

## STANDARD INFORMATION

**Standard:** UL 486A-486B

**Standard ID:** Wire Connectors [UL 486A-486B:2018 Ed.3+R:20Jul2023]

**Previous Standard ID: Wire Connectors:** [UL 486A-486B:2018 Ed.3+R:05May2021]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **August 20, 2025**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

UL 486A-486B is harmonized with CSA C22.2#65, however, the changes for the revision dated July 20, 2023 are only for UL 486A-486B.

### Overview of Changes:

- Addition of Stranding Table
- Revisions to Requirements Associated with Copper-Clad Aluminum
- Addition of Testing Requirements for the Lineside of Service Rating
- Thermal Testing with Insulation Colors Other Than Black

Specific details of new/revise requirements are found in table below

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***



## STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined-out</del> below.</i>
7	Info	<b>Test Requirements</b>
7.1	Info	<b>General</b>
		<b><i>New clause added;</i></b>
		A connector shall meet the test requirements when separate specimen sets using each conductor type for which the connector is intended (copper, copper-clad aluminum, and aluminum), as specified in Table 6A, are subjected to the applicable tests for the design of the connector as specified in Table 3 through Table 5, and with specific modifications noted below:
7.1.1		<p>a) A copper-bodied or copper alloy-bodied connector need not be subjected to the current-cycling sequence using copper conductors, unless the connector is dependent upon insulation piercing, insulation displacement, or spring action.</p> <p>b) An aluminum-bodied connector, intended to be used with copper conductor only, shall be subjected to the current-cycling, static-heating sequence, and mechanical sequence using copper conductors.</p> <p>c) The initial static-heating test need not be conducted in the static-heating sequence using copper conductor.</p> <p>d) Other than a tool-applied crimp connector, the current-cycling test using copper conductors need not be performed when the connector has been current-cycling tested with an aluminum conductor of a size not smaller than the size of the copper conductor required for the current-cycling test.</p> <p>e) Conductor sizes 30 – 20 AWG (0.05 – 0.52 mm<sup>2</sup>) need not be subjected to the secureness test in the static-heating sequence or mechanical sequence.</p> <p>f) Any conductor material may be used for the Dielectric Voltage-Withstand, Stress Corrosion, Secureness of Insulation, Flexing, and Low Temperature Installation Tests.</p> <p>g) If a connector is rated for copper to copper, aluminum to aluminum, and copper to aluminum (intermixed), the mechanical sequence with copper to aluminum conductor may be omitted.</p> <p>h) In all test sequences, with the exception of 7.1.1(i)(3), aluminum conductor shall be permitted to represent tests with copper-clad aluminum conductor.</p> <p>i) For a connector intended for the intermixing of copper and aluminum [marked “AL-CU (intermixed and dry locations)”], copper-clad aluminum and copper (marked “CC-CU”), or copperclad aluminum and aluminum [marked “CC-AL (intermixed and dry locations)”], the heat-cycling tests shall be conducted using the following conductor materials:</p>



CLAUSE	VERDICT	COMMENT
		<p>1) For copper to aluminum (also covers copper-clad aluminum to aluminum):</p> <ul style="list-style-type: none"> <li>i) Maximum size copper with maximum size aluminum;</li> <li>ii) Maximum size copper with minimum size aluminum;</li> <li>iii) Minimum size copper with minimum size aluminum; and</li> <li>iv) Maximum size copper in combination with a minimum size aluminum, or conductors where the sum of test currents of the minimum size conductors is approximately equal to the current of the maximum size conductor.</li> </ul> <p>2) For copper to copper-clad aluminum:</p> <ul style="list-style-type: none"> <li>i) Maximum size copper with maximum size copper-clad aluminum;</li> <li>ii) Maximum size copper with minimum size copper-clad aluminum;</li> <li>iii) Minimum size copper with minimum size copper-clad aluminum; and</li> <li>iv) Maximum size copper in combination with a minimum size copper-clad aluminum, or conductors where the sum of test currents of the minimum size conductors is approximately equal to the current of the maximum size conductor.</li> </ul> <p>3) For copper-clad aluminum to aluminum (does not cover copper to aluminum):</p> <ul style="list-style-type: none"> <li>i) Maximum size copper-clad aluminum with maximum size aluminum;</li> <li>ii) Maximum size copper-clad aluminum with minimum size aluminum;</li> <li>iii) Minimum size copper-clad aluminum with minimum size aluminum; and</li> <li>iv) Maximum size copper-clad aluminum in combination with a minimum size aluminum, or conductors where the sum of test currents of the minimum size conductors is approximately equal to the current of the maximum size conductor.</li> </ul> <p>The test currents are based on the lesser current dictated by the two different conductor materials.</p>
7.14	Info	<b>Connectors identified for use on the line side of the service equipment</b>
		<b><i>New clause added;</i></b>
7.14.1		Connectors identified for use on the line side of the service equipment shall be evaluated in accordance with Annex H.
8	Info	<b>Sampling Requirements</b>
8.14	Info	<b>Connectors identified for use on the line side of the service equipment</b>
		<b><i>New clause added;</i></b>
8.14.1		Connectors identified for use on the line side of the service equipment shall be evaluated in accordance with Annex H.



