Balfour Beatty
Rail

XiTRACK®

Polyurethane Ballast Reinforcement

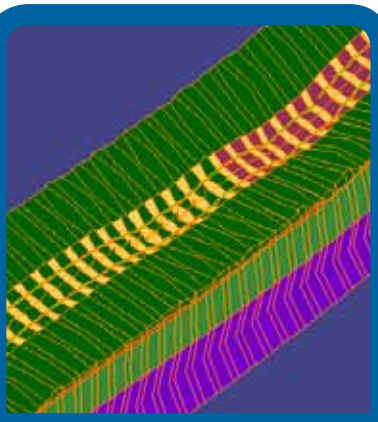
XiTrack®

Reducing maintenance costs

XiTRACK® is used to solve a number of track quality issues, eliminating persistent and recurring maintenance problems

XiTRACK® captures the existing ballast stones in a cage of strong, tough, durable polyurethane - a simple process backed up with laboratory development and design calculations enabling the ballast layer to act as an engineering structure.

Laboratory testing and development

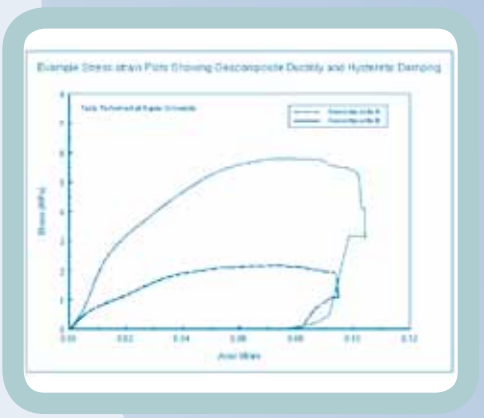


Analysis and design

On-site installation

XiTRACK® works by applying controlled amounts of liquid polyurethane onto the ballast surface. The polymer runs through the ballast and sets in a few seconds. The result is a layer of reinforced ballast with pre-designed engineering properties and thickness.

- Gives ballast designed engineering properties - ballast no longer behaves as a loose granular material but as a geocomposite
- 3-Dimensional reinforcement - a geogrid at every level and every direction
- Ductile stiffness and strength - capable of withstanding repeated train loading
- Minimal track work to install - options for installing with track in-situ and accommodating track maintenance
- Fixes track horizontally - no more alignment problems
- Reduces variation in trackbed stiffness
- Improved ride quality
- Reduces voiding
- Long service life
- Fast curing time
- Ballast remains free draining
- Environmentally safe



Key Benefits

- Reduced maintenance costs by retaining track alignment, reducing or eliminating tamping and manual interventions
- Reduced whole life cost due to ballast life extension as ballast stones are held in place, reducing attrition
- Increased track availability due to reduced maintenance input
- Reduced risk of speed restrictions by eliminating the development of track misalignments
- Increased maintenance efficiency through removal of persistent problems allowing resources to be utilised elsewhere

Applications

XiTRACK® polyurethane ballast reinforcement has been used to address a wide range of track engineering problems:

- Managing stiffness transitions from ballasted track to slabtrack or underbridges
- Reduction of voiding
- Reduction of settlement due to soft subgrade
- Vertical stabilisation of S&C
- Protecting critical parts from shock and vibration
- Reducing Critical Track Velocity effects
- Increase of lateral resistance for plain line
- Increase of lateral resistance for S&C
- Reduction of dynamic loading on under-track services
- Prevention of ballast washout during flooding
- Provision of medium/high fixity to maintain platform and tunnel clearances
- Alternative to slabtrack

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