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Geogrids and
Asphalt reinforcement

Asphalt reinforcement

High traffic loading, as well as humidity, frost and shrinkage caused by high or regular variations can lead to both horizontal and vertical deterioration of the asphalt surface. This will lead to cracking and pot holes in the road surface.

After laying new asphalt layers there is still risk of old (even filled) cracks reappearing.

Therefore.....

.....geogrids are laid in between asphalt courses



The geogrid absorbs the damaging tensile stress in the asphalt layer.

As a result crack formation is slowed down decisively and the size of grooves and pot holes reduced considerably.

Glass Geogrid “Pro-grid Plus”

Pro-grid Plus is a glass fibre woven reinforcing grid with additional glass fibres running in between and woven through each square section.

The fibres are coated in a bituminous emulsion which helps to bind the fibres together and also helps with adhesion to the asphalt surface during installation.

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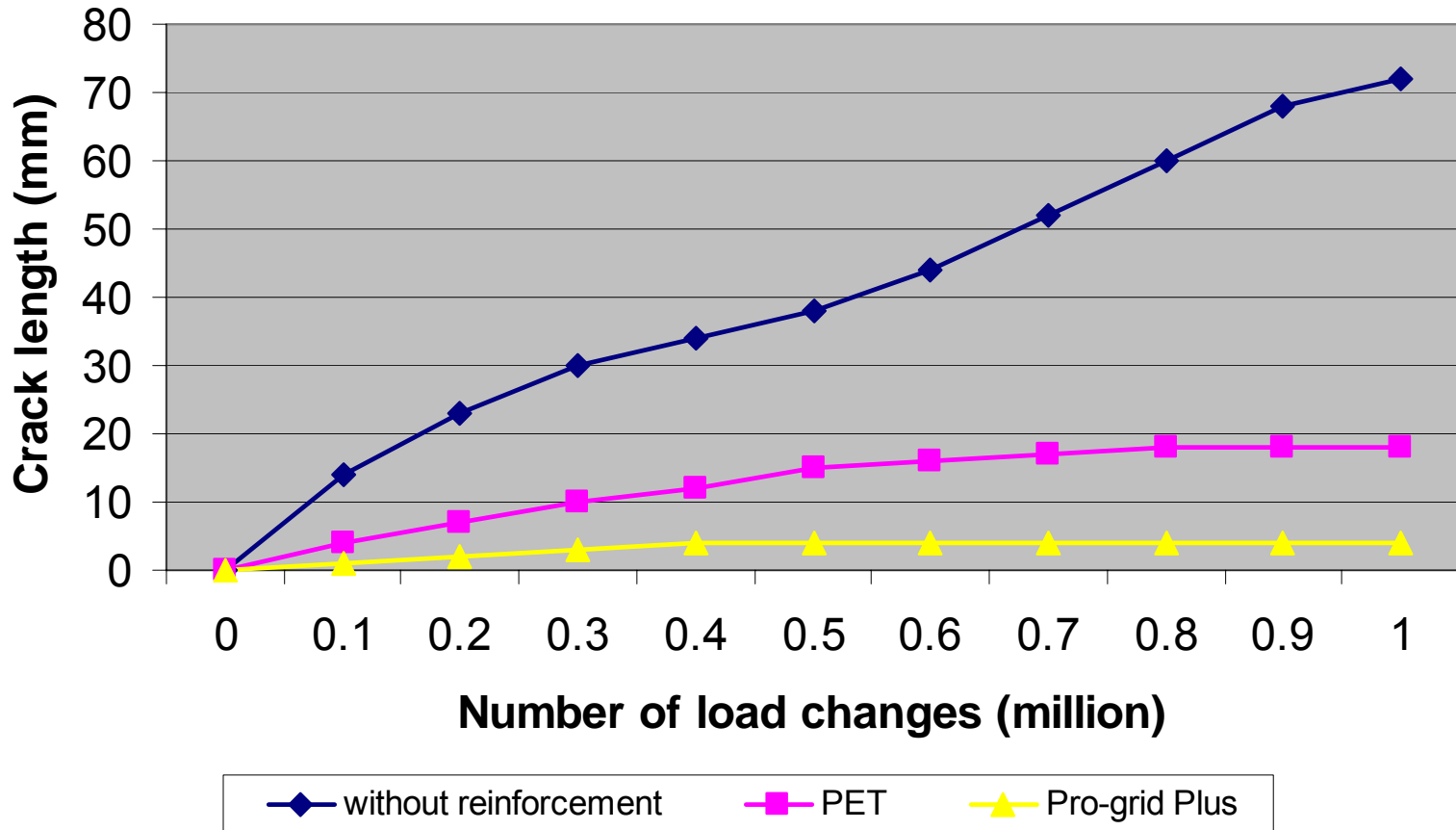
Glass Geogrid “Pro-grid Plus”



Why use glass over polyester?

