



TEST REPORT

5/21/2021
GT-21-217
Revision 1
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ThermaRex™ Wire Validation Test Report (Ref. QTP-1017)

Revision	Description of Changes	Date	Author
1	Initial Release	5/21/2021	Micah Summers



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3. Summary of Results

The results of the tests are summarized in Table II.

Table II

Test Sequence	Specification	Test Requirements	Results
Insulation Resistance	AS4373E, Method 504	500 VDC 60 seconds, 5000 MΩ min.	Pass
Dielectric Withstanding Voltage	AS4373E, Method 510	2500 VDC 60 seconds, Leakage current 0.5 mA max.	Pass
Multi-Day Heat Aging (Life Cycle)	AS4373E, Method 807	300°C for 1000 Hours, No cracks or damage to insulation	Pass
Insulation Resistance	AS4373E, Method 504	500 VDC 60 seconds, 5000 MΩ min.	Pass
Dielectric Withstanding Voltage	AS4373E, Method 510	2500 VDC 60 seconds, Leakage current 0.5 mA max.	Pass
Multi-Day Heat Aging (Life Cycle)	AS4373E, Method 807	300°C for 2000 Hours, No cracks or damage to insulation	Pass
Insulation Resistance	AS4373E, Method 504	500 VDC 60 seconds, 5000 MΩ min.	Pass
Dielectric Withstanding Voltage	AS4373E, Method 510	2500 VDC 60 seconds, Leakage current 0.5 mA max.	Pass
Bend Test	AS4373E, Method 712	300°C for 2000 Hours, No cracks or damage to insulation	Pass



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Version History

Doc No. 21112R1KLV2

Version	Date	Comments	Prepared By	Reviewed By	Approved By
1	5/20/2021	Initial release	Kenneth Liberato	Brian Morales	Kane Liang
2	5/21/2021	Re-Tested Specimen 001 for Insulation Resistance per customer request	Kenneth Liberato	Brian Morales	Kane Liang

**Test Deviations**

Doc No. 21112R1KLV2

Deviation No.	Test Name	Description
21112DV1KLV1	Dielectric Withstanding Voltage	Test performed incorrectly due to software input error. Samples went through previously programmed IR profile instead of desired DWV test.



Testing Summary

Doc No. 21112R1KLV2

Job Name	ThermaRex Wire Testing at 300°C
Job No.	21112
Client	Glenair
Address	1211 Air Way, Glendale, CA 91201
Contact Name	Micah Summers
Telephone No.	(818) 247-6000
Email	msummers@glenair.com
Controlling Document	QTP-1017 Rev. B

Test Name	Serial No.	Start Date	End Date	Pass	Fail	Record
Dielectric Withstanding Voltage	001-010	2/4/2021	2/4/2021	-	-	X
Insulation Resistance	001-010	2/4/2021	2/4/2021	-	-	X
Multi-Day Heat Aging (1000hrs)	001-010	2/16/2021	3/30/2021	-	-	X
Dielectric Withstanding Voltage	001-010	3/30/2021	3/30/2021	-	-	X
Insulation Resistance	001-010	3/30/2021	3/30/2021	-	-	X
Multi-Day Heat Aging (2000hrs)	001-010	3/31/2021	5/19/2021	-	-	X
Dielectric Withstanding Voltage	001-010	5/19/2021	5/19/2021	-	-	X
Insulation Resistance	001-010	5/19/2021	5/19/2021	-	-	X



Testing Summary

Doc No. 21112R1KLV2

Summary of Testing

Samples under test are 20 AWG ThermaRex Wire, 24" in length. The intent of this testing is to validate the performance of The ThermaRex wire after heat aging at 300°C. Specimens were subjected to the following test sequences: Examination of Product, Examination of Dimensions, Dielectric Withstanding Voltage, Insulation Resistance and Heat Aging.

For the Dielectric Withstanding Voltage test sequence, specimens were immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens were within 2 inches of the water solution. An initial resistance measurement between the conductor and the water solution at 500Vdc $\pm 10\%$ was taken to detect any flaws. Test

Specimens then underwent a 4-hour soak and then tested to a voltage of at least 2,500VDC increasing from zero to the specified value at a rate of 500V per second. Required voltage was held on the specimen for 1 minute. Measurements were within specification and specimens continued into the next test sequence.

For the Insulation Resistance test sequence, specimens were immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens were within 6 inches of the water solution. An initial resistance measurement between the conductor and the water solution was taken to detect any nontypical values. Test Specimens then underwent a 4-hour soak which was maintained at 23°C $\pm 5^\circ\text{C}$. Specimens were then tested to a voltage of 500VDC $\pm 10\%$. Required voltage was held on the specimen for 1 minute. Measurements were within specification and specimens continued into the next test sequence.

