

HM WIRE INTERNATIONAL, INC.

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Film Insulation Characteristics

Information to be used as a guide only. Teflon is a registered trademark of DuPont.

Thermal Class	Insulation Type	NEMA Standard (MW 1000)	IEC Standard (60317)	Insulation Characteristics	General Applications
A 105°C	Polyvinyl Formvar-105	MW 15C CNS C2040	317-1 JIS-C3202-2	Oil proof and Moisture proof. Has a good scrape property.	Large oily transformers, general motors
	Polyurethane-155	MW 79C	317-20	Insulated with a smooth, uniform film of modified polyurethane type resin, soldering at 390°C.	Relays, encapsulated coils, ignition, solenoids, low voltage transformers
F 155°C	Polyurethane Nylon-155	MW 80C	317-21	AWG 24-56, soldering at 390°C AWG 14-23, soldering at 430°C.	Tiny transformers, motors, step motors, deflection yoke
	Polyurethane-180	MW 82C	317-51	Solderable at 390°C	Solenoids, transformers, automotive relays and ignition coils
H 180°C	Polyurethane Nylon-180	MW 83C	NONE	Exhibits high temperature thermal stress and low temperature solderability at 390°C. Offers excellent abrasion resistance for ferrite core coils and transformers.	Small appliance motors, relays pulse transformers, torroid coils.
	Polyester-imide	MW 30C CNS C2169	317-8 JIS-C3202-8	Insulated with a Class H modified polyester resin. Requires mechanical or chemical stripping. Good thermal endurance, solvent resistance and exhibits low co-efficient friction to improve windability.	Encapsulated coils, subfractional instrument and servo-motors, appliance motors, tool motors, continuous operation coils, solenoids
	Polyester Nylon	MW 76C	NONE	Film insulation with a modified polyester basecoat and nylon topcoat.	Fractional and integral horsepower motors, coils and relays, control and dry transformers, encapsulated coils and DC field coils.
	Solderable Polyester	MW 77C	317-23	An ester-imide insulated wire which is solderable at 420°C.	Special transformer coils, shaded pole motor coils, automotive coils.

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H 180°C	Solderable Polyester-Nylon	MW 78C	NONE	Solderable at 420°C	Shaded pole motor coils, special control coils, and automotive coils.
	Polyester-imide Bondable Polyester-amide-imide Bondable Solderable Polyester Bondable	NONE	317-37	Bond coat may be epoxy or polyester. The addition of the bond coat does add one overall build level to the wire dimension.	Helical, toroidal, brake, clutch, television, yoke and coils
H+ 200°C	Glass Fibers Dacron Glass	MW44C MW43C MW45C MW46C	NONE	Advantages of glass are its high resistance to overload burnout and the advantage of Dacron is its abrasion resistance and better flexibility than glass. Glass can be chased, fused and unvarnished.	Class B motors.
	Polyester-200	MW74C	317-42	High temperature thermal properties and good chemical resistance.	Motors, small coils and transformers.
	Polyester A/I Topcoat	MW35C CNS 2171 MW36C	317-13 317-29	Two part insulation consisting of a modified polyester base coat with a super-imposed amide-imide outer coating. Exceptional windability, heat shock, resistance and ability to withstand over-loads. Chemical resistance to most solvents and insulating varnishes is good. Not softened by refrigerants and extractions are essentially zero.	Dry type transformers, automotive and hand tool armatures, fractional and integral horsepower motors.
	Polytetrafluoroethylene (Teflon)	NONE	NONE	High heat resistance, excellent resistance to most solvents, acids and corrosive chemicals. High dielectric constant.	Miniature rotating components and windings where severe environments are encountered.
C 240°C	Polyimide-ML	MW16C MIL-W-583C MW20C	317-7 317-30	Exceptional resistance to chemical solvents and burnout. Operates at 240°C.	Fractional and integral horsepower motors, high temperature continuous duty coils and relays, hermetic and sealed units, heavy duty hand tool motors, encapsulated.

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*Some of these insulations are outdated, and may not be available. ** IEC – International Electrotechnical Commission

NEMA – National Electrical Manufacturers Association *JIS – Japanese Industrial Standards *****CNC – Chinese National Standard