

Declaration of Conformity

In Accordance with ANSI/ISEA 125-2014 and ANSI/ASSP Z359.7-2019



Alexander Andrew, Inc. 1306 S. Alameda St Compton, CA 90221 (800) 719-4619

Declaration #

A0510062

Declaration Date

5/10/2021

Tested Item #

8081M

Arc Flash Nylon Construction Belted FBH Medium
Dorsal Loop+Hip Ds QC Legs/Chest

Additional Items Conforming Under this Declaration:

8081S	8084S	8084XL
8081L	8084M	
8081XL	8084L	

Alexander Andrew, Inc. declares that the product(s) listed above is in conformity with the requirements of the following product standard(s):

ANSI Z359.11-2014 / ASTM F887

Conformity Assessment Method in accordance with ANSI/ISEA 125-2014

Level 1

Level 2

Level 3

Level 1: FallTech Lab
Outside the Scope of
ISO/IEC Standard 17025:2005

Level 2: FallTech Lab
Within the Scope of
ISO/IEC Standard 17025:2005

Level 3: Independent 3rd Party Lab
accredited to
ISO/IEC Standard 17025:2005

Supporting
Documentation

PC-2244 K-580521-2103H03-R00

Authorized Signature

Name

Zachary Winters

Title

Engineering Manager

Date

5/10/2021



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FallTech Lab - TL-594
ISO/IEC 17025:2017
Alexander Andrew Inc dba FallTech

FallTech Test Report

Test Report No.	PC-2244	Rpt. Date	4/13/2021	Rpt. Rev		Rev Date	
Report Prepared For	FallTech						
Initiated By	Dan Redden	Test Specification(s)	ANSI Z359.11-2014: 4.3.5, 4.3.3, 4.3.4, 4.3.6 ASTM F-887-18				
Part No.	8081M	Part No. Revision	D				
Part Description	Arc Flash Nylon Construction Belted FBH Medium Dorsal Loop + Hip Ds QC Legs/Chest						
Test Request No.	PC-2244	Date Complete	4/9/2021				
Test Operator(s)	Yesbet Sierra / Jay Sponholz						

Material/Sample Identification

Sample ID	Description
5749389	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749398	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749390	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749401	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749399	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749395	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749396	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749393	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749392	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749400	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749397	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749391	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749387	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749398	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest
5749389	Arc Flash Nylon Construction Climbing Belted FBH M 3D + FD QC Legs/QC Chest

Test Summary

Test Specification	Test Criteria	Test Result	Pass/Fail	
ANSI Z359.11-2014 4.3.5	Static Strength (Dorsal D-ring)	3600 Lbf \geq 1 Minute	3630.5 Lbf	Pass
	Static Strength (Dorsal D-ring)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Adjuster Slippage	Slippage \leq 1"	0.0"	Pass
	Tear Distance (Buckle)	Shall Not Tear a Distance > 1" or Adjacent Eyelet	Did Not Tear Through	Pass
	Tearing	Straps Shall Not Show Any Signs of Tearing	Did Not Tear	Pass

FallTech Test Report

Test Report No.	PC-2244	Rpt. Date	4/13/2021	Rpt. Rev		Rev Date	
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Part No.	8081M	Part No. Revision	D				
Part Description	Arc Flash Nylon Construction Belted FBH Medium Dorsal Loop + Hip Ds QC Legs/Chest						
Test Request No.	PC-2244	Date Complete	4/9/2021				

Test Summary (Continued)

