Amide-Imide



FEATURES		DENEEITC
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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.	

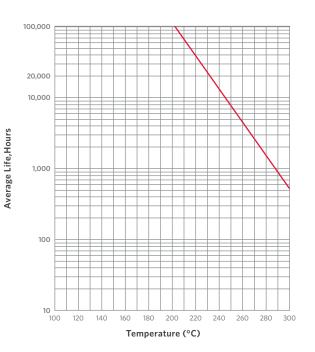
NEMA	мw 81-С	
Thermal Class	220°C	
Conductor	Copper	
Shape	Round, Square, Rectangular	
Insulation Material	Polyamide-imide	
Size Range	Round Single Build: 4-39.5 AWG Round Heavy Build: 4-39.5 AWG Square and Rectangular	
Key Applications	Form Wound Coils Fractional and Integral HP Motors Hermetic Motors 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.

THERMAL ENDURANCE

Round 18 AWG Heavy Build







Amide-Imide

Magnet Wire | Winding Wire

THERMAL Heat Shock 20% Elongation, 3xD mandrel wrap 300°C 240°C, no cracks Thermal Endurance 20.000 hrs, per ASTM D2207 223°C 220°C Thermoplastic Flow 5°C/minute rise rate 399°C 350°C PHYSICAL 5°C/minute rise rate 399°C 350°C 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 Dry Lube: 0.02 - 0.06 - Springback Elongation, 3xD mandrel wrap No cracks 32% Springback No Remarker wrap 40% a 32% Breaddown WW 750 Dry Lube: 0.02 - 0.06 - Elecerta CL Unidirectional Scrape 40% a 32% Springback No Remarker wrap 40% x 52% Breaddown WW 750 \$1 fault @ 1.500 VDC \$5 fault @ 1.500 VDC \$5 fault @ 1.500 VDC Breaddown Weither applicable Twisted pairs @ ambient 15,000 voits 5,700	PROPERTIES				
Heat Shock 20% Elongation, 3xD mandrel wap 900°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 Undirectional Scrape 1840g 1150g min. Abrasion Resistance Undirectional Scrape per JIS C 3003 790 strokes avg - Adherence and Flexibility 20% Elongation, 3xD mandrel wap No cracks No cracks Coefficient of Friction Dynamic Coefficient of Friction per MW 750 Dry Lube: 0.02 - 0.06 - Elongatio to brack 40% \$22% Springback No Cracks 0.00 - Elengatio to brack 40% \$25% Electra CAL 100 ft, graphite fiber brush <1 fout (± 1,500 VDC \$5700 volts Breakdown Voltage Read Temperature Twisted pairs @ 20°C 12,000 volts 4,275 volts Solubility Yolen and/or where applicable Immersed in 60°C solvent x 0.5hr, needles scrape Passes - - Solubility Yolen and/or where applicable Immersed in 60°C solvent x 0.5hr, neaperature, as to tal tis of thom sot nom <th></th> <th></th> <th>TEST DETAILS</th> <th>TYPICAL PERFORMANCE*</th> <th>REQUIRED PERFORMANCE**</th>			TEST DETAILS	TYPICAL PERFORMANCE*	REQUIRED PERFORMANCE**
Thermal Endurance 20.000 hrs, per ASTM D2307 233°C 220°C Thermoplastic Flow Crossing method, 5°C/minute rise rate 390°C 350°C PHYSICAL Undirectional Scrape 1840g 1150g min. Abrasion Resistance Undirectional 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 Der MW 750 Dry Lube: 0.02 - 0.06 - Elongatio to brak 40% \$22% Springback No cracks 000 reg MW 750 Sever MU 750 Elengatio to brak 40% \$25% Elengatio to brak 40% \$25% Springback No cracks 500 volts \$5700 volts Elengatio to brak \$100 ft, graphite fiber brush \$17 fault & 1.500 VDC \$5700 volts Dielectric Solubility 100 ft, graphite fiber brush \$1000 volts \$2700 volts Solubility 100 ft, graphite fiber brush \$1000 volts \$2700 volts \$2700 volts Cotter Soluents Vylene and/or where applicable Trwisted pairs @ arobient x 0.5kr, negles scrape Passes \$000 volts Solubility Vylene and/or where applicable Immersed in 60°C s	THERMAL				
Thermoplastic Flow Crossing method, 5°C/minute rise rate 399°C 350°C PHYSICAL Advasion Resistance Unidirectional Scrape 1840g 1150g min. Repeated Scrape per JIS C 3003 790 strokes avg . Adherence and Flexibility 20% Elongation, 3x0 mandrel wrap No cracks No cracks Coefficient of Friction Dry Lube: 0.02 · 0.06 . Springback Opmanic Coefficient of Friction Springback NEMA mandrel wrap 46° <s58°< td=""> Elengation to friction Springback 100 ft, graphite fiber brush 1 fault # 1.500 VDC <5 fault # 1.500 VDC</s58°<>	Heat Shock		20% Elongation, 3xD mandrel wrap	300°C	240°C, no cracks
