Test Report
ANSI/ASSE Z359.13-13

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Test Report Number: 20200319L828601
Job Number: 132484, 131770
Product SKU#: L828601
Product Type: Lanyard
Product Description: WD Lanyard - Dual Leg Lanyard
Testing Standard: ANSI/ASSE Z359.13 Personal Energy Absorbers and Energy Absorbing Lanyards
Dates of Manufacture: 4/01/2018, 5/01/2018
Date(s) of Testing: 4/18/2018, 5/14/2018

REQUIREMENT VERIFICATION

Requirement Description	Clause/Section	Result
General Requirements	3. Requirements	Meets or Exceeds
Markings and Instructions	5. Marking and Referencing Lit.	Meets or Exceeds

QUALIFICATION TESTING

Test Description	Test Date	Clause/Section	Result
Static Strength (Y-Lanyards, Leg A)	5/14/2018	4.7.1 Static Strength Testing of Y-Lanyards	Pass
Static Strength (Y-Lanyards, Leg B)	5/14/2018	4.7.2 Static Strength Testing of Y-Lanyards	Pass
Static Strength (Y-Lanyards, Leg to Leg)	5/14/2018	4.7.3 Static Strength Testing of Y-Lanyards	Pass
Dynamic Performance (Y-Lanyards, Single)	5/14/2018	4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection	Pass
Dynamic Performance (Y-Lanyards, Single Connection, Hot)	5/14/2018	4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection	Pass
Dynamic Performance (Y-Lanyards, Single Connection, Cold)	5/14/2018	4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection	Pass
Dynamic Performance (Y-Lanyards, Single Connection, Wet)	5/14/2018	4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection	Pass
Dynamic Performance (Y-Lanyards, Dual Connection)	5/14/2018	4.9 Dynamic Performance Testing of Y-Lanyards - Dual Connection	Pass
Dynamic Performance (Y-Lanyards, Hip Test)	4/18/2018	4.10 Dynamic Performance Testing of Y-Lanyards - Hip Test	Pass

This test report covers these additional products:

L818602, L828602

Please contact quality@guardianfall.com for signed report.

Test Equipment		
Equipment	**Model**	**Serial**
Load Cell	1220ACK-25K-B	347989A
Load Cell	1210AF-10K-B	444522A
Load Cell	1210AF-10K-B	916507A
Test Weight	282 lb	GFP007

