

# CST STRUCTURAL LAMINATES

## 170/3100, 210/3100 & 270/2500

### Description:

CST Structural Laminates are Carbon Fibre Reinforced Polymer (CFRP) unidirectional laminates for the reinforcement of concrete, metal, wood and masonry structural members. Standard, intermediate or high modulus carbon fibre grades are combined with an epoxy matrix using an advanced pultrusion process. CST Structural Laminates are ready to use when combined with a suitable high strength adhesive.

### Recommended Uses:

CST Structural Laminates are recommended for any application where structural reinforcing is required. Some sample applications include:

- Increasing the load bearing capacities of new and existing concrete, metal, wood and masonry structures and structural members
- Increasing the flexural rigidity of new and existing structural members
- Increasing the fatigue strength of new and existing structural members
- Reinforcing of marine structures
- Reinforcing members for wind turbine blades

### Features and Advantages:

CST Structural Laminates have the following advantages over traditional reinforcements:

- Very high ultimate tensile strength (up to 7x that of structural steel)
- Extremely high stiffness-to-weight ratios
- High modulus of elasticity values
- Excellent resistance to fatigue
- Supplied with (Optional ) roughened peel ply finish giving excellent adhesion, and minimal substrate preparation required on site
- Not susceptible to corrosion
- Lightweight and easy to apply, allowing faster construction/maintenance and reducing costs

### Mechanical Data:

Typical Mechanical values of CST Structural Laminates:

	170/3100	210/3100	270/2500
Tensile Strength (MPa)	3100	3100	2700
Tensile Modulus (GPa)	170	210	270
Elongation at Break	2%	1.5%	0.8%
Fibre Content (VF)	70%	70%	70%
Density (g/cm <sup>3</sup> )	1.6	1.6	1.6

\* Mechanical testing performed as per ISO 527-5, testing conducted by NATA Accredited Testing Laboratory.

### Available Sizing:

CST Structural Laminates are available in a large number of standard and custom sizes\*:

Standard Widths (mm)	50, 75, 100, 120, 150
Standard Thicknesses (mm)	1, 1.2, 1.4, 1.5, 2, 3, 4

\* Custom sizing is available, with quick development times of 7-14 working days.

## **Storage:**

CST Structural Laminates should be stored at ambient temperatures, in cool and dry conditions, and not with exposure to direct sunlight.

## **Design and Installation Considerations:**

The following precautions should be taken for the use of CST Structural Laminates:

- Design calculations and detailed specifications must be made and certified by qualified professional engineers.
- Installation must only be carried out by competently trained and experienced contractors and construction workers.
- Testing should be performed with candidate bonding adhesives to ensure that the bonding requirements are met for the end application.

## **Material Handling and Safety:**

CST Structural Laminates are supplied in a fully cured state and therefore an MSDS is not required. However, care must be taken in the following areas:

- To protect against airborne CFRP dust particulates produced during the cutting process, all cutting should be performed in a well ventilated area with the use of properly fitted respiratory protection, protective glasses, and gloves
- Dust may be present on the surfaces of laminates which have been cut, as such gloves should be worn to protect against skin irritation.

### DISCLAIMER

The technical information provided in this document is correct at the time of publishing and based on the best knowledge of CST Composites. Given values are typical. No warranty is expressed or implied as to the suitability of the product to a particular application. The end user is responsible for ensuring that the products are suitable for the specified application.

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