

# THERMO-WRAP™ CF

## CARBON FIBER COMPOSITE REPAIR SYSTEM FOR HIGH TEMPERATURE AND PROCESS PIPING



### Description

Thermo-Wrap™ CF is a custom engineered carbon fiber composite system utilizing a high strength, biaxial hybrid carbon and glass fiber in conjunction with NRI's proprietary Thermo-Poxy™ epoxy system for the repair and restoration of pipes operating at elevated temperatures. This composite system was designed and tested to repair defects in accordance with the ASME PCC-2 and ISO TS-24817. Thermo-Wrap CF 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)	130,000 psi (8,960 bar)
Tensile Modulus	ASTM D3039	75°F (23°C)	12,000 ksi (824,337 bar)
Flexural Strength	ASTM D790	75°F (23°C)	104,500 psi (7,205 bar)
Flexural Modulus	ASTM D790	75°F (23°C)	7,165 ksi (494,009 bar)
Hardness, Shore D	ASTM D2240	75°F (23°C)	90
Lap Shear (to steel)	ASTM D5868	75°F (23°C)	3,150 psi (217 bar)



### Typical Applications

- Ideal for flare lines
- Steam piping
- Girth welds, elbows, tees
- 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
- High tensile strength and stiffness

### Physical Properties

VOCs: None

Cure Time:

Approx. 18 hrs @ 75°F (24°C)

Approx. 3 hrs @ 280°F (138°C)

Service Temperature:

Max: Up to 300°F (149°C)

Application Temperature:

50 to 200°F (5 to 93°C)

Shelf Life (epoxy): 12 Months



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