SODERON® / 180
Magnet Wire / Winding Wire

PRODUCT DATA SHEET

NEMA MW 83-C

Class 180 - Copper - Round Conductors - Polyurethane/Polyamide coated magnet wire / winding wire.

APPLICATION

Soderon®/180 magnet wire is designed for applications requiring both high thermal resistance and low soldering temperatures.

Soderon®/180 magnet wire consists of a solder-strippable modified polyurethane film insulation over-coated with nylon.

Soderon®/180 is recommended but not limited to the following applications:

- Bobbin wound and paper section coils
- Encapsulated and molded coils
- Small motor, armatures and field coils
- Automotive coils and solenoids
- Toroidal coils
- Specialty power transformers
- Linear motors
- RF Coils

SOLDERABLE INSULATION COMPARISON:

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

ENGINEERING HIGHLIGHTS

1. THERMAL CLASSIFICATION

Soderon®/180 magnet wire is Class 180 when measured in accordance with the ASTM-D2307 test procedure. Heat shock resistance exceeds 200˚C.

2. THERMOPLASTIC FLOW

Thermoplastic flow or cut-through temperature of Soderon®/180 magnet wire is in the 225°C plus range; well above maximum process conditions found in molded coil work, trickle impregnation processes and standard pre-heat varnish cycles specified for normal Class 130, 155 and 180 systems.

3. SOLDERABILITY

Soderon®/180 magnet wire solder strips readily and much more easily than MW 78 type products. It solders consistently at temperatures as low as 390˚C.

4. WINDABILITY

Flexibility and adhesion properties of the Soderon®/180 magnet wire film are more than adequate for all but the most severe fine wire winding applications.

5. ELECTRICAL

Soderon®/180 magnet wire insulation exhibits high dielectric strength retention under high humidity conditions.

6. CHEMICAL

The solvent resistant properties of Soderon®/180 are suitable for most classes 105, 130, 155 and 180 varnishes, encapsulants, and treating resins. It has improved salt water resistance compared to other solderable wires.

7. NORMAL AVAILABILITY

- Round Copper Sizes:
  25-46 AWG, Single Build
  25-46 AWG, Heavy Build

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

ESSEX FURUKAWA

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Performance data is representative of 36 AWG heavy build copper. **

THERMAL PROPERTIES

HEAT SHOCK RESISTANCE

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

SOLDERABILITY

TYPICAL PERFORMANCE: 1 second @ 390°C
REQUIRED PERFORMANCE: ≤ 5 seconds @ 390°C†

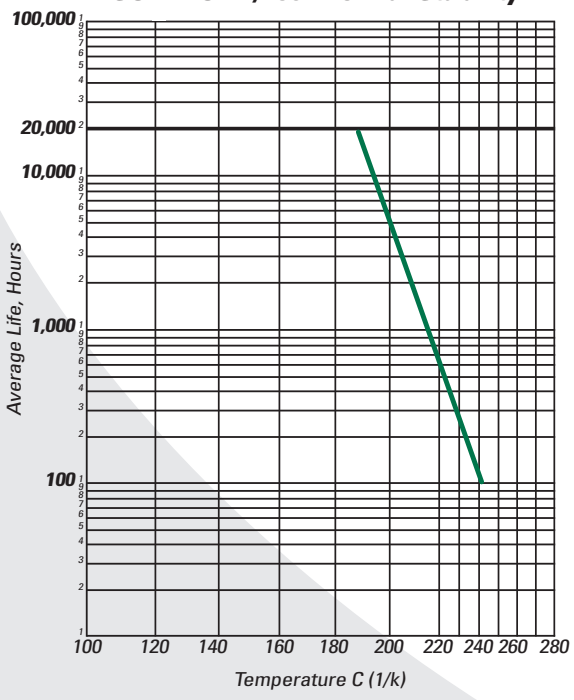
THERMAL STABILITY

TYPICAL PERFORMANCE: 189°C
REQUIRED PERFORMANCE: 180°C minimum†

THERMOPLASTIC FLOW

TYPICAL PERFORMANCE: 259°C
REQUIRED PERFORMANCE: 225°C†

28 AWG Heavy Build Copper
SODERON®/180 Thermal Stability



PHYSICAL PROPERTIES

ADHESION AND FLEXIBILITY

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

CONDUCTOR ELONGATION

TYPICAL PERFORMANCE: 26%
REQUIRED PERFORMANCE: 20% minimum†

ELECTRICAL PROPERTIES

CONTINUITY

TYPICAL PERFORMANCE: ≤ 1 fault/100 feet
REQUIRED PERFORMANCE: ≤ 5 faults/100 feet†

DIELECTRIC BREAKDOWN VOLTAGE

ROOM TEMPERATURE

TYPICAL PERFORMANCE: 6400 volts, avg.
REQUIRED PERFORMANCE: 2340 volts, minimum†

RATED TEMPERATURE

TYPICAL PERFORMANCE: 4900 volts, avg.
REQUIRED PERFORMANCE: 1755 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 83-C.

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