



Aluminium Conductors are widely used for transmission of power across long distances and as well as connecting conductors in power system equipment like transformers etc. Due to low cost and easy installation, these are much preferred compared to copper based conductors. Aluminium Conductors offer excellent conductivity and easy replaceable in any circuit.

The Indian Standard **IS 398 Part 1, Aluminium Conductors for Overhead Transmission Purposes, Part 1: Aluminium Stranded Conductors**, specifies guidelines for aluminum stranded conductors used in overhead power transmission lines. This standard aims to ensure reliable performance, safety, and quality in India's power transmission infrastructure.

Key elements include:

1. **Material Quality:** IS 398 Part 1 defines the grade and purity of aluminum to be used, ensuring good electrical conductivity and durability. High-quality aluminum is necessary for withstanding various environmental conditions over time.
2. **Conductor Construction:** The standard details the construction parameters for stranded conductors, such as the number of strands, strand diameter, and the lay length (the twist length for a strand in the conductor). These factors are critical for mechanical strength and flexibility, allowing conductors to endure stresses from wind, tension, and temperature changes.
3. **Testing and Compliance:** It mandates rigorous testing for tensile strength, resistance, elongation, and mechanical properties. These tests verify that conductors can handle mechanical and electrical stresses typical in transmission lines, such as tension from wind loading and variations in temperature.
4. **Quality Control:** Quality control protocols for manufacturers ensure that each conductor batch meets the same standards, maintaining consistency and reliability.
5. **Application Suitability:** IS 398 Part 1 provides recommendations for selecting and using aluminum stranded conductors based on India's varied climatic and geographical conditions, including considerations for temperature and weather extremes.

This standard helps to ensure that aluminum stranded conductors meet safety, durability, and performance requirements, supporting the stable operation of overhead transmission lines across India.