BUILDING TRUST

PRODUCT DATA SHEET

SikaWrap®-230 C

Carbon fibre, unidirectional, woven, mid-strength fabric with a fibre area density of 235 g/m² designed for dry or wet application

DESCRIPTION

SikaWrap®-230 C is a unidirectional woven carbon fibre fabric. The Product is made of mid-range strength carbon fibres with an area density of 235 g/m ². The fabric is designed for installation using the dry or wet application process.

USES

SikaWrap®-230 C may only be used by experienced professionals.

SikaWrap®-230 C is used as a reinforcement fabric for externally bonded structural strengthening systems on concrete, masonry and wooden substrates.
Externally bonded structural strengthening systems are used for:

- Increasing the flexural and shear loading capacity of elements and structures
- Enhancing the load-carrying capacity or ductility of structural members in compression
- Replacing missing steel reinforcement
- Structural upgrading of weak concrete elements or structures
- Improving impact resistance
- Passive strengthening for seismic event protection

Please note:

- A specialist structural engineer must be consulted for any structural strengthening design calculation.
- The Product may only be used by experienced professionals.

CHARACTERISTICS / ADVANTAGES

- Improves the service life of a structure
- Manufactured with thermo-welded 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 (such as beams, columns, chimneys, piles, walls, soffits and silos)
- Available in different widths for optimum utilisation
- Low density for minimal additional weight

ENVIRONMENTAL INFORMATION

- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Material Ingredients under LEED® v4

APPROVALS / STANDARDS

- Czech Republic: Technical Approval, ITC, Nr. STO-AO 224-1012/2020/a
- Technical Approval, CSTB, Avis Technique 3.3/19-1005_V1
- National Technical Assessment Sika CarboDur® kit, ITB, Approval No. ITB-KOT-2018/0414 v.2
- Technical Approval Sika CarboDur, Nr. IBDiM-KOT-2019-0361 v.2
- Technical Agreement, CTPC, No. 016-01/488-2022
- Russia: Technical Certificate SikaWrap®, No. 6477-22
- Test Report, University of Belgrade, No. 368/2019
- Slovakia: Technical Assessment, TSUS, No. SK04-ZSV-2669
- Technical Approval, DIT, No. N604R/19

PRODUCT INFORMATION

Construction	Fibre orientation	0° (longitudinal, unidirectional)	
	Warp (longitudinal)	Black carbon fibre, 99 %	
	Weft (transversal)	White thermoplastic heat-set fibre, 1 %	
Packaging	Rolls, 300 mm wide	50 m	
	Rolls, 600 mm wide	50 m	
	Refer to the current price list for available packaging variations.		
Fibre Type	Selected mid-range strength carbon fibres		
Shelf Life	24 months from date of production		
Storage Conditions	The Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +35 °C. Protect the Product from direct sunlight. Always refer to packaging.		
Dry Fibre Modulus of Elasticity in Tension	230 kN/mm²		(ISO 10618)
Dry Fibre Tensile Strength	4000 N/mm²		(ISO 10618)
Dry Fibre Elongation at Break	1.7 %		(ISO 10618)
Dry Fibre Thickness	0.129 mm		
Area Density	(235 ± 10) g/m²		
Dry Fibre Density	1.82 g/cm³		

TECHNICAL INFORMATION

Laminate Nominal Thickness	0.129 mm		
Laminate Nominal Cross Section	129 mm² per metre width		
Laminate Tensile Strength	Mean	3500 N/mm²	(EN 2561)
	5 % characteristic	3200 N/mm²	
	Mean	3400 N/mm²	(ASTM D3039)
	Characteristic (ACI 440.2R)	3100 N/mm²	
	All values refer to the relevant design nominal thickness.		
Tensile Resistance	**Average**	**Characteristic**	(based on EN 2561)
	452 kN/m	413 kN/m	(based on ASTM D 3039)

Laminate Modulus of Elasticity in Tension	Mean	225 kN/mm²	(EN 2561)
	5 % characteristic	220 kN/mm²	
	Mean	220 kN/mm²	(ASTM D3039)

All values refer to the relevant design nominal thickness.

