Formvar

Magnet Wire | Winding Wire

Product Data Sheet

NEMA	MW 15, MW 18
Thermal Class	105°C
Conductor	Copper and Aluminum
Shape	Round, Square and Rectangular
Insulation Material	Polyvinyl Acetal
Size Range	Round Copper: Single Build: 8-23 AWG; Heavy Build: 4-23 AWG, Round Aluminum: Single Build: 8-22 AWG; Heavy Build: 4-22 AWG, Aluminum or Copper Square and Rectangular
Key Applications	Oil filled transformers Motors Random wound coils Solenoids

PRODUCT DESCRIPTION

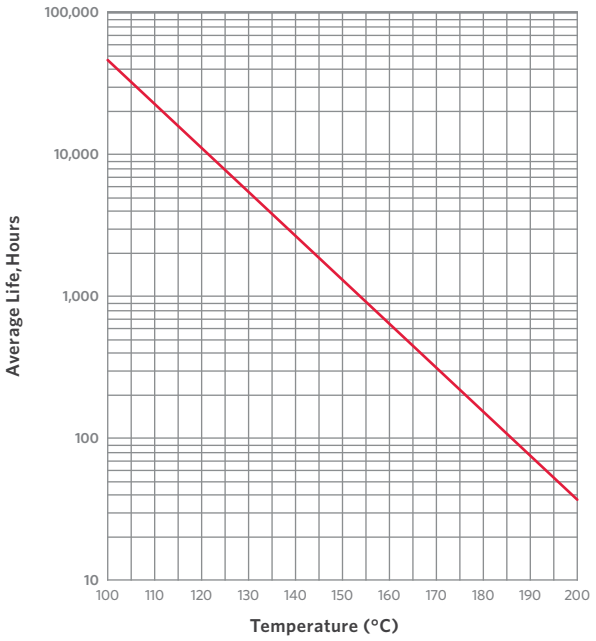
Formvar is a synthetic film insulation containing Polyvinyl Acetal and phenolic resins.

FEATURES AND BENEFITS

Thermal Classification	Formvar magnet wire is a Class 105°C material when measured in accordance with the ASTM D 2307 test procedure.
Thermoplastic Flow	263°C (CU)
Solderability	N/A
Heat Shock	Formvar easily passes 175°C heat shock.
Windability	Flexibility and adhesion properties of Formvar magnet wire film, because of its unique construction, excel in wire winding and roll flattening applications.
Electrical	Formvar magnet wire insulation exhibits high dielectric strength.
Chemical	Formvar is unsurpassed in its resistance to Mineral and Ester oil. It is the best magnet wire coating available for these applications.
Stripping Method	Formvar magnet wire is a non-solderable product and must be mechanically stripped before soldering, or terminated by means of insulation piercing terminals.
Normal Availability	Round Copper: Single Build: 8-23 AWG; Heavy Build: 4-23 AWG, Round Aluminum: Single Build: 8-22 AWG; Heavy Build: 4-22 AWG Aluminum or Copper Square and Rectangular Please consult Magnet Wire Marketing for additional size (including metric) and build information

THERMAL ENDURANCE

18 AWG Heavy Build CU



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PROPERTIES

		TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
THERMAL				
Heat Shock Resistance		20% Elogation, 2xD mandrel wrap (CU) 15% Elongation, 2xD mandrel wrap (AL)	175°C x 0.5hr, no cracks (CU & AL)	3xD, no cracks (CU & AL)
Thermal Endurance		20,000 hrs, per ASTM D 2307	113°C (CU), 112°C (AL)	≥ 105°C (CU & AL)
Thermoplastic Flow		Crossing method, 5°C/minute rise rate	240°C, 2kg weight (CU)	≥ 180°C, 2kg weight (CU)
PHYSICAL				
Abrasion Resistance		Unidirectional Scrape	1890g (CU), 1200g (AL)	≥ 1150g avg (CU), ≥ 690g avg (AL)
		Repeated Scrape	-	-
Adherence and Flexibility		20% Elongation, mandrel wrap (CU), 15% Elongation, mandrel wrap (AL)	1xD, no cracks (CU & AL)	3xD, no cracks (CU & AL)
Elongation		Elongate to break	38% (CU), 23% (AL)	≥ 32% (CU), ≥ 15% (AL)
Springback		Mandrel wrap	49° (CU)	≤ 58° (CU)
ELECTRICAL				
Continuity		100 ft, graphite fiber brush	≤ 1 fault @ 1500 VDC (CU & AL)	≤ 5 faults @ 1500VDC (CU), ≤ 10 faults @ 1500VDC (AL)
Dielectric Breakdown Voltage	Room Temperature	Twisted pairs @ ambient	11,300 volts (CU & AL)	≥ 5,700 volts (CU & AL)
	Rated Temperature	Twisted pairs @ 105°C	8,900 volts (CU & AL)	≥ 4,275 volts (CU & AL)
CHEMICAL				
Solubility		Immersed in 60°C Xylene 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	10,500 volts (CU & AL)	≥ 5,700 volts (CU & AL)
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 Copper or Aluminum magnet wire where applicable.*

*** Requirements for 18 AWG heavy build Copper or Aluminum magnet wire where applicable per NEMA MW 15.*

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