For the Heat Aging and Bend testing sequence, specimens were bent onto a 1/4-inch horizontal mandrel coated in PTFE from the central portion of the specimen. Each end of the test specimens were loaded with a 1 pound $\pm 3\%$ weight. Test Specimens were subjected to a temperature of 300°C for 1000 hours, then cooled to 20-25°C within 1 hour before DWV and I/R measurements were taken. Specimens then went back into heat aging for another 1000 hours. DWV and I/R measurements were taken once specimens were cooled down. Measurements were within specification and specimens completed all specified test sequences.

**Test Sample Identification**

Doc No. 21112R1KLV2

Date Received	1/25/2021
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Test Group	Part Name	Part No.	Serial No.
1	20 AWG ThermaRex Wire	961-047-N-C-9	001
			002
			003
			004
			005
			006
			007
			008
			009
			010



Test Sequence

Doc No. 21112R1KLV2

#	Test Name	Serial No.	Group 1
1	Examination of Product QTP-1017 Rev. B, Section 7.1.1	001/002/003/004/005/006/007/008/009/010	X
2	Examination of Dimensions QTP-1017 Rev. B, Section 7.1.2	001/002/003/004/005/006/007/008/009/010	X
3	Dielectric Withstanding Voltage ASTM D3032, Section 8	001/002/003/004/005/006/007/008/009/010	X
4	Insulation Resistance ASTM D3032-21, Section 6	001/002/003/004/005/006/007/008/009/010	X
5	Multi-Day Heat Aging (Life Cycle)(1000hrs) SAE AS4373 Rev. E, Method 807, Section 4.8.7	001/002/003/004/005/006/007/008/009/010	X
6	Dielectric Withstanding Voltage ASTM D3032, Section 8	001/002/003/004/005/006/007/008/009/010	X
7	Insulation Resistance ASTM D3032-21, Section 6	001/002/003/004/005/006/007/008/009/010	X
8	Multi-Day Heat Aging (Life Cycle)(2000hrs) SAE AS4373 Rev. E, Method 807, Section 4.8.7	001/002/003/004/005/006/007/008/009/010	X
9	Dielectric Withstanding Voltage ASTM D3032, Section 8	001/002/003/004/005/006/007/008/009/010	X
10	Insulation Resistance ASTM D3032-21, Section 6	001/002/003/004/005/006/007/008/009/010	X
11	Examination of Product QTP-1017 Rev. B, Section 7.1.1	001/002/003/004/005/006/007/008/009/010	X



Test Equipment List

Doc No. 21112R1KLV2

ID No.	Equipment Name	Manufacturer	Model No.	Cal. Date	Cal. Due
MA019	SCALE (0 - 5,000 G)	OHAUS	CL 5000	6/22/2020	6/30/2021
CE040	CONVECTION OVEN	BLUE M ELECTRIC	DC-256-B-MP350	10/29/2020	10/31/2021
EM012	DIELECTRIC WITHSTAND TESTER	ASSOCIATED RESEARCH INC	3770	2/26/2021	2/28/2022
EM017	AC/DC/IR HIPOT TESTER	ASSOCIATED RESEARCH INC	3770	4/22/2021	4/30/2022
EM032	DIELECTRIC WITHSTAND TESTER	ASSOCIATED RESEARCH INC	3870	11/2/2020	11/30/2021
TC044	RESISTANCE PI MONITOR	AOSONG ELECTRONICS	DHT22	4/8/2021	4/30/2022



Test Parameters

Doc No. 21112R1KLV2

Test Name	Dielectric Withstanding Voltage
Specification	SAE AS4373 Revision E / ASTM D3032
Method / Procedure	Method 510 / Section 8
Figure / Table	4.5.10 / 8.4

Test Requirements

Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 2 inches of the water solution. An initial resistance measurement between the conductor and the water solution at 500Vdc \pm 10% will be taken to detect any flaws. Test Specimens will then undergo a 4-hour soak and then be tested to voltage of at least 2,500VDC increasing from zero to the specified value at a rate of 500V per second. Required voltage will be held on the specimen for 1 minute.



Test Parameters

Doc No. 21112R1KLV2

Test Name	Insulation Resistance
Specification	SAE AS4373 Revision E / ASTM D3032
Method / Procedure	Method 504 / Section 6
Figure / Table	4.5.4 / 6.4

Test Requirements

Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 6 inches of the water solution. An initial resistance measurement between the conductor and the water solution will be taken to detect any nontypical values. Test Specimens will then undergo a 4-hour soak which will be maintained at 23°C ±5°C. Specimens will then be tested to voltage of 500VDC ±10%. Required voltage will be held on the specimen for 1 minute.

**Test Parameters**

Doc No. 21112R1KLV2

Test Name	Heat Aging
Specification	SAE AS4373 Revision E
Method / Procedure	Method 807
Figure / Table	4.8.7

Test Requirements

Test Specimens will be bent onto a 1/4-inch horizontal mandrel coated in PTFE from the central portion of the specimen. Each end of the test specimens will be loaded with a 1 pound $\pm 3\%$ weight. Test Specimens will be subjected to a temperature of 300°C for 1000 hours then cooled to 20-25°C within 1 hour before DWV and I/R measurements can be taken. Specimens will then go back into heat aging for another 1000 hours and will have DWV and I/R measurements taken once specimens have cooled down.

