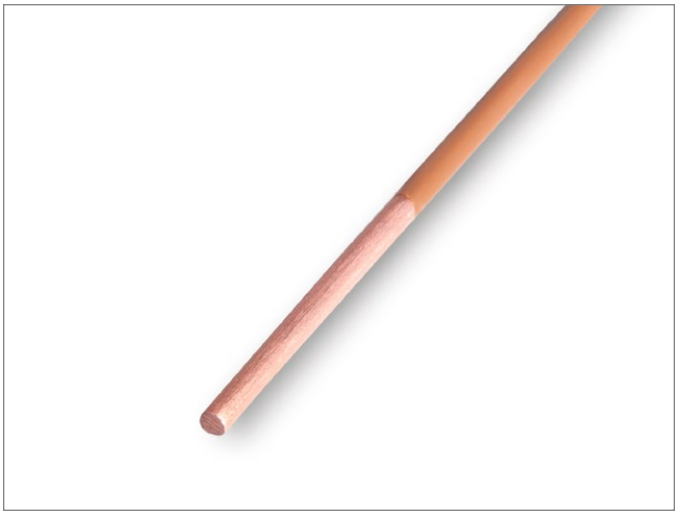
UltraShield® Extra

Magnet Wire | Winding Wire

Product Data Sheet



NEMA	MW 37-C
Thermal Class	220°C
Conductor	Copper
Shape	Round
Insulation Material	Polyester/Polyamide-imide
Size Range	9-30 AWG
Key Applications	Inverter Duty Drive Motors Rotating Machines DC Motors Power Tools Automotive Alternators and Generators Transformers, All Dry Types through Class 220 Electronics, All Types of Coils through Class 220

PRODUCT DESCRIPTION

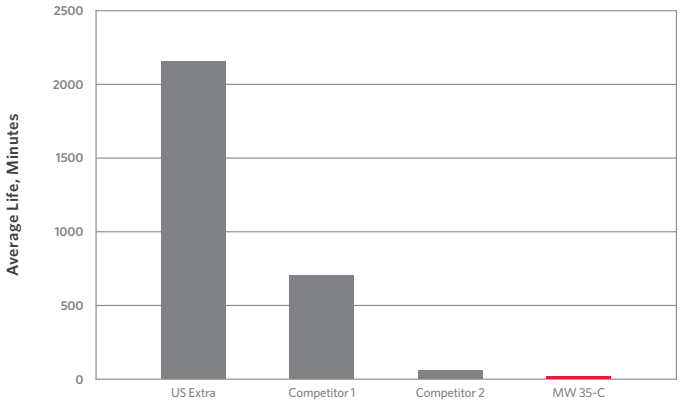
UltraShield® Extra magnet wire, which is specifically designed for use in motors that may be subjected to higher voltage spikes present in inverter duty applications, exhibits excellent resistance to partial discharges and abrasion. The combination of the modified Polyester basecoat and Polyamide-imide topcoat provides an insulation system with outstanding toughness and excellent dielectric properties. UltraShield® Extra magnet wire has improved voltage endurance and thermal properties, compared to standard NEMA MW 37-C magnet wire, while retaining superior chemical resistance to common solvents. UltraShield® Extra conforms to all of the requirements of NEMA MW 37-C.

FEATURES AND BENEFITS

Thermal Classification	UltraShield® Extra magnet wire is a Class 220°C magnet wire when measured in accordance with the ASTM D 2307 test method.
Thermoplastic Flow	Improved thermoplastic flow performance compared to conventional NEMA MW 37 wire.
Solderability	N/A
Heat Shock	The flexibility of UltraShield® Extra has been seen to pass heat shock at 240°C with a smaller than required 2x diameter mandrel wrap.
Windability	UltraShield® Extra magnet wire construction is similar to other types that have been extensively wound in various motor applications and have been highly commended for their superior windability performance.
Electrical	Testing with sinusoidal and with inverter wave shapes shows that UltraShield® Extra magnet wire lasts many times longer than standard NEMA MW 37-C insulation. While no standards for this type of testing have been universally accepted, our testing shows dramatic improvement in insulation life, especially under severe duty applications at higher temperatures.
Chemical	UltraShield® Extra magnet wire is comprised of THEIC-modified Polyester and Polyamide-imide. Successful results are seen with samples tested for 24 hours at room temperature in a wide variety of solvents such as petroleum naphtha, toluene, ethanol, 5% sulfuric acid, 1% potassium hydroxide, butyl acetate, and acetone.
Stripping Method	Insulation piercing, mechanical stripping, and flame welding processes can all be used successfully with UltraShield® Extra magnet wire. If the connection is to be soldered, it is recommended that mechanical stripping be used to remove the insulation prior to soldering.
Normal Availability	• Round Copper Sizes: 9 - 30 AWG, Heavy Build • Please consult Magnet Wire Marketing for additional size (including metric) and build information, as well as availability of square and rectangular sizes.

VOLTAGE ENDURANCE

120°C, 3,500VAC with Round 18 AWG Twisted Pairs



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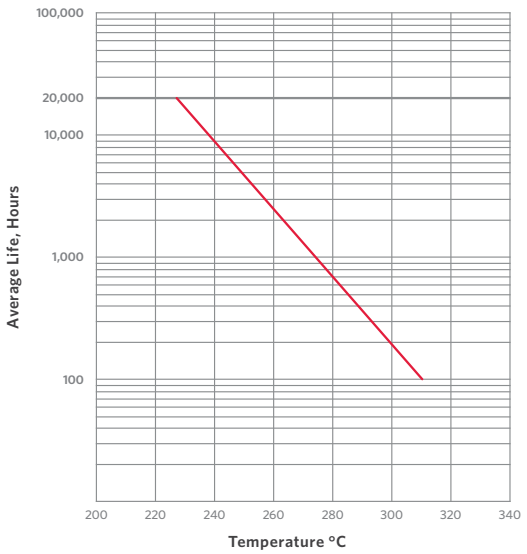
PROPERTIES

		TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
THERMAL				
Heat Shock Resistance		20% Elongation, 3xD mandrel wrap	240°C x 0.5hr, no cracks	240°C x 0.5hr, no cracks
Thermal Endurance		20,000 hrs, per ASTM D 2307	> 220°C	220°C
Thermoplastic Flow		Crossing method, 5°C/minute rise rate	> 380°C	≥ 325°C, 2kg weight
PHYSICAL				
Abrasion Resistance		Unidirectional Scrape	> 2,200g	≥ 980g, ≥ 1150g avg
		Repeated Scrape per JIS C 3003	> 450 strokes, 700g	-
Adherence and Flexibility		20% Elongation, 3xD mandrel wrap	2xD, no cracks	3xD, no cracks
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	12,686 volts	≥ 5,700 volts
	Rated Temperature	Twisted pairs @ 220°C	10,342 volts	≥ 4,275 volts
Inverter Endurance	Twisted Pair Aging	155°C, 575 VAC Inverter, 60 Hz	381 hours avg	-
Voltage Endurance	Twisted Pair Aging	150°C, 3,500 VAC, 60 Hz	2147 minutes avg	-
CHEMICAL				
Solubility	Xylene and/or Xylene/Butyl where applicable	Immersed in 60°C solvent x 0.5hr, needle scrape	Passes	No exposed bare conductor

** 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 37-C.*

THERMAL ENDURANCE

Round 16 AWG Heavy Build



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