

PEEK-insulated copper magnet wire

Ampact™

Wired to power up high-voltage mobility

Higher power density

Extended driving range

Fewer greenhouse gases (GHG)

Increased lifetime





Pushing the performance of EVs means rethinking the battery and powertrain design. With Ampact™, the PEEK-insulated high-voltage magnet wire, we help you secure the extra mile while saving design and assembly time, energy, and valuable resources.

Reduce costs with a smaller and lighter stator

Engineered to meet the most challenging customer specifications of 800V applications and beyond, Bekaert's PEEK-insulated magnet wire facilitates sharper and shorter bends to save space in the stator. Combined with a customizable shape and corner radius of as little as 0.3 mm, you can create smaller and lighter stators and reduce costs significantly without impacting the energy efficiency of the stator.



Do you wish to boost power performance instead? Ampact™ enables you to design a more powerful engine within the current dimensions. Your hairpin wire solution comes with cross sections of 2 to 12 mm², as well as a customizable coating thickness.

Product specs

- Flexible bending down to 1x wire thickness
- Broad W/T range (2-12 mm²)
- A tight copper radius down to 0.3 mm
- High quality Cu material (ETP-1 or OF)

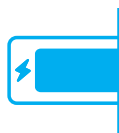
Electrical specs

800V proof:

- PDIV values well above 1500V
- High breakthrough voltage levels
- Improved dielectrical withstand

Environmental specs

- Temperature class of 240 °C
- High chemical resistance to dielectric fluids
- Lower emissions throughout the product lifetime



Reliable wire coating for extreme environments

The type of insulation coating plays a key role in the processability, longevity, and potential energy losses of wire stators. Since PEEK doesn't crack when bent in extreme positions and shapes (such as a hairpin), the wire's winding design is optimized.

Additionally, the thinner PEEK coating allows for more efficient heat exchange and boasts remarkable thermal tolerance to temperatures of up to 240 °C. With a coating thickness as low as 150 um this primary insulation layer offers stellar performance. Also its chemical structure is highly resistant to cooling oils and glycole-like cooling liquids.

More sustainable, fewer greenhouse gases

PEEK-coated winding wire helps you contribute to a more sustainable tomorrow by eliminating most of the disadvantages associated with enamel coating. For example, less energy and fewer resources are required during the production process. Additionally, with PEEK coating, you remove harmful solvents from the coating process.



GHG

Finally, thermoplastic PEEK can be melted off and recycled easily. This is in stark contrast to the enamel coatings.

Secure the extra mile with Ampact™ PEEK- insulated magnet wire



Mechanical performance for 800V and beyond

We first transform high-quality, copper rods with a low carbon footprint into rectangular shapes. To ensure optimal conductivity, we opt for ETP-1 copper with less than 250 ppm of oxygen. This, in turn, enables a more robust processing of the materials.

All mechanical, electrical, and physical properties meet the European EN 1977 standard for high-conductivity copper wire. Additionally, it meets the IEC 60851 requirements regarding the electrical resistance for coated copper magnet wires. Next, we apply a defect-free PEEK coating through a single-layer extrusion process.

The excellent elongation properties (min. 40%) of copper wire combined with Ampact's thin and ductile single PEEK layer (typically around 150 µm) allow for sharper bends with a tight corner radius. While some springback is inevitable due to the elasticity of the copper, the impact is minimized and kept constant by well-controlled processing.

Finally, the defect-free application process gives you peace of mind when it comes to low scrap levels and efficient processing.

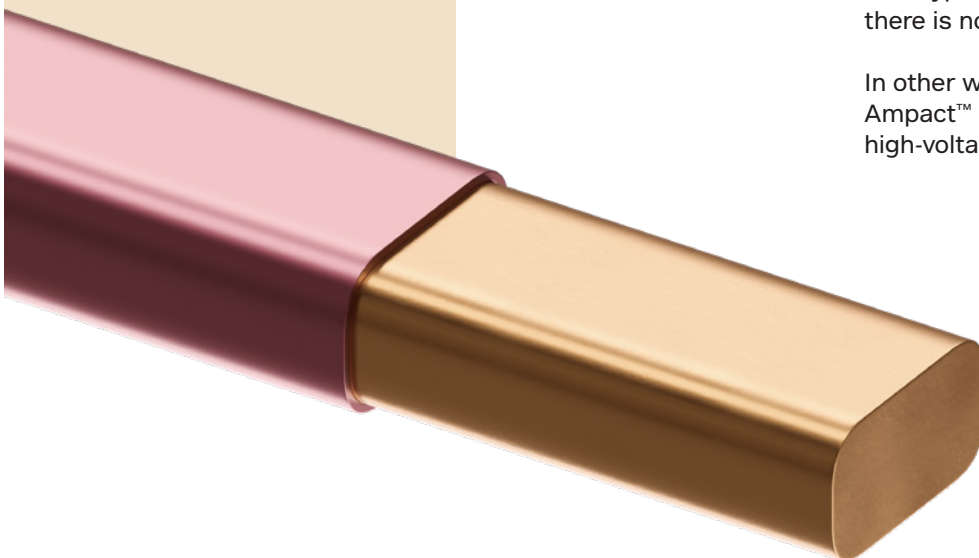
Safe to use in high-voltage settings

Safety matters. This is why we subjected the hairpin wire to breakdown voltage and partial discharge inception voltage (PDIV) tests. With a breakdown threshold of over 6 kV for typical PEEK thicknesses, Ampact™ proves safe to use in 800V-applications and beyond.



Partial discharge, by contrast, risks breaking down the electrical shielding ability of the insulation layer and shortening the lifespan of your hairpin wire. In the case of Ampact™ wire, with typical PEEK thicknesses, even at 1500V there is no partial discharge.

In other words, you can rest assured that Ampact™ can handle even the most powerful high-voltage applications.



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Questions about the Bekaert PEEK-insulated copper magnet wire?

Contact your consultant Vincent Vermeersch, Global Business Development Manager, High-Voltage Winding Wire.
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Bekaert, your trusted automotive partner across the globe

Bekaert is an established global solution provider for the automotive industry. Thanks to our international footprint, we are able to install capacity all over the world, which, in turn, speeds up time-to-market significantly and creates a competitive advantage for our customers. Our automotive solutions create peace of mind by adhering to the required quality norms including the IATF and IEC standards.