



# PRODUCT DATA SHEET

## BLACK AMALGON® (BA)

Pneumatic Cylinder Tubing – The Alternative to Metal



Constructed of fiber reinforced thermoset epoxy matrix, Black Amalgon has an inner surface of evenly dispersed low friction additives. The results: A light weight, high strength, corrosion resistant composite material which replaces carbon steel, honed and chromed steel, aluminum or brass cylinder barrels.... *the Better Choice*

### 75% Reduction in Weight

Black Amalgon reduces material handling and shipping costs. Approximately ¼ the weight of steel or brass and ¾ the weight of aluminum, BA is much easier to handle than traditional steel tubing. Assembly and maintenance times are reduced and stress loads on connected parts are decreased.

### Superior Corrosion Resistance

Trouble-free performance in chemical, high moisture and other adverse environments including salt and chlorinated water which results in significant life cycle costs.

### Reduced Maintenance Costs

No piston lock-up. BA's manufacturing process ensures a smooth self-lubricating inside surface that prevents pistons from sticking, even after they have remained idle for months. Ongoing tests conducted on non-lubricated cylinders resulted in cycles of greater than a million strokes without requiring seal replacement.

### Smooth Finished Surface

A surface smoother than honed steel. A 5-15 Ra micro-inch inside surface performs just like a honed surface

### Shape Stability and Impact Resistance

BA will retain its circular shape. Unlike metals, the product does not dent. Material impact strength is 40 Izod ft.-lbs.

### Excellent Thermal Stability

With a very low coefficient of thermal expansion, BA operates efficiently up to 275° F and customers have reported success in using the product at temperatures below -300° F.

### Non-Magnetic Material

Permits magnetic sensors to control piston movement directly through the wall thickness.

MATERIAL PROPERTIES	E-GLASS FIBER
Flexural Modulus Longitudinal, 106 x psi	1.3
Flexural Modulus Circumferential, 106 x psi	3.6
Tensile Strength Longitudinal, psi	16,000
Tensile Strength Circumferential, psi	40,000
Compressive Strength Longitudinal, psi	27,000
Compressive Strength Circumferential, psi	37,000
Shear Modulus, psi x 106	0.8
Shear Strength, psi	8,000
CTE Circumferential, in/in/oF x 10-6	4.6
CTE Longitudinal, in/in/oF x 10-6	8.8
Poisson's ratio, Nuxy	0.35
Density, Lb/in3	0.072

For more than 30 years Amalga has produced an alternative to metallic pneumatic cylinder tubing.