

# PRODUCT DATA SHEET

## **NEMA MW 79-C**

**Class 155 - Copper - Round Conductors - Polyurethane coated magnet wire / winding wire.**

### **APPLICATION**

Soderex®/155 magnet wire is used when a coil or component design needs to utilize the unique solder stripping property of the polyurethane resin construction.

Soderex®/155 magnet wire, with its modified polyurethane film, has in the past several years become the standard Class 155 wire for a wide array of fine wire coil applications.

Soderex®/155 magnet wire is recommended but not limited to the following applications:

- Small motors, armatures, and fields
- Appliance controls and relays
- Automotive controls and relays
- Solenoids
- Bobbin wound coils
- Electronic coils
- Small transformers
- Linear motors
- Instruments
- RF coils

### **ENGINEERING HIGHLIGHTS**

#### **1. THERMAL CLASSIFICATION**

Soderex®/155 magnet wire is Class 155 when measured in accordance with the ASTM D 2307 test method. Heat shock resistance meets 175°C.

#### **2. THERMOPLASTIC FLOW**

Thermoplastic flow (cut-thru) temperature of Soderex®/155 magnet wire is in the 220°C plus range; well above maximum process conditions found in most molded coil work, trickle impregnation processes and standard pre-heat varnish cycles specified for normal Class 155 systems.

#### **3. SOLDERABILITY**

Soderex®/155 magnet wire solder strips readily and much more easily than MW 77 type products. It solders consistently at temperatures as low as 390°C.

#### **4. WINDABILITY**

Flexibility and adhesion properties of the Soderex®/155 magnet wire film are more than adequate for all but the most severe fine wire winding applications.

#### **5. ELECTRICAL**

Soderex®/155 magnet wire insulation exhibits high dielectric strength retention under high humidity conditions. The low dissipation factor of Soderex®/155 magnet wire at high frequencies makes it a prime candidate for RF coil applications.

#### **6. CHEMICAL**

The solvent resistance properties of Soderex®/155 are suitable for most Class 105, 130, and 155 varnishes, encapsulation materials, and treating resins.

#### **7. NORMAL AVAILABILITY**

- Round Copper Sizes:  
28-47 AWG, Single and Heavy Build

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

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

## THERMAL PROPERTIES

### HEAT SHOCK RESISTANCE

**TYPICAL PERFORMANCE:** No cracks @ 175°C  
**REQUIRED PERFORMANCE:** 20%, 3 XD, no cracks†

### SOLDERABILITY

**TYPICAL PERFORMANCE:** Pass  
**REQUIRED PERFORMANCE:** ≤ 3 seconds @ 390°C†

### THERMAL STABILITY

**TYPICAL PERFORMANCE:** 170°C  
**REQUIRED PERFORMANCE:** 155°C minimum†

### THERMOPLASTIC FLOW

**TYPICAL PERFORMANCE:** 240°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:** 26%  
**REQUIRED PERFORMANCE:** 20% minimum†

## ELECTRICAL PROPERTIES

### CONTINUITY

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

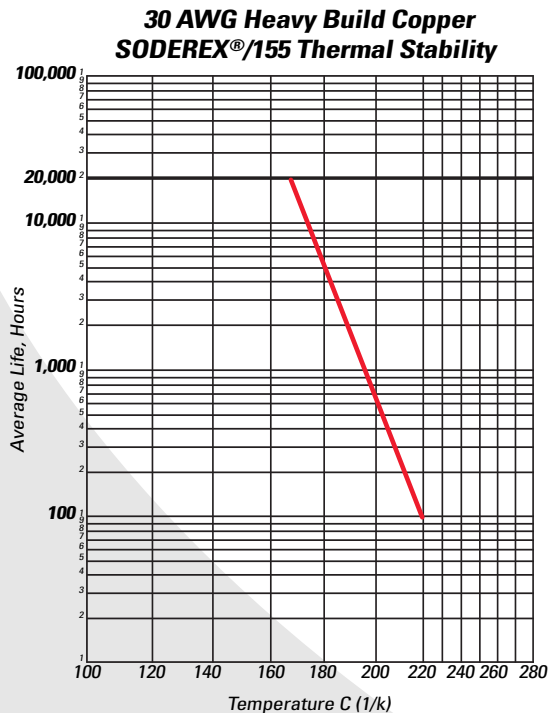
### DIELECTRIC BREAKDOWN VOLTAGE

#### ROOM TEMPERATURE

**TYPICAL PERFORMANCE:** 6400 volts, avg.  
**REQUIRED PERFORMANCE:** 2600 volts, minimum†

#### RATED TEMPERATURE

**TYPICAL PERFORMANCE:** 4900 volts, avg.  
**REQUIRED PERFORMANCE:** 1950 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 79-C.

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