VISTAAR INDUSTRIES

VISTAAR INDUSTRIES

POWER, PERFORMANCE & PROGRESS

ABOUT US

Vistaar Industries is a world class manufacturer of cost effective, high quality and high voltage Polymer Insulators. All Polymer products are manufactured to stringent quality requirements defined by Vistaar Industry's Quality management which follows Specification No: IEC 61109:2008, Indian Railway Specification No: TI/SPC/OHF/INSCOM/1070, Rural Electrification Corporation Ltd. Specification No: 76/2006 and assuring our customer of exceptional value, consistent quality & on time delivery.

SISTER CONCERN

Our sister Concern, located at Kotkapura, has been manufacturing insulator fittings for last 15 years with an inbuilt capacity of nearly 250 Tons per month and has been supplying the same all over India to all leading polymer Insulator Manufacturers.

QMS CERTIFICATION

Vistaar Industries is certified by BSI for ISO 9001:2015 with RIR (AIS) accreditation for scope "The Design and Manufacture of polymer insulators and allied polymer products for Electrical Applications"

QUALITY OBJECTIVES "VISTAAR" BELIEVES IN:

1. Zero Defect products & Process.
2. VISTAAR provides technical & skill development Session to employees and Staff.
3. VISTAAR adheres to global standards & specifications.
4. VISTAAR protects and enriches the environment during the manufacturing process.
5. VISTAAR believes in "On Time & Consistency in Delivery of Quality goods only.

QUALITY POLICY:

We at Vistaar Industries will strive to prove our excellence in maintaining the reputation of our company in manufacturing and supplying high quality products with competitive price to our customers.

With the implementation of advance technologies & improvement in our product, process, services, we drive all our efforts towards customer satisfaction.

INTRODUCTION

Indian Environment is not consistent. Electric Infrastructure undergoes very harsh environments, Industrial Pollution, marshy land, hilly and un-friendly terrain, Unpredictable weather of Coastal Regions etc. These environmental conditions make Insulator contamination flashovers and failures which are the main concern to the electric utility. To avoid these situations different solutions were tried out. Right from the beginning Ceramic Insulators were introduced. Later on it switched over to "Glass Insulators", but could not be found satisfactory of performance due to high damage rates. Hence, the polymer (Composite) Insulator or Silicon Insulator were introduced during 1960 – 1970 decade. This was a turning point for silicon rubber insulators because of their superior properties and grand performance in actual ground usage, also they are found to be very useful in severe weather conditions, weathering, UV Radiation, good resistance to chemical influence, unchanged Physiochemical and Mechanical properties. It was experienced in long run that "Composite Insulators" can be specified, manufactured & maintained to be perfect for their service life for "HVAC" and "HVDC" applications and hence started full-fledged usage in HV Applications.

DESIGN OF SILICONE COMPOSITE INSULATORS

Silicone Composite Insulators consists of 3 parts

- *Resin Bonded Glass fiber Rod (Core)*
- *Silicone Rubber Housing (Sheathing)*
- *Metal Fittings (End Fittings)*

a) FRP ROD CORE

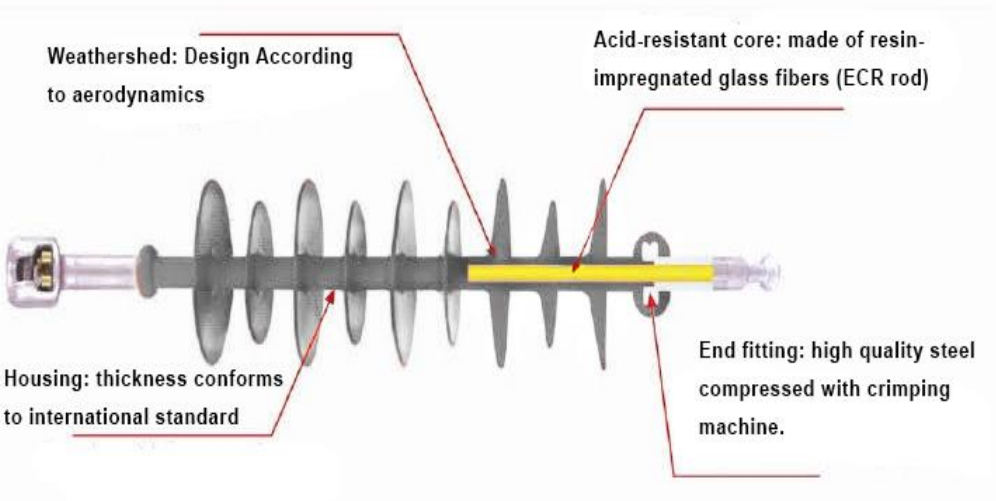
Polymer insulator needs of high quality FRP (Fiber Reinforced Plastic) rod. This rod is made by excellent Alignment & distribution of ECR glass fibers dipped in epoxy resin. This providers maximum mechanical strength and gives electric resistance as well.

