

TechnoWrap™ UC

Unidirectional Carbon Wrap

PRODUCT DESCRIPTION

The Technopol® Carbon Wrap (TechnoWrap™UC) is high strength carbon fabric designed for structural reinforcement applications as part of the Technopol FRP strengthening system. Unidirectional carbon fiber wrap is High strength with fibers oriented in the 0° direction. A wide range of unidirectional carbon fabrics in different weights are available for installation using the dry or wet application process to meet the specific requirements of each project. The TechnoWrap™UC is equivalent to T300, 12k.



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TECHNICAL DATA (DRY FIBER)

	Unit	TechnoWrap™UC
Weave Pattern	-	Unidirectional
Primary Fiber Direction	Degree	0
Density ISO 10119	gr/cm ³	1.76-1.8
Weight	gr/m ²	150-300
Color	-	Black
Tensile Strength* ISO 10618	MPa	3000-4000
Tensile Modulus ISO 10618	GPa	200-240
Elongation at Break ISO 10618	%	1.5-2
Application Methods	-	Hand lay-up Spray machine Robot processes
Compatible Resins	-	Epoxy, Polyester, Phenolic, Polyurethane, Vinylester
Penetrating Time	sec	30 - 60
Carbon Content	%	30
Storage Condition	-	Store dry at 4°C-40°C

*For Carbon Fiber Tow (Non-Woven)

Note: Net woven fiber wrap tensile strength in composite is approximately 600-1000 MPa based on fiber effective cross sectional area (Aeffective)(according to ASTM D-3039 test methods)

ADVANTAGES

- High strength
- Lightweight
- Non-corrosive
- Low aesthetic impact
- Ambient cure

- Compatible with many finish coatings
- Compatible with different materials and standard adhesive resins.
- Chemical and corrosion resistant.
- Easy to impregnate using wet or dry lay-up methods
- Molds to fit various shapes

TYPICAL USES

Seismic Retrofit

- Shear strengthening
- Displacement/ductility

Damage Repair

- Deterioration/corrosion
- Blast/vehicle impact

Load Rating Upgrade

- Increased live loads
- New equipment

Defect Remediation

- Size/layout errors
- Low concrete strengths

PACKAGING

Roll Size (Width x Length): 0.5m-1.0m X 50m-100m.

DESIGN

The number of layers, dimensions, and detailing of TechnoWrap™UC shall be designed in accordance with ACI 440.2R or another recognized design guideline/code in order to meet the design performance specified for the



application. Contact our company to determine applicable design factors.

Note that tensile strength value of FRP composite laminate should be considered approximately 600-1000 MPa (according to ASTM D-3039 test method).

INSTALLATION PROCEDURE

PREPARATION OF SUBSTRATE

Repair existing substrate per ICRI Guideline No. 310.1R. Concrete shall be abrasively prepared to achieve an open pore structure 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. In some applications, such as column confinement, the engineer may determine that the installation is not bond-critical, in which case abrasive surface preparation is not required. Existing concave and convex surfaces must be filled or transitioned using thickened epoxy, or a suitable repair mortar. All corners to be wrapped around shall be rounded to 19 mm minimum radius using a grinder, or thickened epoxy.

APPLICATION

TechnoWrap™UC installation shall only be performed by contractors and personnel who have been properly trained. Apply one coat of TechnoWrap™UC primer using a nap roller. Where minor surface defects are present, apply epoxy saturant thickened in lifts no thicker than 25 mm. Apply the saturated fabric before the primer and paste or thickened epoxy have cured. Sheets can be cut to required length using heavy duty scissors. Saturate fabric mechanically or manually, ensuring that full fiber saturation is achieved. Apply the saturated sheet to the primed surface and remove entrapped air using hand pressure, rollers, or trowels. Apply additional layers as necessary to meet the project requirements, ensuring each layer is in firm contact with the previous layer. Feather all seams and edges with thickened epoxy. Allow epoxy to fully cure (approximately 72 hours at 70°F) and lightly sand epoxy before applying finish coating.

LIMITATIONS

- Design calculations must be achieved by a professional company.
- Concrete deterioration and steel corrosion must be resolved prior to application.
- Only apply this product when the ambient temperature ranges of the approved epoxy adhesive. Minimum application temperature is 4°C.

CAUTION

The use of safety glasses and chemically resistant gloves is recommended. Use appropriate clothing to minimize skin contact. The use of NIOSH-approved respirator is required to protect respiratory

tract when ventilation is not adequate to limit exposure below the PEL. Refer to Safety Data Sheets (SDS) for detailed information.

FAIRST 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.

DISCLAIMER OF LIABILITY

TECHNOPOL 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.

TECHNOPOL 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 committing to production.