**Test Parameters**

Doc No. 21112R1KLV2

Test Name	Bend Test
Specification	AS4373 Revision E
Method / Procedure	Method 712
Figure / Table	Section 4.7.12

Test Requirements

Test Specimens will be bent onto a 1/4-inch horizontal mandrel coated in PTFE from the central portion of the specimen.
Each end of the test specimens will be loaded with a 1 pound $\pm 3\%$ weight.

**Test Parameters**

Doc No. 21112R1KLV2

Test Name	Examination of Product
Specification	QTP-1017 Rev. B
Method / Procedure	Section 7.1.1
Figure / Table	-

Test Requirements

Test Specimens will be examined by the unaided eye and shall be free of defects detrimental to product performance. Specimens will be photographed before and after each performance test. All specimens will be tagged and numbered for identification purposes.



Test Parameters

Doc No. 21112R1KLV2

Test Name	Examination of Dimensions
Specification	QTP-1017 Rev. B
Method / Procedure	Section 7.1.2
Figure / Table	-

Test Requirements

Test Specimens will be measured in length before and after performance tests. All specimens will be tagged and numbered for identification purposes.



Engineering Notes

Doc No. 21112R1KLV2

Date	Time	Notes
1/25/2021	0930	Received Test Specimens
2/4/2021		7.1.3 Dielectric Withstanding Voltage: Test Specimens will be tested in accordance with specification ASTM D3032 Section 8. Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 2 inches of the water solution. An initial resistance measurement between the conductor and the water solution at 500Vdc \pm 10% will be taken to detect any flaws. Test Specimens will then undergo a 4-hour soak and then be tested to voltage of at least 2,500VDC increasing from zero to the specified value at a rate of 500V per second. Required voltage will be held on the specimen for 1 minute.
	0838	Begin initial Dielectric Withstanding Voltage
	0849	Dielectric Withstanding Voltage complete (Test Specimen 010 fail)
	0852	Retest Specimen 010
	0853	Test complete (Specimen 010 pass)
		7.1.4 Insulation Resistance: Test Specimens will be tested in accordance with specification ASTM D3032 Section 6. Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 6 inches of the water solution. An initial resistance measurement between the conductor and the water solution will be taken to detect any nontypical values. Test Specimens will then undergo a 4-hour soak which will be maintained at 23°C \pm 5°C. Specimens will then be tested to voltage of 500VDC \pm 10%. Required voltage will be held on the specimen for 1 minute.
	0902	Begin initial Insulation Resistance
	0913	Insulation Resistance complete, Begin 4 hour soak
	1313	4 hour soak complete
	1313	Begin Post Soak Dielectric Withstanding Voltage
	1324	Post Soak Dielectric Withstanding Voltage complete
	1326	Begin Post Soak Insulation Resistance
	1336	Post Soak Insulation Resistance complete

Test Operator	Kenneth Liberato
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**Ambient environmental data controlled and maintained by Vertical Laboratories. Specific data can be provided upon customer request.*



Engineering Notes

Doc No. 21112R1KLV2

Date	Time	Notes
2/16/2021		8.1.1 Multi-Day Heat Aging/7.1.5 Bend Test: Test Specimens will be tested in accordance with
		SAE AS4373 Revision E, Section 4.8.7 and SAE AS4373E, Method 712, Section 4.7.12
		Test Specimens will be bent onto a 1/4-inch horizontal mandrel coated in PTFE
		from the central portion of the specimen. Each end of the test specimens will be loaded
		with a 1 pound $\pm 3\%$ weight. Test Specimens will be subjected to a temperature of 300°C for
		1000 hours then cooled to 20-25°C within 1 hour before DWV and I/R measurements can be
		taken. Specimens will then go back into heat aging for another 1000 hours and will have DWV
		and I/R measurements taken once specimens have cooled down.
	1400	Begin Heat Aging Sequence
3/30/2021	0745	Heat Aging complete
		7.1.3 Dielectric Withstanding Voltage: Test Specimens will be tested in accordance with
		specification ASTM D3032 Section 8. Test Specimens will be immersed in a water bath
		containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test
		specimens will be within 2 inches of the water solution. An initial resistance measurement
		between the conductor and the water solution at 500Vdc $\pm 10\%$ will be taken to detect
		any flaws. Test Specimens will then undergo a 4 hour soak and then be tested to
		voltage of at least 2,500VDC increasing from zero to the specified value at a rate of 500V
		per second. Required voltage will be held on the specimen for 1 minute.
	0918	Begin Post 1000hr DWV
	0929	Dielectric Withstanding Voltage complete
		7.1.4 Insulation Resistance: Test Specimens will be tested in accordance with
		specification ASTM D3032 Section 6. Test Specimens will be immersed in a water bath
		containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test
		specimens will be within 6 inches of the water solution. An initial resistance measurement
		between the conductor and the water solution will be taken to detect any nontypical values.
		Test Specimens will then undergo a 4 hour soak which will be maintained at 23°C $\pm 5^\circ\text{C}$
		Specimens will then be tested to voltage of 500VDC $\pm 10\%$. Required voltage