b) WEATHER SHEDS

FRP Rod is then covered with silicone rubber housing using state of art injection molding machine. The covering is called "Weather Sheds". Silicone Rubber weather sheds provide resistance from pollution, UV and gives Anti Tracking and Anti Erosion properties and necessary creepage.

c) END FITTINGS

Metal End fittings are made of forged steel or Spheroidal Graphite Cast Iron or MCI. All the fittings exposed to Environment are galvanized and then crimped to FRP Rod with high precision crimping machine.

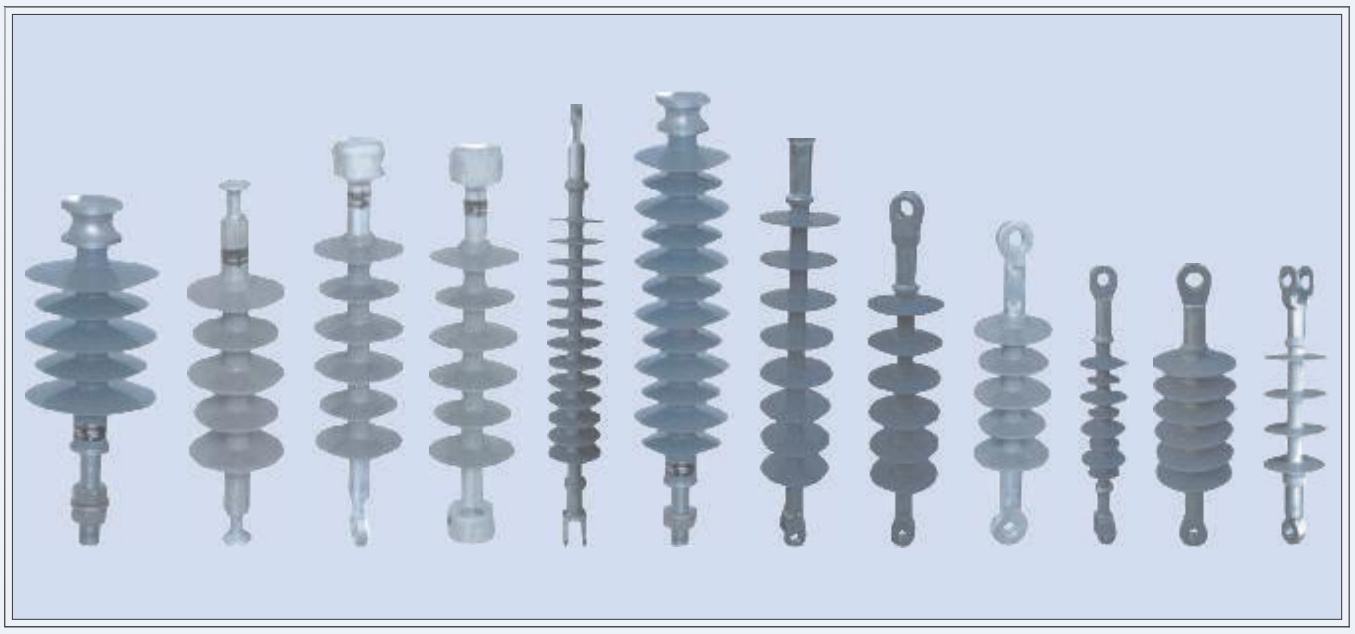


Vistaar insulators have been tested and approved for design tests & type tests as per IEC 61109-2008 from ERDA (Vadodara) & CPRI (Bangalore) which are NABL approved labs.

