Enamelled / Magnet Wires Care & Precautions

Enamelled / Magnet Wires are conductors coated with very thin film of enamel insulation. Coating thickness would be in the range of few microns to around 100 microns. The enamel film is likely to get damaged by any sharp edges or get affected by harsh environments. Enamels like, polyesterimides, have affinity towards moisture. High humidity may degrade the enamel film over a period of time. Enamelled / Magnet Wires also elongate when pulled or under tension. This will harm the enamel film’s adhesion with its conductor and deteriorate its insulation properties.

Damage of enamel film will lead to failure of insulation and winding failures. Hence, utmost care is necessary to protect the wires from all types of likely damages during transportation, storage, handling and use.

Transportation, Handling & Storage:
- Keep the Enamelled Wires covered.
- Avoid any sharp objects / edges while handling.
- Avoid direct sunlight, moisture, dust, harsh acid/chemical vapours to come in direct contact with the enamel film.

Coil Winding:
Remove few rounds of wire from the bobbin and then check the wire dimensions before use.
Check the pulleys, guide rolls & the machine parts that come in contact with the wires. All contact parts should be smooth and free of any dust, oil or metal particles. Avoid sharp surfaces & edges. Restrict the diversions of wires to minimum required.
Maintain minimum tension on wires.
Check for bare and overall conductor sizes before and after winding. Avoid elongation of wires.

Stripping of ends:
For stripping of enamelled / magnet wires ends, select proper method to avoid damage to bare conductors and the non-stripped enamel film.

Varnish Impregnation:
Check the compatibility of enamelled / magnet wire type with the varnish / resin used for impregnation. Pre-heating of windings will help in removal of moisture & internal distortion of insulation film, and also help in better penetration of the varnish / resin in the windings, leading to a better protection of the wires / windings.