



HARWIN

Test Report Summary

HT03102

Electrical and Mechanical Testing of
M40-110 Series (1.00mm Pitch
SIL Female Crimp Connectors)

1. Introduction

1.1. Description and Purpose

The following tests were performed on the M40-110 series (1.00mm pitch SIL Female Crimp Housing) with associated assembled contacts (M40-1000046). Tests performed include:

- Insulation Resistance (Electrical)
- Contact Resistance (Electrical)
- Voltage Proof, also known as Dielectric Withstanding Voltage (Electrical)
- Temperature Cycling (Environmental)
- Insertion and Withdrawal (Mating and Unmating) Forces (Mechanical)

1.2. Conclusion

All samples of the product in question fully performed to the stated standards.

2. Test Method, Requirements and Results

2.1. Specification Parameters

All tests were conducted in accordance with EIA-364 standards and the detailed product specification. The products were required to meet the following specifications:

- Insulation Resistance: 100M Ω min.
- Contact Resistance: 20m Ω max. initial, 40m Ω max. after conditioning.
- Voltage Proof: No breakdown after one minute of 500V AC.
- Temperature Cycling: After conditioning, the product must still meet the specifications for Insulation Resistance, Contact Resistance, Voltage Proof, and exhibit no damage or breakdown.
- Insertion Force (complete 4-contact connector): 7.85N max.
- Withdrawal Force (complete 4-contact connector): 1.57N min.

2.2. List of Test Samples

- Five samples of M40-1100400, assembled with crimp contacts M40-1000046, representative of current production, were subjected to the following Electrical and Environmental tests.
- Ten samples were used for the Mechanical tests.

2.3. Test Method and Results

2.3.1. Insulation Resistance

Methodology: 100V DC was applied for one minute.

Results: After the test, all connectors were visually inspected, and no damage had occurred. All samples showed an Insulation Resistance greater than 100M Ω .

2.3.2. Contact Resistance

Methodology: 10mA DC current was passed through the connector.

Results:

Sample no.	1	2	3	4	5	Average
Contact Resistance	6.90m Ω	7.24m Ω	7.82m Ω	7.18m Ω	7.20m Ω	7.27m Ω

2.3.3. Voltage Proof

Methodology: A voltage of 500V AC was passed through the five connectors for the duration of one minute. Parts were visually inspected after one minute.

Results: no damage was present and no breakdown occurred during the test.

2.3.4. Temperature Cycling

Methodology: Five samples were tested for one cycle of 96 hours, in a temperature of 40°C and relative humidity of 90%-95%. Contact Resistance and visual inspection were conducted after test.

Results: no damage was present.

Sample no.	1	2	3	4	5	Average
Contact Resistance	9.86mΩ	9.38mΩ	10.03mΩ	9.51mΩ	9.76mΩ	9.71mΩ

2.3.5. Insertion and Withdrawal Forces

Methodology: Ten crimp connectors were mated and unmated with the corresponding male header M40-4010446.

Results:

	Insertion Force	Withdrawal Force
Maximum	3.92N	2.84N
Minimum	3.43N	2.06N
Average	3.69N	2.41N