



TEST REPORT

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Summary Test Report On ThermaRex™ Cryo 806 Connectors

Revision	Description of Changes	Date	Author
1	Initial Release	7/8/2022	Sam Farhat



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1.0 Purpose

This test report summarizes the results of testing on Glenair ThermaRex™ Cryo 806 connectors in dynamic cryogenic conditions. The connectors were fully immersed in liquid nitrogen (-195°C) while experiencing random vibration or 300G mechanical shock. The electrical and mechanical performance of each connector was characterized before and after vibration or shock. For full test results, reference Glenair test report GT-22-129.

2.0 Test Samples

Table I – Test Samples

Test Group	Part Number	Description	Total Quantity
Group 1	806-060-ME8-3PMA	ThermaRex™ Cryo 806 Plug, Accessory Threads, 3 x 20HD pins	3
	806-061-ME8-3SBA	ThermaRex™ Cryo 806 Jam Nut Receptacle, Banding Platform, 3 x 20HD sockets	3
Group 2	806-060-ME8-3PMA	ThermaRex™ Cryo 806 Plug, Accessory Threads, 3 x 20HD pins	3
	806-061-ME8-3SBA	ThermaRex™ Cryo 806 Jam Nut Receptacle, Banding Platform, 3 x 20HD sockets	3
Backshell	620VS080ME08	Strain relief clamp backshell for 806-060 plug connectors	6
Wire	M22759/11-24-9	Wire, Electrical, Fluoropolymer-Insulated, Extruded TFE, Silver-Coated Copper Conductor, 600 Volt	As required



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3.0 Test Results

Table II –Summary of Group 1 Test Results

Test	Requirement	Test Procedure	Pass/Fail, Average Result
Initial Visual and Mechanical Examination	Pass	MIL-DTL-38999 4.5.1	Pass
Initial Low Level Contact Resistance at Room Temp	20 mΩ, maximum	EIA-364-23	Pass, 12.39 mΩ
Initial Insulation Resistance at Room Temp	5000 MΩ, minimum, Unmated connectors	MIL-DTL-38999 4.5.10.1	Pass, >10 GΩ
Initial Dielectric Withstand Voltage at Room Temp	1800 VAC, 2 mA maximum leakage current Unmated connectors	MIL-DTL-38999 4.5.11.1	Pass
Initial Contact Retention	10 ± 1 pounds, 0.012 inch maximum displacement	MIL-DTL-38999 4.5.20.1	Pass
Initial Shell to Shell Conductivity	Read and record	MIL-DTL-38999 4.5.25	1.43 mV drop
Random Vibration while fully immersed in liquid nitrogen (-195°C), 43 Grms 2 hours per axis, 4 hours total	No discontinuities greater than 1 microsecond	EIA-364-28 Test Condition VI Letter J	Pass, no discontinuities
Final Shell to Shell Conductivity	Read and record	MIL-DTL-38999 4.5.25	0.39 mV drop
Final Low Level Contact Resistance at Room Temp	23 mΩ, maximum	EIA-364-23	Pass, 11.8 mΩ
Final Insulation Resistance at Room Temp	1000 MΩ, minimum	MIL-DTL-38999 4.5.10.1	Pass, >10 GΩ
Final Dielectric Withstand Voltage at Room Temp	1800 VAC, 2 mA maximum leakage current Mated connector pairs	MIL-DTL-38999 4.5.11.1	Pass
Final Contact Retention	10 ± 1 pounds, 0.012 inch maximum displacement	MIL-DTL-38999 4.5.20.1	Pass
Post Test Visual Examination	MIL-DTL-38999 3.52 and 3.53	MIL-DTL-38999 4.5.49	Pass, no cracks



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Table III – Summary of Group 2 Test Results

