NICOMATIC

NICOMATIC Test report summary

CMM Family

TEMPERATURE CYCLING Test

CREATIVE
INTERCONNECT
SOLUTIONS

I. Introduction

A. Purpose

The CMM connectors' family are manufactured to meet or exceed the requirements of **MIL-DTL-55302G standard**.

B. Scope

Check the contact resistance and forces required to mate and un-mate electrical connectors after exposition of Temperature Cycling at a specified ramp up and ramp down rate.

The following data has been taken from NICOMATIC Qualification test reports **QTR094** and **QTR0942**.

C. Conclusion

The CMM connectors' family are **qualified** regarding **TEMPERATURE CYCLING** according to **MIL-DTL-55302G**.

Temperature Cycling test according to MIL-DTL-55302 _ [- 65°C 125°C].

<table>
<tr><th></th><th>Before Life test</th><th>After 500 Cycles</th><th>After Vibration and Shock</th><th>After Salt Spray</th><th>After Temperature Cycling</th></tr>
<tr><td colspan="6">LF Contacts</td></tr>
<tr><td>Visual Inspection</td><td colspan="5">No evidence of cracking or breaking after the test</td></tr>
<tr><td>Mating Force</td><td colspan="5">2.7 N Max</td></tr>
<tr><td>Unmating Force</td><td colspan="5">0.2 N Min</td></tr>
<tr><td>Contact Resistance</td><td colspan="2" rowspan="2">10 mOhm Max</td><td colspan="3" rowspan="2">15 mOhm Max</td></tr>
<tr><td>Low Level Contact Resistance</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="6">HP Contacts</td></tr>
<tr><td>Visual Inspection</td><td colspan="5">No evidence of cracking or breaking after the test</td></tr>
<tr><td>Mating Force</td><td colspan="5">6 N Max</td></tr>
<tr><td>Unmating Force</td><td colspan="5">1 N Min</td></tr>
<tr><td>Contact Resistance</td><td colspan="3">3 mOhm Max</td><td colspan="2" rowspan="2">6 mOhm Max</td></tr>
<tr><td>Low Level Contact Resistance</td><td>3 mOhm Max</td><td>6 mOhm Max</td><td>3 mOhm Max</td></tr>
</table>

II. Test Method and Requirements

A. List of Test Samples

a. *CMM 200 Series*

- 201Y50L – LF male contacts Straight PCB _ 13507
- 202Y50 – LF female contacts Straight PCB _ C14764

b. *CMM 220 Series*

- 221V50FXX – LF male contacts 90° PCB _ 13507
- 222S50MXX – LF female crimp contacts _ C12468

- 222YL26MXX – LF male contacts Straight PCB _ C14810
- 221S26FXX – LF male crimp contacts _ 12969
- 221D00FXX-0008-3400CMM – HP30 male contacts 90° PCB _ 30-3400-CMM
- 222E00MXX-0008-4320 – HP30 female straight contacts on cable _ 30-4320
- 222Y08SXX-0004-4300CMM – HP30 + LF female contacts Straight PCB _ 30-4300-CMM + C14764
- 221S08FXX-0004-3308 – HP30 + LF male contacts Straight on cable _ 30-3308 + 12969
- 221S06FXX-0003-3320 – HP30 + LF male contacts Straight on cable _ 30-3320 + 12969
- 222S06MXX-0003-4308 – HP30 + LF female contacts Straight on cable _ 30-4308 + C12468

c. CMM 320 Series

- 321C057FXX – LF male crimp contacts _ 12960
- 322C057MXX – LF female crimp contact _ C13064-P
- 321V096FXX – LF male contacts 90° PCB _ 13507
- 322Y096MXX – LF female contacts Straight PCB _ C14812
- 341D000FXX-0018-340014 – HP22 male contacts 90° PCB _ 22-3400-XX
- 342E000MXX-0018-4310 – HP22 female straight contacts on cable _ 22-4310
- 342D000MXX-0048-430014 – HP22 female contacts Straight PCB _ 22-4300-14
- 341E000FXX-0048-3310 – HP22 male straight contacts on cable _ 22-3310

B. Requirements

According to **MIL-DTL-55302G** standard and **EIA-364-32D** test procedure method A, Test condition III:

When a mated pair of connectors is tested in accordance with test procedure, there shall be no evidence of cracking or crazing of the connector body or other physical damage to the connector assembly. The contact resistance shall be not greater than the value specified on the individual specification sheet.

C. Test Method and Results

Mated connectors shall be tested in accordance with test procedure EIA-364-32. The following details shall apply:

a. Special mounting - The connector halves shall be mounted on 1/16-inch thick, or appropriate thickness, epoxy glass printed wiring boards.

b. Method A, Test condition III, 5 cycles - Except that the minimum temperature shall be -65° +0°, -5°C and the maximum temperature shall be 125° +3°, -0°C.

c. Test measurement - The connector shall be capable of mating and unmating at the temperature extremes (force shall be unmonitored) during the fifth cycle.

d. After testing, connectors shall be examined for evidence of cracking or crazing or other physical damage, and the contact resistance shall be measured.

REFERENCES	RESULTS
201Y50L with 202Y50	**Passed**
221V50FXX with 222S50MXX	**Passed**
221S26FXX with 222YL26MXX	**Passed**
321C057FXX with 322C057MXX	**Passed**
321V096FXX with 322Y096MXX	**Passed**
221D00FXX-0008-3400CMM with 222E00MXX-0008-4320	**Passed**
221S08FXX-0004-3308 with 222Y08MXX-0004-4300CMM	**Passed**
221S06FXX-0003-3320 with 222S06MXX-0003-4308	**Passed**
341D000FXX-0018-340014 with 342E000MXX-0018-4310	**Passed**
341E000FXX-0048-3310 with 342D000MXX-0048-430014	**Passed**

	Before Life test	After 500 Cycles	After Vibration and Shock	After Salt Spray	After Temperature Cycling
LF Contacts					
Visual Inspection	No evidence of cracking or breaking after the test				
Mating Force	2.38 N Max	1.23 N Max	0.88 N Max		0.93 N Max
Unmating Force	0.53 N Min	0.42 N Min	0.22 N Min		0.43 N Min
Contact Resistance	5.88 mOhm Max	8.72 mOhm Max	10.6 mOhm Max	11.9 mOhm Max	11.8 mOhm Max
Low Level Contact Resistance	8.8 mOhm Max	9 mOhm Max	10.5 mOhm Max	12 mOhm Max	12 mOhm Max
HP Contacts					
Visual Inspection	No evidence of cracking or breaking after the test				
Mating Force	4.41 N Max	4.06 N Max	3.5 N Max		4.46 N Max
Unmating Force	2.25 N Min	1.71 N Min	3.73 N Max		2.68 N Min
Contact Resistance	1.42 mOhm Max	1.62 mOhm Max	1.63 mOhm Max	4.82 mOhm Max	3.3 mOhm Max
Low Level Contact Resistance	1.57 mOhm Max	3.5 mOhm Max	2.5 mOhm Max	5.5 mOhm Max	3.5 mOhm Max