

Amperium[®] Wire Insulation

Spiral-wrapped adhesive Kapton[®] polyimide tape insulation for superb durability and voltage withstand

AMSC's insulated Amperium wire conducts more than 100 times the electrical current of copper wire of similar dimensions.

This high temperature superconductor (HTS) wire's unique, patented, laminated construction combined with its tremendous current density allows for the construction of stable, high performance magnets, motors, generators, and fault current limiters. For applications requiring insulated wire to provide wire-to-wire or wire-to-ground voltage withstand, Kapton[®] high performance polyimide tape offers superior electrical and mechanical performance, easy application, and flexibility for different voltage withstand needs.

Reliability in demanding applications

Silicone adhesive backing on the polyimide film prevents movement of the tape even after multiple bend and/or thermal cycles. Breakdown voltage rating is maintained over time in physically demanding environments.

Readily applied over splices and joints

The tape wrapping process accommodates wire splices and termination joints of different lengths and thicknesses.

Easy maintenance

Insulation repairs can be made by simply wrapping new tape over the affected section. No special tools or equipment is required.

Proven performance in cryogenic environments

Kapton[®] insulation has been used for decades in a wide variety of cryogenic applications at temperatures down to 4.2 K.

Excellent durability

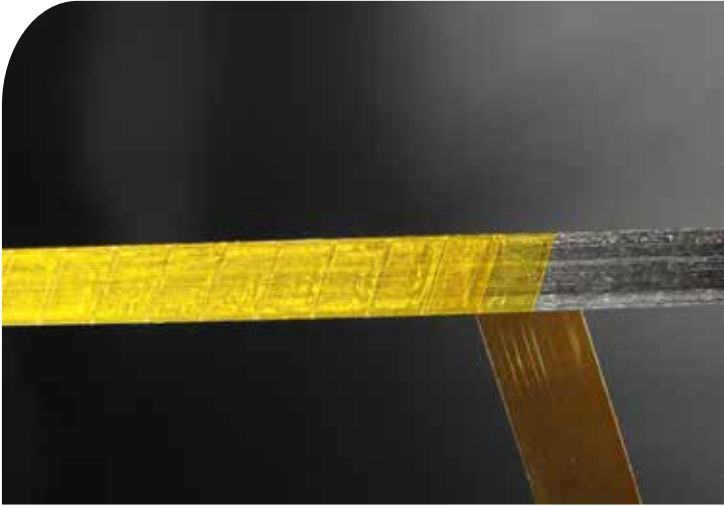
Kapton[®] tape has superb impact tolerance and is cut through, abrasion and tear resistant.

- Superb durability
- Superior electrical and mechanical performance
- Easy application
- Flexibility for different voltage withstand needs
- Easily repaired if damaged in the field

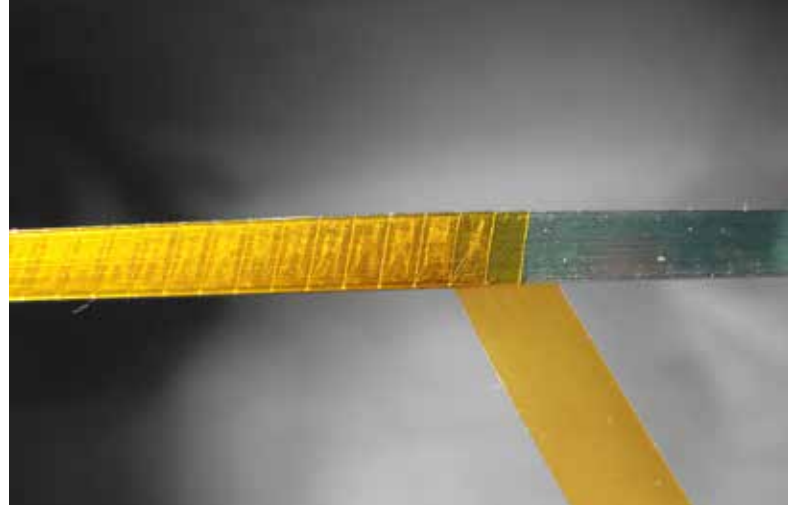


AMSC's Amperium wire wound around a copper bundle with equivalent current carrying capability. Amperium wire conducts more than 100 times the electrical current of equivalent sized copper wire.

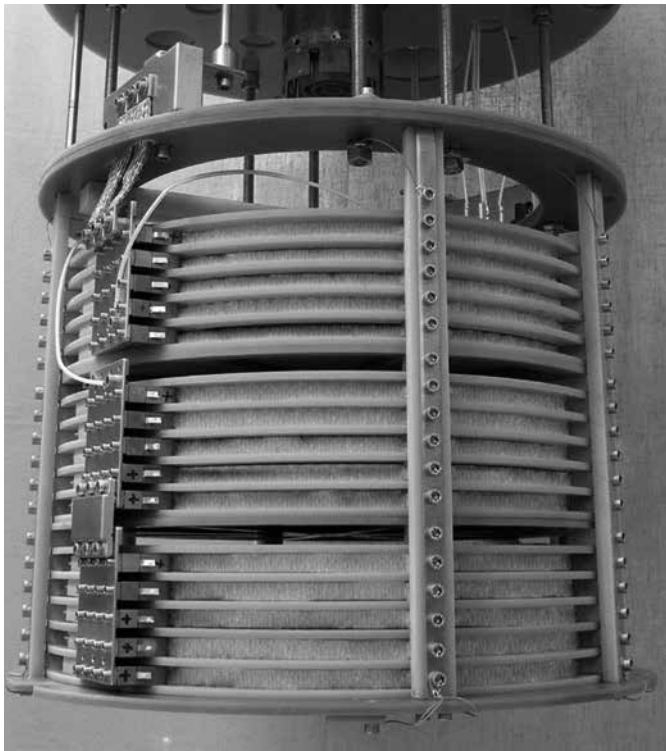




Single layer 50% overlap insulation



Single layer 66% overlap insulation



High voltage insulated Amperium wire based coil.

INSULATION PROPERTIES FOR AMPERIUM 4.4, 4.8 AND 12MM WIRES

Material:	Silicone adhesive-backed Kapton® polyimide film
Film thickness:	13 µm
Tape thickness with adhesive:	~38 µm
Coverage options:	50% or 66% overlap

INSULATION OPTIONS

	Rated Voltage	Thickness build Per Side
Single layer total coverage with 50% overlap	1 kV DC	70 µm (+/- 25%)*
Single layer total coverage with 66% overlap	5 kV DC	105 µm (+/- 25%)*

Partial coverage and high voltage (>10 kV) insulation options available upon request

Certificate of Conformance provided

Insulated wires include 5 Meter leader and 5 Meter trailer

* Multiple rolls of Kapton® tape are required to insulate long wire lengths. The Thickness Build per Side will be about double the value shown where tape joints are required. Contact factory for details.