

UCL™

Unidirectional Carbon Laminate



Building
&
Transportation



Oil, Gas
&
Industrial



Offshore
&
Onshore



Water
&
Wastewater



PRODUCT DESCRIPTION

The CTech-LLC® Unidirectional Carbon Laminate (**UCL™**) is a high-strength unidirectional pultruded laminate constructed with carbon fibers and epoxies. UCL™ is contained pull-formed, high tensile strength and light weight. CTech-LLC® unidirectional carbon laminates are easy to mould, obtaining an excellent surface quality and bond with common adhesive systems. UCL™ laminate designed for strengthening concrete, steel, timber and masonry structures.

ADVANTAGES

- Excellent fatigue resistance, chemicals resistant.
- Corrosion resistance.
- Fully compatible with different resins.
- Easy to install.
- Can be crossed and overlapped to thin section easily.
- Inspection is easy to carry out after construction
- Not harmful to the environment.

TYPICAL USES

- Increased load capacity in buildings, bridges, vibrating structures, hospital floors, roofs of buildings, etc.
- Increased load capacity in case of change of building utilization.
- Seismic strengthening of structural elements such as columns, unreinforced masonry walls.
- Repairing of damaged structural components caused by aging of construction materials, Chemical environments, fire, vehicle impact, etc.
- Correction of design or construction mistakes such as insufficient reinforcements, insufficient structural depth, etc.

DESIGN

Design calculations shall be made and sealed by a licensed, independent engineer knowledgeable with the design of FRP strengthening systems.

INSTALLATION PROCEDURE

PREPARATION OF SUBSTRATE

- For retrofitting applications, substrate preparation can highly effect on the quality of the performance of Unidirectional Carbon

Laminates.

- Surface must be clean, sound and dry; it must be free of standing water and frost.
- Remove dust, laitance, grease, curing compounds, disintegrated materials.
- The surface must be prepared for bonding by means of abrasive methods such as light sand blasting, grinding, etc.
- Available uneven surfaces must be filled with a repair mortar.
- After surface preparation, the adhesive strength of the substrate must be checked by pull-off testing at the discretion of the engineer.
- UCL™ laminates can be cut to proper length using a commercial quality heavy duty shears and both sides of laminates must be taken care to avoid splintering.
- Use a hard rubber roller and press the laminate into the epoxy until the adhesive is forced out on both sides.
- Installation of CTech-LLC® unidirectional carbon laminate must be performed only by specially trained and approved contractors.

APPLICATION

Prepare substrate with applying a prime coat of CTech-LLC® Epoxy. Clean abraded side of strip with acetone or similar approved solvent to remove any foreign debris and let stand for 30 minutes minimum to allow for evaporation of the solvent.

TECHNICAL DATA

	Unit	UCL™ 5012	UCL™ 10012	UCL™ 5014	UCL™ 10014
Elastic modulus	GPa	130	130	130	130
Ultimate strength*	MPa	2400	2400	2400	2400
Ultimate strain	-	0.02	0.02	0.02	0.02
Thickness	mm	1.2	1.2	1.4	1.4
Width	mm	50	100	50	100

Apply a 2mm minimum thickness layer of CTech-LLC® epoxy adhesive to the cleaned side of Strip. Allow sufficient time for the epoxy to reach maximum tackiness. Apply the Strip within the specified cure time of the CTech-LLC® epoxy. The CTech-LLC® laminates strip system to be applied uniformly, meeting all specifications.

STORAGE & SHELF LIFE

- CTech-LLC® unidirectional carbon laminate should be stored in a dry and cool place at 5°-35° C.
- Keep laminates away from moisture and water contamination.
- Store laminates on original packaging until ready to use.
- UCL™ can be used for unlimited time in proper storage conditions.

CAUTION

All components of FRP systems may cause skin irritation and sensitization. Use of chemical resistant gloves is recommended. Avoid breathing vapors and dust. Get medical attention if you are breathing with difficulty. Resins products can cause strong eye irritation. Avoiding eye contact and Using safety goggles is necessary.

CTech-LLC®

CYTEC's Composite Technology
technical@ctech-llc.com
info@ctech-llc.com
www.CTech-LLC.com

IMPORTANT NOTE:

Before using any CTech-LLC® product, the user must review the most recent version of the product's technical data sheet, material safety data sheet and other applicable documents, available at www.ctech-llc.com.

WARANTY:

CTech-LLC® warrants its products to be free from manufacturing defects. Buyer determines suitability of product for use and assumes all risks. Buyer's sole remedy shall be limited to replacement of product. Any claim for breach of this warranty must be brought within one month of the 'date of purchase. CTech-LLC® shall not be liable for any consequential or special damages of any kind, resulting from any claim or breach of warranty, breach of contract, negligence or any legal theory. The Buyer, by accepting the products described herein, agrees to be responsible for thoroughly testing any application to determine its suitability before utilizing.