

## APPLICATIONS

### Typical Applications

High speed windings with difficult insertion and winding characteristics for inverter-driven motors

High voltage motors

High frequency transformers

## PRODUCT DESCRIPTION

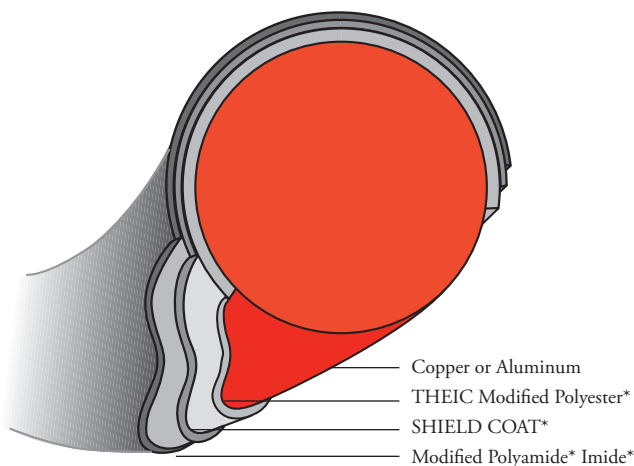
### Thermal Class: 200 (Copper)

Resistant to voltage stresses generated by high frequency, rapid rise time, voltage spikes typically introduced by IGBT-type inverters. Motor life is increased significantly over standard MW-35C magnet wire under these voltage stresses and across a wide temperature range

Improved insulation protection against transient spikes, high frequencies, elevated voltage levels, and short rise time pulses without increasing insulation thickness

Excellent resistance to thermoplastic flow (cut-through), abrasion and heat shock

Excellent resistance to heat and solvent shock conditions encountered in varnishing and encapsulating processes



\*multiple coats

## GENERAL INFORMATION

References are provided for comparative purposes

### Round

NEMA: MW 35-C, MW 73-C

UL: File No. E37683

### Availability

#### Round

#### Copper

Heavy 14-24 AWG

#### Rectangular (heavy)

#### Copper

Min width .081"

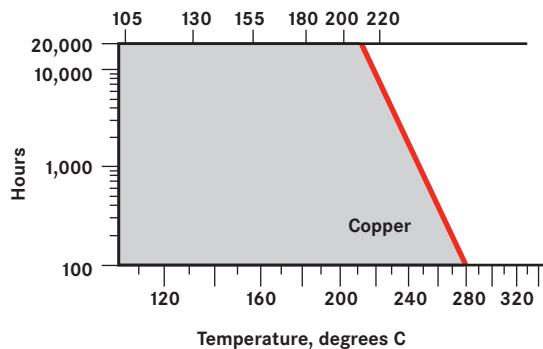
Max width .750"

Min thickness .030"

Max thickness .292"

### Measured Thermal Endurance

18 AWG, Heavy Build Insulation



U.S. Patent No. 6,056,995

## TYPICAL PROPERTIES

This data is typical of 18 AWG copper, heavy build insulation only. It is not intended to be used to create specification limits.

**THERMAL****Thermal Endurance**

20,000 hr Life: >200°C

**Thermoplastic Flow**

min: 300°C

typical: 350°C

**Heat Shock (20% 3x)**

1/2 hr @ 220°C      min: no cracks

**Solderability**

Not designed to be self-solderable

**Stress Relief Temp:** 160°C

**MECHANICAL****Mandrel Flexibility**

After Elongation      min: 20% 3x OK  
typical: 25% 3x OK

After Snap      min: 3x OK  
typical: 3x OK

**Unilateral Scrape**

Avg. of 3 tests (taken at 120° increments)  
min: 1150 gms  
typical: 1300 gms

**Dynamic C of F**      typical: 0.06

Procedure followed to determine published value:

NEMA = National Electrical Manufacturers Association  
JIS = Japanese Industrial Standards  
IEC = International Electrotechnical Commission  
ASTM = American Society for Testing and Materials

**ELECTRICAL****Pulse Endurance Test**

20,000 Hz, 2000 V, 0.025 microsecond rise time

150°C, 50% Duty Cycle - Twisted pairs

18 HTAIH Reference = 600 seconds

18 HTAIHSD > 80,000 seconds

**Pulse Endurance Index (PEI) > 100**

Life of Product/Life of Same Size and Build MW-35  
(Reference)

**Dielectric Breakdown**

@ RT: 11 kV

@ 200°C: 7 kV

NEMA min: 5.7 kV    typical: 11 kV

**Corona Inception Voltage**

typical: 580 V

**High Voltage Continuity**

NEMA @ 1500 V DC: 5 faults/100 feet max

typical @ 2000 V DC: 0-1 faults/100 feet max

**CHEMICAL****Retained Dielectric**

After 72 hrs exposure to R-22 + 300°C  
conditioning: 3.5 kV

**R-22 Extractables .08%****Resistance to Solvents**

After 24 hrs. @ RT: Pass,

Solvents Including:

Xylene  
50/50 Cellosolve/Xylene  
Perchloroethylene  
1% NaOH  
28% Sulfuric Acid  
Gasohol



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