Test Operator	Kenneth Liberato
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Engineering Notes

Doc No. 21112R1KLV2

Date	Time	Notes
3/30/2021		will be held on the specimen for 1 minute.
	0935	Begin Post 1000hr Insulation Resistance
	0945	Insulation Resistance complete, Begin 4 hour soak
	1345	4 hour soak complete
	1345	Begin Post Soak Dielectric Withstanding Voltage
	1356	Post Soak Dielectric Withstanding Voltage complete
	1357	Begin Post Soak Insulation Resistance
	1408	Post Soak Insulation Resistance complete
3/31/2021		8.1.1 Multi-Day Heat Aging/7.1.5 Bend Test: Test Specimens will be tested in accordance with SAE AS4373 Revision E, Section 4.8.7 and SAE AS4373E, Method 712, Section 4.7.12
		Test Specimens will be bent onto a 1/4 inch horizontal mandrel coated in PTFE from the central portion of the specimen. Each end of the test specimens will be loaded with a 1 pound $\pm 3\%$ weight. Test Specimens will be subjected to a temperature of 300°C for 1000 hours then cooled to 20-25°C within 1 hour before DWV and I/R measurements can be taken.
	1450	Begin second Heat Aging Sequence
4/12/2021	1603	Heat Aging paused due to deviation
4/14/2021	0846	Begin retest DWV and I/R on original specimens along with control group for comparison
	1045	Testing complete
04/19/2021	1434	Continue Heat Aging sequence
5/19/2021	0615	Heat Aging complete

Test Operator	Kenneth Liberato
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**Ambient environmental data controlled and maintained by Vertical Laboratories. Specific data can be provided upon customer request.*



Engineering Notes

Doc No. 21112R1KLV2

Date	Time	Notes
5/19/2021		7.1.3 Dielectric Withstanding Voltage: Test Specimens will be tested in accordance with specification ASTM D3032 Section 8. Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 2 inches of the water solution. An initial resistance measurement between the conductor and the water solution at 500Vdc $\pm 10\%$ will be taken to detect any flaws. Test Specimens will then undergo a 4 hour soak and then be tested to voltage of atleast 2,500VDC increasing from zero to the specified value at a rate of 500V per second. Required voltage will be held on the specimen for 1 minute.
	0820	Begin 4 hour soak
	1221	4 hour soak complete
	1233	Begin Post Soak Dielectric Withstanding Voltage
	1252	Post Soak Dielectric Withstanding Voltage complete
		7.1.4 Insulation Resistance: Test Specimens will be tested in accordance with specification ASTM D3032 Section 6. Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 6 inches of the water solution. An initial resistance measurement between the conductor and the water solution will be taken to detect any nontypical values. Test Specimens will then undergo a 4-hour soak which will be maintained at 23°C $\pm 5^\circ\text{C}$. Specimens will then be tested to voltage of 500VDC $\pm 10\%$. Required voltage will be held on the specimen for 1 minute.
	1255	Begin Post Soak Insulation Resistance
	1326	Post Soak Insulation Resistance complete
5/21/2021	0743	Re-Test Specimen 001 for Insulation Resistance per customer request
	0744	Insulation Resistance complete
		All Test Sequences Complete

Test Operator	Kenneth Liberato
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**Ambient environmental data controlled and maintained by Vertical Laboratories. Specific data can be provided upon customer request.*

**Test Sample Conditions**

Doc No. 21112R1KLV2

Pre-test sample conditions

Test Samples were received in good condition. No damage or irregularities noted.

Post-test sample conditions

No unexpected damage or irregularities noted.



Test Results

Doc No. 21112R1KLV2

Insulation Resistance: Initial							
Test Group	Test Level	Active Pin / Ground	Duration	Value	Pass	Fail	Notes
Group 1	500VDC	1 / Ground	60.0s	>10G	X		-
	500VDC	2 / Ground	60.0s	>10G	X		-
	500VDC	3 / Ground	60.0s	>10G	X		-
	500VDC	4 / Ground	60.0s	>10G	X		-
	500VDC	5 / Ground	60.0s	>10G	X		-
	500VDC	6 / Ground	60.0s	>10G	X		-
	500VDC	7 / Ground	60.0s	>10G	X		-
	500VDC	8 / Ground	60.0s	>10G	X		-
	500VDC	9 / Ground	60.0s	>10G	X		-
	500VDC	10 / Ground	60.0s	>10G	X		-

