

Carbon Fiber Reinforced Polymer [CFRP] Mesh Wrap System is Longitudinal & Latitudinal Data Fabric Type

**Pioneer in CFRP,
Smart & Clever for Composites**

**Structural Strengthening
Building & Civil Engineering
[Column, Beam & Slab]**

Timber Strengthening

Masonry Strengthening

Build Mesh CF

Weight of Fiber*Gap*Wide Products List

200g/m² [gap 20*20mm] x 1.50m x 100/m roll
300g/m² [gap 10*10mm] x 1.50m x 100/m roll
400g/m² [gap 8*8mm] x 1.50m x 100/m roll



Build Mesh CF 20020, 30010 & 40008



Build Mesh CF 20020, 30010 & 40008



Install of Build Mesh CF on Void Holes



Install on Build Mesh CF 30010 on Wall



**Carbon Fiber Mesh,
is Longitudinal & Latitudinal Data Fabric Type
Carbon Fiber Weight Content, 200, 300 & 400 gm/m²
For Reducing of [Micro Concrete/Grout/Mortar/Shotcrete] Thickness
Strengthening System for Tunnel & Building Works**

Build Mesh CF®

Is a mesh fabric sheet system of longitudinal & latitudinal oriented, continuous carbon fiber filaments which are held in position by a lightweight, open spacing gap 8mm to 20mm mesh. **Build Mesh CF®** has robust handling and rapid wet-out characteristics which make it ideal for on-site strengthening of structural of structure reducing of the concrete reinforced thickness, for tunnels or buildings, bridges & marine structures. Additionally, **Build Mesh CF®** is compatible with all commonly used resin systems which can be applied using a variety of wet-out/resin infusion techniques.

Property of Products Specification

Product Name & Specification	Weight of Carbon Fiber Mesh Fabric [gm/m ²]	Gap of Mesh Fabric [mm]	Width of Mesh Fabric [mm]	Roll Length [m]
Build Mesh CF 20020 Longitudinal, 12K Carbon Fiber Latitudinal, 12K Carbon Fiber	200	20 x 20	1500	100
Build Mesh CF 30010 Longitudinal, 12K Carbon Fiber Latitudinal, 12K Carbon Fiber	300	10 x 10	1500	100
Build Mesh CF 40008 Longitudinal, 12K Carbon Fiber Latitudinal, 12K Carbon Fiber	400	8 x 8	1500	100

Specification Properties Data Sheet

“Build Mesh CF®” - Carbon Fiber Filament Yarn [Actual Dry Fiber] Properties

Typical of Carbon Fiber Properties	SI / Units UK design		US / Units US design	
Tensile Strength	4,900	Mpa	710,500	psi
Tensile Modulus	230-235	Gpa	32.80 x 10⁶	psi
Ultimate Elongation	1.80	%	1.80	%
Density	1.79	g/cm ³	0.0646	Ib/in ³
Cross-Sectional Area per Filament	0.43	mm ²	6.63 x 10⁻⁴	in ²
Approximate Yield (12K)	1.31	m/g	1,950	Ft/Ib
Filament Shape	Round		Round	
Filament Diameter	6.7	µm	0.265	mil
Weight/length	0.765	g/m	42.8 x 10⁻⁶	Ib/in

Specification Physical Properties

Product Name	Weight Carbon Fiber gm/m ²	Reduced of Micro Concrete Thickness [%]	Increase of Tensile Load [kN]	Increase of Compression Load [kN]
Build Mesh CF 20020	200	40-60%	40-75%	45-100%
Build Mesh CF 30010	300	40-60%	40-75%	55-100%
Build Mesh CF 40008	400	50-75%	40-80%	65-100%

