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, timer and masonry structures.

ADVANTAGES

- Used for flexure and shear strengthening
- Excellent fatigue resistance, chemicals resistant
- Corrosion resistance
- Good high and low temperature properties
- 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.

USES

- Strengthen and retrofitting of building, industrial buildings, parking structures, bridges and other structures constructed of concrete, wood and steel.
- Increased load capacity in buildings, bridges, vibrating structures, hospital floors, roofs of buildings, etc.
- Increased load capacity in case of Change of building user.
- Changes in structural parts such as: new openings in floors, removal of existing walls or columns, etc.
- Seismic strengthen of structural elements such as columns, unreinforced masonry walls.
- Repair 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.

SHELF LIFE

UCL™ can be used for unlimited time in proper storage conditions.

STORAGE CONDITIONS

- CTech-LLC® unidirectional carbon laminate should be stored in a dry and cool place at 4°-40° C.
- Keep laminates away from moisture and water contamination.
- Store laminates on original packaging until ready to use.

SIZE

Width: 50-100 mm

Thickness: 1.2-1.4 mm

HOW TO USE

DESIGN

Unidirectional Carbon Laminate shall be designed to meet specific design criteria and is typically based on CFRP (Carbon Fiber Reinforced Polymer) contribution determined by detailed analysis. The criteria for each project are dictated by the engineer or any relevant building codes and guidelines. The design should be based on the allowable strain for each type of application and the design modulus of the material and design values will vary based on project requirements.

INSTALLATION

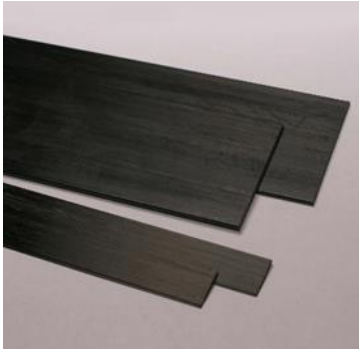
System should be installed by trained and certified applicators. Installation shall be in strict compliance with the CTech-LLC® Quality Control Manual.

SURFACE PREPARATION

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.

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



- 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 an 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 side 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. 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.

LIMITATIONS

Use temperature of the epoxy is between 4° C to 38° C. Do not dilute, solvents will prevent proper cure. They should not be used in cold and humid weather.

CAUTION!

All components of laminate systems may cause skin irritation or eye irritation and sensitization. Recommend to use chemical resistant gloves and safety goggles. Avoid breathing vapors and dust. Get medical attention if you are breathing with difficulty.

SAFETY PRECAUTIONS

- Avoid eye contact.
- Use adequate ventilation
- Do not allow resin contact with skin.
- Use safety gloves and glasses.
- Wear rubber boots and protective suits.
- Do not eat, drink or smoke when using the products.

If any symptoms happened, go to open air and get medical attention.

FIRST AID

- If contact with skin, wash with soap and hot water.
- In case of eye contact, wash immediately with plenty of water and get medical attention.
- For respiratory problems, remove to fresh air.
- Wash clothing before reuse.

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.