Allex®

Magnet Wire | Winding Wire

Product Data Sheet

NEMA	MW 16-C, MW 20-C
Thermal Class	240°C
Conductor	Copper
Shape	Round, Square and Rectangular
Insulation Material	Polyimide
Size Range	Round: 4-33 AWG Square and Rectangular
Key Applications	Aerospace Nuclear Medical Locomotive Traction Motors Fractional HP motors in all temperatures up to 240°C Integral HP motors in all temperatures up to 240°C Hermetic and DC motors Extreme overload power tools All dry type transformers up to Class 240

PRODUCT DESCRIPTION

Allex® magnet wire consists of an aromatic Polyimide film that combines not only thermal stability in the Class 240°C, but unmatched chemical and burnout resistances.

It is used in encapsulated windings and hermetically sealed components because of the excellent chemical resistance and low weight loss characteristics at elevated temperatures.

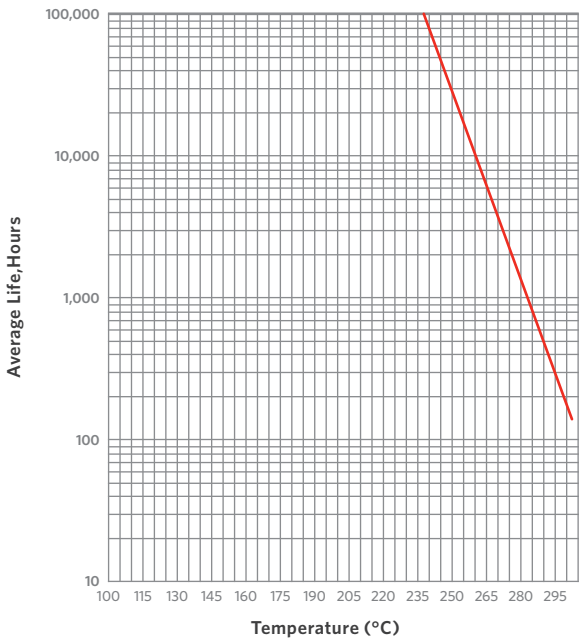
It is resistant to unusual environments such as radiation and can be used in many electronic devices found in aerospace, nuclear, and other such applications.

FEATURES AND BENEFITS

Thermal Classification	Allex® is a Class 240°C magnet wire when measured in accordance with the ASTM D 2307 test method. Heat shock resistance exceeds 300°C.
Thermoplastic Flow	The thermoplastic flow or cut-through temperature of Allex® is in the 500°C plus range; well above the maximum process conditions found in molded coil work, trickle impregnation processes and standard preheat varnish cycles specified for systems rated up to Class 240°C.
Solderability	N/A
Heat Shock	Passes 300°C heat shock
Windability	Allex® is recommended for more forgiving winding processes where abrasion resistance is not critical.
Electrical	Allex® magnet wire insulation exhibits high dielectric strength retention under high moisture conditions. Hydrolysis resistance is excellent. It is not recommended for inverter-duty motor applications.
Chemical	Allex® is unsurpassed in chemical resistance.
Stripping Method	Mechanical stripping is recommended.
Normal Availability	Round Copper: 4-33 AWG Copper Square and Rectangular Please consult Magnet Wire Marketing for additional size (including metric) and build information

THERMAL ENDURANCE

18 AWG Heavy Build



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PROPERTIES

		TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
THERMAL				
Heat Shock Resistance		20% Elongation, 3xD mandrel wrap	300°C x 0.5hr, no cracks	280°C x 0.5hr, no cracks
Thermal Endurance		20,000 hrs, per ASTM D 2307	247°C	≥ 240°C
Thermoplastic Flow		Crossing method, 5°C/minute rise rate	500°C, 2kg weight***	≥ 450°C, 2kg weight
PHYSICAL				
Abrasion Resistance		Unidirectional Scrape	1390g	≥ 710g & ≥ 835g avg
		Repeated Scrape	30 strokes, 700g weight	-
Adherence and Flexibility		20% Elongation, 3xD mandrel wrap	No cracks	No cracks
Elongation		Elongate to break	39%	≥ 32%
Springback		Mandrel wrap	46°	≤ 58°
ELECTRICAL				
Continuity		100 ft, graphite fiber brush	≤ 1 fault @ 1500 VDC	≤ 5 faults @ 1500VDC
Dielectric Breakdown Voltage	Room Temperature	Twisted pairs @ ambient	14,600 volts	≥ 5,700 volts
	Rated Temperature	Twisted pairs @ 240°C	10,400 volts	≥ 4,275 volts
CHEMICAL				
Solubility		Immersed in 60°C Xylene solvent x 0.5hr, needle scrap	Passes	≥ 575g
		Immersed in 60°C Xylene/Butyl solvent x 0.5hr, needle scrape	Passes	≥ 575g

** Performance data is representative of 18 AWG heavy build copper magnet wire where applicable. ** Requirements for 18 AWG heavy build per NEMA MW 16-C. *** Test equipment used for this test has a maximum limit of 500˚C. Samples normally do not fail this test.*

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