

**POLYTEK**<sup>TM</sup>  
The Ultimate Isolation  
**COMPOSITE INSULATORS**



**According to  
IEC 61109**







## Experience Matters

### Put More Than 25 Years of Polymer Experience to Design Composite Insulators

With a rich experience of more than 25 years in the field of Heat Shrinkable Technology, **GALA** was quick to identify the benefits of using similar concept for composite polymer insulator technology to replace traditional materials such as Glass or Porcelain for Insulators. As a result of continued efforts and research a unique Polyolefin cladding material formulation have been evolved which is cross linked Polymer with excellent outdoor performance and other desired properties needed for installations of insulators in outdoor conditions.

Combined the technology of this high Performing Polymer material with high mechanical strength fiberglass reinforced rod and metal end fittings to produce a high quality **Polytek** composite Polymeric insulator for various end applications.



### Insulators Design Concept (Unibody Design & Modular Design)

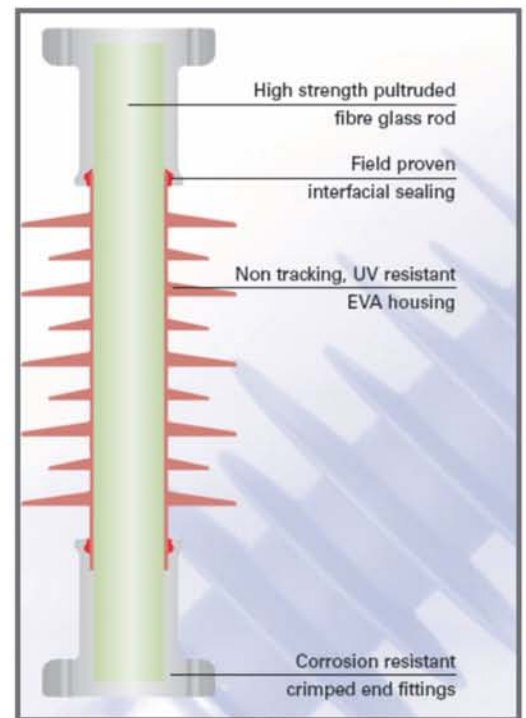
**Unibody Design** insulators are one-piece injection molded directly to the rod and sealed to the end fittings with a bead of silicone to give the insulator high dielectric strength and protect it from all environmental conditions. This design is used for standard distribution dead end/suspension insulators and Station/Post Insulators.

**Modular Design** provides complete versatility for composite insulators. Individual molded weather sheds are assembled to the rod to meet specific length or electrical requirements. A high dielectric strength silicone gel is used as an interface.

**Weather sheds and Coverings:** The design covers for two options for housing elastomer which can either be Cross-linked Polyolefin or Silicone Rubber depending on customer preference. Both Elastomer housing is shown to defy the damaging effects of ultraviolet rays, Ozone, acid, contamination and moisture.

**Fiberglass Rod:** A high quality, corrosion resistant, fiberglass reinforced rod is the core of every insulator with ultimate mechanical strength at least twice the maximum working load.

**End Fittings:** Standard distribution dead/end suspension units are supplied with clevis and tongue fittings. Ball, socket, and eye fittings are also available. All are made of hot dipped galvanized high strength Carbon Steel (Stainless Steel available upon request). All end fittings on dead/end suspension insulators are attached by compression. A new developed crimping control technology monitors the assembly process of the metal fittings and ensures that crimping forces cause no damage to the fiberglass rod while achieving a crimp that will withstand the highest possible mechanical loads. Every insulator is proof tested to verify the crimp. Post and station Insulators fittings have



## Certifications:



ISO 9001:2008



ISO 14001:2004



OHSAS 18001:2007



CE MARKING





## In Shape for Optimum Performance of Insulators

The exterior appearance of a high-voltage insulator depends on a combination of various factors determining its specific shape. Designing an Insulator for optimum performance requires an exact knowledge and description of all application needs. Polytek Insulator design considers following design criteria to ensure excellent field performance and ZERO DEFECT end product.

