

Blome CS-PL Strip Carbon Fiber Fabric for Composite Strengthening

DESCRIPTION AND USES

Blome CS-PL Strip is a heavy duty, pultruded carbon fiber reinforced polymer (CFRP) laminate strip. This material is field bonded, as external reinforcement, to concrete substrates using Blome CS-150 Polymer Adhesive. Blome CS-PL Strip is used independently, or in conjunction with Blome carbon fiber reinforced polymer (CFRP) systems used to strengthen various structural elements.

Damage/Deterioration of industrial structures

Restoring integrity to chemically deteriorated or damaged structures
Concrete/Brick Chimney wrapping
Concrete storage silos
Tile tanks and chests
Steel storage tanks and process vessels

Load increases

Installation of heavy machinery in industrial buildings
Vibrating floor slabs, columns
Building utilization changes
Increased live loads
Increased traffic volumes

Seismic strengthening

Concrete/Brick Chimneys
Tile tanks, chests and silos
Column wrapping
Masonry walls

Structural system changes or defects

Removal of walls or columns
Removal of slab sections for openings
Insufficient reinforcements
Insufficient structural depth

ADVANTAGES/BENEFITS

Easy to install
Extremely high strength
Various lengths available
High strength
Non-corrosive
Corrosion resistant
Low aesthetic impact - can be painted to match existing structures

PACKAGING/COVERAGE

Blome CS-PL Strip is supplied in various lengths and widths. For practical coverage, make necessary allowances for condition of the substrate, temperatures, jobsite conditions, waste, etc.

TYPICAL PROPERTIES

| | |
|--------------------------------|---------------------------------|
| Storage Conditions | Store dry at 40°-95°F (4°-35°C) |
| Color | Black |
| Primary Fiber Direction | 0° (unidirectional) |

Cured Laminate Properties Design Values

| | |
|---------------------------------|--|
| Tensile Strength | 4.06 x 10 ⁵ psi (2,800 MPa) |
| Modulus of Elasticity | 23.9 x 10 ⁶ psi (165,000 MPa) |
| Thickness | 0.047 in. (1.2 mm) |
| Tensile Elongation | 0.98% |
| Fiber Volumetric Content | 68% minimum |

STORAGE AND SHELF LIFE

Keep CS-PL Strip and other system components in a dry place and in their original containers until ready for use. Store at 50°F to 75°F, protected from water, weather and out of direct sunlight. Blome CS-PL Strip has a shelf life of one year minimum, when properly stored.

APPLICATION GUIDELINES TEMPERATURE CONSIDERATIONS

The temperature of the surface to be coated, and the ambient air temperature, should be at least 55°F while applying this system and while it cures. If you wish to attempt to apply in cooler temperatures, tarp and heat the area to be coated to create and maintain the minimum 55°F conditions. Stop application if the temperature falls within 5°F of the dew point. Twenty-four hours before application, all materials should be stored at 75°F-85°F, to facilitate mixing and handling.

SURFACE PREPARATION -GENERAL

Surface must be clean and sound. It may be dry or slightly 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. Uneven surfaces must be filled with an appropriate repair mortar, such as Blome CP-83MP. The adhesive strength of the concrete must be verified after surface preparation by random pull-off testing (ACI 503R) at the discretion of the engineer. Minimum tensile strength, 200 psi (1.4 MPa) with concrete substrate failure.

Preparation Work: Concrete - Blast clean, shotblast or use other approved mechanical means to provide an open roughened texture. Blome CP-83MP Epoxy can be used to fill exposed bug holes and smooth out any irregularities in the concrete prior to applying CFRP System. In certain applications and at the engineer's discretion, the intimate contact between the substrate and the fabric may be determined to be non-critical. In these cases, a thorough cleaning of the substrate using low pressure sand or water blasting is sufficient.

Preparation Work: Steel (Tank Interiors) - Abrasive blast steel surfaces to white metal finish with a 2 to 3 mil anchor profile. (Ref. SSPC-SP-5) All welds should be continuous and should be ground to remove sharp edges, laps, under cuts and other surface irregularities. Relatively smooth, ripple finished welds are acceptable. Blome CP-83MP Epoxy can be used to smooth out any irregular welds just prior to applying CFRP System.

Preparation Work: Steel (Exterior Wrapping) - Abrasive blast steel surfaces to a near white metal finish with 1 to 2 mil anchor profile. (Ref. SSPC-SP-10) All welds should be continuous and should be ground to remove sharp edges, laps, under cuts and other surface irregularities. Relatively smooth, ripple finished welds are acceptable. Blome CP-83MP Epoxy can be used to smooth out any irregular welds just prior to applying CFRP System.

MASKING

Masking surfaces that are not to be wrapped is recommended. The Blome CFRP System is difficult to remove, once cured.

APPLICATION

Blome CS-PL Strip is applied by direct bonding the Strip to substrates using Blome CS-150 Polymer Adhesive.

CLEANUP

Before material gels, tools and equipment should be cleaned using hot, soapy water or a citrus based, biodegradable cleaner. After system components begin to cure, xylene or MEK will be required.

LIMITATIONS

Design calculations must be made and certified by an independent licensed professional engineer. System is a vapor barrier. Saturated concrete should not be encapsulated in areas of freeze/thaw.

CAUTION

Blome CS-PL Strip fabric is non-reactive. 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 Blome CS-PL Strip fabric to protect against airborne carbon dust generated by the cutting procedure. Use of an appropriate, properly fitted NIOSH approved respirator is recommended. Avoid contact with skin & eyes; do not ingest material or inhale vapors. When mixing or applying Blome CFRP Systems; always wear chemical goggles, appropriate rubber gloves, and other appropriate safety clothing. When applying in confined areas, it may be necessary to wear a fresh air hood and/or make provisions for forced air ventilation. Prolonged or repeated exposure to Blome CFRP System components may cause skin irritation and/or allergic reactions. Refer to Blome material safety data sheets on individual components.

WARRANTY

We warrant that our goods will conform to the description contained in the order and that we have good title to all goods sold. Our material data sheets and other literature are to be considered accurate and reliable, but are used as guides only. WE GIVE NO WARRANTY OR GUARANTEE, WHETHER OF MERCHANTABILITY OR FITNESS OF PURPOSE OR OTHERWISE, AND WE ASSUME NO LIABILITY IN CONNECTION THEREWITH. We are happy to give suggestions for applications; however, the user assumes all risks and liabilities in connection therewith regardless of any suggestion, we may give. We assume no liability for consequential or incidental damages. Our liability, in law and equity, shall be expressly limited to the replacement of non-conforming goods at our factory, or at our sole option, to repayment of the purchase price of the non-conforming goods.