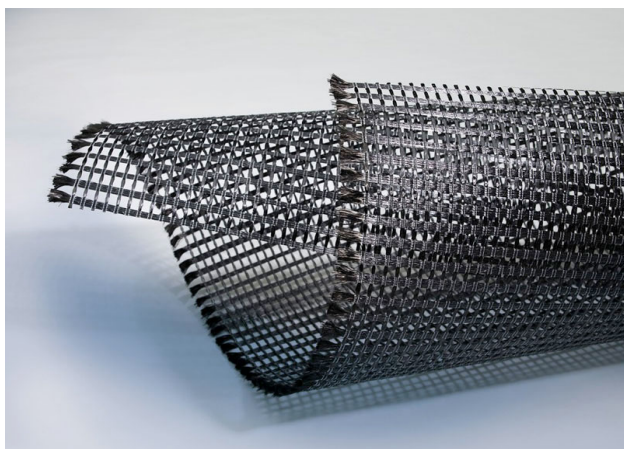


Photo of Build Mesh CF

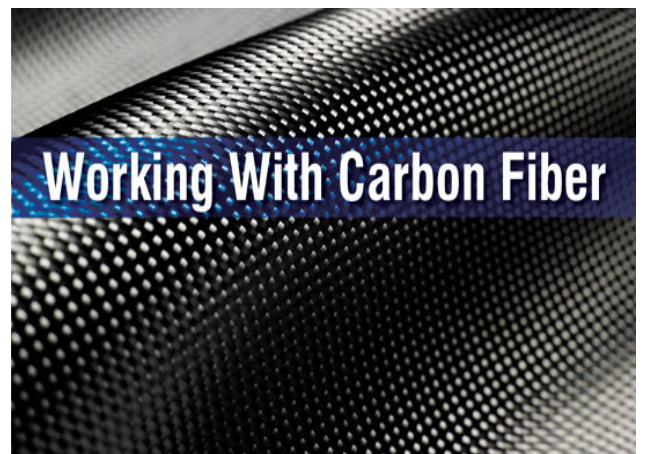


Photo of Build Mesh CF



Install of Build Mesh CF 40008

For Reducing of Micro Concrete or Microgrout or Shotcrete Thickness, it from 150mm reduced until 45mm Thick



Install of Build Mesh CF 40008

For Reducing of Micro Concrete or Micro grout or Shotcrete Thickness, it from 150mm reduced until 45mm Thick



Install of Build Mesh CF 40008

For Reducing of Micro Concrete or Microgrout or Shotcrete Thickness, it from 150mm reduced until 40mm Thick

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 be 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.

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 Mesh Fabric System, 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 Carbon Fiber Mesh Fabric System.

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).

Mixing of Resin Wrap

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).

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



Build Mesh CF

CFRP Mesh Wrap/Fabric

Easy Installation The easy to use Carbon Fiber Mesh Fabric 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.

1. Preparation of Structure, Level the Un-even Surfaces with "Cem Strength"

Apply **Cem Strength**, at rate applied 2 kg/m² to 12 kg/m², polymer cementitious mortar is a 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)

2. Roll "Epo Bond Primer"

Apply **Epo Bond Primer**, applied at rate 0.20 kg/m² to 0.30 kg/m², and applied using a roller. (Curing time: 2-4 hours)

3. Apply First Coat of "Epo Resin Wrap"

Apply **Epo Resin Wrap**, applied at rate 0.25 kg/m² to 1.00 kg/m², and is a high solids Epoxy 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 Mesh Fabric of "Build Mesh CF"

The backbone of the Carbon Fiber composite strengthening system, **Build Mesh CF** carbon fiber mesh fabric sheet, to be placed into the first layer of wet saturated and backing paper is removed. During the laying of Carbon Fiber Mesh 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, and is a high solid Epoxy Based 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. Note: Apply Optional Topcoat

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

In the case of two layers and several layers of "Build Mesh CF". For multiple plies repeat steps 3, 4 and 5. All direction of fiber overlapping must be at least 100mm

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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.


LAMACO SYSTEM SDN BHD

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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		40000-60000 (±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		2 kg pack, 5 kg pack & 10 kg pack


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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		2 kg pack & 5 kg pack	


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