
Connector, Blindmate, Chassis Mount Cable To Cable

1. SCOPE**1.1. Content**

This specification covers performance, tests and quality requirements for the AMP* Blindmate header and receptacle connectors designed for chassis mount cable to cable applications.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in AMP 109 series specifications 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. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between requirements of this specification and referenced documents, this specification shall take precedence.

2.1. AMP Documents

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
- D. 114-40053: Application Specification
- E. 501-336: Test Report

3. REQUIREMENTS**3.1. Design and Construction**

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

- A. Contact:
 - (1) Header: Brass, gold over palladium-nickel plating on contact area, tin-lead plating on crimp area, all over nickel plating
 - (2) Receptacle: Phosphor bronze, gold over palladium nickel plating on contact area, tin-lead plating on crimp area, all over nickel plating
- B. Housing:
 - (1) Header: Polyester, black, 125°C, UL94V-0
 - (2) Receptacle: Polyester, black, 125°C, UL94V-0

3.3. Ratings

- A. Voltage: 30 vac (rms) or 30 vdc
- B. Current: Signal application only, 1.5 amperes maximum per contact
- C. Temperature: -55 to 105°C

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure								
Examination of product.	Meets requirements of product drawing and AMP Spec 114-45003.	Visual, dimensional and functional per applicable quality inspection plan.								
ELECTRICAL										
Termination resistance.	8 milliohms maximum.	AMP 109-6-1. Subject mated contacts assembled in housing to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.								
Insulation resistance.	1000 megohms minimum.	AMP Spec 109-28-4. Test between adjacent contacts of mated samples.								
Dielectric withstanding voltage.	500 vac at sea level.	AMP Spec 109-29-1. Test between adjacent contacts of mated samples.								
MECHANICAL										
Crimp tensile.	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Wire Size (AWG)</td> <td style="text-align: center;">Crimp Tensile (Pounds minimum)</td> </tr> <tr> <td style="text-align: center;">22</td> <td style="text-align: center;">10</td> </tr> <tr> <td style="text-align: center;">24</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">26</td> <td style="text-align: center;">6</td> </tr> </table>	Wire Size (AWG)	Crimp Tensile (Pounds minimum)	22	10	24	8	26	6	AMP Spec 109-16. Determine crimp tensile at maximum rate of 1 inch per minute.
Wire Size (AWG)	Crimp Tensile (Pounds minimum)									
22	10									
24	8									
26	6									
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-7. Subject mated samples to 4.41 G's rms. 20 minutes in each of 3 mutually perpendicular planes. See Figure 4.								

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1, except 30 G's. Subject mated samples to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 4.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 2500 cycles at maximum rate of 500 cycles per hour.
Contact retention.	Contacts shall not dislodge from connector housing.	AMP Spec 109-30. Apply axial load of 6 pounds to contacts.
Contact insertion force.	5.5 pounds maximum per contact.	AMP Spec 109-41. Measure force necessary to insert contact into housing.
Mating force.	8.5 ounces maximum per contact.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at maximum rate of .5 inch per minute.
Unmating force.	2 ounces minimum per contact.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at maximum rate of .5 inch per minute.

ENVIRONMENTAL

Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 5 cycles between -55 and 105°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 315 hours.

Figure 1 (cont)

Test Description	Requirement	Procedure
Mixed flowing gas.	See Note.	AMP Spec 109-85-3. Subject mated samples to environmental class III for 10 days.

NOTE *Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)					
	1	2	3	4	5	6
	Test Sequence (b)					
Examination of product	1,9	1,5	1,5	1,8	1,4	1,3
Termination resistance	3,7	2,4	2,4			
Insulation resistance				2,6		
Dielectric withstanding voltage				3,7		
Crimp tensile						2
Vibration	5					
Physical shock	6					
Durability	4					
Contact retention					3	
Contact insertion force					2	
Mating force	2					
Unmating force	8					
Thermal shock				4		
Humidity-temperature cycling				5		
Temperature life		3(c)				
Mixed flowing gas			3(c)			

NOTE

- (a) See Para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.
- (c) Precondition samples with 10 cycles durability.

