



# Product Specification

## MEDICAL CIRCULAR PLASTIC CONNECTOR SYSTEM



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DOCUMENT NUMBER: <b>PS-172350-0000</b>	CREATED / REVISED BY: <b>JJONIAK</b>	CHECKED BY: <b>JGAUMER</b>	APPROVED BY: <b>RHODGE</b>



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## 1.0 SCOPE

The product is classified as a medical grade plastic circular connector. The plug (male) connector system provides for both individually molded and over-mold strain relief. Overmolded boots are color coded for easy visual confirmation. The 17 circuit system is Wire to Wire and Wire to Panel. Circuit size loading can be optional for specific customer needs. The circuit pitch (center to center) is 1.80 radially x 1.9mm row to row. Polarization keys are available with color coding to distinguish. The mated system is designed to meet IP50 requirements with options to meet IP67 (suspended dust and submersible in one meter of water). The terminals are available in solder cup tail as well as solder tails on the female for board applications. Plating is Gold in the interface area with Tin in the solder areas. Suggested wire is #24 to #28 gauge stranded.

## 2.0 PRODUCT DESCRIPTION

### 2.1 NAMES AND SERIES NUMBER(S)

Description	Series Number
Female Terminals	172343-*
Female Retainer and Assembly	172344-*
Female Housing	172345-*
Female Lock Housing	172346-*
Facial Seal and Grommets	172347-*
Front Panel Nut	172348-*
Rear Panel Nut	172349-*
Female Assembly (kit)	172350-*
Strain Relief (common to both sides)	172351-*
Spring	172352-*
Male Terminals	172353-*
Male Retainer and Assembly	172354-*
Male Housing	172355-*
Male Lock Housing	172356-*
Male Seals and Boots	172357-*
Front Lock Sleeve and Sleeve Assy	172358-*
Rear Lock Sleeve	172359-*
Male Assembly (kit)	172360-*

### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

2.2.1. Male and Female Housings, Panel Mount Housings, Strain Relief, Lock Housings, Front and Rear Sleeves are molded in Polyetherimide (PEI), Color: Black, UL94V-0.

2.2.2. Panel Mount Nut is molded in Polyetherimide (PEI), Color: Optional, UL94V-0.

2.2.3. Receptacle Terminals are produced in a High Performance Copper Alloy.

2.2.4. Plug terminals are produced in Phosphor Bronze Alloy.

2.2.5. Seals and Grommet and are molded in Silicone Rubber, Color: Optional.

2.2.6. Terminal Plating: Gold in the mating area with Tin in the solder tail area, over Nickel overall.

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## 2.3 SAFETY AGENCY APPROVALS

UL File: T.B.D.  
CSA Certificate: T.B.D.  
TUV Certificate: T.B.D.

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Application Specification AS-172350-0000  
Test Summary TS-172350-0000  
AAMI-EC-53  
Finger Proof / Scoop Proof IEC60601  
Dielectric Strength EIA-364-20  
Insulation Resistance EIA 364-21  
Contact Resistance EIA-364-23

## 4.0 RATINGS

### 4.1 VOLTAGE

300 VAC (RMS)

### 4.2 TEMPERATURE

4.3 Operating: \* - 40°C to + 105°C

4.4 Nonoperating: - 50°C to + 120°C (140°C Autoclave for short period)

**\*INCLUDING 30°C TERMINAL AVERAGE TEMPERATURE RISE AT RATED CURRENT**

## 4.5 ELECTRICAL SPECIFICATIONS

### 4.2.1. Current:

17 CIRCUIT; 1.6 Amps at 30°C temperature rise  
12 CIRCUIT; 1.8 Amps at 30°C temperature rise  
7 CIRCUIT; 2.2 Amps at 30°C temperature rise

*Current rating is application dependent and may be affected by the wire rating such as listed in UL-60950-1. Each application should be evaluated by the end user for compliance to specific safety agency requirements. The ratings listed in the ratings above are per Molex test method based on a 30° C maximum temperature rise over ambient temperature and are provided as a guideline. Appropriate de-rating is required based on circuit size, ambient temperature, copper trace size on the PCB, gross heating from adjacent modules/components and other factors that influence connector performance. Wire size, insulation thickness, stranding, tin coated or bare copper and wire length are other factors that influence current rating.*

4.2.2. Contact interface resistance: 10 milliohms max.

4.2.3. Dielectric Strength: 19kV/mm (PEI Resin)

Test voltage 16kV

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## 5.0 MECHANICAL SPECIFICATIONS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Connector Mate and Unmate forces	Mate and Unmate connector at the rate of 25+/-3mm/min	<p>50 N Maximum Mate force</p> <p>85 N Minimum Unmate force with lock</p> <p>35 N Maximum Unmate force without lock</p> <p>15 N Minimum Unmate force Without lock</p>
2	Mechanical durability	Mate and unmate connector up to 5000 cycles and verify the contact resistance	15 Milliohms maximum delta

## 6.0 ENVIRONMENTAL SPECIFICATIONS:

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Heat Resistance (Thermal aging)	Mate Connectors and expose for 105°C for 240 hours	<p>No damage contact resistance 10 milliohms MAXIMUM from initial readings</p>
2	Thermal shock	EIA-364-1000.01 Test condition II, test duration A-4	<p>No damage contact resistance 10 milliohms MAXIMUM from initial readings</p>
3	Cycling Humidity test	Follow TS-1000 default	<p>No damage Contact resistance 10 milliohms MAXIMUM from initial readings, Insulation resistance 10 Mega ohms MINIMUM</p>

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4	<b>Solderability</b>	Solder Time 5±0.5 Sec and temperature 245 ±5°c	<b>75% of soldered area must show no voids or pin holes</b>
5	<b>IP 67 Leak test</b>	Mate connectors and immerse in water at a depth of 1 meter from the water surface for 30 minutes and take out the connector and check for water ingress.	<b>No ingress of water inside the connector system</b>
6	<b>Mixed Flowing Gas</b>	Follow EIA-364-65 (10 days mated/4days unmated)	<b>No Damage Contact Resistance 10 milli ohms MAXIMUM rise from Initial</b>
7	<b>Vibration</b>	Followed TS-1000 default, 20-500Hz, 3.1Grms, 0.02 PSD 15min/axis	<b>No Damage Contact Resistance 10 milli ohms MAXIMUM rise from Initial No discontinuities greater than 1 microsecond</b>
8	<b>Mechanical Shock</b>	EIA364-TP27 test condition A. 18 shocks 50G, 11ms Poise	<b>No Damage Contact Resistance 10milli ohms MAXIMUM rise from Initial No discontinuities greater than 1 microsecond</b>
9	<b>Sterilization</b>	Connector must withstand greater than 100 Cycles of autoclave or 1 cycle of gama radiation or ETO with no significant degradation in electrical or mechanical performance.	<b>No Damage Contact Resistance 15milliohms MAXIMUM rise from Initial (Connector must withstand sterilization cycles with no significant degradation in electrical or mechanical performance)</b>

## 7.0 TEST SEQUENCES

Testing sequences performed in accordance with EIA-364-1000.01  
 Test sequences 1,2,3,4,7  
 IP testing performed per specification IEC 60529.

## 8.0 PACKAGING

Parts shall be packaged to protect against damage during normal handling, transit and storage. Subassemblies shall be packaged in tape and reel prior to kitting.

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