





DELIVERING INNOVATIVE PRODUCT & SERVICE SOLUTIONS



HIGH PERFORMANCE SILICONE RUBBER INSULATORS

K-LINE INSULATORS LIMITED www.k-line.net

High Performance Silicone Rubber Insulators

History

Design

Materials

Engineering

Quality

Creativity

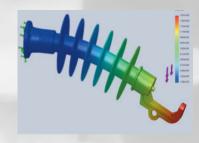
K-LINE INSULATORS LIMITED was founded in 1983. Based in Toronto, Ontario, we have 30+ years of continuous Polymeric Insulator manufacturing experience in our North American manufacturing facility. With Sales Offices in Canada, United States and Mexico and a world-wide network of authorized Sales Representatives and Distributors, K-LINE INSULATORS serves a Global Client base.

High Performance Insulators start with superior design. K-LINE INSULATORS aerodynamic profile Shed/Housing component is injection molded in one piece and chemically bonded to a high strength, electrical grade fiberglass Core Rod. Our field proven proprietary seal design eliminates moisture ingress at the End Fitting/Silicone Rubber/Core Rod interface.

K-LINE INSULATORS proprietary Silicone Rubber formulation, electrically tested electrical grade fiberglass Core Rod and high quality corrosion resistant aluminum or ferrous End Fittings are "best in class materials". Combined with superior design, Asset Managers are assured high performance and extended in-service life of the asset.



Engineering and innovation of high performance insulator products is high priority at K-LINE INSULATORS. 3D Modeling and Simulation, in-house mechanical and electrical testing capabilities and alliances with outside certified Testing Laboratories equip our experienced Engineers with the tools necessary to maintain our product and Engineering leadership.



Client satisfaction drives our Quality Management System. K-LINE INSULATORS is registered to the rigid Quality Assurance Standards of ISO 9001:2008. The company is audited on a continuous basis by Clients and the internationally recognized quality management auditing firm, QMI-SAI GLOBAL. K-LINE INSULATORS products meet and exceed industry standards (CSA, ANSI, IEC etc.).



Our Engineers and front-line personnel are industry experienced and understand product applications.

Close collaboration with Clients is critical to ensure our high-value product solutions are relevant and affordable. The innovation of new products and creativity in the continuous improvement of existing products to meet our Clients ever changing needs is paramount.



The K-Clamp™

High Performance Silicone Rubber Insulators

Manufacturing

Manufacturing Excellence in our Toronto manufacturing facility is a key competitive advantage for K-LINE INSULATORS. We focus on the basics of manufacturing discipline "doing it better, the same way, every day, all shifts, all associates". We understand that making product "in spec" is not good enough. Products are produced not only efficiently but to demanding high levels of quality each and



every time. With over 30 years of manufacturing experience, and millions of insulators in service, we are a proven world-leader in the manufacturing of composite insulators.

Support

K-LINE INSULATORS is recognized for superior service. We understand and respect our Clients unique needs and are totally committed to continuous improvement in quality, service, delivery, and cost reduction. We have consistently demonstrated our readiness to serve when called upon. Our Emergency Response Team is ready 24/7 to assist Clients in their time of need. We



develop alliances and partnerships with Clients to address special requirements in products or services, tailoring value adding solutions to resolve Client concerns.

Product Range

Environment

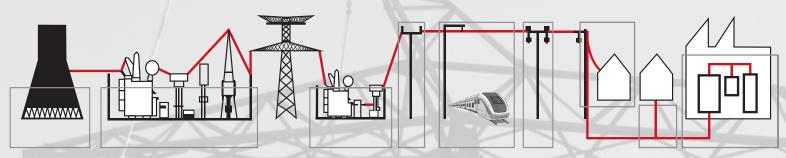
K-LINE INSULATORS manufactures a complete range of Silicone Rubber Insulators for voltages ranging from 15 kV through 500 kV. Insulator products include Transmission and Distribution Deadend/Suspension, Line Post, Station Post, InterPhase Spacers, Extensions and Guy Strain Insulators with SR coated Fiberglass Core Rod. Specialty insulators include Riser Supports, products for Rail Transit Systems and custom insulator designs for Switchgear and Live Line Tools. These products have a long and proven performance record in severely contaminated environments.

K-LINE INSULATORS is committed to reducing waste in all elements of our operations. The "ECOPACK" reusable packaging initiative is one example. In cooperation with Clients and our Distribution partners, Insulators are bulk packaged for delivery in durable, synthetic containers. Packaging waste elimination and disposal cost avoidance is achieved while reducing end user costs of unpacking and handling. Insulators are protected from damage during transport to the job site for installation.



