ABB Composite Insulators

Design for reliable performance
ABB Power Technologies AB develops and manufactures customer adapted products in composite material. Our aim is to produce high performance, cost efficient products for customer all over the world. We have a long history of working with composite material that goes back to 1948. Our core competence reside in our knowledge of the electrical, mechanical, and physical properties of polymeric materials and our ability to engineer unique solutions for our customers. Our main areas are Machined Composite Components, Moulded Products, Filament Wound Products and Composite Insulators.

Machined Composite Components
Machining of high performance components from technical laminate of epoxy, vinyl ester, and polyester.

Moulded Products
Press and injection moulding of thermoset material.

Filament Wound Products
Filament winding of components with glass, aramid and carbon fiber.

Composite Insulators
Composite Insulators with silicone sheds for breakers, bushings, instrument transformers and cable terminations, with ratings >140 kV

ABB Composite Insulators
ABB is producing hollow composite insulators, by adding silicone rubber sheds to a composite tube, with a patented helical extrusion method. Composite insulators are today making strong inroads in the electrical industry. Examples of factors driving this trend are proven material properties, new processing technologies and efficient production methods giving insulators with high quality and reliable performance. Many high value benefits are also well known for composite insulators with silicone based outer housing versus porcelain based insulator designs.

User Benefits
The ABB Composite Insulators offers many advantages for the user:
- Increased safety
- Excellent Seismic Performance
- Superior Pollution Performance
- Low Weight

Helical Extrusion the Flexible Solution
ABB has developed a unique patented method of extruding silicone rubber sheds with a helical pattern. This gives a great flexibility regarding creepage distance, diameter, length and shape.

We also have the possibility to extrude on different bodies. The cost of tooling is low compared to other methods such as Injection Moulding.

All this together makes our process very suitable for optimizing the designs to our customers need in a cost efficient way.
The excellent performance of composite insulators in highly polluted environments is due to the materials hydrophobicity. It repels the water, suppresses leakage currents and reduces the risk of flashover.

Excellent performance.

High Volume Production

Helical Extrusion is a production process that is designed for high volume production. One of the advantages with helical extrusion, is that it still gives us a great flexibility to easily vary a number of parameters, such as creepage distance, length etc.

Design for Reliable Performance

ABB has developed insulators for high voltage applications according to strict principles that ensures reliable performance in harsh environment and for long service life. The design methods used are based upon state of the art modeling for composite and polymer materials. In addition all insulator designs, materials and types are verified in tests including ageing performance according to all relevant standards and specific customer requirements.

ABB Composite Insulators are normally used in:
- Circuit Breakers
- Bushings
- Instrument Transformers
- Cable Terminations
Voltage class > 140 kV
It’s possible for us to produce insulators with different sizes and shapes using one tool. Computer controlled production equipment gives us the flexibility and assure a consistent high quality.

**Different Shapes and Sizes**

**Routine Tests**
ABB has invested in sophisticated equipment for testing. The routine testing includes cantilever bending tests, pressure and gas tightness tests. In addition, ABB has a fully equipped laboratory for material analysis. Electrical, mechanical and physical properties are measured and documented on a routine basis to secure all important material properties.

**Sophisticated testing equipment.**

**ABB – the professional for reliable performance – we will solve your problem.**