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Chapter 6

Composite Insulator Testing

6.4 Mechanical Testing

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Mechanical Testing



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Mechanical testing for composite insulator

Mechanical tests are very important to the insulators since it is the main function of the polymer insulators on transmission and distribution lines or substations.

Three types of mechanical testing:

- **Routine test:** normally the insulators will withstand 50% SML value of the insulators, and the insulators after test should not break.
- **Sample test:** before delivery: a number of insulators selected random from a batch, the quantity should according to the batch quantities. Then the insulators will be applied certain load until it breaks. The broken value should be higher than the SML.
- **Type test:** type test is done when the insulators are designed.

Two main types of mechanical strength for composite polymer insulator:

- Tensile strength
- Cantilever strength

Tensile strength: for suspension insulators

Cantilever strength: for pin insulator, line post insulator, station post insulator...

What parts decide the mechanical testing result?

- Reinforced fiber glass rod quality and diameter
- End fitting quality and material and size

Mechanical testing applicable standard:

- IEC 61109
- IEC 62217
- ANSI C 29.11 and its series