



Leading Magnet Wire Manufacturer



**High Frequency Solid-State
Transformer Wire (SST Litz Wire)**



Litz Wire Construction and Applications

Litz wires are manufactured by combining multiple individually insulated fine wires into a flexible, rope-like conductor structure. This unique construction improves flexibility, reduces skin and proximity effects, and enhances high-frequency electrical performance. Litz wire is widely used in applications operating typically from **10 kHz to 5 MHz**, including high-frequency transformers, inductors, wireless power systems, and advanced power electronics.

Litz Wire Construction Types

Directly Bunched Litz Wires

Directly bunched Litz wires are made by twisting multiple individually insulated wires together without a fixed arrangement. Each strand can move freely within the bundle.

This construction allows flexible customization of wire size, twist pitch, and lay direction, making it suitable for high-frequency applications requiring optimized electrical performance.

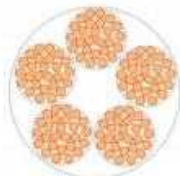
Concentrically Bunched Litz Wires

Concentrically bunched Litz wires arrange individual insulated wires evenly around a central conductor in one or more layers. This structure provides stable dimensions, excellent mechanical strength, and high flexibility.

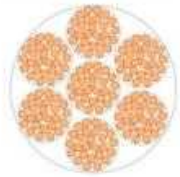
It is commonly used in applications where mechanical durability and consistent performance are important.



Single Step Construction



Multi-step Design

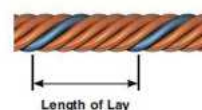


Concentric Design



The **pitch direction of Litz wire** refers to the twisting direction of individual strands within the bundle. Z-Lay twists the strands clockwise, while S-Lay twists them counter-clockwise. The selected lay direction affects the wire's flexibility, mechanical properties, and overall manufacturing performance.

Length of lay refers to the distance required for a single strand to complete one full rotation around the Litz wire bundle. A shorter lay length creates a tighter twist for improved flexibility and strand stability, while a longer lay length results in a looser structure that affects electrical performance and processing characteristics.

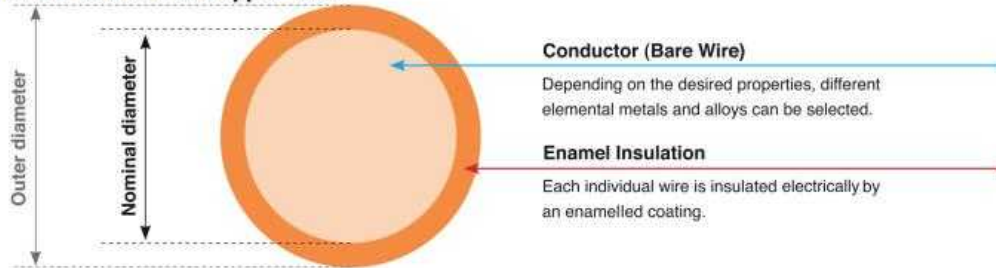


LP Industry SST Litz Wire parameters

Conductor Materials

The basic component of a litz wire is the single wire. Conductor material or copper and enamel insulation can be combined optimally to meet the demands of specific applications.

Construction Enamelled Copper Wire



Insulation Types

Different insulation types can be specified for the individual wires depending upon the final product's thermal and chemical resistance requirements. Different insulation thickness tolerances can be specified according to international standards or customer specification, depending upon the final product's dielectric demand

Self-Bonding Types

An additional adhesive overcoat can be applied to permanently connect individual wires into a wire bond. Different adhesives can be specified depending upon the activation process used by the customer (heat or solvent activation) and/or the ultimate bond strength and re-softening temperature characteristics desired.

Standard Enamel Build

IEC: Grade 1, Grade 2, Grade 3

NEMA: Single, Heavy, Triple Build

JIS: Class 3, Class 2, Class 1, Class 0

Main Specifications

Conductor	Copper
Single wire Dimension	0.01 mm -1 mm
Number of Strands	5~10000 (odd or even optional)
Insulation material	Polyamide, Polyester, Polyurethane, etc.
Standard	According to customer' s requirement
Packing	Ply wooden spool or according to customer' s requirement
Application	SST transformer, RF transformers, RF transceivers, Sensors, Ballasts, etc.

Advantages

High frequency litz wire is either used for frequency or heating-related applications.

- Cost-effective design
- Optimized resistance or frequency-related construction
- Increased tensile strength by using additional strain relief
- Construction optimized for heat-resistance
- Precise resistance-related manufacturing
- Very broad field of application (drying, heating, warming up)
- Resilient base materials

lp industry wire

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