Test Specification	Test Criteria	Test Result	Pass/Fail	
ANSI Z359.11-2014 4.3.5	Static Strength (Dorsal D-ring)	3600 Lbf \geq 1 Minute	3639.5 Lbf	Pass
	Static Strength (Dorsal D-ring)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Adjuster Slippage	Slippage \leq 1"	0.0"	Pass
	Tear Distance (Buckle)	Shall Not Tear a Distance > 1" or Adjacent Eyelet	Did Not Tear Through	Pass
	Tearing	Straps Shall Not Show Any Signs of Tearing	Did Not Tear	Pass
ANSI Z359.11-2014 4.3.5	Static Strength (Dorsal D-ring)	3600 Lbf \geq 1 Minute	3651.1 Lbf	Pass
	Static Strength (Dorsal D-ring)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Adjuster Slippage	Slippage \leq 1"	0.0"	Pass
	Tear Distance (Buckle)	Shall Not Tear a Distance > 1" or Adjacent Eyelet	Did Not Tear Through	Pass
	Tearing	Straps Shall Not Show Any Signs of Tearing	Did Not Tear	Pass
ANSI Z359.11-2014 4.3.5	Static Strength (Side D-rings)	3600 Lbf \geq 1 Minute	3642.1 Lbf	Pass
	Static Strength (Side D-rings)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Adjuster Slippage	Slippage \leq 1"	0.0"	Pass
	Tear Distance (Buckle)	Shall Not Tear a Distance > 1" or Adjacent Eyelet	Did Not Tear Through	Pass
	Tearing	Straps Shall Not Show Any Signs of Tearing	Did Not Tear	Pass
ANSI Z359.11-2014 4.3.5	Static Strength (Side D-rings)	3600 Lbf \geq 1 Minute	3655.6 Lbf	Pass
	Static Strength (Side D-rings)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Adjuster Slippage	Slippage \leq 1"	0.0"	Pass
	Tear Distance (Buckle)	Shall Not Tear a Distance > 1" or Adjacent Eyelet	Did Not Tear Through	Pass
	Tearing	Straps Shall Not Show Any Signs of Tearing	Did Not Tear	Pass



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Part No.	8081M	Part No. Revision	D				
Part Description	Arc Flash Nylon Construction Belted FBH Medium Dorsal Loop + Hip Ds QC Legs/Chest						
Test Request No.	PC-2244	Date Complete	4/9/2021				

Test Summary (Continued)

Test Specification	Test Criteria	Test Result	Pass/Fail
ANSI Z359.11-2014 4.3.5	Static Strength (Side D-rings)	3600 Lbf \geq 1 Minute	3670.2 Lbf Pass
	Static Strength (Side D-rings)	Harness Shall Not Release Test Torso	Did Not Release Pass
	Adjuster Slippage	Slippage \leq 1"	0.0" Pass
	Tear Distance (Buckle)	Shall Not Tear a Distance > 1" or Adjacent Eyelet	Did Not Tear Through Pass
	Tearing	Straps Shall Not Show Any Signs of Tearing	Did Not Tear Pass
ANSI Z359.11-2014 4.3.3	Dynamic Performance Dorsal D-ring (Feet First)	Peak Impact Load \geq 3600 Lbf	3718.5 Lbf Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Harness Shall Not Release Test Torso	Did Not Release Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Remain Suspended for \geq 5 Minutes	5 Minutes Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Angle at Rest \leq 30°	6.1° Pass
	Dynamic Performance Dorsal D-ring (Feet First)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Harness Stretch Shall Not Exceed 18"	10.5" Pass
ANSI Z359.11-2014 4.3.3	Dynamic Performance Dorsal D-ring (Feet First)	Peak Impact Load \geq 3600 Lbf	3495.6 Lbf Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Harness Shall Not Release Test Torso	Did Not Release Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Remain Suspended for \geq 5 Minutes	5 Minutes Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Angle at Rest \leq 30°	1.2° Pass
	Dynamic Performance Dorsal D-ring (Feet First)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Harness Stretch Shall Not Exceed 18"	9.0" Pass

FallTech Test Report

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Part No.	8081M	Part No. Revision	D				
Part Description	Arc Flash Nylon Construction Belted FBH Medium Dorsal Loop + Hip Ds QC Legs/Chest						
Test Request No.	PC-2244	Date Complete	4/9/2021				

