

**PRODUCT  
DATA SHEET****NEMA MW 78-C**

Class 180 - Copper - Round Conductors - Modified Solderable Polyester-imide/polyamide coated magnet wire / winding wire.

**APPLICATION**

Solidon® magnet wire is designed for applications requiring both solderability and high thermal resistance.

Solidon® magnet wire is a solder-strippable insulation consisting of a modified polyester-imide basecoat and a polyamide topcoat. The polyamide (nylon) topcoat is more suitable where winding stresses may be somewhat more severe.

Solidon® magnet wire has excellent overload resistance for a solderable film and possesses high thermoplastic flow (cut-through) resistance. Additionally, this construction has good scrape abrasion resistance and is resistant to most common varnish solvents and potting compounds.

Solidon® is recommended but not limited to the following applications:

- Automotive controls and relays
- ABS coils
- Ignition coils
- Solenoid and actuator coils
- Encapsulated and molded coils
- Appliance controls, coils and relays
- Small motors
- Small transformers

**SOLDERABLE INSULATION COMPARISON:**

	Salt Water Pinhole Test	Soldering Temperature	Glass Transition Temperature	Thermo-plastic Flow
<b>Soderon®/155 (MW 80)</b>	OK	390°C	Lower	Lower
<b>Soderon®/180 (MW 83)</b>	Better	390°C	Highest	Higher
<b>Solidon® (MW 78)</b>	Poor	470°C	Higher	Highest

**ENGINEERING HIGHLIGHTS****1. THERMAL CLASSIFICATION**

Solidon® is Class 180 when measured in accordance with ASTM D 2307 test method. Typical heat shock resistance passes 250°C.

**2. THERMOPLASTIC FLOW**

Thermoplastic flow (cut-thru) temperature of Solidon® magnet wire is well above normal process conditions found in most molded coil work, trickle impregnation processes and standard preheat varnish cycles specified for normal Class 130, 155, and 180 systems.

**3. SOLDERABILITY**

Solidon® magnet wire may be readily stripped by dipping the coil lead in solder at a temperature as low as 470°C per NEMA requirements; our typical performance is 455°C at 6 seconds. Higher temperatures may be used, however, to facilitate production process speeds.

**4. WINDABILITY**

The flexibility and adhesion properties of Solidon® are adequate for more severe winding applications.

**5. ELECTRICAL**

Solidon® magnet wire insulation exhibits good break-down values.

**6. CHEMICAL**

The solvent resistance property of Solidon® is suitable for most Class 130, 155 and 180 varnishes, encapsulants and treating resins.

**7. NORMAL AVAILABILITY**

- Round Copper Sizes:  
23-28 AWG only, Single Build  
23-28 AWG only, Heavy Build

Please consult Magnet Wire Marketing for additional size (including metric) and build information.

# PRODUCT DATA SHEET

Performance data is representative of 18 AWG heavy build copper. \*\*

## THERMAL PROPERTIES

### HEAT SHOCK RESISTANCE

**TYPICAL PERFORMANCE:** No cracks @ 250°C  
**REQUIRED PERFORMANCE:** 20%, 3XD, 200°C, no cracks†

### SOLDERABILITY

**TYPICAL PERFORMANCE:** 6 second @ 455°C (851°F)  
**REQUIRED PERFORMANCE:** ≤ 8 seconds @ 470°C†

### THERMAL STABILITY

**TYPICAL PERFORMANCE:** 180°C  
**REQUIRED PERFORMANCE:** 180°C minimum†

### THERMOPLASTIC FLOW

**TYPICAL PERFORMANCE:** 265°C  
**REQUIRED PERFORMANCE:** 200°C†

## PHYSICAL PROPERTIES

### ADHESION AND FLEXIBILITY

**TYPICAL PERFORMANCE:** 20%, 1XD, no cracks  
**REQUIRED PERFORMANCE:** 20%, 3XD, no cracks†

### CONDUCTOR ELONGATION

**TYPICAL PERFORMANCE:** 38%  
**REQUIRED PERFORMANCE:** 32% minimum†

## ELECTRICAL PROPERTIES

### CONTINUITY

**TYPICAL PERFORMANCE:** ≤ 1 fault/100 feet @ 1500V DC  
**REQUIRED PERFORMANCE:** ≤ 5 faults/100 feet @ 1500V DC†

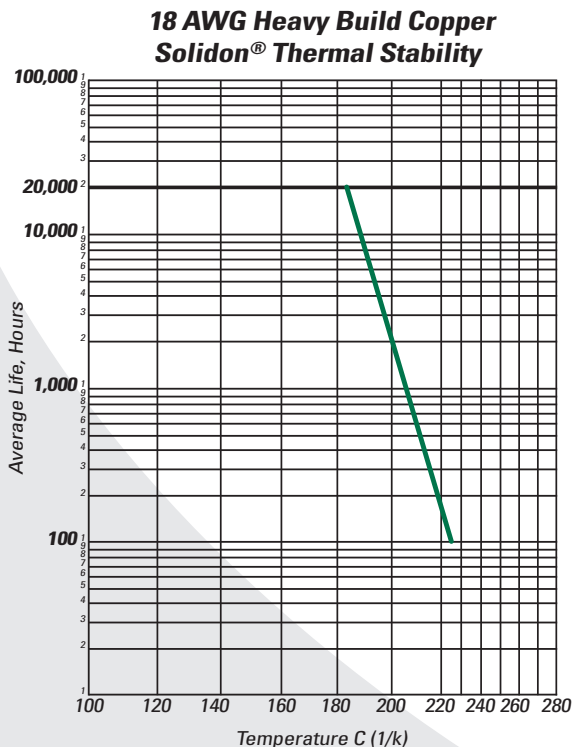
### DIELECTRIC BREAKDOWN VOLTAGE

#### ROOM TEMPERATURE

**TYPICAL PERFORMANCE:** 11,500 volts, avg.  
**REQUIRED PERFORMANCE:** 5700 volts, minimum†

#### RATED TEMPERATURE

**TYPICAL PERFORMANCE:** 8750 volts, avg.  
**REQUIRED PERFORMANCE:** 4275 volts, minimum†



\*\* The values shown represent typical average results and are not intended to be used as design data or specification limits.

† Requirements of NEMA MW 1000; Section MW 78-C.

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