

PRODUCT DATA SHEET

SikaWrap®-601 C

WOVEN UNIDIRECTIONAL CARBON FIBRE FABRIC, DESIGNED FOR STRUCTURAL STRENGTHENING APPLICATIONS AS PART OF THE SIKA® STRENGTHENING SYSTEM.

DESCRIPTION

SikaWrap®-601 C is a unidirectional woven carbon fibre fabric with high strength, designed for installation using the dry or wet application process.

USES

SikaWrap®-601 C may only be used by experienced professionals.

Structural strengthening of reinforced concrete, masonry, brickwork and timber elements or structures, to increase flexural and shear loading capacity for:

- Improved seismic performance of masonry walls
- Replacing missing steel reinforcement
- Increasing the strength and ductility of columns
- Increasing the loading capacity of structural elements
- Enabling changes in use / alterations and refurbishment
- Correcting structural design and / or construction defects
- Increasing resistance to seismic movement
- Improving service life and durability
- Structural upgrading to comply with current standards

CHARACTERISTICS / ADVANTAGES

- Manufactured with heat-set weft fibres to keep the fabric stable
- Multifunctional fabric for use in many different strengthening applications
- Flexible and accommodating to different surface planes and geometry (beams, columns, chimneys, piles, walls, soffits, silos etc.)
- Available in different widths for optimum utilisation
- Low density for minimal additional weight
- Extremely cost effective in comparison to traditional strengthening techniques

APPROVALS / STANDARDS

- USA: ACI 440.2R-17, Guide for the Design and construction of Externally Bonded FRP Systems for strengthening concrete structures, May 2017
- France: FIB , Technical Report, bulletin 14: Externally bonded FRP reinforcement for RC structures, July 2001.
- Poland: Technical Approval IBDiM Nr AT/2008-03-0336/1 „Płaskowniki. pręty, kształtki i maty kompozytowe do wzmacniania betonu o nazwie handlowej: Zestaw materiałów Sika CarboDur® do wzmacniania konstrukcji obiektów mostowych
- UK: Concrete Society Technical Report No. 55, Design guidance for strengthening concrete structures using fiber composite material, 2012.
- Italy: CNR-DT 200/2004 - Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Existing Structures.

PRODUCT INFORMATION

Construction	Fibre orientation	0° (unidirectional)	
	Warp	Black carbon fibres 95 %	
	Weft	White thermoplastic heat-set fibres 5 %	
Fibre Type	Selected high strength carbon fibres		
Packaging		Fabric length per roll	Fabric width
	1 roll in cardboard box	≥ 50 m	500 mm
Shelf Life	24 months from date of production		
Storage Conditions	Store in undamaged, original sealed packaging, in dry conditions at temperatures between +5 °C and +35 °C. Protect from direct sunlight.		
Dry Fibre Density	1.80 g/cm ³		
Dry Fibre Thickness	0.330 mm (based on fibre content)		
Dry Fibre Tensile Strength	4 900 MPa	(ASTM D3039)	
Dry Fibre Modulus of Elasticity in Tension	230 000 MPa	(ASTM D3039)	
Dry Fibre Elongation at Break	>1.70 %	(ASTM D3039)	

TECHNICAL INFORMATION

Laminate Nominal Thickness	1.3 mm		
Laminate Nominal Cross Section	1 300 mm ² per m width		
Laminate Tensile Strength	Average	Characteristic	(ASTM 3039)
	1 075 N/mm ²	950 N/mm ²	
Laminate Modulus of Elasticity in Tension	Average	Characteristic	(ASTM 3039)
	58 460 N/mm ²	53 100 N/mm ²	
* modification: sample with 50 mm Values in the longitudinal direction of the fibres Single layer, minimum 27 samples per test series			
Elongation at Break	1.80 %	(based on ASTM D3039)	

SYSTEM INFORMATION

System Structure	The system build-up and configuration as described must be fully complied with and may not be changed.		
	Concrete substrate adhesive primer	Sikadur®-301	
	Impregnating / laminating resin	Sikadur®-301	
	Structural strengthening fabric	SikaWrap®-601 C	
For detailed information on Sikadur®-301, with the resin and fabric application details, please refer to the Sikadur®-301 Product Data Sheet and the relevant Method Statement.			

APPLICATION INFORMATION

Consumption	Dry application with Sikadur®-301		
	First layer including primer layer	1.3 –1.5 kg/m ²	
	Following layers	≈ 0.7 kg/m ²	
Please also refer to the relevant Method Statement for further informa-			

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

Minimum substrate tensile strength: 1.0 N/mm² or as specified in the strengthening design.
Please also refer to the relevant Method Statement for further information.

SUBSTRATE PREPARATION

Concrete must be cleaned and prepared to achieve a laitance and contaminant free, open textured surface. Please also refer to the relevant Method Statement for further information.

APPLICATION METHOD / TOOLS

The fabric can be cut with special scissors or a Stanley knife (razor knife / box-cutter knife). Never fold the fabric.

SikaWrap®-601 C is applied using the dry or wet application process.
Please refer to the relevant Method Statement for details on the impregnating / laminating procedure.

FURTHER DOCUMENTS

Method Statements

Ref. 850 41 02: SikaWrap® manual dry application
Ref. 850 41 03: SikaWrap® manual wet application

LIMITATIONS

- SikaWrap®-601 C shall only be applied by trained and experienced professionals.
- A specialist structural engineer must be consulted for any structural strengthening design calculation.
- SikaWrap®-601 C fabric is coated to ensure maximum bond and durability with the Sikadur® adhesives / impregnating / laminating resins. To maintain and ensure full system compatibility, do not interchange different system components.
- SikaWrap®-601 C can be over coated with a cementitious overlay or other coatings for aesthetic and / or protective purposes. The over coating system selection is dependent on the exposure and the project specific requirements. For additional UV light protection in exposed areas use Sikagard®-550 W Elastic, Sikagard® ElastoColor-675 W or Sikagard®-680 S.
- Please refer to the Method Statement of SikaWrap® manual dry application (Ref. 850 41 02), SikaWrap® manual wet application (Ref. 850 41 03) for further information, guidelines and limitations.

Sika (Singapore) Pte Ltd.

28 Tuas South Ave 8
Singapore 637648
Phone: +65 6861 0632
Fax: +65 6862 3915
Email: sales@sg.sika.com
www.sika.com.sg



BASIS OF PRODUCT DATA

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

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for the exact product data and uses.

ECOLOGY, HEALTH AND SAFETY

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.

Product Data Sheet

SikaWrap®-601 C
July 2020, Version 01.01
020206020010000055