CLAUSE	VERDICT	COMMENT
9	Info	<b>Test Methods</b>
9.1	Info	<b>General</b>
9.1.5	Info	<b>Test and control conductors</b>
		<i><b>New clause added;</b></i>
9.1.5.7		When performing the Current-Cycling and Static-Heating Tests, the insulation for conductors shall be black, or if a comparison measurement is made in accordance with 9.1.5.7A and an adjustment factor is included in the temperature rise limit, insulation color other than black shall be allowed.
		<i><b>New clause added;</b></i>
9.1.5.7A		Performing the Current-Cycling and Static-Heating Tests with a conductor having an insulation color other than black shall be permitted if a temperature comparison is conducted, using a control conductor and a conductor with the color to be used during the test (referred to as a “comparison conductor”). The comparison set-up shall be performed with the control and comparison conductor and equalizer size and length (if applicable) complying with the requirements for a control conductor and equalizer used during the Current-Cycling Test. The current used during the temperature comparison shall be the same used during the Static-Heating Test. If higher temperature rises are measured on the control conductor, the difference in temperature rises (temperature rise of control conductor, minus the temperature rise of comparison conductor) shall be considered an adjustment factor and deducted from the allowed temperature rise in the Current-Cycling and Static-Heating Tests.
		<i><b>New clause added;</b></i>
9.1.5.7B		For the purposes of the temperature comparison in 9.1.5.7A, the control conductor shall be provided with black insulation or without insulation, and the comparison conductor shall be provided with insulation of the color being used during the test. The conductors shall comply with 9.1.5, except as follows: The control and comparison conductor may be compact, compressed, or concentric stranding, and when using aluminum conductors, either AA-1350 or AA-8000 alloy, so long as the control and comparison use the same stranding configuration, class, and material.
9.14	Info	<b>Connectors identified for use on the line side of the service equipment</b>
		<i><b>New clause added;</b></i>
9.14.1		Connectors identified for use on the line side of the service equipment shall be evaluated in accordance with Annex H.



CLAUSE	VERDICT	COMMENT
10	Info	<b>Marking, Labeling, and Packaging</b>
10.8		connector intended for use with aluminum, copper-clad aluminum, and copper conductor shall be legibly marked "AL-CU" or "CU-AL". <u>A connector intended for use with copper and copper-clad aluminum shall be legibly marked "CC-CU". A connector intended for use with copper-clad aluminum and aluminum shall be legibly marked "CC-AL (intermixed and dry locations)".</u> In lieu of the marking on the connector, for connectors used with 6 AWG (13.3 mm <sup>2</sup> ) / 6 mm <sup>2</sup> or smaller conductors, the letters "AL-CU", or "CU-AL", " <u>CC-CU</u> ", or " <u>CC-AL</u> " may be printed on the unit container or on an information sheet packed in the unit container. <u>See Table 6A.</u>
		<b><i>New clause added;</i></b>
10.43		Connectors identified for use on the line side of the service equipment shall be marked in accordance with Annex H.
		<b><i>New table added;</i></b>
Table 6A		<b>Conductor materials to be used in test sequences and suitable combinations based on markings</b>  See standard for details.
		<b><i>New annex added;</i></b>
Annex G		<b>Conductor Stranding</b>  See standard for details.
		<b><i>New annex added;</i></b>
Annex H		<b>Connectors Identified for use on Service Conductors</b>  Connectors identified for use on service conductors shall comply with the applicable requirements in the following Standards:  See standard for details.