

PRODUCT DATA SHEET

Sika® CarboDur® S NSM

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

PRODUCT 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 rods are used to improve or increase the structural performance of structures for:

Increased load carrying capacity:

- Increasing the load capacity of floor slabs, beams and bridge sections
- For the installation of heavy equipment
- To stabilise vibrating structures
- For changes of building use

Damage to structural elements due to:

- Deterioration of the original construction materials
- Steel reinforcement corrosion
- Accidents (Vehicle impact, earthquakes, fire)

Improvement of serviceability and durability:

- Reduced deflection and crack width
- Stress reduction of the steel reinforcement
- Improved fatigue resistance

Change of the structural support system:

- Removal of walls and / or columns
- Removal of floor and wall sections to create access / openings

Increased resistance to:

- Earthquakes
- Impact

- Explosions

To repair design or construction defects such as:

- Insufficient / inadequate reinforcement
- Insufficient / inadequate structural depth

CHARACTERISTICS / ADVANTAGES

- Non-corroding
- Very high strength
- Invisible when installed
- Nearly unlimited lengths, no joints required
- Easy transportation (rolls)
- 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 / levelling of uneven substrates required
- Improved resistance to fire (compared with externally bonded reinforcement)
- Global test reports and approvals available

APPROVALS / STANDARDS

- Poland: National Technical Assessment Sika CarboDur® kit, ITB, Approval No. ITB-KOT-2018/0414 v.2
- Poland: Technical Approval Sika CarboDur, Nr. IB-DiM-KOT-2019-0361 v.1
- Romania: Technical Agreement, CTPC, No. 016-011401-2019
- Russia: Certificate of conformity Sika® CarboDur®, No. CCC БК ЧН.ПБ10. H00277
- Russia: Certificate, PCT, No. POCC RU.AF8I.H10831
- Serbia: Test Report, University of Belgrade, No. 270/201

PRODUCT INFORMATION

Packaging	Rolls of 250 m Refer to current price list for packaging variations.			
Appearance / Colour	Carbon fibre reinforced polymer with an epoxy matrix / Black.			
Shelf Life	5 years from date of production			
Storage Conditions	The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +50 °C. Always refer to packaging.			
Density	1,60 g/cm ³			
Dimensions	Type Sika® CarboDur® S NSM	Width	Thickness	Cross section area
	1,030	10 mm	3,0 mm	30 mm ²
	1,525	15 mm	2,5 mm	37,5 mm ²
	2,025	20 mm	2,5 mm	50 mm ²
Select dimensions according to local Sika product range.				
Fibre Volume Content	> 68 %			

TECHNICAL INFORMATION

Laminate Tensile Strength	Mean value	3 100 N/mm ²	(EN 2561)
	5 % Fractile-value	2 900 N/mm ²	
	Mean value	3 100 N/mm ²	(ASTM 3039)
	5 % Fractile-value	2 900 N/mm ²	
Values in the direction of the fibres			
Laminate Tensile Modulus of Elasticity	Mean value	170 000 N/mm ²	(EN 2561)
	5 % Fractile-value	165 000 N/mm ²	
	Mean value	165 000 N/mm ²	(ASTM 3039)
	Values in the direction of the fibres		
Laminate Elongation at Break	Mean value	1,80 %	(EN 2561)
Values in the direction of the fibres			
Glass transition temperature	> +100 °C		(EN 61006)

SYSTEM INFORMATION

System Structure	<p>Important: The system structure must not be changed.</p> <p>Note: For the correct structural adhesive selection, refer to the Sika Method Statement: Sika® CarboDur® Near Surface Mounted Reinforcement Ref: 850 41 07 and the individual Product Data Sheets.</p> <ul style="list-style-type: none">Structural Adhesive: Sika AnchorFix®-3001, Sika AnchorFix®-3030, Sikadur®-330, Sikadur®-30, Sikadur®-30 LP, Sikadur®-300 (horizontal applications)Structural strengthening Carbon fibre plates: Sika® CarboDur® S NSM
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APPLICATION INFORMATION

Consumption	Plate type	Groove Size (width x depth)	Resin	Consumption
Sika® CarboDur® S1,030		8 mm × 15 mm	Sikadur®-30	~0,15 kg/m
			Sikadur®-330	~0,12 kg/m
			Sikadur®-300	~0,10 kg/m
			Sika AnchorFix®- 3001/3030	~0,09 L/m
Sika® CarboDur® S1,525		8 mm × 20 mm	Sikadur®-30	~0,20 kg/m
			Sikadur®-330	~0,16 kg/m
			Sikadur®-300	~0,14 kg/m
			Sika AnchorFix®- 3001/3030	~0,12 L/m
Sika® CarboDur® S2,025		8 mm × 25 mm	Sikadur®-30	~0,25 kg/m
			Sikadur®-330	~0,20 kg/m
			Sikadur®-300	~0,17 kg/m
			Sika AnchorFix®- 3001/3030	~0,15 L/m

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.

VALUE BASE

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

- Sika Method Statement: Sika® CarboDur® Near Surface Mounted Reinforcement Ref: 850 41 07
- Individual Product Data Sheets within the system structure

ECOLOGY, HEALTH AND SAFETY

REGULATION (EC) NO 1907/2006 - REACH

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 the 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 Sika Method Statement: Sika® CarboDur® Near Surface Mounted Reinforcement Ref: 850 41 07

SUBSTRATE PREPARATION

- Reference must be made to the Sika Method Statement: Sika® CarboDur® Near Surface Mounted Reinforcement Ref: 850 41 07
- Reference must be made to the individual Product Data Sheets within the system structure

APPLICATION METHOD / TOOLS

Important: 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: Installation work must only be carried out by Sika trained and approved contractors, experienced in this type of application.

Important: A structural engineer must be responsible for the design of the strengthening works.

- Reference must be made to the Sika Method Statement: Sika® CarboDur® Near Surface Mounted Reinforcement Ref: 850 41 07
- Reference must be made to the individual Product Data Sheets within the system structure
- Contact Sika Technical Services for detailed advice

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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Product Data Sheet

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