SAINT-GOBAIN

durafibre CFW

Carbon fibre fabric

HIGH STRENGTH CARBON FIBRE FABRIC FOR EXTERNAL STRUCTURAL STRENGTHENING

DESCRIPTION

durafibre CFW is a high strength carbon fibre fabric, ready-to-use, incorporating **durafibre CFW resin** for impregnating, laminating the fabric by the wet lay-up technique. The carbon fibre laminate system offers outstanding tensile strength for bending loads, deformation, or increased stress and E-modulus for the structural strengthening of reinforced concrete elements.

USES

- Increase load requirements:
  - Increased traffic
  - Heavy machinery installed in buildings
  - External reinforcing flat structures like slabs and beams
  - Building/structure use change
  - Column confinement (bridges, parking garages and buildings)
  - Reinforcement of beams and slabs
- Damage to structures through:
  - Aging
  - Corrosion of steel
  - Seismic activity
  - Durability reduction by fire
- Durability:
  - Reduced stress in rebar
  - Prevention of further cracking
  - Suppression of crack width due to expansion
  - Reduce deformation
  - Satisfy design change requirements
- Design or construction defects/changes:
  - Structures having insufficient reinforcing
  - Structures with insufficient element dimensions
  - New openings in structure to accommodate changes

ADVANTAGES

- Easy-to-apply
- Carbon fibre offers exceptional tensile strengths and E-Modulus
- Light weight, hardly no additional weight to the structure
- Increase in bending moment
- Increase in shear strength
- Excellent static and dynamic fatigue properties
- Composite system offers outstanding fatigue properties
- Quick turn-around time for repair work
- Corrosion resistant
- Reliable structure repair system
- Quality and performance is uniform due to pre-manufactured components
- Can be overcoated

TYPICAL PHYSICAL PROPERTIES

Colour	Black	
Carbon fibre fabric (UD)	High strength carbon	
Roll dimension 500 mm x 100 m (50 m^2)	Thickness 0.111 0.131 0.166	Thickness (mm) 200 g/m^2 230 g/m^2 300 g/m^2
Tensile strength	4 900 MPa	
Tensile E-modulus	240 GPa	
240 GPa	2.1%	
Di-electric property	Conductive	
Chemical resistance	Good	
Shelf-life	Unlimited (stored clean and dry)	

SURFACE PREPARATION

See **durafibre CFW resin** product data sheet.

APPLICATION

See **durafibre CFW resin** product data sheet.

Cut the carbon fibre fabric to the required dimensions. The side and end laps are to be at least 100 mm respectively.

Note: Ensure adequate ventilation is available and prohibit open flames at the site. Protect from any wind pressure in tunnels or underground rail tracks that may cause the carbon fibre layup to detach from the concrete surface before curing.

DESIGN WORK

Consultation with a structural engineer is imperative when the design criteria and application configurations are required subject to load calculations of the various elements that are under consideration.

Curing

Protect outdoor applications from rain, dust and debris using a suitable plastic covering.

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Allow the carbon fibre resin to cure for 24 hours or more (increase the curing time when low ambient temperature is experienced).

Note: The use of any thinning solvent with the coating roller or brush is strictly prohibited. All relevant data sheets need to be read for additional information.

COVERAGE

As per roll dimensions offered in the table above.

These calculations are theoretical and exclude waste or surface or element profile irregularities.

PROTECTION ON COMPLETION

The applied product needs to be protected for at least 24 hours against the weather and high winds.

FINISHING

It is desirable to apply a polyurethane paint to the carbon fibre laminate for protection against ultra-violet rays and or subsequent environmental conditions. See “coating types”.

Painting should be performed in not less than 24 hours after the application of the carbon wrap lay-up process.

COATING TYPES

UV protection – **abecote® tough PU paint**
Damp/wet conditions – **duraflex®**, **abe® silocoat**
Submerged conditions – **duraflex®**
Chemical spill environments – **abecote® SF 356** or **SF 217**

MODEL SPECIFICATION

A high strength, carbon fibre fabric, incorporating an epoxy resin applied as a wet lay-up system to be used for structural strengthening.

The system shall be **durafibre CFW** high strength carbon fibre fabric including the impregnating **durafibre CFW resin** applied in accordance with the structural engineers detail and the recommendations of **a.b.e.®**

PACKAGING

durafibre CFW is supplied in 100 m rolls.

500 mm wide x 100 m length (50 m^2)

200 g/m^2 (code: 12502147)
230 g/m^2 (code: 12503147)
300 g/m^2 (code: 12504147)

HANDLING AND STORAGE

durafibre CFW has an unlimited shelf-life if kept in a dry store in its sealed package.

HEALTH & SAFETY

durafibre CFW is a carbon fibre product therefore when cutting/ handling suitable protection must be employed to avoid contact with skin and eyes, avoid inhalation of particles during processing by wearing dust masks. The use of gloves, eye protection and dust masks is advised.

IMPORTANT NOTE

This data sheet is issued as a guide to the use of the product(s) concerned. Whilst **a.b.e.®** endeavours to ensure that any advice, recommendation, specification or information is accurate and correct, the company cannot accept any liability for application – because **a.b.e.®** has no direct or continuous control over where and how **a.b.e.®** products are applied.

FURTHER INFORMATION

Where other products are to be used in conjunction with this material, the relevant technical data sheets should be consulted to determine total requirements.

a.b.e.® has a wealth of technical and practical experience built up over the years in the company’s pursuit of excellence in building and construction technology.

Please consult our website for our latest datasheets.

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