### Mechanical requirements

The mechanical forces such as bending moments, compression, tension, torsion, etc. acting on the insulator and its connecting system must be accurately specified.

### Electrical Characteristics

Data such as the lightning impulse flashover voltage, switching impulse flashover voltage and power-frequency flashover voltage define the necessary dielectric strength and insulator length.

### Creepage distance requirements

Creepage distances are defined in accordance with IEC 60815 and with customers' requirements.

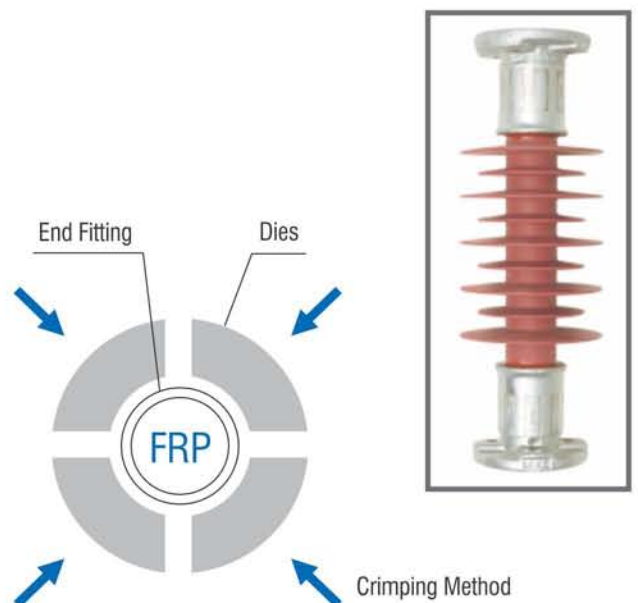
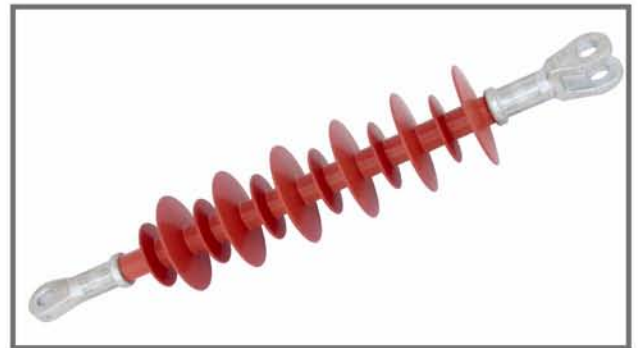
### Applicable standards and testing codes

International standards, codes and test specifications are observed in the manufacture of the product. The design comply with **IEC 61109** with up dated ammendments.

### Customer specifications and installation requirements

Special requirements (connecting dimensions, diameter, etc.) are considered during design.

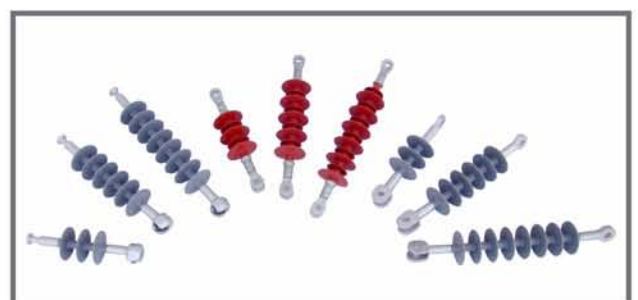
### Environmental conditions



The automatic microprocessor controlled crimping machine ensures uniform crimping without any stress concentration.

## Key Features

- Long Life
- Suitable for polluted environments, salty atmospheres etc.
- Unique self cleaning property
- Resistance to breakage and vandalism, practically unbreakable
- Superior anti-tracking properties
- High mechanical strength
- Light weight
- Ease of installation
- Choice of end fittings
- Long term surface hydrophobicity
- Compliance with IEC 61109, CEA LWIWG-01(91), ANSI C29.11-1989





