Summary :

IS 16644 : 2018 - Stress-Relieved, Low Relaxation Steel Wire for Prestressed Concrete — Specification

IS 16644:2018 is the Indian Standard specification for Stress-Relieved, Low Relaxation Steel Wire for Prestressed Concrete, aimed at ensuring that steel wire used in prestressed concrete meets the required mechanical, physical, and performance standards for high-stress applications.

Customers, including structural engineers, contractors, and material suppliers, expect the steel wire to meet several key criteria: high strength, the ability to maintain tension over time (low relaxation), corrosion resistance, and consistent quality. These properties are vital for ensuring that the wire performs well under fluctuating loads and extreme environmental conditions, thereby ensuring the stability and longevity of concrete structures.

IS 16644:2018 addresses these expectations by specifying the chemical composition and mechanical properties of the steel wire. It ensures the wire can handle the tensile stresses typical in prestressed concrete without breaking or deforming.

To ensure consistent performance, the standard mandates rigorous testing requirements, including assessments of tensile strength, elongation,Fatigue testing and relaxation properties. This ensures that each batch of wire meets the necessary specifications for high-strength and low-relaxation characteristics.

Additionally, IS 16644:2018 provides guidelines for quality assurance during manufacturing, including the use of approved raw materials, proper heat treatment, and secure packaging to protect the wire during handling and transport and tests such as test for Proof Stress,Reverse Bend test and Bending Ductility, etc.

The standard also outlines corrosion resistance requirements, particularly for high-moisture environments, to enhance the durability and service life of prestressed concrete structures.

In conclusion, IS 16644:2018 ensures that steel wire for prestressed concrete meets the highest standards for strength, durability, and performance, making it a critical component in the construction of safe and long-lasting concrete structures.