# SiloWrap™ Uni-axial Carbon Fabric (SLW-516-CF)

SiloWrap™ Uni-axial Carbon Fabric SLW-516-CF is a high strength uni-axial carbon fabric used for strengthening concrete and steel structures and is part of the SiloWrap™ Repair System. The fabric is used in conjunction with SiloWrap™ Saturating Polymers.

## Benefits

- Restores strength lost due to corrosion
- Increases strength and load capacity of new and long-service life silos
- Reduces coefficient of friction for increased flow
- Abrasion resistant when used in conjunction with ChemSeal™ Protective Coatings & Liners
- FDA compliant per 29 CFR 175.300
- Adds only a 1/16$^{th}$ of an inch to the repaired surface to maximize internal storage space
- High strength per ply = less layers

| Typical Data & Physical Properties | | |
|---|---|---|
| **Storage Conditions** | Store dry, do not over-stack boxes | |
| **Color** | Black | |
| **Tensile Strength - Typical (ASTM D3039)** | 150,000 psi | 1,034 MPa |
| **Tensile Strength - Design (ASTM D3039)** | 119,400 psi | 823 MPa |
| **Modulus of Elasticity - Typical (ASTM D3039)** | 12,530 ksi | 86.3 MPa |
| **Modulus of Elasticity - Design (ASTM D3039)** | 10,948 ksi | 75.5 MPa |
| **Elongation @ Break (ASTM D3039)** | 1.43% | |
| **Single Ply Thickness** | 0.051 inches | 0.130 cm |
| **Compressive Strength (ASTM D695)** | 17,200 psi | 118.6 MPa |
| **Flexural Strength (ASTM D790)** | 3,611,000 psi | 24,897 MPa |
| **Flexural Modulus (ASTM D790)** | 3,200,000 psi | 22,063 MPa |
| **Shore D Hardness @ 24 hrs (ASTM D2583)** | 78 | |

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# Installation Procedures for SiloWrap™ Uni-axial Carbon (SLW-516-CF)

| Design Specifications | |
|---|---|
| Certified Installer Company Name | |
| Certified Technician(s) | |
| HJ3 Design Case # | |
| Project Name | |

| Material Handling & Storage | | | | | | |
|---|---|---|---|---|---|---|
| | Product was stored between 65F and 80F | | | | | |
| | Packing Slip has been verified against order and design calculations | | | | | |
| Record | Primer | Filler | ShapeShift | Saturant | Fabric | Top Coat |
| ITEM CODE | | | | | | |
| QTY | | | | | | |
| LOT #'s | | | | | | |
| EXP | | | | | | |

| Environmental Conditions | | |
|---|---|---|
| ☐ | Surface Temperature | Use an infrared thermometer to obtain value and record below:<br>_____(°F) _____(°C) |
| ☐ | Ambient Temperature | Use a digital temp gauge to obtain value and record below:<br>_____(°F) _____(°C) |
| ☐ | Skin Temperature of Surface > (5F/3C) above Dew Point | |
| ☐ | Skin Temp _____(°F) _____(°C) -Dew Point _____(°F) _____(°C) | |
| ☐ | = VALUE _____(°F) _____(°C) | |

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| Concrete Surface Prep | | |
|---|---|---|
| ☐ | Surface Repair Guidelines were followed | Restore the concrete per ICRI 310.1R. |
| ☐ | Minimum surface profile was achieved & verified | Confirm surface profile meets ICRI CSP #3 not to exceed #6 |
| ☐ | Surface is Clean & Dry | Confirm that surface moisture is < 5%<br>Confirm surface is dust free by performing coin dust test |
| NOTE: Upper Surface Temperature Application Limit = 200°F (93°C). For higher temps consult HJ3. | | |

