

P R O D U C T   S P E C I F I C A T I O N

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the AMP\* Crimp Type, Miniature COAXICON\* Contacts.

1.2. Definitions

For the purpose of this specification, the following definitions shall apply:

Contact Assembly: Mated Pin and Socket.

Pin: The portion of the contact assembly which houses the female inner contact.

Socket: The portion of the contact assembly which houses the male inner contact.

Outer Shell: The shield or braid circuit of the contact.

Mated Connector Assembly: A connector assembly consists of pin and socket contact assemblies loaded into a mated pair of connector housings with fastening hardware.

1.3. Qualification

When tests are performed on the subject product line, the 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. 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 the requirements of this specification and the referenced documents, this specification shall take precedence.

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DIST 12	A	Revise per ECN AJ-2316	<i>PK</i>	10/22 86	SHEET 1 OF 7
LTR		REVISION RECORD	APP	DATE	TITLE Contacts, Miniature COAXICON, Crimp Type

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2.1. AMP Specifications

- 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, see Figure 3)
- C. Corporate Bulletin 76: Cross reference between AMP Test Specifications and Military or Commercial Documents

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

Materials utilized in the manufacture of this product shall be in accordance with the applicable product drawing.

3.3. Ratings

- A. Current: 7.5 amperes maximum
- B. Operating Temperature: -65 to +125°C


3.4. Performance and Test Description

Contacts shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure			
Examination of Product	Meets requirements of product drawing.	Visual, dimensional and functional per applicable inspection plan.			
<b>ELECTRICAL</b>					
Termination Resistance, Specified Current	2 milliohms maximum.	Measure potential drop of mated contacts removed from housing using proper extraction tool at 1.0 amperes DC, see Figure 3; AMP Spec 109-25, calculate resistance.			
Figure 1 (cont)					
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Test description	Requirement	Procedure			
Termination Resistance, Dry Circuit (low level)	2 milliohms maximum	Subject mated contacts removed from housing using proper extraction to 50 mv open circuit at 100 ma maximum, see Figure 3; AMP Spec 109-6-1.			
Dielectric Withstanding Voltage	1000 vac rms 60 Hz dielectric withstanding voltage, one minute hold. No breakdown or flashover.	Test between center and outer contacts of mated connector assemblies; AMP Spec 109-29-1.			
Insulation Resistance	5000 megohms minimum 200 megohms minimum within 5 minutes after Temperature, Humidity Cycling.	Test between center and outer contacts of mated connector assembly; AMP Spec 109-28-4.			
Voltage Standing Wave Ratio	1.3 maximum for RG-58 c/u, RG-178 and RG-188 A/u.	Measure VSWR of mated pair from .25 to 1.0 GHz per Swept Interference Method AMP Spec 109-9-2, Condition C.			
<b>MECHANICAL</b>					
Vibration (a)	No discontinuities greater than 1 micro-second.	Subjected mated connectors mounted securely to table with cable clamped at 8 inches external to the table to 10-500-10 Hz traversed in 1 minute at .06 inches total excursion; 2 hours in each of 3 mutually perpendicular planes; AMP Spec 109-21-1.			
Physical Shock (a)	No discontinuities greater than 1 micro-second.	Subject mated connector mounted as for vibration to 100 G's sawtooth in 6 milliseconds; 6 shocks in each of 3 mutually perpendicular planes total 18 shocks; AMP Spec 109-26-9.			
Mating Force	1.5 pounds maximum	Measure force necessary to mate individual contacts, incorporating free floating fixtures at a rate of 0.5 inch/minute; AMP Spec 109-42, Condition A.			
Figure 1 (cont)					
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Test Description	Requirement	Procedure												
Unmating Force	1.0 pound minimum	Measure force necessary to unmate individual contacts at a rate of 0.5 inch/minute; AMP Spec 109-42, Condition A.												
Contact Retention	Contacts shall not dislodge from housing.	Remove and insert contacts in housing 9 times using applicable extraction tool. Replace retention spring then apply axial load of 15 pounds in a direction to dislodge from housing and hold for 1 minute; AMP Spec 109-30. Do not pull cable for RG-195 A/u or RG-178.												
Crimp Tensile	<table border="1"> <thead> <tr> <th>Wire Size, AWG</th> <th>Crimp Tensile pounds minimum</th> </tr> </thead> <tbody> <tr> <td>RG-58 c/u</td> <td>50</td> </tr> <tr> <td>RG-188 A/u</td> <td>30</td> </tr> <tr> <td>RG-180 B/u</td> <td>28</td> </tr> <tr> <td>RG-195 A/u</td> <td>16</td> </tr> <tr> <td>RG-178</td> <td>8</td> </tr> </tbody> </table>	Wire Size, AWG	Crimp Tensile pounds minimum	RG-58 c/u	50	RG-188 A/u	30	RG-180 B/u	28	RG-195 A/u	16	RG-178	8	Determine crimp tensile of individual contacts at a rate of 1 inch/minute; AMP Spec 109-16.
Wire Size, AWG	Crimp Tensile pounds minimum													
RG-58 c/u	50													
RG-188 A/u	30													
RG-180 B/u	28													
RG-195 A/u	16													
RG-178	8													
Durability (a)	No physical damage.	Mate and unmate connector assemblies for 500 cycles; AMP Spec 109-27.												
<b>ENVIRONMENTAL</b>														
Thermal Shock (a)	No physical damage.	Subject mated connectors to 5 cycles between -65° and +125°C; AMP Spec 109-22.												
Temperature-Humidity Cycling (a)	No physical damage.	Subject mated connectors to 10 humidity-temperature cycles between 25° and 65°C at 95% RH; AMP Spec 109-23, Method III, Cond B, with cold shock at -10°C, but excluding vibration. Measure Insulation Resistance within 5 minutes after removal from chamber.												
<p>(a) Shall show no evidence of damage, cracking or chipping.</p> <p style="text-align: center;">Figure 1 (end)</p>														
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### 3.6. Connector Tests and Sequences

