Smarter Strengthening Solutions™

CSS V-Wrap™ GA

Glass Fiber Anchor

DESCRIPTION

CSS V-Wrap GA is a high-strength, unidirectional glass fiber anchor designed to be field laminated with CSS V-Wrap 770 epoxy to create a glass-fiber-reinforced polymer (GFRP) composite anchor for improving force transfer.

MATERIAL PROPERTIES

Typical Data

Storage Conditions	Store dry at 40°F – 90°F (4°C – 32°C)
Color	White
Shelf Life	10 years

Dry Fiber Properties	
Tensile Strength	470,000 psi (3,240 MPa)
Tensile Modulus	10.5 x 10^6 psi (72,400 MPa)
Elongation at Break	4.5%

Cured Laminate Properties	Average Values	Design Values
Tensile Strength	83,400 psi (575 MPa)	66,720 psi (460 MPa)
Modulus of Elasticity	3.79 x 10^6 psi (26,100 MPa)	3.03 x 10^6 psi (20,900 MPa)
Elongation at Break	2.2%	1.76%

MADE IN USA with GLOBAL MATERIALS

PERFORMANCE FEATURES

- Manufactured using ICC-approved raw materials
- High tensile modulus and strength
- Lightweight
- Noncorrosive
- Flexible
- Various finish options

APPLICATIONS

The CSS V-Wrap GA glass fiber anchor is combined with CSS V-Wrap epoxies and can be used as a standalone reinforcement or to improve end details and anchorage of various CSS V-Wrap designs.

- Load increases
- Seismic strengthening
- Repair of structural elements
- Change in structural system
- Design or construction defects

PACKAGING

Custom anchor lengths and diameters are available in diameters ranging from 0.375" to 1.5" (9 mm to 37 mm) in ⅛" increments.

HOW TO USE

Design

The CSS V-Wrap GA glass fiber anchors shall be designed to meet specific design criteria. The criteria for each project is dictated by the Engineer of Record and any relevant building codes and/or guidelines.

Surface Preparation

Surfaces to receive CSS V-Wrap GA must be clean and sound. They must be dry and free of frost. All dust, laitance, grease, curing compounds, waxes, deteriorated materials and other bond-inhibiting materials must be removed from the surface prior to application. Existing uneven surfaces must be filled with appropriate epoxy putty or repair mortar. Use abrasive blasting, pressure washing, shotblasting, grinding or other approved mechanical means to achieve an open-pore texture with a concrete surface profile of not less than CSP-3 (ICRI). In certain applications and at the engineer's discretion, the bond between the substrate and the fabric may be determined to be noncritical (such as in column confinement applications). The adhesive bond strength of the concrete may be verified after surface preparation by random pull-off testing (ASTM C1583) at the discretion of the engineer. Minimum tensile strength of 200 psi must be achieved for concrete.

Drilled Hole Preparation

Drill holes to specified diameter, depth and angle according to approved drawings using a rotary hammer drill, a carbide-tipped drill bit conforming to ANSI B212.15-1994, router bits, and a Simpson Strong-Tie® ETB brush.

Drilled hole diameter shall be anchor diameter plus ⅛" (3.18 mm). Round the top edge of the drilled hole using router bits to specified radius. Using clean, compressed air, blow out any remaining debris for four seconds, then clean with the appropriate sized Simpson Strong-Tie ETB brush for a minimum of four cycles, and again blowing out any remaining debris for another four seconds with compressed air.

Application

Installation of the CSS V-Wrap strengthening system should be performed only by a specially trained, approved contractor. Installation shall be in strict compliance with the CSS V-Wrap installation manual.

Manually saturate the anchor and ensure full fiber saturation is achieved. Install the saturated anchor in accordance with the approved project drawings and specifications. Refer to the CSS V-Wrap 770 Epoxy Saturant Technical Data Sheet for all information on the approved epoxy.

Limitations

Minimum application temperature is 40°F.

Storage

Store material in a cool, dark space. Low humidity is recommended. Store at 40°F to 90°F (4°C to 32°C). Avoid freezing. Avoid moisture and water contamination.

CAUTION

Protective Measures: The use of safety glasses, chemical-resistant gloves and appropriate clothing to minimize skin contact is recommended. The use of a NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the PEL. Refer to Safety Data Sheets (SDS) available at **strongtie.com/sds** for detailed information.

FIRST AID

Skin: Wash fibers off skin with water and soap. If fibers are embedded in the skin, remove with tweezers. Discard clothing that may contain embedded fibers. Seek medical advice if exposure results in adverse effects.

Eyes: Immediately flush with a continuous water stream for at least 20 minutes. Washing immediately after exposure is expected to be effective in preventing damage to the eyes. Seek medical advice.

Inhalation: If there is inhalation exposure to the fibers of this product, remove source of exposure and move affected person to fresh air. If not breathing, give artificial respiration. If there is breathing difficulty, give oxygen. Seek medical advice for any respiratory problems.

Ingestion: Not expected to occur since ingestion is not a likely route of exposure for this product. If ingestion does occur, DO NOT INDUCE VOMITING. Nothing by mouth if unconscious. Seek medical advice.

CLEANUP

Environmental Precautions

Spill/Release and Cleanup Procedures: In case of spill, collect (e.g., sweep up, vacuum, etc.) spilled material and either reuse or dispose of properly. Chopped or milled carbon fibers may be slippery if spilled, posing an accident risk. Wear personal protective equipment as described in the SDS during cleanup activities.

LIMITED WARRANTY

This product is covered by the Simpson Strong-Tie RPS Product Limited Warranty, which is available at **strongtie.com/limited-warranties** or by calling Simpson Strong-Tie at (800) 999-5099.