

# Product Specification

108-19077

NUMBER

A SECURITY CLASSIFICATION

DC

STD

**1. SCOPE:**

**1.1. Content.**

This specification covers the product performance, requirements and test methods of size 4,8 (.187) series LIF FASTON\*. These terminals are suitable for Consumer Goods applications in which low insertion forces are needed.

**1.2. Classification.**

When tests are performed on the subject product line, the procedures specified in this Product Specification shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**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 conflict between the requirements of this specification and the referenced documents, this specification shall take preference.

**2.1. AMP Specification.**

114-19025 : Application Specification

**2.2. Commercial Standards.**

IEC - 68 : Basic environmental testing procedures  
 IEC - 512 : Basic testing procedures and measuring methods for electromechanical components for electric equipment  
 IEC 760 (1989) : Flat quick-connect terminations

\* Trademark of AMP Incorporated

Product code: 1100

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|                   |   |            |    |          |                    |             |                  |  |           |
|-------------------|---|------------|----|----------|--------------------|-------------|------------------|--|-----------|
|                   |   |            |    |          | DR.<br>P. Beijnon  | DATE        | <b>AMP</b>       | AMP-HOLLAND B.V.<br>s-Hertogenbosch,<br>The Netherlands.     |           |
|                   |   |            |    |          | CHK.<br>W. de Cock | DATE        |                  | NAME<br>L.I.F. FASTON .187 receptacle<br>Low Insertion Force |           |
| LOC.<br><b>H</b>  | A | EH-0065-93 | PB | 29/01/93 | APP.               | DATE        | <b>108-19077</b> | SHEET<br>1 OF 5  | REV.<br>A |
| SIZE<br><b>A4</b> | 0 | H-9900     | PB | 25/06/92 | LTR                | REV. RECORD |                  |  |           |

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**3. REQUIREMENTS:**

**3.1. Design and Construction.**

The product design feature and dimensions shall be conforming to the applicable product drawing.

**3.2. Materials:**

- A. Terminals brass 100 - 41027 tinned
- B. Ph. bronze 100 - 41009 tinned

**3.3. Ratings:**

- A. Current: 10 Amperes maximum at 90° ambient temperature.

**3.4. Performance and Test Description.**

Terminals shall be designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. Tinned terminals are tested with tinned test tabs.

**3.5. Test Requirements and Procedures Summary.**

| Para.             | Test Description                     | Requirements  | Procedure  |
|-------------------|--------------------------------------|---|--|
| 3.5.1.            | Examination of Product               | Meets requirements of product drawing and AMP Spec. 114-19025                       | Visual, dimensional and functional per applicable Inspection Plan  |
| <b>ELECTRICAL</b> |                                      |   |  |
| 3.5.2.            | Termination Resistance rated current | Initial<br>Tab-Rec 0,7 mΩ max.<br>Crimp 0,6 mΩ max.                                 | Measure voltage drop at 10 A DC and calculate resistance according Fig. 1  |
| 3.5.3.            | Temperature Rise                     | Temperature rise of any individual terminations shall not exceed 15 °C at 10 ampere | Apply LJ FASTONS to 1,5 mm <sup>2</sup> plain wire mated with testtab tinned version<br>Temperature measurements with thermocouple.  |
| 3.5.4.            | Current Cycling                      | Termination Resistance<br>Tab-Rec 1,4 mΩ max.<br>Crimp 1,2 mΩ max.                  | Terminals wired with 1,5 mm <sup>2</sup> . Test current 2x test current 2x 10 = 20 A DC<br>One cycle consists of 45 minutes on and 15 minutes off.<br>500 cycles to be done. |

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3.5. Test Requirements and Procedures Summary (continued).

| Para.               | Test Description       | Requirements  | Procedure   |                     |                     |     |                     |      |  |
|---------------------|------------------------|---|---|---------------------|---------------------|-----|---------------------|------|--|
| <b>MECHANICAL</b>   |                        |   |   |                     |                     |     |                     |      |  |
| 3.5.5.              | Crimp Tensile          | <table border="1"> <tr> <th>Wire Size</th> <th>Crimp Tensile (Min)</th> </tr> <tr> <td>0,5 mm<sup>2</sup></td> <td>80N</td> </tr> <tr> <td>1,5 mm<sup>2</sup></td> <td>200N</td> </tr> </table> | Wire Size   | Crimp Tensile (Min) | 0,5 mm <sup>2</sup> | 80N | 1,5 mm <sup>2</sup> | 200N | Measure tensile strength on the tensile tester with a rate of 25 mm/minute. Make insulation crimp ineffective. |
| Wire Size           | Crimp Tensile (Min)    |   |   |                     |                     |     |                     |      |  |
| 0,5 mm <sup>2</sup> | 80N                    |   |   |                     |                     |     |                     |      |  |
| 1,5 mm <sup>2</sup> | 200N                   |   |   |                     |                     |     |                     |      |  |
| 3.5.6.              | Insertion Forces       | First insertion 50N max.  | Mount LIF FASTON and tinplated testtab on the push-pull tester. Speed: 100 mm/minute Number of insertions: 10   |                     |                     |     |                     |      |  |
| 3.5.7.              | Withdrawal Forces      | Tenth extraction 15N min. Sixth extraction 9N min.  |   |                     |                     |     |                     |      |  |
| 3.5.8.              | Humidity - Temperature | 2 cycles  | Submit the samples to a temperature humidity cycling test. Conditions: Upper temp.: 40 °C. Lower temp.: 25 °C. Relative humidity: 95% Number of cycles: 2 Acc. to IEC 68-2-30 |                     |                     |     |                     |      |  |
| 3.5.9.              | Corrosion Salt Spray   | 96 hours  | Place samples in a salt spray chamber with a solution of 5% NaCl. Acc. to IEC 68-2-11   |                     |                     |     |                     |      |  |
| 3.5.10.             | Corrosion Test         | Termination Resistance<br>Tab-Rec. 1,05 mΩ max<br>Crimp 0,9 mΩ max<br>Temperature: 40 °C.<br>SO <sub>2</sub> : 2 litres<br>Number of cycles: 6  | Place samples in a test chamber with a saturated atmosphere in the presence of sulfurdioxide for 6 cycles DIN 50018/SWF/2.0S  |                     |                     |     |                     |      |  |

