EnduroTemp® 260+

Magnet Wire | Winding Wire

Product Data Sheet

NEMA	MW 16-C/MW 20-C
Thermal Class	260°C
Conductor	Copper
Shape	Rectangular, Square
Insulation Material	Polyimide/Polyamide-imide
Size Range	Rectangular: Consult Essex Furukawa Marketing/ Sales for availablity
Key Applications	Partial discharge environments High temperature applications Automotive HEV/EV applications Traction motors Down hole pump motors

PRODUCT DESCRIPTION

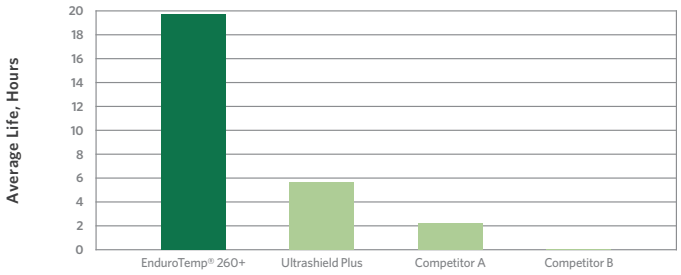
EnduroTemp® 260+ uses Essex Furukawa proprietary Polyimide formulation combined with a proprietary self-lubricating top coat. This product not only complies but clearly exceeds NEMA MW 16-C/MW 20-C with a Thermal Endurance of 265°C per ASTM D2307. The unique combination also provides high abrasion resistance to reduce damage in winding & assembly process. The enamel is specially formulated to provide outstanding resistance to Partial Discharge and Corona effect making it suitable for all the above key applications. This product exhibits high flexibility and property retention maintaining product performance even after the winding operation.

FEATURES AND BENEFITS

Thermal Endurance	Highest temperature rating in the market for Polyimide/Polyamide-imide constructions with a Thermal Endurance of 265°C per ASTM D2307
Thermoplastic Flow	Exceeds typical enamel systems and most thermoplastics
Heat Shock	Exceeds NEMA MW 16-C/MW 20-C with 300°C
Windability	Exceeds NEMA 16-C/MW 20-C abrasion resistance requirements and provides high windability because of its internal lubrication and excellent property retention
Electrical	Exhibits excellent resistance to Partial Discharge and Corona effect even after elongation caused during winding process Exhibits increased life expectancy with non-sinusoidal waveforms like inverter applications because of its proprietary Nano particle enamel system even at elevated temperatures
Chemical	Resistant to petroleum naphtha, toluene, ethanol, 5% sulfuric acid, 1% potassium hydroxide, butyl acetate, acetone for 24 hours at room temperature
Stripping Method	Non-solderable product that must be mechanically stripped before soldering, or terminated by means of insulation piercing terminals

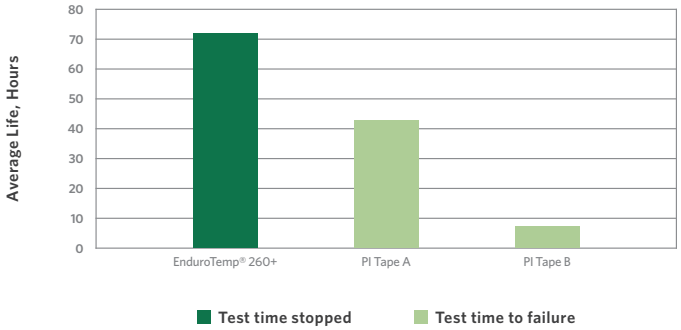
PULSE ENDURANCE TESTING

155°C, 3kV, 20kHz with 18AWG Heavy Build Enameled Wire



PULSE ENDURANCE TESTING

155°C, 3kV, 20kHz with 12AWG Heavy Build Enameled Wire Versus Wraps



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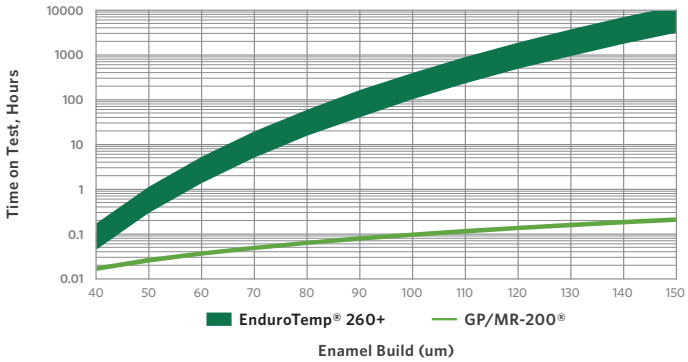
PROPERTIES

	TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
THERMAL			
Heat Shock Resistance	30% Elongation, 280°C x 0.5hr	No cracks	No cracks
Thermal Endurance* **	20,000 hrs, per ASTM D 2307	265°C	≥ 200°C
Thermoplastic Flow	2kg ball point probe method, 5°C/minute rise rate	405°C	≥ 300°C
PHYSICAL			
Abrasion Resistance* **	Unidirectional Scrape	2,100g	≥ 1,150g avg
	Repeated Scrape	496 strokes, 700g weight	-
Adherence and Flexibility	30% Elongation	No topcoat or basecoat cracks	No cracks
Elongation	Elongate to break	44%	≥ 32%
	Deflection	≤ 4°	≤ 5°
ELECTRICAL			
Continuity* **	100 ft, graphite fiber brush	≤ 1 fault @ 1,500 VDC	≤ 5 fault @ 1,500 VDC
Dielectric Breakdown Voltage	Shot box	5,770 volts	≥ 1,500 volts (3 of 4 values), ≥ 500 volts (4th value)
Dielectric Breakdown Voltage at Rated Temperature* **	Twisted pairs @ 240°C	7,100 volts	≥ 4,275 volts
CHEMICAL			
Solubility* **	Immersed in 60°C solvent x 0.5hr, 575g needle scrape	Passes	No exposed bare conductor

** Performance data is representative of 0.102" x 0.204" or 18 AWG heavy build copper magnet wire where applicable. ** Requirements for 0.102" x 0.204" or 18 AWG heavy build per NEMA MW 16-C/MW 20-C where applicable. *** No NEMA test published for rectangular/square magnet wire so performance data shown is representative of 18 AWG.*

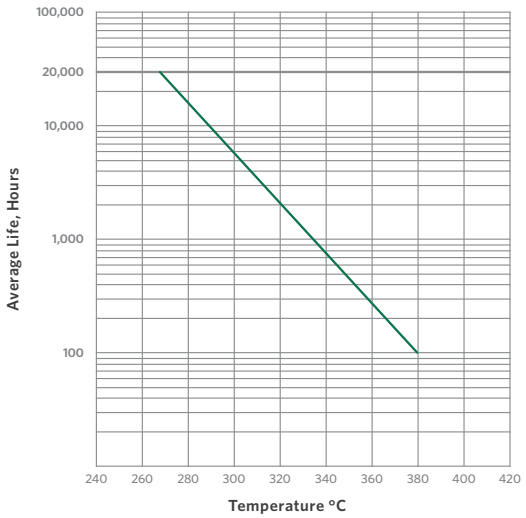
PULSE ENDURANCE LIFETIMES FOR ENDUROTEMP SAMPLES TESTED PER GB/T 21707-2008

(155C, 3 kV. 20 kHz. 100 ns rise time) 18 AWG
95% Predictive Intervals Shown



THERMAL ENDURANCE

18 AWG Heavy Build CU



For a list of product patents, visit essexfurukawa.com/product-patents.

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