AMP* MINIWEDGE Aluminum Taps

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* MINIWEDGE aluminum taps. These taps consist of a spring "C" member and a wedge of special aluminum alloy. The internal surface of the "C" member shall be grooved to enhance contact between the connector and the conductor minimizing electrical contact resistance and providing superior grip. These taps are intended to provide reliable electrical and mechanical connection for solid, stranded or compressed conductor combinations including ACSR, ACAR, AAC, AAAC and copper or Copperweld™ conductors in various conductor sizes and combinations from 14 AWG through 336.4 wire. Taps are classified mechanically as Class 3 Minimum Tension and electrically as Class A per ANSI C119.4-1991.

1.2. Qualification

When tests are performed on subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed and documented in Qualification Test Report 501-47000. This documentation is on file at and available from Engineering Practices and Standards (EPS).

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 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 precedence.

2.1. Tyco Electronics Documents

- 109-1: General Requirements for Test Specifications
- 109 Series: Test Specifications as indicated in Figure 1
- 408-9858: Instruction Sheet
- 501-47000: Qualification Test Report

2.2. Commercial Standard

ANSI C119.4-1991: Connectors For Use Between Aluminum-To-Aluminum Or Aluminum-To-Copper Bare Overhead Conductors

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Ratings

Limited by rating of cable used

3.4. Performance and Test Description

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

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 quality inspection plan.
ELECTRICAL		
Termination resistance.	See Note (a).	AMP Spec 109-6-7. Measurements shall be taken across each tap with probe points located on equalizers 1/8 inch back from edge adjacent to tap or at similar distance on solid conductor. Non-heating magnitude of direct current shall be used for measurements.
Current cycling.	See Notes (a) and (b).	ANSI C119.4-1991. Subject samples to 500 current cycles of 60 minutes ON and 60 minutes OFF.
MECHANICAL		
Tensile strength.	200 pounds or 5% of rated cable strength of weaker conductor, whichever is larger for conductors larger than #6. 100 pounds or 5% of rated cable strength of weaker conductor, whichever is larger for conductor size #6 and smaller.	AMP Spec 109-16. Apply axial force to conductors at rate of .25 inch per minute.
Conductor damage.	ANSI C119.4-1991, Clause 4.6.	ANSI C119.4-1991, Clause 7.6.

Figure 1 (cont)

Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal shock.	See Note (a).	AMP Spec 109-13009. Subject samples to 5 cycles between 0 and 150˚C.
Salt spray corrosion.	See Note (a).	AMP Spec 109-13010. Subject samples to 5% salt spray solution for 30 days.

NOTE

(a) Shall meet visual requirements, show no physical damage and shall meet the requirements of additional tests as specified in Test Sequence in Figure 2.

(b) Temperature of taps shall not exceed that of control conductor. Each tap shall exhibit stability from the 25th to the 500th cycle. Stability indicated by decrease of this difference of not more than 10˚C from the average of measured differences in this interval.

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of product	1,5	1,7	1,3	1,3
Termination resistance	2,4	2,4,6		
Current cycling	3			
Tensile strength			2	
Conductor damage				2
Thermal shock		3		
Salt spray corrosion		5		

NOTE

(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

Taps shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall consist of 4 taps prepared as required by applicable test specification.

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 product meets the 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

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