TECHNICAL SPECIFICATION: DISTRIBUTION LONG ROD INSULATORS

System Voltage (kV) (T&C and B&S)	Specified Mechanical Load (kN)	Dry Arc Min (mm)	Creepage Distance (mm)	Wet Power Frequency Voltage (kV rms)	Dry Lightning Impulse Withstand Voltage (kV rms)
11kV	45/70	170	320	35	75
33	45/70	410	900	75	170

System Voltage (kV) PIN INSULATORS	Specified Mechanical Load (kN)	Dry Arc Min (mm)	Creepage Distance (mm)	Wet Power Frequency Voltage (kV rms)	Dry Lightning Impulse Withstand Voltage (kV rms)
11kV	5/10	170	320	35	75
33	5/10	410	900	75	170



WE CAN ALSO MANUFACTURE AND SUPPLY AS PER CUSTOMER REQUIREMENT.

ADVANTAGES OF SILICONE COMPOSITE INSULATORS

TRANSFER OF HYDROPHOBICITY

The figure shown on the right, the composite silicone insulator has been in service under very heavy pollution conditions. The porcelain insulator ***(Fig.1)*** had to be greased twice per year & showed considerable partial discharge activity in comparison to Silicon Rubber Insulator ***(Fig.2).***

Fig. 1 Fig. 2

PROPERTIES	PORCELAIN/GLASS INSULATORS	POLYMER INSULATORS
Weight	Heavy	Light
Hydrophobicity	poor	Excellent
Polluted Environments	Performance Not Satisfactory	Performance Excellent
Leakage current	High	Low
Tracking & ARC Resistance	Poor	Excellent
Installation Cost	More	Less
Vandalism	More Susceptible	Highly Resistant
Breakages	Easily Breakable	Unbreakable
Maintenance Cost	High	Negligible
Mechanical Strength	Low	High

MANUFACTURING PROCESS

Moulding: Housing is formed by high pressure injection moulding silicone rubber onto the core as one continuous part or step moulding process. Both housing and core are chemically bonded together during the vulcanization process. The strength of this bond is greater than the tearing strength of the silicone housing material itself**.** ***(Fig. 1)***

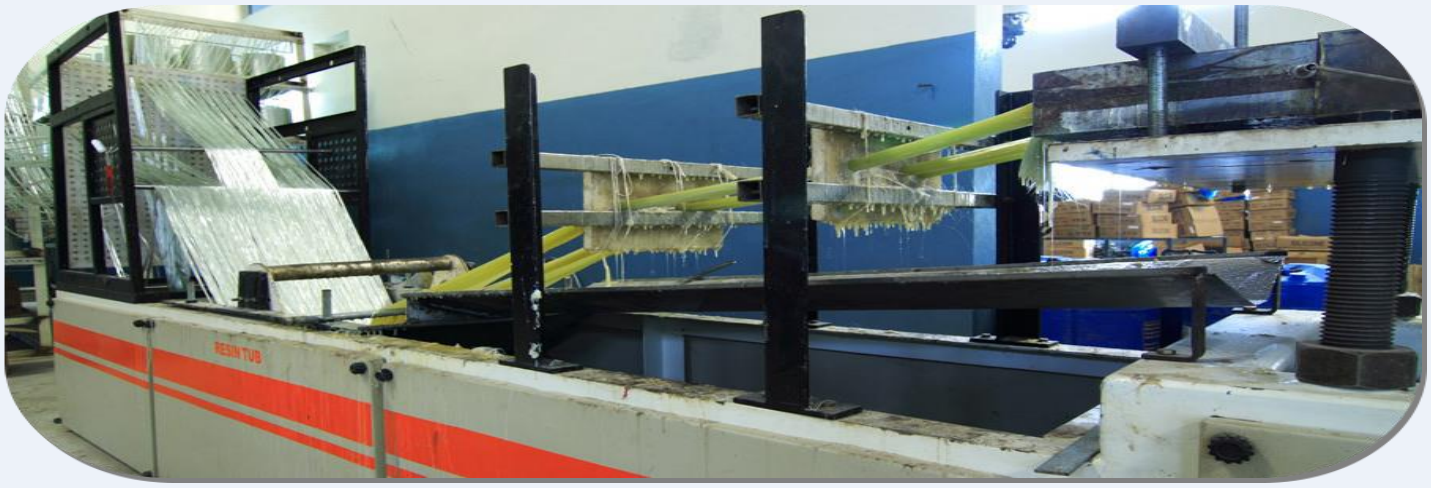
Crimping: End fittings are then assembled by a pressure controlled multi-step crimping process. A patented crimp control technology prevents damaging the fiber glass rod while achieving maximum mechanical strength. The remaining interfacial gap is sealed with a tracking and erosion resistant sealant to avoid moisture ingress to the fiber glass rod.***(Fig. 2)***

