



Aluminium Conductors- *Steel-Reinforced* 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- *Steel-Reinforced* offer excellent conductivity and easy replaceable in any circuit.

The Indian Standard IS 398 (Part 2):1996, *Aluminum Conductors Steel-Reinforced (ACSR)*, specifies the requirements for Aluminum Conductor Steel-Reinforced (ACSR) cables used in overhead power transmission. These conductors are widely used due to their high tensile strength and durability, provided by a steel core surrounded by aluminum strands. This construction combines the conductivity of aluminum with the added strength of steel, making ACSR cables well-suited for long spans and challenging conditions in transmission lines.

Key elements of IS 398 Part 2 include:

1. **Material Specifications:** Defines the quality and composition requirements for both the aluminum and steel components. Aluminum layers provide conductivity, while the steel core enhances tensile strength.
2. **Construction Requirements:** Details the construction of ACSR conductors, including the arrangement, size, and lay ratio (length of twist per strand layer) of aluminum and steel strands. This construction ensures flexibility and structural stability under mechanical stress.
3. **Mechanical and Electrical Testing:** Establishes mandatory testing for parameters such as tensile strength, elongation, electrical resistance, and stress-strain characteristics. These tests ensure that the conductors meet performance requirements for strength, conductivity, and resistance to environmental stress.
4. **Corrosion Resistance:** Given that ACSR conductors are used in outdoor environments, IS 398 Part 2 specifies measures to protect against corrosion, which can compromise both the aluminum and steel elements over time.
5. **Quality Control:** Sets standards for quality control procedures, ensuring consistent quality in manufacturing and maintaining high performance standards across conductor batches.

IS 398 Part 2:1996 provides comprehensive guidelines to ensure that ACSR conductors are reliable, safe, and able to withstand the demands of India's diverse environmental conditions, helping to maintain stability in power transmission infrastructure.