



Jiffy Splice System

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) Jiffy Splice System.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 2 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Successful qualification testing on the subject product line was completed in 2016. The Qualification Test Report number for this testing is 501-151042. This documentation is on file at and available from Product Engineering, Industrial Commercial Transportation (ICT).

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.

2.1. TE Connectivity (TE) Documents

- [109-1](#): General Requirements for Testing
- [109-197](#): Test Specification (TE Test Specification vs EIA and IEC Test Methods)
- [114-151000](#): Application Specification for DEUTSCH Size 16 S&F Pin & Socket
- [408-151007](#): Instruction Guide DEUTSCH Extraction Rear Release Tool
- 501-151042: Jiffy Splice Qualification Test Report
- Product Drawing

JS-XX-XX	Jiffy Splice, Size 12, 16
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2.2. Industry Documents

- DIN 72551-6: Road Vehicles—Low-Tension Cables—Part 6: Single-Core, Unscreened with Thin Insulation Wall; Dimensions, Materials, Marking
- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- IEC-60512: Electronic Equipment - Tests and Measurements
- ISO 6722: Road Vehicles—60 V and 600 V Single-Core Cables—Dimensions, Test Methods, and Requirements
- SAE J1128: Low Voltage Primary Cable
- SAE J2030: Heavy-Duty Electrical Connector Performance Standard

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 (A)	Temperature
250 VDC	JS-12-00	-55°C to +125°C
	12AWG [3.0] = 25.0	
	14AWG [2.0] = 18.0	
	JS-16-00	
	14AWG [2.0] = 13.0	
	16AWG [1.0] = 13.0	
	18AWG [.8] = 10.0	
20AWG [0.50] = 7.5		

Figure 1

3.3. Test Requirements and Procedures Summary

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

TEST DESCRIPTION	REQUIREMENT	PROCEDURE																												
Examination of Product	The connectors shall be correctly constructed, marked and shall show good quality and workmanship	SAE J2030 Visually inspected for use of materials, proper construction, correct part number and insert markings and over-all quality of workmanship. Poor molding fabrication, loose materials, damaged or improperly manufactured contacts, galling of metal parts, nicks and burrs of metal parts, torn seals or cracked plastic were considered adequate basis for rejection.																												
ELECTRICAL																														
Insulation Resistance	20 MΩ minimum	SAE J2030 Using a 1000 VDC megohmmeter check each contact to all other contacts and the shell electrically connected together.																												
Contact Resistance	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Wire Size AWG [mm²]</th> <th>Test Current (A)</th> <th>Voltage Drop (mV max) Solid</th> <th>S&F</th> </tr> </thead> <tbody> <tr> <td>12 [3.0]</td> <td>25</td> <td>60</td> <td>100</td> </tr> <tr> <td>14 [2.0] (12)</td> <td>18</td> <td>60</td> <td>100</td> </tr> <tr> <td>14 [2.0] (16)</td> <td>13</td> <td>60</td> <td>100</td> </tr> <tr> <td>16 [1.0]</td> <td>13</td> <td>60</td> <td>100</td> </tr> <tr> <td>18 [.80]</td> <td>10</td> <td>60</td> <td>100</td> </tr> <tr> <td>20 [.50]</td> <td>7.5</td> <td>60</td> <td>100</td> </tr> </tbody> </table>	Wire Size AWG [mm ²]	Test Current (A)	Voltage Drop (mV max) Solid	S&F	12 [3.0]	25	60	100	14 [2.0] (12)	18	60	100	14 [2.0] (16)	13	60	100	16 [1.0]	13	60	100	18 [.80]	10	60	100	20 [.50]	7.5	60	100	EIA-364-6 Using test currents as defined. The resistance of an equal length wire (reference wire) shall be subtracted from the actual readings to determine the added resistance of the terminal. The reference wire shall be from the same reel as used for the connector wiring
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MECHANICAL																														
Terminal Retention in Connector	JS-12-00: 30 lbf [133N] JS-16-00: 25 lbf [111N] The terminal shall remain in place	SAE J2030 The contacts shall be subjected to a direct pull. The minimum value specified shall be applied for 1.0 min. The pull is to be exerted on the conductor by means of a tension-testing machine or equivalent to prevent sudden or jerking force during test.																												

