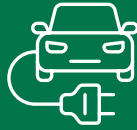


# High Voltage Winding Wire (HVWW®) Outperforms Mono-Layer (PEEK) for EV Applications

HVWW® features a unique product construction of heat-resistant enameled copper wire over which an extruded resin layer is added, resulting in a magnet wire product that is highly customizable and unparalleled in performance. For performance and reliability in electric vehicle applications, the choice is clear.



**Reduced Risk**  
for insulation degradation

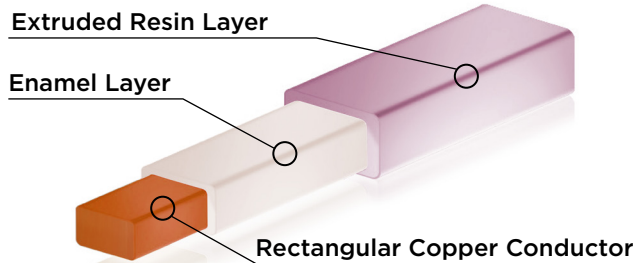


**Increased Stability**  
in required operating conditions



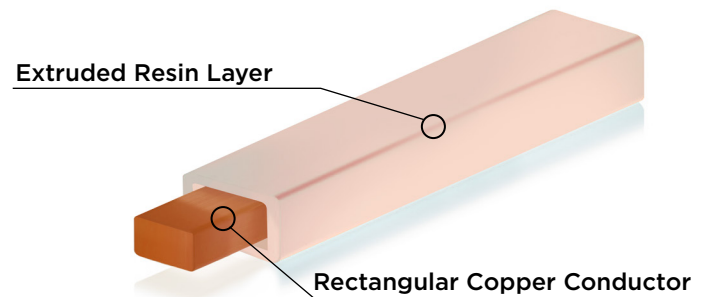
**Proven Quality**  
with 10-years on-road testing

## HVWW®



- ✓ Multi-layered insulation construction features a unique enamel layer for extended performance
- ✓ Enameled layer ensures insulation integrity in the event of thermal runaway
- ✓ Enamel layer protects the copper conductor and prevents oxygen penetration
- ✓ Enameled layer increases stability protecting against:
  - ✓ Dielectric breakdown voltage (DBV)
  - ✓ Partial discharge (PDIV)
  - ✓ Film elongation

## Mono-Layer (PEEK)



- ✗ Single layer insulation construction lacks enameled layer resulting in poor long-term performance
- ✗ Subject to degradation in demanding operating environments
- ✗ Film elongation worsens with degradation
- ✗ Copper conductor is subject to oxidation leading to:
  - ✗ Poor insulation adhesion
  - ✗ Dielectric breakdown voltage (DBV)
  - ✗ Decreased thermal conductivity
  - ✗ Partial discharge (PDIV)
  - ✗ Overheating, carbonization, and catastrophic insulation failure

# High Voltage Winding Wire (HVWW®) Exceeding Expectations

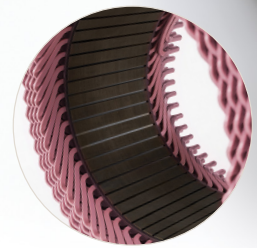
Essex Furukawa offers a HVWW® product designed for use in the automotive industry. Our technology benefits customers demanding lighter weights to achieve smaller and more efficient traction motors.

High voltage creates high heat. In the electric vehicle industry, heat resistance, flexibility and repeated stress are ongoing obstacles to magnet wire performance. Our engineers accepted the challenge to perfect every design element for an exceptional product.



## Highly Customizable

Designed to meet specific customer requirements with tight tolerances and no room for imperfections. Varieties of thickness in height and width allow for implementation within new and existing motor technology.



## Highly Flexible

A highly flexible design improves the installation process. This also enables new design innovation otherwise not possible with more rigid materials. The malleable rectangular shape fills any gaps, leading to higher power and torque.



## High Temperature

The extruded outer layer provides excellent heat resistance and reliability. The unique design can run at a constant temperature of 240°C without any reduced performance. Allows for high voltages of over 1000V without partial discharge (PDIV).



## Reduced Carbon Impact

HVWW® is the best choice for customers looking to reduce their carbon impact. Both the production process and material construction result in fewer carbon emissions.\*

Essex Furukawa is committed to lessening our own carbon footprint through a holistic sustainability initiative, Vision 2030.

*\*As compared to traditional enameled magnet wire*

