STANDARDS UPDATE NOTICE (SUN)
ISSUED: October 7, 2019

STANDARD INFORMATION

Standard Number: UL 498
Standard Name: Attachment Plugs and Receptacles
Standard Edition and Issue Date: 16th Edition Dated April 28, 2017
Date of Revision: June 27, 2018
Date of Previous Revision of Standard: November 3, 2017

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **June 27, 2020**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revised requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes: Addition of Requirements for Spring Action Terminal Clamps. Specific details of new/revised requirements are found in table below.

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised requirements do not apply to your product (s).

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		Additions to existing requirements are <u>underlined</u> and deletions are shown ~~lined out~~ below.
12	Info	**Terminals**
12.6		***New section added;*** **Spring action clamp terminals**
12.6.1		In addition to the requirements contained in this standard, a receptacle or inlet employing a spring action clamp terminal shall also comply with the applicable requirements, as specified in the Standard for Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors, UL 486E. All tests shall be investigated with minimum and maximum conductor AWG size and for each type of conductor (solid and stranded), for each device construction.
12.6.2		A receptacle or inlet employing spring action clamp terminals are intended for either stranded or solid or both, copper wire only.
12.6.3		A receptacle or inlet employing spring action clamp terminals are intended for the connection of a single conductor only.
	Info	**ATTACHMENT PLUGS AND INLETS**
20	Info	**Terminals and Leads**
20.3		***New section added;*** **Inlet with spring action clamp terminal**
20.3.1		An inlet that is provided with spring action clamp terminal shall be provided with a positive means to prevent unintentional separation of the conductor from the terminal and shall comply with the Spring Action Clamp Terminal Pull Test described in Section 91A.
	Info	**CORD CONNECTORS**
30	Info	**Terminals and Leads**
30.7		***New section added;*** A receptacle that is provided with spring action clamp terminal shall be provided with a positive means to prevent unintentional separation of the conductor from the terminal and shall comply with the Spring Action Clamp Terminal Pull Test described in Section 128A.
	Info	**INLETS**
	Info	**All Devices**

CLAUSE	VERDICT	COMMENT
87	Info	**Terminal Temperature Test**
87.1		The temperature rise of an inlet intended for mounting in or on an outlet box and employing wire-binding screw, clamp terminals, or spring action clamp terminals for field connection to branch-circuit conductors, when measured at the points described in 87.2, shall not be more than 30°C (54°F) when the device is carrying its maximum rated current.
	Info	**ATTACHMENT PLUGS**
	Info	**Pressure-Wire Terminals**
91A		***New section added;*** **Spring Action Clamp Terminal Pull Test**
91A.1		An inlet employing spring action clamp terminals shall be subjected to the test conditions as specified in 91A.2 – 91A.6.
91A.2		Upon completion of this test, there shall not be any damage to the terminal or its securement mechanism. The spring action clamp shall remain capable of functioning as intended. There shall not be any damage, arcing or dielectric breakdown during application of the test potential. The conductor shall not pull free from the terminal during application of the test force.
91A.3		Each terminal of each device (three terminals minimum) shall be tested. Each terminal shall be wired with the smallest AWG conductor size and wired with the largest conductor size, as specified by the manufacturer. If the spring action clamp is also intended for both solid and stranded AWG conductors, both solid and stranded shall be tested.
91A.4		The conductor insulation shall be prepared by removing the insulation from the conductor according to manufacturer's strip gauge and then inserted into the spring action clamp terminal as intended. The lever of the spring action clamp shall then be operated to the fully latched and locked position and back to the unlatched and unlocked position. This sequence of operation shall be repeated for a total of 100 cycles.
91A.5		Following the 100 cycles, the conductor shall be reattached to the spring action clamp terminal and the lever place in the latched and locked position as intended. A static pull force as specified in Table 91A.1 shall be applied to the conductor for 1 minute in a direction perpendicular to the plane of the inlet body, tending to remove the conductor.
Table 91A.1		**Test values for spring action clamp terminal pull test**

Size of conductor AWG	Pullout force lbf (pounds)
16	9
14	11.5
12	13.5
10	18.0
8	20.5
6	21
4	30

CLAUSE	VERDICT	COMMENT
91A.6		Each device is then to be subjected to a 50 – 60 Hz essentially sinusoidal potential equal to twice the rated voltage plus 1000 V applied between live parts of opposite polarity and between live parts and grounding or dead metal parts. The test voltage is to be increased at a uniform rate and as rapidly as is consistent with its value being correctly indicated by a voltmeter and maintained at the test potential for 1 minute.
	Info	**Pressure-Wire Terminals**
	Info	**RECEPTACLES**
128A		***New section added;*** **Spring Action Clamp Terminal Pull Test**
128A.1		A receptacle employing spring action clamp terminals shall be subjected to the test conditions as specified in 128A.2 – 128A.6.
128A.2		Upon completion of this test, there shall not be any damage to the terminal or its securement mechanism. The spring action clamp shall remain capable of functioning as intended. There shall not be any damage, arcing or dielectric breakdown during application of the test potential. The conductor shall not pull free from the terminal during application of the test force.
128A.3		Each terminal of each device (three terminals minimum) shall be tested. Each terminal shall be wired with the smallest AWG conductor size and wired with the largest conductor size, as specified by the manufacturer. If the spring action clamp is also intended for both solid and stranded AWG conductors, both solid and stranded shall be tested.
128A.4		The conductor insulation shall be prepared by removing the insulation from the conductor according to manufacturer's strip gauge and then inserted into the spring action clamp terminal as intended. The lever of the spring action clamp shall then be operated to the fully latched and locked position and back to the unlatched and unlocked position. This sequence of operation shall be repeated for a total of 100 cycles.
128A.5		Following the 100 cycles, the conductor shall be reattached to the spring action clamp terminal and the lever place in the latched position as intended. A static pull force as specified in Table 128A.1 shall be applied to the conductor for 1 minute in a direction perpendicular to the plane of the receptacle body, tending to remove the conductor.
Table 128A.1		**Test values for spring action clamp terminal pull test**

Size of conductor AWG	Pullout force lbf (pounds)
16	9
14	11.5
12	13.5
10	18.0
8	20.5
6	21
4	30

CLAUSE	VERDICT	COMMENT
128A.6		Each device is then to be subjected to a 50 - 60 Hz essentially sinusoidal potential equal to twice the rated voltage plus 1000 V applied between live parts of opposite polarity and between live parts and grounding or dead metal parts. The test voltage is to be increased at a uniform rate and as rapidly as is consistent with its value being correctly indicated by a voltmeter and maintained at the test potential for 1 minute.
139	Info	**Probe Test**
Table 139.2		**Markings and instructions applicable to inlets (motor attachment plugs)** **Description** / **Reference** / **Marking** / **Location** Inlets employing spring-action clamp terminals / 12 / Installation instructions for assembly of conductors to the terminals. Instructions shall include a pictorial description of the placement of the stripped conductor within the channels/ guides of the enclosure. / On the smallest unit container, or on a stuffer sheet provided with each device.
Table 139.4		**Marking and instructions applicable to receptacles** **Description** / **Reference** / **Marking** / **Location** Inlets employing spring-action clamp terminals / 40 / Installation instructions for assembly of conductors to the terminals. Instructions shall include a pictorial description of the placement of the stripped conductor within the channels/ guides of the enclosure. / On the smallest unit container, or on a stuffer sheet provided with each device.
		CUSTOMERS PLEASE NOTE: This Table and column "Verdict" can be used in determining how your current or future production is or will be in compliance with new/revised requirements.