

1. EXECUTIVE OVERVIEW & INNOVATION FOCUS

As next-generation power electronics, electric vehicles (EVs), renewable energy inverters, and high-frequency power transformers rapidly evolve, traditional magnet wire faces extreme thermal, high-frequency skin effect, and slot-space limitations. **Zhengzhou LP Industry Co., Ltd.** introduces its flagship series of **New Enameled Wire & Advanced Winding Conductors**, specifically engineered to deliver higher power density, superior thermal management, exceptional dielectric integrity, and maximized energy conversion efficiency.

⚡ High Slot Fill Factor

Rectangular and flat conductor profiles boost slot filling up to 80%–90%, significantly cutting copper losses and overall footprint.

🌀 Skin Effect Loss Reduction

SST Litz wire configurations effectively eliminate skin and proximity effects across high-frequency ranges (20 kHz to multi-MHz).

🔥 Superior Thermal Class

Insulation solutions rated Class 180°C, 200°C, and 220°C (PI, PAI, Nomex®) provide reliable long-term performance under high thermal stress.

🔧 Custom Structural Designs

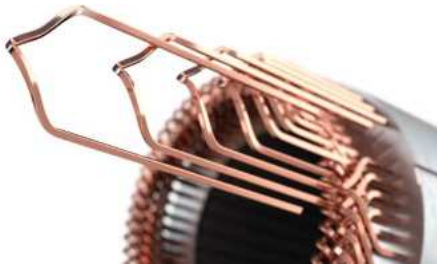
Fully customizable multi-conductor parallel groupings (MPCC Twin/Triple/Quad) and custom hairpin bends tailored to precise OEM specifications.

2. KEY PRODUCT PORTFOLIO & APPLICATIONS

A. Hair-PIN Motor Flat Winding Wire (EV Traction Motors & Drive Systems)

Designed for modern electric drive motors, hairpin flat winding wire replaces traditional round wire bundles with precision rectangular conductors. It enables tight, automated bending and hairpin insertion while significantly boosting stator slot fill ratio and thermal dissipation.

- Efficiency** Boosts motor electrical conversion efficiency up to 93%–97%.
- Thermal** Class 200°C – 220°C (Polyimide / Polyamide-imide enamel).
- Durability** High mechanical adhesion withstands tight bending without enamel cracking.



B. Solid-State Transformer Wire (SST Litz Wire)

Engineered for high-frequency medium-voltage transformers, solid-state transformers (SST), and EV fast chargers. SST Litz wire utilizes multiple individually insulated enameled strands braided in precise geometric patterns.

- Frequency Control** Minimizes high-frequency AC resistance and eddy current losses.
- Outer Insulation** Options include Kapton/Nomex tape, silk/nylon braid, or extruded fluoroplastic jacket.
- Customization** Single strand diameter 0.03–0.50 mm; total strands up to several thousand.



C. MPCC Twin / Triple / Quad Paper Covered Rectangular Conductors

Multi-Paper Covered Conductors (MPCC) combine two, three, or four parallel rectangular copper or aluminum conductors wrapped together with electrical insulation paper (Kraft paper or Nomex® paper).

- **Application** Ultra-high voltage (UHV) power transformers, reactors, and traction units.
- **Advantage** Reduces stray loss, simplifies winding, and enhances short-circuit resistance.
- **Conductor Option** Oxygen-free copper (OFC) or high-purity EC-grade aluminum.



3. MASTER TECHNICAL SPECIFICATION MATRIX

Product Category	Conductor Material	Shape & Dimensions	Insulation Type	Thermal Class	Applications
Hair-PIN Flat Wire	Oxygen-Free Copper (OFC) / Aluminum	Rectangular / Flat Cross Section: 1.6–250 mm²	PEI + PAI, Polyimide Film, Custom Enamel	180°C / 200°C / 220°C	EV Traction Motors, Stators, Wind Turbines
SST Litz Wire	Enameled Copper Strands (0.03–0.50 mm)	Round / Square / Rectangular Strands	PEW/UEW/EIW + Silk, Nomex, Kapton Tape	155°C / 180°C / 200°C	Solid-State Transformers, Inverters, DC Chargers
MPCC Conductors (Twin/Triple/Quad)	High-Conductivity Copper / EC Aluminum	2, 3, or 4 Parallel Rectangular Strips	Kraft Paper, Nomex® Paper, HPI-Green Insulation	105°C / 155°C / 180°C / 220°C	Power Transformers, Substation Reactors

4. QUALITY ASSURANCE & MANUFACTURING STANDARDS

At Zhengzhou LP Industry Co., Ltd., strict process monitoring and automated inline laser inspection guarantee zero-defect manufacturing across all magnet wire production lines:

- **International Standards:** Fully compliant with IEC 60317, NEMA MW 1000, JIS C3202, and GB/T standards.
- **Strict Quality Checkpoints:** Continuous pinhole detection, Breakdown Voltage Test (BDV), Thermal Shock Test, Flexibility & Adhesion Bending Test.
- **Packaging Solutions:** Delivered on heavy-duty wooden spools, plastic reels (PT-25, PT-45, PT-90), or steel drums with moisture-proof wrapping.



Request Custom Samples & Engineering Support

We provide full custom manufacturing based on customer CAD/DWG/PDF drawings. Contact our B2B engineering team today for sample spools, detailed datasheets, and factory-direct quotations.

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