BUILDING TRUST

PRODUCT DATA SHEET

Sika® CarboDur® S NSM

Pultruded carbon fibre plate for near-surface-mounted (NSM) structural strengthening

DESCRIPTION

Sika® CarboDur® S NSM is a pultruded carbon fibre reinforced polymer (CFRP) flat plate. It is primarily designed for near-surface-mounted (NSM) structural strengthening of concrete, timber, and masonry. The plate is bonded and fully encapsulated into surface slots using a Sika® structural adhesive which is selected based on the design, application and environmental conditions. The plate is part of the Sika CarboDur® system.

USES

Sika® CarboDur® S NSM may only be used by experienced professionals.

Sika® CarboDur® S NSM is used as a reinforcement plate for near-surface-mounted, bonded structural strengthening systems on concrete, masonry and wooden substrates.
Near-surface-mounted, bonded structural strengthening systems are used for:

- Increasing the flexural loading capacity of elements and structures
- Enhancing the load-carrying capacity or ductility of structural members
- Replacing missing steel reinforcement
- Structural upgrading of weak concrete elements or structures
- Improving impact resistance
- Passive strengthening for seismic event protection
- Changing the structural system (removal of floor or wall sections)
- Improving fatigue resistance
- Reducing the stress on steel reinforcement
- Repairing structural elements after damage (vehicle impact, fire, earthquake)
- Stabilising vibrating structures
- Dowelling structural connections

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

- Very cost effective in comparison to traditional strengthening techniques
- Fast application increases productivity, saves time and reduces disruption
- Improves the service life of a structure
- Non-corroding
- Very high strength
- Invisible when installed
- Easy transport as a roll
- Good durability and fatigue resistance
- Lightweight, very easy to transport and install
- Easy to cut to the required length
- Smooth surface without exposed fibres
- Strengthened surface can be trafficked
- No surface preparation or levelling of uneven substrates required
- Improved resistance to fire (compared with externally bonded reinforcement)

APPROVALS / STANDARDS

- Actions on structures NF EN 1991-1, Sika® Carbodur®, Avis, Test Report No. 3.3/20-1021_V3
- National Technical Assessment, Sika CarboDur® kit, ITB, Approval No. ITB-KOT-2018/0414 v.3
- Technical Approval Sika CarboDur, Nr. IBDiM-KOT-2019-0361 v.5
- Technical Agreement, SikaWrap®, CTPC, No. 016-01/615-2025
- Slovakia: Technical Assessment, TSUS, No. SK04-ZSV-2669
- Test Report, University of Belgrade, No. 270/2019

PRODUCT INFORMATION

Packaging	Roll length	100 m
	Refer to the current price list for available packaging variations.	
Colour	Black	
Shelf Life	5 years from date of production	
Storage Conditions	Store in original, unopened, sealed and undamaged packaging in dry conditions at temperatures of max. +50 °C. Protect from direct sunlight. Transport only in the original packaging, or otherwise adequately protected against any mechanical damage	
Density	1.60 g/cm³	

Dimensions

Plate type	Width	Thickness	Cross section area
1.030	10 mm	3.0 mm	30 mm²
2.025	20 mm	2.5 mm	50 mm²

Select the dimensions according to the local Sika product range.

Fibre Volume Content	> 68 %		
Colour	Carbon fibre-reinforced polymer with an epoxy matrix		

TECHNICAL INFORMATION

Laminate Tensile Strength	Mean	3100 N/mm²	(EN 2561)
	5 % characteristic	2900 N/mm²	
	Mean	3100 N/mm²	(ASTM D3039)
	Characteristic (ACI 440.2R)	2900 N/mm²	
Laminate Modulus of Elasticity in Tension	Mean	170 kN/mm²	(EN 2561)
	5 % characteristic	165 kN/mm²	
	Mean	165 kN/mm²	(ASTM D3039)
Laminate Elongation at Break in Tension	Mean	1.8 %	(EN 2561)
Glass Transition Temperature	> +95 °C		(EN 61006)

APPLICATION INFORMATION

Consumption

Plate type	Groove size, width × depth	Adhesive	Consumption
Sika® CarboDur® S NSM 1.030	8 mm × 15 mm	Sikadur®-30	0.15 kg/m
		Sikadur®-30 LP	0.15 kg/m
		Sikadur®-330	0.12 kg/m
		Sikadur®-300	0.10 kg/m
		Sika AnchorFix®-3001	0.09 L/m
		Sika AnchorFix®-3030	0.09 L/m

Sika® CarboDur® S NSM 2.025	8 mm × 25 mm	Sikadur®-30 Sikadur®-30 LP Sikadur®-330 Sikadur®-300 Sika AnchorFix®-3001 Sika AnchorFix®-3030	0.25 kg/m 0.25 kg/m 0.20 kg/m 0.17 kg/m 0.15 L/m 0.15 L/m

Note: Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply the Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.

SYSTEM INFORMATION

System Structure

The system build-up and configuration as described must be fully complied with and may not be changed.

Layer	Product
Adhesive	Sikadur®-30 Sikadur®-30 LP Sikadur®-330 Sikadur®-300 (horizontal applications) Sika AnchorFix®-3001 Sika AnchorFix®-3030
Structural strengthening	Sika® CarboDur® S NSM

For the correct structural adhesive selection, refer to 850 41 07 Method Statement Sika CarboDur® NSM Reinforcement and the individual Product Data Sheets.

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 07 Method Statement Sika CarboDur® NSM Reinforcement
Reference must be made to the following Product Data Sheets:

- Sikadur®-30
- Sikadur®-30 LP
- Sikadur®-330
- Sikadur®-300
- Sika AnchorFix®-3001
- Sika AnchorFix®-3030

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)

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY

Reference must be made to the following Sika® Method Statements:
850 41 07 Method Statement Sika CarboDur® NSM Reinforcement

SUBSTRATE PREPARATION

Reference must be made to the following Sika® Method Statements:
850 41 07 Method Statement Sika CarboDur® NSM Reinforcement
Reference must be made to the following Product Data Sheets:

- Sikadur®-30
- Sikadur®-30 LP
- Sikadur®-330
- Sikadur®-300
- Sika AnchorFix®-3001
- Sika AnchorFix®-3030

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
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.
Reference must be made to the following Sika® Method Statements:
850 41 07 Method Statement Sika CarboDur® NSM Reinforcement
Reference must be made to the following Product Data Sheets:

- Sikadur®-30
- Sikadur®-30 LP
- Sikadur®-330
- Sikadur®-300
- Sika AnchorFix®-3001
- Sika AnchorFix®-3030

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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