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Abrasion Resistance Repeated Scrape per JIS C 3003 790 strokes avg - Adherence and Flexibility 20% Elongation, 3k0 mandrel wrap No cracks No cracks Coefficient of Friction per MW 750 Dry Lube: 0.02 - 0.06 - Elongation Elongate to break 40% > 32% Springback No KEMA mandrel wrap 46° < 58°	PHYSICAL				
Adherence and Flexibility 20% Elongation, 3xD mandrel wrap No cracks No cracks Coefficient of Friction per MW 750 Dry Lube: 0.02 - 0.06 - Elongation Elongate to break 40% a 32% Springback NEMA mandrel wrap 46° a 58° ELECTRICAL 100 ft, graphite fiber brush ≤1 fault @ 1,500 VDC ≤ 5 fault @ 1,500 VDC Delectric Marchan Twisted pairs @ ambient 15,000 volts 5,700 volts Breaddown Voltage Room Temperature Twisted pairs @ 20°C 12,000 volts 4,275 volts Stubility Xylene-Matyry kylene-Matyry kylene-Matyry Immersed in 60°C solvent x 0.5hr, needle: scrape Passes No exposed bare conductor Forter Solvents Sylene-Matyry kylene-Matyry Immersed in 60°C solvent x 0.5hr, needle: scrape Passes			Unidirectional Scrape	1840g	1150g min.
Coefficient of Friction per NW 750 Dry Lube: 0.02 - 0.06 - Elongation Elongate to break 40% \$ 32% Springback NEMA mandrel wrap 46° \$ 58° ELECTRICAL 100 ft, graphite fiber brush \$ 1 fault @ 1,500 VDC \$ 5 fault @ 1,500 VDC Dielectric Breakdown Voltage Room Temperature Twisted pairs @ 20°C 12,000 volts 5,700 volts Solubility Kylene and/or Xylene/Butyl where applicable Immersed in 60°C solvent x 0.5hr, needle scrape Passes No exposed bare conductor temperature. Other Solvents Xylene and/or Xylene (Ketty) Immersed in 60°C solvent x 0.5hr, needle scrape Passes No exposed bare conductor temperature. Bitstring Christer and acetone for 24 hours at room temperature. Passes - Bitstring Christer and solvents at room temperature. Passes - Bitstring R-22 conditioning for 710 minutes Passes - Solubility 6 hrs. relux cycling in R-22 residue (weight as a total % of film) Passes - Dielectric Breakdown temperature. return of on Bitelectric strength attr Resistance Passes	Abrasion Resistance		Repeated Scrape per JIS C 3003	790 strokes avg	-
Continuent of Priction Dry Lube: 0.02 + 0.06 - Elongation Elongate to break 40% ≥ 32% Springback NEMA mandrel wrap 46° ≤ 58° ELECTRICAL 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 CHEMICAL Twisted pairs @ 220°C 12,000 volts 4,275 volts CHEMICAL Twisted pairs @ 220°C 12,000 volts 4,275 volts Solubility Xylene and/or kyhere Applicable Immersed in 60°C solvent x 0.5hr, needle scrape Passes No exposed bare conductor Other Solvents Extraction fhrs. reflux cycling in R-22 residue Passes - Bilstering R-22 conditioning for 72 hours at room after Conditioning returnot of dielectric strength after a at 220 conditioning for 72 hour and 10 minutes in boiling R-113* Passes - Solubility Solution of collectric strength after and cecone for 72 hour and cecone for 72 hour and 10 minutes in boiling R-134* Passes -	Adherence and Flexibil	ity	20% Elongation, 3xD mandrel wrap	No cracks	No cracks
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ELECTRICAL Continuity 100 ft, graphite fiber brush < 1 fault @ 1,500 VDC	Elongation		Elongate to break	40%	≥ 32%
Continuity 100 ft, graphite fiber brush < 1 fault @ 1,500 VDC	Springback		NEMA mandrel wrap	46°	≤ 58°