Test Summary (Continued)

Test Specification	Test Criteria		Test Result	Pass/Fail
ANSI Z359.11-2014 4.3.3	Dynamic Performance Dorsal D-ring (Feet First)	Peak Impact Load ≥ 3600 Lbf	3691.9 Lbf	Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Remain Suspended for ≥ 5 Minutes	5 Minutes	Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Angle at Rest ≤ 30°	29.7°	Pass
	Dynamic Performance Dorsal D-ring (Feet First)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass
	Dynamic Performance Dorsal D-ring (Feet First)	Harness Stretch Shall Not Exceed 18"	12.9"	Pass
ANSI Z359.11-2014 4.3.4	Dynamic Performance Dorsal D-ring (Head First)	Peak Impact Load ≥ 3,600 Lbf	2682.4 Lbf	*
	Dynamic Performance Dorsal D-ring (Head First)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Dynamic Performance Dorsal D-ring (Head First)	Remain Suspended for ≥ 5 Minutes	5 Minutes	Pass
	Dynamic Performance Dorsal D-ring (Head First)	Angle at Rest ≤ 30°	11.2°	Pass
	Dynamic Performance Dorsal D-ring (Head First)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass
ANSI Z359.11-2014 4.3.4	Dynamic Performance Dorsal D-ring (Head First)	Peak Impact Load ≥ 3,600 Lbf	1292.3 Lbf	*
	Dynamic Performance Dorsal D-ring (Head First)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Dynamic Performance Dorsal D-ring (Head First)	Remain Suspended for ≥ 5 Minutes	5 Minutes	Pass
	Dynamic Performance Dorsal D-ring (Head First)	Angle at Rest ≤ 30°	26.2°	Pass
	Dynamic Performance Dorsal D-ring (Head First)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass

FallTech Test Report

Test Report No.	PC-2244	Rpt. Date	4/13/2021	Rpt. Rev		Rev Date	
Report Prepared For	FallTech						
Initiated By	Dan Redden	Test Specification(s)	ANSI Z359.11-2014: 4.3.5, 4.3.3, 4.3.4, 4.3.6 ASTM F-887-18				
Part No.	8081M	Part No. Revision	D				
Part Description	Arc Flash Nylon Construction Belted FBH Medium Dorsal Loop + Hip Ds QC Legs/Chest						
Test Request No.	PC-2244	Date Complete	4/9/2021				

Test Summary (Continued)

Test Specification	Test Criteria		Test Result	Pass/Fail
ANSI Z359.11-2014 4.3.4	Dynamic Performance Dorsal D-ring (Head First)	Peak Impact Load ≥ 3,600 Lbf	2755.8 Lbf	*
	Dynamic Performance Dorsal D-ring (Head First)	Harness Shall Not Release Test Torso	Did Not Release	Pass
	Dynamic Performance Dorsal D-ring (Head First)	Remain Suspended for ≥ 5 Minutes	5 Minutes	Pass
	Dynamic Performance Dorsal D-ring (Head First)	Angle at Rest ≤ 30°	5.9°	Pass
	Dynamic Performance Dorsal D-ring (Head First)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass
ANSI Z359.11-2014 4.3.6	Fall Arrest Indicator Test (Dorsal D-ring)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass
ANSI Z359.11-2014 4.3.6	Fall Arrest Indicator Test (Dorsal D-ring)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass
ANSI Z359.11-2014 4.3.6	Fall Arrest Indicator Test (Dorsal D-ring)	At Least One Fall Arrest Indicator Shall Deploy	Visibly and Permanently Deployed	Pass


Conclusion

Based upon the samples provided to the Lab:
 FallTech P/N 8081M Rev. D meets the requirements of ANSI Z359.11-2014 and * ASTM F-887-18

Test Exceptions

* Harness has been dynamically tested and subjected to forces of 5,000 Lbs. or more. Energy absorbing properties inherent to the harness prevented residual force readings equal to or greater than the 3,600 Lbs. required by the standard.

