

PROPERTIES / FEATURES

PROPERTIES	BLACK DIAMOND®	
Total Layers	2 – 6	
Cure Time (Typical)(hr)(@ 25 °C)	5	
Maximum Operating Temperature (°F)	180°	
Chemical Resistance (pH range)	See Chemical Resistance Chart	
Nominal Thickness (in)	.038 (2ply) – .114 (6ply)	
Carbon Fiber Content by Volume (FVF)	21 – 40%	
Glass Fiber Content by Volume (FVF)	0%	
Lap Shear Strength (Adhesive) (psi)	1,250	
Compressive Strength of Putty (psi)	8,805	
Hardness Shore D	78 to 84	
Linear Elastic Behavior	1.20% strain	
Elastic Modulus Hoop Direction (psi)	9.72 x 10 ⁶	
Elastic Modulus Axial Direction (psi)	2.13 x 10 ⁶	
Tensile Strength Hoop (ksi)	109	
Tensile Strength Axial (ksi)	27.3	
Tensile Modulus (ksi)	9,720	
Coefficient of Thermal Expansion Hoop Direction (in/in/°F)	1.4 x 10 ⁻⁵	3.31 mm/m/ °C
Coefficient of Thermal Expansion Axial Direction (in/in/°F)	.71 x 10 ⁻⁵	17.3 mm/m/ °C
Design Stress (psi) Hoop	84,373	
Design Stress (psi) Axial	21,030	
Fatigue (Cycle Without Failure—Defect Dependent)	35,874 (65%) to 200,000 defect 50% @ 110% Change in pressure	
Meets requirements of ASME B31G, PCC, API, AGA, and DOT	Yes	

FEATURES	CARBON/GLASS HYBRID	
Install on Reducers, Elbows, Tees	Yes	
Installation Near Weld Joint 50%	Yes	
Repair of Girth Welds	Yes	
Install on Damp Pipe	Yes	
Salt Water Service	Yes	
Maximum Wet Service Temp (°F)	180°	
Max Operating Temp/Svc Life (°F)	180° – Typically > 50 yrs	
Drill Thru Wrap to Access Pipe	Yes	
MSDS Hazardous Shipping Adhesive	No	