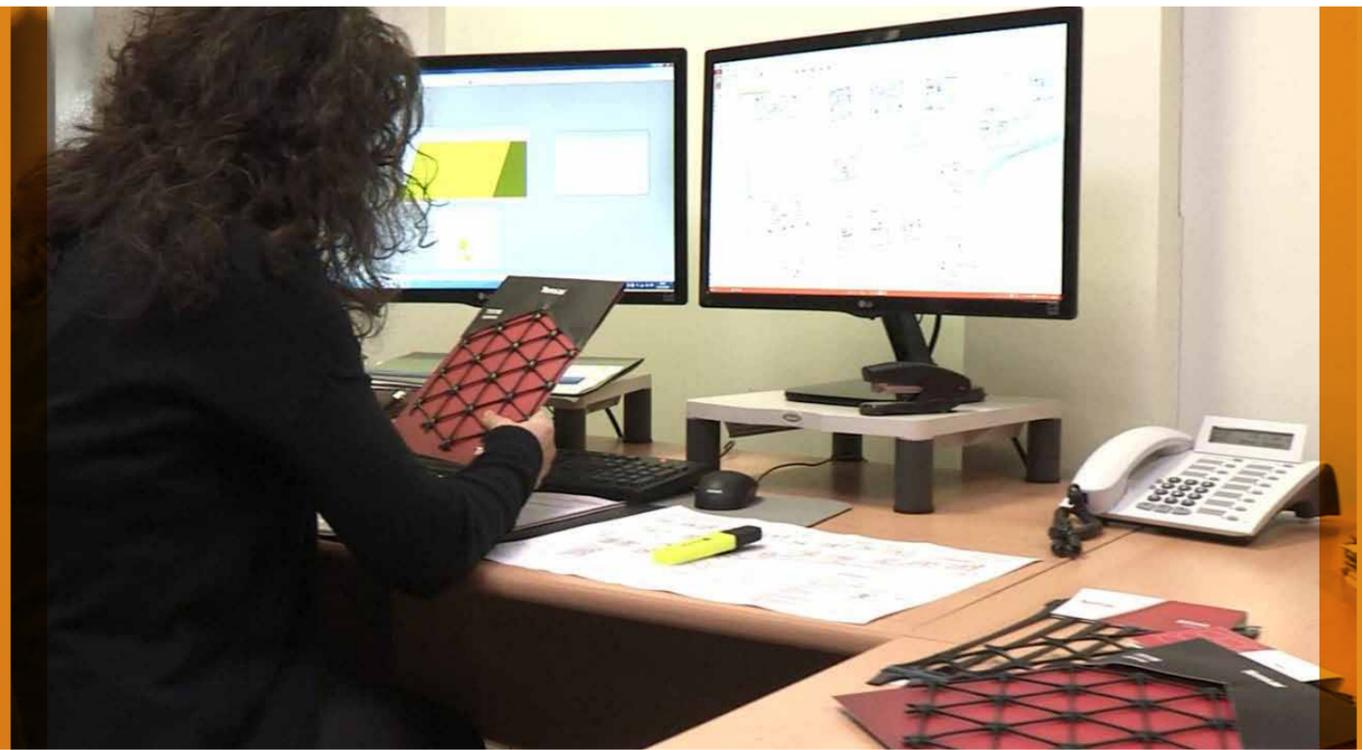
Accordingly, Tensor has 35 years of testing, including accelerated pavement testing incorporating its geogrids to develop construction and design methodologies that meet these guidelines. Testing has been carried out at the UK Transport Research Laboratory, the US Corps of Engineers and the University of Illinois and results have been independently validated by Applied Research Associates and Ryan R Berg & Associates.



The Tensar® Spectra® Pavement Optimisation System:

Reduced costs. Faster delivery. Lower emissions.

The Tensar Spectra System has brought benefits to a wide range of projects around the world, reducing construction and whole-life costs, accelerating project delivery and cutting carbon emissions.



NEW HIGHWAYS

Using the Tensar Spectra System for new highways can result in significant cost savings through faster construction of thinner pavements and reduced maintenance requirements.



HIGHWAY RECONSTRUCTION

Using TriAx geogrid means less 'dig and replace' depth of underlying material is required, so conflict with underlying services can be avoided and kerbs and footways can be left undisturbed.



CAR PARKS

The Tensar Spectra System enables car park pavements to be thinner, so fewer resources are needed, saving time and cost.



HEAVY DUTY APPLICATIONS

The Tensar Spectra System is ideal for industrial and commercial applications, where high trafficking loads can be supported, even on weaker ground.

Tensar International services: Supporting your project, from concept to completion

Tensar's professional engineering teams, and those of our partners, have extensive experience in the use of our products and systems on a wide range of projects around the world, in different climates and with varying ground conditions.

ENGAGING OUR TEAM AT THE EARLIEST STAGES OF A PROJECT CAN HELP SAVE TIME AND MONEY THROUGHOUT ITS LIFETIME

We provide a comprehensive range of design and construction services, tailored to clients' needs, including project-specific support on concepts, design, construction and installation, plus training in Tensar applications and the use of our proprietary software.

DESIGN

- Support on Tensar products and systems, and their application, at concept stage
- Design analysis, based on real-life performance of pavements using our products and systems
- Budget costing for projects or bids
- Detailed indemnified design and construction drawings for Tensar products and systems

CONSTRUCTION

- Support in preparing specifications and contract documents
- Installation guidance documentation
- On-site installation training
- Construction support and advice

TENSAR DESIGN SOFTWARE

Our design software helps our clients develop the most cost-effective subgrade stabilisation and pavement optimisation designs.

TensarPave is available free of charge (once user training has been completed), while Tensar engineers can use our Spectra M-E software when more mechanistic empirical approaches are required.



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