

**SPECIFICATION FOR TINNED STEEL WIRE FOR BANDING OF ARMATURES AND ROTORS:
PART III SPECIFIC REQUIREMENTS FOR NON-MAGNETIC BANDING WIRES
(IS 8510 (PART III): 1977)**

In the realm of electrical engineering, the selection of banding wire for armatures and rotors plays a critical role in ensuring efficient, reliable, and high-performance motor operation. Traditionally, copper wire has been the material of choice for banding applications. However, the advent of advanced steel wire technology has led to the development of tinned steel wire, offering superior non-magnetic properties, enhanced durability, and improved cost-effectiveness.

Producing non-magnetic steel wire involves altering the chemical composition to minimize its magnetic properties in the following manner,

1. Chromium: Increase chromium content (>12%) to reduce magnetism.
2. Nickel: Add nickel (>8%) to stabilize austenitic microstructure.
3. Apply coatings like zinc, tin, or chrome to reduce magnetism
4. Carbon: Limit carbon content (<0.03%) to prevent carbide formation

Tinned steel wire, specifically designed for armature and rotor banding, offers a compelling alternative to conventional copper wire. This innovative material combines the benefits of:

1. Non-magnetic properties: Eliminating magnetic interference and ensuring optimal motor performance.
2. High tensile strength: Providing superior durability and resistance to wear and tear.
3. Corrosion resistance: Ensuring longevity and reliability in harsh environments.
4. Cost-effectiveness: Offering significant savings compared to traditional copper wire.

The above properties is achieved through following Indian standard IS 8510 (Part III): 1977, developed by Bureau of Indian Standard (BIS), by the manufacturer.

Also, The Ministry of Steel has made IS 8510 (Part III): 1977 a mandatory standard through the Quality Control Order (QCO) dt 5th February, 2024

When selecting non-magnetic banding wires, look for the BIS certification mark. Choosing IS 8510 (Part III): 1977 compliant products ensures reliable electrical performance, prevents magnetic interference, extends product lifespan, and meets regulatory requirements.