

## Composite Material: ER-1039

### Application: High-Pressure/High Temperature Mandrels for Downhole Oil & Gas Applications

Power and Composite Technologies is a full service supplier of downhole oil and gas composites. Composite products can be made with various materials and geometries to suit the customer's needs. Material properties are custom engineered to meet the end-user requirements. Below are typical values for PCT downhole composite mandrels.

TERMS	UNITS	VALUE	METHOD
<i>Composition</i>			
Glass Fiber	% Weight	≥70	ASTM D2584
Fiber Wind Angle	Degrees	45	
Density	lb/in <sup>3</sup>	0.068	IEC 60641-2
T <sub>g</sub> by DMA E'	°F (°C)	300+(148+)	ASTM E1640
<i>Mechanical Properties</i>			
Flexural Strength at 23°C	Psi	50,000	ASTM D790
Compressive Strength Perpendicular to Laminations	Psi	58,000	ASTM D695
Compressive Strength Parallel to Laminations	Psi	22,000	ASTM D695
Axial Shear Strength	Psi	6,000	
<i>Downhole Conditions</i>			
Working Temperature	°F	300	
Differential Pressure	Psi	10,000	
Setting Tool Shear Force	Lbf	50,000	

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