Figure 2

4. QUALITY ASSURANCE PROVISIONS**4.1. Qualification Testing****A. Sample Selection**

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1, 2, 3 and 4 shall each consist of a minimum of 5 connectors. A minimum of 30 contacts shall be selected and identified. Unless otherwise specified, these contacts shall be used for all measurements. Test group 5 shall consist of a minimum of 3 housings and 36 contacts. Test group 6 shall consist of a minimum of 30 contacts, each of 3 wire sizes 22, 24, and 26 AWG.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

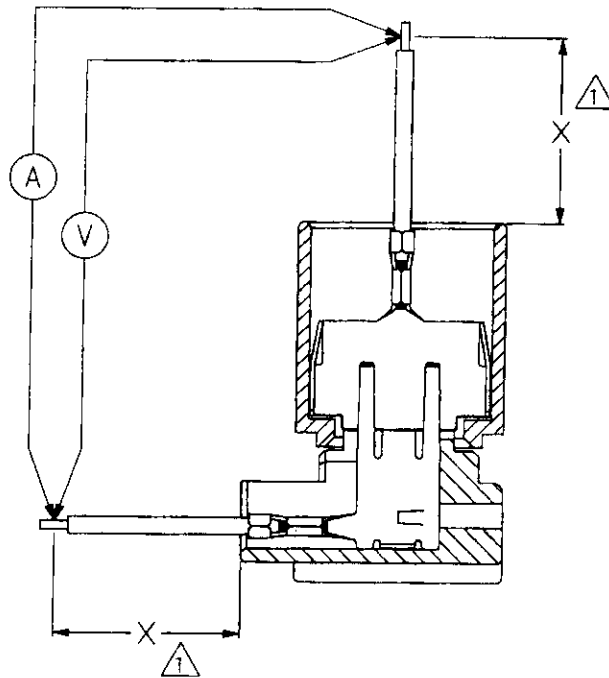
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

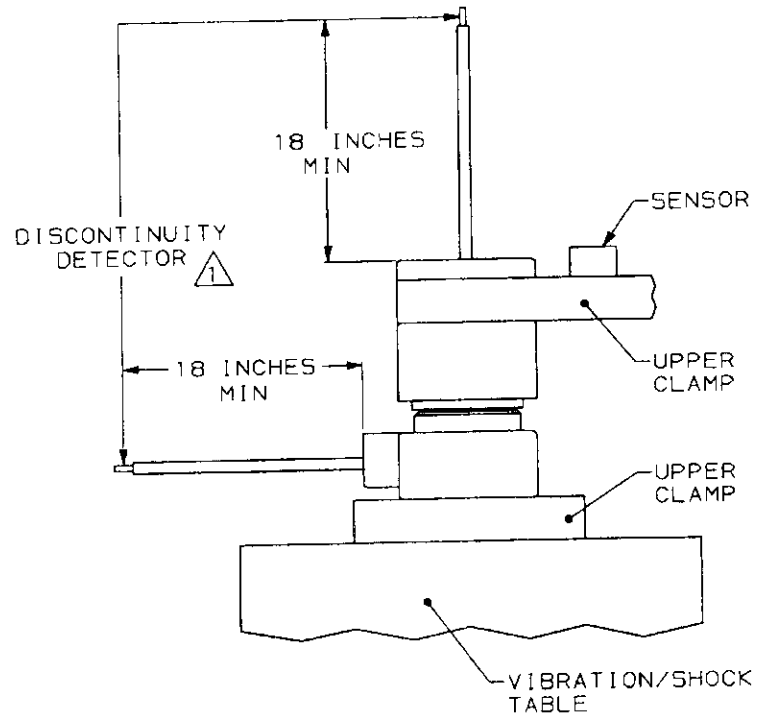
4.4. Quality Conformance Inspection

Applicable AMP quality inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.



① VOLTAGE DROP DUE TO X INCHES OF WIRE IS TO BE REMOVED FROM ALL READINGS.

Figure 3
Termination Resistance Measurement Points




 SAMPLES MAY BE SERIES WIRED.

Figure 4
Vibration & Physical Shock Mounting Fixture