

ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

**COPPER WIRE, SOFT OR ANNEALED ROUND, HEAVY
POLYURETHANE INSULATED (SOLDERABLE), CLASS 180 °C**

WSS-M2L67-A2

1. SCOPE

The material defined by this specification is a soft or annealed round copper wire insulated with a heavy film of solderable baked modified polyurethane.

2. APPLICATION

This specification was released originally for material used for the DIS coil secondary winding.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 WIRE SIZE SPECIFICATION

44 AWG

3.3 COLOR

Natural

3.4 BARE WIRE

The copper wire used as a base for the polyurethane coated wire shall conform to ESF-M2L1-A, except as noted herein.

3.5 JOINTS

Each spool of wire shall be one continuous length without any joints or weld joints in the finished wire.

3.6 INSULATION COATING AND THICKNESS

The wire shall be coated with a triple film of solderable, baked modified polyurethane.

Increase in dia, min

0.014 mm

Overall dia, max

0.070 mm

The addition to the diameter of the bare wire due to the polyurethane coating shall be determined utilizing the test method NEMA 1000.

Date	Action	Revisions
2003 05 15	Revised	Para 3.0 inserted; Para 3.1, 3.19, 3.20, 3.22, 4 deleted
1996 04 26	Revised	Revised para 3.6 A. Vallabhanath
1996 01 23	Activated	A. Vallabhanath

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3.7	INSULATION ADHESION (NEMA 1000)	No cracks in the coating
3.8	INSULATION FLEXIBILITY (NEMA 1000)	No cracks in the coating
3.9	INSULATION AGING (NEMA 1000, 125 +/- 3 °C)	No cracks in the coating
3.10	ELONGATION (NEMA 1000)	14%
	The insulated wire shall meet the requirements of Table I.	
3.11	INSULATION SOLUBILITY (NEMA 1000)	Insulation shall not soften
3.12	SOFTNESS OF COPPER (NEMA 1000)	
	The insulated wire shall meet the requirements of Table III.	
3.13	DIELECTRIC TEST, min (NEMA 1000)	285 kv/mm
3.14	FAULT TESTING, max (NEMA 1000)	2
3.15	HEAT RESISTANCE	The insulation must not show puncture, crack or break
	A sample of coated wire, 10 – 20 cm long, shall be placed in an oven at 175 +/- 3 °C for 1 hour. Sample to be examined under 10X magnification.	
3.16	THERMOPLASCTIC FLOW, min	200 °C
3.17	SOLDERABILITY	4 s
3.18	CONFORMITY WITH THIS SPECIFICATION	
	In case of failure under any of the foregoing tests, two additional tests shall be made, and the wire shall be regarded as meeting the requirements of this specification if the results of the additional tests are satisfactory. The wire shall be regarded as not meeting the requirements of this specification if the results of either of the two additional tests are unsatisfactory.	
3.21	WIRE SURFACE LUBRICANT	
	A continuous coating of paraffin shall be applied to the insulated wire to assure proper high speed dereeling and winding. The mass of lubricant after extraction from the wire shall be 13.0 +/- 5 mg/100 gms of wire.	