Test or Examination	Test Group (a)		
	1	2	3
	Test Sequence (b)		
Examination of Product	1	1	1
Termination Resistance, Specified Current	4-6-9		
Termination Resistance, Dry Circuit		4-7-11	
Dielectric Withstanding Voltage	3-11	3-10	
Insulation Resistance	2-10	2-9	
Voltage Standing Wave Ratio			2
Vibration	7		
Physical Shock	8		
Mating Force			3
Unmating Force			4
Contact Retention	12		
Crimp Tensile	13		
Durability		6	
Thermal Shock	5	5	
Humidity-Temperature Cycling		8	

(a) See Paragraph 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

Figure 2

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. Qualification Testing

#### A. Sample Selection

Connectors shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. Each test group shall consist of 5 mating contact pairs for each cable size being tested. Contacts shall be mounted in connector housings. Multiple cable sizes in the same test group may be mounted in the same connector housing. Test groups 1 and 2 shall be crimped to 12-inch lengths of cable. Test group 3 shall be crimped during VSWR test.

#### B. Test Sequence

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

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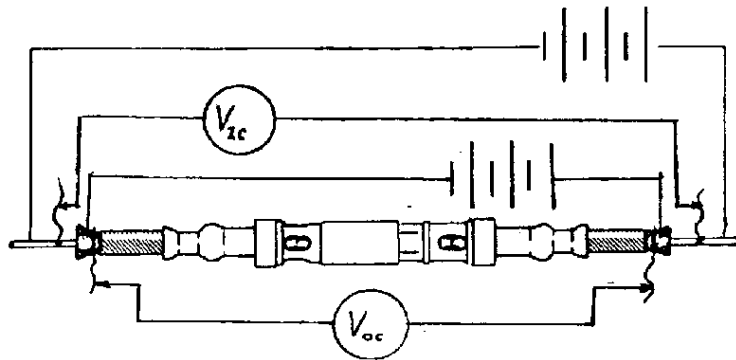
C. Acceptance

- (1) All samples tested in accordance with this specification shall meet the stated tolerance limit.
- (2) Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken.

4.2. Quality Conformance Inspection

The applicable AMP 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.

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- Note:
- a) Measure voltage drop at specified current and calculate resistance.
  - b) Also measure a 3-foot length of cable and calculate milliohms per inch.
  - c) Measure distance between voltage probes and subtract an equal length of cable resistance from measurements to determine actual termination resistance.

Figure 3

Resistance Measurement Points

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