K-LINE INSULATORS LIMITED Products

There are a multitude of components used in the delivery of electricity from the Power Plant to the End User.



Knowledgeable Utility industry professionals understand Insulators are a critical component of the Power Delivery Chain and the specification and selection of High Performance Insulators plays an important role in assuring safe, reliable and cost efficient delivery of electricity to Customers.

Power Delivery Chain 3 Phase LIS 25/34.5 kV 600A Pole Mount Transformer Concrete Pole 45' – Class 6 K-Line Silicone Rubber Insulator

K-LINE INSULATORS (KLI)
High Performance
Silicone Rubber
Insulators improve
System Reliability &
reduce System Losses.

Reliability Concerns

Insulator Type	P.U. Leakage @ 25 kV
Porcelain Pin	1.00
Porcelain Post	0.83
Polymer Post	0.05
Pof CEA 265D749 Proyent	ion of Polo Fires Final Poper



LOAD

Deadend/Suspension Insulators

KLI Deadend/Suspension Insulators are available for voltages from 15 kV through 500 kV. KLI Transmission and Distribution Deadend/Suspension Insulators are available in Specified Mechanical Load (SML) ratings from 70 kN (15700 lb.) through 220 kN (50,000 lb.) with a wide variety of industry standard End Fittings.









Line Post Insulators

KLI produces Silicone Rubber Line Post, Station Post and Apparatus Post Insulators for Voltages 15 kV and above. Braced Post Insulator Assemblies are increasing in popularity with Transmission Line Designers as a means to improve vertical load ratings of conventional Line Post Insulators, and at the same time, optimize line design from the construction cost, aesthetics and reliability perspectives. KLI Braced Post Insulators Assemblies allow for greater span lengths and smaller structures resulting in reduced visual impact of transmission lines.

K-LINE INSULATORS LIMITED Products





InterPhase Spacer Insulators

KLI was a pioneer and is a Global leader in the Design and Manufacturing of InterPhase Spacers. InterPhase Spacers are Engineered Products produced to Client specifications for prevention of conductor clashing in Distribution and Transmission applications.

Guy Strain Insulators

KLI Guy Strain Insulators are protected from the environment including the effects of voltage, UV and mechanical damage by a fully bonded, electrically track-free and impenetrable Silicone Rubber Sheath. KLI unique proprietary seal ensures no moisture ingress at the End Fitting/Rubber/Rod Interface exceeding industry standards and guaranteeing maximum electrical and mechanical performance.









Extension Insulators

Guy Strain Insulators used in Electrical Applications must meet Insulator Standards. Conventional painted rod Guy Strains are not Insulators and therefore not acceptable for use in series electrically with Deadend Insulators. KLI Extension Link Insulators are tested and comply with rigorous Electrical Testing Standards permitting use in electrical applications.

Totally Insulated Framing System (TIF)

The latest innovation from KLI is the new Totally Insulated Framing System (TIF). TIF offers new and innovative alternative line designs that increase service life, reduce installation cost, enhance system reliability and improve safety during installation. Conventional Crossarms and Pole Top/Side Brackets are eliminated on Transmission and Distribution Line Designs for nominal voltages up to and including 230 kV. The new Patented TIF designs are a cost effective approach to Line Design, Construction, Maintenance and Hardening of Transmission and Distribution Systems.









Custom Design Insulators

In-depth knowledge and understanding of T&D Systems and Insulator applications by our Engineering and Sales specialists position KLI as a unique resource to Clients. KLI personnel are available to work "hand in hand" with Clients to design and manufacture Custom Insulator Solutions to solve problems. We invite challenges and collaboration opportunities with industry colleagues.



K-LINE INSULATORS LIMITED



Our Goals & Commitments

To be essential to Clients by applying an innovative and continuous improvement approach in the areas of product design, engineering, manufacturing and business relationships to ensure K-LINE INSULATORS employees, suppliers and Clients are working towards a common goal which will result in world class capability, quality, delivery, competitiveness and mutual benefit to all.

Client-Centric Organization

At K-LINE INSULATORS our employees understand what our Clients value and the value our Clients represent to our company. We are competent, creative, committed and industry experienced. Serving Clients in collaborative strategic business alliances, we add value by delivering innovative product and service solutions that solve problems.

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