



# XRC™ (EXTRA RUGGED CIRCULAR) SEALED PLUGS AND RECEPTACLES

## XRC PLUG 和 RECEPTACLE 系列连接器 产品规范

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## 1. SCOPE 适用范围

### 1.1 Content 内容

THIS PRODUCT SPECIFICATION COVERS THE XRC™ CIRCULAR SEALED CONNECTOR SERIES.

This specification applies to the product as below, but not limited to it.  
2600000-1~ 2600019-1

本规范适用于 XRC™ 圆形密封连接器系列所用的性能，测试和质量要求。  
本规范适用但不仅限于以下零件号：  
2600000-1~ 2600019-1

### 1.2 PRODUCT DESCRIPTION 产品描述

SEALED CIRCULAR CONNECTOR ASSEMBLIES

- A. 18 SHELL – 14 PIN LAYOUT
- B. 24 SHELL – 31 PIN LAYOUT
- C. STAMPED AND FORMED PIN AND SOCKET TERMINALS  
Size 16 : 18-14 awg

圆形密封连接器组件

- A. 18 外壳 - 14 引脚布局
- B. 24 外壳 - 31 引脚布局
- C. 标记和形成的 PIN 和插座端子  
尺寸 16: 18-14 AWG

## 2. APPLICABLE DOCUMENTS 适用文件

### 2.1 Usable document 使用文件

In the event of conflict between the requirements of this specification and the drawing, the drawing shall take precedent.

In the event of conflict between the requirement of this specification and the referenced documents, this specification shall take precedent.

在本规范的要求与图纸发生冲突时，以产品图纸为准。在本规范的要求与参考文件发生冲突时，以本规范为准。

### 2.2 TE specifications 泰科电子规范

109-1: General requirements for Test Specifications / 测试通用规范

### 2.3 Other specifications 其他规范

USCAR-2 REVISION 6

LV214 2010-03

J2030 2015-06

## 3. REQUIREMENT 要求

### 3.1 Design and Construction 设计和结构

Products must meet the design, construction and physical dimensions specified in the applicable product drawings.

产品必须满足产品图纸上的设计，结构和尺寸要求。

### 3.2 Material 材料

Description of the material sees the related product drawings.

材料描述见相关产品图纸。

- A. GLASS FILLED POLYESTER HOUSINGS
- B. NICKEL PLATED OR GOLD PLATED COPPER ALLOY TERMINALS
- C. SILICONE RUBBER SEALS

### 3.3 WIRE SEAL INSULATION OUTSIDE DIAMETER RANGE 外径范围内的电线密封绝缘

- A. 18 AWG – 1.35-3.05MM (.053-.120 INCH)
- B. 16 AWG – 2.24-3.40MM (.088-.134 INCH)
- C. 14 AWG – 2.54-3.40MM (.100-.134 INCH)

### 3.4 safety agency approvals 安全机构批准

- A. UL FILE# E152602
- B. ALL PARTS ARE ROHS COMPLIANT
- C. ALL MOLDED COMPONENTS FLAMMABILITY RATED 94 V-0

### 3.5 Test parameters and tolerances 测试参数与公差

Table 1: Test parameters and tolerances

Requirement 要求	Tolerance 公差
Ambient temperature 环境温度	23°C ± 5°C
Relative humidity 相对湿度	30% to 70%
Atmospheric pressure 大气压力	96kPa ± 10kPa

### 3.6 Ratings 等级

A. Operating Temperature / 工作温度: -40~125°C

B. CURRENT AND APPLICABLE WIRES / 产品应用

AWG	Amps
18	10
16	12
14	13

### 3.7 General Performance and Test description 通用性能和试验描述

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Para.3.8. All testes must be performed at the test condition of the TE test specification 109-1 unless otherwise specified.

产品应能满足段落 3.8 中的电气，机械和环境等性能要求。所有试验均需按照 TE 规范 109-1 中的测试条件进行，除非另有说明。

### 3.8 Tests requirement and method summary 测试要求及方法

**3.8.1 ELECTRICAL REQUIREMENTS**

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	TEST PERFORMED	
				18-14	24-31
1	Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA.	30 milliohms MAXIMUM [initial]	X	X
2	Contact Resistance @ Rated Current	Mate connectors: apply a maximum voltage of 20 mV at rated current.	30 milliohms MAXIMUM [initial]	X	X
3	Insulation Resistance	Un-mate connectors and apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Mega Ohms MINIMUM	X	X
4	Dielectric Withstanding Voltage	Un-mate connectors and apply a voltage of 1600 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < 5 mA	X	X
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	TEST PERFORMED	
				18-14	24-31
5	Current Rating at Maximum Temperature Rise	Mate connectors 10 times and then incrementally increase the input current thru all positions of a fully loaded Connector until the Temperature Rise Stabilizes below the Maximum Material Ratings.	+125°C Maximum at Rated Current	X	X
6	Current Cycling	Mate connectors 10 times then submit to 200 hours of Rated Current Cycling (45 minutes on / 15 minutes off)	Millivolt Drop across terminals shall not exceed 10 millivolts / amp	X	X

