

## ReArm GF

(Formerly known as ReArm SS GFRP)

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



### TECHNICAL DATA SHEET

#### Product Description

ReArm GF Structural Strengthening System comprises of a unidirectional /bidirectional ,woven , nonmetallic , high tensile strength and modulus reinforcement of Glass Fibre Fabric wrapped to the mother concrete substrate in conjunction with a solvent free, high bond strength Epoxy primer FloArm Primer 1260 and Epoxy saturant. FloArm WRAP SAT to form a GFRP composite laminate which structurally integrates with the RCC & PSC members which include slabs ,beams, girders ,columns, piles , piers of bridges , silos, chimneys, tanks, pipes, tunnels, and buildings to enhance the desired Structural properties of compressive , flexural , shear strengths, stiffness & seismic resistance.

#### System Description

ReArm GF is a high performance and durable Glass 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 hence the system is easy for application
- Chemical and Corrosion resistant and hence durable.
- The above salient features of ReArm GF Structural Strengthening System make it economical compared to conventional structural strengthening techniques like steel plate bonding and concrete jacketing.

#### Applications Methodology

ReArm GF Glass fibre fabric – Epoxy Polymeric Composite Structural Strengthening System is designed and developed for the following structural strengthening applications to RCC & PSC Structures :-

- Enhancement of axial load carrying capacity of RC Columns, Piers & Piles.
- Enhancement of Flexural and Shear capacities of Slabs, Beams and Girders.
- Seismic retrofitting to impart earthquake resistance to structures constructed in earthquake prone zones.
- Enhancement of fatigue resistance under repetitive loading conditions.



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### Application Methodology of ReArm GF Wrap to RCC & PSC Members

**Step no 1:** Surface Preparation - Remove the loosely bonded covercrete and expose the clean and sound surface of the RCC member to be wrapped with ReArm GF glass fibre fabric with FloArm Primer 1260 epoxy Primer and FloArm WRAP SAT epoxy saturant. Ensure that the edges of the beams and are rounded off to 25 mm radius to provide a smooth curved surface for effective confinement (for square and rectangular columns).

**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 GF

Wrap the RCC structural member with ReArm GF glass 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 100mm minimum.

**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 the first /previous layer of ReArm GF glass fibre fabric.

**Step no 7:** Continue the steps 5 and 6 for subsequent layers of ReArm GF glass and after completion allow the system to completely cure for 5 to 7 days under ambient temperature and humidity to attain the desired bond strength with the RCC /PSC structural member strengthened and impart the designed enhancement of structural properties.

#### 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 GF system after the curing period.

2. Use a high shear mixing paddle for mixing the ReArm GF epoxy primer, putty and saturant for uniform mixing of the resin, hardener and filler components to obtain the desired bond strength and structural properties

3.PPE (Personal Protection Equipment's)-Gloves, goggles and mask have to be mandatorily used by the application team of the contractor /applicator during the mixing and application of the ReArm GF composite wrap structural strengthening system

**4.Application Contract :** Application of ReArm GF glass fibre fabric composite wrap structural strengthening system shall be undertaken only by qualified , trained and experienced structural repair contractors /applicators only who shall strictly adhere to the design, specifications and drawings provided by the structural consultants and instructions mentioned in this product technical data sheet.

### Properties of ReArm GF Glass Fibre

Parameter	Specification	Test Method
Fibre Orientation	Unidirectional	
Filament Diameter(micron)	13	
Width(mm)	500 ( -0/+ 15mm)	ASTM D3774
Density(g/cc)	2.62	
Tensile Strength (Mpa)	3750	
Tensile Modulus (Gpa)	80	
Elongation (%)	4.8	

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### ReArm GF Variants

Areal Weight (g/m <sup>2</sup> )	Dry Fabric Thickness(mm)
ASTM D 3776	ASTM D1777
350 (-2% / + 5%)	0.25 + /- 0.03mm
500 (-2% / + 5%)	0.40 + /- 0.03mm
600 (-2% / + 5%)	0.40 + /- 0.03mm
700 (-2% / + 5%)	0.50 + /- 0.03mm
900 (-2% / + 5%)	0.65 + /- 0.03mm

### Properties of FloArm Primer 1260 Epoxy Primer:

Parameter	Specification	Test Method
Density	Approx. 1,10 ± 0,02 g/cm <sup>3</sup>	
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 <sup>2</sup> ) on sand blasted substrate >3 days	(ASTM D 2240)
Flexural Strength	45 N/mm <sup>2</sup> @ 7 days at +27°C	(IS 9162)
Tensile Strength	30 N/mm <sup>2</sup> @ 7 days at +27°C	(IS 9162)

### Supply and Packaging

ReArm GF glass fibre fabric is supplied in rolls of length 100m length and 0.5 m width – 50Sqm Area per roll in areal weights of 350, 500, 600, 700 and 900 gsms



**WRAP GFRP Fabric roll**



**Application of WRAP GFRP to RC Columns & Beams**

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### Storage and Shelf Life

The shelf life of FloArm Primer 1260 epoxy Primer, ReArm BOND 4031 epoxy putty and FloArm WRAP SAT epoxy saturant is 12 months. The shelf life of ReArm GF glass fibre fabric is 36 months under storage conditions of not exposing to direct sunlight and moisture /water but in dry condition below 35°C.

### Health & Safety

Use appropriate PPE (Personal Protective Equipment's like hand gloves, goggles, mask, hard hat and safety shoes during and the application of MYK Arment construction chemicals. 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.

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