

Electrical Transmission, Line Post Insulators Rely on FRP Epoxy as Dielectric Strength Member



Glasforms pultrudes FRP epoxy rod from 1.50" to 3.50" diameter for use as core members in polymeric post insulators for electrical transmission lines. As the real estate values of easements increase, utilities demand more compact transmission towers requiring cantilever loaded insulators rather than conventional suspension insulators. Glasforms' largest diameter of 3.50" provides a working load of 4500 pounds in cantilever with a 2-1/2 to 1 safety factor to support transmission lines rated up to 345,000 volts. Polymeric insulators offer superior mechanical performance due to the high flexural properties, interlaminar shear strength and dampening characteristics of the FRP core rod used as the dielectric strength member. Under severe conditions, like earthquakes, hurricanes or ice storms, the core rod absorbs the shock of line loads, preventing damage to the insulator and its supporting structure. Furthermore, the finished polymeric insulator weighs only 20% of it's porcelain counterpart, significantly reducing installation time and cost.

Glasforms' proprietary technology and formulation produces void free insulator cores to withstand stringent electrical testing, as measured by dielectric strength, dye penetration, and voltage current leakage testing after being subjected to 100 hours of immersion in boiling water. The epoxy is exclusively formulated by Glasforms to provide a uniform surface finish and excellent adhesion to the silicone elastomer weathersheds molded directly over the rod. Additionally, the core rod must withstand the manufacturing of the finished insulator that includes thermal stresses encountered in over-molding the weathersheds, and mechanical stresses from crimping the metal end fittings on to the epoxy rod.

Process: Pultrusion

Materials: E-glass fiber in proprietary polyester resin system

Properties: High flexural, interlaminar shear and dielectric strength

Size: 1.50" to 3.50" diameter solid rod

Weight: 1.49 to 8.3 lbs/lineal foot

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