



COPPER WIRE, SOFT OR ANNEALED ROUND – TINNED

ESF-M2L3-A

1. SCOPE

The material defined by this specification is tinned soft or annealed round copper wire.

2. APPLICATION

This specification was released originally for material used for electrical purposes.

3. REQUIREMENTS

The tinned soft or annealed round copper wire shall conform to ESF-M2L1-A except as noted herein.

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).

3.1 WIRE SIZE

The wire size shall be specified on the engineering drawing and/or release according to the American Wire Gage number desired. Example: 20 gage ESF-M2L3-A.

3.2 COATING

The pure tin coating shall be continuous and shall be firmly adherent to the surface of the copper. The continuity and adherence of the coating shall be determined on representative samples taken before stranding or insulating. The continuity and adherence of the coating shall be determined in accordance with ASTM B 33.

3.3 ELECTRICAL RESISTIVITY

The electrical resistivity at a temperature of 20 °C shall not exceed the following values prescribed for the corresponding wire gage.

AWH Size	Electrical Resistivity Ohm lb/mile ² (Ohm g/m ²)
0 – 0000	896.15 (0.15694)
1 – 9	900.77 (0.15775)
10 – 23	910.15 (0.15940)
24 – 29	929.52 (0.16279)
30 – 40	939.51 (0.16454)

Date	Action	Revisions
2010 12 16	Re-Activated	Specification needed for new design and there is no replacement M. Gramlich, NA
2010 06 17	N-STATUS	No replacement named M. Gramlich, NA
1963 07 29	Released	F6-1092

**3.4 DIMENSIONAL TOLERANCES**

Permissible variations are as follows:

Minimum Diameter in (mm)	Permissible Variation in Diameter	
	Plus	Minus
Under 0.0100 (0.254)	0.0004 in (0.010 mm)	0.000
0.0100 (0.254 and over)	4%	0.000

3.5 ELONGATION, in 10 in (254 mm), %, min**Diameter in (mm)**

0.2894 (7.351) and above	30
0.1020- 0.2893 (2.591 - 7.348)	25
0.02011 - 0.1019 (0.5108- 2.588)	20
0.01127 - 0.02010 (0.2863- 0.5105)	15
0.01126 (0.2860) and under	10