| Steel Surface Prep | | |
|---|---|---|
| ☐ | Surface Repair Guidelines were followed. | Restore the concrete per ICRI 310.1R. |
| ☐ | Minimum surface profile was achieved & verified | Confirm surface profile meets ICRI CSP #3 not to exceed #6 |
| ☐ | Surface is clean & dry | Confirm that surface moisture is < 5%<br>Confirm surface is dust free by performing coin dust test |
| NOTE: Upper Surface Temperature Application Limit = 200°F (93°C). For higher temps consult HJ3. | | |

| Installation | |
|---|---|
| ☐ | **Prime the surface with 7-10 mils SiloWrap™ Primer**<br>Start by pouring the entire contents of Primer Polymer Part B into the container marked Part A. Mix for 3 minutes using a low-speed drill at 400-600 RPM. Using a brush or roller nap, apply the primer to 100% of repair area. Make sure surface is saturated to rejection; No dry spots shall be visible in the prepared area after priming. |
| ☐ | **Fill Pits & Smooth Transitions SiloWrap™ Hi-Mod Paste**<br>Start by pre-mixing the Part A for 3 mins until completely smooth and consistent. Then pour the entire contents of Filler Part B into the container marked Part A. Mix for 3 minutes using a low-speed drill at 400-600 RPM. Apply hi-mod paste to fill pits, bug holes, and surface irregularities. Use hi-mod paste to make transitions over high spots using a 3:1 transition. |

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| | |
|---|---|
| ☐ | **Saturate the SiloWrap™ Fabric using SiloWrap™ Saturant**<br>Start by pouring the entire contents of Saturant Polymer Part B into the container marked Part A. Mix for 3 minutes using a low-speed drill at 400-600 RPM. Unwrap the fabric from its packaging. Unroll the fabric and prepare for wet-out and keep foreign matter off of the dry fabric. Use a brush, roller nap, or spatula to fully wet out the fabric on both sides. Roll the wet fabric onto a clean core. |
| ☐ | **Apply SiloWrap™ Saturated Fabric to primed & prepared surface**<br>After saturating, press the saturated fabric onto the substrate, and using a roller, apply pressure to the surface of the fabric to ensure good bonding. Roll out any trapped air before the polymer sets. Smooth with roller in all directions to remove air pockets. Overhead applications will require Hi-mod paste between layers. All bubbles, voids, and fiber disruptions shall be removed while fiber is still wet. |
| ☐ | **Apply SiloWrap™ Compression Film**<br>If repair structure can be fully enveloped e.g.(column), then apply 4 layers of compression film in the same direction as the “wet” fabric. Compression film shall be applied to “wet” fabric and can be removed in 12-24hrs depending on ambient temperature. |
| ☐ | **Apply ChemSeal™ (or approved) Topcoats**<br>After all layers of fabric have been installed, apply designated ChemSeal™ Coating or other pre-approved coating. If Saturated SiloWrap™ fiber has cured for more than 5 days then for all ChemSeal™ Topcoats, sand lightly to remove gloss, then clean with solvent and damp rag, waiting 20 minutes for solvent to flash. Topcoat shall cover 100% of surface area applied at designated minimum thickness. |

| Post-Installation Inspection & Repair | | |
|---|---|---|
| ☐ | **Visual Inspection** | A visual inspection shall be performed to detect defects such as but not limited to: dry fiber, voids, bubbles, insufficient overlaps |
| ☐ | **Acoustic Tap-Test** | An acoustic tap test shall be performed to detect voids and delamination between the composite repair and surface |
| ☐ | **QC Repair** | All anomalies requiring repairs shall be performed prior to return to service. |

| Cure | | |
|---|---|---|
| ☐ | **Skin Temps < 77°F / 25°C (Shore D of 78 required)** | A Minimum 72 hours of Cure Time has been achieved prior to return to service. |
| ☐ | **For Skin Temps > 77°F / 25°C (Shore D of 78 required)** | A Minimum 24 hours of Cure Time has been achieved prior to return to service. |

**NOTE:**
Cure times can be decreased by adding heat to the repair location.
Consult with HJ3 for specific cure schedules associated with elevated temperatures.