

Build Wrap GF®

Glass Fiber Fabric Sheet Data Sheet
(Formally: Build Wrap G)

**Glass Fiber Reinforced for Fabric Sheet
Weight Content with 920g/m² or 680g/m² or 420g/m²**

**Tensile Modulus 76 Gpa,
Tensile Strength 2300 Mpa**

Strengthening System for Buildings & Bridges Structures or Timber Woods



Build Wrap GF, Standard Tensile Strength & Tensile Modulus, Glass Fiber [Wrap] Roll Size



Build Wrap GF [Glass Wrap] with Build Strength CF [Carbon Fiber H Beam & Other Profiles], Are install for Bridges Span, since 1992

GLASS FIBER Build Wrap GF® is a fabric sheet of longitudinal oriented, continuous glass fiber filaments which are held in position by a lightweight, open mesh, glass scrim. **Build Wrap GF®** has robust handling and rapid wet-out characteristics which make it ideal for on-site strengthening of structural of buildings, bridges, beams, columns and marine structures. Additionally, **Build Wrap GF®** is compatible with all commonly used resin systems which can be applied using a variety of wet-out/resin infusion techniques.

Key Properties High Modulus, High Thermal Conductivity, Light Weight, Electrical Conductivity, Excellent Fatigue Resistance, Excellent Corrosion Resistance, Low Friction and Wear, Low Thermal Expansion, Resistance to High Temperatures, Good Creep and Damping Properties, Transparent to X-Rays

“Build Wrap GF®” Glass Fiber Physical Properties

Products Grade	Build Wrap® GF920		Build Wrap® GF680		Build Wrap® GF420	
Glass Fiber Weight	920	g/m ²	680	g/m ²	420	g/m ²
Glass Scrim Weight	20	g/m ²	20	g/m ²	15	g/m ²
Total Product Weight	940	g/m ²	700	g/m ²	435	g/m ²
Roll Width	500	mm	500	mm	500	mm
Roll Length	40	meter	40	meter	40	meter
Sheet Thickness	0.376	mm	0.278	mm	0.171	mm
Total Roll Weight	18.80	Kg	14.00	kg	8.70	kg

Specification Properties Data Sheet

“Build Wrap GF®” - Glass Fiber Properties

Typical of Fiber Properties	SI / Units UK design		US / Units US design	
Tensile Strength	2,300	Mpa	33,586	psi
Tensile Modulus	76	Gpa	11.02 x 10 ⁶	psi
Ultimate Elongation	2.80	%	2.80	%
Density	2.56	g/cm ³	0.0923	Ib/in ³

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Specification Properties Data Sheet

“Build Wrap GF®” – Composites Fabricated of Cured Panel Properties

Typical of Fiber Properties	SI / Units UK design		US / Units US design	
Tensile Strength	1,300	Mpa	188,549	psi
Tensile Modulus	54	Gpa	7.83 x 10 ⁶	psi
Ultimate Elongation	2.80	%	2.80	%
Density	2.56	g/cm ³	0.0923	Ib/in ³

Application Method

Surfaces Preparation

Reinforced concrete surfaces shall be clean, structurally sound and free from foreign materials, contaminants, oily and other debris. Concrete surfaces shall not more than 4% moisture content and the temperature of the substrate must be at least 3 °C or and above the current dew point temperature.

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For filing surface irregularities such as blowholes, honeycombs & etc. Please hack or cut off any unloose concrete, air blow excess dust, clean all concrete surfaces and remain dry overnight.

Use patching method of Polymer Cementitious Mortar or pumping of High Strength Cementitious Grout. But only for concrete surfaces cracks 0.25mm, must be injected with Low Viscosity of Epoxy Resin to be filled. Using high pressure Air-Less Pump for injecting and penetration into structural crack lines, to achieve load bearing and adhesion bonding system.

Once patched, pumped or injected, before laying Carbon Fiber Fabric Sheet, all surfaces must be Hammer Tested for Polymer Cementitious Mortar, High Strength Cementitious Grout and Pull-Off Test for Cracks Lines. For achievement of strength requirement please consult your local Engineer.

