Amide-Imide

Magnet Wire | Winding Wire

Product Data Sheet

NEMA	MW 81-C
Thermal Class	220°C
Conductor	Copper
Shape	Round, Square, Rectangular
Insulation Material	Polyamide-imide
Size Range	Round Single Build: 4-39.5 AWG Round Heavy Build: 4-39.5 AWG Square and Rectangular
Key Applications	Form Wound Coils Fractional and Integral HP Motors Hermetic Motors DC Motors Automotive Alternators and Generators All Dry Type Transformers Electronics, Power Tools

PRODUCT DESCRIPTION

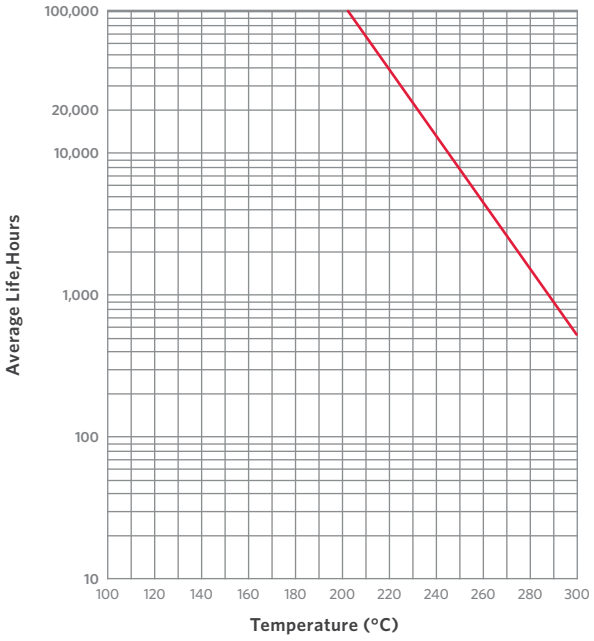
Amide-Imide has an improved single insulation system has been engineered to enhance adhesion, scrape abrasion and chemical resistance with improved thermal properties resulting in a measured thermal index of 233°C. This product is suited for demanding applications such as high slot-fills, difficult insertions, severe winding applications, and high temperature systems.

FEATURES AND BENEFITS

Thermal Classification	Class 220°C on Copper conductor with a Thermal Endurance of 233°C per ASTM D 2307
Thermoplastic Flow	Excellent thermoplastic flow (cut-thru) properties
Solderability	N/A
Heat Shock	Passes all heat shock resistance testing at 20°C above rated temperature
Windability	Adhesion and flexibility properties result in an excellent windability
Electrical	High burnout and AC overload resistance
Chemical	High moisture and chemical resistance
Stripping Method	Insulation piercing, mechanical stripping, hot staking and flame welding processes can all be used with Amide-Imide magnet wire. If the connection is to be soldered, the insulation must be removed prior to soldering.

THERMAL ENDURANCE

Round 18 AWG Heavy Build



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PROPERTIES

		TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
THERMAL				
Heat Shock		20% Elongation, 3xD mandrel wrap	300°C	240°C, no cracks
Thermal Endurance		20,000 hrs, per ASTM D2307	233°C	220°C
Thermoplastic Flow		Crossing method, 5°C/minute rise rate	399°C	350°C
PHYSICAL				
Abrasion Resistance		Unidirectional Scrape	1840g	1150g min.
		Repeated Scrape per JIS C 3003	790 strokes avg	-
Adherence and Flexibility		20% Elongation, 3xD mandrel wrap	No cracks	No cracks
Coefficient of Friction		Dynamic Coefficient of Friction per MW 750	Dry Lube: 0.02 - 0.06	-
Elongation		Elongate to break	40%	≥ 32%
Springback		NEMA mandrel wrap	46°	≤ 58°
ELECTRICAL				
Continuity		100 ft, graphite fiber brush	≤ 1 fault @ 1,500 VDC	≤ 5 fault @ 1,500 VDC
Dielectric Breakdown Voltage	Room Temperature	Twisted pairs @ ambient	15,000 volts	5,700 volts
	Rated Temperature	Twisted pairs @ 220°C	12,000 volts	4,275 volts
CHEMICAL				
Solubility	Xylene and/or Xylene/Butyl where applicable	Immersed in 60°C solvent x 0.5hr, needle scrape	Passes	No exposed bare conductor
Other Solvents		Petroleum naphtha, 3% toluene, ethanol, 5% sulfuric acid, 1% potassium hydroxide, butyl acetate, and acetone for 24 hours at room temperature.	Passes	-
Refrigerant Resistance	Extraction	6 hrs. reflux cycling in R-22, residue (weight as a total % of film)	Passes	-
	Dielectric Breakdown after Conditioning	retention of dielectric strength after R-22 conditioning for 72 hour	Passes	-
	Blistering	R-22 conditioned specimens transferred to a 125°C oven for 10 minutes	Passes	-
	Softening	16 hour immersion in at room temperature, scrape with .016"needle	Passes	-
	Crazing	"Specimens annealed after 8% elongation immersed one hour and 10 minutes in boiling R-113"	Passes	-
Refrigerant Compatibility		Exposure to both R-134a and R-123 refrigerants	Passes	-

** Performance data is representative of Round 18 AWG heavy build Copper magnet wire where applicable.*

*** Requirements for Round 18 AWG heavy build per NEMA MW 81-C.*

info.northamerica@essexsolutions.com | 260.461.4000
EssexSolutions.com

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