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## 1.0 OBJECTIVE

This document specifies the Amphenol's Product Specification for the Power Connector.



## 2.0 SCOPE

PWRF1000H001

This Specification includes of the Materials/Finishing, Mechanical Performance, Electrical Performance, and Environmental Performance etc.

## 3.0 APPLICABLE DOCUMENTS

### 3.1 Application

- 3.1.1 Engineering drawings  
(C)PWRF1000H001

### 3.2 Other Standards and Specifications

- 3.2.1 EIA 364 : Electrical Connector/Socket Test Procedures Including Environmental Classifications

### 3.3 EIA Standards

- 3.3.1 ( EIA-364-70 ) Current Rating
- 3.3.2 ( EIA-364-23 ) Low Level Contact Resistance
- 3.3.3 ( EIA-364-09 ) Durability
- 3.3.4 ( EIA-364-13 ) Mating / Un-mating Force (Insertion/Withdrawal)
- 3.3.5 ( EIA-364-28 ) Vibration
- 3.3.6 ( EIA-364-17 ) High Temperature Life
- 3.3.7 ( EIA-364-65 ) Mixed Flowing Gas

## 4.0 REQUIREMENTS

### 4.1 Qualification

Connectors under this specification shall be capable of meeting the Qualification Test Requirements specified herein. Unless otherwise specified, all measurements shall be performed within the following lab conditions:

Temperature : 15 to 35°C

Relative Humidity : 20% to 80%

Atmospheric Pressure : 650mm to 800mm of Hg (86 ~106Kpa)

Mating bur-bas : 5.0±0.05 mm thickness.

### 4.2 Material

Material for each part shall be specified herein, or equivalent. Substitute material shall meet the performance requirements of this specification.

4.2.1 Metal Body : Red copper.

4.2.2 Spring: Stainless Steel.

4.2.3 Guide: Stainless Steel.

### 4.3 Finish

4.3.1 Metal Body : Silver plating over nickel under plating.

### 4.4 Workmanship

Connectors shall be uniform in quality and shall be free from burrs, scratches, cracks, voids, chips, blisters, sharp edges, and other defects that will adversely affect product's life or serviceability

## 5.0 ELECTRICAL CHARACTERISTIC

### 5.1 Current Rating Per EIA364-70

The temperature rise above ambient shall not exceed 40°C at any point in the system when contact positions specified are powered at the power levels specified herein:

Requirement : 1000A max.

Mating bus-bar: Pure copper 21125mm<sup>3</sup> minimum (Length 65mm x width 65mm ref.).

Operating temperature: -45~115°C (Environment temperature: -45~75).

Nuts and Screws: M6

### 5.2 Low Level Contact Resistance Per EIA364-23

The mating pair should be meet:

Initial LLCR < 0.1 mohm.

The change of LLCR < 0.1 mohm, after test.

The following details shall apply:

a) Test Voltage: 20mV DC maximum at open circuit.

b) Test Current: not to exceed 100mA.

**6.0 MECHANICAL CHARACTERISTICS****6.1 Durability. EIA-364-09**

Mating and un-mating at the speed rate of less than 50 cycles per minute

- a) Number of Cycles : 100cycles Max.
- b) No physical damage shall be observed

**6.2 Mating / Un-mating Force (Insertion/Withdrawal of Connector ). EIA-364-13**

When do these test ,The following details shall apply:

Apply Head Speed: 25+/-3mm per minute Max.

- 6.2.1 Mating force: 200 N Max. initial, 250N Max. after durability.
- 6.2.2 Un-mating force: 8~150 N.
- 6.2.3 Test bus-bar: Stainless steel, roughness Ra 0.1~0.4.

**6.3 Vibration (Random Vibration) Per EIA364-28**

- a) The test sample connectors shall be mounted on a PCB board and tested in according with Condition V , Letter D for the duration of 90 minutes in each of three mutually perpendicular axes. The test sample shall be mounted rigidly to a test fixture and shall simulate as closely as possible to the normal mounting of the connectors. All contacts shall be wired in series with at least 100 milliamperes of current allowed to flow.
- b) The tested samples connectors shall be performed according to vibration Power, spectral Density: 0.1, G "RMS": 11.95, Frequency: 50-2000 Hz, Duration: 90 minutes/axis per cycle. An accelerometer shall monitor the vibration forces at a point on a near the test samples. A suitable instrument shall be employed to indicate any discontinuity of discontinuity in excess of 1.0 µsecond.
- c) Need no discontinuities excess 1 µsecond were detected during vibration testing. After vibration testing, no cracks, breaks, or loose parts on the test samples were visibled.

**7.0 ENVIRONMENTAL CHARACTERISTIC****7.1 High Temperature Life Per EIA364-17**

- a) Test Duration: 250 hours
- c) Temperature: 115±3

**7.2 Mixed Flowing Gas Per EIA364-65**

- a) Conditions : Temperature : 30°C ± 1°C;Relative humidity:70± 2% .
- b) Gas Concentration : Cl2 10±3ppb, NO2 200±50ppb, H2S 10±5ppb, SO2 100±20ppb.
- c) Two mixed flowing gas tests are required: 1) 7 days, Unmated; 2) 7 days Mated.

## 8.0 SECOND LEVEL ASSEMBLY REQUIREMENTS

### 8.1 Reseating

- a) Need no evidence of physical damage was visibled as a result of 3 reseating cycles.
- b) LLCR and LLCR change should be accord with spec after 3 reseating cycles.

## 9.0 Qualification Testing Sequences

### PRODUCT QUALIFICATION TEST GROUP & SEQUENCE

PRODUCT QUALIFICATION TEST GROUP & SEQUENCE						
			TEST GROUP - (ID)			
	TEST DESCRIPTION (ID)	SECTION	Mixed Flowing Gas - (1)	High Temp Life - (2)	Vibration - (3)	Current Rating - (4)
<b>A</b>	Visual Examination of Product		1,11	1,11	1,13	1,3
<b>B</b>	Reseating		9	8	10	
<b>ELECTRICAL CHARACTERISTICS:</b>						
<b>C</b>	Current Rating	5.1				2
<b>D</b>	Low Level contact resistance	5.2	2,4,6,8,10	3,5,7,9	3,5,7,9,11	
<b>MECHANICAL CHARACTERISTICS:</b>						
<b>E</b>	Durability	6.1	3	4	4	
<b>F</b>	Mating/Unmating Force	6.2		2,10	2,12	
<b>G</b>	Vibration	6.3			8	
<b>ENVIRONMENTAL RELIABILITY:</b>						
<b>H</b>	High Temperature life	7.1		6	6	
<b>I</b>	Mixed Flowing Gas, 7-Days, Unmated	7.2	5			
<b>J</b>	Mixed Flowing Gas, 7-Days, Mated	7.2	7			

Remark:

- 1. 5pcs samples are required in each group except group 1. MFG need 10pcs samples.