Dielectric Breakdown Voltage Room Temperature Twisted pairs @ ambient 15,000 volts 5,700 volts Dielectric Breakdown Voltage Rated Temperature Twisted pairs @ ambient 15,000 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% upfurci acid, 1% potassium hydroxide, butyl acetate, and acetone for 24 hours at room temperature. Passes - Extraction 6 hrs. reflux cycling in R-22, residue (weight as a total % of film) Passes - Dielectric Breakdown after Conditioning R-22 conditioning for 72 hour (weight as a total % of film) Passes - Blistering R-22 conditioning for 72 hour (at 125°C oven for 10 minutes) Passes - Softening 16 hour immersion in at room temperature. Passes - Softening 16 hour immersion in at room and 10 minutes in boiling R-113" Passes - Crazing elongation immersed one hour and 10 minutes in boiling R-113" Passes -	ELECTRICAL				
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Rated Temperature Twisted pairs @ 220°C 12,000 volts 4,275 volts CHEMICAL Xylene and/or Xylene/Butyl where applicable Immersed in 60°C solvent x 0.5hr, needle scrape Passes No exposed bare conductor Other Solvents Xylene/Butyl where applicable Immersed in 60°C solvent x 0.5hr, needle scrape Passes No exposed bare conductor Other Solvents Extraction 6 hrs. reflux cycling in R-22, residue (weight as a total % of film) Passes - Bistering R-22 conditioned specimens transferred to a 125°C oven for 10 minutes Passes - Softening 16 hour immersed in a torom (elegation in mersed one hour and 10 minutes in boiling R-113") Passes - Refrigerant Commatibility Exposure to both R-134a and Passes - -	Dielectric Breakdown Voltage	Room Temperature	Twisted pairs @ ambient	15,000 volts	5,700 volts
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 - Extraction 6 hrs. reflux cycling in R-22, residue (weight as a total % of film) Passes - Dielectric Breakdown after Conditioning 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 - Softening 16 hour immersion in at room temperature, scrape with .016°needle Passes - Refrigerant Compatibility Exposure to both R-134a and Passes -		Rated Temperature	Twisted pairs @ 220°C	12,000 volts	4,275 volts
Solubility Xylene/Butyl where applicable immersed in 60°C Solvent X 0.5nr, needle scrape Passes No exposed bare conductor needle scrape Other Solvents Petroleum naphtha, 3% toluene, ethanol, 5% sulfuric acid, 1% potassium hydroxide, butyl acetate, and acetone for 24 hours at room temperature. Passes - Extraction 6 hrs. reflux cycling in R-22, residue (weight as a total % of film) Passes - Dielectric Breakdown after Conditioning R-22 conditioned specimens transferred to a 125°C oven for 10 minutes Passes - Blistering R-22 conditioned after 8% elongation immersed after 8% elongation immersed one hour and 10 minutes in boiling R-113" Passes - Refrigerant Compatibility Exposure to both R-134a and Passes -	CHEMICAL				
Other Solvents ethanol, 5% sulfuric acid, 1% Passes - Other Solvents potassium hydroxide, butyl acetate, and acetone for 24 hours at room temperature. Passes - 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 elongation immersed one hour and 10 minutes in boiling R-113" Passes -	Solubility	Xylene/Butyl		Passes	No exposed bare conductor
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Refrigerant Resistance after Conditioning 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 elongation immersed one hour and 10 minutes in boiling R-113" Passes -	Refrigerant Resistance	Extraction		Passes	-
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Softening temperature, scrape with .016"needle Passes - Crazing "Specimens annealed after 8% elongation immersed one hour and 10 minutes in boiling R-113" Passes -		Blistering		Passes	-
Crazing elongation immersed one hour and 10 minutes in boiling R-113" Passes - Refrigerant Compatibility Exposure to both R-134a and Passes -		Softening	temperature, scrape with .016"needle	Passes	-
		Crazing	elongation immersed one hour	Passes	-
	Refrigerant Compatibil	ity		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.

