



Industrial Linings, Inc.

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SAFETY FACTORS

Our FRP contact molded has a safety factor of 10:1 in accordance with applicable ASTM specifications. Our FRP filament wound pipe wall calculations are based on a strain of 0.0017 in/in and a safety factor of 10:1. This is the maximum strain level that can be tolerated to insure long term integrity of the inner liner.

PHYSICAL & MECHANICAL PROPERTIES OF FRP PIPE & FITTINGS

MECHANICAL PROPERTIES (at 73° F)

CONTACT MOLDED LAMINATES

Ultimate Tensile Strength	9,000-15,000 psi
Tensile Modulus	.07-1.0 x 10 ⁶ psi
Flexural Strength	16,000-22,000 psi
Flexural Modulus	0.7-1.0 x 10 ⁶ psi
Compressive Strength	15,000-25,000 psi

FILAMENT WOUND LAMINATES

Ultimate Hoop Tensile Strength	18,000-40,000 psi
Hoop Tensile Modulus	1.5-4.0 x 10 ⁶ psi
Ultimate Axial Tensile Strength	9,000-20,000 psi
Axial Tensile Modulus	1.0-2.0 x 10 ⁶ psi

LINEAR COEFFICIENT OF THERMAL EXPANSION

CONTACT MOLDED LAMINATE

25%-45% Glass Content	14-18 x 10 ⁻⁶ in/in/°F
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FILAMENT WOUND LAMINATE

40%-75% Glass Content	9-14 x 10 ⁻⁶ in/in/°F
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THERMAL CONDUCTIVITY

1.3-1.8 BTU/hr/sq. ft. /°F/in

HEAT DISTORTION TEMPERATURE AT 264 psi (Resin Casting)

210-310 °F

SPECIFIC GRAVITY

1.4-1.9
