

**Grace Inertial Connector 6.2 mm Pitch**

**1. INTRODUCTION**

1.1 Purpose

Testing was performed on Grace Inertial Connector 6.2 mm Pitch to determine its conformance to the requirements of product specification 108-5979 Rev.D or client's requirements.

1.2 Scope

This specification covers performance, test and quality requirements for Grace Inertial Connector 6.2 mm Pitch. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory between July 12, 2018 and August 09, 2018. The associated test number is TP-18-01812.

1.3 Conclusion

Based on the test results, all samples meet the requirement according to TE connectivity product specification 108-5979 Rev.D, with exceptions as noted in the test file.

1.4 Test Specimens

Specimens with the following part numbers were used for test:

Part No.	Description
1871867-1	GI 6.2 Plug 3P, NAT (New resin of 1573672-2)
1746978-1	GI 6.2 Cap 3P, NAT (New resin of 1573672-2)
1746971-1	GHC Receptacle
1746973-1	GHC Tab



Fig. 1 Test Specimens

1.5 Test Sequence

Test Item	Test Group <sup>a)</sup>				
	1	2	3	4	5
	Test Sequence <sup>b)</sup>				
Visual examination	1,3	1	1	1,7	1,4
Termination Resistance (Low Level)				3,6	2,5
Insulation Resistance					6
Dielectric Withstanding Voltage					7
Connector Mating Force				2	
Connector Un-mating Force				4	
Contact Insertion Force		2			
Contact Extraction Force			2		
Durability				5	
Humidity/temperature cycling					3
Housing Locking Strength	2				
Test sample (pcs)	5	5	5	5	5

Note: a). Test group defined per customer requirement.  
 b). Numbers indicate sequence in which tests are performed.

1.6 Environmental Conditions

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

Temperature: 15°C to 35°C  
 Relative Humidity: 25% to 75%

**2. TEST PROCEDUES**

**2.1 Visual examination**

Visual Inspection: appearance, and function of specimens pursuant to the applicable inspection plan.  
 Requirements: Meets requirements of product drawing and no physical damage.  
 Test Method: EIA-364-18 B

**2.2 Termination Resistance, Low Level.**

Subject mated contacts assembled in housing to 20mV Max. open circuit at 10mA. Take the resistance of the wire only away from measurement.  
 Requirements: 10 m Ω Max. (Initial), 20 m Ω Max. (Final)  
 Test Method: 108-5979 Rev.D

**2.3 Insulation Resistance**

Impressed voltage 500 V DC. Test between adjacent circuits and between the surface of housing and contactof mated connectors.  
 Requirements: 1000 M Ω Min. (Initial), 500 M Ω Min. (Final)  
 Test Method: 108-5979 Rev.D

**2.4 Dielectric Withstanding Voltage**

3 kVAC for 1 minute. Test between adjacent circuits and between the surface of housing and contact of mated connectors.

Requirements: No creeping discharge nor flashover shall occur.

Test Method: 108-5979 Rev.D

**2.5 Connector Mating/un-mating Force**

Measure force necessary to mate/unmate samples at maximum rate of 25 mm a minute.

Requirements: Mate:  $9.8 \times \text{Pos.}$  N Max; Unmate:  $(0.98 \times \text{Pos.})$  N Min.

Test Method: 108-5979 Rev.D

**2.6 Contact Insertion Force**

Measure the force required to insert contact into housing.

Requirements: 8.82 N Max. per contact.

Test Method: 108-5979 Rev.D

**2.7 Contact Retention Force**

Apply an axial pull-off load to crimped wire. Operation Speed: 100 mm / min..

Requirements: 49 N Min.

Test Method: 108-5979 Rev.D

**2.8 Durability**

Mating and un-mating specimens for 25 cycles.

Requirements: No physical damage occurred.

Test Method: 108-5979 Rev.D

**2.9 Humidity/temperature cycling**

Mated connector, 25~65°C, 80~98 % R. H. 10 cycles. Cold shock -10°C performed.

Requirements: No physical damage occurred.

Test Method: IEC60512-11-3

**2.10. Housing Locking Strength**

Measure connector locking strength. Operation Speed: 100 mm/min.

Requirements: 49 N Min.

Test Method: 108-5979 Rev.D

**3. SUMMARY OF TESTING**

Group	Test Item	N	Condition	Test Result				Requirement	Conclusion
				Max	Min	Ave	Unit		
1	Visual examination	5	Initial	No physical damage			/	No abnormalities	Meet Spec
	Housing Locking Strength	5	Initial	195.3	169.5	185.1	N	49 N Min.	Meet Spec
	Visual examination	5	Final	No physical damage			/	No abnormalities	Meet Spec
2	Visual examination	5	Initial	No physical damage			/	No abnormalities	Meet Spec
	Contact insertion Force	5	Initial	6.25	1.16	2.72	N	8.82 N Max.	Meet Spec
3	Visual examination	5	Initial	No physical damage			/	No abnormalities	Meet Spec
	Contact retention Force	5	Initial	125.0	50.3	78.9	N	49 N Min.	Meet Spec
4	Visual examination	5	Initial	No physical damage			/	No abnormalities	Meet Spec
	Connector mating fore	5	Initial	22.7	18.6	20.7	N	29.4 N Max.	Meet Spec
	Termination Resistance Low Level	5	Initial	1.08	0.94	1.02	mΩ	10 mΩ Max.	Meet Spec
	Connector un-mating fore	5	Final	10.5	7.7	9.3	N	2.94 N Min.	Meet Spec
	Durability	5	Final	No physical damage			/	No abnormalities	Meet Spec
	Termination Resistance Low Level	5	Final	1.37	1.09	1.21	mΩ	20 mΩ Max.	Meet Spec
	Visual examination	5	Final	No physical damage			/	No abnormalities	Meet Spec
5	Visual examination	5	Initial	No physical damage			/	No abnormalities	Meet Spec
	Termination Resistance Low Level	5	Initial	1.21	0.87	0.98	mΩ	10 mΩ Max.	Meet Spec
	Humidity and Temperature Cycling	5	Initial	No physical damage			/	No abnormalities	Meet Spec
	Visual examination	5	Final	No physical damage			/	No abnormalities	Meet Spec
	Termination Resistance Low Level	5	Final	1.31	1.01	1.15	mΩ	20 mΩ Max.	Meet Spec
	Insulation resistance	5	Final	13.1	6.5	9,2	10 <sup>10</sup> Ω	500 MΩ Min.	Meet Spec
	Dielectric withstanding voltage	5	Final	No physical damage			/	No abnormalities	Meet Spec

#### 4. VALIDATION

Requested by:

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