



**PRODUCT DATA SHEET**

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COMPOSITE REINFORCING

# SikaWrap® Hex-100 G

## GLASS FIBRE FABRIC FOR STRUCTURAL STRENGTHENING

<b>Description</b>	SikaWrap® Hex-100 G is a unidirectional E-glass fibre fabric. Material is field laminated using Sikadur®-300 epoxy to form a glass fibre reinforced polymer (GFRP) used to strengthen structural elements.
<b>Where to Use</b>	<p><b>Loading increases</b></p> <p><b>Seismic strengthening</b></p> <ul style="list-style-type: none"> <li>▪ Bridges.</li> <li>▪ Parking structures.</li> <li>▪ Marine structures.</li> <li>▪ Columns.</li> </ul> <p><b>Buildings</b></p> <ul style="list-style-type: none"> <li>▪ 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>▪ Used for shear, confinement or flexural strengthening.</li> <li>▪ Flexible, can be wrapped around complex shapes.</li> <li>▪ Lightweight.</li> <li>▪ Good resistance to impact.</li> <li>▪ Non-corrosive.</li> <li>▪ Acid resistant.</li> <li>▪ Low aesthetic impact.</li> <li>▪ Economical.</li> <li>▪ Approved by ICBO ER-5558.</li> <li>▪ Approved by ICC ESR-3288. (certain conditions apply, please consult Sika Canada).</li> <li>▪ Product recognized by the British Columbia Ministry of Transportation (BC MoT).</li> <li>▪ Product qualified by The Road Authority (TRA).</li> <li>▪ Complies with NSF-ANSI standard 61 for potable water contact (available by special order only).</li> </ul>

**Technical Data**

<b>Packaging</b>	Roll: 127 cm x 45.7 m (roll, 50 in x 150 ft)
<b>Colour</b>	White
<b>Shelf Life</b>	Unlimited. Store dry at temperatures between 5 and 32 °C (41 and 89 °F).

**Fibre Properties**

Primary fibre direction	0° (unidirectional)
Tensile strength	2.27 GPa (33.0 x 10 <sup>4</sup> psi)
Tensile modulus	72.4 GPa (10.5 x 10 <sup>6</sup> psi)
Elongation	4 %
Density	2.55 g/cm <sup>3</sup> (0.092 lb/in <sup>3</sup> )
Area weight	917 g/m <sup>2</sup> (27 oz/y <sup>2</sup> )
Nominal Fiber Thickness	0.36 mm (0.014 in)

**Cured Laminate Properties with Sikadur®-300**

[21 to 24 °C (70 to 75 °F)/5 days and 48 hours post cure at 60 °C (140 °F)]

Property	Average value <sup>1</sup>		Design value <sup>2</sup>		ASTM Test Method
	MPa	(psi)	MPa	(psi)	
Tensile strength*	611	(8.86 x 10 <sup>4</sup> )	541	(7.84 x 10 <sup>4</sup> )	D3039
Tensile modulus*			27 400	(3.97 x 10 <sup>6</sup> )	D3039
Tensile elongation (%)*		2.24		1.82	D3039
Shear strength ± 45° in plane	40	(5800)	34	(5000)	D3518
Shear modulus ± 45° in plane	2314	(3.36 x 10 <sup>5</sup> )	2110	(3.06 x 10 <sup>5</sup> )	D3518
Nominal laminate thickness			1.016 mm (0.04 in)		
Tensile strength per unit width			5.43 kN/cm/ply (3.1 kips/in/ply)		D7565
Stiffness (E <sub>t</sub> *A) per unit width			278 kN/cm/ply (159 kips/in/ply)		D7565

<sup>1</sup>Average ultimate value minus 3 standard deviations

<sup>2</sup>Product properties are typically averages, obtained under laboratory conditions. Reasonable variations can be expected on-site due to local factors, including environment, preparation, application, curing and test methods.

## HOW TO USE

### Surface Preparation

Prepare the concrete surface by sandblasting or grinding (ICRI / CSP 3 - 4). Remove any dust or loose particles by means of an industrial vacuum cleaner. The surface must be clean, free from grease and oil and should be dry with the maximum substrate moisture content not exceeding 4 % by weight.

The surface to be bonded must be level, with no irregularities or protrusion exceeding 0.5 mm (20 mil). Larger deviations must be levelled with Sikadur®-30, extended with (mix. ratio 1:1 parts by volume) oven-dried quartz sand for thicknesses over 3 mm (1/8 in).

The concrete adhesive strength must be verified following surface preparation by random pull-off testing (ACI 503R) at the engineer's discretion. Minimum tensile strength, 1.5 MPa (218 psi) with concrete substrate failure. All corners of the structure must be rounded to a radius of 12 mm (1/2 in).

### Mixing

Consult Sikadur®-300 or 330 Product Data Sheet for information on epoxy resin.

### Application

#### Cutting SikaWrap®

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

#### Priming and Saturating

Prior to placing the fabric, prime concrete with Sikadur®-300 or Sikadur®-330 (Sikadur®-330 provides improved 'tack' adhesion, especially useful for overhead or similarly demanding applications). Sikadur® products may be spray, brush or roller applied. Saturate the SikaWrap®-100 G using Sikadur®-300 epoxy. For best results on larger projects, the saturation process should be accomplished using an AMI Custom 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 or a spatula, prior to placement.

### Protection and overlayment

At low temperatures and/or high relative humidity it may be longer than 12 hours for the surface may become slightly tacky (amine blush). Before laying up another layer of fabric or a coating, the tackiness must be removed. This can be accomplished by washing the surface with a wet sponge or rinsing with water. To avoid this phenomenon, use the **SikaWrap® Peel Ply** (see below).

To prevent exposure of the strengthening fabric to direct sunlight, top coat with Sikagard®-550 W Elastic, Sikagard® Color A-50 Lo-VOC or other acceptable product. To adhere cementitious top coat systems to the cured epoxy, apply an additional layer of epoxy (15 - 20 mil) and blind (broadcast) the surface with quartz sand to promote adhesion before coating.

#### SikaWrap® Peel Ply

If the product needs to be overcoated either with a coating (Sikagard®, etc.) or with an extra layer of fabric passing the overlay delay, apply the SikaWrap® Peel Ply **immediately after the fabric installation**, in order to protect and provide a textured surface (consult SikaWrap® Peel Ply Product Data Sheet for more informations).

### Limitations

- Design calculations for the SikaWrap® Hex-100 G system must be made and certified by an independent licensed professional engineer.
- The SikaWrap® Hex-100 G system constitutes a vapour barrier.
- Protect the SikaWrap® Hex-100 G system from UV using Sikagard®-550 W Elastic or a similarly compatible Sika® coating.

### Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN  
FOR INDUSTRIAL USE ONLY

The Information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelflife. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request or may be downloaded from our website at: [www.sika.ca](http://www.sika.ca)

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