Figure 2

<p>Vibration</p>	<p>There shall be no discontinuity in excess of one (1) μs at 20mV and 100 mA during the last hour of each axis. Shall meet visual requirements, show no physical damage and meet requirements of additional tests as needed.</p>	<p>Sine Sweep: 10 to 2000 Hz Initial Displacement: 1.78 mm DA Maximum Acceleration: 20 G's Test Duration: 12 hour Time per X, Y, Z axis: 4 hour Test Current first 3 hours each axis: 12AWG [3.0]: 17A 14AWG [2.0] (12): 13A 14AWG [2.0] (16): 10A 16AWG [1.0]: 10A 18AWG [.80]: 8A 20AWG [.50]: 5A</p>
<p>ENVIRONMENTAL</p>		
<p>Temperature Life</p>	<p>There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.</p>	<p>SAE J2030 The wired mated connectors shall be subjected to 1000 hours at +125°C without current flowing.</p>
<p>Thermal Shock</p>	<p>There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.</p>	<p>SAE J2030 Subjected test sample to 10 cycles. One cycle shall consist of a soak time at -55°C then a transition within 2 min to an ambient of +125°C, with a soak time there and then a transition back to -55°C within 2 min. The soak times shall be established as the time necessary to bring the internal connector temperature on test to within 5°C of each of the ambient temperatures.</p>
<p>Water Immersion</p>	<p>Test samples must meet insulation resistance and visual inspection for moisture inside the connector.</p>	<p>SAE J2030 The wired mated connectors shall be placed in an oven at 125 °C \pm 3 °C for 1 h then immediately be placed in water with a 5% salt in weight content and 0.1 g/L wetting agent, to a depth of 1 m for 4 h. Water temperature is to be 23 °C \pm 3 °C. The ends of the cable are to be sealed during this test.</p>

Figure 2 Cont

<p>Fluid Immersion</p>	<p>There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.</p>	<p>SAE J2030</p> <p>Subject each connector to one fluid only in the cabled and mated condition. Submerge the mated connector in fluid listed at the specified temperature $\pm 3\text{ }^{\circ}\text{C}$ for 5 min, then remove and allow to air dry for 24 h. This completes one cycle. Each connector is to be subjected to a total of five cycles. Inspect for damage after the test.</p> <table border="1" data-bbox="1019 495 1555 781"> <thead> <tr> <th>Fluid</th> <th>Temperature $\pm 3\text{ }^{\circ}\text{C}$ ($\pm 5\text{ }^{\circ}\text{F}$)</th> </tr> </thead> <tbody> <tr> <td>Motor Oil 30 weight</td> <td>+60 [140]</td> </tr> <tr> <td>Brake Fluid (disc type 1)</td> <td>+60 [140]</td> </tr> <tr> <td>Gasoline</td> <td>+25 [77]</td> </tr> <tr> <td>Diesel Fuel #2</td> <td>+60 [140]</td> </tr> <tr> <td>50/50 Antifreeze/Water mixture</td> <td>+60 [140]</td> </tr> <tr> <td>Transmission Oil 90 weight</td> <td>+60 [140]</td> </tr> </tbody> </table>	Fluid	Temperature $\pm 3\text{ }^{\circ}\text{C}$ ($\pm 5\text{ }^{\circ}\text{F}$)	Motor Oil 30 weight	+60 [140]	Brake Fluid (disc type 1)	+60 [140]	Gasoline	+25 [77]	Diesel Fuel #2	+60 [140]	50/50 Antifreeze/Water mixture	+60 [140]	Transmission Oil 90 weight	+60 [140]
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Figure 2 end



NOTE

- a) *All cavities wired with the minimum approved wire gauge per SAE J1128 suitable for the terminal size and with sufficient length to accommodate testing. Wire insulation shall be minimum diameter per SAE J1128 and shall be verified to be within the connector wire sealing range. Crimp characteristics (i.e. height, width, etc.) shall be checked prior to testing. All unsealed cavities shall be secured with sealing plugs. To prevent capillary action on the sealed connector, all free wire ends and test points (i.e. millivolt test connection) shall be sealed with alcohol-based RTV silicone or equivalent and covered with heat shrink tubing.*

- b) *Specimens shall be prepared in accordance with applicable production drawings and shall be selected at random from current production.*

3.4. Product Qualification and Requalification Test Sequence

Test	Test Group (a)		
	1	2	3
Test Sequence (b)			
Examination of Product	1,9	1,6	1,3
Insulation Resistance	2,7	2	
Contact Resistance	3	3	
Temperature Life		4	
Thermal Shock	4	5	
Fluid Immersion	8		
Vibration	5		
Terminal Retention in Connector			2
Water Immersion	6		


NOTE

- a) *Specimens shall be prepared in accordance with applicable product drawing and shall be selected at random from current production.*
- b) *Numbers indicate sequence in which tests are performed. JS-12-00 specimens shall consist of DEUTSCH Stamped and Formed Terminal System size 12 nickel/tin plated pin and socket contacts with 12GXL. JS-16-00 specimens shall consist of DEUTSCH Stamped and Formed Terminal System size 16 nickel plated pin and socket contacts with 16SXL.*