

# CC Quantum<sup>®</sup> Fabric

## WOVEN UNIDIRECTIONAL CARBON FIBRE FABRIC

### CHARACTERISTICS

CC Quantum Fabric is a unidirectional woven carbon fibre fabric with high strength specially designed for dry or wet installation processes. The fabric is impregnated with Cathay Composite's CC Quantum S Saturant Resin to create a high-performance composite.

### APPLICATIONS

CC Quantum Fabric is suitable for structural strengthening of reinforced concrete, brickwork, masonry, or similar structures to increase flexural and shear loading capacity for:

- Restoring reinforced concrete, brickwork, masonry to its original state
- Increasing the strength and ductility of columns
- Increasing the loading capacity of structural elements
- Enabling changes in use / alterations and refurbishment
- Seismic retrofitting of columns and piles for earthquake resistance
- Both in plane and out of plane flexural and shear strengthening elements.

- Increasing resistance to seismic movement
- Improving service life and durability
- Structural upgrading to comply with current standards.
- Correcting structural design and / or construction defects

### BENEFITS

- Low density for minimum additional weight
- Malleable for use in many different strengthening applications of varying shape and size
- Easy to apply and noncorroding.
- High strength to thickness ratio – minimising spatial interference.
- Available in different widths to adhere enable ease of use and minimise excessive labour.
- Cost effective.

### STANDARDS

- ASTM

## DESCRIPTION

Fibre Orientation	0° (longitudinal, unidirectional)
Warp	Black carbon fibres 99 %
Weft	White thermoplastic heat-set fibres 1 %

## CC QUANTUM FABRIC DRY FIBRE PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE	UNITS
Tensile Strength	ASTM D4018	4950	MPa
Tensile Modulus	ASTM D4018	250000	MPa
Elongation at Break	ASTM D4018	2.0	%
Dry Fibre Density	ASTM D792	1.80	g/cm <sup>3</sup>
Ply Thickness (per 100 g/m <sup>2</sup> )		0.61	mm
Appearance/Colour	-	Black	-

NOTE: All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Other Fabrics also available, range from 100-600 g/m<sup>2</sup>

## COMPOSITE LAMINATE PROPERTIES

PROPERTY	TEST METHOD	TYPICAL VALUE	DESIGN VALUE	UNITS
Tensile Strength (Longitudinal)	ASTM D3039	1150	977.5	MPa
Tensile Modulus (Longitudinal)	ASTM D3039	103.1	88	GPa
Elongation at Break	ASTM D3039	1.3	1.1	%
Flexural Strength	ASTM D790	135	114.8	MPa
Flexural Modulus	ASTM D790	3.47	2.95	GPa
Longitudinal Compressive Strength (Longitudinal)	ASTM D3410	355	302	MPa
Longitudinal Compressive Modulus (Longitudinal)	ASTM D3410	84.5	71.8	GPa
Nominal Laminate Thickness	ASTM D1777	1.00	1.00	mm

## PRODUCT COMPOSITION

Substrate primer	CC Quantum P
Saturating Resin	CC Quantum S
Structural strengthening fabric	CC Quantum Fabric

## INSTRUCTIONS

### Substrate Preparation

- Ensure that all surfaces are cleaned, this entails the removal of a surface contaminates such as oils, grease, dust and other contaminates which could affect the bonding of the CC Quantum system.
- Cleaning can be carried out using either blast cleaning, scabbling or grinding.
- After cleaning remove any remaining debris or dust shall be removed by vacuum.
- For degraded substrates, it is recommended to remove the affected area and restore allowing sufficient time to cure before applying CC Quantum System.
- The age of the concrete to be strengthened should be more than 8 weeks.
- Uneven surfaces shall be remedied to within 0.5mm using CC Quantum range.

### Limitations

- The application of the CC Quantum Fabric and CC Quantum S Saturant Resin shall be carried out by trained and Cathay approved specialist contractors.
- Failure to apply the CC Quantum system as per the given guidelines could lead to premature failure of the structure.
- U.V rays can significantly affect the laminate strength and the system bond. It is therefore recommended to apply appropriate coatings to the laminate within 1 day once the adhesive cure time has lapsed

Refer to the "Application Guide for CC Quantum System" for further information.

## SIGNBOARD

The contents shall be clearly marked on the product package:

- a) Manufacturer and address.
- b) Product name, brand and standards.
- c) Date of manufacture and batch number.
- d) Product quantity.
- e) Attention.

## PACKAGING

The product will be supplied in rolls of  $\geq 100\text{m}$  with a fabric width ranging between 200mm - 1000mm and be tightly packed with a central hard roll core. 1 roll per cardboard box

Note: The length can be varied at the request of the customer.

## TRANSPORT AND STORAGE

Store in dry conditions, storage temperatures should not drop below  $10^{\circ}\text{C}$  or exceed  $50^{\circ}\text{C}$ , avoid direct sunlight and fire. Handle with care.

## SHELF LIFE

Unlimited, providing the storage requirement are adhered

## AUSTRALIA

1/196 Mahoneys Road  
Thomastown. Victoria  
AUSTRALIA  
3074

Email: [enquiries@cathaycomposites.com.au](mailto:enquiries@cathaycomposites.com.au)

Web: [www.cathaycomposites.com](http://www.cathaycomposites.com)

ABN: 88 629 716 927

### Important notice

The data and information provided in this datasheet represent the typical properties that can be obtained from these products when properly processed in a controlled environment. The user should make their own assessment of the suitability of these products for the purpose required by conducting appropriate testing under conditions as close as possible to the proposed manufacturing conditions. Any advice or recommendation is given in good faith and no further duty or responsibility is accepted by the company. All such advice and every sale is subject to Cathay Composite's standard terms and conditions. The company reserves the right to change specifications without notice and customers should satisfy themselves that they are using the current version of the Technical Data Sheet.