



Cable Retention , Pull-Out Force

Design Objectives

This product described in this document has not been fully tested to insure conformance to the requirements outlined below . Therefore , AMP do Brasil makes no representation or warranty , express or implied , that the product will comply with these requirements . Further , AMP do Brasil may change these requirements based on the results of additional testing and evaluation . Contact AMP Engineering for further details .

1. SCOPE

This specification covers the requirements for product performance, test methods and quality assurance provisions of terminals used on Battery Cables, for the PNs listed.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of the conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

3. DOCUMENTS APPLICABLE

3.1 AMP Specifications

- 109-16 Termination Tensile Stength.

4. REQUIREMENTS

Product shall be of the design, construction and physical dimensions specified in the applicable drawings , as follows :

Prepared by : José Mello Moares Neto

Approved by : Rolands Indriksons

Part Number	Description
493061-1	Terminal, Ring Tongue
493062-1	Terminal, Battery, Negative
493063-1	Terminal, Battery, Negative
493064-1	Terminal, Ring Tongue
493067-1	Terminal, Ring Tongue
493068-1	Terminal, Ring Tongue
493069-1	Battery Terminal
493072-1	Terminal, Ring Tongue, Antirotational
493074-1	Terminal, ø 2,8 Pin.
493082-1	Terminal, Battery, Positive
493084-1	Terminal, Ring Tongue
493086-1	Terminal, Ring Tongue
493091-1	Terminal, Round, ø 2,8 Ass'y
493162-1	Terminal, Battery, Positive
493164-1	Terminal, Round, ø 2,8 Ass'y
493166-1	Ring Tongue, Terminal
493167-1	Ring Tongue, Terminal
493176-1	Ring Tongue, Terminal
493212-1	Ring Tongue, Antirotational, M6
493213-1	Ring Tongue, Antirotational, M8
493225-1	Ring Tongue, Antirotational, M10
493368-1	Terminal, Battery Cable
493371-1	Ring Tongue Square, 90°
493372-1	Ring Tongue
493373-1	Ring Tongue
493679-1	Terminal, ø 2,8 Pin.
493620-1	Ring Tongue, Terminal
493621-1	Ring Tongue, Terminal
881016-2	Ring Tongue, M10x6,0, Antirotational

5. MATERIALS

According to the respective drawing .

5.1 Wire Range

According to the respective drawing .

6. QUALITY ASSURANCE PROVISION

6.1 Sample Preparation

Samples used for the tests shall be prepared by randomly selected components from the current production.

No sample shall be reused , unless otherwise specified .

6.2 Test Condition

All the tests shall be performed under the following environmental conditions , unless otherwise specified .

- Room temperature : 23° ± 5° C.
- Relative Humidity : 45% ~ 75%.
- Atmospheric Pressure : 860 ~1060 mbar.