Polyester	Glass
High elongation properties of 10-16 % allows movement of the asphalt layers. The asphalt can crack before the force is put onto the grid.	Low elongation of 3% and the similar physical properties of the glass to the asphalt creates rigid asphalt layers and prevents cracking.
E modulus of polyester is lower than glass leading to inefficient reinforcement	E modulus of glass is approximately 73,000 MPa (73,000,000kN/m ²)
Softening point of 180 – 190 °C	Softening point of 800 – 850 °C
Average crack length ≈ 18mm	Average crack length ≈ 4mm
Average crack length without reinforcement ≈ 72mm	

Asphalt behaviour with and without reinforcement



Glass Geogrid “Pro-grid Plus”



- Woven grid with glass filament yarns
- Coating: modified bitumen adhesive emulsion
- Filler yarns: flat textured glass

- Strengths available: 50/50, 100/100, 100/200, 100/200 (kN/m)
- Easy to recycle **with asphalt** due to mineral base
- Width of roll:
 - 1.1m, 2.2m and 4.4m
- Length of roll: 100m

Glass Geogrid “Pro-grid Plus”

Installation:

- The surface should be smooth and clean
- Cracks and holes should be filled and compacted
- The road surface should be dry and the temperature should be above 10°C
- The reconstruction area should be sprayed with an emulsion with at least 60-70% bitumen content. The softening point of this emulsion should be at least 10°C higher than the temperature of the reconstruction area.

- The emulsion should be sprayed at a rate of approximately 500 to 800gsm (flat surface), increasing for porous or sloping areas.
- When the emulsion is tacky the Pro-grid Plus should be rolled out with all parts bedding into it fully.
- Wrinkles and folds should be avoided. If there are turns and corners then pro-grid plus should be cut and shaped.

- Each roll of Pro-grid Plus should be overlapped by 10cm
- The emulsion should overlap the Pro-grid plus by 15 cm each side
- Traffic should be kept to an absolute minimum at this stage.
- The top layer of asphalt is then applied over the Pro-grid Plus layer to a minimum thickness of 50mm.

Key Advantages:

- Easy to cut and handle
- Easy and safe to install
- Extends road and pavement life by 30-50%
- Roads need resurfacing less often
- Can tolerate heavier traffic than polyester grids including airport runways
- Easy to dispose of with old asphalt layers
- **Inexpensive**

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For more information

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Glass Fibre Geogrids

Woven geo-grid made from glass fibre with additional layers of glass fibres between the mesh, covered in a modified bitumen emulsion

Properties	Test Method	unit	values			
			50	100	100/200	200
Mass per unit area	EN 9864	gsm	255	470	760	950
Aperture size MD		mm	30	30	30	30
Aperture size CMD		mm	30	30	30	30
Melting Point		° C	850 - 900			
Coating			modified bitumen emulsion			
Width		m	2.2	2.2	2.2	2.2
Length		m	100	100	100	100
Maximum tensile strength MD	EN ISO 10319	kN/m	60	110	110	215
Maximum tensile strength CMD	EN ISO 10319	kN/m	60	110	215	215
Tensile strength at 2% elongation MD	EN ISO 10319	kN/m	40	88	85	160
Tensile strength at 3% elongation MD	EN ISO 10320	kN/m	53	107	107	200
Tensile strength at 5% elongation MD	EN ISO 10321	kN/m	n/a	n/a	n/a	n/a
Tensile strength at 10% elongation MD	EN ISO 10322	kN/m	n/a	n/a	n/a	n/a
Tensile strength at 2% elongation CMD	EN ISO 10319	kN/m	44	78	172	160
Tensile strength at 3% elongation CMD	EN ISO 10319	kN/m	56	103	210	200
Tensile strength at 5% elongation CMD	EN ISO 10319	kN/m	n/a	n/a	n/a	n/a
Tensile strength at 10% elongation CMD	EN ISO 10319	kN/m	n/a	n/a	n/a	n/a
Elongation at break MD	EN ISO 10319	%	3	3	3	3
Elongation at break CMD	EN ISO 10319	%	3	3	3	3

Values given based on laboratory tests in our own premises and professional testing institutes.
Confidence level is 95%.

We reserve the right to alter to any of these testing results at any time without prior notice