

**1.0 SCOPE**

**1.1. Content:**

This specification covers performance, tests and quality requirements for Splicing Wire Connectors. Applicable product descriptions and part numbers are as shown on product drawing.

**1.2. Qualification:**

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

**2.0 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 TE Connectivity Documents:**

- 501-137271: Test Report.
- C-2834245: Splicing Wire Connector

**3.0 REQUIREMENTS**

**3.1 Design and Construction**

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

**3.2 Materials**

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

**3.4 Ratings**

- A. Rated Insulation Voltage: 450 V
- B. Rated Wiring Capacity: 0.2-4 mm<sup>2</sup>
- C. Operating Temperature: 85C Max.

**3.5 Performance and Test Description**

Product is designed to meet the electrical, mechanical and environmental performance requirements. Unless otherwise specified, all tests shall be performed in the room temperature (20°C±5°C).

**3.6 Test Requirements and Procedures Summary**

**3.6.1 Examination:**

Test Description	Requirement	Procedure
Examination of the product	Meets visual requirements.	Visual inspection per relative requirements of IEC60998-1:2002 and IEC60998-2-2:2002 and product drawing.

Test Description	Requirement	Procedure
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### 3.6.2 ELECTRICAL

Test Description	Requirement	Procedure
Protection Against Electric Shock	Indicator light connected with test finger is dim	The device is connected with a conductor of the smallest and largest specified cross-section, brought to a temperature of $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . Test finger is applied with a force of 10 N to any openings of the device. Per IEC60998-1:2002 Clause 9
Insulation Resistance	5 M $\Omega$ Min between all clamping units connected together and the body for connecting devices without fixing means or between each clamping unit and all others connected to the body for connecting devices without fixing means.	Each clamping unit of a connecting device shall be connected alternatively with conductors of the smallest and the largest cross-sectional area. The insulation resistance is then measured with a d.c. voltage of approximately 500 V applied, the measurement being made 1 min after application of the voltage. Test shall be performed right after test of resistance to humidity conditions. Per IEC60998-1:2002 Clause 13.3
Electric Strength	No flashover or breakdown.	The device is connected with 14 AWG conductor. A voltage of 3400 V and 60Hz is applied between live parts and external electrode for 1 min. Per IEC60998-1:2002 Clause 13.4
Clearances and Creepage Distances	4mm Min	Test creepage distances and clearances between live parts and the surface on which the base is mounted. Per IEC60998-1:2002 Clause 17
Temperature Rise	The temperature rise should be max 45K.	Three connecting devices are connected in series with solid wire, stranded wire and flexible wire of 4mm <sup>2</sup> and measured at 32A in a heating cabinet at 85 $^{\circ}\text{C}$ when the device under test has reached thermal equilibrium. Per IEC60998-1:2002 Clause 15

### 3.6.3 MECHANICAL

Test Description	Requirement	Procedure
Connection Test	The terminal shall not be damaged in such a way as to impair its further use.	This connection and subsequent disconnection shall be made 5 times with 0.2mm <sup>2</sup> and 5 times with 4mm <sup>2</sup> conductor. New conductor shall be used each time, except for the 5 <sup>th</sup> time, when the conductor used for the 4 <sup>th</sup> insertion is clamped at the same place. Per IEC60998-2-2:2002 Clause 10.104.1
Wire Insertion Force	It shall be possible to fit the conductor into the terminal without undue force. After the test, no wire of the conductor shall have escaped outside the terminal.	Terminals are fitted with new conductors of 4mm <sup>2</sup> . Per IEC60998-2-2:2002 Clause 10.104.2
Rotary Pull Force	During the test, the conductor shall neither slip out of the clamping unit, nor break near the clamping unit, nor shall the conductor be damaged in such a way as to render it unfit for further use.	Specimens are connected with conductors with corresponding mass suspended from the end, subjected to rotary test for 15 min. Weight of mass: 0.2kg for 0.2mm <sup>2</sup> , 0.9kg for 4mm <sup>2</sup> . Per IEC60998-2-2:2002 Clause 10.105
Pull Force	During the test, the conductor shall not come out of the terminal.	After rotary pull force test, corresponding pull force shall be applied to each conductor tested in accordance with rotary pull force for 1 min. Pull force: 10 N for 0.2 mm <sup>2</sup> , 60 N for 4 mm <sup>2</sup> . Per IEC60998-2-2:2002 Clause 10.106