Notes

3	Requirements	
3.1	Personal Energy Absorber Component. All Personal energy absorbers bearing this standard number shall meet the design and testing requirements of this standard.	Meets or Exceeds
3.1.1	Classifications. Personal energy absorbers shall be categorized as follows:	
3.1.1.1	“6ft FF” personal energy absorbers shall be designed for up to 6 foot (1.83m) free fall (FF indicates free fall) applications and users weighing between 130 and 310 pounds (59-140kg)	Meets or Exceeds
3.1.1.2	“12ft FF” personal energy absorbers shall be designed for up to 12 foot (3.66m) free fall applications (FF indicates free fall) and users weighing between 130 and 310 pounds. (59-140kg)	Meets or Exceeds
3.1.2	Material. Material used in the construction of personal energy absorbers shall be made of virgin synthetic material having strength, aging, abrasion resistance and heat resistance characteristics equi+valent or superior to polyamides.	Meets or Exceeds
3.1.3	Terminations. Personal energy absorbers shall have end terminations which meet the following requirements:	
3.1.3.1	Spliced. Formed eye termination in rope shall be made in accordance with the rope manufacturer’s recommendaton, subject to the following requirements. Eye splices in twisted rope having three or more strands shall have a minimum of four tucks. A properly sized thimble shall be part of a formed eye termination. Knots shall not be used to form energy absorbing lanyard end terminations. Terminations (including cut ends) and splices shall be seized, whipped or otherwise integrally finished to prevent the termination or splice from unraveling or unsplicing.	Meets or Exceeds
3.1.3.2	Stitched. Stitched eye terminations on strap energy absorbers shall be sewn using lock stitches. Thread shall be of the same material type as the webbing and shall be of a contrasting color to facilitate inspection. Webbing shall be protected from concentrated wear at all interfaces with load bearing connector elements. Webbing ends shall be seared or otherwise prevented from unraveling.	Meets or Exceeds
3.1.3.3	Wire Rope. Formed eye terminations of wire rope shall have a minimum breaking strength of 80% of the wire rope when tested in accordance with ASTM E8/8M-11, Standard Test Methods of Tension Testing of Metallic Materials. The following methods may be used for forming eyes in wire rope: (a) spliced eye with one swaged fitting, or (b) return eye with a minimum of two swaged fittings. All formed eyes shall incorporate a properly sized thimble.	Meets or Exceeds
3.1.3.4	Terminations other than splicing, stitching and swaging are permitted when it can be demonstrated by testing that the requirements of this standard can be met and additionaly, that the durability, reliability, strength and other properties pertinent to the intended uses have been evaluated and determined suitable by the manufacturer.	Meets or Exceeds
3.1.4	Connectors. Personal energy absorbers shall have integrally attached connectors or be integral to the energy absorbing lanyard. Connectors used on all personal energy absorbers shall meet the requirements of ANSI/ASSE Z359.12, Safety Requirements for Connecting Components for Personal Fall Arrest Systems (PFAS) Connectors.	Meets or Exceeds
3.1.5	Deployment Indicator. Personal energy absorbers shall be designed such that it is obvious if they have been activated or by a warning flag or label that indicates activation.	Meets or Exceeds
3.1.6	Activation Force. Personal energy absorbers when subjected to a static force no less than 450lb (2kN) in accordance with 4.2 shall not show signs of activation or exhibit permanent elongation greater than 2in. (51mm)	Meets or Exceeds
3.1.7	Static Strength. Personal energy absorbers when statistically tested in accordance with 4.3 shall have a minimum breaking strength no less than 5,000lb (22kN)	Meets or Exceeds
3.1.8	Personal Energy Absorer Dynamic Performance -Ambient Dry Test. Personal energy absorbers tested in accordance with 4.4 shall meet the following requirements:	Meets or Exceeds
3.1.8.1	6ft FF personal energy absorbers shall have an average arrest force no greater than 900lb (4kN) and a maximum deployment distance of 48in. (1.2m) without exceeding 1,800lb (8kN) maximum arrest force.	Meets or Exceeds
3.1.8.2	12ft FF personal energy absorbers shall have an average arrest force no greater than 1,350lb (6kN) and a maximum deployment distance of 60in. without exceeding 1,800lb (8kN) maximum arrest force.	Meets or Exceeds

3.1.9	**Personal Energy Absorber Dynamic Performance - Conditioning Tests.** Personal energy absorbers shall be conditioned according to the requirements of 4.13.1, 4.13.2 and 4.13.3 and tested according to 4.4. Conditioning tests do not need to be performed when the energy absorber is integral to a lanyard and the energy absorbing lanyard is tested according to 3.2.5.	Meets or Exceeds
3.1.9.1	Conditioned 6ft FF samples shall have an average arrest force no greater than 1,125lb (5kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 60in. (1.5m)	Meets or Exceeds
3.1.9.2	Conditioned 12ft FF samples shall have an average arrest force no greater than 1,575lb (7kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 60in. (1.5m).	Meets or Exceeds
3.2	Energy Absorbing Lanyard Component. All energy absorbing lanyards bearing this standard number shall be equipped with a personal energy absorber or have energy absorbing ability that meet the design and testing requirements of this standard.	Meets or Exceeds
3.2.1	Material. Rope, webbing and tubular webbing used in the construction of energy absorbing lanyards shall be made of virgin synthetic material having strength, aging, abrasion resistance and heat resistance characteristics equivalent or superior to polyamides.	Meets or Exceeds
3.2.2	Terminations. Energy absorbing lanyards shall have end terminations which meet the following requirements.	
3.2.2.1	Spliced. Formed eye terminations in rope shall be made in accordance with the rope manufacturer's recommendation, subject to the following requirements. Eye splices in twisted rope having three or more strands shall have a minimum of four tucks. A properly sized thimble shall be part of a formed eye termination. Knots shall not be used to form energy absorbing lanyard end terminations. Terminations (including cut ends) and splices shall be seized, whipped, or otherwise integrally finished to prevent the termination or splice from unraveling or unsplicing.	Meets or Exceeds
3.2.2.2	Stitched. Stitched eye terminations on strap energy absorbing lanyards shall be sewn using lock stitches. Thread shall be of the same material type as the webbing and shall be of a contrasting color to facilitate inspection. Webbing shall be protected from concentrated wear at all interfaces with load bearing connector elements. Webbing ends shall be seared or otherwise prevented from unraveling.	Meets or Exceeds
3.2.2.3	Wire Rope. Formed eye terminations of wire rope shall have a minimum breaking strength of 80% of the wire rope when tested in accordance with E8/8M-11, Test Methods of Tension testing of Metallic Materials. The following methods may be used for forming eyes in wire rope: (a) spliced eye with one swaged fitting, or (b) return eye with a minimum of two swaged fittings. All formed eyes shall incorporate a properly sized thimble.	Meets or Exceeds
3.2.2.4	Terminations other than splicing, stitching, and swaging are permitted when it can be demonstrated by testing that the requirements of this standard can be met and additonaly, that the durability, reliability, strength and other properties pertinent to the intended uses have been evaluated and determined suitable by the manufacturer.	Meets or Exceeds
3.2.3	Energy Absorbing Lanyard Connectors. Energy absorbing lanyards shall have integrally attached connectors. Connectors used on all personal energy absorbers shall meet the requirements of ANSI/ASSE Z359.12, Safety Requirements for Connecting Components for Personal Fall Arrest Systems (PFAS) Connectors.	Meets or Exceeds
3.2.4	Energy Absorbing Lanyard Dynamic Performance - Ambient Dry Test. Energy absorbing lanyards shall be tested as a complete system according to 4.5. The results of the tests shall meet the requirements of 3.2.4.1 and 3.2.4.2 respectively.	Meets or Exceeds
3.2.4.1	6ft FF energy absorbing lanyards shall have an average arrest force no greater than 900lb (4kN) and a maximum deployment distance of 48in. (1.2m) without exceeding 1,800lb (8kN) maximum arrest froce.	Meets or Exceeds
3.2.4.2	12ft FF energy absorbing lanyards shall have an average arrest force no greater than 1,350lb (6kN) and a maximum deployment distance of 60in. (1.5m) without exceeding 1,800lb (8kN) maximum arrest force.	Meets or Exceeds

