

ReArm SS Laminate HM

Externally Bonded Carbon Fibre Reinforced
Epoxy Polymeric Pultruded Plates



TECHNICAL DATA SHEET

Product Description

REARM SS LAMINATE HM are ready to use pultruded carbon fibre laminates (plates) which are designed and developed as per the guidelines of ACI 440 2R standards of American Concrete Institute (ACI) for the application of structural strengthening of reinforced concrete structural members - columns, beams and slabs in building and bridges.

Product Applications of REARM SS Laminate HM

REARM SS LAMINATE HM precured carbon fibre laminates /plates are designed and developed to impart very high tensile strength and modulus to RCC and PSC members and hence are recommended for the following Structural Strengthening applications:-

- Enhancement of flexural and shear strength of RCC and PSC slabs, girders and beams.
- Enhancement of stiffness of beams and slabs to resist deflection and increase rigidity.
- Enhancement of fatigue resistance.
- Resist flexural & shear cracks and enhance the service life / durability of the reinforced concrete structures..

Features n Benefits of REARM SS Laminate HM

- The unique material property of high strength to weight ratio of **REARM SS LAMINATE HM** carbon fiberprecured plates doesn't enhance the dead load' post application but significantly enhances the structural properties of the RCC & PSC members - flexure, shear and rigidity.
- No significant increase in the c/s area post application and hence doesn't affect the floor area and height.
- Economical retrofitting design can be done since the **REARM SS LAMINATE HM** is available in a range of designed widths and thicknesses (mentioned under material dimension and packaging).
- Lightweight and hence can be easily hand applied.
- The thixotropic epoxy glue used for application of **REARM SS LAMINATE HM** is fast curing and hence the shut down time required is much lesser compared to that required for conventional structural retrofitting techniques.

Application Method

Substrate preparation:

Remove the substrate contaminations affecting the bond strength of **REARM SS LAMINATE HM** like dust, grease, oil,shuttering oil and curing compound.

Spalled covercrete shall be reinstated with **REARMCRETE** range of repair mortars and microconcretes as per **ARMENT** recommendations and methodology in line with the product specifications of Structural Consultants stipulated in the project tender document.

Installation of REARM SS LAMINATE HM

- Remove protective peel ply film from the rough surface of **REARM SS LAMINATE HM** to be adhered to the substrate of the structural member to be retrofitted.
- If the grade of **REARM SS LAMINATE HM** HM being used does not have a peel ply, then clean the laminate surface thoroughly with a dry cloth to achieve a dust free and dry surface.
- Apply 1.5 mm thickness of **REARM TBA** thixotropic, solvent free, two components, structural grade, epoxy glue which conforms to FIP specifications onto both - prepared surface of the **REARM SS LAMINATE HM** and also to the prepared substrate of the RCC member to form a total thickness of 3 mm of the epoxy glue.

Install the specified **REARM SS LAMINATE HM** size of the procured carbon fibre plate with the epoxy glue applied to one end to the predetermined locations of the RCC members to be strengthened, over the substrate to which the epoxy glue is preapplied with the designed spacing as per the design, drawings and detailing stipulated by the project Structural Consultant, in both longitudinal and transverse directions. Using a roller, exert a constant pressure on the installed **REARM SS LAMINATE HM** plates by moving the tool both ways in the direction of the carbon fibres of the laminate / plate to remove the entrapped air and ensure complete contact /bonding of the laminate with the RCC member.

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Technical Data:

REARM SS LAMINATE HM Properties		Code /Standard
Tensile Strength* (MPa)	≥ 3100	ASTM D 3039
Tensile Modulus* (GPa)	≥ 168	ASTM D 3039
Elongation at break (%)	1.80%	ASTM D 3039
Dimensions** (w x d) (mm)	50 x 1.4 , 80 x 1.4 & 100 x 1.4	

REARM SS LAMINATE HM Fiber Properties	
Density (g/cm ³)	1.8
Filament Diameter (μm)	7
Tensile Strength (MPa)	4900
Tensile Modulus (GPa)	250
Elongation (%)	2.1
Sizing	Epoxy

Packaging

REARM SS LAMINATE HM procured carbon fibre plates are supplied in 50m and 100m rolls and in c/s (w x d) of (50mm X 1.4mm) & (100mm X 1.4mm). The material can also be custom made based on project requirements. Please consult your local MYK ARMENT Sales / Specification Engineers for such requirements.

PRECAUTIONS

For health and safety information required to be strictly followed while handling the product and during application, please refer to the product Material Safety Data Sheet (MSDS) which can be obtained on request from **MYK ARMENT** Sales Engineers or can also be downloaded from our website.

Storage and Shelf Life

REARM SS LAMINATE HM procured carbon fibre plates shall be stored under cover, out of direct sunlight and protected from extremes of temperature. In tropical climates the product must be stored in an air-conditioned environment.

REARM SS LAMINATE HM Procured Carbon fibre Laminate /Plate roll



Application of **REARM SS LAMINATE HM** to RCC Beam



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Technical Data

Color: -	
Base -	White,
Hardener -	Black
Mixed -	Concrete Grey
Mixing ratio: -	Base: 2 parts by weight Hardener: 1 part by weight
Mixed density at 30°C: -	approx. 1.80 gm/cc
Recommended applicator temp:	25°C — 40 °C
Pot life	20 minutes at 40°C as per (FIP 5.1)
open lime:	60 minutes at 40°C (FIP 5.2)
Mechanical properties:*	
Squeezability at 25°C :-	Meets the requirement (FIP 5.4)
*Compressive Strength at 25 °C (FIP 5.6) :-	
24 hours	> 60N/mm ²
7days	> 75N/mm ²
*Tensile bending strength (FIP 5.14):-	Concrete failure
*Shear Strength (FIP 5.15) :	12.5 N/mm ²

Health and Safety

Use appropriate protective equipment's like hand gloves/goggles etc during opening, mixing and application. Any splashes should be washed off with water. If contact with eyes occurs, wash immediately with water and seek medical advice.

Product Categories Available



Legal Note

The information, and, in particular, the recommendations relating to the application and end-use of MYK Arment products, are given in good faith based on MYK Arment current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with MYK Arment's recommendations. In practice, the difference in materials, substrates and actual site conditions are such that no warranty in respect of merchant ability 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 & purpose. MYK Arment 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.