### 3.6.4 Environmental

Test Description	Requirement	Procedure
Resistance to Aging	No negative impact to insulation of specimens after the test.	Specimens are conditioned for 168 h in oven at 121 °C. Per UL486C Clause 9.5.2.2
Resistance to Humidity Conditions	The samples shall show no damage within the meaning of the standard after the test.	The samples are kept 48 h in a humidity cabinet containing air with relative humidity maintained between 91% and 95% and is maintained within 1 °C of any convenient value of t between 20 °C and 30 °C. Per IEC60998-1:2002 Clause 12.2
Resistance to Heat	During the test specimens shall not undergo any change impairing their further use. After the test and after the samples have be allowed to cool to approximately ambient temperature, there shall be no access to live parts which are normally not accessible when the samples are mounted as in normal use, even if the standard test finger is applied with a force not exceeding 5 N. After the test, markings shall still be legible.	Samples are kept for 1 h in a heating cabinet at a temperature of 130 °C ± 5 °C. Per IEC60998-1:2002 Clause 16

### 3.6.5 Materials

Test Description	Requirement	Procedure
Marking	Marking shall still be legible after the test.	For marking not made by moulding, pressing or engraving, the test is made by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit. Per IEC60998-1:2002 Clause 8.4
Glow-wire	There is no visible flame and no sustained glowing. Or if flames and glowing on the sample extinguish within 30 s after the removal of the glow-wire, there shall be no ignition of the tissue paper or scorching of the board.	For parts of insulating material necessary to retain current-carrying parts in position, by the test made at a temperature of 850 °C for 5 s. For parts of insulating material not necessary to retain current-carrying parts in position, by the test made at a temperature of 650 °C for 5 s. Per IEC60998-1:2002 Clause 18
Resistance to Tracking	Current between different electrodes shall not exceed 0.5A during the test for 2 s min. Specimen shall not be burned or damaged.	Test is performed per proof tracking index of 175 V. Per IEC60998-1:2002 Clause 19
Ball-pressure	The diameter of the impression caused by the ball is measured and shall be exceed 2 mm.	Steel ball is placed underneath the sample and kept for 1 h in a heating cabinet at a temperature of 130 °C. Per IEC 60998-1:2002 Clause 16.3
Moisture Absorption	After the test, increased weight of specimen shall not exceed 3% of first weigh.	The insulation of specimen shall be broken, weighed, and then submerged in distilled water at room temperature for 24 h. After removal from the water, the specimens shall be dried with a soft cloth to remove all surface water before reweighing. Per UL486C Clause 9.9
Flammability	Duration of flaming is within 30 s after first flame application; duration of flaming is within 60 s after second flame application	Apply same test specimen of 125mm × 13mm × 3mm to flame for 10 s for twice. When flaming of the specimen ceases, the cycle shall be repeated again. Per UL 486C Annex B

**3.6.6 Product Qualification and Requalification Test Sequence**

Test group	A	B	C	D	E	F	G*	H*	I	J	K*
Examination of product	1, 10	1, 3	1, 3	1, 4	1, 3	1	1, 3	1, 3	1, 4	1	1
Marking	2										
Protection Against Electric Shock	3										
Resistance to Aging	4								2		
Resistance to Humidity	5								3		
Electric Strength	6										
Insulation Resistance	7										
Resistance to Heat	8										
Clearances and Creepage Distances	9										
Connection Test		2									
Wire Insertion Force			2								
Rotary Pull Force				2							
Pull Force				3							
Temperature Rise					2						
Glow-wire						2					
Resistance to Tracking							2				
Ball-pressure								2			
Moisture Absorption										2	
Flammability											2
Sample size	3pcs	3pcs	3pcs	6pcs	9pcs	3pcs	5pcs	3pcs	21pcs	3pcs	5pcs

\*Notes: 1. Thickness of specimen in Group G and Group H is 3mm, same as specimen of insulation materials for the splicing wire connector;  
 2. Thickness of specimen in Group K is 125mm × 13mm × 3mm, same as specimen of insulation materials for the splicing wire connector.  
 3. Sample size is determined as per Table AA.1 of IEC 60998-2-2:2002, Table 8 of UL486C and specifics of the sample.

**4.0 Quality Assurance Provisions**

**4.1 Qualification Testing**

**A. Specimen Selection**

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production.

**B. Test Sequence**

Qualification inspection shall be verified by testing specimens as specified.

**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. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmitted.

**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

Product Part No.	Description
*-2834245-*	Splicing wire connector