Notes

3.2.5	Energy Absorbing Lanyards Dynamic Performance - Conditioning Tests. Energy absorbing lanyards shall be conditioned according to the requirements of 4.13.1, 4.13.2 and 4.13.3 and tested according to 4.5	Meets or Exceeds
3.2.5.1	Conditioned 6ft FF samples shall have an average arrest force no greater than 1,125lb (5kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 48in. (1.2m)	Meets or Exceeds
3.2.5.2	Conditioned 12ft FF samples have an average arrest force no greater than 1,575lb (7kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 60in. (1.5m).	Meets or Exceeds
3.2.6	Static Strength. Energy absorbing lanyards when statically tested in accordance with 4.6 shall have a minimum breaking strength no less than 5,000lb (22.2kN). Energy absorbing lanyards that incorporate a means for length (disregarding elastic stretch) up to a load of 2,000lb (8.8kN).	Meets or Exceeds
3.2.7	Abrasion Test. Wrap-around energy absorbing lanyards shall be additionally tested in accordance with 4.12. The wrap-around energy absorbing lanyard shall have a minimum breaking strength no less than 3,600lb (16kN) after being abraded.	Meets or Exceeds
3.2.8	Static Test - Wrap-Around Energy Absorbing Lanyards. Energy absorbing lanyards that are designed to wrap-around a structure and connect back to themselves shall be tested in accordance with 4.11. The energy absorbing lanyard shall have a minimum breaking strength no less than 5,000lb (22.2kN) when connected as designed and instructed for use.	Meets or Exceeds
3.2.9	Static Test - Y-Lanyards. Y-lanyards shall be statically tested in accordance with 4.7 and shall have a minimum breaking strength no less than 5,000lb (22.2kN)	Meets or Exceeds
3.2.10	Dynamic Performance Testing of Y-Lanyards. Y-lanyards shall be tested in accordance with 4.8, 4.9 and 4.10 and shall meet the following requirements:	Meets or Exceeds
3.2.10.1	Y-Lanyards Single Connection. 6ft FF and 12ft FF Y-lanyards shall be tested in accordance with 4.8 and meet the respective requirements of 3.1.8.1 and 3.1.8.2.	Meets or Exceeds
3.2.10.2	Y-Lanyards Dual Connection. 6ft FF and 12ft FF Y-lanyards shall be tested in accordance with 4.9 and shall not at any time exceed a force reading over 1,800lb (8kN).	Meets or Exceeds
3.2.10.3	Dynamic Test - Hip Connection. Y-Lanyards shall be tested in accordance with 4.10. If the energy absorbing lanyard breaks the nylon keeper during the test, the energy absorbing lanyard shall include a warning label on each lanyard leg according to 5.2.2.	Meets or Exceeds

