

## Continuous Filament Wound "Pencil Pole" Cuts Ski Pole Weight by 15%



Glasforms utilizes a proprietary continuous filament winding process to manufacture a line of ultra light, composite alpine ski poles. The shafts are 15% to 30% lighter than aluminum shafts with up to 25% increase in strength. In using carbon fiber to maximize stiffness, the diameter of the shaft was reduced from .710" OD for aluminum to .430" OD for the carbon/glass hybrid—a 40% reduction in diameter. The diameter reduction minimizes drag caused by wind resistance. Combined with weight reduction, skier fatigue has also been reduced.

The 5 ply composite tube incorporates 3 plies of axial (0°) carbon fiber to maximize stiffness and strength to weight. The axial plies are separated by a ply of circumferential E-glass and another of S-2 glass wound at approximately 85° and -85°. The circumferential plies maximize flexural, impact, and fatigue strength. Keys to the product line's success are the high degree of consistency in product quality achieved by continuous, automated manufacturing and reduced material conversion costs associated with high productivity of Glasforms proprietary process.

**Product:** Carbon/Epoxy Ski Pole Shaft

**Process:** Continuous Filament Winding

**Materials:** Continuous carbon fiber axial plies with E and S-2 glass circumferential plies in a bisphenol F epoxy resin

**Properties:** 13.250 Msi Flexural Modulus, 85 ksi Flexural Strength, Light Weight (.055 lb/in<sup>3</sup>)

**Sizes:** .430" OD x .234" ID and .495" OD x .296" ID in Lengths from 44" to 54"

**Molded for:** Smith Sport Optics and Scott USA

*For additional information write or call:*

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