Report Signatories and Approval

Lab Quality Manager		Date	4/13/2021
Witnessed by	Not Required	Date	N/A



TESTING - EXPOSURE TO AN ELECTRIC ARC

Test Specimen:

Harness, Style 8081M
Webbing: Black Nylon

Requested by:

FallTech
1306 S Alameda St
Compton, CA 90221

Test Standard:

ELECTRIC ARC TESTS: ASTM F887-20

OBSERVATION OF PERSONAL CLIMBING EQUIPMENT EXPOSED TO AN ELECTRIC ARC

Test Report:

K-580521-2103H03-R00

Sample Received March 24, 2021	Test Date March 26, 2021	Report Date March 31, 2021
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Prepared by

Approved by

Robert Ferraz
Technologist, HCL
TD Technologies, Kinectrics

Claude Maurice
Technical Specialist, HCL
TD Technologies, Kinectrics

For questions about this test report, please contact testing@arcwear.com



Revision History

Rev	Description		
00	Initial report creation		
	Issue Date	Prepared by	Approved by
	March 31, 2021	Robert Ferraz	Claude Maurice
Rev	Description		
	Issue Date	Prepared by	Verified by

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QUALITY MANAGEMENT

The arc testing performed to the above mentioned Standard is accredited by the Standards Council of Canada (SCC) to conform to the requirements of CAN-P-4E (ISO/IEC 17025:2005). Accreditation by the Standards Council of Canada (SCC) is a mark of competence and reliability

- The test performed does not apply to electrical contact or electrical shock hazard.
- The test result is applicable only to the Test Specimens delivered to Kinectrics, other material, design or color may have a different response.
- It is the clients' responsibility to provide full and accurate information about the items supplied.
- No test is done to validate the fiber content or composition of the test item.
- Photographs of the test specimens and waveforms of the arc current, voltage and calorimeters with the circuit and arc exposure calibration records are available from Kinectrics and provided to the client separately from this report.



1 Test Standard:

Electrical arc test according to ASTM F887-20, Section 22

Standard Specifications for Personal Climbing Equipment, After Exposure to an Electric Arc Evaluation. Specimens are mounted on mannequins of panels having a distance of 30.5 cm (12 inches) from the centerline of the electrodes. The test standard requires that the finished personal climbing equipment be exposed to a level of $40 \text{ cal/cm}^2 \pm 5 \text{ cal/cm}^2$.

1.1 Test Requirements

Harnesses- The test program requires the specimens be placed on mannequins as normally worn. A minimum of eight samples are tested, four samples with the front facing the arc and four samples with the back side toward the arc.

Harness accessories, loops etc. - Three specimens of each accessory or loop are required to be exposed to the arc.

Energy Absorbing Lanyard - Three specimens of each lanyard are required to be exposed to the arc.

Other effects than the thermal effects of an electric arc like noise, light emissions, pressure rise, hot oil, electric shock, the consequences of physical and mental shock or toxic influences are not covered by this standard.

1.2 Acceptance criteria for products exposed to electrical arc:

The procedure outlined in ASTM F887-20 is followed to verify the electric arc performance of the personal climbing equipment. The product is considered as having passed the visual inspection criteria if the parameters defined in Table 1-1 are met. As proof of performance following the arc exposure, the exposed test specimens shall be subjected to a drop test. This shall be done as soon as practically possible. The samples have been returned to the client as directed to perform the drop test.

Table 1-1: Visual inspection Criteria for Electric Arc Performance of ASTM F887-20

Parameter	Criterion
Arc Energy	Electrical arc exposure of $40 \text{ cal/cm}^2 \pm 5 \text{ cal/cm}^2$
Ignition	No electric arc ignition.
After-flame Time	Less than 5 seconds on load bearing materials and less than 15 seconds for accessories or non-load bearing components.
Melting/Dripping	No melting and dripping of molten materials to the floor of any load bearing material. Accessories are allowed to exhibit melting and dripping provided they are not ignited while dripping.

