

187 High Temperature Positive Lock Terminals – Validation Testing

1. INTRODUCTION

1.1. Purpose

The purpose of this test was to evaluate the Performance of 187 High Temperature Positive Lock Terminals to 108-143022 Rev D.

1.2. Scope

This report covers the Mechanical and Electrical performance of TE Connectivity (TE) connector housings and terminals described in paragraph 1.4. The full report can be viewed under TP-18-01670 Rev A.

1.3. Conclusion

The results for Test Sets 1 through 10 were returned to the requestor for further evaluation.

1.4. Test Specimens

Table 1 – Test Specimens

Test Set	Part Number	Test Specimen Attributes
1	2238178-1	Mated to 60920-1 .187 x .020 Tab
2	2238177-1	Mated to 62298-1 .187 x .032 Tab
3	2238177-1	Crimped to 16AWG
4	2238177-1	Crimped to 18AWG
5	2238177-1	Crimped to 20AWG
6	2238178-1	Crimped to 16AWG
7	2238178-1	Crimped to 18AWG
8	2238178-1	Crimped to 20AWG
9	1969877-1	Terminal 2238178-1
10	1969877-1	Terminal 2238178-1

1.5. Test Sequence

The specimens listed in Table 1 were subjected to testing as outlined in Table 2.

Table 2 – Testing Sequence

Test or Examination	Test Sets		
	1 and 2	3 through 8	9 and 10
	Test Sequence		
Terminal Mating / Unmating Force	1		
Initial Temperature Rise vs. Current		1	
Housing Insertion / Retention Force			1

1.6. Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15°C to 35°C

Relative Humidity: 20% to 80%

2. SUMMARY OF TESTING

2.1. Terminal Mating / Unmating Force (Newtons Average)

Table 3 – Terminal Mating / Unmating Force (Newtons Average)

	Test Set	
	1 (2238178-1)	2 (2238177-1)
1 st Mate	17.75	38.51
1 st Unmate (Latch Locked)	117.96	121.68
6 th Mate	11.67	28.24
6 th Unmate (Latch Locked)	96.79	105.04
Requirements: 1 st Mate 40N Average Maximum 1 st Unmate (Latch Locked) 80N Minimum 6 th Mate 36N Average Maximum 6 th Unmate (Latch Locked) 66N Minimum		

2.2. Initial Temperature Rise vs. Current (Maximum)

Table 4 – Initial Temperature Rise vs. Current

	Temperature Rise					
	16 AWG		18 AWG		20AWG	
	3 (2238177-1)	6 (2238178-1)	3 (2238177-1)	6 (2238178-1)	3 (2238177-1)	6 (2238178-1)
10 Amps	16.37	16.94				
7 Amps			10.73	11.65		
4 Amps					5.81	6.37
Requirements: Maximum Temperature Rise vs. Current below 30°C						

2.3. Housing Insertion / Retention Force (Newtons)

Table 5 - Housing Insertion / Retention Force (Newtons)

	Test Set	
	9 (1969877-1)	10 (1969877-1)
Terminal Insertion Force to Housing (Maximum)	8.56	
Terminal Retention Force to Housing (Minimum)	91.91	
Heat Aged (250°C For 7 Hours) Terminal Retention Force to Housing (Minimum)		94.19
Requirements: Terminal Insertion Force to Housing (Maximum) - 18 Newtons Terminal Retention Force to Housing (Minimum) – 80 Newtons		

