Indian Standard IS 6527:1995 -Stainless Steel Wire Rod— SPECIFICATION

Stainless steel wire rods are widely utilized across various industries for their **strength and resistance to corrosion**. They are commonly used in manufacturing fasteners, automotive and machinery components, medical and food equipment, as well as in chemical, food packaging, construction, and marine applications.

Consumers of stainless steel wire rods demand high standards of quality, focusing particularly on **chemical composition, freedom from defects, and mechanical properties**. The chemical composition is crucial, as it affects the steel's corrosion resistance, strength, and suitability for specific applications. Furthermore, consumers expect these wire rods to be free from surface defects—such as cracks, seams, and inclusions—that could compromise their structural integrity. Consistent mechanical properties, including tensile strength, yield strength, and elongation, are also essential to ensure reliable performance under various stresses and conditions.

The Indian Standard **IS 6527:1995** addresses these quality requirements by establishing specifications for stainless steel wire rods. This standard outlines acceptable chemical compositions for different grades of stainless steel, including:

- **Ferritic**: X04Cr13
- **Martensitic** (3 types): X12Cr13, X20Cr13, X30Cr13
- **Austenitic** (6 types): X02Cr18Ni11, X04Cr18Ni10, X08Cr18Ni9, X04Cr17Ni12Mo2, X02Cr17Ni12Mo2, X10Cr17Mn6Ni4

These grades provide the necessary corrosion resistance and strength for diverse applications.

IS 6527:1995 also places emphasis on defect-free production, specifying adequate material reduction and selective discarding during processing to minimize imperfections. To ensure consistent and reliable performance, the standard includes testing for mechanical properties such as **0.2% proof stress, ultimate tensile strength, percentage elongation, and hardness**.

Additionally, an **optional corrosion resistance test, per IS 10461 (Parts 1 and 2),** can be incorporated. **Dimensional tolerances for diameter and out-of-roundness** are specified across four size ranges—5.5mm–9.5mm, over 9.5mm up to 16mm, over 16mm up to 20mm, and over 20mm—along with recommended annealing temperatures and cooling media for each stainless steel grade.

By adhering to the provisions of IS 6527:1995, manufacturers can deliver high-quality stainless steel wire rods that meet stringent consumer expectations for durability and performance across a wide range of applications.

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