Fig .1

Fig .2

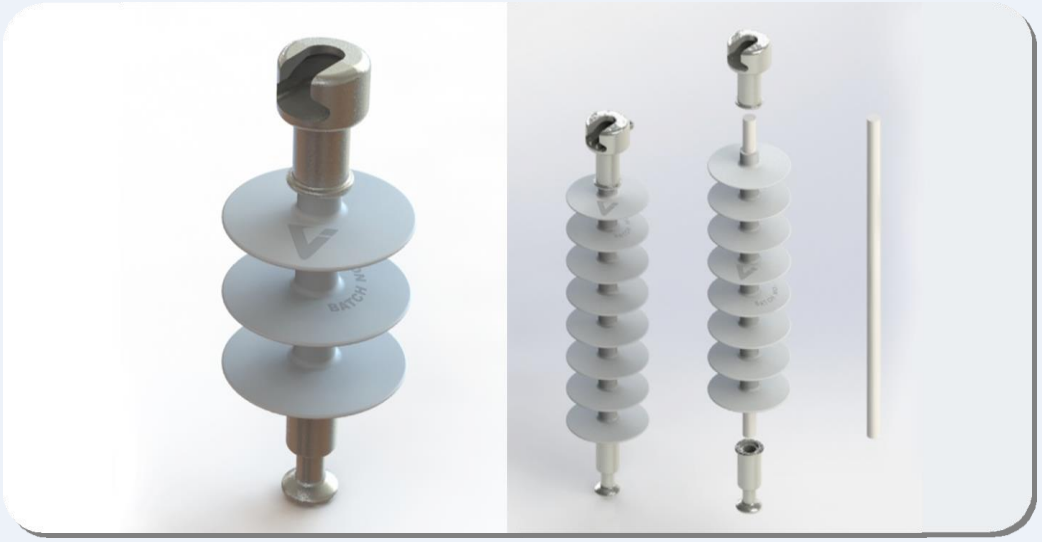
Pultrusion:

We manufacture FRP Rods in house using fully automated Pultrusion machines which give us the great advantage of controlling the quality of the Core rod for our Insulators.



Marking/Identification:

We use highly sophisticated laser printing machine to print batch no's on each and every insulator produced for better traceability of the product supplied.



THE TEAM

The VISTAAR team of experts has years of experience in design and manufacture of polymers. This enables us to utilize a proven technology of modeling process and latest technology as well.

QUALITY & SERVICE

"The name is a Guarantee" this is what you expect from the India's one of the biggest Polymer Insulator company. The insulator starts with rigorous inspection of raw materials and components. Also with constant in process checks and tests including pre and post production testing, analysis, inspection etc., we ensure that VISTAAR's quality product will provide years of trouble free service.

POLYMERIC COMPOSITE INSULATORS

EXCELLENT HYDROPHOBICITY

The improved pollution and Hydrophobicity Properties of Silicone Rubber Provides excellent insulating behavior without the need of washing or greasing even in humid and/or polluted climates including heavy rain and high conductivity sea spray, dense saline fog and industrial pollutions. Hence low failure rate combined with low overall Operating and maintenance costs.

LOW LEAKAGE CURRENT

- Resulting in improved power frequency insulation
- $1/10^{th}$ the energy loss when compared to Porcelain
- Higher di-electric strength

LIGHT WEIGHT

- 90% lighter than porcelain insulators, but offer an equal strength.
- Approximate weight of 400 kV insulators will be less than 20Kgs.