## Typical Design Data

### 10 - 15 kV COMPOSITE INSULATORS

Nominal System Voltage kV	Min. Creepage Distance mm	Section Length mm	Rated Mechanical tensile load kN	Wet power freq. 1 min. withstand voltage kV	Dry lighting impulse withstand voltage kV
11	307	274	45	35	75
11	450	430	70	48	100
11	360	330	70	42	100
11	450	430	100	48	100
11	500	430	100	48	100
11	450	430	100	48	100
13	415	341	70	70	100
13	418	360	70	35	100



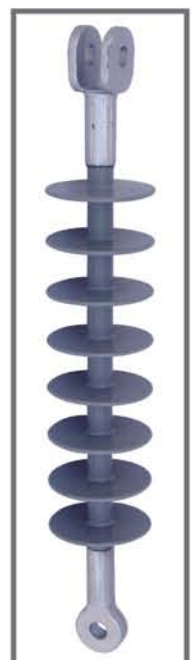
### 22 - 28 kV COMPOSITE INSULATORS

Nominal System Voltage kV	Min. Creepage Distance mm	Section Length mm	Rated Mechanical tensile load kN	Wet power freq. 1 min. withstand voltage kV	Dry lighting impulse withstand voltage kV
22	603	425	60	60	140
22	568	333	65	60	140
22	850	444	70	60	140
22	635	444	70	60	140
22	580	349	70	60	140
22	817	397	70	60	140
22	580	349	80	60	140
22	708	365	80	60	140
22	657	378	80	60	160
22	622	458	95	60	160
22	850	444	100	60	140
23	645	442	70	70	204
25	643	451	70	110	200



### 33 - 36 kV COMPOSITE INSULATORS

Nominal System Voltage kV	Min. Creepage Distance mm	Section Length mm	Rated Mechanical tensile load kN	Wet power freq. 1 min. withstand voltage kV	Dry lighting impulse withstand voltage kV
33	810	650	70	80	170
33	1050	650	70	85	230
33	1012	628	70	85	230
33	851	536	70	80	170
33	1050	680	70	85	230
33	810	610	70	80	170
33	810	650	80	80	170
33	1015	610	80	85	230
33	1015	650	80	85	230
33	854	532	95	80	170
33	815	440	100	80	170
33	1146	550	70	85	215
33	817	397	70	80	170
33	735	405	70	80	170
33	927	429	70	80	220
33	880	660	100	80	230
33	1015	660	100	85	230



Customized Designing of Insulator and End Fittings possible upon request.





## Composite Polymeric Insulators of various voltages in use



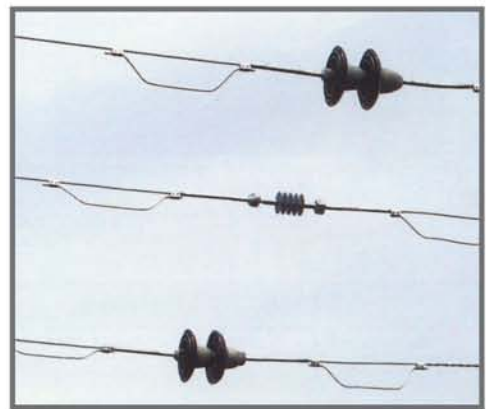
Composite Insulators Installed in Transmission Lines.



Composite Polymeric Insulators with Optional End Fittings.



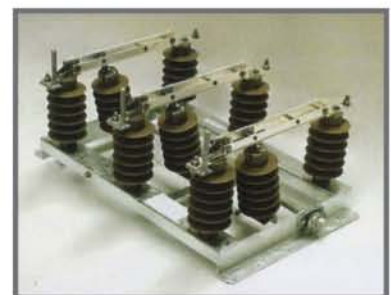
Outdoor Termination Installed over a Single Pole using Polymeric Insulators for isolation to avoid phase to earth short circuiting .



Composite Polymeric Insulators (Ball/Socket) Tension Insulator in contrast with traditional Porcelain Disc type Insulators.



Polymeric Insulators Installed in Outdoor Switch Disconnector.



Polymeric Insulators Installed in Outdoor Disconnector.



# Test facilities and Quality Assurance



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AN ISO 9001, ISO 14001 & OHSAS 18001 CERTIFIED COMPANY