**3.8.2 MECHANICAL REQUIREMENTS**

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	TEST PERFORMED	
				18-14	24-31
7	Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 50 ± 6 mm (2 ± ¼ inch) per minute.	53.4 N (12 lbf) Minimum retention force	X	X



8	Terminal Insertion Force (in Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).	22.2 N (5 lbf) MAXIMUM insertion force	X	X
9	Durability	Mate Nickel Plated and Gold Plated terminals up to 250 times at a maximum rate of 10 cycles per minute.	10 milliohms Maximum (change from initial)	X	X
10	Terminal Mating Insertion Force	Axial pullout force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	22.2 N (5 lbf) MAXIMUM insertion force	Terminal to Terminal Interaction  No Connector Housings Required	
11	Terminal Mating Withdrawal Force	Axial pullout force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	22.2 N (5 lbf) MAXIMUM withdrawal force		
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	TEST PERFORMED	
				18-14	24-31
12	Vibration (Random)	Mate connectors 10 times, and vibrate from 10Hz to 2000Hz to 10Hz for 8 hours in each of three mutually perpendicular axes (X, Y, Z) with a maximum acceleration of 20g.	10 milliohms Maximum (change from initial) & Discontinuity < 1 microsecond	X	X
13	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch) for 1 minute.	Minimum pullout force N (lbf) 18 awg 88.9(20) 16 awg 133.5(30) 14 awg 222.4(50)	X	X

**3.8.3 ENVIRONMENTAL REQUIREMENTS**

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	TEST PERFORMED	
				18-14	24-31
14	Thermal Cycling	Mate connectors 10 times and then expose to 120 cycles of: Temp°C      Duration (Mins) -40            180 +125          180 And Repeat (3-5°C/minute Transfer Rate)	10 milliohms Maximum (change from initial) & Visual: No Damage	X	X*
15	Immersion	Mated connectors are submerged in 10 ft of Sea (salt) Water for 20 minutes.	No water penetration into connector is allowed.	X	
16	Thermal Aging	Mate connectors 10 times and then expose to 336 hours at 125 ± 2°C	10 milliohms Maximum (change from initial) & Visual: No Damage	X	X



17	Salt Spray	Mated connectors are submitted to 500 hours exposure to Salt Spray of a 5% solution at a temperature of 35 +1/-2°C	10 milliohms Maximum (change from initial) & Visual: No Damage	X	X
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT	TEST PERFORMED	
				18-14	24-31
18	Temp/Humidity Cycling	Mated Connectors are submitted to 15 Cycles of 16 hrs @ 95% RH & 40°C 2 hrs @ -40°C 2 hrs @ +125°C 4 hrs @ Room Ambient (25°C)	10 milliohms Maximum (change from initial)	X	X*
19	Low Temp	Mate connectors 10 times and then expose to 96 hours at -40 ± 3°C	10 milliohms Maximum (change from initial) & Visual: No Damage	X**	X
20	Fluid Compatibility (Seals)	Submerge seals for 30 minutes minimum in each of the following automotive fluids: antifreeze, 2 cycle oil, ASTM IRM 903 oil, and gear oil	Visual: No Damage or Change in Fit, Form or Function.	X	X
21	IP67	IP6X - Expose mated connector to suspended dust under pressure IPX7 – Submerge mated connector under water 1 meter minimum for 30 minutes minimum duration.	No breakdown; current leakage < 5mA & Visual: No dust or water	X	X

\* Performance qualification based on 18-14 validation test results. 24-31 and 18-14 connectors are of similar construction, utilize the same crimp terminals and are manufactured using identical materials.

\*\* Performance qualification based on 24-31 validation test results. 24-31 and 18-14 connectors are of similar construction, utilize the same crimp terminals and are manufactured using identical materials.

### 3.9 PACKAGING 包装

ASSEMBLIES SHALL BE PACKAGED IN TRAYS TO PROTECT AGAINST DAMAGE DURING HANDLING, TRANSIT AND STORAGE.

组件应包装在托盘中，以防止在搬运，运输和存储过程中造成损坏。

## 4. QUALITY 质量

### 4.1 Qualification test 鉴定

Samples must be in accordance with drawings and be taken in a random way in the production in progress.

样件必须与产品图纸一致，并且是生产过程中随机选取的。

#### 4.2 Requalification test 重新鉴定

If changes significantly affecting form, fit, or function are made to the product or to the manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by product engineering.

如果产品或者制造过程中有显著影响外观，装配和功能的设变，质保需要协调按照原先工程定义的测试顺序，重新验证全部或者部分测试项目。

#### 4.3 Acceptance 验收

Acceptance is based on verification that the product meets the requirements of section 3.6. 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 resubmitted.

以符合第 3.6 节的要求验收。归咎于测试设备，样件安装或者操作员的失误的失效不应判定产品不合格。当产品失效发生时，需要有纠正措施以及重新提交样件进行验证。在重新验证前，需确认已有纠正措施。

#### 4.4 Quality conformance inspection 质量合格检验

The applicable TE Connectivity quality inspection plan will 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

TE Connectivity 的质量检验计划将指定适用的质量标准。尺寸和功能要求，应按照适用的产品图纸和本规范。