RESISTANCE TO BREAKAGES

Composite insulators are flexible and therefore, highly resistant to breakage.

SAFETY AGAINST VANDALISM & SHATTER PROOF

Composite Insulators have superior flexibility and strength which provides improved seismic performance and are Highly Resistant to breakage due to vandalism.

EXCELLENT TRACKING RESISTANCES

COMPACT DESIGN

Compact towers with Insulated Cross-arms to save Space (Right of way)

ASTHETICS

Aesthetically more pleasing design and maintenance.

SAFETY

Composite Insulators provide very high level of safety for apparatus in case of inner over pressure of external causes.

LIFE

Polymer insulator's life is more than 25 years.

PORCELAIN INSULATORS

HYDROPHILIC PROPERTIES

Porcelain surface forms a water film on the surface. Sue to its high surface tension (called Hydrophilic). As such flashovers and outrage in Humid and/or Polluted climates fog will be very high

LOW LEAKAGE CURRENT

- Very high leakage current.
- Poor di-electric strength.

Heavy Weight

- Inferior in strength.
- Approximate weight of 400kV insulator will be about 135Kgs.

HIGHLY FRAGILE

10 to 15% breakage are reported during transportation, storage and installation.

SUSCEPTIBLE TO BREAKAGES

- Due to very fragile properties, porcelain Insulators are highly susceptible to breakages due to vandalism
- Breakages during earthquakes.

POOR TRACKING RESISTANCE

BUILKY IN DESIGN

Requires lager, heavier towers for installation and space.

ASTHETICS

Aesthetically complicated design.

SAFETY

Porcelain insulators are susceptible to explosion in Case of Internal over pressure or external Causes.