End of Table 1.

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3.6. Test Sequence.

| Test | Measurements | Paragraph |
|------|--------------|-----------|
|------|--------------|-----------|

GROUP 1

|                      |   |                  |
|----------------------|---|------------------|
| Mechanical Endurance | (First) Insertion Force<br>(Tenth) Withdrawal Force | 3.5.6.<br>3.5.7. |
|----------------------|---|------------------|

GROUP 2

|   |  |                      |
|---|--|----------------------|
| Temperature-humidity cycling<br>Current cycling | Millivolt drop tab-rec<br>Millivolt drop crimp<br>Temperature humidity cycling<br>Millivolt drop tab-rec<br>Millivolt drop crimp<br>current cycling<br>Millivolt drop tab-rec.<br>Millivolt drop crimp | 3.5.8.<br><br>3.5.4. |
|---|--|----------------------|

GROUP 3

|                                   |   |                       |
|-----------------------------------|---|-----------------------|
| Salt spray test<br>Corrosion test | Millivolt drop tab-rec.<br>Millivolt drop crimp<br>Salt spray test<br>Millivolt drop tab-rec.<br>Millivolt crimp<br>Corrosion test<br>Millivolt drop tab-rec.<br>Millivolt drop crimp | 3.5.9.<br><br>3.5.10. |
|-----------------------------------|---|-----------------------|

GROUP 4

|  |                  |        |
|--|------------------|--------|
|  | Tensile strength | 3.5.5. |
|--|------------------|--------|

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3.7. Terminal Resistance.

Measuring points:

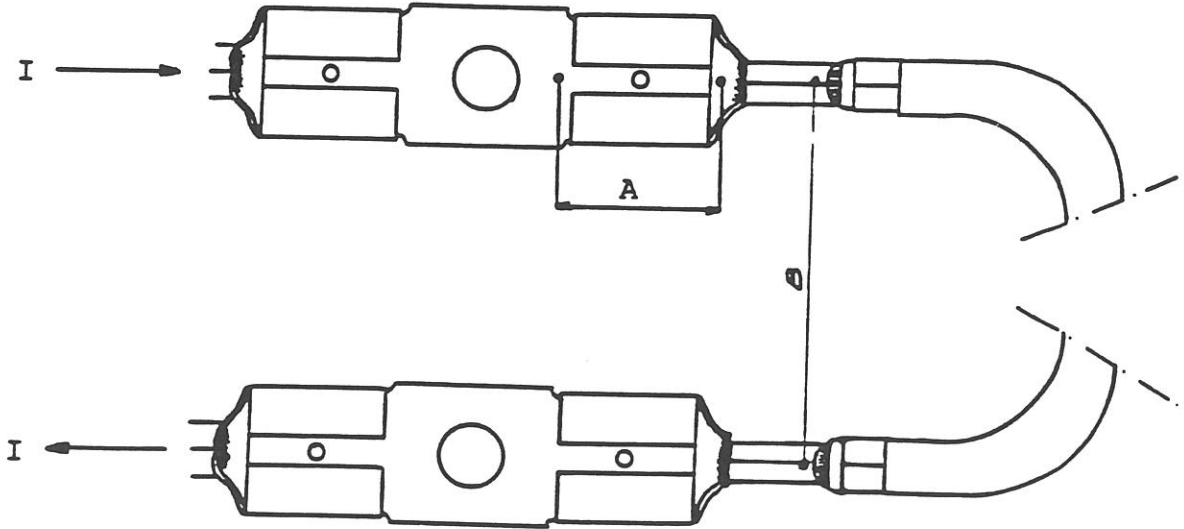


Figure 1

- A. Termination resistance of tab-receptacle connection.
- B. Termination resistance of crimp  
Subtract wire resistance from measured value and divide the result by 2 to find single crimp resistance.