

# SikaWrap Hex<sup>®</sup> 100G

## Glass fiber fabric for structural strengthening

<b>Description</b>	SikaWrap Hex 100G is a unidirectional E-glass fiber fabric. Material is field laminated using Sikadur 300, Sikadur 301, Sikadur Hex 300 or Sikadur Hex 306 epoxy to form a glass fiber reinforced polymer (GFRP) used to strengthen structural elements.
<b>Where to Use</b>	<ul style="list-style-type: none"><li>■ Load increases</li><li>■ Seismic strengthening of columns and masonry walls</li><li>■ Damage to structural parts</li><li>■ Temporary strengthening</li><li>■ Change in structural system</li><li>■ Design or construction defects</li></ul>
<b>Advantages</b>	<ul style="list-style-type: none"><li>■ Approved by ICBO/ICC ER-5558.</li><li>■ Used for shear, confinement or flexural strengthening.</li><li>■ Flexible, can be wrapped around complex shapes.</li><li>■ Light weight.</li><li>■ Non-corrosive.</li><li>■ Acid resistant.</li><li>■ Low aesthetic impact.</li><li>■ Economical.</li></ul>
<b>Possible Applications</b>	<ul style="list-style-type: none"><li>■ Bridges</li><li>■ Parking Structures</li><li>■ Buildings</li><li>■ Marine Structures</li><li>■ Civil/Environmental Facilities</li></ul>
<b>Packaging</b>	<b>Rolls:</b> 50 in. x 30 ft., 50 in. x 150 ft.
<b>How to Use</b>	
<b>Surface Preparation</b>	<p>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. Consult Sikadur 300, Sikadur 301, Sikadur Hex 300/306 and Sikadur 330 technical data sheets for additional information on surface preparation.</p> <p>Existing uneven surfaces must be filled with an appropriate repair mortar. The adhesive strength of the concrete must be verified following surface preparation by random pull-off testing (ACI 503R) at the discretion of the engineer. Minimum tensile strength, 200 psi (1.4 MPa) with concrete substrate failure.</p> <p><b>Preparation Work: Concrete</b> - Blast clean, shotblast or use other approved mechanical means to provide an open roughened texture.</p> <p>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 or water blasting is sufficient.</p>
<b>Mixing</b>	Consult either Sikadur 300, Sikadur 301, or Sikadur Hex 300/306 data sheets for information on epoxy resins.

### 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.

<b>Storage Conditions</b>	Store dry at 40°-95°F (4°-35°C)
<b>Color</b>	White
<b>Primary Fiber Direction</b>	0° (unidirectional)
<b>Weight Per Square Yard</b>	27 oz. (913 g/m <sup>2</sup> )

### Fiber Properties

<b>Tensile Strength</b>	3.3 x 10 <sup>5</sup> psi (2,276 MPa)
<b>Tensile Modulus</b>	10.5 x 10 <sup>6</sup> psi (72,413 MPa)
<b>Elongation</b>	4%
<b>Density</b>	0.092 lbs./in. <sup>3</sup> (2.54 g/cc)
<b>Nominal Thickness</b>	0.014 in. (0.359 mm)

## Cured Laminate Properties with Sikadur Hex 300 Epoxy Properties after standard cure followed by standard post cure [70°-75°F (21°-24°C) - 5 days, 48 hours at 140°F (60°C)]

Property	Average Value <sup>1</sup>		Design Value <sup>2</sup>		ASTM Test Method
	US Units, psi	SI Units, MPa	US Units, psi	SI Units, MPa	
Tensile Strength*	88,800	612	77,100	531	D-3039
Tensile Modulus*	3,790,800	26,119	3,426,300	23,607	D-3039
Tensile % Elongation*	2.45	2.45	2.12	2.12	D-3039
140°F - Tensile Strength	79,900	551	75,700	521	D-3039
140°F - Tensile Modulus	3,728,000	25,690	3,221,600	22,197	D-3039
140°F - % Elongation	2.28	2.28	2.07	2.07	D-3039
Compressive Strength	86,600	597	74,600	515	D-695
Compressive Modulus	4,312,700	29,715	3,903,800	23,384	D-695
90° Tensile Strength	4,400	30	2,900	20	D-3039
90° Tensile Modulus	965,000	6,649	892,700	6,159	D-3039
90° % Tensile Elongation	0.46	0.46	0.28	0.28	D-3039
Shear Strength, +/- 45 in. Plane	5,800	40	4,600	32	D-3518
Shear Modulus +/- 45 in. Plane	335,900	2,314	291,500	2,012	D-3518
Ply Thickness (in./mm)	0.04	1.016	0.04	1.016	---

\* 24 sample coupons per test series; all other values based on 6 coupon test series  
<sup>1</sup> Average value of test series  
<sup>2</sup> Average value minus 3 standard deviations

## Cured Laminate Properties with Sikadur Hex 306 Epoxy Properties after standard cure followed by standard post cure [70°-75°F (21°-24°C) - 5 days, 48 hours at 140°F (60°C)]

Property	Average Value <sup>1</sup>		Design Value <sup>2</sup>		ASTM Test Method
	US Units, psi	SI Units, MPa	US Units, psi	SI Units, MPa	
Tensile Strength*	83,400	575	72,900	484	D-3039
Tensile Modulus*	3,672,000	25,300	2,999,900	20,044	D-3039
Tensile % Elongation*	2.31	2.31	1.89	1.89	D-3039
140°F - Tensile Strength	69,300	477	62,400	431	D-3039
140°F - Tensile Modulus	3,306,400	22,781	2,970,700	20,468	D-3039
140°F - % Elongation	2.19	2.19	1.92	1.92	D-3039
Compressive Strength	75,000	517	64,800	447	D-695
Compressive Modulus	4,248,200	29,270	2,902,400	24,446	D-695
90° Tensile Strength	5,000	34	3,200	22	D-3039
90° Tensile Modulus	819,800	5,648	710,300	4,895	D-3039
90° % Tensile Elongation	0.66	0.66	0.45	0.45	D-3039
Shear Strength, +/- 45 in. Plane	6,100	42	5,500	38	D-3518
Shear Modulus +/- 45 in. Plane	337,200	2,323	297,600	2,050	D-3518
Ply Thickness (in./mm)	0.04	1.016	0.04	1.016	---

### Application

Prior to placing the fabric, the concrete surface is sealed using Sikadur 300, Sikadur 301, or Sikadur Hex 300 epoxy. Material may be applied by spray, brush or roller. SikaWrap Hex 100G can be impregnated using either the Sikadur 300, Sikadur 301, Sikadur Hex 300 or Sikadur Hex 306 epoxy. For best results on larger projects, the impregnation process should be accomplished using a mechanically driven fabric 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 roller prior to placement. In either case, installation of this system should be performed only by a specially trained, approved contractor. For overhead and vertical applications, prime concrete with Sikadur 30 or Sikadur 330 to improve tack. Saturate fabric with Sikadur 300, Sikadur 301, Sikadur Hex 300 or Sikadur Hex 306.

### 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. Consult MSDS for proper handling procedures.

### 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.

### Caution

SikaWrap fabric is non-reactive. However, caution must be used when handling since a fine "glass dust" may be present on the surface. Gloves must therefore be worn to protect against skin irritation. Caution must also be used when cutting SikaWrap fabric to protect against airborne glass dust generated by the cutting procedure. Use of an appropriate, properly fitted NIOSH approved respirator is recommended.

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