Insulation Resistance: Post 1000hrs							
Test Group	Test Level	Active Pin / Ground	Duration	Value	Pass	Fail	Notes
Group 1	500VDC	1 / Ground	60.0s	>10G	X		-
	500VDC	2 / Ground	60.0s	>10G	X		-
	500VDC	3 / Ground	60.0s	>10G	X		-
	500VDC	4 / Ground	60.0s	>10G	X		-
	500VDC	5 / Ground	60.0s	>10G	X		-
	500VDC	6 / Ground	60.0s	>10G	X		-
	500VDC	7 / Ground	60.0s	>10G	X		-
	500VDC	8 / Ground	60.0s	>10G	X		-
	500VDC	9 / Ground	60.0s	>10G	X		-
	500VDC	10 / Ground	60.0s	>10G	X		-



Test Results

Doc No. 21112R1KLV2

DWV / Deviation: Units pulled during 2nd Heat Aging sequence							
Test Group	Test Level	Active Pin / Ground	Duration	Value	Pass	Fail	Notes
Group 1	2.50kV	1 / Ground	60.0s	0.0uA	X		-
	2.50kV	2 / Ground	60.0s	0.0uA	X		-
	2.50kV	3 / Ground	60.0s	0.0uA	X		-
	2.50kV	4 / Ground	60.0s	0.0uA	X		-
	2.50kV	5 / Ground	60.0s	0.0uA	X		-
	2.50kV	6 / Ground	60.0s	0.0uA	X		-
	2.50kV	7 / Ground	60.0s	0.0uA	X		-
	2.50kV	8 / Ground	60.0s	0.0uA	X		-
	2.50kV	9 / Ground	60.0s	0.0uA	X		-
	2.50kV	10 / Ground	60.0s	0.0uA	X		-

Insulation Resistance / Deviation: Units pulled during 2nd Heat Aging sequence							
Test Group	Test Level	Active Pin / Ground	Duration	Value	Pass	Fail	Notes
Group 1	500VDC	1 / Ground	60.0s	>10G	X		-
	500VDC	2 / Ground	60.0s	>10G	X		-
	500VDC	3 / Ground	60.0s	>10G	X		-
	500VDC	4 / Ground	60.0s	>10G	X		-
	500VDC	5 / Ground	60.0s	>10G	X		-
	500VDC	6 / Ground	60.0s	>10G	X		-
	500VDC	7 / Ground	60.0s	>10G	X		-
	500VDC	8 / Ground	60.0s	>10G	X		-
	500VDC	9 / Ground	60.0s	>10G	X		-
	500VDC	10 / Ground	60.0s	>10G	X		-



Test Results

Doc No. 21112R1KLV2

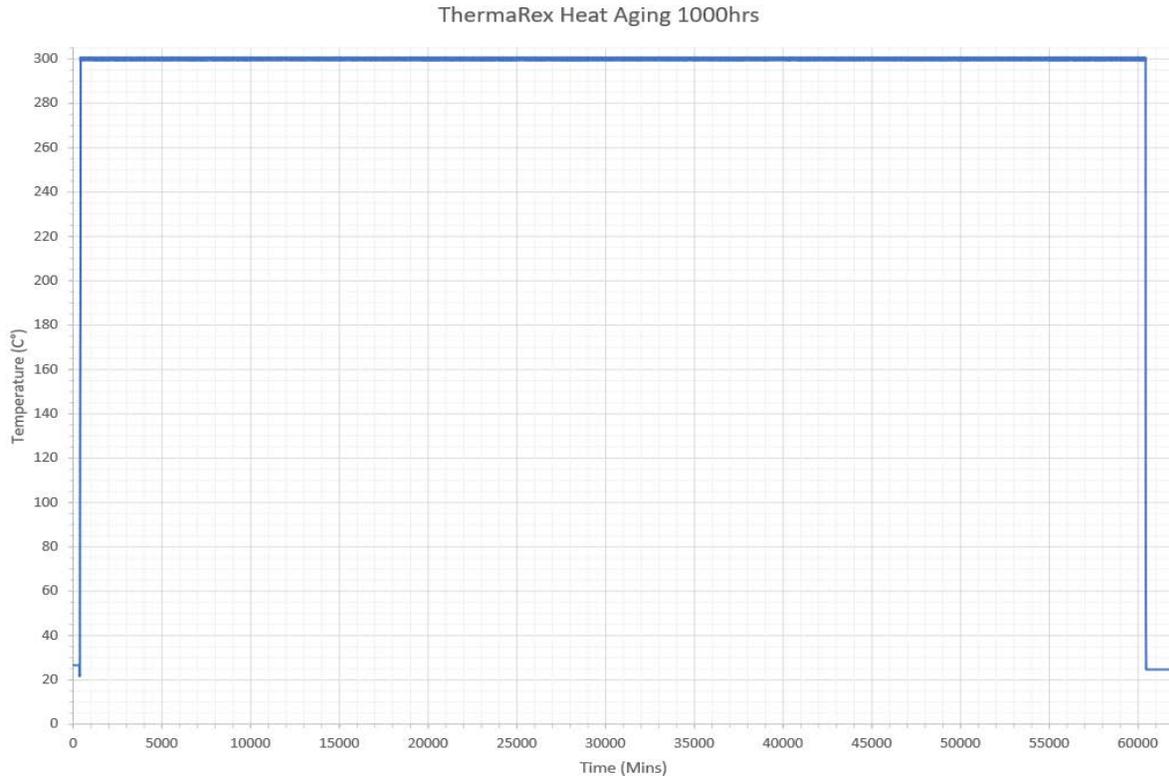
DWV / Post 2nd 1000hr Heat Aging							
Test Group	Test Level	Active Pin / Ground	Duration	Value	Pass	Fail	Notes
Group 1	2.50kV	1 / Ground	60.0s	0.0uA	X		-
	2.50kV	2 / Ground	60.0s	0.0uA	X		-
	2.50kV	3 / Ground	60.0s	0.0uA	X		-
	2.50kV	4 / Ground	60.0s	0.0uA	X		-
	2.50kV	5 / Ground	60.0s	0.0uA	X		-
	2.50kV	6 / Ground	60.0s	0.0uA	X		-
	2.50kV	7 / Ground	60.0s	0.0uA	X		-
	2.50kV	8 / Ground	60.0s	0.0uA	X		-
	2.50kV	9 / Ground	60.0s	0.0uA	X		-
	2.50kV	10 / Ground	60.0s	0.0uA	X		-

