

ReArm CF

(Formerly known as ReArm SS CFRP)

Externally Bonded CFRP Composite Wrap
Structural Strengthening System for
Reinforced and Prestressed Concrete Structures



TECHNICAL DATA SHEET

Product Description

ReArm CF Structural Strengthening System comprises of a 200,230,300,400,450,600gsm, unidirectional /bidirectional ,woven , nonmetallic , high tensile strength and modulus reinforcement of Carbon Fibre Fabric wrapped to the mother concrete substrate in conjunction with a solvent free, high bond strength Epoxy primer and saturate to form a CFRP composite laminate which structurally integrates with the RCC members which include slabs ,beams, & columns of buildings , silos, chimneys, tanks, pipes, tunnels, piles etc. to enhance the desired Structural Strengthening properties mentioned below.

System Description

The ReArm CF System is a high performance and durable Carbon Fibre Fabric Reinforced Epoxy Polymeric Composite Wrapping System developed by the R&D of MYK Arment for the purpose of Structural Strengthening / Retrofitting of RCC and PSC Structural members as per the guidelines of the ACI (American Concrete Institute) standard ACI 440.2R.

Features and Benefits

- High strength to thickness ratio –hence higher cost benefits since the system doesn't reduce the floor area and height
- Lightweight and corrosion resistant hence the system is easy for application and is durable. The above salient features of ReArm CF system make it economical compared to conventional structural strengthening techniques like steel and concrete jacketing

Application Methodology

ReArm CF Composite Structural Strengthening System is designed and developed for the following applications and advantages:-

- Enhancement of load carrying capacity/compressive strength of RC Columns via axial confinement
- Enhancement of Flexural and Shear capacities of RCC and PSC (Prestressed Concrete) Slabs and Beams
- Seismic retrofitting of columns and piles for earthquake resistance
- Enhancement of fatigue resistance under repetitive loading conditions

Application Methodology of ReArm CF

Step no 1: Surface Preparation - Remove the loosely bonded cover Crete and expose the clean and sound surface of the RCC member to be wrapped ReArm CF. Ensure that the edges are rounded off to 25 mm radius to provide a smooth curved surface for effective confinement (for square and rectangular columns).

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Step no 2: Application of Epoxy Primer– Mechanical mixing and brush /roller application of one coat of FloArm Primer 1260 , two component solvent free epoxy primer over the prepared and dry concrete substrate and allow the primer to become touch dry.

Step no 3: Application of Epoxy Putty - Seal the shrinkage cracks, pin holes and minor undulations with ReArm Bond 4031 two component solvent free epoxy putty and allow the putty to become touch dry.

Step no 4: Application of 1st coat of Epoxy Saturant - Mechanical mixing and brush /roller application of the first coat of FloArm WRAP SAT , two component, solvent free, high bond strength epoxy saturant @ WFT (wet film thickness) of 250 microns over the dry surface of the epoxy primer and putty.

Step no 5: Wrapping with ReArm CF Wrap the RCC structural member with ReArm CF, 200,230,300,400,450,600gsm, carbon fibre fabric after cutting to the required dimension, over the wet surface of FloArm WRAP SAT epoxy saturant ensuring that the fabric is fully impregnated and bonded without entrapped air using a roller brush with an overlap of 150mm.

Step no 6: Application of 2nd coat of Epoxy Saturant after a minimum of 30 minutes apply the second coat of FloArm WRAP SAT epoxy saturant @ WFT of 250 microns over the bonded and wet surface of ReArm CF.

Step no 7: Continue the steps 5 and 6 for subsequent layers of ReArm CF and after completion allow the system to completely cure for 5 to 7 days to attain the desired mechanical and bond strength with the concrete structural member

Note:

1. Sprinkle coarse sand over the wet surface of FloArm WRAP SAT epoxy saturant to impart mechanical bond with the protective plaster to the ReArm CF system after the curing period.

2. Use a high shear mixing paddle for mixing the FloArm Primer 1260 , ReArm Bond 4031 & FloArm WRAP SAT epoxy primer, putty and saturant for uniform mixing to ensure the desired bond and mechanical strengths are attained for structural integrity.



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3. Use PPE (Personal Protection Equipment's)-Gloves, goggles and mask during the mixing and application of the ReArm CF system at site.

4. Application methodology:-Application of ReArm CF system shall be undertaken only by trained and experienced structural repair contractors /applicators only who shall strictly adhere to the design and drawings provided by the structural consultants and instructions mentioned in the TDS.

Properties of ReArm CF Carbon fibre

Parameter	Specification	Test Method
Fibre Orientation	Unidirectional	
Filament Diameter(micron)	7	
Width(mm)	500 (-0/+ 15mm)	ASTM D 3774
Density(g/cc)	1.8	
Tensile Strength (Mpa)	4000	
Tensile Modulus (Gpa)	240	
Elongation (%)	1.7	

ReArm CF Carbon Fabric Variants

Areal Weight (g/m ²)	Dry Fabric Thickness(mm)
ASTM D 3776	ASTM D1777
200 (± 5%)	0.20 ± 0.03mm
230 (± 5%)	0.23 ± 0.03mm
300 (± 5%)	0.28 ± 0.03mm
400 (± 5%)	0.39 ± 0.03mm
450 (± 5%)	0.43 ± 0.03mm
600 (± 5%)	0.57 ± 0.03mm

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Properties of FloArm Primer 1260 Epoxy Primer

Parameter	Specification	Test Method
Density	Approx. 1,10 ± 0,02 g/cm ³	
Viscosity	Approx. 340 ± 50 mPA•s at +25°C Mixing	
Pot life	Approx. 30 minutes at +27°C	
Full cure Time (days)	After approx. 7 days at +27°C	(ASTM C 722)

Properties of FloArm WRAP SAT Epoxy Saturant:

Parameter	Specification	Test Method
Density	Mixed resin 1.1 kg/l at +30°C	
Viscosity	325 cps at +30°C	
Pot life	Approx. 90 minutes at +27°C	
Full cure time (days)	After approx. 7 days at +27°C	(ASTM C 722)
Bond Strength	Concrete fracture(>1.5N/mm ²) on sand blasted substrate >3 days	(ASTM D 2240)
Flexural Strength	45 N/mm ² @7 days at +27°C	(IS 9162)
Tensile Strength	30 N/mm ² @7 days at +27°C	(IS 9162)

Consumption

Please refer to the table given under 'Properties' for individual product coverage. However, the practical coverage may vary depending on the surface conditions

Packaging

ReArm CF is supplied in rolls of length 100m length and 0.5m width – 50Sqm Area per roll in areal weights of 200,230,300,400,450,600gsm.



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Storage and Shelf Life

The shelf life of FloArm Primer 1260 Epoxy Primer, Putty and Saturant is 12 months and ReArm CF is 36 months if stored in warehouse without direct exposure to sunlight and rain in dry condition below 35°C.



ReArm CF Roll



Application of ReArm CF to RC Beam & Column joint

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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.

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