

Summary of IS 10632 (Part 3): 1983 – Specification for Non-Magnetic Stainless Steels for Electrical Applications: Part 3: Specific Requirements for Sheets, Strips, and Plates

When selecting materials for electrical applications, especially for components that require high performance and reliability, it is essential to choose the right type of steel. For certain electrical applications, **non-magnetic stainless steels** are crucial because of their ability to resist corrosion and maintain durability while not interfering with electromagnetic fields.

Indian Standard IS 10632 (Part 3): 1983, developed by the **Bureau of Indian Standards (BIS)**, outlines the specific requirements for **sheets, strips, and plates made from non-magnetic stainless steels** used in electrical applications. This standard ensures that the material meets the necessary mechanical, physical, and chemical properties, which are vital for achieving optimal performance in various electrical devices, such as transformers, motors, and electronic equipment.

Key **quality parameters** that consumers expect from non-magnetic stainless steels and IS 10632 (Part 3): 1983 specifies a **range of tests** to assess these parameters include:

- **Magnetic Permeability and Electrical Resistivity:** Non-magnetic stainless steels must exhibit extremely low magnetic permeability to ensure they do not interfere with the magnetic fields in electrical applications, which is crucial for the proper functioning of devices like transformers and electrical motors. This standard include **Magnetic permeability and electrical resistivity test** for this purpose.
- **Surface Finish:** Surface of material must be smooth and without pits and other imperfections and defects.
- **Mechanical Strength:** The steel must have sufficient tensile strength and toughness to withstand mechanical stresses during processing, fabrication, and during use in electrical applications. This standard include **tensile test** for this purpose.
- **Dimensional Accuracy:** The sheets, strips, and plates must conform to strict dimensional tolerances to ensure they fit precisely in electrical equipment, preventing any operational failures. This standard include **Dimensional test** for this purpose.
- **Chemical Composition:** This standard also addresses the chemical composition of non-magnetic stainless steels to ensure consistency in material properties and performance. It specifies the acceptable limits for elements like chromium, nickel, and other alloying elements, which directly affect the material's non-magnetic and corrosion-resistant properties.

Additionally, while purchasing this customer should ensure that all non-magnetic stainless steels used for electrical applications in India comply with IS 10632 (Part 3): 1983 and bear the **BIS Standard Mark**. This certification guarantees that consumers can rely on these materials for their high quality, durability, and performance in critical electrical applications.

In summary, IS 10632 (Part 3): 1983 ensures that non-magnetic stainless steels for electrical applications meet the highest standards of quality and performance. When purchasing these materials, look for the BIS mark to ensure compliance with this standard, providing assurance that the steel you are using will meet the demands of your electrical applications, ensuring long-lasting reliability and safety.