

CSS-CA

Carbon Anchor

SIMPSON

Strong-Tie

®

DESCRIPTION

CSS-CA is a high-strength, non-corrosive carbon anchor designed to be field laminated with CSS-ES saturant resin to create a carbon fiber-reinforced polymer (CFRP) composite anchor for enhanced detailing of CSS fabrics.

MATERIAL PROPERTIES

Dry Fiber Properties	
Tensile Strength	670,000 psi (4,600 MPa)
Tensile Modulus	37,000 ksi (260 GPa)
Elongation at Break	1.9%
Color	Black

Cured Composite Properties ^{1, 2}	
Property	Design Value
Tensile Strength	128,000 psi (883 MPa)
Tensile Modulus	14,200 ksi (98 GPa)
Elongation at Break	0.9 %

1. When laminated with CSS-ES saturating resin and post cured for 48 hours at 140°F.

2. In primary fiber direction.

PACKAGING AND SIZES

CSS-CA are special order carbon fiber anchors available in the diameters listed below in custom lengths in folded versions for termination anchoring and unfolded versions for through anchoring. Please contact Simpson Strong-Tie for ordering instructions.

Part #	Diameter	Saturating Rates ¹
CSS-CA25X	1/4" (6.4 mm)	0.2 US gals (0.8 L)
CSS-CA37X	3/8" (9.5 mm)	0.5 US gals (1.7 L)
CSS-CA50X	1/2" (12.7 mm)	0.8 US gals (3.1 L)
CSS-CA62X	5/8" (15.9 mm)	1.3 US gals (4.8 L)
CSS-CA75X	3/4" (19.1 mm)	1.8 US gals (7.0 L)
CSS-CA87X	7/8" (22.2 mm)	2.5 US gals (9.5 L)
CSS-CA100X	1" (25.4 mm)	3.3 US gals (12.4 L)
CSS-CA112X	1 1/8" (28.6 mm)	4.1 US gals (15.7 L)
CSS-CA125X	1 1/4" (31.8 mm)	5.1 US gals (19.4 L)
CSS-CA137X	1 3/8" (34.9 mm)	6.2 US gals (23.4 L)
CSS-CA150X	1 1/2" (38.1 mm)	7.4 US gals (27.9 L)

1. Saturating rates based on 100 anchors (12" long) saturated with CSS-ES and are highly dependent on saturating method, waste, etc.

PERFORMANCE FEATURES

- High strength
- Lightweight
- Ambient Cure
- Non-corrosive
- Flexible
- Low aesthetic impact
- Various finish coatings

APPLICATIONS

Seismic Retrofit

- Shear strengthening
- Displacement/ductility
- Life safety

Damage Repair

- Deterioration/corrosion
- Blast/vehicle impact

Load Rating Upgrade

- Increased live loads
- New equipment
- Change of use

Defect Remediation

- Size/layout errors
- Low concrete strengths

Blast Mitigation

- Hardening
- Progressive collapse

STRUCTURES

- Buildings
- Bridges
- Parking garages
- Chimneys
- Piers/wharfs
- Tunnels
- Pipes

ELEMENTS

- Columns
- Beams
- Slabs
- Walls
- Piles
- Pier caps

SUBSTRATES

- Concrete
- Masonry
- Timber
- Steel

SHELF LIFE

10 years in unopened, undamaged carton

STORAGE

Store material in a dry area with no exposure to moisture

Design

The number of anchors, diameters, embedment depths, splay lengths, and detailing of CSS-CA shall be designed in accordance with recognized design guidelines/codes in order to meet the design performance specified for the application. Contact Simpson Strong-Tie engineers for design and technical support.

Surface Preparation

Prepare surfaces per ICRI Guideline No. 310.1R. Concrete shall be abrasively prepared to achieve an open pore structure and CSP-3 in accordance with ICRI Guideline No. 310.2R by means of grinding, sand blasting, shot blasting, or pressure washing. Application surfaces shall be clean, sound, and free of standing water at time of application. All dust, laitance, grease, curing compounds, and other foreign materials that may hinder the bond must be removed before installation. Existing concave and convex surfaces must be filled/transitioned using CSS-EP, thickened CSS-ES epoxy, or a suitable repair mortar. For additional surface preparation related to anchor installation, refer to approved project drawings and specifications.

Application

CSS-CA installation shall be performed only by contractors and personnel who have been properly trained by Simpson Strong-Tie. Manually saturate the anchor and ensure full fiber saturation is achieved. Install the saturated anchor in accordance with the approved project drawings and specifications.

Pot Life: 1 hour at 70°F (21°C)

Cure Time: 72 hours at 70°F (21°C)

Limitations

CSS installation shall take place only when the ambient and substrate temperatures are between 45°F (7°C) and 95°F (35°C).

CAUTION

Protective Measures: The use of safety glasses and chemical-resistant gloves is recommended. Use appropriate clothing to minimize skin contact. The use of a NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the permissible exposure limit (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 affected person is not breathing, give artificial respiration. If there is breathing difficulty, give oxygen. Seek medical advice for any respiratory problems.

Ingestion: Ingestion is not a likely form of exposure to this product. If ingestion does occur, DO NOT INDUCE VOMITING. Administer nothing by mouth if affected person is unconscious. Seek medical advice.

CLEAN-UP**ENVIRONMENTAL PRECAUTIONS**

Spill/Release and Clean-up Procedures: In case of spill, collect (e.g., sweep up, vacuum) 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 MSDS during clean-up activities.

LIMITED WARRANTY

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

IMPORTANT INFORMATION

It is the responsibility of each purchaser and user of each Product to determine the suitability of the Product for its intended use. Prior to using any Product, consult a qualified design professional for advice regarding the suitability and use of the Product, including whether the capacity of any structural building element may be impacted by a repair. As jobsite conditions vary greatly, a small-scale test patch is required to verify product suitability prior to full-scale application. The installer must read, understand, and follow all written instructions and warnings contained on the product label(s), Product Data Sheet(s), Safety Data Sheet(s), and the strongtie.com website prior to use. For industrial use only by qualified applicators. KEEP OUT OF REACH OF CHILDREN!

WARNING! Cancer and reproductive harm — www.P65Warnings.ca.gov.