

## HM-60

### Unidirectional Carbon Fiber Fabric For Strengthening

**Description** HM-60 is a high strength, high modulus unidirectional carbon fiber fabric. It is laminated with epoxy resin adhesive to form a carbon fiber reinforced polymer lamination (CFRP) used in structural strengthening.

#### Application Range

##### Load Increase

- Increased live loads in warehouses
- Increased traffic volumes on bridges
- Vibrating structures
- Changes of building utilization

##### Seismic Reinforcement

- Concrete column wrapping, beam strengthening, wall strengthening, slab strengthening
- Masonry walls reinforcement

##### Damage to Structural Parts

- Aging of construction materials
- Vehicle impact
- Fire
- Blast impact

##### Change in Structural Parts

- Removing of wall or columns
- Removal of slab section for openings

##### Design or Construction Defects

- Insufficient reinforcements
- Insufficient structural depth

#### Advantages

- Approved by GB50367-2013/GB50728-2011/GB50550-2010
- High strength, high toughness, high modulus
- Soft and flexible, light self weight, easy to install
- Long shelf life and aging resistance
- High temperature resistance
- Acid, alkali & salt resistance
- Can be used for shear strengthening, confinement strengthening, flexural strengthening
- Alkali Resistant

#### Horse Advantage

##### Aviation Grade Yarn

- Imported aviation grade raw material, excellent quality and stable performance

##### World Leading Production Line

- No damage to the yarn during the weaving process.
- Germany imported intelligent production line, point to point active weft insertion
- Excellent flatness enable epoxy easy to penetrate.

# HORSE CONSTRUCTION



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## Horse Advantage

### Patented Tension Controlling System

- Our own developed whole process tension controlling system
- It ensures the constant tension, low dispersion

### Large production capacity

- 5 million square meters annual output.
- 100 thousand square meters regular daily stock

## Package

### This product packed by carton package

When the width is 300mm, the total area of carbon fiber per case is 60sqm  
 when the width is 250mm, 500mm, the total area of carbon fiber per case is 50sqm

## Basic Information

<b>Model</b>	HM-60 (600gsm)
<b>Appearance</b>	Black fabric
<b>Length</b>	50m
<b>Width</b>	Regular width is 250mm, 300mm, 500mm other width can be customized.
<b>Shelf Life</b>	10 years
<b>Storage Conditions</b>	Store in dry conditions at 40 °F to 95 °F (4°C to 35°C)
<b>Braiding</b>	0° (Unidirectional)
<b>Areal Weight</b>	17.52 oz/sq.yd. (600g/m <sup>2</sup> )

## Typical Fiber Properties

### Dry Fiber Typical Properties

<b>Stand Value of Tensile Strength</b>	7.1×10 <sup>5</sup> psi ( 4900 MPa)
<b>Tensile Elastic Modulus</b>	3.4×10 <sup>7</sup> psi ( 235000 MPa)
<b>Elongation</b>	1.70%

### Laminated Fiber Typical Properties

<b>Stand Value of Tensile Strength</b>	5.51×10 <sup>5</sup> psi ( 3800 MPa)
<b>Tensile Elastic Modulus</b>	3.4×10 <sup>7</sup> psi ( 235000 MPa)
<b>Elongation</b>	1.70%
<b>Bending Strength</b>	1.01×10 <sup>5</sup> psi ( 700MPa)
<b>Interlaminar Shear Strength</b>	6525 psi ( 45MPa)
<b>Bonding Strength to RC</b>	≥2.5Mpa, concrete cohesion failure
<b>Density</b>	0.065lbs/in <sup>3</sup> (1.8g/cm <sup>3</sup> )
<b>Fiber Thickness</b>	0.1316in.(0.333mm)

HM-60 UD CARBON FIBER

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## Construction Process



1, Surface Treatment



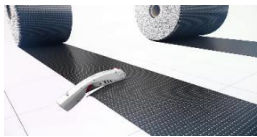
2, Apply Primer



3, Levelling



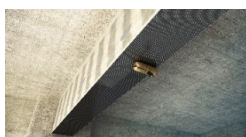
4, impregnated adhesive



5. Cutting CF cloth



6. Pasting CF cloth



7. Adhesive again



8. Curing

### 1. Surface Preparing:

Remove the coating of concrete surface with grinder. Polishing the Surface. If there is angular, grinder it into round.

### 2. Setting out:

Get the concrete surface clean and keep it dry, then setting out.

### 3. Apply Primer:

Apply primer adhesive onto the surface of the concrete.

### 4. Apply Putty/Leveling:

Apply putty for repairing and leveling if needed

### 5. Fabric Cutting:

Cut carbon fiber fabric into sizes as designed.

### 6. Preparing the impregnation adhesive:

Weight and mixing adhesive according to ratio. Stirring the adhesive until the color is even. Avoid air bubble in this process.

### 7. Applying Impregnation Adhesive:

Apply impregnation adhesive when primer adhesive is touch dry.

### 8. Apply carbon fiber fabric:

Apply carbon fiber fabric onto the concrete surface as designed. Leveling the surface from one end to another.

### 9. Check Gap or Bubble:

Apply impregnation carbon fiber adhesive again. Make sure the adhesive impregnate fully into the fabric. The surface flat and no air bubble. Repeat above process from cutting carbon fiber if applying two or more layers

## Points for Attention

The construction workers should take protective measures such as wearing masks, gloves, goggles etc.

Pay attention to fire prevention and maintain good ventilation on site.

Carbon fiber material is conductive, be careful to the electrical equipments around.

For more information, please visit our website at [www.horseen.com](http://www.horseen.com)



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