SikaWrap® 600C ± 45
Double Bias Carbon Fiber Fabric for Structural Strengthening

Description
SikaWrap 600C ± 45 is a high strength, bi-directional ±45 carbon fiber fabric. Material is field laminated using Sikadur Hex 300 or Sikadur 330 epoxy to form a carbon fiber reinforced polymer (CFRP) used to strengthen structural elements.

Where to Use
Loading Increases
- Increasing the live loads
- Increasing traffic volumes on bridges
- Installation of heavy machinery in industrial buildings
- Vibrating structures
- Changes of building utilization
Seismic Strengthening
- Column wrapping
- Masonry walls
Damage to Structural Parts
- Aging of construction materials
- Vehicle impact
- Fire
- Blast Resistance
Change in Structural System
- Removal of walls or columns
- removal of slab sections for openings
Design or Construction Defects
- Insufficient reinforcements
- Insufficient structural depths

Advantages
- Approved by ICC ESR-3288.
- Provides high strength in multiple directions
- Used for shear, confinement or flexural strengthening
- Flexible, can be wrapped around complex shapes
- High Strength
- Light Weight
- Non-corrosive
- Alkali Resistant
- Low Aesthetic Impact

Packaging
Rolls: 50” x 225 ft

Typical Data
RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

<table>
<thead>
<tr>
<th>Property</th>
<th>Typical Test Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>711 ksi (4,900 MPa)</td>
</tr>
<tr>
<td>Tensile Modulus</td>
<td>33.4 msi (230 GPa)</td>
</tr>
<tr>
<td>Elongation at Break</td>
<td>2.1%</td>
</tr>
<tr>
<td>Areal Weight</td>
<td>17.11 osy (580 gsm) Total</td>
</tr>
<tr>
<td>Density</td>
<td>0.065 lb./in.³ (1.80 g/cm³)</td>
</tr>
<tr>
<td>Nominal Fiber Thickness</td>
<td>0.0063 in. (0.161 mm) each fiber direction</td>
</tr>
<tr>
<td>Fiber Direction</td>
<td>bidirectional (+/-45)</td>
</tr>
</tbody>
</table>

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product’s most current product data sheet, product label and safety data sheet which are available online at http://usa.sika.com/ or by calling Sika’s technical service department at 800.933.7452 nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current product data sheet, product label and safety data sheet prior to product use.
**Cured Laminate Properties**

<table>
<thead>
<tr>
<th>Property, each fiber direction (+45, -45)</th>
<th>Average Ultimate Value</th>
<th>Design Value</th>
<th>ASTM Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength (ksi)</td>
<td>173.2 (1,194 MPa)</td>
<td>144.4 (996 MPa)</td>
<td>D3039</td>
</tr>
<tr>
<td>Tensile Modulus (E_t)</td>
<td>12.52 (86.3 GPa)</td>
<td>1.09</td>
<td>D3039</td>
</tr>
<tr>
<td>Tensile % Elongation</td>
<td>1.39%</td>
<td>0.0195</td>
<td>D3039</td>
</tr>
<tr>
<td>Nominal laminate thickness</td>
<td></td>
<td>0.0195 (0.50 mm)</td>
<td>D3039</td>
</tr>
<tr>
<td>Tensile strength per unit width</td>
<td>2.8 kips/in./ply</td>
<td></td>
<td>D7565</td>
</tr>
<tr>
<td>Stiffness (E_t*A) per unit thickness</td>
<td>244 kips/in./ply</td>
<td></td>
<td>D7565</td>
</tr>
</tbody>
</table>

*Average ultimate value minus 3 standard deviations

**How To Use**

**Surface Preparation**

Surface must be clean and sound. It may be dry or damp, but free of standing water and frost. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials, and other bond inhibiting materials from the surface. Existing uneven surfaces must be filled with an appropriate repair mortar. The adhesive strength of the concrete must be verified after surface preparation by random pull-off testing (ASTM D4541) at the discretion of the engineer. Minimum tensile strength, 200 psi (1.4 MPa) with concrete substrate failure.

Concrete - Blast clean, shotblast or use other approved mechanical means to provide a roughened, open-textured surface. In certain applications and at the engineer’s discretion, the intimate contact between the substrate and the fabric may be determined to be non-critical. In these cases, a thorough cleaning of the substrate using low pressure sand blasting or water blasting is sufficient.

**Mixing**

Consult the current product data sheet(s) for recommendations on the specified Sikadur epoxy adhesive(s) needed.

**Application**

Prior to placing the fabric, the concrete surface is primed and sealed using the appropriate Sikadur epoxy adhesive (e.g. Sikadur Hex 300 or Sikadur 330 US). Material may be applied by spray, brush or roller.

SikaWrap 600C ±45 can be impregnated using Sikadur Hex 300 epoxy. For best results on larger projects, the impregnation process should be accomplished using Sikadur Hex 300 and a mechanically driven saturator or similar device. In special cases where the size of the project does not justify the use of a saturator, the fabric may be saturated by hand using a ruler prior to placement. In either case, installation of this system should be performed only by a specially trained contractor.


**Tooling & Finishing**

Cutting SikaWrap

Fabric can be cut to appropriate length by using a commercial quality, heavy duty scissor. Since dull or worn cutting implements can damage, weaken or fray the fiber, their use should be avoided.

**Limitations**

- DESIGN CALCULATIONS MUST BE MADE AND CERTIFIED BY AN INDEPENDENT LICENSED PROFESSIONAL ENGINEER
- SYSTEM IS A VAPOR BARRIER. CONCRETE SHOULD NOT BE ENCAPSULATED IN AREAS OF FREEZE/THAW
- Sika cannot and will not determine the location, spacing, and orientation of the SikaWrap system installation on actual projects.
- Do not place carbon fiber in direct contact with steel. Must be isolated (e.g. glass fabric) to protect against corrosion.

**Prior to Each Use of Any Sika Product, the User Must Always Read and Follow the Warnings and Instructions on the Product's Most Current Product Data Sheet, Product Label and Safety Data Sheet.**

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product’s most current Product Data Sheet before using the product. In case of emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer’s sole remedy shall be limited to the purchase price or replacement of the product, at Sika’s option. Sika shall not be liable under any legal theory for special or consequential damages. Sika shall not be responsible for the use of this product in a manner to infringe on any patent or any other intellectual property rights held by others.

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