Notes

5.1	**General Marking Requirements**	
5.1.1	Markings shall be in English	Meets or Exceeds
5.1.2	The legibility and attachment of required markings shall endure for the life of the component, subsystem or system being marked. When pressure sensitive labels are used, they shall comply with the applicable provision of UL 969-89, Marking and Labeling Systems	Meets or Exceeds
5.1.3	Equipment shall be marked with the following: -Part number and model designation; -Year of manufacture; -Manufacturer's name or logo; -Capacity rating; -Serial number; -Standard number; -Warning to follow the manufacturer's instructions included with the equipment at time of shipment from the manufacturer.	Meets or Exceeds
5.2	**Specific Marking Retirements**	
5.2.1	**Personal Energy Absorbers and Energy Absorbing Lanyards.** Personal energy absorbers and energy absorbing lanyards shall be marked to identify: -The fiber used in the material of construction; -The length; -The need to avoid contact with sharp edges and abrasive surfaces; -The need to make only compatible connections; -The maximum elongation; -Restriction, if any, on the types of components, subsystems or systems with which the personal energy absorber is designed to be used; -The average arrest force, maximum free fall distance and capacity of the personal energy absorber in a separate label identical in size, color, and content; -6ft FF personal energy absorbers shall be in black print on a contrasting white background; -12ft FF personal energy absorbers shall be in white print on a contrasting black background.	Meets or Exceeds
5.2.2	**Y-Lanyard.** In addition to 5.2.1, Y-lanyards that fail the Dynamic Hip Test detailed in 3.2.10, must include a warning label on both connecting ends of the lanyard specifically directing users how to safely store the unused leg of the lanyard.	Meets or Exceeds

Notes

4.7.1 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

a) Connect the energy absorbing lanyard test specimen between the connectors of the tensile test equipment specified in 4.1.

b) Subject the energy absorbing lanyard to a force no less than 5,000 pounds (22.2 kN) for a period no less than 1 minute.

c) Compare results to 3.2.9 as required.

c) The time to reach this force shall be no less than 3 minutes to avoid dynamic effects.

d) Attach the central connector intended to con-nect to the harness and one connector on one of the energy absorbing lanyard legs into the connectors of the tensile test equipment.

4.7.1 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

Samples	Sample # 01	Sample # 02	Sample # 03
Actual load applied (lb)	5037.56	5037.66	5048.68
Specimen maintained load	Yes	Yes	Yes
Result/Assessment	Pass	Pass	Pass

4.7.2 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

a) Connect the energy absorbing lanyard test specimen between the connectors of the tensile test equipment specified in 4.1.

b) Subject the energy absorbing lanyard to a force no less than 5,000 pounds (22.2 kN) for a period no less than 1 minute.

c) Compare results to 3.2.9 as required.

c) The time to reach this force shall be no less than 3 minutes to avoid dynamic effects.

d) Conduct the same test using the alternate energy absorbing lanyard leg.

4.7.2 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

Samples	Sample # 04	Sample # 05	Sample # 06
Actual load applied (lb)	5037.58	5037.85	5041.87
Specimen maintained load	Yes	Yes	Yes
Result/Assessment	Pass	Pass	Pass

4.7.3 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

a) Connect the energy absorbing lanyard test specimen between the connectors of the tensile test equipment specified in 4.1.

b) Subject the energy absorbing lanyard to a force no less than 5,000 pounds (22.2 kN) for a period no less than 1 minute.

c) Compare results to 3.2.9 as required.

c) The time to reach this force shall be no less than 3 minutes to avoid dynamic effects.

d) Conduct the same test between the two energy absorbing lanyard legs that are intended to connect to the anchorage. See Figure 12b.