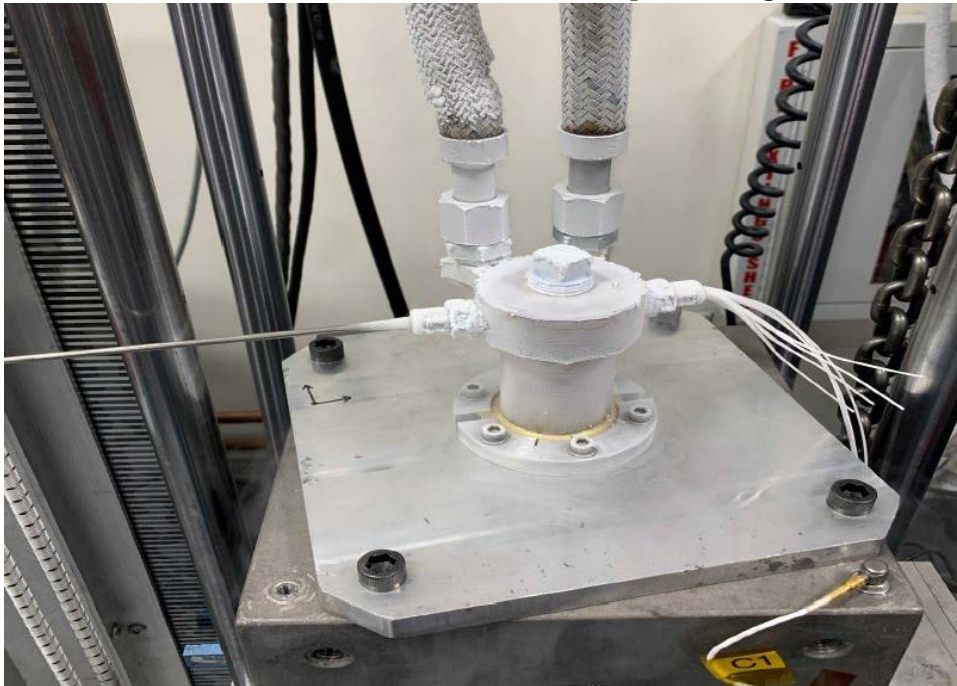
Inspection	Requirement	Test Procedure	Pass/Fail, Average Result
Initial Visual and Mechanical Examination	Pass	MIL-DTL-38999 4.5.1	Pass after replacing two connectors
Initial Low Level Contact Resistance at Room Temp	20 mΩ, maximum	EIA-364-23	Pass, 12.58 mΩ
Initial Insulation Resistance at Room Temp	5000 MΩ, minimum, Unmated connectors	MIL-DTL-38999 4.5.10.1	Pass, >10 GΩ
Initial Dielectric Withstand Voltage at Room Temp	1800 VAC, 2 mA maximum leakage current Unmated connectors	MIL-DTL-38999 4.5.11.1	Pass
Initial Contact Retention	10 ± 1 pounds, 0.012 inch maximum displacement	MIL-DTL-38999 4.5.20.1	Pass
Initial Shell to Shell Conductivity	Read and record	MIL-DTL-38999 4.5.25	1.70 mV drop
300G Shock fully immersed in liquid nitrogen (-195°C)	No discontinuities greater than 1 microsecond	MIL-DTL-38999 3.28 and 4.5.24.1	Pass, no discontinuities
Final Shell to Shell Conductivity	Read and record	MIL-DTL-38999 4.5.25	0.52 mV drop
Final Low Level Contact Resistance at Room Temp	23 mΩ, maximum	EIA-364-23	Pass, 12.96 mΩ
Final Insulation Resistance at Room Temp	1000 mΩ, minimum	MIL-DTL-38999 4.5.10.1	Pass, >10 GΩ
Final Dielectric Withstand Voltage at Room Temp	1800 VAC, 2 mA maximum leakage current Mated connector pairs	MIL-DTL-38999 4.5.11.1	Pass
Final Contact Retention	10 ± 1 pounds, 0.012 inch maximum displacement	EIA-364-29 Method B	Pass
Post Test visual examination	MIL-DTL-38999 3.52 and 3.53	MIL-DTL-38999 4.5.49	Pass, no cracks

4.0 Test Images

Random Vibration While Immersed in Liquid Nitrogen



300G Shock While Immersed in Liquid Nitrogen





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5.0 Discussion of Results

All ThermaRex™ Cryo 806 connectors subjected to random vibration or 300G shock while immersed in liquid nitrogen passed post-test electrical and mechanical testing. None of the connector interfacial seals or grommets displayed any sign of damage or cracks despite vibration and shock at cryogenic temperatures.