Insulation Resistance: Post 2nd 1000hr Heat Aging							
Test Group	Test Level	Active Pin / Ground	Duration	Value	Pass	Fail	Notes
Group 1	500VDC	1 / Ground	60.0s	>50GΩ	X		-
	500VDC	2 / Ground	60.0s	>50GΩ	X		-
	500VDC	3 / Ground	60.0s	>50GΩ	X		-
	500VDC	4 / Ground	60.0s	>50GΩ	X		-
	500VDC	5 / Ground	60.0s	>50GΩ	X		-
	500VDC	6 / Ground	60.0s	>50GΩ	X		-
	500VDC	7 / Ground	60.0s	>50GΩ	X		-
	500VDC	8 / Ground	60.0s	>50GΩ	X		-
	500VDC	9 / Ground	60.0s	>50GΩ	X		-
	500VDC	10 / Ground	60.0s	>50GΩ	X		-



Test Plots

Doc No. 21112R1KLV2

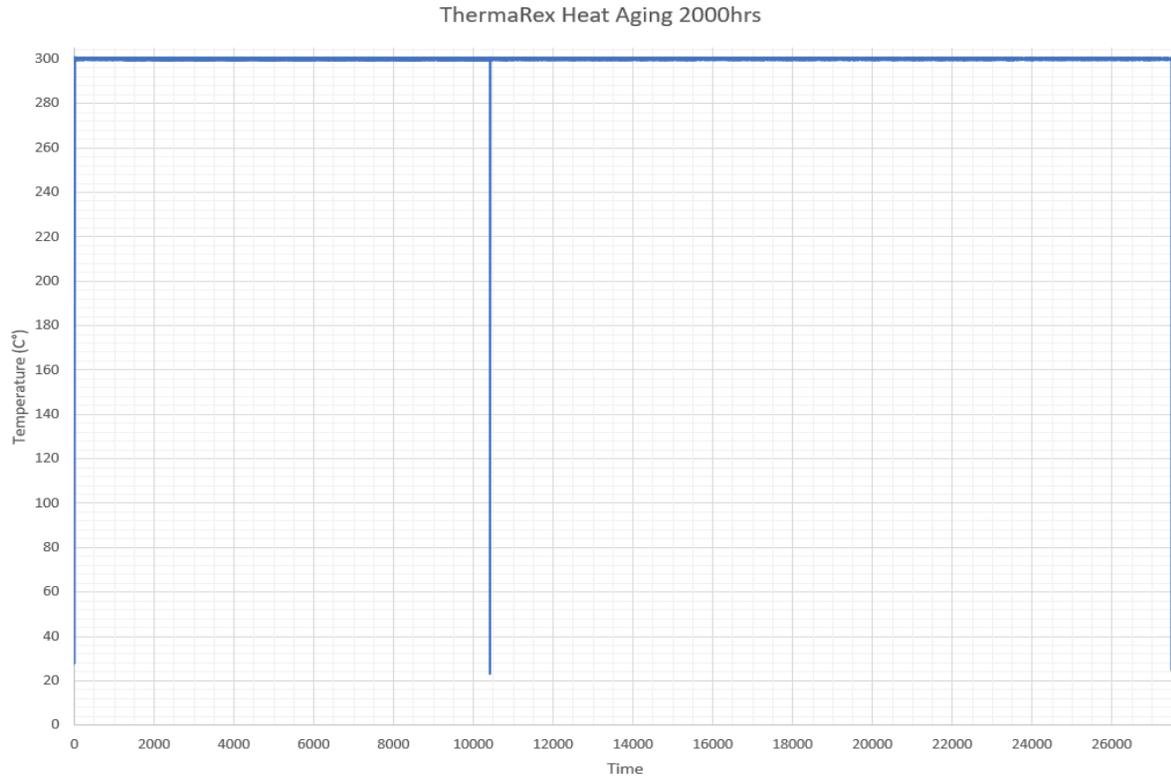


Description	1st Cycle of 1000 hour heat aging
Test Name	Heat Aging
Part Name	ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001 - 010