4.7.3 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

Samples	Sample # 07	Sample # 08	Sample # 09
Actual load applied (lb)	5044.29	5044.69	5053.12
Specimen maintained load	Yes	Yes	Yes
Result/Assessment	Pass	Pass	Pass

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection

requirements per 3.2.10.1

a) Use the drop test structure, test weight, test instrumentation and quick release mechanism specified in 4.1.

b) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point when tensioned to 20, +0.5/-0 pounds, (9, +0.2/-0 kg).

c) Attach the anchoring end of the Y-lanyard leg to the load cell and the harness connection to the test weight.

d) The unused leg of the Y-lanyard can be hung loosely not connected to the test weight or load cell.

e) If the personal energy absorber is a component of a sub-system or system, and does not have an integral connector at its end, simulate as closely as possible the intended means of assembling it into its sub-system or system.

f) Attach the quick release mechanism to the test weight and raise the weight to the applicable level described in 4.4.1 or 4.4.2.

g) The test weight shall be released from a point no more than 12 inches (305 mm) horizontally from the point of connection to the load cell.

h) Release the test weight using the quick release mechanism.

i) As a minimum, record the entire event and collect data to calculate force average and maximum arrest force.

j) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point while the weight is still suspended.

k) Calculate the personal energy absorber elongation.

l) Compare the test results set forth in the requirements of 3.2.10.1.

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection

requirements per 3.2.10.1

Samples	Sample # 04	Sample # 05	Sample # 06
Max Arrest Force (<1,800lb)	1384.22	1319.47	1271.7
Average Arrest Force (<900lb for 6') (1,350lb for 12')	816.61	820.61	797.17
Length of specimen under 10lb tension (Pre-test)	74.5	74	74.5
Length of specimen under 10lb tension (Post-test)	113.5	112	112
Permanent elongation (<48")	39	38	37.5
Result/Assessment	Pass	Pass	Pass

Notes

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection - Hot

requirements per 3.2.10.1

a) Use the drop test structure, test weight, test instrumentation and quick release mechanism specified in 4.1.

b) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point when tensioned to 20, +0.5/-0 pounds, (9, +0.2/-0 kg).

c) Attach the anchoring end of the Y-lanyard leg to the load cell and the harness connection to the test weight.

d) The unused leg of the Y-lanyard can be hung loosely not connected to the test weight or load cell.

e) If the personal energy absorber is a component of a sub-system or system, and does not have an integral connector at its end, simulate as closely as possible the intended means of assembling it into its sub-system or system.

f) Attach the quick release mechanism to the test weight and raise the weight to the applicable level described in 4.4.1 or 4.4.2.

g) The test weight shall be released from a point no more than 12 inches (305 mm) horizontally from the point of connection to the load cell.

h) Release the test weight using the quick release mechanism.

i) As a minimum, record the entire event and collect data to calculate force average and maximum arrest force.

j) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point while the weight is still suspended.

k) Calculate the personal energy absorber elongation.

l) Compare the test results set forth in the requirements of 3.2.10.1.

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection - Hot

requirements per 3.2.10.1

Samples	Sample # 10	Sample # 11	Sample # 12
Max Arrest Force (<1,800lb)	1160.89	1234.13	1221.84
Average Arrest Force (<900lb for 6') (1,350lb for 12')	756.75	772.27	763.43
Length of specimen under 10lb tension (Pre-test)	74	74.25	73
Length of specimen under 10lb tension (Post-test)	117.5	114.5	116
Permanent elongation (<48")	43.5	40.25	43
Result/Assessment	Pass	Pass	Pass

Notes

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection - Cold

requirements per 3.2.10.1

a) Use the drop test structure, test weight, test instrumentation and quick release mechanism specified in 4.1.

b) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point when tensioned to 20, +0.5/-0 pounds, (9, +0.2/-0 kg).

c) Attach the anchoring end of the Y-lanyard leg to the load cell and the harness connection to the test weight.

d) The unused leg of the Y-lanyard can be hung loosely not connected to the test weight or load cell.

e) If the personal energy absorber is a component of a sub-system or system, and does not have an integral connector at its end, simulate as closely as possible the intended means of assembling it into its sub-system or system.

f) Attach the quick release mechanism to the test weight and raise the weight to the applicable level described in 4.4.1 or 4.4.2.

g) The test weight shall be released from a point no more than 12 inches (305 mm) horizontally from the point of connection to the load cell.

h) Release the test weight using the quick release mechanism.

i) As a minimum, record the entire event and collect data to calculate force average and maximum arrest force.

j) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point while the weight is still suspended.

k) Calculate the personal energy absorber elongation.

l) Compare the test results set forth in the requirements of 3.2.10.1.

