

Description The Steel-Wrap™ E composite repair system is comprised of a unique, uni-directional carbon fiber fabric, saturated with Steel-Wrap Epoxy, and primer 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 E system:

- Steel-Wrap Filler
- Steel-Wrap E Primer

Composite System Properties

Property	Value
Lap Shear Strength	1,079 psi (7.44 MPa)
Lap Shear Strength (1,000-hr soak @ 149°F / 65°C)	650 psi (4.48 MPa)
Energy Release Rate	1.239 in-lb/in ² (217 J/m ²)
Cathodic Disbondment	ECD = 0.342
Tensile Strength (Circumferential)	134.8 ksi (930 MPa)
Tensile Strength (Axial)	3.35 ksi (23.1 MPa)
Tensile Modulus (Circumferential)	41.8 Msi (288 GPa)
Tensile Modulus (Axial)	837.2 ksi (5.77 GPa)
Poisson Ratio	0.228
Coefficient of Thermal Expansion (Circumferential)	0.35 ppm/°F (0.63 ppm/°C)
Coefficient of Thermal Expansion (Axial)	31.2 ppm/°F (38.1 ppm/°C)
Laminate Thickness Per Ply	0.031" (0.79mm)
Glass Transition Temperature (T _g)	185°F (85°C)
In-Plane Shear Modulus	173 ksi (1.19 GPa)
Hardness, Shore D	84

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; they may be derated when used in design calculations for the repair system.

Mixing & Mix Ratio As detailed on individual product installation guide and labeling.

Pot Life Filler: 25 minutes @ 75°F (24°C), less at higher temperatures
Primer: 15 minutes @ 75°F (24°C), less at higher temperatures

Application Limitations Epoxy application temperature: minimum of 50°F (10°C) and maximum of 110°F (43°C)
Maximum allowable sustained humidity must be less than 90%.

Installation Installation of the Steel-Wrap E System shall be performed by NRI trained installers only. Surface preparation, mixing of epoxy, material saturation, and installation of the system are to be in accordance with NRI's Steel-Wrap E Installation Guide, latest revision. Quality control inspection during and after installation of the Steel-Wrap E system shall be performed per NRI's Installation Validation Procedure: Quality Control Records, latest revision.

Cure Schedule

Temperature	Working Time	Set Time
50°F (10°C)	40 minutes	20 hours
60°F (16°C)	28 minutes	12 hours
75°F (24°C)	15 minutes	6 hours
90°F (32°C)	10 minutes	3 hours

Measure Shore D hardness to confirm full cure has been achieved.

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 and 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 ensure 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°F (10°C) – 95°F (35°C).

Packaging Steel-Wrap E: 25 SQF Kit or 50 SQF Kit

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