



BATTERY CABLE, CROSS LINKED POLYOLEFIN INSULATED

WSS-M1L92-A3

1. SCOPE

The material defined by this specification is a low tension stranded battery cable insulated with cross linked polyolefin. The cable is similar to SAE J1127, type STX.

2. APPLICATION

This specification was originally released for S197 and V229 automotive battery cable applications requiring the use of cross linked polyolefin insulation.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.1 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 CONDUCTOR

(SAE J1127/ASTM B1/ASTM B174/ASTM B193)

3.2.1 The conductors shall meet all requirements of SAE J1127 with wire size and stranding as shown in Table 1 of this specification.

3.2.2 Before bunching, the wire must meet the requirements of ASTM B1 for tensile strength, elongation, resistivity, dimensions and finish.

3.2.3 Conductor resistance shall be measured by stripping 30 mm of insulation from each end of a 1050 mm cable (use of a longer specimen is optional). Solder (optional) 25 mm along each end of the specimen. Condition the specimen for a minimum of 4 hours at 23 °C +/- 5 °C. Measure the unsoldered length, the ambient temperature, and the resistance of the specimen. Calculate the resistance per meter. Calculate the resistance at 20 °C using the temperature correction method outlined in ASTM B193. The maximum resistance values shall conform to those shown in Table 1.

Date	Action	Revisions	Rev. 3
2011 08 10	Revised	Added wire size 2 & 8 to tables 1 & 2	M. Gramlich, FNA
2003 04 28	Revised	Para 3.0 inserted; Para 3.1, 3.2, 3.6, 4 deleted	
2001 06 07	Activated		



3.3 INSULATION (SAE J1127)

- 3.3.1 The color of the insulation shall be specified on the engineering drawing of the component utilizing this material. Base and stripe color codes shall target the recommended color information referenced in SAE J1127. Where striping is specified, the stripe shall be a minimum of 0.3 mm. wide, but not more than 15% of the circumference of the wire. There shall be two same color stripes. The stripes shall be on opposite sides of the cable. The stripe shall be of the same material as the insulation. The insulation and the color may show no evidence of peeling or cracking.
- 3.3.2 The cross linked polyolefin insulation, homogeneous in character, shall be placed concentrically within SAE tolerance about the conductors. Insulation shall adhere closely to, but strip readily from the conductors, leaving them reasonably clean and in suitable condition for soldering.
- 3.3.3 Insulation thickness shall comply with the requirements of Table 2. Measure the minimum wall thickness as described in SAE J1127.
- 3.3.4 There shall be no separators permitted between the core and the insulation.

3.4 CABLE QUALITY (SAE J1127)

- 3.4.1 The finished cable shall meet all performance requirements of SAE J1127 (Revision date 2000-05) type STX. These tests include strand coating, solderability, mechanical properties, dielectric, cold bend, flame resistance, fluid compatibility, ozone resistance, sandpaper abrasion resistance, hot water resistance and environmental cycling.
- 3.4.2 All cable shall be spark tested at 5000 Volts at the final cable handling process prior to being packaged for shipment. All spark failures must be removed.
- 3.4.3 Insulation shrinkage shall be tested by cutting in the middle of a cable section at least 1.0 m (3 ft) in length and immediately checking for exposed core. No core is allowed to extend past the insulation. Care must be taken to assure the cable is not elongated prior to testing.

4. GENERAL INFORMATION

This information given below is provided for clarification and assistance in meeting the requirements of this specification. Contact gmfs@ford.com for questions concerning Engineering Material Specifications.

5. SUMMARY OF REVISIONS

2011 08 10 Added wire size 2 & 8 to tables 1 & 2