Viper-Skin™

Viper-Skin™ is the first bi-axial, hybrid carbon and glass fiber, pre-saturated system to blend the unsurpassed strength and stiffness of carbon with the ease and use of a moisture-cured, factory-saturated polyurethane. The pre-saturated system ensures appropriate fiber-to-resin content ratios to deliver reliable performance in restoring pipeline integrity on lines with complex geometry.

Applications

- Transmission and distribution pipelines
- Oil and gas risers and subsea structures
- Process piping: chemicals, oil, gases, water, and steam
- Mechanical dents and defects
- Girth welds on vessels and pipelines
- Straight pipelines, elbows, tees, and flanges

Features

- Moisture-cured polyurethane resin
- Factory-saturated fiber
- Full engineering consultation and support
- Non-shielding
- Can be applied to any geometry including, but not limited to elbows, tees, and flanges
- Design conforms to ASME PCC-2, ASME B31, ISO 24817, DOT, API, and CSA Z662 standards for nonmetallic reinforcing solutions

BENEFITS:

- Factory saturation of moisture-cured polyurethane resin reduces composite field preparation time by more than 50%
- Factory saturation ensures the right fiber-to-resin ratio with constant strength and mechanical properties
- Easy application in any conditions, including damp or sweating pipes and in submerged environments
- No heating or post-curing
- Suitable for irregular shapes and geometries
- Can be used on lines of any diameter

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QUALIFICATION DATA

PROPERTIES	CIRCUMFERENTIAL DIRECTION	AXIAL DIRECTION
Tensile Strength	101.6 ksi (700.5 MPa)	24.9 ksi (171.7 MPa)
Tensile Modulus	11.32 Msi (78.1 GPa)	1.96 Msi (13.5 GPa)
CTE	13.0 μin/in°F (23.4 μm/m°C)	1.79 μin/in°F (3.218 μm/m°C)

PROPERTIES	VALUE
Hardness	88 Shore D
Laminate Thickness	0.018 inch (0.46 mm)
Poisson's Ratio	0.218

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