

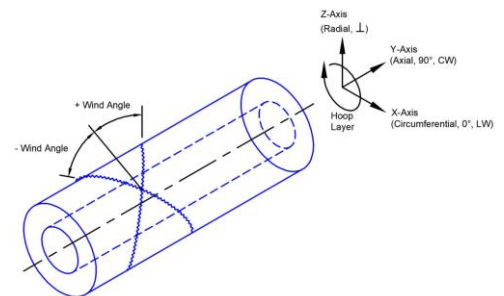
# FW252

## TECHNICAL DATA BULLETIN

**DESCRIPTION:** FW252 is a filament wound tube with an epoxy resin system on a glass filament. Helical wind angles of 15°- 75° are possible and circumferential (hoop) layers can be placed at various points in the tubes construction. FW252 is designed to have excellent strength at elevated temperatures and formulated to facilitate the production of thick-walled tubes for use in downhole applications.

**APPLICATION DATA:** Burst and collapse testing were performed to simulate downhole conditions. Burst test: pressure applied to the ID of the tube; the tubing OD is isolated. Collapse test: pressure applied to the OD of the tube; the tubing ID is isolated. Maximum pressure was limited to 23,000 psi. Tubes conditioned for one hour at temperature before being pressurized.

Test	Units	Typical Values 1.00" x 3.25"	Typical Values 1.50" x 3.25"
Burst @ 300°F	psi	23,000+	17,000
Collapse @ 300°F	psi	21,000	22,000



**TUBE TESTED:** ID = 1.00", OD = 3.25" and ID = 1.50", OD = 3.25"

### TYPICAL PROPERTIES

Property	Test Method	Conditioning**	Unit	Typical Value 1.00" x 3.25"	Typical Value 1.50" x 3.25"
Density	ASTM D792	A	g/cm <sup>3</sup>	2.0	2.0
Axial Tensile Strength	ASTM D3039	A	psi	7,800	8,400
		E-1/300 T300	psi	6,600	6,100
Axial Tensile Modulus	ASTM D3039	A	Msi	1.9	2.0
		E-1/300 T300	Msi	2.0	1.6
Axial Compressive Strength	ASTM D695	A	psi	28,300	28,900
		E-1/300 T300	psi	22,700	19,000
Axial Compressive Modulus	ASTM D695	A	Msi	0.6	0.6
		E-1/300 T300	Msi	0.5	0.5

Property	Test Method	Conditioning**	Unit	Typical Value	
				1.00" x 3.25"	1.50" x 3.25"
Radial Compressive Strength	ASTM D695	A	psi	89,000	105,700
		E-1/300 T300	psi	63,300	74,400
Radial Compressive Modulus	ASTM D695	A	Msi	0.7	0.8
		E-1/300 T300	Msi	0.5	0.6
Flexural Strength	ASTM D790	A	psi	20,500	19,100
		E-1/300 T300	psi	16,400	15,700
Flexural Modulus	ASTM D790	A	Msi	2.1	2.0
		E-1/300 T300	Msi	1.8	1.7
Short Beam Shear Strength	ASTM D2344	A	psi	3,200	3,000
		E-1/300 T300	psi	2,700	2,500
Combined Loading Compression (CLC)	ASTM D6641	A	psi	26,200	25,500
		E-1/300 T300	psi	19,300	19,300
Glass Transition Temperature (T <sub>g</sub> ) via DMA onset ***	ASTM E1640	A	°F	470	470
Glass Decomposition Temperature (T <sub>d</sub> ) via TGA ****	ASTM E1131-08	2% weight loss	°F	592	
Glass Decomposition Temperature (T <sub>d</sub> ) via TGA ****	ASTM E1131-08	5% weight loss	°F	660	

\*\* Coupons related to elevated temperature testing were conditioned in an oven for one hour at 300°F temperature, (e.g. E-1/300) followed by testing at the same temperature, 300°F, (e.g. T300).

\*\*\* Glass transition temperature (T<sub>g</sub>): The temperature at which the material begins to exhibit viscoelastic behavior. Below the T<sub>g</sub>, the material will generally exhibit elastic behavior. T<sub>g</sub> is not a maximum use temperature, as the maximum use temperature will depend on many application specific factors as well as the T<sub>g</sub>. Consult with an applications engineer for assistance.

\*\*\*\* Decomposition Temperature (T<sub>d</sub>): The temperature at which the polymer resin matrix begins to breakdown and is irreversibly degraded. T<sub>d</sub> values reported here are based on a limited number of samples via TGA at the 5% weight loss point. Operation for extended periods of time at or above the T<sub>d</sub> is not recommended. Consult with an applications engineer for assistance.

This data, while believed to be accurate and based on reliable analytical methods, is for informational purposes only. The terms and conditions of the agreement under which it is sold will govern any sales of this product. Data supplied above are "typical values"; not to be considered "specification values".

To assure the material's performance is adequate for a specific application; customers should verify, independent of Norplex-Micarta, performance characteristics of interest.

It is the responsibility of the users of this information to make sure that they have the latest version of this TDB, and are urged to check with Customer Service or, preferably our web site, [www.norplex-micarta.com](http://www.norplex-micarta.com), to determine if information is most current available.

Specification writers: Contact Norplex-Micarta for specification values before submission.