

PRODUCT DATA SHEET

SikaWrap® Hex-103 C

CARBON FIBER FABRIC FOR STRUCTURAL STRENGTHENING



DESCRIPTION

SikaWrap® Hex-103 C is a high strength, unidirectional carbon fiber fabric pre-saturated to form a carbon fiber reinforced polymer (CFRP) used to strengthen structural concrete elements.

USES

SikaWrap® Hex-103 C may only be used by experienced professionals.

SikaWrap® Hex-103 C can only be installed by a Sika New Zealand Approved Contractor.

Load Increases

- Increased live loads
- Increased 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 depth

CHARACTERISTICS / ADVANTAGES

- Used for shear, confinement or flexural strengthening
- Flexible, can be wrapped around complex geometries
- High Strength
- Light Weight
- Non-corrosive
- Alkali Resistant
- Low aesthetic impact

APPROVALS / STANDARDS

- Approved by ICC ESR-3288
- IBC 2015 Compliance

PRODUCT INFORMATION

Fibre Type	0° (unidirectional)
Packaging	Rolls: 0.635 x 91.4 m
Shelf Life	10 years in original packaging
Storage Conditions	Store dry at +4°C to +35°C
Dry Fibre Thickness	0.34 mm
Area Density	611 g/m ²

Dry Fibre Tensile Strength 3,793 MPa

Dry Fibre Modulus of Elasticity in Tension 234.5 GPa

Dry Fibre Elongation at Break 1.5%

TECHNICAL INFORMATION

Laminate Nominal Thickness 1.0 mm

Laminate Tensile Strength	Average Ultimate Value	Design Value	(ASTM D-3039)
	1,248 MPa	(f*fu) 1,110 MPa*	

* Average ultimate value minus 3 standard deviations

Average Ultimate Value	Design Value	(ASTM D-7565)
	-	

Laminate Modulus of Elasticity in Tension	Average Ultimate Value	Design Value	(ASTM D-3039)
	-	(E ^T) 71.7 GPa	

* Average ultimate value minus 3 standard deviations

Laminate Elongation at Break in Tension	Average Ultimate Value	Design Value	(ASTM D-3039)
	1.75%	1.45%*	

* Average ultimate value minus 3 standard deviations

Tensile Stiffness	Average Ultimate Value	Design Value	(ASTM D-7565)
	-	(E ^r *A) 416 kips/in. width	

* Average ultimate value minus 3 standard deviations

APPLICATION INSTRUCTIONS

SUBSTRATE 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. Consult the current product data sheets for Sikadur® Hex-300 for additional information on surface preparation.

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 D-4541) at the discretion of the engineer. Minimum tensile strength 1.4 MPa with concrete substrate failure.

Preparation Work: Concrete - Blast clean, shotblast or use other approved mechanical means to provide a roughened, open-textured surface. Round all corners to 1/2" radius in certain "contact critical" applications and at the engineers discretion, a thorough cleaning of the substrate using low pressure sand or water blasting may be sufficient.

APPLICATION METHOD / TOOLS

Prior to placing the fabric, the concrete surface is primed and sealed using Sikadur® Hex-300. In either case, installation of this system should be performed only by a specially trained Sika New Zealand Approved Contractor.

Tooling & Finishing

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

LIMITATIONS

- System is a vapor barrier. Concrete should not be fully encapsulated in areas of freeze/thaw.
- Design calculations must be made and certified by an independent licensed professional engineer.
- Do not place carbon fiber in direct contact with steel. Must be isolated (e.g. glass fabric) to protect against corrosion.
- On projects governed by ICC regulations, use products listed on ESR-3288

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

ECOLOGY HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

LEGAL NOTES

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 in accordance with Sika's recommendations. 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 written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. 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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

Sika (NZ) Limited
85-91 Patiki Road
Avondale, Auckland 1026
New Zealand
0800 745 269
www.sika.co.nz



Product Data Sheet
SikaWrap® Hex-103 C
May 2019, Version 01.01
020206020010000003

SikaWrapHex-103C-en-NZ-(05-2019)-1-1.pdf

