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# **Chapter 5**

## **Composite Insulator Design**

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5.5 Fiber glass rod size selection according to mechanical strength

**By Orient Power**

## Fiber glass rod size selection according to mechanical strength



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Fiber glass core rod is the main material of composite insulator, play a skeleton enhancement effect.

Fiber glass is the preferred reinforcement material used to increase the mechanical properties of the compounded polymers.

### **Types of mechanical strength in composite insulator:**

- ✧ Cantilever strength
- ✧ Tensile load
- ✧ Torsional load
- ✧ Thermal mechanical

The cantilever strength usually have: 1.5KN, 4KN, 6KN, 8KN, 10KN, 12.5KN, 13KN, 13.5KN, 16KN, 20KN.

Mechanical tensile strength have: 40KN, 70KN, 80KN, 90KN, 100KN, 111KN, 120KN, 160KN, 210KN, 15000LB, 25000LB, 30000LB and so on.

Composite insulator fiber glass core rod uses the non-alkali glass fiber.

Specification for composite insulator fiber glass core rod:  $\phi 12$ 、 $\phi 16$ 、 $\phi 18$ 、 $\phi 20$ 、 $\phi 22$ 、 $\phi 24$ 、 $\phi 25$ 、 $\phi 26$ 、 $\phi 28$ 、 $\phi 30$ 、 $\phi 32$ 、 $\phi 34$ 、 $\phi 35$ 、 $\phi 38$ 、 $\phi 40$ 、 $\phi 45$ 、 $\phi 46$ 、 $\phi 50$ 、 $\phi 53$ 、 $\phi 60$ 、 $\phi 63$ 、 $\phi 70$ 、 $\phi 76$ 、 $\phi 80$ 、 $\phi 90$ 、 $\phi 110$

Also the fiber glass size should according to the mechanical strength, the types of insulator, using environment to design it. Different strength should choose different size diameter, and this will be according to the rod strength of each factory, Orient Power reinforced fiber glass core rod can reach 1700Mpa when testing.