Test Plots

Doc No. 21112R1KLV2



Description	2nd Cycle of 1000 hour heat aging
Test Name	Heat Aging
Part Name	ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001 - 010

Pre-Test Photos

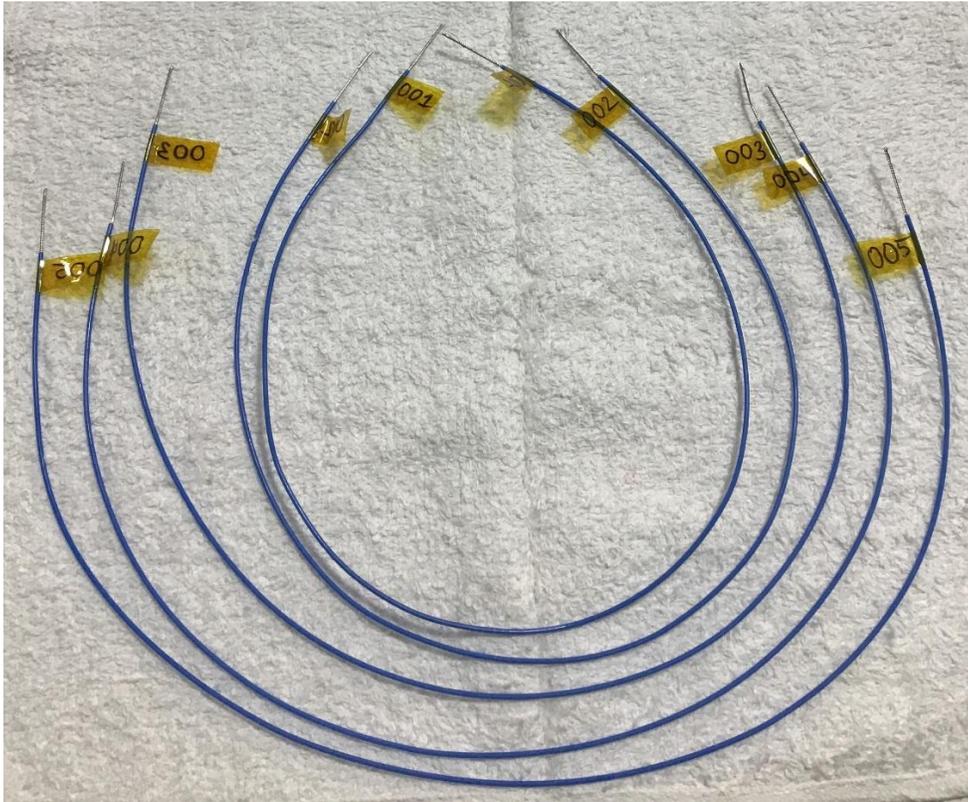
Description	Samples being prepped for testing
Test Name	ThermaRex Wire Testing at 300°C
Part Name	20 AWG ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001-010

Pre-Test Photos

Description	Specimens being prepped for DWV & IR
Test Name	Dielectric Withstanding Voltage & Insulation Resistance
Part Name	20 AWG ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001-010

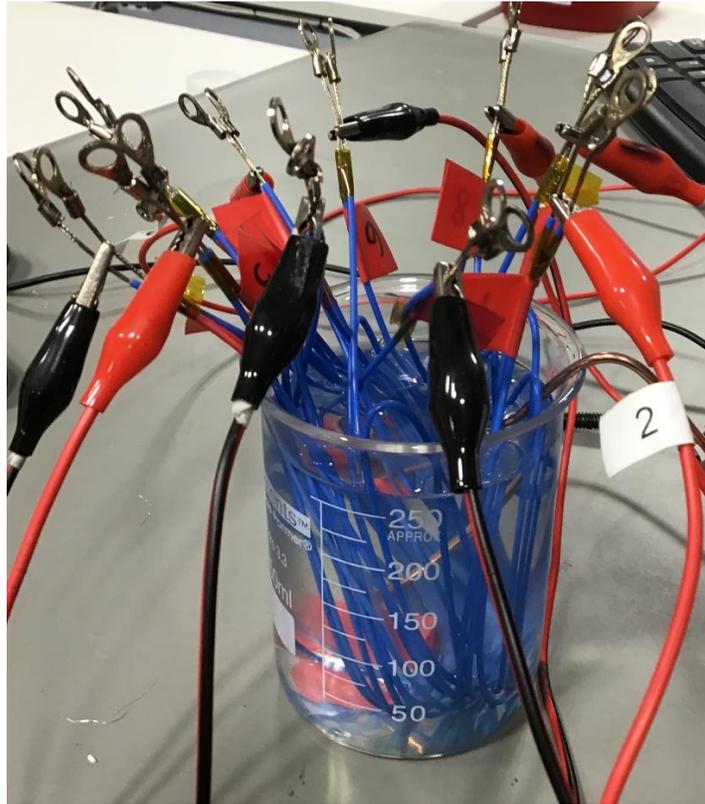
Pre-Test Photos

Description	Specimens prepped for Heat Aging
Test Name	Heat Aging
Part Name	20 AWG ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001-010