3. TEST METHODS

3.1. Terminal Mating / Unmating Force

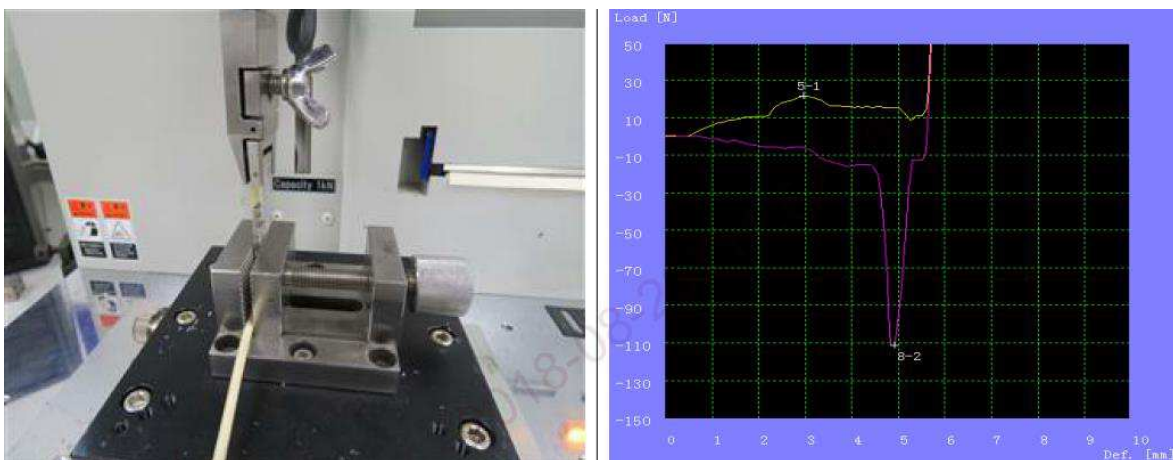


Figure 1: Typical Test Setup and Representative Results Curve

3.2. Initial Temperature Rise vs. Current

Testing was performed according to EIA-364-70 C.

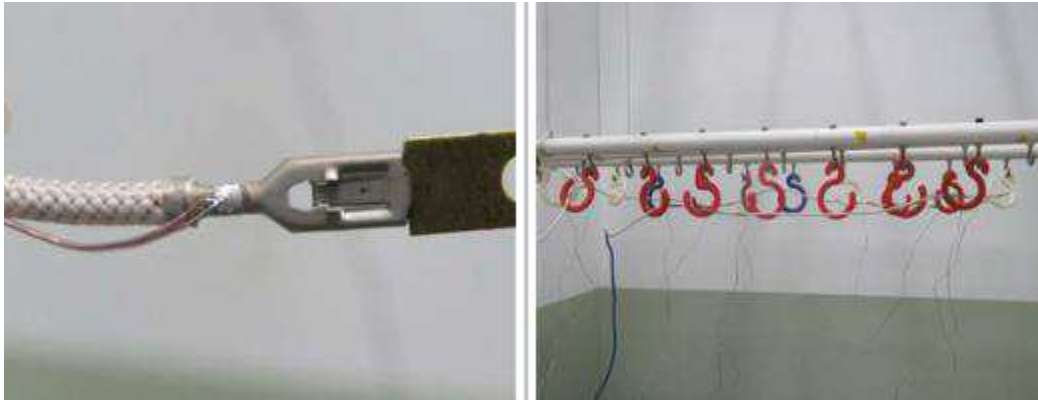


Figure 2: Typical Test Setup and Thermocouple Location

3.3. Housing Insertion / Retention Force

Testing was performed per EIA-364-29C-2006.

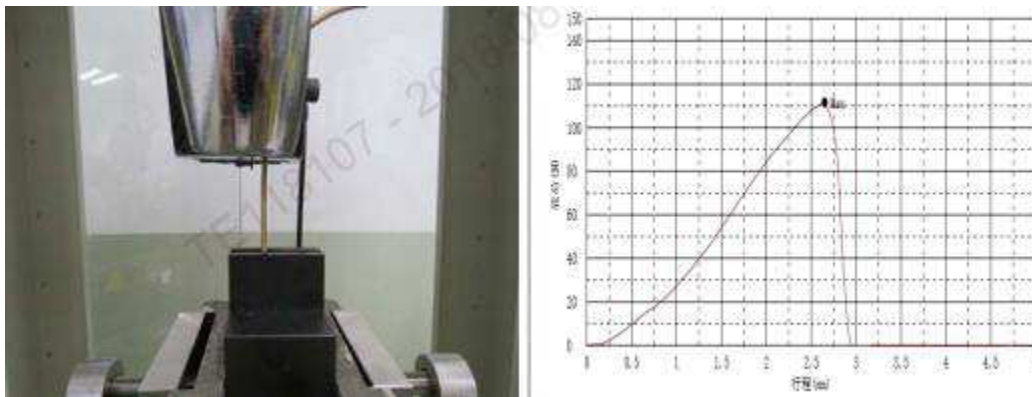


Figure 3: Typical Test Setup and Representative Results Curve