

WFC-200

Carbon fiber sheet for structural strengthening

DESCRIPTION

Wolfix WFC-200 is a unidirectional carbon fiber fabric with high strength, high modulus, etc. properties for structural strengthening. It can be applied in a dry or wet lay-up process. It's infiltrated with epoxy resin to form a carbon fiber composite used in structural strengthening and retrofitting

USES

✦ Load increases

- Increased live loads in buildings
- Increased traffic volumes on bridges
- Installation of heavy Machinery in industrial buildings
- Vibrating structures
- Changes of building utilization

✦ Seismic retrofitting

- Beam strengthening
- Column wrapping
- Masonry walls

✦ Aging and damage

- Aging of construction elements
- Vehicle impact to the bridges
- Fire

✦ Change in structural system

- Removal of walls or columns
- Removal of slab sections for openings

✦ Design or construction defects

- Different design standard
- Mistake calculation
- Construction error

GENERAL FEATURES

- 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

PRODUCT INFORMATION

✦ Fiber type:

0° (unidirectional)

✦ Packaging:

50sqm or 60sqm per carton

✦ Shelf life:

10 years

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| | |
|--------------------------------|-------------------------|
| ✦ Storage conditions: | Store dry at -5°-40° |
| ✦ Length: | 100meter/roll |
| ✦ Width: | 200mm,250mm,300mm,500mm |
| ✦ Density of dry fiber: | 1.8g/cm ³ |
| ✦ Area density: | 200g/m ² |
| ✦ Dry fiber thickness: | 0.111mm |

TECHNICAL INFORMATION

| ✦ Dry fiber properties | Grade A | Grade B |
|--|----------------|----------------|
| • Tensile strength | 4900MPa | 4200MPa |
| • Modulus of elasticity | 230GPa | 225GPa |
| • Elongation at break | 1.7% | 1.6% |
| ✦ Laminated composites properties | Grade A | Grade B |
| • Tensile strength(Average) | 3580MPa | 3070MPa |
| • Modulus of elasticity | 230GPa | 225GPa |
| • Elongation at break | 1.7% | 1.6% |
| • Bending strength | 725MPa | 720MPa |
| • Interlaminar shear strength | 45MPa | 45MPa |
| • Bonding strength to RC | 3.4MPa | 3.2MPa |
| • Theoretical Tensile force ultimate, width:1000mm | 397KN | 340KN |

CONSUMPTION RATE

| Product name | WF ER210 (primer) | WF ER330 (impregnated) |
|--------------|--------------------------|--------------------------|
| WFC-200 | 0.2-0.3kg/m ² | 0.5-0.8kg/m ² |
| WFC-300 | 0.2-0.3kg/m ² | 0.7-0.9kg/m ² |
| WFC-600 | 0.2-0.3kg/m ² | 1-1.2kg/m ² |

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APPLICATION INSTRUCTIONS






✦ Substrate preparation

Surface must be clean and sound. It may be dry or damp, but free of standing water and frost. Remove dust, laitance, grease, curing compounds, Impregnations, waxes, foreign particles, disintegrated materials, and other bond inhibiting materials from the surface. Consult WF ER210, WFC-200 and WF ER330 technical data sheets for additional information on surface preparation. Existing uneven surfaces must be filled with an appropriate repair mortar. The adhesive strength of the concrete must be verified after surface preparation by random pull-off testing at the discretion of the engineer. Minimum bonding strength, 1.4 MPa with concrete substrate failure.

✦ Treatment

Cut sheets with normal scissors or electrical scissors, never bend the sheet in the longitudinal direction. WFC-200 can be applied in a dry or wet “lay-up” process. For details, please refer to the application manual for WFC-200.

✦ Application tools

| | | | |
|-------|---|-------|--|
| _____ |  | _____ | Plastic scraper: used for smooth the uneven carbon fiber sheet |
| _____ |  | _____ | Stirrer: used for mixing the epoxy resin part A and part B |
| _____ |  | _____ | Roller: used for pasting the epoxy resin to the surface of substrate and carbon fiber sheet |
| _____ |  | _____ | Thread roller: used for eliminating the bubbles of epoxy resin after pasting on the carbon fiber sheet |
| _____ |  | _____ | Electric scissors: cut the carbon fiber sheet |

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NOTICE

Strengthening work should be carried out by well-trained and experienced specialists.

Smallest radius for reinforcement around corners: > 25 mm

In the fiber direction, the overlapping length must be at least 150 mm.

During application, observe the epoxy adhesive agent's pot life (max. time the substance may be left open).

FIRE PROTECTION

If necessary, WOFIX WFC-200 can be protected with fire protection plates. Depending on the fire resistance requirements, there are various alternative solutions. Please contact our technical services department.

ENVIRONMENT, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products.

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 equipment around.