Over Head Application

Vertical Application

Applied on Over Head or Vertical Beam and Slab, either Primer, Adhesive & Resin, Waste of materials are approximately 15%.

IMPORTANT

All reinforced structural corners must be rounded to a radius of at least 15mm, before laying the Glass Fiber.

Mixing of Primer

Use a low speed (300 to 500 rpm) electric drill fitted with a paint mixer or a wing type paddle Pour one unit of Part A & B into drum and mix for at least 3 minutes until the mix is uniform and free. (Note: Once been mixed, the Primer must be applied within 30 minutes of Pot Life).

For Uneven Surfaces

Mixing of Paste Putty

Use a low speed (300 to 500 rpm) electric drill fitted with a paint mixer or a wing type paddle. Pour one unit of Part A & B into drum and mix for at least 5 minutes until the mix is uniform and free. (Note: Once have been mixing, the Paste Putty must be applied within 60 minutes of Pot Life).

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Mixing of Resin

Use a low speed (300 to 500 rpm) electric drill fitted with a paint mixer or a wing type paddle. Pour one unit of Part A & B into drum and mix for at least 3 minutes until the mix is uniform and free. (Note: Once have been mixed, the Epoxy Resin or Polyurethane Resin must be applied within 60 minutes of Pot Life).

Easy Installation

The easy to use Glass Fiber system components assure fast, user friendly installation. A complete system is installed in only six (6) steps to properly prepared surfaces within appropriate working conditions.

System Recommended Use Resin Component

Epo Resin Wrap is Epoxy Solvent Free (Bisphenol-F)
Two Component of Part A & Part B.
Suitable for applying on Over Head or Vertical or Horizontal Surfaces

1. Roll "Epo Bond Primer"

Apply **Epo Bond Primer**, applied at rate 0.20 kg/m² to 0.30 kg/m², is a low viscosity of **Primer Resin** that can be applied using a roller. (Wait for ½ to 1 hours curing)

2. "If Require", Level Surfaces with "Epo Bond Adhesive"

Apply **Epo Bond Adhesive**, applied at rate 1.5 kg/m² to 6.00/m², paste adhesive is a high solids, non sag paste Epoxy Based or Polyurethane Based material that is applied using a squeegee or trowel to level uneven concrete surfaces. (Curing time: ½ hour to 4 hours depend of whether temperature)

3. Apply First Coat of "Epo Resin Wrap"

Apply **Epo Resin Wrap**, applied at rate 0.25 kg/m² to 1.00 kg/m², is a high solids Epoxy Based or Polyurethane Based Resin, that can be applied using a roller to begin saturation of the fiber reinforcement sheet. (Curing time: ½ hour to 4 hours depend of whether temperature)

4. Apply Carbon Fiber fabric Sheet of "Build Wrap GF®"

The backbone of the Glass Fiber composite strengthening system, glass fiber fabric sheet, to be placed into the first layer of wet saturant and backing paper is removed. During the laying of Glass Fiber Fabric Sheet, Keep the fiber direction properly.

5. Apply Second Coat of "Epo Resin Wrap"

Apply **Epo Resin Wrap**, applied at rate 0.25 kg/m² to 1.00 kg/m², is a high solid Epoxy Based or Polyurethane Based Resin, that can be applied using a roller to begin saturation of the fiber reinforcement sheet. (Curing time: ½ hour to 4 hours depend of whether temperature)

6. If Require of Plaster Materials on Fiber Wrap Finish, Apply of "Epo Bond Paste" Option Requirement

Apply Epo Bond Paste, at rate applied 0.30kg/m², when the paste is still wet, immediate sprinkle the silica sand on wet coat finish.