6.2.1 Tests conditions and characteristics

Para.	Test Items	Requirements	Procedures																																																												
6.2.1.1	<ul style="list-style-type: none"> Confirmation of product and visual examination 	Product shall comply with the requirements of applicable product drawing and application specification, without any visible damage, cracking or defect when the product is new and even after environmental, mechanical and electric tests.	<ul style="list-style-type: none"> Visually, dimensional and functionally inspected per applicable quality inspection plan. Visual inspection. 																																																												
6.2.1.1	<ul style="list-style-type: none"> Cable Retention (Pull – Out Force) 	Retention forces as below : <table border="0"> <tr> <td style="text-align: right;">PN</td> <td style="text-align: right;">N</td> </tr> <tr> <td>493061-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>493062-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>493063-1 # 20,0mm² ≥</td> <td>1.000</td> </tr> <tr> <td>493064-1 # 10,0mm² ≥</td> <td>700; 14,0mm² ≥ 800; 16,0mm² ≥ 900; 20,0mm² ≥ 1.000</td> </tr> <tr> <td>493067-1 # 2,5mm² ≥</td> <td>250; 4,0mm² ≥ 350</td> </tr> <tr> <td>493068-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>493069-1 # 14,0mm² ≥</td> <td>800</td> </tr> <tr> <td>493072-1 # 6,0mm² ≥</td> <td>500; 10,0mm² ≥ 700</td> </tr> <tr> <td>493074-1 # 4,0mm² ≥</td> <td>350</td> </tr> <tr> <td>493082-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>493084-1 # 10,0mm² ≥</td> <td>700; 14,0mm² ≥ 800; 16,0mm² ≥ 900</td> </tr> <tr> <td>493086-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>493091-1 # 4,0mm² ≥</td> <td>350</td> </tr> <tr> <td>493162-1 # 20,0mm² ≥</td> <td>1.000</td> </tr> <tr> <td>493164-1 # 1,5mm² ≥</td> <td>200; 2,5mm² ≥ 250</td> </tr> <tr> <td>493166-1 # 6,0mm² ≥</td> <td>500; 10,0mm² ≥ 700</td> </tr> <tr> <td>493167-1 # 1,0mm² ≥</td> <td>160; 1,5mm² ≥ 200</td> </tr> <tr> <td>493176-1 # 20,0mm² ≥</td> <td>1.000</td> </tr> <tr> <td>493212-1 # 4,0mm² ≥</td> <td>350; 6,0mm² ≥ 500</td> </tr> <tr> <td>493213-1 # 6,0mm² ≥</td> <td>500</td> </tr> <tr> <td>493225-1 # 4,6mm² ≥</td> <td>370</td> </tr> <tr> <td>493368-1 # 4 AWG ≥</td> <td>1.050</td> </tr> <tr> <td>493371-1 # 4 AWG ≥</td> <td>1.050</td> </tr> <tr> <td>493372-1 # 6 AWG ≥</td> <td>800</td> </tr> <tr> <td>493373-1 # 12 AWG ≥</td> <td>425</td> </tr> <tr> <td>493679-1 # 1,5mm² ≥</td> <td>200</td> </tr> <tr> <td>493620-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>493621-1 # 10,0mm² ≥</td> <td>700</td> </tr> <tr> <td>881016-2 # 10,0mm² ≥</td> <td>700</td> </tr> </table>	PN	N	493061-1 # 10,0mm ² ≥	700	493062-1 # 10,0mm ² ≥	700	493063-1 # 20,0mm ² ≥	1.000	493064-1 # 10,0mm ² ≥	700; 14,0mm ² ≥ 800; 16,0mm ² ≥ 900; 20,0mm ² ≥ 1.000	493067-1 # 2,5mm ² ≥	250; 4,0mm ² ≥ 350	493068-1 # 10,0mm ² ≥	700	493069-1 # 14,0mm ² ≥	800	493072-1 # 6,0mm ² ≥	500; 10,0mm ² ≥ 700	493074-1 # 4,0mm ² ≥	350	493082-1 # 10,0mm ² ≥	700	493084-1 # 10,0mm ² ≥	700; 14,0mm ² ≥ 800; 16,0mm ² ≥ 900	493086-1 # 10,0mm ² ≥	700	493091-1 # 4,0mm ² ≥	350	493162-1 # 20,0mm ² ≥	1.000	493164-1 # 1,5mm ² ≥	200; 2,5mm ² ≥ 250	493166-1 # 6,0mm ² ≥	500; 10,0mm ² ≥ 700	493167-1 # 1,0mm ² ≥	160; 1,5mm ² ≥ 200	493176-1 # 20,0mm ² ≥	1.000	493212-1 # 4,0mm ² ≥	350; 6,0mm ² ≥ 500	493213-1 # 6,0mm ² ≥	500	493225-1 # 4,6mm ² ≥	370	493368-1 # 4 AWG ≥	1.050	493371-1 # 4 AWG ≥	1.050	493372-1 # 6 AWG ≥	800	493373-1 # 12 AWG ≥	425	493679-1 # 1,5mm ² ≥	200	493620-1 # 10,0mm ² ≥	700	493621-1 # 10,0mm ² ≥	700	881016-2 # 10,0mm ² ≥	700	<ul style="list-style-type: none"> Terminals crimped with cable on AMP specific tooling. When double cable is used the pull-out force shall be applied on the largest cable gauge. According to AMP specification number109-16.
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Revision Record		
Revision	Date	Description
O	09-Feb-2000	Issued by LB00-0049-00