

THERMO-WRAP™

COMPOSITE REPAIR SYSTEM FOR HIGH TEMPERATURE AND PROCESS PIPING



Description

Thermo-Wrap™ is a custom engineered composite system utilizing a high strength, bidirectional, woven fiberglass tape in conjunction with NRI's proprietary Thermo-Poxy™ epoxy system for the repair and restoration of pipes operating at elevated temperatures. This operator qualified engineered system was designed to conform to and recognized by ASME PCC-2, ASME B31, ISO TS24817, DOT, API, and CSA Z662 standards for nonmetallic reinforcing solutions, thus ensuring product application integrity. Thermo-Wrap is specifically designed for repair applications which require the composite to maintain the high design strengths in high temperature environments, while still curing under room temperature conditions.

Mechanical Properties

Test	Method	Temperature	Results
Tensile Strength	ASTM D3039	75°F (23°C)	101,500 psi (6,998 bar)
		300°F (149°C)	70,650 psi (4,871 bar)
Tensile Modulus	ASTM D3039	75°F (23°C)	4,480 ksi (308,885 bar)
		300°F (149°C)	3,570 ksi (246,142 bar)
Flexural Strength	ASTM D790	75°F (23°C)	121,700 psi (8,390 bar)
Flexural Modulus	ASTM D790	75°F (23°C)	4,180 ksi (288,200 bar)
Hardness, Shore D @ 75°F (24°C)	ASTM D2240	75°F (23°C)	90
In-Plane Shear Strength	ASTM D5379	75°F (23°C)	13,055 psi (900 bar)
Chord Shear Modulus	ASTM D5379	75°F (23°C)	629 ksi (43,368 bar)
Lap Shear (to steel)	ASTM D5868	75°F (23°C)	3,700 psi (255 bar)
CTE	ASTM E831	75°F (23°C)	6.79 µm/m°C
Heat Deflection Temperature (HDT)	ASTM D648	75°F (23°C)	>515°F (268°C)

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Typical Applications

- Flare lines
- Steam piping
- Girth welds, elbows, tees
- Chemical processing lines
- Anywhere elevated temperatures are of concern or expected

Benefits

- High temperature rating with an ambient cured epoxy
- No heating or post-curing required
- Full factory engineering calculations, consultation, and support ensuring safe and successful repairs

Physical Properties

VOCs: None

Pot Life: 75 Minutes @ 75°F (24°C)

Working Time:

45 Minutes @ 75°F (24°C)

Gel Time:

Approx. 161 Minutes @ 70°F (21°C)

Cure Time:

Approx. 18 Hours @ 75°F (24°C)

Service Temperature:

Max: Up to 300°F (149°C)

Application Temperature:

50° to 200°F (5° to 93°C)

Solids Content: 100%

Shelf Life: 12 Months with recommended storage methods

