
AMPSEAL CPA

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMPSEAL CPA

1.2. Qualification

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

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 9 November 2021.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, 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 referenced documents, this specification shall take precedence.

2.1. TE Documents

- 109-1: Test Specification (General Requirements for Test Specifications)
- 114-16016: Application Specification (AMPSEAL* Automotive Plug Connector and Header Assembly)

2.2. Industry Documents

- SAE/USCAR-2: Performance Specification for Automotive Electrical Connector Systems
- EIA-364-18B: Visual and Dimensional Inspection Test Procedure for Electrical Connectors, and Sockets

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Ratings

Voltage	Current	Temperature
N/A	N/A	-40°C to 125°C

3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions per Test Specification 109-1.

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
VISUAL		
Initial examination of product	Meets requirements of product drawing and Application Specification 114-16016	EIA-364-18B Visual, dimensional and functional per applicable quality inspection plan.
Final examination of product	Meets visual requirements.	EIA-364-18B Visual, dimensional and functional per applicable quality inspection plan.
MECHANICAL		
CPA pre-set to lock	8P Plug: 3N Min, 22N Max. 14P Plug: 2N Min, 22N Max. 23P Plug: 3N Min, 40N Max. ^(a) 35P Plug: 3N Min, 60N Max. ^(a)	USCAR-2 5.4.5.2 Engage component with its retaining mechanism(s) in place at a rate not to exceed 50mm/min.
CPA lock to pre-set	10N Minimum, 30N Maximum	USCAR-2 5.4.5.2 With the component fully installed and properly fixtured, disengage the component at a rate not to exceed 50mm/min
Lock deflection force	8P Plug: 14N Minimum 14P Plug: 17N Minimum 23P Plug: 17N Minimum 35P Plug: 17N Minimum	USCAR-2 5.4.2.4 Fully engage the CPA into the final lock position. Gradually apply an upward force to the locking latch. Pull on connector to see if connector disengages.
CPA complete removal from pre-set	30N Minimum	USCAR-2 5.4.5.2 Fully remove the component at rate not to exceed 50mm/min

Figure 1



NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.

- (a) Maximum engagement force measured by machine is not representative of force needed to engage CPA by hand. See 114-16016 for proper engagement technique.

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)			
	1	2	3	4
	TEST SEQUENCE (b)			
Initial examination of product	1	1	1	1
CPA pre-set to lock	2	2	2	2
CPA lock to pre-set	3	3	3	3
Lock deflection force	4	4	4	4
CPA complete removal from pre-set	5	5	5	5
Final examination of product	6	6	6	6

Figure 2



NOTE

- (a) See paragraph 4.1.A
- (b) Numbers indicate sequence in which tests are performed.

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Each test group shall consist of a minimum of 8 CPA samples.

Sample Quantities for Test Sequences

Test Group	Connector Size	Plug Assembly	Header Assembly	Sample Qty.
1	8 Position	776286-1	776275-1	8
2	14 Position	776273-1	776261-1	8
3	23 Position	770680-1	776200-1	8
4	35 Position	776164-1	776231-1	8

Figure 3

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3

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 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 specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable quality inspection plan shall 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.

5. SETUP FIGURES

CPA Pre-Set to Lock

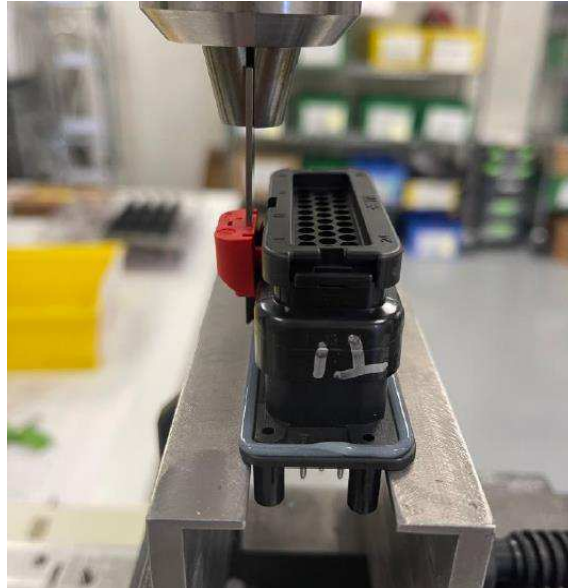


Figure 4

CPA Lock to Pre-Set

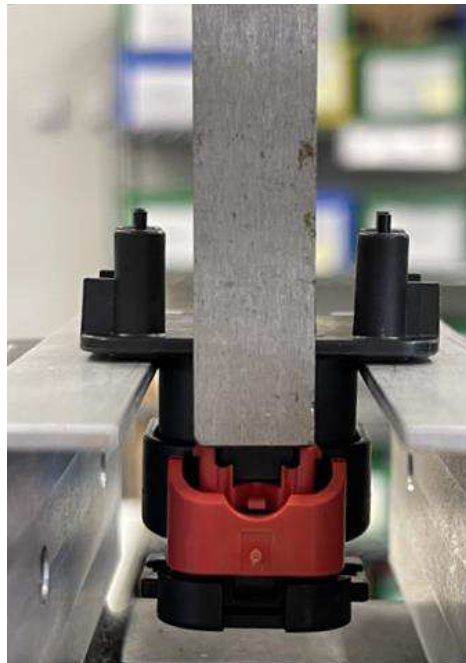


Figure 5

Lock Deflection Force



Figure 6

CPA Complete Removal from Pre-Set



Figure 7

6. REVISION HISTORY

Revision	Date	Revision Description
A	30 Nov. 2021	Initial Release