



NANOSHIELD SD

Rea Material Code:
HTAINS

Rea Insulation Code: **2G**

Insulation Material
Description: **Theic
Modified Polyester +
Nano-shieldcoat +
overcoated with
Polyamide Imide (Al)**

Thermal Class: **200**

Shape: **Round**

Conductor: **Copper**

NEMA Specification: **MW
35-C**

MARKETS

Motors/Generators:

- General**
- Comm & Ind**
- Generator**

TYPICAL APPLICATIONS

Hand wound and high speed windings with difficult insertion and winding characteristics for inverter-driven motors, high frequency transformers, and high voltage motors

FEATURES AND BENEFITS

- Exceptional resistance 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
- Substantial insulation protection against transient spikes, high frequencies, elevated voltage levels, and short rise time pulses without increasing insulation thickness
- Enhanced resistance to thermoplastic flow (cutthrough), surface abrasion and heat shock
- Enhanced Dielectric strength
- Exceptional flexibility without embrittlement, due to the significant reduction in size of the shield coat particles to the nano level
- Excellent resistance to heat and solvent shock conditions encountered in varnishing and encapsulating processes
- ROHS & REACH Certified
- 100% in-line tested for HVC and bead prevention

AVAILABILITY

Heavy

12-28 AWG

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		
		>200°C
Thermoplastic Flow	minimum	typical
	300°C	350°C
Heat Shock (20% 3X)		
		1/2 hr at 220°C minimum no cracks
Solderability		
		Not designed to be self-solderable
Stress Relief Temperature		
		160°C

MECHANICAL

Mandrel Flexibility	minimum	typical
After Elongation	20% 1x OK	25% 1x OK
After Snap	1x OK	1x OK
Unilateral Scrape	minimum	typical
Avg. of 3 sides	1150 gms	2000 gms
Dynamic C of F	minimum	typical
		0.06

ELECTRICAL

Dielectric Breakdown		
@RT		11.0 kV
@ 200° C		7.0 kV
Dielectric Breakdown	minimum	typical
	5.7 kV	11.0 kV
Corona Inception Voltage	minimum	typical
		580V
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 HTAI NS > 80,000
seconds

Pulse Endurance Index >100

Life of product/life of
same size and build
MW-35 (reference)

High Voltage Continuity

NEMA @ 1500 V DC	5 faults / 100 feet max
Typical @ 2000 DC	0-1 faults / 100 feet max

CHEMICAL

Resistance to Solvents

After 24 hrs @ RT	Xylene 50/50 Cellosolve/Xylene Perchloroethylene 1% NaOH 28% Sulfuric Acid Gasohol
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Retained Dielectric

72 hrs Exposure + 300°C Conditioning	3.5 kV
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R-22 Extractables

.08%