



# HARWIN

## Test Report Summary

**HT00402**

Environmental Testing of  
Datamate (M80 Series) Connectors

## 1. Introduction

### 1.1. Description and Purpose

The Harwin Datamate (M80 Series) connector is manufactured to the requirements of BS9525-F0033 and has been designed to withstand 500 successive engagements and separations without impairing its mechanical or electrical performance. The following tests were carried out to confirm the connector's performance.

### 1.2. Conclusion

The following data has been collated from Harwin test report C06/06. The connectors tested met the BS9525-F0033 specification for insertion, withdrawal and contact resistance, initially and after multiple engagements and separations up to 500 operations. Further, the product met all the requirements for Vibration, Bump, Shock, Acceleration, and Electrical Load and Temperature as required by the British Standard specification.

## 2. Test Method, Requirements and Results

### 2.1. Specification Parameters

In accordance with BS9525 F0033 Issue 1: Group CD6(i)(D) – 5 mated pairs:

Test	BS9520	Parameters
Bump	1.2.6.2	BS2011: Part 2.1 Eb: 1977 390 m/s <sup>2</sup> (40g) 6ms 4000 ±40 Bumps, both directions of three axis, continuously monitoring of electrical continuity during the last 200 bumps.
Vibration: General	1.2.6.3.1	BS2011: Part 2.1 Fc: 1977 10Hz to 2kHz 0.75mm pk/10g, duration 6 hours total (2h/axis), continuously monitoring of electrical continuity during initial resonance search and the last two frequency sweeps.
Shock	1.2.6.4	BS2011: Part 2.1 Ea: 1977 981m/s <sup>2</sup> (100g) 6ms Trapezoidal pulse, both directions of three axis, 18 shocks total, continuously monitoring of electrical continuity during application of shocks.
Acceleration	1.2.6.5	BS2011: Part 2.1 Ga: 1977 490m/s <sup>2</sup> >10 seconds, both directions of three axis continuously monitoring of electrical continuity during application of acceleration.
Visual Examination	1.2.2 (d)	Mechanical damage, movement, or displacement of parts such as would impair operation.
Mechanical Operation	1.2.7.1	50 operations (at 15 operations per minute maximum).
Electrical Load and Temperature (short term)	1.2.7.2	250 hours at 125°C, no electrical load, during conditioning the following measurements shall be made:
Insulation Resistance	1.2.4.4	Method B (500 ±50V) mated at 125°C measured 8 times at intervals not less than 24hours, 100MΩ minimum. After 1.5 to 2 hours recovery, specimens shall remain mated.
Final Measurements		Final measurements to be carried out by Harwin Test Lab.

### 2.2. List of Test Samples

- M80-5002022 – Datamate J-Tek male assembly, 20 contact, through-board termination
- M80-4002001 – Datamate J-Tek female assembly, 20 contact, through-board termination

### 2.3. Test Method and Results.

Methodology: The following tests were all carried out in a mated condition. In addition to the electrical discontinuity checks, the following checks were also carried out:

- Vibration (1.2.6.3.1) resonance search results; a strobe lamp was used to detect any vibration responses in each of three axis – none detected.

Sample	1	2	3	4	5
Bump (1.2.6.2)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Vibration (1.2.6.3.1)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Shock (1.2.6.4)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Acceleration (1.2.6.5)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Visual Exam. (1.2.2d)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Mechanical Op. (1.2.7.1)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Elec. Load & Temp (1.2.7.2)	OK ✓	OK ✓	OK ✓	OK ✓	OK ✓
Insulation resistance (1.2.4.4)	6,000MΩ	10,000MΩ	4,000MΩ	8,000MΩ	4,000MΩ
	8,000MΩ	13,000MΩ	5,000MΩ	11,000MΩ	6,000MΩ
	10,000MΩ	16,000MΩ	6,000MΩ	15,000MΩ	9,000MΩ
	14,000MΩ	18,000MΩ	14,000MΩ	40,000MΩ	12,000MΩ
	30,000MΩ	48,000MΩ	18,000MΩ	42,000MΩ	26,000MΩ
	35,000MΩ	55,000MΩ	22,000MΩ	50,000MΩ	32,000MΩ
	41,000MΩ	65,000MΩ	27,000MΩ	60,000MΩ	39,000MΩ
	48,000MΩ	70,000MΩ	32,000MΩ	68,000MΩ	46,000MΩ

Final measurements: using Ø0.5mm diameter test pin:

- Insertion Force: 1.0N maximum, 0.3N minimum.
- Withdrawal Force: 0.8N maximum, 0.2N minimum.

	Insertion Force (initial)	Withdrawal Force (initial)	Insertion Force after 500 operations	Withdrawal Force after 500 operations
Maximum	0.89N	0.44N		
Minimum	0.48N	0.22N		
Average	0.63N	0.32N	0.57 N	0.35 N