



Standard Guide for Specification and Quality Assurance for the Electrical Contact Performance of Crimped Wire Terminations¹

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1. Scope

1.1 This guide contains practices for specifying and evaluating the electrical contact performance of crimped-type terminations with solid or stranded conductors.

1.2 This guide provides information relevant to the electrical contact performance of a crimped wire termination. It does not cover other aspects of selection and use of crimped terminals.

1.3 The methods discussed in this guide apply only to the wire termination, which is the electrical contact interface between the conductor(s) and the terminal. Other aspects important to terminal evaluation, such as the properties and performance of electrical insulation, the effectiveness of strain relief features, and the quality of contact between the terminal and other electrical circuit elements, are not included.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to become familiar with all hazards including those identified in the appropriate Safety Data Sheet (SDS) for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

B539 Test Methods for Measuring Resistance of Electrical Connections (Static Contacts)

¹ This guide is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.11 on Electrical Contact Test Methods.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

B542 Terminology Relating to Electrical Contacts and Their Use

B827 Practice for Conducting Mixed Flowing Gas (MFG) Environmental Tests

B845 Guide for Mixed Flowing Gas (MFG) Tests for Electrical Contacts

B868 Practice for Contact Performance Classification of Electrical Connection Systems

B913 Test Method for Evaluation of Crimped Electrical Connections to 16-Gauge and Smaller Diameter Stranded and Solid Conductors

E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process

2.2 *Other References:*³

UL 486-A Wire connectors and Soldering Lugs for Use With Copper Conductors

UL-310 Electrical Quick-Connect Terminals

3. Terminology

3.1 Many terms related to electrical contacts used in this guide are defined in Terminology **B542**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *connection resistance, n*—the electrical resistance attributable to a wire termination over and above that of an identical solid metallic structure without pressure contact interfaces. For crimped terminations that are the subject of this guide, the connection resistance results from the resistance of a multitude of contact regions having both film and constriction resistance, plus, where stranded wire is involved, an additional amount due to unequal current distribution among the wire strands at the termination.

3.2.2 *crimp, v*—to establish an electrical and mechanical attachment between the two members by mechanically deforming one contact member around another. In most cases, one member is a stranded or solid wire, or a group of wires, the other is a hollow cylinder or partial cylinder that is deformed around the wire(s).

3.2.3 *crimp barrel, crimp tab, n*—the portion of the crimp terminal that is deformed in the crimping operation.

³ Available from Underwriters Laboratories Inc. (UL), <http://www.ul.com>.