Tensile Stiffness	**Average**	**Characteristic**	(based on EN 2561)
	29.0 MN/m	28.4 MN/m	
	29.0 kN/m per ‰ elongation	28.4 kN/m per ‰ elongation	
	Average	**Characteristic**	(based on ASTM D 3039)
	28.4 MN/m	27.1 MN/m	
	28.4 kN/m per ‰ elongation	27.1 kN/m per ‰ elongation	

Laminate Elongation at Break in Tension	Mean	1.56 %	(EN 2561)
	5 % characteristic	1.35 %	
	Mean	1.50 %	(ASTM D3039)
	Characteristic (ACI 440.2R)	1.35 %	

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®-330
Impregnating or laminating resin	Sikadur®-330 or Sikadur®-300
Structural strengthening fabric	SikaWrap®-230 C

For detailed information on Sikadur®-330 or Sikadur®-300, together with the resin and fabric application details, please refer to the individual Product Data Sheets and the relevant Method Statement.

APPLICATION INFORMATION

Consumption

DRY APPLICATION WITH SIKADUR®-330

First layer, including primer	0.7–1.2 kg/m²
Following layers	0.5 kg/m²

WET APPLICATION WITH SIKADUR®-300, PRIMER SIKADUR®-330

	SikaWrap®-230 C
Primer	0.4–0.6 kg/m²
Fabric layers	0.6 kg/m²

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.

FURTHER DOCUMENTS

Reference must be made to the following Sika® Method Statements:

- 850 41 02 Method Statement SikaWrap® manual dry application
- 850 41 03 Method Statement SikaWrap® manual wet application

LIMITATIONS

- SikaWrap®-230 C shall only be applied by trained and experienced professionals.
- A specialist structural engineer must be consulted for any structural strengthening design calculation.
- SikaWrap®-230 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 exchange system components.
- SikaWrap®-230 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 relevant Method Statement of SikaWrap® for further information, guidelines and limitations.

ECOLOGY HEALTH AND SAFETY

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in this product data sheet.Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0.1 % (w/w)

REGULATION (EC) NO 1907/2006 - REACH

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APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

Tensile adhesion strength of the substrate must be a minimum of 1.0 N/mm² or as specified in the strengthening design. If necessary, verify this by applying a test area first.
Refer to the relevant SikaWrap® Method Statement for further information.

SUBSTRATE PREPARATION

Clean and prepare concrete to achieve a laitance-free, contaminant-free, open-textured surface.
Refer to the relevant SikaWrap® Method Statement for further information.

APPLICATION

IMPORTANT
Application by trained personnel
The application of this Product must only be carried out by an applicator that is trained or approved by Sika. The applicator must also be experienced in this type of application.

IMPORTANT
Strictly follow installation procedures
Strictly follow installation procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.
IMPORTANT
Do not interchange different system components
SikaWrap® fabrics are coated to ensure maximum bond and durability with the Sikadur® adhesives, impregnating and laminating resins. To maintain and ensure full system compatibility, do not interchange different system components.
1. IMPORTANT Never fold the fabric. Cut the fabric with special scissors, a razor knife or a box-cutter knife.
2. Apply the SikaWrap fabric using the wet or dry application process. Refer to the relevant Method Statement for details on either the impregnating or laminating procedure:
- 850 41 02 Method Statement SikaWrap® manual dry application
- 850 41 03 Method Statement SikaWrap® manual wet application

OVERCOATING SIKAWRAP® FABRICS
SikaWrap® fabrics can be overcoated with a cementitious overlay or other coatings for aesthetic or protective purposes. The selection of the overcoating system depends on the exposure and project-specific requirements.
For additional protection from UV light in exposed areas, use one of the following:
- Sikagard®-550 W Elastic
- Sikagard®-675 W ElastoColor
- Sikagard®-680 S Betoncolor
- Sikagard®-5500

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®-230 C is applied using the dry or wet application process.
Please refer to the relevant Method Statement for details on the impregnating / laminating procedure.

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.

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.

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