AMPSEAL 16 Vertical and Right Angle Backshells

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMPSEAL 16* Backshell family.

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 06 June 2016. The Qualification Test Report number for this testing is 501-151043. This documentation is available internally in the DM.TEC System and also available on the TE Website by searching any backshell part number.

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 the referenced documents, this specification shall take precedence.

2.1. TE Connectivity (TE) Documents

- 501-151043: Qualification Test Report (AMPSEAL 16* Backshells)
- 408-151043: Instruction Sheet

2.2. Industry Documents

- SAE J2030: Heavy-Duty Electrical Connector Performance Standard
- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Reference Document

- 109-197: Test Specification (TE Test Specification vs EIA and IEC Test Methods)
- 114-13045: Application Specification (HDSF Size 16 Pin and Socket Contacts)
- 114-13065: Application Specification (AMPSEAL 16 Connector System)

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

- Temperature: -40°C to 125°C
- Flammability: UL94 V0

3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

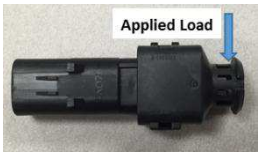
TEST DESCRIPTION	REQUIREMENT	PROCEDURE
Initial and final examination of product	Meets requirements of product drawing.	SAE J2030 6.1 and 6.27 Visual inspection of product before and after testing for conditions such as cracked plastic, deformation, degradation, or anything that affects performance or serviceability of the product deemed by qualified Engineer.
MECHANICAL		
Adapter Side Load (4 Directions)	>50 Newton's [11.2 lbs.] 	No Specification Procedure Secure a connector/backshell assembly in a vice horizontally and apply downward force on the outer most point of the backshell at 25mm/min until 50N is reached. Hold for 5 seconds. Apply in all 4 directions.
Adapter Axial Pull	>75 Newton's [16.8 lbs.] 	No Specification Procedure Secure a connector/backshell assembly in a vice vertically and apply pull force on the outer most point of the backshell at 25mm/min until 75N is reached. Hold for 5 seconds.
Durability	2 times at room temperature	SAE J2030 6.11. The backshell to be removed and reinstalled on connector 2 times after environmental exposure.
ENVIRONMENTAL		
Thermal Shock	See Note	SAE J2030 6.13. Subject specimens to 10 thermal cycles between -40°C and 125°C with 1 hour dwells at temperature extremes.
Pressure Wash	See Note	SAE J2030 6.5 and SAE J1455 4.5. Subject specimens to spray for 3 seconds of a 6 second period for a total of 375 cycles consisting of a volume of 9.46 liters per minute at a pressure of 7000 kPa and a temperature of 40°C from a distance of 20 to 30 cm. No detergent.
Temperature Life	See Note	EIA-364-17. Subject specimens to 125 ± 3°C for 500 hrs.
Fluid Immersion	See Note	SAE J2030 6.14. Subject specimens to 5 cycles of a 5 minute dip followed by air dry for 24 hours with the following fluids: 1. Diesel Fuel @ 60 ± 3°C 2. Engine Oil @ 85 ± 3°C 3. Brake Fluid @ 85 ± 3°C 4. Antifreeze 50/50 @ 85 ± 3°C

Figure 1

ELECTRICAL		
Insulation Resistance	≥ 20 MΩ	SAE J2030 6.3. Insulation Resistance at 1000 Volts DC between adjacent terminals measured after 60 seconds or until stabilization occurs.

Figure 1 Cont'd

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.

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)		
	1	2	3
	TEST SEQUENCE (b)		
Initial examination of product	1	1	1
Adapter Side Load (4 Directions)	2		
Adapter Axial Pull	3		
Durability			3
Insulation Resistance		4	
Thermal Shock		2	
Temperature Life			2
Pressure Wash		3	
Fluid Immersion			4
Final examination of product	4	5	5

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. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets (408-151043) and shall be selected at random from current production. Specimens shall consist of 2, 3, 4, 6 and 12 position connectors and backshells with TE HDSF Size 16 gold plated pin and socket contacts.

B. Test Sequence

Qualification inspection shall be verified by testing specimens 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, the Product Engineer shall coordinate requalification testing, consisting of all or part of the original test sequences.

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. If product failures occur, 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.