



Indian Standard IS 7904:2018 High carbon steel wire rods

High carbon steel wire rods are primarily used in the manufacture of products such as spring wires, spoke wires, pre-stressed concrete wires, , umbrella rib wires, textile industry wires and wires for general engineering purposes etc.

These wire rods are produced through a controlled hot-rolling process, where billets are rolled into coils of uniform diameter and high-quality surface finish. **IS 7904:2018** specifies stringent limits on **chemical composition** including Carbon, Silicon, Manganese, Sulphur, Phosphorus, Chromium, Nickel, Molybdenum, Copper and Aluminium ensuring mechanical properties suited for advanced processing techniques like cold working and quenching. These processes enhance the tensile strength, resilience, and adaptability of the material for demanding applications.

This standard emphasizes critical mechanical properties such as **ultimate tensile strength** and percentage **reduction in area (RA)**. It also prescribes **Dimensional tolerances** in line with **IS/ISO 16124** ensuring the rods maintain consistent geometry and structural integrity. Surface quality is paramount, with the standard mandating the absence of **surface defects** such as fin, seam, dent, lap, edge, guide mark, crack etc., to facilitate smooth downstream operations like coating or drawing.

Advanced tests for **depth of decarburization**, **microstructure analysis**, and evaluation of **non-metallic inclusions**, as per IS 4163, are integral to the standard, guaranteeing material consistency and performance

IS 7904:2018 also mandates clear **marking** of wire rods, including grade, size, and manufacturer's identification ensuring product traceability and enabling consumers to select materials tailored to their specific requirements.

The Ministry of Steel Quality Control Order mandates that **High carbon steel wire rods** sold, manufactured, or imported in India comply with **IS 7904:2018** and display the BIS Standard Mark.

In summary, **IS 7904:2018** guarantees that high carbon steel wire rods deliver **exceptional strength, durability, and processability**, establishing them as a preferred choice for precision engineering and industrial applications. Compliance with this standard enhances reliability and efficiency, meeting the rigorous demands of modern manufacturing.