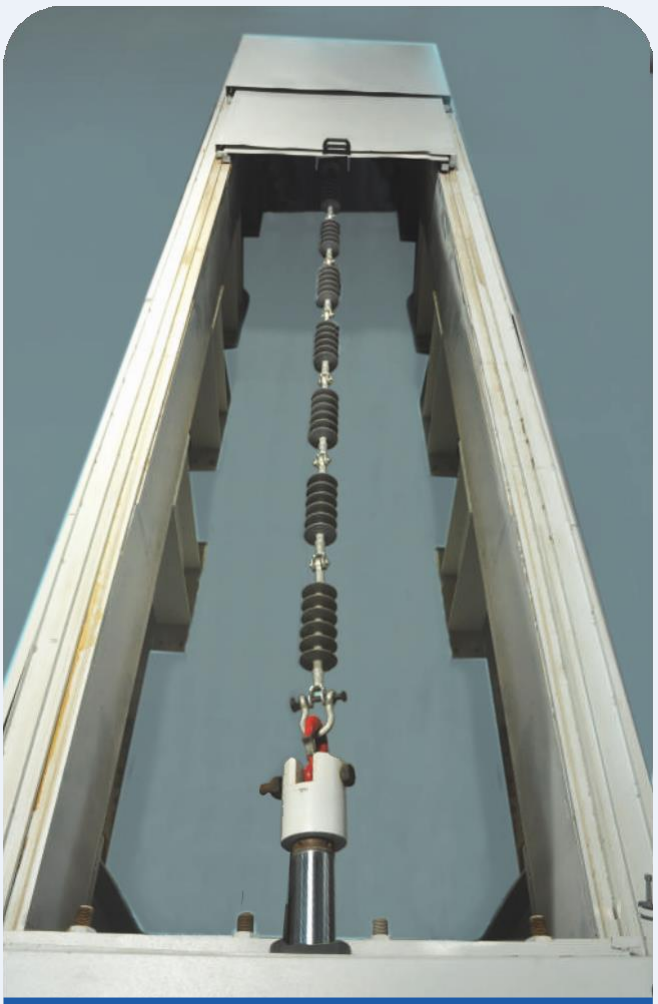
LIFE

Porcelain Insulators are rigid and degrade over a period of time

SHOP FLOOR

MOLDING MACHINE

CRIMPING MACHINE



TENSILE TESTING MACHINE

HIGHLY EQUIPPED LAB

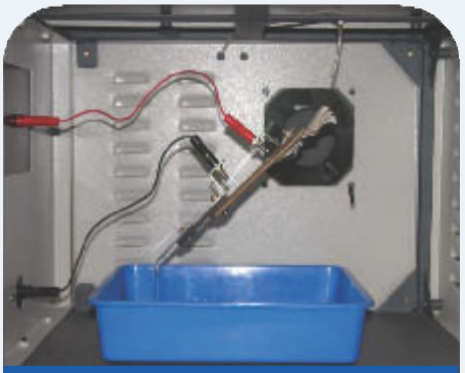
THERMO MECHANICAL CHAMBER

HIGH VOLTAGE TESTING (DRY&WET)

WATER IMMERSION CHAMBER

WEATHIRING & UV CHAMBER

MUFFEL FURNACE



TRACKING & EROSION SETUP

MILLION MEGA OHM METER

WATER DIFFUSION TEST

SHORE "A" HARDNESS TESTING
DIAL THICKNESS GAUGE

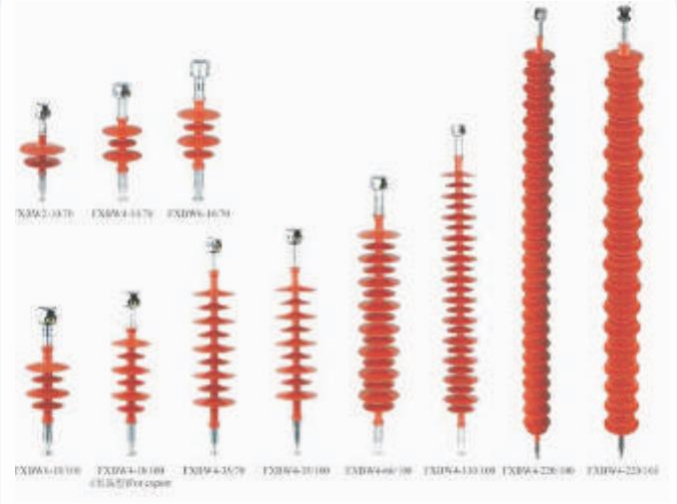
DIGITAL TENSILE MACHINE

OTHER IN HOUSE TEST FACILITIES

- BRITTLE FRACTURE RESISTANCE TEST SET UP
- RECOVERY OF HYDROPHOBICITY TEST
- BENDING TEST SETUP
- GALVANIZING THICKNESS GUAGE
- RUBBER CONTENT TEST SETUP

OTHER IN HOUSE TEST FACILITIES

- DI-ELECTRIC STRENGTH TEST
- ROCKWELL CUM BRINNEL HARDNESS TESTING
- SPECIFIC GRAVITY TESTING
- DYE PENETRATION
- RHEOMETER
- POLYMER IDENTIFICATION



66-400KV TRANSMISSION INSULATORS

CABLE JOINTING KIT

LIGHTNING ARRESTERS

TRANSFORMER BUSHINGS

LIFE OF COMPOSITE INSULATORS

Composite insulators are working in trouble free service for more than four decades all over the world. Various studies and publications by the way of simulated test conducted on composite insulators have established the life expectancy of composite insulators as more than four decades.

WHY VISTAAR INDUSTRY's INSULATORS ARE SUPERIOR?

- Well Engineered and Optimized world class design.
- Impenetrable to humidity and moisture design by molding over end fittings.
- Pressure controlled excellent insulating behavior without pressure force control loop.
- World renowned plant & machinery and moulds.
- Best European & U.S made silicone compound.
- Core pull-out load 100% to 120% of specific mechanical load.
- Aero Dynamic Sheds Design.

VISTAAR

Composite Insulators

VISTAAR INDUSTRIES
(OFFICE/WORKS)
Opposite Govt. Polytechnic College, Deviwala Road, Kotkapura,
151204, Dist. Faridkot, Punjab , INDIA
Website: www.vistaar.ind.in

Vistaar Industries

Email(s): inquiry@vistaar.ind.in
sales@vistaar.ind.in