2 Test Condition:

The following test circuit parameters and conditions were used.

- Electric arc current: 8 kA rms \pm 10%, 60 Hz
- Open circuit voltage: 2500 V rms \pm 10%, 60 Hz
- Nominal Heat Flux Density: 2100 kW/m² (50 cal/cm²·s)
- Arc duration: 0.85 seconds \pm 0.1 s to obtain required incident energy
- Electrode gap: 305 mm (12 inches)
- Distance from mannequin to electrode: 305 mm (12 inches)
- Deviations and abnormalities: None

Note: The measurement uncertainty, MU, for the measured values of this test method are well within the requirements of the test standard and are defined on a 95% confidence interval basis over the full test range, as follows:

- Temperature: \pm 2 °C
- Arc Current: \pm 2.5%
- Time zero reference: \pm 3 ms
- Incident Energy: \pm 1.5%
- Voltage: \pm 2.2%

3 Test Specimen:

The following description of the test sample was provided by the client and confirmed by the identification tag shown in Figure 3.1.

Sample description:	Falltech, Harness
Sample identification:	Style 8081M
Manufacturer:	Falltech
Material of webbing:	Black Nylon
Number of samples tested:	8
Harness Accessories:	Black Nomex/Kevlar Ripstop Label Cover, Shoulder Pad, Waist Pad, and Leg Pads
Notes:	None



Figure 3.1: Identification Tag



4 Test Results:

Arc exposures were performed on eight samples as indicated. If the conditions and evaluation of the samples meet the criteria in Table 1-1, the product has passed the electrical arc exposure and is candidate for the mechanical drop test to fully meet the arc performance requirements of ASTM F887-20. Photographs of the samples before and after the arc exposure are shown in Section 6.

Table 4-1: Summary of Test Results

Trial # 21-1740		
Mannequin	A – Front	B – Back
Item Serial #	5749393	5749397
Incident Energy	38 Cal/cm ²	43 Cal/cm ²
After-flame	0	3
Ignition	N	N
Melting and Dripping	N	N
Acceptance Criteria	Meets	Meets
Trial # 21-1741		
Mannequin	A – Front	B – Back
Item Serial #	5749398	5749389
Incident Energy	42 Cal/cm ²	42 Cal/cm ²
After-flame	0	1
Ignition	N	N
Melting and Dripping	N	N
Acceptance Criteria	Meets	Meets
Trial # 21-1742		
Mannequin	A – Front	B – Back
Item Serial #	5749391	5749401
Incident Energy	39 Cal/cm ²	44 Cal/cm ²
After-flame	0	1
Ignition	N	N
Melting and Dripping	N	N
Acceptance Criteria	Meets	Meets
Trial # 21-1743		
Mannequin	A – Front	B – Back
Item Serial #	5749399	5749392
Incident Energy	37 Cal/cm ²	41 Cal/cm ²
After-flame	0	2
Ignition	N	N
Melting and Dripping	N	N
Acceptance Criteria	Meets	Meets



4.1 Observations:

Charring of the outer layer of webbing was observed on all samples tested. After flame was observed on the back of the harness on the Black Nomex/Kevlar Ripstop Label Cover and Waist Pad but lasted for under 5 seconds as described in Table 4-1. There was no evidence of melting, dripping or ignition on any of the samples tested.

5 Interpretation of Results:

Based on the test results in Table 4-1 and observations, the product tested meets the requirements criteria of Table 1-1 as per ASTM F887-20 sections 22.1-22.4 and 22.6.1-22.6.2.

According to ASTM F887-20, Section 25, qualification of performance shall include a mechanical integrity (vertical drop test) as soon as possible following the arc exposure. This shall be arranged by the producer.