7. Apply Optional Topcoat

Where required, the Glass Fiber high solids, high gloss, corrosion-resistant topcoat provides a protective/aesthetic outer layer. (Refer to Painting Manufacture)

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Note: *In the case of two layers and several layers of "Build Wrap GF" Glass Fiber Fabric Sheet. For multiple plies repeat steps 3, 4 and 5.*

Remark: *All direction of fiber overlapping must be at least 100mm*

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Epo Resin Wrap[®]

Epoxy Resin Properties of Specification (Liquid Based: Solvent Free)

Compressive Strength	DIN 53454	50 N/mm ²
Flexural Strength	DIN 53452	37 N/mm ²
Tensile Strength	DIN 53455	80 N/mm ²
Bonding Strength		Excellent bond to structural
Tension Elongation at Break		6%
Solid Volume		100% High Solid Resin
Viscosity	at 25 °C	4000 (±550) mPa.s
Density	at 25 °C	1.02 g/cu. cm
Pot Life	at 25 °C	> 45 minutes until 60 minutes
Cure Time	at 25 °C	As pot life test method
Specific Gravity		1020 g/liter
Flash Point		> 200 °C
Tear Resistance		Excellent on External & Internal Layer
Abrasion Resistance		10 sec/1000 cycle, 0.01% Peeling of on Top Surfaces
Fire Resistance		Burning Test, Good Conditions of Class 0
Coverage Thickness		0.50 kg to 1.20 kg/m ²
Stability Under Heat	DIN 53458	70 °C
Glass Transition Temp	DIN 53445	90 °C
Shore A Hardness		None
Shore D Hardness	DIN 53505	82-86%
Packing		10 kg/pail




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Epo Bond[®] Paste

Epoxy Resin Properties of Specification		(Paste Form: High Viscosity Solvent Free)
Compressive Strength	DIN 53454	50 N/mm ²
Flexural Strength	DIN 53452	37 N/mm ²
Tensile Strength	DIN 53455	80 N/mm ²
Bonding Strength		Excellent bond to structural
Tension Elongation at Break		6%
Solid Volume		100% High Solid Resin
Viscosity	at 25 °C	25000 (±550) mPa.s
Density	at 25 °C	0.97 g/cu. cm
Pot Life	at 25 °C	> 45 minutes until 60 minutes
Cure Time	at 25 °C	As pot life test method
Specific Gravity		970 g/liter
Flash Point		> 200 °C
Tear Resistance		Excellent on External & Internal Layer
Abrasion Resistance		10 sec/1000 cycle, 0.01% Peeling of on Top Surfaces
Fire Resistance		Burning Test, Good Conditions of Class 0
Toxicity		Essentially non-toxic in cured fabricated panel
Coverage Thickness		0.75 kg to 2.00 kg/m ²
Stability Under Heat	DIN 53458	70 °C
Glass Transition Temp	DIN 53445	90 °C
Shore A Hardness		None
Shore D Hardness	DIN 53505	82-86%
Packing		5 kg/pail (Part A/2.95 kg & Part B/2.05 kg)


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Epo Bond[®] Primer

Properties of Specification

	Test Result	Cured Coating	
Compressive Strength	DIN 53454	48 N/mm ²	
Flexural Strength	DIN 53452	36 N/mm ²	
Tensile Strength	DIN 53455	72 N/mm ²	
Bonding Strength		Excellent bond to structural	
Tension Elongation at Break		2%	
Solid Volume		100% High Solid Resin	
Viscosity	at 25 °C	3500 (±250) mPa.s	
Density	at 25 °C	1.02 g/cu. cm	
Pot Life	at 25 °C	> 25 minutes until 60 minutes	
Cure Time	at 25 °C	Dust-dry Time: 1.5 hours	Full Cured: 4 hours
Specific Gravity		1020 g/liter	
Flash Point		> 200 °C	
Tear Resistance		Excellent on External & Internal Layer	
Abrasion Resistance		10 sec/1000 cycle, 0.01% Peeling of on Top Surfaces	
Fire Resistance		Burning Test, Good Conditions of Class 0	
Coverage Thickness		0.15 kg to 0.50 kg/m ²	
Stability Under Heat	DIN 53458	70 °C	
Glass Transition Temp	DIN 53445	90 °C	
Shore A Hardness		None	
Shore D Hardness	DIN 53505	75%	
Packing		5.00 kg/pail	

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Health & Safety Some of the components of this product may be hazardous during mixing and application. Please consult the relevant Health & Safety Data Sheets, available from LAMACO Malaysia on request and sent with each delivery.



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