

Unidirectional Carbon Fiber Strip(MAX-CB1.4)



Description

A high-strength unidirectional pultruded strip constructed with carbon fibers. The CFRP strips are bonded to the substrate using compatible epoxy resin. The strips are ideal for the strengthening concrete, wood and steel structures.

Use

- Increased live load capacity in buildings and bridges, hospital floors, roofs of buildings, etc.
- Seismic retrofit of structural elements such as columns, unreinforced masonry walls, etc.
- Repair of large diameter pipes to achieve strengthening and water proof
- Repair of damaged structural components caused by aggressive environments, fire, vehicle impact, aging, etc.
- Changes in structural system: new openings in floors, removal of existing walls, etc.
- Correction of design or construction errors: misplaced reinforcing bars, insufficient structural depth

Advantages

- Very strong and light weight strips ideal for confined spaces.
- Used for flexure and shear strengthening.
- High modulus of elasticity
- Fully compatible and excellent adhesion to epoxy resins.
- Non-corrosive.
- Light weight does not alter mass&dynamic loads on structure.
- Alkali resistant
- Thin sections can be easily crossed and overlapped.

Packaging

Rolls: 100mm x 100m, 50mm x 100m. smaller quantities can also be accommodated. The strips can be easily cut in the field to desired length.

Shelf Life

Unlimited shelf life in proper storage conditions.

Storage Conditions

Store in dry place at 45 ° -95 ° F(7 ° -35 ° C).

Coverage

Application requires epoxy resin at a rate of 1 gallon per 65 feet (1 liter per 5.2 m) of strip.

Application

Surface must be clean and sound; it may be dry or damp but must be free of standing water and frost. Remove dust, laitance, grease, curing compounds, disintegrated materials and other bond inhabiting materials from the surface. Existing uneven surfaces must be filled with an appropriate repair mortar. The adhesive strength of the substrate must be verified after surface preparation by random pull-off testing (ACI 503R) at the discretion of the engineer. Minimum tensile strength of 200psi (1.4 MPa) with substrate failure is required.

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Blast clean, shot-blast, scarify or use other approved mechanical means to clean the substrate surface. Any sharp edges (i.e. fins, form-marks, etc.) must be ground smooth and flush.

- 1) Wipe the strip with appropriate cleaner (e.g. acetone) using clean cloth.
- 2) Apply epoxy resin onto the substrate with a trowel or spatula to a nominal thickness of 1.3mm. A notched trowel may be used for this application.
- 3) Apply epoxy resin to the cleaned surface of strip to a thickness of 1.3mm.
- 4) Within the open time of the epoxy, considering ambient temperature, place the coated strip on top of the substrate and press firmly.
- 5) Use a hard rubber roller and press laminate into the epoxy until the adhesive is forced out on both sides.
- 6) Remove excess epoxy; final epoxy thickness should not exceed 3mm
- 7) The bonded strip should not be disturbed for 24hours. Installation must be performed only by specially trained and approved contractors.

Strips can be cut to appropriate length using a commercial quality heavy duty shears. Care must be taken to support both sides of the strip to avoid splintering. Since dull or worn cutting tools can damage, weaken or fray the fiber, their use should be avoided.

Laminations

Design calculations must be made and certified by an independent licensed professional engineer.

Caution

Strip is non-reactive and fully cured. They do not require a Material Safety Data Sheet (MSDS). However, caution must be used when handling since a fine carbon dust may be present on the surface. Gloves must therefore be worn to protect against skin irritation. Caution must also be used when cutting the strips to protect against airborne carbon dust generated by the cutting procedure. Use of an appropriate, properly fitted NIOSH approved respirator is recommended.

Fiber&Strip Properties		
	US Units	SI Units
Fiber Properties:		
Tensile strength	710.7ksi	4,900MPa
Tensile modulus	33.5msi	231GPa
Ultimate Elongation	2.1%	2.1%
Density	0.065lb/in ³	1.8g/cm ³
Strip Properties:		
Density	0.047lb/in ³	1.3g/cm ³
Tensile strength	399ksi	2,750MPa
Tensile modulus	24msi	165GPa
Ultimate Elongation	1.5%	1.5%
Ply thickness	0.055in	1.4mm