Formvar-EXTRA (Aluminum)

Magnet Wire | Winding Wire

Product Data Sheet

NEMA	MW 86-A , MW 87-A
Thermal Class	120°C
Conductor	Aluminum
Shape	Round, Square and Rectangular
Insulation Material	Polyvinyl Acetal
Size Range	Single Build: Round 8-22 AWG; Heavy Build: 4-22 AWG, Square and Rectangular
Key Applications	Continuously Transposed Conductors Oil-filled transformers

PRODUCT DESCRIPTION

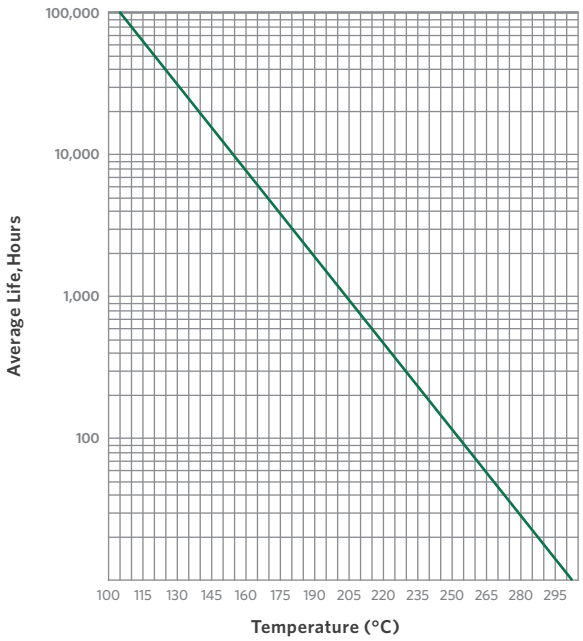
Formvar-EXTRA is a synthetic film insulation containing modified polyvinyl acetal and phenolic resins. Formvar-EXTRA is based on the same enamel formulation that has been in use for over 50 years. Its 141°C Thermal Index is the highest in the market for aluminum products meeting MW 86 / MW 87. It also passes 220°C heat shock as well as 300°C thermoplastic flow. It is a non-solderable product and must be mechanically stripped before soldering, or terminated by means of insulation piercing terminals..

FEATURES AND BENEFITS

Thermal Classification	Formvar-EXTRA magnet wire meets MW 86 / MW 87. Thermal endurance is based on ASTM D 2307 test procedure.
Thermoplastic Flow	Formvar-EXTRA passes 300°C thermoplastic flow.
Solderability	N/A
Heat Shock	Formvar-EXTRA passes 220°C heat shock.
Windability	Flexibility and adhesion properties of Formvar-EXTRA magnet wire film excel in wire winding and roll flattening applications because of its unique construction.
Electrical	Formvar-EXTRA magnet wire insulation exhibits high dielectric strength.
Chemical	Formvar-EXTRA is unsurpassed in its resistance to mineral and ester oil types. It is the best magnet wire coating available for these applications.
Stripping Method	Formvar-EXTRA magnet wire is a non-solderable product and must be mechanically stripped before soldering, or terminated by means of insulation piercing terminals.
Normal Availability	Single Build: Round 8-22 AWG; Heavy Build: 4-22 AWG, Square and Rectangular. Please consult an Essex Furukawa Representative for additional size and build information.

THERMAL ENDURANCE

18 AWG Heavy Build



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PROPERTIES

	TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
THERMAL			
Heat Shock Resistance	Elongation, 3xD mandrel wrap	20%, 220°C x 0.5hr, no cracks	15%, 175°C x 0.5 hr, no cracks
Thermal Endurance	20,000 hrs, per ASTM D 2307	141°C	≥ 120°C
Thermoplastic Flow	Crossing method, 5°C/minute rise rate	300°C, 2kg weight	≥ 180°C, 2kg weight
PHYSICAL			
Abrasion Resistance	Unidirectional Scrape	1450g	≥ 690g avg
	Repeated Scrape	38 strokes, 700g weight	-
Adherence and Flexibility	15% Elongation, mandrel wrap	2xD, no cracks	3xD, no cracks
Elongation	Elongate to break	23%	≥ 15%
ELECTRICAL			
Continuity	100 ft, graphite fiber brush	≤ 1 fault @ 1500 VDC	≤ 10 faults @ 1500 VDC
Dielectric Breakdown Voltage	Twisted pairs @ ambient	10,500 volts	≥ 5,700 volts
Dielectric Breakdown Voltage at Rated Temperature	Twisted pairs @ 120°C	7,500 volts	≥ 4,275 volts
CHEMICAL			
Solubility	Immersed in 60°C solvent x 0.5hr, needle scrape	Passes	No exposed bare conductor
Transformer Oil Resistance (Mineral and Ester oil)	15% Elongation, 3xD mandrel wrap, 150°C for 4 weeks	Passes	No cracks
	Twisted pairs, 150°C for 4 weeks	9,000 volts	≥ 5,700 volts
Toluene/Ethanol Compatibility	Immersed in boiling 30/70 toluene/ ethanol x 5 minutes	Passes	No swelling or blistering

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

** *Requirements for 18 AWG heavy build per NEMA MW 86-A.*

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