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection - Cold

requirements per 3.2.10.1

Samples	Sample # 13	Sample # 14	Sample # 15
Max Arrest Force (<1,800lb)	1440.6	1489.82	1569.31
Average Arrest Force (<900lb for 6') (1,350lb for 12')	858.15	864.79	921.53
Length of specimen under 10lb tension (Pre-test)	73.75	74.5	73.75
Length of specimen under 10lb tension (Post-test)	109	106.25	105
Permanent elongation (<48")	35.25	31.75	31.25
Result/Assessment	Pass	Pass	Pass

Notes

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection - Wet

requirements per 3.2.10.1

a) Use the drop test structure, test weight, test instrumentation and quick release mechanism specified in 4.1.

b) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point when tensioned to 20, +0.5/-0 pounds, (9, +0.2/-0 kg).

c) Attach the anchoring end of the Y-lanyard leg to the load cell and the harness connection to the test weight.

d) The unused leg of the Y-lanyard can be hung loosely not connected to the test weight or load cell.

e) If the personal energy absorber is a component of a sub-system or system, and does not have an integral connector at its end, simulate as closely as possible the intended means of assembling it into its sub-system or system.

f) Attach the quick release mechanism to the test weight and raise the weight to the applicable level described in 4.4.1 or 4.4.2.

g) The test weight shall be released from a point no more than 12 inches (305 mm) horizontally from the point of connection to the load cell.

h) Release the test weight using the quick release mechanism.

i) As a minimum, record the entire event and collect data to calculate force average and maximum arrest force.

j) Measure and record the length of the energy absorbing lanyard from bearing point to bearing point while the weight is still suspended.

k) Calculate the personal energy absorber elongation.

l) Compare the test results set forth in the requirements of 3.2.10.1.

4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection - Wet

requirements per 3.2.10.1

Samples	Sample # 22	Sample # 23	Sample # 24
Max Arrest Force (<1,800lb)	1286.88	1403.54	1317.96
Average Arrest Force (<900lb for 6') (1,350lb for 12')	836.24	849.46	853.51
Length of specimen under 10lb tension (Pre-test)	73	73.5	73.5
Length of specimen under 10lb tension (Post-test)	110.25	109	109.25
Permanent elongation (<48")	37.25	35.5	35.75
Result/Assessment	Pass	Pass	Pass

Notes

4.9 Dynamic Performance Testing of Y-Lanyard - Dual Connection
requirements per 3.2.10.2

a) Use the drop test structure, test weight, test instrumentation and quick release mechanism specified in 4.1.

b) Attach both ends of the energy absorbing lanyard to the load cell and the harness connector to the test weight.

c) Attach the quick release mechanism to the applicable level described in 4.4.1 or 4.4.2.

d) The test weight shall be released from a point no more than 12 inches (305 mm) horizontally from the point of connection to the load cell.

e) Release the test weight using the quick release mechanism.

f) Compare the test results set forth in the requirements of 3.2.10.2. See Figure 13a and 14a.

4.9 Dynamic Performance Testing of Y-Lanyard - Dual Connection
requirements per 3.2.10.2

Samples	Sample # 16	Sample # 17	Sample # 18
Drop Height	6	6	6
Maximum Arrest Force (<1,800lb)	1310.28	1421.51	1348.07
Result/Assessment	Pass	Pass	Pass

4.10 Dynamic Performance Testing of Y-Lanyards - Hip Test
requirements per 3.2.10.3

a) Use the drop test structure, test weight, and quick release mechanism specified in 4.1.

b) Attach one end of the energy absorbing lanyard to the test structure, the harness connector to the test weight and the unused leg to the connector on the side of the test weight (as illustrated in Figure 13b and 14b) using the nylon keeper specified in 4.1.11 with a 3 inch (76 mm) diameter loop.

c) Attach the quick release mechanism to the applicable level described in 4.4.1 or 4.4.2.

d) The test weight shall be released from a point no more than 12 inches (305 mm) horizontally from the point of connection to the load cell.

e) Release the test weight using the quick release mechanism. Compare the test results set forth in the requirements of 3.2.10.3. See Figures 13b and 14b.

4.10 Dynamic Performance Testing of Y-Lanyards - Hip Test
requirements per 3.2.10.3

Samples	Sample # 19	Sample # 20	Sample # 21
Nylon keeper intact	Yes	Yes	Yes
Result/Assessment	Pass	Pass	Pass

Notes