STEEL WRAP™ MCU
CARBON FIBER COMPOSITE REPAIR SYSTEM

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CARBON FIBER & EPOXY COMPOSITE REPAIR SYSTEM

Description

The Steel-Wrap™ MCU composite repair system is comprised of a unique, factory-saturated uni-directional carbon fiber fabric that is factory saturated with Steel-Wrap's MCU resin providing a calibrated fiber to resin ratio, certifying the physical properties of the system.

Typical Applications

- Deficiencies including dents, gouges, wrinkle bends, and cracks
- Deterioration and damage including CUI, metal loss, pitting, cracking
- Regulatory changes including classification factor changes, road crossing reinforcement, casing alternative
- Structural steel applications including steel member reinforcement; steel plate repair for tanks, decks, hulls; stiffening/ load capacity increase; weight reduction

Benefits

- Stiffer and stronger than steel
- No post-curing necessary
- Stronger physical properties than steel = lower design thickness
- Highest strain reduction available

Related Products

The following products are system components of the Steel-Wrap MCU system:

- Steel Wrap Filler
- Steel-Wrap Primer (topside) or Sub-Sea LV Primer (underwater)
- Steel-Wrap MCU

Composite System Properties

Property	Value
Lap Shear Strength	1,501 psi (10.35 MPa)
Lap Shear Strength (1,000 hr soak @ 149°F / 65°C)	759 psi (5.23 MPa)
Cathodic Disbondment	ECD = 0.342
Tensile Strength (Circumferential)	88.6 ksi (610.9 MPa)
Tensile Strength (Axial)	3.12 ksi (21.5 MPa)
Tensile Modulus (Circumferential)	37.5 Msi (258.6 GPa)
Tensile Modulus (Axial)	667.3 ksi (4.60 GPa)
Poisson Ratio	0.223
Coefficient of Thermal Expansion (Circumferential)	0.12ppm/˚F (0.22 ppm/˚C)
Coefficient of Thermal Expansion (Axial)	31.8 ppm/˚F (38.8 ppm/˚C)
Laminate Thickness Per Ply	0.032" (0.81mm)
Glass Transition Temperature (T_g)	213˚F (100.7˚C)
Hardness, Shore D	85.2
Compressive Modulus Filler	1.95 Msi (13.47 Gpa)
Compressive Stenght Filler	22.3 Ksi (153.8 Mpa)
Glass Transition Temperature Filler (Tg)	194˚F (90˚C)

Specimens were conditioned and tested as per required testing methods and protocols. Values given are typically averages of the testing group and represent the material properties as-is and may be de-rated when used in design calculations for the repair system.

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Mixing & Mix Ratio	As detailed on individual product installation guide and labeling.
Pot Life	Filler: 75 minutes @ 75˚F (24˚C), less at higher temperatures Primer: 25-30 minutes @ 75˚F (24˚C), less at higher temperatures
Application Limitations	Application temperature: minimum of 50˚F (10˚C) and maximum of 150˚ (65˚C)
Installation	Installation of the Steel-Wrap System shall be performed by NRI trained installers only. Surface preparation, mixing of epoxy primer, and installation of the system are to be in accordance with NRI's Steel-Wrap Installation Guide, latest revision. Quality control inspection during and after installation of the Steel-Wrap system shall be performed per NRI's Installation Validation Procedure: Quality Control Records, latest revision.
Cleanup and Safety	In case of spillage, absorb and dispose of in accordance with local applicable regulations. Read and follow all caution statements on this product data sheet and on the SDS for this product. Wear protective clothing, gloves and use protective cream on face, hands and all exposed areas. When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. User should test and monitor exposure levels to insure all personnel are below guidelines.
Shelf Life	12 months with proper storage
Storage Conditions	Store indoors in cool, dry, ventilated storage at temperatures between 50 to 95°F (10 to 35° C)
Packaging	Steel-Wrap MCU available in 25 and 50 square foot kits. Custom lengths available for larger OD pipes.
Warranty	©Neptune Research Inc. (NRI) NRI® is a registered trademark, while Steel-Wrap™ MCU is a trademark of NRI. NRI utilizes a process of continuous product improvement for all of our products. While we do strictly adhere to our products' specifications, we routinely implement product improvements. Therefore, please contact your local NRI distributor or office for the most current product specifications. NRI warrants the quality of this product when used according to directions. Steel-Wrap is NOT an approved coating system. Failing to coat per standard procedures can lead to atmospheric corrosion damage. Apply protective coatings per company standards. User shall determine suitability of product for use and assumes all risk. The seller will not accept liability for more than product replacement.

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