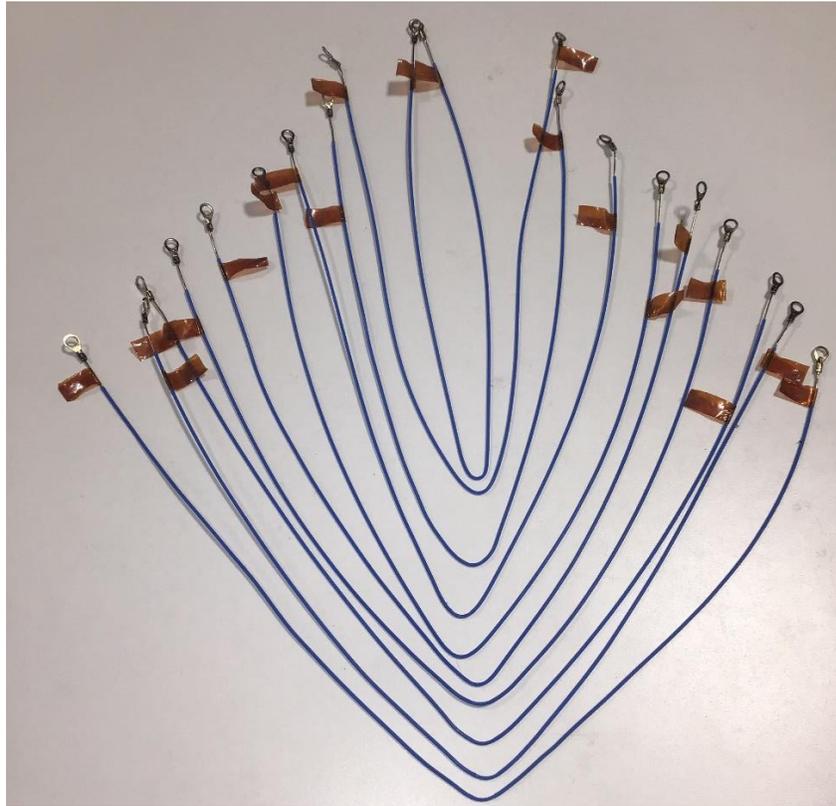
Post-Test Photos

Description	Post DWV & I/R
Test Name	Dielectric Withstanding Voltage & Insulation Resistance
Part Name	20 AWG ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001-010

Post-Test Photos



Description	Specimens under test
Test Name	Dielectric Withstanding Voltage & Insulation Resistance
Part Name	20 AWG ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001-010

Post-Test Photos

Description	Specimens post test
Test Name	Heat Aging
Part Name	20 AWG ThermaRex Wire
Test Group	1
Part No.	961-047-N-C-9
Serial No.	001-010



Deviation

Test Deviation Form			
Doc. No.	21112DV1KLV1	Version	1
Test Type	Dielectric Withstanding Voltage		
Test Name	QTP-1017		
Part Name	ThermaRex Wire		
Part No.	961-047-N-C-9		
Serial No.	001-010		
Test Requirements			
<p>Test Specimens will be immersed in a water bath containing 5% sodium chloride and 0.5 to .10% wetting agent. The ends of the test specimens will be within 2 inches of the water solution. An initial resistance measurement between the conductor and the water solution at 500Vdc $\pm 10\%$ will be taken to detect any flaws. Test Specimens will then undergo a 4-hour soak and then be tested to voltage of at least 2,500VDC increasing from zero to the specified value at a rate of 500V per second. Required voltage will be held on the specimen for 1 minute.</p>			
Specification	ASTMD3032		
Method / Procedure	Section 8		
Test Deviation Description			
<p>Test performed incorrectly due to software input error. Samples went through previously programmed IR profile instead of desired DWV test.</p>			
Test Operator	Kenneth Liberato	Deviation Date	4/12/2021
Reported To	Micah Summers	Date	4/12/2021
Resolution			
<p>Test Specimens were pulled from chamber and the Heat Aging sequence was put on hold. Dielectric Withstanding Voltage and Insulation Resistance were performed on the original the original specimens along with a control group that was made for comparison. Both groups passed DWV and I/R. Customer approved testing to continue as specified.</p>			
Approval			
Client Name	Micah Summers		
Client Signature		Date	5/19/2021
Quality Manager		Date	5/17/2021



End of Report